MODULE 4: DESIGN COMPONENTS OF TOD

Transit Oriented Development at a Corridor Scale
Module Objective and Outline

Objective:
The objective of this module is to introduce participants, particularly people without an urban design or architecture background, to a variety of design concepts that are central for successful TOD project implementation. After completing this module participants will be familiar with design vocabulary commonly used in TOD projects, and will be able to utilize these concepts when designing and implementing TOD corridor projects.

Outline:
1. Density
2. Quality Public Transit
3. Non-motorized Transportation
4. Vehicle Demand Management
5. Mixed-use Development
6. Neighborhood Centers & Active Ground Floors
7. Public Spaces and Natural Resources
8. Community Identity and Heritage
9. Resilience
## Module Structure: Design Components of TOD

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WRI EMBARQ Mexico. TOD Guide for Urban Communities. 2014.
1. Density

Design and urban planning strategies for increased density:

• Increased FAR
• Smaller minimum plots
• Facilitated land consolidation
• Density bonuses and incentive zoning
• Construction of micro-units
• High quality amenities
Focused Densities Along a Corridor in Curitiba, Brazil

Design strategies for quality public transit:

• Hierarchized public transit system
• Integrating transit with the urban footprint
• Viability of & access to public transit
• Public transit infrastructure
Complete Hierarchy of Public Transit

- Metro Lines
- BRT Lines
- Feeder Bus Lines

**Type of Connection**
- Metro to metro connection
- Metro to bus connection (BRT or feeder)
- Bus to bus connection (BRT or feeder)
Integrating Transit with the Urban Footprint

Viability of & Access to Public Transit

Public Transit Infrastructure: Connecting mass transit and buses

Public Transit Infrastructure: Elevated Connections

3. Non-motorized Transportation (NMT)

Design strategies for NMT:

- Continuous road layout
- Internal connectivity
- Pedestrian and cycling networks
- Sidewalks and bike paths

Continuous Road Layout

Internal Connectivity

A
B
C

250m
1000m

Pedestrian and Cycling Networks

Sidewalks and Bike Paths

Bike Lane:
- Two Lanes: 2.5 m
- One Lane: 1.5 m

Service Zone: 0.6 m

Pedestrian Zone: 1.5 m

Front-of-building Zone: 0.4 m

4. Vehicle Demand Management (VDM)

Design strategies for VDM:

- Optimization of daily commutes
- Road safety
- Parking management

A traffic intersection in Beijing, China

Optimization of Daily Commutes

Road Safety

Parking Management

5. Mixed-use Development

Design strategies for mixed-use and efficient buildings:

- Strategic location of neighborhood and regional facilities

Mixed-use buildings in Berlin, Germany

Regional and Neighborhood Facilities

Design strategies for neighborhood centers and active ground floors:

- Neighborhood centers and local economic development
- Active ground-floors and public-private transitions

Neighborhood Centers and Local Economic Development

Active Ground-floors and Public-private Transitions

Design strategies for public spaces and natural resources:

- Strategic green areas
- Public space networks
Strategic Green Areas

Public Space Networks

8. Community Identity and Heritage

Design strategies for community identity and heritage:

- Place identity
- Shared community streets
Place Identity

Cultural

Environmental

Heritage

Architectural

Shared Community Streets

Model Zoning Codes

Image Source: Toronto Str
9. Resilience

City resilience describes the capacity of cities to function, so that the people living and working in cities survive and thrive no matter what stresses or shocks they encounter. [Rockefeller Foundation]

Design strategies for increased resilience:

• Avoid areas of high risk
• Design robust corridors
• Maximize redundancy of connections


Module Quiz

1. Which of the following statements is NOT true?
   a. TOD aims to bring housing and jobs closer together.
   b. TOD prioritizes public transit and NMT over private vehicle usage.
   c. TOD aims to separate residential and commercial zoning.
   d. Public and green space are important components of TOD design.

2. Which of the following statements is NOT true?
   a. Sidewalks can be divided into three zones, or segments.
   b. Trees and vegetation should not be included in any zone of the sidewalk.
   c. Pedestrian zones should be free of all obstacles, well maintained, and wide enough to accommodate pedestrian flow and users of all abilities.
   d. Service zones of a sidewalk can include street furniture and service infrastructure.

3. When conducting a local economic analysis, which of the following economic sector(s) should be analyzed?
   a. Primary
   b. Secondary
   c. Tertiary
   d. All of the above

4. In what ways do cities benefit from creation of public space and the conservation of natural resources?
   a. Risk mitigation (e.g. protection from flooding, landslides and mudslides)
   b. Ecosystem services (e.g. rainwater water filtration and purification, aqueduct and water table recharge, production of oxygen and CO2 sequestration)
   c. Health benefits
   d. All of the above
5. Which of the following descriptions defines redundancy in a resilient system?
   a. Spare capacity purposely created within a system so that it can accommodate disruption, extreme pressures or surges in demand
   b. Well-conceived, constructed and managed physical assets, so that a system can withstand the impacts of hazard events without significant damage or loss of function
   c. The need for broad consultation and engagement of communities, including the most vulnerable groups
   d. The ability to rapidly find different ways to achieve goals or meet needs during a shock or when under stress

6. When defining place identity, which of the following characteristics should be considered?
   a. Environmental
   b. Historical
   c. Cultural
   d. All of the above

7. Approximately _______% of the primary façades of all commercial ground floors that border the sidewalk or a public space should be transparent, and occupied by windows, displays and doors.
   a. 15%
   b. 25%
   c. 40%
   d. 60%