

**Handbook for  
Masterplanning  
& Value Creation for  
Railway Station  
(Re)development**  
Creating Value through TOD

**FIRST DRAFT**



**JANUARY 2019**

# Handbook for Masterplanning & Value Creation for Railway Station (Re)development

Creating Value through TOD

**FIRST DRAFT**

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Chennai Central Station (Source: erail.in)

# Introduction

## Purpose of the document

Indian Railway Stations Development Corporation Limited (IRSDC) is a deemed Government Company and a Joint Venture of Rail Land Development Authority (RLDA) and IrCO International Limited under the purview of the Ministry of Railways, Government of India. IRSDC is the nodal agency mandated to develop / redevelop existing and / or new railway stations in India (and all ancillary infrastructure and facilities) to upgrade the levels of service and amenities to the highest standards to serve the needs of passengers better.

As per the decision of the Union Cabinet, in addition to being the nodal agency for stations re-development in the entire country, IRSDC is also now the main Project Development Agency (PDA). Further, IRSDC, besides Railways and RLDA, has been empowered by the above said Cabinet decision to approve its plans under the powers conferred to it as per section 11 of the Railway Act 1989. IRSDC has been directed to ensure that the development planned in Railway land after due consultation with Local bodies and other statutory authorities, is harmonious with its surroundings and generally follows the National Transit Oriented Development (TOD) Policy. It is worth noting that no change in land use is required across India by Railways for developing Railway land for commercial use. The model for redevelopment of stations followed by IRSDC is governed by a 'no cost to railways' principle and is therefore based on complete funding from land monetization.

Entrusted with a total of 8613 Stations across the country, IRSDC on priority is responsible for developing around a 1000 world class stations in the next 10-15 years, This provides a tremendous opportunity to reshape the urban landscape of the country, catalyzing development in various Tier 2 and Tier 3 cities and setting up exemplar TOD projects in Tier-1 growth centres. Since most station developments are in the heart of existing cities, they provide a great opportunity to reconnect and unlock the potential of previously fractured areas through TOD and value capture mechanisms, in line with the Hon'ble Prime Minister's vision of 'Railway Stations functioning as mini Smart Cities'.

In parallel, many agencies around the country are also currently executing TOD based projects under various National schemes such as Smart City, metro policy, etc. Along with such agencies, IRSDC aims to lead the setting up detailed systems for TOD project approvals, guidelines and performance standards for projects.

**Amongst the first in a suite of documents planned to ensure the above, this Handbook provides detailed design guidance for Station Area Masterplanning. It aims to enable the enhancement of value in the precinct through strategic restructuring and regeneration of derelict, under-utilised and/or overburdened parts of the city to create a sustainable new Station quarter.**



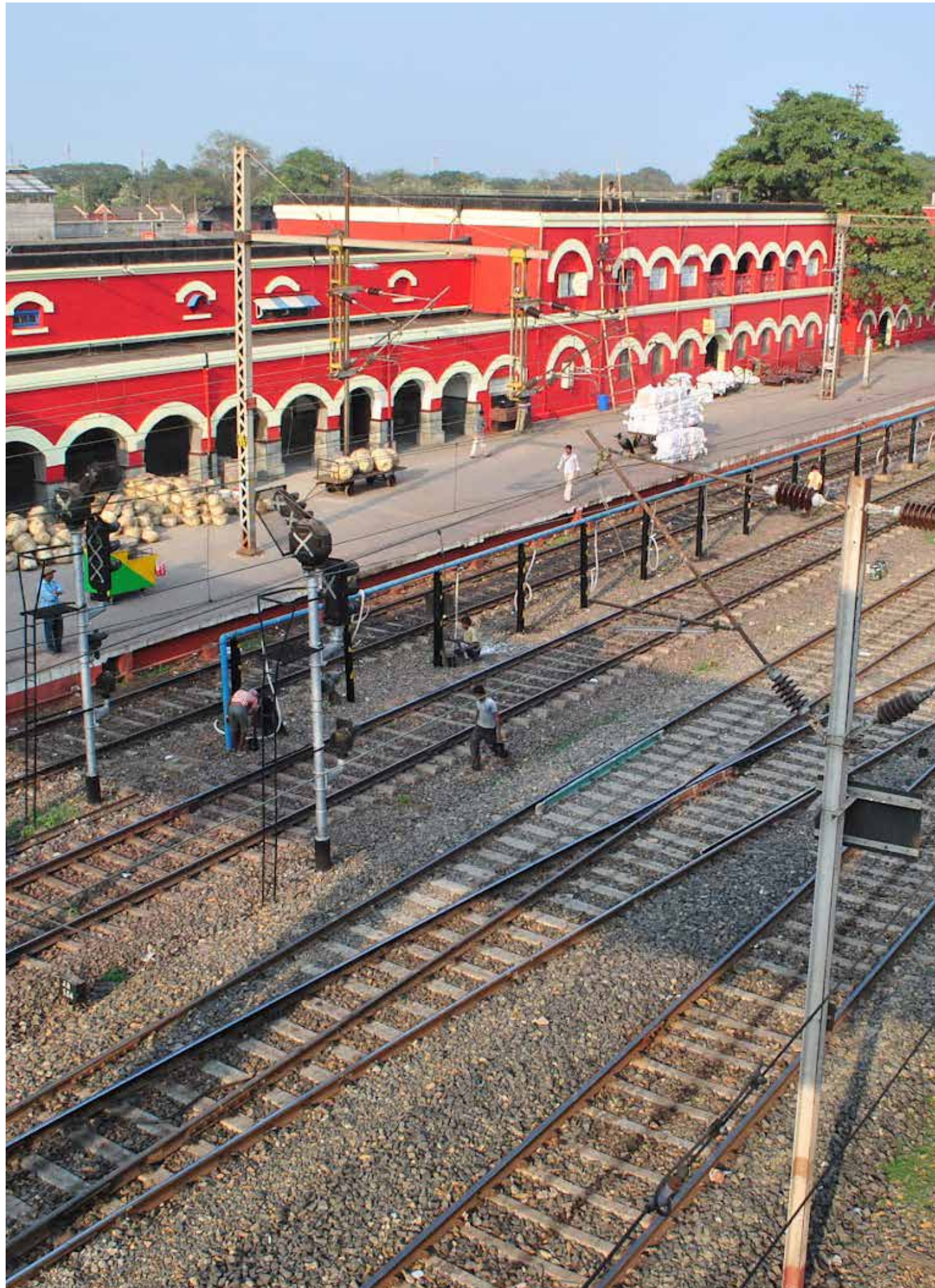
**Sh. Narendra Modi**  
Hon'ble Prime Minister, India

**Foreword**  
**Message from the Hon'ble Prime**  
**Minister & Minister of Railways**



**Sh. Piyush Goyal**  
Hon'ble Minister of Railways, India





Midnapur Railway Station (Source: railanalysisindia.com)

# The IRSDC's mandate

- 1. To develop / re-develop existing / new railway stations**
- 2. To undertake projects for development of real estate on Railway/ Government land and its commercial utilization**
- 3. To undertake preparation of projects including planning, designing, development, construction, commissioning, operation, maintenance, and financing**
- 4. To carry on any railway infrastructure work including development of railway stations through various implementation models.**
- 5. To approve all Railway Station (Re)Development Projects**

## Some facts about the Indian Railways

|                      |   |
|----------------------|---|
| <b>8,116 Million</b> | <b>Passengers transported</b>               |
| <b>67,368</b>        | <b>Route kilometers covered</b>             |
| <b>1,149,835</b>     | <b>Passenger kilometers covered</b>         |
| <b>64,223</b>        | <b>Passenger carriages as rolling stock</b> |
| <b>8,613</b>         | <b>Stations</b>                             |

Source: Statistical Summary—Indian Railways 2016-2017





Churchgate Station © Randy Olson

## Who should use the document & How?

There are many players in the station redevelopment process including, the Indian Railways, the landowners, IRSDC, the nodal agency for redevelopment, Developers, Urban Local Bodies, other local agencies and experts working in the field including architects, urban designers, planners, engineers etc. Under the larger framework of the National Transit Oriented Development (TOD) Policy, this Handbook aims to provide guidance to all players, setting out how a station redevelopment project should be masterplanned such that enhanced value is created in the newly built asset. It is structured simply, as follows:

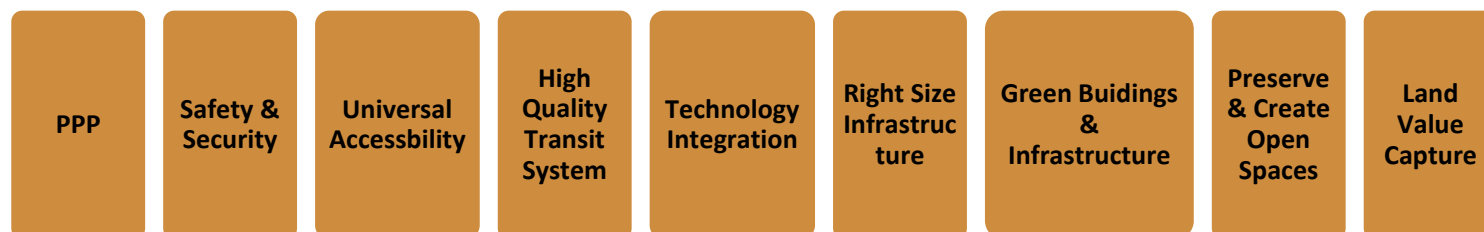
- **National TOD Policy, the guiding framework**
- **Creating Value through Station (Re) Development Projects**
- **Step by Step Methodology for Masterplan Preparation**
- **Planning for Sustainability - Objectives & Approach**
- **Design Guidelines:**
  - 01 Access & Circulation
  - 02 Mix use, zoning & Retail Planning
  - 03 Multi-Modal Integration
  - 04 Public Spaces
  - 05 Parking

*Please note, while the Handbook, sets guidelines, the uniqueness of each Railway Station and Station Area must be studied and understood and solutions based on the specificities of each site must be developed under the larger framework provided by this document.*

## Components and Supporting Tools for TOD as per the National TOD Policy



### TOD Supporting Tools



# The National Transit Oriented Development (TOD) Policy, the guiding framework

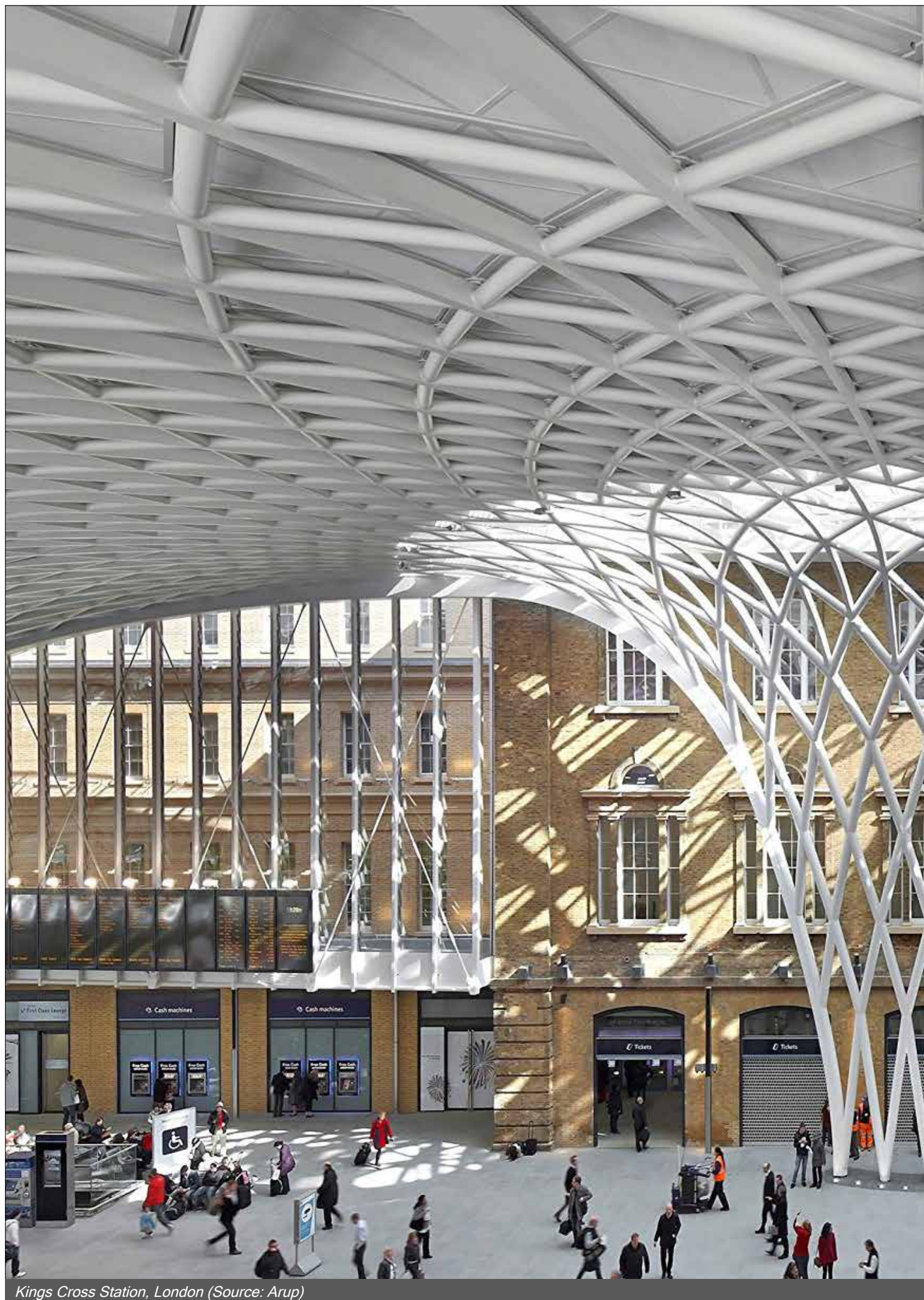
*“TOD integrates land use and transport planning and aims to develop planned sustainable urban growth centers, having walkable and livable communes with high density mixed land-use. Citizens have access to open green and public spaces and at the same time transit facilities are efficiently utilized. TOD focuses on creation of high density mixed land use development in the influence zone of transit stations, i.e. within the walking distance of (500-800 M.) transit station or along the corridor in case the station spacing is about 1km. TOD advocates pedestrian trips to access various facilities such as shopping, entertainment and work. TOD increases the accessibility of the transit stations by creating pedestrian and Non-Motorised Transport (NMT) friendly infrastructure that benefits large number of people, thereby increasing the ridership of the transit facility and improving the economic and financial viability of the system. Since the transit corridor has mixed land-use, where the transit stations are either origin (housing) or destination (work), the corridor experiencing peak hour traffic in both directions would optimize the use of the transit system”*

**The National TOD policy is a guiding document for the Central Government ministries/ departments/ agencies to ensure that their schemes, policies, etc. encourage TOD in cities, especially those with upcoming mass transit systems.**

### How does this Handbook relate to the National TOD Policy?

This Handbook demonstrates how the principles set out in the National TOD Policy apply to Railway Stations and Railway Station Areas. Imbibing the 12 TOD components as demonstrated to the left, it provides guidance on Masterplanning and Value Creation for a Station (Re)Development Project. Please note, the Handbook is structured to include five sections, some of which combine 2-3 TOD components each.





Kings Cross Station, London (Source: Arup)

# Creating value through Railway Station (Re)development

**‘Good urban design has the capacity to change market perceptions and behaviour. It can help to create and establish markets where none exist. Design has been at the heart of recent initiatives such as the city centre redevelopments and housing market renewal schemes. A fundamental understanding of context, urban structure, connections and investment in details and management have helped to make these once more places where people want to be.’**

**“Well-designed places where people want to live, spend time and work can generate financial value.”**

*- Urban Design Compendium II - Delivering Quality Places (UDC2),*

*A best practice document published by the Homes and Community Agency, Govt. of UK.*

## **Increased value**

The value of well-planned and designed places maybe measured in not just financial terms but also through the enhancement of social and environmental value that will positively impact quality of life and well-being of a community.

According to UDC2, International research has found that developments based on sound design principles can raise values by 10-15%. A 2007 study undertaken by NWDA/RENEW Northwest found that...

**not only could good urban design lead to an increase of 15-20% in rental or capital value, but it would also accelerate lettings and sales rates.**





Kings Cross Station, London (Source: KingscrossUK.com)

## Value can be enhanced through multiple interdependent strategies across scales, including:

1. **Direct linkages and access to key existing destinations / hubs / zones of economic activity in the city, outside the Station Area to capitalise on existing and potential synergies.**
2. **In doing so, creating a framework for transforming the Railway Station into a new City Centre and a catalyst for regenerating existing neighborhoods.**
3. **Increased access to this new City Centre supported by enhanced connectivity within the Station Area through a fine street network.**
4. **Thereby creation of a larger number of smaller saleable parcels with increased access and visibility, enabling a flexible and effective disposal strategy.**
5. **Ensuring flexibility of landuses within the Station Area to enable it to respond to changing socio-economic demands of a growing city, creating a more robust development context and in turn adding value.**
6. **Creating a vibrant mix of uses distributed across site such that synergies between distinct use classes is maximized, enabling enhanced vitality, safety and easy access to amenities that has a direct impact on value of the area and individual properties.**
7. **Locating different uses within the station building such that the benefit of large passenger footfalls is maximized for heightened retail sales.**
8. **Ensuring convenient and seamless integration between modes at the Station and rest of the Station Area, encouraging the use of public transport for both long and short distance trips and enabling last mile connectivity.**
9. **Ensuring different segments of society and the needs of all irrespective of gender, age, or socioeconomic background are addressed, providing a healthy mix that makes communities sustainable in the long run and also generates more value due to inherent inter-dependencies.**
10. **Creating a built form with street oriented buildings with active frontages that not only provide a sense of place, safety and liveliness but also enhance value of retail / commercial uses due to increased access and visibility. They also encourage walking and cycling, thereby resulting in greater footfalls and patronage than when buildings are tucked away behind boundary walls and setbacks.**
11. **Creating high quality public realm, encouraging people of all ages to choose slower low carbon modes and actively use public space, thereby ensuring greater vitality in the district. This also results in greater footfalls and the tendency to linger, giving greater impetus to local shops and small businesses**
12. **Using Parking as a demand management tool with effective pricing and enforcement that addresses the needs of all users – resident, shop-owner, customer, visitor, employee – can help alleviate value of each individual use category.**



# Step by Step Methodology for Masterplan Preparation



Sydney Central Station

# Step by Step Methodology for Masterplan Preparation



Proposal to position a stadium on top of the Sydney Central Station, with adjoining development



# STEP BY STEP METHODOLOGY

## STEP 01 IDENTIFY STATION AREA

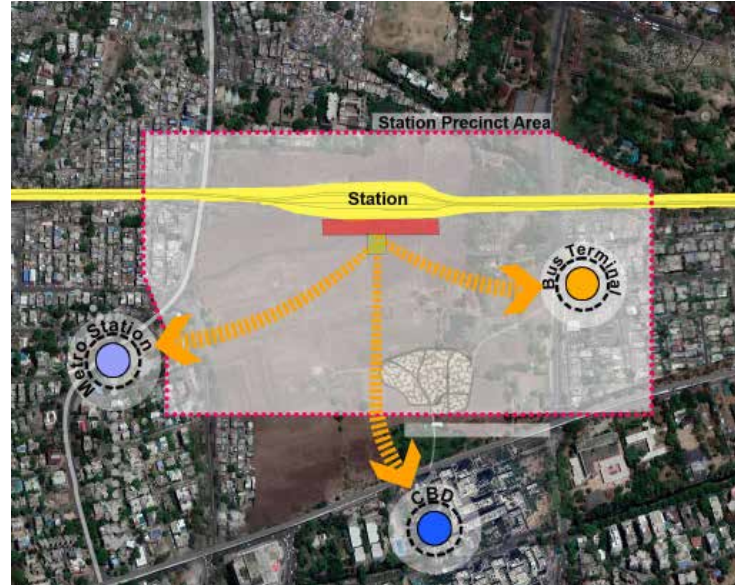
Setting the physical boundaries of the project

Note: Station Area is defined as the Railway Station, and all other adjoining Railway Lands between one Home Signal to the next Home Signal

## STEP 04 PREPARE THE BASEMAP

Documenting all site related data including utilities, opportunities and constraints

## STEP 02: PREPARE THE CONTEXT PLAN



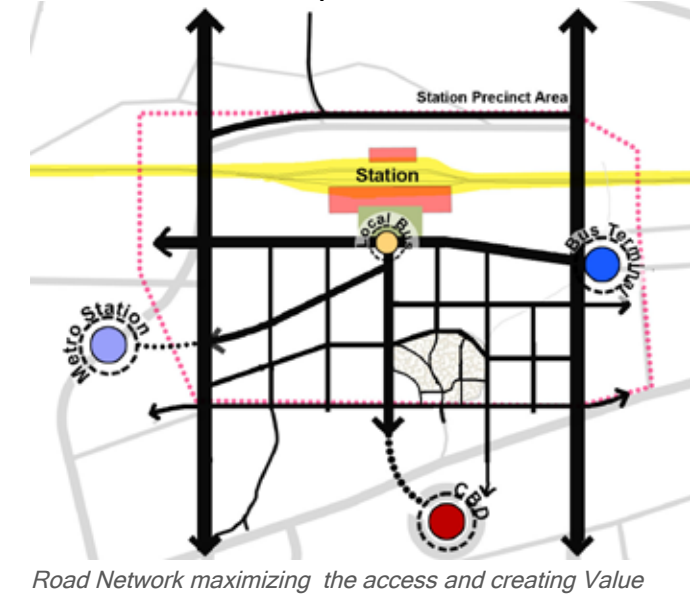
## STEP 02 PREPARE THE CONTEXT PLAN

Highlighting major connections and synergies

1. Identify important urban activity centres, nodes, transit hubs, etc.
2. Examine current development plan / master plan / other relevant planning documents to identify:
  - Plan provisions for any new roads, Public transport corridors, development projects, etc.
  - Norms applicable to relevant Station precinct - synergies and challenges
  - Existing and suggested circulation/ access to station
3. Identify improvements that the city needs to do to improve access to the railway station from both sides of the tracks.

**REF: 1.1**

## STEP 05 : CONNECT / RESPOND TO CITY MAGNETS



## STEP 05 PREPARE THE PROPOSED CIRCULATION PLAN BASED ON CONTEXT

Planning the Street Network

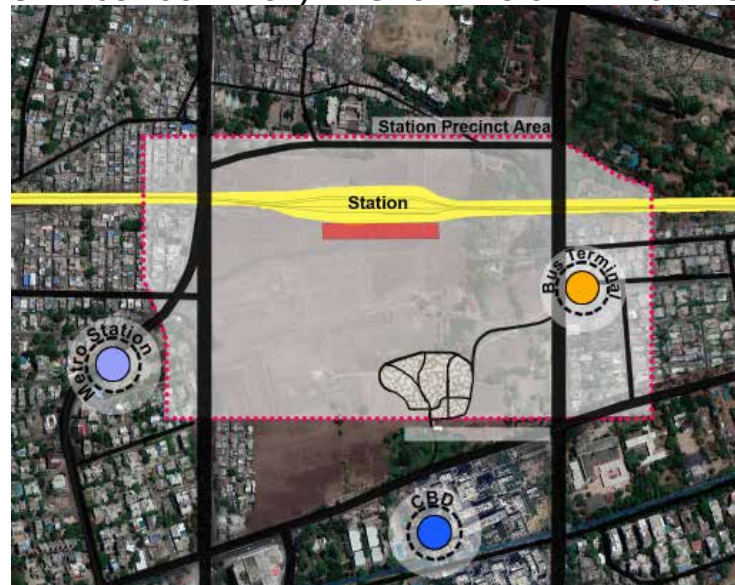
After the Basic circulation map prepared in step 5, overlay a fine network of vehicular and pedestrian streets that provide multiple options for movement of people, while providing the shortest/ most direct pedestrian access between important nodes.

Identify multiple entry/exit and dispersal points to and from the station site - so as to not create congestion at a few junctions serving the station.

Identify locations where grade-separated infrastructure would be inevitable, in order to improve: (1) access to the station, (2) access to nearest public transportation nodes, and (3) access to developable parcels within the railway land. (However as a general rule, grade separated infrastructure should be avoided as they increase project cost and decrease land value in the immediate vicinity).

**REF: 1.3 -1.4**

## STEP 03 : CONNECT / RESPOND TO CITY MAGNETS



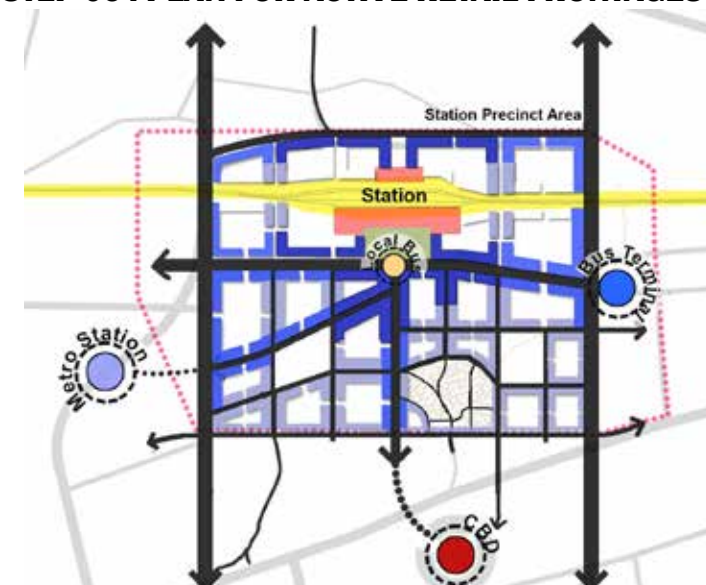
## STEP 03 CONNECT / RESPOND TO CITY MAGNETS

Creating the movement framework

1. Identify important connections with citywide road network and public transport nodes, urban centres, public spaces, recreational centres, ecological assets, etc .
2. Provide linkages to enable seamless interchange with public transport nodes serving the railway station.
3. Identify major locations where vehicular cross connectivity over the track may be needed to reconnect both sides of the Station for both city-level benefit and station-level advantage;
4. Provide shortest movement paths for pedestrians to access important nodes within and around the railway station precinct.

**REF: 1.1 - 1.3**

## STEP 06 : PLAN FOR ACTIVE RETAIL FRONTAGES



## STEP 06 PLAN FOR ACTIVE RETAIL FRONTAGES

Planning for retail distribution

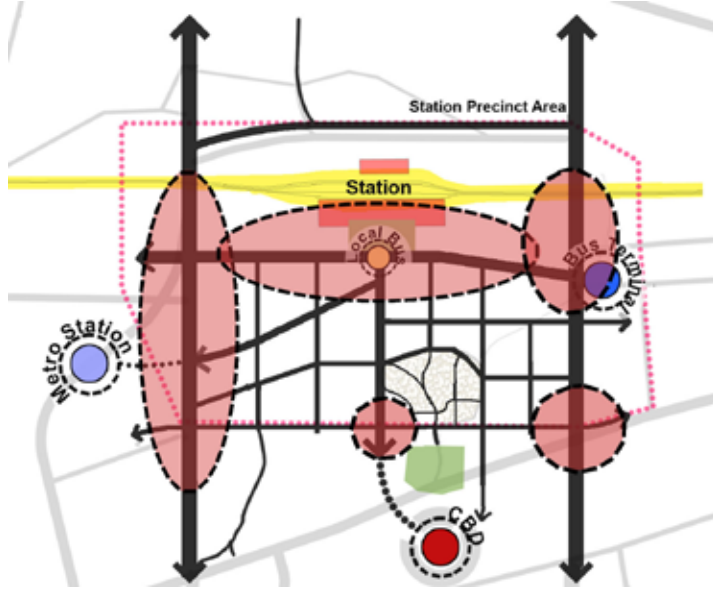
Based on the hierarchy of Movement in the circulation plan, identify the preferable locations for all 3 types of retail frontages.

**REF: 1.5, 2.2**



# STEP BY STEP METHODOLOGY

## STEP 07: PREPARE A VALUE CREATION MAP



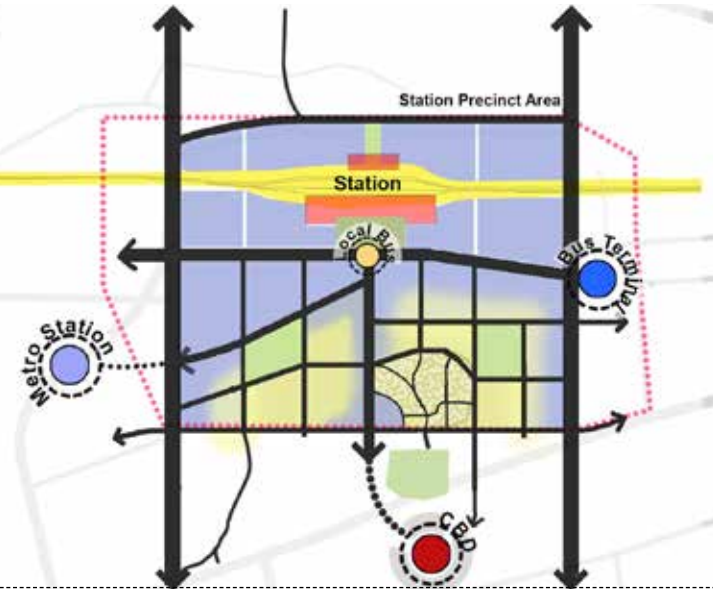
## STEP 07 PREPARE A VALUE CREATION MAP

*Creating the framework for use distribution*

1. Based on the Circulation plan and hierarchy of Roads, level of access and Visibility, prepare a graded map of valuable zones within the station precinct.
2. Based on this, identify the best locations for different types of uses: most accessible and visible plots may be most suitable for Commercial, while slightly private plots with indirect access may be suitable for residential. In case of high demand, buildings above the station may be considered. (The actual programming shall be based in the Real Estate potential and Projection for the site, but these guidelines may help in maximizing the value of various use types.)

**REF: 2.1**

## STEP 07: PREPARE USE DISTRIBUTION STRATEGIES



## STEP 08 PREPARE USE DISTRIBUTION STRATEGIES

*Planning for mixed-use horizontally & vertically*

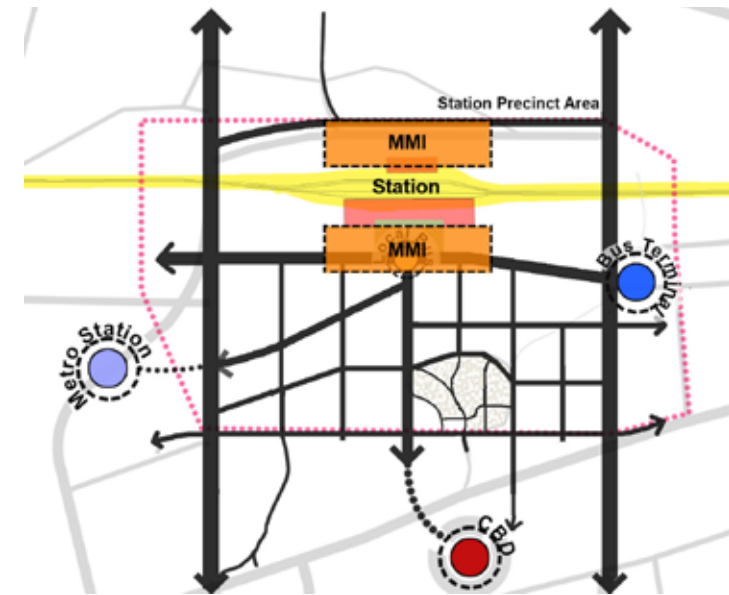
1. Based on the above principles as well as the real estate forecast for the site, prepare a use distribution map for the site - both horizontal and vertical. (At this stage, it is a must to demonstrate the circulation and use-distribution within the Station precinct using 3-dimensional models)

**REF: 2.1**

## STEP 09 PREPARE STATION DESIGN - CONCEPT, SIZING, LOCATION

1. As per the Passenger forecast, LOS targets and Performance standards for the Station building, prepare a conceptual sketch of the detailed Station building showing the Concourse(s); Entry/exit sizing and segregation; Retail integration with circulation; Construction and O&M cost optimization; integration of the historic building (if relevant); and '24x7 Station' Placemaking strategies.
2. Prepare multiple options for Arrival Departure segregation for discussion.

## STEP 10 PREPARE MULTIMODAL INTEGRATION STRATEGIES



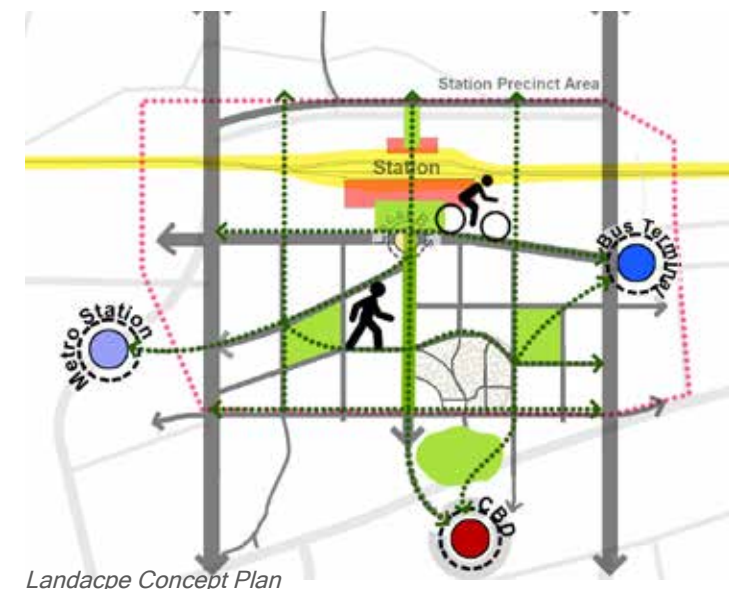
## STEP 10 PREPARE MULTIMODAL INTEGRATION STRATEGIES (HORIZONTAL AND VERTICAL INTEGRATION)

*Planning For Seamless Integration*

1. Prepare various options for Multimodal integration, and drop-off/wait/pick-up facilities for various modes within the Station precinct.
2. The priority of access should be given to high-occupancy and/or public transport and shared transport modes.
3. Parking should preferably be concealed and placed behind or within buildings having active retail frontages.

**REF: 3.1, 5.1**

## STEP 11: PREPARE PUBLIC OPEN SPACE CONCEPT



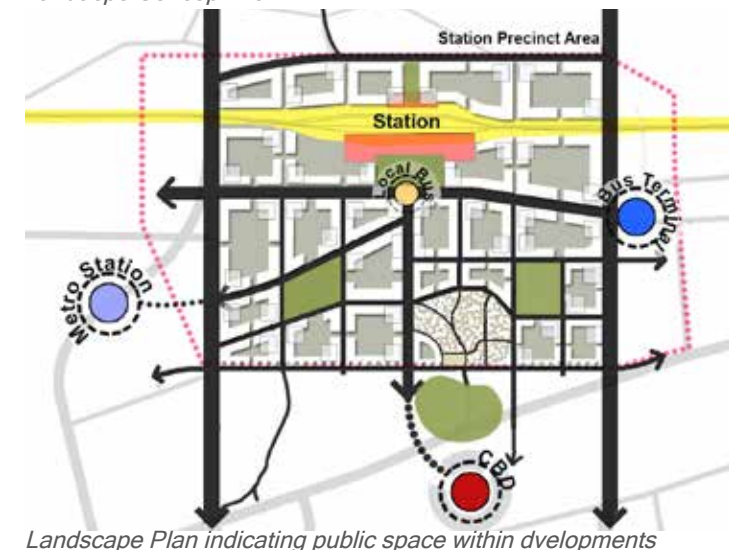
*Landscape Concept Plan*

## STEP 11 PREPARE PUBLIC OPEN SPACE CONCEPT

*Planning for streets, green open space, public plazas, parks, active recreation spaces, working landscapes, 24/7 spaces*

1. A station is a place with the highest Footfall and therefore Large public spaces within and outside the station building should be provided integrated seamlessly with retail frontages. Resting and waiting areas are the ideal locations for large format retail and F&B; while movement areas are better for shop-on-the-go/ take away format retail.
2. Based on this, the Station Concourse and the Entrance plaza of the station are the ideal location for retail-oriented Placemaking.
3. Such spaces should be designed to provide comfort to all age groups and people with differential abilities. It must be ensured that women and children travelling late at night feel safe and enjoyable in these spaces.
4. Similarly the streets/ parkways leading to the Residential development with the precinct must be safe and active around the clock.
5. For Residential areas, adequate amount of public parks and active/passive recreational facilities must be provided.

**REF: 4.1**



*Landscape Plan indicating public space within developments*



## STEP BY STEP METHODOLOGY



### STEP 12: PREPARE OVERALL MASTERPLAN

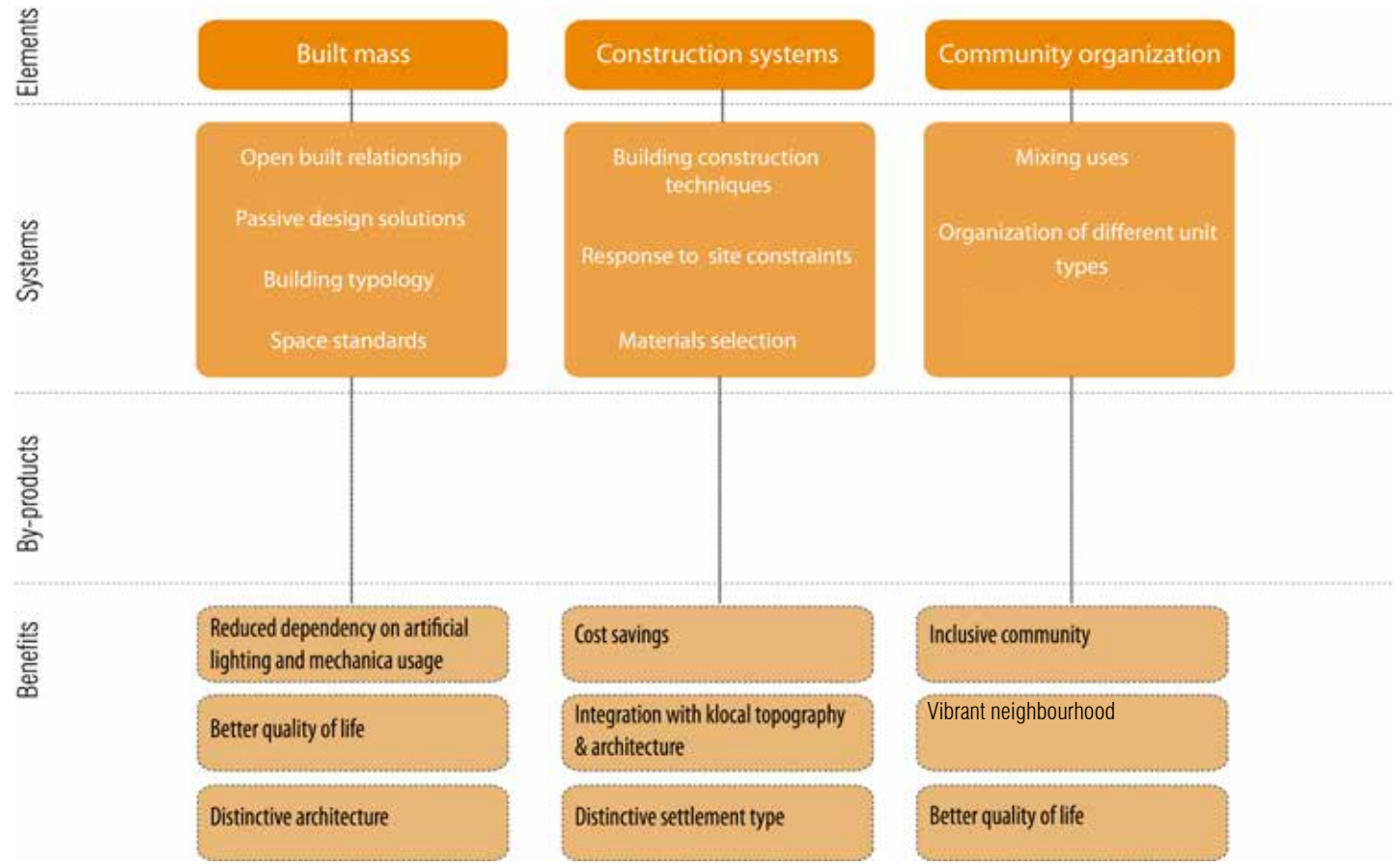
1. Masterplan with full build-out and phasing plan
2. Phasing based on value capture and value maximization
3. Detailed station plan
4. Phase-1 detailed plan
5. Comprehensive landscape and infrastructure plan
6. Stormwater management masterplan:
7. Rainwater harvesting
8. Working landscape details
9. Water and Wastewater management plan
10. Solid waste management plan
11. Energy Strategy:
  - Passive design components for demand reduction estimation (mandatory to reduce O&M costs)
  - Energy supply strategies



Western Harbour, Malmö, Sweden - A pioneer in sustainable masterplanning

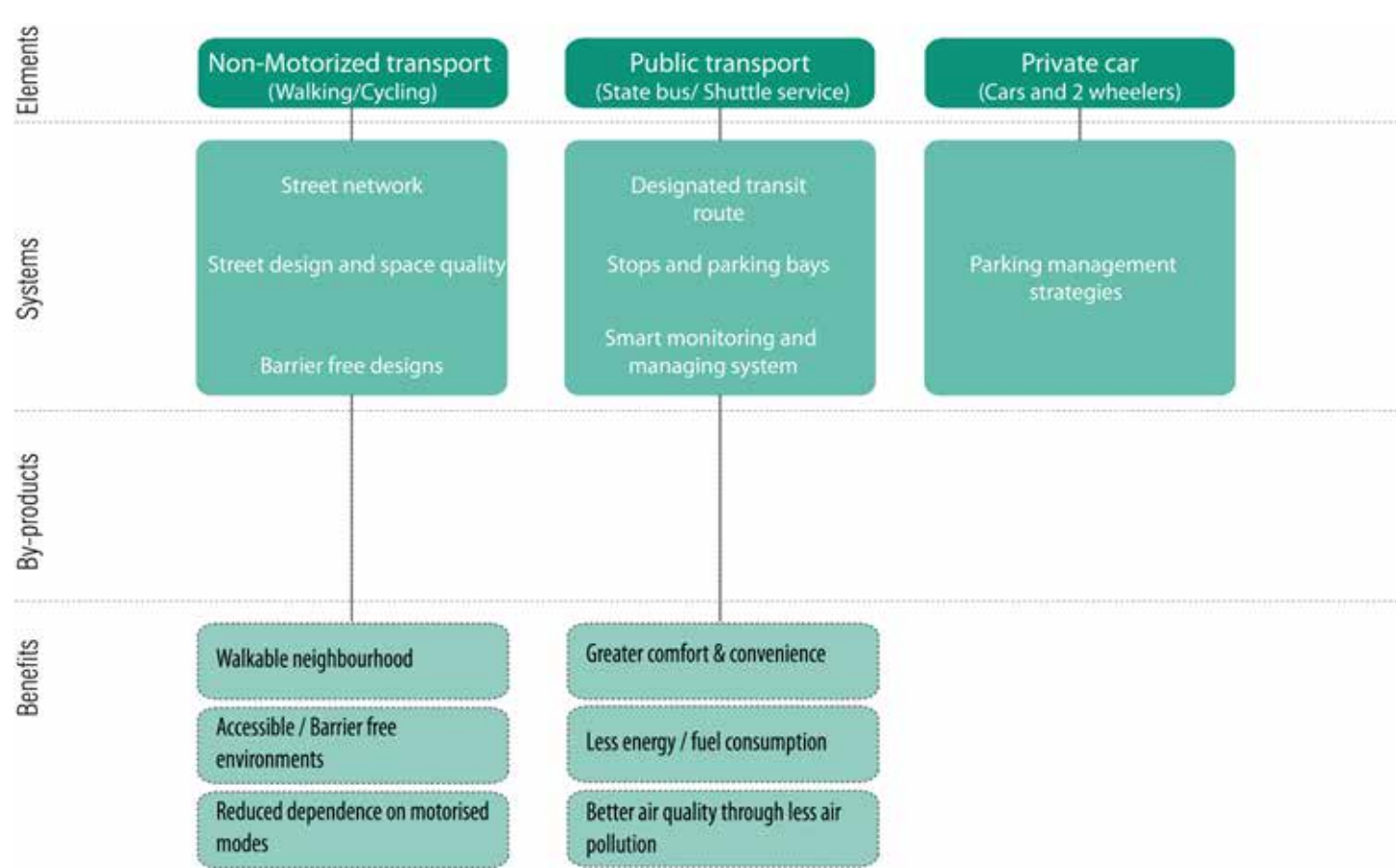
# Planning for Sustainability Objectives & Approach

**A RESPONSIVE BUILT ENVIRONMENT** **OBJECTIVE:** To create a climatically responsive, efficient and spatially humane built environment



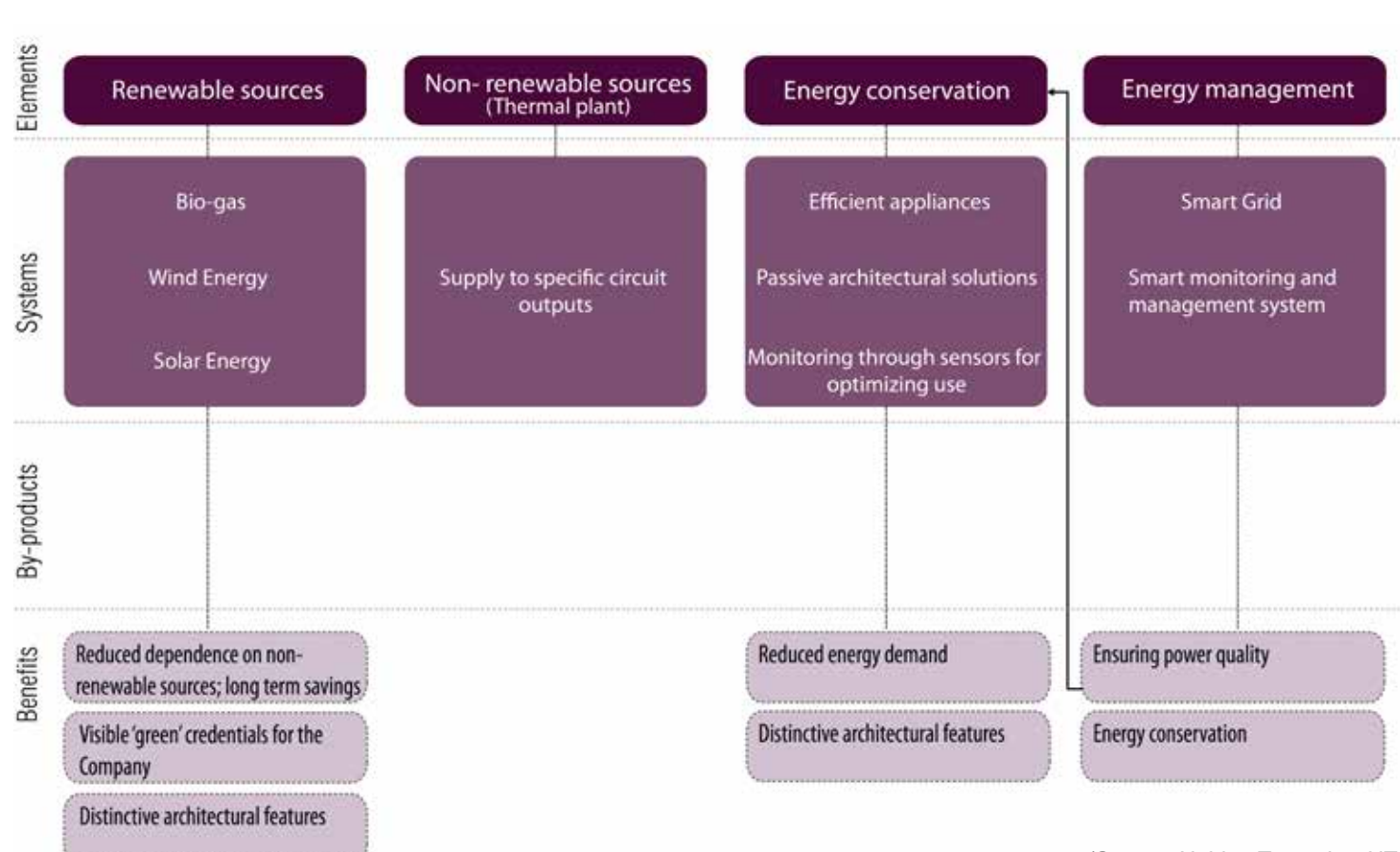
(Source: Habitat Tectonics, HTAU)

**B LOW CARBON TRANSPORT** **OBJECTIVE:** To ensure a mobility transition towards sustainable mode choices



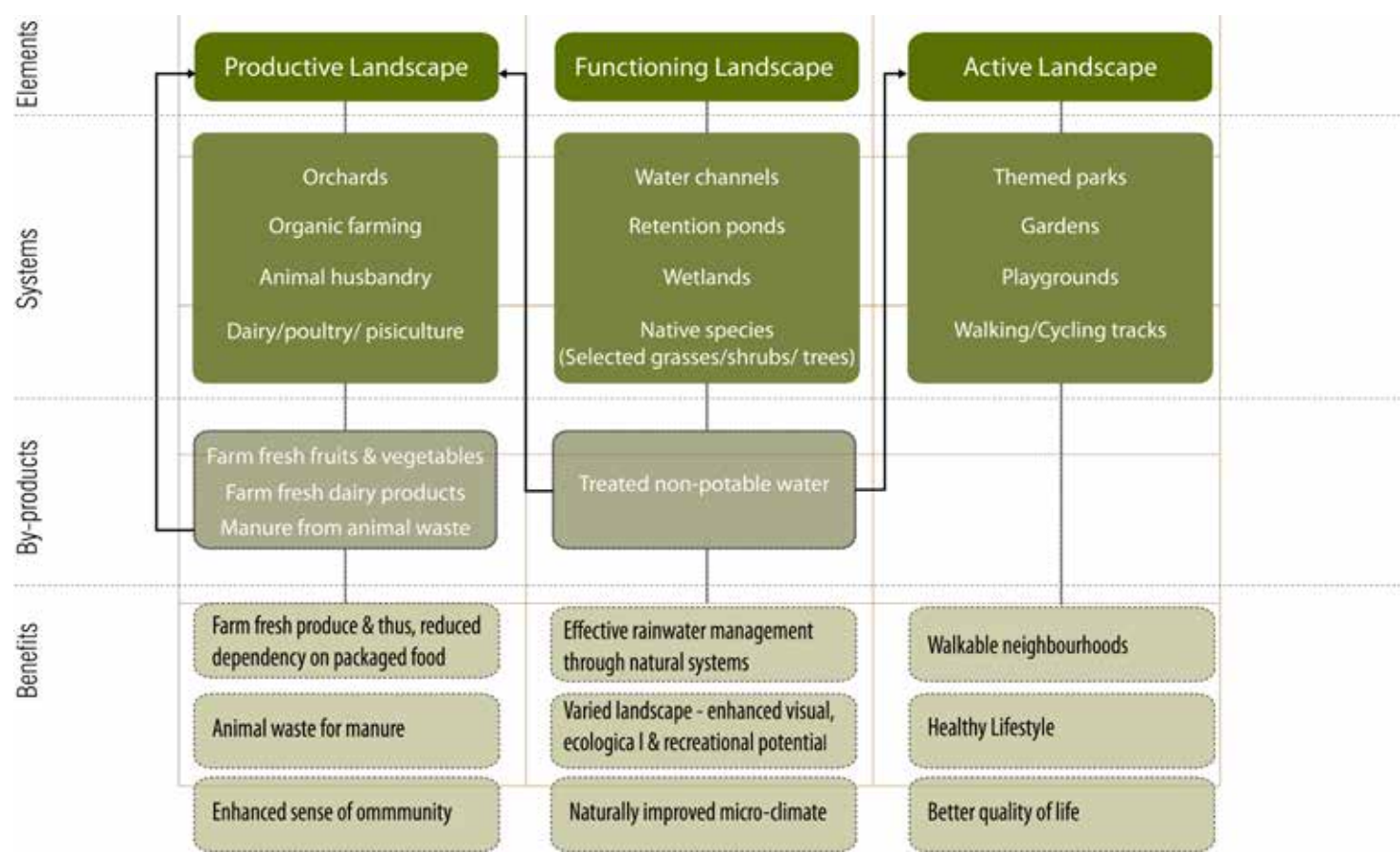
(Source: Habitat Tectonics, HTAU)

**C GREEN ENERGY** **OBJECTIVE:** To reduce demand, manage resources efficiently and maximise use of renewable sources



(Source: Habitat Tectonics, HTAU)

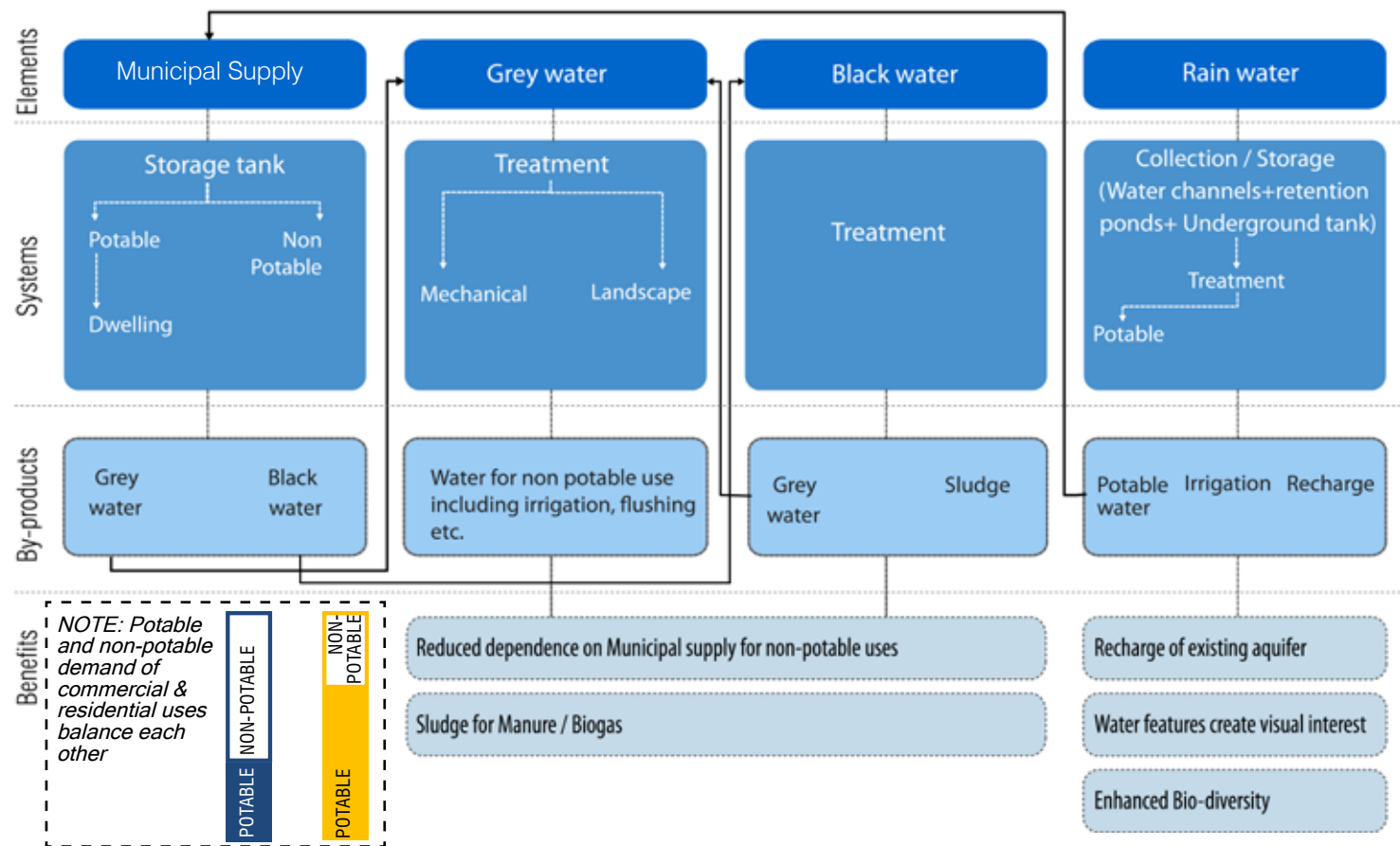
**D WORKING LANDSCAPE** **OBJECTIVE:** To deliver multifunctional landscapes that help manage storm water naturally, treat wastewater and create beautiful places



(Source: Habitat Tectonics, HTAU)

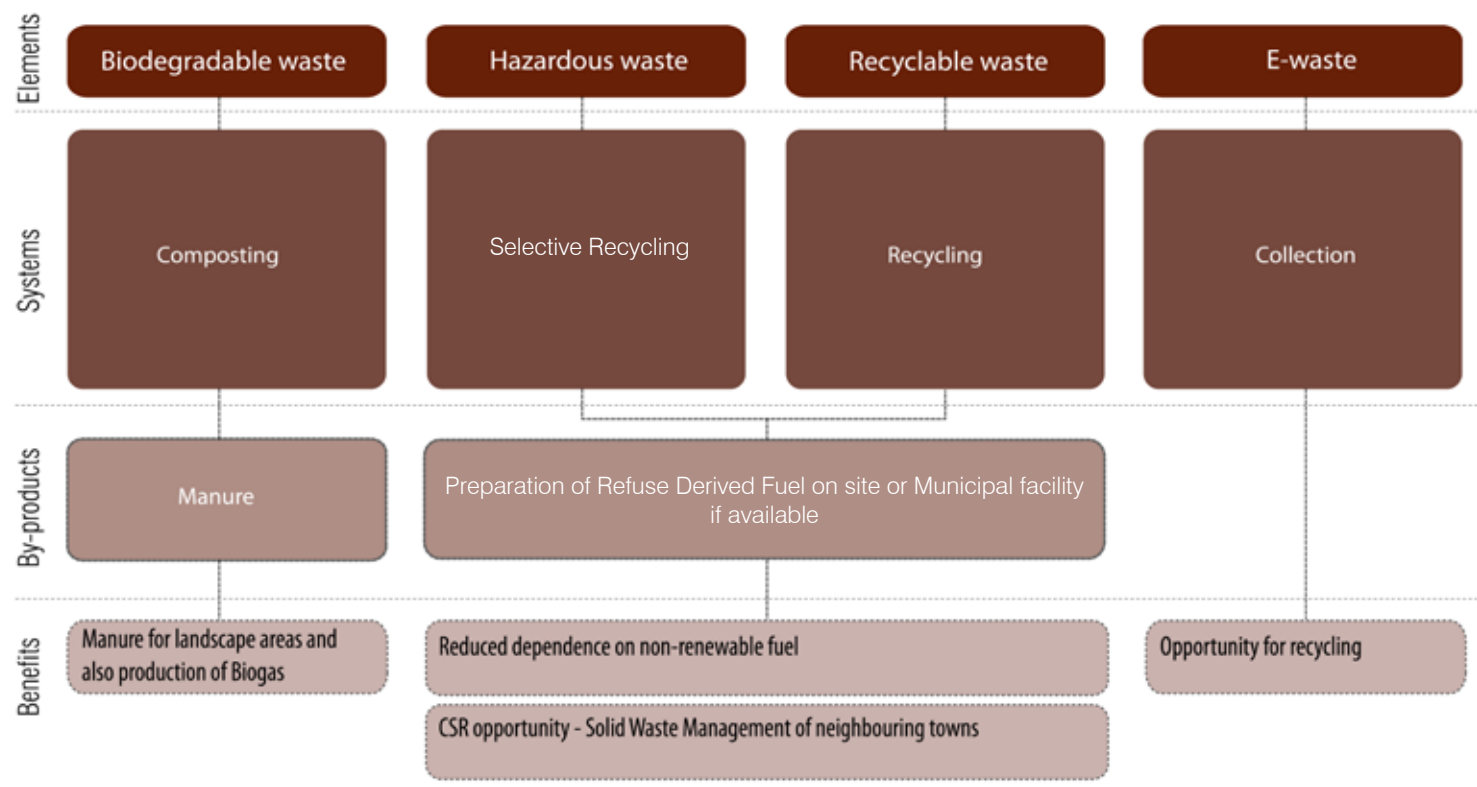


**E** **EFFICIENT WATER MANAGEMENT** **OBJECTIVE:** To reduce demand, manage resources efficiently and maximise recycling and reuse .



(Source: Habitat Tectonics, HTAU)

**F** **EFFICIENT SOLID MANAGEMENT** **OBJECTIVE:** To reduce waste generation, manage waste efficiently and maximise recycling & reuse.



(Source: Habitat Tectonics, HTAU)

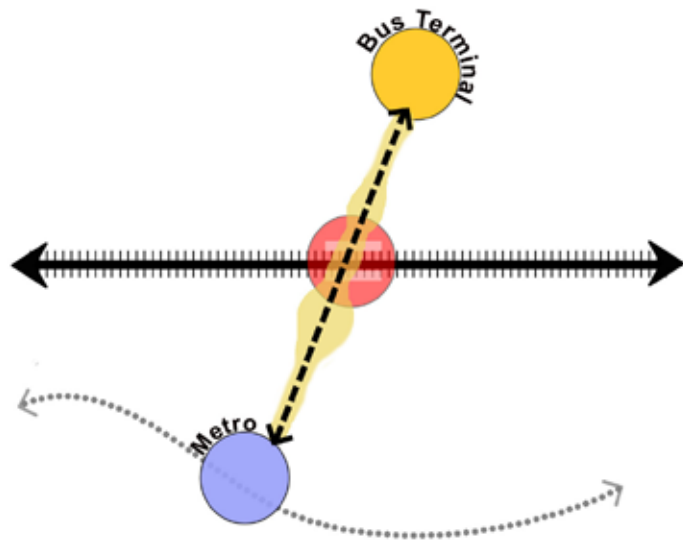




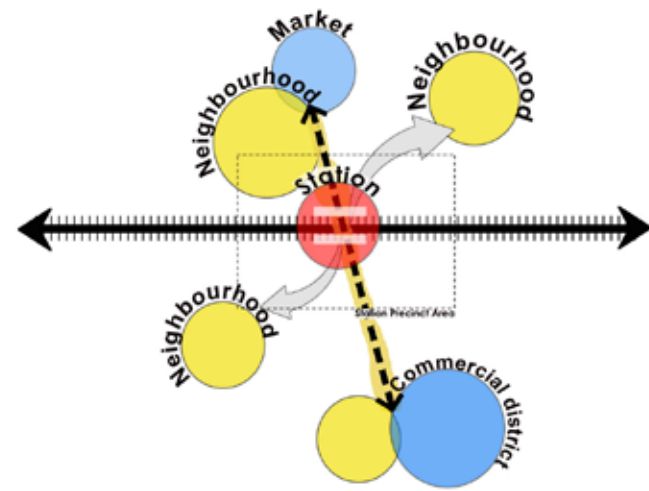
# 01

## ACCESS & CIRCULATION

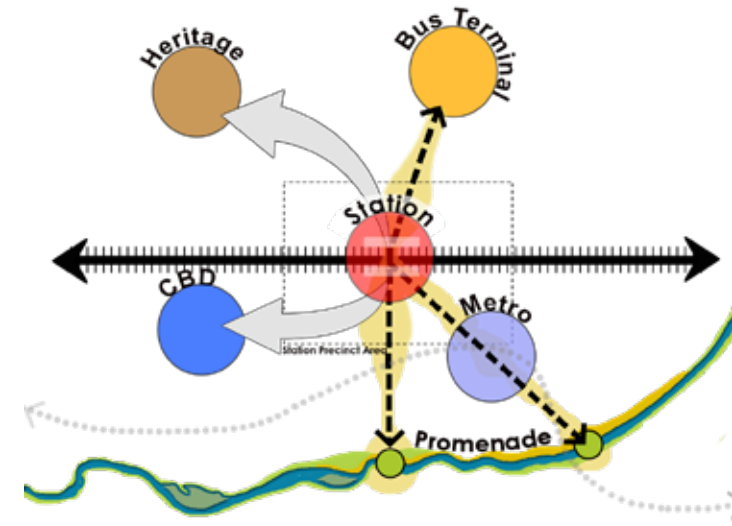




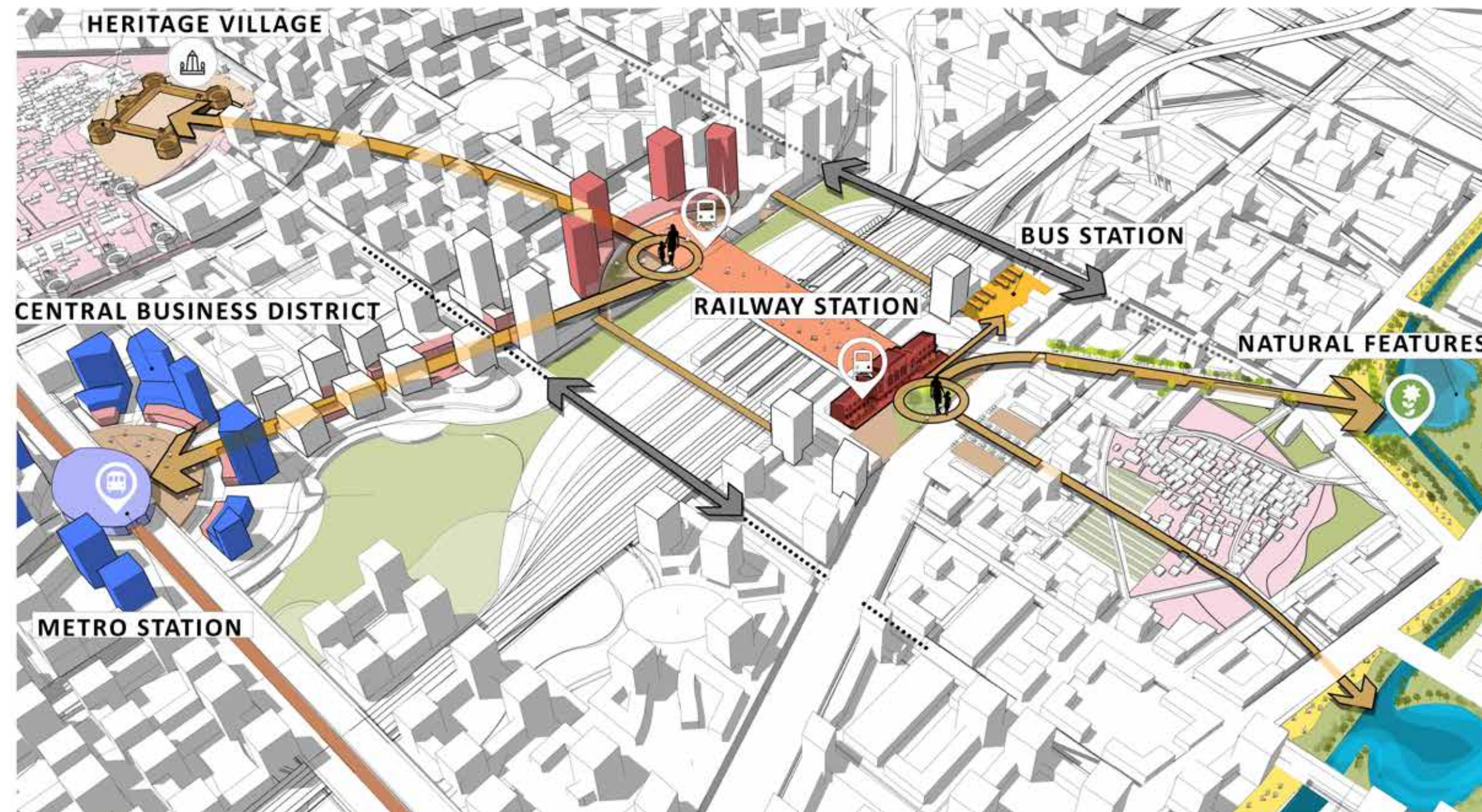
Shortest routes to other transit infrastructure



Direct routes to local neighborhoods / districts



Streets along desire lines to city level destinations



Street network from station along the desire lines connecting major destinations

# 1.1 STRATEGIC CITY-WIDE LINKAGES

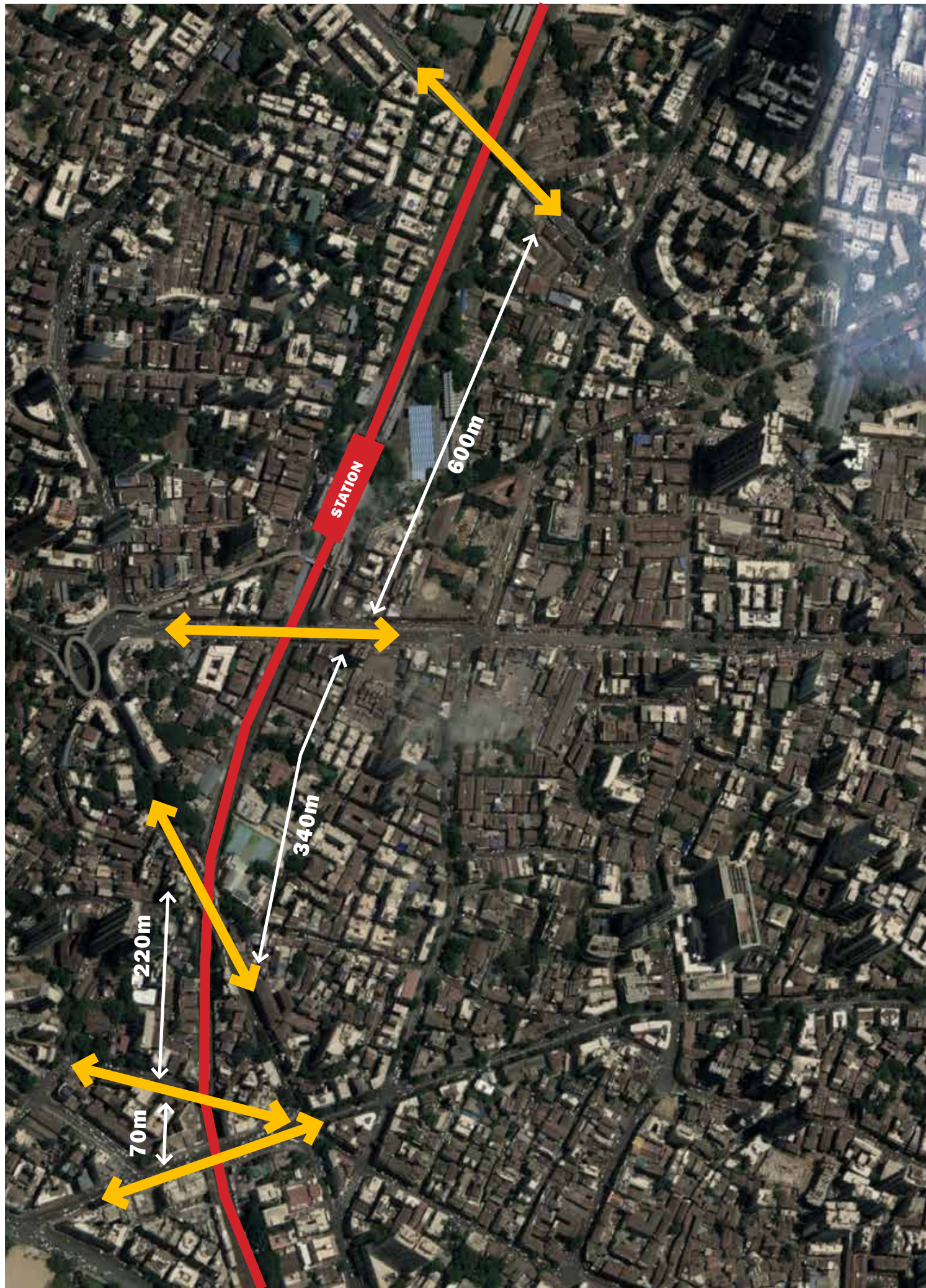
## OBJECTIVES

To ensure the Railway Station creates new and reinforces existing linkages to centres of economic, social and recreational activity (both existing and planned), in the City, maximizing ease of access to and from and synergies between these.

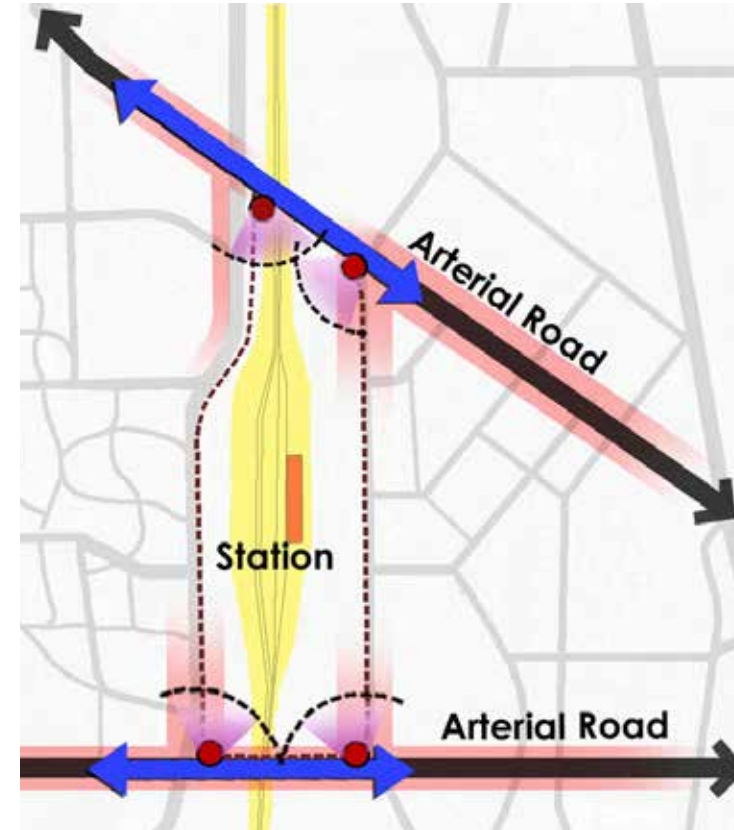
## Guidelines

1. Identify possible direct routes to other transit infrastructure such as Metro Stations, BRT, and Bus Terminals.
2. Identify desire lines to other city level destinations / centres of activity such as the Central Business District, Heritage Precincts, Natural assets.
3. Identify possible direct routes to local neighborhoods and districts
4. On priority, create street network enabling 1-3 above to achieve:
  - Shortest routes from the Railway Station to other transit infrastructure including Metro Stations, BRT and Bus Terminals
  - Direct routes to local neighborhoods / districts
  - Streets along desire lines to city level destinations / centres of activity connecting to the closest city road / street.

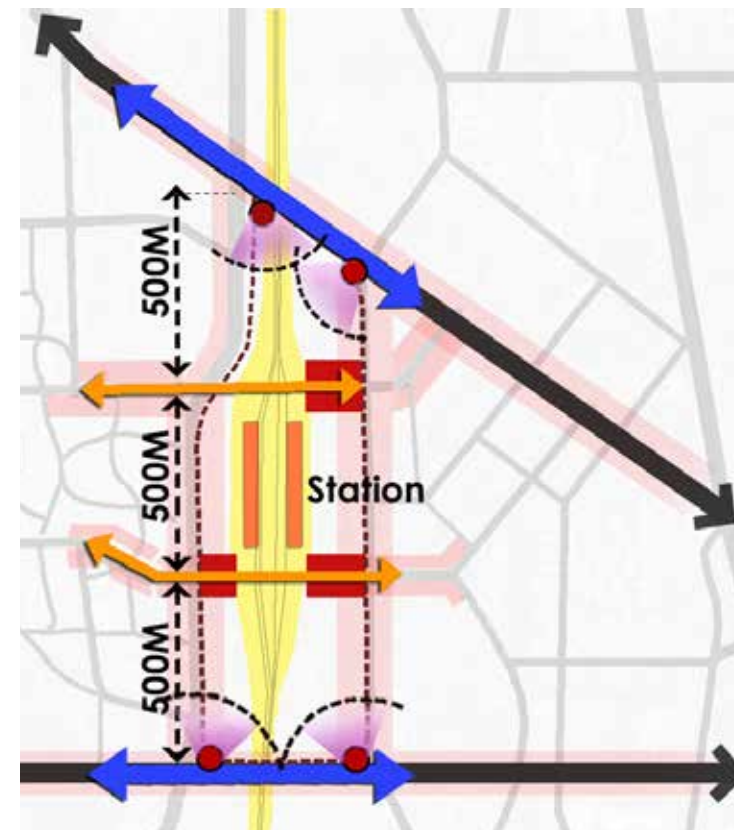




Existing Indian urban setting with frequent linkages across tracks as recommended



Value Mapping with existing Road Network



Value Mapping with new linkages at 500m

## 1.2

# STRATEGIC ACROSS-TRACK VEHICULAR LINKAGES

### OBJECTIVES

To ensure rail-based infrastructure no longer creates a barrier in the city.

To deliver new linkages across the tracks to enable the above.

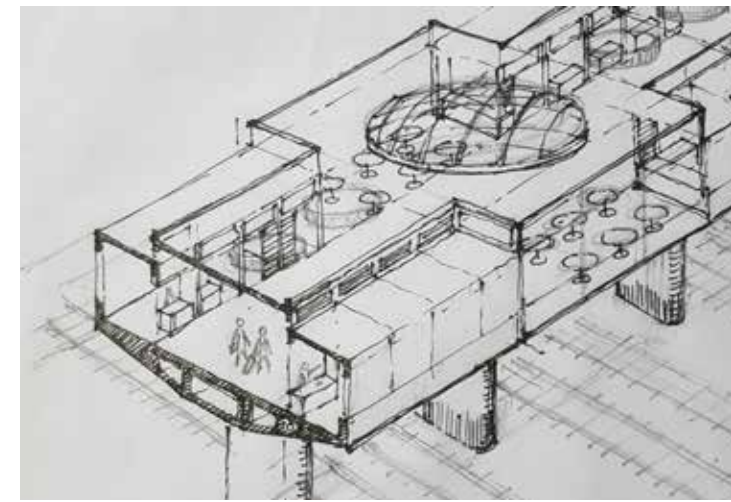
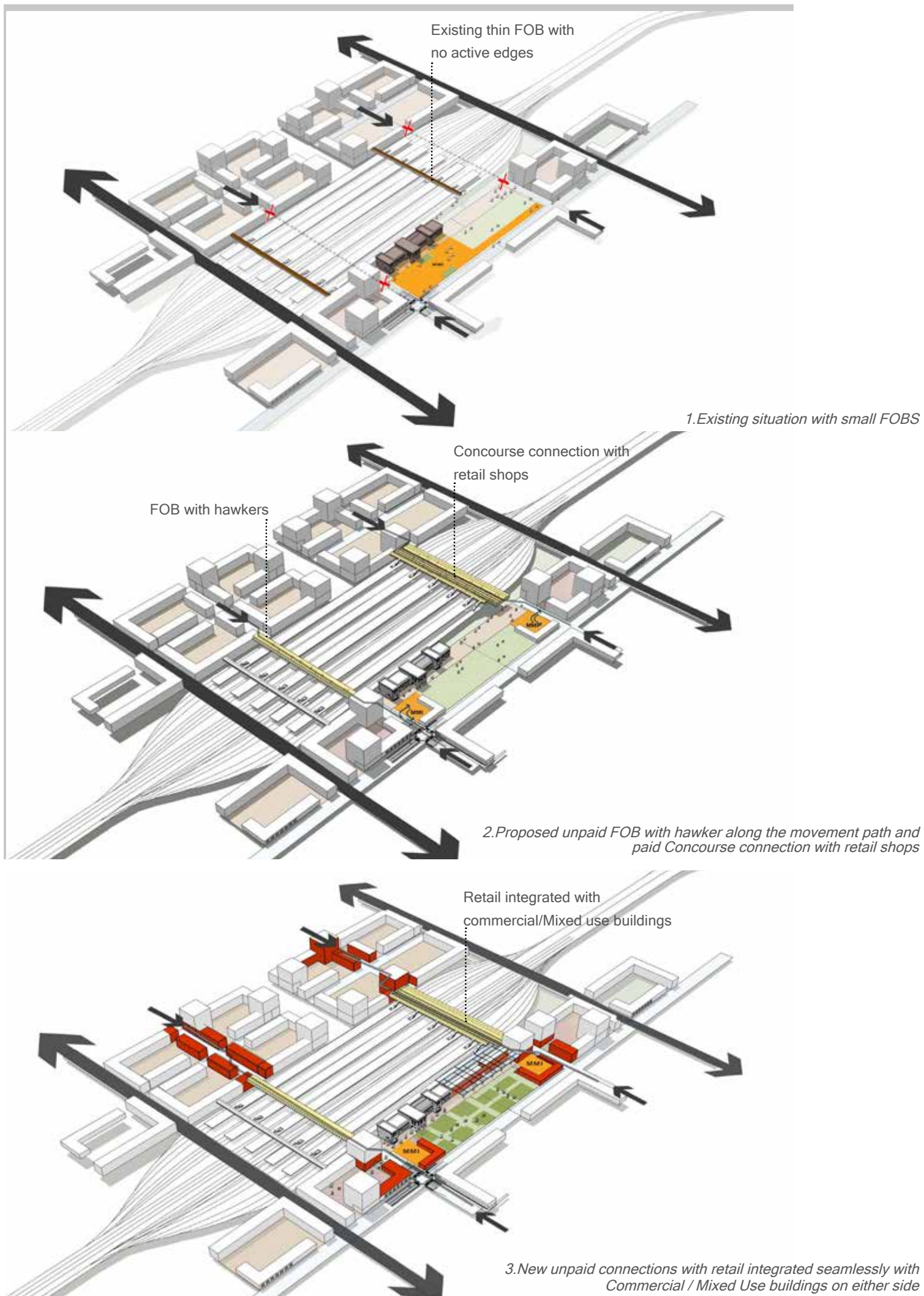
To ensure these new linkages connect to existing city roads, extending these and allowing for greater permeability through safe and accessible crossings.

To ensure these new linkages maximise development value for developable parcels within the Station Area by enhanced access, visibility and safety.

### Guidelines

1. Create a vehicular connection at approximately every 500 M. through the Railway land to developments/communities on either side of the tracks through RUB/ROB, etc
2. Connect these new linkages to the existing road network, keeping in mind existing and future network capacity, and road right-of-way on both sides.
3. Integrate new linkages with the overall City Mobility Plan





Retail along the paid concourse in York Station, UK (Source: Wikimedia.org)



Unpaid foot over bridge at Ghatkopar Station thrives with vendors



The Ponte Vecchio bridge in Florence connects two mixed use districts and is also flanked by specialist retail on either side (Source: wordpress)

# 1.3

## STRATEGIC ACROSS-TRACK PEDESTRIAN LINKAGES

### OBJECTIVES

To ensure railway tracks do not create a barrier for movement of both passengers and others pedestrians.

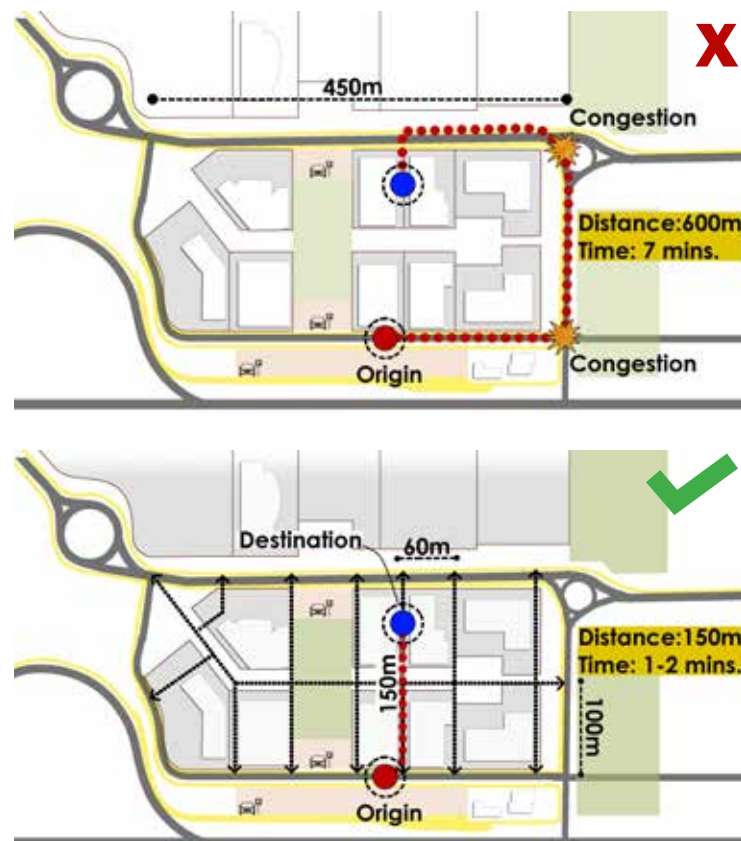
To provide frequent 'unpaid' connections across the tracks to enable direct route choices for city-dwellers, in addition to the 'paid' concourse that links both sides of the Railway Station.

To locate and design the 'unpaid' connections as integral to the surrounding commercial development as far as possible to ensure financial viability through provision of retail space along these.

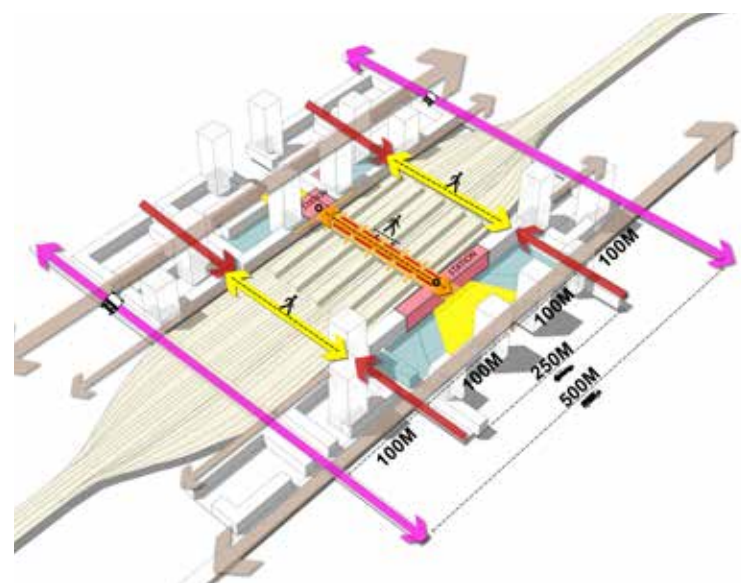
### Guidelines

1. Create direct public pedestrian connections (i.e. non-ticketed / unpaid) at approximately every 100 M. through the Station Area to developments /communities on either side of the tracks through FOBs / Skywalks etc.
2. Connect these FOBs / Skywalks to existing / proposed buildings where feasible and align retail uses along these to maximize the advantage of increased footfalls, thereby generating revenue to offset the cost of infrastructure built.





A finer street grid reduces distance and travel time manifold



Required Street Grid

- █ Pedestrian Crossover - Within Station
- █ Pedestrian Crossover - Within Building
- █ Station Building
- █ MMI Zones

## 1.4 DECREASING CONGESTION & REDUCING UNNECESSARY DELAYS

### OBJECTIVES

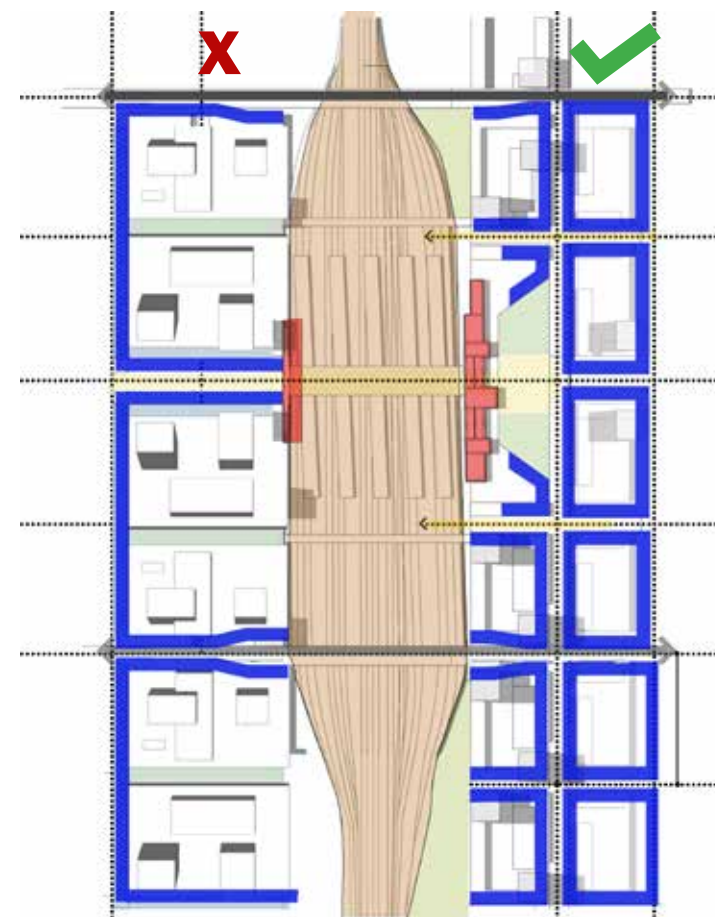
To encourage the use of low carbon transport for short and medium length trips.

To ensure route choices through direct connections that will make movement more efficient and reduce congestion of primary roads.

To enable enhanced vitality, safety and easy access to amenities that has a direct impact on value of the area and individual properties.

### Guidelines

1. Create a vehicular road network with a maximum spacing of 250 M. (centre to centre) to create a permeable grid.
2. Create streets that link to at least two other streets to avoid cul-de-sacs.
3. Substantiate this further with a Non Motorized Transit (NMT) network with a maximum spacing of 100 M. (centre to centre)
4. Provide signaled safe at-grade crossings for pedestrians and NMT at all junctions and midblocks aligned with the street grid network and/or desire lines of movement.
5. Ensure street designs adhere to IRC: 103 (2012) & IRC: SP:50 -2013.



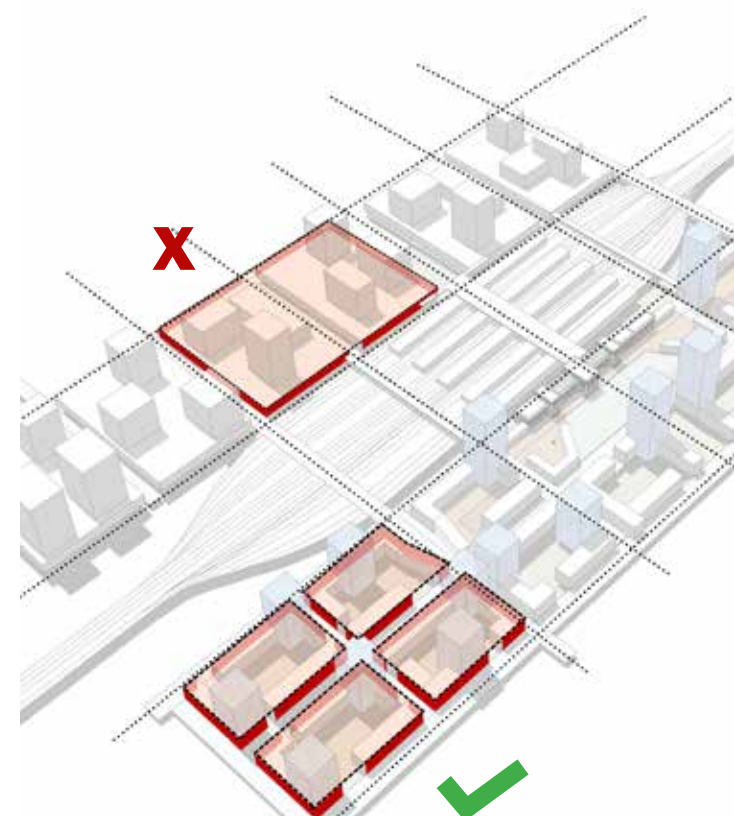
UNDESIRABLE STREET GRID

Saleable Frontage = X M.

DESIRABLE STREET GRID

Saleable Frontage = 1.8X M.

Saleable frontages increase two-fold with the recommended street grid



## 1.5 INCREASING SALEABLE FRONTAGE WITH A FINER GRID

### OBJECTIVES

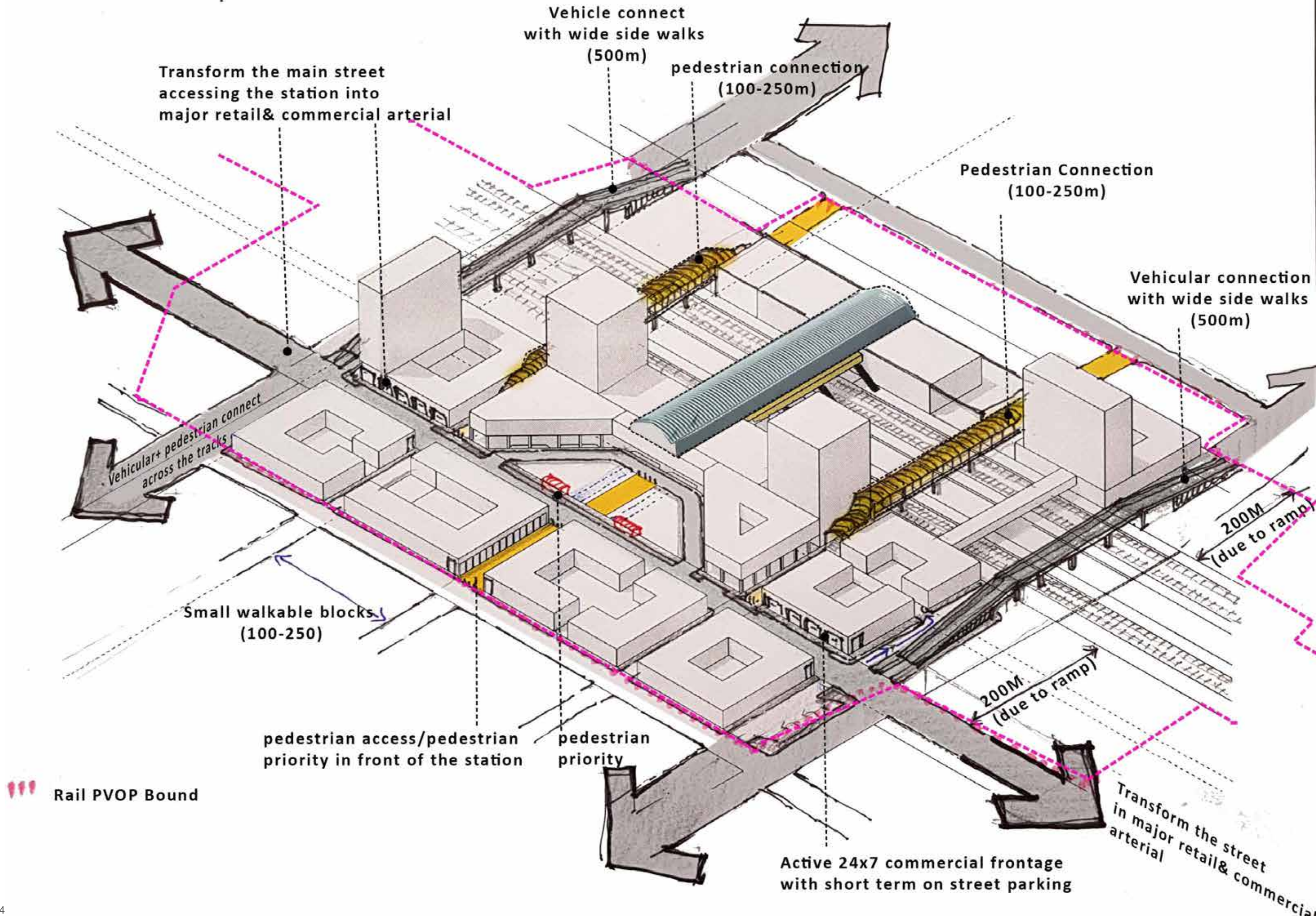
To use the finer street grid to create a larger number of smaller parcels with enhanced access and visibility.

To use the enhanced vitality, safety and easy access to create valuable saleable frontages.

### Guidelines

1. Use the vehicular road network with a maximum spacing of 250 M. (centre to centre) to create smaller development parcels with enhanced access from all abutting roads and therefore also enhanced visibility.
2. Plan for at-grade junctions to maximise value of adjacent developable parcels. *Note: grade separators not only hinder visibility but also reduce footfalls.*
3. Use the NMT network with a maximum spacing of 100 M. (centre to centre) to create secondary frontages that can benefit from high footfalls.







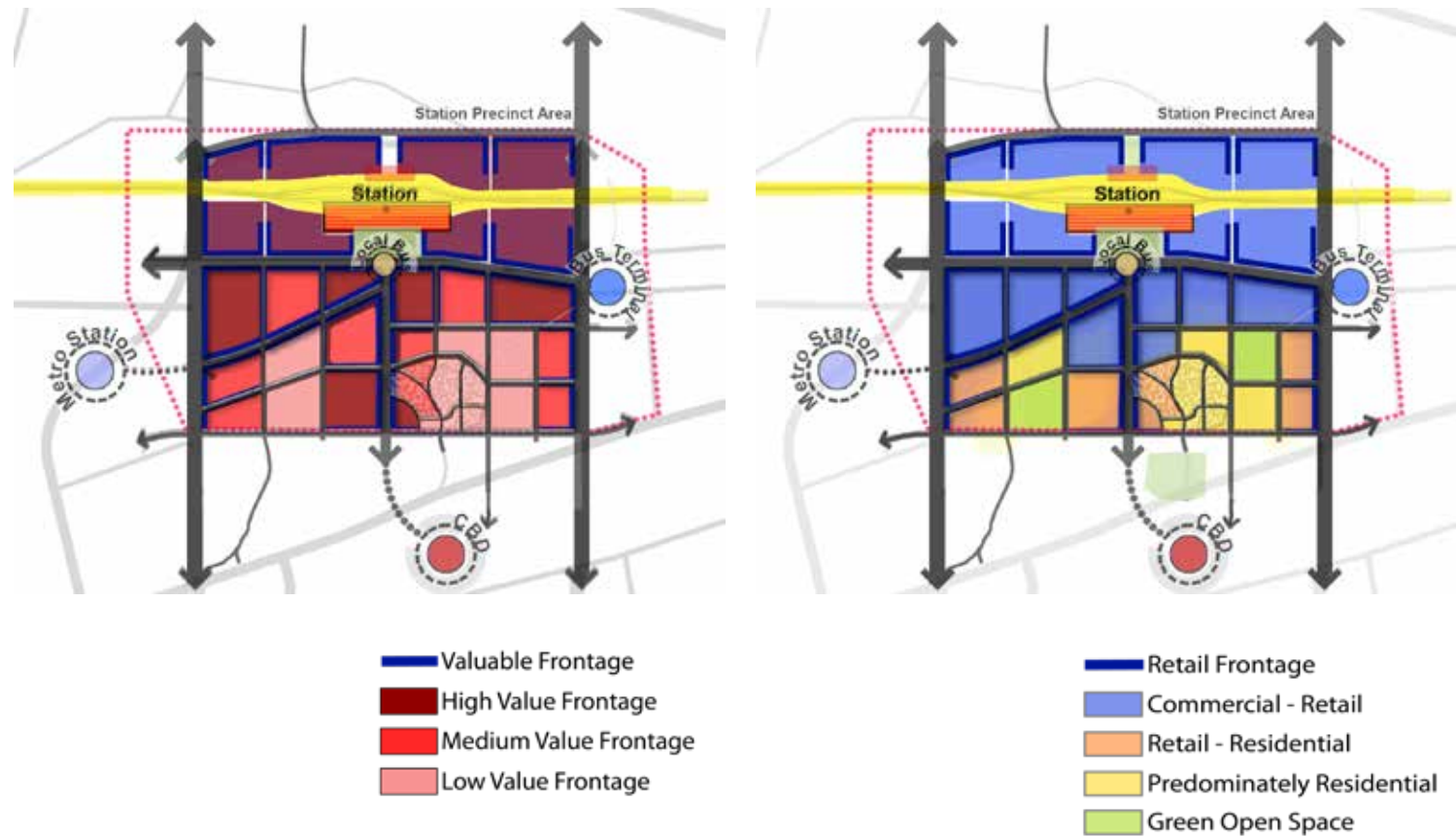


Robson Street, Vancouver (Source: Destination360.com)

# 02

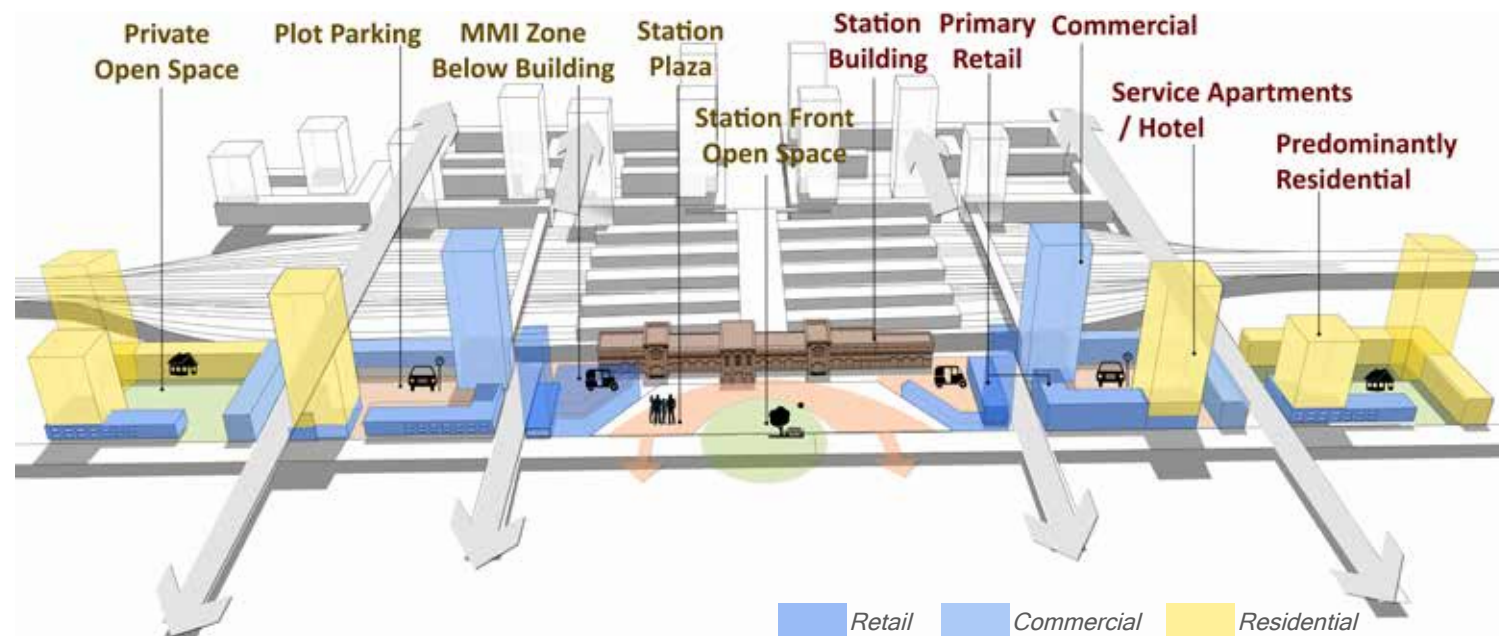
## MIX USE, ZONING & RETAIL PLANNING





Value Mapping

Use Zoning as per Value Mapping



Land use distribution - Horizontal & Vertical

Multiple uses at different levels in Vancouver



Office and retail space work seamlessly along Market Street, Toronto



In Bethesda, USA, this mixed use lane supports high value retail.



The London Olympic Park Development includes low rise mixed use.



Retail fronts residences & offices along Liverpool St. Melbourne.

## 2.1 MIXED USE AND USE ZONING

### OBJECTIVES

To enable flexibility in mix of various possible uses, with the exception of polluting and potentially hazardous uses.

To provide a good mix of employment generating uses, residential (preferably smaller sized units to aid affordability), and supporting social infrastructure, to create active zones at all times of day.

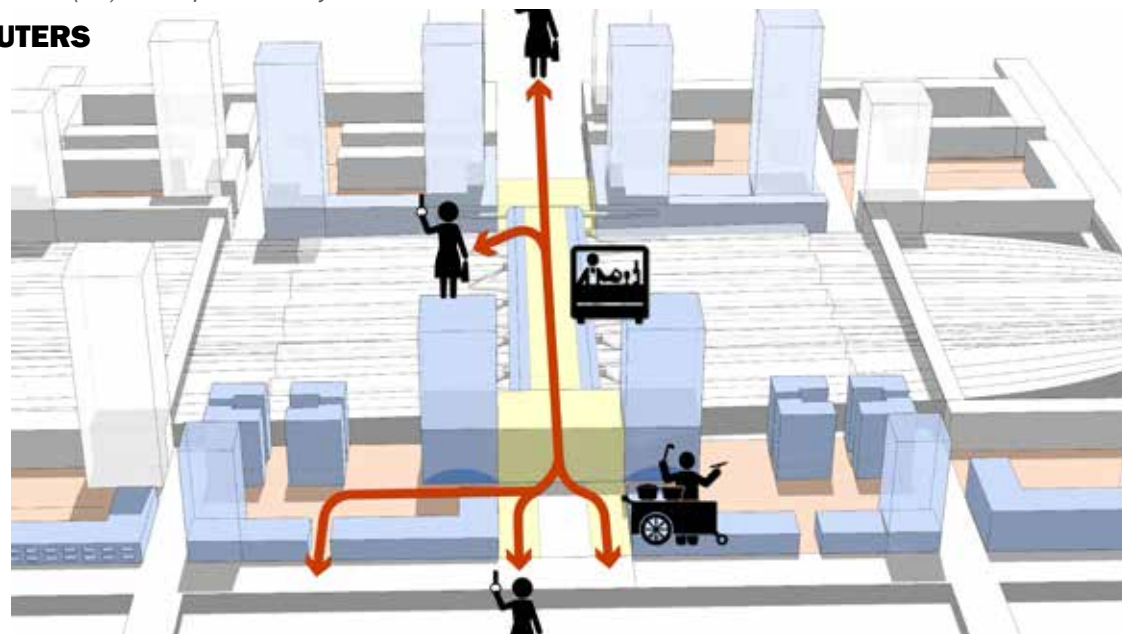
To plan the distribution of uses across the site such that they respond to the value of each parcel as identified in Section 01.

### Guidelines

1. Arrive at a development mix for the Station Area in consultation with real estate experts involved in the project. Include affordable housing where viable.
  2. Prepare a Value Map for the Station Area by identifying zones with high, medium, and low value, based on levels of access and visibility.
  3. Distribute uses from the development mix as follows:
    - High Value - Predominantly Retail / Commercial
    - Medium Value - Commercial / Residential
    - Low Value - Predominantly Residential
- Note: Residential use must always be accompanied with the required Social Infrastructure and Public Open space to cater to the resident population*
4. Mix these uses within the development parcel either horizontally, vertically or both.
  5. Design access arrangements for different uses to ensure secure and independent access.

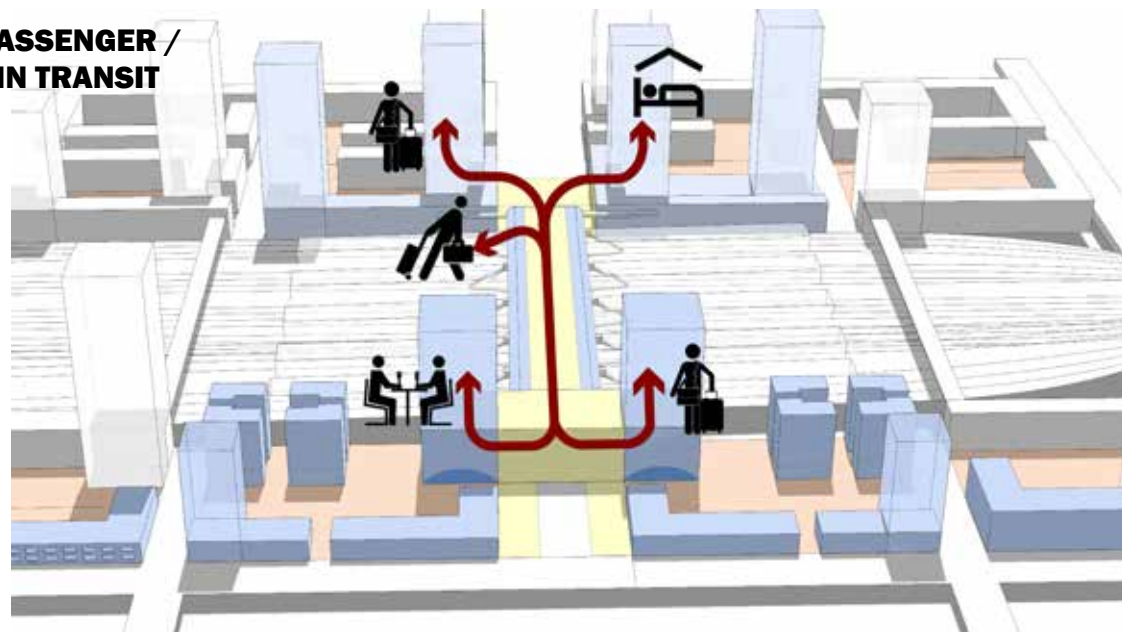


**DAILY COMMUTERS**



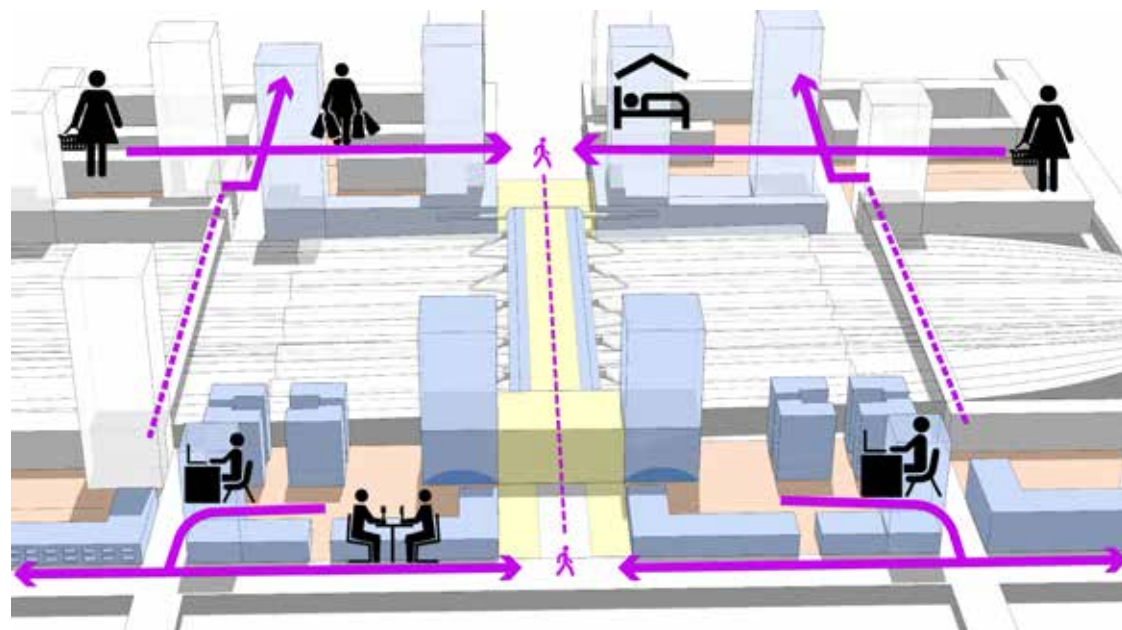
Movement pattern of the Daily Commuter / Zones to locate related retail

**INTER-CITY PASSENGER / PASSENGER IN TRANSIT**



Movement pattern of the Inter-City Passenger / Passenger in Transit / Zones to locate related retail

**LOCALS**



Movement pattern of the Local / Zones to locate related retail

**2.2 RETAIL PLANNING TO ADDRESS 3 DIFFERENT USERS GROUPS**

**OBJECTIVES**

To ensure the retail provision within the Station Area caters to three distinct users groups:

- 1) Commuter
- 2) Inter-city / Passenger in Transit / Tourist
- 3) Locals

To ensure the distribution of the retail provision ensures convenient access to each of the user groups

To ensure the Station Area remains active through different times of day, creating a vibrant and safe environment.

To integrate the informal economy and create a community destination for nearby neighborhoods

**Guidelines**

1. Plan retail provision for different user groups as:
  - Commuter: Grocery, Quick Meals, First Aid, Amenities/facilities
  - Inter-city / Passenger in Transit / Tourist: Grocery, Quick Meals, First Aid, Amenities/facilities, restaurants / canteens, sleeping pods, hotels, shopping etc
  - Locals: Grocery, Amenities/facilities, restaurants / canteens, shopping, work etc
2. Locate provision for commuters within the Station Building and Station Fore court
3. Locate additional provision for inter-city / Passenger in Transit / Tourists immediately adjacent to the Station i.e. within neighboring commercial buildings such that these can be partly shared by non Station destined users as well
4. Locate provision for locals in the remaining Station Area.
5. Create a proportion of retail amenities to function as 24x7, addressing the needs of passengers at late / early hours. Also, designate areas within the station (with access from the outside) that can serve both the station users and the city with uses such as eateries, chemists, hostels, hotels, restaurants etc.
6. Plan designated vending zones within and outside the Station building where spots maybe allocated through short-term flexible license agreements.



Retail for all passengers at Stockholm Station Concourse



Sleeping pods such as these provide respite to transit passengers



A Shopping Arcade welcomes passengers and locals alike in Windsor Station, UK.



24x7 Shops in Kuala Lumpur are popular and highly successful

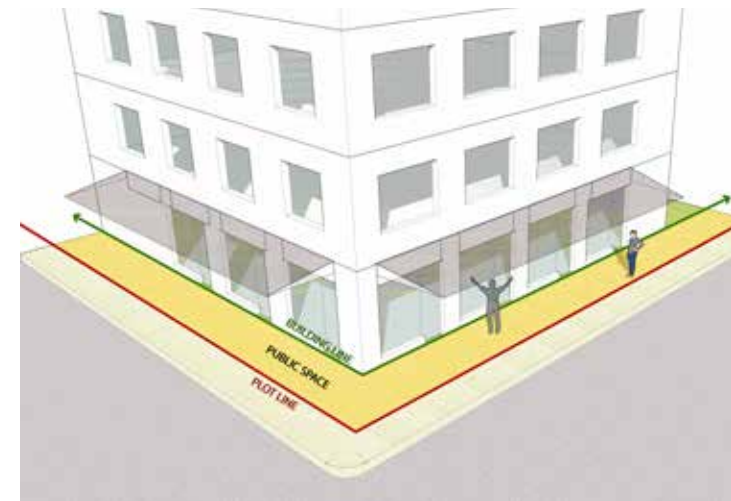




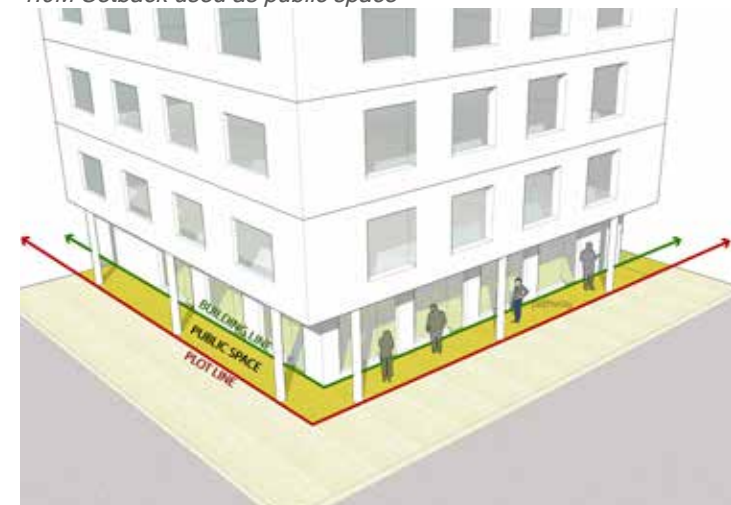
Active frontages with 0 setback create a vibrant and safe street.



Active frontage along the walkable streets at Tokyo Station area



1.0M Setback used as public space



0 M Setback- Building recessed on ground floor to create public space



Buildings showing 0 setback, with and without recessed ground floor



Arcade defines 0 setback line, ground floor recessed.

## 2.3 SETBACKS & ACTIVE FRONTAGE ON STREET

### OBJECTIVES

To ensure the Station Area creates value for all uses and convenience and safety for all users.

To ensure building frontages get direct access from the street and maximum visibility to enhance value.

To create safer public environments.

### Guidelines

1. Frontage of any TOD development should be 'active' with primary means of access (doors) and ventilation (windows) along it.
2. Design buildings with maximum 1.0M setbacks and active frontages to maximise visibility and proximity to primary lines of movement
3. Line non-active uses such as railway infrastructure, parking, etc with active frontages
4. On sites with level differences, plan main access to the buildings from the road highest in the hierarchy even if access is achieved at a higher floor. Lower floors may be accessed from secondary streets for servicing, parking etc.
5. A maximum length of 20M of an 'unwatched' frontage (e.g. gaps in frontage, fences or building walls of properties where there are no access points, doors, or windows) is permitted at any one instance





Tokyo Railway Station (Source: Alamy - to buy)

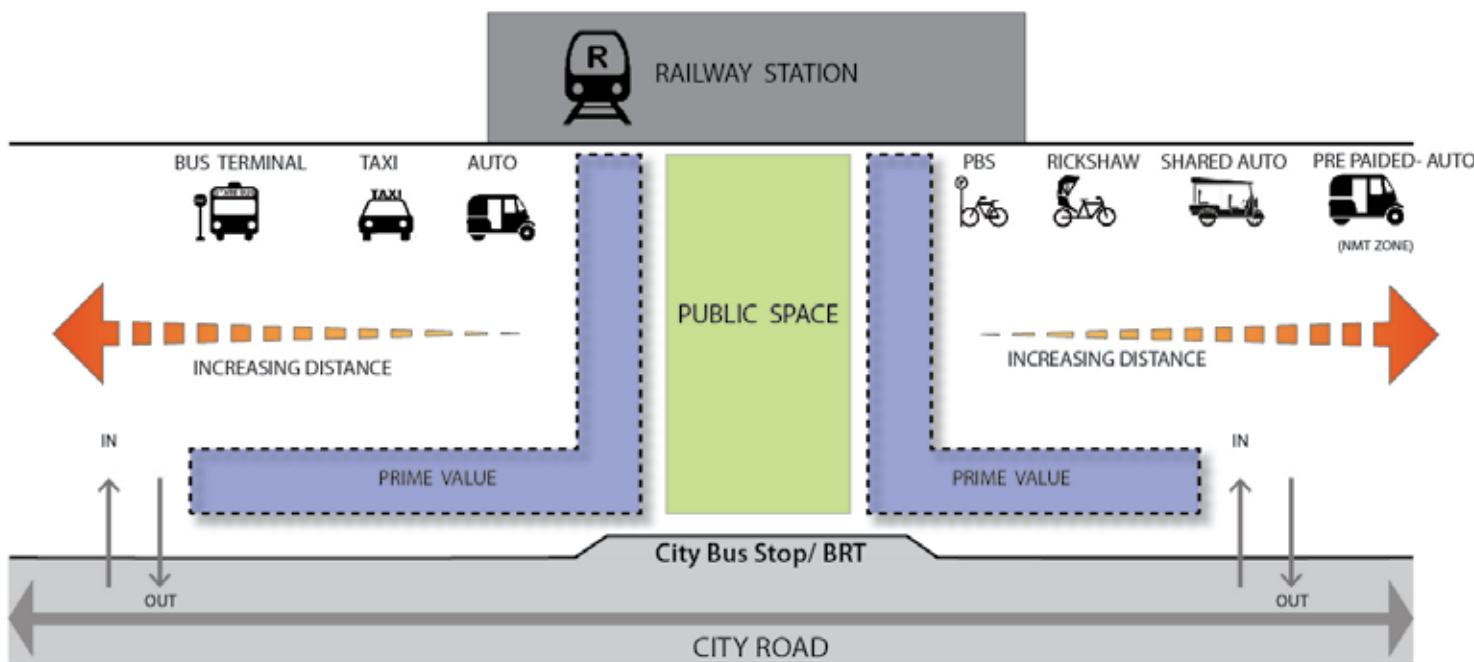
# 03

## MULTI-MODAL INTEGRATION





**TYPE 01: MMI ZONE LOCATED ALONG MAIN STATION BUILDING**  
 - Ensuring a dedicated public space immediately outside the main entrance.



## 3.1 MULTIMODAL INTEGRATION (MMI)

### OBJECTIVES

To ensure easy and seamless integration between different modes, conveniently located for all users.

To ensure high value real estate is not dedicated solely for MMI.

To ensure direct pedestrian access to and from the Station is not impeded due to MMI infrastructure.

To ensure views of and to the Railway Station are not impacted negatively by MMI infrastructure

### Guidelines

1. Plan MMI Zones immediately adjacent to the railway station exits including zones for buses (city, tourist, state, chartered etc), autos, taxis, rickshaws, ideally with a linear arrangement of drop off and pickup zones
2. Plan a public space immediately outside the main Station building as a pedestrian / cycle only zone.
3. Integrate MMI zones under podiums of buildings to maximise land monetization. In the case of a Station of historical value, MMI may also be located in basements if financially viable.
4. Explore provision of liner retail along lines of passenger movement within the MMI Zone to capture higher value.
5. Ensure junction of entry/exit into the Station / MMI Zone with the city roads is designed such that it does not cause congestion on the latter,

Bus Integration at Thane Station, Mumbai



Bus Integration at Shenzhen Station, China







**TYPE 02: MMI ZONE INTEGRATED WITHIN THE BUILDING PODIUM ON THE GROUND FLOOR - Maximizing land monetization of a prime location**



**TYPE 03: MMI ZONE LOCATED IN BASEMENT OF STATION OF HISTORIC VALUE - Enabling the creation of a public space as a fore court to a Station**



Public bike sharing



Pedestrians



Metro



Shopping Mall



Station area



Waiting



City Buses



Intercity Buses



Taxi

*Integrating all Multi-modal and other facilities with the Station*



After



Before

*Transformation in Shenzhen Railway Station, China*



*Bus Integration at Thane Station, Mumbai*



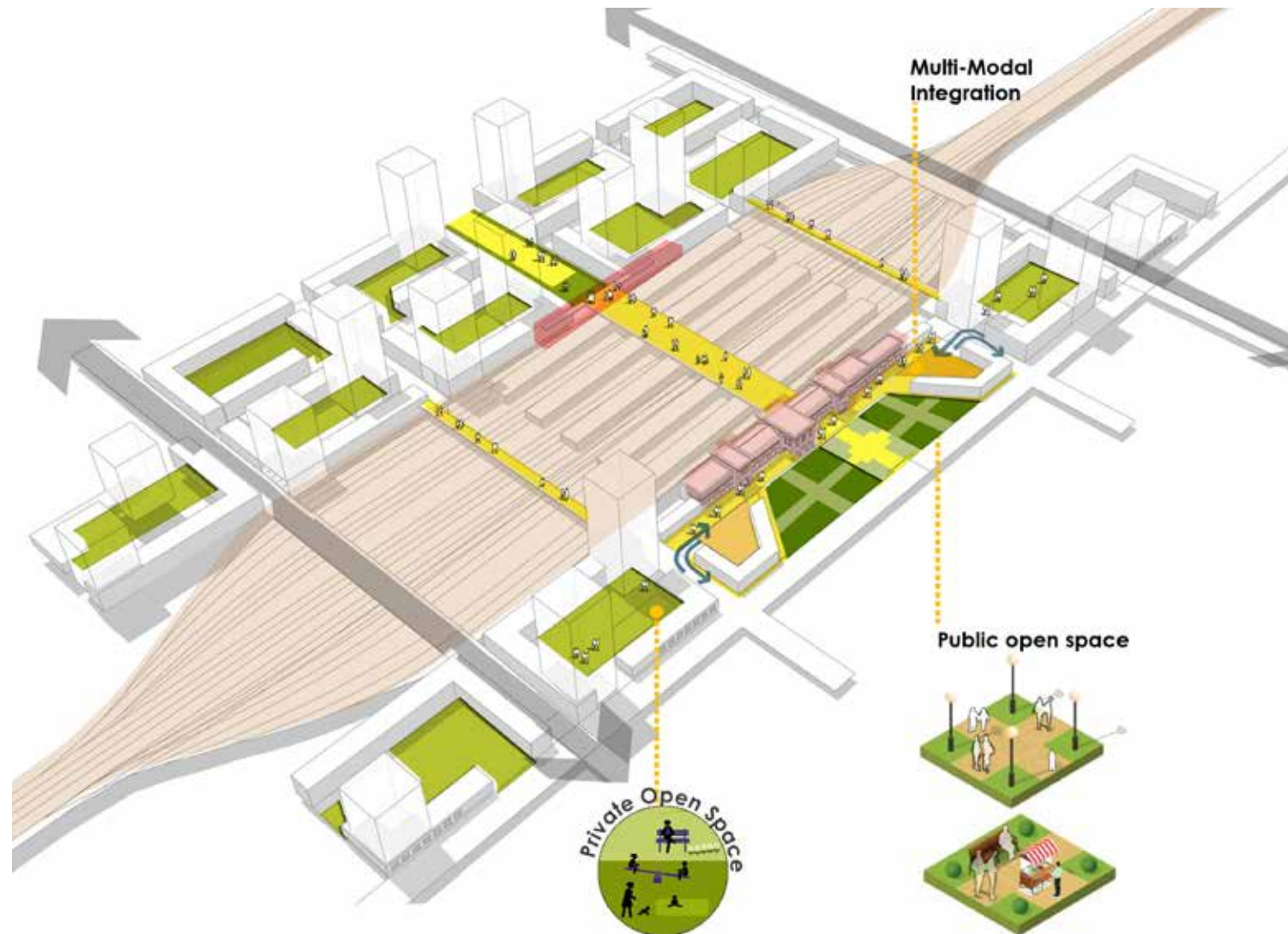


Bryant Park, New York City (Source: Wikipedia)

# 04

## PUBLIC SPACES





Public spaces must perform multiple functions - active play, recreational, utilitarian in terms of water management etc.



Landscaped plaza in Tokyo Station area.



A constructed wetland treats wastewater in a group housing open space in Oslo



Landscaped plaza at Roppongi Station, Tokyo



Active Front plaza space in front of the Station, Tokyo, Japan



Plaza Space in front of Panvel Station, Mumbai

## 4.1

# OPEN SPACE PROVISION & DISTRIBUTION

### OBJECTIVES

To provide adequate open space for residents and other users within the developments in the Station Area. To ensure this provision meets the diverse needs of all groups of people.

To ensure this open space is located in the lower value areas (i.e. those with lesser visibility and indirect access) to enable 1) effective utilisation of such low value zones and 2) in turn, enhancing the value of adjoining properties.

To ensure the open space simultaneously performs multiple functions, from the provision of a recreational amenity, access to nature to also that of provision of a utility such as treatment of wastewater.

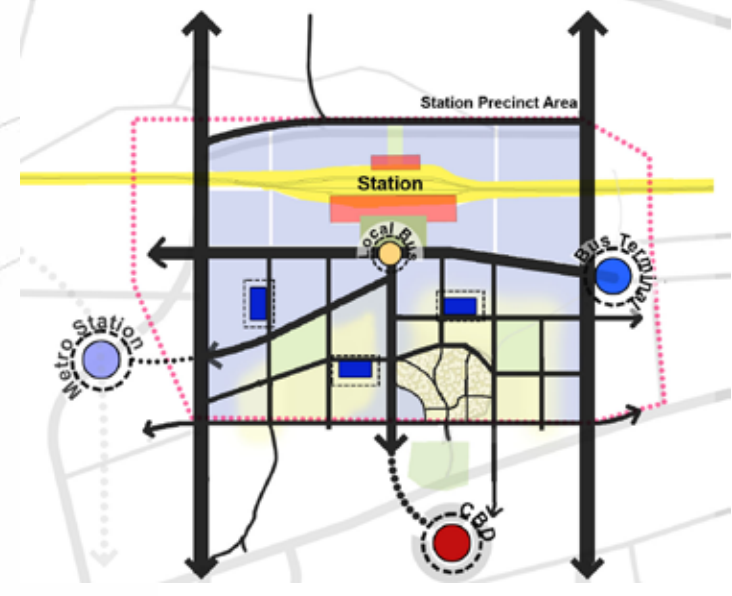
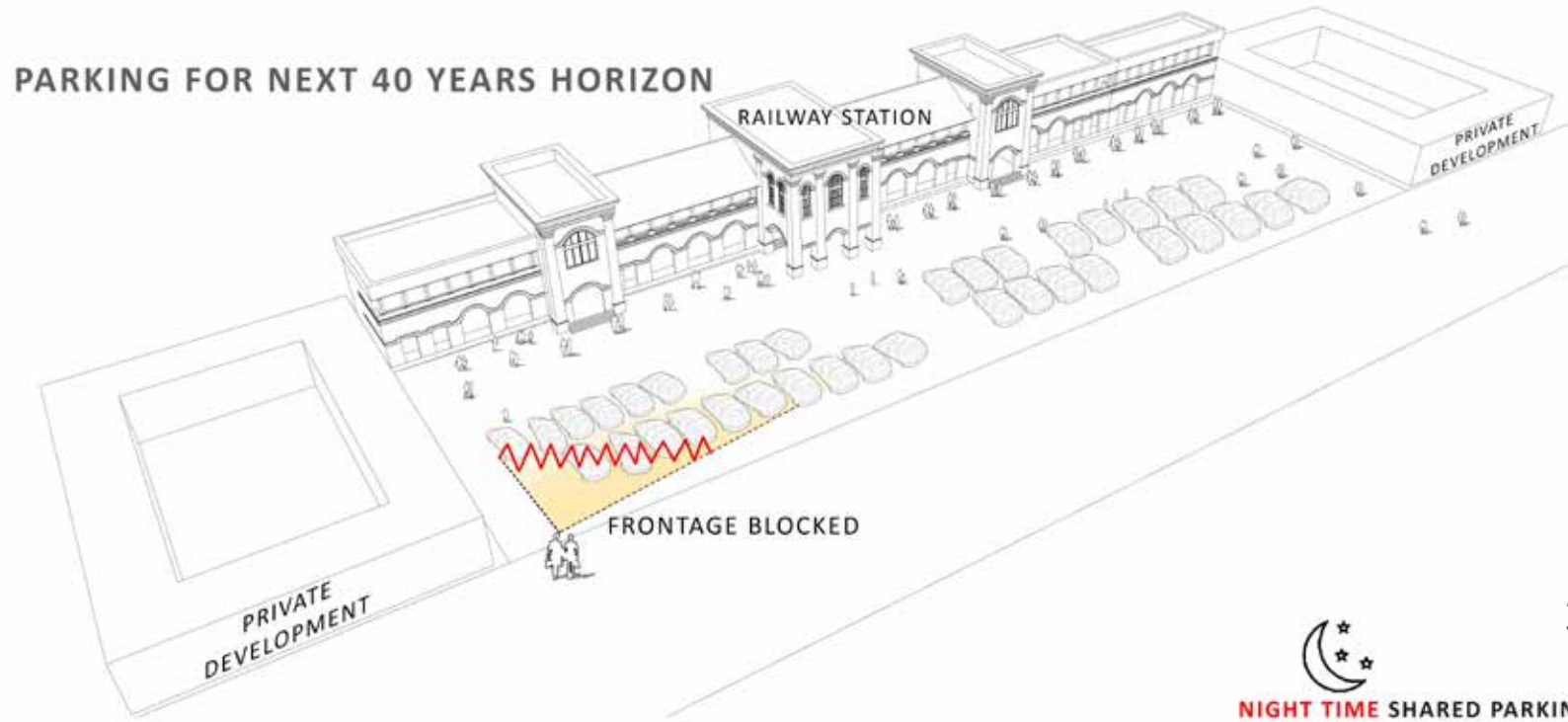
### Guidelines

1. Set aside 20% proportion of land within every developable parcel for local level recreational open space to serve the immediate population.
2. Locate this open space behind the perimeter block with at least two points of access from surrounding roads.
3. Ensure all open spaces perform the function of managing storm water sustainably.
4. Plan all public spaces to meet at least two of the following four functions
  - Recreation
  - Organized play / sport
  - Nature
  - Revenue / Utility
5. Design open spaces such that the minimum dimension shall not be less than 10m and if average width of such public space is less than 20m, its length shall not exceed 2.5 times its average width.
6. Ensure all Open Spaces and buildings therein are universally accessible.
7. All boundary / edge conditions of Open Spaces shall be transparent. In case toe-walls with fences are provided, frequently placed openings must be kept allowing rain water to flow into the open spaces.
8. Use of Open Spaces for parking, shall not be permitted.

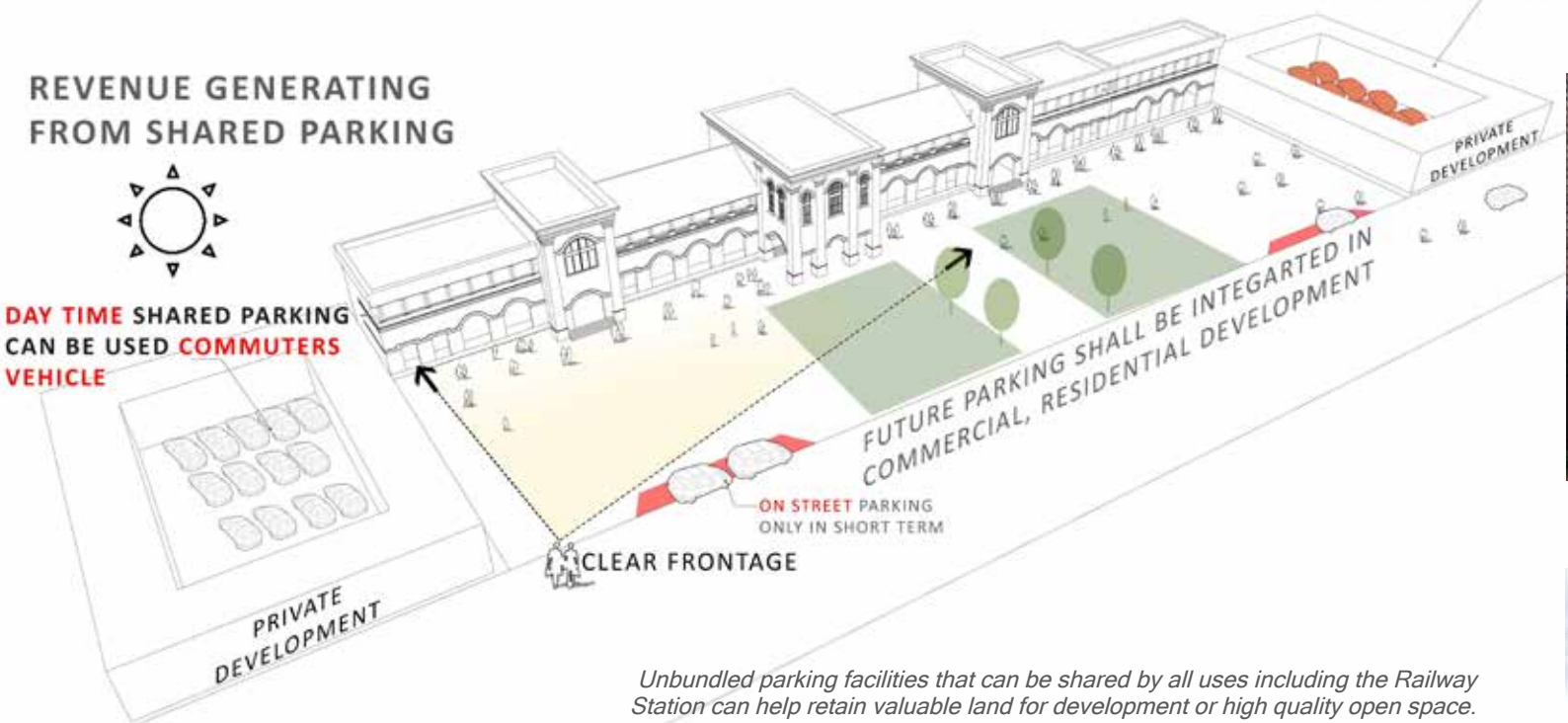








Locations for revenue generating shared and unbundled parking should be located within the Station Area



Unbundled parking facilities that can be shared by all uses including the Railway Station can help retain valuable land for development or high quality open space.



# 5.1 REVENUE GENERATING SHARED & MANAGED PARKING

## OBJECTIVES

To Use Parking as a Demand management Tool to ensure the value of the public realm is not diminished by the parked car while providing limited yet high-turnover well-managed parking through a Parking Management Zone.

While doing so, generate revenue from parking.

## Guidelines

1. Design all streets for no long-term parking.
2. Integrate all parking within buildings as a paid, shared and unbundled facility.
3. Design clearly defined parking access from the street lower in the hierarchy abutting an urban block.
4. In case of parking integrated within the ground floor of a building, define the frontage with active uses.



Churchgate Station (Source: [hellotalalay.blogspot.com](http://hellotalalay.blogspot.com))

## Keeping the Handbook relevant

The purpose of this Handbook is to guide the Masterplanning and Value Creation process for Railway Station (Re)Development projects. Therefore, it is of utmost importance that it stays relevant to not only different geographies across India but also to the ever changing development context of the country.

It is, therefore, our endeavour to update the Handbook regularly. For this, IRSDC will not only learn from its own project experience but will also continue to work closely with different stakeholders including developers, urban local bodies, expert groups and agencies, architects, engineers etc.





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