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The role of mobility in the context of livable cities

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The adverse impacts of growth in motorisation

- in economic, environmental and social terms
- are ruining the quality of life in our cities and our global climate.

Carlos Pardo, 2008

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Challenges in developing cities

Humans **love to move**, travel, **discover**... by **different** ways and **modes**...

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Challenges in developing cities

In most cities, mobility is dominated by personal motorized transport. Many people choose cars to move around...

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Challenges in developing cities

- Road transport is a major contributor to air pollution and climate change.
- Urban transport contributes to now 50% urban CO2 emissions and is still growing!

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Challenges in developing cities

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Challenges in developing cities

Worldwide, 1.3 Million road deaths and up to 50 Million people injured per year

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Challenges in developing cities

10-25% of urban areas are taken by road transportation infrastructure -

A lot of space for cars but...

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Challenges in developing cities

...where is the space for people?

the silent pedestrian, the invisible cyclist must be seen

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Failures in Urban and Transport Planning

Trends in cities

- Rapidly increasing car ownership and use
- Declining mode share of public transport, walking, and cycling
- Declining city centres; rapid decentralisation into car-oriented suburban sprawl

Focus was given to road design:

- More infrastructure for cars
- More space for motorized vehicles, which let to less density and often to sprawl
- Unsustainable focus


Source: Xie/GTZ 2006, Beijing

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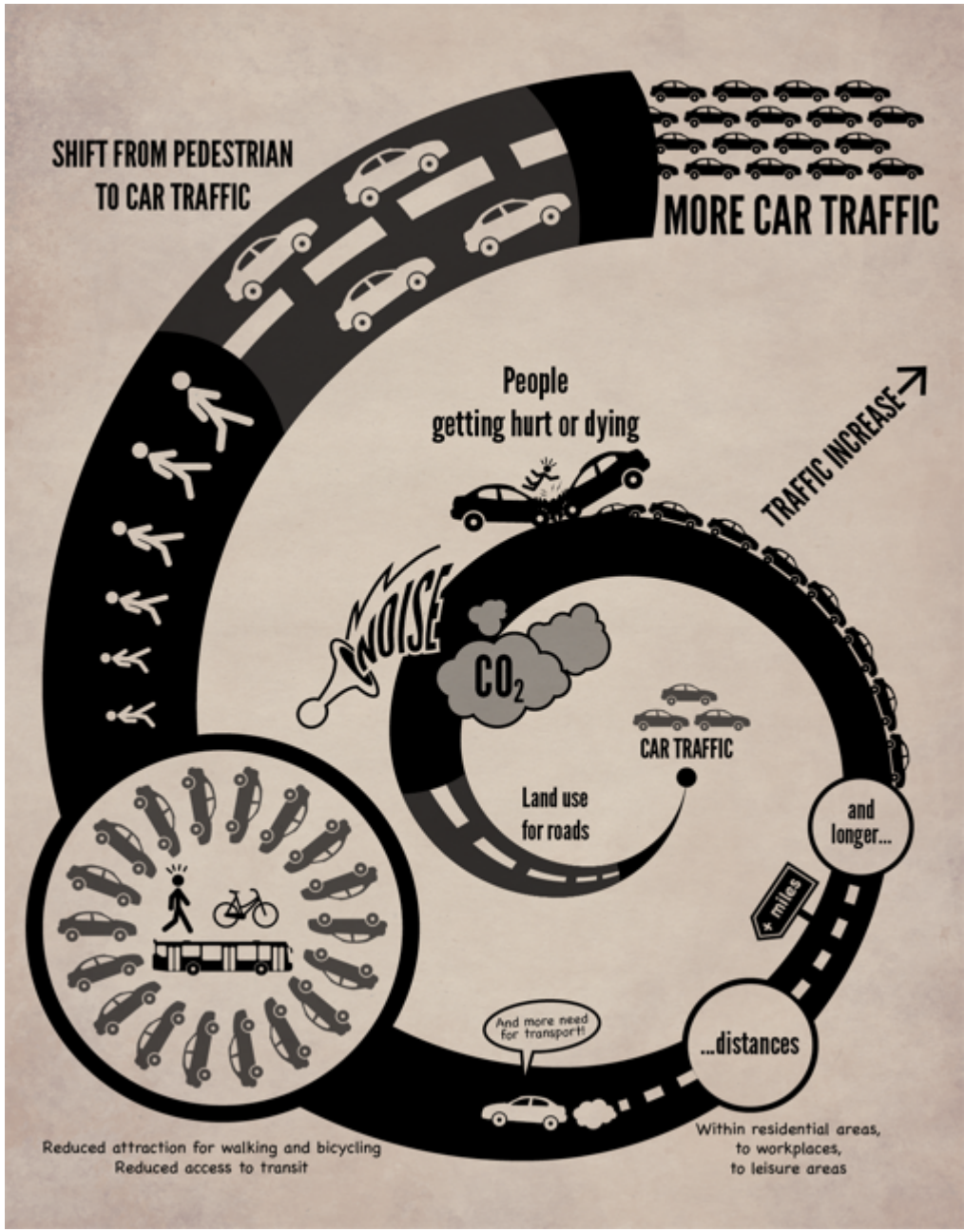
Induced Demand

Greater

- Demand for space
- Impact on health
- Deterioration of environment
- Impact on traffic
- Demand for travel



Source: Claudio Olivares, based on Wuppertal Institute

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Why going for liveable, sustainable, compact and attractive cities?

A **liveable** city is a city that provides a high quality of life for its **citizens**

This requires:

Economic strength
Social balance
Ecological viability

All these elements are interdependent

London

Brussels

Vienna

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Livable Cities & Urban Life

What influences Liveability?

Direct transport related factors:

- Infrastructure
- Accessibility
- Quality of architecture
- Urban design
- Public Transportation
- Public places
- ...etc.

Other factors:

- Safety/Crime
- Schools and education
- Recreation
- Political stability
- Availability of goods/services
- Economic/Business conditions

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Livable Cities & Urban Life

Rankings of Quality of Living

Source: Mercer, 2012.

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Mercer Quality of Living Survey 2012

Top 10 Cities (worldwide):

- Vienna, Austria *(1st)*
- Zurich, Switzerland *(2nd)*
- Auckland, New Zealand *(3rd)*
- Munich, Germany (*4th*)
- Vancouver, Canada *(5th)*
- Düsseldorf, Germany (*6th*)
- Frankfurt, Germany (*7th*)
- Geneva, Switzerland (*8th*)
- Copenhagen, Denmark (*9th*)
- Bern, Switzerland (*10th*)

Vienna

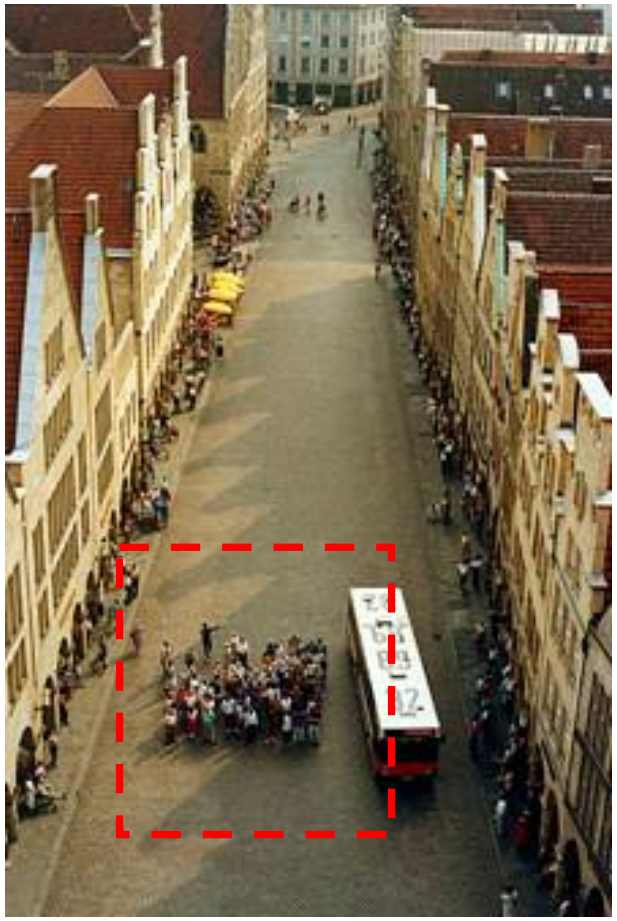
Zurich

Source: VBZ Zurich, 2009, http://vbz.ch.

Munich

Tackling the Problem

Traditional focus was given to road design: More infrastructure for cars, more space for motorized vehicles, unsustainable focus: Question is, how to use limited road space best



Source: City of Münster

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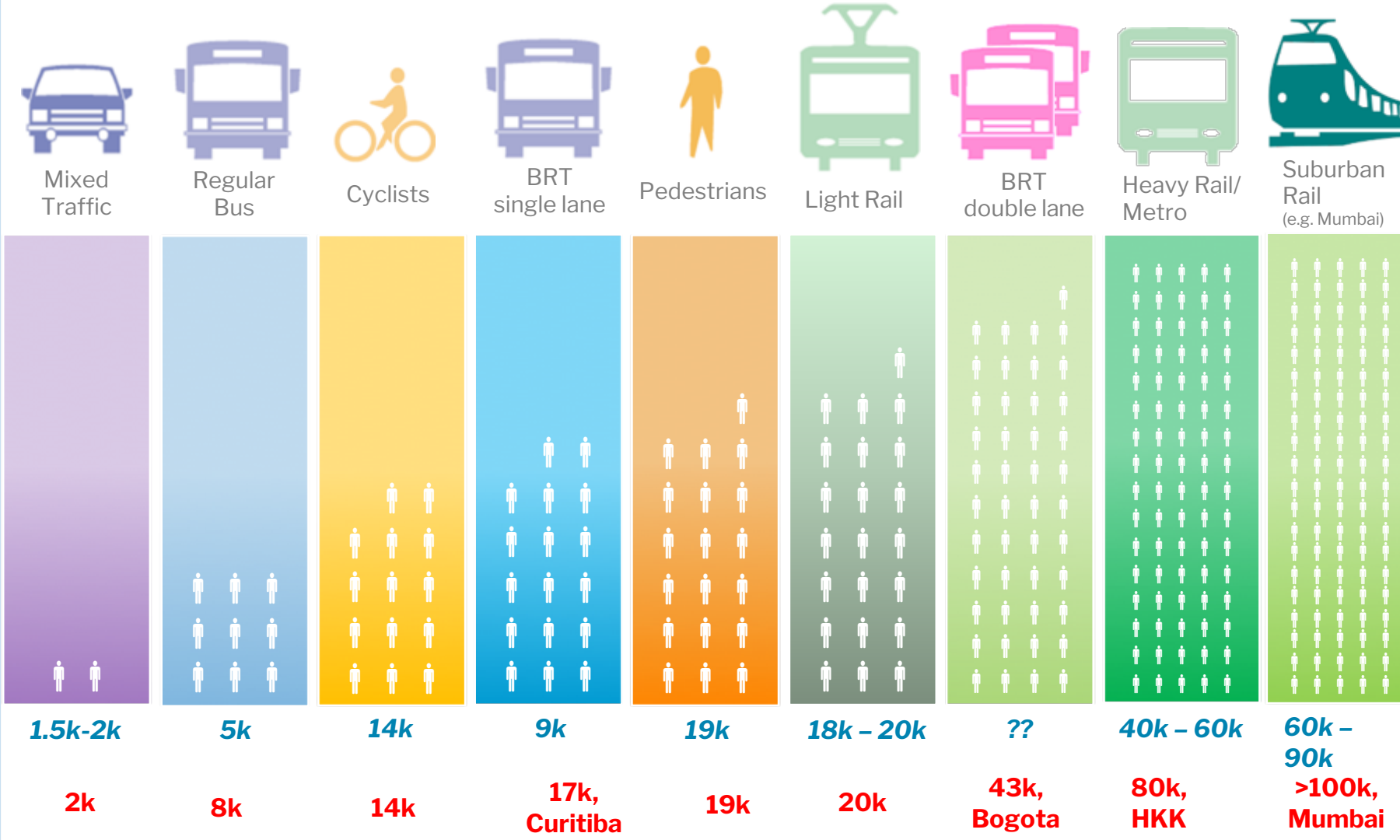
Why public transport priority? Corridor Capacity

(people per hour on 3.5 m wide lane in the city – PPHPD [PAX/hour/direction])



Equivalency road width: In order to carry 20,000 automobile commuters PHPD, a highway must be at least 18 lanes wide. (assumption 1.2 passengers per automobile)

PPHPD Range

Maximum PPHPD achieved

Source: Botma & Papendrecht, TU Delft 1991 and own figures

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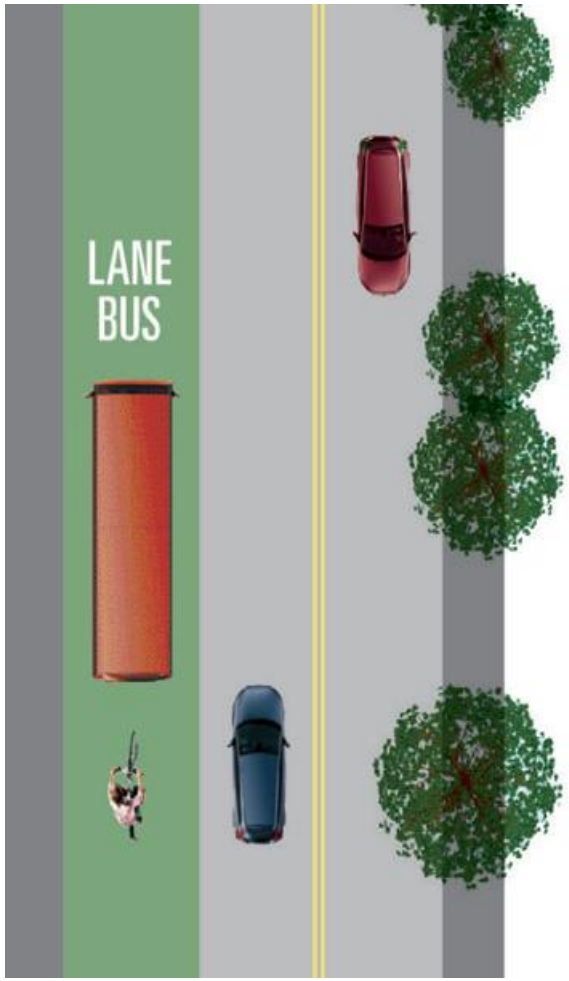
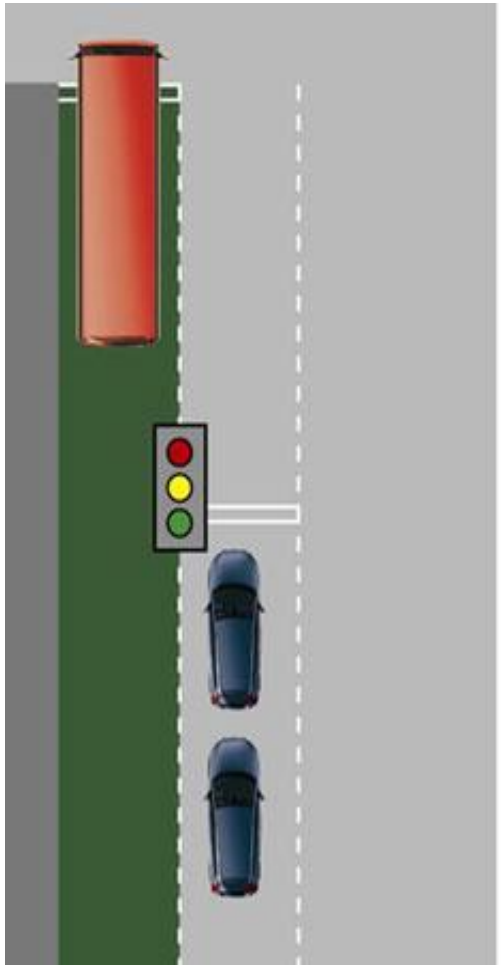
Improving Public Transport System

Priority for Public Transport





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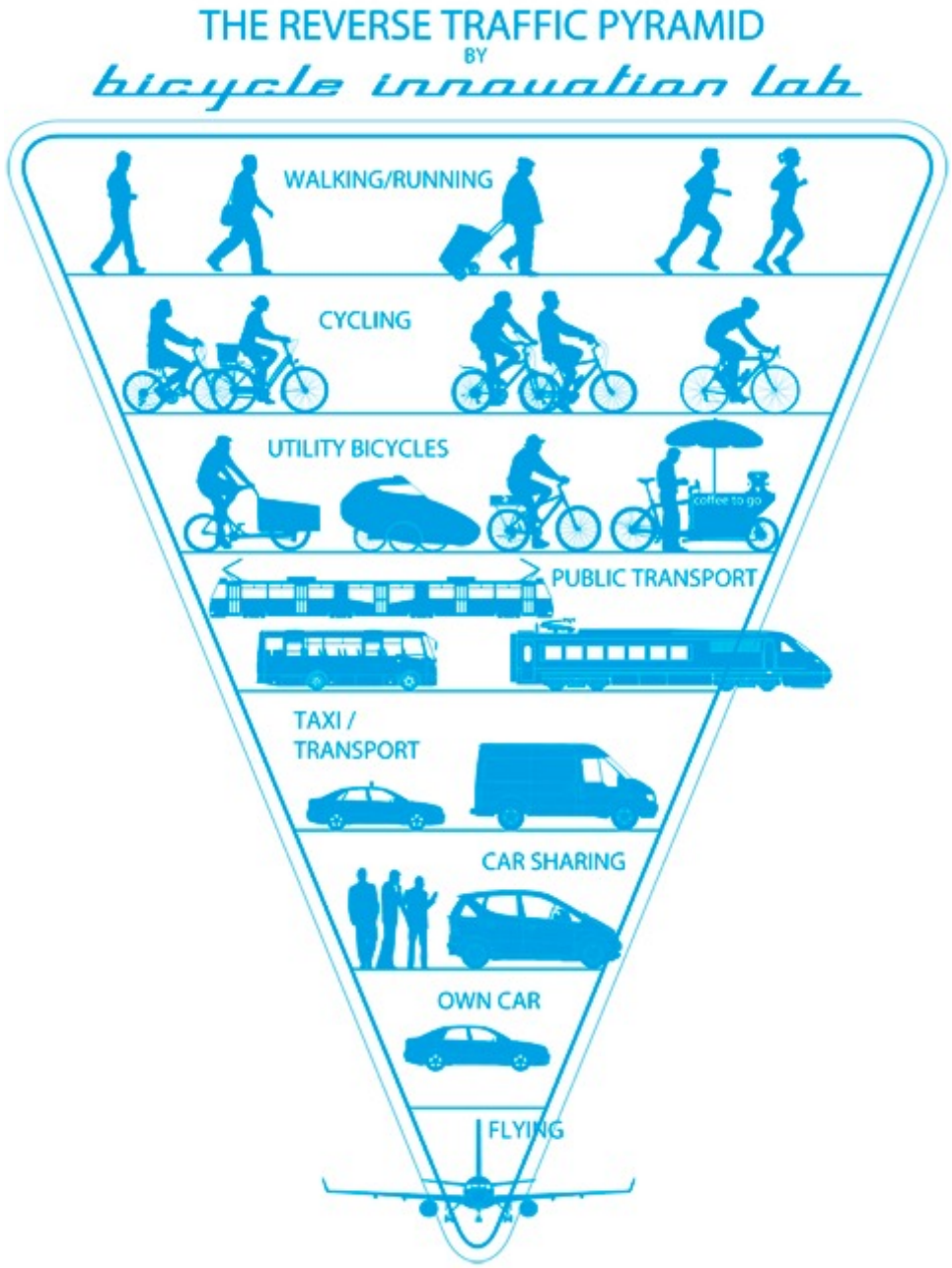
Re-thinking priorities and giving greater space to those that need it most.



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Avoid, Shift, Improve, Integrate

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Compact land use (Smart Growth)

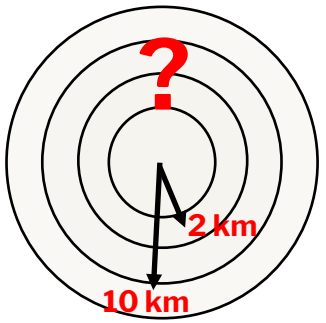
Example: Shopping

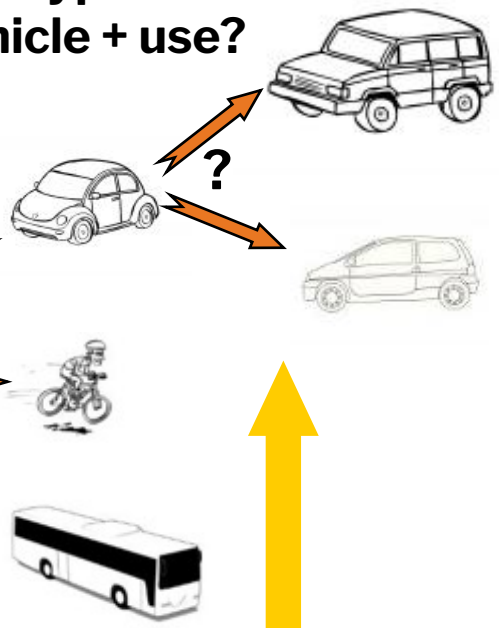
Starting point: Household requires a wide range of goods, with varying frequency.

First decision: How far do you have to go?

Second decision: Which mode of transport will you (have to) use?

Third decision: Which type of vehicle + use?





Smart infrastructure planning: Reduces need for travelling!

AVOID/REDUCE

Encourage use of non-motorized and public transport!

SHIFT

Reduce car size and consider using alternative fuels!

IMPROVE

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The push and pull approach

Measures with push-effects
Area-wide parking management, parking space restrictions in zoning ordinances, car limited zones, permanent or time-of-day car bans, congestion management, speed reductions, road pricing...

Measures with pull-effects
Priority for buses and trams, high service frequency, passenger friendly stops and surroundings, more comfort, park-and-ride, bike-and-ride..., area-wide cycle-networks, attractive pedestrian connections...

Measures with push- and pull-effects
Redistribution of carriageway space to provide cycle lanes, broader sidewalks, planting strips, bus lanes..., redistribution of time-cycles at traffic lights in favour of public transport and non-motorized modes, public-awareness-concepts, citizens' participation and marketing, enforcement and penalizing...

Source: Müller, P., Schleicher-Jester, F., Schmidt, M.-P. & Topp, H.H. (1992): Konzepte flächenhafter Verkehrsberuhigung in 16 Städten", Grüne Reihe des Fachgebiets Verkehrswesen der Universität Kaiserslautern No. 24.

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Transport Demand Management (TDM)

Rationale: "Demand for transport services is not given, but depends on transportation policies, pricing, investments & choices"

"**TDM** is a strategy which aims to **maximize the efficiency of the urban transport system** by **discouraging unnecessary private vehicle use** and **promoting more effective, healthy and environmental-friendly modes of transport**, in general being public transport and non-motorised transport."

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CO_2 emissions from passenger transport vs. modal split:

	Share (%) of public transport, walking and cycling	CO_2 emissions (kg per capita per year)
Houston	5%	5690 kg
Montreal	26%	1930 kg
Madrid	49%	1050 kg
London	50%	1050 kg
Paris	54%	950 kg
Berlin	61%	774 kg
Tokyo	68%	818 kg
Hongkong	89%	378 kg

Source: UITP

We will discuss today

- Travel Demand Management
- Non-motorised Transport
- Public Transport Options
- Financing transport
- Measuring success

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