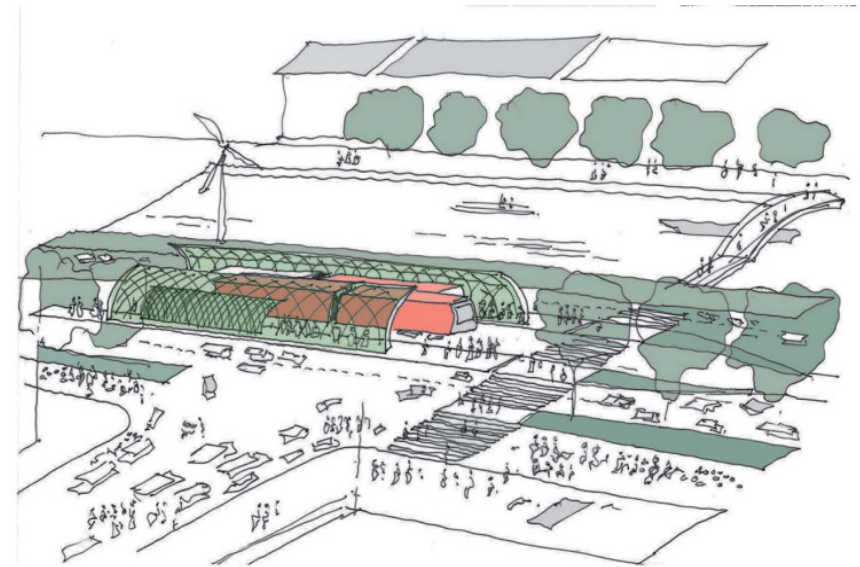
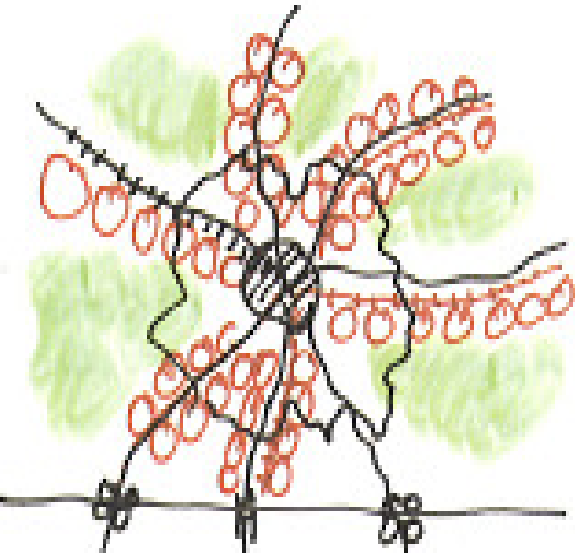


Asia Leadership Program

TRANSIT-ORIENTED DEVELOPMENT (TOD)



Tokyo
6 March 2015

TOD: What is this?

Multiple denominations:

Transit-Oriented Development,
Transit-Joint Development,
Transit-Adjacent Development
Transit-Supportive Development,
Transit-Environment Development,
Transit-Inducing Development, Transit Villages...

Multiple definitions: No single, all-encompassing definition of TOD

“Practice of developing or intensifying land-use near stations” - M. Boarnet and R. Crane

“A mixed-use community that encourages people to live near transit and to decrease their dependency on driving” - P. Still

“A compact community, centered on a transit station that, by design, invites residents, workers, and shoppers to drive their cars less and ride mass transit more” - M. Bernick and R. Cervero

The definition we adopt:

“Concentrating urban development around stations to support transit use, and developing transit systems to connect existing and planned concentrations of development” - C. Curtis, J.L. Renne and L. Bertolini

TOD: Main Objectives

connect

A dense network of walking and cycling routes results in short, varied, and direct connections that improve access to goods, services, and public transport.

► Break up large blocks by creating publicly accessible pedestrian- and cycle-only paths.

RAPID TRANSIT CORRIDOR

≤ 1 ha

≤ 150 m

CYCLE SHARING STATION

PEDESTRIAN SPACE

► Reduce the size of city blocks (consisting of one or more plots) to 1 hectare or less, with the longest dimension no more than 150 m.

TOD: Main objectives

mix

A diverse mix of residential and non-residential land uses reduces the need to travel and ensures activation of public spaces at all hours.

► Encourage diversity through a variety of built forms.

► Reserve at least 30 per cent of residential floor area for affordable units.

RESIDENTIAL

INSTITUTIONAL

AFFORDABLE RESIDENTIAL

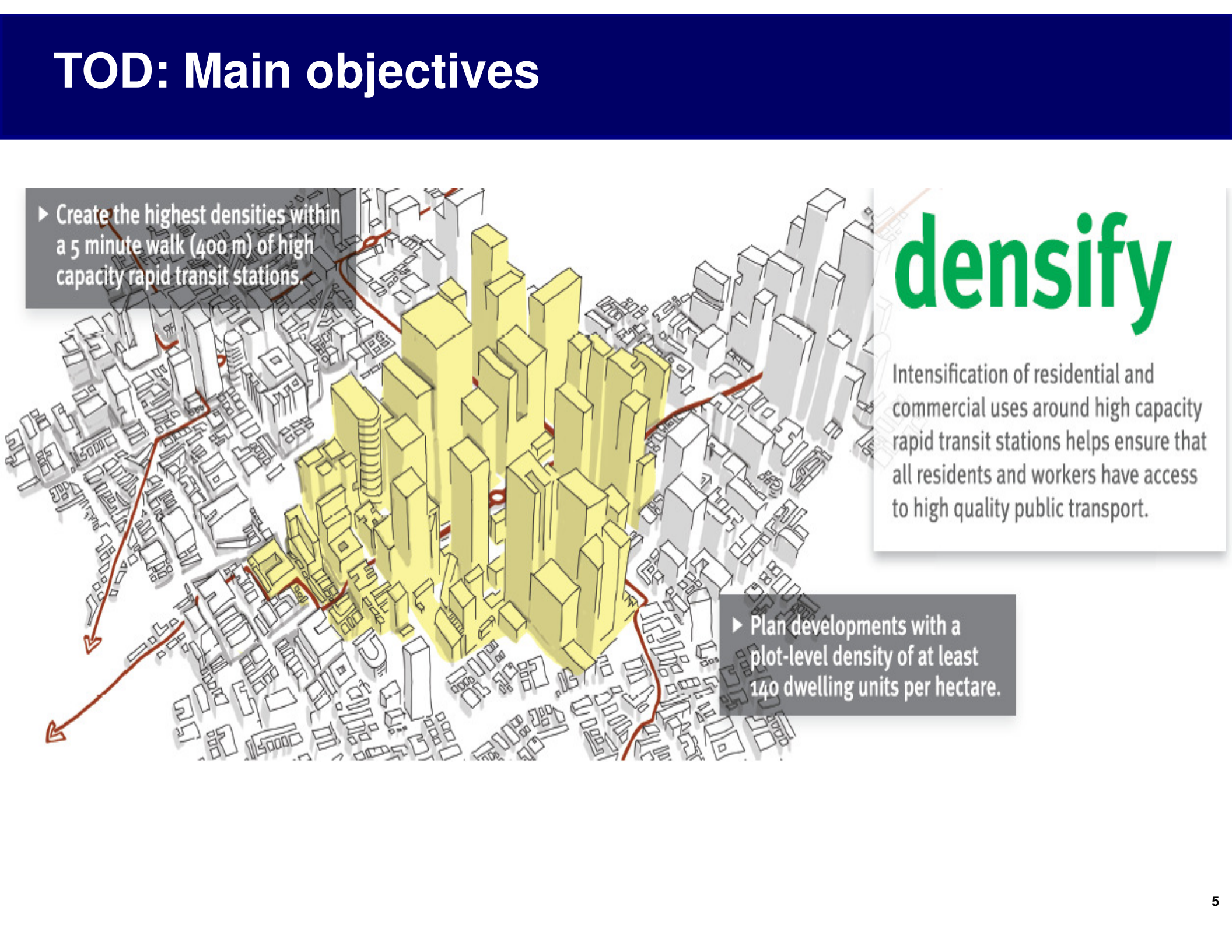
LIGHT INDUSTRIAL

MIXED RESIDENTIAL/OFFICE

COMMERCIAL

► Provide a horizontal and vertical mix of uses.

TOD: Main objectives

- 
- A 3D architectural rendering of a city street grid. A central corridor is highlighted with taller, yellow buildings, while surrounding areas have shorter, grey buildings. Red lines with arrows trace a path through the city, likely representing a transit route. The yellow buildings are concentrated along this path, illustrating the concept of high-density development around transit stations.
- ▶ Create the highest densities within a 5 minute walk (400 m) of high capacity rapid transit stations.

densify

Intensification of residential and commercial uses around high capacity rapid transit stations helps ensure that all residents and workers have access to high quality public transport.

- ▶ Plan developments with a plot-level density of at least 140 dwelling units per hectare.

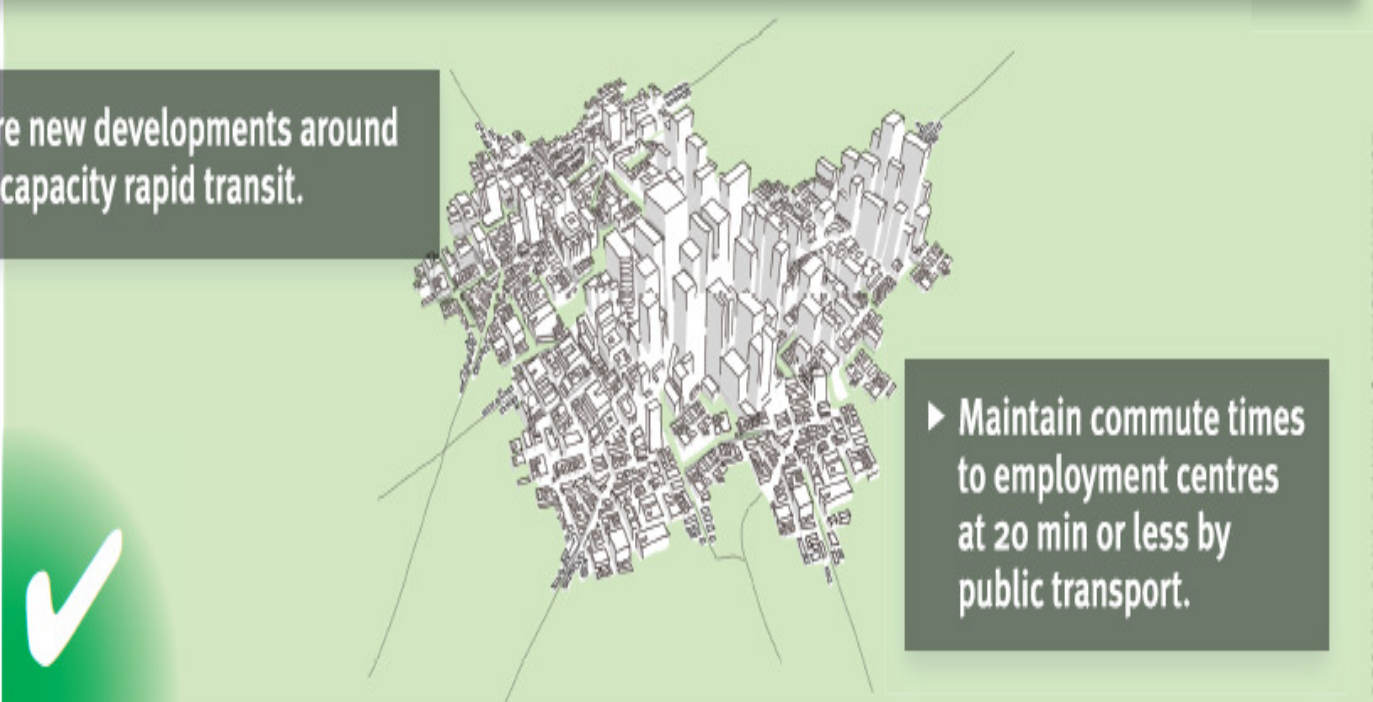
TOD: Main objectives



compact

Redevelopment of existing urban fabric helps ensure that residents can live close to jobs, schools, services and other destinations, resulting in reduced travel times and emissions.

► Centre new developments around high capacity rapid transit.

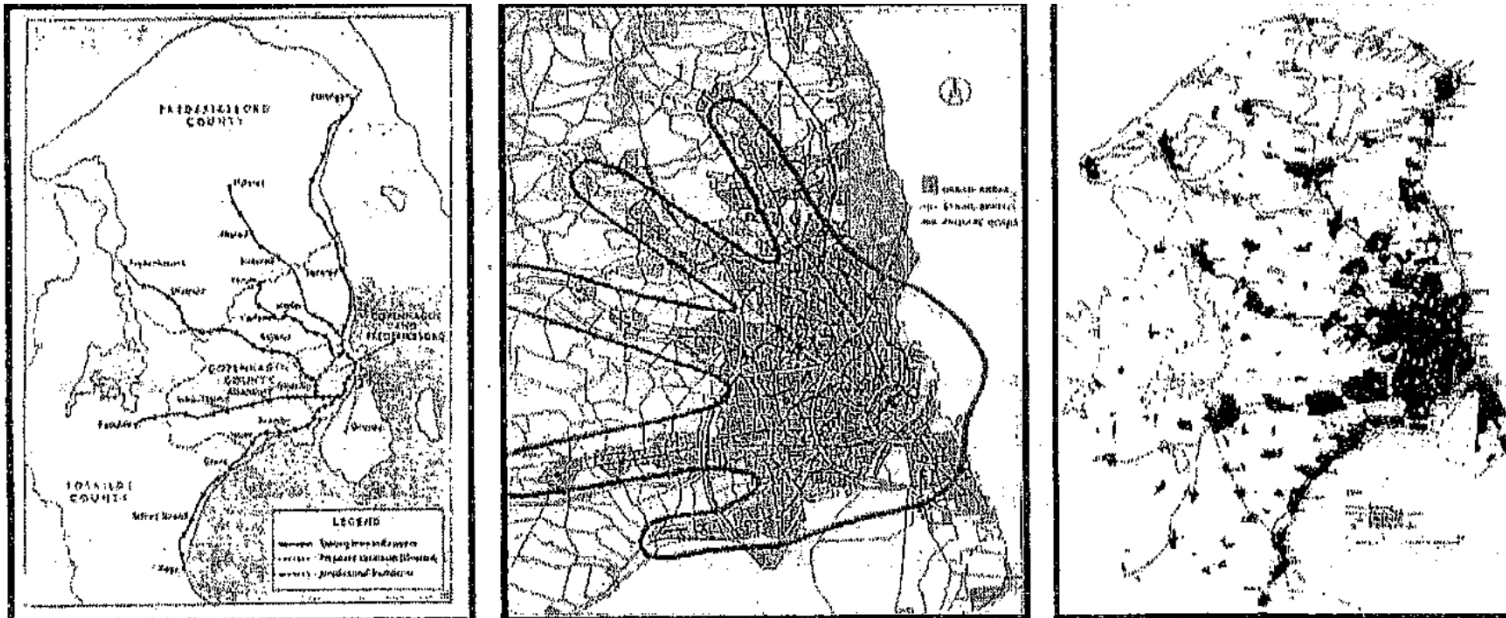


► Maintain commute times to employment centres at 20 min or less by public transport.

CITY-LEVEL - TOD: A way to control and organize urban growth

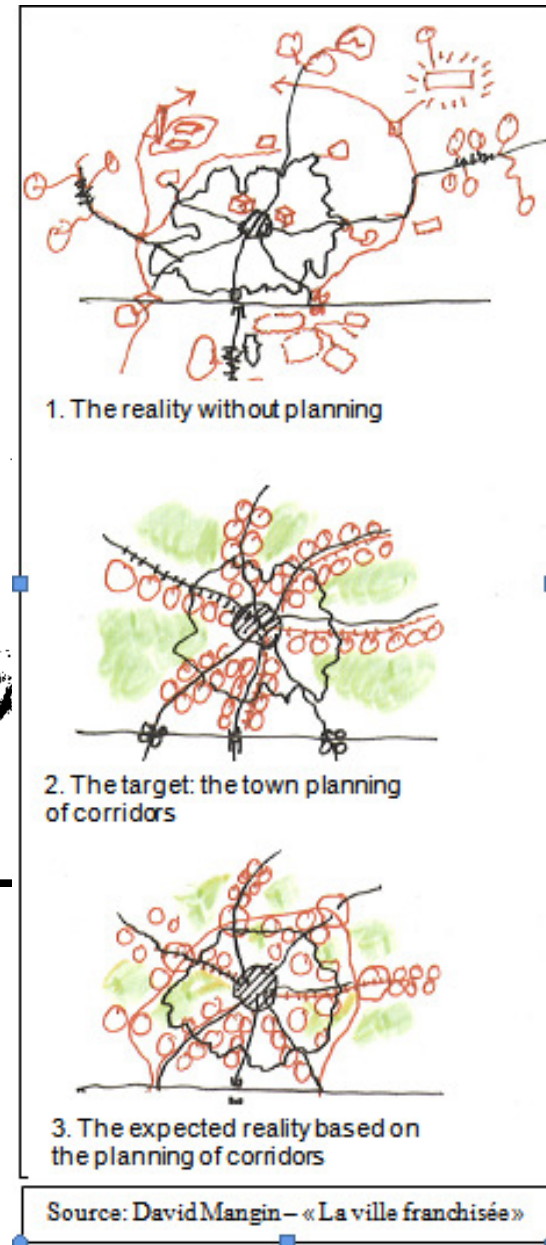
Developing transit first along envisioned routes encourages controlled urban expansion, where land is vacant adjacent to these axes

Case study: *transit shaping the spatial development of Copenhagen, Denmark, since 1947*



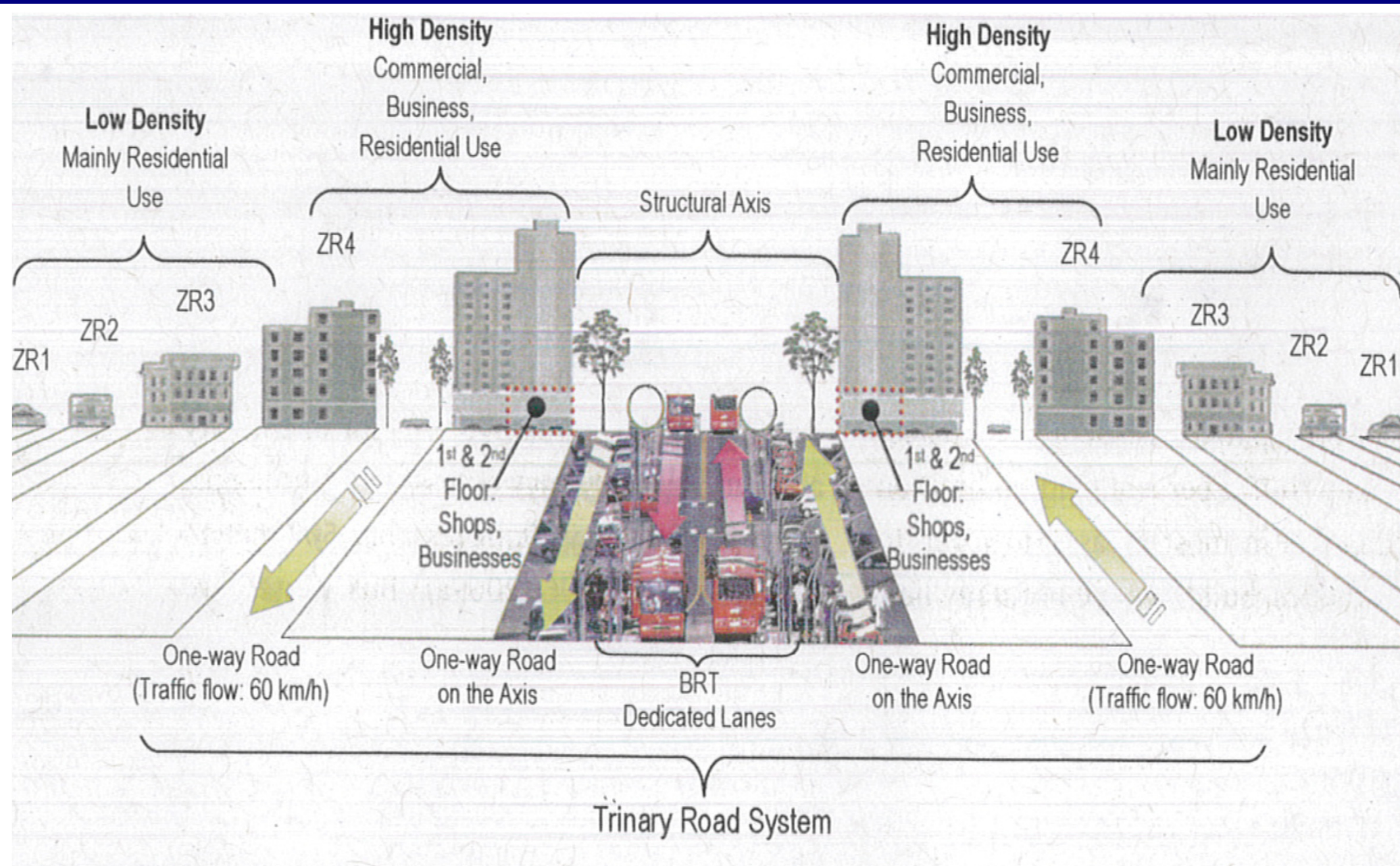
Evolution of Copenhagen from a Finger Plan, to a directed rail-investment program along defined growth axes to finger-like urbanization patterns

Source: R. Cervero



Source: David Mangin – « La ville franchisée »

CORRIDOR LEVEL: TOD: A trinary road system



STATION / NEIGHBORHOOD LEVEL:

TOD: The “Three Ds” = Density, Diversity & Design



Density, Diversity and Design in Nieuw Hoog Catharijne, Utrecht, The Netherlands. Source: R. Altoon and J. Auld



Density, Diversity and Design in CentralWorld, Bangkok, Thailand. Source: R. Altoon and J. Auld

TOD: Main benefits

- ☐ **Reduces trip distances and number of trips overall**
- ☐ **Links multiple destinations in a single trip**
- ☐ **Makes public transport, walking, and cycling more convenient and viable**
- ☐ **Reduces service delivery costs for municipality (water, electricity, sewer, etc.)**

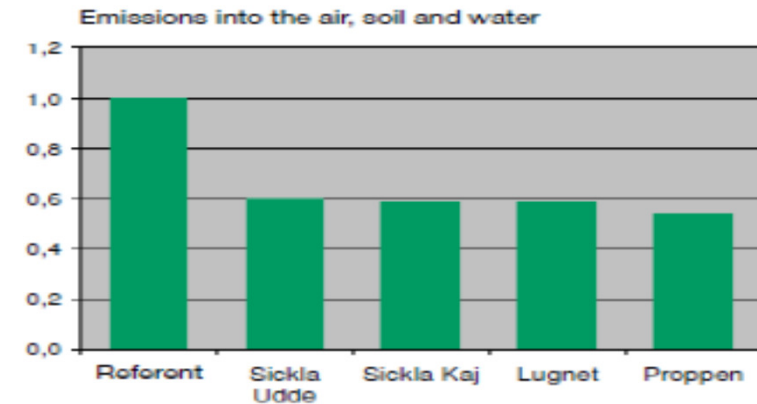
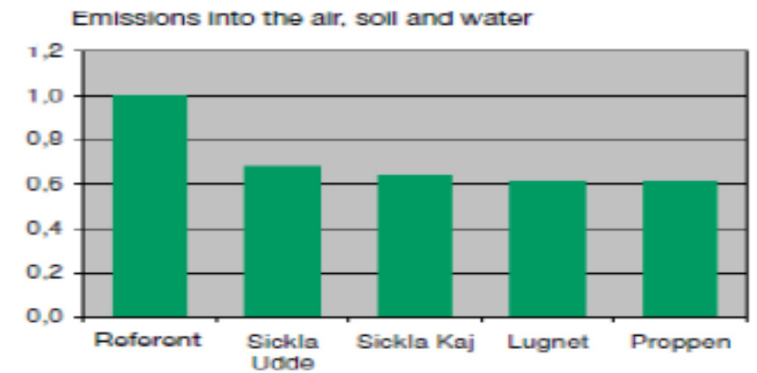


TOD: A way to reduce the environmental footprint of urban centers

Case study: environmental impact of Hammarby Sjostad in Stockholm, Sweden, currently under development



Green Transit-Oriented Development coupled with Green Urbanism, Hammarby Sjöstad, Stockholm, Sweden. Source: Stockholm City Planning Administration



Evolution of emissions in four communities of Hammarby Sjöstad between 1997 and 2002. Source: Grontmij AB

TOD: A way to improve urban quality of life

The close integration of land-use and transit reduces travel time and cost, provides more mobility options, and increases safety for urban dwellers

Case study: improvements in the life of people with the Bus Rapid Transit implemented in 2010 in Guangzhou, China



Integration of different modes in Guangzhou's Bus Rapid Transit: connection between a Bus Rapid Transit stop and a metro station, pedestrian-friendly design and bike sharing system. Source: Institute for Transportation and Development Policy

TOD: A way to develop/revitalize urban areas

Whether transit precedes urban activities or links pre-existing urban centers, the compactness resulting from the integration of land-use and transit encourages investments and fosters the economic productivity of the area

Case study: 505 million USD of development built near stations after implementation of the Westside Project Light Rail system in Portland, Oregon, United States, in 1998



Urban renaissance after the implementation of the Light Rail system in Portland, Oregon, United States

Source: Tri-Met

TOD: Increases land value around transit stations

Since it augments the accessibility of residential and commercial areas around transit stations, Transit-Oriented Development tends to increase the value of nearby land and properties

Case study: sale price for housing near transit increased by 38% near the Bay Area Rapid Transit system in San Francisco, United States, opened in 1972



Rise of property values near the Bay Area Rapid Transit system,
San Francisco, United States

Source: Bay Area Rapid Transit



TOD: Potential to attract the private sector to co-finance the project

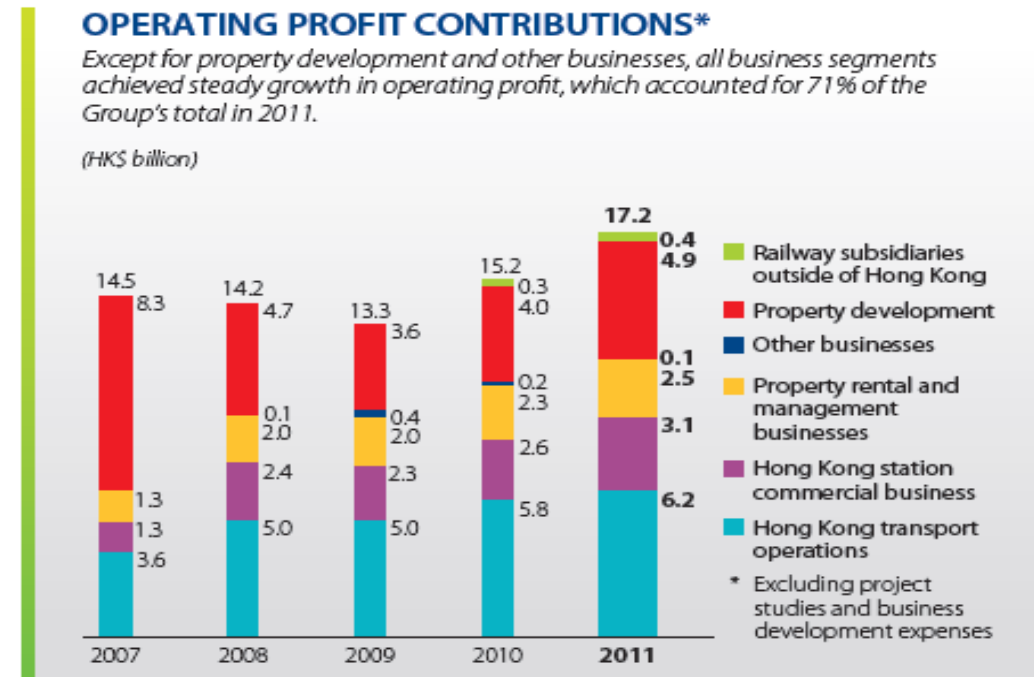
Since transit-oriented built form tends to increase land values near stations, the capture of the land-added value can help governments to fund the transit infrastructure and service

Case study: real-estate development represents 62% of total revenues of the Mass Transit Railway Corporation for the heavy rail system opened in 1979 in Hong-Kong, China



Tsing Yi Station as a prime site where land was developed above and in the vicinity of the railway stations by the Mass Transit Railway Corporation, Hong-Kong, China

Source: Mass Transit Railway Corporation



Operating profit contribution of the transit agency in 2011, Hong Kong, China

Source: Mass Transit Railway Corporation

Techniques for capturing value from TOD

1. **Development tax**
2. **Land benefit levy**
3. **Development of publicly-owned land**
4. **Creation of new property through underground or aerial infrastructure**
5. **Selling development rights by allowing densification at stations**



Real Cases: Washington DC – Metro Corridor



Densification seen around metro stations

Real Cases: Sao Polo – TOD as a mean for urban regeneration



Real Cases: Curitiba – A very strong land-use policy



Curitiba focused high-rise development on the BRT corridors

Curitiba's zoning regulations complimented TOD objectives

Real Cases: Brisbane



Brisbane: BRT integrated into shopping complex

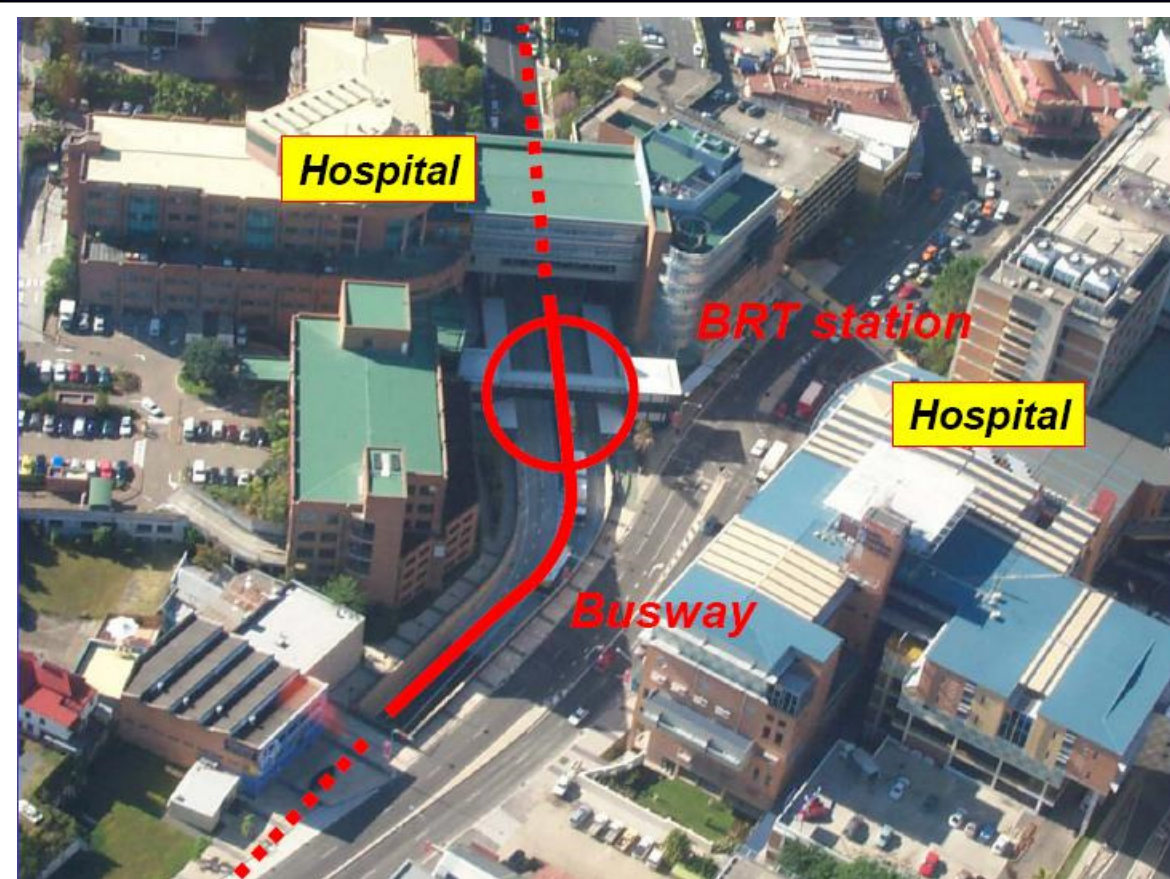
Mater Hill BRT Station, Brisbane
Hospital development over busway



Real Cases: Guangzhou



TOD: Co-financing of transit stations with developers through PPP schemes



Brisbane



Ottawa

Property developers using public transport to sell units



NEXT STATION... NUSASIRI SUKHUMVIT-EKAMAI

Where the BTS skytrain walkway is directly connected

7.30 am, wake up to the hustle and bustle of the city streets but still linger in your bed as you have plenty of time before the early morning routine kicks in. Sip your favorite cup of freshly brewed java, make a mental note for today's plan. Take a glance at the clock, it's 8.30 am already. Late? Never happens. As with the BTS skytrain walkway connected right to the building, you can get



anywhere in no time, practically from your doorstep. Daysdreaming much? Not if you live at Nusasiri, the 22 or 28 high rise condominium boasting a magnificent view from the floor-to-ceiling windows that can always charm the heart of those who has the passion for cityscape. Adopt an urban lifestyle with all the great activities provided for residents: sports, spa, sauna, jogging tracks and relaxation plus shopping and dining in the building's plaza area.



0 2713 5555



Yichang: Developers marketing BRT even prior to system opening

Commercial developments inside mass-transit stations



Hong Kong

Bangkok



Hong-Kong: World-leading example of TOD

**Property development
has made the Hong
Kong MTR one of the
world's most profitable
public transport
systems**

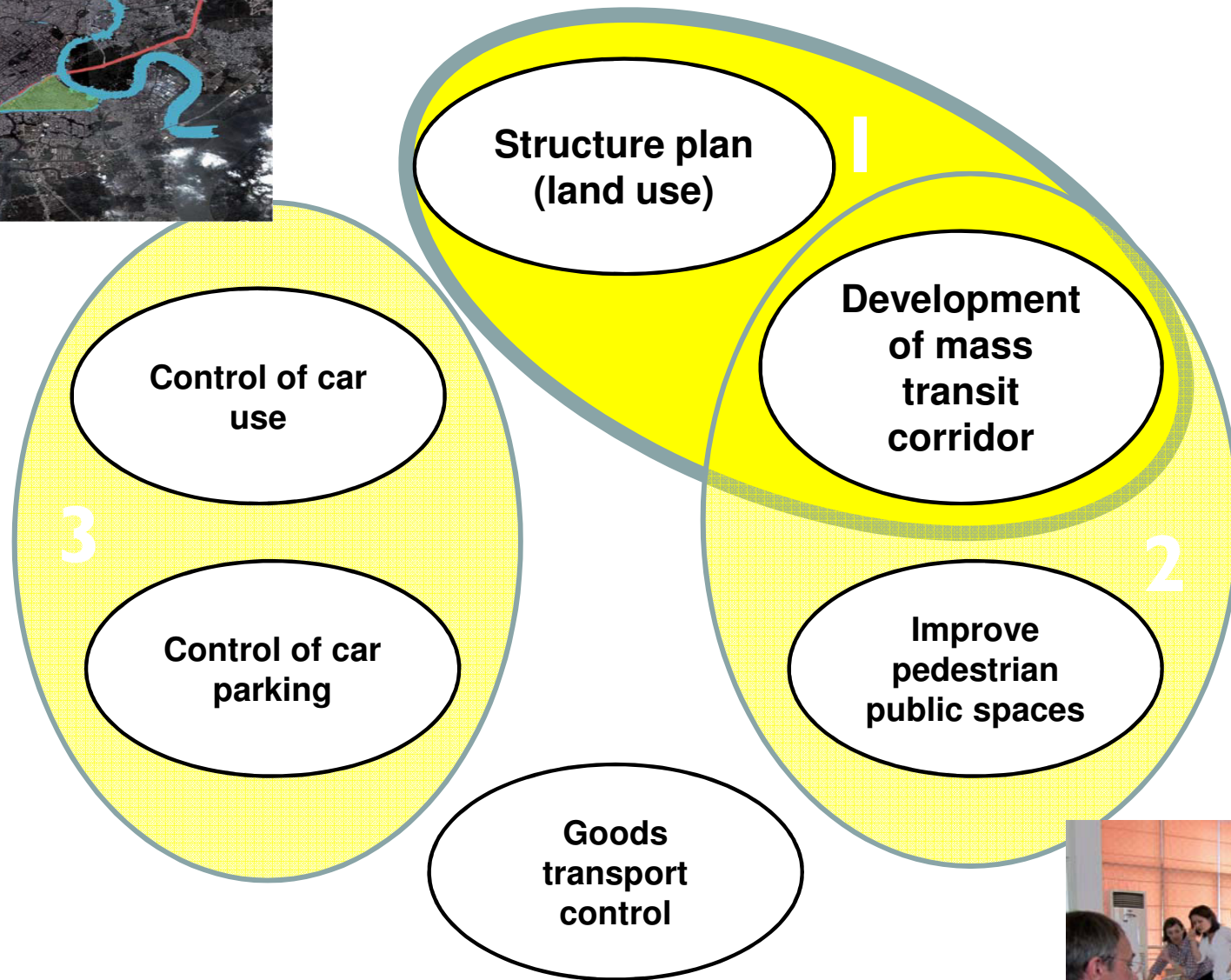


Lok Fu

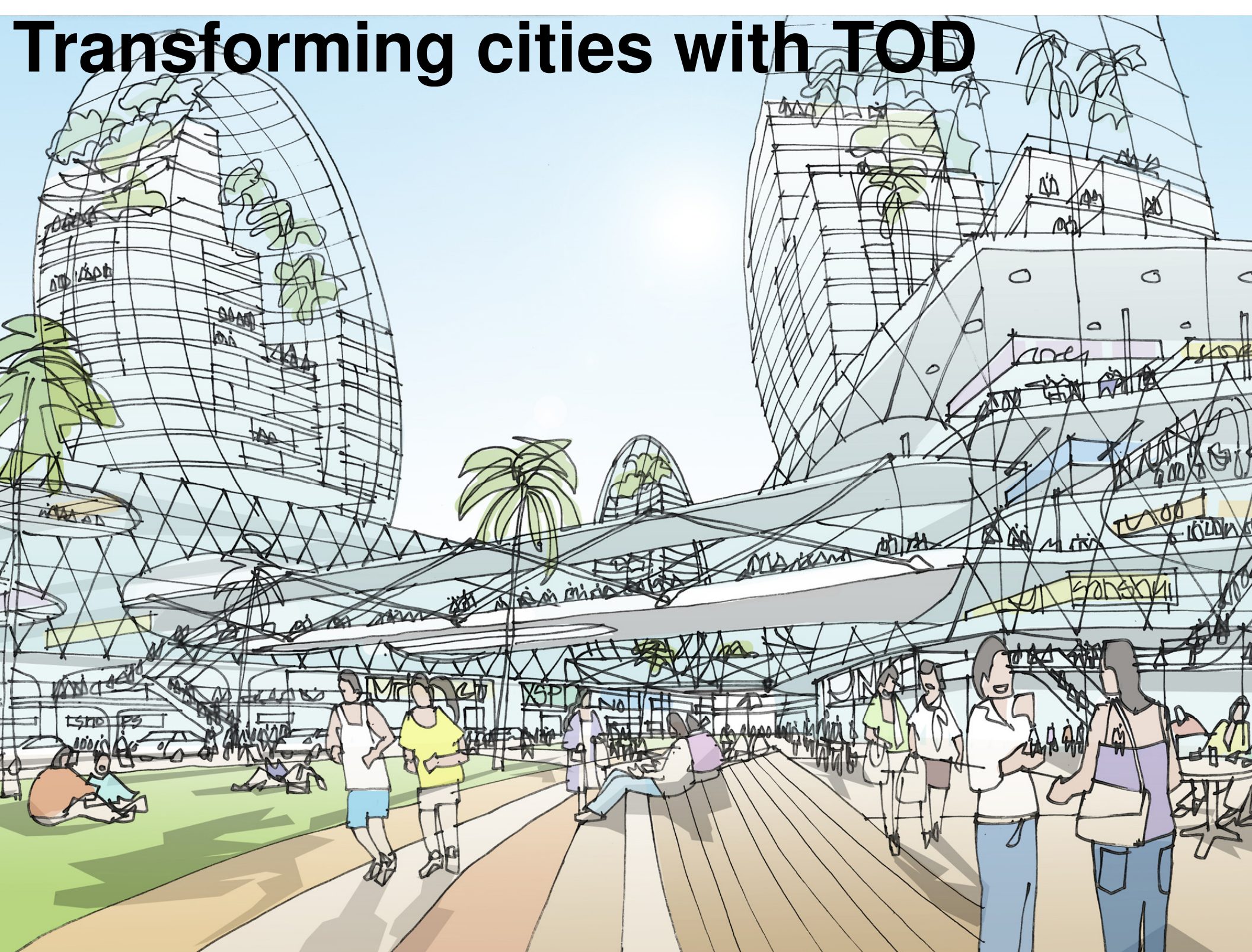


**Approximately 60% of the
Hong Kong MTR system's
revenues are from property
development**

4 short and long term actions to develop TOD corridors and SUT



Transforming cities with TOD



Thank you

dmargonsztern@adb.org