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Dubai Municipality

DUBAI TRANSIT ORIENTED DEVELOPMENT (TOD) MANUAL

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LIST OF ABBREVIATIONS

AUTHORITY NAMES

DCAA	Dubai Civil Aviation Authority
DCD	Dubai Civil Defense
DDA	Dubai Development Authority
DWA Dubai	Electricity and Water Authority
DHA	Dubai Health Authority
DLD	Dubai Land Department
DM	Dubai Municipality
DS	Dubai South
DSOA	Dubai Silicon Oasis Authority
DTCM	Department of Tourism and Commerce Marketing
RTA	Road Transport Authority
TDRA	Telecommunications and Digital Government Regulatory Authority

TECHNICAL TERMS

AH	Affordable Housing
DTIM	Dubai Transportation Integration Manual
EC3	Enterprise Command and Control Centre
EV	Electrical Vehicle
FAR	Floor Average Ratio
F&B	Food & Beverage
GFA	Gross Floor Area
GIS	Geographical Information System
GSM	Global System for Mobile Communications
HGV	Heavy Goods Vehicle
HVAC	Heating, Ventilation and Air Conditioning
NH	National Housing
KPI	Key Performance Indicator
LEED	Leadership in Energy and Environmental Design
MaaS	Mobility as a Service
MSCP	Multi-Storey Car Parking
NMT	Non-motorized Transportation
NOC	No Objection Certificate
ROW	Right-of-Way
TIS	Traffic Impact Study
TOD	Transit Oriented Development

GLOSSARY

1. **Access:** A way of entering or exiting a property.
2. **Active frontage:** It is an active use that attracts pedestrian activity, provides direct access to the general public from the sidewalk to a building's commercial uses such as restaurants, cafés, bakeries, retail stores, laundromat, cafeterias, and also lobbies/entrances.
3. **Affordable Housing:** It refers to residential properties that are priced lower than market rates and accessible to individuals or families with moderate to low incomes.
4. **Arterial Road:** High-speed and high-capacity thoroughfares connecting inner city roads to motorways
5. **Bicycle Lanes:** Allocated space exclusively for cyclists adjacent to vehicular travel lanes, designated by striping, signage, and pavement markings.
6. **Bicycle Tracks:** Separated cycle paths where space is allocated adjacent to vehicular travel lanes or within public realm, exclusively for cyclists, separated by buffers, medians or parked vehicles.
7. **Building Typology:** Building typology is a classification system used to categorize buildings based on their function, form, and construction. It is a way of grouping similar types of buildings together and analysing their characteristics and features.
8. **Collector:** A low-to-moderate-capacity road which serves to move traffic from local streets to arterial roads.
9. **Development:** General term for the construction or placing of a building or structure; the making of an addition or alteration to a building or structure; a significant change in use or in intensity of use of any building or structure.
10. **Dubai 2040 Centres:**
    - **Urban Centre:** It is the highest order centre having a high-density, mixed-use node, providing residential, employment, retail and tourism amenities, attracting people from around the city and internationally.
    - **Multi Sector Centre:** It is the second-highest Centre type in the hierarchy that follows Urban Centre having high-density, mixed-use node that pertains mainly towards employment, shopping and recreational opportunities for the immediate population catchment.
    - **Sector Centre:** It is the third-highest Centre type in the hierarchy among the centres primarily focusing on residential use with supporting service/retail uses and some local level employment.
11. **Floor Area Ratio (FAR):** It is ratio of GFA of development(s) to the total site area
    - **Zonal FAR:** It is ratio of GFA of development(s) to the total TOD zone.
    - **Plot FAR:** It is ratio of GFA of a building to the total plot area.
12. **Final Master plan:** A comprehensive report providing overall strategy to develop a particular project/area and provides final findings.
13. **Frontage zone:** An uninterrupted public space between the building and the pedestrian-flow zone that could be utilized for outdoor seating, signage, porches, planting etc.
14. **Guideline:** The required practice to be complied with, including advisory statements on how to apply certain principles.
15. **Gross Floor Area (GFA):** The building GFA is the sum of the GFA of all floors, measured to the exterior surface of the external wall thickness and from the centrelines of the common walls joining two spaces. The measurement excludes parking spaces, external wall features such as corniches, brackets, and façade cladding materials.
16. **Infrastructure:** Physical structures that form the foundation for development including public sewage and water systems, storm-water disposal systems, waste management facilities, electric power, communications and transportation corridors and facilities, oil and gas pipelines and district cooling facilities and corridors.
17. **Local road:** A road that is primarily used to gain access to properties bordering it.
18. **Micro-mobility:** The term refers to bicycles, e-bikes, scooters, e-scooters and other shared systems related to these devices.
19. **Mobility:** The ability of people or goods to move within the transport system..
20. **Modification:** To modify an approved master plan to incorporate changes that may or may not have a significant impact on the overall project.
21. **Multimodal transport:** A type of mobility planning that considers various modes (walking, cycling, automobile, public transit, etc.) and connections among modes
22. **Primary pedestrian route(s):** The shortest and direct pedestrian route(s) to the station exits defined in the master plan or identified within the TOD Zone.
23. **Pedestrian-flow zone:** A designated area exclusively intended for pedestrian movement, free of all obstructions that might impede or endanger pedestrians.
24. **Park & ride:** A facility or an area outside the TOD Zone, where drivers can park their car and take a form of public transport into the TOD Zones and city centres.
25. **Parking generation:** A process of estimating or measuring the demand for parking spaces in a specific area.
26. **Road hierarchy:** It is an organizational system of categorizing roads into groups based on their function and capacities.
27. **Shared cycling route:** An unsegregated route where pedestrians and cyclists mix freely and share the full width of the route.
28. **Shared parking:** Shared parking is a tool through which adjacent property owners share their parking lots over different times of day and reduce the number of parking spaces that each would provide on their individual properties.
29. **Station road:** A thoroughfare along which a metro station is located.
30. **Station area:** It refers to the immediate vicinity around the station, encompassing approximately a 50-meter walking distance from its exits.
31. **TOD Overlay:** A special type of GIS-based development guidance that makes it possible for developers and businesses to create transit-oriented development.
32. **Transit plaza:** An open space typically designed to enhance the overall transit experience for passengers and to create a hub of activity that promotes connectivity, convenience, and accessibility.

ABOUT THE TOD MANUAL

This Transit-Oriented Development Manual has been developed by Dubai Municipality (DM) as an extension of the Dubai 2040 Structure Plan to combine comprehensive site assessments and GIS analysis, policy recommendations, specific planning and design guidance and interactive tools.

This TOD Manual is Dubai's first major reference document for Transit Oriented Development. As such, the TOD Manual will play a crucial role in steering Dubai's urban development towards a more sustainable path, away from car-dependency and towards a much greater role for public transport, walking, cycling, and micro-mobility.

The manual outlines the necessary processes, the key priorities and principles that will guide the planning of any development located in a TOD Zone, within a defined zone around Dubai's existing and planned metro stations and tram stations.

It is, however, not merely a design guideline, but provides both mandatory and flexible parameters and requirements. The TOD Manual takes a comprehensive and holistic approach to integrate the main principles of master planning in a TOD context, ranging from land use planning to plot-level design, from public realm design to architectural design principles for individual buildings, from transport planning and mobility concepts to sustainable utility services.

The manual is designed to be used by different target groups: the planning authority, the infrastructure and transportation authorities, real estate developers, urban planners/designers and other stakeholders. In a dynamic market-driven business environment like Dubai, new property developments need to closely connect to metro and tram stations to create vibrant, walkable, mixed-use neighborhoods around each station.

Based on the specific needs of the target users, the manual contains various interactive tools, calculators, flowcharts and checklists to enable the manual's interpretation and convenient day-to-day use by planning professionals, developers, government officials or engineers.

TARGET USERS

PLANNING OFFICIALS

DEVELOPERS

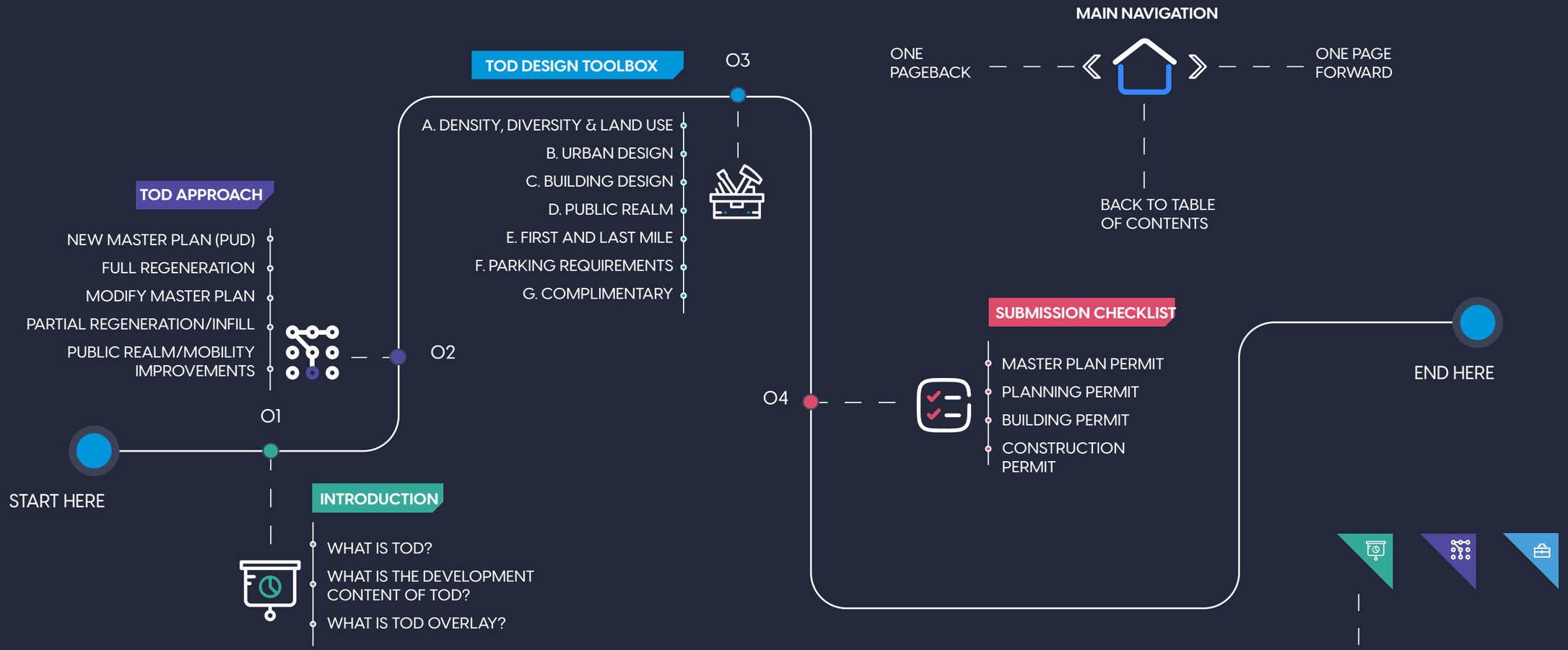
INVESTORS

TRANSPORT PLANNERS

URBAN DESIGNERS, ARCHITECTS & ENGINEERS

CONSULTANTS

HOW TO USE THE INTERACTIVE MANUAL



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01

INTRODUCTION

This section introduces the principles and objectives of TOD. It provides the users with guidance on the definition, the geographical scope of TOD, TOD boundaries, centre types and the TOD Overlay.

WHAT IS TOD?

01

Transit-oriented development (TOD) is a crucial planning and design strategy that promotes compact, mixed-use urban development with a focus on pedestrian and bicycle accessibility, as well as convenient access to mass transit. TOD clusters essential components like jobs, housing, services, and amenities around public transport stations, guided by a 5-D framework of built environment principles: Density, Diversity, Design, Destination Accessibility, and Distance to Transit.

TOD holds significant importance for cities as it serves as the foundation for long-term sustainability, equity, and shared prosperity. By shifting away from urban sprawl, TOD integrates infrastructure, street and building planning, design, and finance to prioritize public transport. This approach leads to increased public transport ridership, reduced congestion, and helps offset the city's infrastructure costs. Successful TOD implementations in cities like Hong Kong, Tokyo, Singapore, Stockholm, and Copenhagen have made these cities more livable.

For individuals

TOD fosters mixed-use, pedestrian-friendly communities that combine workplaces, residences, and shopping within a close-knit urban form. This reduces the need for lengthy commutes, enhances job availability, convenience, and fosters a sense of community among residents.

Developers also find significant value in TOD. Studies have shown that residential real estate located near transit commands higher sales prices, rental revenues and demonstrates greater resilience. Developers can leverage the higher density and compact development opportunities in TOD Zones, along with retail and active frontages that attract higher foot traffic.

In the context of Dubai TOD aligns with the Dubai 2040 vision, which aims to lead the city towards sustainability, livability, resilience, and spatial excellence. The TOD objectives in Dubai support this vision by redirecting urban development away from car-dependency and towards a greater emphasis on public transport, walking, cycling, and micro-mobility. TOD is a key tool to implement the Vision 2040 aims and aspirations for creating a well-connected 20-minute city.

DUBAI VISION 2040 GOALS

01 OPTIMIZE THE UTILISATION OF SPATIAL AND INFRASTRUCTURE RESOURCES

02 PLAN VIBRANT AND HEALTHY COMMUNITIES WITH A RANGE OF HOUSING AND CORE FACILITIES

03 ENHANCE PROVISION OF PARKS AND OPEN SPACE

04 IMPROVE ACCESSIBILITY WITH A PEOPLE CENTRIC APPROACH

05 ENHANCE THE EFFECTIVENESS OF ECONOMIC LAND

06 IMPROVE SPATIAL QUALITY OF THE ENVIRONMENT AND IMPROVE ITS RESILIENCE

07 PROTECT HERITAGE, ARCHEOLOGY, AND PLACES OF CULTURAL SIGNIFICANCE

08 APPLY SPATIAL PLANNING AND DEVELOPMENT REGULATIONS IN A CONSISTENT AND COORDINATED MANNER

TOD PRINCIPLES & OBJECTIVES

01 05 CONCENTRATE GROWTH AROUND TRANSIT NODES

55% of the population to live in TOD Zones

Average population density in TOD Zones to reach ~260 ppl/ha

04 INCREASE PUBLIC TRANSIT MODE SHARE

40% Public transport modal share

02 05 PROMOTE SOCIAL COHESION, EQUITY & AFFORDABILITY

15% of residential GFA to be Affordable Housing.

06 01 BUILD RESILIENCE TO CLIMATE CHANGE

30% Cut carbon emissions by 2030 and achieve carbon emission neutrality by 2050

03 07 ENHANCE QUALITY OF THE PUBLIC REALM

Minimum 60% shading in public open spaces.

03 03 07 PROMOTE DIVERSITY OF USES & ACTIVITIES

Up-to 55% increase in non-residential usage

04 PROMOTE WALKING & CYCLING

30% car parking reduction

35% Walking + Cycling

08 05 PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

TOD strategy implementation

WHAT IS THE DEVELOPMENT CONTEXT OF TOD?

01

TOD is not intended to be applicable only to vacant plot development in the peripheral areas of Dubai. On the contrary, TOD will serve as the planning tool that incentivizes infill development, redevelopment, renewal, and transformation of the car-oriented city into a compact, walkable, and liveable city. The TOD strategy builds on the hierarchy of centres and development contexts identified by the Dubai 2040 Structure Plan. The centres are further delineated as TOD Overlay zones, within which most of the design guidelines provided in this manual will apply.

DUBAI 2040 STRUCTURE PLAN

The Plan establishes a people-centric hierarchy of centres. As the population increases, the centres could service their own needs. Based on the hierarchy of needs, centres are designated as Neighbourhood, Community, District, Sector, Multi-sector and Urban Centres respectively. In Dubai, there are currently four existing Urban Centres, namely Historic core in Deira/Bur Dubai, Dubai Downtown, Dubai Marina and Expo 2020. By 2040 additional two Urban Centres will be developed in Dubai Silicon Oasis and Jebel Ali.

TYPOLOGIES OF CENTRES

Dubai's TOD strategy aligns with the established centre typologies of the Dubai 2040 Structure Plan, encompassing Urban, Multi-sector, and Sector Centres, while also extending to specific TOD Zones outside these centres, each with distinct requirements.

WHAT IS THE TOD OVERLAY AND A TOD Zone?

The TOD Overlay refers to the overarching boundary, delineating numerous TOD Zones distinguished by their respective station locations.

A TOD Zone refers to the area around the station up to a distance of 800m, catering to specific development parameters. The TOD Zone comprises of two distinct sub-zones which are:

0-400m boundary – TOD Hub

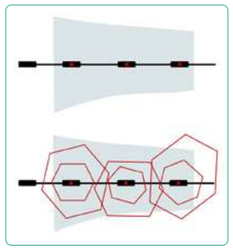
The area around the metro station within 400m distance is referred as a TOD Hub. This is based on 5min walking distance from the metro station.

400-800m boundary – TOD Neighbourhood

The area around the station from a distance of 400m to 800m is considered as the TOD Neighbourhood and is subjected to changes in the planning and development parameters as defined in the TOD Manual. The 800m boundary is based on 10 minute walking distance from the metro station.

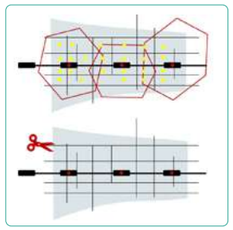
Sample TOD Zone
Each of these TOD Zones together constitute the TOD Overlay available as a GIS layer, with information pertaining to various TOD principles & required development parameters.

HOW IS THE TOD Zone DEFINED IN THE OVERLAY?



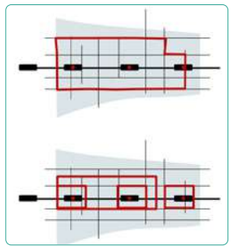
1. Locate station(s) to start the process of defining TOD Zones.

2. Generate walking areas within 5- and 10-minutes isochrones around selected stations.



3. Select the blocks that have their centres (centroids) within the 10-minute walking area isochrone.

4. Using Right of Way centrelines of road networks that define blocks of various neighbourhoods.



5. Form a boundary with the selected blocks. Then, divide into station areas within an 800m radius to establish TOD Zones.

6. These steps result in an 800m TOD Neighbourhood boundary. Repeat a similar process using the 5-minute isochrone to create the 400m TOD Hub boundary.

WHAT IS TOD OVERLAY?

01

The TOD Overlay is a spatial boundary or delineation of an area surrounding transit, within which the guidelines and targets provided in this manual will supersede the previous planning requirements.

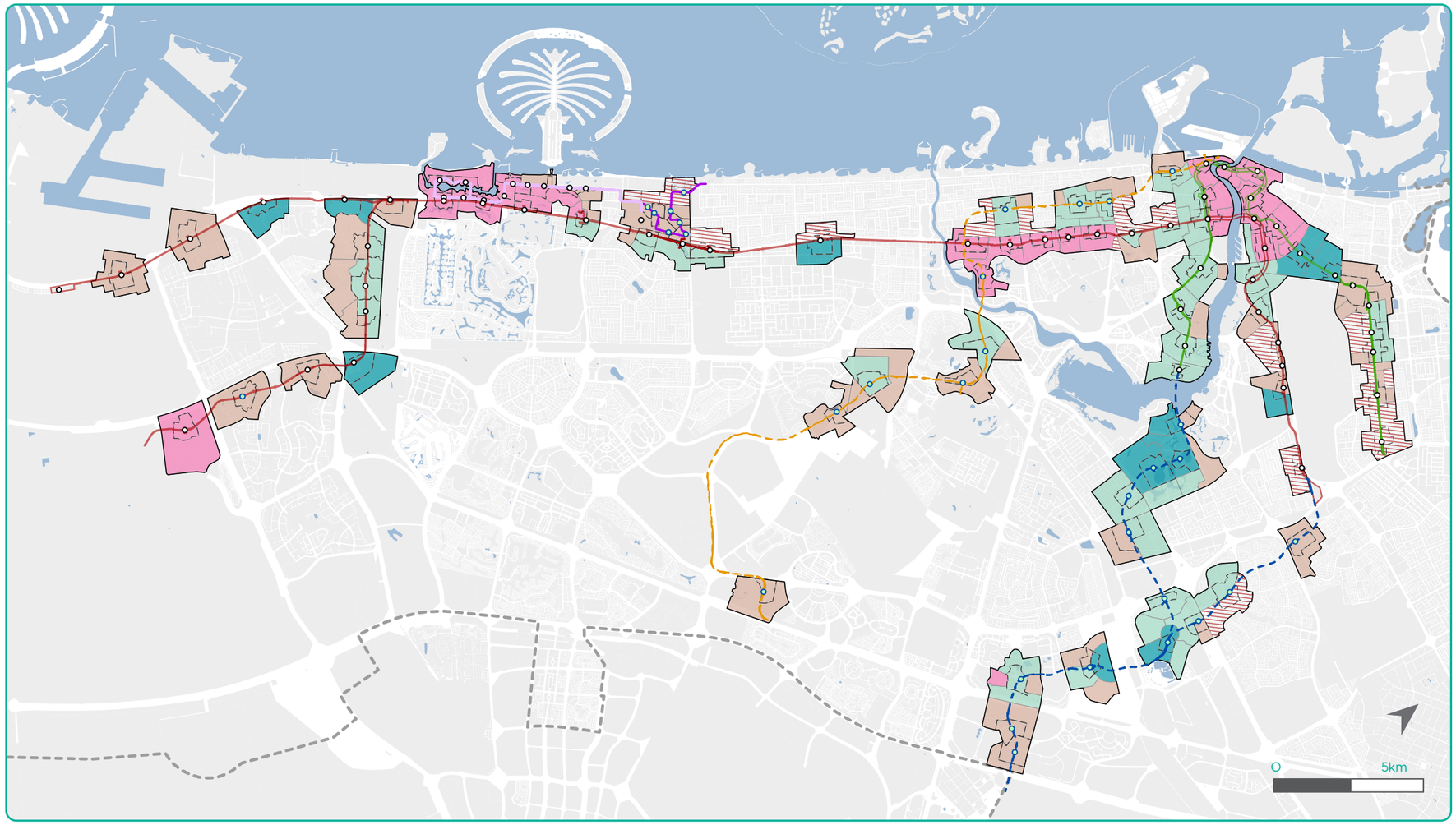
EXEMPTIONS

Locations and development types such as given below, shall be exempted from GFA intensification requirements

1. **National Housing**
2. **Conservation area**
3. **Historical buildings**
4. **Water bodies**
5. **Designated Open spaces and green spaces**
6. **Utilities**
7. **Public Services (Schools, Universities, Hospitals, Government Buildings, Religious buildings etc.)**

LEGEND

- Existing Station
- Planned Station
- Existing Red Line
- Existing Green Line
- Planned Blue Line
- Planned Golden Line
- UrbanCentre
- Multi Sector Centre
- Sector Centre
- TOD Zones outside 2040 Centre
- National housing adjacent to TOD Zones
- TOD Station Hub
- TOD Neighburhood
- Dubai's Urban Extent



Overview of metro network, 2040 Centre areas and TOD Zones

02

TOD APPROACH

Transit-oriented development is implemented through a collaboration and partnership between stakeholders and entities that build mobility infrastructure, private developments, and the public realm that connects the two.

The TOD guidelines and targets provided in this manual are aimed at guiding the planning and design of all the TOD components, and at all the scales of planning and implementation.

To use the manual effectively, navigate to the TOD topics that are important for the scope of the project.

NEW MASTER PLAN (PUD)

02

The planning approach shown here describes a step-by-step process on how a user can create a TOD Master plan for an emerging masterplanning site within any centre. Any new master plan being developed for a site that lies wholly or partially within the TOD Zone must include all the basic planning steps shown here. The order of planning steps is only indicative.

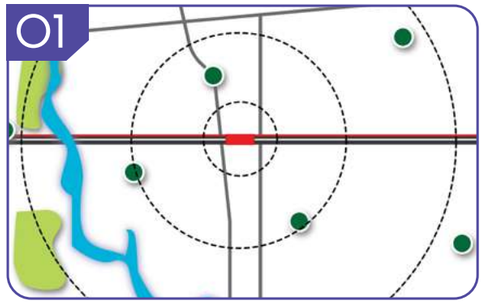
TOD master plans on vacant sites are expected to meet maximum targets across all the TOD objectives.

APPLICABLE GUIDELINES

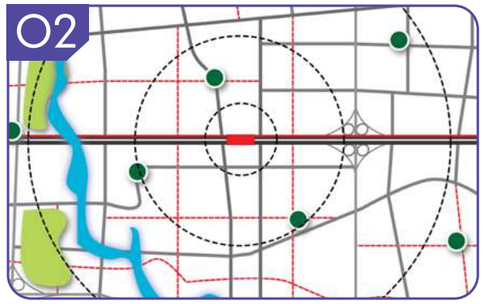
- A. DENSITY, DIVERSITY & LAND USE
- B. URBAN DESIGN
- C. BUILDING DESIGN
- D. PUBLIC REALM
- E. FIRST AND LAST MILE
- F. PARKING
- G. COMPLIMENTARY INFRASTRUCTURE

PERMIT TYPE

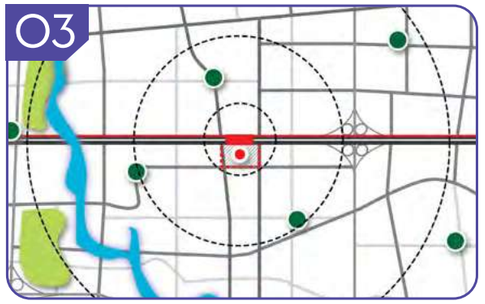
MASTERPLANNING PERMIT



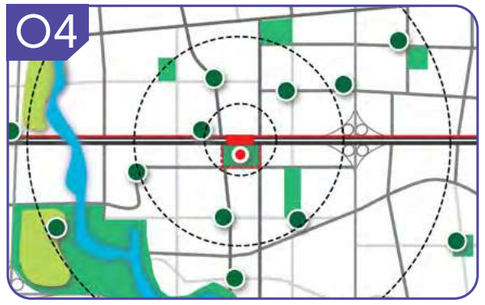
- [ ] Mark the TOD Hub and TOD Neighbourhood boundaries and delineate natural constraints and existing development, infrastructure or services as immovable assets.



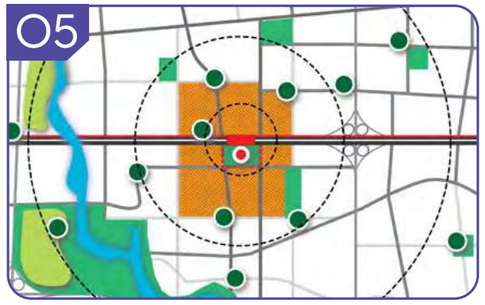
- [ ] Establish a street network that is interconnected, establishing block sizes as per the standards for the TOD typology.



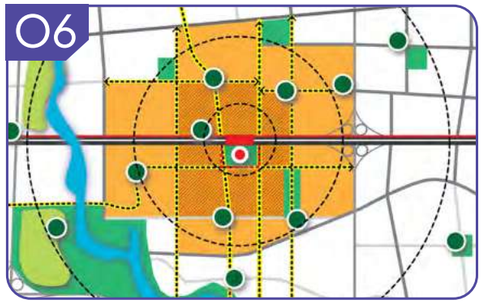
- [ ] Delineate area for a transit plaza (if station falls within the masterplanning site) as per the standards of the TOD typology.



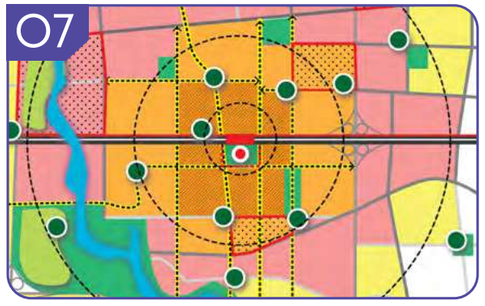
- [ ] Establish basic planning requirements for open spaces, social amenities and services as per the target population density ensuring catchment and accessibility standards are applied.



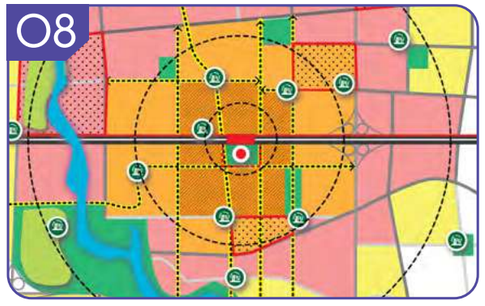
- [ ] Identify immediate locations based on proximity to stations and plan highdensity, mixed-use developments at these locations.



- [ ] Plan high-density mixed-use developments along primary access streets. Plan primary access streets as complete streets with adequate space and shading for walking and cycling.



- [ ] Assign density and intensity of uses as per TOD guidance in the remaining areas. Include minimum Affordable Housing requirements.



- [ ] Develop a sustainable infrastructure program to increase population carrying capacity.

- [ ] Establish on-street and off-street parking provisions such that public transport use is prioritized.

FULL REGENERATION

02

The planning approach shown here describes a step by step process on how a user can enhance & retrofit an area for a regeneration masterplanning site within any centre (including a historic area) and get the affection plan approved for implementation. Any developed area or a collection of built-up plots that lie within the TOD Zone can be readjusted and completely regenerated through the process shown here. Developing a full regeneration master plan will enable all participating plots to receive the full benefit of TOD.

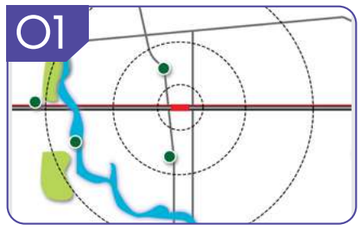
TOD master plans for regenerated sites are expected to meet targets across all TOD objectives.

APPLICABLE GUIDELINES

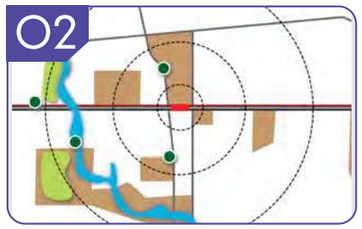
- A. DENSITY, DIVERSITY & LAND USE
- B. URBAN DESIGN
- C. BUILDING DESIGN
- D. PUBLIC REALM
- E. FIRST AND LAST MILE
- F. PARKING
- G. COMPLIMENTARY INFRASTRUCTURE

PERMIT TYPE

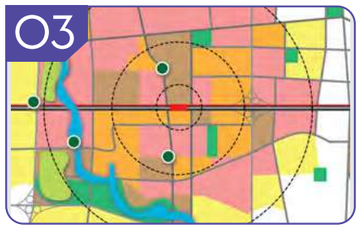
MASTERPLANNING PERMIT



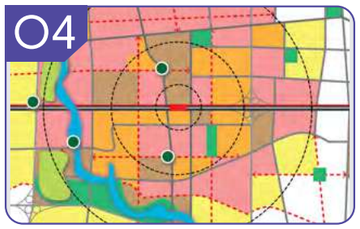
- [ ] Mark the TOD Hub and TOD Neighbourhood boundaries and delineate natural constraints as immovable assets.



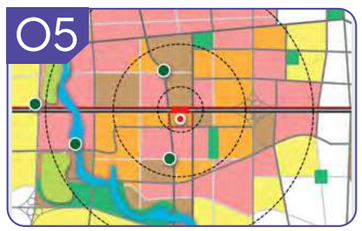
- [ ] Delineate existing underutilized, vacant lands, blighted and unused structures and decayed areas.



- [ ] Refine redevelopment boundary.

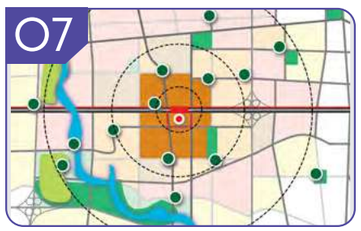


- [ ] Establish a street network that is interconnected establishing standard blocks.

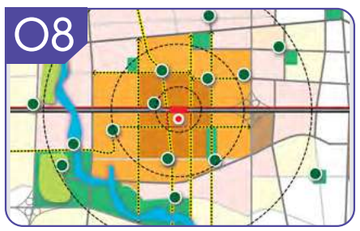


- [ ] Delineate area for a transit plaza (if station falls within the masterplanning site) as per the standards of the TOD typology.

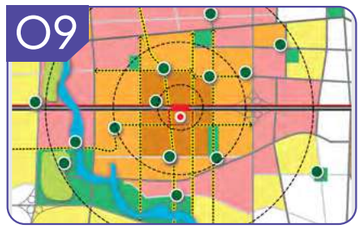
- [ ] Establish basic planning requirements for new open spaces, social amenities and services ensuring 20-min access from anywhere within the readjusted masterplanning site



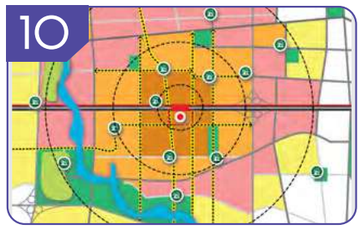
- [ ] Identify premium locations from the readjusted land scheme based on proximity to stations and plan high-density, mixed-use developments.



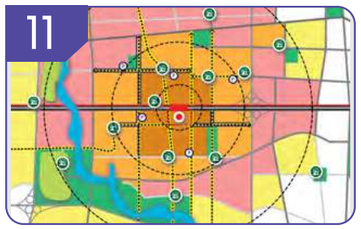
- [ ] Plan higher-density mixed-use developments for the readjusted lands along primary access streets to station. Plan primary access streets as complete streets with adequate space and shading for walking and cycling.



- [ ] Assign lower density and intensity of uses as per TOD guidance in the remaining readjusted blocks. Include minimum Affordable Housing requirements.



- [ ] Develop a sustainable infrastructure program to increase population carrying capacity.



- [ ] Establish on-street and off-street parking provisions such that public transport use is prioritized.

MODIFY MASTER PLAN

02

The planning approach shown here describes a step by step process on how a user can modify an area for an emerging, infill or regeneration masterplanning site within any centre and get the affection plan approved for implementation. Any existing master plan for a site that lies wholly or partially within the TOD Zone can be modified to include the basic planning steps shown here. The order of planning steps is only indicative.

TOD master plans on partially developed sites are expected to meet maximum targets for prioritized TOD objectives.

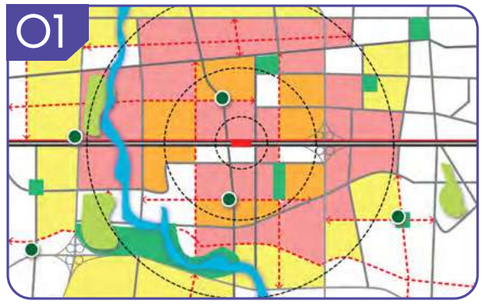
APPLICABLE GUIDELINES

- A. DENSITY, DIVERSITY & LAND USE
- B. URBAN DESIGN
- C. BUILDING DESIGN
- D. PUBLIC REALM
- E. FIRST AND LAST MILE
- F. PARKING
- G. COMPLIMENTARY INFRASTRUCTURE

PERMIT TYPE

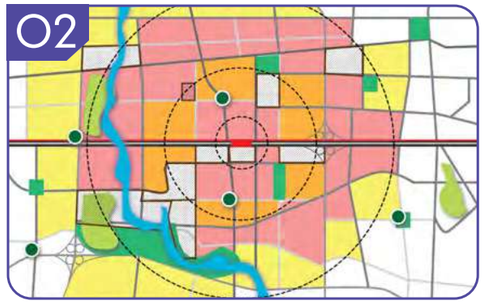
MASTERPLANNING PERMIT

01



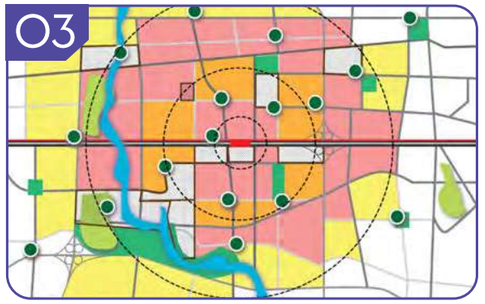
- [ ] Mark the TOD Hub and TOD Neighbourhood boundaries and identify needs and opportunities for creating an interconnected street network. Identify primary access streets and public spaces for public realm enhancement.

02



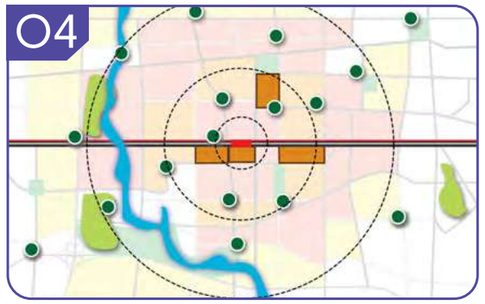
- [ ] Identify sites where infill development or redevelopment can occur, for e.g. surface parking lots, underutilized plots, older buildings, etc.

03



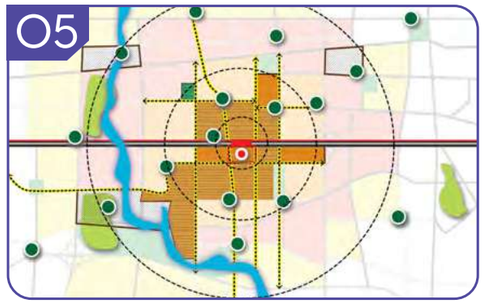
- [ ] Derive basic planning requirements for open spaces, social amenities and services as per the revised population numbers. Ensure 20min access from anywhere within the masterplanning site.

04



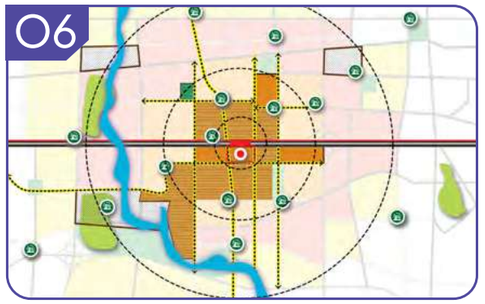
- [ ] Select the earmarked sites that have premium locational value on account of being in proximity to a transit station. Re-allocate these sites for high-density mixed-use development.

05



- [ ] Select the plots for modification that are located along primary access streets to transit. Re-allocate them for mixed-use.

06



- [ ] Develop a sustainable infrastructure program to increase population carrying capacity.

PLOT DEVELOPMENT/INFILL

02

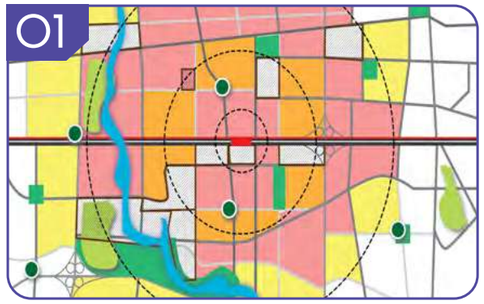
The planning approach shown here describes a step by step process on how a user can retrofit or redevelop a plot of land within a masterplanning site within any centre and get the affection plan approved for implementation. Any plot that lies wholly or partially within the TOD masterplanning area can be modified to include the basic planning steps shown here. The order of planning steps is only indicative.

APPLICABLE GUIDELINES

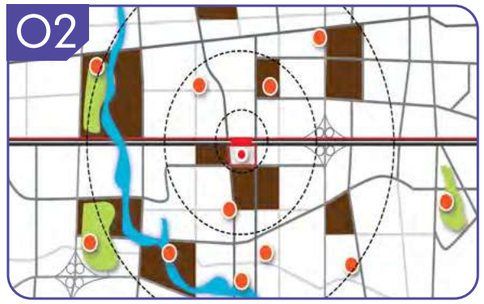
- C. BUILDING DESIGN
- D. PUBLIC REALM
- E. FIRST AND LAST MILE
- F. PARKING
- G. COMPLIMENTARY INFRASTRUCTURE

PERMIT TYPE

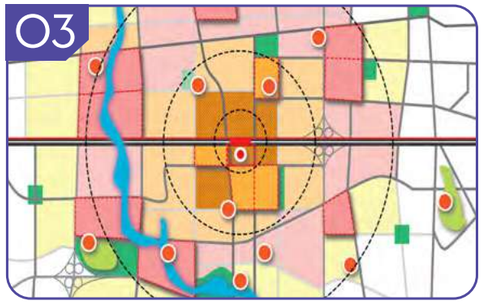
- PLANNING PERMIT
- BUILDING PERMIT



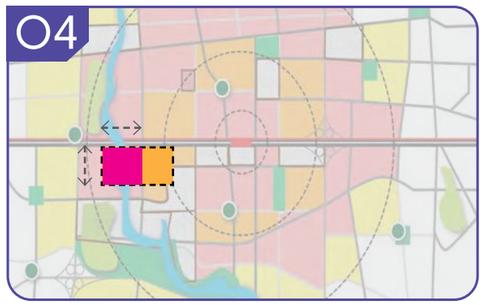
- [ ] Identify sites or vacant plots where infill development or redevelopment can occur, for eg. surface parking lots, underutilized plots, older buildings, etc.



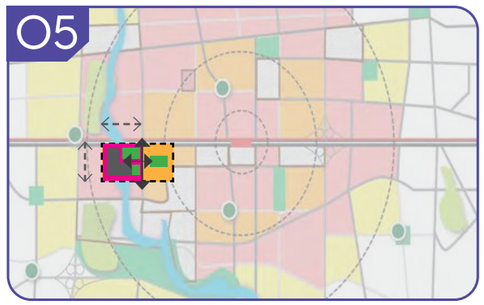
- [ ] In case of built areas, identify major underutilized buildings or parcels within the masterplanning area.



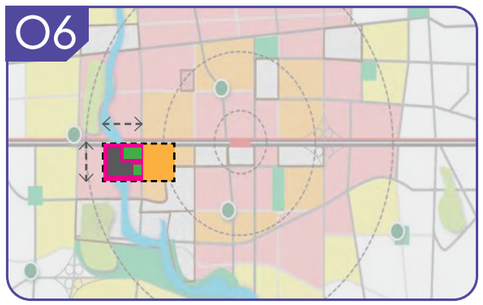
- [ ] Define revised mixed-use land use programs for such parcels and apply for land use modifications. These could be full bringing down and redevelopment or retrofit of an older building.



- [ ] Determine new suitable land uses as per TOD requirements and update existing affection plans.



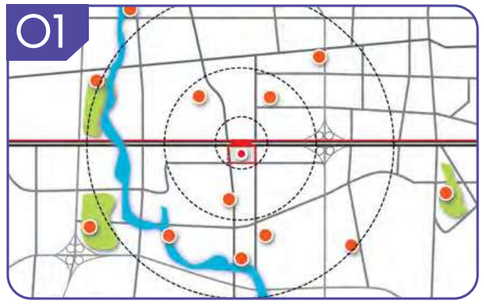
- [ ] Plan for urban design integration through continuity of streets, open space networks and building lines



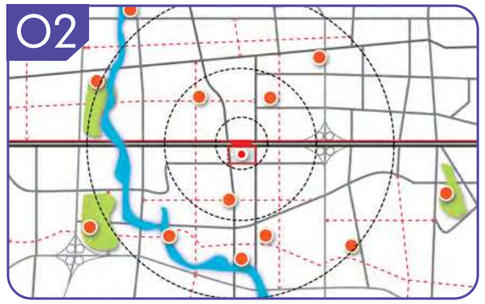
- [ ] Design buildings as per the guidelines provided in the TOD Design Toolbox to seamlessly integrate the buildings with the urban realm.

PUBLIC REALM/MOBILITY IMPROVEMENTS

The planning approach shown here describes a step by step process on how a user can improve public realm and mobility within a master planning site within any centre and get the affection plan approved for implementation. Any street, open space or public realm element that lies wholly or partially within the TOD master planning area can be modified to include the basic planning steps shown here. The order of planning steps is only indicative.



- [ ] Determine the anchors and key destinations within an area (heritage, religious, etc).



- [ ] Identify the potential street connections that need to be enhanced for providing access to the anchors and key destinations.

APPLICABLE GUIDELINES

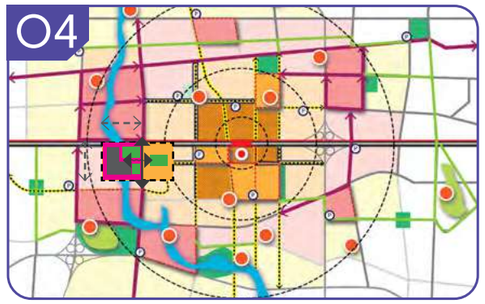
D. PUBLIC REALM

E. FIRST AND LAST MILE

F. PARKING

G. COMPLIMENTARY INFRASTRUCTURE

- [ ] Enhance pedestrian and micro-mobility provisions in the corridors and networks and identify plots which can be developed into active public spaces.



- [ ] Define revised parking strategy to compensate for lost parking spaces in the enhancement corridors/networks, but determine and implement the reduced parking requirements within the TOD zone.

PERMIT TYPE

CONSTRUCTION PERMIT

03

TOD DESIGN TOOLBOX

The toolbox provides a compendium of guidelines and targets that will be applicable to all new and upcoming developments that fall within the TOD Overlay.

A1. OPTIMISED DENSITIES AND COMPACT BUILT FORM

03

Achieve a compact and high-density built form with optimized employment and residential densities within the TOD Zones to promote walking and transit use.

A1.1 MANDATORY REQUIREMENTS

a. TOD Zones must be developed as high-density and compact developments in accordance with the residential population and employment density targets as per centre types given in the density target table.

A1.2 FLEXIBLE/NEGOTIABLEREQUIREMENTS

b. The TOD Zone should achieve the indicative zonal FAR targets as per centre types given in the zonal FAR target table. The suggested building typologies in the 'Building Design' section within this manual will help achieve these targets.

c. The master plan should define the minimum and maximum height of the podium, as well as the setback distance of the high-rise building from the sidewalk.

d. Closer to the station area provide a combination of retail, leisure uses and public open spaces, immediately surrounded by high-density development.

e. Minimize road widths as far as possible and reduce/remove setbacks along the roads to create a dense, compact urban environment with well-defined street spaces.

f. Within the TOD Zone, the highest densities and building heights are to be concentrated in the TOD Hub (0-400m), with densities and heights gradually decreasing with greater distance from the station.

g. Locate public open spaces within highly compact built-up environments to enhance the quality of life and create "breathing space" for these areas.

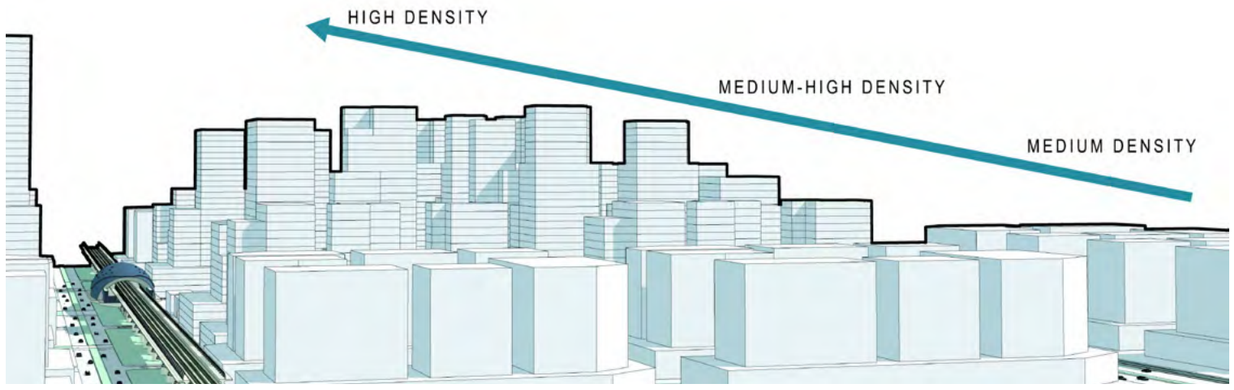


Illustration of a high-density core model in a TOD Zone

AVERAGE DENSITY TARGETS

TOD Targets	Urban Centre	Multi-Sector Centre	Sector Centre	TOD Zones outside of defined centres
Average residential population density	≥ 285 ppl/ha	≥ 265 ppl/ha	≥ 245 ppl/ha	≥ 225 ppl/ha
Average employment density	≥ 280 ppl/ha	≥ 170 ppl/ha	≥ 135 ppl/ha	≥ 120 ppl/ha

Overall targets for TOD Zones around metro stations as per centre types
In each individual TOD Zone these targets will vary based on zonal FAR targets provided in TOD overlay

INDICATIVE ZONAL FAR TARGETS

TOD Targets	Urban Centre		Multi-Sector Centre		Sector Centre		TOD Zones outside of defined centres	
	0-400m	400-800m	0-400m	400-800m	0-400m	400-800m	0-400m	400-800m
Zonal FAR	≥ 4.0 *	≥ 3.0	≥ 3.0 *	≥ 2.25	≥ 2.8	≥ 2.0	≥ 2.65	≥ 1.75

0-400m: TOD Hub
400-800m: TOD Neighbourhood
**Certain TOD Zones as identified in the TOD overlay have lower targets of >3.0 for Urban Centre and >2.25 for Multi-Sector Centre.*

+ ASSOCIATED TOD OBJECTIVES

- CONCENTRATE GROWTH AROUND TRANSIT NODES
- INCREASE PUBLIC TRANSIT MODE SHARE
- PROMOTE WALKING & CYCLING

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- PLANNING PERMIT

+ KPI

- RESIDENTIAL POPULATION DENSITY
- EMPLOYMENT DENSITY
- DEVELOPMENT DENSITY (0-400M)
- DEVELOPMENT DENSITY (400-800M)

+ REFERENCES

- DUBAI 2040 STRUCTURE PLAN

A2. MIXED-USE DEVELOPMENT

A mix of diverse and complimentary land uses allows residents and workers to walk to work or to shop rather than driving for all daily needs and creates a vibrant, lively urban environment throughout the day and in the evening.

A2.1 MANDATORY REQUIREMENTS

a. The developments should provide a mix of different uses, which is crucial for creating lively and vibrant urban environments convenient for the inhabitants. In a new master plan, the suggested percentage of employment GFA split is as per the table below.

b. In a PUD or a large mixed-use complex, combine land uses in the development that are active at different times of the day, for example offices (day-time) and cinemas (evening). These land uses can also share the same car parking facilities at different times of the day.

c. Integrate employment options into the TOD Neighbourhood and indicate these options in the master plan including office spaces, retail, hospitality and tourism, co-working spaces, public service facilities, educational facilities, healthcare facilities, science and research facilities.

A mixed-used urban development with pop-up retail shops and large commercial spaces at Munich-Riem metro station, Germany

Mosque combined with retail in Dubai Silicon Oasis, Dubai

Development with residences at the top and commercial space at ground level, La Mer, Dubai

Illustration of mixed-uses within the TOD Hub

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE SOCIAL COHESION, EQUITY & AFFORDABILITY
- INCREASE PUBLIC TRANSIT MODE SHARE

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- PLANNING PERMIT

+ KPI

- % OF EMPLOYMENT GFA TO TOTAL GFA
- % OF GFA ALLOCATED TO AFFORDABLE HOUSING

+ REFERENCES

- DUBAI 2040 STRUCTURE PLAN
- DUBAI AFFORDABLE HOUSING POLICY

INDICATIVE EMPLOYMENT GFA SHARE

TOD Targets	Urban Centre	Multi-Sector Centre	Sector Centre	TOD Zones outside of defined centres
% of employment GFA of the total GFA	55%	40%	30%	30%

A3. PERMISSIBLE AND NON-PERMISSIBLE USES

To align landuse regulations with TOD principles, certain non-compatible landuses will be discouraged in the TOD zone, while certain suitable landuses will be actively encouraged.

A3.1 NON-PERMISSIBLE LAND USE TYPES

The following land uses and facilities are considered to be non-compatible with TOD and are therefore NOT PERMITTED within the TOD Hub or TOD Neighbourhood unless special conditions apply.

Not Permitted Permitted Not desirable but permitted with special conditions

Land Use type	TOD Hub: 400 m radius	TOD Neighbourhood: 800 m radius	Remarks
Industrial & Logistics:			
Warehouses/storage facilities			Unless located in Urban Regeneration areas (Refer to guideline A7)
Light Industrial (non-polluting)			Not permitted within 400-800m for new master plans except for Urban Regeneration areas.
Industrial/manufacturing			
Transport facilities:			
Petrol stations			Not permitted within 400-800m for new master plans.
Stand-alone multi-storey car parks — Built by RTA			Refer to guideline F5
Stand-alone multi-storey car parks — Built by private investors			Refer to guideline F5
Surface car parking			
Public transport depots and garages			
Utilities:			
Large Utilities Structures, more than 1000m2 site area			Not permitted within 800m for new master plans.
Residential:			
Low-rise residential: villas			
Low-rise residential: townhouses			Townhouses are permisible in TOD Neighbourhood provided that overall minimum residential densities are met.
Other special uses:			
Golf courses			
Car repair workshops			

A3.2 SUGGESTED LAND USE TYPES

The following land uses and facilities are particularly suitable for TOD Zones and shall be specifically encouraged.

Note: Existing built non-permitted uses can be retained and shall be assessed on a case-by-case basis for change in land-use when being redeveloped. However, vacant land parcels with an existing permit for a non-permitted landuse will require a change in land-use to be developed.

Land Use type	TOD Hub: 400 m radius	TOD Neighbourhood: 800 m radius	Remarks
Mixed-use:			
Lifestyle Retail & Outdoor Retail			
Food & Beverage			Drive-throughs are not permitted
Recreation & Leisure			
Hybrid buildings (e.g. office + residential combined)			
Offices, with retail at ground floor			
Hotels and Tourism, with retail at ground floor			
Residential, with retail at ground floor			
Public Services:			
Cultural uses			
Education			Large, enclosed educational campuses not to be located in TOD Hub. Smaller facilities such as language schools, business schools are permissible.
Healthcare			Large, enclosed hospital compounds to be avoided in the TOD Hub
Transport facilities:			
Bus terminals			Preferable close to the station
Integrated Transport Hubs			Preferable close to the station
Residential Types:			
High-rise residential			
Medium-rise residential			
Affordable Housing			

A4. HOUSING REQUIREMENTS

Provide a diversity of housing choices, which include a mixture of types, styles, price ranges and tenure, within the TOD Zone.

A4.1 MANDATORY REQUIREMENTS

a. Locate the highest residential densities at the closest proximity to the transit station.

A4.2 FLEXIBLE/NEGOTIABLEREQUIREMENTS

b. In a new master plan, provide a minimum of 15% of the residential GFA to Affordable Housing or as defined in the Affordable Housing Policy of Dubai.

c. In the master plan, provide a variety of plot sizes spread across the TOD Zone to encourage investments in different types of housing.

d. The TOD Hubs located within Urban Centres, Multi-sector or Sector Centres are the preferred location for Affordable Housing development.

e. As Affordable Housing developments will form an important part of the TOD Zone, the buildings should adhere to high standards of architectural design, façade design and landscaping.

f. Provide a variety of housing options and typologies for families, singles, the elderly, and students etc. to attract diverse population, both for ownership and renting.

g. In the master plan, the preferred locations for Affordable Housing should be clearly marked within the residential or mixed-use areas.

h. Affordable Housing can be built in a variety of typologies and densities;
   - Combined with a commercial podium or active ground level.
   - Mixed with market-rate housing or other high-quality land uses (hotels, offices) to avoid creating social ghettos.

i. Differentiate residential plots in the master plan by location and urban design character, for example:
   - Larger residential plots with larger building heights to emphasize gateway locations and central locations close to the stations.
   - Medium-sized plots with mid-rise buildings to be located along major arterial streets and mixed commercial areas.
   - Smaller plots with mid-rise buildings to be located along minor local streets and farther away from the station.

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE SOCIAL COHESION, EQUITY & AFFORDABILITY
- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- PLANNING PERMIT
- BUILDING PERMIT

+ KPI

- % OF GFA ALLOCATED TO AFFORDABLE HOUSING

+ REFERENCES

- DUBAI AFFORDABLE HOUSING POLICY

High-rise development around a metro station, Dubai

Medium-rise development, Town Square, Dubai

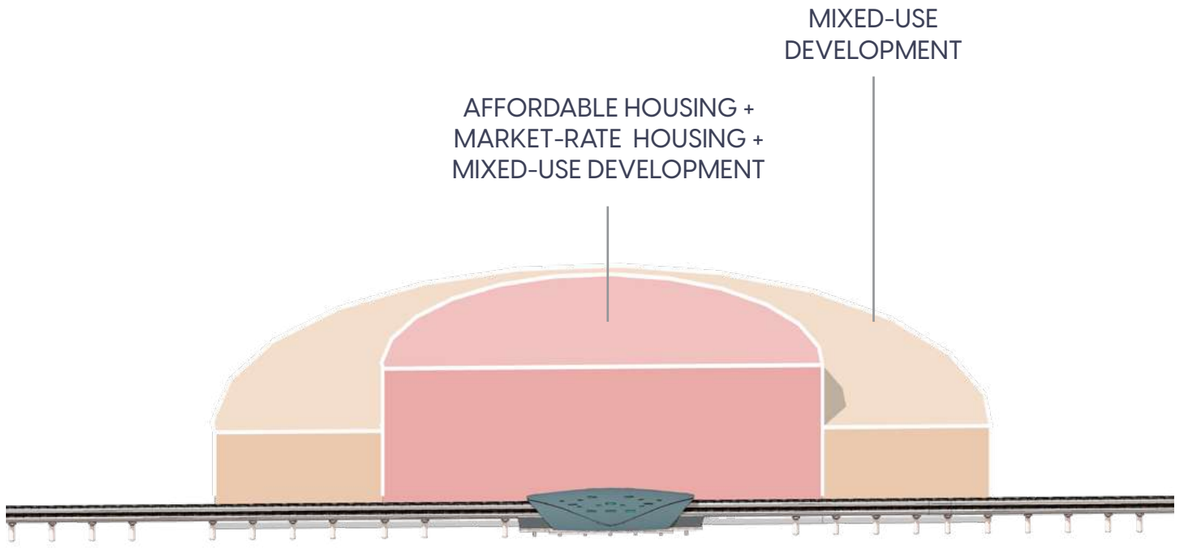


Illustration depicting the concept of location and suggested mix of housing options with mixed-use development.

A5. SPATIAL DISTRIBUTION OF AMENITIES

03

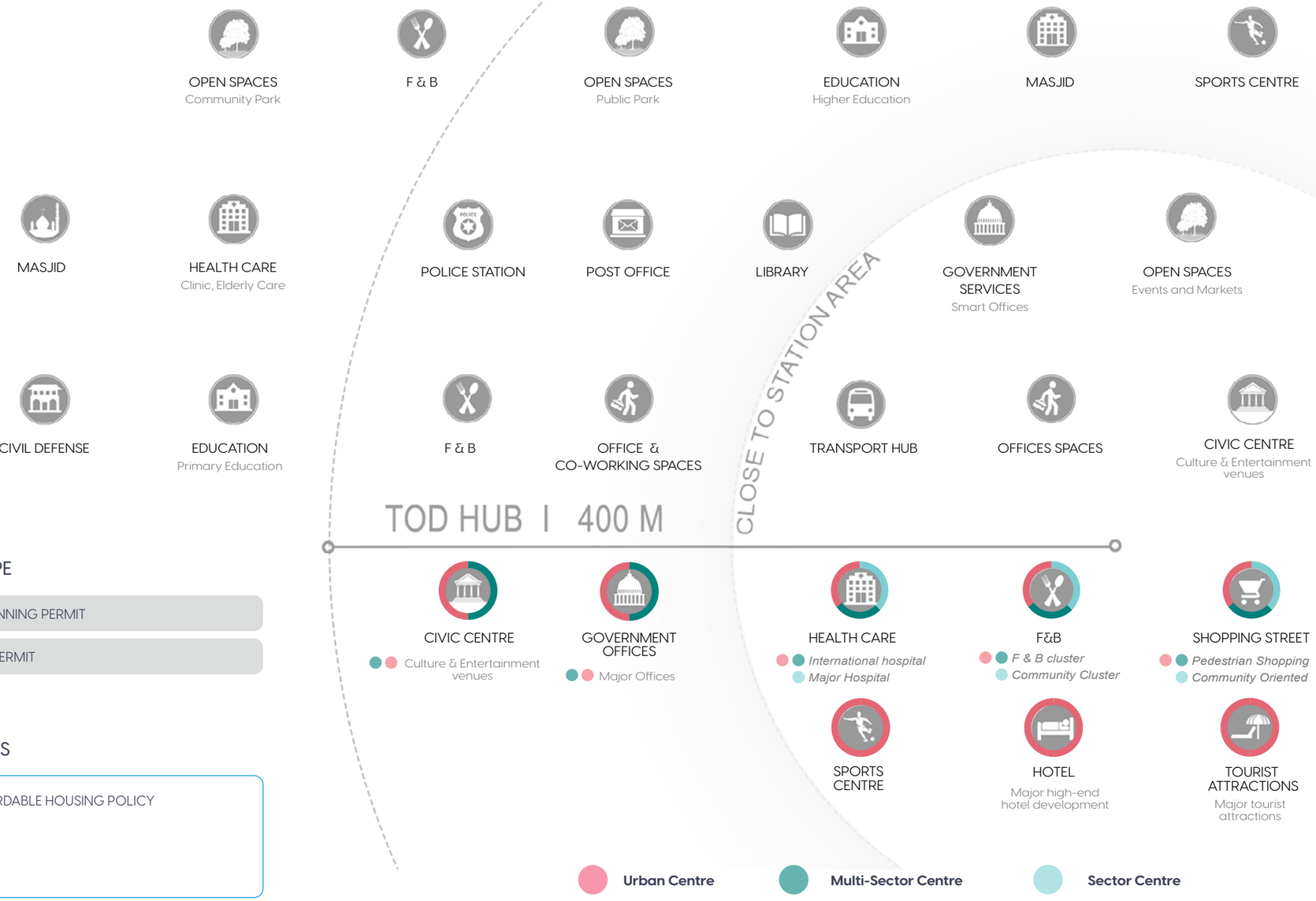
Plan amenities that are conveniently positioned to serve the existing and future populations.

A5.1 FLEXIBLE/NEGOTIABLE REQUIREMENTS

a. Locate amenities based on a "concentric circles" model so that they are easily accessible according to the distance from the station.

b. Concentrate services with high frequency of users close to the station and locate community-oriented uses closer to or within the residential areas.

- Urban Centres are vibrant hubs of social, cultural, and economic activity, serving as the heart of a city. They offer a wide range of services and facilities, attracting people from both the region and internationally.
- Multi-Sector Centres while less densely populated than Urban Centres, still provide essential goods and services to residents while attracting visitors. They serve as regional and local destinations, offering a comprehensive suite of functions.
- Sector Centres located near Urban or Multi-Sector Centres, act as local-level hubs for surrounding residential developments. They offer moderate service and facilities, focusing on local functions and providing residential and local employment opportunities.



+ ASSOCIATED TOD OBJECTIVES

- PROMOTE SOCIAL COHESION, EQUITY & AFFORDABILITY
- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- PLANNING PERMIT

+ KPI

- % OF GFA ALLOCATED TO AFFORDABLE HOUSING

+ REFERENCES

- DUBAI AFFORDABLE HOUSING POLICY

A6. PLANNING NEAR NATIONAL HOUSING LOCATIONS

03

New developments near National Housing locations are required to minimize any impact on the adjacent National Housing sites and to employ buffer zones, height restrictions and other measures to maintain privacy of the local citizens and ensure high-quality living conditions.

A6.1 MANDATORY REQUIREMENTS

a. Provide green buffers or use landscaping techniques to create visual barriers between high-rise development and National Housing sites. This can include planting trees, hedges, screens or fences that provide privacy and block direct views.

b. National Housing locations must be segregated from low-income and Affordable Housing developments by a major public streetspace/ROW.

c. Within 50m distance of National Housing, all developments are limited to G+2, between 50m and 100m distance they are limited to G+6 floors.

A6.2 FLEXIBLE/NEGOTIABLEREQUIREMENTS

d. Premium commercial facilities can be located in the vicinity of the National Housing to enhance the living conditions and provide convenient shopping, dining and leisure services for residents.

e. Public realm and mobility improvements in National Housing locations should be encouraged, primarily to enhance the quality of landscape and streetscape, provide shading, and improve pedestrian and cycling safety measures to promote walking, cycling and other mobility options.

f. It is recommended to maximize the building coverage and minimizing the building heights to avoid over-looking into National Housing locations.

g. The developments should minimize the number of windows, balconies and other openings that are directly facing National Housing locations. This can involve strategic placement of windows, balconies, and common areas, as well as using techniques like terracing or setbacks in the tower's design to reduce direct lines of sight.

High-rise towers in DIFC overlooking National Housing across the E11 in Al Satwa

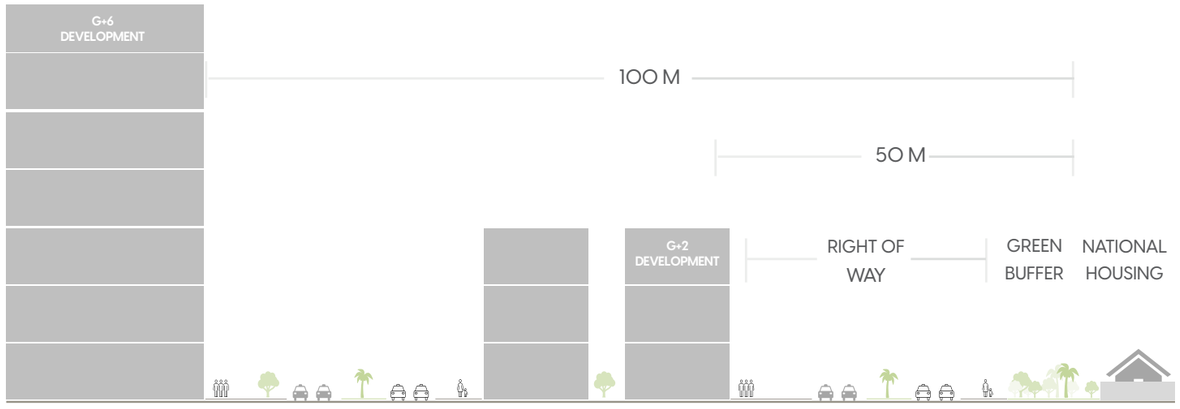


Illustration showing the edge of the National Housing parcel separated from multi-storey development by a green buffer and a public streetspace/ROW to provide a physical and functional distinction

+ ASSOCIATED TOD OBJECTIVES

- ENHANCE QUALITY OF THE PUBLIC REALM

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- PLANNING PERMIT
- BUILDING PERMIT

+ KPI

+ REFERENCES

- DUBAI BUILDING CODE
- ABUDHABI PUBLIC REALM GUIDELINES

A7. LOGISTICS AND WAREHOUSING LOCATIONS

03

Regeneration areas identified in Dubai 2040 Structure Plan, which support the city's functions through logistics and warehousing activities should be regenerated to co-locate other uses such as commercial, retail and residential to create active frontages and vibrant streets.

A7.1 MANDATORY REQUIREMENTS

a. In new master plans, outside of regeneration areas, warehousing and logistics spaces are non-permissible land uses within the entire TOD Zone (see table of 'A3.1 Non-permissible land uses')

A7.2 FLEXIBLE/NEGOTIABLEREQUIREMENTS

b. In urban regeneration areas – as approved by Dubai Municipality in accordance with the 2040 Structure Plan – logistics and storage spaces are permissible only in the TOD Neighbourhood (400-800m).

c. Within the TOD Neighbourhood, existing logistics buildings can be retained.

d. New buildings in the TOD Zone may incorporate logistics facilities provided they are co-located with commercial or residental uses.

e. Individual warehouses and logistics facilities within the TOD Zone should not exceed 5,000 sqm. GFA in size.

f. These facilities should not be used for storing and distributing hazardous or explosive goods, and must strictly adhere to fire regulations and hazardous goods regulations.

g. These facilities should be primarily focused on distribution of consumer goods and supplies (including hospitality supplies) to adjacent communities and urban areas, especially by e-commerce.

h. These facilities should be used for regional, national or international distribution purposes.

i. Should not be used for industrial goods, bulk goods, raw materials and any other goods not typically consumed in urban areas.

j. Should not be located adjacent to schools, mosques and other major public facilities.

k. Should be located within 400m distance of an access point to an arterial road or highway, and the access route for HGV must not lead through residential areas.

l. Small-scale logistics and e-commerce facilities (< 1,000 sqm. GFA) may be integrated at the ground level of other developments such as office buildings, showrooms, exhibition spaces and affordable or low-income housing etc.

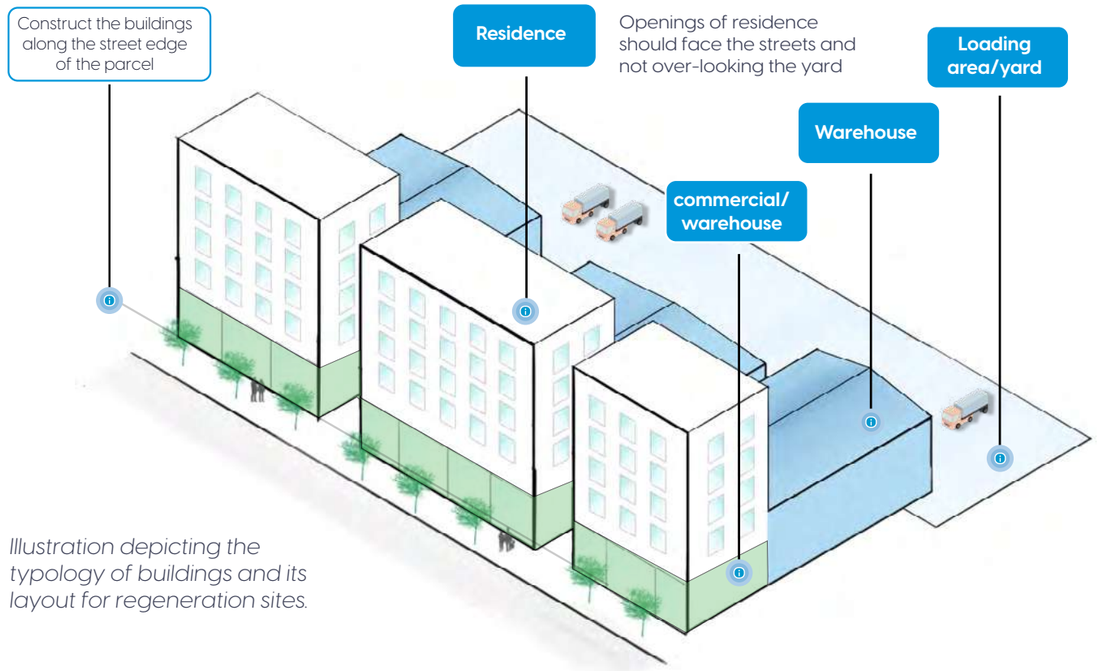


Illustration depicting the typology of buildings and its layout for regeneration sites.

Locate new buildings with integrated logistics and warehousing functions close to the arterial roads away from the TOD Hub to allow access for delivery vehicles.

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- PLANNING PERMIT
- BUILDING PERMIT

+ KPI

- % OF EMPLOYMENT GFA TO RESIDENTIAL GFA
- % OF GFA ALLOCATED TO AFFORDABLE HOUSING

+ REFERENCES

- DUBAI 2040 STRUCTURE PLAN
- DUBAI AFFORDABLE HOUSING POLICY

B1. URBAN FORM AND LAYOUT

Urban design and block layout and its orientation should create a compact urban form which optimizes climate comfort for pedestrianised neighbourhoods. Wide roads with heavy vehicular traffic should be avoided in TOD Zones.

B1.1 MANDATORY REQUIREMENTS

a. In the master plan, create multiple route options for bypassing the TOD Hub to disperse vehicular traffic.

b. Highways and arterial roads must not be planned in the TOD Hub.

c. In the master plan, provide active frontages along the identified primary pedestrian routes.

B1.2 FLEXIBLE/NEGOTIABLEREQUIREMENTS

d. In the master plan, the area around the station should be planned as a pedestrian-oriented neighbourhood with a pattern of human-scale streets, green spaces and public spaces.

e. The urban design of new master plan should minimize solar exposure and heat accumulation, especially during the summer months by optimizing street & building orientation.

f. In Dubai's hot climate, the building's morphology should maximize the shade:

- East-west orientation is preferred to north-south to maximize shading by buildings.
- Maximize shading of open spaces and shared spaces from adjacent buildings. If building shadows are insufficient, provide daytime shade by using pergolas, shading roofs and tree canopies.
- Street widths and right of ways should be reduced and thereby distance between adjacent buildings to maximize mutual shading where feasible.
- Minimize setback requirements and thereby distance between adjacent buildings to maximize shading.
- Urban form as proposed in the master plan needs to enable natural ventilation between buildings and align with the predominant wind direction.

g. Existing roads close to the station area should be converted into landscaped urban boulevards, speed limits should be imposed and safe pedestrian crossing points added.

h. Locate public open spaces within highly compact built-up environments to enhance the quality of life and create "breathing space" for these areas.

+ ASSOCIATED TOD OBJECTIVES

- CONCENTRATE GROWTH AROUND TRANSIT NODES
- ENHANCE QUALITY OF THE PUBLIC REALM
- BUILD RESILIENCE TO CLIMATE CHANGE
- PROMOTE WALKING & CYCLING

+ PERMIT TYPE

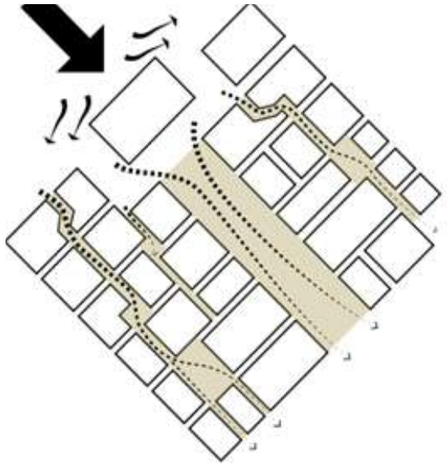
- MASTERPLANNING PERMIT

+ KPI

- WALKING DISTANCE FROM METRO TO OTHER PUBLIC TRANSIT MODES
- TRANSIT PLAZA PROVISION

+ REFERENCES

- ESTIDAMA



Street orientation and urban grid layout should be used as a vertical wind barrier to block hot desert winds

Arterial roads bypassing the TOD region at Canary Wharf, London

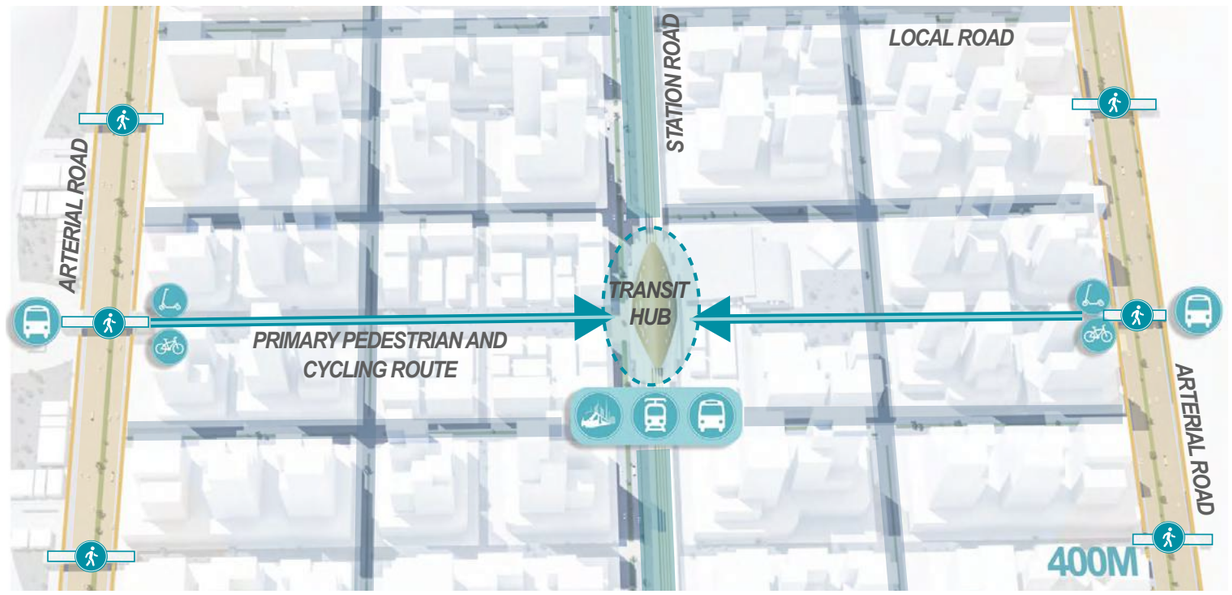


Illustration depicting the arterial roads outside of the TOD Hub with the collector roads and pedestrian corridor directing to the metro station.

B2. URBAN PERMEABILITY

The urban fabric in TOD Zones should be well-integrated with stations to provide convenient and direct pedestrian links and enable the development of a walkable community.

B2.1 MANDATORY REQUIREMENTS

a. In the master plan, improve street permeability by creating short and continuous routes for pedestrians and non-motorized modes between the station and major destinations within the TOD Zone.

b. Define sikkas or passageways or public access through the building at a distance of not more than 80m in the master plan between adjacent buildings to create convenient passages for pedestrians and cyclists.

B2.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

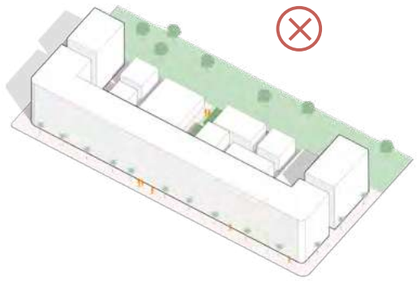
c. In a new master plan, avoid locating gated communities within the TOD Zone.

d. In case of existing gated communities, a direct and shortest pedestrian and cycling link from the nearest gate to the station should be provided.

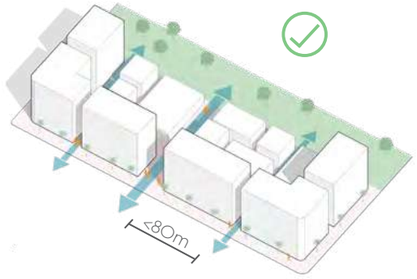
e. In case of existing gated communities, create additional pedestrian-only gates to create shortcuts. For example, this issue needs to be addressed at gated communities and golf courses at Nakheel Station, Dubai Investment Park, Silicon Oasis Station (planned).

f. Provide safe pedestrian crossings in front of the station to connect seamlessly to pedestrian routes.

Blocked pedestrian link due to impermeable building arrangement



Sikkas or passseways between buildings create pedestrian link



+ ASSOCIATED TOD OBJECTIVES

- CONCENTRATE GROWTH AROUND TRANSIT NODES
- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE WALKING & CYCLING

+ PERMIT TYPE

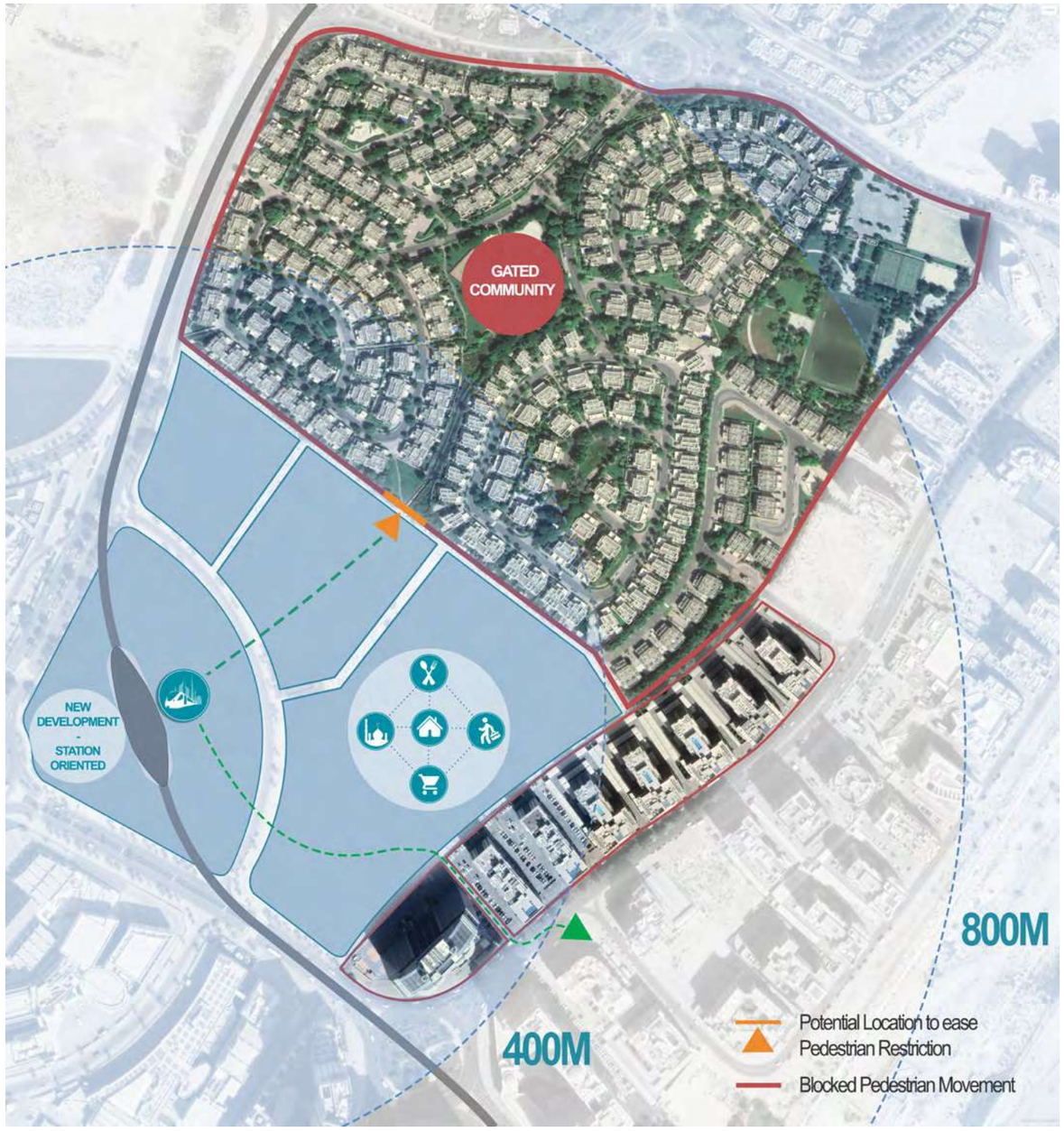
- MASTERPLANNING PERMIT
- PLANNING PERMIT
- BUILDING PERMIT

+ KPI

- WALKING DISTANCE FROM METRO TO OTHER PUBLIC TRANSIT MODES
- % OF OPEN SPACE SHADED

+ REFERENCES

- MASTER PLANNING GUIDELINES, DDA
- DUBAI UNIVERSAL DESIGN CODE FINAL, 2017



Improvements to pedestrian permeability and accessibility by providing additional access points to existing gated communities and creating sikkas through existing developments.

C1. CONNECTIONS BETWEEN BUILDINGS AND STATIONS

The stations and the TOD Zone development need to be highly integrated with the surrounding neighbourhoods and need to provide convenient and direct pedestrian links.

C1.1 MANDATORY REQUIREMENTS

a. The metro station must be directly and conveniently connected to major commercial/mixed-use buildings, and other major adjacent destinations and attractions - either at elevated level, at underground level or at-grade.

b. The direct pedestrian links must not be obstructed by walls, fences, utilities and technical facilities or other barriers.

c. The direct pedestrian links must provide sufficient capacity for pedestrian movements at peak travel times.

d. The pedestrian flow must be directed towards the transit plaza and farther towards pedestrian-oriented retail spaces and public green links.

C1.2 FLEXIBLE/NEGOTIABLEREQUIREMENTS

e. Elevated Walkways: Where possible, elevated metro stations should have enclosed and air-conditioned or fully shaded walkways connecting them directly to nearby major destinations. These walkways should provide access to adjacent buildings, transit plazas, bus terminals/transfer hubs, taxi stands, sidewalks, pedestrian streets, and green spaces.

f. Underground Connections: Underground metro stations should encourage direct links to significant nearby buildings, such as shopping malls, office buildings, super-tall towers, and cultural or sports venues. Well-designed underpasses with sufficient height and width, high-quality materials, good lighting, and optional small retail spaces can activate the space.

g. Access Requirements: Both elevated walkways and underground links must follow principles of universal design, ensuring full accessibility for people with disabilities. The width, stairs, ramps, elevators, and escalators should be designed based on anticipated peak usage, considering computer simulations of pedestrian movements to prevent overcrowding.

h. At-Grade Connections: If elevated or underground links are not possible, fully shaded pedestrian connections should be provided at ground level. Safe crossing points, such as raised zebra crossings, must be included when pedestrian links cross roads. Additionally, direct mid-block pedestrian shortcuts or sikkas can be added to connect to major destinations.

Note: To ensure fairness and avoid potential conflicts, it is crucial to engage in proactive communication with relevant authorities, secure necessary agreements and coordinate efforts with adjacent property owners.

+ ASSOCIATED TOD OBJECTIVES

- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE WALKING & CYCLING
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- PLANNING PERMIT
- BUILDING PERMIT

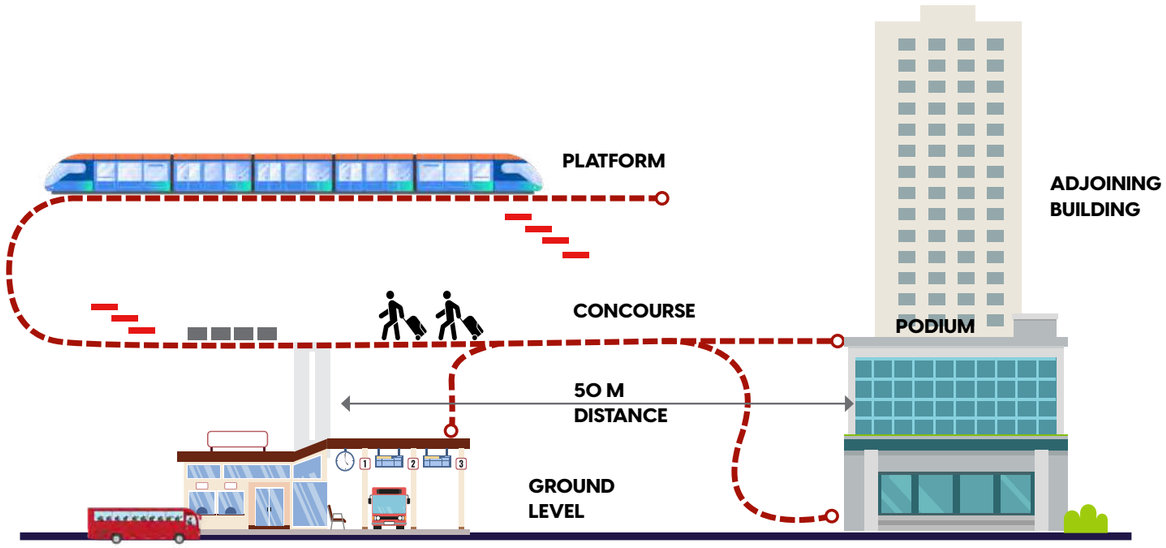
+ KPI

- WALKING DISTANCE FROM METRO TO OTHER PUBLIC TRANSIT MODES

+ REFERENCES

- DUBAI PEDESTRIAN AND CYCLING MANUAL, RTA
- DUBAI TRAFFIC CONTROL DEVICE MANUAL, 2018,RTA
- ROADSIDE DESIGN GUIDE FOR DUBAI, 2008, RTA

Pedestrian Bridge at One Dundas Street West, Toronto



Schematic illustration showing seamless integration

C2. BUILDING FRONTAGE

The building frontage should be designed to encourage multifunctionality of the adjacent street and development, permeability and ease of access within and around the development for all.

C2.1 MANDATORY REQUIREMENTS

Build-to-lines:

a. Organize the building footprint to align with the parcel edges along the street-facing side to create a perimeter block enabling a continuous and uniform street edge.

b. Avoid boundary walls and fences around the parcel to allow permeability.

Active Frontage Treatments:

c. Any new development must provide 60%-100% active frontage towards the street at ground level.

d. Provide an entrance to each ground floor retail unit, which is identifiable and directly accessible from the public sidewalk.

e. Coordinate the location of building entrances with transit stops and stations to ensure shortest possible walk from the station to the building entrance.

C2.2 FLEXIBLE/OPTIONAL GUIDELINES

f. 70% of the total frontage should follow the building edge along the street.

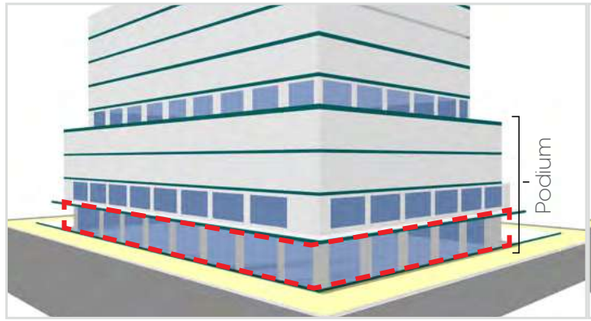
g. Plot edges should support the function of the streets they face. Edges facing vehicle-priority streets may prioritize vehicle entries, and informal round-the-clock street surveillance.

h. Avoid "dead elevations" and windowless facades at ground level. The ground level should be 100% visually permeable on major streets, and at least 50% visually permeable on minor streets.

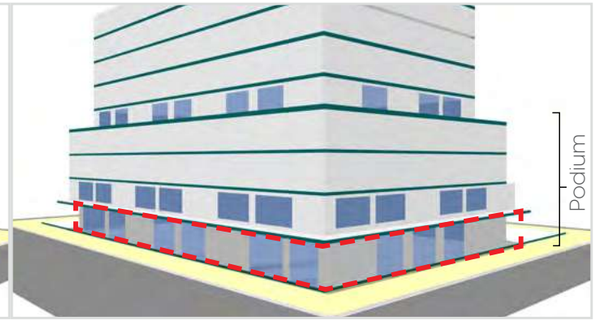
i. The street edges should further be enhanced by the addition of regulated shop front signage guidelines.

Arcades or Colonnades:

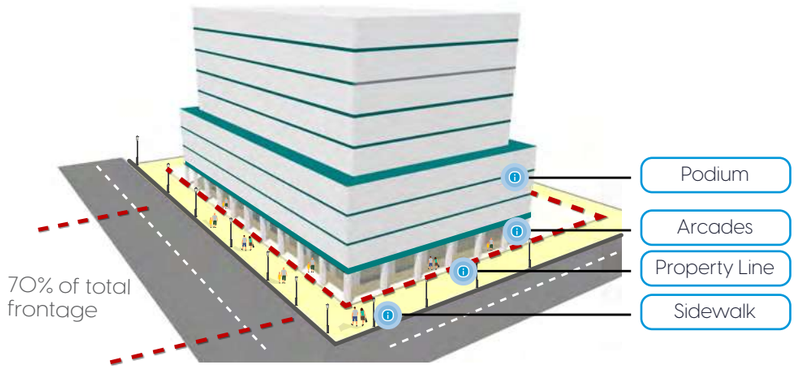
j. Arcades and colonnades may be designed as frontage on main streets, within proximity of 400 m to transit station to build direct pedestrian connection.



Visual permeability-100 %



Visual permeability-50 %



Frontage vs built to line

Colonnade design in office park, Dubai Hills

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE SOCIAL COHESION, EQUITY & AFFORDABILITY
- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

- BUILDING PERMIT

+ KPI

+ REFERENCES

- DUBAI 2040 STRUCTURE PLAN
- DUBAI BUILDING CODE
- MASTER PLANNING GUIDELINES, DDA

C. BUILDING DESIGN

C3. ARRANGEMENT OF BUILT USES

03

The arrangement of built uses within a plot should enhance inclusion, accessibility, and comfort.

C3.1 MANDATORY REQUIREMENTS

a. In multi-storey buildings the vertical mix of uses must be organized in the order of the potential footfalls they may attract.

b. In low-density areas, horizontal mix of uses can be achieved by placing common uses like retail and community buildings at corners and edges of blocks while residential uses are placed in the interior of streets.

c. Parking when accomodated within buildings must either be in basements, within the podium or in a structured parking behind buildings which is not visible from the street.

C3.2 FLEXIBLE/NEGOTIABLEREQUIREMENTS

d. Accordingly, retail and market-based uses should be located closest to the street, followed by commercial and social amenities, and residences should be placed on upper floors to achieve highest privacy.

e. Buildings (except townhouses and any designated special buildings) should include multiple uses such as retail, offices, residential units including owned or rented apartments, and co-living units, as per Dubai Affordable Housing Policy.

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE SOCIAL COHESION, EQUITY & AFFORDABILITY
- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

- BUILDING PERMIT

+ KPI

- % OF EMPLOYMENT GFA TO TOTAL GFA

+ REFERENCES

- DUBAI 2040 STRUCTURE PLAN
- DUBAI BUILDING CODE
- MASTER PLANNING GUIDELINES, DDA

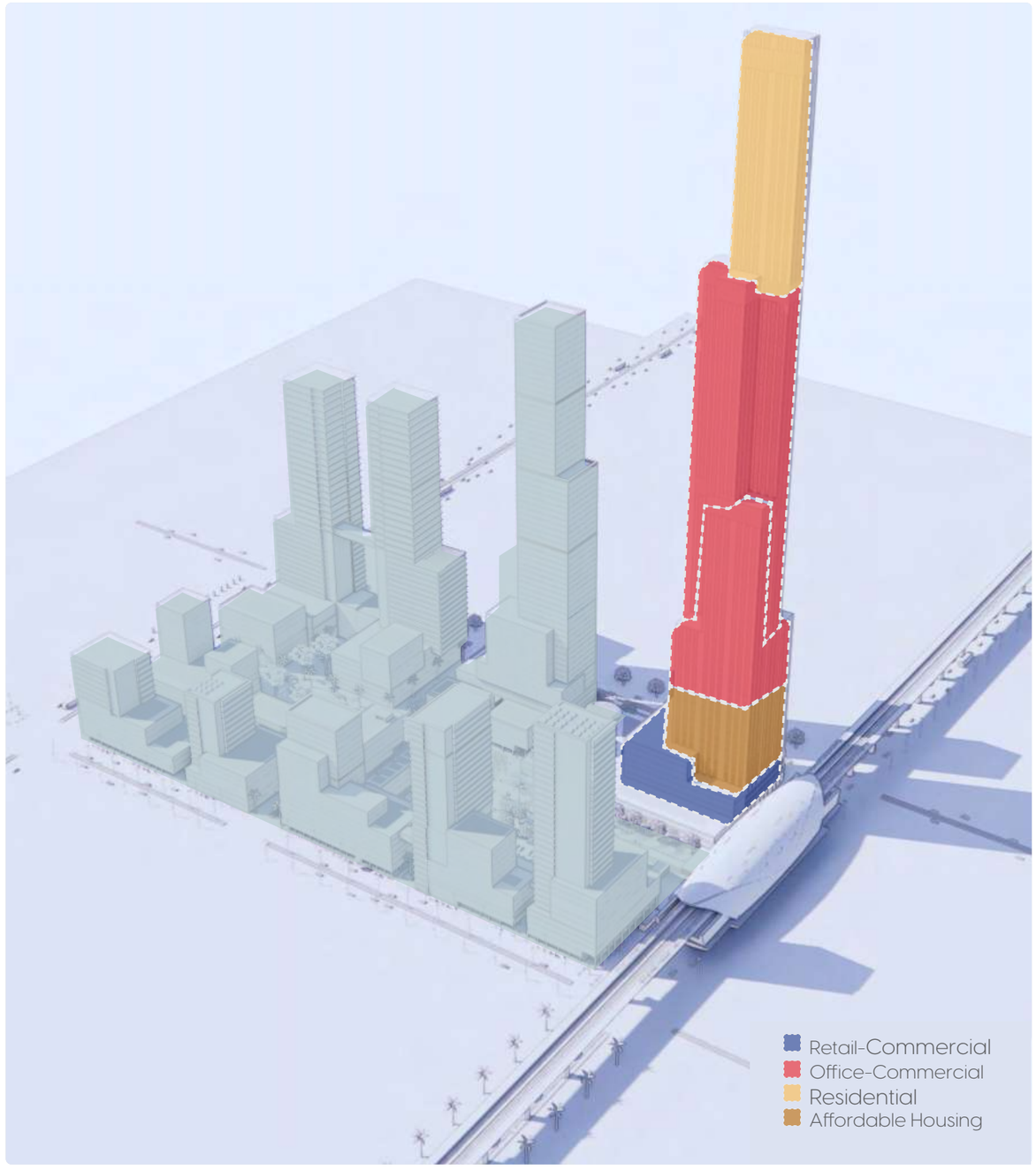


Illustration depicting a suggestive vertical mix of uses

C4. BUILDING REUSE OR CONVERSION

Promote redevelopment of existing buildings and infill development on surface parking lots and vacant plots, to create mixed-use places with strong connections.

C4.1 FLEXIBLE/NEGOTIABLEREQUIREMENTS

Adaptive re-use of old format buildings:

a. Explore creative solutions that incorporate the retrofitting of existing buildings to increase energy efficiency, promote up-to-date sustainable practices and contribute to a healthier environment.

b. Convert underperforming office buildings into residential or civic uses.

c. Ensure that the adaptive reuse takes into consideration the existing street network, public realm and access to transit stations while designing the facade, entry points, parking facilities and amenities.

Retrofitting surface parking lots:

d. Land currently used as surface parking lots should be developed as mixed-use infill development, as surface car parking is not compatible with TOD.

e. Use large parking lots for outdoor programming and events during off-peak hours.

f. Where high-density development is not feasible, allow development of parking integrated with civic use such as museums, art galleries or retail shops incorporating creative facade and innovative treatment of the structure.

Adaptive re-use of underutilized multi-storey car parks:

g. Existing RTA-operated multi-storey car parks within the TOD Hub, close to the station, can be fully or partly converted to other permissible uses.

A historic garage building converted to commercial space attached with a new residential development, Los Angeles

A parking structure with retail spaces in the ground floor, Miami

+ ASSOCIATED TOD OBJECTIVES

- CONCENTRATE GROWTH AROUND TRANSIT NODES
- PROMOTE SOCIAL COHESION, EQUITY & AFFORDABILITY
- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

- BUILDING PERMIT
- PLANNING PERMIT

+ KPI

- % OF PUBLIC PARKS AND PUBLIC OPEN SPACE
- % OF EMPLOYMENT GFA TO TOTAL GFA
- DEVELOPMENT DENSITY (0-400M)
- DEVELOPMENT DENSITY (400-800M)

+ REFERENCES

- DUBAI 2040 STRUCTURE PLAN
- DUBAI BUILDING CODE
- MASTER PLANNING GUIDELINES, DDA

C5. SPECIAL BUILDINGS

Special buildings comprise of two categories: **1)** public buildings including schools, libraries, community halls, recreational facilities, hospitals, and **2)** warehouses and light industries.

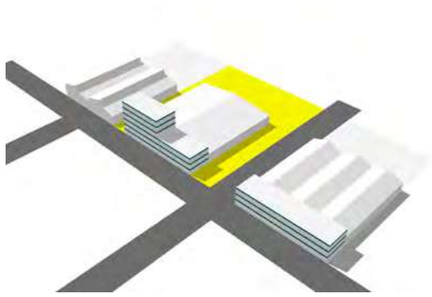
C5.1 BUILDING ORIENTATION

a. Organize the building footprint along the parcel edges to enable continuous and uniform street edge which can be activated through high quality public realm.

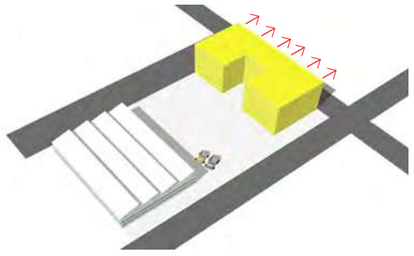
b. Position the most active uses or operational area in case of warehouses and industrial units along the street. However, if residential is provided associated with the special use buildings, in that case locate residential entrances and units along the street edge to provide positive street frontage.

c. in case of mixing warehouses and residential uses (e.g regeneration areas serving The CBD retail):

- locate the yard and loading-unloading spaces away from the street edge towards the middle or rear of the site.



- Orient industrial and residential buildings to minimise overlooking of yard space.



- Use top lighting for industrial space to reduce the need for windows overlooking residential units.

C5.2 MASSING

d. Buildings should be massed to establish appropriate height transitions to existing adjacent developments, and suitable interfaces with adjacent streets, lanes, intersections, and open spaces.

e. Buildings on the southern edge should be taller to ensure the internal open space or courtyard is shaded

C5.3 FRONTAGE

f. Buildings facing major streets should be designed with high-quality public realm, connected directly with micro mobility routes or transit stations and other multimodal options. Active frontage on ground floors of buildings on major roads. (retail, community service uses, etc.)

g. Front setback (if provided) should be merged along with the public realm and designed as open and landscaped frontage zone with shaded seating area. Refer General Building Guidelines for frontage guidelines.

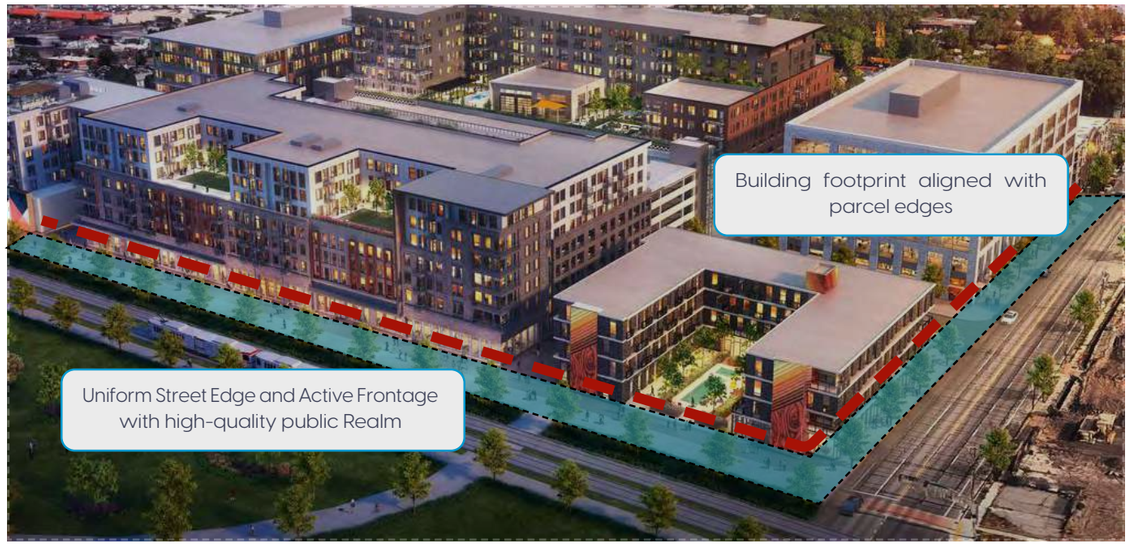
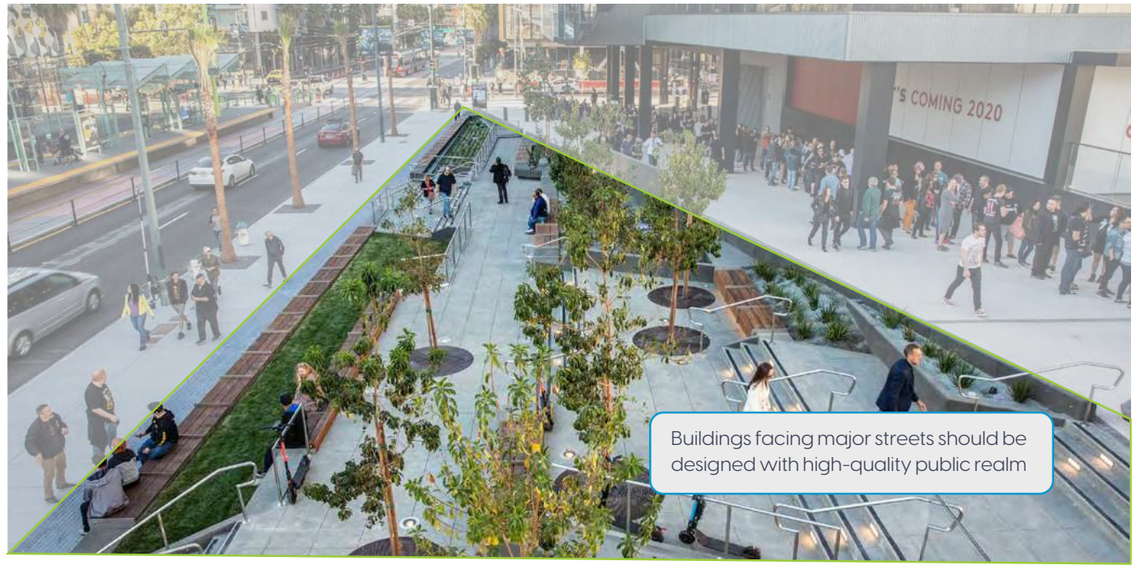


Illustration depicting the design application of uniform street edge and build-to-line



A well-designed public realm at the entrance of an indoor arena, San Francisco

D1. OPEN SPACE PROVISION AND DESIGN

Use existing and planned amenity spaces, green spaces, playgrounds, parks and natural areas to create an integrated network of accessible open spaces. Retain existing natural areas and incorporate them into the master plan.

D1.1 MANDATORY REQUIREMENTS

a. In a new master plan, create a continuous network of pedestrian-oriented spaces connecting towards the station.

b. Connect existing and planned green and public open spaces with each other to create a continuous green network of:
   - Transit plaza, public squares
   - Linear green spaces: linear greenways or parks.
   - Mid-block and sikkas/pedestrian shortcuts
   - Landscaped tree-lined streets and boulevards with wide sidewalks and with cycling tracks
   - Children's playgrounds
   - Sports grounds

D1.2 FLEXIBLE/NEGOTIABLEREQUIREMENTS

c. Retain existing natural and ecological features such as:
   - Existing mature trees
   - Existing water bodies
   - Existing wildlife habitats
   - Incorporate these existing green areas into the master plan and integrate them into the open space network of the master plan.

d. Consider developing a pedestrian-only shopping street in the TOD Hub, seamlessly connected to the station plaza. If existing roads are to be converted to pedestrian streets, a study of vehicle circulation and accessibility should be conducted.

+ ASSOCIATED TOD OBJECTIVES

- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE WALKING & CYCLING
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

- % OF PUBLIC PARKS AND PUBLIC OPEN SPACE
- TRANSIT PLAZA PROVISION
- % OF OPEN SPACE SHADED

+ REFERENCES

- DUBAI PEDESTRIAN AND CYCLING MANUAL, RTA
- DUBAI TRAFFIC CONTROL DEVICE MANUAL, 2018, RTA
- ROADSIDE DESIGN GUIDE FOR DUBAI , 2008, RTA

Conceptual render of a transit plaza in Dubai

Tree-lined streets alongside a metro station in Munich

Illustration depicting various elements in a network of open spaces

Station area	TOD Hub (0-400m)	TOD Neighbourhood (400-800m)
- Transit plaza - Activity plaza, market square - Pedestrian shopping street - Food street/restaurant street - Urban pocket parks - Green urban courtyards	- Linear greenways (for example as an extension of a pedestrian shopping street) - Community plaza or park associated with major community service facility such as mosque, community centre, school etc.	- Linear greenways extensions - Eco parks and nature parks - Community green spaces - Urban agriculture and community farming

Suggested location for different types of open spaces

D2. TRANSIT PLAZA DESIGN

A transit plaza should be seen as a connection node, an active transitional space but also the opportunity to provide green spaces to users (workers, residents and visitors) as well as a resting and gathering place in the city.

D2.1 MANDATORY REQUIREMENTS

a. Transit plaza to be located in the Station Area (approximately within 50m walking distance from the station exits).

b. The Transit plaza must be designed as per the requirements for different centre types given in the table below.

c. Clearly define the transit plaza in the land use plan and master plan as open space.

d. Transit plaza must provide dedicated area for high-capacity bike shelters, as well as shared mobility devices.

e. Transfer facilities connecting to other transport modes and to micromobility options must be located on or next to the transit plaza.

f. Provide shade trees or other shading devices and seating at transfer locations (bus stops and pick-up/drop-off).

g. Avoid large unshaded spaces with hard landscape. At least 60% of the plaza area to be covered by tree canopies, shading roofs or pergolas.

h. Spread services over the plaza and not only on the edges. This will generate various points of vibrancy without obstructing the main pedestrian movement towards and from the metro station accesses.

i. Buildings along the edge of the plaza must be oriented towards the plaza (main façade + main entrance facing the plaza) and the ground level must have active uses.

j. Car parking entrances & ramps, delivery entrances, garbage collection areas etc. should not be located along the edge of the plaza.

D2.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

k. Locate restaurants, cafés, and food stalls close to shaded areas to improve customer's comfort.

l. It is recommended that at least three simultaneous uses be present at all times from morning to evening.

m. Transit plaza to be the focus point for the TOD Hub and for the surrounding community with public art, sculpture, fountains etc.

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE
- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

- TRANSIT PLAZA PROVISION

+ REFERENCES

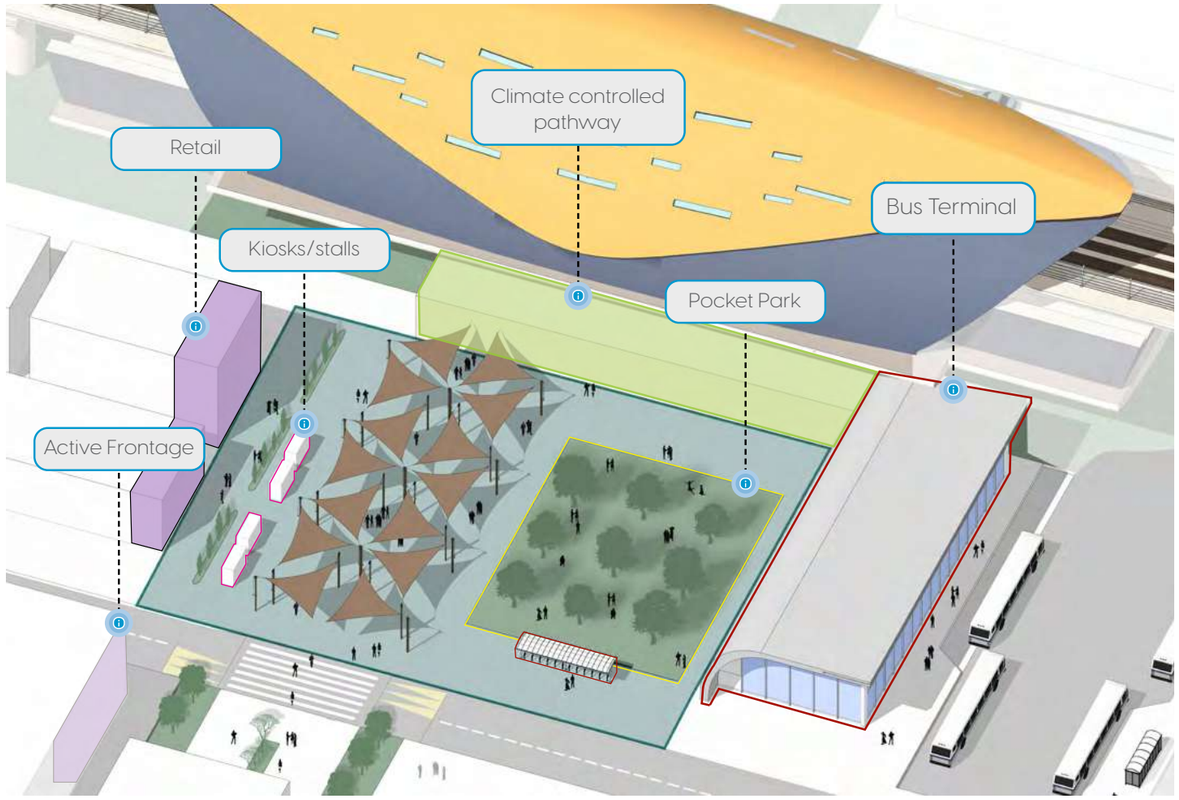


Illustration of land uses within a transit plaza

	Urban Centre	Multi-Sector Centre	Sector Centre
Transit plaza Area *	3,000-10,000 sqm.	2,000-3,000 sqm.	1,000-2,500 sqm.
F&B Recommended % of the transit plaza to be used for small scale retail (kiosks, pavilions, food trucks and stalls). Limited to single storey	Up to 20% of plaza area	Up to 15% of plaza area	Up to 10% of plaza area
Activities and events	Regular markets and major cultural events	Regular markets, major cultural events, seasonal celebrations and promotional events	Farmers markets, local markets, local community activities and events

Transit plaza area as per centre types and their suggested activities

**At existing station areas with limited availability of land, the size and location of the transit plaza shall be adjusted to the local conditions. The plaza can be exempt from the area requirements in the table.*

Note: *TOD Zones falling outside of defined centres should follow the parameters set for Sector Centre.*

D3. HEALTHY AND ACTIVE STREETS

Create healthy streets to enable multi-functionality through active programming between the built and the public realm.

D3.1 MANDATORY REQUIREMENTS

a. Where feasible, shared streets should be considered along corridors adjacent and leading to the metro station where pedestrian activity is high and vehicle volumes are low or to be discouraged.

b. In a new master plan, adopt sidewalks to be designed using a three-section strategy as per the illustration given below:

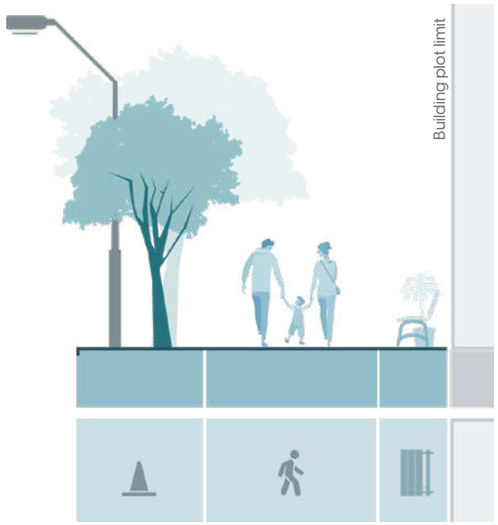
- Frontage zone (0.2-1m): transition zone from private to public property, which could be utilized for outdoor seating, signage, porches, planting etc.
- Pedestrian flow zone (1.5-3m): strictly dedicated to pedestrian movement, free of all obstructions. This zone must cater to all users with different abilities and age groups moving in both directions.
- Service zone, or Multi-utility zone (1.5-2m): contains space allocated for street furniture and planting etc.

D3.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

c. All major streets in the TOD Zone should have continuous rows of street trees on each side of the road (refer section D6).

d. In retrofitting or redesigning of existing streets, the above Mandatory Requirements of the three-section strategy, tree plantation and uninterrupted paths for pedestrians should be followed where possible.

e. Additionally if space permits, a fourth zone could be added for a cycling track either as an additional section of the sidewalk or as part of the street.



Three-section strategy for sidewalks

A pedestrianized street with active frontage and seating spaces, Seoul

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE
- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

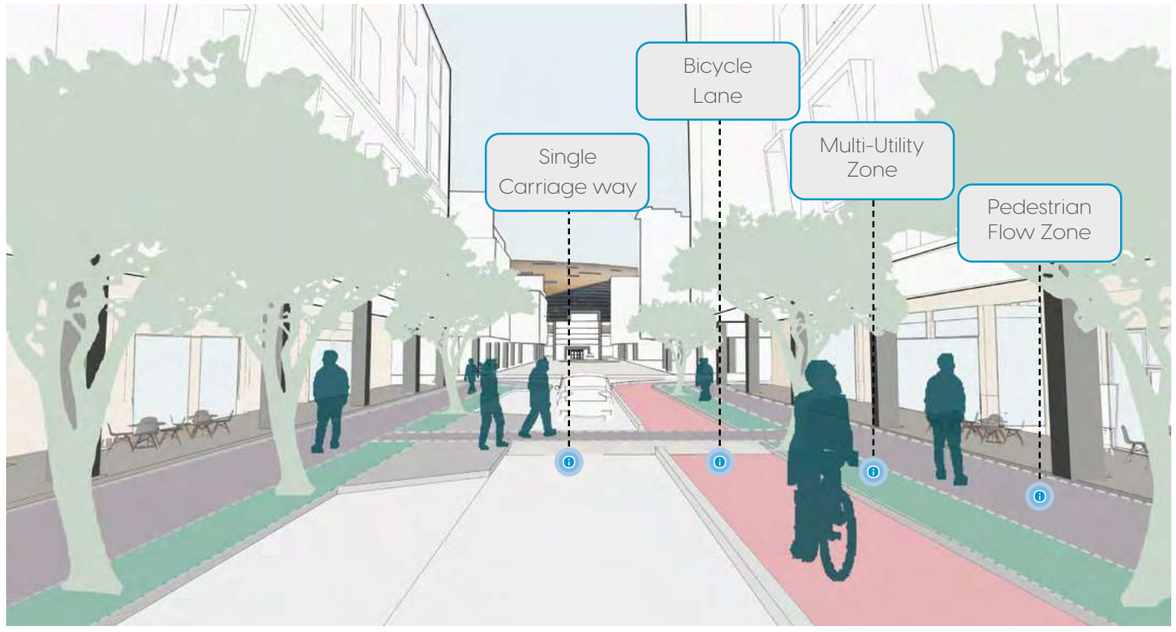
- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

- % OF NATIVE PLANT SPECIES.
- % OF OPEN SPACE SHADED
- PEDESTRIAN SAFETY

+ REFERENCES

- DUBAI INTEGRATION TRANSPORT MANUAL, 2016
- ABU DHABI PUBLIC REALM DESIGN MANUAL
- ABU DHABI URBAN STREET DESIGN MANUAL



A conceptual image depicts a street leading towards the metro station, emphasizing the implementation of the three-section strategy combined with a bicycle lane.

D4. UNIVERSAL DESIGN AND ACCESSIBILITY

Design universally accessible streets to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

D4.1 MANDATORY REQUIREMENTS

a. Clear width of passage (vertical and horizontal) as per Dubai Universal Design Code.

b. Emergency access routes clear of any obstacles.

D4.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

c. Minimum widths of passage for wheelchair users, people with pushchairs etc. as per Dubai Universal Design Code.

d. Dedicated car parking spaces for people of determination to be provided positioned near main metro station entrances.

e. Pathway/open space surfacing firm and stable enough to support the higher point loads of wheelchair wheels.

f. Textural and visual cues for visually impaired people.

g. Colour contrasting surface along the edges.

h. Use of tactile paving next to level changes (i.e. steps, kerbs etc.)

i. Railing for steps following local and international universal access standards.

j. Good and comfortable lighting fixtures placed next to pedestrian routes.

k. Shrubs placed next to major open spaces and metro station entrances should not be higher than 1.2m for wheelchair user's visibility.

l. If there is a pedestrian bridge along an accessible path of travel it shall provide a ramp or an elevator.

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE
- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE DIVERSITY OF USES & ACTIVITIES

+ PERMIT TYPE

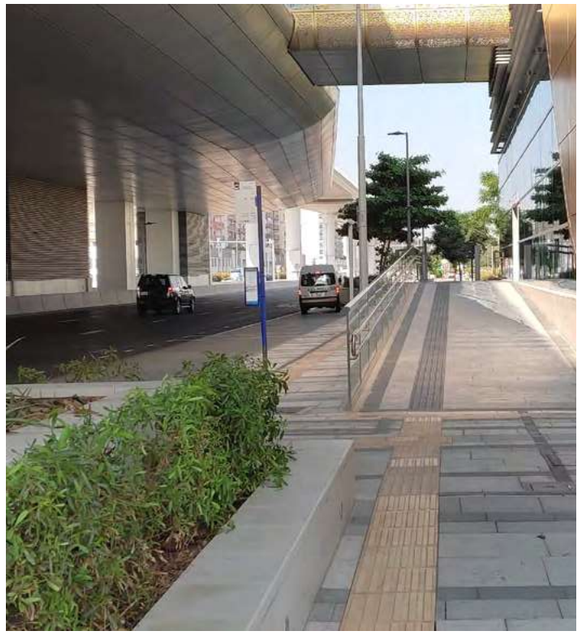
- CONSTRUCTION PERMIT

+ KPI

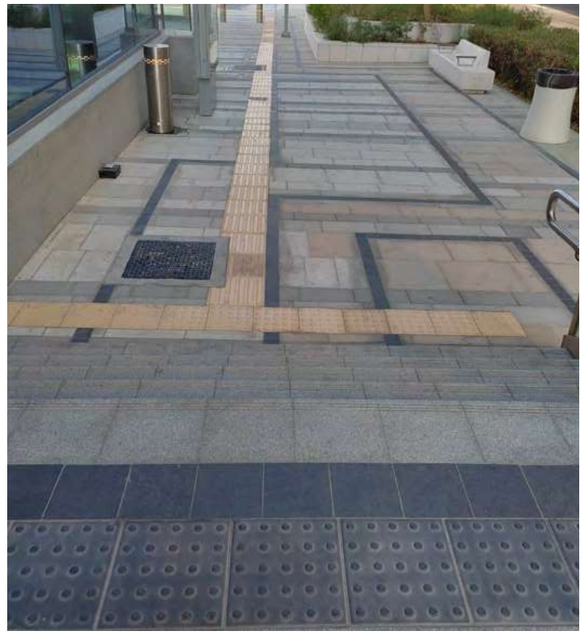
- PEDESTRIAN SAFETY

+ REFERENCES

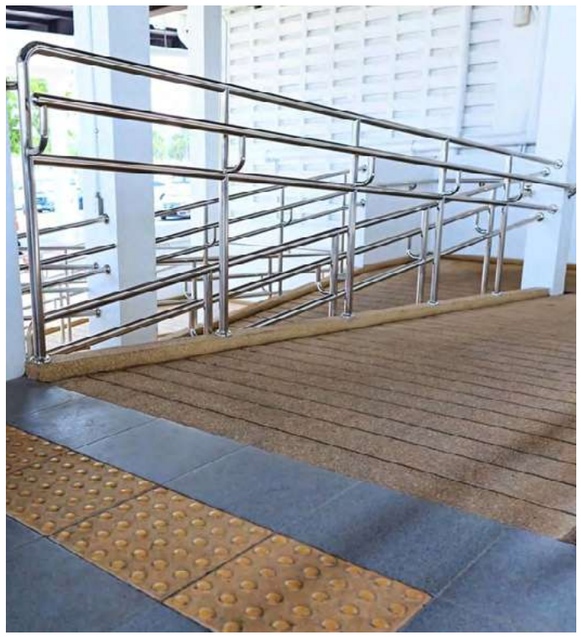
- DUBAI UNIVERSAL DESIGN CODE, 2017



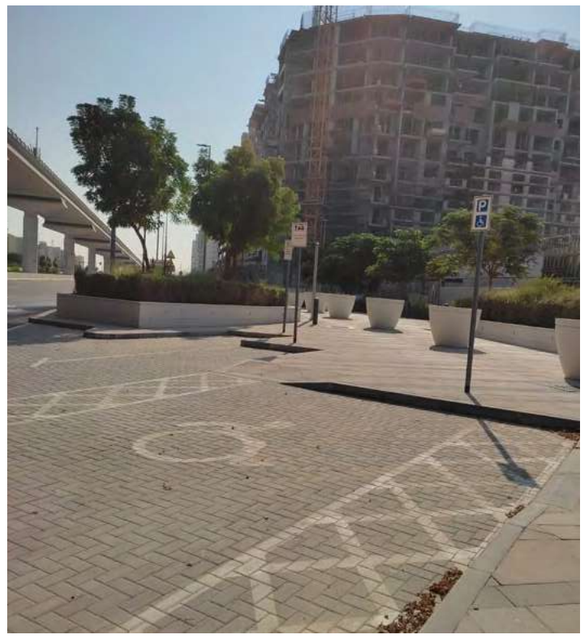
Ramp leading to the station entrance



Tactile paving and differentiated colours



Railing and steps with tactile pavement



People of determination car parking space

D5. CLIMATE COMFORT

Addressing outdoor thermal comfort and noise pollution will enhance the physical and mental well-being of the transit users.

D5.1 MANDATORY REQUIREMENTS

a. Provide shade in the public realm by planting trees or installing shading devices. The minimum shading requirements are in the table below:

Public Realm Space	Minimum Shading (%)
Transit plaza	60%
Public open spaces	60%
Primary pedestrian routes	60%
Bicycle lanes	50%

D5.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

b. To increase the outdoor thermal comfort and reduce the heat island effect:
- Reduce hardscape
- Use high albedo materials
- Use of shading structures in wood and/ or metal, pergolas, tensile structures etc.
- Tree planting next to gathering spaces
- Use of evergreen tree species wherever possible
- Implementation of water features for cooling effect

c. To minimize the acoustic impact of noise from metro and roads, a green noise barrier should be provided at the metro station access points in the form of:
- Plantation buffer (dense vegetation, planters etc.) along the highway, at Metro station access level
- Moving water features for noise mitigation.

+ ASSOCIATED TOD OBJECTIVES

- BUILD RESILIENCE TO CLIMATE CHANGE
- ENHANCE QUALITY OF THE PUBLIC REALM

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

- % OF OPEN SPACE SHADED
- % OF PUBLIC PARKS AND PUBLIC OPEN SPACE
- % OF NATIVE PLANT SPECIES.

+ REFERENCES

- ABU DHABI PUBLIC REALM DESIGN MANUAL, 2018
- ESTIDAMA

Conceptual illustration depicting the use of shading devices

Water jets integrated in the paving

Planter as noise barrier/buffer between highway and metro station

D6. RESILIENT LANDSCAPE

Resilient landscapes in TODs can help to create more livable and sustainable environments to enhance overall community resilience. They also prioritize the use of native plants and the preservation of existing habitats to support local biodiversity.

D6.1 MANDATORY REQUIREMENTS

a. Planters for trees, shrubs and ground cover with a height of 0.45m shall be preferred to avoid users damaging the plants and to increase trees height for maximal shading. They can also accommodate seating elements.

b. Trees located on transit plaza shall be planted on its edge and have a 2.5m high crown clearance to not obstruct the views towards the station. For shading trees, tree species with wide dense canopies are preferable over trees with small canopies or individual fronds (such as palm trees).

c. Trees located on both side of pedestrian paths leading to the stations shall be planted in a staggered way to optimize their shading effect; at 2m min. from the path edge and with a distance of 6-8 m between tree trunks; depending on the tree crown size at maturity.

d. Efficient irrigation system (drip-irrigation recommended)

e. Shrubs shall have a maximum height of 0.80m when placed in planters and of 1.2m when planted in the ground to allow for pedestrian visibility above them.

f. Selected trees should be endemic or adapted to Dubai climate to be sustainable and drought tolerant.

g. The following selection shows trees robust enough to withstand exhaust fumes, reflected heat and hot winds:

- Albizia lebbeck, Azadirachta indica, Pithecellobium dulce and Ziziphus spina-christii.

h. The following selection shows plants robust enough to withstand reflected heat by a large paved area, have a shading effect and esthetic interest:

- Trees: Acacia farnesiana, Acacia nilotica, Parkinsonia aculeata, Prosopis cineraria (Dubai official tree) and Thespesia populnea.
- Shrubs & Grass: Clerodendrum inerme, Dodonea viscosa, Pennisetum setaceum, Thevetia peruviana and Vitex trifolia.
- Ground cover: Ruellia tuberosa and Wedelia trilobata.

+ ASSOCIATED TOD OBJECTIVES

- BUILD RESILIENCE TO CLIMATE CHANGE
- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE WALKING & CYCLING

+ PERMIT TYPE

- CONSTRUCTION PERMIT

+ KPI

- % OF OPEN SPACE SHADED
- % OF PUBLIC PARKS AND PUBLIC OPEN SPACE
- % OF NATIVE PLANT SPECIES

+ REFERENCES

- LANDSCAPE REGULATIONS, TRAKHEES, 2018
- ABU DHABI PUBLIC REALM DESIGN, 2018

A few Examples of the plant list

TREES

Albizia lebbeck

Azadirachta indica

Prosopis cineraria

SHRUBS & GROUND COVER

Dodonea viscosa

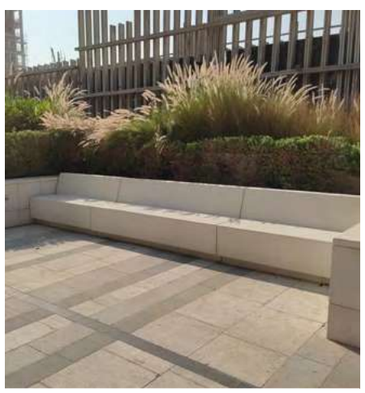
Thevetia peruviana

Vitex trifolia

GROUND COVER & GRASS

Wedelia triloba

Pennisetum setaceum



Planter and seating element combination

D7. WAYFINDING AND STREET FURNITURE

Create safe, welcoming and lively streets through efficient lighting, vibrant public art and appropriate signage and wayfinding.

D7.1 MANDATORY REQUIREMENTS

a. Signages and wayfinding must be designed to clearly guide passengers to and through the station and its functions, including passengers who are not familiar with the transit system or are visually impaired, and shall be bilingual, Arabic and English.

b. Signages and wayfinding elements must clearly indicate the available public transport and micromobility options and mark the transfer routes between these options.

D7.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

c. Signage should incorporate RTA branding scheme and the placement and general content of signage should be consistent within station areas whenever possible.

d. Use lighting to create a sense of hierarchy and direction: Use different types of lighting to highlight the different areas of the public realm, such as paths, seating areas, and entrance points. Use directional lighting to guide users towards the station's access points.
   - Lighting masts next to streets, bus stops and car parking areas.
   - Lighting bollards next to main access points and metro station entrances.

e. Make sure that lighting levels are sufficient to eliminate dark corners or areas with inadequate lighting, while avoiding bright spots or distracting shadows that may cause discomfort or visual distractions.

f. Choose energy-efficient LED lighting fixtures to minimize maintenance costs and reduce energy consumption.

g. Use coloured lighting to highlight different areas or to create a specific atmosphere.

h. Use lighting fixtures that minimize light pollution and avoid disrupting the natural habitats of nearby wildlife.

i. Public art can be integrated to create inviting and pleasant open spaces. Inclusion of local artists in the early architectural programming for a transit related space can result in more memorable spaces with a stronger sense of identity and a distinct character.

+ ASSOCIATED TOD OBJECTIVES

- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE DIVERSITY OF USES & ACTIVITIES
- PROMOTE WALKING & CYCLING

+ PERMIT TYPE

- CONSTRUCTION PERMIT

+ KPI

- % USER SATISFACTION WITH SIGNAGE AND WAY FINDING
- PEDESTRIAN SAFETY
- % OF OPEN SPACE SHADED

+ REFERENCES

- ABU DHABI PUBLIC REALM DESIGN MANUAL, 2018

Street furniture and place-making elements

Well-integrated way finding and signage

Well-lit pedestrian and cycle path, Dubai

Wings of Mexico statue, Dubai

E1. PEDESTRIAN NETWORK AND FACILITIES

Create a network of convenient and safe pedestrian walkways, sidewalks and crosswalks across the TOD Zone that are accessible by all.

E1.1 MANDATORY REQUIREMENTS

a. Pedestrian routes must be direct, continuous and uninterrupted across the master plan

b. Pedestrian walkways must be integrated with the transit plaza and metro station for seamless pedestrian connectivity.

c. Ensure these walkways maintain horizontal and vertical clearances with no obstacles such as overhangs, signs, street furniture, trees, shrubs and fences.

d. Create pedestrian walkways and crossings as per the following:

- All pedestrian facilities including kerb ramps should be compliant with Dubai Universal Design Code.
- Kerb ramps should be provided wherever a sidewalk or other pedestrian walkway crosses a kerb, such as pedestrian crossings, public transportation stops, and accesses into buildings.
- Sidewalk area near kerb ramps should have adequate space of at least1.2m to facilitate wheelchairs and strollers.
- Sidewalks should be free of any obstructions to allow proper sightlines. Shrubs and bushes at crossing location should not hinder the lines of sight between people of determination and drivers and/or cyclists.
- Raised crossings should be provided connecting transit plazas with surrounding pedestrian realm within the vicinity of the metro station. These should be facilitated with different paving material, zebra crossings and toucan signals, where required.
- Kerb extensions or reduction in total number of travel lanes, should be installed, where space allows, to reduce the roadway width from kerb to kerb at the crossing, shortening the crossing distance for pedestrians and making it easier for vehicles to see pedestrians, however they should not narrow the travel lane or impede cyclists on a bicycle lane.

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE
- PROMOTE WALKING & CYCLING
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

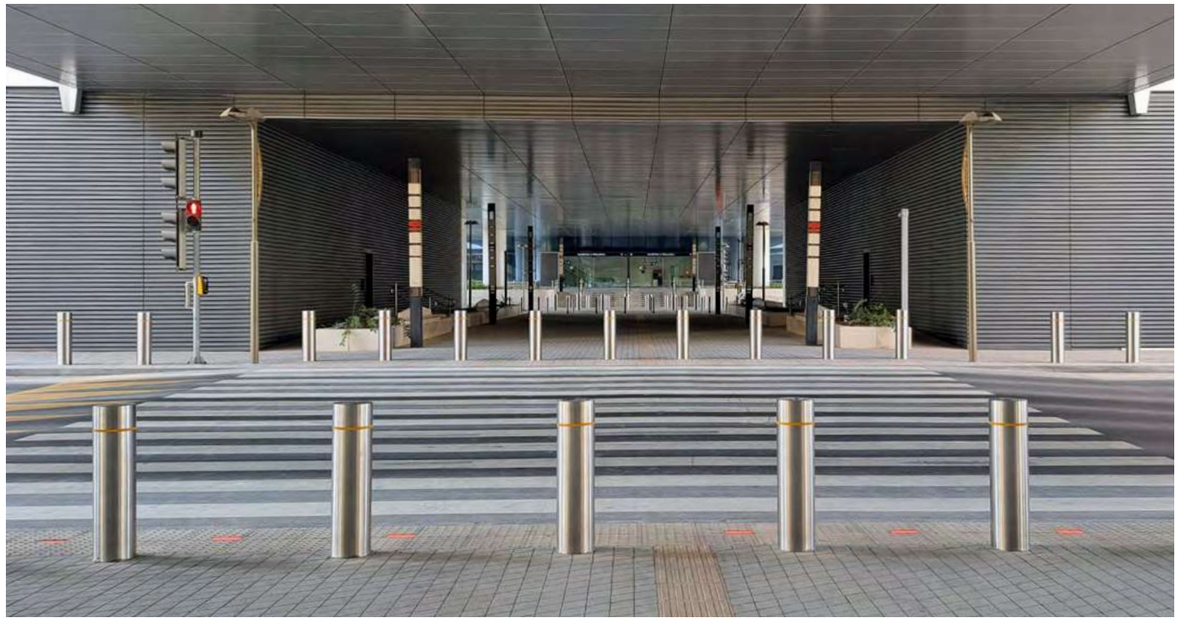
+ KPI

- % OF INTERNAL TRIPS WITHIN THE TOD ZONE USING SUSTAINABLE TRANSPORT MODE
- PEDESTRIAN SAFETY

+ REFERENCES

- ROADSIDE DESIGN GUIDE, RTA, 2018
- DUBAI TRANSPORT INTEGRATION MANUAL, 2016, RTA
- DUBAI ACCESS MANAGEMENT MANUAL, 2014, RTA
- DUBAI PEDESTRIAN AND CYCLIST DESIGN MANUAL, 2006, RTA

Illustration of well-shaded pedestrian pathway and dedicated bicycle lane



Raised crossing, Dubai Expo Station

E2. ELEVATED AND UNDERGROUND PEDESTRIAN CIRCULATION

03

The elevated and underground circulation infrastructure in the form of skyways and underpasses should be integrated for continuity of pedestrian realm.

E2.1 MANDATORY REQUIREMENTS

a. Tunnels and bridges should be built across busy roads or intersections, ensuring convenience and safety for pedestrians and cyclists, with dedicated and wide pedestrian space and bicycle lanes.

b. For elevated stations, extend elevated walkways (skywalks) across adjacent roads to link directly to the transit plaza, pedestrian streets or other open spaces. Where possible, create direct elevated links to major destinations (e.g. shopping malls, cultural venues).

c. For underground stations, extend underpasses to the adjacent roads and directly into the station area. If possible, connect directly to the basement of adjacent buildings, for example shopping mall basements.

d. Fully incorporate these pedestrian links into the overall landscape design concept in terms of paving materials, signage, lighting, street furniture, planting etc.

e. Consider to combine pedestrian links with pergolas and shading roofs, or to use air-conditioned indoor spaces (elevated walkways, underpasses) to optimize climate comfort.

Cuyperspassage tunnel for pedestrians and cyclists, Amsterdam Central Station, Amsterdam

Elevated walkway, MOE, Dubai

+ ASSOCIATED TOD OBJECTIVES

- ENHANCE QUALITY OF THE PUBLIC REALM
- PROMOTE WALKING & CYCLING
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

- % OF INTERNAL TRIPS WITHIN THE TOD ZONE USING SUSTAINABLE TRANSPORT MODE
- % OF DEDICATED CYCLING PATH KM
- PROVISION OF BICYCLE SHARE STATIONS PER STATION EXIT
- PEDESTRIAN SAFETY

+ REFERENCES

- DUBAI UNIVERSAL DESIGN CODE FINAL, 2017
- MASTER PLANNING GUIDELINES, DDA
- RTA TRANSPORT INTEGRATION MANUAL

E3. BICYCLE NETWORKS AND FACILITIES

Cycling represents a convenient and easy-to-access mode of transport that can be easily integrated within the TOD Zones through careful and planning.

E3.1 MANDATORY REQUIREMENTS

a. Two-way bicycle lanes or tracks must be provided along all major streets and through open spaces and public parks.

b. Bicycle lanes and tracks must be at least 1.5m wide for one-way and 3m wide for two-way. The bicycle lanes and tracks may be increased to 4m wide for two-way, where space allows.

c. Along streets where vehicular speed exceeds 30 km/h, physically separated bicycle tracks should be provided adjacent to vehicular travel lanes.

d. Bicycle tracks must be separated from pedestrian walkways, within the public realm area.

e. Flexible ramps should be provided, where required, to assist cyclists manoeuvring raised surfaces.

f. Both bicycle lanes and tracks must be clearly marked visually in prominent colours in line with RTA guidance.

E3.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

g. Adequate intersection treatments should be provided for bicycle lanes and tracks to prioritize bicycles at the crossing.

h. In retrofitting or redesigning of existing streets, the requirements of this section should be followed, where possible.

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE
- PROMOTE WALKING & CYCLING

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

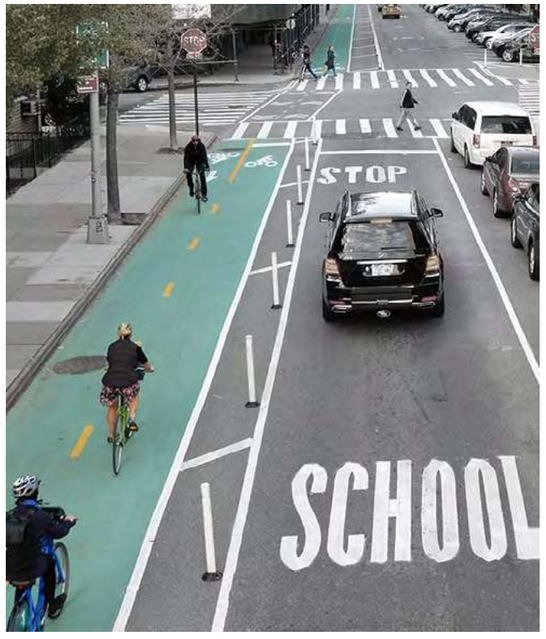
- PROVISION OF BICYCLE SHARE STATIONS PER STATION EXIT
- PROVISION OF MORE THAN ONE PUBLIC TRANSIT MODE OPTIONS
- WALKING DISTANCE FROM METRO TO OTHER PUBLIC TRANSIT MODES

+ REFERENCES

- MASTER PLANNING GUIDELINES, DDA
- DUBAI UNIVERSAL DESIGN CODE FINAL, 2017 DUBAI
- DUBAI TRANSPORT INTEGRATION MANUAL, 2016, RTA
- DUBAI PEDESTRIAN AND CYCLIST DESIGN MANUAL, 2006, RTA

Two-way bicycle lane, Vancouver

Two-way bicycle track in Dubai



Two-way bicycle track in New York

E4. MULTIMODAL INTEGRATION

Facilitate seamless connections between the various transport modes to improve the attractiveness and combined use of those modes and create a holistic and integrated multimodal transport experience.

E4.1 MANDATORY REQUIREMENTS

a. Fully integrate the metro with other public transport modes including tram lines, bus routes, marine transport (if applicable), future Etihad passenger railway stations (if applicable), and soft mobility modes.

b. In a new master plan, locate terminals and stops of public transport close to the metro station, without any roads separating the metro station exit from transit stops.

c. The walking distance from the metro station to other transit modes must not exceed 100m.

d. The average transit time and waiting time at stations should be reduced as much as possible, not exceeding 10 minutes, to remain attractive compared with private car usage.

E4.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

e. The transfer between different transit facilities should be convenient, safe and accessible. Walking distance between them should be as short as possible and should be ideally within the same building, where possible. The walkways should be shaded with clear signage and wayfinding.

f. The public transport system should allow a variety of options to the user within the TOD Zone such as bus, tram, shuttle, marine, aerial, autonomous pods etc.

g. Transfer to tier-2 transport modes, such as mini-buses, feeder shuttles, bus circulatory service or hop-on hop-off rides etc. should be provided where applicable.

h. Where road crossings cannot be avoided, pedestrian overpasses or underpasses should be provided to link the metro station directly with other transit options.

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE
- PROMOTE WALKING & CYCLING

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

- PROVISION OF BICYCLE SHARE STATIONS PER STATION EXIT
- PROVISION OF MORE THAN ONE PUBLIC TRANSIT MODE OPTIONS
- WALKING DISTANCE FROM METRO TO OTHER PUBLIC TRANSIT MODES

+ REFERENCES

- MASTER PLANNING GUIDELINES, DDA
- DUBAI UNIVERSAL DESIGN CODE FINAL, 2017 DUBAI
- DUBAI TRANSPORT INTEGRATION MANUAL, 2016, RTA
- DUBAI ACCESS MANAGEMENT MANUAL, 2014, RTA

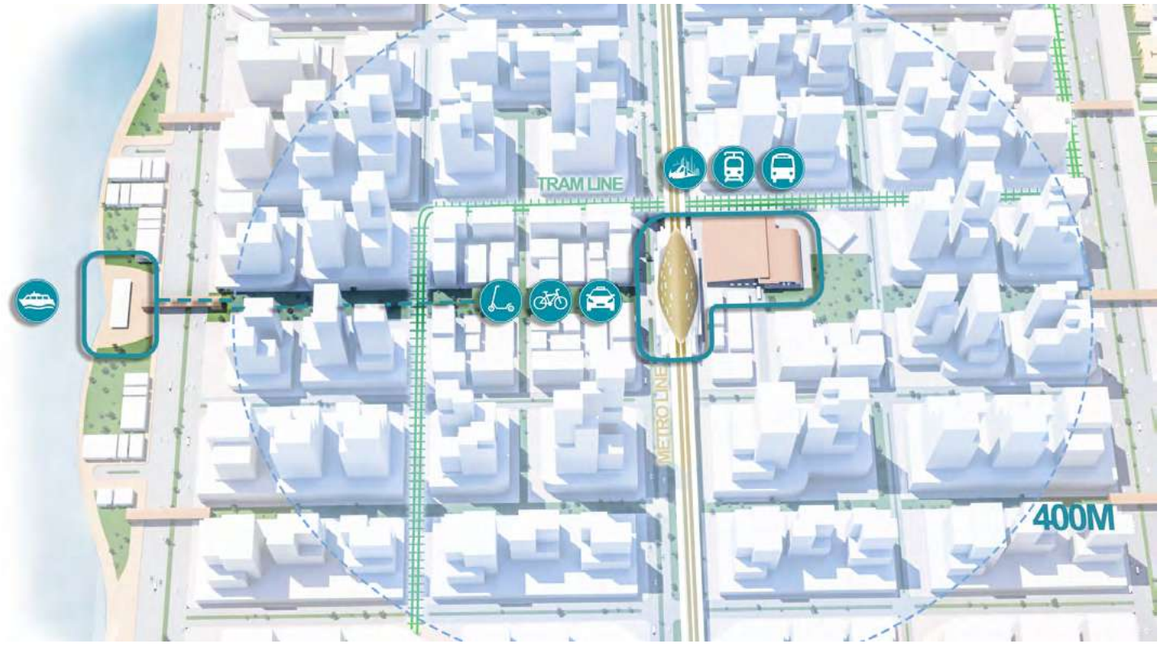


Illustration depicting various modes of motorised and non-motorised mobility options located near a metro station.

Easy and convenient multi-modal transition outside a metro station, Munich, Germany

E5. STREET DESIGN AND VEHICULAR TRAFFIC

03

Design or modify streets and vehicular circulation within TOD Zones to support walkability, accessibility and reduction of car dependency.

E5.1 MANDATORY REQUIREMENTS

a. Streets and intersections must be designed to facilitate efficient movement of public transport modes, including dedicated bus lanes or priority signalling at intersections.

b. Pedestrians, cyclists and public transit vehicles must be prioritised over other vehicular traffic by allocating dedicated space within the right-of-way and coordinating advanced signal timing for these modes.

c. Traffic calming measures must be implemented to reduce vehicle speeds in the TOD Zone and discourage speeding. These include:

- Design measures such as traffic circles, speed breakers, chicanes, elevated crosswalks or narrower lanes to discourage high-speed vehicle traffic and prioritize the safety of non-motorized mode.
- Minimize kerb radii or install kerb extensions, where possible, to encourage reduced speeds at intersections.

d. The speed limit should be established at 30 km/h in the station area and at 15 km/h in the vicinity of pick-up and drop-off area.

E5.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

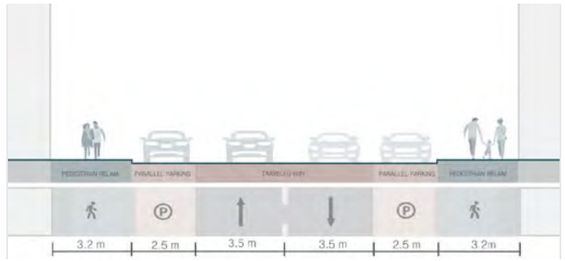
e. The under used areas under elevated metro tracks should be re-purposed to activate the space. This area may be used to provide bicycle tracks, autonomous mobility options, food trucks, bicycle parking and pedestrian connections, where possible.

f. Number of vehicular travel lanes should be reduced, where feasible, from 4 lanes to 2 lanes, and from 3 and 2 lanes to 1 lane.

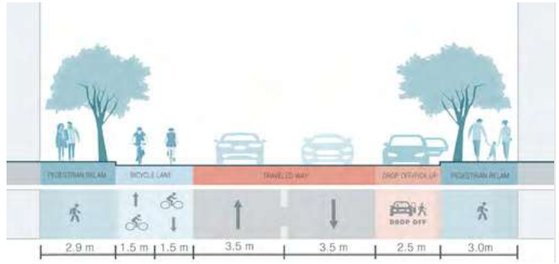
g. Bollards, raised medians, and other physical barriers should be provided to prevent through-traffic and encourage a slower, vehicular circulation.

h. Vehicular driveways to adjacent buildings should be provided from side streets and alleys wherever possible and should avoid crossing main pedestrian routes to and from the station.

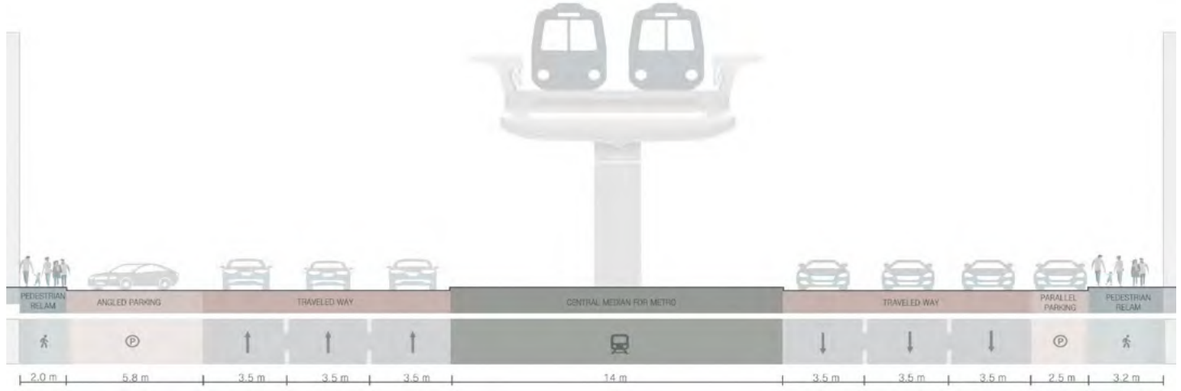
i. Within existing areas, driveways should be consolidated wherever possible. Where this is not possible, public realm enhancements must be carried out to ensure pedestrian paths are continuous and are given priority across driveways.



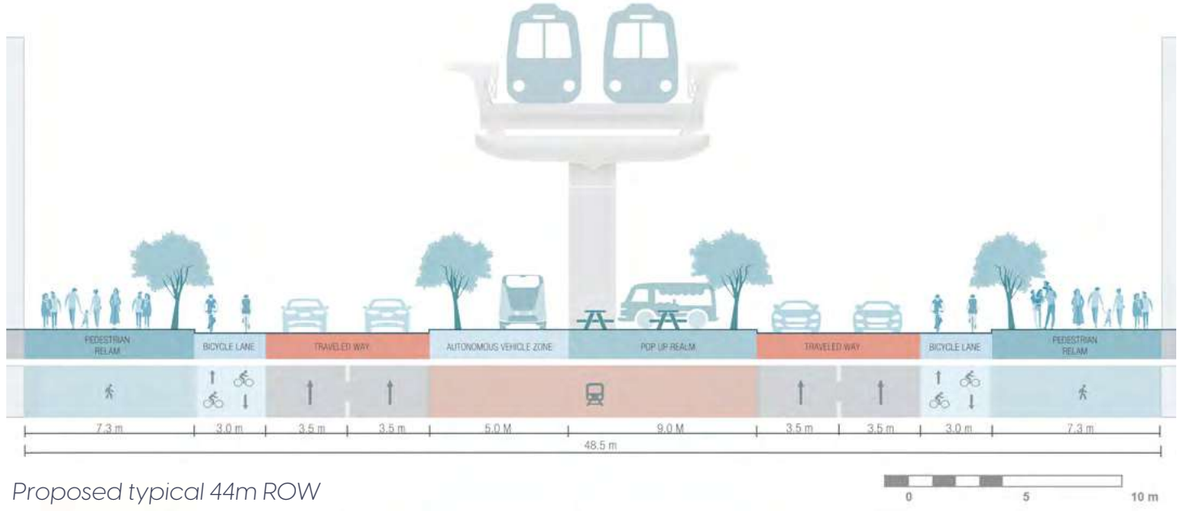
Existing typical 18m ROW



Proposed typical 18m ROW



Existing typical 44m ROW



Proposed typical 44m ROW

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE
- PROMOTE WALKING & CYCLING

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

- % OF INTERNAL TRIPS WITHIN THE TOD ZONE USING SUSTAINABLE TRANSPORT MODE
- % OF DEDICATED CYCLING PATH KM
- PROVISION OF BICYCLE SHARE STATIONS PER STATION EXIT

+ REFERENCES

- ROADSIDE DESIGN GUIDE, 2018, RTA
- DUBAI TRANSPORT INTEGRATION MANUAL, 2016, RTA
- DUBAI ACCESS MANAGEMENT MANUAL, 2014, RTA

E6. PICK-UP AND DROP-OFF FACILITIES

Well-designed pick-up and drop-off facilities are essential to streamline the transfer of commuters to and from the stations, and to avoid traffic congestion.

E6.1 MANDATORY REQUIREMENTS

a. Designated zones for passenger pick-up and drop-off must be designed, within immediate proximity to the entrance of the metro stations. These facilities must be designed with sufficient space allocation and convenient access, allowing vehicles to stop briefly without obstructing traffic.

b. Where the metro station is not a multi-modal transit hub, bus stops must be located near the entrance of the station and must not impede access to the station. These facilities must be designed to ensure they do not cause over-crowding at the entrance of the station as well as must be conveniently accessible to avoid impeding traffic.

c. Adequate road access and clear signage must be provided to guide drivers to the facility, with dedicated entrance and exit lanes.

d. The passenger waiting area must be located inside the station, and include amenities like seating, information boards, and digital displays to provide passengers with real-time transport information and be provided with restrooms, vending machines, and nearby shops or services for passenger convenience.

E6.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

e. The planners should anticipate future growth and potential increase in passenger demand when designing the facility. It is crucial to allow for scalability and flexibility in the design to accommodate future expansions or modifications.

f. Separate designated pick-up and drop-off zones should be established for shared mobility services.

g. Primary vehicular circulation should divert private cars away from the transit station area to minimize conflict with pedestrian movements. If the vehicular circulation cannot be diverted, the street serving the station shall be designed as a shared space for vehicles, cyclists and pedestrians, with a speed limit of 15 km/h.

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE
- PROMOTE WALKING & CYCLING

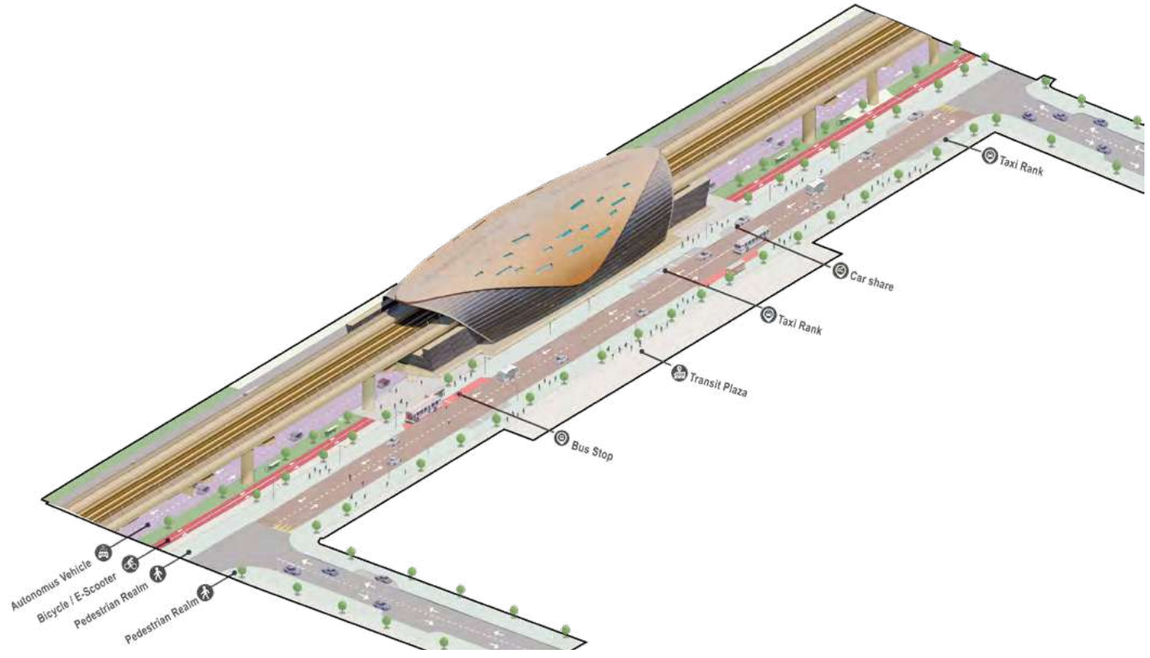
+ PERMIT TYPE

- CONSTRUCTION PERMIT

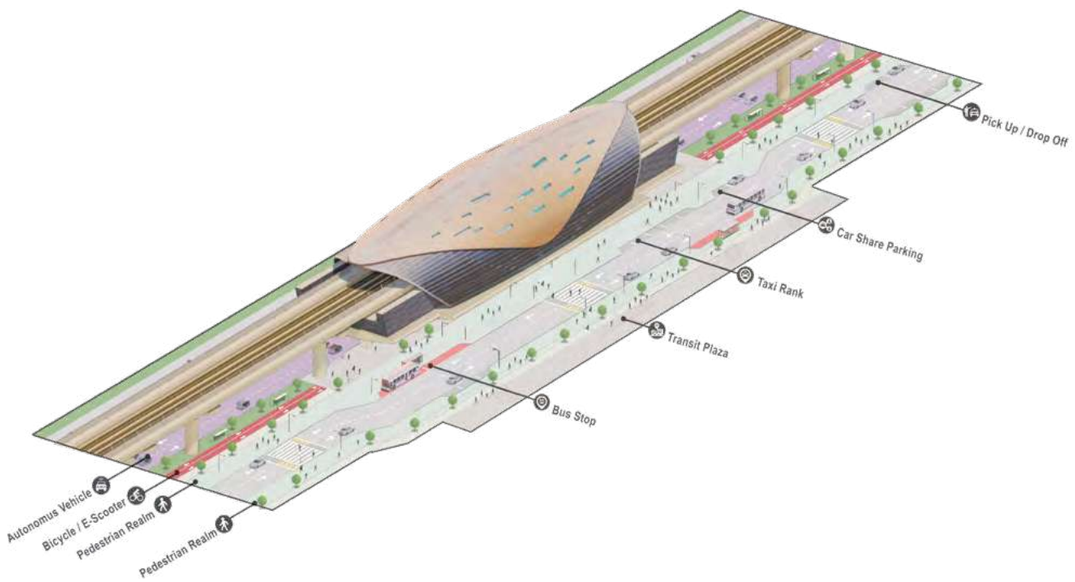
+ KPI

- % OF INTERNAL TRIPS WITHIN THE TOD ZONE USING SUSTAINABLE TRANSPORT MODE
- % USER SATISFACTION WITH TRANSPORT INTEGRATION

+ REFERENCES



Conceptual illustration of traffic-calmingw in front of the Metro Station



Conceptual illustration of limiting through traffic in front of the Metro Station

E7. SHARED MOBILITY FACILITIES

Shared mobility refers to the shared use of a vehicle, bicycle, or scooter, which enables the users to easily use the transport mode of his/her choice to cover the first mile/last mile segment of the journey.

E7.1 MANDATORY REQUIREMENTS

a. Shared mobility facilities (car, bicycle, scooter etc.) must be provided at each metro station and must be easily accessible for the metro users, ideally from a single hub, from both exits.

b. Shared mobility stations must accommodate bicycles and scooters and be located at a distance of less than 30m from metro station entrances and in the vicinity of the main pedestrian route.

c. Scooters must have dedicated marked-up parking areas with warning signage to prevent disorderly parking.

d. Dedicated on-street parking space with charging infrastructure must be provided for car sharing schemes near each metro exit along with taxi drop-off/pick-up.

E7.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

e. The bicycle parking spaces and their dimensions should be based on anticipated ridership and spatial constraints, assessed by RTA, considering future potential expansion.

f. The shared mobility facilities should be accessible to people of determination, providing options for accessible vehicles.

g. The licenced operators should strive to rotate and maintain an adequate number of vehicles, bicycles and scooters in service to meet demand and minimize wait times for users.

+ ASSOCIATED TOD OBJECTIVES

- INCREASE PUBLIC TRANSIT MODE SHARE.
- PROMOTE WALKING & CYCLING.
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- CONSTRUCTION PERMIT

+ KPI

- % OF INTERNAL TRIPS WITHIN THE TOD ZONE USING SUSTAINABLE TRANSPORT MODE
- % OF DEDICATED CYCLING PATH KM
- % USER SATISFACTION WITH TRANSPORT INTEGRATION

+ REFERENCES

- RTA FIRST AND LAST MILE STRATEGY
- RTA TRANSPORT INTEGRATION MANUAL
- RTA ROADSIDE DESIGN GUIDE

Car sharing apps in Dubai

Shared bicycle and e-scooter facilities, Dubai

F1. PARKING REQUIREMENTS

TOD requires significantly less parking than equivalent development programs in non-transit settings. This can be achieved by enforcing maximum allowances in TOD Zones and flexible parking requirements.

F1.1 MANDATORY REQUIREMENTS

a. Car parking ratios specified within DM's building code will be reduced for buildings in TOD Zones as per the following requirements:
   - In TOD Hub (0-400m), a minimum of 30% reduction
   - In TOD Neighbourhood (400-800m), a minimum of 15% reduction (to be coordinated with RTA)

b. Maximum parking ratios should under no circumstances exceed DM's building code within TOD Zones

c. Shared parking opportunities should be explored for complimentary land uses with varying peaking characteristics to maximise utilization of parking spaces.

d. To promote cycling, a minimum area for bicycle parking must be provided in developments. An area equivalent to 5% of the number of car parking bays provided must be allocated to bicycle parking as per DM's building code.

e. Calculations for parking for development(s) within TOD Zones must adhere to the parking guidance established in this manual as well as liaise with RTA during the TIS process to optimize parking for TOD Zones.

F1.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

f. Adopt flexible parking requirements that allow developers to tailor parking provisions based on factors such as proximity to public transit, the mix of land uses, and the availability of alternative transportation options. This flexibility supports the needs and characteristics of the TOD Zone.

g. Unbundle parking providing car parking separate from the cost of purchasing or renting offices or residential properties to allow users to save money by choosing not to purchase parking if they do not need it.

h. Parking lots serving a single land use should be converted into shared facilities with adjacent land uses.

i. Larger, multi-phased developments may be allowed to exceed the maximum ratio in their initial phase only, particularly if infrastructure for alternative sustainable modes of transport is not in place in the TOD Zone.

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE WALKING & CYCLING.
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

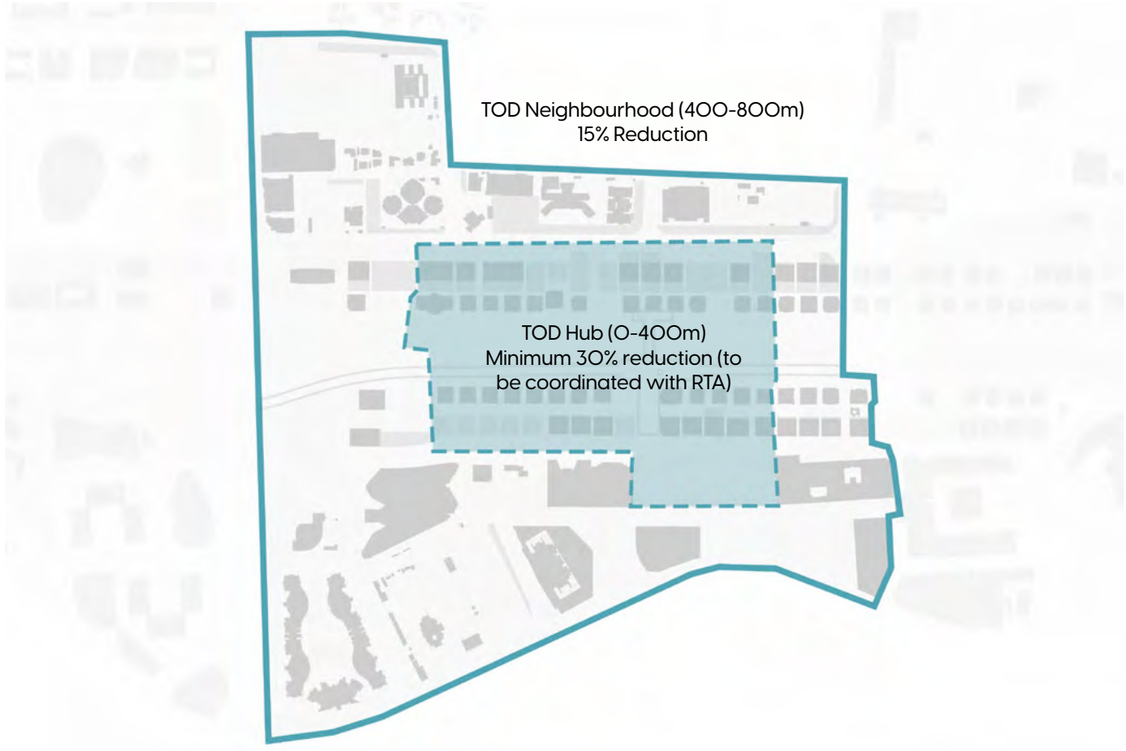
+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

+ KPI

+ REFERENCES

- DUBAI TRANSPORT INTEGRATION MANUAL, 2016
- DUBAI BUILDING CODE, 2021



Car Parking Ratios on a typical TOD Zone

Bundled vs. Unbundled parking arrangement

F2. PARKING DESIGN

Parking should never visually dominate a TOD environment. TOD policy discourages on-street car parking and encourages shared off-street parking facilities to optimize parking utilization and maximize the efficiency of parking infrastructure.

F2.1 MANDATORY REQUIREMENTS

a. Off-street parking, where provided, should be underground or structured parking garages to serve the TOD Zone and minimize on-street parking.

b. On-street parking, where provided, must not extend beyond 50m in a single stretch, should be properly screened from sidewalks separated by a landscape buffer and must be designed as parallel arrangement rather than angular or perpendicular.

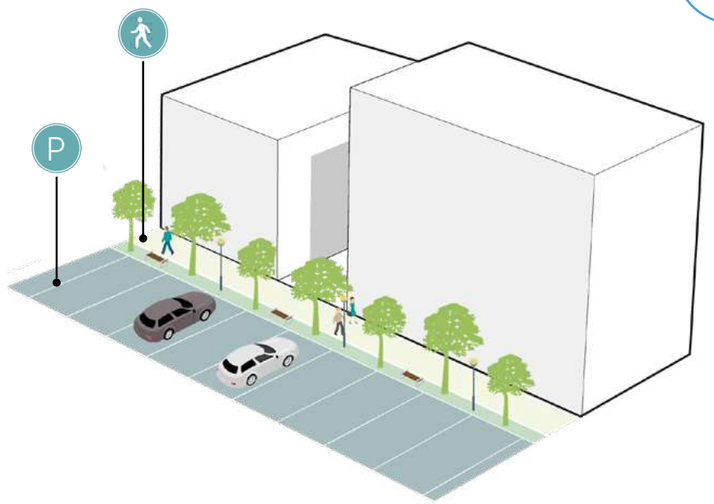
c. Dedicated spaces must be allocated for special categories of vehicles and users in the station area (such as accessible, LEV), and reserved for Mobility-as-a-service (MaaS), delivery and emergency vehicles.

F2.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

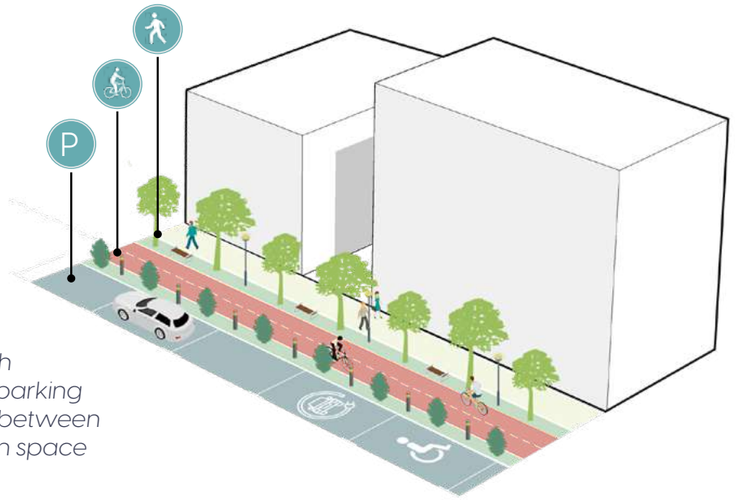
d. Underground or above-ground parking should not be located between a public street and a building's front façade.

e. Parking structures should be screened behind multi-storey buildings on their street-facing sides by the development they serve – the design concept known as 'wrapping'.

f. Parking facilities should be located in a way that pedestrian paths from the parking feed into active use areas and retail zones.



An existing parking scenario



Proposed scenario with reduction of on-street parking and better separation between parking and pedestrian space

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE WALKING & CYCLING.
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- BUILDING PERMIT
- CONSTRUCTION PERMIT

+ KPI

- % OF INTERNAL TRIPS WITHIN THE TOD ZONE USING SUSTAINABLE TRANSPORT MODE
- % OF DEDICATED CYCLING PATH KM
- % USER SATISFACTION WITH TRANSPORT INTEGRATION

+ REFERENCES

- RTA FIRST AND LAST MILE STRATEGY
- RTA TRANSPORT INTEGRATION MANUAL
- RTA ROADSIDE DESIGN GUIDE

Incorporate parking spots dedicated to Autonomous Vehicles, Electric Cars and Car-pooling.

F3. BICYCLE AND SCOOTER PARKING

TOD policy discourages on-street car parking and encourages shared off-street parking facilities to optimize parking utilization and maximize the efficiency of parking infrastructure. This enables to reallocate the free space to enhance the public space for pedestrians and alternative mobility.

F3.1 MANDATORY REQUIREMENTS

a. Bicycles and scooters parking must be located at a distance of less than 30m from metro stations entrances and in the vicinity of the main pedestrian route leading to them.

F3.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

b. The parking lots should be primarily located near the transport hub, enabling commuters to park their bicycle/e-scooters/segways and continue their journey using public transportation. The facilities should also host repair stations, air pumps, or changing rooms, enhancing the convenience and usability for the user.

c. Secondary bicycle parking stations and facilities should be spread across the TOD Zone and designed to accommodate a variety of bicycle types, including standard bicycles, electric bicycles, and cargo bicycles.

d. Secure racks or stands for locking bicycles as well as shelter from weather, lighting, and surveillance cameras to enhance security and user experience should be provided.

e. The bicycle racks should be of high-quality to securely support the frame and wheel of the bicycles.

f. Bicycle parking lots should be directly connected to the cycling network.

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE WALKING & CYCLING.
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- CONSTRUCTION PERMIT

+ KPI

+ REFERENCES

- DUBAI BUILDING CODE, 2021

Bicycle Parking, Copenhagen

Shaded bicycle parking area, Route 2020

F4. STAND-ALONE MULTI-STOREY PARKING

RTA and private investors interested in constructing stand-alone multi-storey car parks within the TOD Zone need to be tightly regulated in terms of size and layout to align with TOD principles.

F4.1 MANDATORY REQUIREMENTS

a. If the multi-storey car park is facing a main street, square, plaza or mixed-commercial or retail-oriented street, the ground floor of the multi-storey car park must provide active frontage/retail frontage along those spaces. (Refer to C2)

b. Size and width of vehicular entrance and exit gates and ramps must be minimized, and disturbance of the pedestrian sidewalk be reduced as far as possible.

c. Entrance and exit gates must not face the main street, square or retail-oriented street and must be located at the side or back of the site.

d. For RTA car parking:

- Any newly created parking bays in multi-storey RTA car parks must be fully compensated by removing an equal or greater number of on-street car parking bays and/or RTA surface parking lots within the same TOD Zone.
- The overall provision of parking space within the TOD Zone must not be increased by building multi-storey car parks.
- The exact numbers of removed on-street parking bays or RTA surface car parking bays must be documented to ensure that the overall parking bays proposed remain in line with the TOD guidance.

e. Private multi-storey car parks are only permissible within the TOD Neighbourhood (400-800m).

F4.2 FLEXIBLE/NEGOTIABLE REQUIREMENTS

f. Multi-storey car parks could allocate dedicated parking floor(s) or bays for potential transit users serving as 'Park & Ride' facilities especially when located closer to the perimeter of TOD Zones in proximity to low-density residential developments.

+ ASSOCIATED TOD OBJECTIVES

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- PLANNING PERMIT
- BUILDING PERMIT

+ KPI

+ REFERENCES

- RTA ROADSIDE DESIGN GUIDE
- RTA TRANSPORT INTEGRATION MANUAL

A multi-storey car parking with active frontage along the pedestrian route near a metro station in Singapore

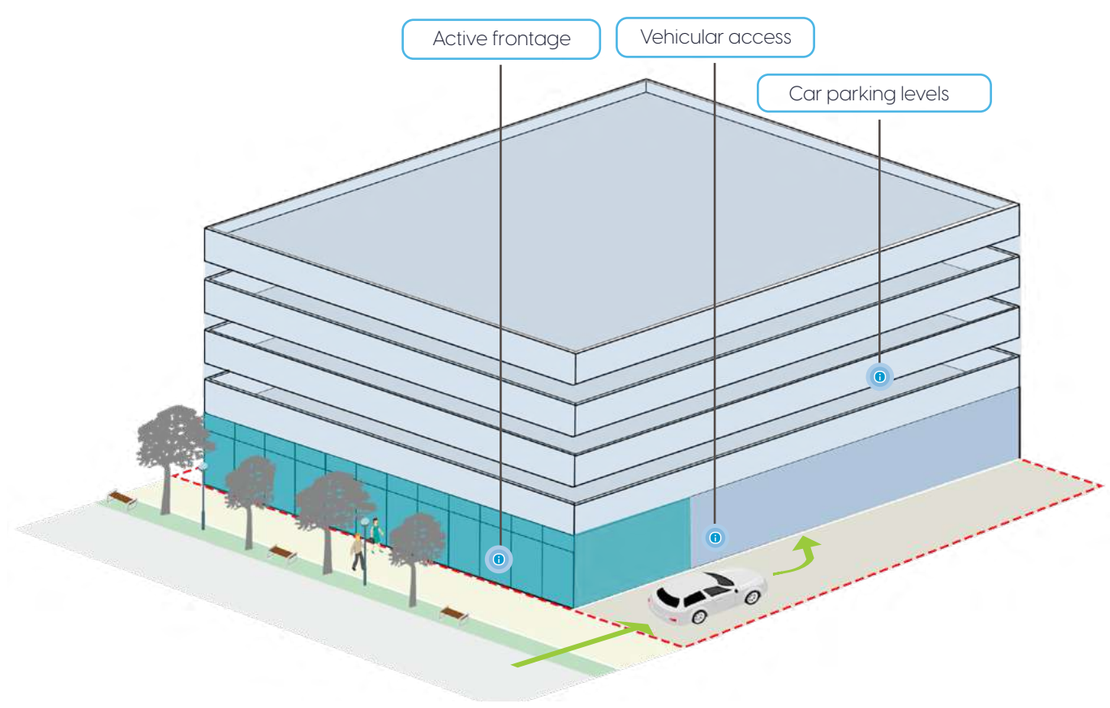


Illustration of a MSCP with active frontage

G1. LOCATION OF UTILITY BUILDINGS

TOD requires significantly less parking than equivalent development programs in non-transit settings. This can be achieved by enforcing maximum allowances in TOD Zones and flexible parking requirements.

G1.1 FLEXIBLE/NEGOTIABLE REQUIREMENTS

a. Utility building refers to:
   - District Cooling Plant
   - Power Substation (400 kV);
   - Primary Substation (132kV);
   - Pocket Substations (11kV);
   - Potable Water Facility (tanks and pumping stations);
   - Irrigation Facility (tanks and pumping stations);
   - Storm Water Facility (tanks and pumping stations);
   - Telecom Meet Me Room;
   - Telecom Point of Presence; and
   - Telecom GSM Tower.

b. For existing large utilities within public realm, utilize greenery and/or aesthetic partition/ divider to visually and safely screen the utility for pedestrians.

c. Accommodate utility facilities in the TOD master plan:
   - Avoid placing large utility structures within TOD Hub (400m)
   - Do not locate utility structures close to the station, particularly not directly in front of the station exits
   - Do not locate utility structures within pedestrian links or green links
   - Optimize/reduce the plot size for utilities as far as possible – consider smaller structures with larger height
   - Do not place utility structures along retail-oriented streets or along the edge of public squares and green spaces
   - Place utility structures at the backside of buildings, away from retail frontage or busy public spaces

+ ASSOCIATED TOD OBJECTIVES

- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- MASTERPLANNING PERMIT
- CONSTRUCTION PERMIT

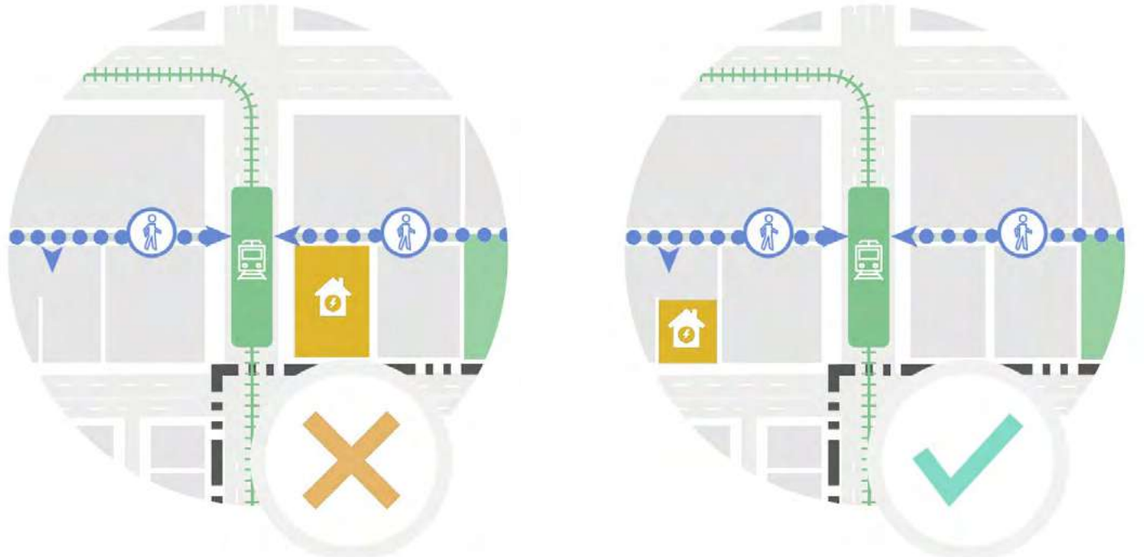
+ KPI

+ REFERENCES

- POWER SUPPLY GUIDELINES FOR MAJOR PROJECT, 2021, DEWA
- WATER TRANSMISSION PLANNING GUIDELINES FOR DEVELOPMENT PROJECTS, 2020, DEWA
- COMMON DU AND ETC-ISP AND OSP DESIGN GUIDELINES, TDRA

Utility structures obstructing sidewalk should be avoided

Utility structures placed without obstructing the sidewalks



Avoid large utility buildings near to the stations and along primary pedestrian routes

G2. STORMWATER MANAGEMENT

While heavy rain is relatively rare in Dubai, it does occur occasionally and often leads to flooded roads and open spaces, which should be addressed by simple and sustainable drainage solutions.

G2.1 FLEXIBLE/NEGOTIABLE REQUIREMENTS

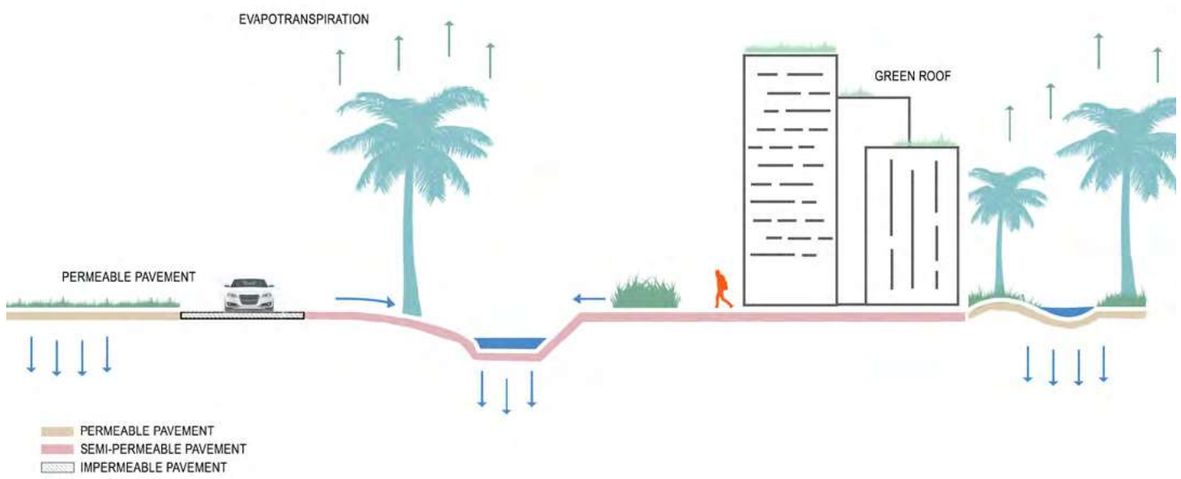
a. Create a sustainable network of bioswales and small landscaped ponds to collect rainwater and direct the gradient of sidewalks and roadways towards them. Incorporate larger stormwater retention areas into the master plan (particularly at low-lying elevations within the site, in accordance with the principles of a gravity network).

b. Bioswales need a minimum 2m width and a low longitudinal slope in order to both infiltrate and to convey water gravitationally to the outlet.

c. Rock swales and gravel swales are a good option in arid climate.

d. In a new master plan, all open spaces and green corridors should be designed using sustainable urban drainage solutions such as dry swales, storage ponds etc.

e. Introduce permeable pavement to reduce the amount of runoff that needs to be managed. This can potentially save on infrastructure costs and avoid the need for costly stormwater management infrastructure.



Local stormwater management principles

+ ASSOCIATED TOD OBJECTIVES

- BUILD RESILIENCE TO CLIMATE CHANGE.
- PROMOTE EFFICIENCY IN RESOURCE UTILIZATION & EXPENDITURE

+ PERMIT TYPE

- CONSTRUCTION PERMIT

+ KPI

+ REFERENCES

- WATER TRANSMISSION PLANNING GUIDELINES FOR DEVELOPMENT PROJECTS, 2020, DEWA
- ABU DHABI URBAN STREET DESIGN MANUAL
- ESTIDAMA

Bioswales alongside a road

04

SUBMISSION CHECKLIST

The checklist presents requirements specific to TOD and is additional to the existing requirements for each permit type.

MASTERPLANNING PERMIT

04

SUBMISSION REQUIREMENTS AND OUTPUT TYPE	MANUAL REFERENCE	TOD PARAMETERS	PARAMETER COMPLIANCE	QUANTITATIVE	QUALITATIVE	EVALUATION	N/A	REVIEWER
Landuse and Population								
1. Site plan and Land-use plan (Narrative/Illustration)	TOD Approach: New Master plan (PUD)	Has the master plan clearly marked the TOD Hub and TOD Neighbourhood boundaries?	**Mandatory**		**Yes**	☐	☐	*Planning Authority
3. Land-use plan (Narrative/Illustration)	A3.1	Does the master plan ensure that non-permissible land uses are excluded from the TOD Hub or TOD Neighbourhood?	**Mandatory**	**Yes**		☐	☐	*Planning Authority
4. LUB Sheet (Narrative/Table)	A1.1(a)	Has the master plan achieved the targets for residential population density?	**Mandatory**	**Yes**		☐	☐	*Planning Authority
	A1.1(a)	Has the master plan achieved the targets for employment density?	**Mandatory**	**Yes**		☐	☐	*Planning Authority
5. Residential GFA and Population (Narrative/ table/Illustration)	A4.1 (b)	Does the master plan reach the targets as defined in the Affordable Housing Policy of Dubai?	Flexible	**Yes**		☐	☐	*Planning Authority
	A4.1 (a)	Does the master plan provide highest residential density closest to the metro station?	**Mandatory**		**Yes**	☐	☐	*Planning Authority
Open space and Landscape Strategy								
1.Open space plan (Narrative/ Illustrations/Table)	D1.1 (a)	Is there a continuous green network connecting the open spaces and leading towards the metro station?	**Mandatory**		**Yes**	☐	☐	*Planning Authority
	D2.1 (b)	Is the transit plaza area provided in accordance with the given targets as per centre types?	**Mandatory**	**Yes**		☐	☐	*Planning Authority
	D2.1 (a)	Is the transit plaza located in the station area?	**Mandatory**		**Yes**	☐	☐	*Planning Authority
2. Shading Calculations (Narrative/Table)	D5.1 (a)	Does the transit plaza have a minimum shading of 60%?	**Mandatory**	**Yes**		☐	☐	*Planning Authority
	D5.1 (a)	Do the open spaces have a minimum shading of 60%?	**Mandatory**	**Yes**		☐	☐	*Planning Authority
	D5.1 (a)	Do the primary pedestrian routes have a minimum shading of 60%?	**Mandatory**	**Yes**		☐	☐	*Planning Authority
	D5.1 (a)	Does the cycle path have a minimum shading of 50%?	**Mandatory**	**Yes**		☐	☐	*Planning Authority
4. List of plants (Narrative/Illustration)	D6	Does the public realm design adhere to the requirements for plant selection?	Flexible/Negotiable		**Yes**	☐	☐	*Planning Authority
5. Street section (Narrative and Illustrations)	D3.1 (b)	Has the master plan adopted the three-section strategy for sidewalks?	**Mandatory**	**Yes**		☐	☐	*Planning Authority

MASTERPLANNING PERMIT

04

	MANUAL REFERENCE		PARAMETER COMPLIANCE			N/A	REVIEWER
Urban Design & Architectural Elements							
1.Building typology (Narrative/Illustration/Tables)		Do the major commercial buildings, and other major adjacent destinations and attractions have direct connection to the metro station either at elevated level, at underground level or at-grade?	**Mandatory**		**Yes**	☐ ☐	*Planning Authority
		Has the plot development considered the reduction in parking for the TOD zones (at least 30% reduction in TOD Hub and 15% reduction in TOD Neighbourhood)?	**Mandatory**	**Yes**		☐ ☐	*Planning Authority
	B1.1 (c)	Are the active frontages provided along the primary pedestrian route?	**Mandatory**	**Yes**		☐ ☐	*Planning Authority
	C2.1	Are dead frontages avoided by moving car parking bays and entrances away from the road or from the primary pedestrian streets?	**Mandatory**		**Yes**	☐ ☐	*Planning Authority
	B2.1 (b)	Does the master plan provide sikkas or passageways or public access at every block for pedestrian permeability?	**Mandatory**	**Yes**		☐ ☐	*Planning Authority
Mobility & Accessibility							
2. Cycling Strategy (Narrative, Illustration)		Is there a network of connected and dedicated cycling tracks and lanes proposed?	**Mandatory**		**Yes**	☐ ☐	*Planning Authority
		Do the bicycle lanes have a minimum width of 1.5m for single lane and 3m for two-way lane?	**Mandatory**	**Yes**		☐ ☐	*Planning Authority
3. Pedestrian Movement Strategy (Narrative, Illustration)	E1.1 (a)	Has the master plan proposed direct, continuous and uninterrupted pedestrian routes across the master plan and to the metro station?	**Mandatory**		**Yes**	☐ ☐	*Planning Authority
5. Public Transport Plan (Narrative, Illustration)	E4.1 (a)	Are the various transit modes (bus, tram, marine transport etc.) well-integrated with the metro station?	**Mandatory**	**Yes**		☐ ☐	*Planning Authority
	E4.1 (b), (c)	Are the transit terminals or stops located within 100m to the metro station?	**Mandatory**	**Yes**		☐ ☐	*Planning Authority

MASTERPLANNING PERMIT

04

SUBMISSION REQUIREMENTS AND OUTPUT TYPE	MANUAL REFERENCE	TOD PARAMETERS	PARAMETER COMPLIANCE	QUANTITATIVE	QUALITATIVE	EVALUATION	N/A	REVIEWER
Sites near National Housing Location								
Open Space Plan (Narrative/Illustrations/Table)	A6.1 (a)	Has the master plan provided a green buffer as a visual barrier between high-rise and national housing locations?	**Mandatory**		**Yes**	☐	☐	*Planning Authority
Road Hierarchy (Narrative/Illustration)	A6.1 (b)	Are the national housing locations separated from the low-income and affordable housing developments at least by an ROW/public streetspace?	**Mandatory**		**Yes**	☐	☐	*Planning Authority
Building Height Plan (Narrative/Illustration)	A6.1 (c)	Are the building height restrictions been followed as per the guidance within 50 and 100m away from national housing?	**Mandatory**	**Yes**		☐	☐	*Planning Authority

PLANNING PERMIT

SUBMISSION REQUIREMENTS AND OUTPUT TYPE	MANUAL REFERENCE	TOD PARAMETERS	PARAMETER COMPLIANCE	QUANTITATIVE	QUALITATIVE	EVALUATION	N/A	REVIEWER
Land use Plan	A3	In case of land use change, does the proposed land-use change adhere to the permissible land-uses?	**Mandatory**		**Yes**	☐	☐	DM
NH design compliance (Narrative/Illustration)	A6	If the parcel is close to National Housing location, does the proposal follow the National Housing guidelines within the TOD manual?	**Mandatory**		**Yes**	☐	☐	DM

BUILDING PERMIT

04

SUBMISSION REQUIREMENTS AND OUTPUT TYPE	MANUAL REFERENCE		PARAMETER COMPLIANCE					
Area Statement		Has the proposed building attained the targets as defined in the Affordable Housing Policy of Dubai?		Yes		☐	☐	
		Does the proposed building include mix of uses (residential/office/retail)?			Yes	☐	☐	DM
Site Plans (with building footprint) (Narrative/Detailed drawing)	B2.1 (b)/ C5	For parcels with sides longer than 150m, is there a mid-block connection/pedestrian sikka or a public access through the building (maximum distance between the two passages must be 80m)?	**Mandatory**	Yes		☐	☐	DM
		Does the proposed building avoid the construction of boundary walls/fences around it?	**Mandatory**		Yes	☐	☐	DM
Floor Plans (Narrative/Detailed drawing)	C2.1 (d)	Does the proposed building provide 60% -100% active frontage at ground level?	**Mandatory**	Yes		☐	☐	DM
		If the development is a major commercial/mixed-use or a destination building, is there a direct pedestrian link (elevated, underground or at-grade) to the station exit?	**Mandatory**		Yes	☐		DM
Car Access and Parking Requirements (Narrative/Table/ detailed drawing)	E4.2 (i)	Are the driveways to the plot raised to maintain the continuity of the sidewalks/cycle tracks?	**Mandatory**		Yes	☐	☐	
		Do the parking spaces provided adhere to the reduction in the TOD manual?		Yes		☐	☐	
		Does the proposal include 5% of the total parking space for bicycles?		Yes		☐	☐	DM
		Is all the parking in the building provided within a basement or podium or in a parking structure behind the building (not visible from the street)?	**Mandatory**		Yes	☐	☐	DM

CONSTRUCTION PERMIT

04

								REVIEWER
Road Projects, Maintenance/Modification Works and Access Road Works								
Detailed layout drawings for roads geometry and profiles, pavement design	F2.1 (b),(c)	Does the proposal adhere to the guidance for on-street parking provision?	**Mandatory**	**Yes**		☐	☐	RTA
	E7.1	Are there exclusive parking bays for car sharing, emergency vehicles and drop-offs?	**Mandatory**		**Yes**	☐	☐	RTA
	F3.1 (a)	Do the scooters/e-bikes/bicycles have dedicated marked-up parking areas?	**Mandatory**		**Yes**	☐	☐	RTA
	D3,1 (b)	Does the sidewalk design follow a three-section strategy?	Flexible/Negotiable	**Yes**		☐	☐	RTA
	D4	Are all streets and crossings fully accessible for all users (in compliance with Dubai universal design code)?	**Mandatory**		**Yes**	☐	☐	RTA
	E1.1 (d)	Do the pedestrian walkways and crossings follow the design recommendations as per the manual?	**Mandatory**	**Yes**		☐	☐	RTA
	E1.1 (d)	Are raised crossings provided from the Transit Plaza to the surrounding public realm?	**Mandatory**	**Yes**		☐	☐	RTA
	E3.1 (a)	Is there an improvement identified to enhance cycle network connectivity to metro station?	**Mandatory**		**Yes**	☐	☐	RTA
	E3.1 (b)	Is the proposed two-way bicycle lane at least 3m wide?	**Mandatory**	**Yes**		☐	☐	RTA
	E3.1 (b)	Is the proposed one-way bicycle lane at least 1.5m wide?	**Mandatory**	**Yes**		☐	☐	RTA

CONSTRUCTION PERMIT

04

	MANUAL REFERENCE		PARAMETER COMPLIANCE					REVIEWER
Soft Landscaping Projects								
Illustration and calculation generated using a specialized software		Does the transit plaza have a minimum shading of 60%?	**Mandatory**	**Yes**		☐	☐	RTA
		Do the open spaces have a minimum shading of 60%?	**Mandatory**	**Yes**		☐	☐	RTA
		Do the primary pedestrian routes have a minimum shading of 60%?	**Mandatory**	**Yes**		☐	☐	RTA
		Does the cycle path have a minimum shading of 50%?	**Mandatory**	**Yes**		☐	☐	RTA
	F2.1 (b)	Is the on-street parking screened from the sidewalks by a landscape buffer?	**Mandatory**		**Yes**	☐	☐	RTA
	D6.1	Does the public realm design adhere to the requirements for plant selection?	Flexible/Negotiable	**Yes**		☐	☐	RTA
Informative Signs Works, Street Lighting, Safety Barriers/Gantry and Roads Furniture Works								
Layout plan showing the location of proposed street lighting, signages and furniture works.		Does the transit plaza have dedicated areas for bike shelters, as well as shared mobility devices?	**Mandatory**		**Yes**	☐	☐	RTA
		For the roads with more than 30km/h moving traffic, does the proposed dedicated bicycle lane have a physical separation from adjacent vehicular travel lanes?	**Mandatory**	**Yes**		☐	☐	RTA
	D2.1 (f)	Are shading and seating options available at bus stops and pick-up/drop-off facilities?	**Mandatory**		**Yes**	☐	☐	RTA
	D7.1 (b)	Are the main links to transfer options (bus stops, tram stops, taxi stands etc.) clearly marked?	**Mandatory**		**Yes**	☐	☐	RTA
	D3.1 (c)	Are all street furniture located outside the pedestrian flow zone?	**Flexible/Negotiable**		**Yes**	☐	☐	RTA

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Dubai Municipality