

# GLOSSARY OF TERMS

---



# GLOSSARY OF TERMS

---

## ACTIVE USES

Land uses, such as retail, coffee shops, storefronts, cafes, restaurants and hawkers zones, which keep the area active with pedestrian activity at street level and maintain visual interest, are termed as active uses.

## AFFORDABLE HOUSING

Affordable housing provides housing mainly for those whose income is below the median household income. Both the private sector and government in India are exploring options for creating housing for low-income groups. The Government of India, both at central and state level has initiated various schemes to assist in the delivery of affordable housing. It includes public sector working as a facilitator and engaging the private sector to build housing, with rental units that are subsidized by the government through rental subsidy programs.

## ANNUAL DEPRECIATION ALLOWANCE

Annual depreciation allowance is the amount of tax deduction allowed by the tax code that investment property owners may take each year until the entire depreciable asset is written off.

To calculate, you must first determine the depreciable basis by computing the portion of the asset allotted to improvements (land is not depreciable) and then amortizing that amount over the asset's useful life, as specified in the tax code: Currently 27.5 years for residential property and 39 years for non-residential.

$$\text{Property Value} \times \text{Percent Allotted to Improvements} \\ = \text{Depreciable Basis}$$

Then,

$$\text{Depreciable Basis} \div \text{Useful Life} \\ = \text{Annual Depreciation Allowance}$$

## ASSET

In financial accounting, an asset is an economic resource. Anything tangible or intangible that can be owned or controlled to produce value and that is held by a company to produce positive economic value is an asset.

## BUSINESS IMPROVEMENT DISTRICT (BID)

A business improvement district (BID) is a defined area within which businesses are required to pay an additional tax (or levy) in order to fund projects within the district's boundaries. The BID is often funded primarily through the levy but can also draw on other public and private funding streams. These districts typically fund services, which are perceived by some businesses as being inadequately performed by the government with its existing tax revenues, such as cleaning streets, providing security, making capital improvements, construction of pedestrian and streetscape enhancements and marketing the area. The services provided by BIDs are supplemental to those already provided by the municipality[1]. The revenue is derived from a tax assessment on commercial property owners and in some cases, residential property owners.

## BREAK-EVEN RATIO (BER)

BER is a ratio some lenders calculate to gauge the proportion between the money going out to the money coming, so they can estimate how vulnerable a property is to default on its debt if rental income declines. BER reveals the percent of income consumed by the estimated expenses.

$$\frac{(\text{Operating Expense} + \text{Debt Service})}{\text{Gross Operating Income}} \\ = \text{Break-Even Ratio}$$

BER results:

Less than 100% - expenses consuming less than available income

Greater than 100% - expenses consuming more than available income

## BROWNFIELD REDEVELOPMENT

Development on a brownfield site is commonly referred to as Brownfield redevelopment. Brownfield sites are abandoned or underused industrial and commercial facilities available for reuse. Expansion or redevelopment of such a facility is often complicated by real or perceived environmental contaminations. The land may be contaminated by low concentrations of hazardous waste or pollution and has the potential to be reused once it is cleaned up. Land that is more severely contaminated and has high concentrations of hazardous waste or pollution, such as a superfund site, does not fall under the brownfield classification.

**BUS RAPID TRANSIT (BRT)**

BRT systems use buses or specialized vehicles on roadways or dedicated lanes to transport passengers without interference from other traffic. Such systems usually include dedicated bus lanes, signal priority at intersections, off-bus fare collection to speed up boarding, level boarding (low-floor buses or high-level platforms) to speed up boarding and enhance accessibility and enclosed stations.

**CAP RATE**

This popular return expresses the ratio between a rental property's value and its net operating income. The cap rate formula commonly serves two useful real estate investing purposes: To calculate a property's cap rate, or by transposing the formula, to calculate a property's reasonable estimate of value.

$$\text{Net Operating Income} \div \text{Market Value} \\ = \text{Cap Rate}$$

Or,

$$\text{Net Operating Income} \div \text{Cap rate} \\ = \text{Market Value}$$

**CAPACITY**

The maximum number of people that can be carried past a given location during a given time period under specified operating conditions, without unacceptable delay, hazard, or restriction, and with reasonable certainty

**CAPACITY BUILDING**

Capacity building (or capacity development) is the process by which individuals and organizations obtain, improve and retain the skills, knowledge, tools, equipment and other resources needed to do their jobs competently or to a greater capacity (larger scale, larger audience, larger impact, etc).

**CAPITAL INVESTMENT**

Capital investment refers to funds invested in a firm or enterprise for the purpose of furthering its business objectives. Capital investment may also refer to a firm's acquisition of capital assets or fixed assets, such as manufacturing plants and machinery that is expected to be productive over many years.

**CASH FLOW AFTER TAX (CFAT)**

CFAT is the amount of spendable cash that the real estate

investor makes from the investment, after satisfying all required tax obligations.

$$\text{Cash Flow Before Tax} - \text{Tax Liability} \\ = \text{Cash Flow After Tax}$$

**CASH FLOW BEFORE TAX (CFBT)**

CFBT is the number of dollars a property generates in a given year after all expenses, but in turn still subject to the real estate investor's income tax liability.

$$\text{Net Operating Income} - \text{Debt Service} - \text{Capital Expenditures} \\ = \text{Cash Flow Before Tax}$$

**CASH ON CASH RETURN (COC)**

CoC is the ratio between a property's cash flow in a given year and the amount of initial capital investment required to make the acquisition (e.g., mortgage down payment and closing costs).

Most investors usually look at cash-on-cash, as it relates to cash flow before taxes during the first year of ownership.

$$\text{Cash Flow Before Taxes} \div \text{Initial Capital Investment} \\ = \text{Cash on Cash Return}$$

**CATALYST PROJECTS**

Catalyst projects are public or private projects that are planned and designed to cause a corresponding and complementary development reaction to surrounding properties. They are projects of sufficient magnitude to stimulate redevelopment of underdeveloped properties or major rehabilitation of underutilized buildings. The identification and implementation of catalyst projects provide an opportunity for public and private investments to receive a reasonable return. The measure of return on investment can include jobs creation, increase in land value, improved transportation and access and new housing units.

**CENTRAL BUSINESS DISTRICT (CBD)**

The heart of an urban area, usually located at the meeting point of the city's transport systems, containing a high percentage of shops and offices. High accessibility leads to high land values, and therefore intensive land use. Consequently, development is often upwards. Within the CBD, specialist areas, such as a jewelry quarter, benefit from external economies. Vertical land-use zoning is also common, so that retail outlets may be on the ground floor, with commercial users above them and residential users higher up.

**CENTRALITY**

In graph theory and network analysis, indicators of centrality identify the most important nodes. Centrality can be used to identify the most influential people in a social network, key infrastructure nodes in the Internet or urban networks, and superspreaders of disease. Betweenness, closeness, and degree centrality are the three most important indicators for transit networks.

**CLOSENESS CENTRALITY**

A measure of accessibility to a node within a network that measures the inverse of the sum of the distances of a node from all other nodes.

**COMPLETE STREET**

Road design philosophy where road space is allocated to safely balance the needs of all road users, including pedestrians, cyclists, transit and motorists. Transportation choice is increased when safe and appealing options for getting from place to place are provided- options to walk and bike provide opportunities for increased community health and reductions in air and noise pollution.

**CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)**

Crime Prevention Through Environmental Design (CPTED) is a multi-disciplinary approach to deterring criminal behavior through environmental design. CPTED strategies rely upon the ability to influence offender decisions that precede criminal acts. As of 2004, most implementations of CPTED occur solely within the built environment.

**DEBT COVERAGE RATIO (DCR)**

DCR is a ratio that expresses the number of times annual net operating income exceeds debt service (e.g. total loan payment, including both principal and interest).

**Net Operating Income ÷ Debt Service**

**= Debt Coverage Ratio**

**DCR results:**

**Less than 1.0 - not enough NOI to cover the debt**

**Exactly 1.0 - just enough NOI to cover the debt**

**Greater than 1.0 - more than enough NOI to cover the debt**

**DEGREE CENTRALITY**

Number of times a node has with other nodes in a network. In transit networks, interchange stations between many lines or modes (hubs) have a high degree centrality.

**DEVELOPMENT CONTROL REGULATIONS (DCRS)**

DCRs are the primary regulatory tool used to guide development that ultimately shapes a city’s urban form and functions. It includes guiding the development and use of land, built environment FAR’s, density, heights, setbacks and the public realm. Critical to the success of an efficient and effective transit system is the combination of basic employment opportunities and a mix of housing typologies supported with major retail, civic, cultural, entertainment and community facilities. The DCRs, which are currently proposed as blanket for the entire city, need to be revisited and should be modified into more context-specific Development Code Regulation.

**DEVELOPMENT PLAN**

It is an aspect of town and country planning comprised of a set of documents that set out the local authority’s policies and proposals for the development and use of land in their area. The development plan guides and shapes day-to-day decisions as to whether or not planning permission should be granted, under the system known as development control or development management. In order to ensure that these decisions are rational and consistent, they must be considered against the development plan adopted by the authority, after public consultation and having proper regard to other material factors.

**EMPLOYMENT DENSITY**

Number of jobs in an area.

**ENCLOSURE**

Degree to which buildings, walls, trees, and other vertical elements define streets and other public spaces.

**FLOOR AREA RATIO (FAR)/FLOOR SPACE INDEX (FSI)**

The FAR or FSI is the ratio of the total floor area of buildings at a certain location, to the size of the land at that location, or the limit imposed on such a ratio.

As a formula: Floor Area Ratio= (Total covered area on all floors of all buildings on a certain plot)/(Area of the plot).

Thus, an FSI of 2.0 would indicate that the total floor area of a building is two times the gross area of the plot on which it is constructed, as would be found in a multiple-storey building.

### FEEDER BUS ROUTES

A feeder bus route is a bus service that picks up and delivers passengers to a higher order transit station, such as a rapid rail transit station, express-bus stop or terminal.

### FORM-BASED CODE

Form-based codes foster predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle for the code. These codes are adopted into city or county law as regulations, not mere guidelines. Form-based codes are an alternative to conventional zoning.

Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another and the scale and types of streets and blocks. The regulations and standards in form-based codes, presented in both diagrams and words, are keyed to a regulating plan that designates the appropriate form and scale (and therefore, character) of development, rather than only distinctions in land-use types. This is in contrast to conventional zoning's focus on the micro-management and segregation of land uses and the control of development intensity through abstract and uncoordinated parameters (e.g., FAR, dwellings per acre, setbacks, parking ratios, traffic LOS) to the neglect of an integrated built form. Not to be confused with design guidelines or general statements of policy, form-based codes are regulatory, not advisory.

### FUTURE VALUE (FV)

FV shows what a cash flow or series of cash flows will be worth at a specified time in the future. FV is calculated by "compounding" the original principal sum forward in time at a given "compound rate".

### GROSS VEHICLE MASS (GVM)

Gross vehicle mass is the maximum operating weight/mass of a vehicle as specified by the manufacturer [1], including the vehicle's chassis, body, engine, engine fluids, fuel, accessories, driver, passengers and cargo, but excluding that of any trailers. [2]. The term is used for motor vehicles and trains.

The weight of a vehicle is influenced by passengers, cargo, even fuel level, so a number of terms are used to express the weight of a vehicle in a designated state. Gross combined weight rating (GCWR) refers to the total mass of a vehicle, including all trailers. GVWR and GCWR both describe a vehicle that is in operation and are used to specify weight limitations and restrictions.

### GREENFIELD DEVELOPMENT

Greenfield development is the creation of planned communities on previously undeveloped land. This land may be rural, agricultural or unused areas on the outskirts of urban areas. Unlike urban sprawls, where there is little or no proper suburban planning, greenfield development is about efficient urban planning that aims to provide practical, affordable and sustainable living spaces for growing urban populations. The planning takes future growth and development into account, as well as avoiding the various infrastructure issues that plague existing urban areas.

### GROSS OPERATING INCOME (GOI)

GOI is gross scheduled income after vacancy and credit loss, plus the income derived from other sources such as coin-operated laundry facilities. Consider GOI as the amount of rental income the real estate investor actually collects to service the rental property.

**Gross Scheduled Income - Vacancy and Credit Loss + Other Income**

**= Gross Operating Income**

### GROSS RENT MULTIPLIER (GRM)

GRM is a simple method used by analysts to determine a rental income property's market value, based upon its gross scheduled income. You would first calculate the GRM using the market value at which other properties are sold and then apply that GRM to determine the market value for your own property.

**Market Value ÷ Gross Scheduled Income**

**= Gross Rent Multiplier**

Then,

**Gross Scheduled Income x Gross Rent Multiplier**

**= Market Value**

### GROSS SCHEDULED INCOME (GSI)

GSI is the annual rental income a property would generate if 100% of all space was rented and all rent was collected. If

vacant units do exist at the time of your real estate analysis, then include them at their reasonable market rent.

$$\text{Rental Income (actual) + Vacant Units (at market rent)} \\ = \text{Gross Scheduled Income}$$

### HIGHER ORDER TRANSIT

Higher order transit refers to a transit service that operates on a dedicated right-of-way or in a priority situation, and therefore moves more efficiently than the regular flow of traffic and can carry large numbers of people quickly and comfortably. Examples of higher order transit include buses that have dedicated lanes, metro and commuter rail, which operate on their own separate tracks.

### HISTORICAL DAILY PEAK HOUR FACTOR

The ratio of Peak Hour Peak Direction Passenger Demand for a typical route (i.e. representative of the system as a whole) to its total daily boardings in both directions. This factor helps to convert daily passenger flows into peak hour passenger flows. It should be ideally be determined by looking at historical data. Please note that this factor is usually higher for public transport as compared to total traffic.

### INFILL DEVELOPMENT

Infill development is the term used for new development within existing communities on previously underutilized sites, typically at a higher density. Good infill developments fit in seamlessly within the existing urban fabric and the contributing elements include: setback- the distance from the front facade of the house to the street and should be the same distance as other houses on the street, height- which should be compatible with the height of buildings surrounding the lot and mass- the bulk of the house.

### INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)

It refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the internet, wireless networks, cell phones and other communication mediums.

### INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

ITS refers to the application of information and communication technologies to transportation infrastructure and vehicles.

### INTENSIFICATION

Urban intensification is the construction and reconstruction of compact communities in the existing built-up area of the city. Intensification includes new development, which raises the density on sites and within communities. These compact communities are supportive of transit, cycling and are pedestrian-friendly and promote local jobs and services.

### INTERMODAL TRANSIT HUB

Intermodal Transit Hubs are stations or centres where a range of different transportation modes (i.e. cycling, walking, metro, private vehicle, bus, autos and taxis) come together and allow for easy transfers from one mode to another. They can also facilitate transfers at different scales: local, regional and intercity.

### INTERNAL RATE OF RETURN (IRR)

This popular model creates a single discount rate, whereby all future cash flows can be discounted until they equal the investor's initial cash investment. In other words, when a series of all future cash flows is discounted at IRR, that present value amount will equal the actual cash investment amount.

### LAND AMALGAMATION

Amalgamation can relate to the combining of one or more allotments to create one single parcel of land. It is required for the purpose of assembling land for urban expansion, infill development, or redevelopment. In this process, the original landowners or occupants voluntarily contribute a certain percentage of their land to the government or other project initiators, and in return receive compensation in the form of money, or serviced land, or any other form.

### LAND VALUE CAPTURE (LVC)

Land value capture is a policy approach that enables communities to recover and reinvest land value increases that result from public investment and other government actions.

Common land value capture tools include: transferable development rights, betterment contributions, public land leasing, inclusionary housing and zoning, linkage or impact fees, business improvement districts and certain applications of the property tax. These tools can help finance transit and infrastructure improvements, affordable housing, parks and open spaces, utility upgrades and other critical services. With

this additional funding, local and regional governments can more sustainably advance municipal fiscal health, enable infrastructure investment and address the challenges of sustainable urbanization.

## LEGIBILITY

Ease with which people can create a mental map so that the spatial structure of a place can be understood and navigated as a whole.

## LIGHT RAIL TRANSIT (LRT)

It is a form of urban rail transport using rolling stock similar to a tramway, but operating at a higher capacity, and often on an exclusive right-of-way. It operates primarily along exclusive rights-of-way and uses either individual tramcars or multiple units coupled to form a train that is lower capacity and lower speed than a long, heavy-rail passenger train or metro system.

A few light rail networks tend to have characteristics closer to rapid transit. Other light rail networks are tram-like in nature and partially operate on streets. Light rail systems are found throughout the world, on all inhabited continents. They have been especially popular in recent years, due to their lower capital costs and increased reliability compared with heavy rail systems.

## LOAN TO VALUE (LTV)

LTV measures what percentage of a property's appraised value or selling price (whichever is less) is attributable to financing. A higher LTV benefits real estate investors with greater leverage, whereas lenders regard a higher LTV as a greater financial risk.

$$\text{Loan Amount} \div \text{Lesser of Appraised Value or Selling Price} \\ = \text{Loan to Value}$$

## LOCAL TRANSIT

Public transport operating on fixed routes with frequent stops (100–400 m apart), generally in mixed traffic on surface roadways, relying heavily on walk access and egress.

## LOCAL TRANSIT SERVICE AREA

The reasonably contiguous area served by the local transit network, not including regional services. Indicative extent would be the area within 1 km of regularly served local stops. This area does not include portions of the metropolis connected to the local service area solely by regional services.

## LOCAL TRANSIT BOARDINGS

The annual number of passengers boarding local transit vehicles, counting separately each boarding made in the course of single journey or trip between origin and destination. Also known as unlinked passenger trips (UPT). Boardings on regional services should not be included in city totals when using this tool.

## MASS RAPID TRANSIT

It is a type of high-capacity public transport, generally found in urban areas. Unlike buses or trams, mass rapid transit systems are electric railways that operate on an exclusive right-of-way, which cannot be accessed by pedestrians or other vehicles of any sort and which is often grade separated in tunnels or on elevated railways.

Modern services on rapid transit systems are provided on designated lines between stations, typically using multiple electric units on rail tracks, although some systems use guided rubber tires, magnetic levitation or monorail. The stations typically have high platforms, without steps inside the trains, requiring custom-made trains in order to minimize gaps between train and platform. They are typically integrated with other public transport and often operated by the same public transport authorities. However, some rapid transit systems have at-grade intersections between a rapid transit line and a road or between two rapid transit lines. It is unchallenged in its ability to transport large numbers of people quickly over short distances, with little to no use of land.

## MARKET POTENTIAL VALUE

Unrealized market value of a station area, sometimes measured through a composite index considering major drivers of demand, including current and future human densities, current and future number of jobs accessible within 30 minutes by transit, and major drivers of supply (including the amount of developable land, potential changes in zoning, and market vibrancy).

## MEAN LOCAL TRANSIT TRIP LENGTH

The average distance traveled by one public transit boarding passenger, calculated by dividing total local transit person-km by total local transit boardings

**MIDBLOCK CROSSING**

Midblock crosswalks facilitate crossings to places that people want to go, but that are not well served by the existing traffic network. These pedestrian crossings, which commonly occur at schools, parks, museums, waterfronts and other destinations, have historically been overlooked or difficult to access, creating unsafe or unpredictable situations for both pedestrians and vehicles.

**MIXED-USE**

Mixed uses are defined by a diverse mix of land uses, including housing, employment, regional attractions and public spaces, allowing people to walk to work or to shop rather than driving for all daily needs. It also includes vertical types of mixed-use development, like residential land use over the commercial uses, so that the distance between the activities is decreased and accessibility between different activities is increased.

**MODE SHARE**

Trips taken by a particular mobility choice, such as car, transit, cycling or walking, as a proportion of the total number of trips.

**MULTI-MODAL TRANSPORT SYSTEM (MMTS)**

Multi-Modal Transportation System (MMTS) explores the coordinated use of two or more modes of transport for efficient, safe, pleasant and comfortable movement of passengers in urban areas. It provides the convenient and economical connection of various modes to make complete journeys from origin to destination. Generally, MMTS has been characterized by increased capacity, efficient access and better location of both integration and nodes. Public transport is an important constituent of the multi-modal transportation system and hence, the local and regional public transportation system must be an integral part of the same.

**MULTI-LEVEL CAR PARKING**

Structured parking refers to an above- or below-grade structure designed to accommodate vehicle parking. This type of parking is more expensive than surface parking, but is a much more efficient use of land (a 3-storey parking structure requires a third as much land as a surface lot) and has long-term value for integrated mixed-use development.

**MULTI-USE DEVELOPMENT**

Multi-use development is a type of urban development that blends residential, commercial, cultural, institutional or entertainment uses, where those functions are physically and functionally integrated and provide pedestrian connections [1][2]. Mixed-use development can take the form of a single building, a city block or entire neighborhoods. The term may also be used more specifically to refer to a mixed-use real estate development project—a building, complex of buildings or district of a town or city that is developed for mixed-use by a private developer, (quasi-) governmental agency, or a combination thereof.

**NET OPERATING INCOME (NOI)**

NOI is a property’s income after being reduced by vacancy, credit loss and all operating expenses. NOI is one of the most important calculations to any real estate investment because it represents the income stream that subsequently determines the property’s market value– that is, the price a real estate investor is willing to pay for that income stream.

$$\text{Gross Operating Income} - \text{Operating Expenses} = \text{Net Operating Income}$$

**NET PRESENT VALUE (NPV)**

NPV shows the dollar amount difference between the present value of all future cash flows using a particular discount rate– your required rate of return– and the initial cash invested to purchase those cash flows.

$$\text{Present Value of all Future Cash Flows} - \text{Initial Cash Investment} = \text{Net Present Value}$$

NPV results:

Negative - the required return is not met

Zero - the required return is perfectly met

Positive - the required return is met with room to spare

**NETWORK EXTENT**

The number of kilometers of route in a public transport network, without double-counting kilometers where routes share the same path.

**NODE VALUE**

Measure of importance of a public transit station based on passenger traffic volume, intermodality, and centrality within the network; measured through a composite index.

## NON-MOTORIZED TRANSPORTATION (NMT)

Non-motorised Transportation (also known as active transportation and human-powered transportation) includes walking and cycling and variants such as small-wheeled transport. It can be a very attractive mode of transport for relatively short distances, which make up the largest share of trips in cities. The key to reversing the trend toward more private vehicle use is making walking and cycling attractive, together with improving public transport. This can be done through a range of activities, including construction of sidewalks and bike lanes, bike sharing programmes, urban planning and pedestrian-oriented development. NMT is a highly cost-effective transportation strategy and brings about large health, economic and social co-benefits, particularly for the urban poor.

## OPERATING EXPENSES

Operating expenses include those costs associated with keeping a property operational and in service. These include property taxes, insurance, utilities and routine maintenance. They do not include payments made for mortgages, capital expenditures or income taxes.

## OPERATING EXPENSE RATIO (OER)

OER expresses the ratio (as a percentage) between a real estate investment's total operating expenses dollar amount to its gross operating income dollar amount.

$$\text{Operating Expenses} \div \text{Gross Operating Income} \\ = \text{Operating Expense Ratio}$$

## OVERLAY ZONE

Overlay zone means a set of land use and development requirements designed to be applied over, or in addition to, the requirements of the underlying zone for a specific purpose, without removing or modifying the underlying zone.

## PERT CHART (PROGRAM EVALUATION REVIEW TECHNIQUE)

A PERT chart is a project management tool used to schedule, organize and coordinate tasks within a project. A PERT chart presents a graphic illustration of a project, as a network diagram consisting of numbered nodes (either circles or rectangles), representing events or milestones in the project linked by labelled vectors (directional lines), representing tasks in the project. The direction of the arrows on the lines indicates the sequence of tasks.

## PASSENGER-KILOMETERS TRAVELED

The total distance traveled by passengers on transit vehicles (for a single route or a system), which may be determined by multiplying the number of unlinked passenger trips by the average length of such trips.

## PASSENGER TRAFFIC DENSITY

The total number annual transit passengers passing the average point along a system or route in both directions combined, formed by dividing system PKT by network extent (for a system) or route PKT by route length (for a single route).

## PARK AND RIDE

Park and rides are car parking lots that offer transit users a place to park their car, then transfer to a public transit service to complete their journey. They are typically used in suburban locations where distances from destinations to transit service are further. Park and ride facilities should be visible from, and located along, heavily used commuter routes. They should be landscaped, weather resistant, well-lit and should contain a range of amenities.

## PEDESTRIAN PLAZA

A public space that can act as an important organizing element within a station area, helping to facilitate transfers between modes, acting as receiving points for pedestrians and containing a range of services and amenities for transit users.

## PEDESTRIAN-FRIENDLY DESIGN.

Design intended to enhance the pedestrian experience, typically through improved amenities (for example, attractive landscaping, lighting, and seating areas) and by improving the efficiency of walking (for example, small city blocks, grid street patterns, and high road connectivity that provide direct, less circuitous pathways).

## PER CAPITA

For each person; in relation to people taken individually.

The term is used in a wide variety of social sciences and statistical research contexts, including government statistics, economic indicators and built environment studies.

## PERMEABILITY

Extent to which urban forms permit the movement of people or vehicles in different directions.

## PEAK HOUR PEAK DIRECTION PASSENGER DEMAND

The number of transit passengers carried in the peak hour in the peak direction. This occurs almost universally on weekdays and is measured for a single route at its maximum load point.

## PUBLIC INFORMATION CENTER (PIC)

Public Information Centers aim to establish a more effective, centralized distribution mechanism to safeguard the integrity and accurate distribution of government information. Moreover, it serves as a vital framework for collecting public opinions and feedback through building a communication path between the public and the government. It shall be the information source where the government can pertain constant betterment in government administration.

The PIC tends to public inquiries, complaints, suggestions and provides a centralized communication channel with the government. It offers a one-stop service in the provision of government information.

## PUBLIC-PRIVATE PARTNERSHIP (PPP)

A formal partnership between a public sector entity and a private corporation often used to construct and operate infrastructure facilities or develop certain urban areas.

## PLACEMAKING

Placemaking is a term that began to be used in the 1970s by architects and planners to describe the process of creating squares, plazas, parks, streets and waterfronts that will attract people because they are pleasurable or interesting.

## PLACE VALUE

Determinants of the attractiveness of a place, including amenities; schools; health care facilities; type of urban development; local accessibility to daily needs by walking and cycling; quality of the urban fabric around the station, in particular its pedestrian accessibility; small size of urban blocks and fine mesh of connected streets, which create vibrant neighborhoods; and mixed pattern of land use. It is measured through a composite index

## POPULATION DENSITY

Population density is a measurement of population per unit area or unit volume; usually quoted per square kilometer or square mile (which may include or exclude, for example, areas of water or glaciers).

Commonly this may be calculated for a county, city, country, territory or the entire world.

## PRESENT VALUE (PV)

PV shows what a cash flow or series of cash flows available in the future is worth in today's dollars. PV is calculated by "discounting" future cash flows back in time, using a given "discount rate".

## PUBLIC-PRIVATE PARTNERSHIPS (PPP)

Public-private partnership (PPP) describes a government service or private business venture, which is funded and operated through a partnership of government and one or more private sector companies. These schemes are sometimes referred to as PPP or P3.

PPP involves a contract between a public-sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project. In some types of PPP, the cost of using the service is borne exclusively by the users of the service and not by the taxpayer. In other types (notably the private finance initiative), capital investment is made by the private sector on the strength of a contract with the government to provide agreed services and the cost of providing the service is borne wholly or in part by the government. Government contributions to a PPP may also be in kind (notably the transfer of existing assets). In projects that are aimed at creating public goods like in the infrastructure sector, the government may provide a capital subsidy in the form of a one-time grant, so as to make it more attractive to private investors. In some other cases, the government may support the project by providing revenue subsidies, including tax breaks or by providing guaranteed annual revenues for a fixed period.

PPP involves many models, including Design-Build-Finance (DBF) and Design-Build-Finance-Maintain (DBFM).

## PUBLIC REALM

The public realm consists of public spaces such as streets, parks and sidewalks. The public realm is also a place where the community can come together through collaborative activities, such as street festivals and other programmable activity.

**RAPID TRANSIT**

Public transport operating on fixed routes at a significantly higher average speed than local service, usually in exclusive rights-of-way and/or completely separated from surface traffic. Access depends on both walking and local public transport service. Stations are typically 800m-2km apart.

**REAL ESTATE ASSESSMENT**

The primary goal of the Real Estate Assessment Department is to ensure the fair and equitable assessment of all real property in the County of Gloucester, based on fair market value, with the end result being the fair and even distribution of the tax burden among all property owners.

**REGIONAL TRANSIT**

Public transport operating on fixed routes within and outside the local service area, offering higher average speeds than even rapid transit, with average station spacing usually longer than 2km. A large share of access may be by motorized transport.

**REFUGE ISLAND**

A refuge island, also known as a pedestrian refuge, pedestrian island and colloquially as a “pork chop” island, is a small section of pavement or sidewalk, completely surrounded by asphalt or other road materials, where pedestrians can stop before finishing crossing a road. It is typically used when a street is very wide, as the pedestrian crossing can be too long for some individuals to cross in one traffic light cycle. They can often be seen on roads with higher speed limits also.

**RIGHT-OF-WAY (ROW)**

A right-of-way is land that is used for transportation purposes, such as for a trail, driveway, rail line, street or highway. A right-of-way is often reserved for the purposes of maintenance or expansion of existing services.

**ROAD DIETS**

A road diet, also called a lane reduction or road rechannelization, is a technique in transportation planning whereby the number of travel lanes, and/or effective width of the road, is reduced in order to achieve systemic improvements.

**SENSE OF PLACE**

Though sense of place has been defined differently and used in different ways, it is often used in relation to characteristics that make a place special or unique, as well as to those that foster a sense of authentic human attachment and belonging.

**SPECIAL ECONOMIC ZONE (SEZ)**

A special economic zone (SEZ) is an area in which business and trade laws are different from the rest of the country. SEZs are located within a country’s national borders and their aims include: increased trade, increased investment, job creation and effective administration. To encourage businesses to establish in the zone, financial policies are introduced. These policies typically regard investing, taxation, trading, quotas, customs and labour regulations. Additionally, companies may be offered tax holidays, whereupon establishing in a zone they are granted a period of lower taxation.

**SHARED PARKING**

Shared parking is a land use/development strategy that optimizes parking capacity by allowing complementary land uses to share spaces, rather than producing separate spaces for separate uses. In effect, shared parking makes spaces publically accessible, rather than reserved for a particular tenant or property owner. It may be privately constructed and operated, depending on a contractual agreement, but should remain within the government’s jurisdiction for long-term transport planning purposes.

**SIDE LANES**

Side lanes are a type of bike lane in-between a main travel lane and a dedicated turn lane. They can help prevent conflicts between cyclists and motorists who wish to make a turn (this assumes there is a bike lane along the street on the preceding block or blocks).

**SIGNAGE**

Signage is wayfinding and instructional signs erected at the side of or above roads, to provide information to road users.

**SIMULATION**

Simulation is the imitation of the operation of a real-world process or system. The act of simulating something first requires that a model be developed; this model represents the key

characteristics, behaviors and functions of the selected physical or abstract system or process. The model represents the system itself, whereas the simulation represents the operation of the system over time.

Simulation is used in many contexts, such as simulation of technology for performance optimization, safety engineering, testing, training, education and video games. Often, computer experiments are used to study simulation models. Simulation can be used to show the eventual real effects of alternative conditions and courses of action.

### **SOLID WASTE**

Solid waste means any garbage, refuse or sludge from a wastewater treatment plant, water supply treatment plant or air pollution control facility. It also includes discarded materials, like solid, liquid, semi-solid or contained gaseous material, resulting from industrial, commercial, mining and agricultural operations and from community activities. It does not include solid or dissolved materials in domestic sewage or solid or dissolved materials in irrigation return flows or industrial discharges.

### **SPRAWL**

A pattern of development characterized by uniform low density, lack of a distinctive core, poor accessibility, dependence on automobiles, and uncontrolled and noncontiguous land expansion.

### **SMART GROWTH**

Smart growth refers to a collection of land use and development principles that aim to enhance our quality of life, preserve the natural environment and save money over time. Smart growth principles ensure that growth is fiscally, environmentally and socially responsible and recognizes the connections between development and quality of life. Smart growth enhances and completes communities by placing a priority on infill, redevelopment and densification strategies.

### **STATUTORY PLAN**

A statutory plan is a legal document that must go through three readings and a public hearing before it is adopted. Once adopted, there is a legal obligation on the part of both the municipality and the residents to adhere to the plan.

### **STORMWATER**

Stormwater is water that originates during precipitation events and snow/ice melt. Stormwater can soak into the soil (infiltrate), be held on the surface and evaporate or runoff and end up in nearby streams, rivers, or other water bodies (surface water).

### **STREET GRID NETWORK**

The grid plan, street grid plan or gridiron plan is a type of city plan in which streets run at right angles to each other, forming a grid. These patterns display a higher degree of connectivity than other road hierarchical patterns, which feature dead-end streets and fewer through connections.

### **STREETScape**

It is a term used to describe the natural and built fabric of the street and defined as the design quality of the street and its visual effect. The concept recognizes that a street is a public place where people are able to engage in various activities. A streetscape needs to have boundaries to ensure safe travel for all roadway users. Signs, curbs, fences and landscaping can effectively create an inclusive, yet safe environment that provides a sense of physical comfort for diverse users and activities. The aesthetic appeal elements of beautification initiatives, attractive lighting, street furniture, clean streets and outdoor dining contribute to sense of place. Amenities should be designed to get people out of their cars to socialize, interact with their environment and discover other mobility options.

### **SWOT ANALYSIS**

SWOT analysis (or SWOT matrix) is a strategic planning technique used to help a person or organization identify the Strengths, Weaknesses, Opportunities, and Threats related to business competition or project planning [1]. It is intended to specify the objectives of the business venture or project and identify the internal and external factors that are favorable and unfavorable to achieving those objectives

### **TAX INCREMENT FINANCING (TIF)**

TIF is a method to use future gains in taxes to finance current improvements (which theoretically will create the conditions for those future gains). When a development or public project is carried out, there is often an increase in the value of surrounding real estate, and perhaps new investment. This increased site value and investment sometimes generates increased tax revenues. The increased tax revenues are the "tax

increment.” Tax Increment Financing dedicates tax increments within a certain defined district to finance debt issued to pay for the project. TIF is designed to channel funding toward improvements in distressed or underdeveloped areas where development might not otherwise occur. TIF creates funding for “public” projects that may otherwise be unaffordable to localities, by borrowing against future property tax revenues.

## TAXABLE INCOME

Taxable income is the amount of revenue produced by a rental on which the owner must pay federal income tax. Once calculated, that amount is multiplied by the investor’s marginal tax rate (i.e., state and federal combined) to arrive at the owner’s tax liability.

**Net Operating Income - Mortgage Interest - Depreciation, Real Property - Depreciation, Capital Additions - Amortization, Points and Closing Costs + Interest Earned (e.g., property bank or mortgage escrow accounts)**

**= Taxable Income**

Then,

**Taxable Income x Marginal Tax Rate**

**= Tax Liability**

## TRANSFERABLE DEVELOPMENT RIGHTS (TDR)

Transferable development rights are the transfer of rights to develop land, to government, local authorities or corporations. When an owner of land transfers his rights to develop their land to a government, local authority, corporation or government use, the same land is used for infrastructure projects such as road widening, metro rail projects, parks, gardens and schools or may be for making new roads or for any other projects of public utility. DRC (Development rights certificate) will then be issued to the owner of the land, the main purpose of the whole process being to acquire the required amount of land in a hassle-free manner. The DRC will allow the landowner an additional built-up area in return for the area for which their rights have been relinquished and enables them to develop the given area or transfer rights for consideration.

## TIME VALUE OF MONEY

Time value of money is the underlying assumption that money, over time, will change value. It’s an important element in real estate investing because it could suggest that the timing of receipts from the investment might be more important than the amount received.

## TRANSFER OF DEVELOPMENT RIGHTS (HEIGHT AND DENSITY EXCHANGE)

Also called density bonusing, this tool offers developments a level of density that surpasses the allowable Floor Area Ratio (FAR). In exchange for increased height/density that surpasses the zoning by-law, developers are required to provide a service or benefit to the community as negotiated by the municipality, such as amenities or housing needed by the community. Density bonusing policies must be written into a municipality’s Official Plan in order for it to be used as a development tool.

## TRAFFIC CALMING

Traffic calming is intended to slow or reduce motor-vehicle traffic in order to improve safety for pedestrians and cyclists and improve the environment for residents. These may include narrower traffic lanes, speed bumps, raised pedestrian crossings and pedestrian refuge islands in medians, amongst others.

## TRANSFORMER STATION

A station of an electricity generation, transmission and distribution system where voltage is transformed from high to low, or the reverse, using transformers

## TRANSIT-ADJACENT DEVELOPMENT (TAD)

Development that is in close proximity to transit stops or facilities. However, this type of development is not designed to promote transit ridership. A TAD lacks functional connectivity to transit, whether in terms of land-use composition, station access or site design.

## TRANSIT-ORIENTED DEVELOPMENT (TOD)

Transit-oriented developments (TOD) are ‘urban villages’ where all residents are within a 5-10 minute walk of efficient public transit and can ‘live, work, play, shop and learn’ in a pedestrian-friendly environment- without the need of a car. TOD is a planning approach that calls for high-density, mixed-use business/residential neighborhood centers to be clustered around transit stations and corridors. TOD is considered a “smart growth” strategy because it addresses the issue of where growth should occur from a sustainability perspective and it coordinates land use and transportation such that both land and infrastructure are used efficiently. As its name implies, TOD is designed to be served by transit, rather than or in addition to the automobile. Networks of streets and multi-use paths are

also created to provide a walkable and bikeable environment that is conducive to living, working and shopping in the same area. TOD is focused within an 800m radius of transit stops, with the highest intensity and mix of land uses concentrated within one-quarter mile or adjacent to the station. Land use intensities and densities decrease away from the core area, with transitions included in development plans to ensure compatibility with existing neighborhoods.

Peter Calthorpe summarizes the main characteristics and goals of TOD as follows:

- Organize growth on a regional-level to be compact and transit-supportive.
- Place commercial, housing, jobs, parks and civic uses within walking distance of transit stops.
- Create pedestrian-friendly street networks, which directly connect local destinations.
- Provide a mix of housing types, densities and costs.
- Preserve sensitive habitat, riparian zones and high-quality open spaces.
- Make public spaces the focus of building orientation and neighbourhood activity.
- Encourage infill and redevelopment along transit corridors within existing neighborhoods.

### TRANSIT PRIORITY SIGNALS

Traffic signal priority allows transit vehicles to travel through signalized intersections with little or no delay. Since transit vehicles hold many people, giving priority to transit can potentially increase the person throughput of an intersection. There are different types of signal priority: passive, active and real-time. A passive priority strategy uses timed coordinated signals in the area-wide traffic signal timing scheme. An active priority strategy involves detecting the presence of a transit vehicle and gives the transit vehicle special treatment. The system can give an early green signal or hold a green signal that is already displaying. Real-time control strategies can consider not only the presence of a transit vehicle, but the adherence to schedule and the volume of other traffic. One common strategy is to give priority only to late buses, but not to early buses. This strategy optimizes schedule adherence (and therefore waiting time) rather than running time.

### TRANSIT-SUPPORTIVE DEVELOPMENT (TSD)

TSD consists of a mix of housing, shops, restaurants, offices, civic buildings and open space in close proximity to a transit station. Transit-supportive planning and development rethink land use and development patterns to achieve a balanced transportation system where walking, cycling and riding transit are used more than the private automobile. This is primarily accomplished by designing communities so that walking, cycling and riding transit are more convenient and attractive options.

### TRANSPORTATION DEMAND MANAGEMENT (TDM)

By influencing travel behavior through the implementation of strategies such as carpooling, parking management, cycling programs, flexible working hours, high occupancy vehicle lands and incentives for transit, walking and cycling, the resulting transportation system is more efficient.

### URBAN REDEVELOPMENT

It is conceptually similar to land readjustment, with the exception that it happens in existing urban areas and often involves a rezoning by the government of a given area from a low-density (single-family housing) to higher-density (mixed-use or commercial) development. It is also accompanied by a provision of infrastructure improvements (mass transit, such as metro lines) that can support such up-zoning.

### URBAN HEAT ISLAND

An urban heat island (UHI) is an urban area or metropolitan area that is significantly warmer than its surrounding rural areas, due to human activities. The temperature difference usually is larger at night than during the day and is most apparent when winds are weak. UHI is most noticeable during the summer and winter. The main cause of the urban heat island effect is from the modification of land surfaces. Waste heat, generated by energy usage, is a secondary contributor. As a population center grows, it tends to expand its area and increase its average temperature. The less-used term, heat island, refers to any area, populated or not, which is consistently hotter than the surrounding area.

Monthly rainfall is greater downwind of cities, partially due to the UHI. Increases in heat within urban centers increases the length of growing seasons and decreases the occurrence of weak tornadoes. The UHI decreases air quality by increasing the production of pollutants such as ozone and decreases water quality, as warmer waters flow into area streams and put stress on their ecosystems.

**VALUE CAPTURE**

An opportunity to generate revenues by capitalizing on the value created by infrastructure investments (often transit and other government-backed projects) by developing or selling property or collecting fees or taxes. Value capture can be facilitated through direct measures, such as the sale of properties or the granting of a development franchise, or through indirect methods, such as extracting surplus from other property owners (through a betterment tax, for example) or reaping higher proceeds from regular property taxes.

**Disclaimer:** *The Transit-Orientated Development Implementation Resources & Tools knowledge product is designed to provide a high-level framework for the implementation of TOD and offer direction to cities in addressing barriers at all stages. As the context in low and middle-income cities varies, the application of the knowledge product must be adapted to local needs and priorities, and customized on a case-by-case basis.*

© 2021 International Bank for Reconstruction and Development / The World Bank

**VEHICLE CAPACITY**

The average number of people that a vehicle can be scheduled to carry at capacity (as defined herein)

**WASTEWATER DISPOSAL**

It is a process used to convert wastewater into an effluent (outflowing of water to a receiving body of water) that can be returned to the water cycle with minimal impact on the environment or directly reused.

**WAYFINDING**

The means in which people orient themselves in physical space and navigate from place to place. Can include the physical design of spaces and assistive features, such as signage.

**WORLD BANK (WB)**

The World Bank is an international financial institution that provides loans to countries of the world for capital projects. The World Bank's stated goal is the reduction of poverty, which its Articles of Agreement define as commitments to the promotion of foreign investment, international trade and to the facilitation of capital investment.

**ZONING REGULATIONS**

Zoning regulations specify whether zones can be used for residential, commercial, industrial, institutional or open space purposes, that may also regulate lot size, placement, bulk (or density) and the height of structures.

Zoning consists of dividing a particular region of land into districts or zones and specifying the types of land uses that are allowed and prohibited for each zone. This is performed by the county and is typically specific to certain, unincorporated areas. Zoning, in its basic form, attempts to separate residential property use from other property uses.

TOD **K** **P**