

The Contribution of Mobility to Liveable Cities

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Figure 1

View of Chicago in the 30's, showing the street full of cars while the streetcars (trams) could no longer move, as they had no right of way even though they paid entirely for their infrastructure and its maintenance. Streetcar companies went bankrupt one after the other and public transport gradually left the realm of urban business services to enter the realm of public social services.



Figure 2

Urban sprawl is well illustrated by this air view of a suburb near Phoenix, Arizona. Homes are exclusively reached by road.

Urban sprawl in Europe

The ignored challenge

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Figure 3

Urban sprawl was analysed, among others, by the European Environment Agency in its 2006 Report “Urban Sprawl in Europe”.

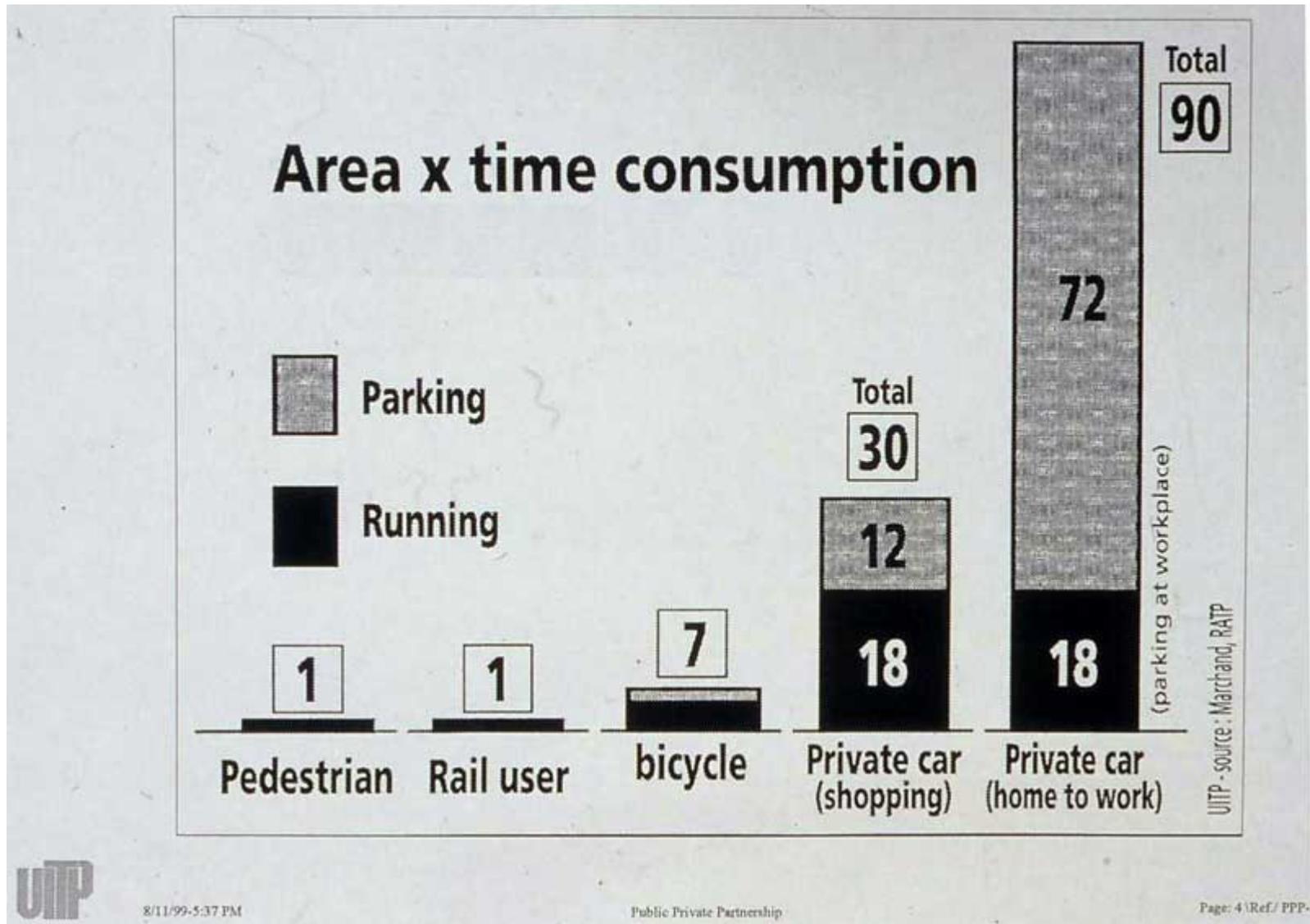
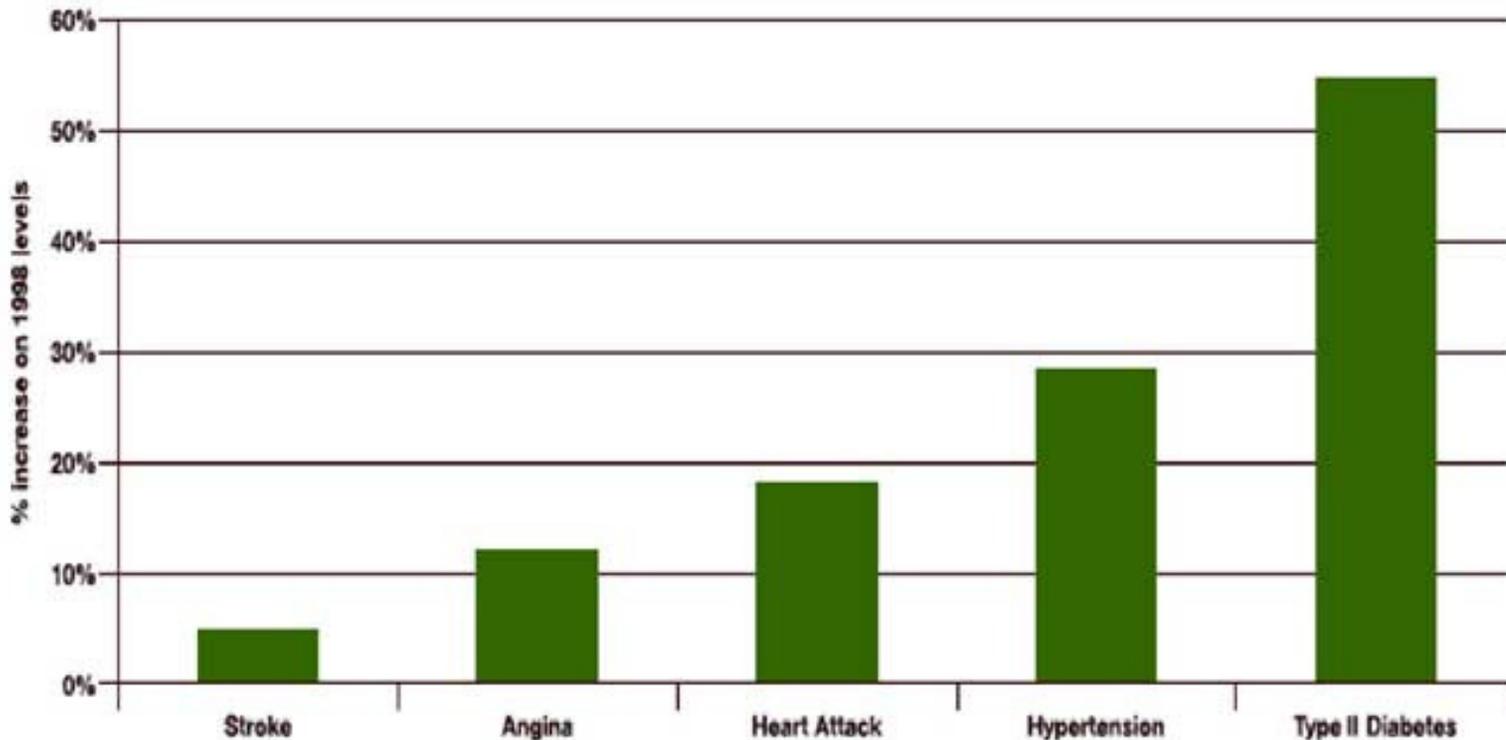


Figure 4

If one takes the land consumption by a pedestrian as the benchmark, the car takes up about 18 times more space than a pedestrian, as it moves, but it requires parking for the time it does not move, i.e. for some 90 % of its life cycle. Land consumption therefore has an area x time dimension (Source: Louis Marchand, RATP, for UITP).

A dramatic rise in diseases linked to obesity is expected by 2023



Source: taken from Department of Health, 2004a

Figure 5

According to the UK Department of Health, the rampant increase in obesity will result in a strong increase in related diseases (Source: 2008 Conference held by the UK-Man and Biosphere Urban Forum at UCL London. Proceedings were published under the title “Statins and Greenspaces” (Gerald Dawe and Alison Millward, Eds.). See list of references.

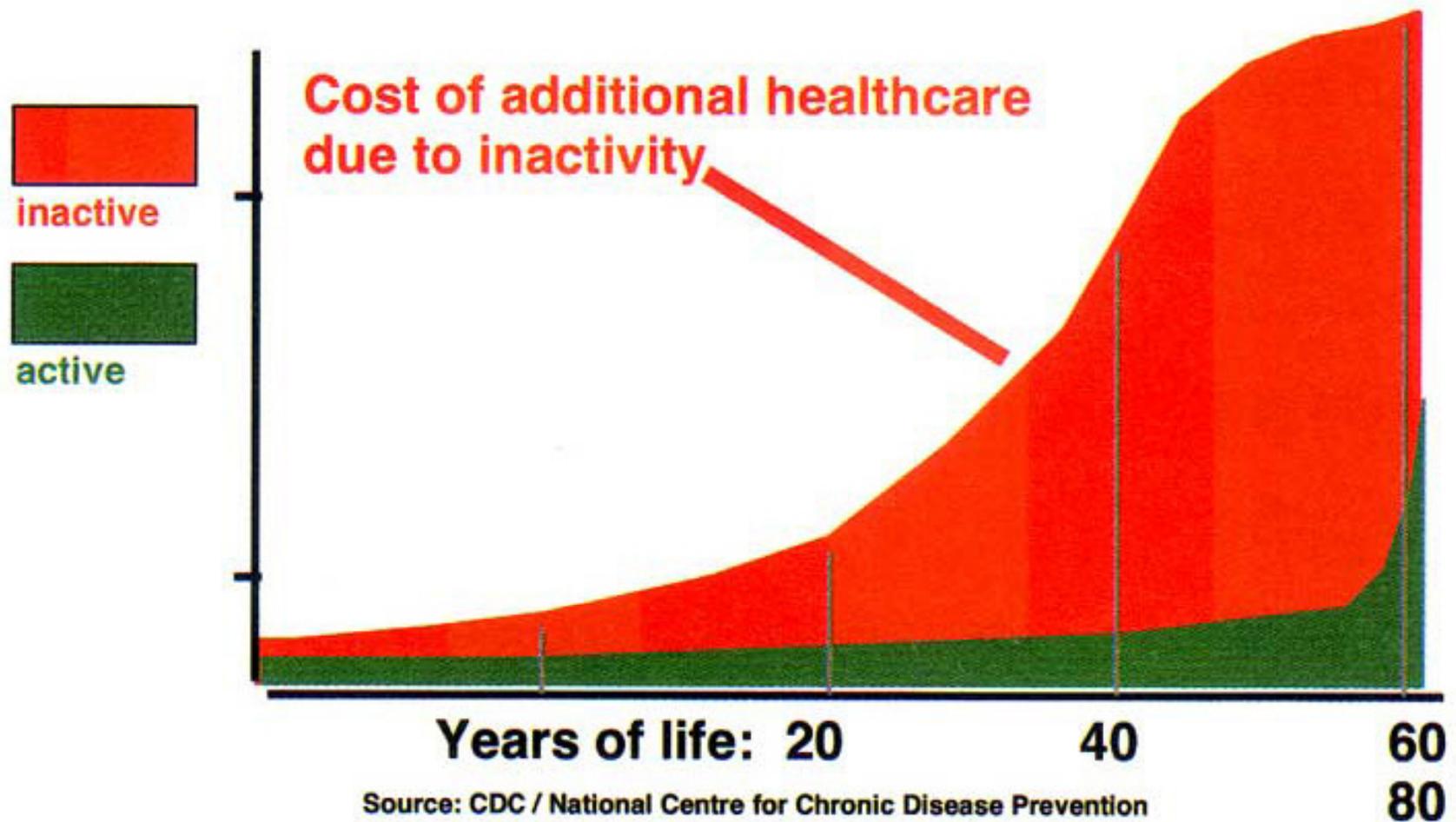


Figure 6

This graph shows the cost of additional health care entailed by inactivity as estimated by the UK National Centre for Chronic Disease Prevention (Dawe, G., 2007). See list of references.

Figure 7

Nantes has been a pioneer of the tramways revival since 1982, complemented today by a bicycle rental scheme. Tramways are not only a tool for sustainable mobility. They are an opportunity for enhancing the street network and creating pedestrian-friendly environments. As initiated in Karlsruhe, Germany in 1992, some tram networks are using existing railway tracks, and complementing them with new tramway routes, thus allowing seamless travel (Source: City of Nantes).





Figure 8

Bordeaux opted for a light rail network instead of a metro line and connecting buses. A notable feature is the absence of catenaries (overhead and supporting poles) in the historic part of the city, for aesthetic reasons (Source: City of Bordeaux).



Figure 9

The Bogotá TransMilenio is derived from the pioneering Curitiba Bus Rapid Transit (BRT) network that started in 1976 which has proven its mass transit capacity while providing for enhanced safety and security through its staffed stations. BRT achieves very high commercial speeds, as it is given a total right-of-way and all ticketing takes place at stations. Note the possibility of express buses to pass all-stops buses. In narrower roads and urban streets, space can be saved by using guided buses (e.g. through an optical guidance system).
Photo: Transmilenio.

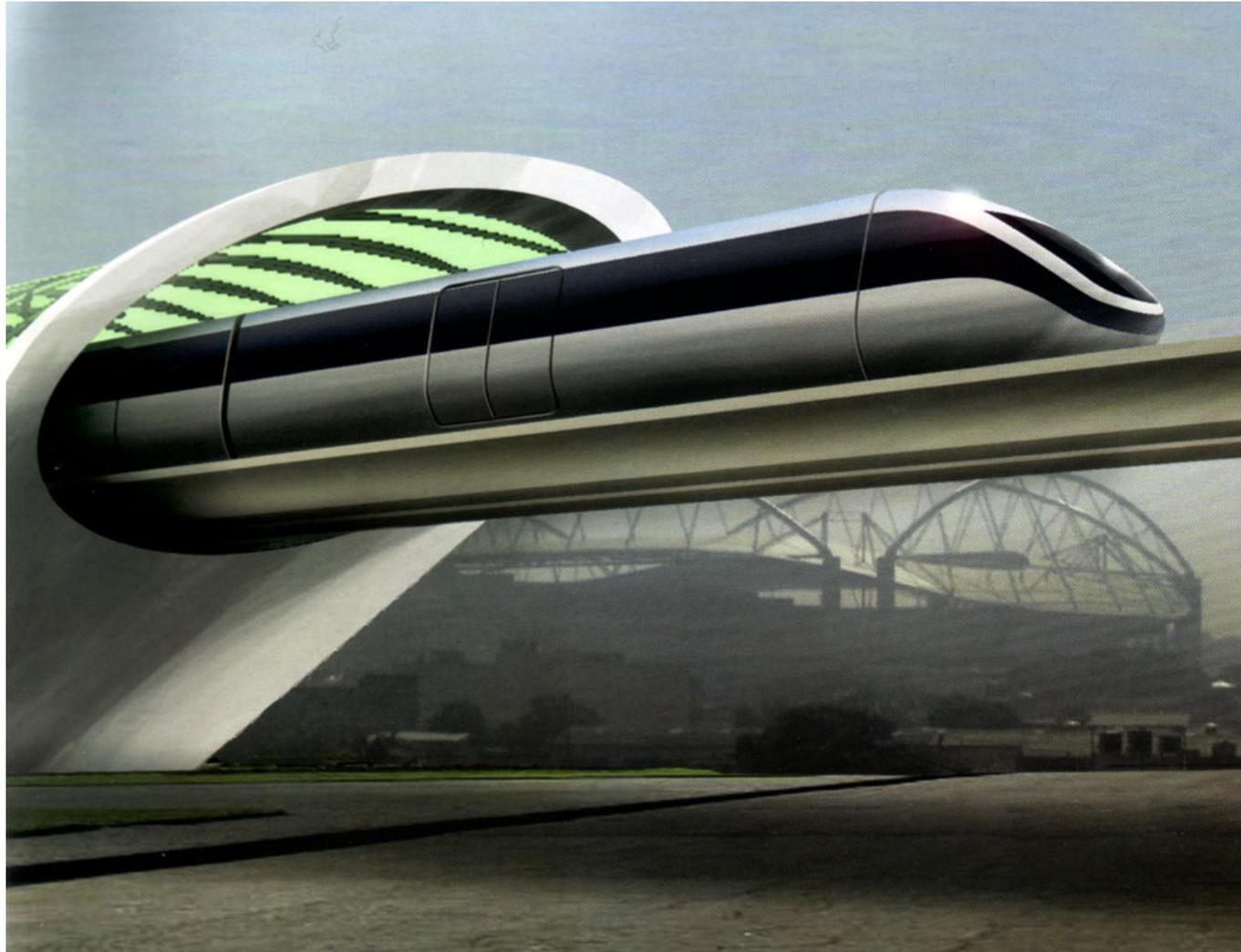


Figure 10

Automated people movers (APM) have developed worldwide for short distance mass transit. A very special APM is the Aeromovel. For the occasion of the World Cup 2014, Porto Alegre (Brazil) intends to introduce the Coester AEROMOVEL, a pioneering, low-energy compressed air automated people mover. This system was first developed in Porto Alegre (inspired by a 19th century project by the British engineer Isambard Brunel), but, until now, only a short line operates in Jakarta, Indonesia (photo: Design e Arquitetura : Ado Azevedo). Other pioneering projects under implementation include the London Heathrow ASTRA Personal Rapid Transit system linking car parks to the Airport's Terminal 5.

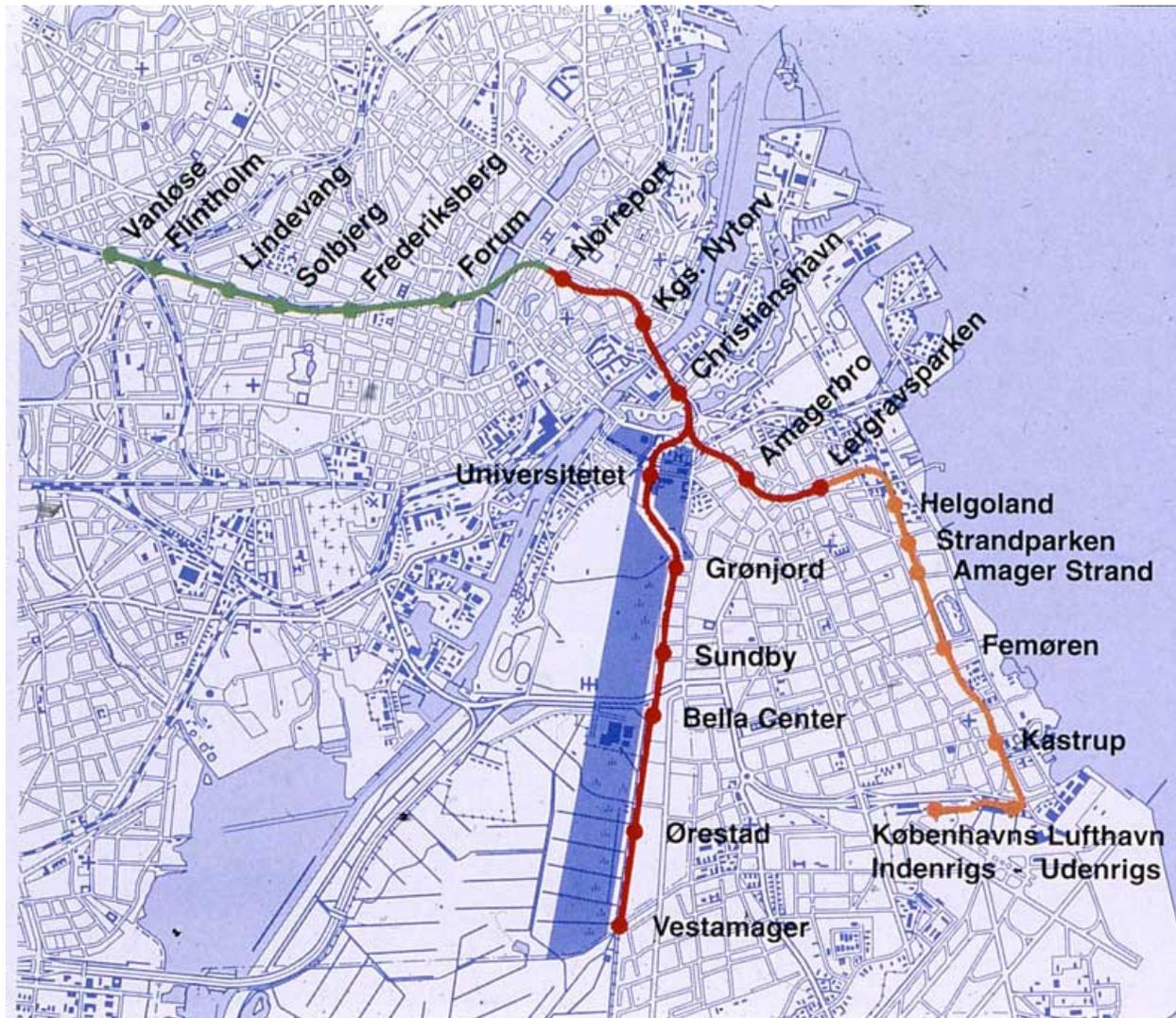


Figure 11

Copenhagen's high-density low-rise urban planning, its pedestrian streets (introduced from 1962), its bicycle network (36% of commuters use bicycles, notwithstanding the Scandinavian climate), and its expanding driverless urban metro network have enhanced liveability. The Copenhagen metro lines also reinforce the "finger-plan", which concentrates development along public transport radial corridors. (Source: City of Copenhagen).

Figure 12

In addition to the intra urban metro, the commuter line linking Copenhagen, Kastrup airport and Malmo has created an integrated, trans-border urban agglomeration (Source: City of Copenhagen).

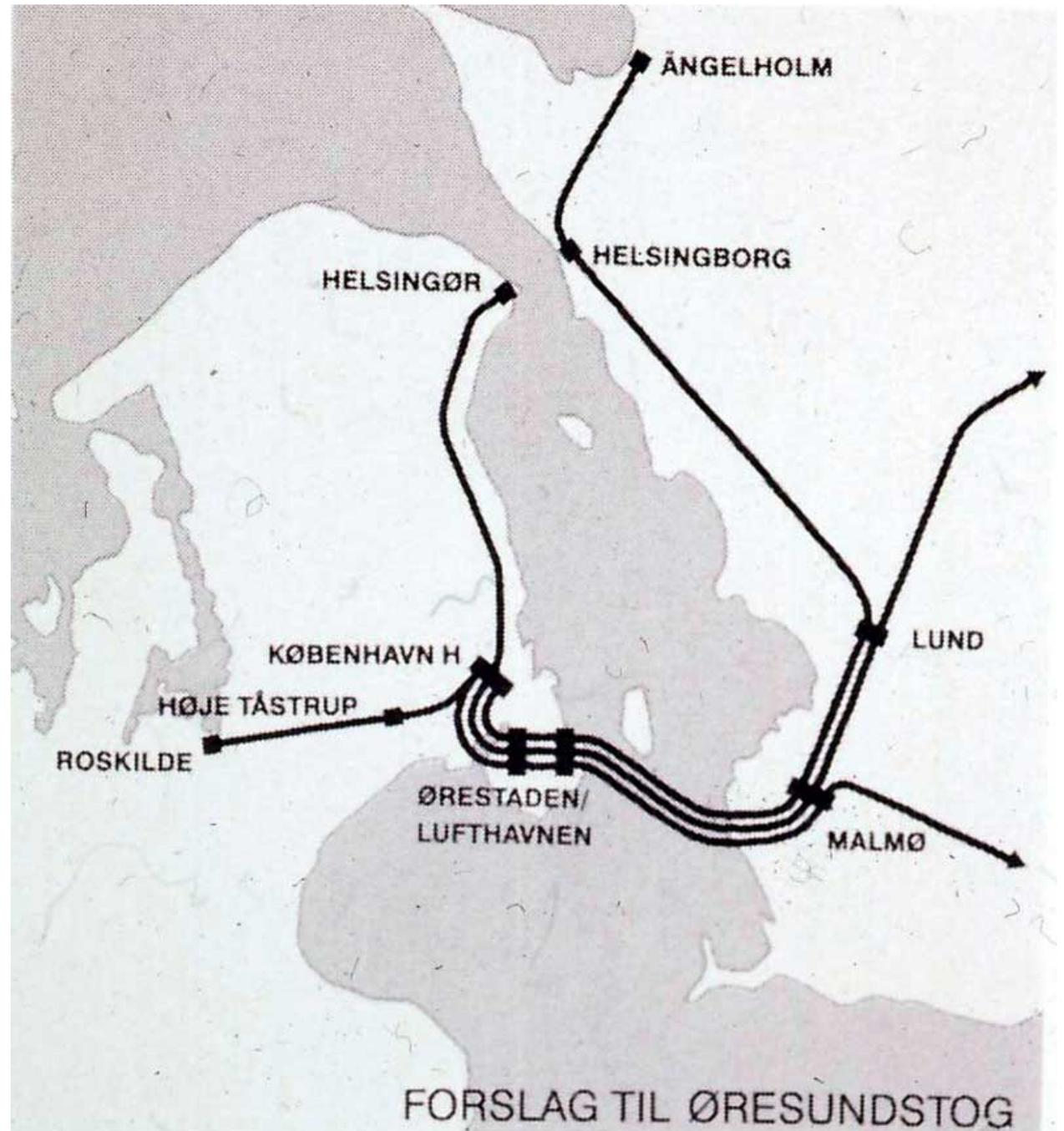




Figure 13

Singapore Area Licensing Scheme 1975-2000.

Through its pioneering restraint of car ownership (a monthly auction of new licensing plates, with a maximum yearly increase in car ownership of 2.5 %), its congestion pricing, its network of driverless subway trains linked with pedestrian malls and its highly convenient intermodal multi-use Easylink card, Singapore is considered a best practice in sustainable transport. Its “area licensing scheme” was launched in 1975, requiring drivers entering the city to pay a fee or accept three passengers. It confirms that oblique approaches are politically the most successful, especially in a difficult context (nobody could protest against such a scheme). Photo: P. Laconte.



Figure 14

In 2000 in Singapore the fee to enter the city was replaced by Electronic Road Pricing. The new system was applied to all drivers but the fee level varied according to the type of traffic congestion (the fee increases at peak times as a way to reduce congestion). This was also a signal to the user that the fee was in effect a congestion charge, not an additional tax on automobile use. Photo: P. Laconte.

Figure 15 - Singapore has been the pioneer of driverless high-capacity metro networks (starting with the North-East Line in 2003). Absence of drivers means shorter intervals between trains, higher capacity and higher safety levels. Most of the staff interface with passengers, rather than just sitting in a tunnel. This network has set the standard for future metros around the world. Nuremberg, Brussels and other cities are retrofitting existing lines to make them driverless and increase their capacity (Source: Land Transport Authority, Singapore).

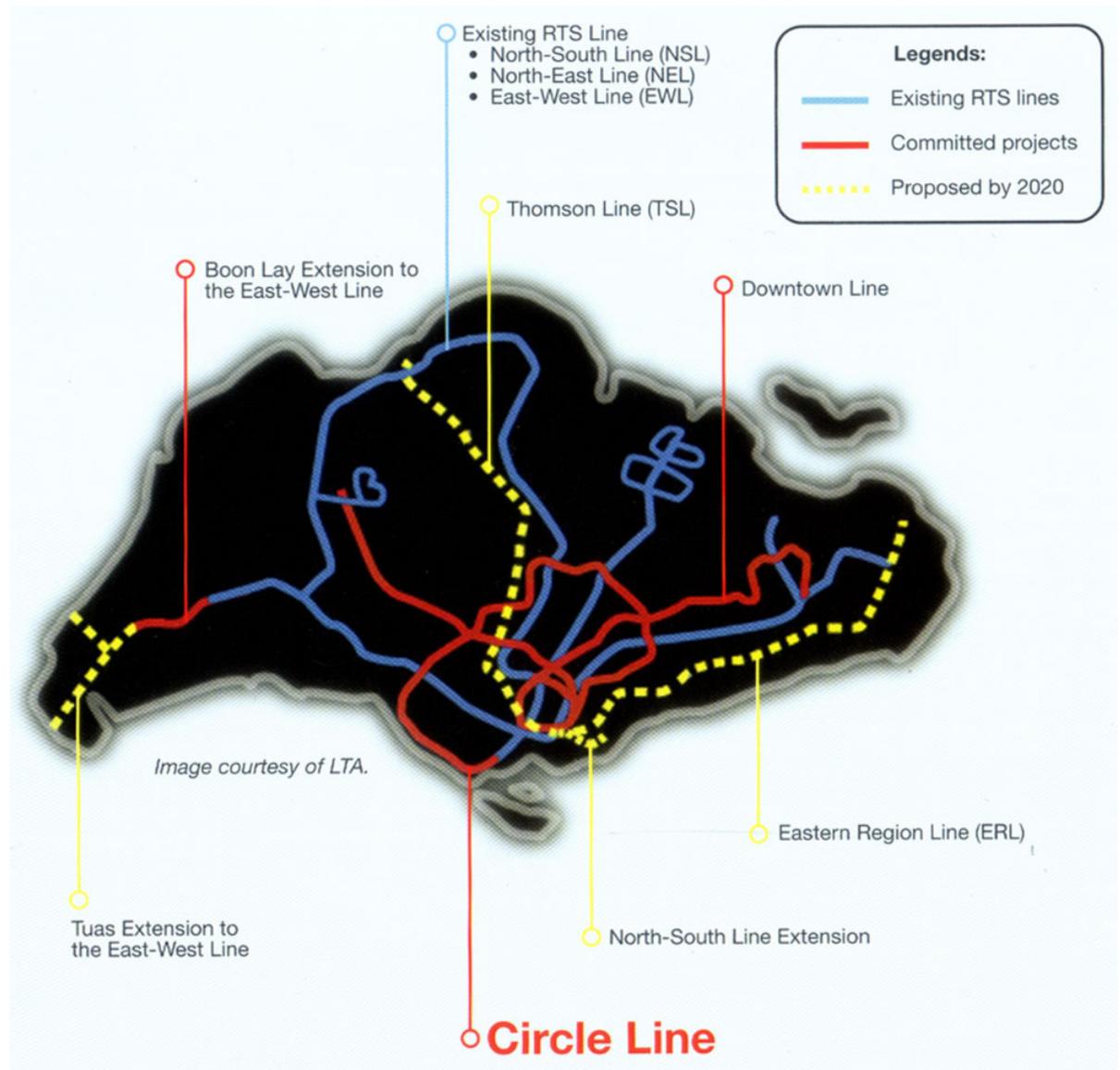




Figure 16

The university town of Louvain-la-Neuve (New Louvain), is a prime example of a sustainable, liveable development. It is centered on a new railway station and is entirely pedestrian, parking space being provided outside the town or underground. It has many ecological features and has a present day population of 40.000. Photo: Wilhelm and Co.

All storm water is led to a reservoir landscaped as an artificial lake, with a stable water level.



Figure 17

View of the entrance to the railway station which is below the pedestrian street network combining university buildings, shopping and residences. Photo: P. Laconte.



Figure 18

View of one the numerous small piazzas on the pedestrian streets network. Cars are parked underneath. Photo: P. Laconte.

Figure 19

Excellence in public transport – the City of Zurich, Switzerland
In Zurich, trams and buses enjoy absolute priority on street.

When approaching a traffic light the sensor shown on the lower left ensures they have a green light at any time of the day. The City's modal split is around 80% in favour of public transport.

Photo: City of Zurich Police Department.



Figure 20

Zurich's - automobile traffic calming through traffic light cycle control: Traffic-calming is ensured by adapting the traffic lights system (a much shorter cycle favouring pedestrians, cyclists and public transport). Source: City of Zurich Police Department.

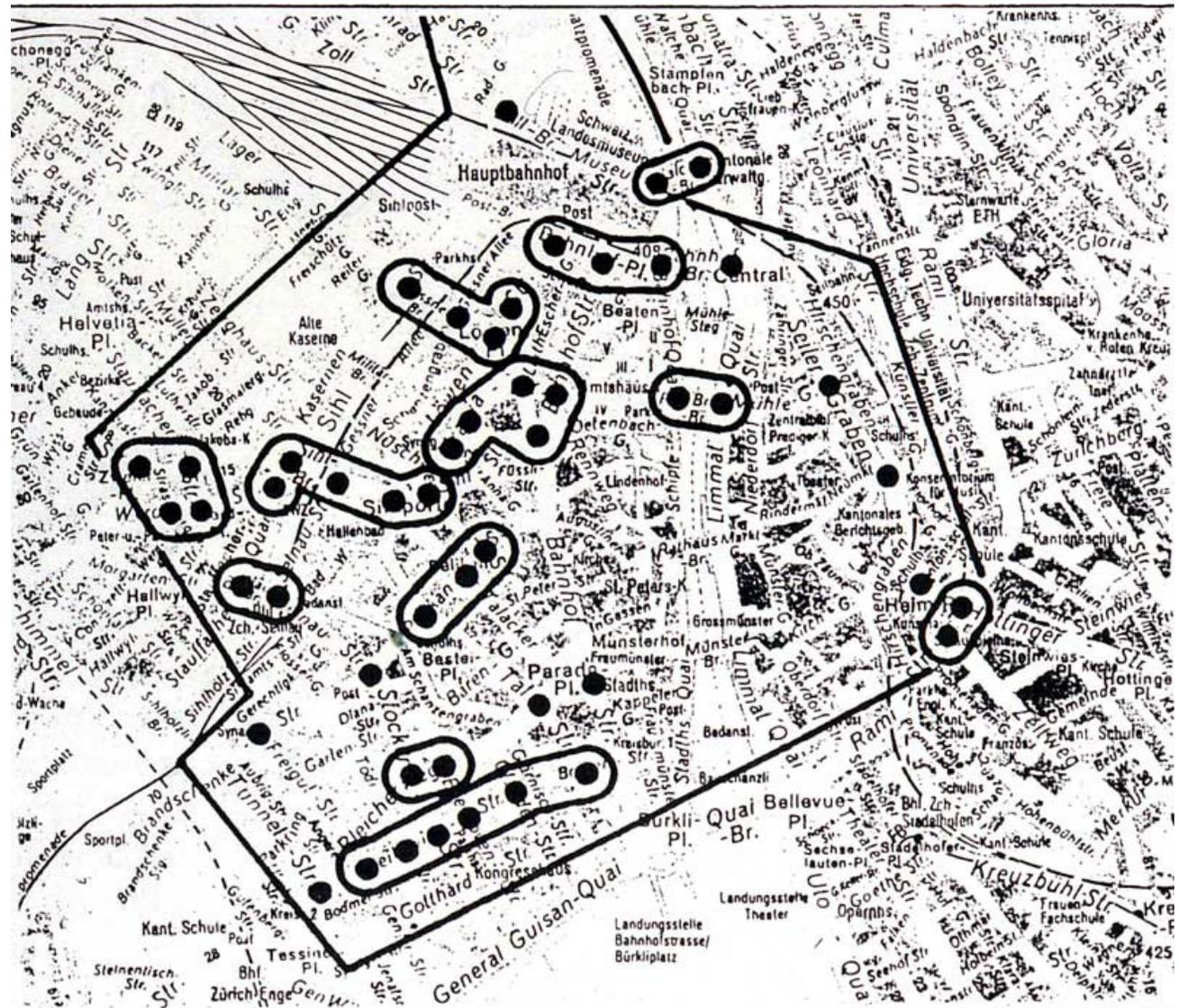


Figure 21 - Zurich parking management: Unrestricted on-street parking is exclusively reserved for Zurich-registered residents, while automobile commuters entering the city from other municipalities are subject to limits on their parking time. Conversely, rail commuters have benefited from an increased service. The parking measure has brought a return of inhabitants to the city (who are able to park), and has been politically rewarding for the city fathers, while suburban rail travel has been made easier. Source: City of Zurich Police Department.



Figure 22

Mobility and Liveable Cities – the transport network irrigating the city. Poster by Friedensreich Hundertwasser (1928-2000) for UITP (1991).



Figure 23
Mobility and Liveable Cities -
the compact city – poster by
Friedensreich Hundertwasser
for UITP (1993).



Figure 24
Mobility and Liveable Cities -
enjoyment as a key to
liveability – poster by
Friedensreich
Hundertwasser for UITP
(1995).

