



clean air

European **BIKING** Cities

Good practices on cycling promotion from
six pioneering European cities



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INTRO duction

THE EUROPEAN BIKING CITIES NETWORK

The *European Biking Cities* network was formed in 2013 as a two-year project by six European cities with ambitious cycling policies: Bolzano (Italy), Brighton & Hove (UK), Mannheim, Potsdam (both Germany), Strasbourg (France) and Vitoria-Gasteiz (Spain). Initial questions defining the network's mission were: what has worked well in the participating cities? What can we learn from each other and what can we pass on to other cities?

Three main topics chosen for the exchange among the six cities were: bike parking, the cohabitation of cyclists and pedestrians, and cargo bikes in commercial transport. These priorities reflect common challenges in effectively managing growing numbers of cyclists, and maintaining this growth. A lack of space for bike parking and conflicts with pedestrians endanger further growth in cycling. Cargo bikes in commercial transport was chosen as it provides a promising opportunity to widen the typical field of use covered by bicycles.

Cycling officers from the six cities took part in three workshops where they presented the different conditions they face, as well as their city's experiences and achievements in the network's three priority areas. Intensive discussions resulted in a list of the most successful and inspiring examples of good practices in cycling promotion from the participating cities.

This brochure details these practices with the aim of enabling other cities to profit from the exchange that has taken place at the *European Biking Cities* network. Furthermore, the project's webpage www.cleanair-europe.org/ebc provides in-depth information about each of these practices.

Although the network focused on the issue of how cycling can be successfully promoted, the project actually developed out of a particular reason why cycling needs to be promoted. *European Biking Cities* is a subproject of the European NGO project *Clean Air*, which is coordinated by the *Verkehrsclub Deutschland* (VCD) and funded by the European Union. As such, *European Biking Cities* is a result of an increasingly important driving force behind the promotion of cycling: the European Union's clean air policy.

In the future, cities that exceed EU limits on air pollution are likely to face fines and court orders. Replacing car traffic by cycling is one of the most effective ways to improve urban air quality. However, despite the obvious link between the promotion of cycling and clean air, this link has rarely been examined in detail until now. At the end of this brochure, the *Institute for Advanced Sustainability Studies* (IASS) in Potsdam describes the existing gaps in research and the project it is currently planning.

European clean air policy is a new tailwind driving cycling promotion and it further increases the need for the exchange of good practices in cycling promotion among European cities. This brochure is aimed at contributing to this exchange.

Berlin, May 2015

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Project manager *European Biking Cities*

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„Protecting citizens from air pollutants is an important political objective of the European Union. Violations of EU limit values in European cities must be met with determined and effective measures. One of the most important measures has to be the promotion of cycling. Therefore we need projects like *European Biking Cities* that strengthen the European dialogue on successful cycling policies.“

MEP Michael Cramer
Chair of the European Parliament's Transport and Tourism committee



Heiko Balsmeyer, Arne Behrensen and Wasilis von Rauch with MEP Michael Cramer in Brussels.

the six European Biking Cities **PARTNERS**



BOLZANO

The capital city of the province of South Tyrol in northern Italy is a flat and dense administrative centre. It is surrounded by the Alps and has a mostly car-free medieval city centre. The popular tourist destination has repeatedly been ranked as Italy's top city in terms of quality of life but air quality remains an issue along main traffic corridors. Cycling has been encouraged through the construction of high-quality cycling infrastructure that has consistently been improved since the 1980s. This has led to a very high modal share of cycling and makes Bolzano one of Europe's leading cycling cities.

BRIGHTON & HOVE

The southern UK seaside resort has a reputation for its creative, leisure and cultural industries and attracts over 10 million visitors a year. A hilly topography and coastal winds, with heavily congested main traffic routes can make Brighton & Hove a challenging city for cycling. Nevertheless, the city in 2005 became one of six cycling demonstration towns in the UK. By redistributing space for the benefit of cyclists and reducing maximum speed on many roads to 20 mp/h, Brighton & Hove has been building a reputation for cycle friendly street design since.



BRIGHTON & HOVE



MANNHEIM

The heart of the Rhine-Neckar metropolitan region is in transition from an industrial city to a city of culture and creativity. The conversion of huge army garrisons provides additional opportunities for sustainable urban redevelopment. In the city centre, with its unique chessboard-like layout, the car-dominated arterial roads and ring roads have been redesigned in favor of cyclists. Karl Drais invented the velocipede in Mannheim in 1817, and to celebrate, the city is inviting the cycling family to the 200th anniversary of the bicycle in summer 2017.



POTSDAM

The capital city of the state of Brandenburg, situated 30 km southwest of Berlin, traditionally is a centre of administration and science. The former residence of the Prussian kings is shaped by parks and buildings listed as UNESCO World Heritage. Potsdam is committed to developing new cycling infrastructure that guarantees the preservation of historical sites. The population and the number of cyclists are constantly rising. Recently, air quality problems have become an important additional argument for promoting cycling within the city and for commuters.

STRASBOURG

The Eurométropole de Strasbourg consists of 28 municipalities with the city of Strasbourg making up 60% of the population and 25% of its surface area. Strasbourg is the capital city of the Alsace region and seat of the European Parliament. Strong traffic regulatory measures have been implemented to improve air quality. The UNESCO World Heritage city centre is mostly car-free. Strasbourg is France's leading cycling city, but the vast majority of cyclists are found in the city centre. Currently, a cycle highway network is built to better connect all parts of the Eurométropole.

VITORIA-GASTEIZ

The capital city of the Basque Autonomous Community is a growing compact city with a green belt, a medieval city centre and a strong culture



of walking. Thanks to a long-term commitment to sustainable urban planning, Vitoria-Gasteiz was awarded, after Stockholm and Hamburg, the title of European Green Capital in 2012. While Spain is not a classic cycling country, in Vitoria-Gasteiz promoting cycling became a focus only in recent years but with fast success. The city's cycling share has doubled every four year since 2001 and Vitoria-Gasteiz is today the leading cycling city in Spain.



Inhabitants



Modal share of cycling



Public bike sharing scheme



Indoor bike parking facility at central train station

Mannheim	308,000	<div><div></div></div> 18 % (2013)	VRNnextbike since 2015, currently 250 bikes	since 1997, currently 800 places*
Potsdam	165,000	<div><div></div></div> 20 % (2008)	PotsdamRad since 2010, currently 200 bikes	will open in autumn 2015 with 557 places*
Brighton & Hove	273,000	<div><div></div></div> 4,9 % (2011)*	will start in 2017 with 450 bikes	since 2015, currently 500 places* since 2001
Strasbourg (Eurométropole/city)	477,000/274,000	<div><div></div></div> 8 / 15 % (2009)	Vélhop since 2010, currently 600 bikes at automatic stations + 4,800 in Vélhop shops	since 2007, with 850 places, additional 580 indoor places in two car parking buildings
Vitoria-Gasteiz	245,000	<div><div></div></div> 12,3 % (2014)	—	will open in late 2015 with 100 places at new central bus station
Bolzano	106,000	<div><div></div></div> 28 % (2012)	public rental service at train station with 130 bikes, yearly from spring to autumn	after rebuilding of central train station

*only commuters

*including a service station

COHABITATION

of cyclists
and pedestrians



POTSDAM

Promoting cycling must not come at the expense of pedestrians, who have often been ignored by politics at least as much as cyclists. Fortunately, more cities are now developing walking strategies alongside cycling strategies or within sustainable urban mobility plans. Bolzano has even organized a biannual festival of walking since 2012.

Walking, cycling and public transport are equally important pillars of sustainable urban mobility. Promoting each of them requires using synergies instead of playing them off against each other. Therefore, more space for walking, cycling and public transport must be created at the expense of car traffic, which is the most space inefficient means of urban transport and the one that still dominates streets in European cities. This redistribution of space is especially important where cycling is on the rise. Otherwise conflicts between cyclists and pedestrians will negatively influence both groups and lead to a decline in the general acceptance of cycling.

Infrastructural solutions to avoid conflicts between cyclists and pedestrians must address specific local problems while remaining politically, legally and financially feasible. Even legal provisions for cycling on pavements and roads differ according to the respective national framework. That notwithstanding, in some places a stricter separation of pedestrians and cyclists may provide more benefits to both; in other situations, shared spaces could be the better solution.

The examples of good practices in this section show how the redistribution of street space in favour of cyclists and pedestrians has been realized by implementing *bike streets* in Mannheim, *calmed streets* in Vitoria-Gasteiz and a *shared space street* in Brighton & Hove.

Educational measures and campaigns are just as important as infrastructure in ensuring proper cohabitation of cyclists and pedestrians. While both groups need to abide by traffic regulations and respect each other, cyclists have a special responsibility towards pedestrians, as they are more vulnerable.



MANNHEIM

BIKE STREETS

In the 1980s and 1990s, narrow bike lanes have often been added to already narrow pavements in Mannheim's inner city which limited the space available to pedestrians and cyclists. This has led to increasing conflicts with cyclists especially in front of highly frequented shops, restaurants and schools. To ease these tensions, one solution in Mannheim is to convert suitable streets into bike streets where cyclists have priority and can safely use the road. German national law permits such conversions where cycling already is – or is expected to become – the dominant mode of transport. Bike streets are marked by special street signs and road markings. In most cases additional signage also allows cars to use these roads. However, cyclists are allowed to cycle next to each other while car users have to reduce their speed and a general speed limit of 30 km/h also applies.



MANNHEIM

BOLZANO

AWARENESS CAMPAIGN

In December 2013, Bolzano set up the campaign *Gemeinsam unterwegs/Insieme attraverso la città* to improve relations between cyclists and pedestrians. With Bolzano's cycling mascot Max being the public face of the campaign and with explicitly positive messages, the campaign aims to improve cyclists' knowledge of – and compliance with – traffic regulations, while at the same time expressing appreciation for every single cyclist. The campaign targets all age groups and includes training for school children, public events, and the provision of leaflets, posters and street signs along cycle paths and around the most important shared spaces in the medieval old town, near schools and in parks.



BOLZANO

Insieme
attraverso
la città
Gemeinsam
unterwegs

VITORIA-GASTEIZ

NEW REGULATIONS

After consultations with relevant stakeholders, a new regulation on cycling in pedestrian zones and on pavements came into effect in January 2014. Cycling on pavements is now only allowed on pavements that are wider than 3 m, in places where there is no separate bike lane, or next to roads without traffic calming measures. In some pedestrian areas, cycling is no longer permitted during peak hours (between 11:00 and 13:00, and from 17:30 until 21:00 in summer or 22:00 in winter). At the same time, safe alternative cycling routes have been created throughout the city centre. A traffic calming project converted 47 streets into so-called *calmed* streets with fewer car lanes, more (contraflow) bike lanes and speed limits of 20 or 30 km/h.



VITORIA-GASTEIZ

POTSDAM

"LIFTED" BIKE PATH

Potsdam has a very strong public transport network. To avoid problems with cyclists at highly frequented tram and bus stops, the city started to test a first so-called 'lifted' bike path in June 2014. The lifted bike path cuts straight over the platform of a barrier-free bus and tram stop. This makes the bike path attractive to use for cyclists, as they don't have to curve around the stop. It is also clearly visible for waiting passengers who have enough space beyond the bike path. At the same time its lifted position as well as its guidance directly along the edge of the platform makes it clear to cyclists that they have to stop when passengers enter and leave trams or buses.



POTSDAM



BRIGHTON & HOVE

New Road before and after

BRIGHTON & HOVE

SHARED SPACE STREET

New Road in Brighton & Hove's inner city used to be a rather run-down back alley dominated by vehicle-focused design. The street was redesigned and opened in 2007 as a shared space street. The new design, which features minimal 'restrictive' street furniture, a good deal of public seating, and



GOOD PRACTICE EXAMPLES ON THE COHABITATION OF CYCLISTS AND PEDESTRIANS

the subtle material definition of a linear central space for vehicles as part of a shared area, led to a perceived priority of pedestrians among all user groups. Drivers and cyclists adapt their behaviour to the anticipated presence of pedestrians, and pedestrians feel encouraged to use the whole street. Today, New Road is one of the city's most popular public spaces with many people spending

time on benches and in street cafés. User surveys show a very high approval rate for the street's design among pedestrians and cyclists. Car drivers state that they mostly avoid New Road in the afternoon and evening when the number of pedestrians is especially high, and despite rising numbers of cyclists, relations between pedestrians and cyclists are smooth.



STRASBOURG

STRASBOURG

LOWER FINES FOR CYCLISTS

French national traffic law prescribes the same fines for cyclists and motorists even though the potential harm caused by cyclists breaking traffic rules is mostly much smaller. Within a broader communication campaign to avoid conflicts between cyclists and pedestrians, in 2012 Strasbourg started a national pilot project: fines for cyclists violating traffic regulations were halved but were also enforced more strictly. It was assumed that fines for cyclists were often not enforced as they were viewed as unreasonably high; this was seen as almost encouraging cyclists to break traffic rules. The pilot project may lead to reduced fines for cyclists in national law.

bike
PARKING



STRASBOURG

*Underground parking facility at
central train station*

Bicycle theft and the fear of theft are among the most important disincentives to cycling. Studies indicate that up to 25% of theft victims stop cycling; many more use lower quality bikes or cycle less.

The best prevention of bike theft is parking and locking bikes safely. Creating enough secure bicycle parking facilities, therefore, is a central component in cycling promotion. And it becomes increasingly important when cycling is on the rise. However, providing space for more parking facilities is often a key challenge and requirements differ between short- and long-term parking in different places.

Strasbourg started an impressive bike parking programme in 2008, when a local study found that fear of bike theft was the major reason preventing its inhabitants from taking up cycling. Per year around 1,200 new standard bike racks (for two bikes each) have been installed since, preferably on sites formerly used for car parking.

As part of the *Cycling Demonstration Towns programme* Brighton & Hove developed its own concept of an on-street *Pedal Cycle Parking Place* which was implemented throughout the town since 2007.

Secure, long-term parking spaces are particularly needed at train stations, which are traditional hot spots of bike theft. Mannheim and Strasbourg have had big indoor bicycle parking facilities at their main stations for quite a while; Brighton & Hove followed in March 2015, and Potsdam and Vitoria-Gasteiz plan to open facilities at their central train or bus stations in late 2015. Bolzano is increasing its number of covered outdoor parking spaces at the train station until a bike garage can be realized as part of a planned rebuilding of the station.

A central focus of the following examples of good practices is the creation of decent parking facilities in or around people's homes. Clearly, the vast majority of bicycle journeys start or end in front of a cyclist's home and bikes need to be parked there over night or for longer periods.

Preventing theft, however, is not the only argument for decent and sufficient bike parking options. Well-planned facilities are the best way of preventing chaotic, random bike parking and thus ensure that increasing numbers bikes do not become a strain on the community.

BRIGHTON & HOVE

Pedal Cycle Parking Place

BOLZANO

DIFFERENT FORMS OF BIKE RACKS

As a very dense city, Bolzano faces great challenges in finding sufficient space for bike parking facilities. On squares in the historic city centre in particular, public spaces are frequently needed for popular cultural festivals or for events such as the Christmas market. This has led to the use of moveable bike racks as a flexible solution to bike parking. The bike racks can easily be moved when the space is needed for events and can be installed elsewhere as temporary parking space for the event's visitors.

The city has also developed a neatly designed, space efficient single iron curve that reflects the historical cityscape. With Bolzano's cycling logo included as a design element, it even works as a marketing instrument.



BOLZANO

POTSDAM

GUIDELINES FOR REAL ESTATE INDUSTRY

With most bike journeys starting or ending at home, the real estate industry has a very important role to play in bike parking. In a pilot project funded by the German Federal Ministry for Transport, the city of Potsdam worked with the major local housing corporation to develop guidelines for bike parking facilities in new and existing residential buildings. Based on expert workshops, the experiences of the ProPotsdam housing corporation and national as well as international best practice examples, guidelines were published in November 2014. A brochure and an innovative online calculator provide the German real estate industry with knowledge and tools for realistic needs assessments and ways of choosing and implementing the most suitable parking solutions.



POTSDAM



BOLZANO



VITORIA-GASTEIZ

VITORIA-GASTEIZ**COMPULSORY PARKING ROOMS IN NEW RESIDENTIAL BUILDINGS**

In 2000 Vitoria-Gasteiz was the first city in Spain to make the provision of indoor bike parking rooms compulsory in new apartment buildings. The city's Urban Master Plan requires an indoor parking room with a minimum size of 10 m². In

buildings with more than ten apartments the size must increase by 1 m² for every four additional apartments. This measure has facilitated cycling in new neighborhoods of the city. Today many of the current indoor parking rooms are already too small and the regulation is currently under review.



MANNHEIM

MANNHEIM**HOUSE OWNERS PAY FOR BIKE RACKS ON PUBLIC SPACE**

Where existing buildings do not offer enough space to meet the growing demand for safe bike parking facilities, Mannheim offers owners of residential and commercial buildings to build bike parking facilities in public spaces. The owners pay for the bike racks and their installation but the city plans and installs them. The racks are available to the general public.

Since March 2015, an innovative building by-law has been in place for new buildings in the German state of Baden-Württemberg that Mannheim belongs to. In residential buildings, two weatherproof and easily accessible bike parking places per household are now compulsory throughout the whole state. Whereas one car parking place is required per household, in apartment buildings, up to 25% of the required car parking places can be replaced by four additional places for bikes per car parking place. The by-law also provides municipalities the opportunity to require less than one car parking space per household.

BRIGHTON & HOVE**BRIGHTON & HOVE****E-BIKE HANGAR**

E-bikes offer great potential to increase cycling levels, especially in a hilly city like Brighton & Hove. Due to their higher price and more sensitive technology, they also require more secure parking facilities. The first on-street bike hangar in Brighton & Hove was installed to support the University of Brighton-led research project *smart e-bikes*. It was officially handed over to a residents' association in September 2014. The road space is provided by the

city council based on a specific traffic regulation order. The hangar is the size of a car and positively demonstrates a potential solution for bicycles that cannot be accommodated in apartment buildings. The hangar holds six bicycles and residents pay a nominal annual fee of £50 to the Ditchling Rise Area Residents' Association, which manages and maintains the hangar.

STRASBOURG**BIKE PARKING IN CAR PARKING BUILDING**

The number of bike racks on public street space has doubled in Strasbourg between 2009 and 2014 to 14,000 racks for 28,000 bikes. Space for additional bike racks in the streets of the city centre is becoming scarce. This makes underground facilities and car parking buildings an increasingly important option.

In the municipality's seven floor Austerlitz car parking building a separate bike parking room opened in February 2014. Unlike the building's already existing 80 bike parking places the new bike parking room with 100 places has its own access from the street, space efficient two level parking installations, video surveillance and a light and comfortable atmosphere. The room is open daily from 4.30 to 24.00. Bike parking is for free and allowed for up to two consecutive months.

**STRASBOURG**

Old and new bike parking facilities in the Austerlitz car parking building

CARGO BIKES

in commercial
transport



CARGO BIKES ARE ONE OF THE MOST PROMISING TRENDS IN THE CURRENT EUROPEAN BICYCLE MARKET.

Attractive new designs and electric assist have greatly increased their capabilities and popularity. A study by the European *cyclelogistics* Project demonstrated that 51% of all motorised goods transport in European cities could be undertaken by cargo bikes. The study referred to the private and commercial transport of goods lighter than 200kg for distances shorter than 7km.

Families and businesses are increasingly using cargo bikes as an inexpensive and practical transport alternative to cars. Backing this trend in its current early stage provides great opportunities to promote growth in cycling in European cities.

Discussions within the *European Biking Cities* network mainly focused on cargo bikes in commercial transport. Motorised deliveries in particular place a strain on dense inner cities. At the same time, deliveries by cargo bikes have a high level of potential here due to the short distances travelled in the city centre and the problems of access and parking faced by motorized vehicles.

In the city centres of Bolzano and Vitoria-Gasteiz, recent new access arrangements for delivery traffic have led several businesses to use cargo bikes. Supplying city centres by cargo bike on a larger scale, however, requires new logistics concepts and infrastructure. Mannheim has begun a dialogue with logistics companies to this aim.

In order to reduce the municipality's own fleet of motorized vehicles, the municipality of Brighton & Hove has signed a long-term contract for it's own transport needs with a local cargo bike courier company. Also in Potsdam and many other cities, couriers are the pioneers of cargo bikes. Finally, Strasbourg is a particularly good example of how a city can promote cargo bikes by integrating them as part of their own fleet of vehicles.

More information:

European project Cyclelogistics Ahead
www.cyclelogistics.eu

European CycleLogistics Federation
www.federation.cyclelogistics.eu

VCD online portal 'Lasten auf die Räder!'
(in German)
www.lastenrad.vcd.org

MANNHEIM



STRASBOURG



STRASBOURG

CARGO BIKES IN THE MUNICIPALITY'S VEHICLE FLEET

Cargo bikes have been added to the vehicle fleet of the Strasbourg Eurométropole to better reach destinations, to save costs and for marketing purposes. Among the municipality's institutions using cargo bikes are the street cleaning service, the public libraries and the road safety department. Since April 2015, the Eurométropole provides a test pool of four e-cargo bikes for local associations. This is a joint project between the local energy company and the *National Institute of Applied Science of Strasbourg*, which has developed electric assists for cargo bikes and is now testing them in practice.

BRIGHTON & HOVE

SUPPORTING CARGO BIKE BASED COURIER COMPANIES

There are currently two local cargo bike courier companies operating in Brighton & Hove; the city council has a supportive relationship with both companies. In 2005, the council contracted the company *The Bike's the Business* to reduce the number of motor vehicles used in the councils' in-house postal and courier service by one seventh. This has not only saved emissions and money on vehicles and fuel, but improved the overall speed of deliveries. The more recent start-up *ReCharge Cargo* is making deliveries by e-cargo bikes in Brighton & Hove, and is also a subcontractor for DHL. In early 2015, the city council actively supported the company's application for EU

BRIGHTON & HOVE



STRASBOURG



funding as part of the *frontierCities* project. Funding would enable the company to develop IT solutions for more effective e-cargo bike delivery logistics within the city.

MANNHEIM

DIALOGUE WITH PARCEL DELIVERY COMPANIES

The city of Mannheim and the German Courier and Express Association, *Bundesverband Paket & Expresslogistik* (BIEK), started a dialogue in 2014 about whether cargo bikes could replace delivery vans in the inner city. A key precondition is a micro depot close to the city centre that could be supplied by heavy goods vehicles and serve as a reloading and parking station for cargo bikes before they complete the *last mile* of the delivery. Potential

spaces for such a micro depot have been visited by the city and the companies involved. Both sides are committed to finding a feasible solution in order to frame possibilities for a pilot project. Meanwhile, in February 2015, BIEK presented a study recommending the combination of micro depots and cargo bikes as a good model for sustainable urban logistics.

POTSDAM

PILOT PROJECT OF COURIER COMPANIES

The national pilot project *Ich ersetze ein Auto* (*I substitute a car*), funded by the Federal Ministry of the Environment, successfully deployed 40 e-cargo bikes in the daily routines of courier companies in eight German cities. While the city of Potsdam was not involved in the project, one of the e-cargo bikes was also tested in Potsdam by the courier company *messenger*. The bike was used for 6,300 deliveries in Potsdam and covered 29,000 km during the 21-month-long observation period from 2012 to 2014. The pilot project achieved high public visibility in Germany and was an important step in establishing e-cargo bikes for courier logistics.

In its sustainability study 2015 the German Courier and Express Association (BIEK) shows how micro depots in city centres allow delivering parcels by cargo bikes.



POTSDAM

MANNHEIM

VITORIA-GASTEIZ

ACCESS REGULATIONS WITH PRIVILEGES FOR DELIVERY BIKES I

A new by-law in place since January 2014 has reduced the times during which motorized vehicles may make deliveries to the pedestrianised city centre by one hour: all deliveries now have to be made by 11:00. New loading and unloading zones with longer opening hours until 14:00 and partly also from 16:00 to 20:00 have been created at the edges of pedestrian areas. To better reach final destinations inside the pedestrian areas some companies have started to use cargo bikes because bicycles are allowed inside most parts of the city centre also in the afternoon. In addition, the new by-law allows the mayor to grant special permits exempting delivery bikes from time restrictions that apply for cyclists in major shopping streets in the city centre.

BOLZANO

ACCESS REGULATIONS WITH PRIVILEGES FOR DELIVERY BIKES II

Regulations for motorised traffic in Bolzano's medieval old town are very strict. Deliveries with motorised vehicles are only allowed between 6:00 and 10:00. But until recently, regulations were not effectively enforced and were often neglected. In July 2014, an automatic control system with cameras at all twelve entry points to the old town was introduced. Now every violation of the entry regulations is automatically fined and costs 80

Euros. As a result some companies started to use cargo bikes to deliver after 10.00 because bikes are allowed in most parts of the old town without time restriction. To further encourage the use of cargo bikes, the city in October 2014 introduced special privileges for cyclists delivering goods. In two key streets of the old town deliveries by bike are now exempted from a 10.00-20.00 ban on cycling and from one-way restrictions.



VITORIA-GASTEIZ

BOLZANO

URBAN AIR quality

HOW PROMOTING CYCLING CAN IMPROVE URBAN AIR QUALITY – FILLING A SCIENTIFIC GAP

Air pollution is the number one environmental cause of premature deaths in Europe.^{1,2} In the European Union, extensive regulations to ensure good air quality exist, but we are still far from overcoming the challenges of air pollution especially in urban areas.² Although between 10 and 14% of the urban population in the EU were exposed to concentrations of small particulate matter (PM_{2.5}) above the EU limit between 2010 and 2012, more than 90% were exposed to concentrations exceeding the more stringent WHO recommended air quality guidelines.²

Traffic emissions are one of the most important sources of air pollution in urban areas, contributing, for example, to almost two thirds of nitrogen dioxide (NO₂) concentrations.³ Furthermore, in 2012, over 90% of all NO₂ exceedances in Europe occurred at measurement sites near roads.⁴ Measures such as implementing low emission zones and filters for cars have helped to improve air quality

in many cities, but further complementary measures are needed in order to substantially reduce traffic-related air pollution.⁵ Replacing car journeys by bicycle journeys already plays an important role in the air quality and mobility plans of many cities,⁶ but the impact of cycling measures on air quality is usually not assessed individually.

Among the few studies on the impact of replacing car journeys with cycling is a report published by the *European Cyclists' Federation*.⁶ In order to analyze how measures to improve conditions for cycling would impact on air quality in Antwerp, London and Thessaloniki, the authors examine three different scenarios and show that these would lead to significant reductions in emissions. Applying a simple model, they then predict changes in air pollutant concentrations. Their results show that concentrations of coarse particulate matter (PM₁₀) and nitrogen oxide (NOx) would be reduced in the areas under analysis. But reduction levels vary depending on local conditions and they would not be enough to meet European limits in two of the studied cities.

Another report, commissioned by the *German Federal Highway Research Institute*, quantifies the potential for air quality from increased cycling and reduced car journeys in Coburg, Gütersloh and Mönchengladbach.⁷ Applying models commonly used within German city administrations, they

found that the chosen scenarios led to a reduction in emissions, in turn improving air quality and mitigating exceedances in some, but not all, areas of the studied cities.

Scientific peer-reviewed literature, in contrast to the reports outlined above, tends to focus on the effects of air pollution on cyclists' health, or on health benefits from replacing car journeys with other modes of transportation. To our knowledge, there is no peer-reviewed study that quantifies the potential of increased bicycle use to improve urban air quality.

A study we are currently conducting at the *Institute for Advanced Sustainability Studies* (IASS) in Potsdam helps to fill this gap. It will analyze how replacing car journeys with cycling could contribute to improving air quality in Berlin and Potsdam. We are working with local stakeholders to create scenarios for Berlin and Potsdam and to implement them as part of a sophisticated atmospheric model. In addition to capturing the influence of changes in local emissions on air pollutant concentrations, our atmospheric model considers the more realistic,

larger context of how local changes interact with substances emitted elsewhere in the region and the impact of meteorological conditions. The scenarios for reducing car traffic by cycling simulated within the study will cover a range starting from more realistic to more optimistic cases, or the upper and lower boundaries of the extent to which air quality could be improved by enhancing cycling. We will investigate how this could contribute to meeting European air quality standards, and estimate the associated health benefits. Finally, we will analyze if and how the conclusions gained for the Berlin-Potsdam area can be transferred to other European urban areas. The results will provide a clearer picture as to which air quality goals are achievable by the replacement of car journeys by bicycle journeys in cities.

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For more information, see: www.iass-potsdam.de/en/slcp



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CLEAN AIR

is a project by nine European environmental organizations that fight for clean air in European cities. Despite the existing legislative framework and the citizens' right to clean air, continuing violations of air pollution limits remain a problem in many cities. Air pollution threatens health, environment and climate. It's time to take action!

»EUROPEAN BIKING CITIES« – CYCLING FOR CLEAN AIR

Replacing car traffic by cycling is one of the most effective ways to improve urban air quality. In 2013, six cities with pioneering cycling policies formed the *European Biking Cities* network as part of the *Clean Air* project. Coordinated by the *Verkehrsclub Deutschland* (VCD), the network focused on three aspects of promoting cycling: bike parking, the cohabitation of cyclists and pedestrians, and cargo bikes in commercial transport. Good practices on these topics are presented in this brochure.

WWW.CLEANAIR-EUROPE.ORG/EBC

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