



Sustainable mobility: recommendations for municipalities

The recommendations have been produced as part of the project “Polish-German Cooperation on Low-Emission Economy in Cities¹” on the basis of the results of workshops held in September 2017 in Essen, Germany. The workshops provided an opportunity for representatives of Polish and German municipalities to discuss the capacities and potential of sustainable mobility at municipal level.

The recommendations are based on issues and questions raised during workshops by representatives of municipalities taking part in the project. The population of these municipalities is estimated to number between 10,000 and 300,000. Despite varied structural features, urban and rural communities face similar issues – traffic jams, air pollution and little use of public transport and bicycles in daily journeys. The following presents **problem-solving oriented recommendations** including **low-cost** practical measures that are **innovative** and have proven **successful**. These are examples where sustainable mobility brings **benefits** for municipalities and citizens.

1. Fluid traffic flow

The citizens of Polish cities which face congestion issues spend over 8 hours per month stuck in traffic jams. The situation is not very different in Germany, where congestions times are on average 30 hours per year.² This problem affects not only agglomerations but also smaller towns and the roads that link them, especially due to a large number of people commuting to bigger cities nearby.

In order to reduce traffic in inner cities, numerous municipalities build **ring roads**, which have the additional benefit of reducing noise and improving air quality in city centres (maximum permissible nitrogen dioxide values exceeded). It is, however, questionable whether ring roads really have a massive impact on reducing road congestion. Initially, the number of vehicles is indeed smaller, but in the long term it is increasing, both in city centres and on ring roads.³ Over the past decades, the expansion of road infrastructure in Western Europe and North America was accompanied by traffic increase, regardless of the level of economic development in the region.⁴ The main explanation is that drivers change their habits with the expansion of infrastructure. What **alternative or complementary measures** can be initiated by municipalities to reduce traffic in inner cities?

The development of other transport modes – mainly efficient public transport, combination of different transport modes as well as **car-sharing** and **car-pooling** schemes – can contribute to reducing congestion. Adopting these solutions in an efficient manner will reduce the number of private cars on the roads. Studies undertaken in London and in Germany demonstrate that one car for rent can

¹ More information on the project: <https://low-emission-project.de/de>

² INRIX 2017

³ Fittkau 2014

⁴ Duranton and Turner 2011

replace 8 to 10 private cars.⁵ New ring roads must go hand in hand with reducing traffic volume in municipalities, with a view to avoiding the so-called rebound effect. Imposing charges to enter city centres, setting up ecological zones, establishing speed limit at 30 km per hour or even creating car-free zones or reducing the number of parking spots in city centres may prove to be effective, provided that, at the same time, interchanges with additional parking spaces are created to facilitate the use of public transport.

In order to reduce road traffic in cities and in individual districts, a long-term vision is necessary as **spatial planning and mobility must go hand in hand**. In Germany, the federal government actively supports the development of the so-called “compact cities”. Already in the 1970s, architects and city-planners developed innovative concepts of sustainable cities and districts in order to respond to traffic volume which was rising dramatically. The central element of these plans is to create **mixed use districts situated alongside public transport routes**, comprising not only housing estates, but also shops, workplaces, kindergartens, schools, libraries and sports fields. Thus, the number of facilities located within walking or biking distance increases. This requires long-term planning and, ideally, employing a district manager, as the strategy pays off in the long run. Compact cities reduce the distance individuals cover using vehicles by 20-40%⁶, and thus improve the quality of life in municipalities (see also section 4).

2. Bike as an alternative

Riding a bike is cheap, healthy and climate-friendly. Despite these advantages, bikes are rarely used for journeys in cities and within municipalities compared to other forms of transport. In Poland and in Germany, the popularity of cycling infrastructure is growing, but the majority of citizens make daily journeys by car.

In order to persuade more people to travel by bike, not only for tourism but also for the daily commute, it is not enough to continuously expand cycling infrastructure: what is also needed is to take additional awareness-raising measures and to promote bikes as a real alternative for cars. A great deal of such measures **do not require large financial resources**.

Campaigns promoting a “bicycle culture“ should be targeted not only at adults, but also **children and teenagers**.

The city of Filderstadt in Baden-Württemberg developed a special strategy aimed at facilitating the commute to secondary schools, which are often located in other districts or towns. Local authorities initiated a project called “**Rad-Paten**” (Bike Patron), under which during the first weeks new students are accompanied by older schoolmates on their way to school by bike. In this way, they not only learn how to get to school, but are also safer and gain **individual mobility**.

Schools can also take an active part in such measures by participating in **competitions** for the highest number of students commuting to school by bike over a defined period of time. An example of this is the campaign called “Stadtradeln” (Urban Cycling), run each year in Germany at national level by the Klima-Bündnis association.

In addition to measures and campaigns described above, also smaller, one-off events with the involvement of **external entities** can turn out to be successful – for instance a bike station at the weekly market, where cyclists can have their bicycles checked for safety. Another example are safe-cycling courses for children and adults run in cooperation with the local police or traffic police.

⁵ Davies 2017 and Zukunftsnetz Mobilität NRW

⁶ Urban Land Institute 2010



Collaboration with local businesses for the purpose of promoting bicycle culture – an example of Kirchheim unter Teck

In order to provide cyclists with rapid assistance in the event of failure, the authorities of Kirchheim unter Teck (40,000 inhabitants) initiated a specific type of cooperation with local businesses. At five sites located near the main bicycle hubs, they installed repair stations equipped not only with a bicycle pump for all common valve types but also with some tools, which enables cyclists to carry out minor repairs on their own.

The entities responsible for the maintenance of repair stations are local restaurants, bicycle shops and industrial plants.

“Soft” accompanying measures, similar to the ones described above, are particularly efficient when **combined with investments** such as bike traffic lights or bicycle parking stations. Promoting bicycle culture in municipalities not only improves air quality but also enhances the image and attractiveness of the municipality, also beyond its borders.

3. Safe roads

Over the last decades, road safety in Poland and Germany vastly improved, especially with regard to pedestrians⁷. However, the number of cyclists in the streets has risen disproportionately fast when compared to the pace of building new infrastructure and undertaking activities aimed at raising awareness and promoting road safety. From the perspective of representatives of municipalities and inhabitants, road safety is a necessary prerequisite for people to swap their car for a bike.

One of the most fundamental measures is providing **clear markings of footpaths and cycle routes**. There are many good examples of this in Poland and in Germany. Colourful surface markings increase visibility of cycle routes and facilitate the sharing of streets. For instance, Moritzplatz in Berlin used to be known as one of the most dangerous places for cyclists. Thus, the authorities converted **one roundabout lane** into **two bicycle lanes marked in red** – one for cyclist that want to make a turn and one for those who intend to continue round the roundabout. After completion of works in 2016, the number of accidents on Moritzplatz decreased by over one third⁸. In Lidzbark Warmiński⁹, a town in Poland, a test strip of a cycle path was covered with a material that absorbs UV light during the day and **glows blue** at night. Stencil markings were used to indicate the bike lane and sidewalk in order to ensure safety for all the users at night. This is an example of innovative solutions that can be implemented in smaller municipalities.

In German municipalities, around one fourth of road accidents are caused by vehicles whose drivers do not observe priority rules¹⁰. Junctions are particularly dangerous for cyclists. **Bicycle highway Radschnellweg RS1** in the Ruhr area contributes to enhancing safety – it is fully **segregated** from cars and equipped with flyovers and barriers to avoid intersections. It can serve as an example for Berlin, where, following the adoption of a new bicycle law, a fast cycle route below an elevated U-Bahn line will be constructed.

We also must not lose sight of connecting transport routes – such as the ones described above – with the rest of the city. This is reflected in the project “**Sichere Wege zur Schule**” (Arrive safe at school) run by Kinderstiftung Essen, under which the stretch between bicycle highway RS1 and the nearby schools which are located even 500 m away is to be transformed so as to be direct and safe. The measures taken near Bockmühle school can serve as an example. In order to enhance safety on the way to school it is necessary to make sure that:

⁷ Okraszewska et al. 2017

⁸ Bossen 2016

⁹ For more information see the website of Gazeta Olsztyńska: video dated 27.09.2016: Świecząca ścieżka rowerowa https://www.youtube.com/watch?time_continue=24&v=eu38SHyj-XY

¹⁰ Federal Statistical Office of Germany, 2016

- pedestrian crossings and bicycle lanes are located where the distance to be covered is the shortest. If cyclists or pedestrians – especially children – need to cross the street, detours should be avoided;
- street lights are located at the right place;
- roads are marked and fully lit;
- other kinds of public space, for instance parks and kindergartens, are located along the way at the right spots and are safe.

The example of Bockmühle school demonstrates that projects such as the one presented above can be planned together with students and teachers, which gives them educational value.



Enhancing safety pedestrians and cyclists together with inhabitants – an example of “pedestrian traffic assessment” in Baden-Württemberg

Another participatory action aimed at increasing safety of sidewalks and cycle lanes as well as developing awareness of their existence and, as a result, increasing the number of users, is the so-called “**pedestrian or cycle traffic assessment**” (Radverkehrs-Checks or Fußverkehrs-Checks). Under these actions, road users and municipal authorities together test sections of sidewalks and cycle lanes to see the direction in which these roads should develop and what changes need to be implemented in problem areas. Measures taken at municipal level within the framework of “pedestrian traffic assessment” are supported by the Planning Bureau in Baden-Württemberg. The assessment aims at jointly defining the aims and spots where it will be carried out and presenting proposals for actions. Municipalities that would like to conduct such activities on their own can follow guidelines which are available in German¹¹.

4. Reviving city centres by supporting public transport

Today, vibrant city centres and individual districts are a prerequisite for high quality of life in cities and municipalities. Contrary to the urban planning trend of creating shopping malls in the suburbs, the basic need of inhabitants is to **reach the city centre or any district quickly** by means of public transport.

For this to happen, city transport over short distances, which usually takes place within one district and is non-motorised, should be supported.¹² This kind of transport mostly concerns walking and cycling. **Urban mobility over short distances is regarded as the main pillar of urban transport.** This kind of mobility fulfills the essential social function – it allows for **independent, individual mobility**, which is particularly important for children and teenagers as well as elderly people, who are growing in number due to the ageing of society. Furthermore, urban mobility is not only climate- and environmentally friendly, but also **space-saving** as cyclists need much less space to park their bikes than car drivers and pedestrians do not need it at all.

Supporting urban mobility in order to revive city centres and districts has also an **economic dimension** which tends to be underestimated. The owners of small commercial premises in the city often do not realise the role pedestrian and cycle traffic plays for them¹³. They also tend to underestimate the purchasing power of pedestrians and cyclists – a recent American study demonstrated that although cyclists buy fewer things at a time than car drivers, they visit **shops which are accessible to them much more frequently** than those who travel by car.¹⁴

Measures for increasing attractiveness of city centres and districts may take very different forms, from construction projects to “soft” information campaigns. For instance, **creating public street space for everyone**, without explicit road markings, i.e. common space for pedestrians, cyclists and car drivers, can both contribute to traffic calming and increase accessibility. **The quality of**

¹¹ Planersocietät 2016

¹² Morkisz and Wulfhorst 2010

¹³ AGFK Bayern 2016

¹⁴ Andersen and Hall 2014

public space can be also improved thanks to cycle parkings and additional benches or seating areas that the removed parking spaces make way for. Owners of small shops, who often directly bear the brunt of such changes, can be involved in the activities and invited to participate in social campaigns and information days.

In order to prevent city centres and districts from becoming desolate, special attention should be paid to making them **accessible not only by car**. Resident-friendly inner cities need to be easily accessible not for some, but for all the inhabitants of a given municipality or district.

5. Increased accessibility thanks to new mobility solutions

If cities are to be attractive for everyone, all the inhabitants, regardless of their age, financial status, mobility level, sex or place of residence, should be provided with transport possibilities. Below you will find some innovative actions for ensuring better access, with special reference to the solutions regarding spots that are poorly served by public transport.

In the face of demographic change, municipalities need to look for new solutions, which presents a challenge particularly to rural municipalities. However, there is a range of currently tested measures aimed at increasing mobility of elderly people, though in fact they benefit all inhabitants.

Some municipalities in North Rhine-Westphalia, Hessen, Rhineland-Palatinate and Baden-Württemberg have recently put up the so-called **hitchhiking benches** in town centres. This solution does not require major expenditure and allows to provide transportation between distant districts or rural municipalities, for instance where bus service is sparse. Those who look for a lift move the signpost located over the bench so that it points to the desired destination or the direction they want to go. As a result, car drivers know where the potential passengers want to go, which makes it easier to decide to pick them up. In Rhineland-Palatinate, the benches are marked on an on-line map,¹⁵ which increases their visibility. Other measures ensuring mobility of those who do not have access to a car in smaller municipalities are **dial-a-bus** services and shared taxis.

The instances of **tailor-made solutions that facilitate access to local services** also include a rolling shop in Brandenburg¹⁶ and mobile eye-care practice in the Southern Black Forest.¹⁷ Such services are particularly useful in areas suffering from depopulation due to structural changes, where public transport has been substantially limited.

Also in larger municipalities there is often a need to improve connections, particularly as regards peripheral districts. First of all, the question should be asked how **extensive the public transport network** is and what connections to the city centre and other districts are needed and are already offered. In such cases, **complementary mobility solutions** might work well.



Easier access thanks to intermodal solutions – an example of the city of Essen

In summer 2017, the first of the two currently existing interchanges was inaugurated in Essen, and the next ones will be built in 2018. The concept was developed within the framework of the German National Climate Protection Initiative (Nationale Klimaschutzinitiative). The hubs make it easier to interchange between different means of transport – in Essen these are urban public transport as well as bikes and rental cars. At the transport centres, charging infrastructure for electric vehicles as well as facilities for parking private bikes are also available.

The first stations were created next to the hubs located between the city centre and peripheries – the idea was to increase the area covered by the existing infrastructure (tram and bus lines or tram and metro lines, depending on the hub). For instance, in Steele, a district of Essen, the areas to the south and east of the hub can be reached only by car. However, this will change soon.

For the so-called **intermodality** to function properly, interchanges between different means of transport need to be convenient and quick.

¹⁵ For more information in the German language see: <http://mitfahrerbank.com/>

¹⁶ Märkische Allgemeine, 01.03.2017

¹⁷ Südwest Presse, 16.02.2017

Currently, it is also under consideration to widen the possibilities for using **private cars as the mode of public transport**. The first examples of this trend can be seen in French municipalities, where local authorities cooperate with external service providers¹⁸ to facilitate car sharing. As with hitchhiking benches, hubs for connections or simply bus stops in places with no public transport are built for this purpose. This solution presupposes that passengers can be picked up by private cars against payment to the driver. The destination desired by the passengers as well as proposed prices are displayed electronically on posts located next to the benches. This kind of transport promotes inclusion as drivers and passengers can contact each other both in analogue or electronic form. Such benches should mainly serve as a supplement to public transport on the outskirts of cities and in rural areas.

6. Attractive public transport

A survey conducted among representatives of Polish municipalities participating in the project has demonstrated that urban authorities believe inhabitants **are not adequately informed about the existing means of transport**. Even though convenient public transport is in place, it is used to a very small degree as inhabitants, particularly in small and medium-sized towns, tend to believe that private cars are more convenient and faster. If local authorities notice these causalities, they will be able to react quickly with adequate measures. It is sometimes necessary to ask about the reasons in order to be able to act in accordance with the wishes expressed by inhabitants, which can be divergent – a **survey** or the so-called “**round table**” could be helpful here.

It often only needs to launch an information campaign in the form of a **poster campaign** or **single activities in cooperation** with associations and other entities in town to inform inhabitants about the existing possibilities. The key task is to **make people aware** of the advantages of public transport, such as its coverage or frequency.

If feasible, campaigns should inform about special offers which are reflected in public transport fares. For instance, reduced fares for round trips or **discounts** for drivers using park and rides can be offered. Besides fares, what may also contribute to making public transport more attractive are **user-friendly ticket machines**. If there are any combined offers, corresponding tickets should be available.

If inhabitants are well informed about the existing means of public transport but nevertheless use them rather rarely, the timetable itself can be the issue. **From the perspective of the passenger**, the choice of the means of transport depends on **how easily the desired destination can be reached** within a reasonable time span. As indicated above, in order to gain a better understanding of passengers' needs, it is recommended to conduct a survey which will help identify peak times. This will in turn allow for making necessary **timetable adjustments**.

It needs to be remembered that the attractiveness of public transport can be attributed not only to information campaigns but mostly to the fact that it gets passengers to their destinations, its frequencies are adequate and it is combined with other means of transport such as bicycles.

¹⁸ More information on the webpage of Covoit'ici (in English): <http://ecovenglish.orson.website/21/covoit?ts=1479253969984>

References

AGFK Bayern (Ed.) 2016: WirtschaftsRad. Mit Radverkehr dreht sich was im Handel.

Andersen, Michael and Mary Lauren Hall 2014: Protected Bike Lanes Mean Business: How 21st Century Transportation Networks Help New Urban Economies Boom. Retrieved 01.11.2017 from https://b.3cdn.net/bikes/123e6305136c85cf56_0tm6vjueo.pdf.

Bihler, Claudia 2017: Fahrender Supermarkt, rollende Nachrichtenzentrale. In: Märkische Allgemeine of 01.03.2017. Retrieved 27.10.2017 from: <http://www.maz-online.de/Lokales/Prignitz/Fahrender-Supermarkt-rollende-Nachrichtenzentrale>

Bossen, Lorenz 2016: Berlins bester Radweg führt rund um den Moritzplatz. In: Berliner Morgenpost. Issue of 14.12.2016. Retrieved 27.10.2017 from: <https://www.morgenpost.de/berlin/article208984003/Berlins-bester-Radweg-fuehrt-rund-um-den-Moritzplatz.html>

Davies, Steer 2017: Carplus Annual Survey of Car Clubs in London. Retrieved 27.10.2017 from: <https://www.carplusbikeplus.org.uk/tools-and-resources/annual-survey-of-car-clubs/>

Duranton, Gilles, and Matthew A. Turner 2011: The Fundamental Law of Road Congestion: Evidence from US Cities. American Economic Review, 101(6): 2616-52. Retrieved 27.10.2017 from: <http://pubs.aeaweb.org/doi/pdfplus/10.1257/aer.101.6.2616>

Fittkau, Ludger 2004: Bringen Umgehungsstraßen wirklich Entlastung? Retrieved 27.10.2017 from: http://www.deutschlandfunk.de/bringen-umgehungsstrassen-wirklich-entlastung.697.de.html?dram:article_id=73384

INRIX 2017: München Ist Die Verkehrsreichste Stadt Deutschlands Laut INRIX 2016 Traffic Scorecard. Retrieved 27.10.2017 from: <http://inrix.com/press-releases/munchen-ist-die-verkehrsreichste-stadt-deutschlands-laut-inrix-2016-traffic-scorecard>

Jaeger-Dabei 2016: Erster selbstleuchtender Radweg Polens bei Linzbark Warminski. In: Ermland Mauren Journal. Retrieved 27.10.2017 from: <http://ermland-masuren-journal.de/selbstleuchtender-radweg-polen-lidzbark-warminski-ermland/>

Morkisz, Sabina and Gebhard Wulffhorst 2010: Nahmobilität durch aktive Angebotspolitik – Strategien und Beispiele, in PLANERIN 04/2010, pp. 9-11.

Okraszewska, Romanika, Krystian Birr, Lucyna Gumińska and Lech Michalski 2017: Growing role of walking and cycling and the associated risks. In: MATEC Web Conf. Volume 122, 2017, XI International Road Safety Seminar GAMBIT 2016. Retrieved 27.10.2017 from: https://www.matec-conferences.org/articles/mateconf/pdf/2017/36/mateconf_gambit2017_01006.pdf

Planersocietät 2016: Fußverkehrs-Check, Leitfaden zur Durchführung. Commissioned by Nahverkehrsgesellschaft Baden-Württemberg. Retrieved 27.10.2017 from: https://vm.baden-wuerttemberg.de/fileadmin/redaktion/m-vi/intern/Dateien/PDF/Fussverkehr_Checks_Leitfaden_zur_Durchfuehrung.pdf

Federal Statistical Office 2016: Unfallentwicklung auf deutschen Straßen 2015. Supporting material to press conference of 12 June 2016. Retrieved 27.10.2017 from: https://www.destatis.de/DE/PresseService/Presse/Pressekonferenzen/2016/Unfallentwicklung_2015/Pressebrochuere_unfallentwicklung.pdf

Urban Land Institute 2010: Land Use and Driving: The Role Compact Development Can Play in Reducing Greenhouse Gas Emissions. Washington, D.C.: Urban Land Institute.

Walheim, Petra 2017: Augenärzte im Schwarzwald rollen mit dem Bus an. In: Südwest Presse of 16.02.2017. Retrieved 27.10.2017 from:

<http://www.swp.de/ulm/nachrichten/suedwestumschau/augenaerzte-im-schwarzwald-rollen-mit-dem-bus-an-14454172.html>

© adelphi 2017

Authors: Camille Serre (serre@adelphi.de), Lisa Schneider (l.schneider@adelphi.de).
Alt-Moabit 91, 10559 Berlin.

Supported by:



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

This project is supported by the German Ministry of Environment (BMUB) using funds from the advising assistance programme for environmental protection in countries in Central and Eastern Europe and in the Caucasus and Central Asian region with technical supervision given by both the BMUB and the Federal Environment Agency (UBA). It is supervised by the German Federal Environment Ministry and by the German Federal Environment Agency. Only the authors are responsible for the content of this publication. <https://low-emission-project.de/>