



The Future is in Our Hands!

Implementing Transport Policies and Programmes toward Realizing "Bali Vision Three Zeros - Zero Congestion, Zero Pollution, and Zero Accidents towards Next Generation Transport Systems in Asia"

Todd Litman

Victoria Transport Policy Institute

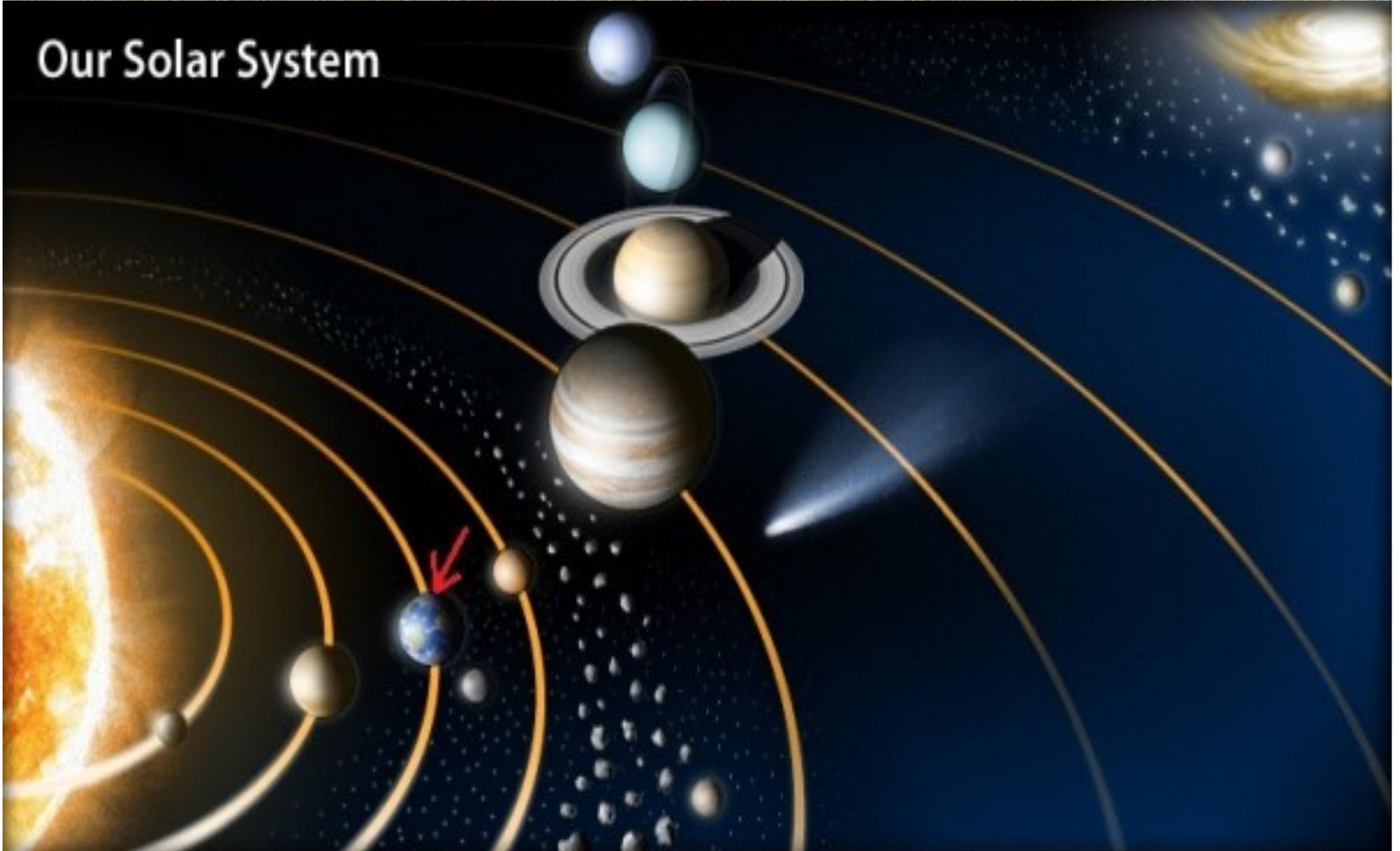
Eighth Regional Environmentally Sustainable Transport (EST) Forum In Asia

Colombo, Sri Lanka

19 November 2014

You Are Here

Our Solar System



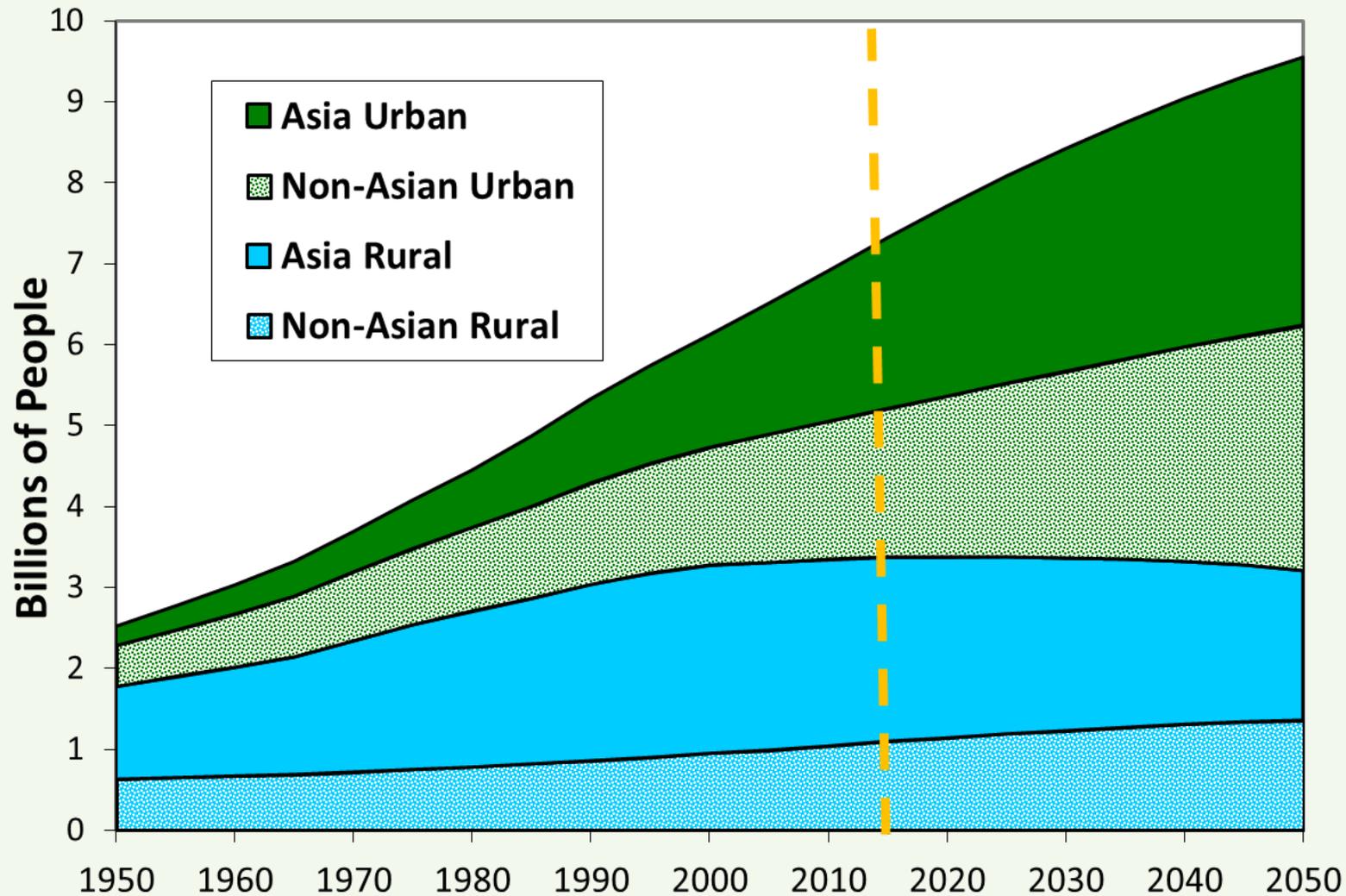
Our Home



A good planet is
difficult to find.

Let's take good
care of the one
we have!

Asia Is Growing and Urbanizing



The world is experiencing rapid urbanization, particularly in Asia.

(UN 2014)

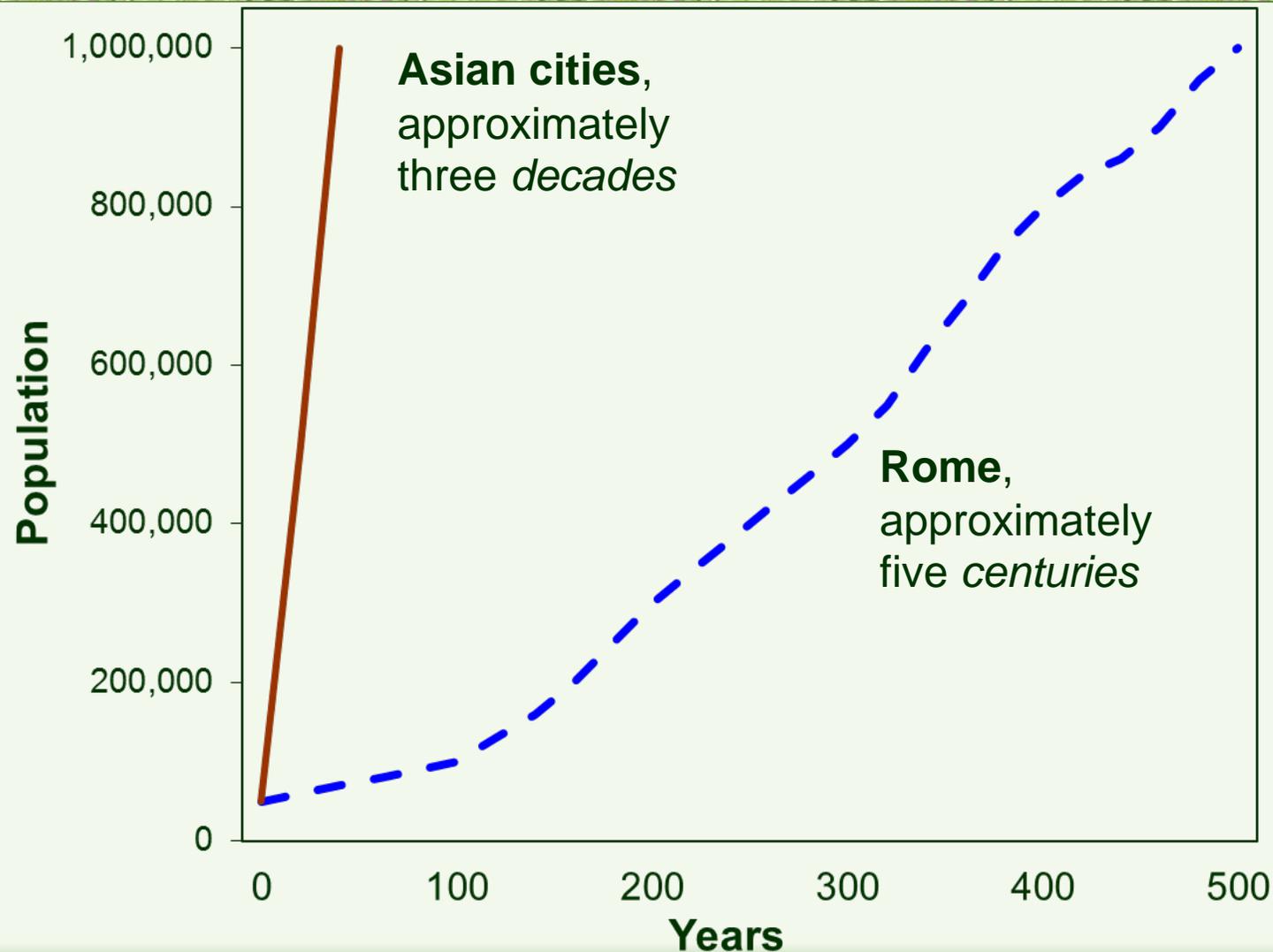
Asia Is Urbanizing



Megacities
seen from
space.

NASA

Rome Versus Asian Cities

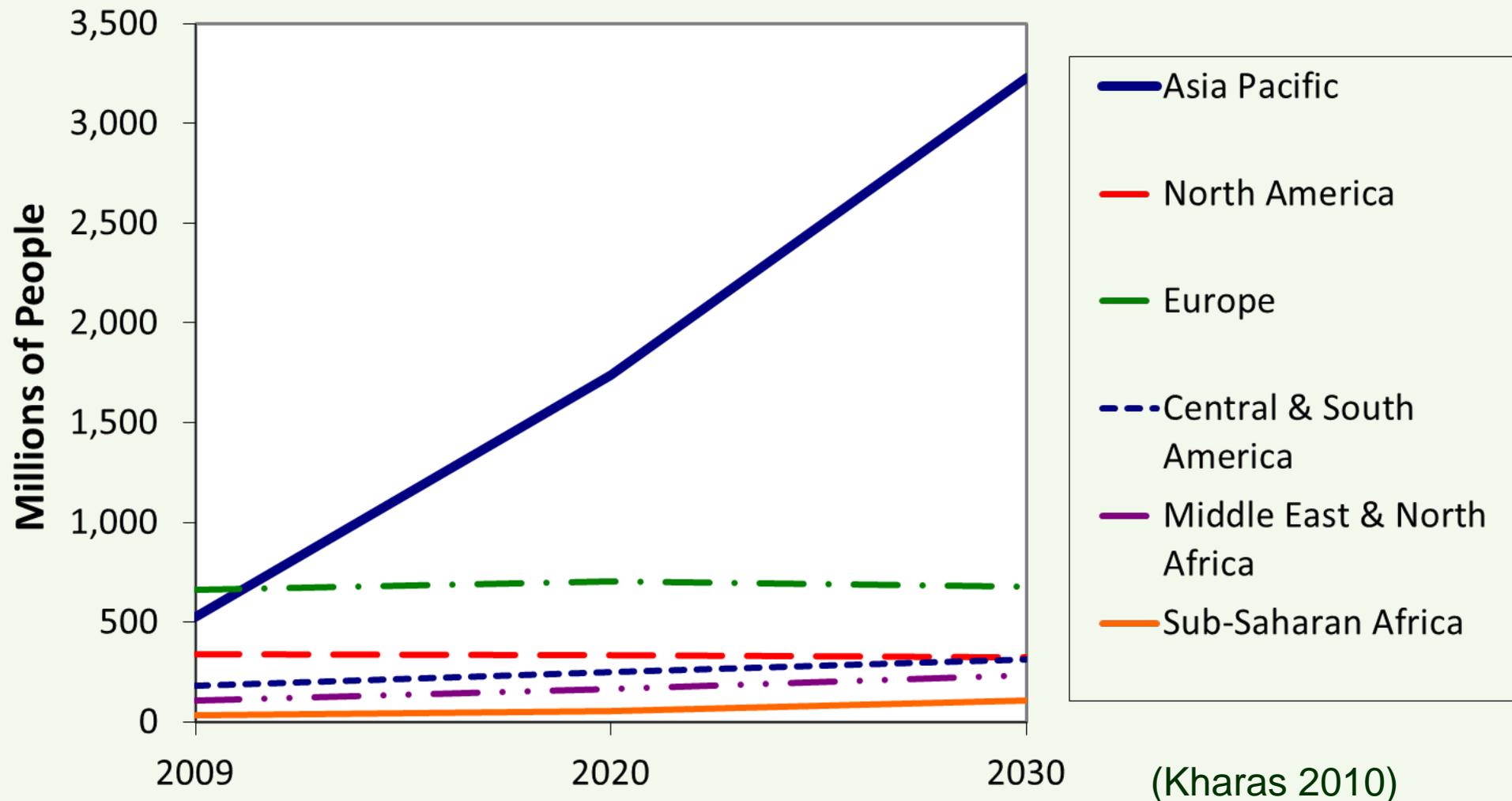


Ancient Rome wasn't built in a day – it took about five centuries to grow from 50,000 to one million residents.

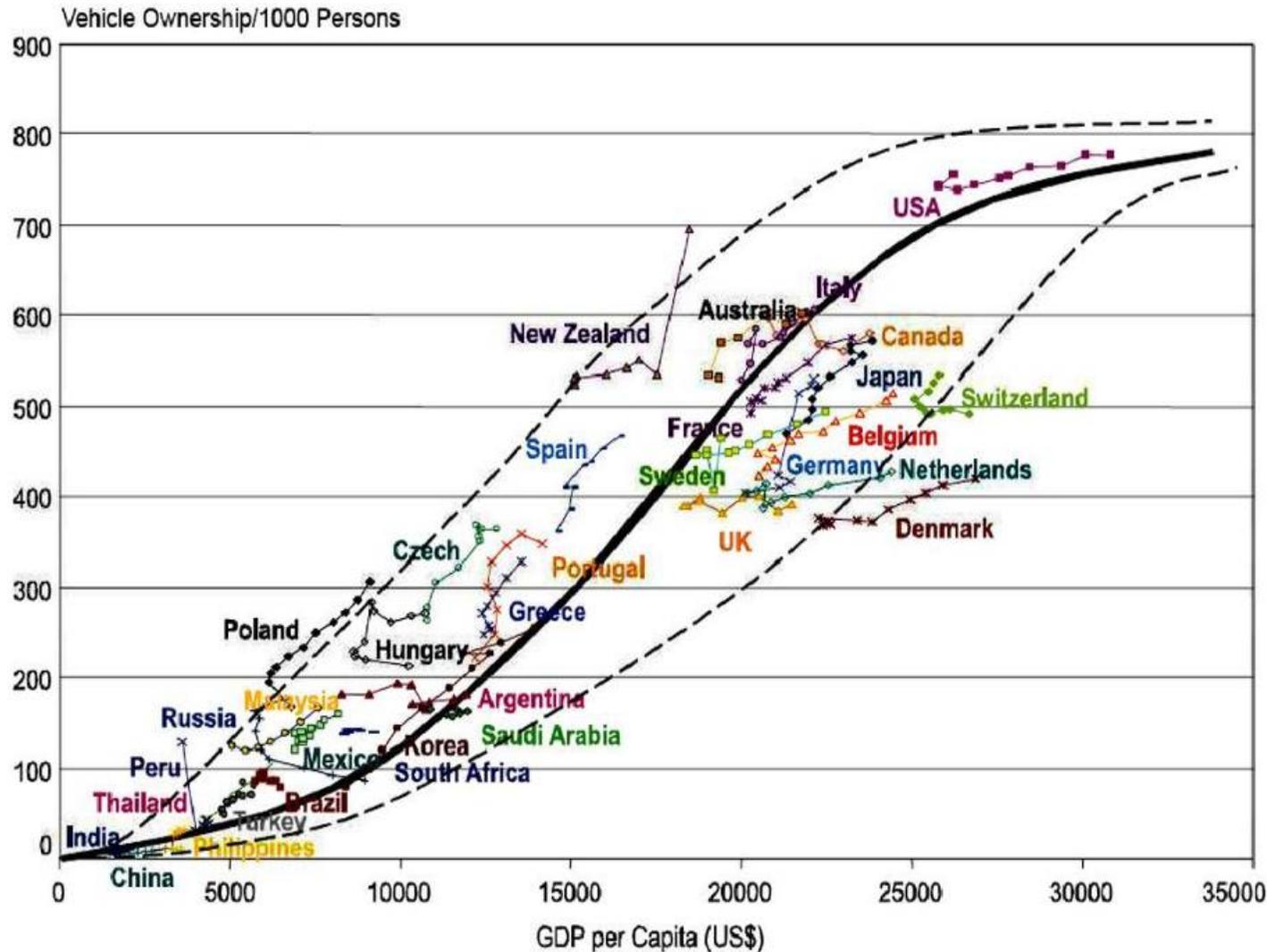
Many Asian cities grow that much in three decades.

That leaves less leeway for mistakes.

Growing Middle Class in Asia



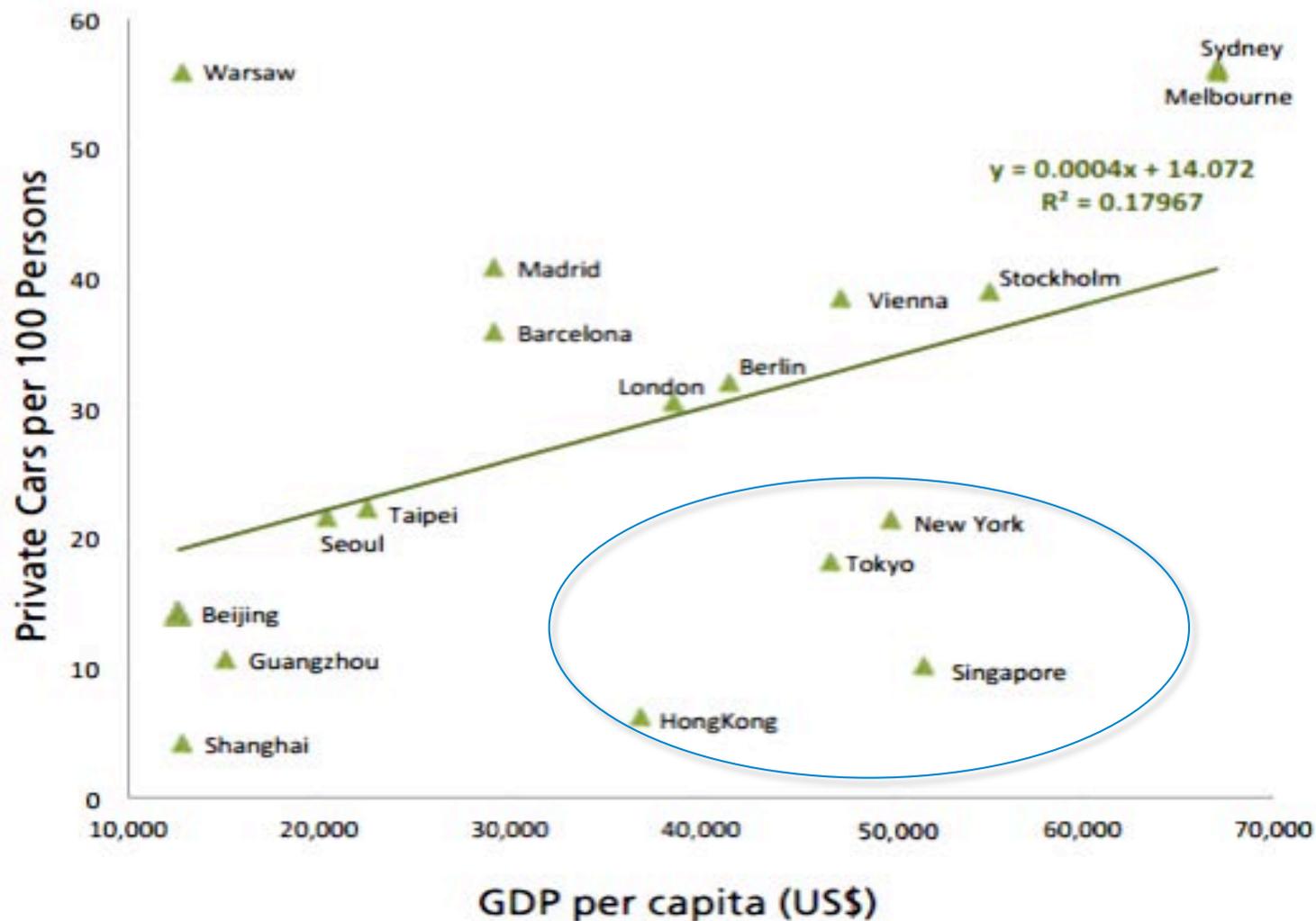
Vehicle Ownership Growth



Vehicle ownership rates eventually saturate. Where this occurs depends on transport and land use policies.

Goldemberg 2011

Car Ownership Versus GDP

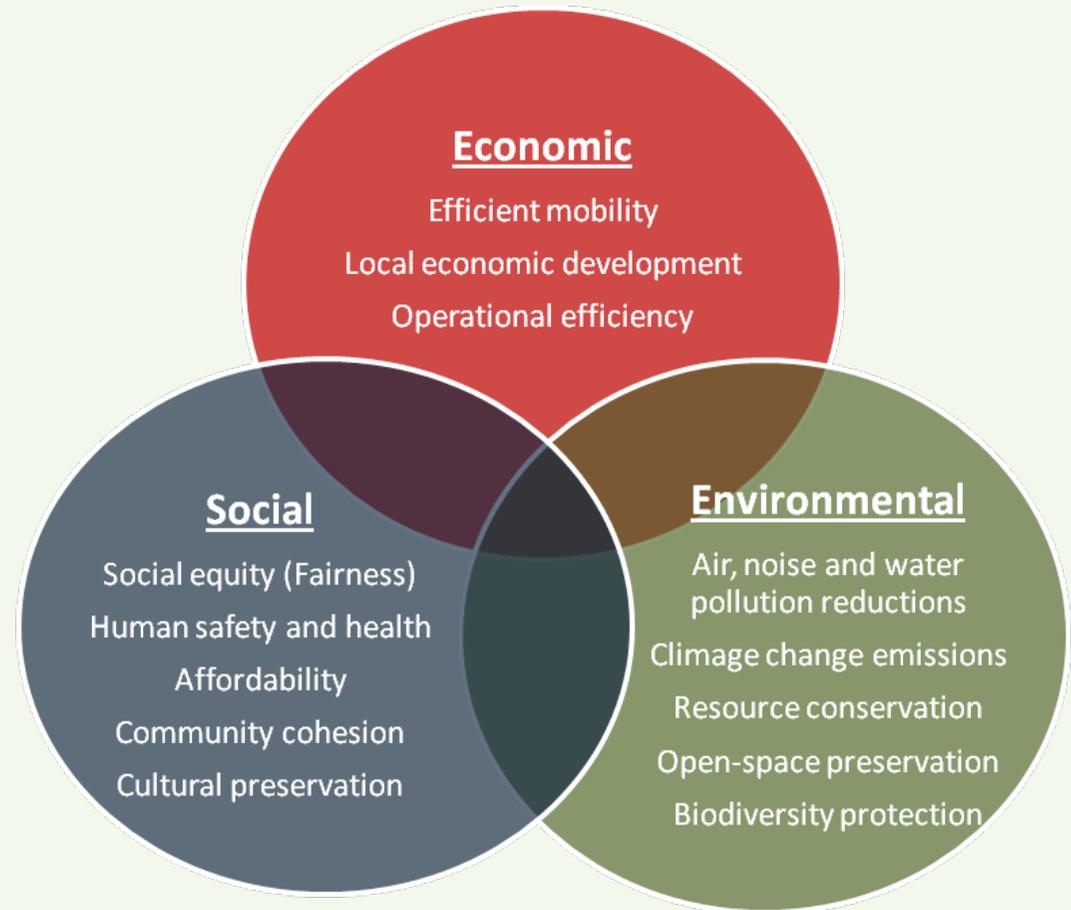


Some affluent cities have low vehicle ownership rates. These can be models for efficient new cities.

(Di 2013)

Sustainable Planning

Sustainability emphasizes the integrated nature of human activities and therefore the need to coordinate planning among different sectors, jurisdictions and groups.



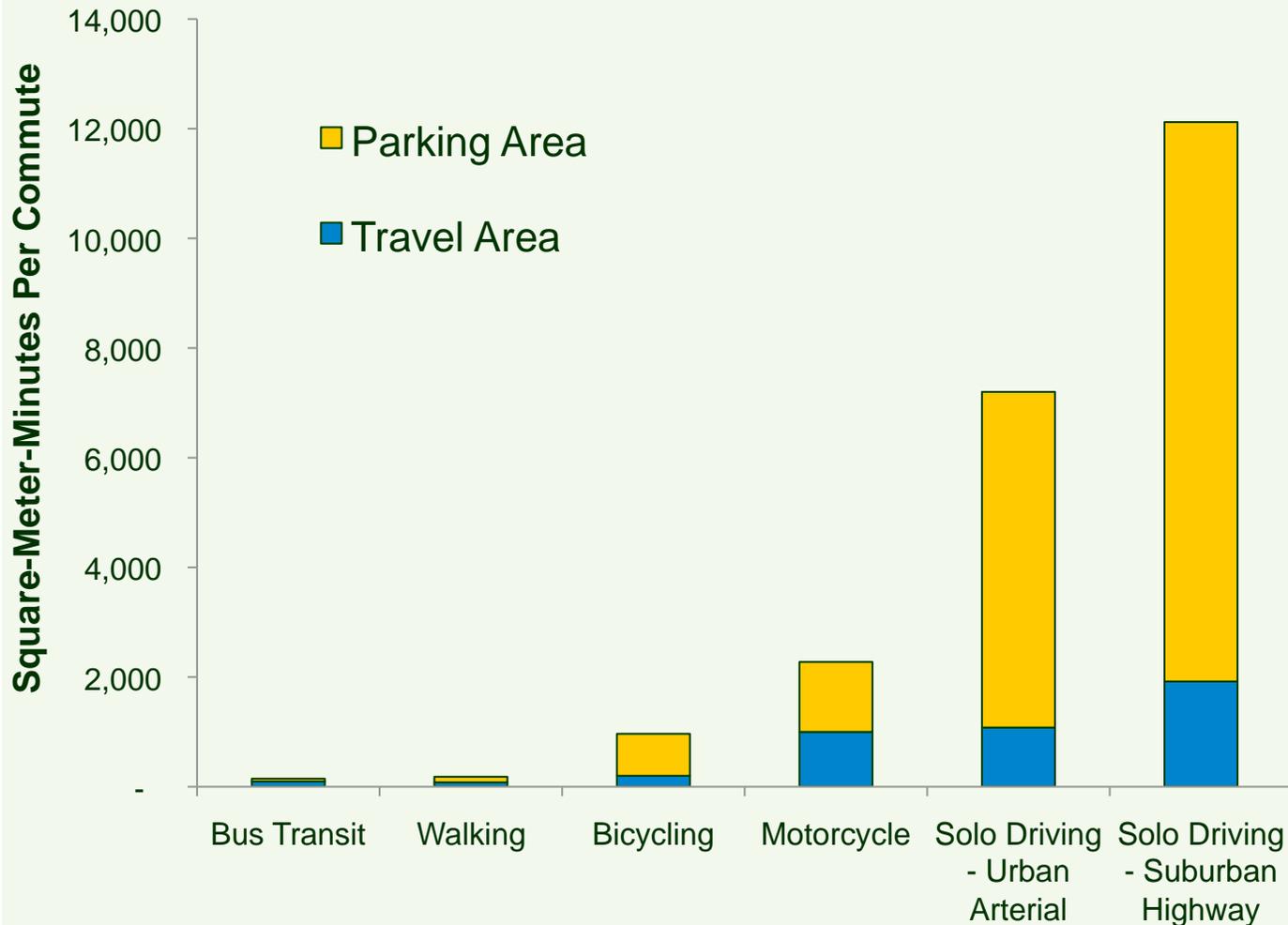
Solution: Move People Efficiently



An efficient urban transport system encourages people to use the most efficient mode for each trip:

- Walking and cycling for local travel.
- Public transit for travel on busy corridors.
- Driving only when necessary.

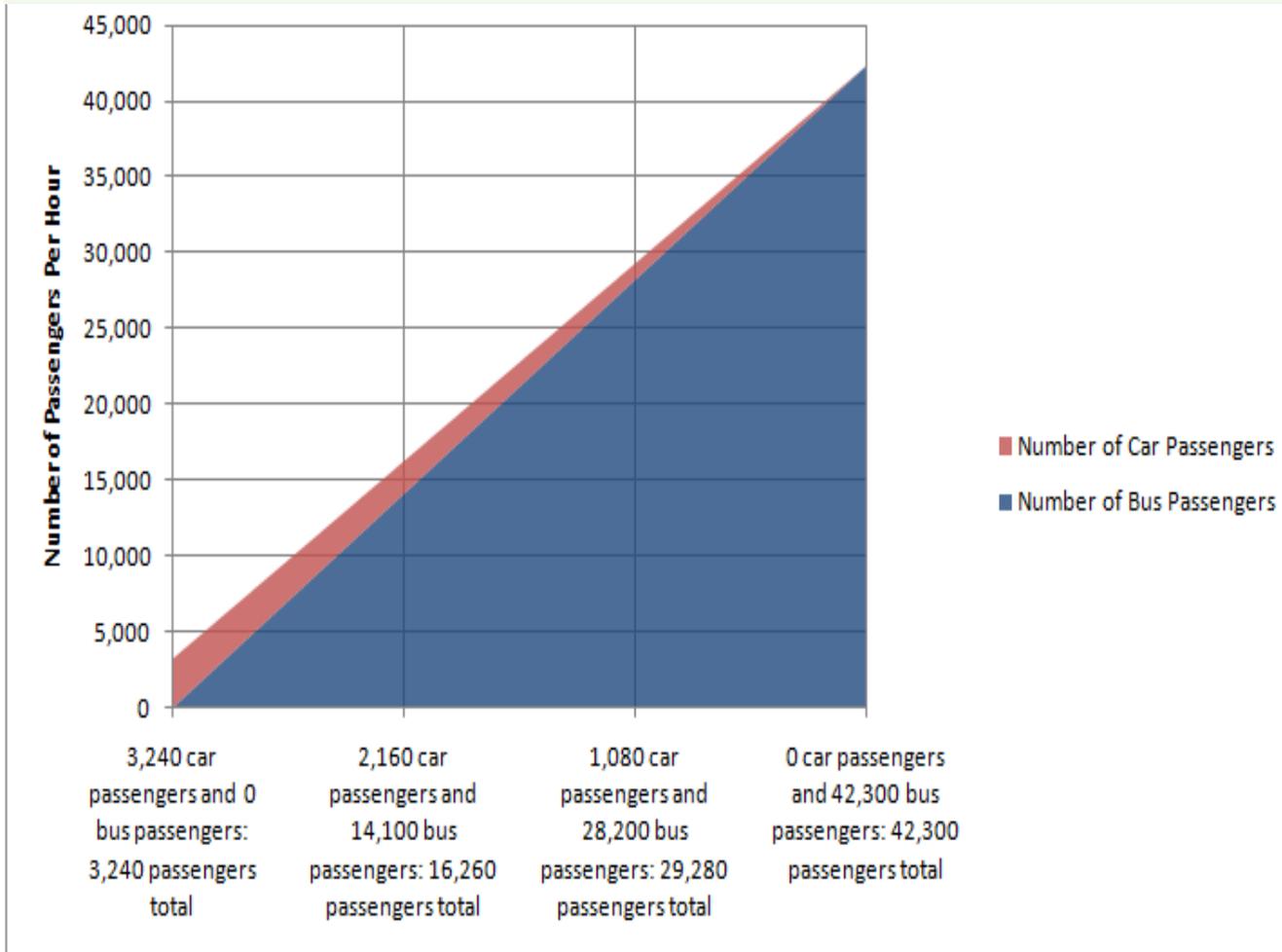
Space Requirements



Since each car requires road space plus two to four parking spaces (at home, work and other destinations), a car uses more land than most urban residents' homes.

Walking, cycling and public transit require far less space.

Passenger Capacity



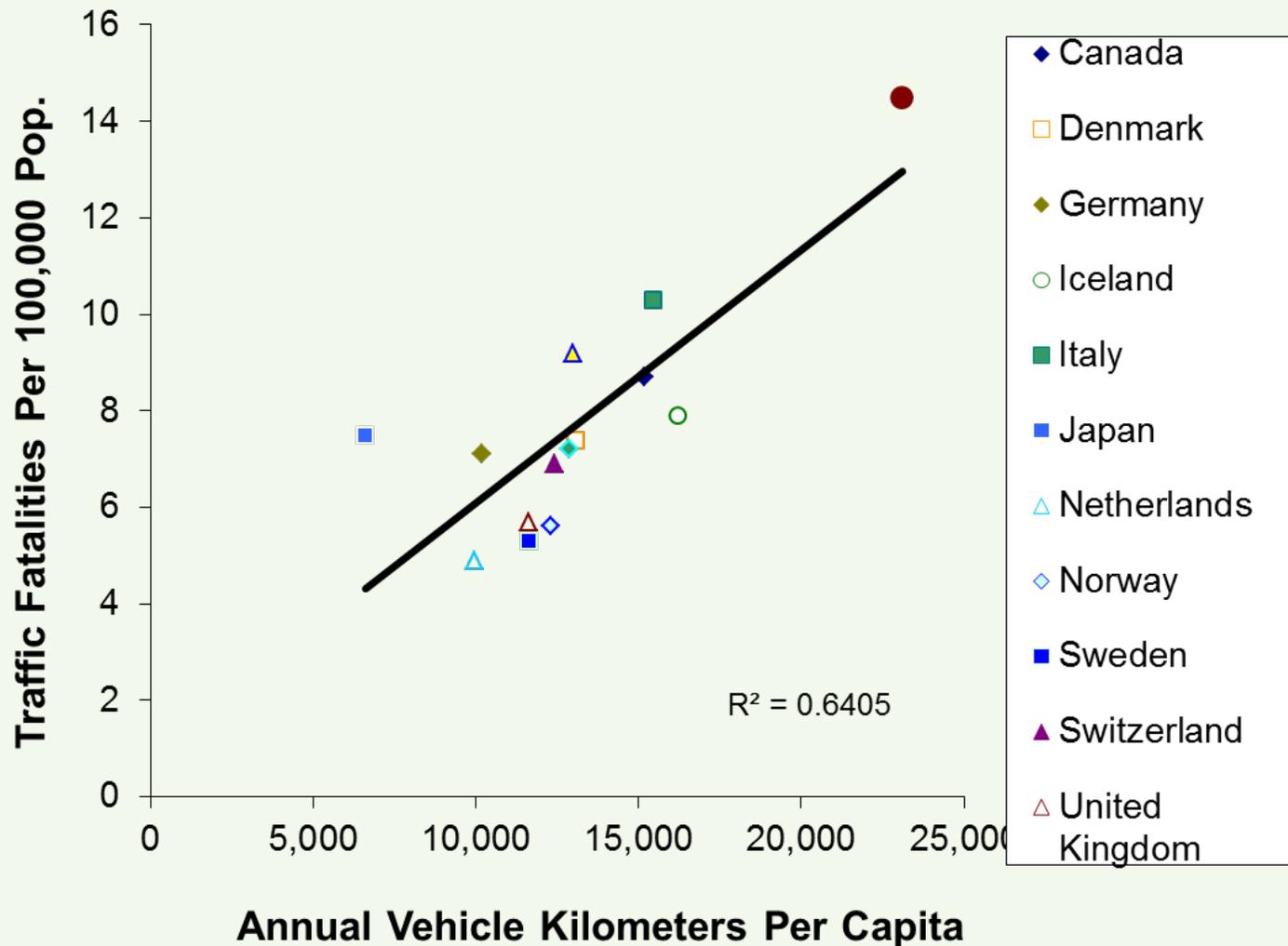
A bus lane can carry 10-50 times as many people as the same lane carrying cars.

Bus passengers require 1/10 to 1/100 as much space as car passengers.

On congested corridors, bus lanes are a more efficient and equitable use of road space.

(Jessica Schoner, Transportation Geography and Network Science)

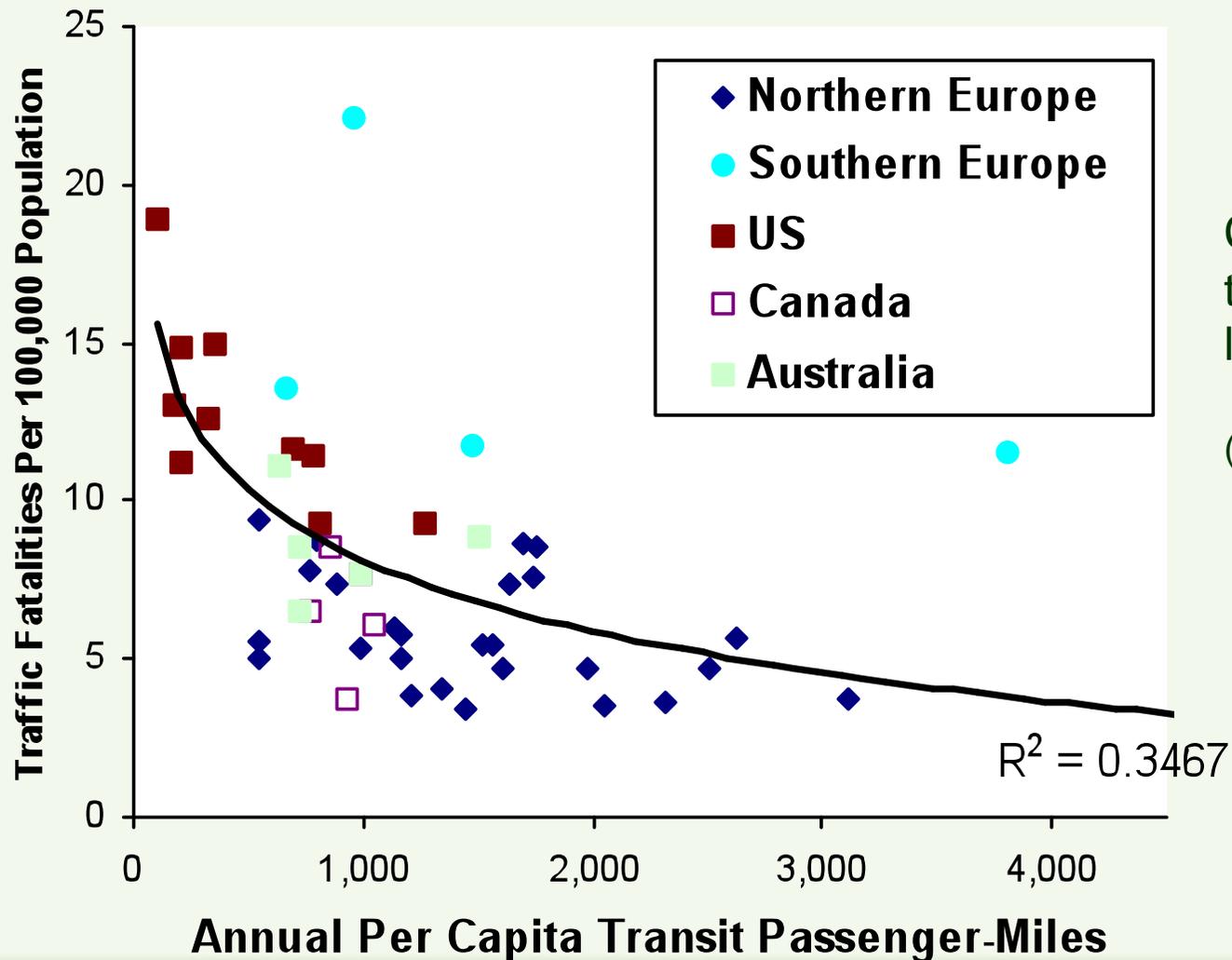
Traffic Death Rates - Countries



Among economically developed countries increased per capita vehicle travel increases traffic death rates.

(OECD Data)

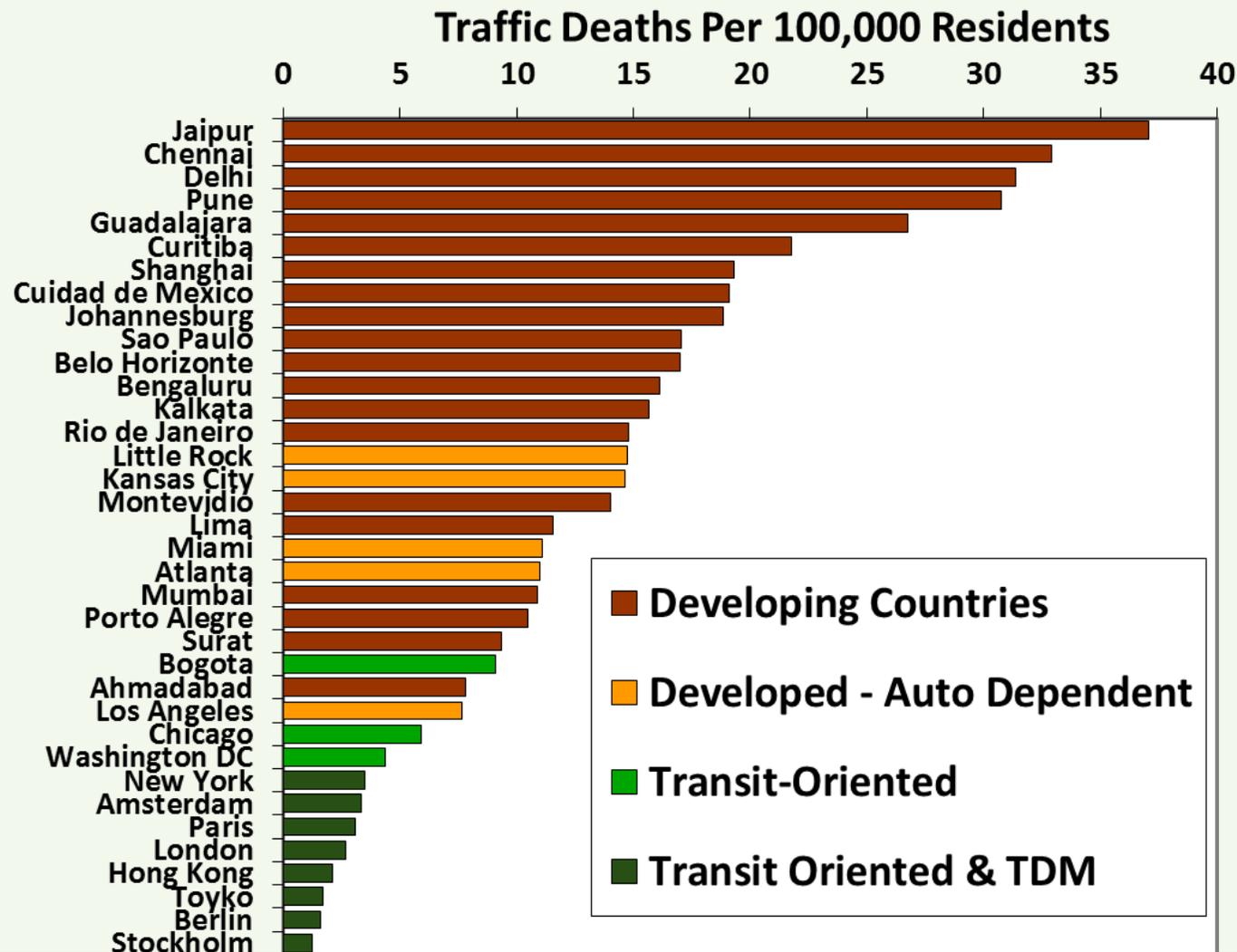
Traffic Death Vs. Transit Ridership



Cities with high public transit ridership have lower traffic fatality rates.

(Kenworthy and Laube 2000)

Traffic Death Rates

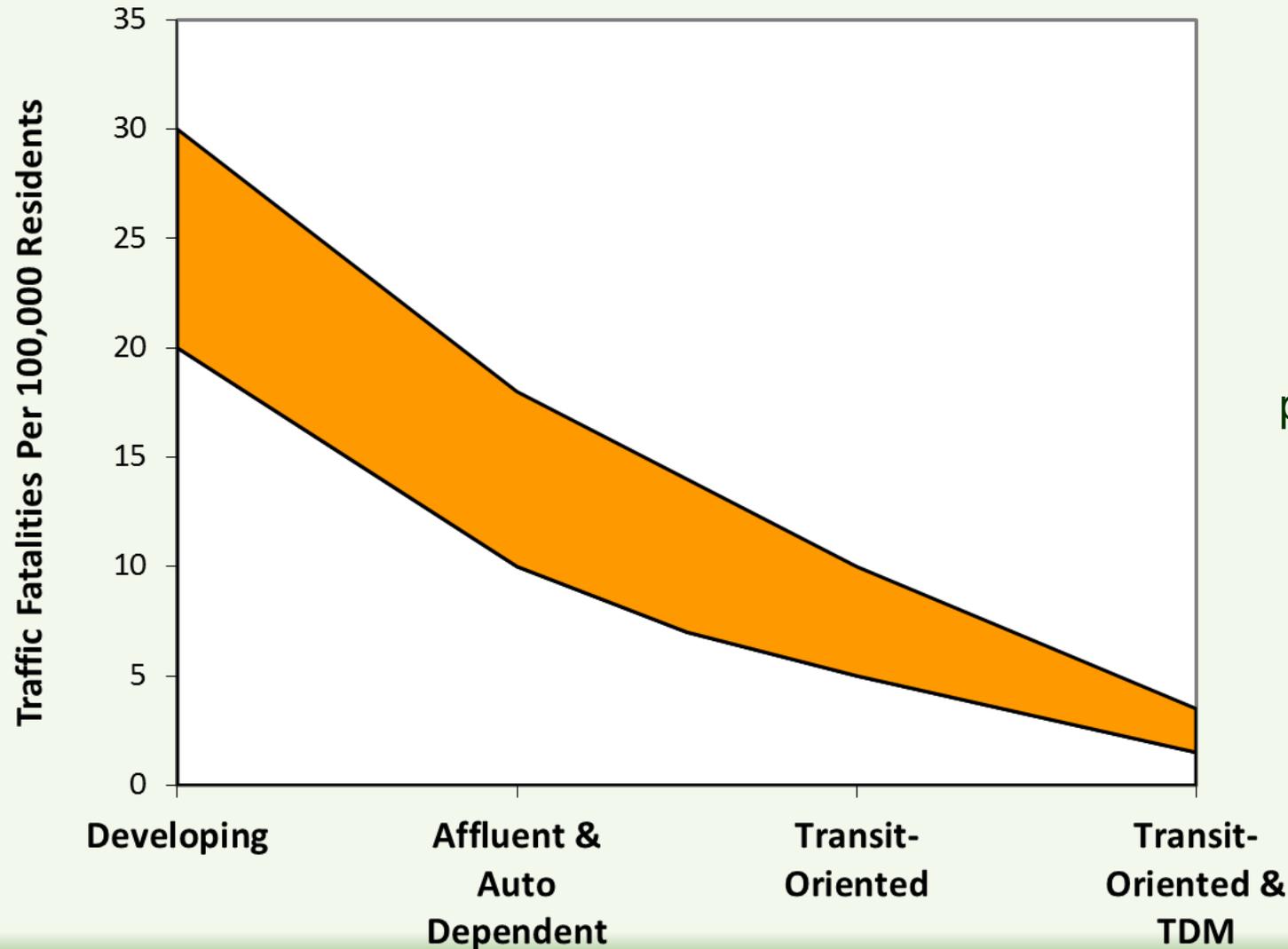


Asian cities currently have high traffic fatality rates. These will decline as these cities develop economically and implement safety programs.

How much they decline will depend on the transport and land use development policies. Transit-oriented development and TDM make cities safer.

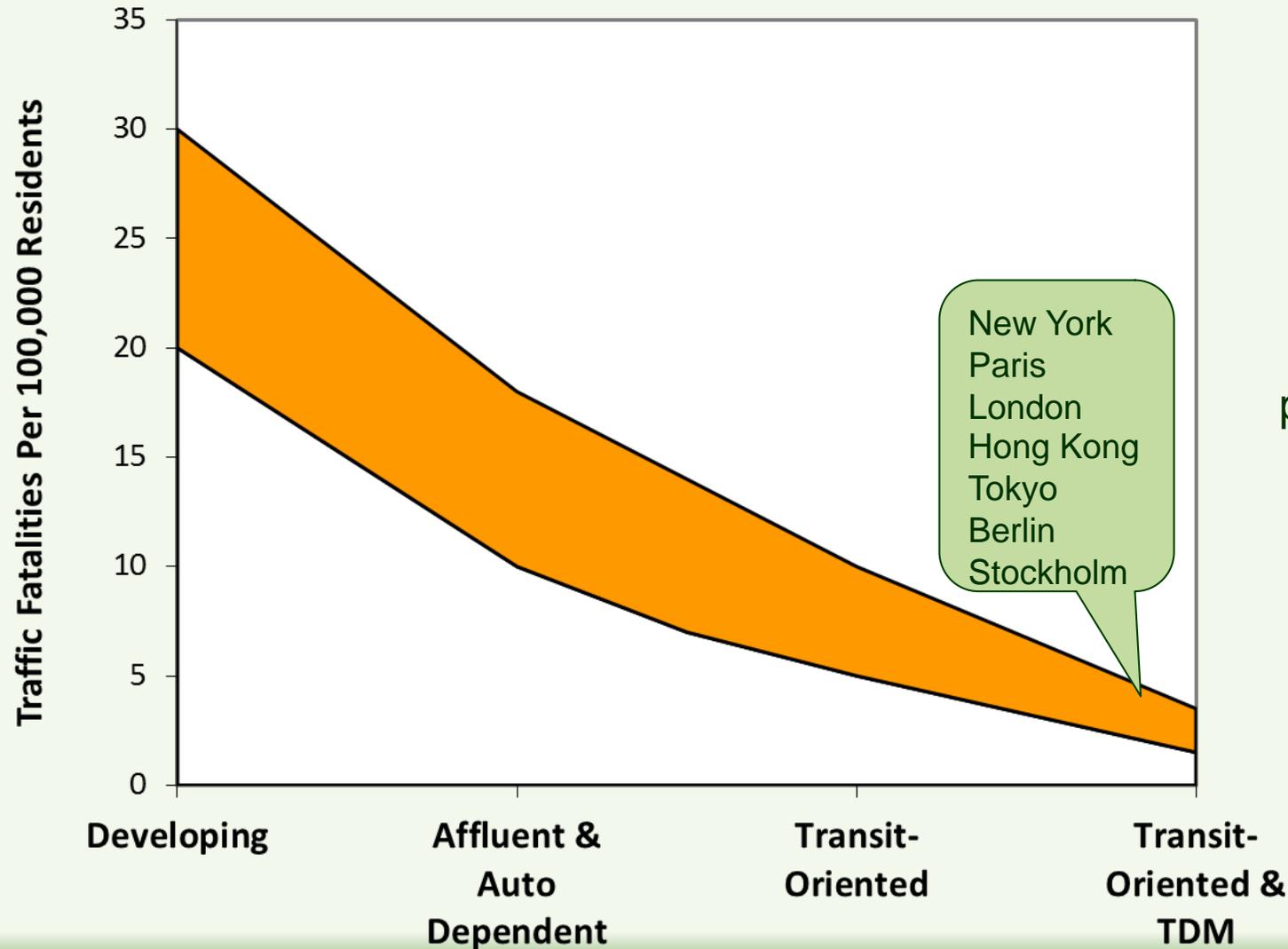
(Welle 2014)

Traffic Death Vs. Transit Ridership



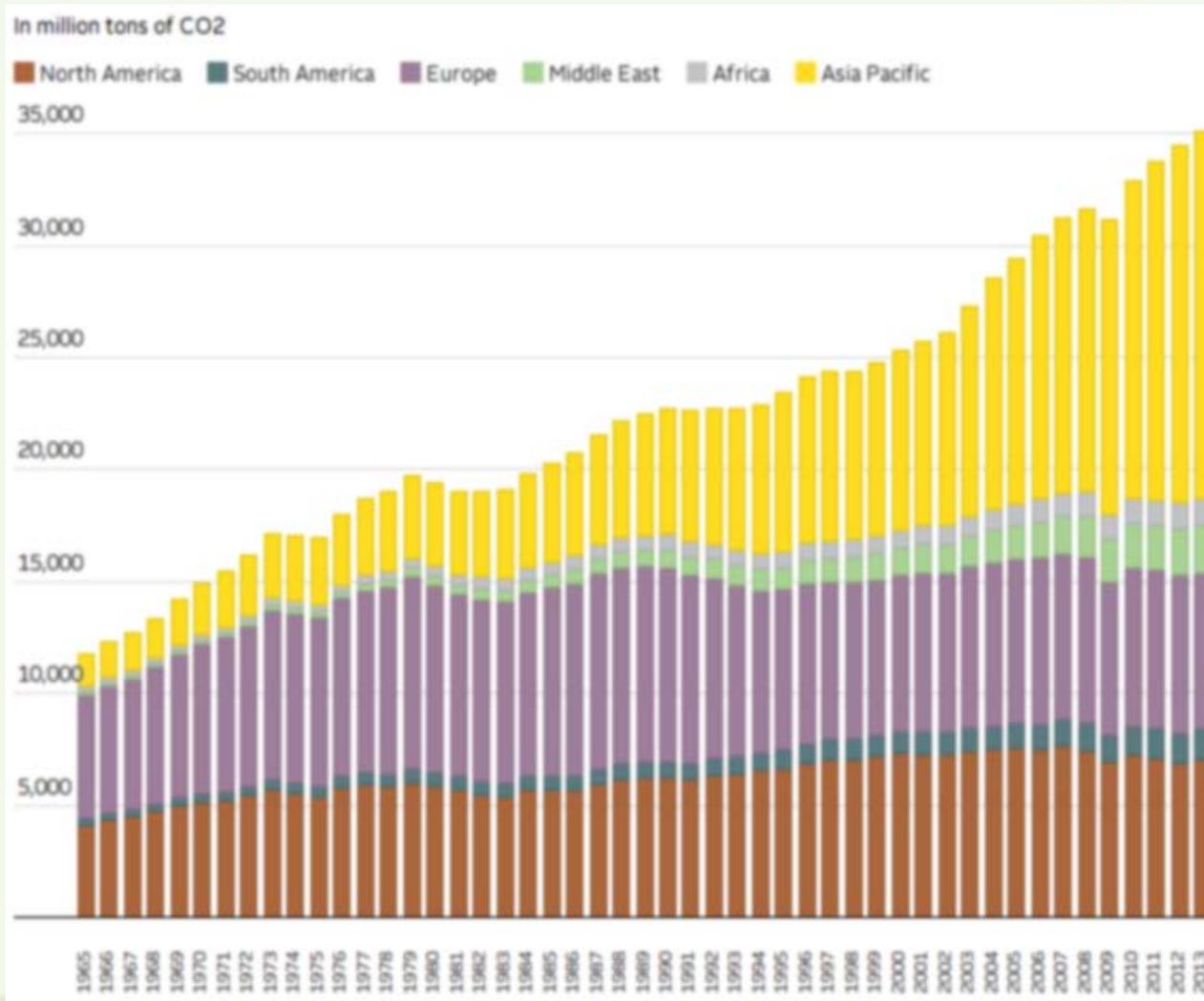
Achieving the Zero Death target will require strong TDM programs that create more multi-modal communities and reduce per capita vehicle travel.

Traffic Death Vs. Transit Ridership



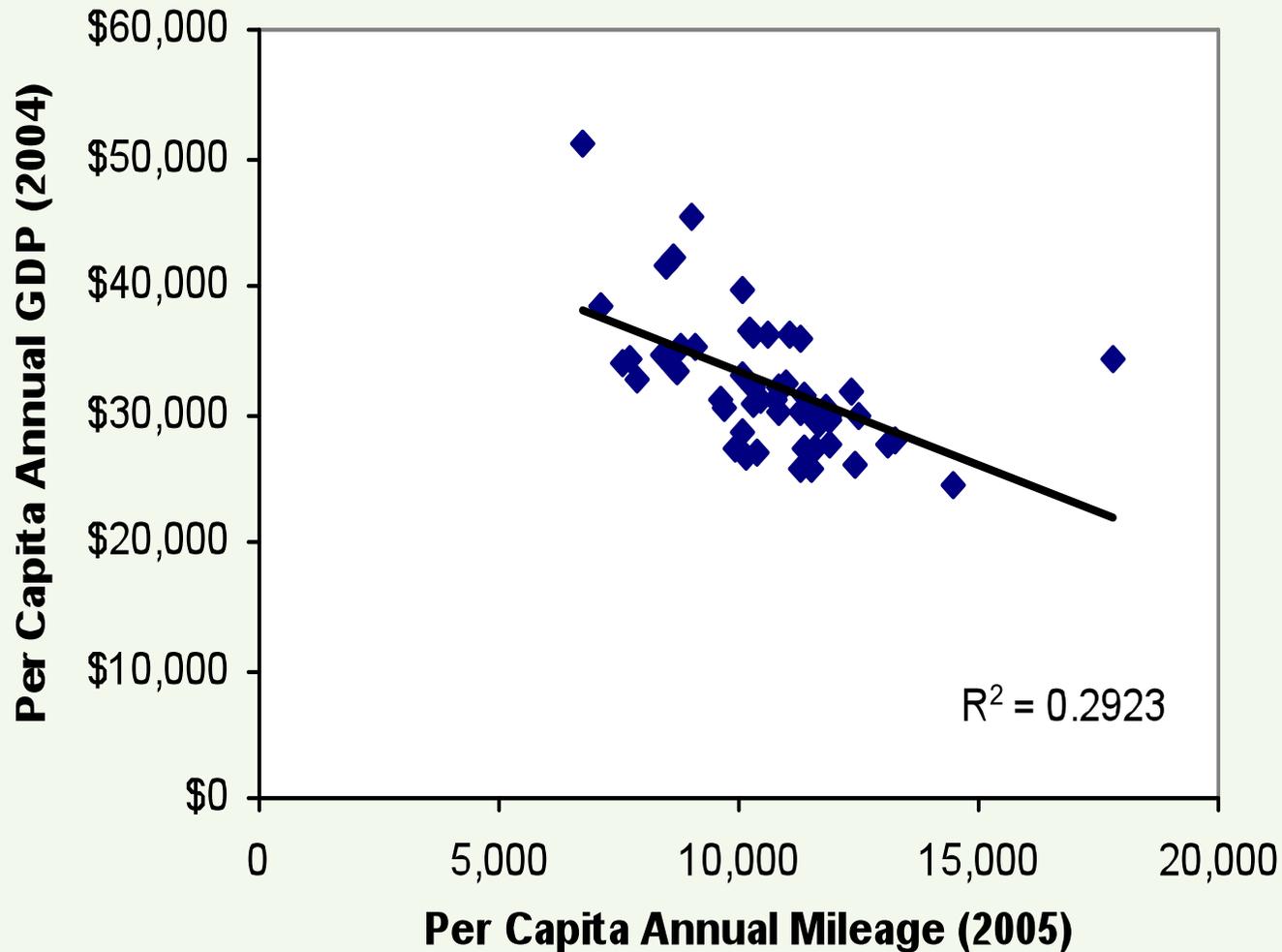
Achieving the Zero Death target will require strong TDM programs that create more multi-modal communities and reduce per capita vehicle travel.

Growing Carbon Emissions



Asia is now the largest carbon dioxide emitter. If current trends continue these emissions are projected to increase rapidly.

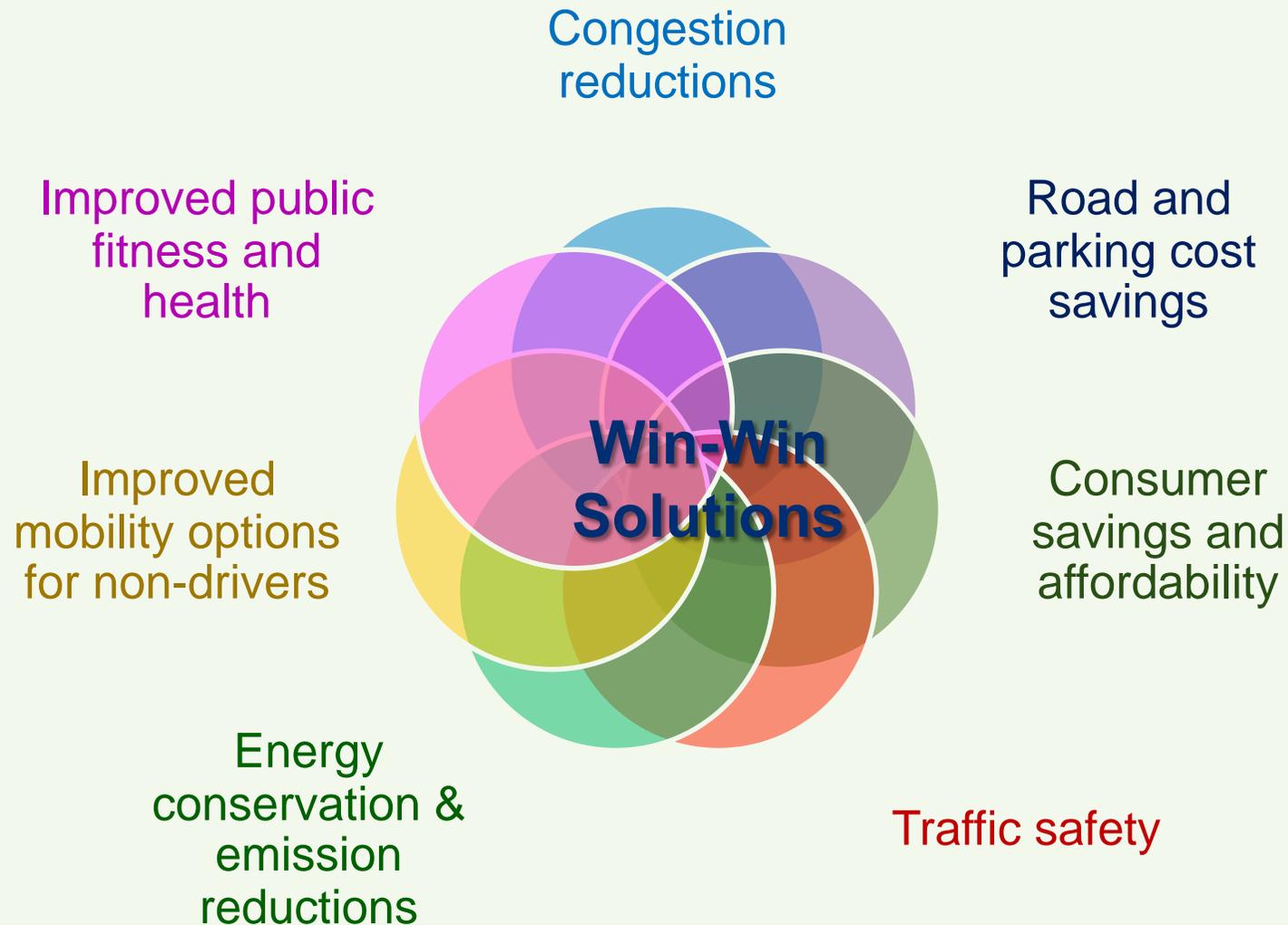
Economic Development



Per capita productivity increases as vehicle travel declines. (Each dot is a U.S. state.)

This reflects the cost savings and efficiency gains of reduced motor vehicle travel.

Win-Win Solutions

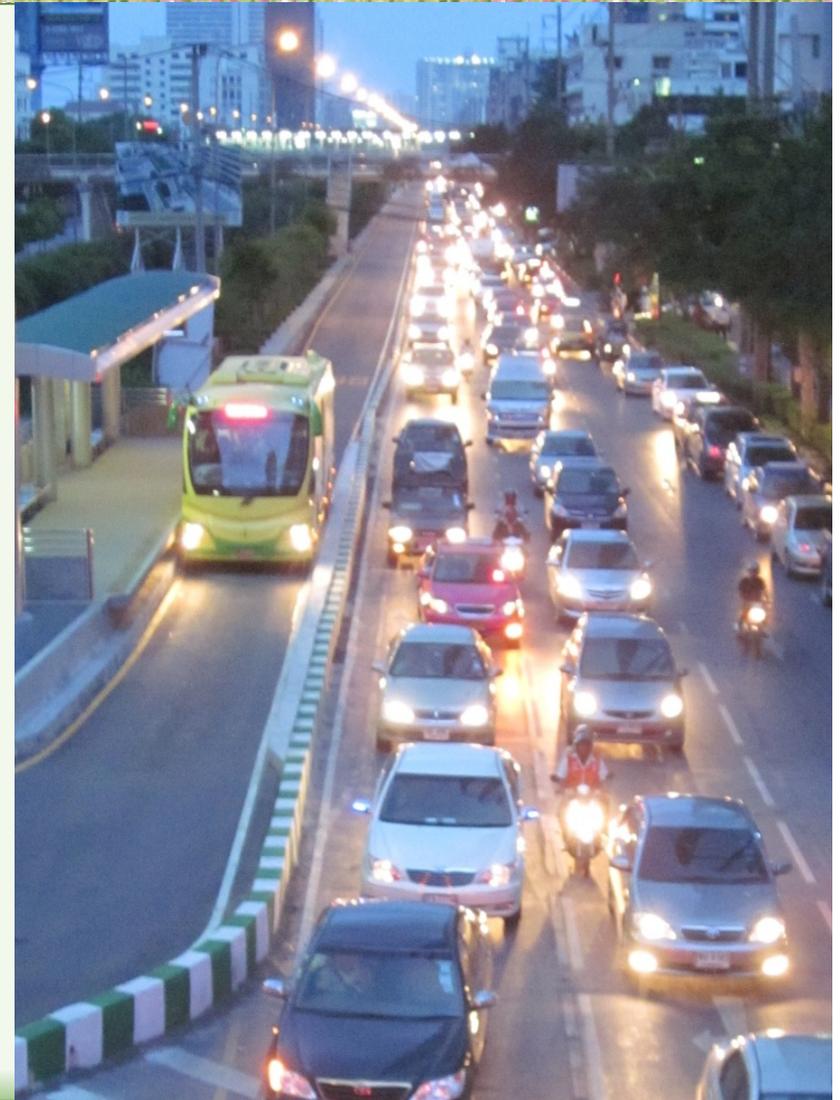


Comprehensive Evaluation

Planning Objectives	Expand Roadways	Efficient & Alt. Fuel Vehicles	Safer Vehicle Designs	Improve Alt. Modes and TDM
Reduce traffic congestion	✓			✓
Roadway cost savings				✓
Parking cost savings				✓
Consumer cost savings				✓
Improve mobility options				✓
Improve traffic safety			✓	✓
Energy conservation		✓		✓
Pollution reduction		✓		✓
Land use objectives				✓
Public fitness & health				✓

Avoid – Shift - Improve

- Invest in **walking, cycling and public transport**.
- Implement **transportation demand management** strategies which encourage travelers to use the most efficient mode for each trip, considering all impacts.
- Use **smart growth** development policies to create compact, multi-modal communities.
- **Improve vehicle performance**, so motor vehicles are safer and less polluting.



Valuing Multi-Modalism

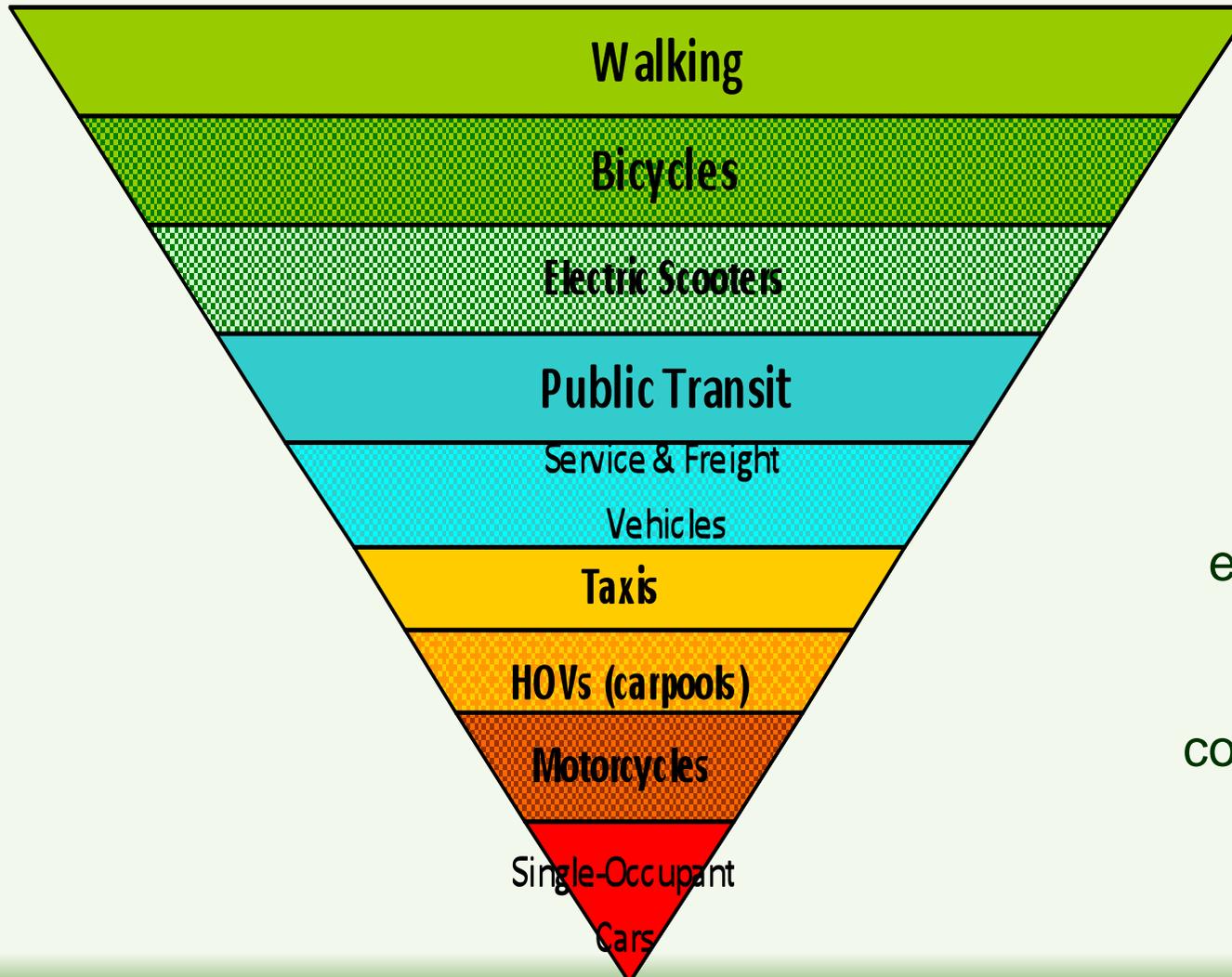
An efficient and equitable transportation system is diverse and has suitable incentives for users to choose the best mode for each trip, considering all impacts (benefits and costs).

Current planning does a poor job of valuing this diversity.

A developed country
is not a place where
the poor have cars.
It's where the rich
use public transport.
- Gustavo Petro, Mayor of Bogota



Sustainable Transport Hierarchy



An efficient urban transport system favors resource-efficient modes.

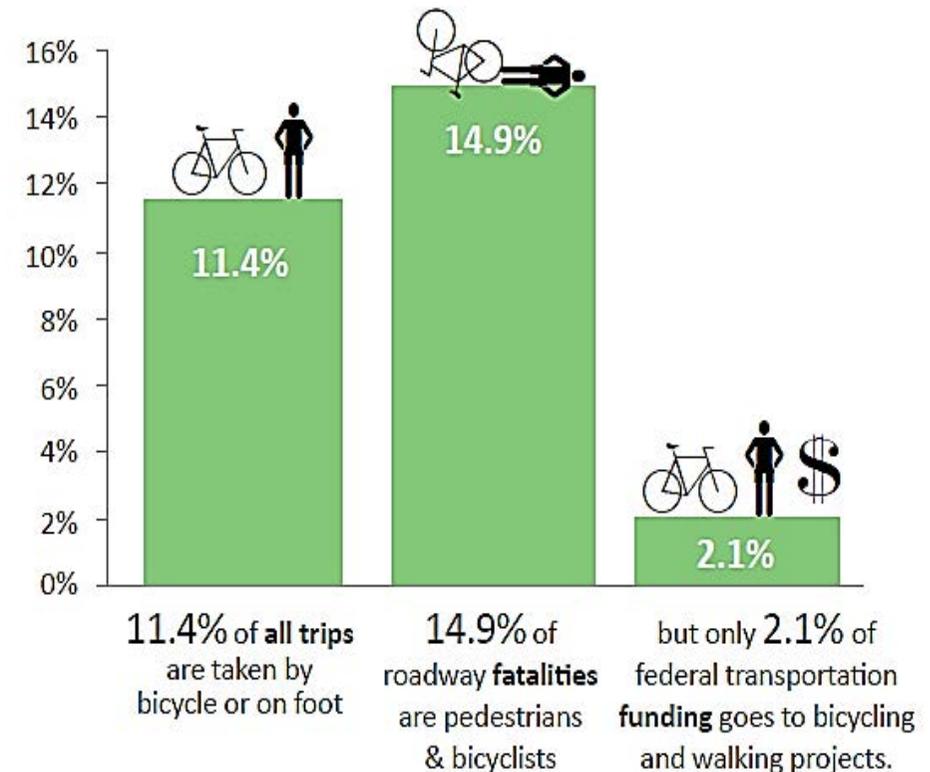
This does not eliminate automobile travel, but limits it, particularly under congested conditions.

Affordable-Efficient Modes

Walking, cycling and public transport are resource efficient and affordable, and so tend to be most sustainable.

Yet, they often receive less than a fair share of public investment.

Disparity of Pedestrian and Bicycle Mode Share, Fatalities, and Funding



(US Data, ABW 2014)

Attracting Discretionary Riders

- Quality service (convenient, fast, comfortable)
- Affordable
- Support and incentives (commute trip reduction programs, parking cash out, etc.)
- Integrated (good connections, walking and cycling access to stops and stations, transit-oriented development)
- Convenient information
- Integrated with special events
- Positive Image



The BRT Standard

The BRT Standard, being developed by the Institute for Transportation and Development Policy, is a scoring system that defines world-class bus rapid transit (BRT) systems. It allows transit planners to evaluate BRT system performance and set targets for improvement.

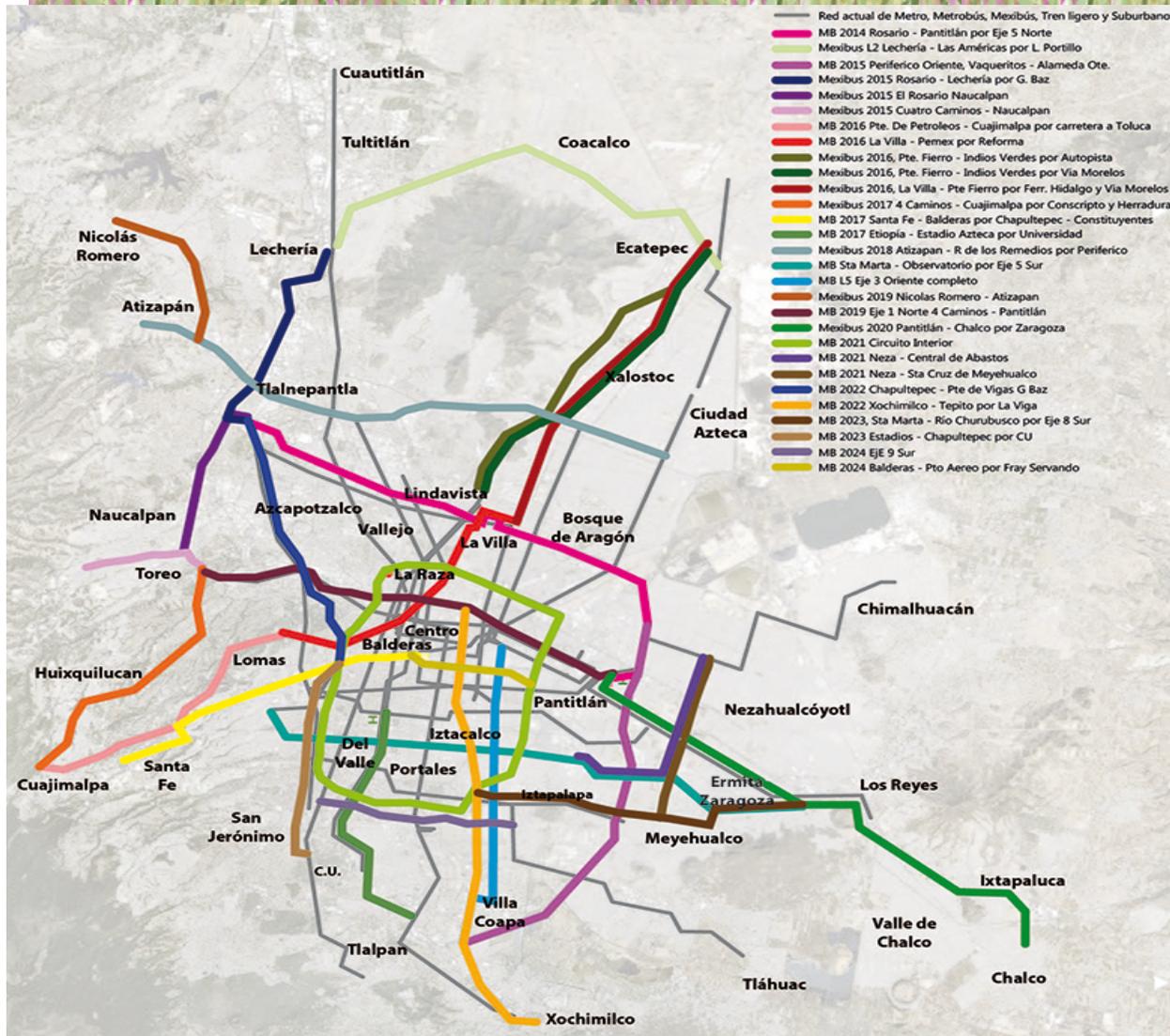


BRT Standard Scorecard

This scorecard shows the criteria and point values that make up the BRT Standard, followed by a detailed description for each.

CATEGORY	MAX SCORE	CATEGORY	MAX SCORE
SERVICE PLANNING		STATION DESIGN AND STATION-BUS INTERFACE	
Off-board fare collection	7	Platform-level boarding	6
Multiple routes	4	Safe and comfortable stations	3
Peak frequency	4	Number of doors on bus	3
Off-peak frequency	3	Docking bays and sub-stops	2
Express, limited, and local services	3	Sliding doors in BRT stations	1
Control center	3		
Located in top ten corridors	2	QUALITY OF SERVICE AND PASSENGER INFORMATION SYSTEMS	
Hours of operations	2	Branding	3
Multi-corridor network	2	Passenger information	2
INFRASTRUCTURE		INTEGRATION AND ACCESS	
Busway alignment	7	Universal access	3
Segregated right-of-way	7	Integration with other public transport	3
Intersection treatments	6	Pedestrian access	3
Passing lanes at stations	4	Secure bicycle parking	2
Minimizing bus emissions	4	Bicycle lanes	2
Stations set back from intersections	3	Bicycle-sharing integration	1
Center stations	3		
Pavement quality	2		
		TOTAL	100

City-wide Bus Lane Networks



A comprehensive Bus Rapid Transit (BRT) network is a very cost effective way to allow residents to quickly travel around a city.

(Institute for Transportation and Development Policy)

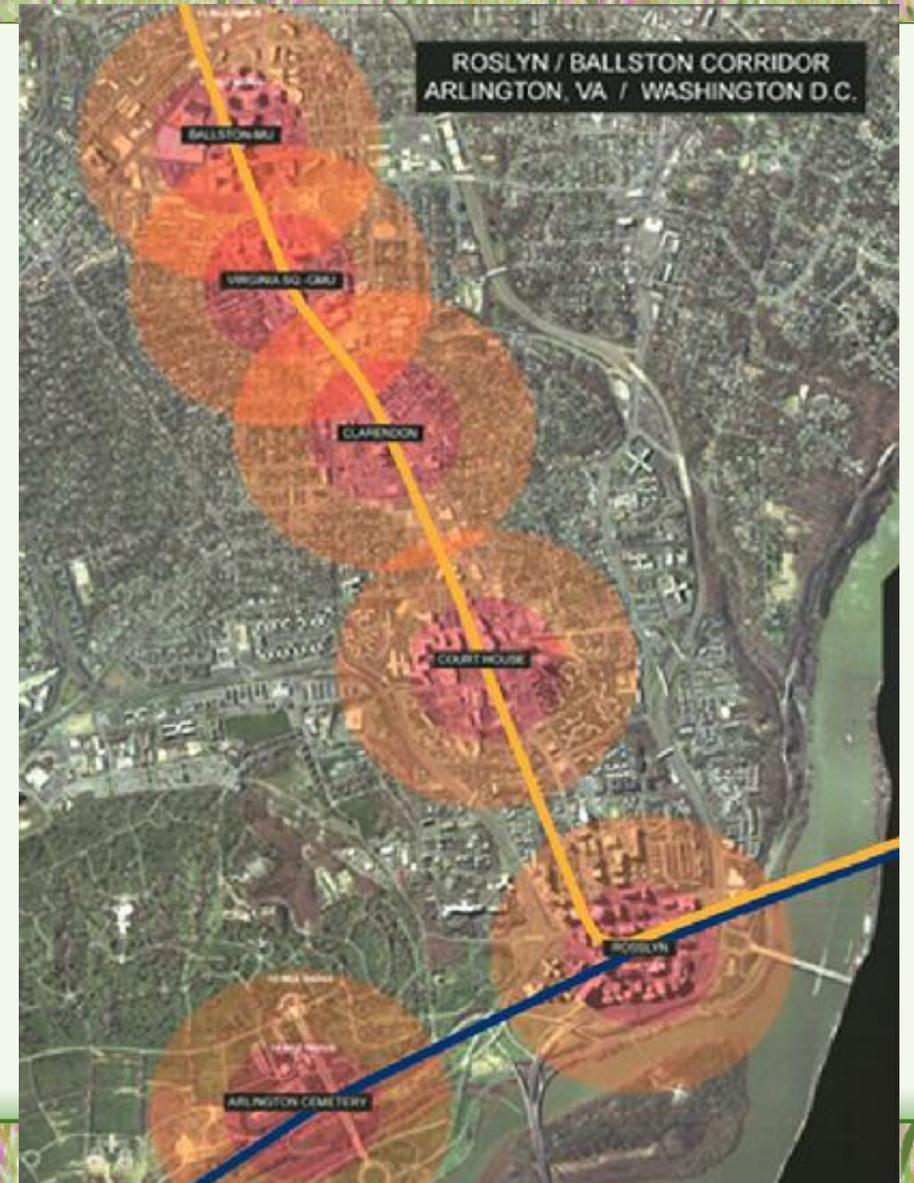
Transit Station Level-Of-Service

- Clean.
- Comfort (seating, temperature, quiet).
- Convenience (real-time user information, easy fare payment).
- Accessible (walkability, bike parking, nearby housing, employment, nearby shops).
- Services (refreshments, periodicals, washrooms, etc.).
- Security.

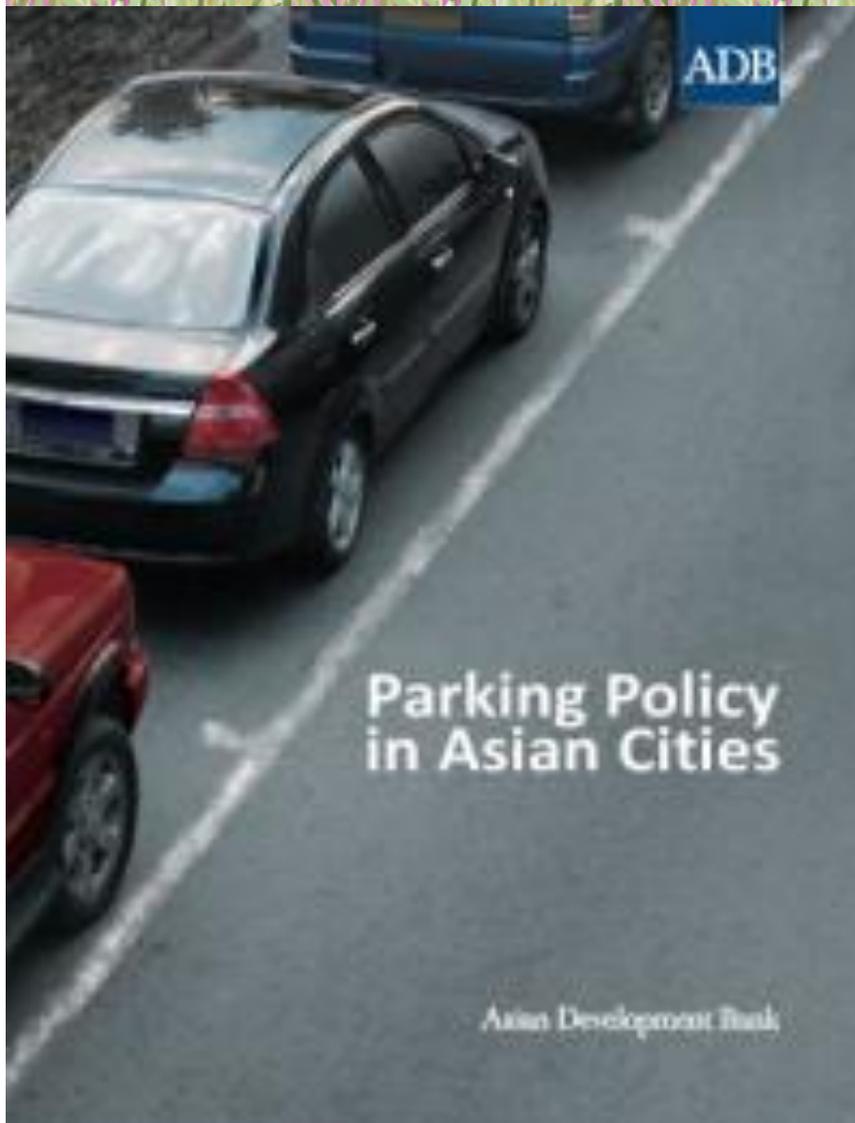


Transit-Oriented Development

- Compact, mixed-use development within ten-minute walk of high quality transit (train stations or bus stops with frequent service).
- This creates “urban villages” where commonly-used services (shops, restaurants, schools, parks, etc.) and a significant number of jobs are easily accessible without a car.



Parking Management

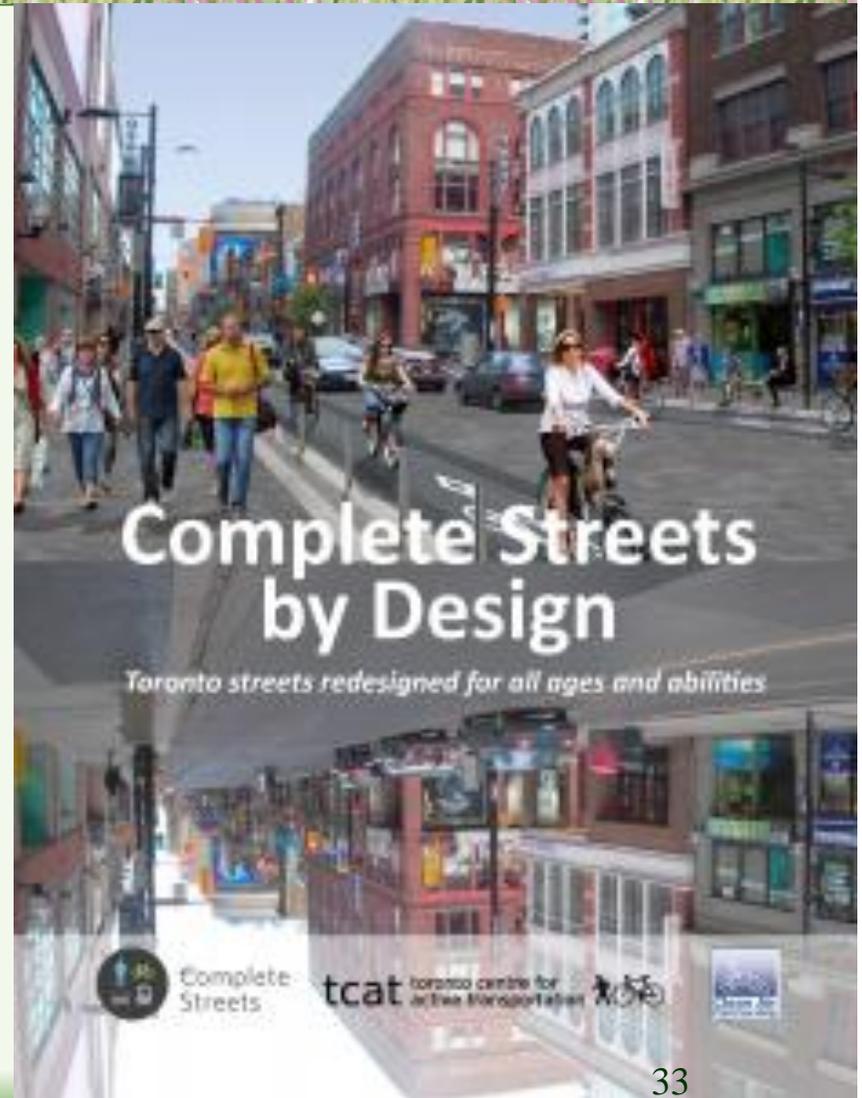


Various strategies that result in more efficient use of parking supply

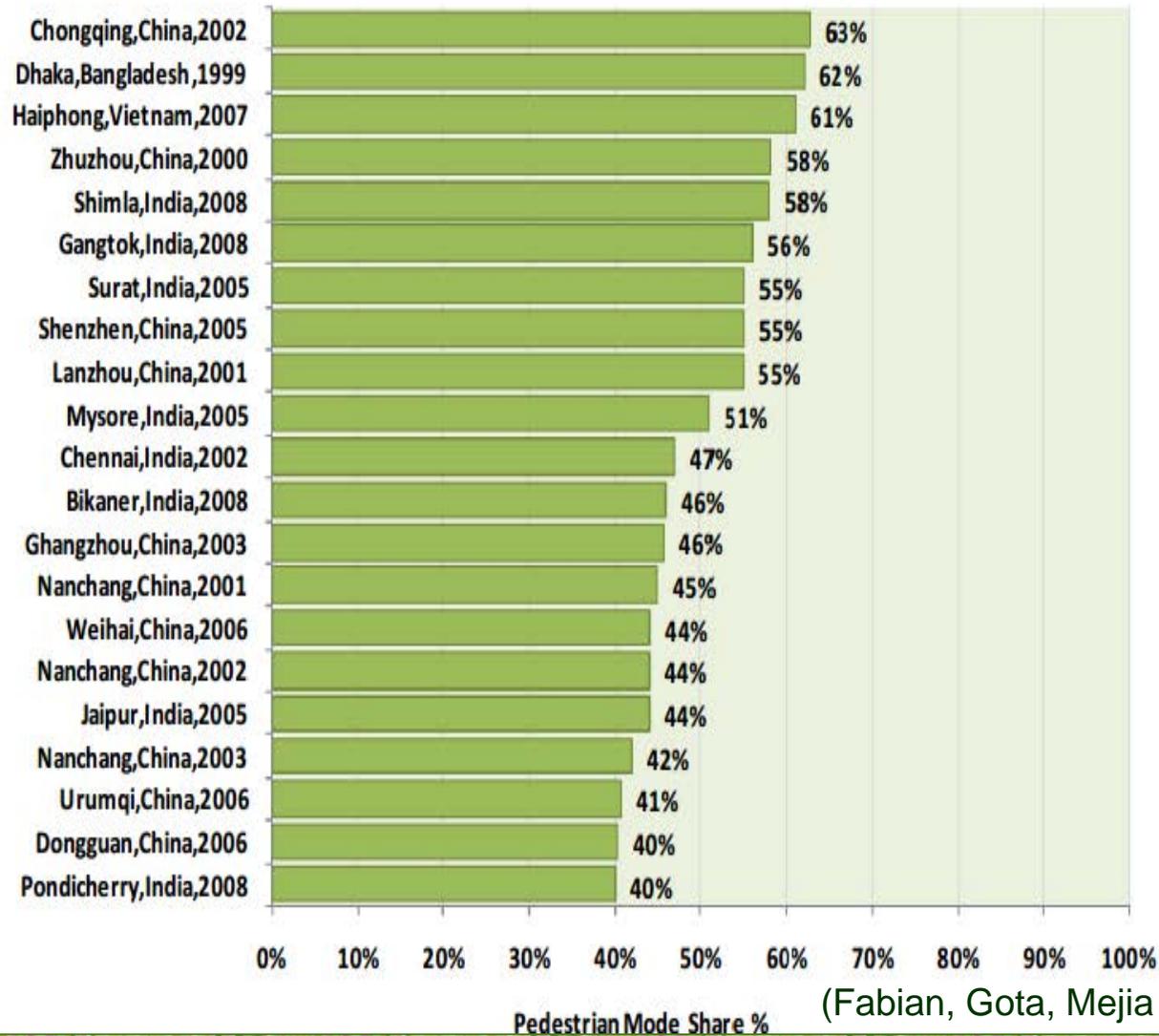
“By adopting this study's recommendation to charge the lowest price for on-street parking that will leave one or two vacant spaces on every block, high-density Asian cities can use the resulting revenue to pay for local public services to benefit poor people.” (Professor Donald Shoup)

Complete Streets

A Complete Street is designed for all activities, abilities, and travel modes. Complete Streets serve pedestrians, cyclists, transit users and motorists, and provide a livable environment for visitors, customers, employees and residents in the area.



City Residents Walk & Bike



(Fabian, Gota, Mejia and Leather, 2011)

Pedestrian Mode Share %

Walking and Cycling Improvements

- More investment in sidewalks, crosswalks, paths and bike lanes.
- More traffic calming and speed control.
- Bicycle parking and changing facilities.
- Encouragement, education and enforcement programs.



Avenue de Clichy, 17 & 18e arr. Paris



Rue d'Avron, 20e arr. Paris

Cheonggyecheon River in Seoul



Before



After

Universal Design For Everybody

Urban design features that help seniors and people with disabilities helps everybody travel around your city.

- Well designed and maintained sidewalks and crosswalks.
- Cub cuts and ramps.
- Convenient, safe and uncrowded public transit with good connections.
- Narrower roads with lower traffic speeds.
- Easy-to-understand signs.

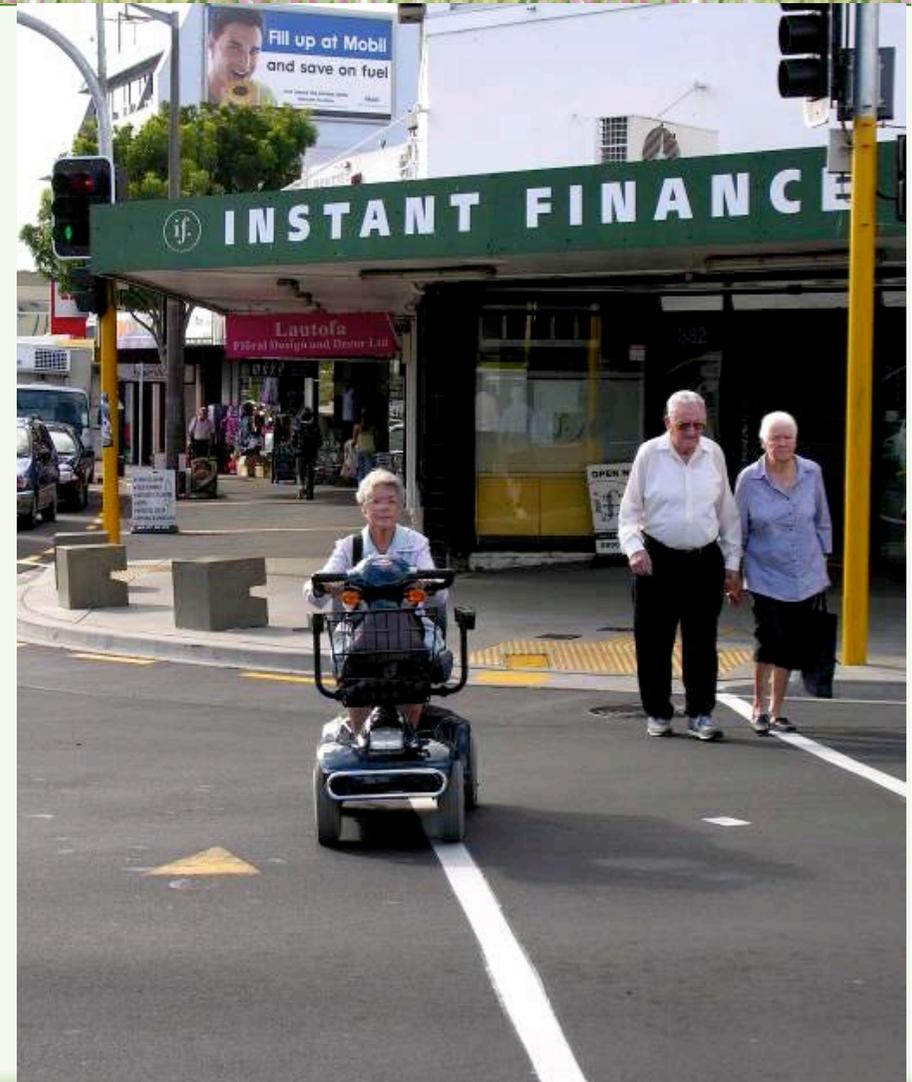


(Access Exchange International)

Memo From Future Self

Hope for the best but prepare for the worst:

- *Physical disability* – diverse and integrated transport with universal design (accommodates people with disabilities and other special needs).
- *Poverty and inflation* – affordable housing in accessible, multi-modal locations.
- *Higher energy prices* – improve efficient modes (walking, cycling and public transport).
- *Isolation and loneliness* – community cohesion (opportunities for neighbors to interact in positive ways).



Transport Demand Management

BIZ China | Transport Demand Management in Beijing



Reducing Carbon Emissions through Transport Demand Management Strategies

A review of international examples

Final report

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

TRC 北京交通发展研究中心
Beijing Transportation Research Center

of the Federal Republic of Germany

Table 10: Summary of success factors of all case studies

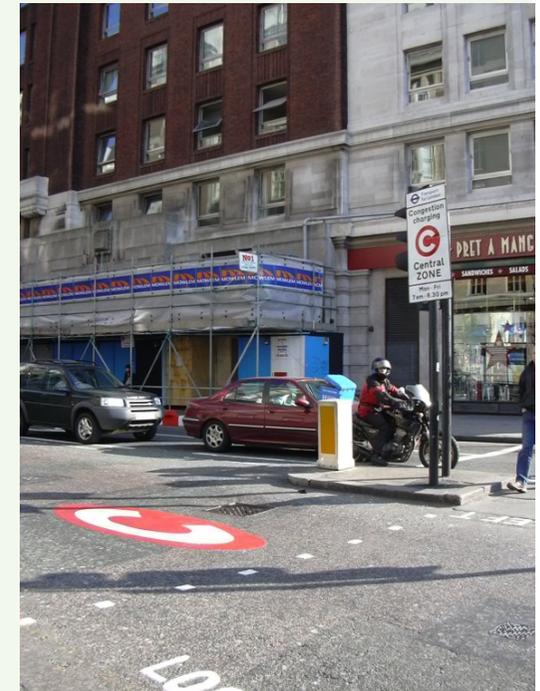
		Cooperation and dialogue		High-quality implementation					Strategy		
		Inter-governmental cooperation	Institutional set-up	Reliability/comfort	Stakeholder consultation	Linkage to local circumstances	Ex-ante data availability	Enforcement	Part of vision or strategic plan	Part of comprehensive TDM strategy	Marketing (small scale best practice)
Public transit service improvements											
Bogotá	Bus Rapid Transit			✓	✓					✓	
Seoul	Bus Rapid Transit	✓	✓	✓						✓	
Non-motorised transport											
Berlin	Cycling infrastructure and management	✓		✓							
New York	Human-scale road design	✓		✓	✓						
Seoul	Reclaiming of road space	✓		✓						✓	
Parking management and pricing											
Chicago	Long-term lease of curbside parking (privatisation)		✓		X			✓		X	
New York	Escalating parking fees, peak hour parking, hour-limit parking, new design of onstreet parking	X		✓	✓					✓	
Portland	Freeze of parking space, flexible land use management									✓	
San Francisco	Introduction of maximum parking requirements, reform of curbside parking, parking unbundling	✓	✓	✓	✓		✓	✓	✓	✓	✓
Seoul	CCTV parking supervision and enforcement			✓				✓		✓	
Efficient road pricing											
London	Fee on driving in central London (rebate for residents and some exempted vehicles)				✓	✓	X			✓	
Singapore	Electronic Road Pricing	✓		✓				✓		✓	
Stockholm	Congestion pricing with exemptions for alternative-fuel vehicles				✓					✓	
Vehicle restrictions											
Berlin	Environmental Zone	✓				✓		✓	✓	✓	
Milan	Environmental Zone									✓	
Singapore	Vehicle registration quota									✓	
Smart growth land use policies											
Curtitiba	Transit oriented development									✓	

✓ - Consideration of success factor contributed to effectiveness of TDM measure

X - Non-consideration of success factor contributed to failure or reduced effectiveness of measure

Examples of Successful TDM Programs

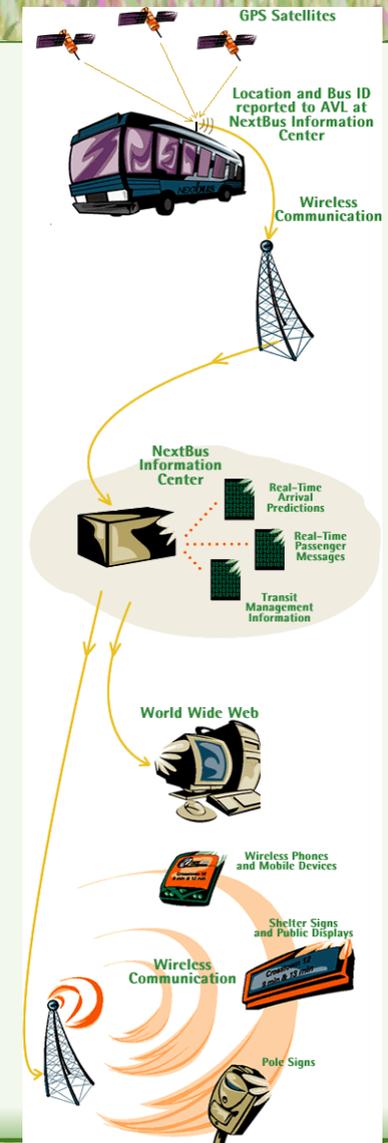
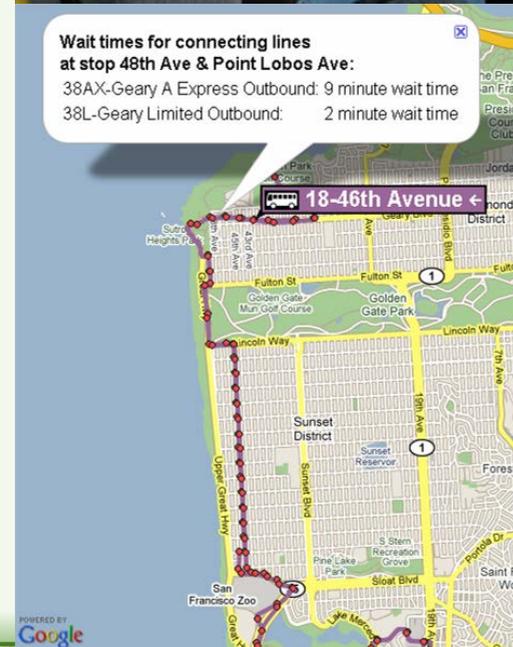
- **Singapore** (restricting car ownership, improving alt. modes)
- **Chinese cities** (limiting car ownership, improving alternative modes, parking pricing)
- **Tokyo** (parking pricing, improve alt. modes)
- **Vancouver** (improve alt. modes, encourage downtown housing)
- **Various European cities** (restricting driving and parking in central city neighborhoods, increasing parking pricing)
- **London** (congestion pricing; improve alternative modes)
- **Seoul** (reduce road space, improve alt. modes, parking pricing)
- **Paris** (improve alternative modes, public bike systems)
- **New York** (reallocate road space, improve alternative modes)
- **Los Angeles** (improving alternative modes)
- **Stockholm** (congestion pricing, improve alt. modes)



User Information

Provide information when and where users need it:

- Walking and cycling wayfinding.
- Transit route, schedule, fare and real-time arrival.
- Travel times for various modes (e.g., transit vs. driving).
- Special problems (warnings of delays).
- On-board wifi services.
- Parking availability and price.
- Discounts and incentives.



Institutional Reforms

- Interagency coordination.
- Comprehensive, multi-modal planning.
- Lease-cost planning and funding.
- Sustainable transport hierarchy.
- Integrated pricing systems.
- Improve user information.
- Improve enforcement.
- Set performance targets.
- Improve transport data collection.
- Identify best practices and appropriate innovations from other countries, including Northern Europe, Brazil, South Korea and India.



New Planning Resources

