SUM BIO '19
SUSTAINABLE URBAN MOBILITY CONGRESS

# Urban Planning for Sustainable Mobility: Cities for People & Places

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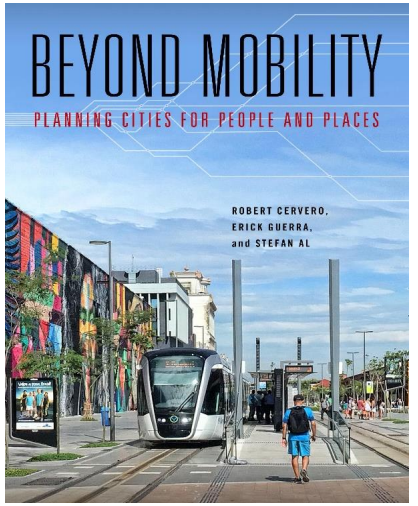
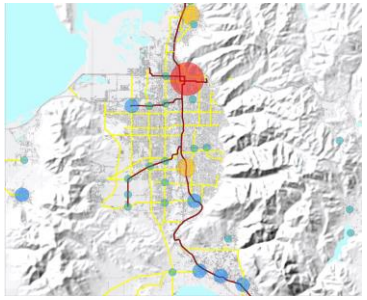
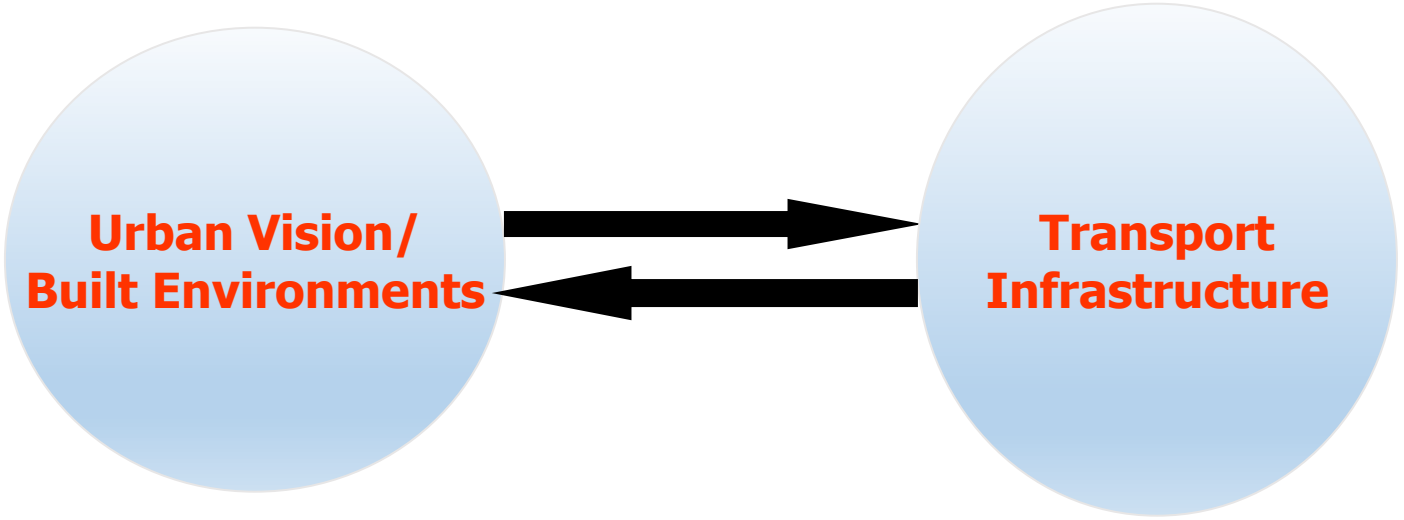
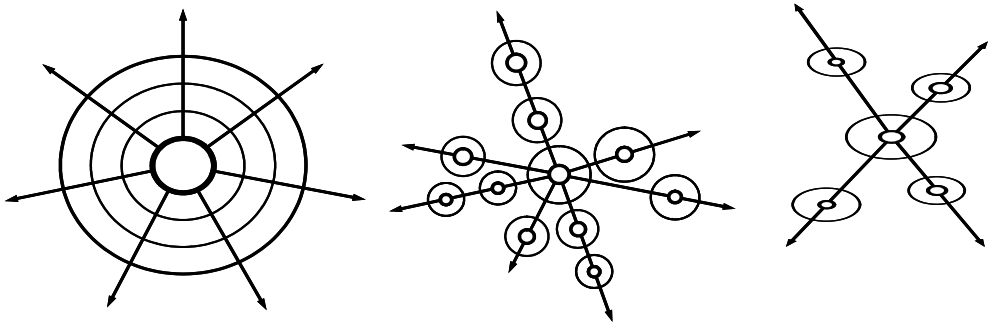
June 20, 2019



# Urban Visions Driving Transport Investments



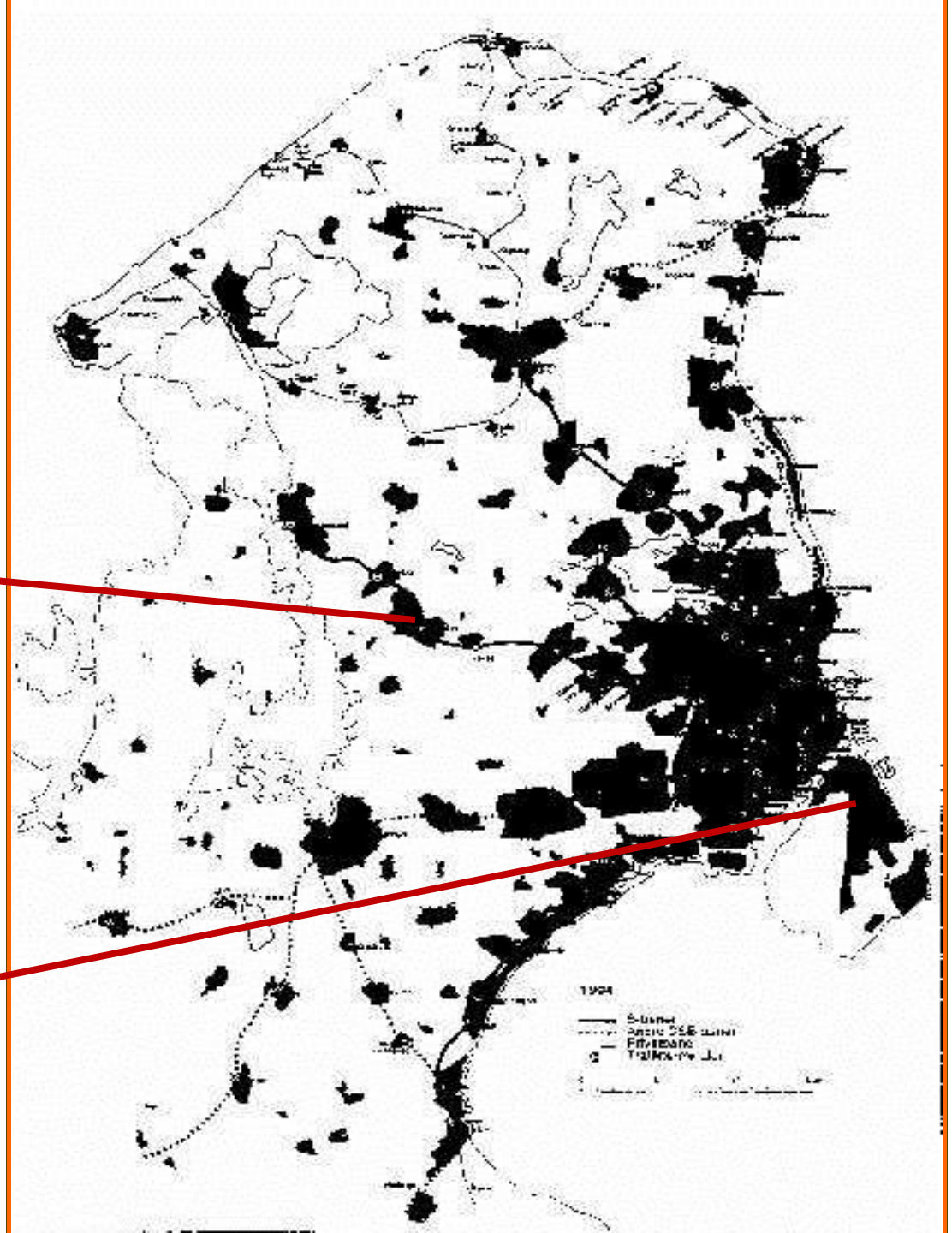


# Urban Visions shaping Transport Programs

## COPENHAGEN's FINGER PLAN





# Sustainability at the Micro-Scale

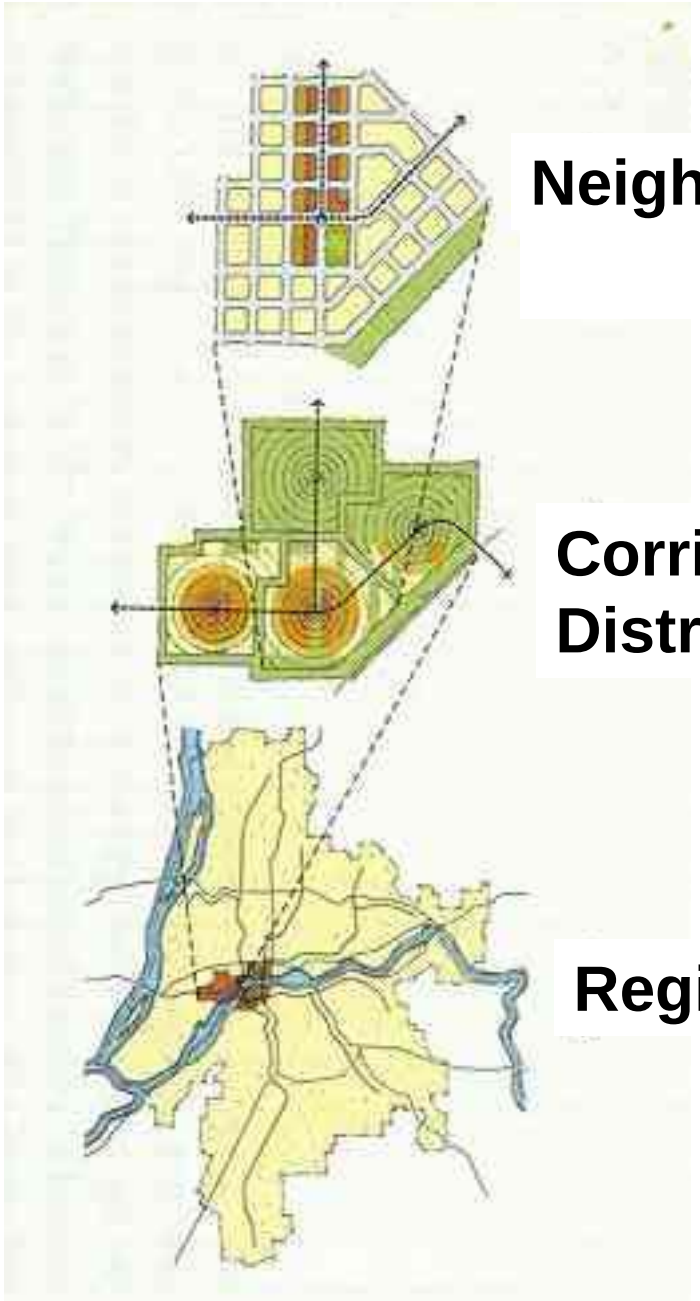
## Bike Infrastructure






**Reclaiming the City**
**&**
**Restoration of the Public Realm**

# Sustainable Mobility & Urbanism at Multiple Scales

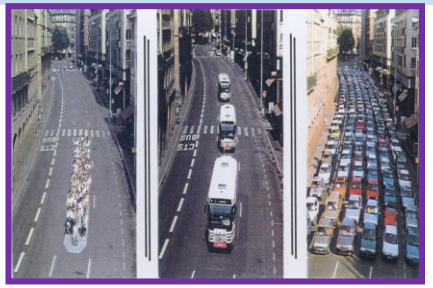


Neighborhood

Corridor/
District

Region

## 1. TOD (Transit Oriented Development)

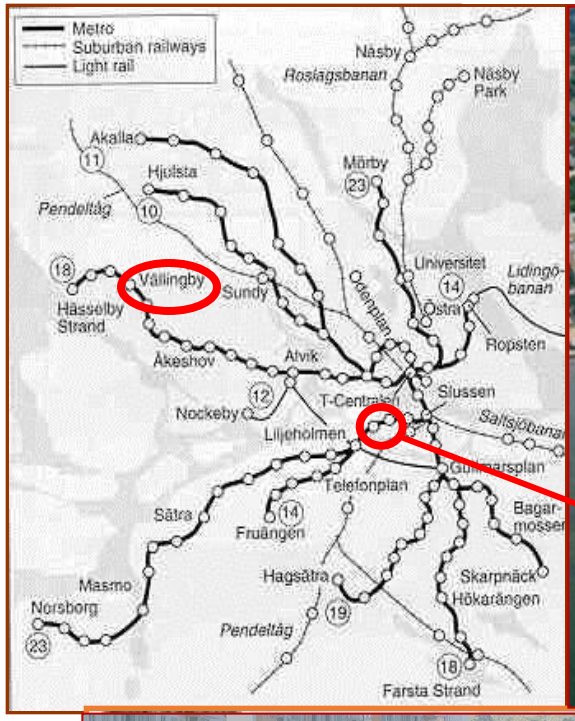


## 2. Road Contractions


## 3. Jobs-Housing Balance


# 1. *Transit Oriented Development (TOD)*

## *TOD on a Brown Field: Hammarby Sjöstad*








# Green TOD

## A Marriage of TOD & Green Urbanism

| TOD<br>*Mobile Sources* | Green Urbanism<br>*Stationary Sources* |
|---|---|
| • **Transit Design**<br>High-quality transit (trunk & distribution)<br>Station as hub<br>• **Non-motorized access** (bikepaths, ped-ways)<br>• **Bikesharing/Carsharing**<br>• **Minimal Parking** (reduced land consumption, building massing & impervious surfaces)<br>•**Compact, Mixed Uses**<br><br>**Reduced VKT** (40%-50%) | • **Energy self-sufficient** (renewably powered – solar, wind turbines)<br>• **Zero-waste** (recycle; re-use; methane digesters; rainwater collection for irrigation & gray-water use)<br>• **Community gardens** (compost, canopies)<br>• **Buildings**: Green Roofs, Orientation (optimal temperatures), Materials (recycled; low impact)<br>**Reduced $CO_2$ per Dwelling** (22%-32%) |

Overall Carbon Reduction/Energy Savings: 25% to 33% of conventional development



**TOD as Adaptive Re-Use**

# Santa Clara County: Light Rail Surrounded by Boxes & Pavement to Mixed-Use Centers


- ***Infill*** of former IBM Campus near 3 rail stops
- '***Right-size***' Tech campus – two 4-story towers replace boxes: "our employees do not want to be in a business park".
- ***Live-Work-Shop-Play***: 2 commercial centers; 3000+ homes
- ***Reduced Parking***: 35% below code
- ***Rewards***: 25% reduction in Traffic Impact Fees

**Mobility Benefits: Ridership Bonus** (4-5 times higher usage by residents); ***Trip internalization*** (3-4 times higher in midday by office workers)

# 2. *Road Contractions* … Right-Sizing Automobility

## Seoul: Cheong Gye Cheon Freeway to Greenway

June 2003
Before Restoration

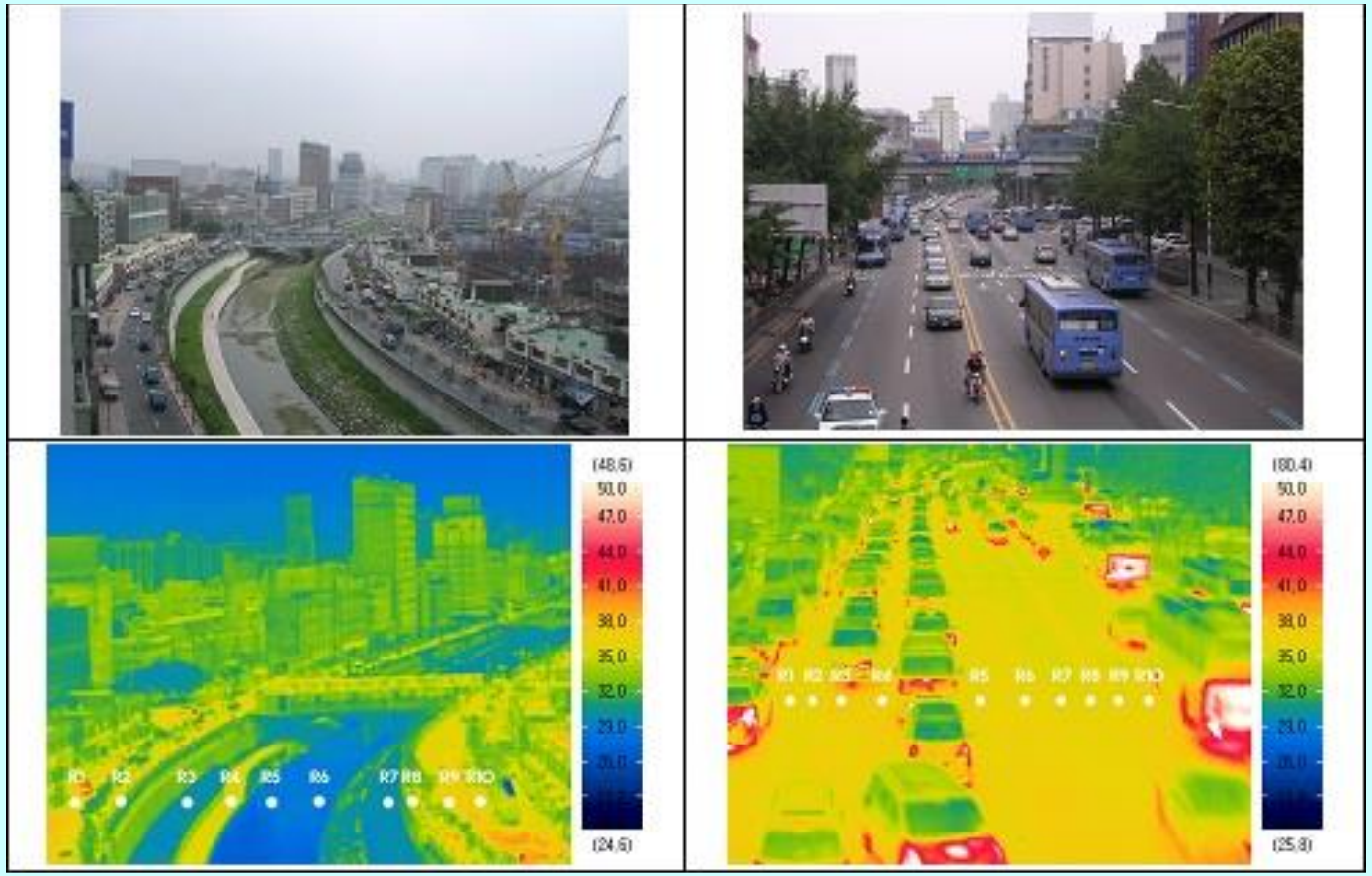
June 2004
Under Restoration

September 2005
After Restoration

# Night View Cheong Gye Cheon

# Greening of Central Seoul

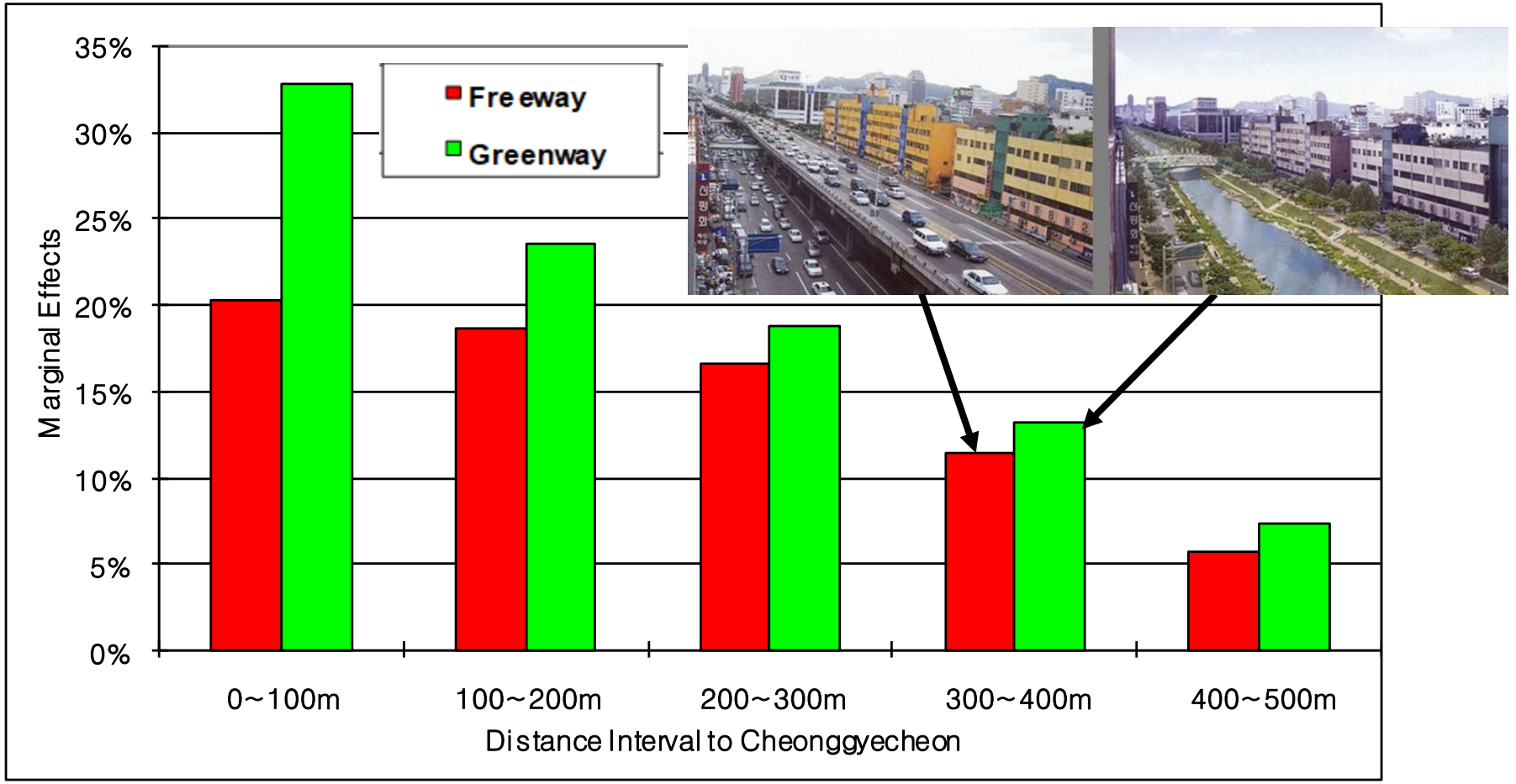
## Thermal Intensity in CBD




**Average Lowering of Temperature of 2%~5%**

# The Place-Making Premium

## Marginal Effects** of Freeway vs Greenway on *Commercial Land Price*

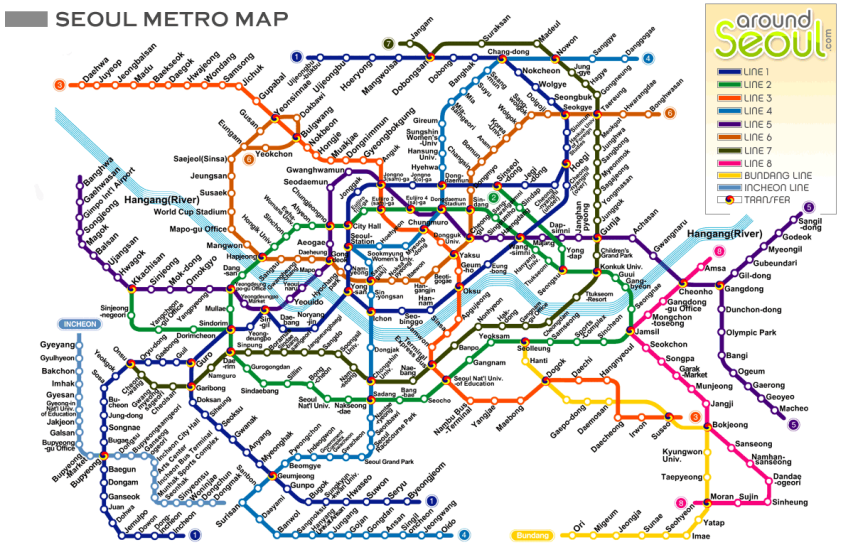



** Effects relative to otherwise comparable site > 500m

# *Parallel Policy*

# Transit Expansion

## Metro & BRT absorbed traffic displaced by Road Capacity Losses





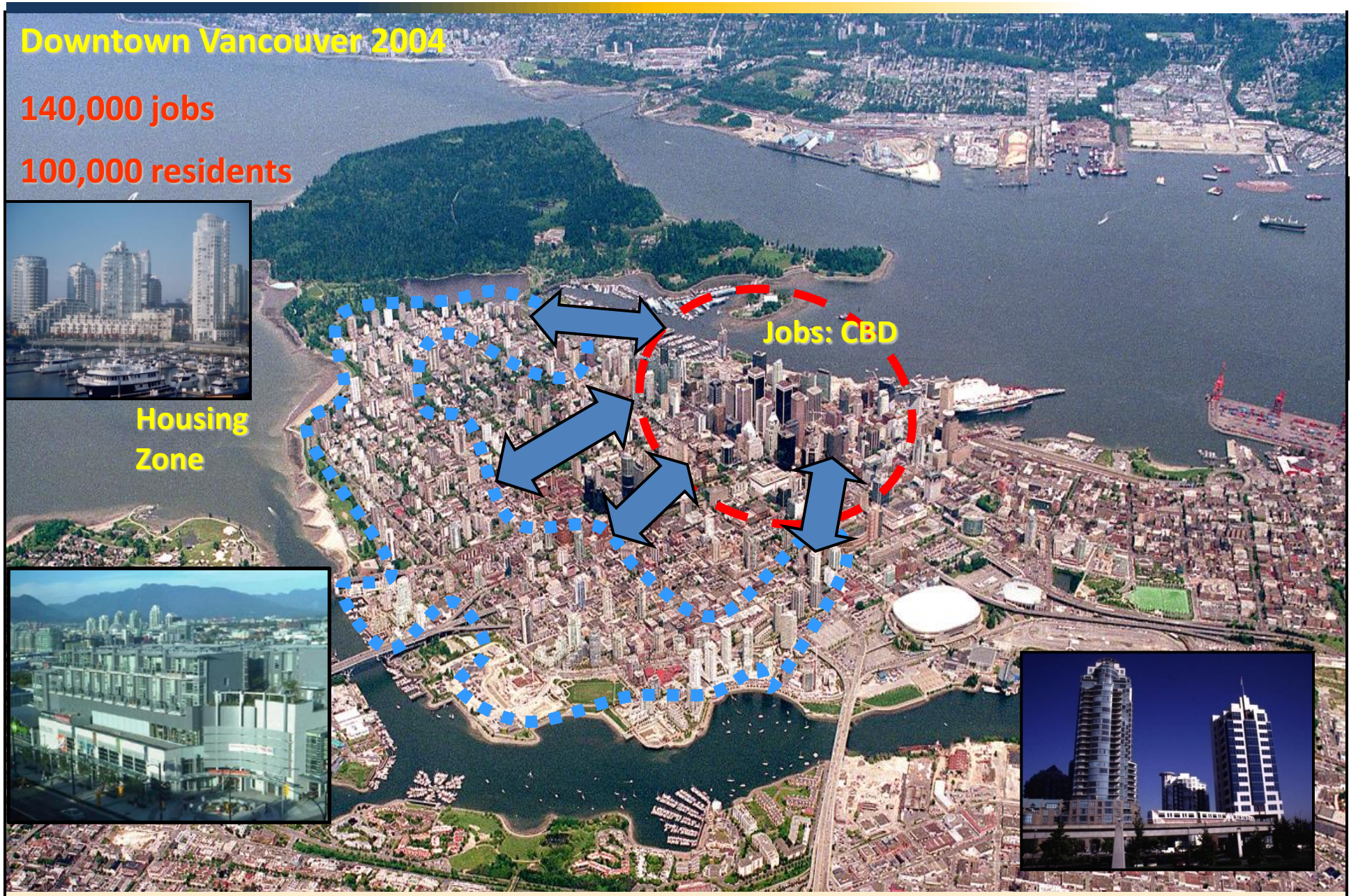
# Embracing & Celebrating Elevated Structures

## Seoullo



2015-2017: Office Vacancy rate of abutting buildings fell from 17% to 9% while in surrounding CDB it rose

## 3. *Balanced Regional Growth: Jobs-Housing Balance*




**VKT/capita of Core Residents ~ 40% regional average**

# Road Pricing critically important to Balanced Regional Growth

## Smarter Pricing

## ERP 2.0

**From Cordon Pricing/Gantries**

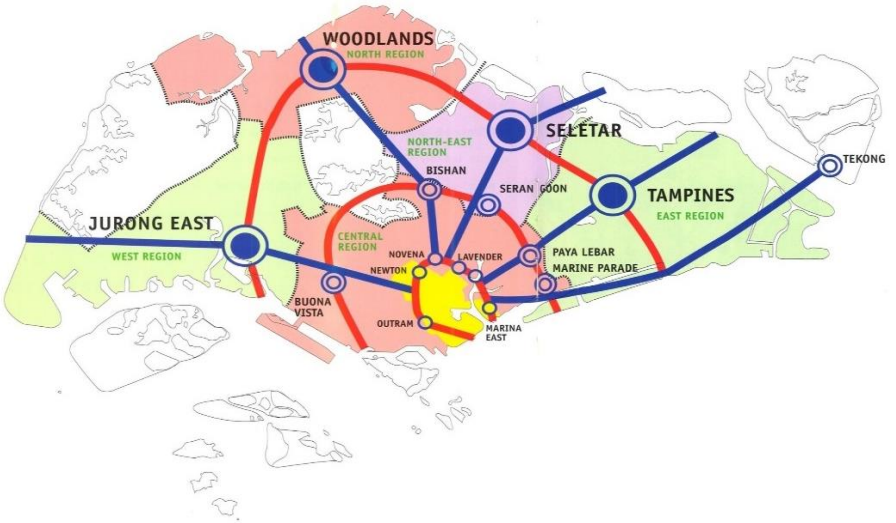
**… to Dynamic, Distance-based Pricing**


## *Singapore:* Electronic Road Pricing (ERP)

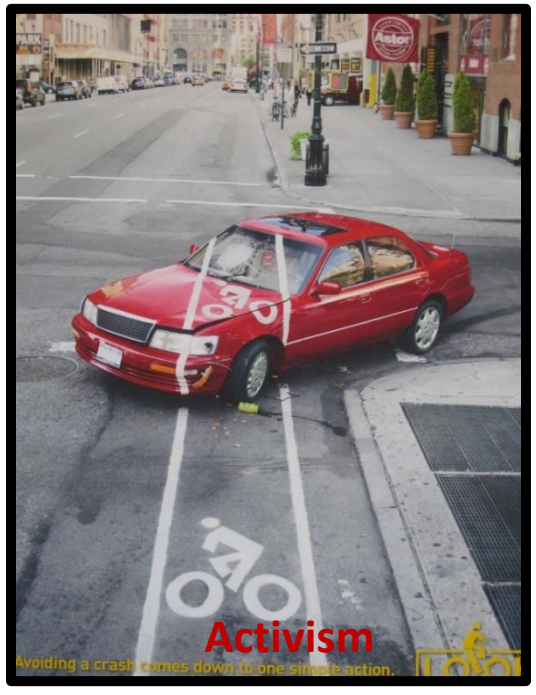
Land Transport Authority
We Keep Your World Moving

**Next generation ERP: Global Navigation Satellite System (GNSS)**

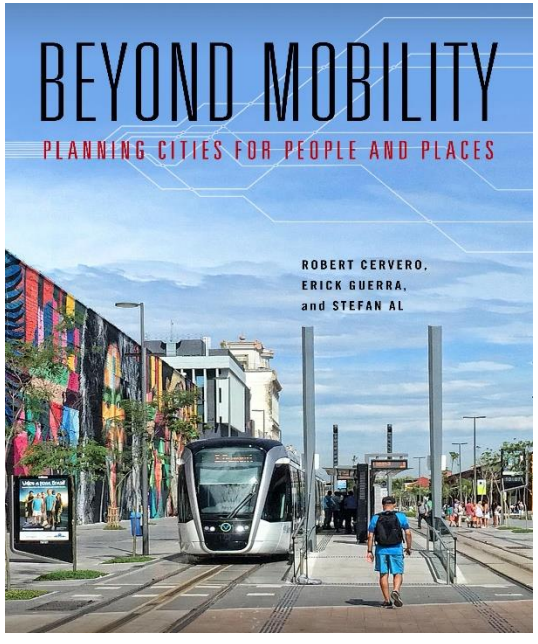
Fairer -- *based on the actual length of congested roads used by motorists.*



# *Urban Recalibration, Activism, Leadership*





# 7 S's of Sustainable Urban Futures

## *Moving Towards Cities for People & Places*

***Cities that promote:***

**S**hort Distance Travel

**S**low Modes

**S**afe

**S**ustainable, Green Propulsion

**S**hared

**S**mart

**S**ocially Inclusive