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CAPACITY BUILDING FOR SUSTAINABLE URBAN MOBILITY PLANS

ACTIVE MODES AND MICROMOBILITY

23-24 September 2024

TRT DTV CONSULTANTS Goudappel MOBILITY MOVES US stratec TIS TREDIT S.A.

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Getting started with an interaction

Discuss with your neighbour in pairs of two:

- Which of the concerns around stimulating active mobility shown here do you recognize most from your professional activities?
- What successful response have you found to this in your work practice professional work?

Source: cyclingfallacies.com

Overview of active modes and micromobility (in context of larger mobility system)

Inverting the mobility pyramid – Priorities
(source: Goudappel)

Inverting the mobility pyramid – Users and mode travel speed
(source: Goudappel)

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Active mobility and micromobility are part of a larger urban mobility system. These are individual forms of mobility based on muscle power, and increasingly electrically assisted. While they might seem of limited importance due to their typically lower speeds, shorter ranges and less demand of space, they are actually crucial components of urban transportation.

These modes are especially significant in urban areas, where much of the travel is for short distances, such as trips for shopping, education, healthcare, or social visits. Thus, they form a vital part of a sustainable urban mobility strategy.

To illustrate this, we present the mobility pyramid. In this renewed hierarchy, active mobility (notably walking and cycling) is placed at the top, representing the most prioritized and fundamental modes of transport in urban areas. This means that these forms of mobility should be given the highest priority in planning and infrastructure development because they are the most efficient, accessible, and environmentally friendly options for short trips within cities. The pyramid inverts the traditional transport hierarchy, emphasizing the importance of these modes over others, such as private motor vehicles, which are positioned lower due to their higher environmental impact and inefficiency in dense urban settings.

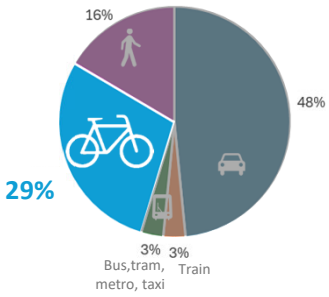
The images on the slide show two versions of the mobility pyramid: an inverted pyramid that visually represents the prioritization of more sustainable and active transport modes, and a more graphic pyramid with pictures illustrating different transport users. The top of the pyramid highlights pedestrians and cyclists, emphasizing their central role in urban mobility planning. Below them, other forms of micromobility, public transportation, and finally private cars are depicted, reflecting their respective roles and

the hierarchy of user importance in creating liveable urban spaces.

Use of active modes is often underestimated and undervalued

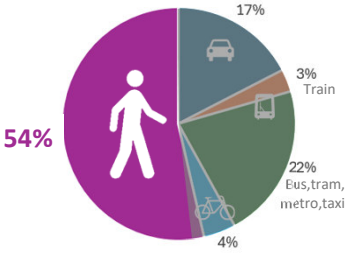
Half of the trips or more are done using sustainable and active modes

Amsterdam, Netherlands



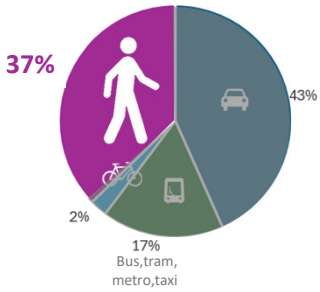
(source: national survey CBS-OViN 2018)

Barcelona, Spain



(source: Qnquesta de mobilitat en dia feiner 2022, EMEF2022)

Bucharest, Romania



(source: SUMP Bucharest, 2015)

in these charts further information on the share of active mobility in the overall modal split.

Cycling accounts for 9% of km traveled in Amsterdam, and walking only 2% of the **km traveled –** other modes such as car and train have much longer average distances per trip but relatively few trips in total.

The importance of active mobility is not in the number of km a person has traveled, but it is represented in the **high numbers of trips** done using sustainable and/or active modes. In Amsterdam, it largely goes for cycling, with cycling having cannibalized part of walking. Trips are as or more important than distance travelled since the trip is a means of accessing the activity (work, leisure, shopping) that the traveler requires.

The importance of active mobility is often underestimated because of data being shown in km travelled rather than trips.

On the right, two larger cities in Europe. Here we see the huge importance of walking in particular in total mobility. This is a relatively sustainable situation, as walking is a form of mobility with minimal disruption and other disadvantages to the environment.

How is Micromobility different?

New kid(s) on the block: Some characteristics

- New and innovative, often electrified
  (popular image with certain target groups)
- Individual way of transport with compact vehicles, often suitable for shared mobility
  (may contribute to quality of urban mobility)
- New technical innovations
  (regulations are often not yet available)
- Intermediate forms between walking, cycling and traditional car
  (hard to make mobility policy for)
- Disruptive nature
  (can have major impacts on mobility system, traffic safety, nuisance, parking problems)

Offer a brief definition of micromobility after the audience participation to ensure everyone is on the same page before proceeding.

Micromobility is a new type of (mainly) urban mobility that involves using light vehicles adapted for one-person travel. Currently, there is no internationally recognized universal definition of this term. In this overview, the reference to “micromobility vehicles” covers exclusively the devices fitted with an electric motor. Some countries introduce a list of acceptable types of such vehicles; however, given the emergence of new varieties every year, the more important for determining the micromobility vehicles are certain universal parameters, such as maximum speed, weight, and capacity.

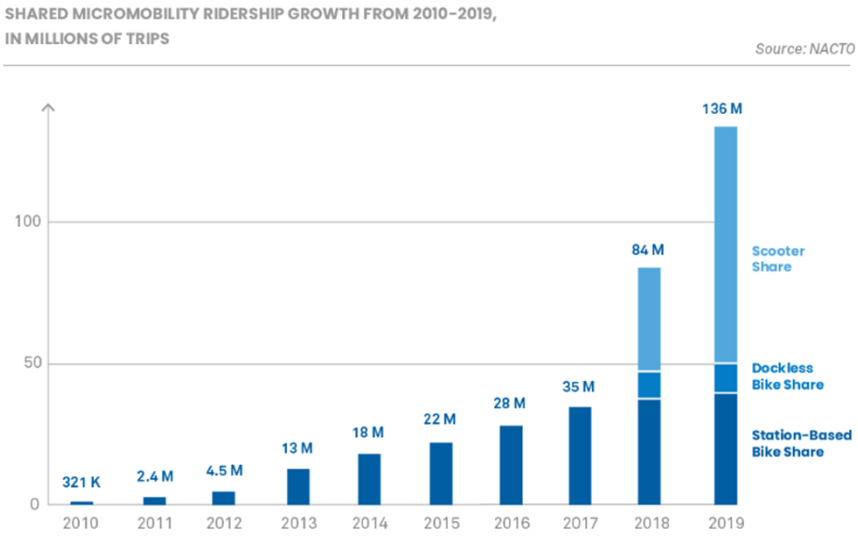
At the EU level, the categorization of vehicles was introduced by the relevant European Commission Directive (https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013R0168&from=EN) in 2013. However, new means of transportation have emerged in recent years, which are difficult to classify under the given Directive. At the same time, the rapid development of electric scooter rental systems in the European cities provided for accumulation of a significant amount of data on their use. This allows national governments and local authorities to develop a more detailed regulatory framework on the basis of the said Directive and to make informed decisions regarding further policies for regulation of micromobility vehicles in terms of improving road safety.

(White paper: Micromobility, UNDP)

Micromobility: The rise of micro mobility

Rise of micro mobility in Europe, main question:
how can city authorities make it contribute to a sustainable city?

- Integration in the infrastructure
- Parking availability/solutions
- Road safety considerations
- Law and education



Rise of shared micro mobility
(Source: https://nacto.org/shared-micromobility-2019/)

Key Message: SUMPs need to adapt to address the growing role of micromobility by integrating these modes into the urban fabric, ensuring safety, and managing interactions with other transport options effectively.

Integration in the infrastructure:

- Develop hubs of micromobility and shared services that interact with the current public transportation hubs.

Parking solutions:

- Designate specific areas in the street to prevent an overcrowdings or disruption in the public space.

Road safety considerations:

- Promote use of protective gear if deemed necessary. Enforce and educate about speed management in shared spaces.

Law and education:

- Update or adjust local regulations to include this type of vehicles and restrict what its needed.
- Share this new regulations with the population to generate a consensus and a proper use of the public space.

Micromobility: Example interventions of local governments

Examples of interventions of local governments:

- Zero-emission solutions from commercial providers (contribute to sustainability goals)
- Enforcement of city guidelines for the operation
  - **Micromobility enforcement in Antwerp (Belgium)**
- Require always station-based and not free floating (to prevent nuisance and abuse of public space)
  - **Geo-fencing in Helsinki (Finland)**
- Require systems have to be digital compatible and be publicly accessible (f.e. opensource data obliged as input for mobility apps, docking facilities only in publicly accessible areas)
  - Anonymised real-time data sharing in Antwerp (Belgium)

Key Message: SUMPs need to adapt to address the growing role of micromobility by integrating these modes into the urban fabric, ensuring safety, and managing interactions with other transport options effectively.

Summary of the examples

Micromobility Enforcement in Antwerp, Belgium

Antwerp enforces regulations for electric scooters and bikes, including speed limits and designated parking areas, to ensure safety and order. Violations such as improper parking are penalized to maintain pedestrian safety and reduce urban clutter.

Geofencing in Helsinki, Finland

Helsinki uses geofencing technology to control where electric scooters can operate, setting speed limits and restricting access in certain zones. This ensures safe usage in busy areas and compliance with local regulations.

Anonymized Real-Time Data Sharing in Antwerp, Belgium

Antwerp collects and shares anonymized real-time data from micromobility devices. This data, provided by each of the operators, helps city planners optimize transport infrastructure and improve safety by analyzing usage patterns and popular routes.

Explanation of the examples:
Micromobility enforcement in Antwerp (Belgium)

The city introduced a regulation in March 2021 that suggests a penalty system based on points. There are different types of offence that will give a predetermined amount of penalty points to the provider. Every point remains on the provider's record for 1 year.

These penalties relate to the following requirements:
• Shared data: providers of shared mobility are obliged to share their data with the municipality to control use, availability and distribution of vehicles. The latter is important to make sure vehicles are available in all parts of the city.
• Drop zones for shared vehicles, to prevent blocking passage.
• Reporting and follow up on wrongly parked vehicles.
• Speed limits for shared vehicles are enforced.
• Providers need to run a Dutch spoken helpdesk.
• No parking zones by use of geofencing technology in crowded areas.
• No go zones (geofencing). The penalty points system works as follows:
• 30 points: loss of 10% of licensed fleet size for 1 quarter of a year.
• 60 points: loss of 50% of licensed fleet size for 1 quarter of a year.
• 90 points: loss of 100% of licensed fleet size for 1 quarter of a year.
• 120 points: withdrawal of licence.

Geo-fencing in Helsinki (Finland)

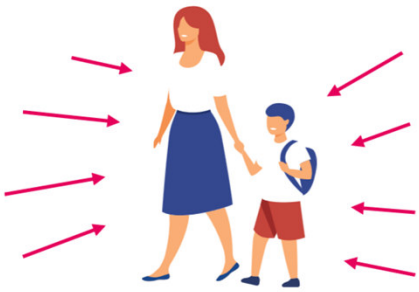
The scooters work with smartphone apps and their parking is allowed on pavements in the same way as bicycles, according to Finnish law. Also, when it comes to driving scooters, the same laws are followed as on bicycles. On scooters, you have to drive along a cycle path or a bicycle lane. If neither is on the street, you have to drive on the roadway. Geofencing areas are in use by all three operators. Firstly, the service area of scooters is not the whole of Helsinki. The area is mainly limited to the inner city and the areas nearby the city centre. The journey cannot be ended and the scooter cannot be parked outside the service area which is specified by geofencing. Some of the areas outside the service area are such that it is not possible to drive there at all on a scooter.

Anonymised real-time data sharing in Antwerp (Belgium)

Antwerp passed regulations ensuring that every provider needs to deliver his anonymised real-time data with API. Based on this data, the city makes informed decisions in function of the needs of its users. The means of transport that require more capacity are allowed to expand their fleet, while other means of transport that are not used enough will have to reduce their fleet. With this data at the city's disposal, Antwerp can make these decisions for every part of the city.

Why active modes in SUMPs: quality of life

- Health
- Economics
- Accessibility
- Environment
- Safety
- Social equity
- Efficient use of space



Zoom in: walking and cycling improve pyhisical and psychological health, at all ages
(source: Goudappel, 2023, Goudappel loopt!)

Why are active modes important in SUMPs? (2)

Key Message: Measuring key indicators is essential to track progress and assess the effectiveness of SUMPs in promoting active travel and micromobility.

Health: walking and cycling is good for you! Riding a bicycle is a healthy, fun and low impact form of exercise for all ages. Employees cycling to work are less likely to call in sick. Cycling and walking keeps you fit longer and your immune system young. In conclusion, usage of active modes contributes to living a healthy life.

Economics: Cycling is a low-cost mode of transport for both individuals and society as a whole. Cycling requires a lower individual investment than driving a car. Each trip is free and maintenance is minimal. Each kilometer cycled yields a benefit to society whereas each kilometer done by car and public transport generates a cost on society.

Accessibility: Cities are struggling for space. As the number of residents is continually growing, there is increasing competition for a limited amount of public space. Given that a pedestrian or bicycle take up less space than a car, replacing cars by active modes frees up space in your city to create more room for green spaces and for people to meet each other.

Environment: Cycling and walking are the ways to move around which have the least impact on the environment. Switching from driving to cycling reduces carbon emissions and improves air quality. Cycling is good for the planet and for the quality of life in cities.

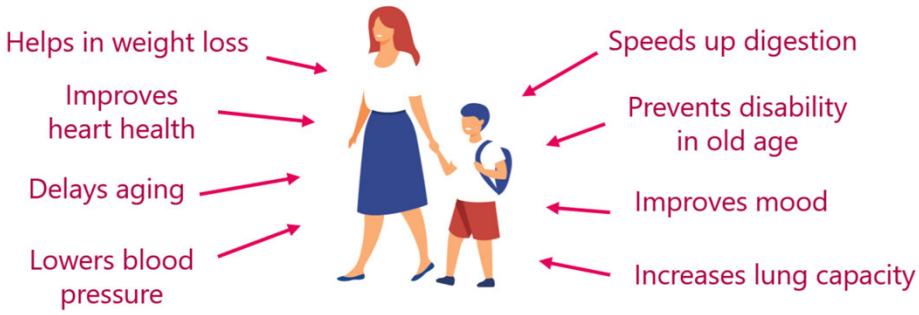
Safety: Planning for the promotion of cycling and walking creates cities safer for cyclists and pedestrians but more broadly for all road users. Statistically, pedestrians and cyclists are less likely to cause deadly collisions.

Social equity: Walking and cycling is a democratic mode of transportation. It offers greater mobility to virtually everyone regardless of origin, age, income or physical ability. The bicycle increases social participation and is an inexpensive solution to transport poverty.

Efficient use of space: Many cities are experiencing growth in mobility, partly due to spatial densification. Especially within existing urban areas, there is not always extra space for mobility. Therefore, it makes sense to opt for space-saving, space-efficient modes or transport

Why active modes in SUMPs: quality of life

- Health
- Economics
- Accessibility
- Environment
- Safety
- Social equity
- Efficient use of space



Zoom in: walking and cycling improve pyhisical and psychological health, at all ages
(source: Goudappel, 2023, Goudappel loopt!)

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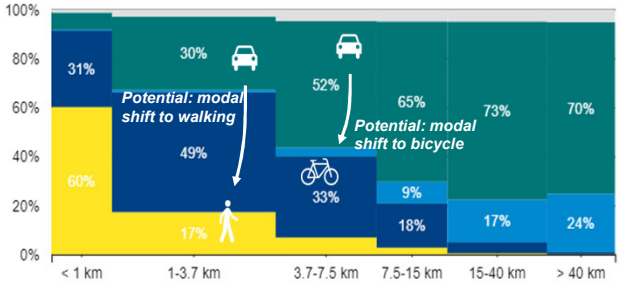
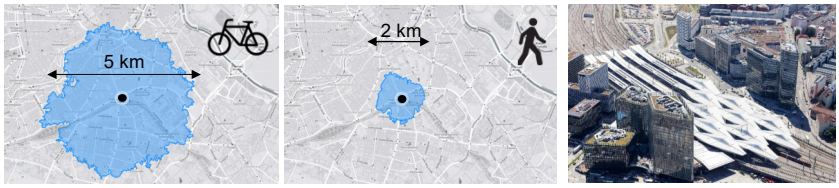
Why active modes in SUMPs: efficient urban mobility systems

- Substitution of car use: leading towards less use of space in busy urban areas, less congestion, fewer emissions, better health
- Increase catchment area and use of public transport (intermodality)
- Opportunities for traffic-safe design of streets
- Even car drivers start and end their trips as pedestrian!



A lot of passenger trips in cities involves short distances, for which cars are widely used.
These trips can be replaced by walking or cycling!
(source: CBS-OViN 2018, all dutch cities with more than 100.000 inhabitants)

Improving quality of public space after strengthening attractiveness for active modes (superblocks Barcelona)
(source: https://www.reddit.com)



The 20 min catchment area around central trainstation Vienna (Austria) will increase if bicycle can be uses as full-fledged form of pre- and post-transport mode
(source: app.traveltime.com)

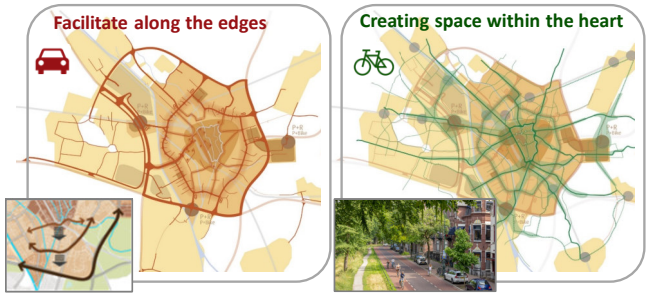
The previous slide discussed societal benefits, extending beyond mere transportation. Building on that, this slide highlights the advantages of active mobility within the overall mobility system. This underscores the importance of fully integrating active mobility into Sustainable Urban Mobility Plans (SUMPs).

The graph from the Netherlands, featuring data from cities with populations over 100,000, is displayed in the top right corner. It illustrates that even for short distances, cars are still frequently used. However, there is significant potential to shift these short trips to walking, which is the most straightforward and accessible mode of transport for very short distances. Walking can easily accommodate short trips, reducing car usage and contributing to a healthier urban environment.

For slightly longer distances that may be impractical for walking, cycling, including the use of e-bikes, becomes a viable and efficient alternative. By encouraging these modes of transport, cities can reduce car traffic, particularly for short trips, and promote more sustainable and active forms of mobility.

Important to integrate active modes within larger mobility system

- Integrate with other networks (for example car: the best bicycle plan starts with a car plan, encouraging car traffic to travel via peripheral bundles, thus creating space for active modes in the heart of the city
- Integrate with land use planning: densification and mix of functions stimulate use of active modes so they are closer by foot or micromobility
- Integrate with car and micromobility parking policy: stimulate the use of active modes
- Integrate with nonphysical measures: publicity campaigns, bicycle lessons for children and elderly, enforcement



Create powerful order at network level between motorised traffic and active modes
(source: SUMP Utrecht the Netherlands, 2015)

Municipal regulations on parking solutions contribute to bicycle use
(source: Immowelt Munchen and bicycle parking Kunsangen Sweden)

In this slide the plea is not to consider cycling and walking in isolation but as part of a larger strategy. This is the best way to stimulate active mobility. First of all, consider the importance of creating the right preconditions in the car system, so that there is room for walking and cycling. For example, creating more car-free streets in the busier parts of the city. Furthermore, consider the link with land use planning: spatial development in high densities and with mixed functions is the best mobility policy you can think of. It leads to more walking and cycling. In addition, tailor-made parking policies for cars and bicycles help make cycling more attractive than car use. This includes attractive and indoor bicycle sheds. It may also involve limiting car parking, or introducing (higher) rates for car parking.

INTERACTIVE MOMENT, PAIR UP WITH YOUR NEIGHBOUR: NAME FIVE CHARACTERISTICS OF ACTIVE MOBILITY IN THE PICTURES

Source top level: Chris Bruntlett, DTV's Dutch Bicycle infrastructure Training, 2022. Bottom right: SUMP briefing micromobility, Bottom left: SUMP topic guide on Walking

Characteristics

Active modes..

- are a means of transport
- Requires certain level of physical exercise
- Do not have protection from weather conditions
- do not have impact protection
- do not have mirrors
- are a social activity

➔ **HUMAN POWERED**

Source: Unsplash *Viktor SOLOMONIK*

Key message: At the center of each active mode trip, there is a person. They are also at the center of the SUMP process. We design streets and policies around people.

Measuring current levels and patterns of active mobility

Relevant, updated, accurate data is key for promoting active mobility.

How to measure active mobility?

- Quantitative counting data from automatic sensors (pedestrians and micromobility riders)
- Quantitative and qualitative data from surveys (for example accidents, traveler satisfaction, travel behavior, revealed preferences, origin/destination data.)
- Other qualitative data sources (social media, blogs)
- Modelling data

Source: flickr.com/photos/jamescridland/, Goudappel, provincie of Antwerp, Goudappel

Key message: Encouraging active mobility requires consistently acquiring relevant data about the users and the potential users.

If you have no data on road safety for cyclists, or numbers and purposes of walking trips, then policymakers are not aware of the challenge. Various types of sources are conceivable for this, and each city should have data that is. As much as possible, accurate, up to date, nationally and internationally comparable. Having daily, weekly, monthly and yearly reports can help to better understand trends (good or bad ones) and are a powerful tool in implementing policy that promotes sustainable and active modes.

Importance of working from vision to measures in the right order

1
2
3

- Together with professional and non-professional stakeholders: process data into a vision for promoting active mobility
- Design an overarching urban walking and cycling network including connections with other modes (multi modal journeys)
- Together with stakeholders: determine and assess which local infrastructural measures are needed in which places to complete a network , define non-physical measures such as traffic education and public campaigns

It is important to work top down when it comes to encouraging active mobility. Following on from the SUMP planning process, it starts with a vision of the mobility system. It is then important to design the walking and cycling network for the entire functional urban area. The most urgent locations are then elaborated. This concerns physical local measures, but also non-physical measures, such as public campaigns and cycling education

Zoom in: Pedestrian First toolkit to measure a city/neighborhood/street

- **Infrastructure:**
  Wide, clean, unobstructed sidewalks, accessible crosswalks and priority to pedestrians.
- **Activity:**
  A mix of services and activities create a lively street at all times; Seating, lighting and garbage bins are important amenities.
- **Priority**:
  The street facilities (travel lanes, parking) give priority to active modes, allocate less space for cars, slower driving speeds and make enjoyable walking environment.

Institution for transportation & Development Policy

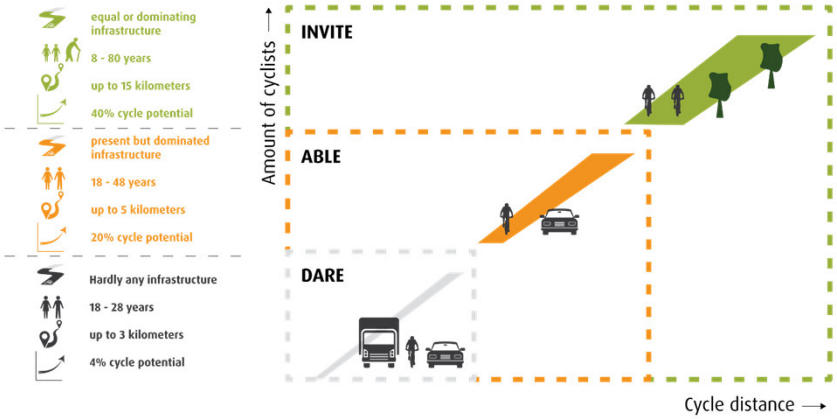
Key message: How the walking infrastructure can be improved if some characteristics of the streets would change and adapt to pedestrians needs, as opposed to drivers' needs.

The answer to the needed change of infrastructure is a mix of better sidewalks and crossing, of mixed use and street amenities, and of different space allocation and behavior management. The outcome might be less convenient to car users, but it will introduce a much better walking experience.

The Pedestrians First website provides checklists and self-observation opportunities both for individuals, intending to check their street, and for professionals, looking for standards and rules to see if their plan stands to an international threshold. This provides evidence based-data.

Zoom in: Five principles of network design of active modes

- **Attractiveness:**
  pleasant surroundings
- **Comfort:**
  minimal stops and nuisance
- **Directness**:
  minimal detours
- **Cohesion:**
  connecting the dots
- **Safety:**
  safe routes, no heavy traffic



Creating quality for active modes fitting for multiple target groups
(source: Goudappel)

This graph is specific for cycling, but the speaker should connect this concept for all active modes and what was mentioned in the previous slide.
Key message: How the number of cyclists can be improved if some characteristics of their trips are addressed with better infrastructure and/or reserved space in the city planning.

How to move from a dare to cycle to an able to cycle environment and to an invite to cycle environment?

There is a link with the 5 principles of designing for bikes: **safety, cohesion, directness, comfort and attractiveness**

Dare to cycle

- poor cycling infrastructure, lack of continuity, car-dominated environments, undefined urban spaces: unsafe to travel and often socially unsafe
- in these environments you usually only find die-hard cyclist. No children, older people, groups of commuters.
- moving away from the dare to cycle environment is done by addressing safety and cohesion

Able to cycle

- the basics are covered in terms of infrastructure. It's safe but the cyclist is complementary to other modalities, such as public transport and car traffic. Space is limited. Waiting times at intersections can be long.
- in these environments you start to see larger amounts of cyclists.

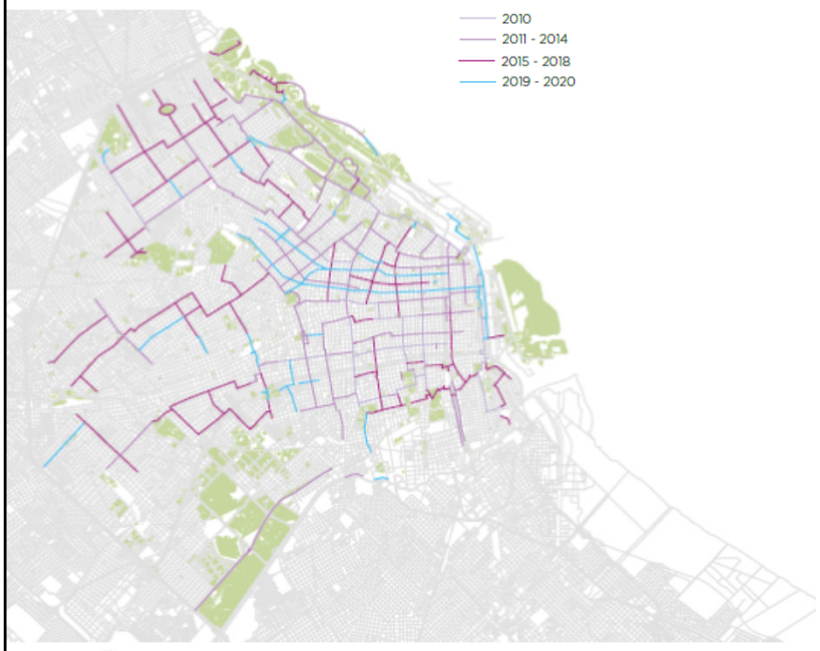
- moving up from the able to cycle environment is done by addressing directness and comfort: avoid busy intersections, lots of stops, uneven surfaces, obstacles, loud sounds

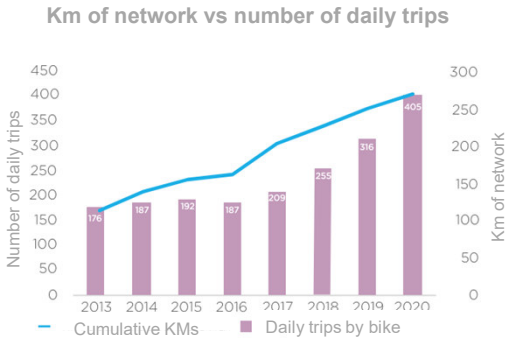
Invite to cycle

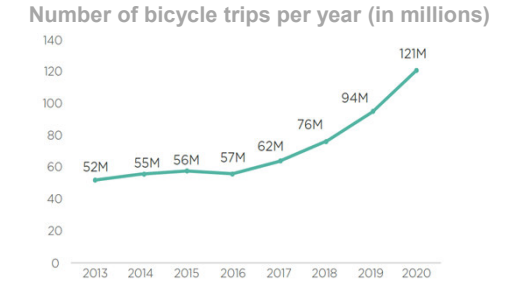
- is rare to find. Here cycling is het most important means of transport. The bicycle takes up most of the space and cars are not present or subordinate to the cyclist.
- these are environments where all ages and target groups feel comfortable cycling
- ttractiveness and how a route is experienced by users is an important aspect

Public

Impact of building a good networks







Source: https://buenosaires.gob.ar/sites/default/files/2023-04/informe_movilidad_ciclista_con_dise%C3%B1o_actualizado.pdf

Jaspers Capacity Building for Sustainable Urban Mobility Plans – Active modes and micromobility 19 Funded by the European Union

Key message: "If you build it, they will come"…as the number of KM of safe bicycle lanes grows, the number of trips also rises.

Back story:

In 2009, the number of cyclist in the city of Buenos Aires accounted only 0.4% of the total modal split.

With the desire to understand why people avoided the bicycle to move in the city, a qualitative research was done that gave the answer. People didn't feel safe having to navigate busy streets with other big vehicles such as cars and buses. Therefore, the solution was to create a network of SAFE bike lanes, segregated from other vehicular traffic.

Starting in 2009, the bicycle network currently has more than 300 km. This resulted in a huge increase in the number of cyclist in the street, and now account for approximately 4% of the modal split.

The growth in the number of trips has been picking up its pace since 2015, and there are numerous NGOs and other stakeholders requesting that the network expands faster to other areas of the city.

In terms of road safety improvements, the number of death of cyclists has gone significantly down in the last years with a proportion of 0,10 deceased per 1 millon bicycle trips in 2015 to 0,02 in 2020.

In the example:

The map shows the growth of the network per year of construction.

The top graph shows in blue the number of kilometers built in the network and in violet the number of daily trips.

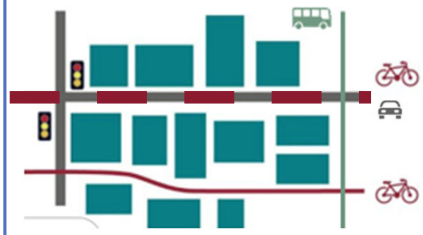
The bottom graph shows the number of trips made by bicycle per year. Beginning from 52 Million in 2013 and getting to 121 million in 202.

Source: https://buenosaires.gob.ar/sites/default/files/2023-04/Informe_movilidad_ciclista_con_dise%C3%B1o_actualizado.pdf

Different ways of designing networks

Bundling
Traditional approach
Creating safe segments for bicyclists

Unbundling
Superblock approach
Creating safe segments for bicyclists
Further reduction conflicts car-bicycle
Less pressure on traffic volumes
Attractive
Comfort
Safety



Transformative
Mobility transition approach
Creating safe segments for bicyclists
Further reduction conflicts car-bicycle
Less pressure on traffic volumes
More attractive
More comfort
More safety
Accelerate mobility transition

Integrated Cycling Planning Guide, EU Cycle, Interreg Europe

These diagrams deal with principal choices when designing cycling infrastructure at network level.

We need networks for active modes, in order to successfully facilitate active mobility. Networks are not just functional. They are also the indication for the priority for those modes on the links on the network. The network plan also stands for where you plan to offer the highest quality and user experiences. It is these elements in the network, that will push forward cycling. It is in these networks where the investments are done.

Given this, it is key to properly plan networks. Taking into account opportunity (the network should grasp the potential, i.e. connect origins and destinations), feasibility (your highest quality level would probably require some space) and the design principles. Therefore, it is essential to plan modal priority networks, with the least mutual overlaps as much as possible.

Bundling: It is possible to construct safe detached cycle lanes along busy traffic routes. **Unbundling:** It may have added value to build attractive low-traffic routes through urban neighborhoods (in addition). This has additional advantages. **Transformative:** Finally, there is an additional win-win possible, by using improvements in cycling infrastructure to dampen the speeds and flow function of car infrastructure. This contributes to the modal shift from car to bicycle. (Redesigning streets to prioritize active travel and calm car traffic.)

Source: **Section 7.4.2 Unbundling cycling and road network** –

https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1630597001.pdf

Different ways of designing networks – urban examples

Source: Bike New York

Bundling
Traditional approach
Creating safe segments for bicyclists

Source: Bloomberg, 2021 Cities Climate Solutions

Unbundling
Superblock approach
Creating safe segments for bicyclists
Further reduction conflicts car-bicycle
Less pressure on traffic volumes
Attractive
Comfort
Safety

Source: Egyptology

Transformative
Mobility transition approach
Creating safe segments for bicyclists
Further reduction conflicts car-bicycle
Less pressure on traffic volumes
More attractive
More comfort
More safety
Accelerate mobility transition

These diagrams deal with principal choices when designing cycling infrastructure at network level.

These examples show how does each approach effect the environment and what does a network look like at street level for each intervention.

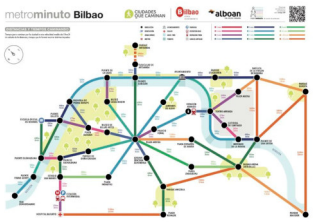
Bundling: It is possible to construct safe detached cycle lanes along busy traffic routes.

Unbundling: It may have added value to build attractive low-traffic routes through urban neighborhoods (in addition). This has additional advantages. **Transformative:** Finally, there is an additional win-win possible, by using improvements in cycling infrastructure to dampen the speeds and flow function of car infrastructure. This contributes to the modal shift from car to bicycle. (Redesigning streets to prioritize active travel and calm car traffic.)

Source: **Section 7.4.2 Unbundling cycling and road network** - https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1630597001.pdf

Public campaign and changing people's perception

Walking network Metrominuto – Pontevedra (Spain)



Source: metrominuto.pontevedra.gal/es/

What is Metrominuto? A walking map resembling a metro map.

Origin and Purpose

- Developed in Pontevedra, Spain in 2011
- Encourages walking and promotes healthy lifestyles.
- Reduce the impact of vehicles in the historic city centre.

Key Features

- Simplified layout of the city.
- The map resembles a metro map, symbolizing high quality pedestrian routes.
- Highlights walking distances and times between key points.

What is shown is primarily promotional although in case of Pontevedra many of the links on the map had changes to the infrastructure (narrowing car lanes, reducing vehicle speeds, more crossings, wider sidewalks, more street trees) that are part of Slide 17 and made walking more pleasant, safer and quicker.

Impact on the City

- Reduction in traffic congestion.
- Increased pedestrian activity.
- Positive environmental effects.

After its success many other cities have implemented the same concept. (Toulouse, Florence, Modena, Granada, Pamplona, Salamanca, etc.

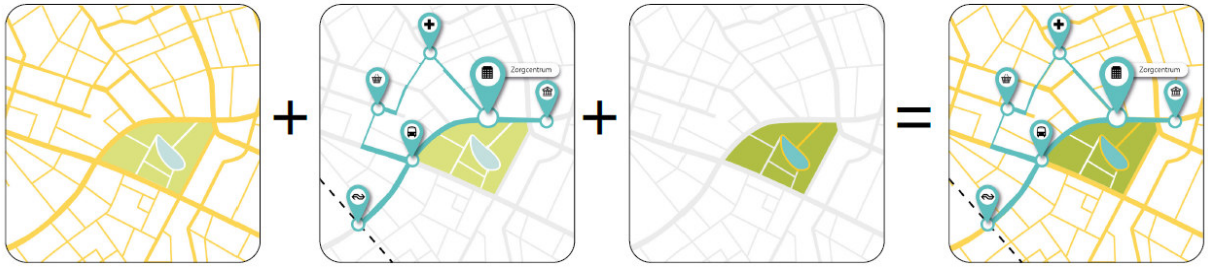
Public

How to analyze a walking network

- Area covering walking network
- Three different qualities
- Designed from points of attraction for larger groups of walkers such as train stations, hospital, shopping centers and schools



Examples of local interventions: accessibility for wheelchairs and walkers, barrier-free transitions, rest areas for the elderly



Basic network
All public streets in city
Mesh size 50-100 m
Width 2,00 m

Main network
Main routes to amenities
Mesh size 200-500 m
Width 2,20 m (side by side)

Recreational network
Selection of main routes in parks, requirements in accordance with basic network

Source: Goudappel

Key message: Walking is the mode of transportation that connects everything (connection with the concept of multimodality). Therefore, it is important to understand how this mode of transportation can be placed at the centre of decisions when it comes to network planning, as well as the ability to socialize and be part of the city.

Walking should not be seen as a competitor to public transportation or other forms of transportation in the city. But any other network in the city (public transportation, bicycles, car, etc.) should understand the basic walking network in the city. Origins and destinations, where people want to be and how to make that experience the best it can be. Ultimately, people see the city as one big network and not in separate layers, so planning should also have this holistic approach to walking.

The basics should be present throughout the city: we are all pedestrians, and a basic level of quality is required everywhere. This basic network should meet basic requirements, such as accessibility for people with wheelchairs and prams and a basic width so that people with wheelchairs and prams can pass each other without being put in an unsafe situation.

- Some routes need extra attention, because of the number of users and the social importance of certain routes. For example connections to the public transport network, connection to locations with many visitors (health centers, parks, theatres, plazas, etc.). This main network should be designed extra broadly. And with extra priority and safety features at intersections with motorised traffic
- finally, there are recreational links. These are mainly intended to also give people with disabilities access to, for example, parks and recreational areas. Consider, for example, facilitating at least 1 route through a park that is also suitable for

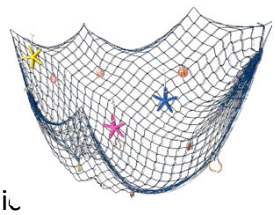
wheelchairs and people who need some extra width (walker, pram), that is also extra socially safe in the dark thanks to vistas or lighting if possible. Customisation is important for every situation.

it is important to define the above type of routes/network. So that work is always done from the overall picture (helicopter view). This can be done by first connecting key visitor locations (main network, e.g. to be built up from public transport stations) until a sufficient mesh is created. Then, this main network can be refined with a basic network until the desired mesh size is achieved. For recreational routes, the most suitable route(s) for people with disabilities should be considered for each recreational area. For example, the main route with exits on several sides of a recreation area.

After defining the networks from helicopter view, it is important to improve segments at street level, in order to achieve a complete network step by step. This requires planning/prioritisation based on traffic accident statistics combined with usage figures and the location of key points of interest (e.g. priority around stations and hospitals or care homes), among others. This can be used to arrive at a top # of segments and intersections to be improved.

Example: bicycle network

- Basic bicyclenetwork
  mesh size 300 - 500 meters
  for short trips, shopping, primary school, to public transport stops



- Regional cycling network
  mesh size 1.000 - 3.000 meters
  for regional commuting,
  secondary / high school

Source: Goudappel

Source: Mobility strategy 2040 of Alkmaar (The Netherlands, 2024)

This slide presents the bicycle network plan for the city of Alkmaar, Netherlands, which has approximately 100,000 inhabitants. The plan features two distinct networks for bicycles: a basic local network with a dense mesh size and a regional cycling network for longer distances. This dual-network approach ensures that the needs of different cycling user groups are met, catering to both local commuters and those traveling longer distances.

Once the overarching network is defined – mainly paralleling major regional roads to link main trip generators (but also including links that are entirely separate from the road network, for example alongside railway lines), the next step is detailed planning and implementation.

The first priority is to establish high-quality infrastructure on the segments of the regional main cycle network. This involves careful planning and prioritization, which should be informed by traffic accident data, usage statistics, and other relevant factors (such as important origin and destinations, availability of on-street lighting, available space, etc). This data-driven approach helps identify the top segments and intersections that require improvements.

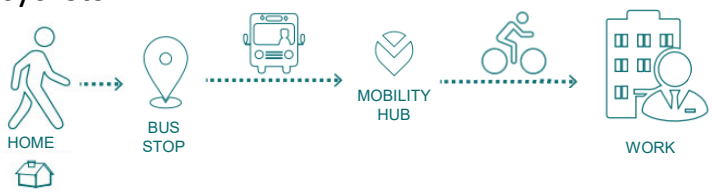
For sections with more than approximately 4,000 cars per day, it is crucial to ensure a clear separation between car traffic and bicycle lanes to improve safety. On roads with lower traffic volumes, integrating bicycles and cars can be considered, but safety must always be a priority. Additionally, intersections should be designed with safety in mind. At signalized intersections, cyclists should have dedicated lanes and their own phase (green light time) in the traffic control system to minimize conflicts with motor vehicles.

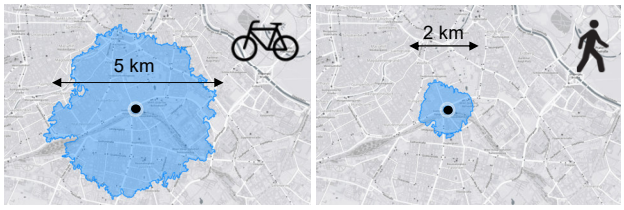
As a secondary priority, attention will be given to the finer-grained local cycle network.

This includes ensuring safe road sections and intersections, but also slowing and reducing vehicle traffic on local streets (using traffic calming and selective road closures) to enable safe mixing of cyclists and general traffic. Ideally, improvements to both the regional and local networks should be pursued simultaneously to provide comprehensive and safe cycling infrastructure throughout the city.

Networks integrating other modes

- First/Last-mile solutions for pedestrians & cyclists
- Bicycle parking and sharing systems
- Pedestrian friendly infrastructure





Comparison catchment area around central trainstation Vienna (Austria)
Left with 10 minute bicycle , right with 10 minute walking (source: app.traveltime.com)

Source: Visienota vervoerregio Antwerpen

Source: DTV Consultants

Key message: Active modes are the thread that ties all the other transport modes together. Multimodality needs to consider the needs of cyclist and pedestrians to maximize its potential.

First-Mile/Last-Mile Solution: Active modes serve as excellent solutions for the first and last mile of a journey, bridging gaps to public transport stations, thereby making the entire system more efficient and user-friendly.

Bicycle Parking and Sharing Systems: Investments in secure bicycle parking and bike-sharing programs can significantly enhance the convenience of cycling, encouraging more people to incorporate it into their daily commutes.

Pedestrian-Friendly Infrastructure: Developing pedestrian zones and improving sidewalks can seamlessly connect various transport hubs, making walking a viable part of the multimodal experience.
- Consider this when preparing and implementing policies and measures for active modes

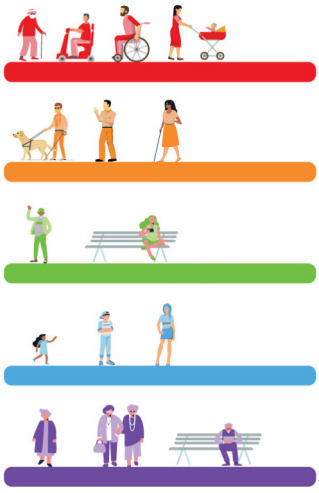
  - How do you design a transportation node: take away barriers
  - (safe) Bike parking is essential for the convinence of traveling by bike.
  - Walking routes to bus stops, from bus stops to important destinations

- Both walking and cycling play an important role in connecting modes, including public transport. Cycling has the advantage of giving people a much wider reach. Especially the combination of cycling and public transport is therefore very powerful. It does require bicycle parking at the hub for the first mile and shared bicycles at the hub for the last mile

- links with Module 13 on Passenger Transport and Module 19 on Inclusive Mobility

Overcoming public resistance to street space reallocation

- There is no omni-pedestrian or cyclist, every user has different needs and characteristics.
- Address the needs of different target groups
- Emphasising the importance of including vulnerable groups in society (children, the elderly, people with disabilities).
- Improving streetscape for vulnerable groups is easier to accept.



Pedestrians with physical assistance
(required width, no thresholds, resting facilities)

Pedestrians with physical limitations
(contrasting materials and colors, physical guiding lines)

Pedestrians with mental disabilities
(intuitiveness and logic, safety)

Children
(lower eye level, social safety, safe from cars)

Elderly
(clear width, no thresholds, resting facilities, slower speeds)

Source: Goudappel

Key message: In designing inclusive and sustainable walking networks, it's crucial to prioritize safety, accessibility, and connectivity to cater to diverse groups such as children, people with physical limitations, and the elderly, ensuring that walking becomes a viable, healthy, and enjoyable mode of transport for everyone.

Integrating these inclusive design principles into the Sustainable Urban Mobility Planning (SUMP) process involves engaging a broad range of stakeholders—including local communities, schools, healthcare providers, and advocacy groups for the elderly and people with disabilities—to ensure that the walking network addresses the unique needs of all users, thereby promoting safer, more accessible, and healthier urban mobility for everyone.

HOW to use this insight: Having data (survey, counting etc) about these street users and their existing barriers can help support budget allocation and projects designated to walking and cycling related infrastructure.

Overcoming public resistance to street space reallocation

- Engage the community early
- Communicate the benefits clearly (respond in advance to regularly expressed objections and concerns)
- Pilot projects and demonstrations

Pilot projects and demonstations to visualize future benefits
Source: Nahmobilität 2.0, www.mbwsv.nrw.de

- Address concerns directly
- Showcase other success stories
- Visualize future benefits for people

Overview of regularly expressed objections and concerns on ambitions to strengthen use of active modes
Source: cyclingfallacies.com

Engage the Community Early:

- Hold public forums and workshops to gather input and address concerns.
- Use surveys and interactive maps to involve residents in the planning process.

Communicate Benefits Clearly:

- Highlight health benefits from increased physical activity.
- Emphasize improvements in air quality and reduction in noise pollution.
- Show potential economic benefits for local businesses due to increased foot traffic.

Pilot Projects and Demonstrations:

- Implement temporary trials to showcase the benefits and gather real-world feedback.
- Use pop-up bike lanes and pedestrian zones to illustrate the impact.

Address Concerns Directly:

- Provide solutions for potential issues like reduced parking or traffic congestion.
- Offer alternative transport options and improve public transport links.

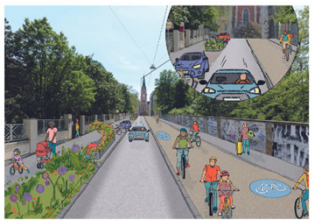
Showcase Success Stories and visualize future benefits:

- Present examples from other cities where reallocation has led to positive outcomes.
- Share testimonials from residents and businesses that have benefited.

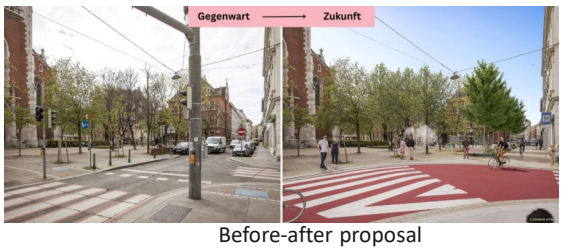
Source: https://www.paris.fr/pages/57-nouvelles-rues-aux-ecoles-dans-paris-8197#:~:text=Les%20%C2%AB%20rues%20aux%20%C3%A9coles%20%C2%BB%20consistent,de%20lutter%20contre%20la%20pollution.

Overcoming public resistance to street space reallocation

Example Argentinierstraße: Cycle street in Vienna



Proposal
(Source: Mobilitätsagentur Wien, Dialog Plus, Claudia Marschall)



Before-after proposal
(Source: Mobilitätsagentur Wien)

Examples of final realization
Source: Dutch Cycling Embassy

Involvement of local residents 2022

The residents were involved in the process **from the beginning.** After a survey on the key concerns in May, stakeholders were able to vote on two design options in June.

The result of the vote on the variant that is now to be further developed is available, and the vote is clear: the residents of the neighborhood around Argentinierstrasse clearly voted for variant B, "The Flexible One." **85.5% of the votes cast went to this design proposal with the bicycle street.**

Another key message of the project. **Road safety and improvements for cycling were not asked about separately, as these are central components of the redesign .** Source: https://www.mobilitaetsagentur.at/argentinierstrasse/

Source: https://dutchcycling.nl/knowledge/general/viennas-argentinierstrase-how-a-dutch-cycling-street-found-its-place-in-the-austrian-capital/

Boosting Walking through Targeted Campaigns

Walking can also be encouraged by:

- Schools based programmes – encouraging kids to walk to school with awareness raising, competitions, «walking buses» and improved walking links.
- Similar programmes at workplaces.
- Working with individuals to look at which of their car trips can be walked instead
- Market existing or new active travel routes.
- Celebrity, family endorsement, social norms – do your friends walk?

Source: Paris.fr

Literature shows these measures increase walking

Urban Walking – how to improve it and get more people walking
Source: Tom Rye

Promoting walking as a mode of transportation can be achieved through a variety of targeted campaigns and programs.

The following strategies highlight key approaches to encouraging walking in different contexts:

Schools-Based Programs: These initiatives aim to encourage children to walk to school.

- **Awareness-Raising Activities**: Educate students and parents about the benefits of walking.
- **Competitions**: Organize challenges or contests that reward walking to school.
- **Walking Buses**: Create organized groups where children walk to school together under adult supervision, enhancing safety and social engagement.
- **Improved Walking Links**: Enhance infrastructure around schools to make walking safer and more appealing.

Workplace Initiatives: Similar programs can be implemented in workplaces to encourage employees to walk

Individual Counseling: Work with individuals to identify specific car trips that can be replaced by walking.

- **Personalized Travel Planning**: Offer guidance on feasible walking routes.
- **Behavior Change Support**: Provide incentives or support to make walking a regular habit.

Marketing Active Travel Routes: Promote existing or newly developed walking routes to the public.

Public Awareness Campaigns: Use media and public events to highlight walking paths and their benefits.

Signage and Maps: Clearly mark routes and provide informational materials.

Leveraging Social Norms and Endorsements: Utilize social influences to encourage walking.

Celebrity and Family Endorsements: Feature public figures or family testimonials promoting walking.

Social Norm Campaigns: Highlight how walking is a common and accepted practice among peers, asking, 'Do your friends walk?'

Research indicates that these measures are effective in increasing walking rates. By combining these strategies, a comprehensive campaign can be developed to promote walking, contributing to healthier lifestyles and more sustainable urban mobility.

Promotion: principles and examples

	Example: bikeisbest.com (UK)	Example: dutch ministry of transport
Targeted marketing		✓
Collaborate with stakeholders	✓	
Use momentum		
Focus on personal adventages	✓	✓
Generate positive messages	✓	✓

Collaboration with manufacturers, lobby organizations

Source: bikeisbest.com

Some general principles for promotion campaigns:

It is perfectly fine to motivate different audiences to change their habits into more sustainable modes, yet some properties are more effective than others. Targeted marketing - deciding WHO our audience will be, what are their charachteristics, desires, tendencies.
we target, for example, schoolchildren or just older people. This also determines the form of the promotional activities

Collaborate with stakeholders - helps build capacity and have better reach into the selected target groups.
For example, consider a collaboration with a cyclist-lobby organisation or a senior citizens' association. They often understand the target group even better than the government

Use momentum - when launching a campaign, there should be a rhythm and a certain "peak", which can be another event that happens at the same time, or a made up event, towards which the campaign is aiming. World cycling day is an example for the first, and a sort of a celebration created just for the sake of what the campaign is promoting. Another example is connecting on the first day of school after a long holiday, when schoolchildren or students are targeted. It is precisely at these times that people are receptive to trying out new behaviours

Focus on personal advantages - a direst approach that aims to answer the common question WIIFM - what's in it for me. If a future user sees direct benefits, he might change his behaviour. Some people are amenable to benefits for society as a whole: cycling is good for the environment. Many others, on the contrary, are receptive

to personal benefits: cycling is cheap, cycling is healthy, cycling is fun.

Generate positive messages - the best way to create immediate connection is by positive messages. It connects the whole experience with positivity, which attracts potential users.

This ad sends a message that bicycles, regardless of its type (regular, electric, cargo) - are a better fit to the job compared to a car.

It's just a matter of matching the correct bike to the situation.

This is both funny and informative, sending the message that bicycles are fun, that people should match their needs with this experience, that it fits.

Example: bikeisbest.com

Promotion: examples of bicycle education

- Important in countries with limited regular bicycle use
- Contributes to responsible and safe cycling alongside secure infrastructure (precondition)
- Key target groups:
  - Children (early education on safe cycling practices)
  - Older adults (promoting mobility and confidence)
  - Working adults (encouraging commuting)
  - Other cultural backgrounds (integration and local norms)

Bicycle education centra Cambelltown, Australia
(Source: https://www.nsw.gov.au/visiting-and-exploring-nsw/locations-and-attractions/campbelltown-bicycle-education-centre)

Bicycle lessons for people from cultural backgrounds
(Source: https://www.standaard.be/cnt/dmf20180325_03429486)

Key message: This slide emphasizes the importance of cycling education, particularly in countries where cycling is not a widespread practice. Education plays a crucial role in promoting responsible and safe cycling, working alongside the development of secure infrastructure.

Children:

Starting cycling education early helps build safe habits and encourages an active lifestyle. Programs at schools can be effective, integrating fun and learning to instil confidence in young cyclists.

Older Adults:

As people age, maintaining mobility becomes essential. Cycling provides a low-impact form of exercise. Educational programs can help older individuals feel safe and confident on bikes, especially with the increasing popularity of e-bikes.

Working Adults:

The working population represents a significant opportunity to increase cycling rates, particularly for commuting. Education tailored to this group can include safe commuting routes, the benefits of cycling, and practical tips for integrating cycling into daily routines. Employer-sponsored workshops and commuter challenges can further encourage this group to adopt cycling as a primary mode of transport.

People from Different Cultural Backgrounds:

For those new to cycling, particularly individuals from cultures where cycling is less common, tailored educational programs can help them understand local

cycling norms and safety practices. Multilingual resources and community-led classes are effective in this regard.

By targeting these diverse groups, cycling education can lead to a broader adoption of cycling, enhancing overall safety and contributing to a more sustainable transportation system. The examples shown in the images reflect various educational initiatives aimed at these target groups.

Effects of promoting active mobility: example Paris

- Plan Velo: express bicycle network, secondary networks, more than 1.000 km of cycle path in 2021 (total Metropole: almost 3.000 km), bike parking, traffic light improvements, routeplanner, repair workshops, bicycle school, subsidies for electric bicycles, cargo bikes
- Between 2019-2020 increase of 47% in bicycle use
- Between 2020-2021 increase of 22%
- On some routes rise to 60% in bicycle use
- Rue de Rivoli: more than 25.000 bicycles and scooters each day

Source: https://www.paris.fr/pages/paris-a-velo-225

Source https://viewpointvancouver.ca/2022/06/21/the-transformation-of-rue-de-rivoli/

Source: https://ecf.com/system/files/ChristopheNajdovski_ParisCyclingPolicies.pdf

Some countries or cities have high bicycle use. It is tempting to conclude that this then apparently belongs to that country or city and that the city where we work is very different.

However, the reality is that in all cities, there has been a time when cycling has not been a dominant presence.

This applies to cities such as Amsterdam and Copenhagen, but also to Paris, for example. The Plan Vélo started in 2015, but this is a very timely example of the impact of successful cycling policies in the last 5 years.

The city of Paris is an example where bicycle use was not high (with just 3/5% of the trips made by bicycle inside the city), but where vigorous efforts have been made to improve cycling policies. It has led to impressive results when it comes to bicycle use. In some streets, cycling has become the main user. New target groups, who previously did not use bicycles, have started using them.

Towards conclusions

1. Valuing Active Mobility
2. Multi-policy integration for active modes
3. Data-driven approach to decision making focused on the users demands.
4. Design good and coherent Networks
5. Focus on infrastructure and promotion
6. Support the introduction of Micro mobility

Source: goudappel

Key message: Active mobility is often undervalued but is crucial for societal well-being and the effectiveness of an integrated mobility system. To maximize its benefits, it should be a central element of the SUMP process.

Valuing Active Mobility:

Recognize the significant contributions of active mobility to health, environmental sustainability, and overall urban mobility.

Include active mobility in the SUMP to ensure it complements and enhances other transportation strategies.

Cross-Policy Integration:

Integrate active mobility policies with other areas.

Design urban spaces that encourage walking and cycling.

Ensure that car infrastructure supports and does not hinder active mobility.

Data-Driven Vision:

Create a vision for active mobility based on detailed data analysis.

Use data to track walking and cycling trends, identify challenges, and set measurable goals.

Provide infrastructure and services that match user needs and preferences for different types of trips, ensuring accessibility and convenience.

Designing Coherent Networks:

Develop connected networks for walking and cycling that are practical and user-

friendly.

Ensure these networks are well-integrated with other transportation modes, facilitating easy transitions between different types of transport.

Infrastructure and Promotion:

Build and maintain high-quality infrastructure, such as dedicated bike lanes and pedestrian pathways, to support active travel.

Implement campaigns to raise awareness and encourage active travel. Use social norms, endorsements, and incentives to motivate people to choose walking and cycling.

Supporting Micromobility:

Create favorable conditions for micromobility options, such as shared e-scooters and bikes.

Integrate micromobility into the broader mobility system to enhance overall sustainability and efficiency.