

The Way Forward for Relieving Traffic Problems: Sustainable Strategies Policies & Measures



By

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22nd Cairo Climate Talks on Transportation (Cairo April 15th)

Cairo in Motion: Smart Transport and Urban Development

***Conceived, organized and hosted as a cooperation between the
Embassy of the Federal Republic of Germany in Cairo &
Ministry of State for Environmental Affairs (EEAA)***

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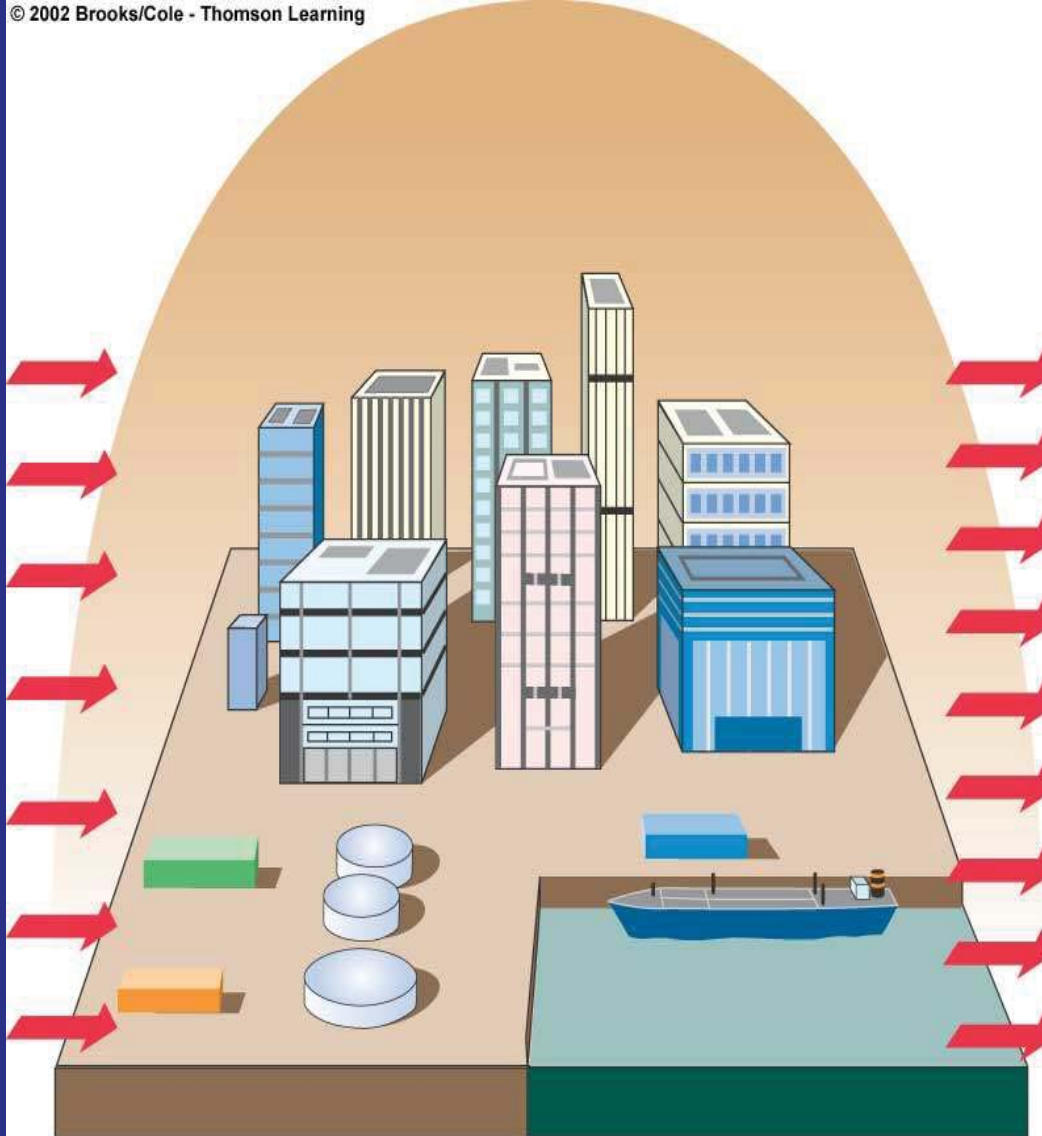


Urban Areas : Inputs & Outputs (Not Self Sustaining Systems)

© 2002 Brooks/Cole - Thomson Learning

Inputs

Energy
Food
Water
Raw
Materials
Manufactured
Goods
Money
Information



Outputs

Solid wastes
Waste heat
Air pollutants
Water pollutants
Greenhouse gases
Manufactured goods
Noise
Wealth
Ideas



General Indicators of Urban Sustainability



Water, Materials & Waste

Energy & Air Quality



Transportation

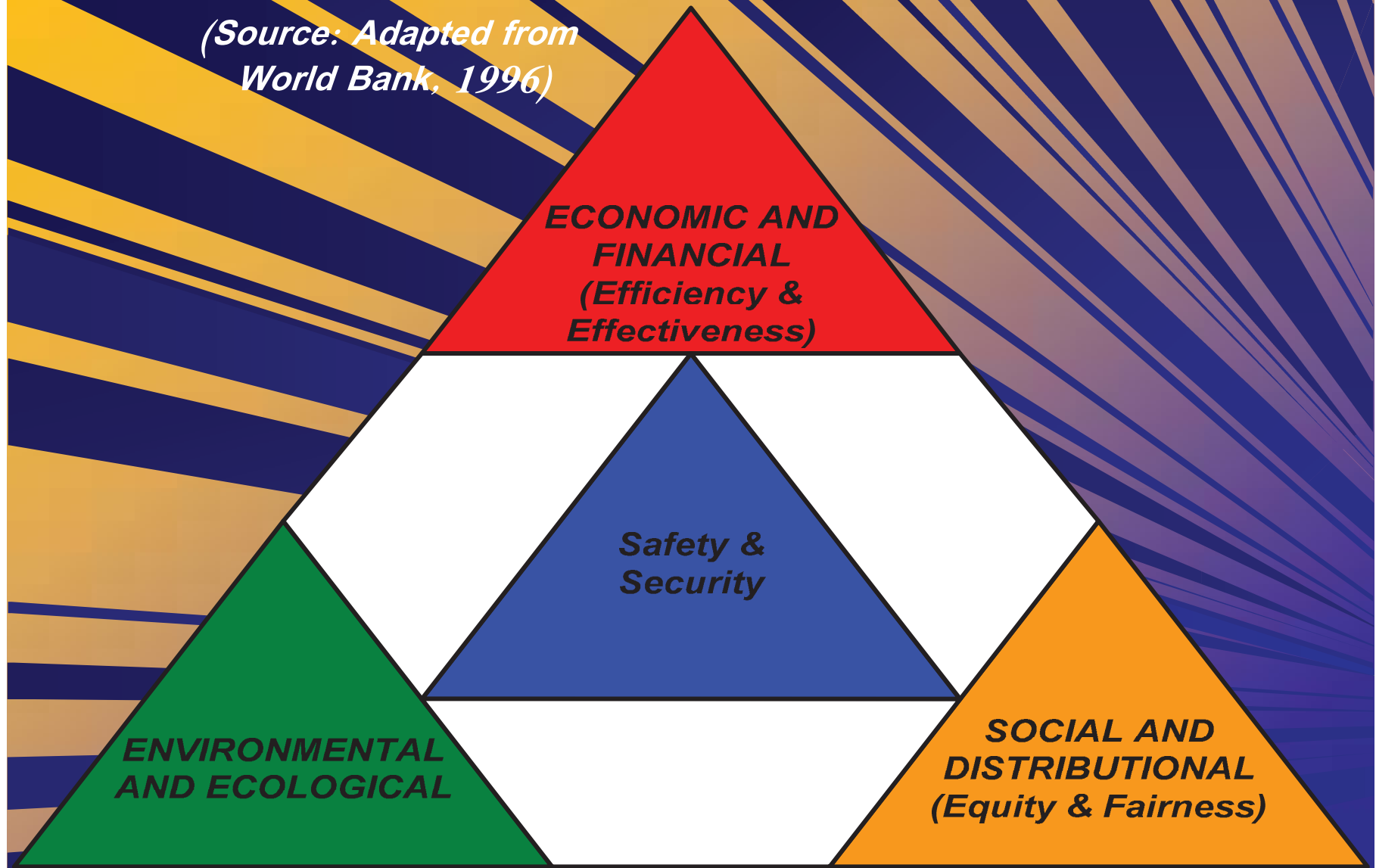
Livability Land, Green Spaces & Biodivers



Dimensions of Sustainable Transport Development



*(Source: Adapted from
World Bank, 1996)*

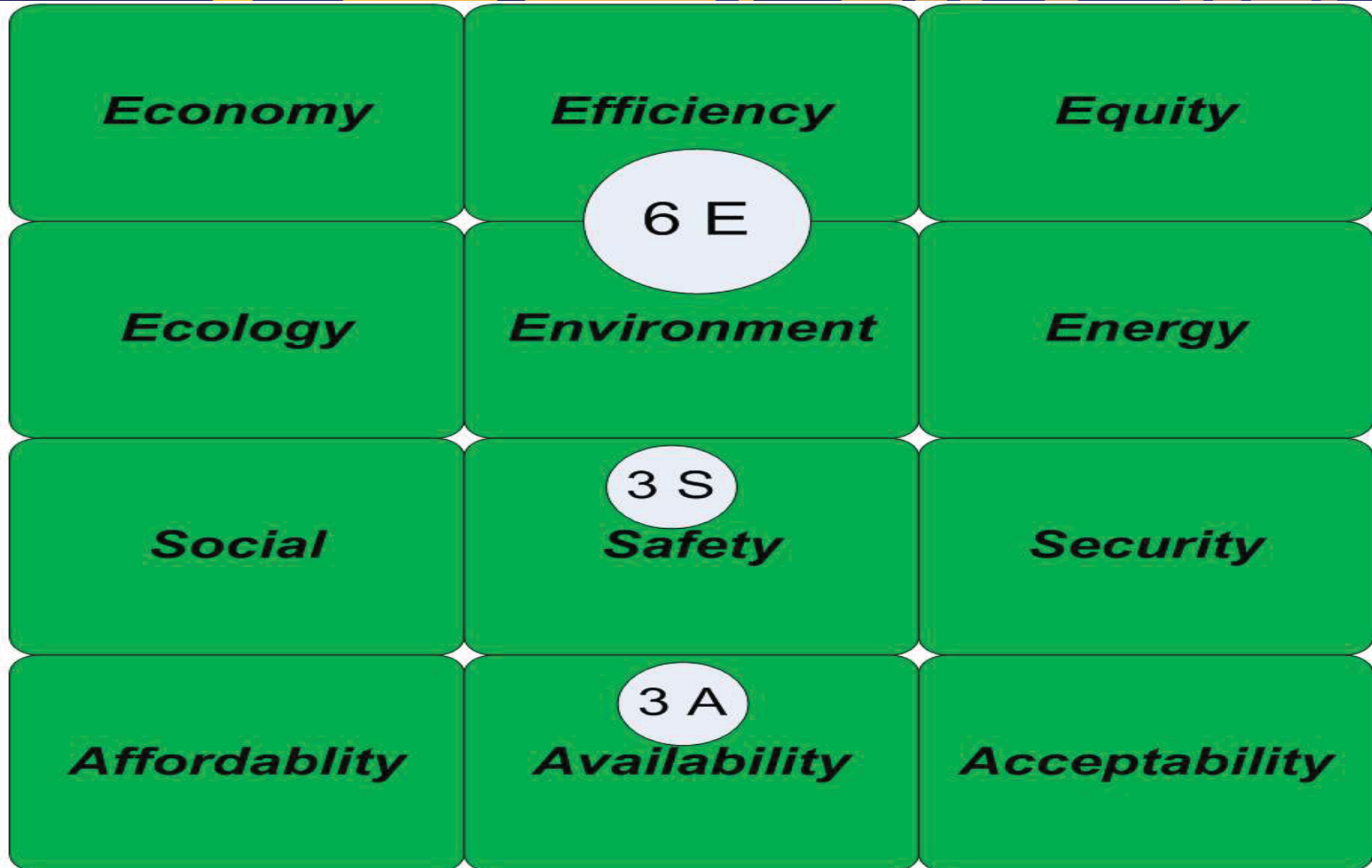




Sustainable Transport = 6 E + 3 S + 3 A



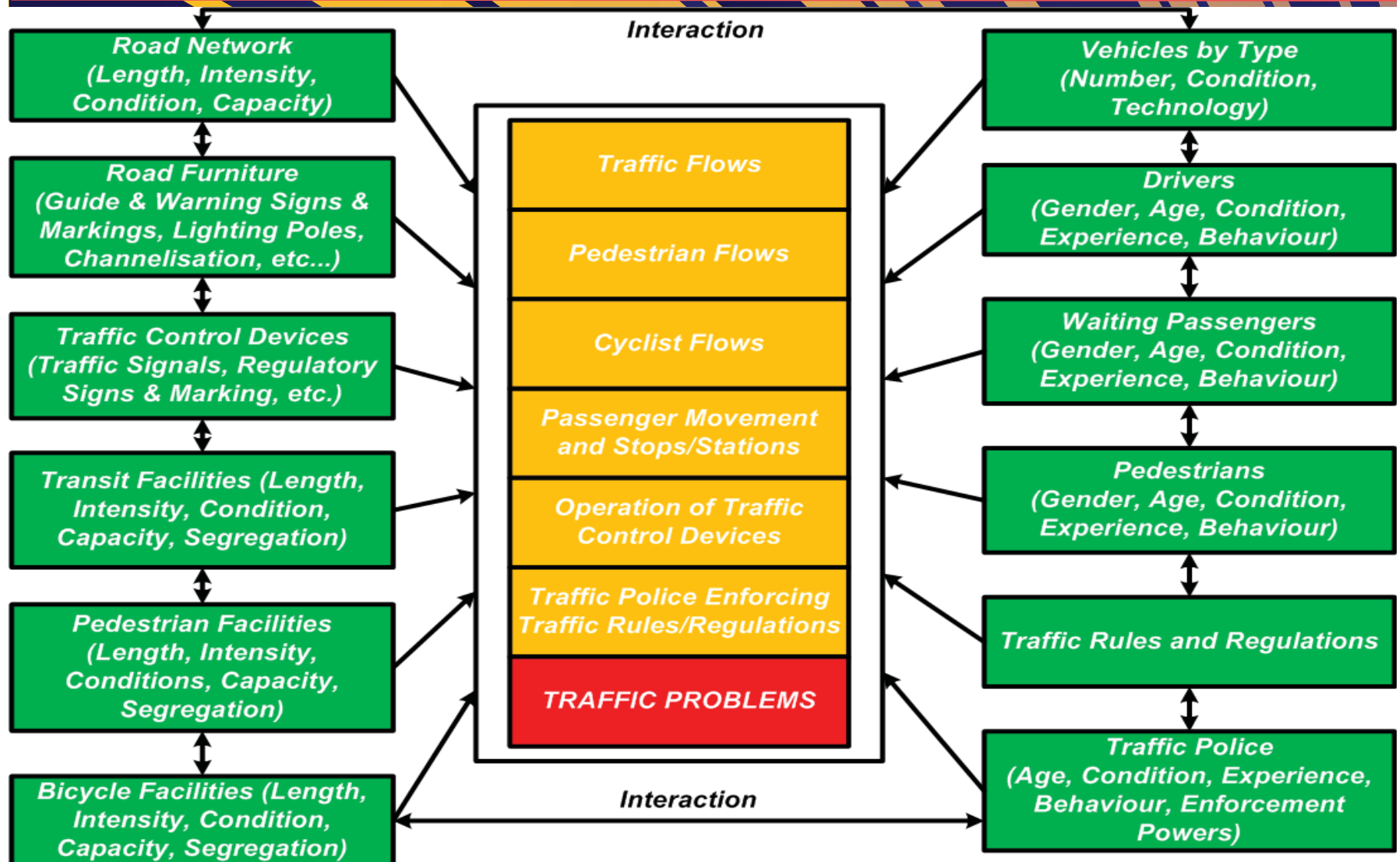
**A
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Source: Adapted from Abbas K. A. (2012) BRT Systems: Place & Importance in the World. Opening Paper Session. In Proc. of TRANS IST 2012 Istanbul, Turkey.

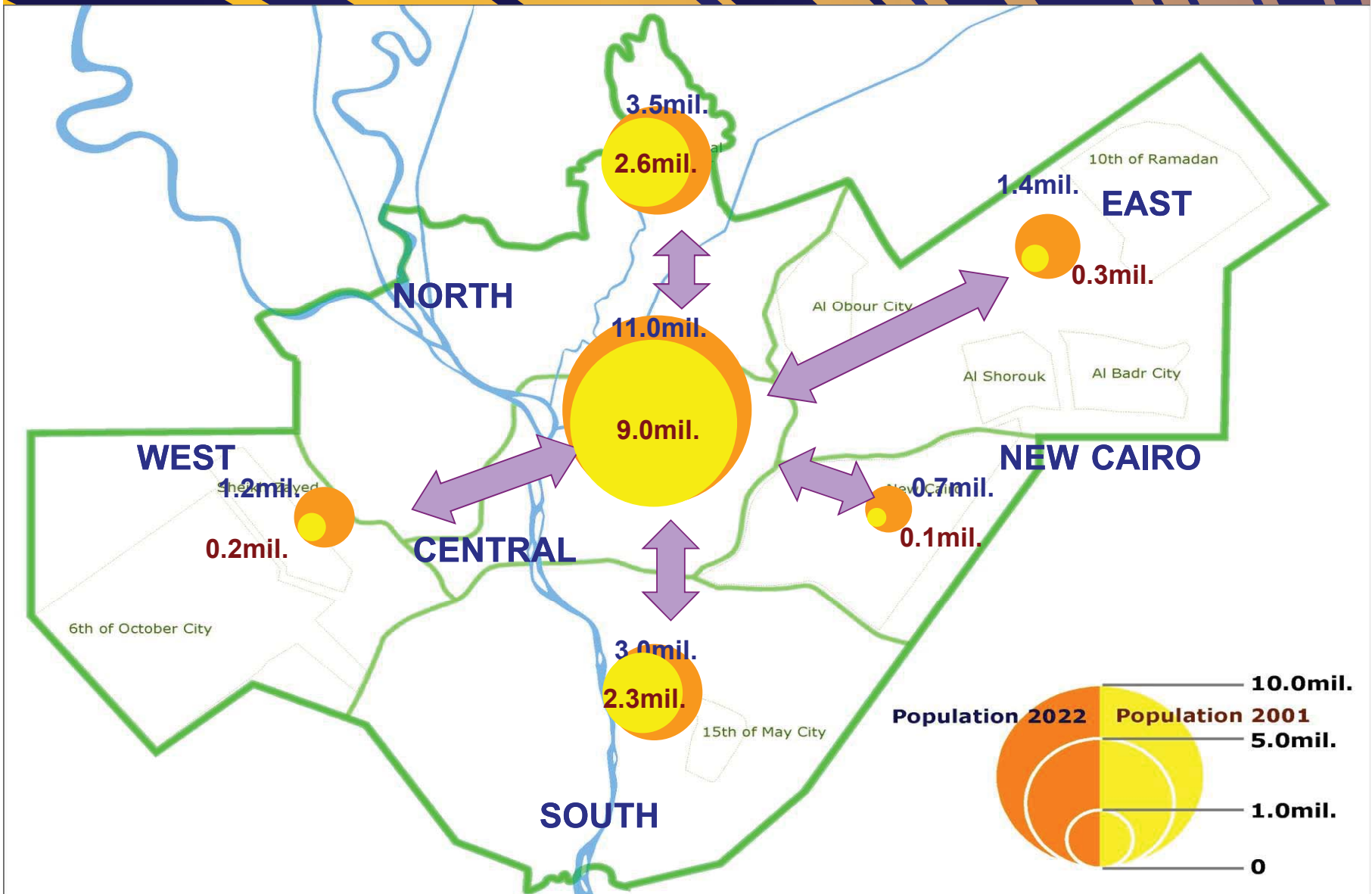
The Traffic System



Source: Abbas K. A. (2001) *Environmentally Sustainable Transport Strategies: The Way Forward in Metropolitan Cities*. In 12th VTI Int. Conf. on Traffic Safety in Three Continents Moscow



Greater Cairo Population Distribution: Source CREATS



Expected Traffic State in 2022: (In Case No Intervention Except Committed Projects)



Daily Average Road Traffic Speed:

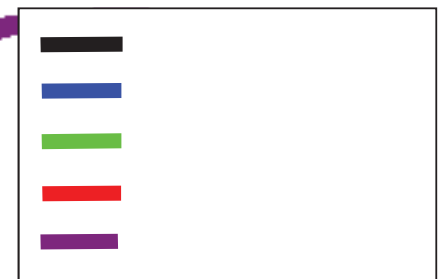
21.4 Km/h (2001) → 11.6 km/h (2022)

Daily Average Person Speed (all modes):

19.0 km/h (2001) → 11.6 km/h (2022)



Source CREATS



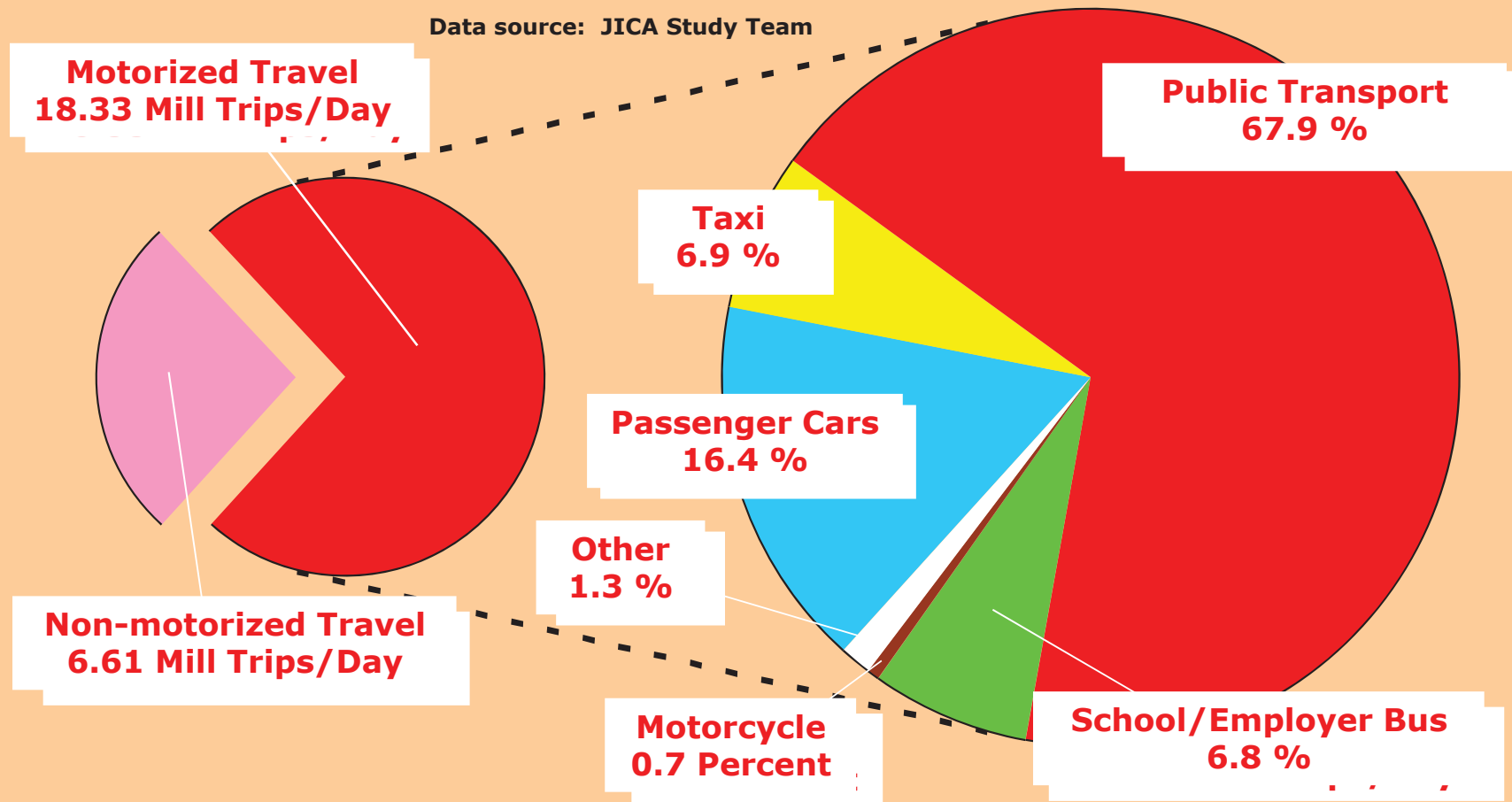


Year 2001 Study Area Trip Generation: Source CREATS



*Egypt is One of the Countries having a Sustainable Transport System
(26.5% of Daily Trips are Non Motorized) better than USA, Canada & UK*

Data source: JICA Study Team



Mode Split in Urban Areas: *Source: Pucher & Lefevre, 1996)*



Country	Car	Transit	Cycling	Walking	Other
Austria	39%	13%	9% 40%	31%	8%
Canada	74%	14%	1% 11%	10%	1%
Denmark	42%	14%	20% 41%	21%	3%
France	54%	12%	4% 34%	30%	0%
Germany	52%	11%	10% 37%	27%	0%
Netherlands	44%	8%	27% 46%	19%	1%
Sweden	36%	11%	10% 49%	39%	4%
Switzerland	38%	20%	10% 39%	29%	3%
UK	62%	14%	8% 20%	12%	4%
USA	84%	3%	1% 10%	9%	2%

Main Traffic Problems: Congestion, Incidents, Accidents, Pollution & Energy Consumption



Congestion



Accidents



Incidents



Pollution



Energy Consumption

Main Traffic Problem in Greater Cairo: Traffic Congestion



*Economic Costs of Traffic Congestion in Cairo Could
be as High as 4% of Yearly GDP (Source: CREATS)*



Status of Road Accidents World wide



- ❑ *are a major cause of death and injury, for example they account for almost 10 percent of deaths reported in the 5 - 44 year age group.*
- ❑ *are a considerable waste of scarce resources with accidents typically costing at least 1% - 2% of countries' GNP per annum, in addition to the substantial pain, grief and suffering.*
- ❑ *WHO ranked road traffic accidents in rank 8 of injuries leading to death causes in the international community – it is expected that by 2030 if road safety programmes are not implemented such rank will go up to rank 5.*



Main Road Transport Environmental Damages



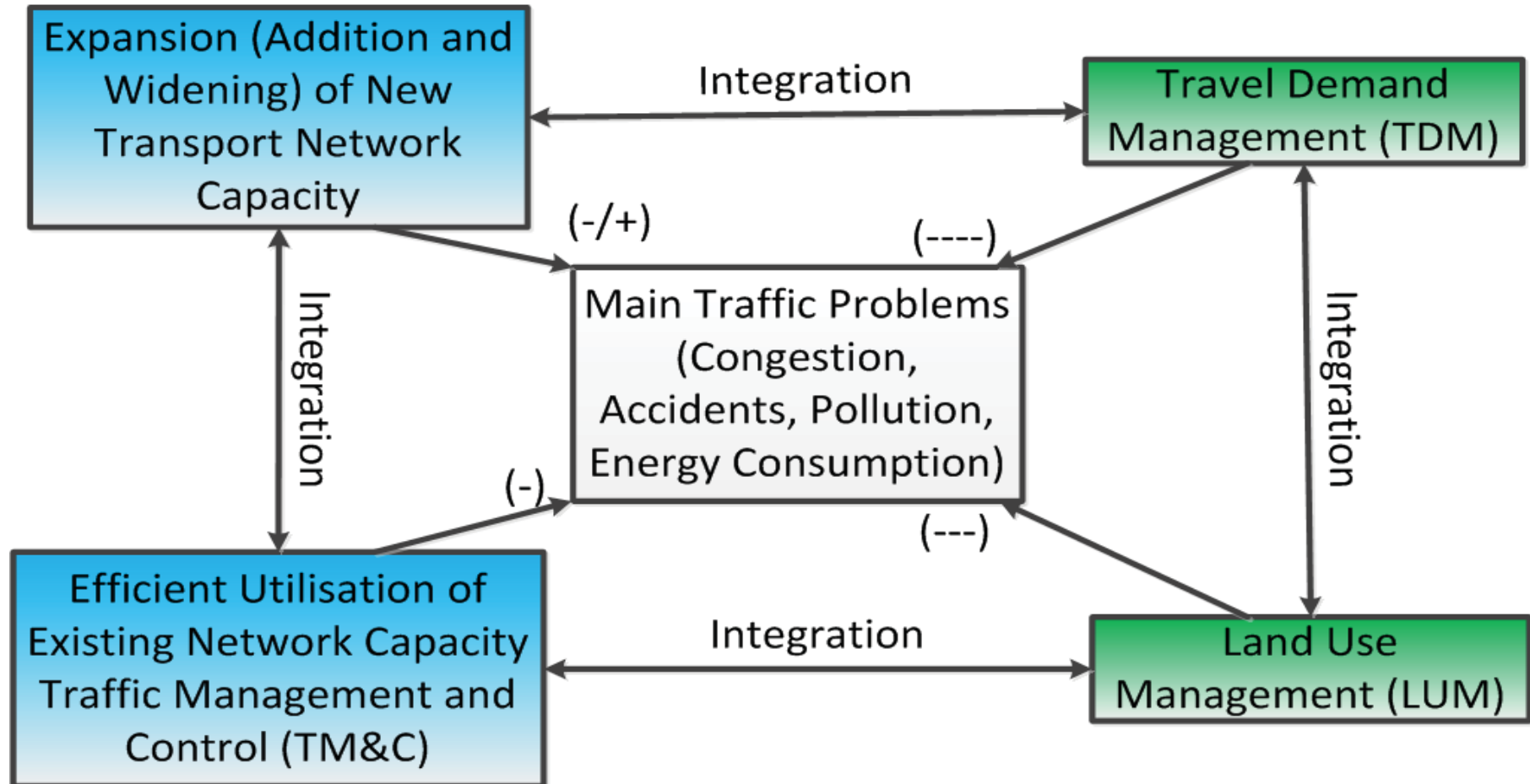


Strategies for Relieving Traffic Problems



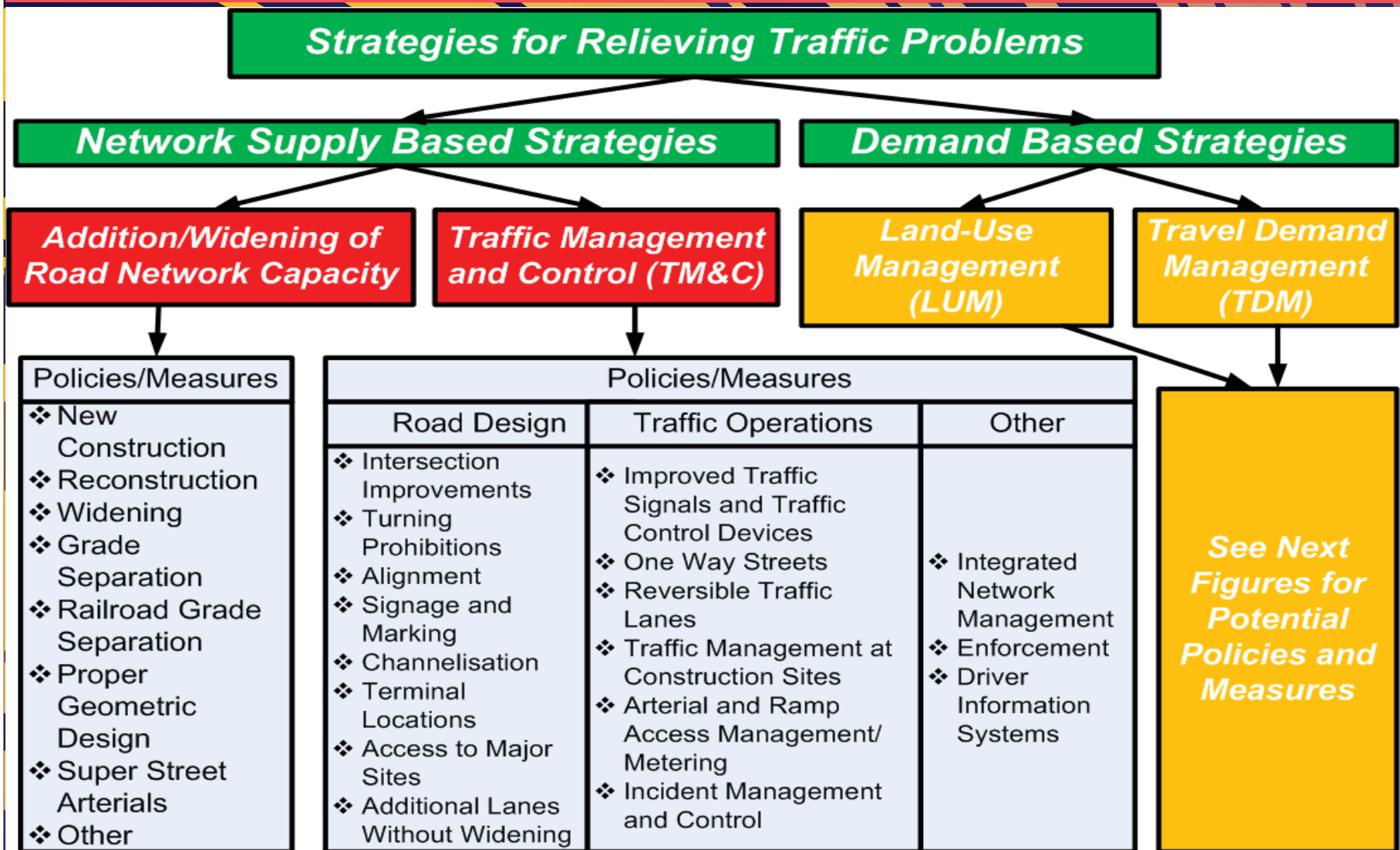
Network Supply Based Strategies

Demand Based Strategies



Source: Abbas K. A. (2012) BRT Systems: Place & Importance in the World. Opening Paper Session. In Proc. of TRANS IST 2012 Istanbul

Dimensions of Relieving Traffic Problems



Abbas et al (1997) A Trio Management Package for Relieving Traffic Congestion in Cairo: Traffic, Travel Demand & Land Use Management. Proc. of 25th European Transport Forum, UK, pp. 323-349



Addition/Widening of Road Network Capacity



Roadways take up a lot of land. Building new facilities continues to become more and more expensive. The cost of the land may be more than 1/2 of the total project costs.



Traffic Management & Control (TM&C)



Traffic light



Lane signalling



Matrix sign



Ramp meter



Speed camera



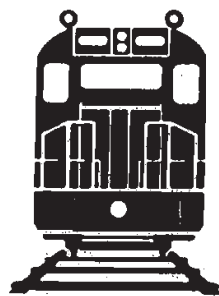
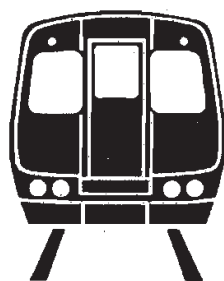
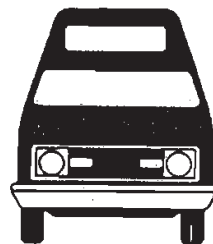
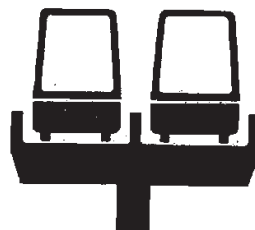
**Traffic Management
Centre**



Traffic Management & Control : Traffic Control Centres



Modes of Passenger Transport



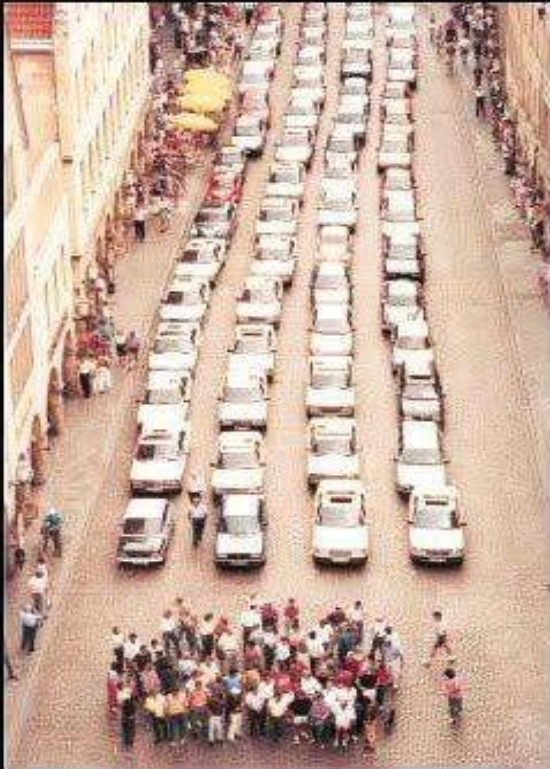
Source: Abbas K. A. (2012) BRT Systems: Place and Importance in the World. Opening Session Paper in TRANSIST 2012. IETT & Buyuksehir Belediyesi Istanbul - Turkey



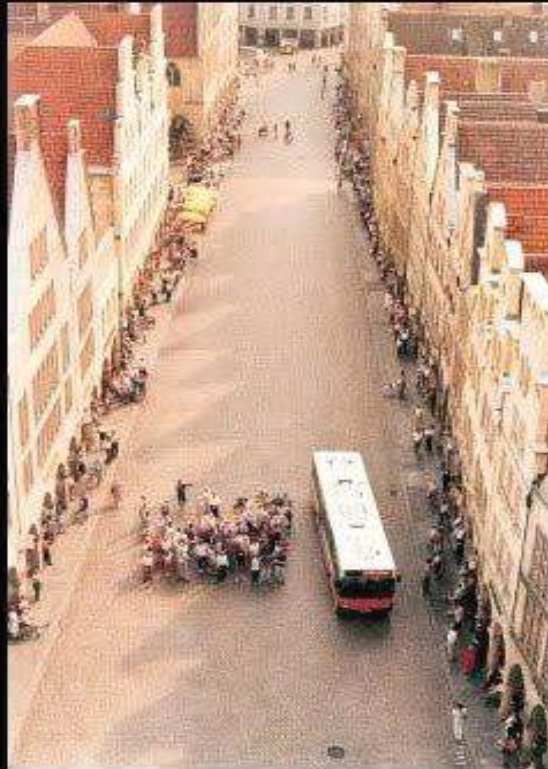
Efficiency of Car Versus Bus Versus Bicycle in Using Road Space



space required
to transport **60 people**



car



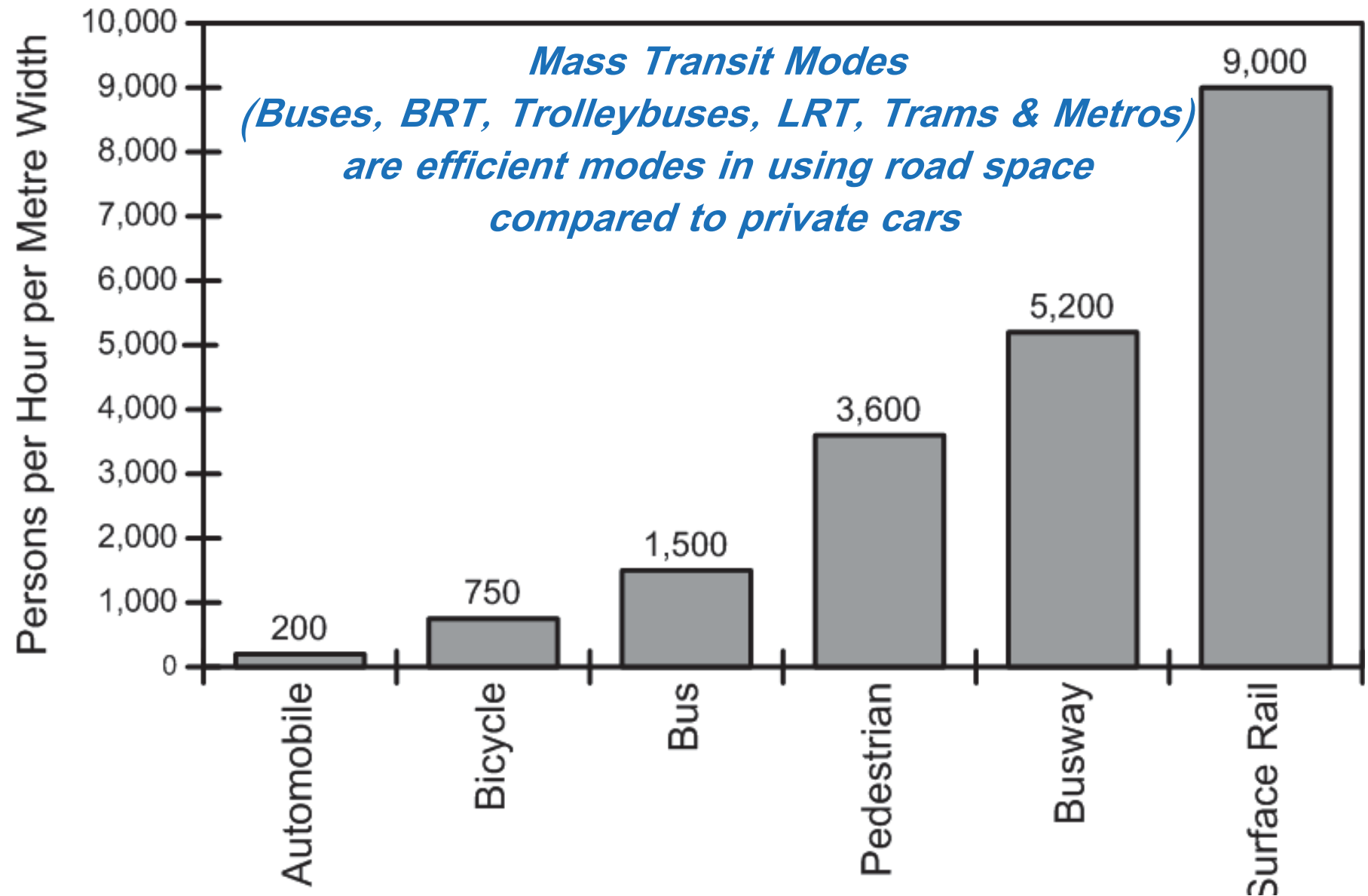
bus



bicycle

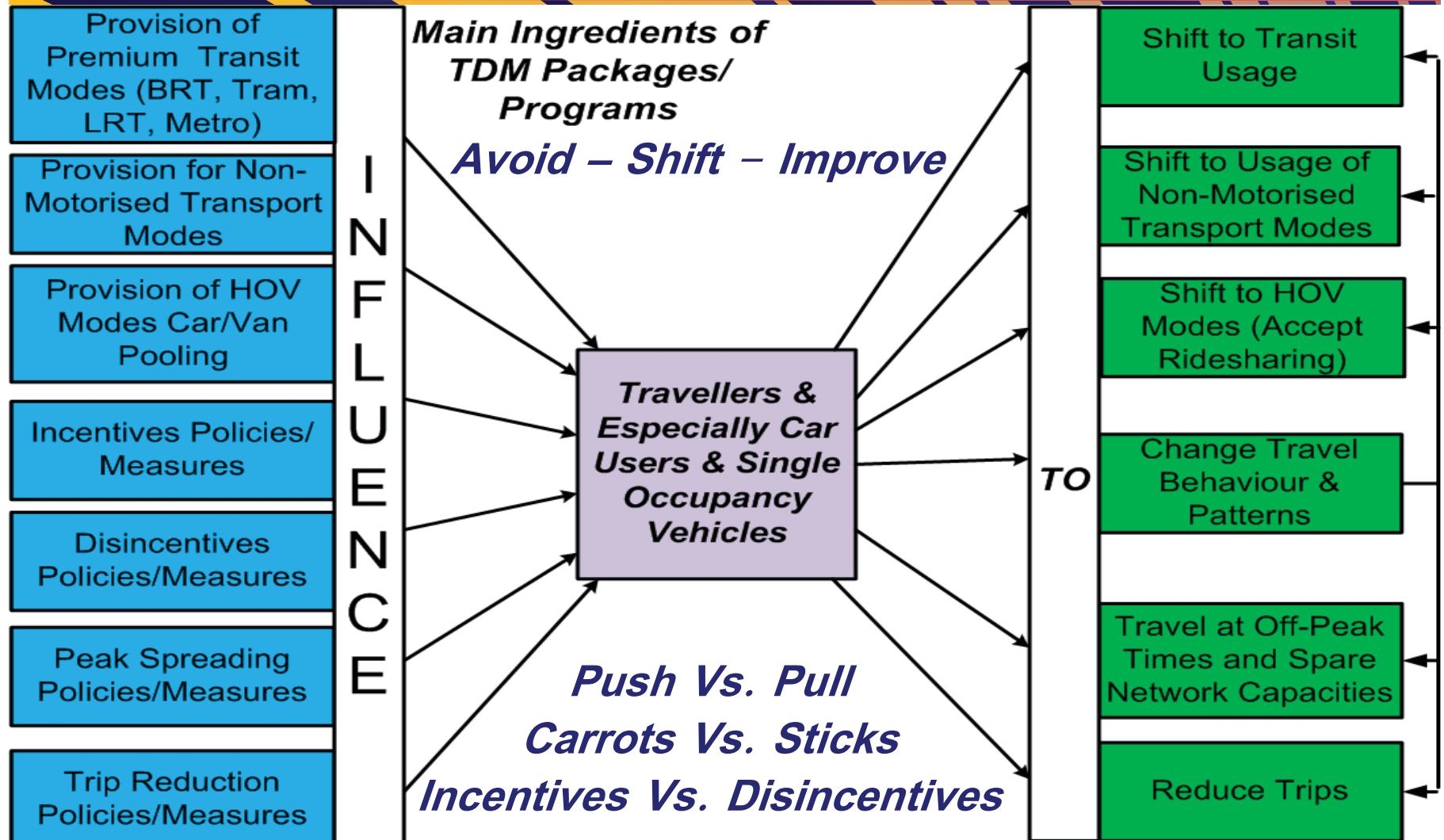


Carrying Capacity of One Meter Width per Hour of Infrastructure for Alternative Modes (Source: Laconte, 1995)





Main Ingredients of Travel Demand Management



Source: Abbas K. A. (2012) BRT Systems: Place & Importance in the World. Opening Paper Session. In Proc. of TRANS IST 2012 Istanbul

Travel Demand Management (TDM)



Carpooling



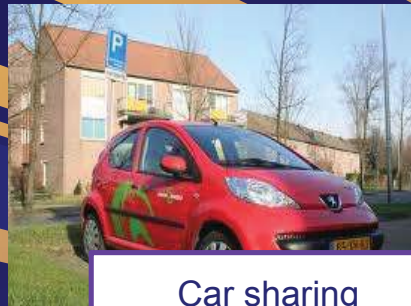
Working at home



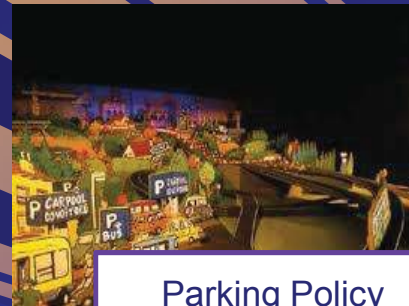
Home delivery



Peak congestion avoidance



Car sharing



Parking Policy



Dedicated PT infrastructure



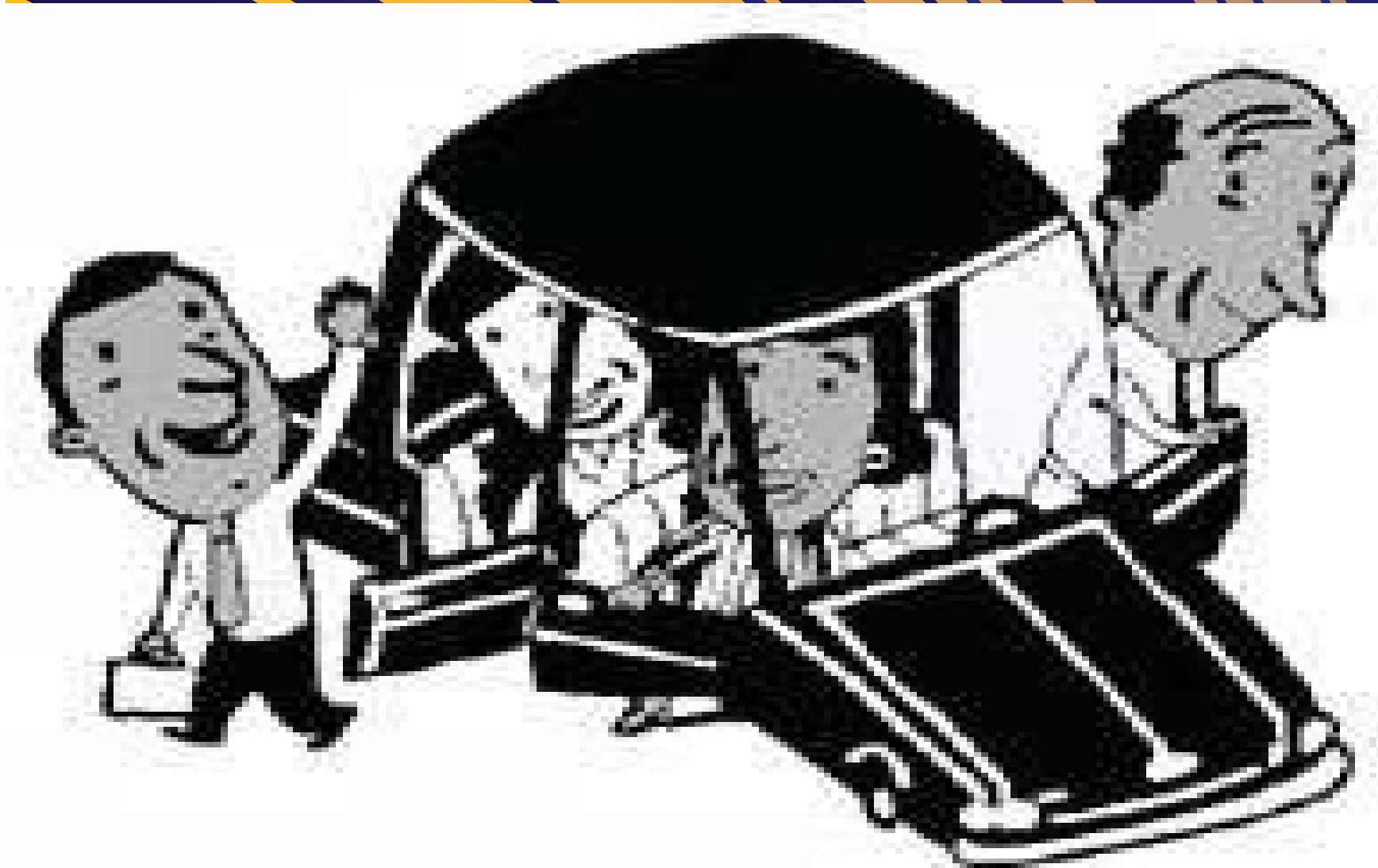
Park and Ride



Demand responsive Transport

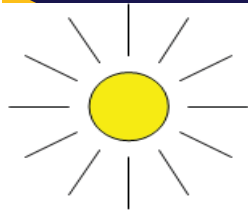


Ride Sharing/Car Pooling





A Typical Park & Ride System



CBD Area



Primary
Arterial
with Express
Bus Route

Residential Generators



Neighborhood Park and Ride
Lot Located at Junction
of major arterials
(Non-Prime Land)

Primary
Arterial
with Express
Bus Route

Parkway with Dedicated Express Bus Lane

Bus Priority
Signal

Bus Priority
Signal

Source: Abbas K. A. (2008) Park and Ride Strategy at ACT Canberra Australia– Snowy Mountains Engineering Corporation.



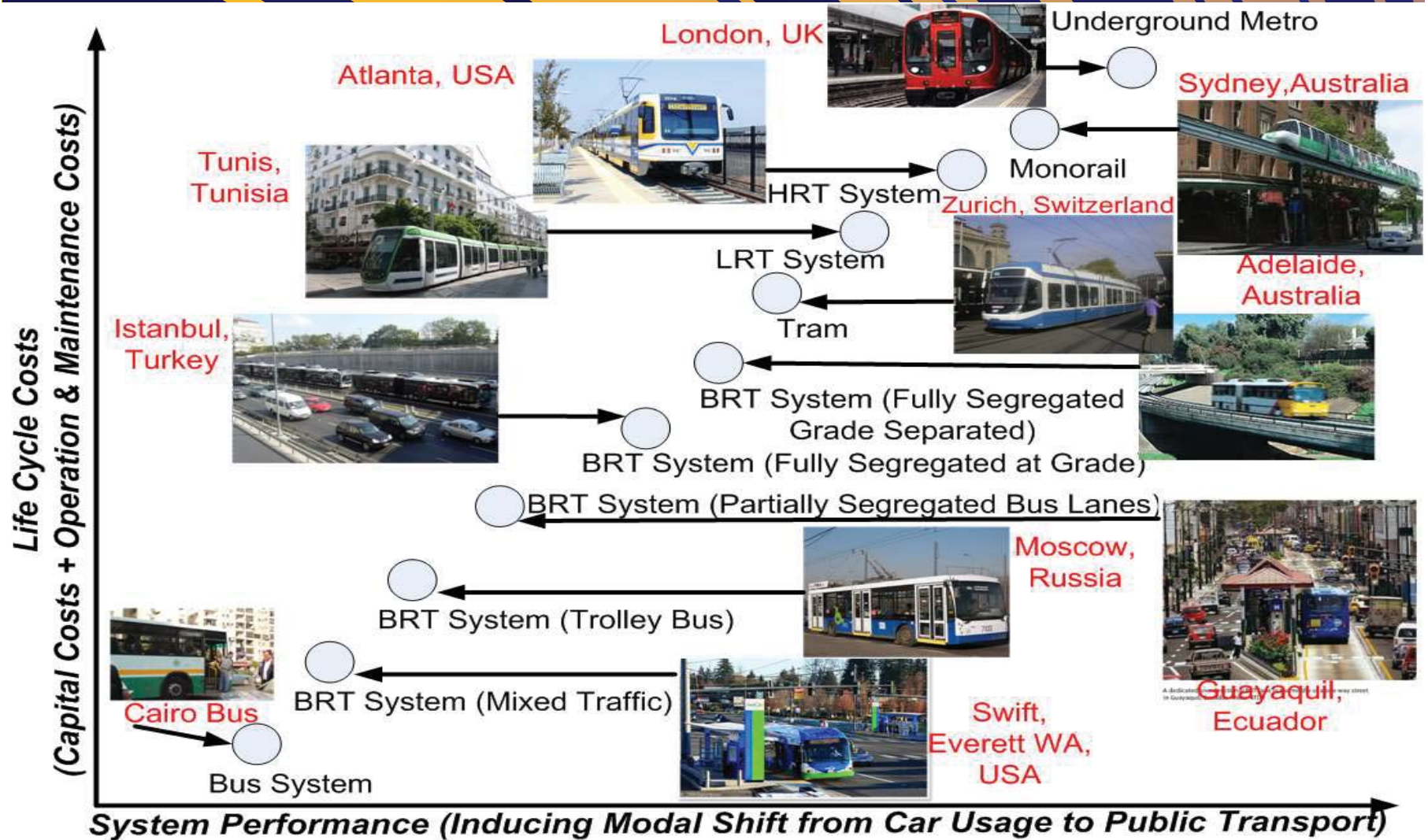
Premium Transit Systems: A Core TDM Policy

A core TDM policy response to problems of urban mobility and increasing use of cars in metropolitan cities is to provide premium transit systems that can meet increasing passenger demand & encourage drivers to switch to alternative transit modes. This is expected to require massive investments to attain comprehensively improved premium transit systems which can offer commuters the 5 Rs:

- ☐ *Right Quality of Service*
- ☐ *Right Place*
- ☐ *Right Time*
- ☐ *Right Price*
- ☐ *Right Marketing*



Sustainable Travelling Modes: From Bus to Metro



Source: Abbas K. A. (2012) BRT Systems: Place & Importance in the World. Opening Paper Session. In Proc. of TRANS IST 2012 Istanbul

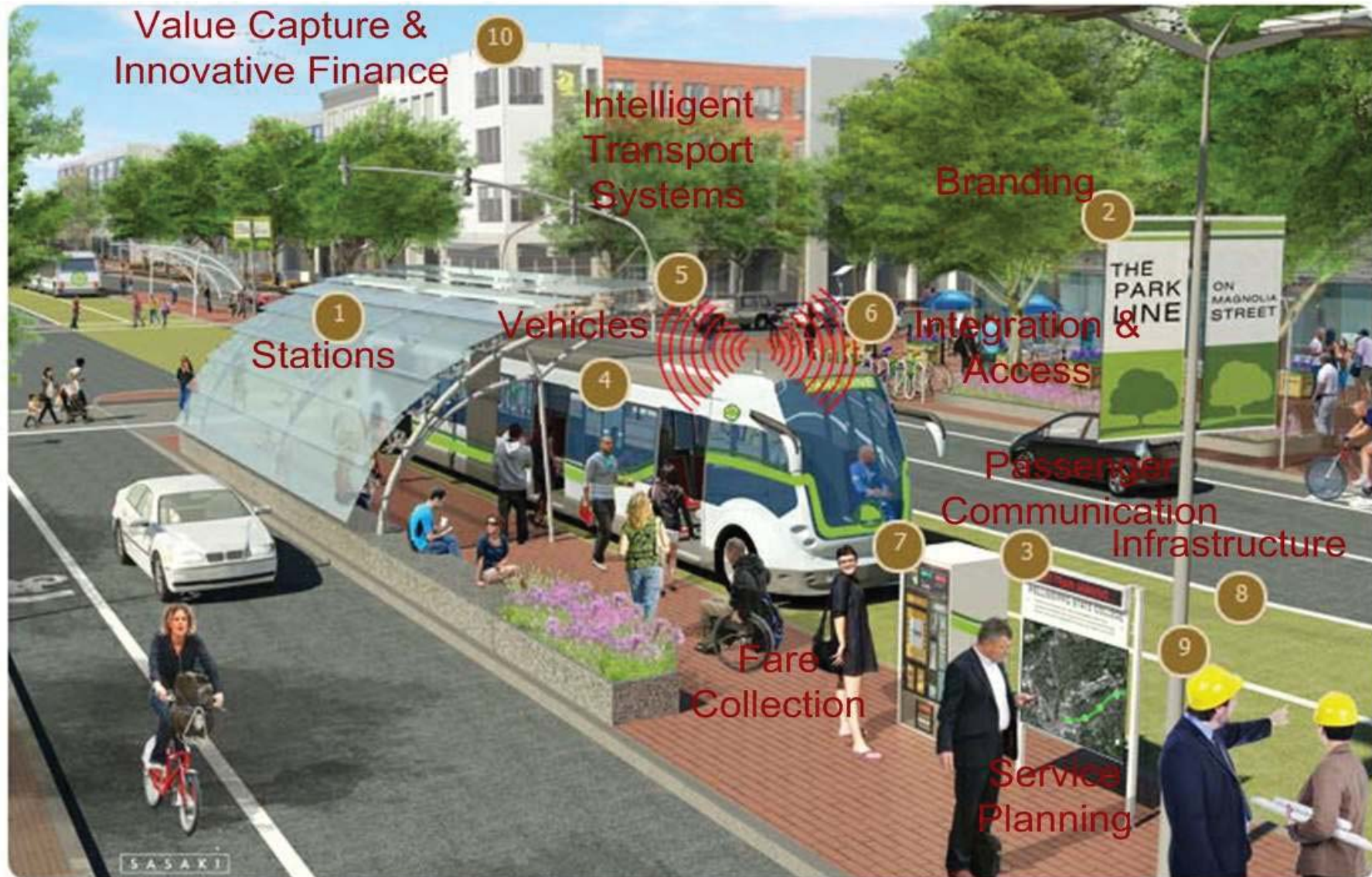


Bus Riders: Smiling Faces Car Drivers: Growing Faces





Pictorial Model of BRT System Ingredients (Source: Marcy & Monica 2012 Based on ITDP, BRT Standard 2012)





Light Rail Transit (LRT)/Tramway





Heavy Rail Transit (HRT)



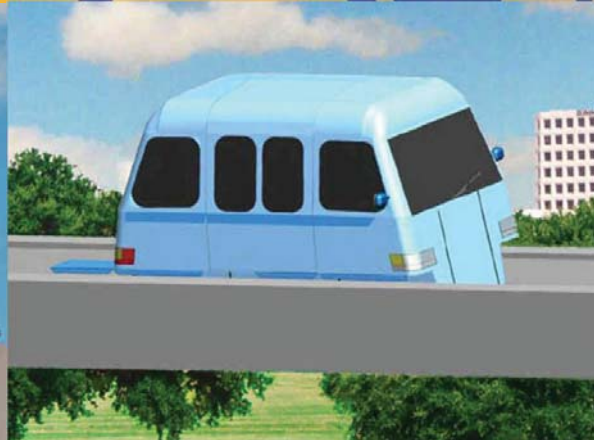


Innovative China Straddling Bus



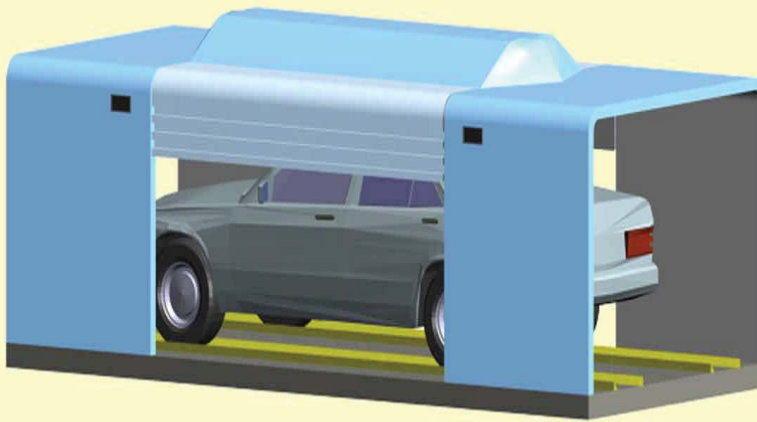
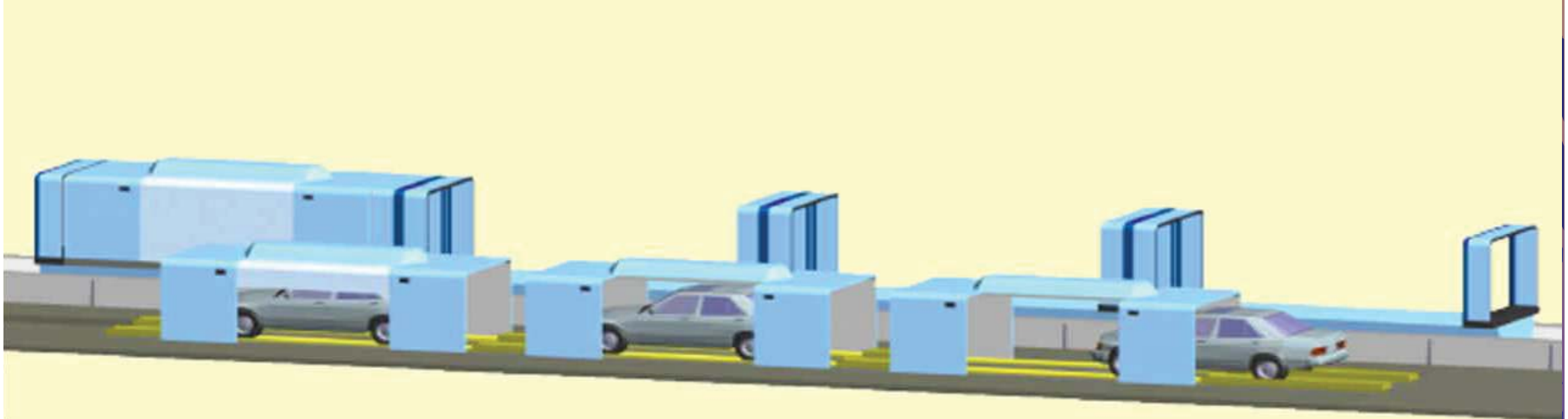


Innovative Public Transport Mode



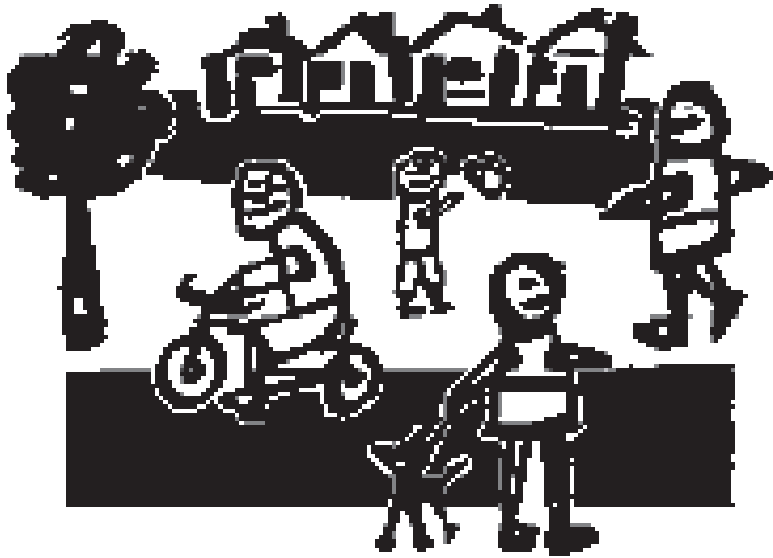


Innovative Multimodal Transport System





Streets for People



streets for people



Dana Street in Mountain View



Walking Facilities, Environment & Pedestrnisation



Integration of Bicycling with Metro



Bike Park & Ride & Rent & Bike

or

Bike Fold & Ride & Unfold & Bike



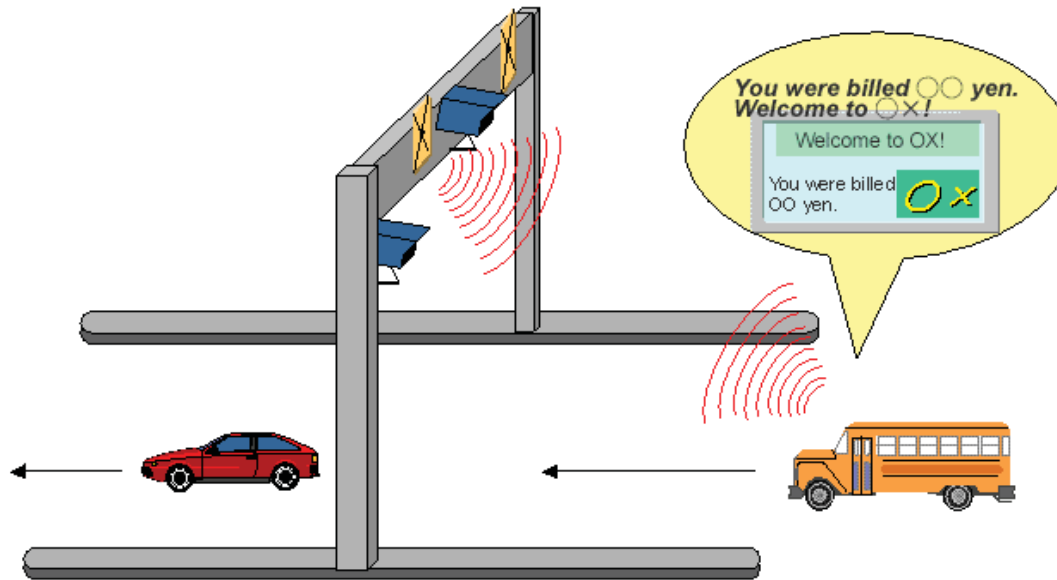


High Occupancy Vehicle (HOV) Lanes in Dallas-Fort Worth Area





Pricing Restraints

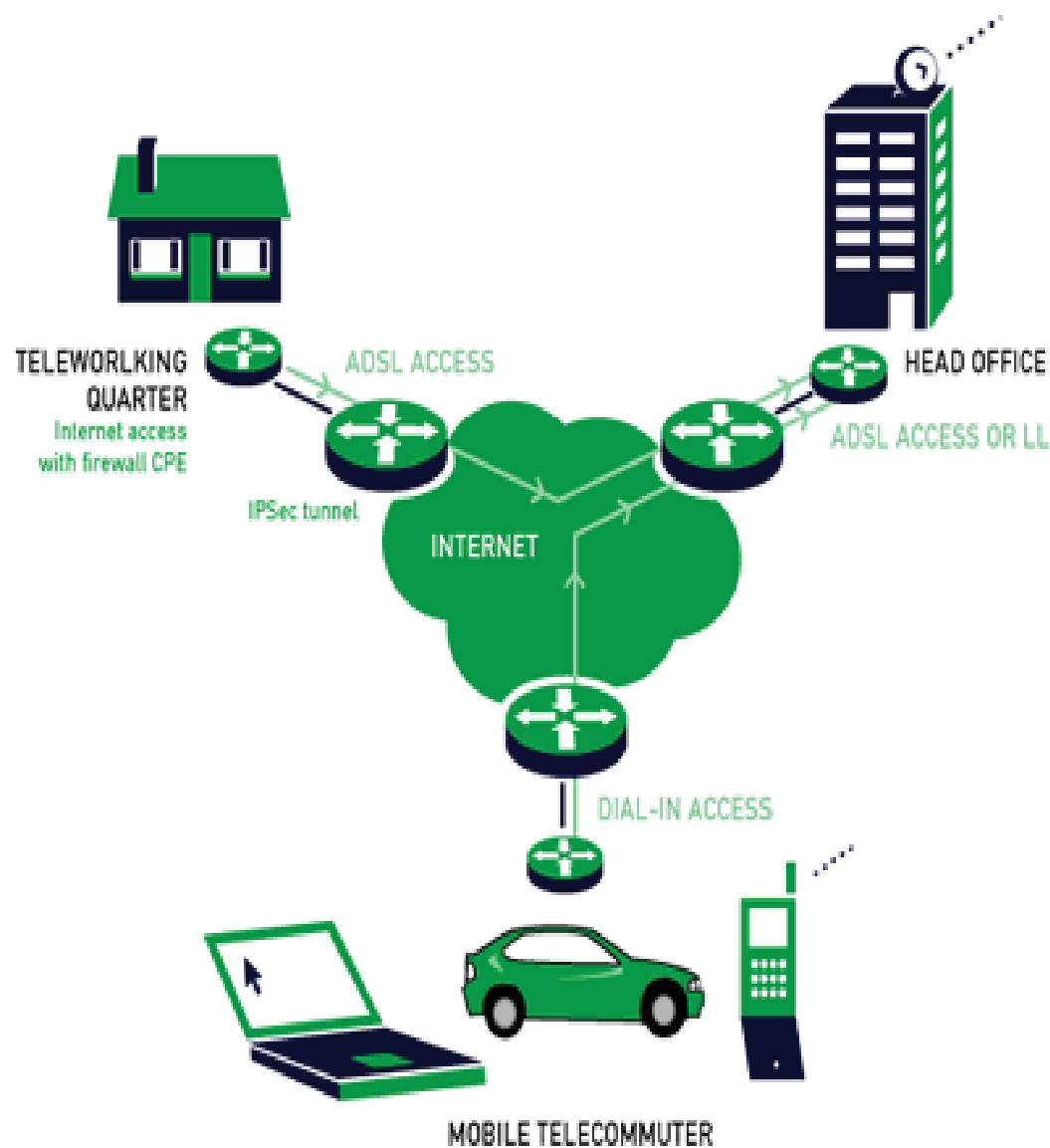


— ERP System for Singapore —
ERP = Electronic Road Pricing





Teleworking, Telecommuting, Telebanking



Now available at the
Windward Islands Bank Ltd.

Telebanking :

*"Banking at the
Touch of your Fingertips"*

*It's so smooth: just dial "100" (locally)
"37969" (international)*



*Now with a phone and your bankomatiko card,
we are just a phone call away.*

TELEBANKING IS NOW AVAILABLE AT



WIB

The Windward Islands Bank Ltd.
www.wib-bank.net

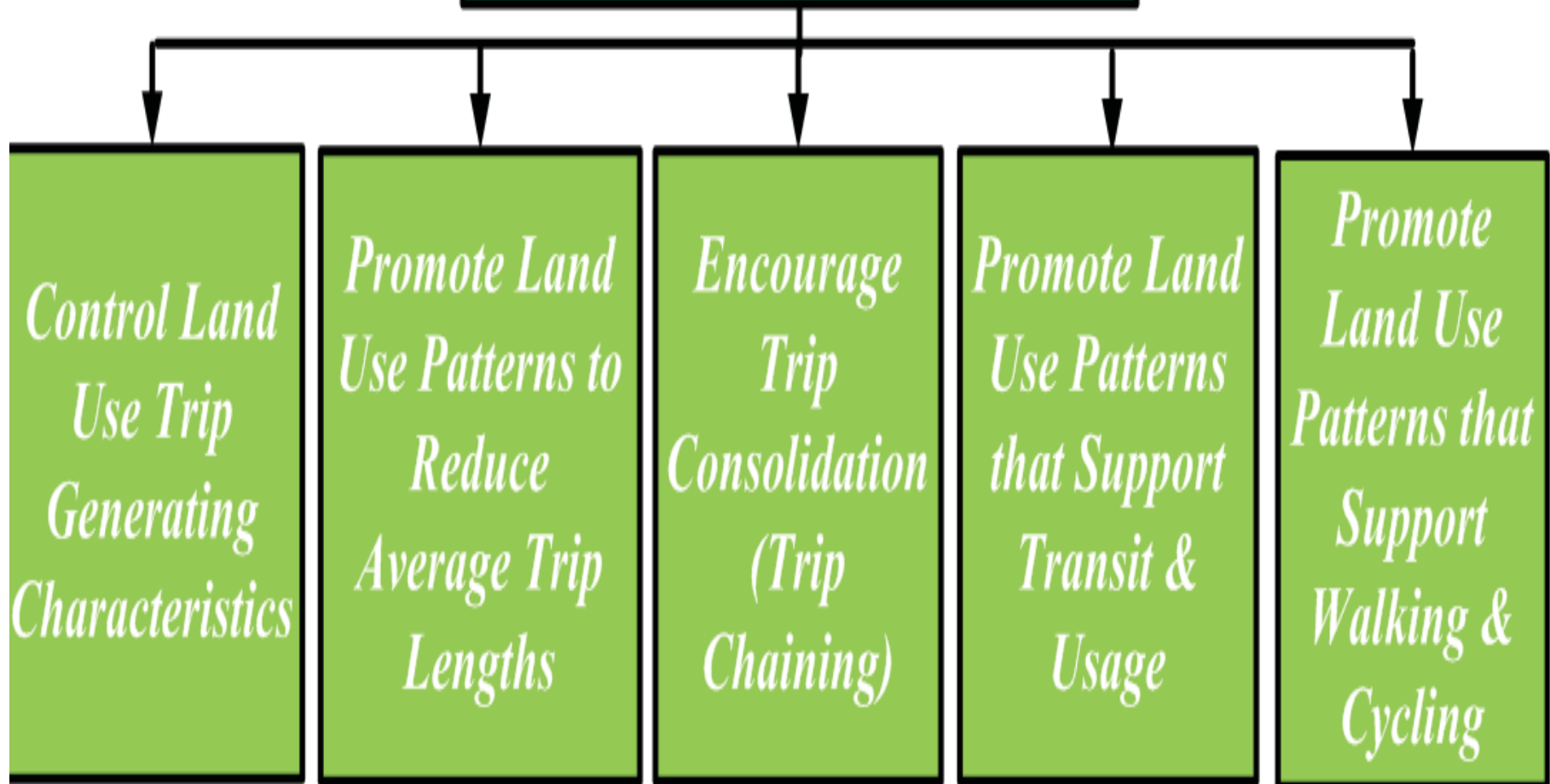
YOUR PARTNER IN PROGRESS



Objectives of Land Use Management (LUM)



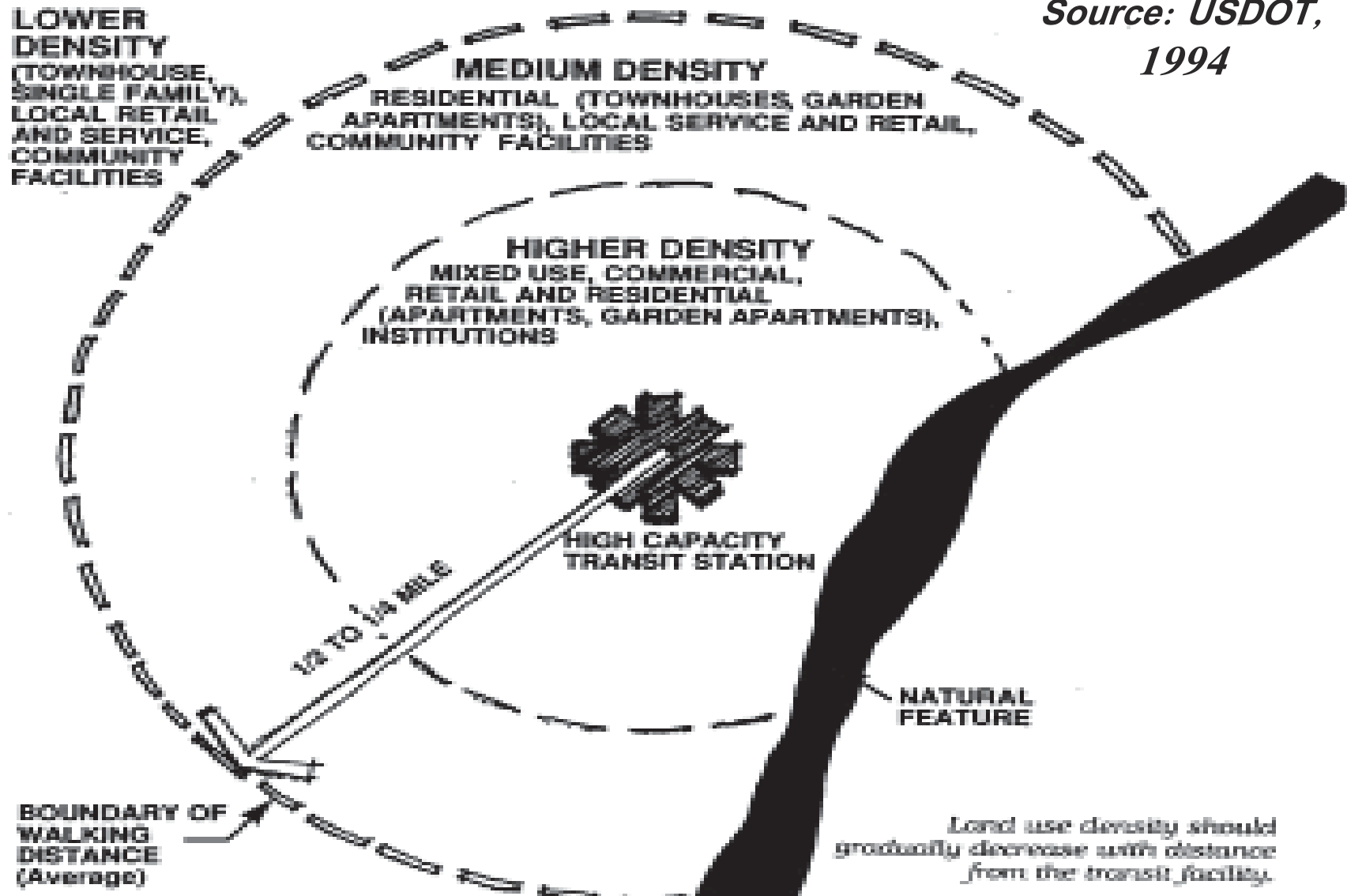
OBJECTIVES OF LAND USE MANAGEMENT (LUM)





Gradation of Land Use Density to Encourage Transit Usage

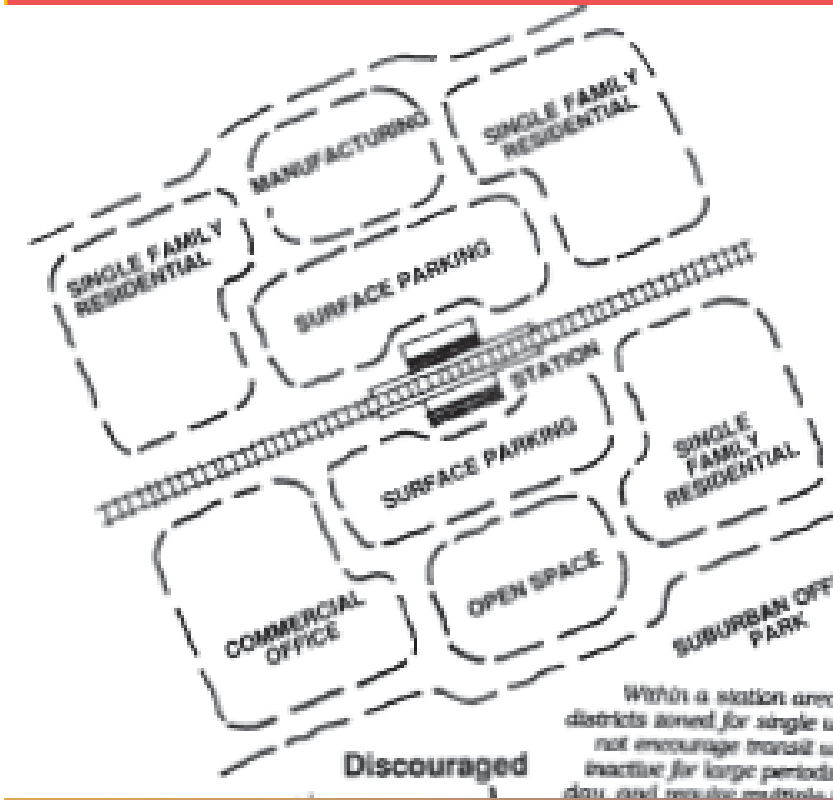
Source: USDOT,
1994



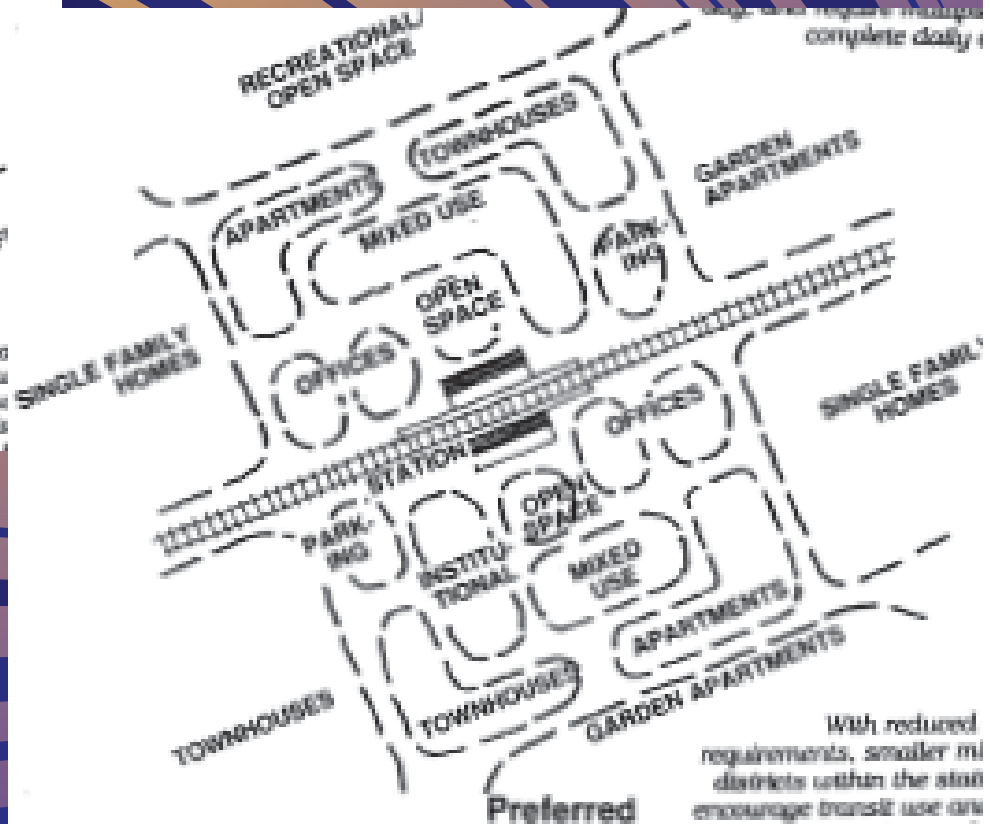


Small Mixed Land Uses Located Near Transit Stations

Source: USDOT, 1994



Discouraged

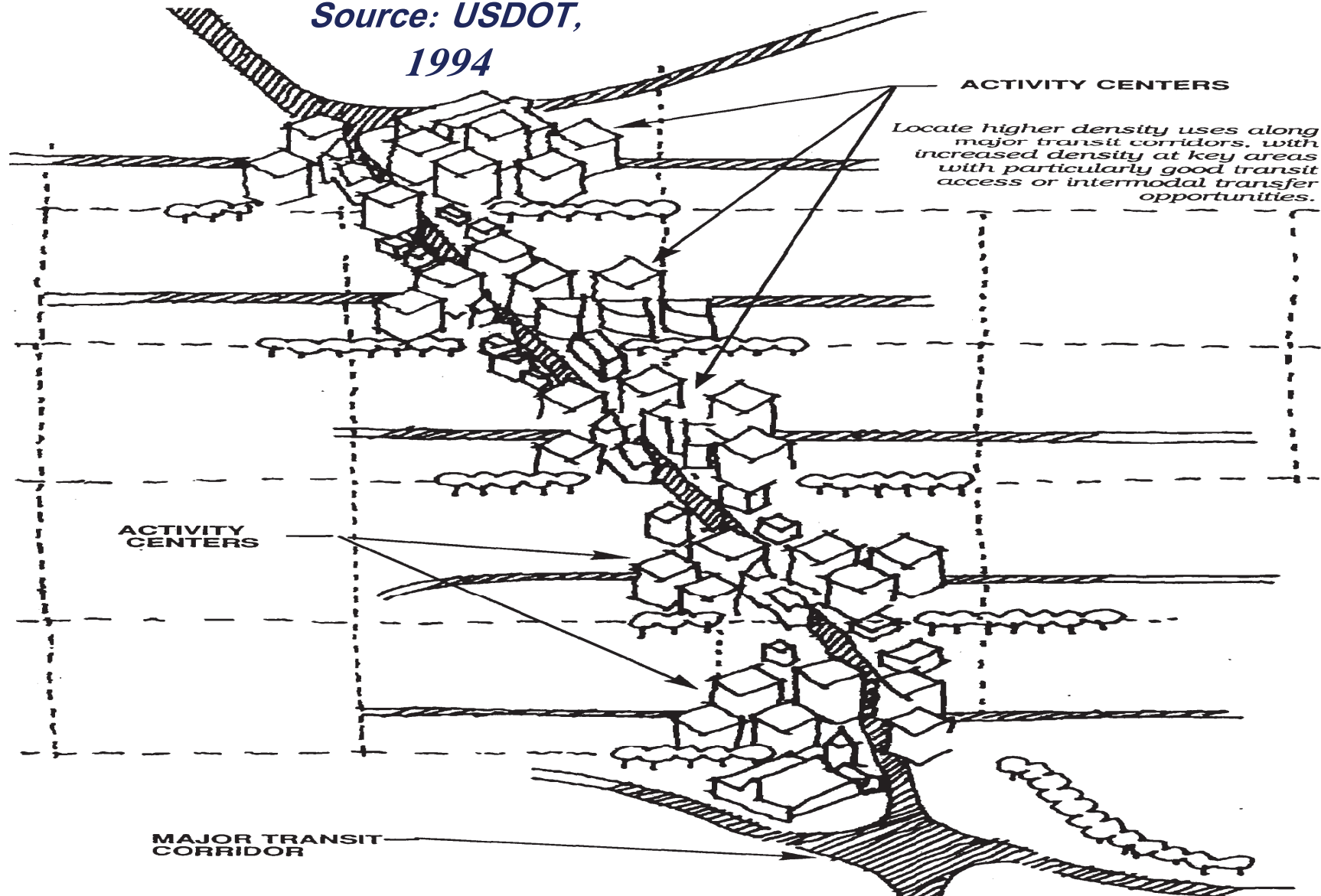


Preferred



Transit Corridors to Pass High Density Uses of Land

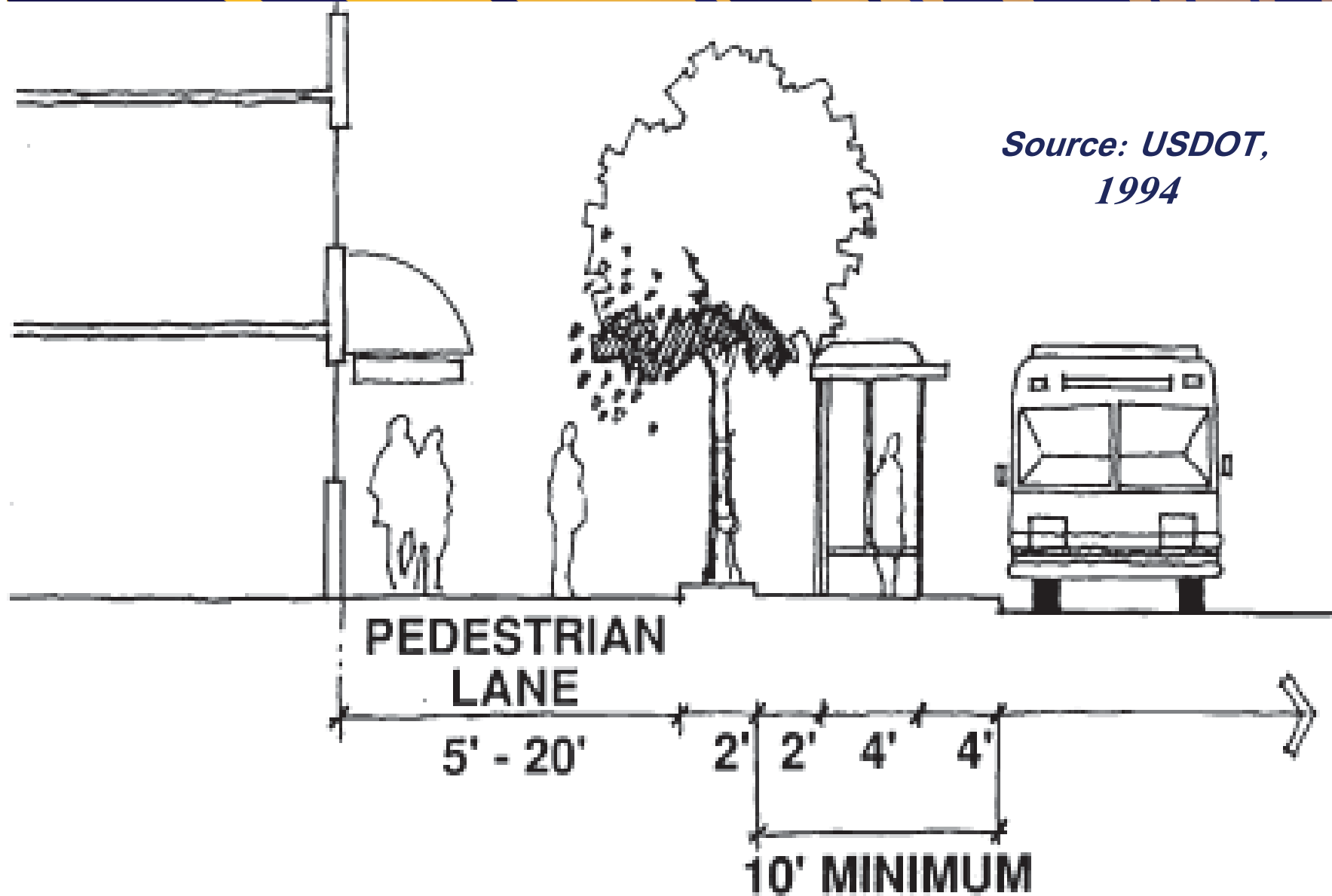
Source: USDOT,
1994





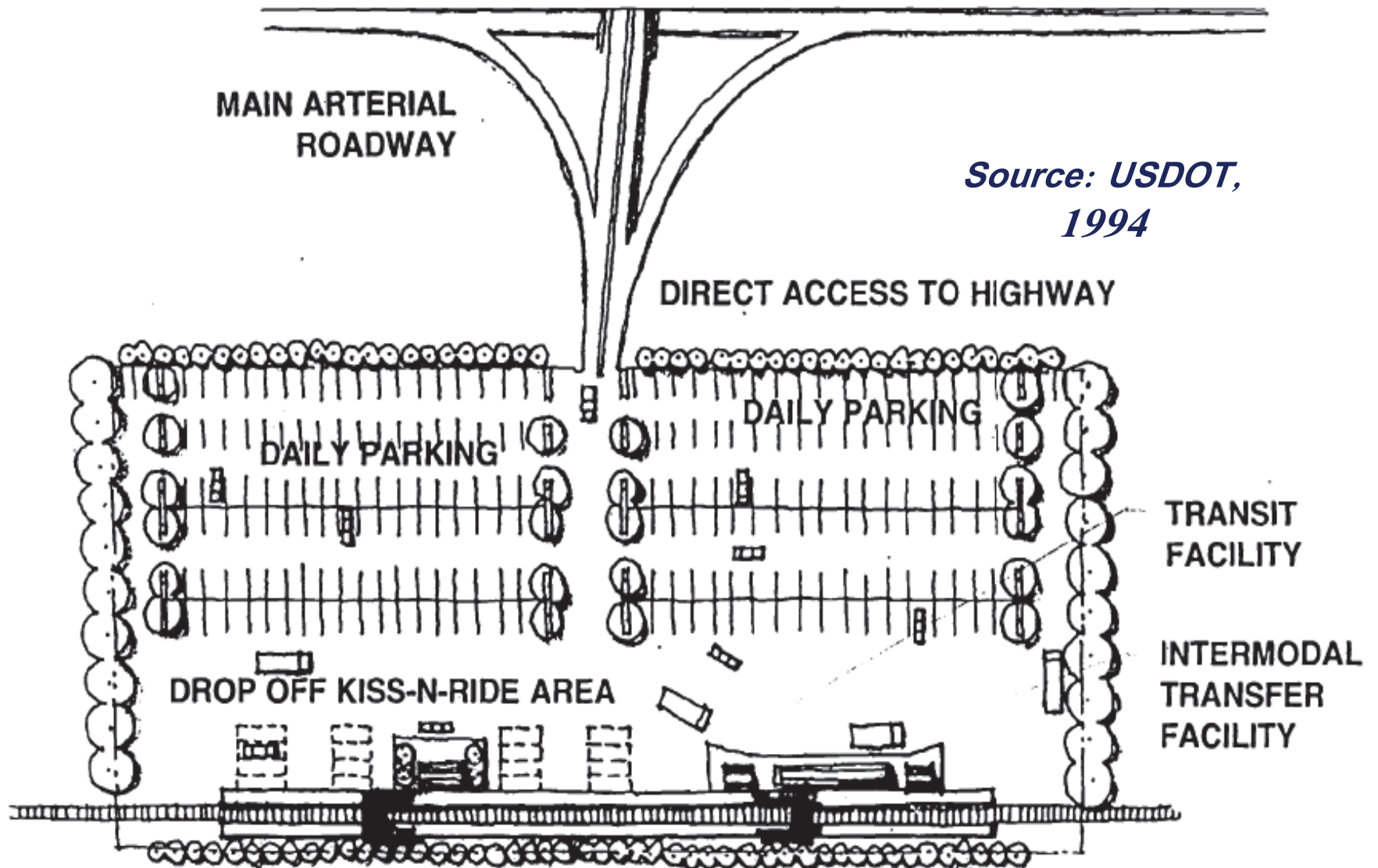
Secure & Safe Transit Waiting Areas

*Source: USDOT,
1994*



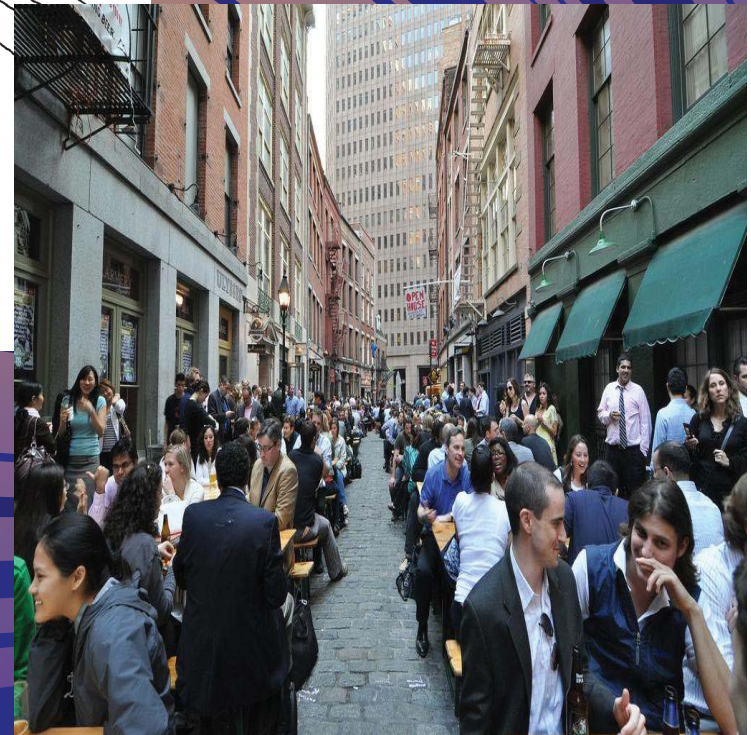
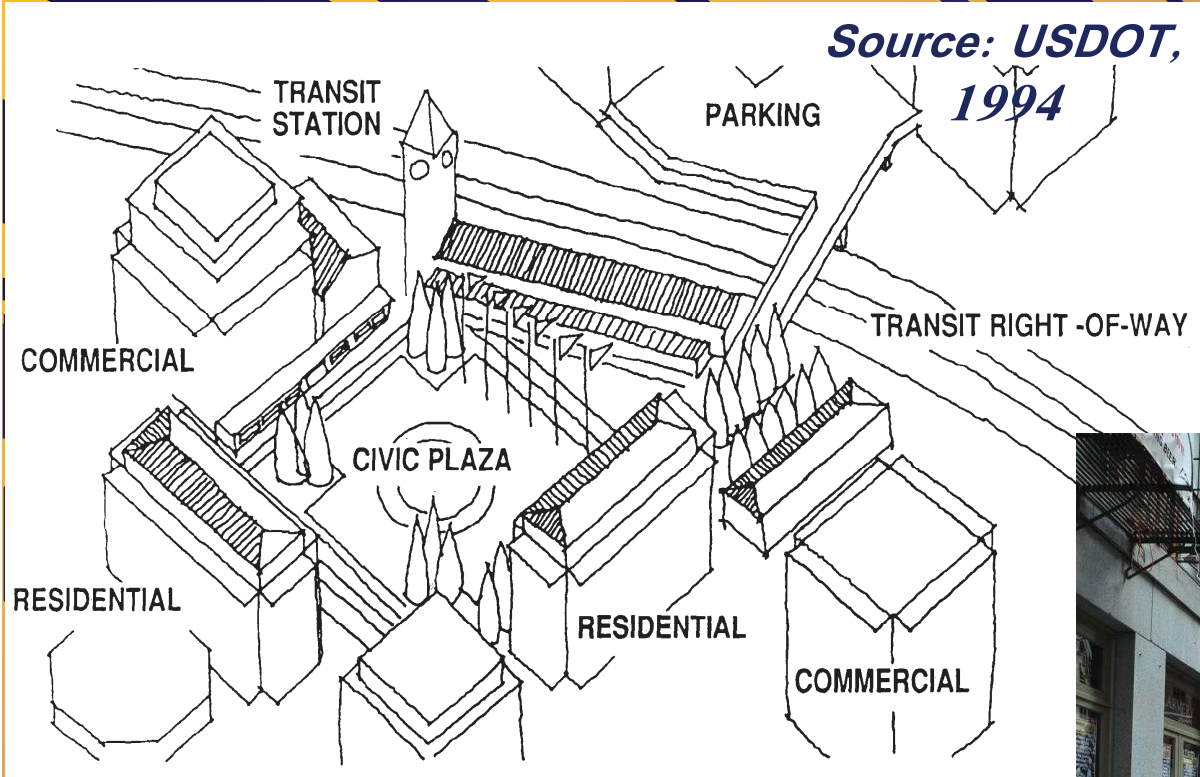


Direct Access to Transit Park & Ride Facilities



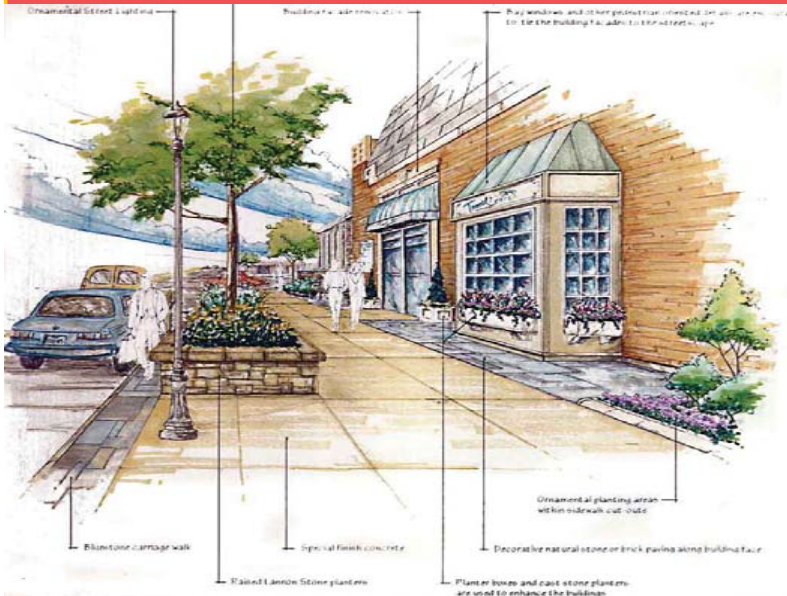


Open Space to Take Consideration of Pedestrians & Vibrant Citizens





We have to make the Right Choices for Our Quality of Life





THANK YOU

شكرا