



# TDA Training Program on Transport Decarbonisation

## Module 4

### Urban Multimodal Mobility III (Walking and Cycling)



**Deployment:** Online / blended



**Workload:** 3 hrs

**Extra learning:** 2 hrs



#### Module working group:

- Hans Verdonk – Rotterdam (Leader to be confirmed)
- Paulo Humanes – PTV Group
- Pedro Machado – CM Lisboa

## Learning outcome

Little over 10 years ago cycling and walking were considered as a means of transport for those who could not afford a car or public transport. Currently, with few exceptions, cities are primarily focused at their accessibility by motorised vehicles. However, there is a rapid change happening globally where walking and cycling are becoming increasingly popular and more intensively used. This module is aimed at making the student aware of these developments and in particular what is needed to enable this modal shift and expected consequences for the cities, goods and citizens mobility and businesses.

# Syllabus

## 1 Urban development and mobility

Before the large-scale introduction and affordability of cars, Walking and Cycling were a popular means of transportation. The increased wealth also resulted in people moving to housing estates in the suburbs that were offering more space, a garden and all in all a pleasant living environment that the overcrowded cities couldn't offer. A similar trend was the development of out-of-town large shopping centres. As a result, working, living and shopping were no longer within walking or biking range, which was easily solved by using the car.

The further increase of suburbanisation led, most often, to a decline in population of the central city and sharply increasing use of motorised vehicles to travel from and to the suburbs to the city. Therefore, cities have experienced a sharp decline in walking and cycling, an enormous pressure on infrastructure (roads, parking, etc) and severe loss of air quality and accompanying respiratory diseases and deaths.

The increased focus on quality of life and health in cities, combined with a new urbanisation and focus on the decarbonisation of transport following the Paris Climate Agreement of 2015 have resulted in a renewed interest for walking and cycling. As a result of innovation, and the electric bike in particular, faster means of transport allow cyclists without efforts to cover the distances to the various amenities in and around the city. The Netherlands Institute for Transport Analysis / KIM identifies the following trends:

- Growth in bicycle use since 2005; more people, more frequently on the road, travelling greater distances.
- Increase in the use of bicycles for education, work and leisure travelling.
- Increase bicycle commuting in urban areas, especially to and from train stations.
- Higher use amongst adolescents, young adults (till 30) and those over 60.

Another phenomenon that has increased considerably is the bike as a means of transport for courier (service). With the steep increase of home delivery services, the number of food couriers have increased considerably most of them using (electric) bikes. But more recently large companies are using specially designed (cargo) bikes to ensure their inner-city deliveries from distribution centres just outside the city.

## 2 Urban planning supporting walking and cycling

Most cities have been developed taking accessibility for private cars as a starting point. The increased use of bicycles quickly takes up more space and the need for dedicated bicycle lanes. Similarly, streets are often not taking into account pedestrians needs. When crossing major roads, cars are still given priority and pedestrians need to wait (halfway) during crossing. On top of that new forms of transport, such as cargo bikes and scooters, as well as Dock less bike and scooter sharing services, result in additional pressures on the already limited space reserved for non-motorised vehicles. On the other hand, these shifts in transport modes are offering an opportunity to redesign the city and providing more space for clean forms of mobility.

Such redesign of the city doesn't merely involve the reconstruction of roads, street walks and crossings. It should include a careful identification and planning of the different parts that make up the city and how these can be connected in the most effective manner. First of all, it would require the identification of the various functions of the city, i.e.:

- Inner-city function bringing shopping and business services as well as living together.
- Urban neighbourhoods mainly consisting of housing and local shopping and services.
- Urban Hubs such as hospitals, Educational campuses, main shopping centres and transfer hubs for both people (car to urban transport) and logistics.
- Business parks (including production and maintenance, transport and logistics) most often at the outskirts of the city.

Each of these functions require specific accessibility and connections. Urban planning could bring these various functions more in line, ensuring shorter trips, but at the same time it would bring the opportunity to create an integrated urban transport system strengthening the interlinkages between public transport, cycling and walking and making the city less accessible for cars that don't have their final destination in the city. Part of this planning includes developing improved data collection. In the current decision-making process, the focus is on the dominant mode of transport. When a person drives by car to the city and walks the last 10 minutes from the parking to the final destination, this most often is indicated as driving and thus walking is underestimated in the data collection.

Within this large-scale urban planning there are specific measures to be taken into account for both cycling and walking.

To improve walkability in cities various measures could be taken:

- Improving the quality of the pavements, crossings and routes.
- Quality of the walking routes including street furniture, green infrastructure and signposts.
- Safety and security, including street- and crossing lights, traffic restriction measures and accessibility for vulnerable groups.
- Give priority to pedestrians over motorised vehicles.

To improve cycling in cities the following measures could be taken into consideration:

- Improving the quality of the cycling network both within the city and between the city and the wider region (suburbs) including separate bicycle lanes and the construction of cycle superhighways.
- Granting priority to cyclists over motorised vehicles and avoid cycle queuing.
- Using black spot improvement programmes to increase safety and security.
- Introduce traffic calming (30 km/h zones) or physical speed reducing measures.
- Traffic education for children and the elderly and combating anti-social traffic behaviour.

Specific attention in the design of streets should be given to new transport solutions such as e-bikes and e-scooters and cargo bikes. Space should be created for docking stations for street rental or for the dock less bikes and scooters parking spaces perhaps in combination with charging stations. For cargo bikes that are most often larger than regular bikes specific other measures might be needed such as parking spaces for making deliveries and wider biking lanes. This increase in space is offset by far with the reduced need for space for private cars and lorries. Also new platforms developing Mobility as a Service (MaaS) could help to ensure integration of the different modes of mobility.

### 3 Regulatory considerations

The refocus on cycling and walking also brings regulatory issues that need to be considered. New regulations might be needed to consider new elements such as electric motors, but also existing regulations might be an unnecessary burden for the introduction of new types of mobility.

First of all, the new vehicles, particularly the electric ones would need to receive a type approval that assures the safety of these vehicles. A recent incident in the Netherlands with an electric people mover for young children shows the need for this.

Secondly, it could be necessary to regulate the operators to ensure safe use of the vehicles and avoid traffic accidents due to drivers trying to meet impossible delivery times. At the same time, it might be necessary to take regulatory measures to enforce that dock less bicycles and e-scooters are properly parked and are not blocking walkways.

Thirdly, regulations could be used to restrict the access to certain areas for specific types of vehicles or impose speed limits. Many cities have either car free city centres or environmental zones that restrict access for the most polluting cars. On the other hand, these regulations could also restrict the access for cargo bikes that could be the replacement of lorries.

Finally, as has been indicated under paragraph 2, it might also be helpful to set up speed restriction (30 km/h) zones that are of course also a regulatory measure.

With these regulations also comes enforcement which sometimes would cause problems to apply (i.e. who to penalise in case of non-proper parking?). Therefore, it might be more appropriate to work with agreements with the service providers.

It should also be considered that these regulations are often set at the national level and cities could have the opportunity to test approaches in a field lab type approach putting the regulations (temporarily) aside.

#### Case studies

##### Rotterdam City Lounge

The Inner-city programme for the period 2008-2020 was named the Inner-city as a City Lounge. The central focus is to create a denser area but at the same time a more liveable city centre that is inviting visitors to stay. A key component of this programme is the priority for a new balance between car, cyclist and pedestrian in the city's mobility policy. This is to be accomplished by reducing the amount of through traffic with an urban destination as well as creating parking facilities outside the centre, allowing more space for pedestrians. The metaphor being used is "the car is a guest in the city". Most visible development is the reconstruction of the Coolingsingel, one of the main arteries in the city centre, from 4 traffic lanes back to two and into a high-quality boulevard. As of 2021 the cars can only run from north to south and where the other two lanes were there will be a wide and green walking and cycling promenade.

## DHL Cubicycle

DHL has set its climate ambitions to reduce 50% of CO<sub>2</sub> emissions by 2025 and carbon neutrality by 2050. To accomplish this, the company has set up its Go-Green programme. An important element in this programme is the Cubicycle, a cargo bike on four wheels with a removable container of one cubic meter that can carry a load of 125 kg. The company has set up a City Hub that serves as a distribution centre where DHL vans bring the containers and where they are loaded onto the Cubicycle. The Cubicycle was first tested in Almere and the City Hubs in Frankfurt and Utrecht. The Cubicycle will be used next to regular bikes, pedestrian delivery and electric and hydrogen vans, all depending on the local circumstances.

See [www.dpdhl.com/search.html?q=Cubicycle](http://www.dpdhl.com/search.html?q=Cubicycle)

## Lisbon Winner of the European Mobility Week 2018

An independent jury announced Lisbon as the winner of the European Mobility Week 2018 for its strong vision for a more sustainable mobility culture. During the week from 16-22 September, residents could use their bike on board a train for free, giving them a real incentive to try out multimodality. Lisbon also organised museum bike trips, free bicycle repair workshops, and a special prize for people and organisations that promoted the use of bikes. These activities complemented the inauguration of 31 new bike-sharing stations, new and expanded bike lanes, and 800 new bike parking areas. The city also carried out an effective communications campaign, managing to reach both residents and visitors. See [www.mobilityweek.eu/emw-awards/](http://www.mobilityweek.eu/emw-awards/)

## Rotterdam Climate agreement

In preparing for a roadmap to develop for a climate neutral city, the city of Rotterdam has launched a citywide process to deliver a broad supported local climate agreement by the end of 2019. To accomplish this, the city has set up five so-called climate tables. These tables will consist of all relevant partners involved in the transition, including environmental organisations, start-ups and scale-ups, scientists, educational institutions, etc. In addition, the wider public will be systematically involved through city debates, digital consultations and opinion polling under inhabitants, students, scientists and entrepreneurs.

The climate table for mobility is chaired by professor Loorbach of Erasmus University and has the task to ensure that by 2030 a 49% reduction in CO<sub>2</sub> emissions is accomplished. As the current policies are being continued, the final result will only be 17%. So, the challenge of this climate table is to come up with solutions that deliver an additional 32% of reductions, but at the same time look for solutions that will make an important contribution to carbon free mobility by 2050.

## Major references

Bossaert, E., and Canters, R., "Non motorised transport Vol 1. Teaching and Learning material, 2007,

[www.eltis.org/sites/default/files/PAR\\_NonMotorisedTransport\\_en\\_6.doc](http://www.eltis.org/sites/default/files/PAR_NonMotorisedTransport_en_6.doc)

Global Designing Cities Initiative (2016), "Global Street Design Guide" [www.globaldesigningcities.org/publication/global-street-design-guide](http://www.globaldesigningcities.org/publication/global-street-design-guide)

Hoogendoorn, F., Van Lonkhuizen, R., Van der Ree, R., Sjouke, T., Visser, F., "Cargo Bikes in Rotterdam. An infrastructural perspective" 2018, [www.cargobikesinrotterdam.nl](http://www.cargobikesinrotterdam.nl)

ITDP (2018), "Pedestrians First. Tools for a walkable city" [www.itdp.org/walk](http://www.itdp.org/walk)

ITF (2018), "Policy Priorities for Decarbonising Urban Passenger Transport" [www.itf-oecd.org/policy-priorities-decarbonising-urban-passenger-transport](http://www.itf-oecd.org/policy-priorities-decarbonising-urban-passenger-transport)

Harms, L., and Kansen, M., "Cycling Facts" KiM – Netherlands Institute for Transport Analysis (2018),

<http://english.kimnet.nl/publications/publications/2018/04/06/cycling-facts>

## Further information

Partnership on Sustainable Low Carbon Transport [www.slocat.net](http://www.slocat.net)

European Cyclists' Federation [www.ecf.com](http://www.ecf.com)

World Cycling Alliance [www.worldcyclingalliance.org](http://www.worldcyclingalliance.org)

Walk21 [www.walk21.com](http://www.walk21.com)

Institute for Transport and Development Policy [www.itdp.org](http://www.itdp.org)

In particular for developing cities

Hook, W., "Training course Non-motorised transport", Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ), 2005 [www.sutp.org/files/contents/documents/resources/H\\_Training-Material/GIZ\\_SUTP\\_TM\\_Non-motorised-Transport\\_EN.pdf](http://www.sutp.org/files/contents/documents/resources/H_Training-Material/GIZ_SUTP_TM_Non-motorised-Transport_EN.pdf)