

**TRANSIT ORIENTED DEVELOPMENT
AN INCENTIVE FOR PROPERTY
VALUE**





Greeting!

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INTRODUCTION

Common Issues



Until 2015 housing backlog in
Indonesia reached **11.4 million**
housing units

“



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Housing Problem & Urban Sprawl





Greater Jakarta as Economic Center

25% of National GDP



**11.8% of Indonesia
Population**

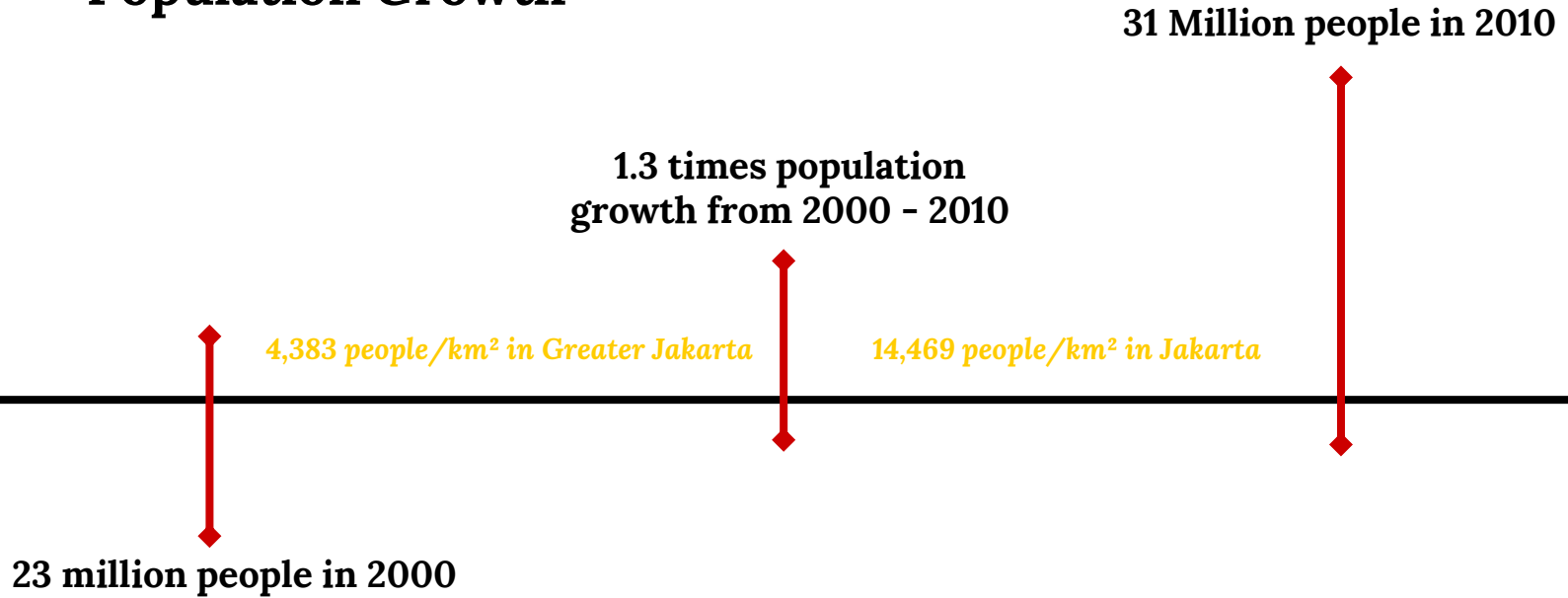


40% of Foreign Investment





Population Growth





Housing Backlog

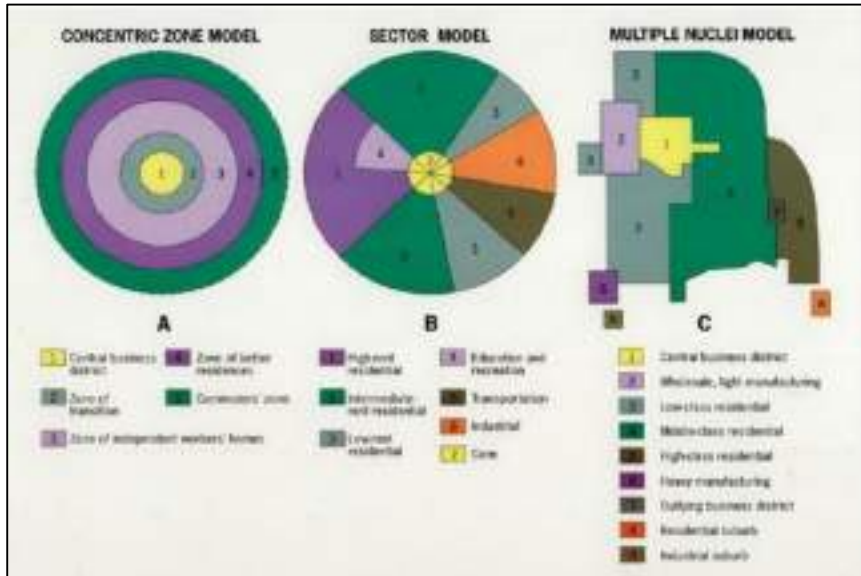




Slum.Sprawl.



Housing Problem & Urban Sprawl



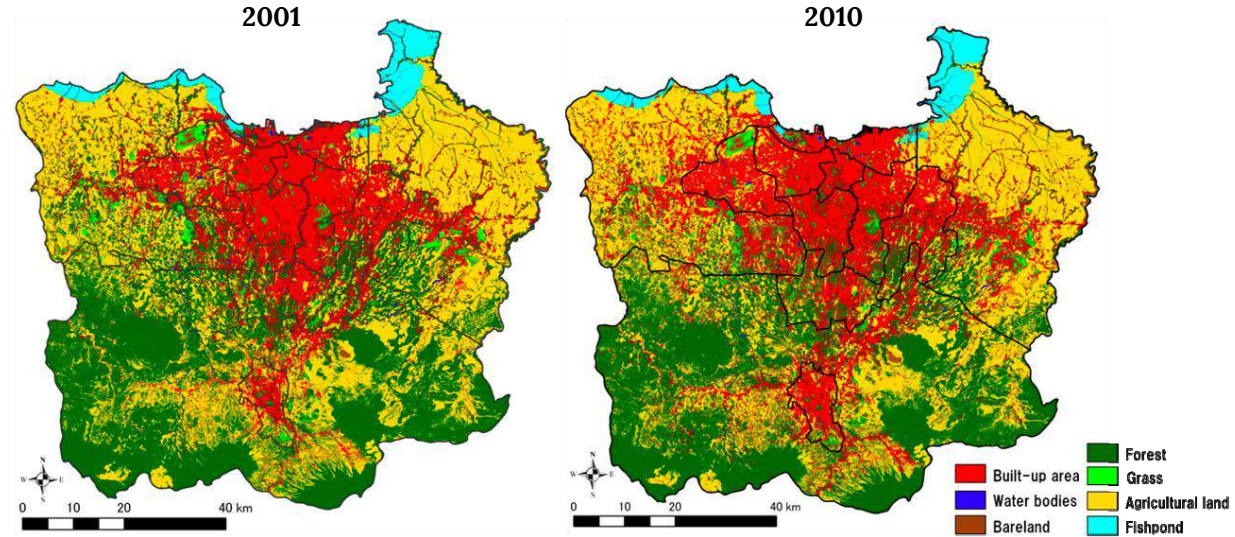
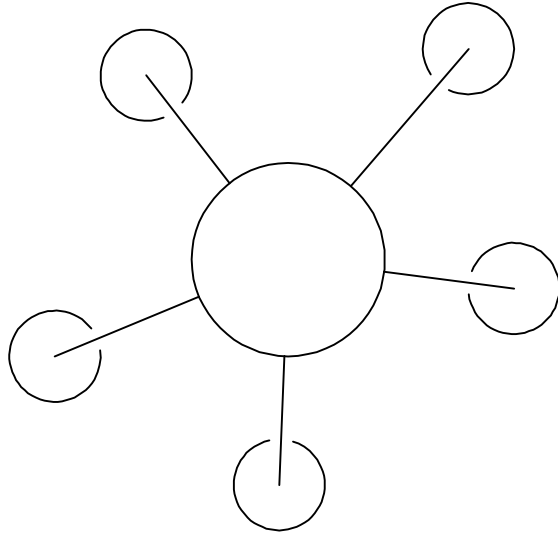
Low-income people should live closer to the central business district due to mobility effectivity and transport cost efficiency.

Greater Jakarta shows opposite trend. Low-income people mostly live in Jakarta buffer zone.

The impact of this situation is a significant **increase in transportation cost, travel time, and travel distance.**



Land Use Conversion

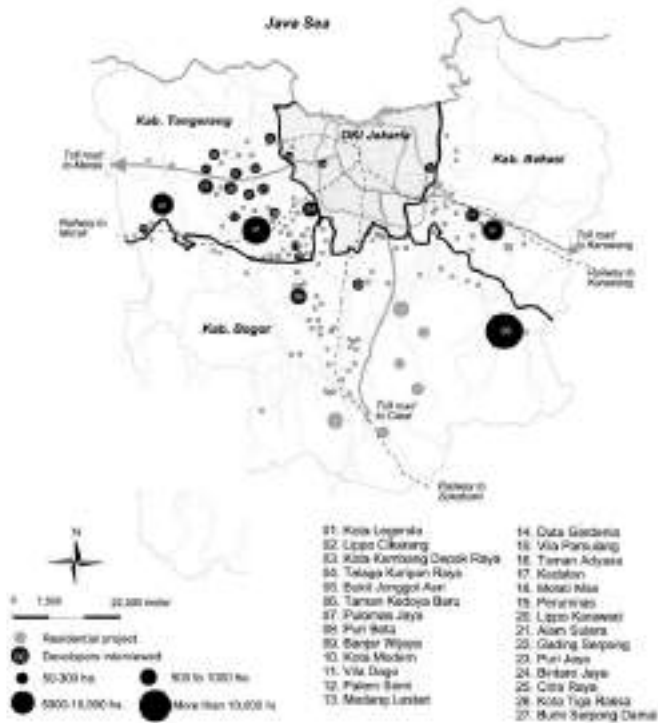


Source: Nagasawa, et.al (2015)

The build-up areas in Greater Jakarta increased from 544 km² to 849 km² during 2000 – 2010 with a growth rate of developed area of 4.6 % per year



Land Use Conversion



Source: Herlambang in RITJ (2015)

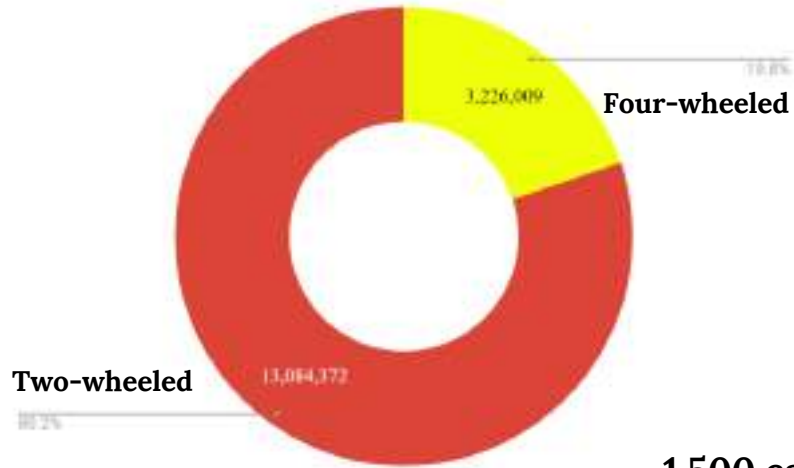
There are at least **27** new large-scale cities developed in Greater Jakarta until 2010.

Covering area ranging from **500** to **8.000** hectares

Those new towns only function as **dormitory towns** that fully **socio-economically dependent** on Jakarta, which significantly increases the burden of daily mobility between those new towns and Jakarta as the center of economy



Transportation Problem



0.01% road growth

1,500 car growth/day



4,500 motorbike growth/day





Transportation Problem

55% public transport use

37 million daily traffic

2003

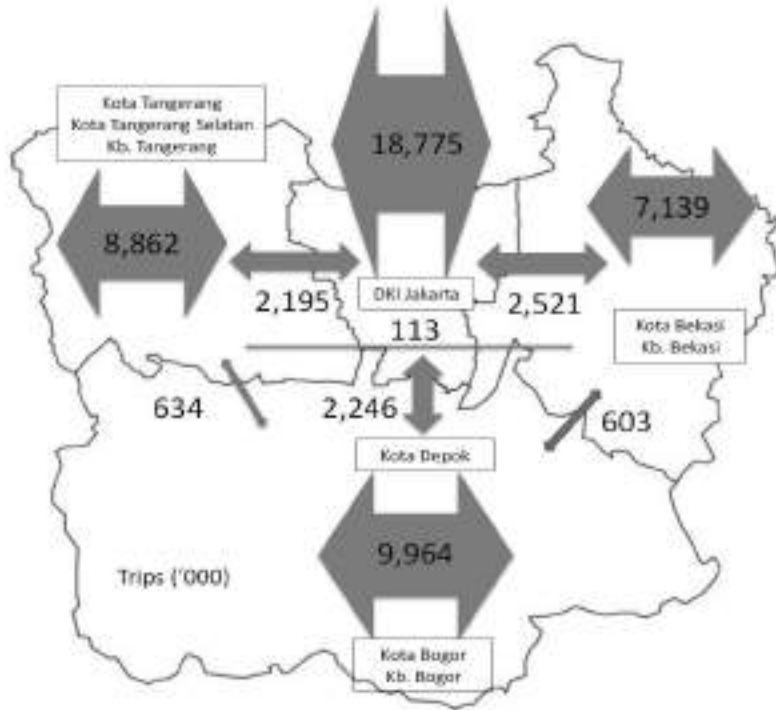
28% public transport use

59 million daily traffic

2010



Transportation Problem



A **poor public transport system**, **lack of facilities** that provide passenger comfort and safety, and **uncertainty waiting time** became a trigger factors for the public to use private vehicles.

Source: Japtrapis, 2012



K Semanggi
Senayan
Kebayoran
200 M

Silpi
Crogot
Soekarno-Jatna

Stuck.



Transportation Problem

Road-to-Vehicle



2,077 vehicles/kilometer

Road-to-Area



5,42% → 40 km²/740 km²

International standard : 15% for major cities

Extra Travel Time



**58% = 48 minutes/day =
184 hours/year**



Transportation Problem

EXTRA TRAVEL TIME



48min
PER DAY

184h
PER YEAR

MORNING PEAK

(Extra travel time)



EVENING PEAK

(Extra travel time)



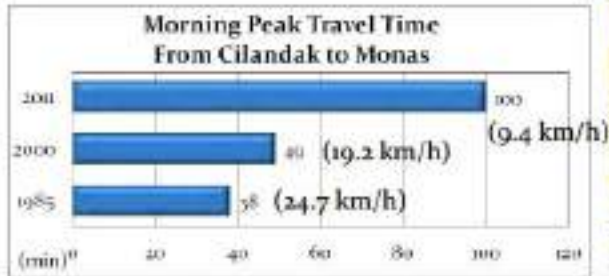
• **58%**
EXTRA TRAVEL TIME

| | |
|--------------|-----|
| Morning Peak | 63% |
| Evening Peak | 95% |
| Highways | 68% |
| Non-highways | 54% |

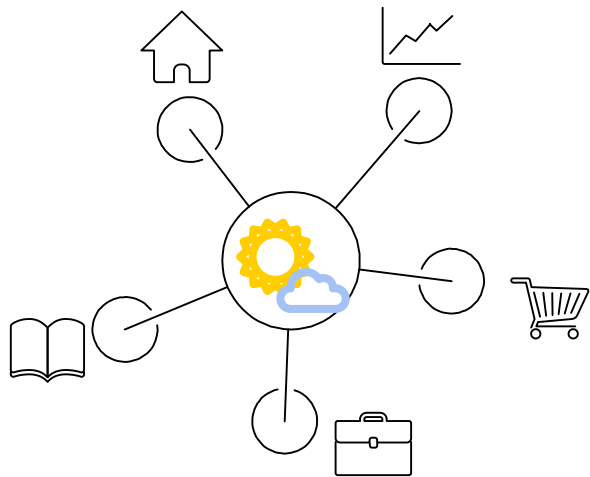
Source: TomTom Traffic Index, 2016



Transportation Problem



Economic losses caused by congestion in Jakarta amounted to **67.5 trillion rupiah** or **US \$ 4.73 billion** which included health losses, environmental losses, social losses, and of course time losses (Bappenas, 2017)



Transit.Oriented.Development

Emphasizes the integration function between mixed-use and transportation system to create an area that environmentally friendly, high density, and integrated



Transportation Policies

Bus Rapid Transit

Since 2004

242 stations

13 corridors

113 routes

502,389 passengers/day

144.86 million passengers of
2017

Commuter Line

Since 2008

6 lines and 13 relations

80 stations

418.5 km route length

953,932 passengers/day

315.8 million passengers
of 2017

Mass Rapid Transit

Began construction 2013

Expected operation 2019

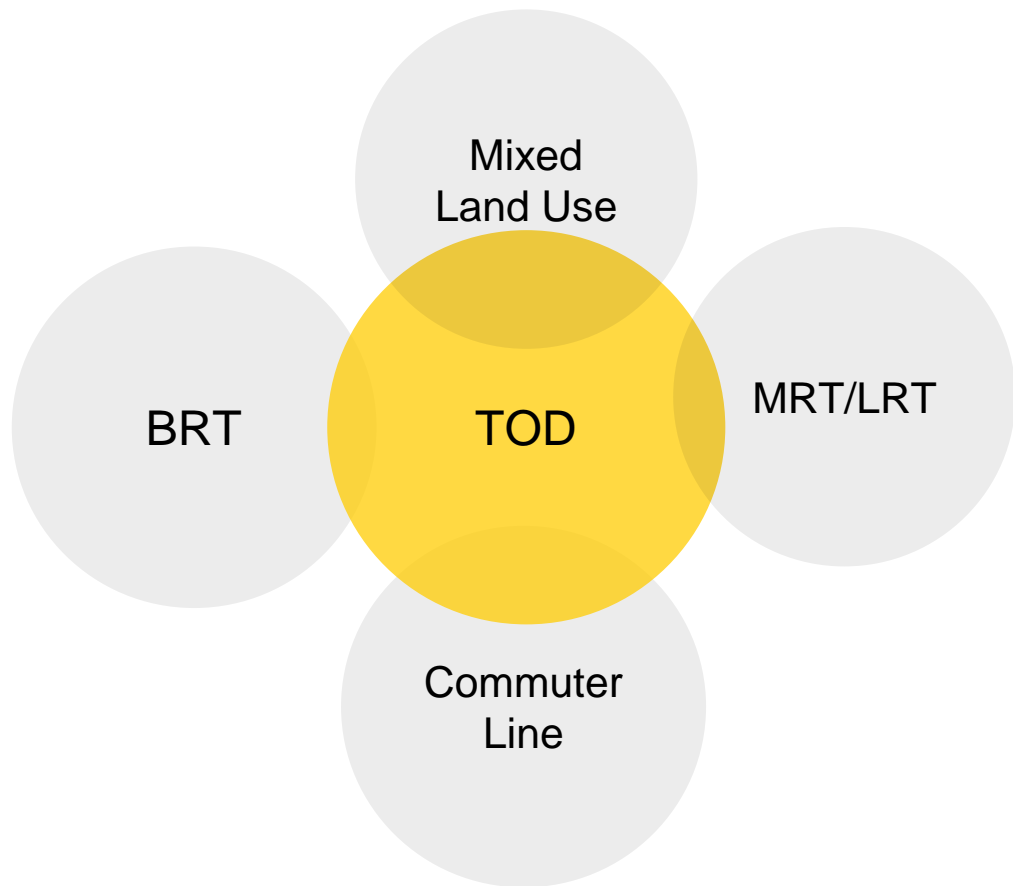
2 lines

13 stations

35 km of 110 km route
length for first phase



Synergies Between Land Use and Transportation Planning



COMPREHENSIVE POLICY

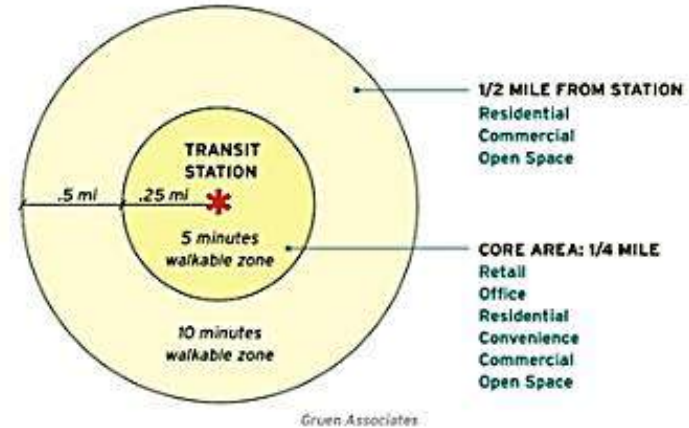
A series of policies to improve public transportation, will be difficult to be effective if not followed by improvement in housing and land use sector



Commute.



Understanding TOD



TOD is a mixed-use area with an average distance of 2,000 foot walking distance of a transit stop and core commercial area. TOD offers high density area, complete with social facilities and commercial facilities, both retails and services.





Understanding TOD

Core Commercial Area

Provide convenience retail & local-serving offices. The core commercial represent at least 10% of total TOD

Residential Area

TOD residential areas include housing that is within convenient walking distance from the core commercial areas and transit stops.

Park, Plaza & Civic Buildings

Public and social facilities such as parks and plazas must be available within TOD area.

Streets and Circulation

Width of the road, maximum speed limit, and number of lanes must be reduced, while bicycle path and sidewalk greening must be maximized

Pedestrian and Bicycle

Pedestrian and bicycle routes should be located along or be visible from all streets. The must provide clear, safe, and comfortable access to the core area and transit stop.

Transit

Transit stops should be centrally located and adjacent to the core commercial area.

Parking requirements & configuration

TOD area should minimize the availability of parking facilities, especially in residential areas. For commercial areas, parking facilities may be provided but with a limited number





APARTMENT TOWERS

RETAIL MALL

SHOPHOUSES

SHOPHOUSES

APARTMENT TOWERS

APARTMENT TOWERS

SHOPHOUSES

APARTMENT TOWERS

SHOP HOUSES

SHOPHOUSES

SHOPHOUSES

LRT STATION

APARTMENT TOWERS

SHOPHOUSES

FEATURE TOWERS

APARTMENT TOWERS

SHOP HOUSES

APARTMENT TOWERS



Understanding TOD



Compact

In a compact development, buildings are located close to one another, requiring less time and energy to connect. When all the principles are applied as fully as possible, a thriving compact city is created.



Density

By building up instead of out, cities absorb urban growth in a more compact way. Density supports a lively mix of activities and better transport services. But also make sure that the transport systems can handle the increase in people.



Transit

Public transit connects and integrates more distant parts of the city. Transit corridors are the natural places where new activities should begin. If high quality transit is critical to create a prosperous and equitable city that is easily accessible by all.



Connect

A city needs a tight network of streets and paths for pedestrians and cyclists as well as public transit. Creating highly permeable places allows for a variety of mobility options that meet their needs.



Mix

A connected city becomes more animated when there is a mix of activities along the streets and paths. Different uses encourage shorter trips and more lively neighborhoods.



Cycle

Like mixed uses, cycling activates streets and provides a mode of transport that is efficient and is easier to use to travel for medium distances. Cycling increases a person's access to a larger area, as well as increases the percentage of trips.



Shift

With the above principles in place, getting people out of their cars becomes easier but is not enough. Pricing and traffic reduction tools encourage people to shift away from cars.

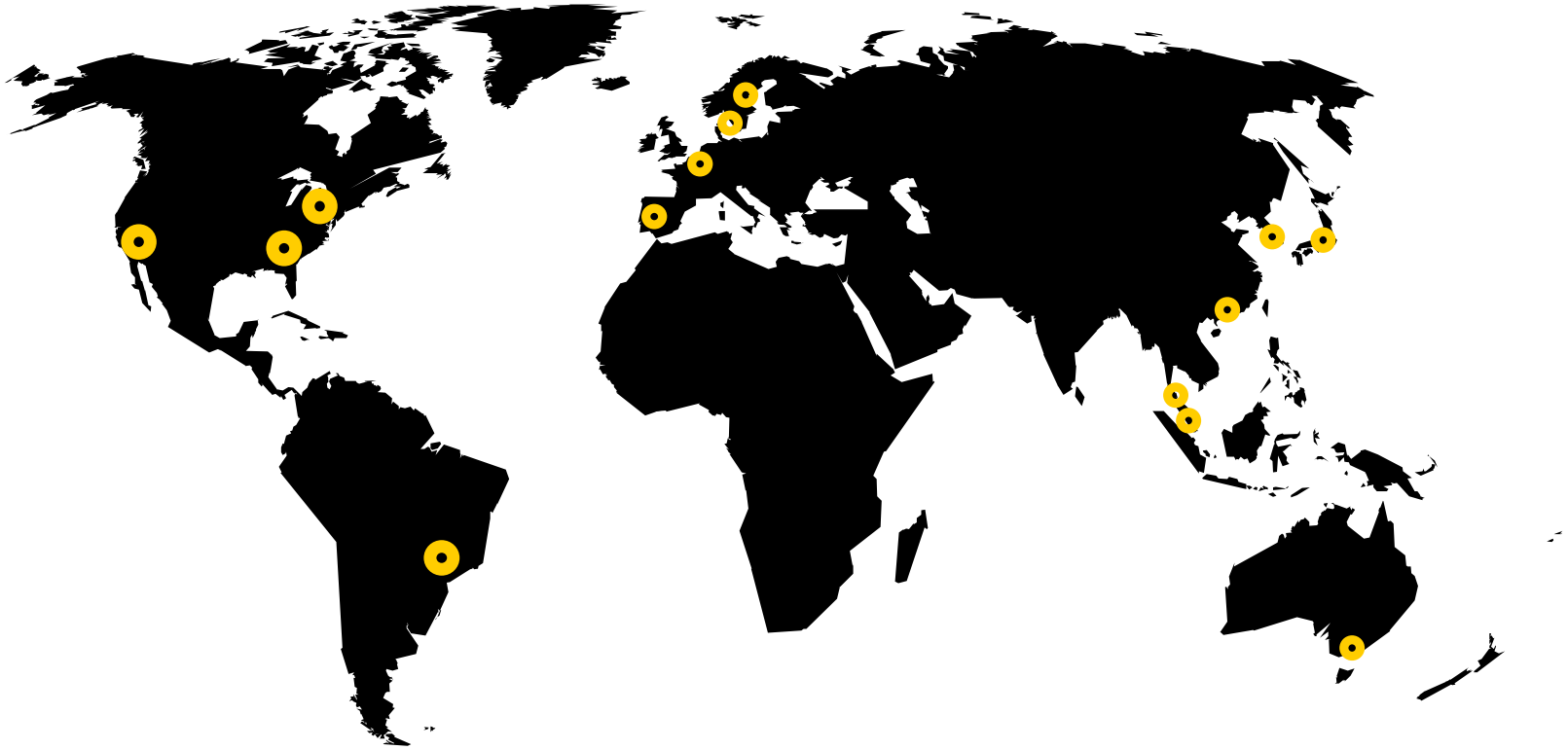


Walk

When all the principles come together, the result is a more lively city. It's the pedestrian. When active streets where people feel safe are introduced to the successful twenty-first century city.

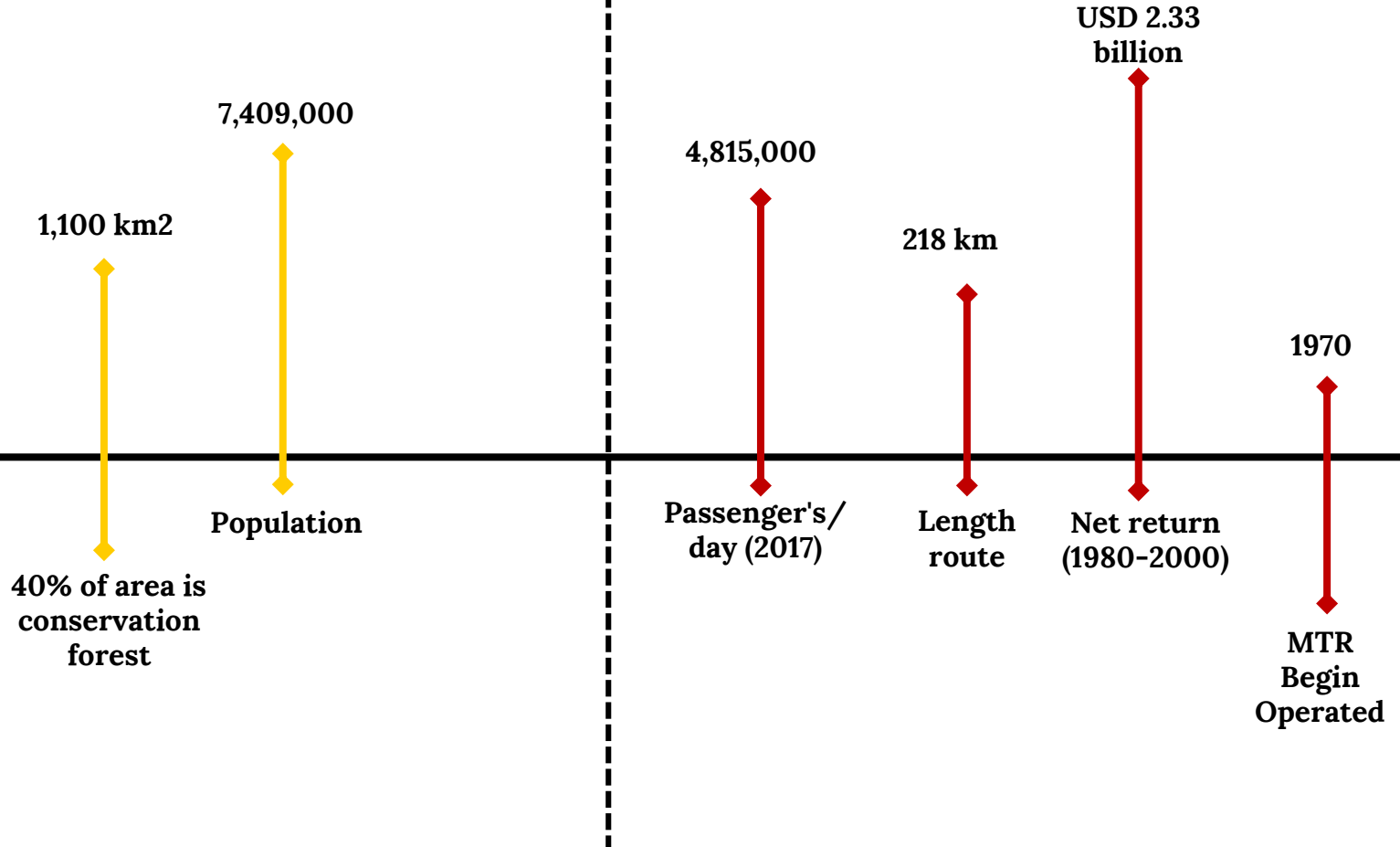


TOD Best Practices





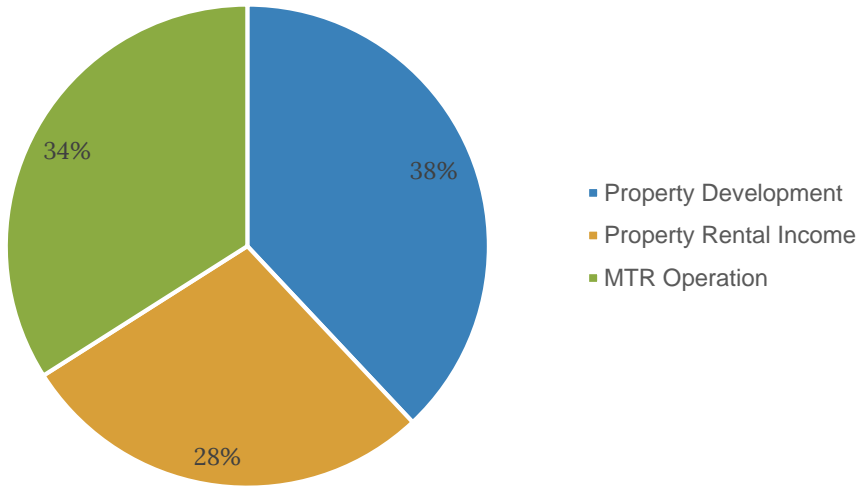
Hongkong TOD





Hongkong TOD

MTRC Net Profit 2000-2012



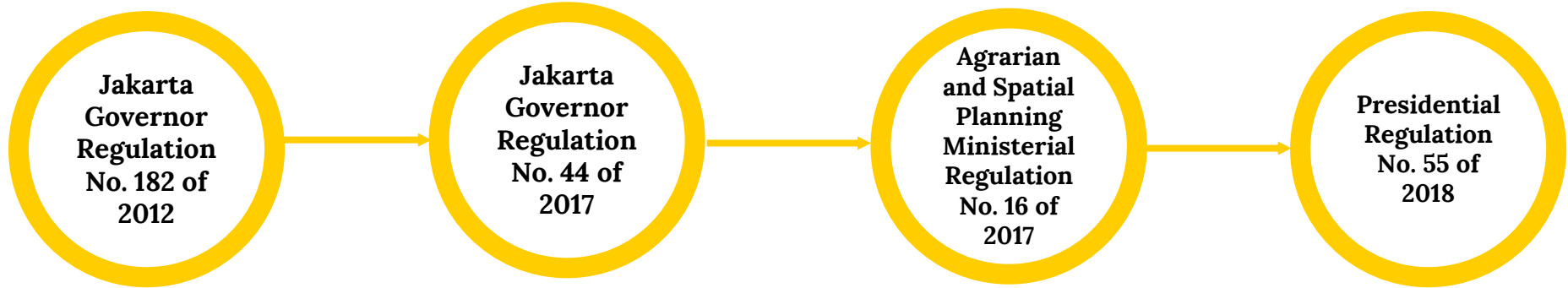
Source: Suzuki, H., Murakami, J., Hong, Y., & Tamayose, B. (2015)



Source: Study of the Integrated Rail-Property Development Model in Hong Kong (Tang, Chiang, Baldwin, & Yeung, 2004)



Greater Jakarta TOD – Regulation Hierarchy



- Urban design guidelines for TOD in Jakarta
- Integrating TOD and MRT Development

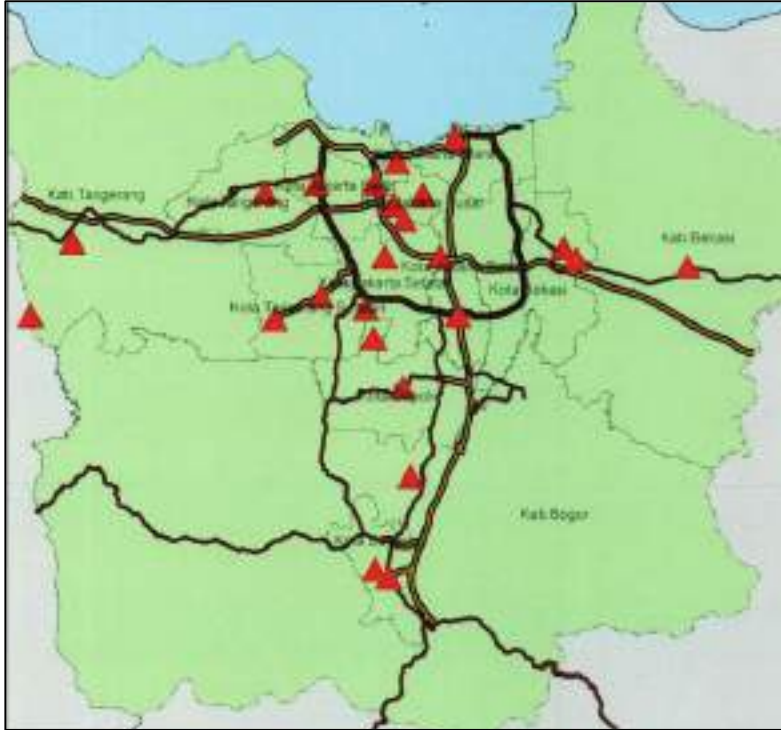
- Basic principles
- General & technical criteria
- Not regulate TOD outside Jakarta

- Basic principles
- Regulate TOD outside Jakarta (Greater Jakarta)
- Criteria for determining TOD location
- TOD formal institution

- Integrating transportation infrastructure (MRT,LRT,BRT)
- Final location for TOD development
- Determine TOD into three scales



Greater Jakarta TOD



Source: Presidential Regulation No. 55 of 2018

23 Regional TOD

Including Jakarta, Depok, Bekasi, Bogor, Tangerang, and South Tangerang

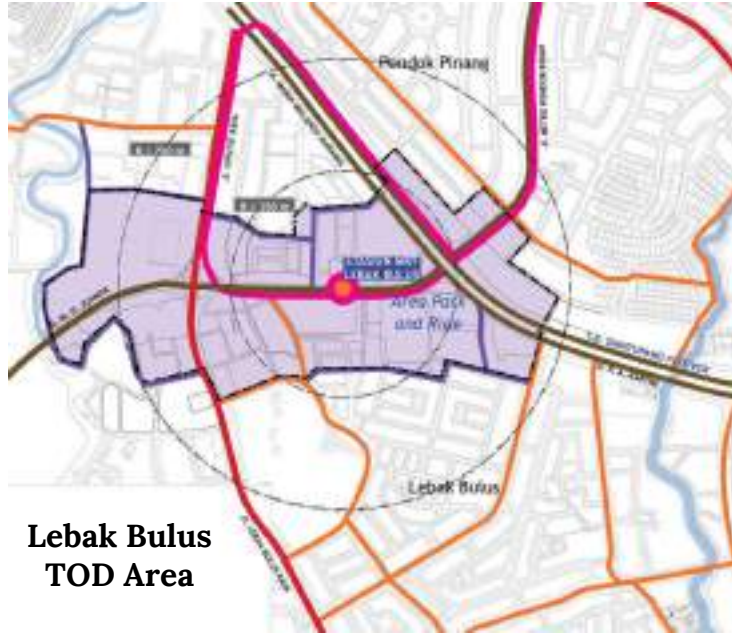
7 have been started construction

Including Tanjung Barat, Pondok Cina, Pasar Senen, Juanda, Tanah Abang, Bogor, and Lebak Bulus

Some are only ceremonies



Jakarta TOD Areas



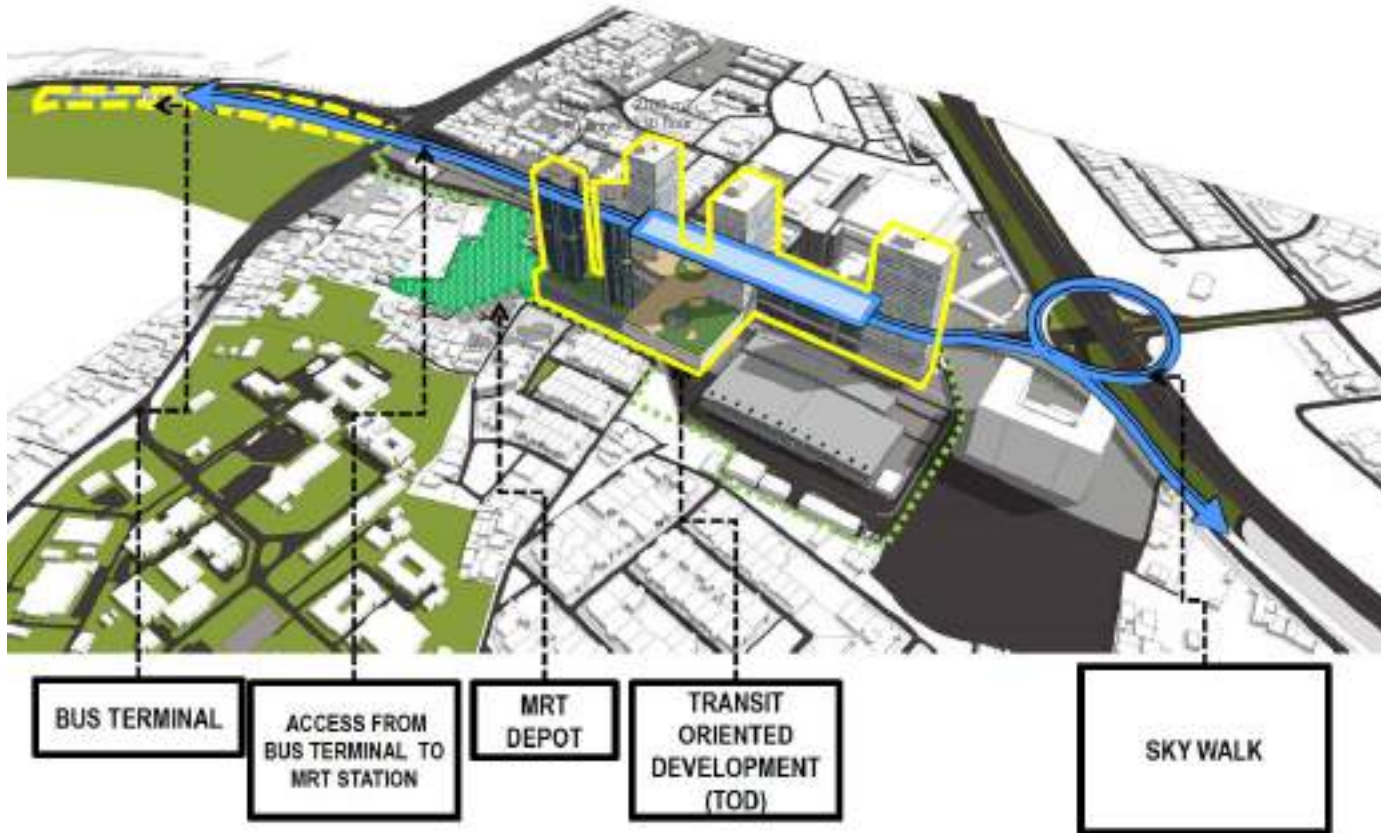
**Lebak Bulus
TOD Area**



**Istora, Senayan,
Bendungan Hilir
TOD Area**



Lebak Bulus TOD Planning







TOD Impact on Property Value

*Values are influenced by four
main factors, social, economic,
government policies and
environment*

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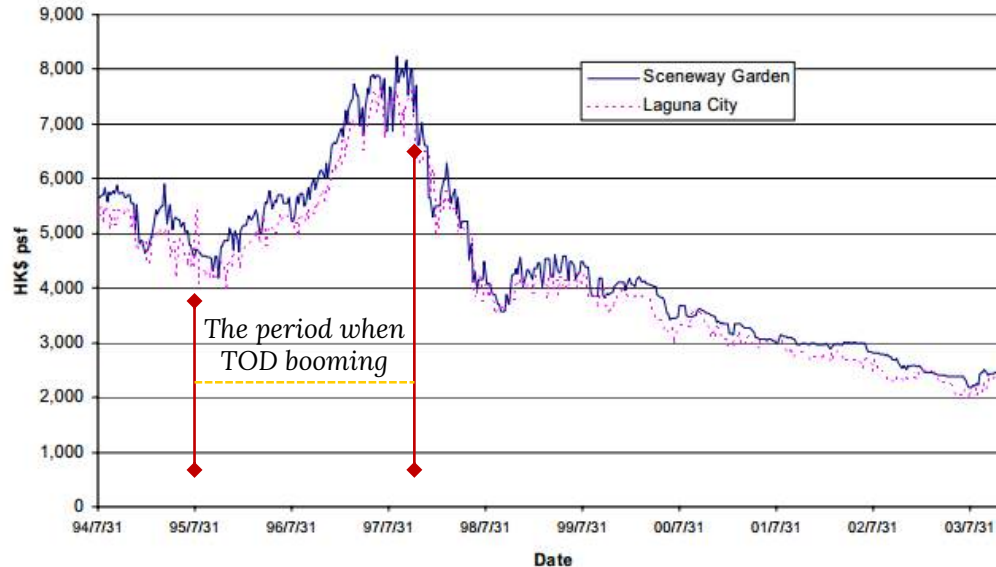


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TOD Impact on Property Value: Hong Kong

Hong Kong's Property Price Movement 1994 - 2003



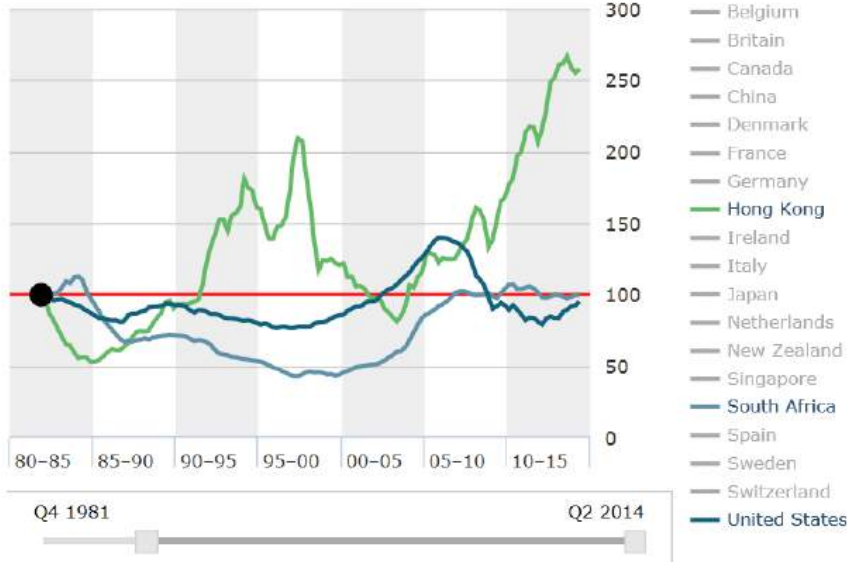
During 1995 - 1998 property price in Sceneway Garden & Laguna City rose by 46% from 4,200 HK\$ to 7,800 HK\$ (15% annually)



TOD Impact on Property Value: Hong Kong

Prices in Real Terms

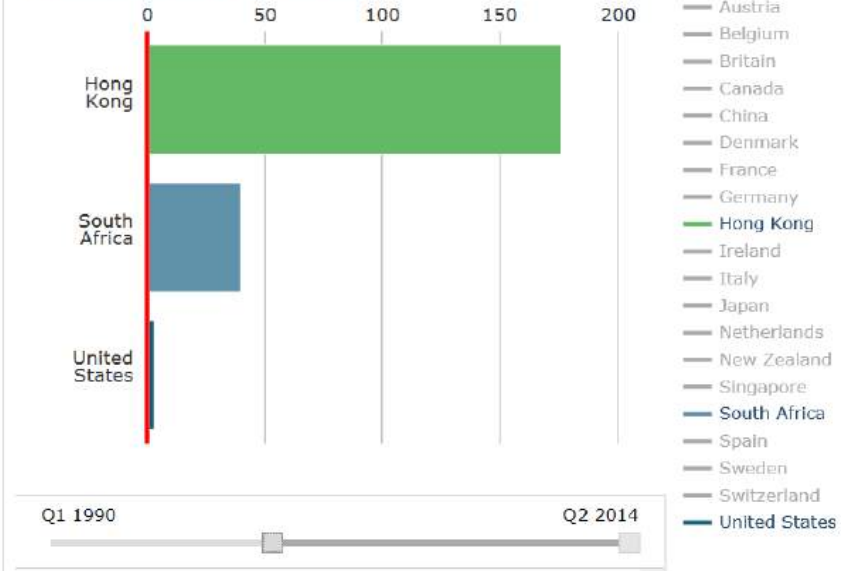
Q4 1981=100



Source: economist.com

Percentage Change

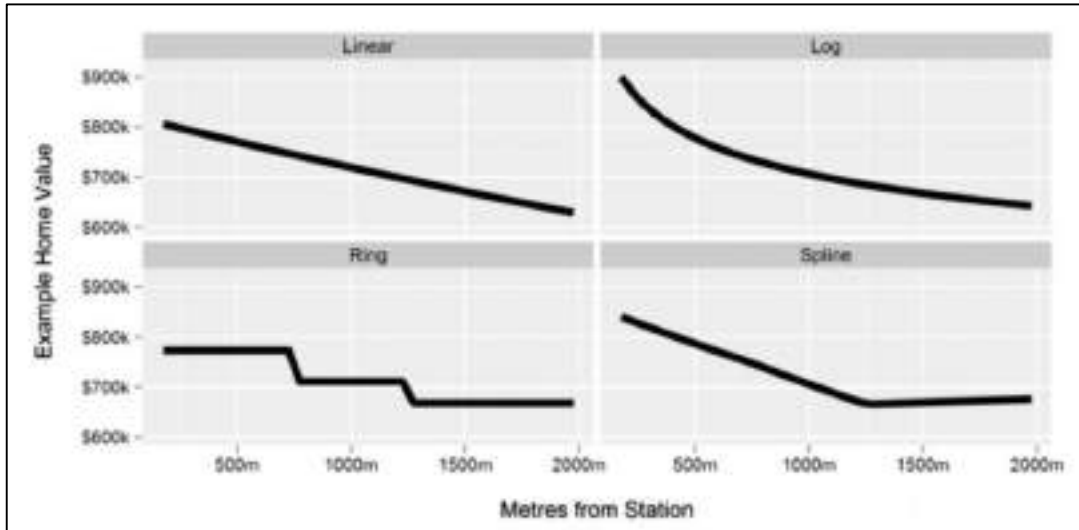
Q1 1990 to Q2 2014, in real terms





TOD Impact on Property Value: Melbourne

By using **hedonic pricing analysis** method, Sim, Krause & Geidemen (2015) analyzed the effect of distance on residential property price around TOD Hill Box, Melbourne.



Source: Eileen Sim, Andy Krause & Kimberly Winson-Geideman (2015)

Linear Model

Decreasing price of 13.8% for each increase of 1 from the station.

Log Model

Decreasing price of 13.9% for doubling the distance from the station.

Ring Model

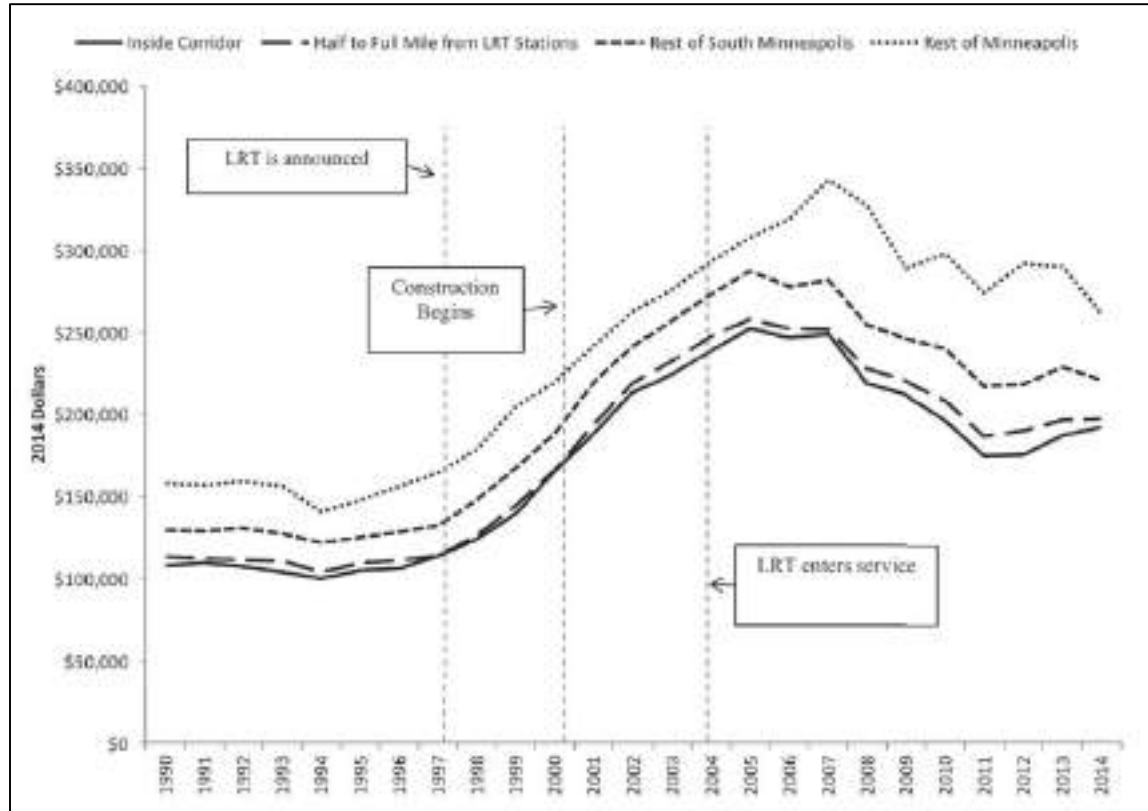
Homes located in the second ring (750-1250 m) are worth approximately 8.0% less than those in the nearest ring (0-750m). Homes in the third ring (1250 m and more) are worth 13.7% less than those in ring 1.

Spline Model

Price decrease similar to ring model, but for the distance greater than 1,500 m the price decline stops to occur.



TOD Impact on Property Value: Minneapolis



Source: Pilgram & West (2018)

Before LRT

Houses price tend to stagnant, even decline from 1990 -1997

Announcement Period

Rose from US\$160,000 (1997) to US\$ 225,000 (2000) → 40,63%

Construction Period

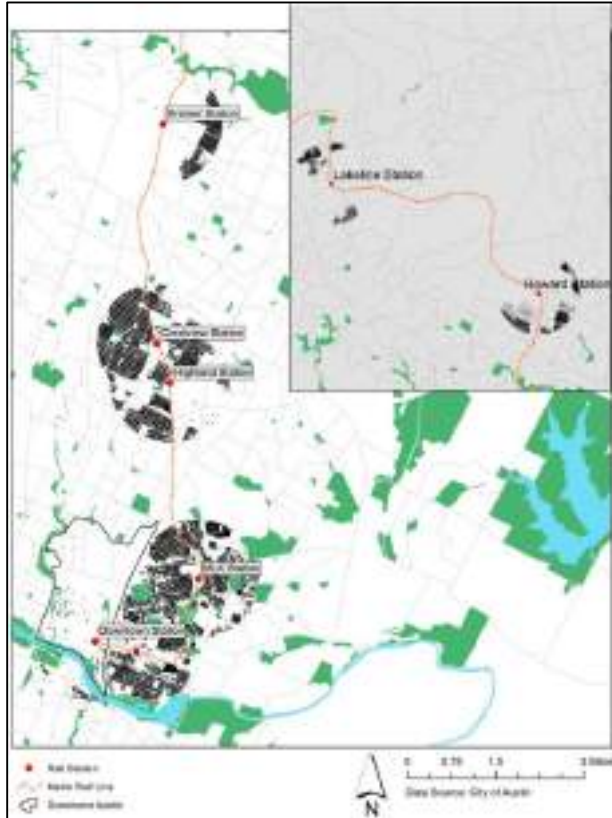
Rose from US\$ 225,000 (2000) to US\$ 280,000 (2004) → 24,44%

Service Period

Rose from US\$ 280,000 (2004) to US \$ 340,000 (2007) → 21,43%



TOD Impact on Property Value: Austin



Source: Yu, Zhang, & Pang (2017)

Samples

15,926 residential houses

Result

Land prices increase as properties closer to commuter rail stations every 1,000 ft.

Additional land price ranging from US\$ 0.12 to US\$ 0.6 per square feet

“Increasing ***mixed-use development*** around station area will be ***translated into increasing land prices*** and therefore in a long run will facilitate economic growth“



Conclusion



TOD Benefits

Travel time & travel cost saving, reduce dependencies on private vehicle

Reduce traffic congestion, significantly

Road safety benefits

Reduce traffic accident

Concentrate land development and urban activities around the stations

Reduce urban sprawl potential

Better housing supply & options

Reduce housing backlog

Positive property values

Triggering property market into new stage

Financial gains to government

Increasing property rates & taxes

Positive economic growth and employment opportunities

The emergence of new business center around station

Environment health benefits

Reduction roadside pollution, decrease government medical expenditure & productivity gains (healthier workforce)



Challenges

Different one and other

Integrated urban renewal

Land consolidating

Collecting idle land

Decide best scenario

Gov-SOE Partnership/JV/PPP

Value anticipation

How to interpret property value in TOD area



Thanks!

Any **questions** ?

You can find me at

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