

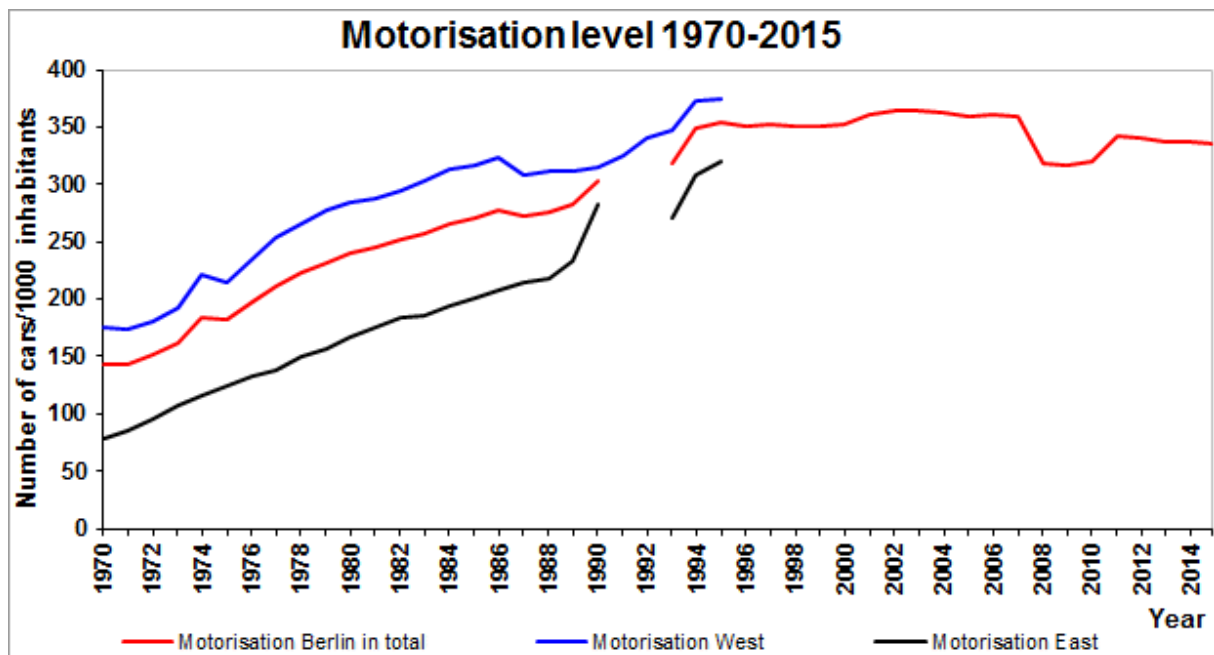
07.01 Traffic Volumes (Edition 2017)

Overview

Traffic still represents a crucial load factor of the urban environment. Its numerical development is observed through traffic counts that have been carried out at regular intervals since 1951 in the western boroughs of Berlin and since 1993 for the entire city area. The Berlin Traffic Control (*Verkehrsleitung Berlin, VLB*) of the Senate Department for the Environment, Transport and Climate Protection is responsible for carrying out traffic counts on motorways, federal highways and the remaining main road network. The current data refer to the year 2014 and thus update the values of the preceding analysis from 2009.

The **motorisation level**, i.e. the ratio of cars to the number of inhabitants, was very different for East and West Berlin in 1970. For instance, there were 77.5 cars per 1,000 inhabitants in East Berlin in 1970, compared to 175.4 in the western part of the city, i.e. almost 100 vehicles more per 1,000 inhabitants. In 1995, also due to the reunification, the numbers were already significantly closer together than before: in East Berlin 320 cars were now available per 1,000 inhabitants, compared to 375 cars in West Berlin. Since 2011, a slightly decreasing motorisation level for cars can be observed, which can be traced in particular to a declining availability of cars for younger people (cf. Fig. 1 and SenStadtUm 2016). In comparison with other cities, Berlin is thus still at a very favourable level with 335 cars/1,000 inhabitants. For instance, Munich with 444 (2015) and Hamburg with about 419 cars/1,000 inhabitants (2015) exhibit far higher values. The German average was 540 cars/1,000 inhabitants in 2015.

“However, there is a significant gradient between the Berlin inner city (in parts below 200 motor vehicles/1,000 inhabitants) and the outer city areas (in parts more than 500 motor vehicles/1,000 inhabitants)” (cf. [StEP Verkehr, SenStadt 2011](#)).



For the eastern part of the city, nothing can be stated with respect to the motorisation level for the period from 1991 to 1993 due to the changeover of the number plates of all vehicles at that time. Since 1996, only a total value for Berlin is being specified.

Fig. 1: Motorisation level in Berlin 1970 - 2015 (according to [Map 07.01, Fig. 2 \(Edition 1995\)](#) with updates according to data of the [Statistical Office for Berlin-Brandenburg \(Amt für Statistik, AfS\)](#))

The following overviews compare the annual numbers of the important parameters route length and driving performance according to traffic load classes with respect to the development from 1993 to 2014.

Due to the variations in the route lengths of the individual reference years, the comparability is limited. It remains noteworthy that, despite a continually increased extent of routes attributed to the main road

network, the absolute level of the calculated daily driving performance of all sections has slightly declined, as has the proportion of route sections experiencing high loads (average daily traffic volume (ADT) > 50,000 motor vehicles).

Tab.1: Daily traffic volume (DTV), route length [km] and driving performance [km/day] in the main road network 1993

DTV	route length [km]	%	% cumulative	driving performance [km/day]	%	% cumulative
up to 2,500	12.2	1.00%	1.00%	25,988	0.10%	0.10%
>2,500 to 5,000	32.2	2.70%	3.80%	132,554	0.50%	0.60%
>5,000 to 7,500	78.3	6.70%	10.50%	509,774	1.80%	2.40%
>7,500 to 10,000	92.6	7.90%	18.30%	834,669	3.00%	5.30%
>10,000 to 20,000	424.4	36.20%	54.50%	6,191,964	22.00%	27.40%
>20,000 to 30,000	235.4	20.10%	74.60%	5,824,114	20.70%	48.10%
>30,000 to 50,000	205	17.50%	92.00%	7,768,120	27.60%	75.70%
>50,000	93.6	8.00%	100.00%	6,818,144	24.30%	100.00%
total	1,173.7	100.00%		28,105,326	100.00%	

Tab. 1: Daily traffic volume (DTV/ADT), route length (km) and driving performance (km/day) in the main road network in 1993

Tab.2: Daily traffic volume (DTV), route length [km] and driving performance [km/day] in the main road network 1998/99

DTV	Route length [km]	%	% cumulative	driving performance [km/day]	%	% cumulative
up to 2,500	3.2	0.3%	0.3%	5,338	0.02%	0.02%
>2,500 to 5,000	26.3	2.2%	2.5%	107,525	0.4%	0.4%
>5,000 to 7,500	58.4	4.9%	7.4%	363,374	1.3%	1.6%
>7,500 to 10,000	108.2	9.1%	16.5%	937,553	3.2%	4.9%
>10,000 bis 20,000	451.4	37.9%	54.4%	6,573,078	22.7%	27.5%
>20,000 to 30,000	237.4	19.9%	74.3%	5,771,406	19.9%	47.4%
>30,000 to 50,000	213.5	17.9%	92.3%	8,141,383	28.1%	75.5%
>50,000	92.3	7.7%	100.0%	7,098,841	24.5%	100.0%
total	1,190.8	100.0%		28,998,497	100.0%	

Tab. 2: Daily traffic volume (DTV/ADT), route length (km) and driving performance (km/day) in the main road network in 1998/99

Tab.3: Daily traffic volume (DTV), route length [km] and driving performance [km/day] in the main road network 2005

DTV	route length [km]	%	% cumulative	driving performance [km/day]	%	% cumulative
up to 2,500	32.05	2.39%	2.39%	68,865	0.24%	0.24%
>2,500 to 5,000	56.65	4.23%	6.62%	232,407	0.79	1.03%
>5,000 to 7,500	132.83	9.91%	16.53%	828,848	2.83%	3.87%
>7,500 to 10,000	135.96	10.14%	26.67%	1,186,683	4.06%	7.92%
>10,000 to 20,000	484.18	36.13%	62.80%	6,986,687	23.90%	31.82%
>20,000 to 30,000	237.22	17.70%	80.50%	5,805,277	19.86%	51.68%
>30,000 to 50,000	162.54	12.13%	92.63%	6,105,699	20.88%	72.56%
>50,000	98.79	7.37%	100.00%	8,022,697	27.44%	100.00%
total	1340.23	100.00%		29,237,163	100.00%	

Tab. 3: Daily traffic volume (DTV/ADT), route length (km) and driving performance (km/day) in the main road network in 2005

Tab.4: Daily traffic volume (DTV), route length and driving performance [km/day] in the main road network 2009

DTV	route length [km]	%	% cumulative	driving performance [km/day]	%	% cumulative
up to 2,500	50.6	3.21%	3.21%	73,647	0.26%	0.26%
>2,500 to 5,000	117.4	7.45%	10.67%	469,683	1.69%	1.96%
>5,000 to 7,500	173.8	11.03%	21.70%	1,104,039	3.97%	5.93%
>7,500 to 10,000	202.8	12.88%	34.58%	1,847,354	6.65%	12.57%
>10,000 to 20,000	523.0	33.21%	67.78%	7,486,173	26.94%	39.51%
>20,000 to 30,000	278.6	17.69%	85.47%	6,782,343	24.40%	63.92%
>30,000 to 50,000	176.0	11.17%	96.64%	6,685,888	24.06%	87.97%
>50,000	52.9	3.36%	100.00%	3,342,355	12.03%	100.00%
total	1,575.1	100.00%		27,791,482	100.00%	

Tab. 4: Daily traffic volume (DTV/ADT), route length (km) and driving performance (km/day) in the main road network in 2009

Tab. 5: Daily traffic volume (ADT), route length and driving performance (km/day) in the main road network in 2014

ADT	route length [km]	%	% - cumulative	driving performance [km/day]	%	% - cumulative
up to 2,500	119,9	6,79%	6,79%	153.760	0,56%	0,56%
>2,500 to 5,000	156,3	8,85%	15,64%	597.464	2,16%	2,72%
>5,000 to 7,500	230,9	13,07%	28,71%	1.444.805	5,23%	7,94%
>7,500 to 10,000	240,2	13,60%	42,30%	2.099.893	7,60%	15,54%
>10,000 to 20,000	542,2	30,70%	73,00%	7.655.616	27,69%	43,23%
>20,000 to 30,000	258,0	14,60%	87,60%	6.251.459	22,61%	65,84%
>30,000 to 50,000	172,4	9,76%	97,36%	6.339.603	22,93%	88,77%
>50,000	46,6	2,64%	100,00%	3.105.319	11,23%	100,00%
total	1.766,4	100,00%		27.647.920	100,00%	

Tab. 5: Daily traffic volume (ADT), route length (km) and driving performance (km/day) in the main road network in 2014

Statistical Base

The basis of the traffic surveys carried out and analysed by the Berlin Traffic Control ([VLB](#)) is the main road network as defined in the Urban Development Plan for Traffic (StEP classes I – IV of the detailed network Berlin, SenUVK 2017). This network comprises about 1,700 km. For the “Traffic Volume Map 2014”, approx. 1,300 intersection and cross-section counts of a counting network comprising about 1,330 km were available. The analyses were based on motor vehicle counts over 12 h from the years 2012 up to the spring of 2015 and were extrapolated to a mean traffic volume (AWT) of the year 2014 (Ingenieurbüro statplan 2014).

For the purposes of air quality and noise reduction planning, this network was supplemented by additional division points and network sections that do not directly refer to the abovementioned counts from the years 2012 to 2015. This expansion of the road lengths resulted in a primary road network of about 1,766 km of length.

Specifically, the data set presented here is based on the following:

- detailed network Berlin, as of January 2016
- extended network geometry, as of November 2016
- Traffic Volume Map 2014, Senate Department for the Environment, Transport and Climate Protection (SenUVK), Berlin Traffic Control (VLB)
- processing of the traffic volume data 2014 for air quality and noise reduction planning, VMZ Berlin Betreibergesellschaft mbH, as of November 2016.

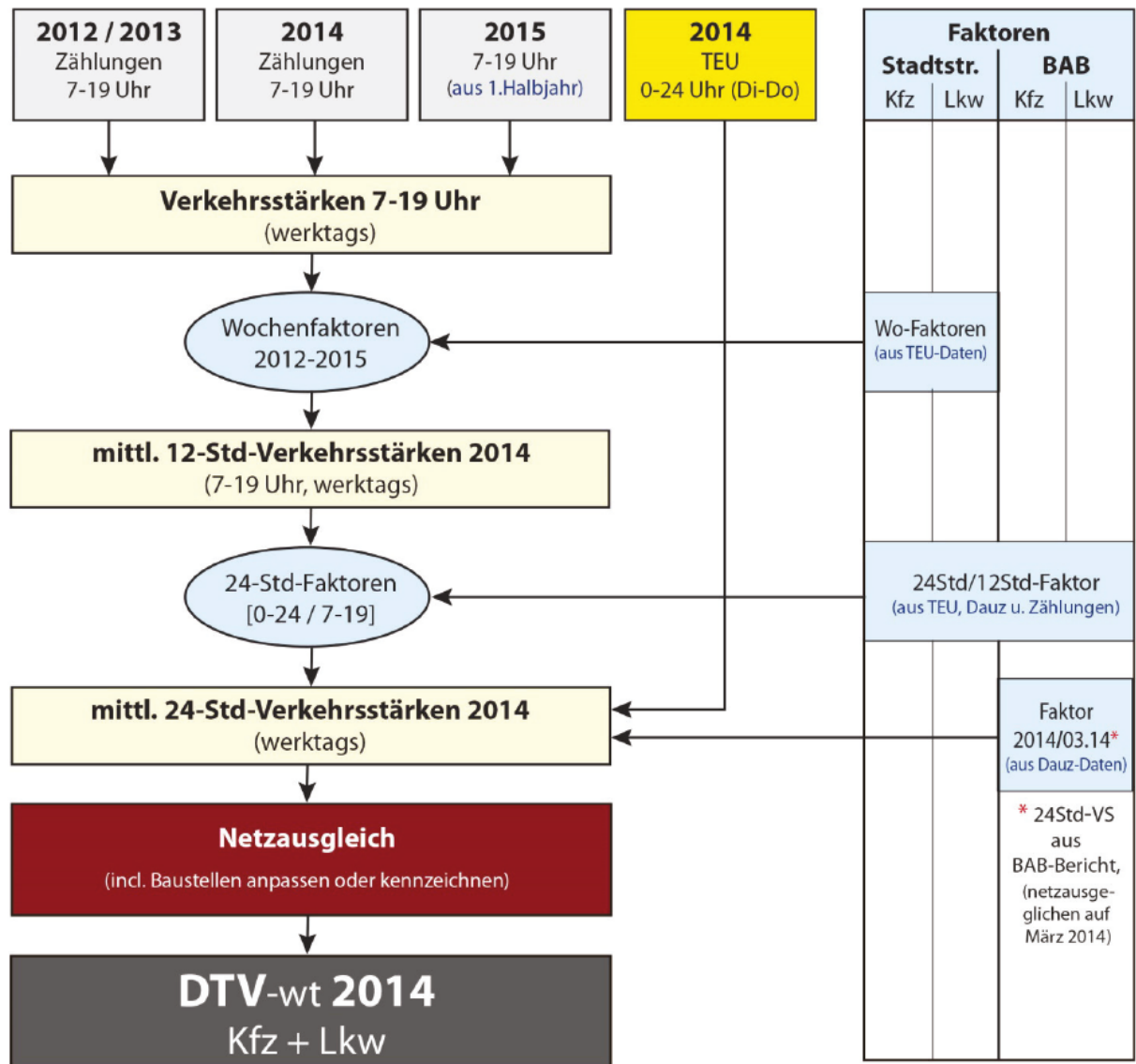
Methodology

Original data “average weekday traffic volume (AWT) 2014”

The Berlin Traffic Control (VLB) is responsible for carrying out and analysing traffic surveys that are needed for the authorities of the State of Berlin for the purposes of traffic control and planning as well as urban planning. Further up-to-date information e.g. on the location of permanent counting stations and bicycle traffic counts can be found [here](#).

The surveys upon which the “Traffic Volume Map 2014” is based were extrapolated to the weekday traffic volume (AWT/24 h) as a mean value over all weekdays of the year, Monday to Friday, for the number of motor vehicles (including trucks) that pass a road cross-section in both directions per day.

For a description of the methodology used for capture and analysis, please refer to the final report on the count (cf. Ingenieurbüro statplan 2016, p.10); the flow chart in Figure 2 offers an overview.



[German only]

Fig. 2: Methodology for capture and analysis of the "Traffic Count 2014" (Ingenieurbüro statplan 2016)

Processing for purposes of air quality and noise action planning as "average daily traffic volume (ADT) 2014"

For the purposes of air quality and noise action planning, the data set presented here was further processed.

For the primary road network, the following traffic volumes are indicated as proportions, alongside additional geometry data (permissible maximum speeds, road surface type and condition, identification of bus lanes, etc.):

- motor vehicles
- cars
- trucks < 3.5 t (light commercial vehicles)
- trucks > 3.5 t
- buses
- coaches

- motorcycles

Additional checks and adaptations resulted in an expansion of the original counting network, which also included additional division points for refining the road sections. Overall, this network comprises about 1,766 km of route length of the primary road network (cf. Tab. 5).

Since this network has a more refined section formation as well as additionally included road sections and a distinction between traffic lanes, values had to be acquired in additional surveys, determined via plausibility checks or supplemented via model data in the cases in which they could not be taken over from the existing network of the "Traffic Volume Map 2014". The section-related information on the respective source of the ADT values for motor vehicles is given in the cell "Source of motor vehicle values" in the data display for the map (cf. map in the [Geoportal](#)).

Another essential task in the processing was the conversion of the count values of the average weekday traffic volumes (AWT) to the ADT values presented here (VMZ Berlin 2016).

Since buses, coaches and motorcycles were not captured in the traffic counts, a separate analysis was carried out in this respect, based on the intersection and cross-section counts of the Berlin Traffic Control (VLB). The traffic volumes and shares for cars and light commercial vehicles were also calculated from the existing motor vehicle and truck values of the Traffic Volume Map 2014.

Only calculated values are available for the driving performance in the so-called "secondary network" (roads not included in the counting network); according to these values, around 13 % of the daily driving performance (km/day ADT) determined for the primary road network is attained in this network, which comprises about 3,650 km (= 67 % of routes of the overall Berlin road network) (cf. VMZ Berlin 2016, Table 5).

Map Description

The traffic load is not evenly distributed across the Berlin road network. There is a clearly visible concentration on the route sections of the city expressway and on the routes leading to the city centre from the surrounding areas, which mostly serve as federal highways.

Table 6 illustrates the road sections with the highest weekday traffic loads with respect to the overall data for motor vehicles and trucks. The weekday loads on the sections of the A100 between Alboinstraße and Tempelhofer Damm and between Dreieck Charlottenburg and Spandauer Damm are among the highest nationwide with more than 167,000 motor vehicles/24 h. These sections are thus among the three road sections with the highest daily loads in Germany (a list of the "Top 10 of the daily traffic load (ADT) in the German highway system in 2015" can be found [here](#)). With respect to the peak truck loads, the distribution on the individual highway sections is similar; however, it is different on urban roads, as the location of inner-city commercial and industrial areas influences the distribution of truck journeys.

Tab. 6: Routes with highest weekday cross-section load with respect to motor vehicles (AWT > 60,000 MV/24h 2014) and trucks (AWT > 2,500 trucks/24h 2014)

Motor vehicles				Trucks			
Category	Road	Section	MV/24h	Category	Road	Section	Trucks/24h
Federal motorways	A100 (Stadtring)	AD Funkturm to AS Rathenauplatz	196.800	Federal motorways	A100 (Stadtring)	AD Funkturm to AS Kaiserdamm-Süd	12.200
	A111 (Zubringer Hamburg)	AS Heckerdamm to AS Flughafen Tegel	134.500		A10 (Berliner Ring)	in the State of Berlin	10.900
	A113 (Zubringer Schönefeld)	AS Spätstraße to AS Johannisthaler Chaussee	111.900		A111 (Zubringer Hamburg)	AS Saatwinder Damm to Kurt-Schumacher-Damm	8.100
	A115 (AVUS)	AS Hüttenweg to AD Funkturm	87.400		A113 (Zubringer Schönefeld)	AS Spätstraße to AS Johannisthaler Chaussee	7.600
	A103 (Abzweig Zehlendorf)	AS Saarstraße to AK Schöneberg	73.500		A115 (AVUS)	AS Hüttenweg to AD Funkturm	5.200
Urban roads	Mühlendamm (Mitte)	Fischerinsel to Stralauer Straße	72.800	Urban roads	A114 (Abzw. Pankow)	AS Schöneler Straße to AD Pankow	2.900
	Alt-Friedrichsfelde	Robert-Uhlig-Straße to Rhinstraße	72.300		Spandauer Damm (Westend)	Wiesendamm to Reichsstraße	3.900
	Frankfurter Alle (Lichtenberg)	Abzpodienstraße to Rosenfelder Straße	71.300		Seestraße (Wedding)	end of A100 to Nordufer	3.000
	Gertraudensstraße (Mitte)	Seydelstraße to Fischerinsel	69.500		Beusselstraße (Mitte)	A100 to Fruchthof	2.900
	Leipziger Straße (Mitte)	Axel-Springer-Straße to Seydelstraße	68.500		Marienfelder Allee (Marienfelde)	Ahrensdorfer Straße to Diederdorfer Straße	2.800
	Seestraße (Wedding)	Nordufer to Dohnagestell	67.200		Alt-Friedrichsfelde	Märkische Allee to Oberfeldstraße	2.600
	Grunerstraße (Mitte) (incl. tunnel)	Alexander Straße to Karl-Marx-Straße	65.400		Nonnendammallee (Spandau)	Gräfenfelder Straße to Palstenstraße	2.600
	Schillstraße (Tiergarten)	Lützowplatz	63.200		Mühlendamm (Mitte)	Fischcheninsel to Stralauer Straße	2.500
	Martin-Luther-Straße (Schöneberg)	Kleiststraße to Lietzenburger Straße	62.800				

If several sections > 60,000 MV/24h occur in a road, only the section with the highest load is specified

If several sections > 2,500 MV/24h occur in a road, only the section with the highest load is specified

Tab. 6: Route sections with highest weekday cross-section load (AWT/24h) for motor vehicles and trucks in 2014 (Ingenieurbüro statplan 2016)

With respect to the last analysis in 2009, the average daily traffic load (ADT), as assessed by the driving performance km/day, has slightly decreased, although the route network covered has increased by almost 11 %. The largest share of the newly included road sections exhibits ADT below 10,000 motor vehicles. Some sections of the secondary road network that are relevant to traffic were included here.

Thus, in a comparison focused on the load classes with a ADT > 10,000, their share was 32 % of the route length and more than 60 % of the daily driving performance in the 2009 analysis, compared to 27 % and 56 % with respect to the 2014 annual count.

Despite an increase in the absolute number of registered cars (60,000 more in 2014 compared to 2009, cf. Fig. 1), the traffic load (km/day) has thus decreased in the overall counting network. However, the shares are distributed unevenly across the individual load classes.

Although higher-emission old cars are continually being replaced by lower-emission new cars and the pollutant emissions thus tend to decrease despite an increase in vehicle performance, many other problems caused by traffic, such as tyre dust (which is independent of the drive technology), noise pollution and the enormous demand for space of stationary and moving traffic, will remain as a serious impairment to the urban quality of life (cf. maps [03.11.2 Traffic-Related Air Pollution along Streets 2015 and 2020 \(SenStadtUm 2016\)](#) and [07.05 Strategic Noise Maps \(SenStadtUm 2013\)](#)).

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