SUSTAINABLE TRANSPORT.POSSIBILITIES FOR BICYCLE ROUTES IN THE CONTEMPORARY CITY

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A little bit about sustainable transport.

- SPATIAL PLANNING
- BRINGING FUNCTIONS TOGETHER ; OPTIMUM LOCATION OF FUNCTIONS;
- USE OF A CAR FOR DISPERSED AND SPECIAL FUNCTIONS;
- MODAL CHOICE IS BASED ON SPEED, COST, COMFORT,CONVENIENCE and SURROUNDINGS ;
- COMBINED URBAN AND TRAFFIC DESIGN;
- A COMPREHENSIVE TRAFFIC NETWORK DESIGN;
- AN EQUAL IMPORTANT ROLE AND ATTENTION FOR PEDESTRIANS AND CYCLISTS;
- THE PEDESTRIAN AND CYCLIST NETWORKS INFLUENCE STRONGLY THE QUALITY (AND PRICE) OF THE URBAN ENVIRONMENT;

THE URBAN ENVIRONMENT AND THE TRAFFIC NETWORK TOGETHER SET THE CONDITIONS FOR SUSTAINABLE BEHAVIOUR.

TRAFFIC IS LIKE WATER, SO PEOPLE AND DRIVERS USE THE EASIEST MODE AND ROUTE.

From the beginning…

Pre and Post motorization :

19th century - cycling growing from a hobby to an established form of transport.

In the UK a treatise is born : "Roads:Their construction and maintenance“.

In Germany routes are upgraded to provide smoother surfaces and separate portions for the different groups.

One of the first segregated cycle facilities was built in 1897.

The route did not succeed.

Conflict between the increasingly powerful car lobby and bicycle users.

1920s - 1930s the German car lobbies make efforts to have cyclists removed from the roads

In the UK, the cycling lobby is calling for the building of special "motor roads"

Post World War II :

Germany : cyclists as an impediment to motorised traffic.

cycling falling from 50% to 5% of trips in the 1960s

many German towns began removing cycle tracks for more car parking.

UK : little use of separate cycle track except in the "new towns"

Nordic countries : non-motorised traffic must be segregated wherever possible.

Strongly influenced, cities such as Helsinki and Västerås began to build large cycle path networks.

Increasing traffic congestion and the 1970s oil shocks lead to resurgence in cycling in some countries.

Outside the Nordic countries use of segregated cycle facilities was mainly limited to university towns

The 1980s : experimental cycle route projects in some Danish towns

The beginnning of a large programme of cycle facilities construction as part of a "bicycle "masterplan in the Netherlands.

Following the "bicycle boom" of the early 80s, German towns began revisiting the concept.

"Green" movement in the 1990s requests for the construction of cycle networks in many countries.

Better Infrastructure = More Cyclists

...till nowadays

Average Bicycle use in Europe (ABU)

The Netherlands : 26%

- Top municipalities between 35% and 40%; lowest between 15% and 20% ABU

Denmark :19%

- Copenhagen about 30%, in general at the level of 20%

Germany :10%

- The western have a higher ABU, especially Nordrhein-Westfalen. Several cities with between 20% and 30% ABU

Austria : 9%

- Top Graz (14%) and Salzburg (19%)

Switzerland : 9%

- Several cities at a higher level, like Bern (15%), Basel (17%) and especially Winterthur (approx. 20%)

Belgium : 8%

- Many cities in Flanders approach 15%. Top: Bruges - almost 20% ABU

Sweden : 7%

- Cities: 10%. Extremes: Lund and Malmö 20%. The small city of Västerås: 33%

Italy : 5%

- A few striking exceptions, especially in the Po Plains. Parma (over 15%) and Ferrara (around 30%). Florence (over 20%)

France : 5%

- Top ABU : Strasbourg 12% and Avignon 10%

Ireland : 3%

- Virtually no upward extremes (Dublin 5% at most)

Czech Republic : 3%

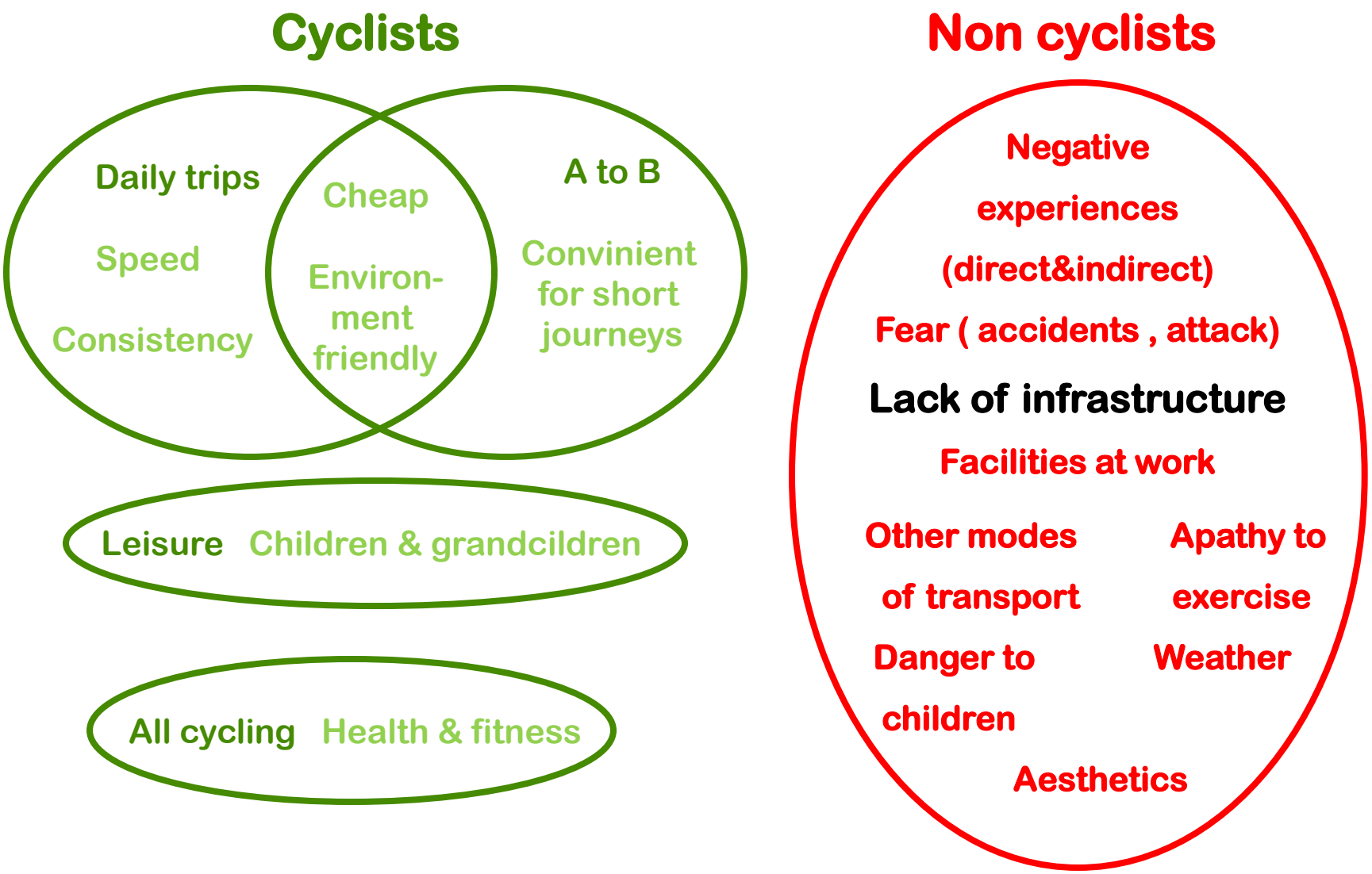
- Ostrava, Olomouc and Ceske Budejovice, between 5% and 10% and some with an even higher ABU (Prostejov 20%)

Great Britain : 2%

- Some isolated cities with a much higher degree of ABU - York and Hull 11%, Oxford and Cambridge nearing 20%

There are no reliable international/European statistics showing comparable figures per country for ABU. These originate from many sources.

Why people do & do not cycle in Town



Millions of kilometres are spent annualy by car for trips within 7,5 kilometres

A shift towards walking, cyclingis and public transport for longer distances.

Two ways to decrease the number of short car trips:

- limiting the number of trips;
- influencing the choice of transport modality.

10 measures are included in the shortlist :

- priority at traffic lights
- make a town impossible to traverse by car (segmentation)
- good and safe bicycle routes
- improve accessibility of schools for cyclists in comparison to motorists
- decrease number of parking places
- parking at a fee/higher parking fees
- maintenance of bicycle parking facilities
- free/high-quality bicycle parking
- delivery services
- promote independent cycling by children

CYCLING AS A SUSTAINABLE SHORT-DISTANCE MODE OF TRANSPORT REQUIRES AN ATTRACTIVE AND EFFECTIVE CYCLING INFRASTRUCTURE

DESIGN REQUIREMENTS

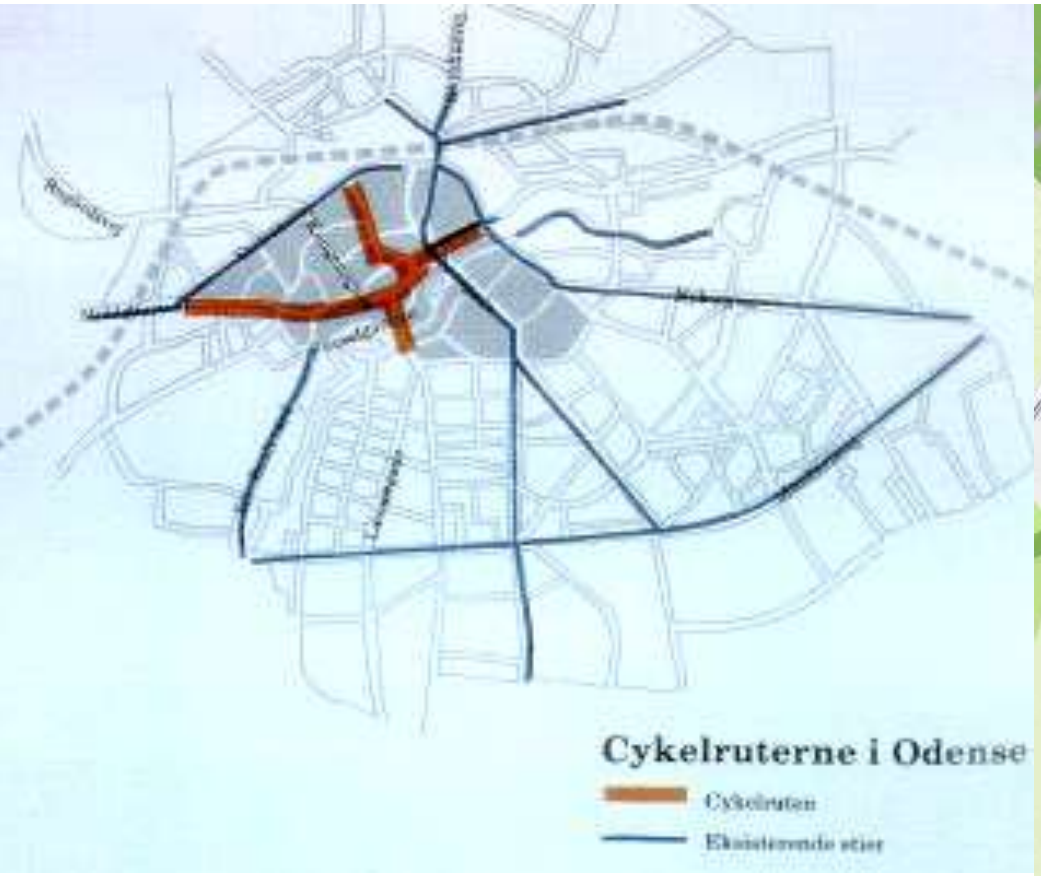
A comprehensive cycling network at all levels of scale is essential to motivate greater bicycle use for short trips.

The following factors need to be considered when designing a cycling network:

- **Cohesion → A complete and clear infrastructure**
- **Directness → Minimising resistance (distance and barriers)**
- **Attractiveness → A positive experience, also when parking**
- **Road safety and safety on the streets**
- **Comfort**

COHESION=COMPLETE AND CLEAR INFRASTRUCTURE

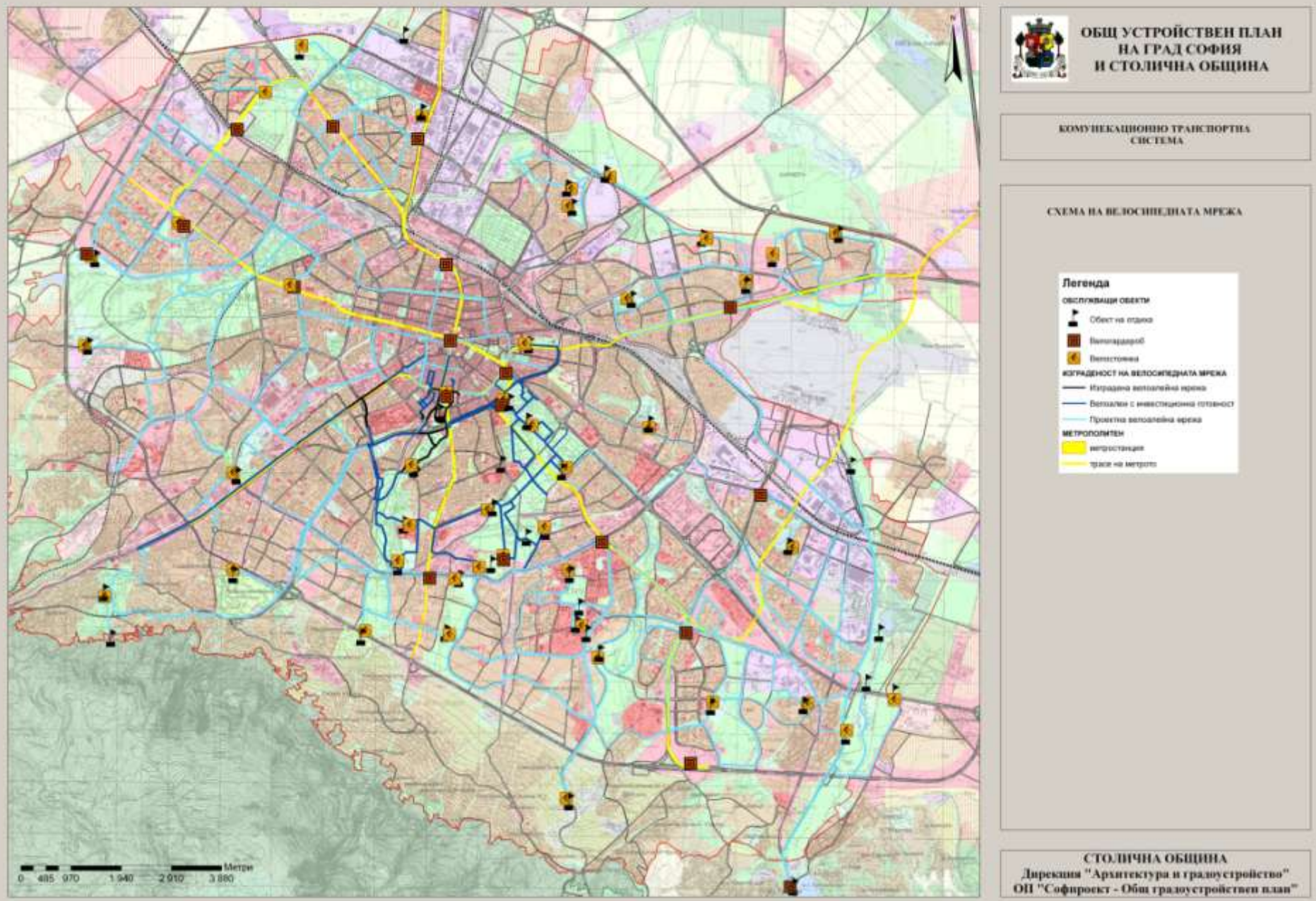
- *a fine-mesh network is a primary requirement for cycle access;*
- *a clear and cohesive system of connections with main cycling routes, access routes and cycling streets in areas where people spend time.*
- *a triangular cycling network is usually compatible with the dispersion and concentration of activities.*
- *the main cycling routes will be urban cycle path axes, radially leading to the centre.*
- *the access routes will be connections between the radial links to reduce the distances.*
- *within residential areas the cycling streets provide access to the houses.*
- *the ease of use and perception of cycling can be improved by providing a high quality finish and design of the cyclingroutes.*



Map of the bicycle route in Odense, Denmark

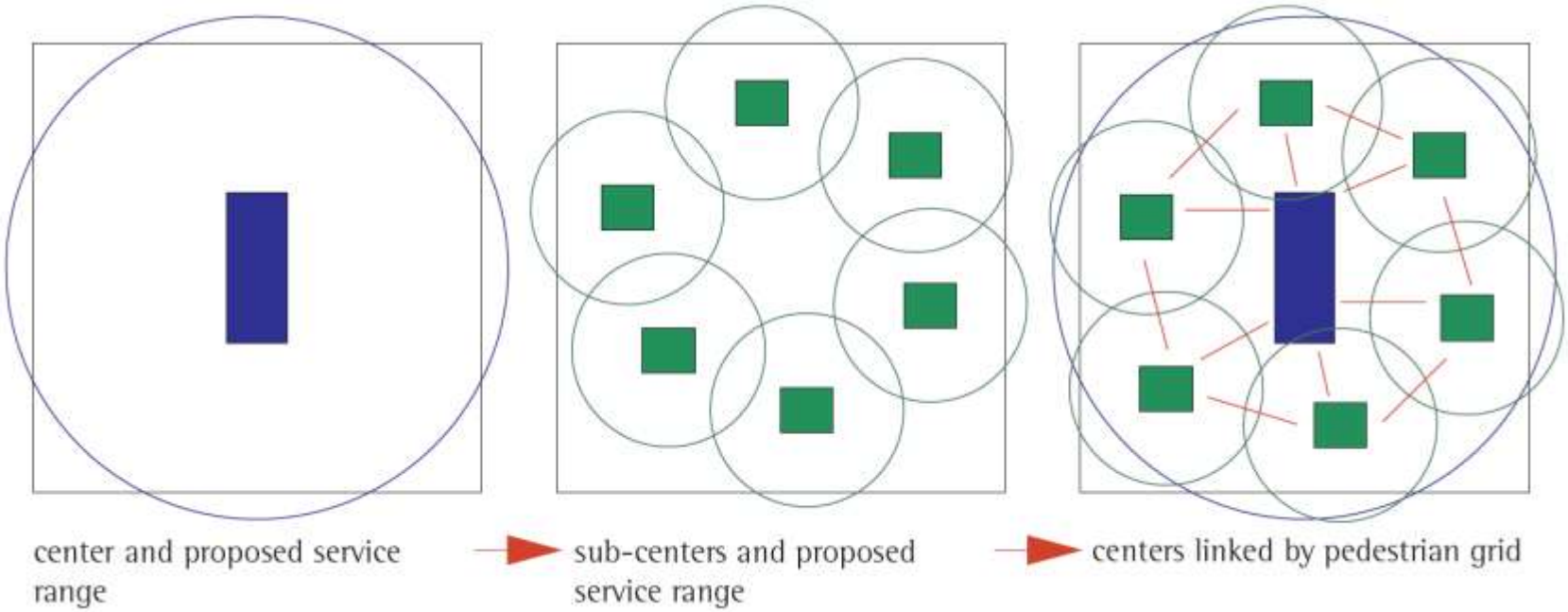
Map of the bicycle tracks in Saiben, Tübingen, Germany

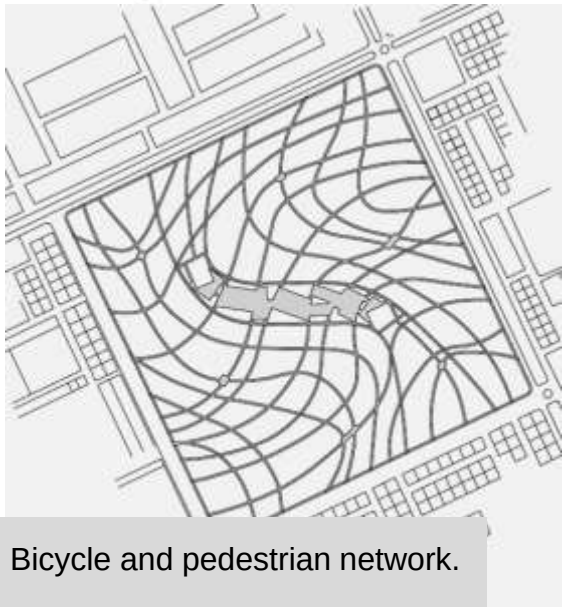
Bicycle route
Existing cycle tracks



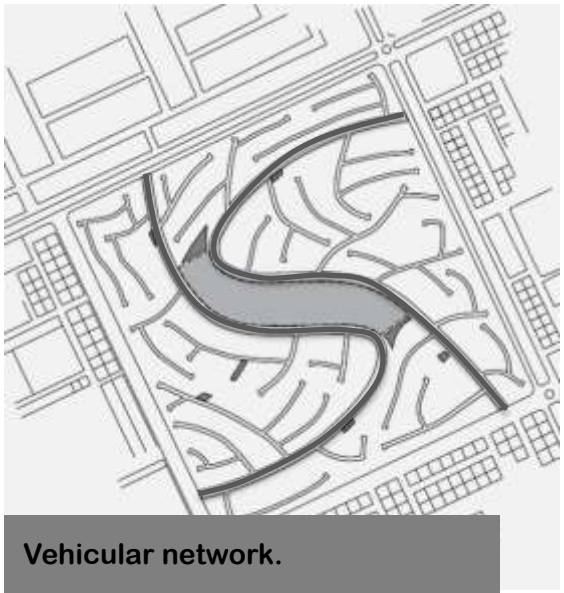
The bicycle network in Sofia, Bulgaria, a part from the masterplan of Sofia.

OPENING UP THE COURTYARDS OF THE URBAN BLOCKS, AND LEADING THE BICYCLES THROUGH WOULD MAKE THESE SPACES OPEN TO THE GENERAL PUBLIC.





Bicycle and pedestrian network.



Vehicular network.

COHESION AND ATTRACTIVENESS : FUNCTIONAL LINKS, ALTERNATIVES, EASILY RECOGNIZED

The main cycling routes connected by:

- ***active locations: areas with mixed functions and urban residential areas.***
- ***public transport stops and stations (promoting seamless and mobility).***

Combining and coordinating functions with a high potential bicycle use (e.g. schools, neighbourhood shops, sports and recreation)

The use and experience of cycling can be supported by alternatives and ease of recognition:

- ***Alternatives: variety promotes cycling. Often the return route is different from the outward route.*** **Where possible safe alternatives for use in the evening and at night must be provided for routes through parks and similar areas.**

- ***Ease of recognition: routes should be easily identifiable (signpostings).***

This is not only convenient for cyclists, but also raises their status as road users.

Cities around the world are trying to be more bike-friendly.

Some are doing so by building bike paths, stimulating cycling and bicycle-related industries, and implementing bike-share programs.

Berlin, Copenhagen, Barcelona and New York City are four examples of cities that have actively worked to promote cycling.

Combine with other kind of transport

The path goes along variety of urban areas

Always on the lane (at night)

Clear signing will encourage the cyclists

Mixed pedestrian and bicycle lane

When there are bikeracks and parkings!

When the bikeracks are missing !

WIEN

WIEN

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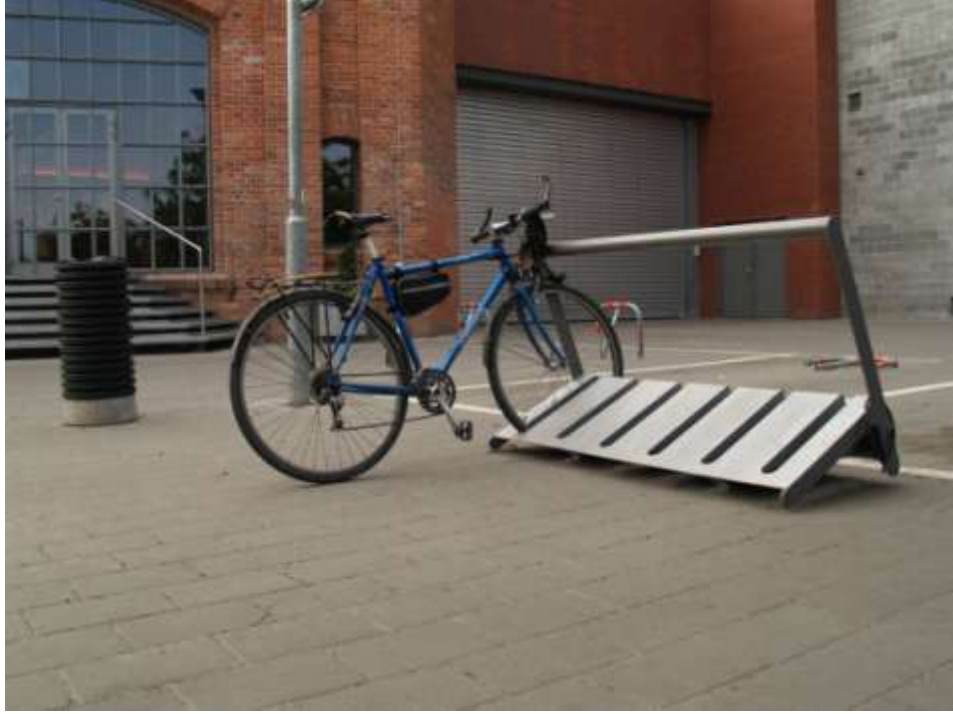
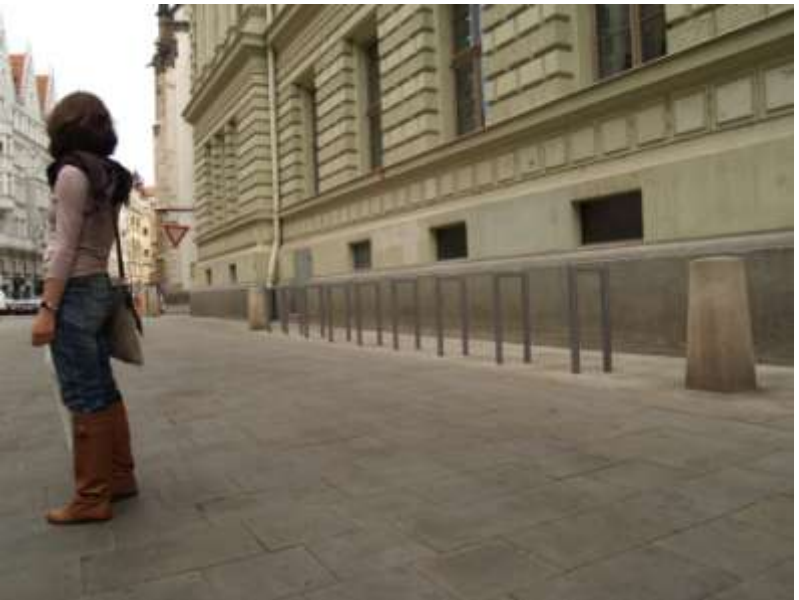




PRAHA, BRNO

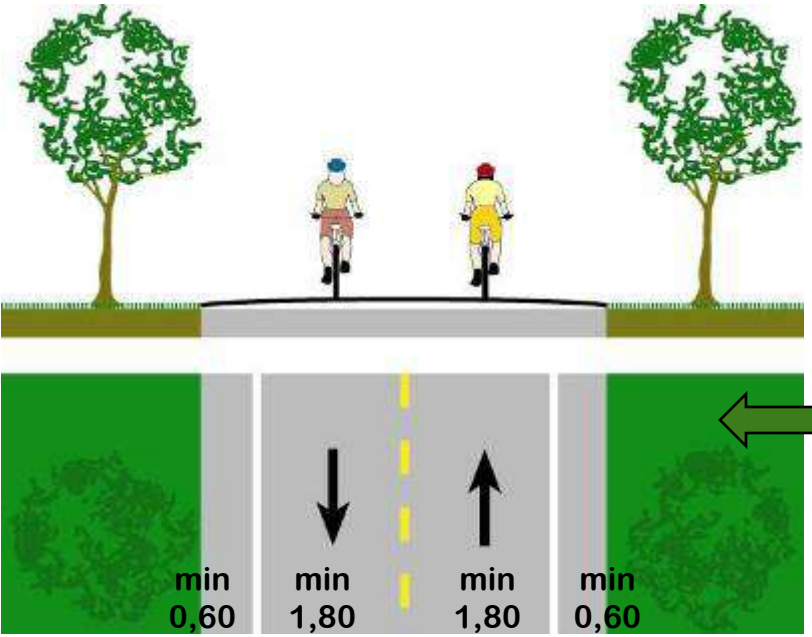
PARDUBICE

AMSTERDAM

AMSTERDAM

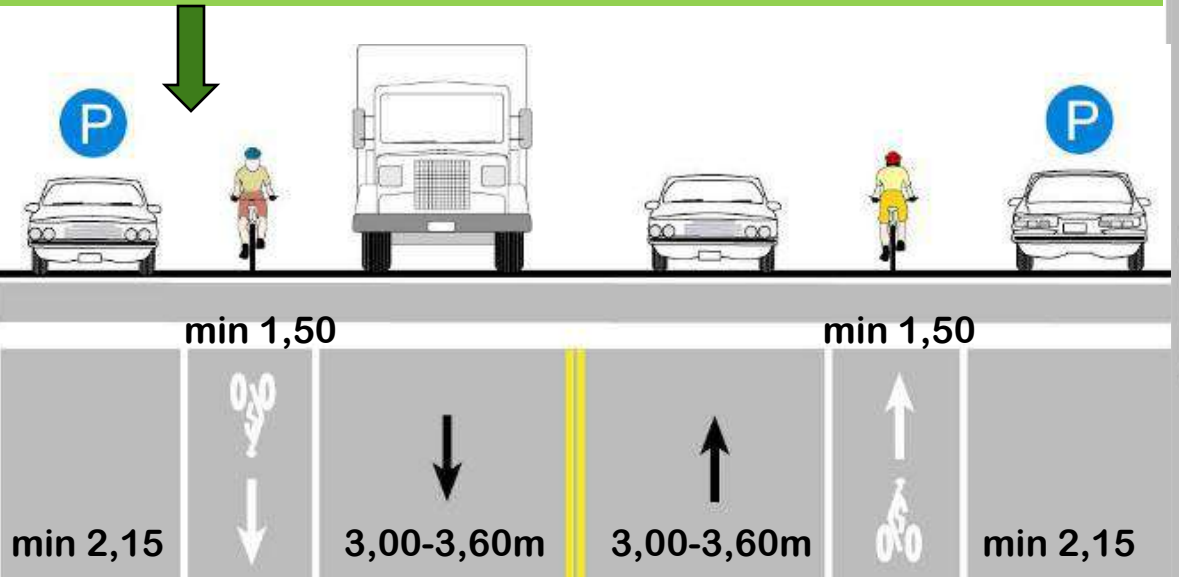
BICYCLE ROUTE FACILITY TYPES

- off-street bike and mixed-use paths;
- bicycle lanes;
- on-street signed bicycle routes;
- bicycle boulevards;
- traffic-calmed streets;

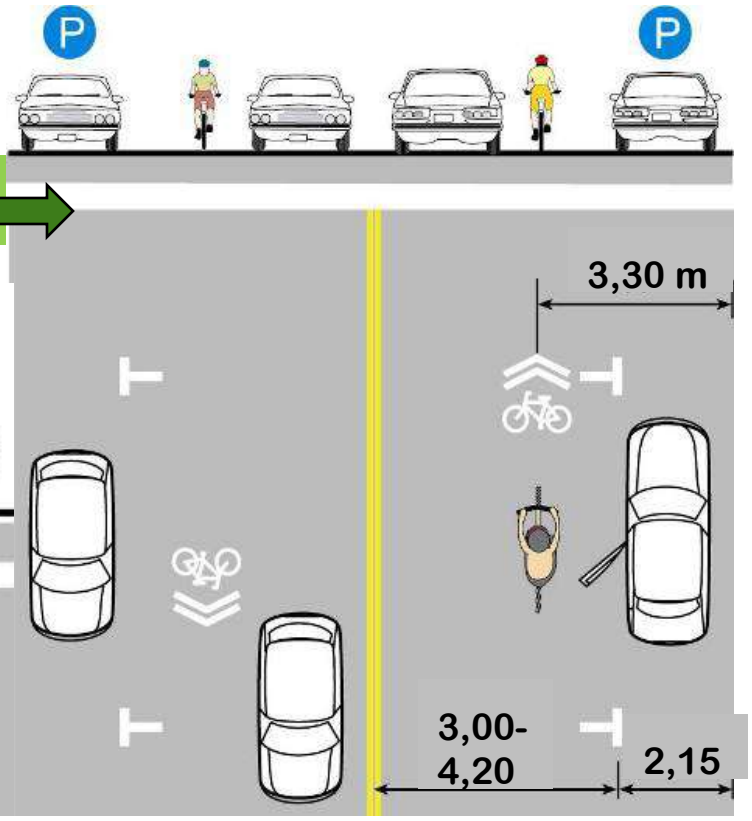


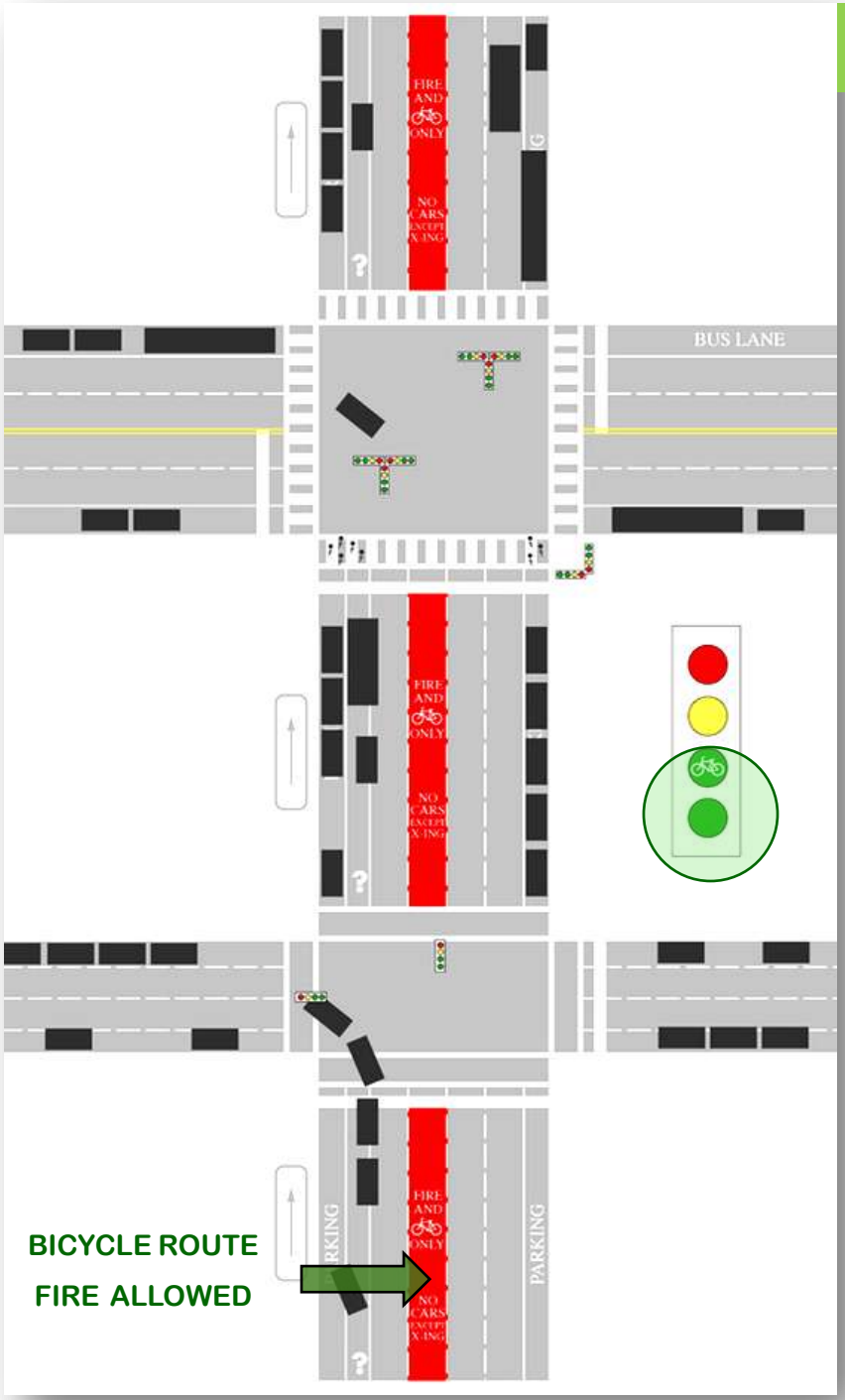
Bicycle Path or Multi-Use Trail

Bicycle Lane

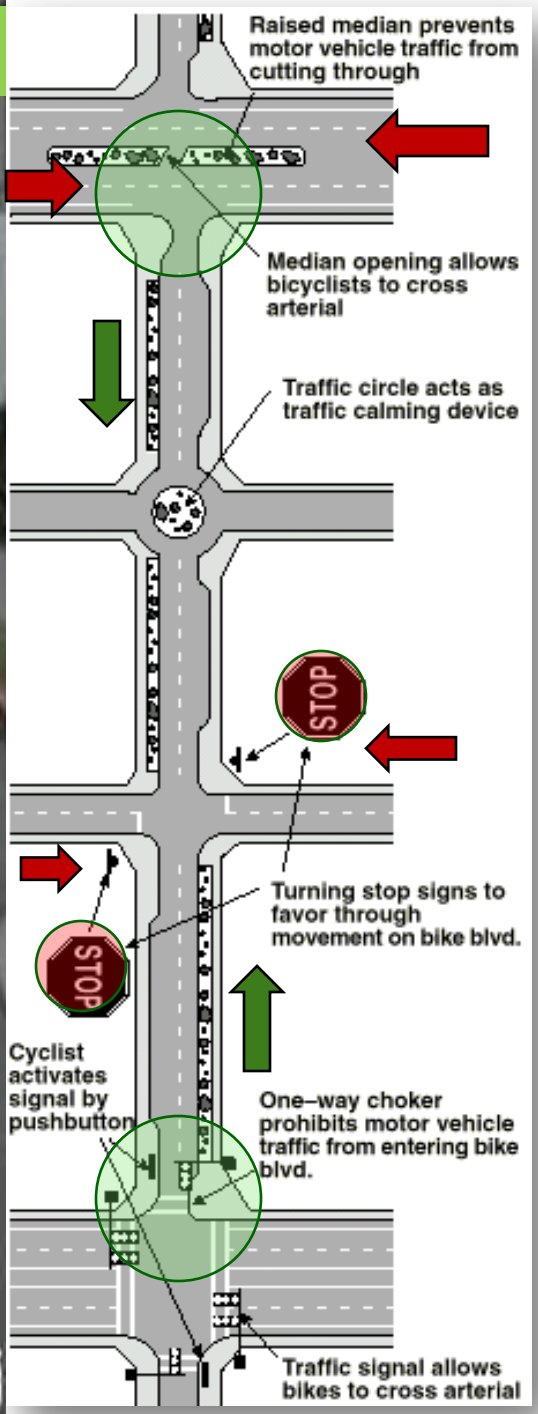


Signed Bicycle Route

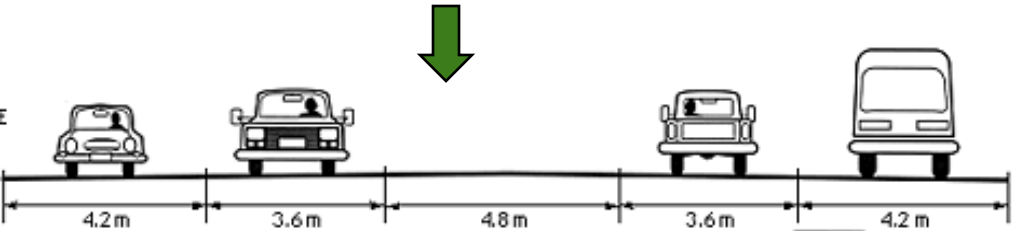




Bicycle Boulevard

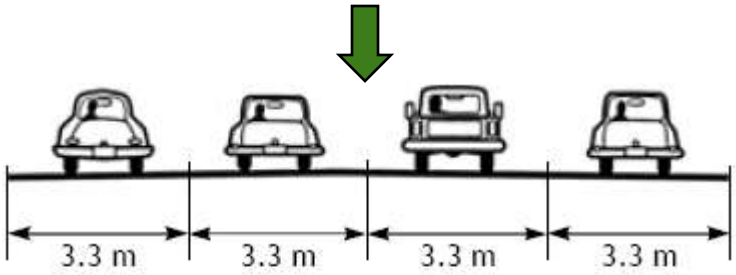


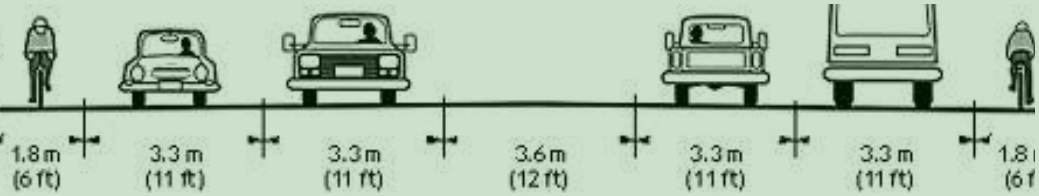
fitting bike lanes by reducing travel lane widths



BEFORE

reducing the number of travel lanes





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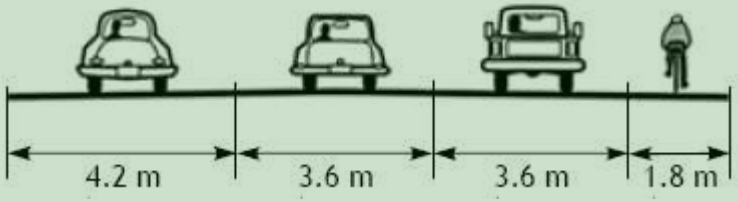

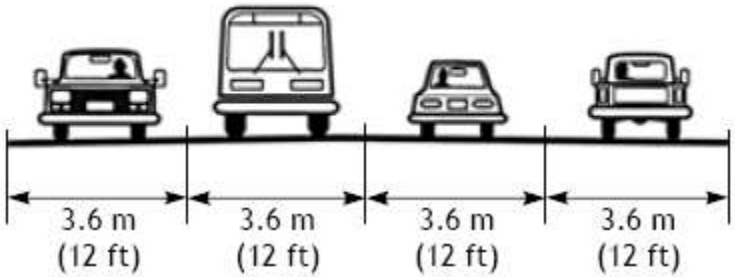

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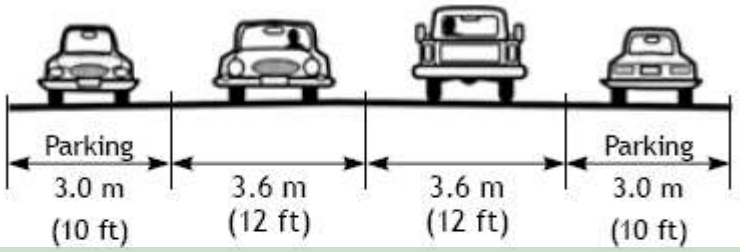

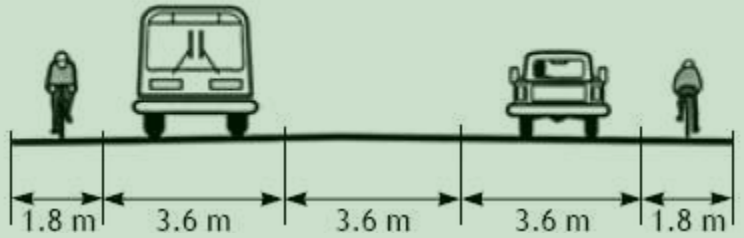

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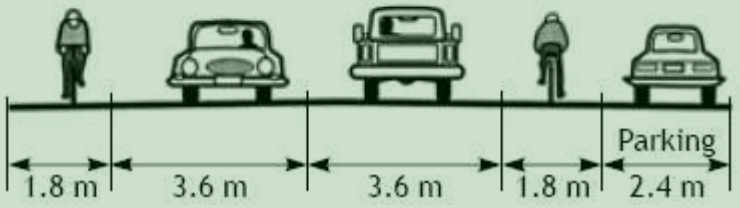
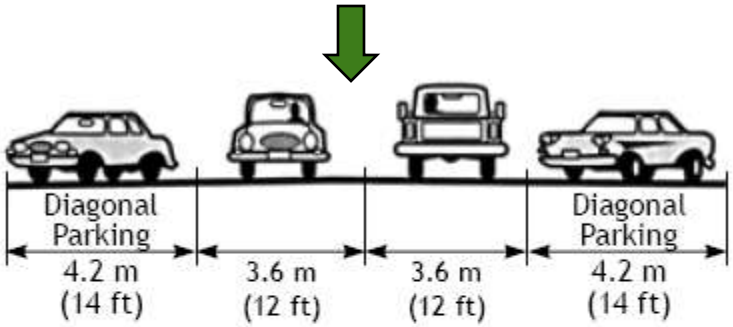
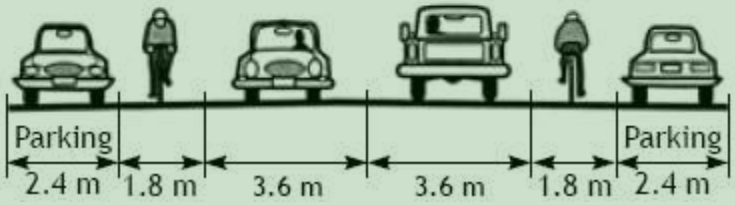


retrofitting bike lanes by reducing the number of travel lanes

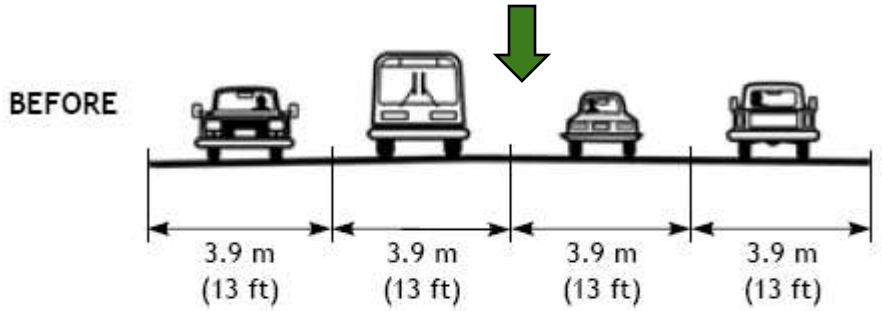
parking removed on one side of a two-way street

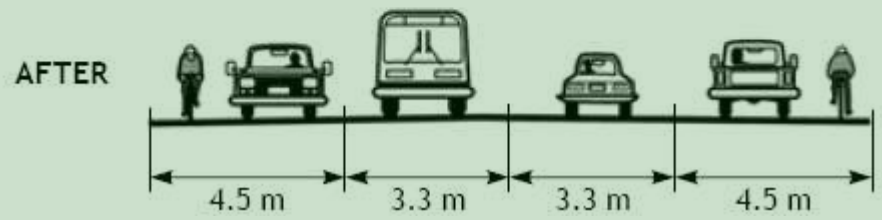
changing from diagonal to parallel parking on a two-way street



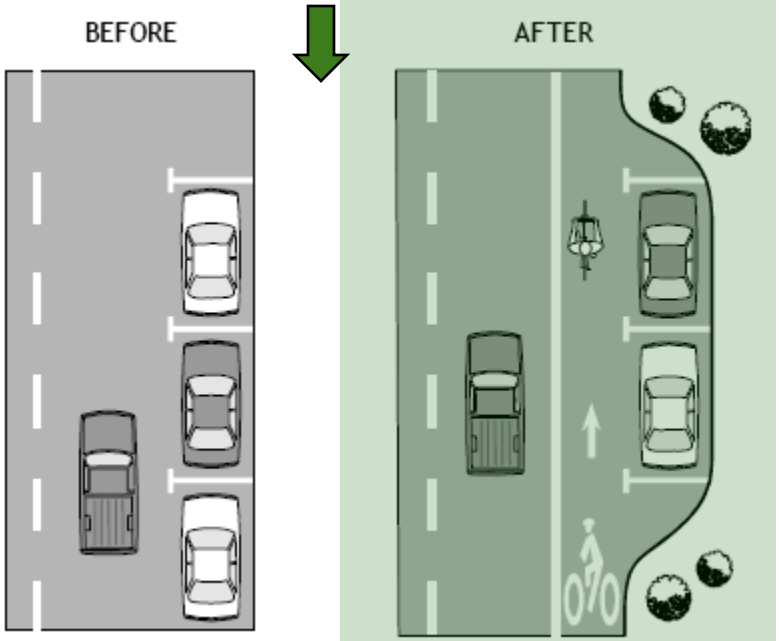


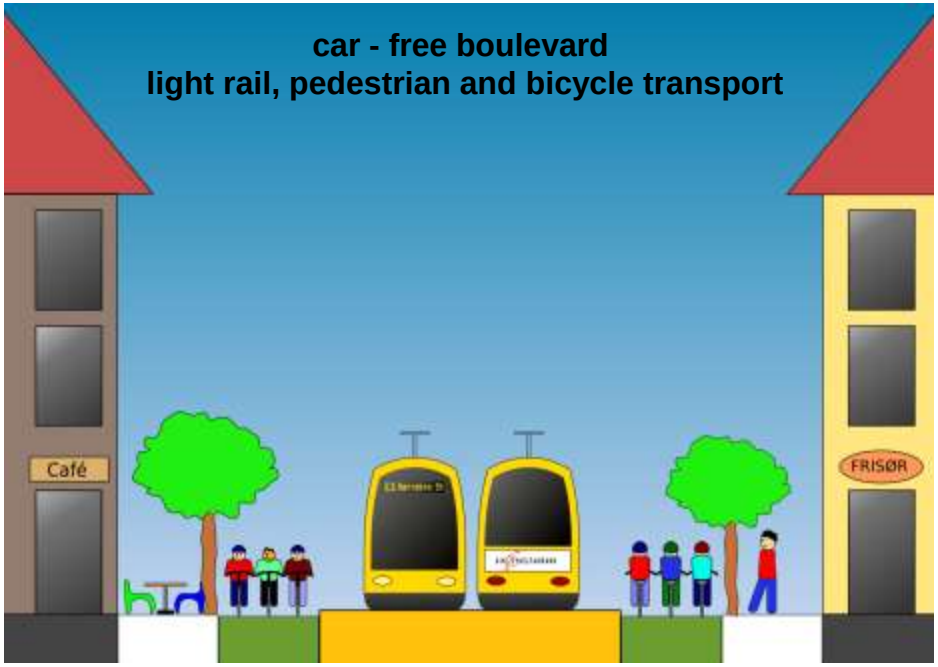
Restriping for a wide curb lane





providing parking when there are no reasonable alternatives





car traffic is kept on one side and bikes safely on the other

the usual setup puts car parking on the sidewalk

For a child growing up, a quality environment is one where (s)he can safely and progressively develop more responsibility and other life skills. This may mean at three years old discovering his/her front yard: at four going down to the end of the block; at five exploring the neighborhood; at six joining friends to walk or bike to school; at seven taking responsibility to go independently to and from extracurricular activities (music, sports, arts); and, at eight running errands to the neighborhood market to buy needed item for the family; until as a teenager they have woven themselves into the fabric of the neighborhood, have self-esteem, can manage time, know how to handle independence, take responsibility for their behavior and take pride in their maturity.

For adults, if the decisions on transportation that is made at the front door is not predetermined by culture or age, how is it made? By the view from the door! If you look out and see calm streets, grocery stores, hairdressers, cleaners, restaurants, day care centers, banks, parks and transit stops you are likely to have a different mix of transportation decisions than if you look out and see several miles of single family houses, heavy traffic, high speed arterials and no stores in sight. While pedestrian- and bicycle- friendly facilities may be necessary for enticing people to choose non- motorized modes they are not in themselves sufficient. Conversely, mixed land use might also encourage bicycle and pedestrian access, but without a convenient and safe non-motorized system it may do little to invite people out of their cars. A quality urban environment includes safety, proximity and access, and not simply mobility.

THE NEXT GENERATION STANDS TO INHERIT WHAT THIS ONE LEAVES BEHIND.
ARE WE GIVING TOMORROW‘S CHILDREN AN OUTSIDE CHANCE?