TOD in Municipal Masterplan: A guide to include Transit-Oriented Development in urban planning

Speaker: HENRIQUE EVERS
Introduction

TOD as an integrated strategy for urban and transport planning

1. Why TOD

2. TOD as urban planning strategy

3. How to incorporate TOD into Masterplan
Available for download in Portuguese:

http://wricidades.org/research/publication/dots-nos-planos-diretores
WHY TOD?

• Urban form matters

| POPULATION: | 5.25 MILLION |
| URBAN AREA: | 4,280 KM² |
| TRANSPORT CARBON EMISSIONS: | 7.5 |
| TONNES CO₂ PER PERSON (PUBLIC + PRIVATE TRANSPORT) | |

| POPULATION: | 5.33 MILLION |
| URBAN AREA: | 162 KM² |
| TRANSPORT CARBON EMISSIONS: | 0.7 |
| TONNES CO₂ PER PERSON (PUBLIC + PRIVATE TRANSPORT) | |
WHY TOD?

3D CITY

3D City
distant | disperse | disconnected
Inefficiency, congestion, low productivity
(without TOD)

TOD strategy

3C CITY

3C City
compact | connected | coordinated
Efficiency, public transport, high productivity
(with TOD)
TOD – Transit-Oriented Development

Transit-Oriented Development is an integrated land use and public transportation planning strategy.

TOD STRATEGY

LAND USE PLANNING + PUBLIC TRANSPORT INFRASTRUCTURE
Transit-Oriented Development is an integrated land use and public transportation planning strategy.

TOD promotes compact urban areas with appropriate densities to close to transport infrastructure of high or medium capacity. This strategy inactivate social interaction because offers many choices of urban activities and services in walkable distance, such as access to job opportunities, leisure activities, public spaces and housing.

- TOD is a strategy to achieve the 3C City Model – Compact, Connected and Coordinated;
- TOD should be implemented by public and private sector;
- TOD should be executed integrating a diversity of urban agendas being able to deal with a range of usual urban problems.
TOD is defined by eight elements, necessary to promote a more sustainable urban development.

The integrated adoption of all the elements is key to guarantee that TOD strategy can achieve the intended benefits.
ALMOST THERE

Joinville, Brazil

Residential density
Services and commerce
Active ground floor uses
Public transport
Public spaces
Infrastructure for active transport
CORRIDOR
TOD

- Mixed-use
- Active ground floor uses
- Public transport
- Residential density
- Public spaces and green infrastructure
- Infrastructure for active transport

Juiz de Fora, Brazil
WHAT IS NOT TOD

• Do not consider TOD:
  • The promotion of density around public transportation;
  • A strategy for financing urban infrastructure;
  • The commercial exploitation of a transport hub area.

• If they are implemented separately.
HOW CAN WE TURN THIS STRATEGY INTO A REALITY?
MUNICIPAL MASTERPLANS ROLES

**STRATEGIC ROLE**
It establishes principles related to urban sustainability, with guidelines for growth, land-use planning and efficient use of infrastructures. TOD aims to guarantee sustainable urban development.

**NORMATIVE ROLE**
Regulates the urban perimeter, zoning, road hierarchy and other urban normative principles. Sets the parameters of urban areas such as Floor Area Ratio, occupation rates, and as well as the guidelines for implementation of urban planning instruments.

TOD aims to guarantee sustainable development.

Regulates: urban perimeter, zoning, densities and urban normative principles.
Municipal masterplans can regulate urban parameters, such as urban vitality

Source: http://urbanidades.arq.br/2017/02/fatores-morfologicos-da-vitalidade-no-archdaily/
HOW TO INCORPORATE TOD INTO MASTERPLANS?
TOD AS URBAN PLANNING STRATEGY

Masterplans defining TOD corridors (strategic)
TOD AS URBAN PLANNING STRATEGY

Masterplans defining TOD corridors (strategic)

TOD guidelines for transport corridors (normative)
TOD AS URBAN PLANNING STRATEGY

Masterplans defining TOD corridors (strategic)

TOD guidelines for transport corridors (normative)

3C CITY
TOD IN MUNICIPAL MASTERPLANS:

3 TERRITORIAL PRINCIPLES FOR URBAN DEVELOPMENT

8 ACTIONS FOR CORRIDOR OR STATIONS SURROUNDING AREAS

**PRINCIPLES** - city scale
Strategic urban perimeter, mixed use zoning, property appreciation management

**ACTIONS** - corridor or stations
Improvement of corridor area, populational densification, mixed uses, reduction of urban voids, discouragement of private vehicle use, incentives to active transport...
PRINCIPLE 1: COMPACT URBAN GROWTH

Control urban sprawl and guarantee smart/sustainable growth

- Urban perimeter strategically defined
- Vertical growth in areas with infrastructure support
- Prevent and occupy urban voids
- Control urban sprawl
- Plan growth with urban infrastructure, mixed uses and suitable densification in expansion areas

PERIMETER + EXPANSION AREAS

Municipal Masterplans incorporate urban strategies and legal instruments that can orient compact urban growth with mixed uses and suitable densities in order to avoid urban dispersion. In addition, incentives for urban voids occupation should be prioritized to strength consolidated urban areas.
PRINCIPLE 2: CONNECTED INFRASTRUCTURE

Optimize use of infrastructure and reduce need for travel

- Concordiate uses that cause discomforts
- Define TOD corridors
- Promote local urban centralities connected with transport infrastructure
- Establish urban form parameters in order to improve connectivity and facilitate walking and cycling, such as maximum dimensions for blocks
- Promote mixed use in the city, avoiding monofunctional zoning

TOD CORRIDOR + LAND USE ZONING

A Municipal Masterplan should define areas with a diversity of uses and activities around transport corridors and stations in order to create attractive local urban centers and qualify daily commuting. In this sense it is possible to optimize existent urban infrastructure.
3 COORDINATED MANAGEMENT

Land values management

Zone with high potential for transformation (potential urban operations)

Priority zone for TOD strategy implementation

BASIC FLOOR AREA RATIO STRATEGY + LAND VALUE CAPTURE STRATEGIES

Municipal Masterplans should include legal instruments that promote densification at the same time that allows the land value capture. Therefore, it is possible to recover public investments in urban areas and raise funds for investments and development.
Land values management

**Basic Floor Area Ratio (FAR) for the entire urban territory**

**Varying maximum FAR along the urban territory**

**Charges for additional FAR**

**Distribution of resources on the city territory**

**BASIC FLOOR AREA RATIO STRATEGY + LAND VALUE CAPTURE STRATEGIES**
WHERE TO APPLY TOD

TOD AREA OF INFLUENCE FOR PUBLIC TRANSPORT CORRIDORS (BUSES)

TOD AREA OF INFLUENCE FOR PUBLIC TRANSPORT STATIONS (RAIL)
TOD ELEMENTS

- Mixed Land Use
- Promote Active Transport
- Adequate Densities
- Urban Centralities and Ground Floor with Active Uses
- Mixed-Income
- High Quality Public Transport
- Individual Vehicle Use Management
- Public Spaces and Green Infrastructure

WRI Brasil
Ross Center
The City Fix
LEARN
ACTION 1: INTENSIFY DENSIFICATION AND LAND USE AROUND PUBLIC TRANSPORT CORRIDOR AND STATIONS

Prioritize new investments around public transport and encourage mixed use developments integrated to transport stations.
ACTION 1: INTENSIFY DENSIFICATION AND LAND USE AROUND PUBLIC TRANSPORT CORRIDOR AND STATIONS

- Encourage mixed uses
- Apply instruments that diversify housing patterns
- Encourage complementary uses around transport stations, such as park and ride buildings.

Municipal Masterplans should give priority to new development projects on areas served by public transport and encourage mixed use development projects linked to transport hubs.

- Higher maximum Floor Area Ratio in the transport station's surrounding areas.
- Promote strategic densification

Transport corridor
ACTION 2: DISCOURAGE UNDER-UTILIZED LAND IN AREAS SERVED BY HIGH QUALITY PUBLIC TRANSPORT

Promote the development of vacant areas using property taxes and compulsory construction. Articulate those instruments to social housing strategies.
ACTION 2: DISCOURAGE UNDER-UTILIZED LAND IN AREAS SERVED BY HIGH QUALITY PUBLIC TRANSPORT

Implement real state consortium

Municipal Masterplans can propose instruments to stimulate or compel the implementation of new development projects, in order to avoid real state speculation, and articulate them with the construction of social housing investments.

Deterninate the constrictions of social housing on vacant or underused areas

Penalize the maintenance of empty and vacant buildings or areas.

Transport corridor
Promote social housing along transport corridors in order to guarantee social mix. Require social increment in great development projects.
**ACTION 3: DIVERSIFY HOUSING PATTERNS**

Promote the implementation of a ratio for social housing as part of greater investments.

- Regular housing
- Government subsidized housing
- Social housing

Promote social housing investments along transport corridors.

Municipal Masterplans should define areas for Social Housing in the transport influenced zone. Therefore, it is possible to guarantee greater diversity of social patterns. In addition, development projects with high impacts are able to use the construction of social housing as a compensation.
ACTION 4: INTEGRATE PRIVATE AND PUBLIC SPACES IN FAVOR OF PEDESTRIANS

Incentivize new buildings with active uses on the ground floor, connectivity with public areas, and compulsory improvements for sidewalks.
**ACTION 4: INTEGRATE PRIVATE AND PUBLIC SPACES IN FAVOR OF PEDESTRIANS**

Municipal Masterplans should include incentives to private investments to make active uses of the ground floor and semi-public areas, such as crossing corridors, associated to good quality side walks.

- Incentives to mixed-use developments around transport infrastructure
- Building incentives to active uses in the ground floor
- Public crossing cuts and visual permeability between lots with limited wall extension
- Walking around the lots should be safe, well illuminated and have permeable floors.
ACTION 5: PROMOTE GOOD QUALITY PUBLIC SPACES AND STRATEGIC GREEN AREAS

Promote comfortable, accessible and large sidewalks, in order to guarantee good quality of walking travel.

Related TOD elements
ACTION 5: PROMOTE GOOD QUALITY PUBLIC SPACES AND STRATEGIC GREEN AREAS

- Promote alternative uses on public spaces
- Improve urban vegetation
- Reserve land for new public spaces around public transport infrastructure
- Prioritize pedestrians on mobility projects
- Foster donation of private areas to create room for larger sidewalks
- Municipal Masterplans should reserve land along transport corridor to provide infrastructure to pedestrians and increase the quality of public spaces.
ACTION 6: DISCOURAGE THE USE OF PRIVATE VEHICLE ALONG PUBLIC TRANSPORT

Reduce parking spaces in residential buildings and create the infrastructure for shared mobility vehicles.
ACTION 6: DISCOURAGE THE USE OF PRIVATE VEHICLE ALONG PUBLIC TRANSPORT

Municipal Masterplans can reduce the number of parking spaces on residential, commercial and services buildings, in order to impact a more efficient use of the public and private space.

Determinate the maximum number of parking spots by the number of residences.

Convert parking spaces for other uses.

WRI BRASIL
ROSS CENTER
ACTION 7: ARTICULATE AND CONNECT SOCIAL INFRASTRUCTURE TO PUBLIC TRANSPORT NETWORK

Pre select areas for implementation of social infrastructure on areas surrounding transport corridors
ACTION 7: ARTICULATE AND CONNECT SOCIAL INFRASTRUCTURE TO PUBLIC TRANSPORT NETWORK

- Municipal Masterplans should include rules for guarantee the implementation of public facilities close to transport infrastructure.
- Promote new and better public spaces
- Connect public facilities to transport network
- Promote a better use of urban voids on transport corridors
- Combine a diversity of uses and urban amenities
ACTION 8: ENCOURAGE THE IMPLEMENTATION OF CYCLING INFRASTRUCTURE

Demand parking places for bicycles and support infrastructure for cyclists as basic components for new buildings approval.
ACTION 8: ENCOURAGE THE IMPLEMENTATION OF CYCLING INFRASTRUCTURE

Municipal Masterplans can request parking and support areas for cyclists as basic components for new buildings approval and encourage the use of bicycles as an efficient transport mode.

- Request areas for supporting cyclists, such as a changing room
- Demand the construction of cycling parking places
- Cycle parking close to building entrances
- Cycleways and cycleroutes
TOD IN MUNICIPAL MASTERPLANS:

3 TERRITORIAL PRINCIPLES FOR URBAN DEVELOPMENT

8 ACTIONS FOR CORRIDOR OR STATIONS SURROUNDING AREAS

**PRINCIPLES** - city scale
Strategic urban perimeter, mixed use zoning, property appreciation management

**ACTIONS** - corridor or stations
Improvement of corridor area, populational densification, mixed uses, reduction of urban voids, discouragement of private vehicle use, incentives to active transport...

WRI BRASIL
ROSS CENTER

The City Fix LEARN
THE PATH WE TRAVELLED
THANK YOU FOR WATCHING

DOUBTS OR COMMENTS:

henrique.evers@wri.org  luisa.peixoto@wri.org