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The German Partnership for Sustainable Mobility (GPSM)

The German Partnership for Sustainable Mobility (GPSM) serves as a guide for sustainable mobility and green logistics solutions from Germany. As a platform for exchanging knowledge, expertise and experiences, GPSM supports the transformation towards sustainability worldwide. It serves as a network of information from academia, businesses, civil society and associations.

The GPSM supports the implementation of sustainable mobility and green logistics solutions in a comprehensive manner. In cooperation with various stakeholders from economic, scientific and societal backgrounds, the broad range of possible concepts, measures and technologies in the transport sector can be explored and prepared for implementation.

The GPSM is a reliable and inspiring network that offers access to expert knowledge, as well as networking formats. The GPSM is comprised of more than 173 reputable stakeholders in Germany.

The GPSM is part of Germany's aspiration to be a trailblazer in progressive climate policy, and in follow-up to the Rio+20 process, to lead other international forums on sustainable development as well as in European integration.

Integrity and respect are core principles of our partnership values and mission. The transferability of concepts and ideas hinges upon respecting local and regional diversity, skillsets and experiences, as well as acknowledging their unique constraints.

Discover Berlin by Sustainable Transport

This guide to Berlin's intermodal transportation system leads you from the main train station to the transport hub of Alexanderplatz, to the redeveloped Potsdamer Platz with its high-quality architecture before ending the tour in the trendy borough of Kreuzberg. Along the way, you will be able to experience different modes of transport, including the bicycle sharing system. The detour sections provide further description of Berlin's transportation policies and infrastructure, including the city's bicycle sharing system and the low emission zone.

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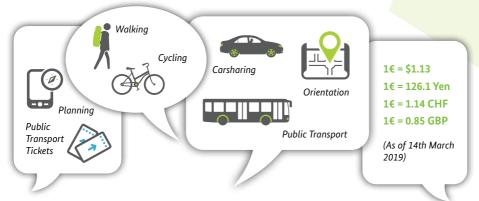
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Berlin: the lively capital	6
Berlin – the place to be	9
How to use this guide	10
Introduction: mobility in Berlin	12
Berlin's intermodal transport philosophy	13
Berlin Mobility Act	14
Public transport	16
Private motor transport	18
Cycling	20
Electromobility	24
Tour 1 Berlin Hauptbahnhof – Alexanderplatz	28
A detour: Start-ups in Berlin	36
Tour 2 Alexanderplatz – Potsdamer Platz A detour: Nextbike	
	46
A detour: Urban growth and traffic volumes	50
Tour 4 Kreuzberg	52
A detour: Low emission zone	58
Tour 5 Discovering Berlin's surroundings by public transport	60
Further information on mobility in Berlin	62
Bibliography	64



Berlin: the lively capital

Welcome to Berlin, the old – and new – capital of Germany. With a population of 3.7 million, it is Germany's largest city in terms of both population and area, ahead of Cologne, Hamburg and Munich. It is also one of Germany's three city-states. Berlin lies at the centre of the metropolitan region of Berlin-Brandenburg; with 6 million inhabitants, the area includes the city and the entire surrounding state of Brandenburg. Berlin is regarded nationally and internationally as a centre for politics, culture, art, media, science and sport. It is a major European transport hub and is continuing to grow in importance. People are drawn to Berlin for many reasons, including its quirky reputation and vibrant nightlife, its diverse range of old and new architecture and the high quality of life it offers.





DEMOGRAPHICS

Population: 3.7 million, workforce 2 million
Surface and extension: 892 km²; E-W 45 km, N-S 38 km

Density: 4,148 inhabitants per km²

Car ownership: 324 cars / 1,000 inhabitants

TRANSPORT SERVICES

Transport associations: Verkehrsverbund Berlin-Brandenburg (VBB)

Berliner Verkehrsbetriebe (BVG)

Sustainable transport features: • Excellent public transport

- High percentage of non-motorised transport
- · Low-emission zone
- Multimodal choices including Park+Ride and Bike+Ride
- · Good cycling infrastructure
- · Traffic calming
- · Electric mobility solutions

Public transport systems:











MODAL SPLIT ¹	Berlin 2017 in %	Germany 2017 in %	
Private motor vehicle (driver):	23	43	
Private motor vehicle (passenger):	10	14	
Public transport:	25	10	
Cycling:	15	11	
Walking:	27	22	

¹ Source: Bundesministerium für Verkehr und digitale Infrastruktur (2019): Mobilität in Deutschland

Berlin – the place to be

Everybody wants to visit Berlin: the German capital is appealing to people all over the world. No other city has such a moving history, no other city has changed this fast - and reinvents itself constantly. More than twenty five years after the Fall of the Wall and the German Reunification, Berlin exerts a unique attraction. Tourists, talents, technology, and tolerance shape the dynamic and welcoming rhythm of the city. Its secret of success is its mix of diversity, contrasts and sheer inexhaustible potential to consistently fire the enthusiasm of its visitors from all over the world. People are excited by the mixture of history and Zeitgeist, the broad spectrum of art, culture, music, entertainment, and shopping facilities.

visitBerlin promotes Berlin as a travel destination all over the world and helps visitors to find their way around the city. At 🔁 visitBerlin.com, you can access information about Germany's capital in 14 languages. It is the perfect place to get inspiration and orientation to all that Berlin has to offer. Here, visitors can find out about current events, tours, exhibitions, and book tickets directly. The Berlin Service Center at +49 30 25 00 23 33 provides information on the complete spectrum of touristic services in Berlin. In addition, visitBerlin operates five Berlin Tourist Information Offices: multilingual staff is ready to help visitors plan a great stay (see below for locations and opening hours). Indispensable for visitors to Germany's capital: visitBerlin also issues the official tourist ticket, the Berlin WelcomeCard. The city pass does not only include travel on all means of public transport but also discounts between 25 and 50 per cent at more than 200 touristic attractions. The Berlin WelcomeCard comes with a practical guide with an overview of all the deals included as well as a map of Berlin and Potsdam and a plan of the city's public transport system. The card is available for tariff zones AB (Berlin) or ABC (Berlin and Potsdam) and time ranges from two to six days. Any number of children to the age of 6 and up to three children between the ages of 6 and 14 can accompany an adult at no extra charge. The ticket can be bought at all Berlin Tourist Information Offices, public transport ticket machines operated by BVG and S-Bahn Berlin, at the city's airports, in many hotels, by calling visitBerlin at +49 30 25 00 23 33 and online at berlin-welcomecard.com.

BERLIN TOURIST INFORMATION OFFICES (SELECTION):

Brandenburg Gate

Daily 9.30am - 6pm*

Pariser Platz / southern gatehouse S+U Brandenburger Tor

Park Inn at Alexanderplatz Alexanderplatz 7 (Hotel lobby) Daily 7am - 9pm

except Sundays: 8am - 6pm

S+U Alexanderplatz

(*Extended opening hours April-October)

How to use this guide?

This travel guide shows how to discover the city using sustainable modes of transport - by foot, bicycle and public transport. There are four prepared tours in this guide:

- → Tour 1 lets you discover the government quarter (Regierungsviertel) on a walking tour
- → Tour 2 will lead you from Alexanderplatz to Potsdamer Platz by bike and show you some parts of the old Friedrichstadt
- → Tour 3 is meant to let you discover Potsdamer Platz and bring you to Kreuzberg using U-Bahn the Berlin subway
- → **Tour 4** shows you the green and lively *Kreuzberg* on a walking tour

The tours are planned in a way that you can do them one directly after the other. The guide is complemented with so called DETOURS. These detours contain supplementary information on sustainable transport in Berlin and the history of the places you will pass by.

As a bonus we compiled information on what to do if you want to get into Berlin's surroundings.



This guide is equipped with small maps on the designated tour areas, an overview plan of the city centre and a public transport network map, which just cover enough to let you do Tours 1-4. Paper maps are available in book stores and the tourist office; you may also wish to prepare your smartphone with an offline map allowing you to locate yourself via GPS in the city or surrounding areas. Good offline maps are maps.me (available for iPhone and Android, download the map of Berlin), HERE We Go Maps, City Maps 2Go or the offline map function of Google Maps.



If you did not bring your own bike to Berlin, you may want to try the public bike sharing system nextbike. Further, many hotels and hostels, bike shops and other providers offer rental bikes. You will find detailed information on registration and use of bike-sharing systems in the detour on bike-sharing in Berlin on page 42. Consider registering at your accommodation or through restaurant Wi-Fi before starting your tour.

BBBike is a smart urban cycling navigator for you and your bike. Find it as smartphone app on iOS: bbybike - Urbanes Radfahren

Important traffic rules: Every bike user is obliged to obey the rules of the StVO² which – for the most part - conform with international rules. Right has right-of-way on roads without other indication (important on minor roads). If you ride a bike in Berlin, you will soon come across special bike lanes. A blue sign with a white bicycle indicates bikeways - this also means that cyclists have to use those bikeways and should not use the normal road. A sign showing a pedestrian and a bicycle shows that pedestrians and cyclists must share the lane. Cycling on the pavement (every walkway without bikeway indication) is generally not allowed (except for children under 12 years). You are allowed to enter one-way roads or other roads with limited entry in the opposite direction if you see a small white sign with a bicycle symbol and the word frei under it. Most importantly, be respectful and considerate of other road users.

If you are in doubt in any situation, the most important rule is §1 StVO: "The participation in road traffic requires permanent attention and mutual considerateness." Better be safe than sorry!



While following Tour 3 you will have to use public transport – do not forget to buy a ticket before boarding any tram, train or bus. You will find information on ticket options in the box on page 30.

² Straßenverkehrsordnung is the name of the German road traffic regulations; every road user must abide by.

Introduction: mobility in Berlin

As you may have noticed, public transport is key to mobility in Berlin. It is the backbone of the passenger transport system - and of the city's transport policy. Berlin also promotes and integrates cycling and walking as convenient and healthy ways of getting around the city, since car traffic contributes to environmental problems like atmospheric pollution, climate change, consumption of public space, congestion and noise. 67% of all trips in Berlin are already made by public transport, bike or on foot. Private motor vehicles are used for 33% of all trips. Almost half of all households in the city do not own a car. Since 2002, Berlin has been implementing its integrated urban transport plan, the so called Stadtentwicklungsplan. With the introduction of the Berlin Mobility Act in 2018 (see page 14), Berlin took another big step towards the green mobility of the future.

Stadtentwicklungsplan

www.stadtentwicklung.berlin.de/verkehr/politik planung/step verkehr/index.shtml

Berlin Mobility Act

https://www.berlin.de/senuvk/verkehr/mobilitaetsgesetz/index en.shtml



Figure 3: Electromobility Showcase Initiative: E-Busses running from solar power, photo: private

Berlin's intermodal transport philosophy

Berlin's transport system integrates the various classic modes of public transport, but it takes intermodality a step further. Many transit journeys have missing links, so the system offers coordinated "onward mobility" options. This might involve passengers using a bicycle or car (either their own or one from a car-sharing service). Cars and bikes serve the more sparsely populated areas on the outskirts of the city, where the provision of quality public transport would be too expensive. Park+Ride and Bike+Ride facilities at railway stations make for easier access to rail services.

Passengers who do not want to take their bike on the S- or U-Bahn can use the "public bikes" and electric scooters available at their destination (see also page 21). People who do not own a car and primarily use public transport, but would occasionally like the use of a car, will find a wide range of car-sharing services (particularly in the densely populated inner-city areas), including electric cars (find detailed information on page 19). They can be picked up at car-sharing stations or simply at the roadside, depending on the provider. Electric-powered car-pooling represents a new possibility for affordable and sustainable transport.

Dynamic traffic information (i.e. updated every five minutes) available on smartphones and at numerous public information points helps travellers decide which mode of transport and which route is best for their particular journey depending on the given situation and traffic conditions.



Figure 4: Intermodality at Friedrichstrasse Station: one of numerous public transport interchanges in Berlin where pasengers can change between regional trains, S-Bahn, U-Bahn, tram and bus © Sven Ledwoch



Figure 5: Also the Berlin ferries can be used with a BVG ticket, photo by Omnola/CC BY-SA 2.0

Berlin Mobility Act (2018)

In order to foster Ecomobility, a form of transport which prioritises pedestrian traffic, cycling and public transport, Berlin created a new law - the Berlin Mobility Act. Berlin is the first city to do so in Germany. The vision of the new law is a safer, more accessible and more climate-friendly Berlin.

The mobility act aims to expand different sustainable traffic elements: Public transport, bicycle traffic, pedestrian traffic, intelligent mobility and general transport. An integrated commercial transport concept is in preparation. Together, these components allow for a future-oriented mobility. Because of the huge engagement of cycling activists in the process of creation, it concentrates on bike traffic and is often simply known as "cycling law" (see p. 22).

Safety is a central point of the new law: In the long term, it plans to reduce the number of road traffic fatalities and serious injuries to a minimum ("Vision Zero"). To achieve this, Berlin will rebuild 60 hazardous crossroads and separate cycling lanes from automobile traffic.

Another focus point of the Mobility Act is the improvement of air quality: Cars and trucks create exhaust gases like carbon dioxide and thereby increase the global temperature. Measures to prevent this include that until 2030, all BVG-busses will be powered by wind and solar energy.

Unique to this law is also the process of creation: Involved was the newly created mobility committee, to which mobility associations, the city's boroughs, the relevant Senate administration departments and representatives of the parties in the city parliament belong. The committee worked in collaboration with representatives from Changing Cities, formerly Volksentscheid Fahrrad (a civic organisation campaigning for a cycling referendum), the German Cyclists' Association [Allgemeiner Deutscher Fahrrad-Club - ADFC] and Friends of the Earth Germany [Bund für Umwelt und Naturschutz Deutschland - BUND]. Additionally, Berlin's citizens handed in over 700 suggestions.

https://www.berlin.de/senuvk/verkehr/mobilitaetsgesetz/index en.shtml

Interview

with Berlin's Senator for Environment, Transport and Climate Protection, Ms. Regine Günther (no party affiliation)

Ms. Günther, you have recently caused a public uproar with the phrase 'We want people to get rid of their car'. Can you explain in more detail how you came to this conclusion?

G: The old mobility concept of the "car-friendly city" reaches its limits, and even more: it has served its time. Berlin is already traffic jam leader in Germany, and it becomes clear that the Berlin infrastructure cannot handle the 1.2 million private vehicles. Our activities in this area are about securing mobility in our city for everyone. We improve the living conditions of all and make our city more livable and attractive.

What would be your alternative, your new mobility concept?

G: Our first goal is to attract as many drivers as possible from the road into public transport, bicycle and pedestrian traffic. The fewer cars on the roads, the better. We need space on the roads for those who really depend on the car, such as police, nursing or delivery. Those who do not need a car in such an environment should and will abolish it

What is Berlin doing specifically to achieve this?

G: For Berlin, we passed Germany's first mobility law last year. It is the legal basis for a change in traffic that prioritizes the environmental network of rail, bus, bicycle and pedestrian traffic. Over the next 15 years, we will invest 28 billion EUR in measures for more attractive public transport in Berlin.



Figure 6: Senator Regine Günther © Roland Horn

Amongst other things, we will improve the connection of commuters from the surrounding area. Parallel to that, a safe and comfortable cycling and pedestrian traffic infrastructure is gradually being built. This includes protected cycle paths, bicycle speed connections or secure bicycle parking spaces.



Berlin has five different modes of public transport that have interconnected routes and timetables. Germany's largest transport association, the Berlin-Brandenburg Transport Association ensures that 40 different transport companies throughout the whole fare area charge the same fares (Verbundbericht 2018) so that passengers only have to buy one ticket even if their journey involves different operators. This ensures a service that is easy to understand for tourists and other occasional users - a key element of an attractive public transport system.



Figure 7: Bus in front of Gedächtniskirche, photo by Hannes Eisenach on Flickr/CC BY-ND 2.0

Passengers can choose from the following types of public transport in Berlin:

- → 21 regional rail routes on over 200 km of track with 21 stations, operated by several transport companies that serve the entire metropolitan region.
- → 16 S-Bahn (suburban rail rapid transit) lines that cover 330 km, linking the city to the surrounding area via 166 stations, operated by S-Bahn Berlin GmbH. Follow the green S to access these redyellow trains.
- → 10 U-Bahn (subway) lines on almost 150 km of rails, serving over 170 stations, operated by BVG, which is owned by the city state of Berlin. Follow the blue U to access these yellow trains.
- → BVG also operates:
 - → 22 tram routes (9 of which operate a 24-hour service) on over 300 km of rails
 - → 156 bus routes (17 with 24-hour service, 14 expresslines, and 63 night lines) with 6516 bus stops
 - → 6 ferries

Some tram and bus lines are designated "metro" routes, offering a particularly high level of service: they operate 24/7 and run at least every ten minutes except at night. High frequencies - not just during peak travel times - make public transport an attractive and competitive option. There is also an



Figure 8: Intersection giving space to all road users, photo by Krzysztof Belczynski on Flickr/ CC BY-SA 2.0

outstanding night service: almost all the S- and U-Bahn lines run round-the-clock on weekends and on public holidays, and metrobuses and metrotrams provide an attractive night service even during the week.

Fare revenue covers about 60% of the operating costs of Berlin's public transport service, with the rest coming from the public budget. Berlin's transport system covers the largest area of any city in Germany, while its ticket prices are roughly in line with the national average. Nearly a third of all public transport users are eligible for reduced fares for low earners, students, senior citizens, etc.

Please respect the smoking ban within all stations – special smoking zones are indicated.

Please refer to



unternehmen.bvg.de/en/Company/Profile for any further information.



Route planning

Timetable and network map for all public transport modes:



www.vbb.de/en



City transport app

ally brings together all your city transport options in one app. Compare price and time of car sharing, bike sharing, public transport, taxi and more.



www.allyapp.com



There are currently 1.2 million motor vehicles registered in Berlin. At about 324 cars per 1,000 inhabitants, motor vehicle ownership is lower here than in any other German city (German average = 550). In recent years, motor traffic within the S-Bahn ring has fallen by about one per cent per year despite a growing population and economy. Nevertheless, car transport, especially in the commercial sector, will continue to be important in the future. Due to the many problems caused by car traffic, transport policy-makers have set a target of reducing its share in the modal split to about 25% by 2025, and shifting some of today's motor transport to modes that are less damaging to the city, the population and the environment. The plan for the remaining car transport in the future is to be as low-noise and emission-free as possible.

Berlin took part in the federal government's major Electromobility Showcase initiative (2012-2015) to trial and demonstrate new technologies and concepts. Part of this initiative involves promoting car-sharing. For many people living in cities, access to a car is more important than owning one - private cars take up valuable space that not everyone can spare. Experience in Berlin has shown that each car-sharing vehicle in use results in between five and eight fewer private cars.

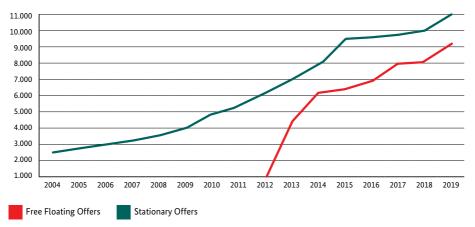


Figure 9: Carsharing Evolution in Germany, Source: bcs Bundesverband CarSharing



Figure 10: Car sharing vehicles in Berlin © Daniel Bongardt

As you continue your tour of the city, take the opportunity to observe the transport system with your own eyes. Experience how transport in Berlin works, what is special about it and how these successes have been achieved.

New on the market: Car Pooling

Passengers who have a similar destination share a ride and split the price. Services are app-based and on-demand, more environmental friendly and cheaper than a taxi. The minivans are partly electric-driven and accommodate around seven passengers. The mobile application will guide you to the nearest boarding point. During the ride, passengers with the same route will join your trip.

Berlkönig (by BVG) 24 hours, 7 days a week

Clever Shuttle (by Deutsche Bahn) Monday to Thursday: 9 pm - 4 am Friday to Monday: continuous 9 pm - 4 am

Allygator (by door2door) Friday: 5pm - 1am

CAR-SHARING PROVIDERS IN **BERLIN**

Car2Go - free floating

www.car2go.com/DE/en/berlin/

DriveNow - free floating, partly electric

www.drive-now.com/de/en/berlin

Share Now - free floating, partly electric (new joint venture of Car2Go and DriveNow)

www.your-now.com/de/our-solutions/ share-now

Stadtmobil - station based

www.stadtmobil.de/enalish/

Cambio - station based

www.cambio-carsharing.de



Free2Move (App)

Gives you access to all the shared cars, scooters, bikes and rides in your city.

de.free2move.com/en/





Berlin is a bike-friendly city; cycling here is easy and enjoyable, even for visitors unfamiliar with the city. There are 846 bicycles for every 1,000 inhabitants. Over 1.5 million trips a day are already made by bike, and cycle traffic continues to increase, for a number of reasons:

- → The city has good cycling infrastructure and is improving constantly: there are now over 1000 km of bike paths and over 300 km of bike lanes on main roads. About 70% of the 5.400 km road network is made up of secondary roads with a 30 km/h speed limit, which makes them ideal for cycling. Furthermore, a grid of cycling routes has been added to the road network and benefits from signposts exclusively for cycle traffic.
- → Bicycle parking facilities at public transport stops are an important part of public infrastructure: bike parking facilities have been installed at key S- and U-Bahn stations and are continually being expanded. These facilities are designed to make it easier to chan-
- ge between different means of sustainable transport. The S-Bahn facilities are an example: last year alone, some 5,500 parking spaces for bikes have been added. The stations have racks for passengers to lock their bikes and most of them are covered. For new-build housing there is also a statutory requirement to provide safe parking for bicycles (two spaces per apartment or one per 100 m³ of commercial surface).
- → There are virtually no legal restrictions on taking bikes on rail transit services. People can take their bike on trams, regional trains and the S-Bahn and U-Bahn at any time. Restrictions that used to apply at certain times of day have been lifted.

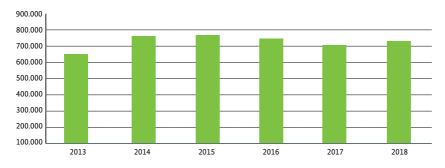


Figure 11: Cyclist counting station at "Schwedter Steeg", data provided y Verkehrslenkung Berlin (VLB), dl-de/by-2-0

→ There is also a range of **public bicycles** on offer: people who have left their bike at a Bike+Ride Station before boarding public transport or tourists who do not have their own bicycle will find private bike hire companies and public providers offering inexpensive rates on over 2,000 bikes from various providers (see on page 42 "A detour: Nextbike").

PROVIDERS OF TWO-WHEELER SHARING IN BERLIN

Nextbike (bicycles)

https://www.deezernextbike.de/ en/berlin/



Call a Bike (bicycles)

www.callabike-interaktiv.de/en/ cities/Berlin



Coup (electric scooters)

www.joincoup.com/de/berlin



Emmy (electric scooters)

emmy-sharing.de





Figure 12: Bicycle rental station © nextbike

New Cycling Law

In 2018, Berlin was the first city to create a law dedicated to a more sustainable mobility. The Berlin Mobility Act (see p. 14) includes 14 paragraphs on cycling traffic. It brought along many improvements for enthusiatic bikers, occasional riders and the overall livability of the city. Amongst other agreements, these contain:

- → Equipment of all major roads with safe and convenient cycling lanes (two metres wide)
- → Establishment of a bicycle priority network
- → Construction of at least 100 kilometers of bike fast lane routes
- → Construction of 100,000 new bicycle racks and bicycle parking at major transfer stations
- → Survey on the safety perception of cyclists at junctions every five years



Abbildung 13: Higher visibility: Bike paths will be coloured in green, photo: SenUVK

InfraVelo

Infravelo is a state-owned company which was initiated by the Senate of Environment, Transport and Climate Protection, in order to carry out the demands of the Mobility Act. The company conducts reserach and initiates projects to improve the cycling infrastructure in Berlin. Infravelo employs traffic planners, civil engineers, landscape planners, city planners, financial accountants as well as communication experts.

www.infravelo.de



Figure 14: Intermodality: Bicycle parking at the entrance to a subway station © Sven Ledwoch

Further reading

- → Cycling strategy for Berlin 2011: The cycling strategy for Berlin is an integral part of the city's overall transport development plan for sustainable mobility that is both socially fair and city friendly.
 - https://www.berlin.de/senuvk/verkehr/ politik planuna/rad/strateaie/download/Fahrradstrategie.pdf
- → German Bike Academy/Deutsches Institut für Urbanistik provides seminars, workshops and other events on the subject of bike traffic.
 - www.fahrradakademie.de/index.phtml

MORE ABOUT CYCLING

Cycling in Germany

www.nationaler-radverkehrsplan.de/en/ transferstelle

Cycling-Inclusive Policy Development:

A Handbook

sutp.org/files/contents/documents/ resources/H Training-Material/GIZ SUTP TM Cycling-inclusive-Policy-Development-Handbook EN.pdf

Planning for Cycling in Germany:

Cycling Coordinators and Officers

www.sutp.org/files/contents/documents/resources/C Case-Studies/GIZ SUTP CS Planning-for-Cycling-in-Germany EN.pdf

Electromobility

Electric mobility is on the rise in Berlin. Though it is the primary vision in sustainable mobility to shift to other modes of transport (cycling, walking, public transport) whenever possible, motorised traffic will still have its share of transport modes in the future. Limited supply of fossil fuels and air pollution account for a rising demand in the use of electric vehicles (= EV). In Germany, the amount of electric vehicles increased by 150% in 2017 alone. There are numerous examples where electromobility is already in use in Berlin.

Electric car sharing

Share Now, Daimler's and BMW's joint car-sharing service, offers different electric car models throughout Europe; in Berlin it is the BMW i3. Volkswagen follows the trend and plans to launch a car-sharing provider (WeShare) relying 100% on electric cars. It is estimated to open in the second quarter of 2019, starting with 1.500 e-Golf.

www.car2ao.com/DE/en/ioinina-forces.html

Electric scooter sharing

Coup is the biggest company offering electric scooter sharing in Berlin, providing a fleet of 1,500 scooters in the German capital and a total of 5,000 scooters in Europe. Access to the scooters is provided via app. Drivers must be 18 years old and need their ID-card, driving license and credit card to register. Payment for renting the free-floating scooters is based on time of use. The cost of using coup's scooters are 2.10 EUR for the first ten minutes, 21 cent for every following minute and overall not more than 20 EUR a day/10 EUR a night.

https://joincoup.com/en/berlin

Electric Bicycle-Sharing

LimeBike is the first and, to this day, only bike rental company in Berlin which offers electric bicycles. Nextbike might follow soon, after announcing an order of 20,000 new e-bikes for their global fleet in January 2019.

www.li.me

Electric Busses

In 2019, BVG announced that the bus service in Berlin will be completely electrified by 2030 - the first phase of the conversion will be carried out with financial support from the Federal Ministry of Transport (BMVI) and the Federal Ministry for the Environment (BMU). BVG is switching the regular line operation to e-buses and will thus have the largest electric bus fleet in Germany.

Electric Taxis

Share-pool taxis (see page 19) operated by CleverShuttle are completely running on electricity or hydrogen. Berlkönig and allygator employ a partly electric fleet.



www.clevershuttle.de/en/

Industrial Use

There are many companies in Berlin who work on replacing conventional with electric cars in their fleet. For example, the public water company Berliner Wasserbetriebe operates an electric fleet with its own charging infrastructure. The operation of the electric fleet is part of Berlin's contribution to reduce NOX and CO2 emission. Their 82 electric cars were responsible for reducing 500 tons of CO2 in the years between 2017 and 2020.



www.bwb.de/content/en/html/index.php



Figure 15: Electric bicycle © LimeBike



Figure 16: Electric BVG bus "Solaris Urbino", photo by Alan B. on Flickr/CC BY-ND 2.0



Figure 17: Electric scooter © coup

In order for these services to function properly, a well-planned charging infrastructure is essential. Currently, there are 10,000 registered electric cars in Berlin and Brandenburg, and a ratio of three electrical vehicles per one semi-public/public charging point in Berlin. Berlin has developed its own concept to manage these.

Key points:

- Interoperability of services (standardised interfaces, open protocols and basic authentication devices for access)
- Location planning by municipality
- Intensive monitoring of the demand
- Time based tariff to prevent misuse of parking lots at charge points
- Regulations to guarantee easy, non-discriminatory access to all services of all operators and types of infrastructure use, to prevent discriminating structures based on individual business models

Various companies in Berlin work on advancing charging technology and infrastructure:

Charging technology

The company Ubitricity GmbH develops and operates intelligent charging and billing solutions for EV charging. The "Smart Cable" includes all the relevant technology inside the charging cable (smart meter with communication technology and billing) to reduce the costs of charging stations to a minimum. Smart Cable provides for automatic authentication at the charging spot, communication with the Mobility Service Provider (MSP), exact recording of the charged electricity and is compatible with all standard charging infrastructure.



www.youtube.com/watch?v=azpGn58aB6w



Figure 18: Smart Cable, photo: Ubitricity

Charge points

The company Ebee Smart Technologies GmbH develops charge point spots and modular kits that can be easily integrated into existing public infrastructure (e. g. light posts), through which costs and public space can be saved compared to separately build-up charging stations.

www.ebee.berlin/?L=0

Access to charging infrastructure

The smartphone application for EV-charging Next Plug shows more than 78.000 charging stations in 48 countries.

play.google.com/store/apps/ <u>details?id=com.bremeier.ralf.</u> nextplug&hl=de



Further reading

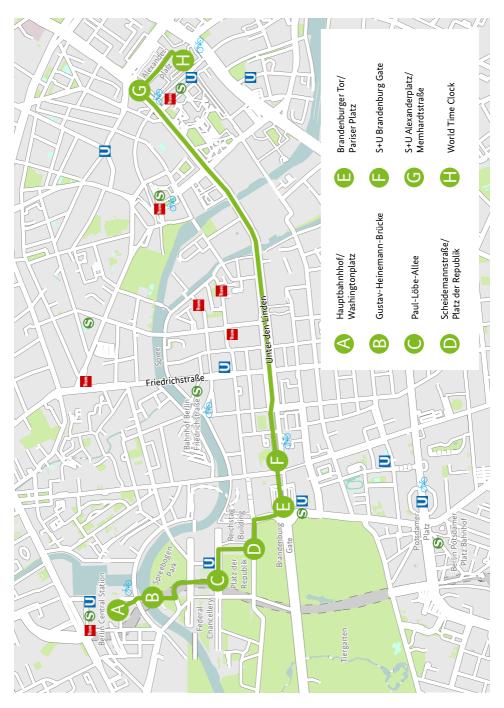
- In 2010, the Berlin Senate set up the Berlin \rightarrow Agency for Electromobility (short: eMo) as the central point of contact and coordination for electromobility in the capital region. eMO supports the development, use and implementation of funding, in order to foster innovative projects of "intelligent mobility" in the capital region.
 - www.emo-berlin.de/en/

EXPERIENCE THE FUTURE

At Berlin Südkreuz, you can find the Train Station of the Future, at which a pool of electric busses, cars and bicycles plus respective charging stations are located. The E-Mobility station is powered by electricity provided from the train station itself. It comes from two wind turbines and the Solar Mover, a flexible solar system on the roof of the building. The Solar Mover produces around 8,000 kWh per year enough to travel 27,000 kilometers C02-free with an electric car.

gruen.deutschebahn.com/en/projects/station-future

Tour 1: Berlin Hauptbahnhof - Alexanderplatz



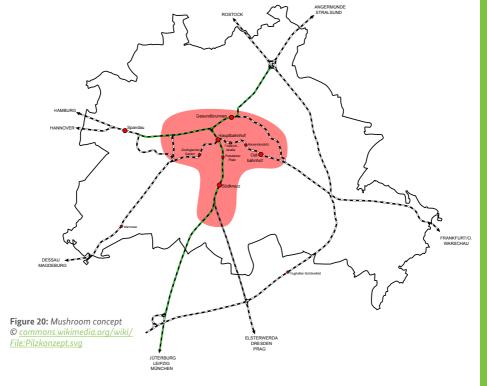
Tour 1:

Berlin Hauptbahnhof – Alexanderplatz

DISTANCE 5 KM

The Berlin Hauptbahnhof (central station), located near the government quarter, is an ideal place to begin a sustainable mobility tour of the city.

Under the divided Germany (divided Berlin 1961-1989), rail transport became largely irrelevant in West Berlin and much of the infrastructure fell into disuse and disrepair. Following reunification, a plan for a new main line and regional rail transport was needed. It was decided that resurrecting the former terminal stations (similar to the current stations in London and Paris) would not meet the operating requirements of modern rail transport. Instead, a new plan known



⁹ Contains information from Open Street Map (openstreetmap.de) and is used under Open Database Licence,

opendatacommons.org/licenses/odbl/1.0/

TICKET INFORMATION

Berlin has three fare zones: A, B, and C. A and B cover the entire area up to the city limits. A single ticket (A,B) costs EUR 2.80 and is valid for two hours, during which time you can change freely between modes of transport (all types of train, buses and trams) and interrupt the journey to your destination as often as you like. Round trips and return journeys are not permitted. You can save money by purchasing a pack of four single tickets for EUR 9.00. Day tickets (A,B) are also available for EUR 7.00, or weekly tickets costing EUR 30.00 (for zones A, B; March 2019).

More information on fares here:

shop.bvq.de/index.php/tickets



MORE ON FINANCING

- → Presentation of the financing of urban mobility in Berlin: "Financing Public Transport in Germany - Case Study Berlin"
 - http://www.sustainabletransport. org/archives/1727
- → General information on financing are available in the SUTP-module "Financing Sustainable Urban Transport":
 - https://sutp.org/files/contents/ documents/resources/J Others/ GIZ SUTP Financina-Sustainable-Urban-Transport EN.pdf

as the "mushroom concept" was developed (see Figure 12). This new approach to main line and regional transport was made possible by the construction of a north-south link (mostly in tunnels), which crosses the existing east-west rail link near the city centre. This junction is the site of the new central station or Hauptbahnhof. The mushroom concept is a synthesis of two basic design options discussed during planning: the axis concept, and the ring concept, which included four decentralised main line stations on the circular line, or Ringbahn, around the inner city. As built the new concept comprises the main central station and five other main line stations. some pre-existing and others new. They enable the city's inhabitants to access main line rail services with great ease.

Construction of the 3.5 km tunnels and the Hauptbahnhof started in 1995. They were officially opened in 2006, just in time for the Football World Cup.

The Hauptbahnhof is one of Europe's largest "stack interchanges" and Europe's largest tower train station. Flooded with natural light, five circulation levels give access to east-west rail services on Level +2 and north-south services on Level -3. Car and bike parking and a broad range of shops, food outlets and other service providers complete the station's facilities. The station is used by over 300,000 people a day.



Figure 21: Interior view of Berlin's Hauptbahnhof, photo by Francois Reincke, public domain

Although the Hauptbahnhof is in a very central location of the city, connections to the inner-city transport system were initially inadequate. A great deal of effort has been put into rectifying this issue. Today Berlin central station is connected to the network of public transport by tram, U-Bahn, and S-Bahn (only east-west trains). An additional north-south S-Bahn route over central station is currently under construction. The fact that the area around the Hauptbahnhof was not well connected to the urban transport system dates back to when Berlin was a divided city and the area was close to the Wall.



Figure 22: One of the two main entrances to Berlin Hauptbahnhof © Kevin Korffmann



Figure 23: New tram on Invalidenstraße going to Hauptbahnhof, photo by Hannes Eisenach on Flickr/ CC BY-ND 2.0

START OF THE TOUR



Leave the Hauptbahnhof through the Washingtonplatz exit and walk south across this square toward the river.

- → Since the inauguration of the Hauptbahnhof, the land near the station has undergone development. Modern hotels, offices and housing are being built next to Washingtonplatz and the Humboldthafen dock basin. To the north of Hauptbahnhof, the Europaquartier is under construction on Heidestrasse, which will become a new inner-city quarter with over 3.500 homes and land earmarked for trade and commerce.
- Cross the river Spree on Gustav-Heinemann-Brücke and continue straight ahead along a path through the Spreebogen Park towards the government quarter. You will pass the Swiss Embassy on your left. It is the only remaining building from the formerly built up Spreebogen area. Cross the road and carry on straight ahead until you come to the Federal Chancellery on your right with its sculpture of corten steel by Eduardo Chillida in the courtyard.

Stop briefly and look around.

→ With your back to the Chancellery you will see Paul-Löbe-Haus ahead of you, a glass and concrete building that houses conference facilities and offices for the Members of the Bundestag (the German Parliament).

- Carry on straight ahead on Paul-Löbe-Allee and across the large open space in front of the Reichstag building, the Platz der Republik. to Scheidemannstrasse.
 - → On the eastern side of the Platz der Republik is the Reichstag building, which houses the plenary chamber of the Bundestag.
 - → Beneath you is an extensive system of tunnels, including those that carry north-south main line and regional trains, the subway and motorised traffic in the Tiergarten tunnel. These tunnels were built to divert all through-traffic away from the government district and also to reconnect areas of the Tiergarten Park that had been bi-sected by roads during the post-war years.
 - Turn left onto Scheidemannstrasse and walk past the Reichstag building on your left. Now turn right into Ebertstrasse and walk straight ahead for about 100 metres.

You will come to Platz des 18. März, which is at the eastern end of Strasse des 17. Juni.

→ Strasse des 17. Juni is a major east-west axis. The section between the Brandenburg Gate and the Grosser Stern, a traffic roundabout with the Victory Column (a memorial to the Prussian victories between 1864 and 1871) in the middle, is regularly closed to traffic for large-scale public events, such as broadcasts on giant screens during the Football World



Figure 24: Bus stop with real time information © Manfred Breithaupt

Cup, other major sporting events, the Berlin Fashion Week or events celebrating the national holiday to commemorate unification.

- Now walk eastward through the Brandenburg Gate.
 - → Despite initial protests of motorists, the Brandenburg Gate has been closed to motorised traffic since 1996 when Pariser Platz was remodelled.
 - → Having walked through Brandenburg Gate you will see the Embassy of the United States of America on the righthand side. At the end of the square you will come across Hotel Adlon Kempinski, a well-known high class hotel with an eventful history.

- Walk straight ahead across Pariser Platz and continue to Brandenburger Tor S+U-Bahn station. Here you can choose between several forms of public transport.
 - → Work is currently underway to close a 2.3 km gap on the U5 line between Brandenburger Tor and Alexanderplatz S+U-Bahn stations. This new subway line will create a through service from the large housing estates on the eastern edge of Berlin to the historical city centre and the Hauptbahnhof. The new section has three new stations, including the Humboldtforum, and is scheduled to be operational by 2020.

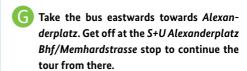
To continue the tour, you can take a walk on the big boulevard "Unter den Linden", leading along many famous sights. Or take the N. 100 bus at Brandenburger Tor.



The bus route 100 goes from Zoologischer Garten to Alexanderplatz, and was the first to run between Fast and West Berlin following German reunification. It is an inexpensive alternative to taking a guided tour of the city. Along the route are a number of the city's key sights. You can get on and off the bus as often as you like to visit these sights within the ticket's permitted time limit of two hours (Berlin Tourismus & Kongress GmbH, 2013 and Berlin - Tourismus, 2013).

The following sights can be seen along the route (from west to east):

- → Kaiser Wilhelm Memorial Church
- → Elephant Gate (one of the entrances to the zoo)
- → Bellevue Palace (official residence of the German President)
- → House of World Cultures
- → Reichstag (German Bundestag)
- → Brandenburg Gate
- → Unter den Linden
- → Humboldt University
- → Berlin Cathedral
- → Marx-Engels Forum
- → TV Tower
- → Alexanderplatz



- → You have now almost arrived at Alexanderplatz. As you get off the bus, you will see the side of the Galeria Kaufhof department store ahead of you. Facing this building, walk to the left and then at the corner of the building turn right to enter Alexanderplatz. Pass the Brunnen der Völkerfreundschaft (friendship of the nations) fountain on your right and continue to the World Time Clock.
- → Stop a moment here and look around. Alexanderplatz is steeped in history. East Berlin was the capital for the East German government and Alexanderplatz provided a venue for mass public events. For this reason Alexanderplatz was kept free of traffic (cars and trams) after the Second World War. On 4th November 1989, half a million people demonstrated at Alexanderplatz and claimed democratic reforms. On November 9th the wall fell.
- You are standing in front of the World Time Clock, erected in 1971. To the south of the square you can see the Television Tower, which is the tallest structure in Germany at 368 metres.
 - → After the fall of the Berlin Wall, extensive plans for redesigning Alexanderplatz

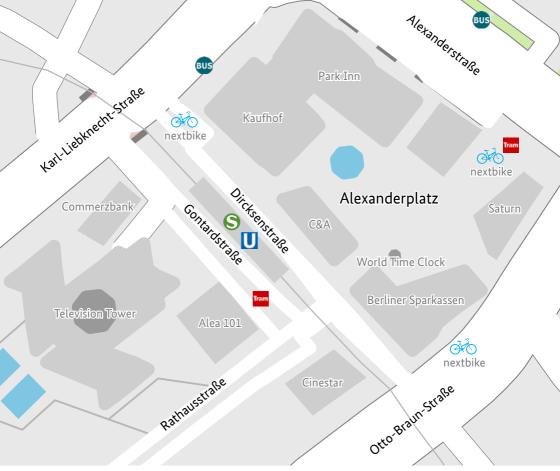


Figure 25: Alexanderplatz

and the surrounding buildings were developed, including proposals for new high-rises. There is a model of the city on display at Am Köllnischen Park 3 showing these urban design plans and the construction progress. The square has already been remodelled; so has Alexanderstrasse, the road on the south-east side of the square. Trams have resumed service and the square once again serves as one of the city's important meeting places and a venue for public events.

→ Today, the area around Alexanderplatz is one of Berlin's most important transport hubs, with over half a million people passing through every day. It serves as a station for main line trains and all types of local transport.

You can now decide how to proceed to Potsdamer Platz, the next stop on the tour. You can choose between taking the U-Bahn (U2), or renting a bicycle.

⁹ Contains information from Open Street Map (openstreetmap.de) and is used under Open Database Licence,

opendatacommons.org/licenses/odbl/1.0/

A DETOUR: THE START-UP SCENE IN BERLIN

Berlin is known as a hub for start-ups and innovative ideas in Europe. The city is an exciting playground for entrepreneurs, young professionals and visionaries from all over the world. A multicultural society, where people of various nationalities and cultures come together, is one of Berlin's key features.

The city attracts developers through its status as national centre for both tech-community and politics. This results in an environment holding unique possibilities. New mobility movements and trends are born here, to set the tone for the future of transport worldwide.

Start-Ups in Berlin

Ubitricity

The start-up develops and operates intelligent charging and billing solutions for EV (electro vehicle) charging. Ubitrictiy plans to convert 1000 street lamps into charging points in Marzahn-Hellersdorf and Steglitz-Zehlendorf.

www.ubitricitv.com/en/

Clevershuttle

The company started 2014 as a pioneer in the German on-demand RidePooling market. They have made it to Germany's leading RidePooling provider today. Their shuttles in seven German cities carry passengers cheaply and environmentally friendly from door to door.

www.clevershuttle.de/en/



Electric pedal-scooters are not yet allowed in Germany, but the law is expected to change in the coming months. Berlin start-ups are preparing for the opportunity:

Tier Scooter

Launched in Berlin in 2018 Operating in 18 cities in Europe



Flash

Headquarterd in Berlin Pilot projects all over Europe Self-designed technology and hardware

www.goflash.com

Co-Working Spaces, Think Tanks & Testfields

Berlin attracts smart thinkers and co workers by offering them the right place to work. Quarters like Berlin Mitte are home to many co-working spaces and think tanks which facilitate interdisciplinary exchange and bring forward new partnerships.

EUREF-Campus

The proximity between global players, small and medium-sized businesses, and academic institutions makes the EUREF campus an ideal location for start-ups. In addition to the numerous opportunities for cooperation, young companies and spin-offs can find small area units with a well-developed infrastructure.





Figure 26: EUREF campus, photo by Kleist Berlin on Flickr/CC BY-SA 2.0



Figure 27: IoT Campus, photo: Bosch

Bosch IoT Campus

The Bosch IoT Campus is located in the creative hub "Ullsteinhaus" in Tempelhof and opened in 2018. It was designed in cooperation with the employees of Bosch and is a living lab itself: Newly invented tools, like the Bosch Smart Home, get directly integrated into the workspace.

The Campus plans to cooperate with the awaited CityLAB, a space dedicated to design Berlin's future.

www.bosch-si.com/corporate/about-us/boschiot-campus.html

Factory Berlin

Factory Berlin is an international community of professionals from tech, politics, arts, and science. As a member, you are able to access their facilities (two co-working spaces in Berlin), digital tools and events. The communitv counts over 3.000 members from over 70 nations and collaborates with start-ups like IOTA, Hackerbay, and Zendesk as well as corporates such as Deutsche Bank, Schaeffler and Google For Entrepreneurs.





Figure 28: Living room, photo: Factory

-igure 29: Map – Tour 2. Source: openstreetmap.de⁹

Tour 2:

Alexanderplatz – Potsdamer Platz

DISTANCE 3 KM



If you take the U-Bahn, walk from the World Time Clock to any of the Alexanderplatz station entrances that have a blue U-Bahn sign. Make sure you have a valid ticket (for information on tickets, see the box on page 30) and take the U2 line towards Ruhleben, which runs every four or five minutes. Alight at the seventh stop, Potsdamer Platz station.

To continue the tour by rental bike instead, walk from the World Time Clock back across Alexanderplatz to Karl-Liebknecht-Strasse. where there is a nextbike docking station (see "A detour: Nextbike" on page 42). Remain on your bike, head toward the S-Bahn and cross under the railway bridge; be careful, trams might be crossing your way!

Follow Rathausstrasse now until you reach Rathausbrücke. If there are construction sites, it might get narrow driving on the street. In this case, walk your bike on the sidewalk for this short distance.

- → On your right you will see the television tower, Berlin's highest building, measuring 368 m. If you go up the tower, you will have a great view on the city! Behind the television tower. vou will find the Marienkirche, a church from the Middle Ages that began construction in 1270. Unlike many old buildings in the area, the church was not destroyed during war.
- → On your left you will come across the town hall of Berlin, named Rotes Rathaus, due to its red brick. Built between 1861 and 1869, this is the office of the Mayor of Berlin.
- → Opposite to the Town Hall is the construction site for a new subway station. Along with two other stations, this is part of a project to connect Berlin central station with Alexanderplatz by closing the 2.2 km gap between U55 and U5. This development to the subway network has been under construction since 2011 and is expected to be finished in 2020. Total costs are estimated at EUR 525 million. The underground tunnels were bored through Berlin's ancient glacial valley geological

¹⁰ Contains information from Open Street Map (openstreetmap.de) and is used under Open Database Licence,



Figure 30: Weltzeituhr on Alexanderplatz, photo by Raoni on Flickr/CC BY 2.0

structure using a shield driving method - a significant engineering challenge. The completion of the U5 will connect the large residential areas in the eastern part of Berlin directly to Berlin central station. Tourist spots, such as Museumsinsel, Humboldtforum and Unter den Linden will also have better public transport access. After completion, the 22 km long U5 will be fully accessible. An estimated number of 150,000 people will use it every day.

→ After having crossed Spandauer Straße, Nikolaiviertel and Nikolaikirche will appear on your left. You are now in one of the oldest settled areas of the city, although its buildings - with the exception of the church - only date back to 1987, the most recent phase of East German urban design. The Nikolaiviertel is loosely based on historical urban structures and was built using prefabricated concrete panels to create replicas of historical buildings that show how the old quarter might have looked.

Cross the Rathausbrücke and continue until you reach Schlossplatz.

→ On your right, you will see the big construction site for the reconstruction of the Berlin city palace, the Stadtschloss. Following intensive public discussion and a decision of the Bundestag, the reconstruction of the Prussian palace under the name of Humboldtforum started in 2013. It is expected to open in 2019. Following the instructions of Walter Ulbricht, the former Hohenzollern residence ruins were torn down to eliminate the memory of feudalism in 1950. The Palast der Republik was constructed to replace the former city palace, which was eventually demolished between 2003 and 2008. The new building will have reproductions of baroque facades on three sides and a modern fourth side. The inner part will be adapted to the needs of a modern centre for art, culture and science. The name Humboldt (in memory of Wilhelm

and Alexander von Humboldt) stands for the objective of the future exhibition program to show the dialogue of European and non-European cultures in its historical and future dimensions.

- → On the left-hand side you will see the former Staatsrat building. Built after the war, it was the seat of the GDR's head of government. Walter Ulbricht and Erich Honecker worked there for many years. The baroque part of the new facade is a section of the former City Palace. It was removed from the palace before its deconstruction in 1950 and was integrated into the Staatsrat facade afterwards, as it was on this exact balcony where Karl Liebknecht proclaimed the German Free Socialist Republic on 9th November 1918.
- At Schlossplatz, 12 radial bicycle routes present the basic structure of the Berlin bicycle lane network, along with 8 tangential routes. A finer scaled network of bike lanes completes the individual districts.
- Follow Französische Straße westwards from Schlossplatz until it becomes Hannah-Ahrendt-Straße and finally leads into Ebertstraße.
- After crossing the Rathausbrücke over Spreekanal, you will pass the Foreign Ministry on your left and the Friedrichwerdersche Kirche, built by Karl Friedrich Schinkel, on your right.

In about 400 m, the street opens on the left-hand side into Gendarmenmarkt, the most beautiful square in this part of the city centre, the so-called Friedrichstadt.

- → It is the baroque extension of the medieval centre of Berlin. The suburb was created following strict regularities, one example being the orthogonally planned street grid. The German and French cathedrals are located on the Gendarmenmarkt square; in the centre of the square is the Konzerthaus (Concert House). French Huguenots fleeing religious persecution in their homeland were welcomed in Berlin during the 17th century, bringing their culture to the city.
- On your right, just before arriving at Ebertstraße, you will see the Memorial to the Murdered Jews of Europe. The site measures 19,000 m² and is covered with 2711 concrete slabs, arranged in a grid pattern. It was built according to a draft by Peter Eisenman and inaugurated in 2005.
- Cross Ebertstraße, turn left and drive down the road until you arrive at Potsdamer Platz.
- The buildings on the left-hand side accommodate the Permanent Representations of some of the German federal states called Bundesländer. They are a sign for the federalism of the German state.

Please park your bike here.

A DETOUR: DEEZER NEXTBIKE

If you don't have access to a bicycle, hiring one is a good option. Berlin has many bicycle renting systems provided by various private operators. The largest operator in Europe is nextbike. Their business model is based on cooperations with cities, public transport providers, universities and consumer brands.

In central Berlin, nextbike customers can choose from 5,000 bicycles that can be rented and returned 24/7 at 250 docking stations. After being registered either at a terminal, on their smartphone application or webpage or via phone call, you can choose between different platforms to rent a bike from: At the terminals, on their service hotline, on the app or directly at the bike computer. The bike can be returned at every nextbike terminal in Berlin.

Bikes are available for hire in more than 50 German cities (Berlin, Cologne, Frankfurt am Main, Hamburg, Munich, among others) and at many public transport stations. The senate of Berlin supported nextbike with 5 mio. EUR to foster the installation of permanent bike stations next to public transport stops. Nextbike also works on covering remoter areas of Berlin with rental bikes. In most cases, a kind of complementary funding is necessary because a system that provides such widespread coverage cannot be financed by user charges alone; the cost of rentals would deter people from using the service. The funding is justifiable because the bike rental system is designed to complement the public transport system.

There are two rental and two payment systems for Nextbike in Germany

Rental systems:

The first system for hiring and returning a bicycle is called the "Flex-System," where you can borrow and return a bike wherever it is parked, not only at docking stations. The second is known as the "Fix-System," where bikes are borrowed from and returned to a docking station. Berlin hosts providers using both systems. Nextbike currently operates on both rental systems, with fixed stations and the possibility to leave the bike anywhere inside the rapid transit (S-Bahn) ring.

Payment systems:

There are also two pricing systems: the standard rate where users pay 1 EUR per 30 minutes to a maximum of EUR 15.00 a day (see Table 2). The second pricing system is based on a flat rate, which is a good deal for people who use the system frequently. Users pay a higher annual or monthly or daily fee that allows them to cycle for up to 30 minutes free of charge. There is a charge after 30 minutes (see Table 3). Prices are discounted for users of the music platform Deezer which cooperates with nextbike Berlin.

	BASIC RATE	DEEZER TARIFF
First 30 minutes per rental	1.00 €	free
Each following 30 minutes	1.50 €	1.50 €
Maximum fee/24h per rental	15.00 €	15.00 €

Table 1: Rate 1 (standard rate, as of March 2019)

	DAILY PASS	WEEKLY PASS	ANNUAL PASS
First 30 minutes per rental	free	free	free
Each following 30 minutes	1.00 €	1.00 €	1.00 €
Maximum fee/24h per rental	12.00 €	12.00 €	12.00 €
Basic fee	3.00 €/day	15.00 €/week	50.00€/year

Table 2: Rate 2 (package rate, as of March 2019)

How does Nextbike work?

- 1. One-time registration via phone call (+49 (0)30 12 08 63 64), on the nextbike app or online:
 - secure.nextbike.net/bn/en/berlin/register/



- 2. Once you have registered and received your PIN, look for a *nextbike* **station**. You can download a map of docking stations for Berlin's nextbike system at
 - www.nextbike.de/en/locations/ or find it on their app.



3. Rent a bike

- I. Using the BikeComputer:
- a) Enter your phone number and PIN and press 'OK'.
- b) The fork lock will open automatically.
- II. Using the app:
- a) Enter the bike number OR scan the QR-Code.
- b) You will receive a four-digit lock code which you enter into the BikeComputer
- c) Press 'OK'. The fork lock will then open automatically.

Pull the fork lock out and secure it next to the basket.

4. Park your bike

- a) Press 'P' on the bike computer.
- b) Close the lock. The rental will continue.
- c) To continue the ride again, open the lock again with the 4-digit lock code.

5. Return your bike

I. Fix

Return the bike at any official station within Berlin.

II. Flex

Return the bike at any main street or junction within the Berlin flex zone which is marked blue in the map and comprises the inner S-Bahn circle.

Press 'OK' on the bike computer and close the fork lock.

Refresh your app to make sure the rental has been stopped. Contact the customer service if not: +49 (0)30 12 08 63 64.

(nextbike GmbH, 2019)

Further reading

Deezer nextbike - public bike sharing in the city of Berlin

www.deezernextbike.de/en/berlin/

Map of docking stations for the nextbike system

www.nextbike.de/en/locations

Other operators

- → Lidl-Bikes
 - www.lidl-bike.de/de
- → LimeBike
 - www.li.me
- \rightarrow Byke
 - → bvke.de





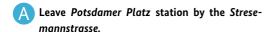




-igure 32: Map – Tour 3. Source: Open Street Map¹⁰

Tour 3: **Potsdamer Platz**

DISTANCE 3 KM BY UNDERGROUND TRAIN



- → Potsdamer Platz and the adjacent Leipziger Platz have once more become prominent elements in the city's polycentric structure and form a major transport hub where regional rail, S-Bahn, U-Bahn and a number of bus routes converge (a tram line is also planned). Potsdamer Platz is also directly connected to the Tiergarten tunnel carrying the north-south rail link.
- → History has repeatedly left its mark on Potsdamer Platz. Before the Second World War. it was one of the most vibrant squares in Europe. Traffic was so congested and the junction so complex that the very first traffic lights were invented. A model of these first traffic lights can be seen at Potsdamer Platz today. During the war, Allied bombing caused

- large-scale destruction. In the aftermath, thecity was carved up into four sectors by the Allies, with Potsdamer Platz forming the border between the Soviet sector in the East and the American and British sectors in the West. The Berlin Wall, built in 1961, ran through the middle of the square.
- → The remaining buildings were demolished to make room for the "death strip" of mined land between the concrete barrier on the Western border and another to the East. For decades, streams of visitors from the West used a viewing platform to witness the division of Berlin and Germany with their own eyes. Following reunification and the Bundestag's decision that Berlin should once again become Germany's capital (the capital of Western Germany was in Bonn nearby Cologne), parliament, government and business associations started to move to Berlin and the

¹¹ Contains information from Open Street Map (openstreetmap.de) and is used under Open Database Licence,

opendatacommons.org/licenses/odbl/1.0/



Figure 33: Potsdamer Platz today © Michael J. Zirbes

city began to regain its international significance. Potsdamer Platz, at the very heart of the reunited city, became the first major urban design project to be planned and built in unified Berlin. The aim was to develop a ground-breaking, modern, mixed-use central urban quarter that respects the underlying historical street pattern. Between 1993 and 1998, a new urban quarter was created with a range of diverse uses and striking buildings that define the cityscape. It attracts thousands of visitors each day. The access roads in the quarter have been designed as high-quality public spaces; parking is mainly in underground car parks. Over 10,000 new jobs have been created in the quarter, which has excellent public transport services that reduce the need for personal vehicles. (Berlin.de 2013)



Figure 34: The first traffic lights on Berlin Potsdamer Platz, photo by Willy Pragher on Flickr/ CC BY 3.0



Figure 35: Potsdamer Platz and Leipziger Straße seen from behind the Berlin wall, photo by Roger W on Flickr/CC BY-SA 2.0

For a wonderful view of the city from one of the tall buildings at Potdamer Platz, you can go to Panoramapunkt. It is located on the 24th and 25th floor of Kollhoff-Tower and offers an open-air viewing platform to visitors.

Go back into Potsdamer Platz station and take the U2 line towards Theodor-Heuss-Platz or Ruhleben, which runs every 5 minutes. Make sure you have a valid ticket.

- Get off two stops later at Gleisdreieck and take the U1 towards Warschauer Strasse, which also runs every 5 minutes.
- Go three stops to Prinzenstrasse station and leave by the Prinzenstrasse/Gitschiner Strasse exit.



Figure 36: Berlin Bus near Alexanderplatz photo by Rob Dammers on Flickr CC BY 2.0

More about mobility management

"Mobility Management & Commuting: Inputs and Examples of Best Practice in German Firms":

www.sutp.org/files/contents/documents/resources/C Case-Studies/GIZ SUTP CS Mobility-Management-Commuting-EN.pdf



Figure 37: Mobility scenes from Berlin © M. Köller, © M. Breithaupt, © S. Ledwoch

A DETOUR: URBAN GROWTH AND TRAFFIC VOLUMES

The new millennium represented a new beginning for Berlin. The population began to rise again, at increasing growth rates. Over the past 5 years, between 40,000 and 50,000 people moved to Berlin every year, mainly from other places in Germany and Europe. Furthermore, a growing number of refugees are coming to Berlin, fleeing war and persecution. The city estimates that around 20,000 to 25,000 refugees will move to Berlin annually on a long-term basis.

Not only is Berlin's population expanding: after a longer phase of structural change, the economy of Berlin is growing again and jobs are being created. The growing number of inhabitants and employment rate generates more traffic. The higher volume of traffic is evident in public transport, in motorised individual traffic and in bicycle traffic. It remains to be seen if the city's ambitious goals concerning transport policy can be achieved under these new conditions of city and traffic growth. The goals include further reductions in motor vehicle traffic and increasing the share of environmentally sustainable mobility in the modal split.

The numbers show a clear and positive picture: between two surveys in 2012 and 2017, Berlin grew by 240.000 people. Already between 2008 and 2013, a rising demand for public transport emerged: Surveys on mobility showed that it caused the greatest increase in traffic volumes, accounting for 95% of added motorised traffic. Only 5% of additional total traffic was from motor vehicles. In relation to all trips done, the total motorised traffic actually decreased by about 3% over the survey period; primarily in favour of non-motorised transport like walking and biking. The traffic census shows that inner city traffic continues to decrease, as has been observed over the past decade (approximately 10% in total).

The numbers show that it is possible to decouple city growth from growth of private motorised traffic through transport policies, including measures aimed at strengthening sustainable mobility.





-igure 39: Map – Tour 4. Source: Open Street Map¹⁰

Tour 4: Kreuzberg

DISTANCE 3 KM WALKING

You will start in Kreuzberg, a district in the borough of Friedrichshain-Kreuzberg. Until the administrative reform of 2001, it was a borough in its own right.

Along with Friedrichshain and Prenzlauer Berg, Kreuzberg is seen as one of Berlin's trendiest areas. Unlike the first two districts, however, Kreuzberg was in West Berlin. Right next to the Wall, it was effectively pushed out to the margins of the western city. Despite severe war damage, the typical late 19th century structure of the "tenement city" remained largely undamaged in many parts of Kreuzberg. In the days of West Berlin, the district provided a refuge for people looking for alternative lifestyles and opportunity to protest against the establishment.

→ Militant conflicts ignited over car-centric urban planning and transport policy in the post-war years. Radical urban redevelopment schemes to bulldoze vast areas for roads would have virtually destroyed the remaining historical structure of the district. Kottbusser Tor is a shining example of urban design in the 1960s and 1970s, giving an idea of what was planned for vast areas of Kreuzberg. Squatter movements and militant protests in the late 1970s led to a change of concept in redevelopment and transport policy. The road schemes were abandoned, and a "careful urban renewal" model was developed instead, which lowered rents ("Internationale Bauausstellung 1984-87"). Today, the mixed-use buildings dating back to the Gründerzeit -Germany's period of rapid industrial expansion in the late 19th century - and set around inner courtyards, are highly sought after in creative circles.

¹² Contains information from Open Street Map (openstreetmap.de) and is used under Open Database Licence,



Figure 40: Baerwaldbrücke, photo by Lienhard Schulz on Flickr/ CC BY-SA 3.0

- As you leave the U-Bahn station you will see Böcklerpark on your left and the Urbanhafen ahead, which can be reached by crossing Baerwaldbrücke bridge.
- B This open space has a wonderful Mediterranean ambiance and is ideal for relaxing in the summer.
- After crossing the Baerwaldbrücke Bridge, turn left and walk eastwards along the Landwehr canal to Kottbusser Strasse.
- Turn left over the bridge and walk northwards on Kottbusser Strasse to Kottbusser Tor.



Figure 41: U-Bahn station Prinzenstraße in 1900, unknown author, public domain



Figure 42: Drachenbrunnen at Oranienplatz, photo by Georg Slickers on Flickr/ CC BY-SA 3.0

- → Kottbusser Tor. known to locals as Kotti. is largely inhabited by the German-Turkish community. They call the Kottbusser Tor the Kreuzberg merkezi (centre of Kreuzberg).
- Turn right or left and take the third exit off the roundabout into Adalbertstrasse and continue to the junction with Oranienstrasse.
 - → Since reunification, the arts and creative industry in Berlin has become one of the mainstays of the city's economy. About 20,000 artists now live and work in the city, many of them in Kreuzberg. Creative and immigrant communities developed in Kreuzberg long before the fall of the Berlin Wall, as rents for stu-

dios, workshops and apartments were low. Today, the population of Kreuzberg is still unique from other neighbourhoods of the city. Election voting behaviour is a reflection of this, where Green Party representatives are regularly in the majority in federal and state parliaments



Figure 43: Prinzessinengärten at Moritzplatz, photo by Assenmacher on Flickr/CC BY-SA 3.0

More about Transportation Demand Management:

- → SUTP-Publication "Transportation Demand Management":
 - www.sutp.org/files/contents/ documents/resources/H Training-Material/GIZ SUTP TM Transportation-Demand-Management EN.pdf

GIZ - Sustainable Urban Transport Project: More about our work

- → "Sustainable Transport: Sourcebook for Policymakers in Developing Cities":
 - www.sutp.ora
- → GIZ Transport and Mobility:
 - www.giz.de/transport
- → Extensive SUTP Photo Database:
 - www.flickr.com/photos/ sustainabletransport
- → Global implementation initiative on sustainable mobility:
 - https://transformative-mobility.org/

and the borough council. However, since Kreuzberg is a sought-after district to live in, rents have been rising for many years, forcing many original inhabitants to leave. The battle against this gentrification process is increasingly considered a political issue in Kreuzberg (along with other neighbourhoods in Berlin).

- You are now on Oranienstrasse, the centre of Kreuzberg's alternative scene. Most striking are the bars and small shops in buildings with a wide-ranging state-of-repair: from run- down (with cheap rent) to elaborately refurbished. Turn left and walk westwards towards Moritzplatz.
 - → The district's unique demographic make-up is also reflected in transport behaviour: people in Kreuzberg travel by bike more often and use private cars less frequently than anywhere else in Berlin. A well-known style of bicycle parking rack (see Figure 34) was first installed in this district and named after it: the Kreuzberger Bügel. From old boneshakers and classic upright sit-up-and-beg Dutch



Figure 44: Kreuzberger Bügel, photo by Bukk, gemeinfrei



Figure 45: Berlin Urbanhafen 1900, unknown author, gemeinfrei

bikes, electric cycles and cargo bikes - it can all be found here in Kreuzberg when it comes to bicycle culture. Look closely and you might also spot a fashionable local on a "fixie" - a fixed-wheel bike with only one gear that seems to express a particular philosophy of life. (Berlin -Bezirksamt Friedrichshain-Kreuzberg 2008; Sightseeing Point GmbH; Berlin Tourismus & Kongress GmbH)

You have reached the end of the tour.

You are now at Moritzplatz and can go into the U-Bahn station of the same name. Make sure you have a valid ticket!

To get back to the Berlin Hauptbahnhof, take the U8 towards Wittenau, which runs every 5 minutes and change at Jannowitzbrücke onto the S7 S-Bahn line towards Potsdam Hbf, which runs every 2-5 minutes. Alight at Hauptbahnhof.

A DETOUR: LOW EMISSION ZONE

So far you have been able to enjoy the advantages of public transport of Berlin in its many forms. However, you have no doubt noticed that Berlin's roads are often full of cars, despite the lowest rates of private motor vehicles among German cities. Driving a car produces harmful emissions: air pollutants, climate-damaging gases and noise. Fortunately, modern cars produce fewer emissions than older ones, so the days of Berlin smog alarms are long gone - the last alarm in West Berlin was in 1985. The modernisation of Berlin's industry and household heating systems has also made a major contribution to reducing atmospheric pollution.

Take a deep breath... Do you notice anything? The fact that you can't smell any pollutants in the atmosphere does not mean the problem is completely solved. Particulates (PM₂₀, PM₂₀) and nitrogen dioxide (NO₂) still pollute the atmosphere, yet we scarcely notice them. The EU has set stringent limit values for these pollutants and threatens countries with financial fines for breaching them. However, these limits are still being exceeded in Berlin, which is why the city has introduced a "low emission zone".

A low emission zone is a defined urban area in which limit values are often exceeded and where only low-emission vehicles can be driven. In Berlin this is the area within the S-Bahn ring, home to just over a million people. Violations incur a fine, currently set at EUR 80. Federal law defines four vehicle categories ranging from slightly lower emission to ultra-low emission. Vehicles receive a coloured windscreen sticker marking their emission category. Local authorities have discretion to decide on the basis of local pollution conditions what vehicle categories should be prohibited from entering the low emission zone and what exemptions may be granted.

Berlin's low emission zone was introduced on 1 January 2008, as a method to achieve sufficient reductions in air pollution levels. Motor vehicles in Berlin are still major contributors to particulate pollution and are almost solely responsible for nitrogen oxide pollution. The low emission zone was introduced in two phases to give owners time to retrofit their vehicles or buy new ones. Initially vehicles with the highest emissions were prohibited, and the other three categories - red, yellow and green - were still allowed to enter the low emission zone. The second phase began on 1 January 2010. Since then, only vehicles that have a green sticker - the cleanest vehicle category at present - are allowed within the zone.

Continuous monitoring of air quality has shown that the low emission zone has been effective: it has significantly sped up the replacement of old vehicles by low-emission ones. This has lowered particulate matter by 50% and nitrogen dioxide emissions by 20% from the predicted trends.

Low emission zones have been introduced in over 300 other European cities and agglomerations. Despite this success, they are a subject for heated public debate. As long as limit values are being exceeded, low emission zones will remain a necessity. Other transport policies designed to reduce motor vehicle traffic in the city promise to further reduce pollution.

Further reading

- → The low emission zone in Berlin results of a first impact assessment
 - www.stadtentwickluna.berlin.de/umwelt/luftaualitaet/de/luftreinhalteplan/
- → Berlin's Environmental Zone Information for Foreign Tourists
 - https://www.berlin.de/senuvk/umwelt/luftqualitaet/umweltzone/download/touristeninfo en.pdf
- → The Low Emission Zone (Umweltzone) in Berlin
 - www.unece.org/fileadmin/DAM/thepep/en/workplan/urban/documents/Skopje/ presentations/session4/1.low.emission.zone.pdf
- → Fact Sheet: Low Emission Zones Examples from Berlin, London, and Beijing
 - www.sutp.org/files/contents/documents/resources/E Fact-Sheets-and-Policy-Briefs/ GIZ SUTP FS Low-Emission-Zones EN.pdf
- → Clean Air Made in Germany
 - → https://www.german-sustainable-mobility.de/wp-content/uploads/2014/12/CleanAir-MadeInGermany GPSM.pdf



Bonus Tour 5: Discovering Berlin's surroundings by public transport

After having discovered the lively city of Berlin, you may feel the need to get out of town to see some of the calm places that Berliners go to on weekends. As a lot of former surrounding villages have been incorporated into Berlin, in many cases you do not have to leave the city borders to dive into the nature. Try the following spots to get some holiday feeling:



Figure 47: Strandbad Wannsee, photo by Steffen Zahn on Flickr/CC BY 2.0

STRANDRAD WANNSFF

→ On hot summer days, the bathing beach Strandbad Wannsee attracts a lot of visitors in search of a spot to cool down from the city trouble. The standard fare for a day ticket is EUR 5.50 reduced tickets are available for EUR 3.50. To get there from Berlin Hauptbahnhof, take the S7 direction S Wannsee and leave it at S Nikolassee. It will take you a 10 minute walk through the forest to get to the beach from the S-Bahn station.



Figure 48: Lüderitzstrasse named after Adolf Lüderitz in Wedding, Denis Barthel on Flickr/CC BY-SA 4.0

AFRIKANISCHES VIERTEL

→ If you speak some German, you can set out for a walk exploring Berlin Afrikanisches Viertel. Discover how street-naming is connected to history using a special web-site:

www.leo-afrikanisches-viertel.de/ It will guide you through the history of the district and explain how colonial past lives on in names of streets and squares.



Figure 49: Sanssouci, photo by Amanda Slater on Flickr/ CC BY-SA 2.0



Figure 50: Krimnicksee in Neue Mühle, photo by JCIV on Flickr/ CC BY-SA 4.0

SCHLOSS SANSSOUCI

→ Located on big castle grounds, Schloss Sanssouci is the former summer palace of Frederick the Great. Built in rococo style, the estate is famous for the temples and follies that can be found in the park. The name of the palace is French and translates to "without concerns". From Berlin Hauptbahnhof take the S 7 to S Potsdam Hauptbahnhof. Leave the station and take the Bus X15 direction Schloss Sanssouci. It will take you around an hour to travel there.

KÖNIGS WUSTERHAUSEN AND **NEARBY LAKES**

→ If you are up for a day trip through beautiful Brandenburg, why not discovering the Dahme-Seenland near Königs Wusterhausen? More than 70 lakes can be found in the region south-east of Berlin. Starting from KW, as the Berliners call it, you can either hike or take a bike to get into the wild. The lakes are also perfect to do a tour on a rowing or a sailing boat. To get there by train, take the RE2. Alternatively, you can get out at Groß Köris or Beestensee.

For further information on where to go near Berlin, visit the Tourist Office (see page 62). More information on tickets and pricing can be found on page 30 of this travel guide and at www.bvg.de/en



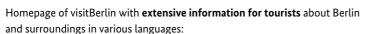
See also the German travel guide "Ab ins Grüne – Ausflüge mit der Berliner S-Bahn: 64 Ausflugsziele - Rad- und Wandertouren rund um Berlin" by Klaus Scheddel (ISBN-13: 978-3935029650).

Further information on mobility in Berlin

GENERAL TRAVELLER'S INFORMATION

Check the following sites on the internet for general information:

- www.berlin.de/en/
- wikitravel.org/en/Berlin



www.visitberlin.de/en

Going Local Berlin App:



itunes.apple.com/de/app/going-local-berlin/id964438630 (iOS)

play.google.com/store/apps/details?id=de.visitberlin.goinglocal&hl=de



Tourist Information:

Brandenburg Gate - Pariser Platz / southern gatehouse Park Inn – Alexanderplatz 7

More adresses of Tourist Information Offices can be found at:

www.visitberlin.de/en/plan/on-site/tourist-information

SIGHTSEEING IN BERLIN:

An overview of guided tours is provided on the Berlin official web portal:

www.berlin.de/en/tourism/quides/

There are also free and off-the-beaten-track tours offered by different providers. Here are some of them:

- www.newberlintours.com/daily-tours/free-tour.html
- originalberlintours.com/tours/free-original-berlin-walking-tour/
- alternativeberlin.com/tours/free-tour/











INFORMATION ON PUBLIC TRANSPORT AND **GENERAL TRAFFIC INFORMATION**

Timetable, network map and traffic information for public transport in Berlin:

www.bvg.de/en/Travel-information



BVG's tool for trip planning:

♦ https://fahrinfo.bvq.de/barrierefrei/bin/query.bin/en?ld=47.153&L=vs bf&protocol=https:&

Smartphone App for BVG trip planning, containing information for all transports Berlin and Brandenburg. You can also buy tickets using the app:

- itunes.apple.com/de/app/fahrinfo-berlin/id284971745?mt=8 (iOS)
- play.google.com/store/apps/details?id=de.eos.uptrade.android. fahrinfo.berlin&hl=de (Android)
- www.microsoft.com/de-de/store/apps/bvg-fahrinfo-plus/ 9wzdncrdltrv (Windows)





The website of the Verkehrsverbund Berlin-Brandenburg contains information on tickets and timetables as well as on where to go in Berlin and Brandenburg:

www.vbb.de/en/index.html

BIKE TRIP INFORMATION:

ADFC Berlin is the local antenna of Allgemeiner Deutscher Fahrrad-Club, Germanys national cycling organisation:

adfc-berlin.de (only in German)



Numerous cycling tours provided by ADFC Berlin:

www.radundtouren.de (only in German)

BBBike@Berlin:



BBBike is a smartphone app that calculates the best bike route based on specified criteria (such as avoid main roads without a cycle lane, side streets wherever possible or no cobblestones) iOs: bbybike / Android: BBBike Android Client





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SUSTAINABLE MOBILITY - MADE IN GERMANY

"Sustainable Mobility – Made in Germany" stands for sustainable, proven, resource efficient, innovative, trustworthy and flexible solutions for all domains of mobility and logistics services.

Germany has a long history of successful changes and transformations in the transport sector - including

- → the establishment of comprehensive funding schemes
- → the re-emergence of walking and cycling as safe and viable modes of transport
- → the reorganization of the public transport sector
- → the continuous development of progressive regulations
- → the development of efficient propulsion systems
- → the integration of different modes of transport, including multimodality in logistics and ecomobility

Academia, businesses, civil society and associations have gathered invaluable experience and skills in framing these transformations.

The German experience is worth of study. Due to the scarcity of energy resources, the high population density and number of enterprises, as well as the compactness of the country, Germany opted early on for energy-efficient, integrated and smart solutions in the transport sector.



More on www.german-sustainable-mobility.de

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