THE TECHNICAL ADMINISTRATION OF ROADS OF THE CITY OF PRAGUE

1963 2013 50 TSK

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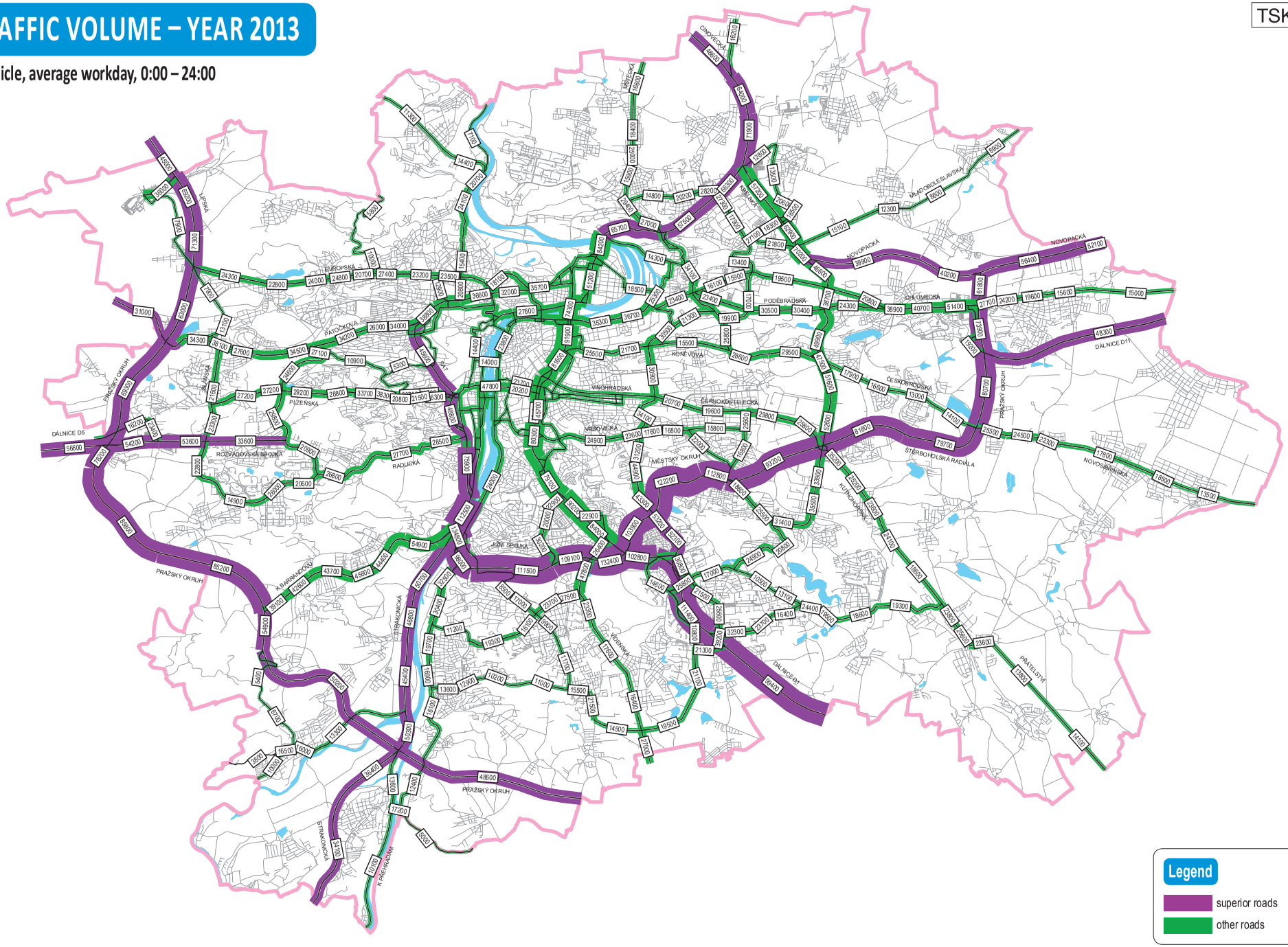
PRAGUE TRANSPORTATION YEARBOOK 2013

TRAFFIC VOLUME – YEAR 2013

All vehicle, average workday, 0:00 – 24:00

TSK-ÚDI



THE TECHNICAL ADMINISTRATION OF ROADS OF THE CITY OF PRAGUE
Department of Transportation Engineering

PRAGUE TRANSPORTATION YEARBOOK 2013

Dear Prague residents and visitors,

You are holding in your hands the “2013 Prague Transportation Yearbook”, compiled by the Department of Transportation Engineering at the Technical Administration of Roads of the City of Prague (TSK). The year 2013 was particularly significant for this organisation, as it celebrated its 50th anniversary. In 1963 the activities associated with administering roads were reassigned from the Central Committee of the City of Prague to a new organisation – Prague Roads. The name “Technical Administration of Roads” has been used since 1967.

Around the same time, in 1966, the Department of Transportation Engineering (ÚDI) was also created in order to monitor and improve traffic conditions in Prague and provide for traffic organisation and management on the city’s streets, as well as comprehensive development of its traffic system. The data it collected also served to inform the professional and general public on the state of traffic in Prague and the development thereof. This information later took on the form of regularly published yearbooks providing a comprehensive view of the changes that had taken place in the preceding year and documenting the trends in individual traffic and transportation parameters. After TSK and ÚDI were merged in 2008, this activity has been performed by TSK’s independent transportation engineering body.

A study of the 2013 Yearbook reveals that the transportation situation in Prague did not change much compared to the preceding year of 2012.

A significant effect was achieved by remodelling the intersection of 5. května and Jižní spojka, where the demolition of the old bridge and construction of a new one allowed freight – predominantly lorry – traffic heading from the eastern part of the City Ring Road to the D1 motorway and Prague Outer Ring Road to be eliminated from Spořilovská street. This led to a marked improvement in the environment, which citizens of Spořilov have been fighting for for several years. Other construction, repairs and renovations realised in the past year also brought positive changes for both citizens and traffic in Prague.

The number of persons transported within the city underwent only a slight change in 2013. The growth in public transport of just under 1 % and in individual automobile transport of a mere 0.2 % may have been influenced by floods in June, which hit metro service the hardest. Nevertheless the growth in passenger transport between the city and its surroundings continued to grow, for example in automobile transport by 2.7 %. This would seem to be a result of the reduced number of inhabitants in Prague (-0.3 % in 2013 against 2012) and the increased number in the Central Bohemia Region (+0.8 % in 2013 compared to 2012).

You can find detailed data on individual types of transportation and the technical parameters thereof in the corresponding chapters of the yearbook. I trust it will be useful for your needs. You can also obtain information on the websites of the City of Prague, TSK, the Regional Organiser PID and the Prague Public Transport Company, as well as in the publications issued by these institutions.

Ing. Jiří Nouza
Deputy Mayor of the City of Prague
for Infrastructure and the Environment

In Prague, 22 April 2014

Dear readers,

As with every year, I once again present you with the Transportation Yearbook, compiled by the City of Prague Technical Administration of Roads (TSK), in which you will find information on what was new in Prague transportation in 2013. This comprehensive overview drew on current data and material gathered either through TSK's own activities or from other municipal and state institutions providing transportation within the City of Prague. These organisations are listed at the end of the Yearbook and I would like to thank them all for the data they provided.

The Yearbook contains data for the whole year of 2013 or the status as of 31 December 2013, but the tables and graphs included also make evident the trends of how the monitored parameters have developed, generally since 1990 but in some cases going back as far as 1961. The structure of the 2013 Yearbook is the same as the one for 2012, so it is easy to compare year-on-year changes in the individual types of transportation described.

To provide a quick summary I will state the following. Comparing the volume of traffic, there was an increase in both public transport and personal automobile transport over the preceding year, but not of any significant magnitude (less than 1 %). The overall levels of freight transport – in particular by automobile, which is the dominant form – have been stagnant for the past four years.

Despite the fact that no significant changes took place in the traffic levels on the city's streets as measured by the number of vehicle-kilometres travelled in 2013, it is worth mentioning that the volume of automobile traffic at the road entry points to the city once again rose by nearly 3 %.

Funding earmarked in the City of Prague budget for transportation and transportation infrastructure, which was CZK 0.3 billion higher than in 2012, allowed us to increase the scope of road maintenance and repairs in the city. Along with a contribution from the State Fund for Transportation Infrastructure and municipal districts, TSK was able to devote CZK 1.73 billion to this task, including winter maintenance, CZK 324 million more than in 2012. The most important transportation infrastructure projects could unfortunately not be put into service in 2013, and for this reason the only new construction in 2013 was the road connecting Stodůlky to the Prague Outer Ring Road – Poncarova street. The construction of further sections of the Prague Outer Ring Road was unfortunately temporarily suspended and so the only project where construction was underway using state funds in 2013 was the Bubeneč – Holešovice section of the Kralupy railway line.

As it does every year, in 2013 TSK continued to work on the Operational Programme Transport (OPD) project "Increasing Road Safety in Prague", the main benefit of which was completing installation of traffic information devices. At the end of the year work was launched on a further OPD project – "Comprehensive Telematic Monitoring System", again co-financed from the Cohesion Fund.

You can find more detailed information on transportation in Prague in the individual chapters of the Yearbook. I trust the information will be sufficient for your needs.

Ing. Ladislav Pivec
Authorized Managing Director

In Prague, 22 April 2014

CONTENTS

1 BASIC DATA

1.1 Selected data on the City of Prague as of 31 December 2013

Land area		**496 km²**
Number of inhabitants		**1 243 201**
Total length of road network		**3 972 km**
of which	motorways within the city	10 km
	other motor roads	98 km
Number of bridge structures on the road network*		**599**
of which	bridge structures across the Vltava	27
	grade separated crossings	222
	underpasses	122
Number of road tunnels (total length 8 530 m)		**10**
Number of motor vehicles		**855 057**
of which number of passenger automobiles		665 866
Vehicle ownership		
vehicles per 1 000 inhabitants		688
Automobile ownership		
passenger automobiles per 1 000 inhabitants		536
Length of metro network		**59.1 km**
Length of tram network		**142.4 km**
of which dedicated track bed		52 %
Length of public transport bus network within Prague		**691.9 km**
Number of traffic signals		**626**
of which separate pedestrian crossings		125
Vehicle kilometres travelled (VKT) on the whole road network		
average workday		21.9 m VKT
annually		7.2 bn VKT
Modal split – motor transport (by number of trips on city territory over the workday)		
public transport		57 %
automobile transport		43 %
Modal split – motor and non-motor transport (by number of trips on city territory over the workday)		
public transport		43 %
automobile transport		33 %
cyclists		1 %
pedestrians		23 %
Number of recorded traffic accidents		**18 593**
Number of traffic accident injuries		**2 373**
fatal		29
serious		228
minor		2 116
Relative accident rate (number of accidents per 1 million VKT)		**2.6**

** includes only those managed by the Technical Administration of Roads of the City of Prague*

1.2 Comparison of Prague and the Czech Republic

Comparison by area, population and level of vehicle and car ownership

		Prague	Czech Rep.	Prague/CZ (%)
Land area (km²)		496	78 864	0.6
Population (mil.)		1.243	10.512	11.8
	of which economically active (mil.)	0.648	4.917	13.2
Number of motor vehicles (in thousands)		855	6 550	13.1
	of which passenger cars (thousands)	666	4 802	13.9
Vehicle ownership	motor vehicles per 1 000 persons	688	623	-
	persons per 1 motor vehicle	1.5	1.6	-
Car ownership	passenger cars per 1 000 persons	536	457	-
	persons per 1 passenger car	1.9	2.2	-

Comparison of VKT in the years 1990 – 2013 (millions of VKT/avg. workday, 0:00-24:00)

Year	Prague*	Czech Republic+
1990	7.3	80.9
2000	16.6	131.2
2010	22.2	140.9
2011	21.9	144.5
2012	21.8	142.4
2013	**21.9**	**144.5****
Index 2013/1990 (%)	300.0	178.6**
Index 2013/2012 (%)	100.3	101.5**

** whole road network ** preliminary data + motorways and class 1, 2 and 3 roads, incl. segments within Prague*

Comparison of number of registered vehicles in 1961 – 2013

Year	Prague					Czech Republic (up until 1971 Czechoslovakia)				
	Pop.	Motor vehicles		Passenger cars		Pop.	Motor vehicles		Passenger cars	
	(000s)	total	%	total	%	000s	total	%	total	%
1961	1 007	93 106	22 %	44 891	13 %	13 746	1 326 801	-	291 680	-
1971	1 082	203 519	48 %	133 129	40 %	14 419	2 931 629	-	1 041 137	-
1981	1 183	367 007	86 %	284 756	85 %	10 306	3 449 300	85 %	1 872 694	79 %
1990	1 215	428 769	100 %	336 037	100 %	10 365	4 039 606	100 %	2 411 297	100 %
2000	1 181	746 832	174 %	620 663	185 %	10 267	5 230 846	129 %	3 720 316	154 %
2010	1 257	928 769	217 %	699 630	208 %	10 533	6 036 576	149 %	4 494 425	186 %
2011	1 241	948 872	221 %	722 343	215 %	10 504	6 138 551	152 %	4 576 574	190 %
2012	1 247	835 427	195 %	647 839	193 %	10 516	6 446 857	160 %	4 723 150	196 %
2013	**1 243**	**855 057**	**199 %**	**665 866**	**198 %**	**10 512**	**6 550 621**	**162 %**	**4 802 135**	**199 %**

Up until 2001, data on the number of registered motor vehicles in Prague and the Czech Republic were taken from the Police of the Czech Republic. Starting in 2002 they were taken from the new keepers of this data – for Prague this was the Prague City Hall Department of Transport Administration and for the Czech Republic the Ministry of Transport's Department for Road Vehicles.

During the period from October 2003 until March 2008, the Prague administrator used a different algorithm to calculate the number of vehicles in operation, producing a result of approximately 130 000 vehicles less than in the preceding period. Starting in 2008 the method of calculation reverted to that used prior to 2003.

The data for 2012 and 2013 have been taken from the new central vehicle registry (data is administered by the Ministry of Transport's Department of Road Vehicles).

2 AUTOMOBILE TRANSPORT

2.1 Development of vehicle and car ownership

The total number of motor vehicles registered within Prague increased dramatically up until 1999, after which the growth slowed. As of the end of 2013 there was one registered passenger automobile per 1.9 inhabitants.

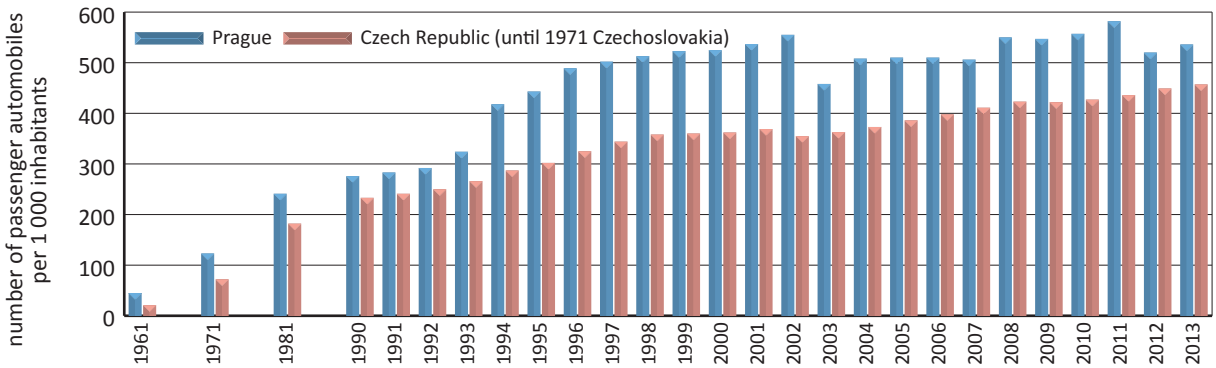
Degree of vehicle and car ownership

Year	Prague				Czech Republic (until 1971 Czechoslovakia)			
	Motor vehicles		Passenger cars		Motor vehicles		Passenger cars	
	vehicles per 1 000 ppl	persons per 1 vehicle	cars per 1 000 ppl	ppl per 1 car	vehicles per 1 000 ppl	persons per 1 vehicle	cars per 1 000 ppl	ppl per 1 car
1961	92	10.8	45	22.4	97	10.4	21	47.1
1971	188	5.3	123	8.1	203	4.9	72	13.8
1981	310	3.2	241	4.2	335	3.0	182	5.5
1990	353	2.8	276	3.6	390	2.6	233	4.3
2000	632	1.6	525	1.9	510	2.0	362	2.8
2010	739	1.4	557	1.8	573	1.7	427	2.3
2011	765	1.3	582	1.7	584	1.7	436	2.3
2012	670	1.5	520	1.9	613	1.6	449	2.2
2013	**688**	**1.5**	**536**	**1.9**	**623**	**1.6**	**457**	**2.2**

Prašný most intersection

Poděbradská – Kbelská intersection

Development of car ownership



Note: The note from the preceding page (Chapter 1.2) also applies to the data for Prague here.

2.2 Volume of automobile traffic on workdays

The City of Prague occupies a unique position in automobile transportation in the Czech Republic, which manifests in the exceptionally high traffic intensity and volume in comparison with other Czech cities or with motorways and roads in rural areas.

The base aggregated indicator for the development of automobile traffic in Prague is traffic volume (vehicle kilometres travelled – VKT) on the whole road network, which has been monitored since 1978. All data on traffic volume apply to the period from 0:00-24:00 of an average workday. All data on automobile traffic exclude municipal public transport buses. The development of inner-city traffic is monitored at the "central cordon", while peripheral traffic is monitored at the "outer cordon". Time data for both cordons are available back to 1961.

The annual growth of automobile traffic recorded within the city in the period following 1990 practically ceased in 2008 and 2009 and, following significant growth once again in 2010, dropped off slightly in 2011 and 2012. In 2013 the volume of automobile traffic essentially stagnated, rising only slightly.

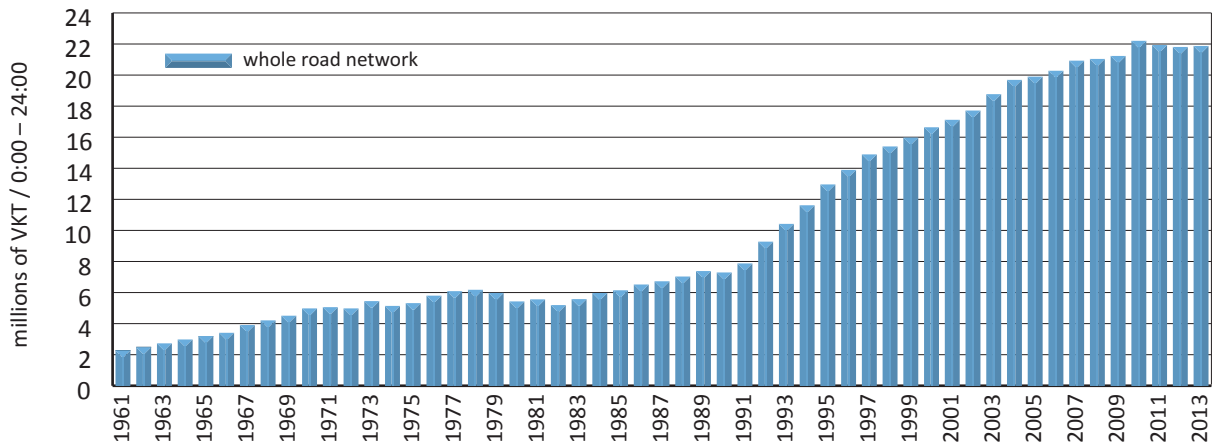
Overall the automobile traffic within the City of Prague as measured by vehicle kilometres travelled on the whole road network grew on average by 0.3 % in 2013 compared to the previous year. Broken down by vehicle type, passenger car traffic rose 0.2 % and bus and freight traffic by 1.6 %.

Automobile traffic volume in Prague (whole road network, avg. workday, 0:00-24:00)

Year	Motor vehicles total		Passenger automobiles		Passenger automobiles as percentage of total traffic volume
	millions of VKT	%	millions of VKT	%	
1961	2.273*	31 %	1.273*	23 %	56 %
1971	5.061*	69 %	3.543*	65 %	70 %
1981	5.562	76 %	4.338	79 %	78 %
1990	7.293	100 %	5.848	100 %	80 %
2000	16.641	228 %	15.131	259 %	91 %
2010	22.205	304 %	20.435	349 %	92 %
2011	21.936	301 %	20.221	346 %	92 %
2012	21.812	299 %	20.131	344 %	92 %
2013	**21.875**	**300 %**	**20.167**	**345 %**	**92 %**

*100 % = year 1990 * Estimate based on traffic volume trends at cordons (traffic volume in Prague only monitored since 1978).*

Development of automobile traffic volume in Prague (whole road network, avg. workday, 0:00-24:00)



In the period from 0:00-24:00 of an average workday in 2013, motor vehicles travelled a total of 21.875 million vehicle kilometres in the territory of Prague. Of this amount, passenger automobiles made up 20.167 million vehicle kilometres, that is 92 %. Compared with the preceding year, this means that motor vehicles in Prague travelled 63 000 vehicle kilometres a day more in 2013.

Compared to 1990, the operation of motor vehicles in the city had increased by 200 % in 2013, meaning it had tripled. Compared to the growth in automobile traffic on the motorways and roads of the whole Czech Republic, the growth in Prague was approximately 1.7 times higher over this period.

Tempo of growth in automobile traffic volume in Prague after 1981

Years	Average annual increase/decrease	Years	Average annual increase/decrease
1981 – 1990	year-on-year +192 000 VKT/day	**2006 – 2010**	year-on-year +461 000 VKT/day
1991 – 1995	year-on-year +1 134 000 VKT/day	**2011**	year-on-year -269 000 VKT/day
1996 – 2000	year-on-year +736 000 VKT/day	**2012**	year-on-year -124 000 VKT/day
2001 – 2005	year-on-year +652 000 VKT/day	**2013**	year-on-year + 63 000 VKT/day

In the greater city centre, based on the counts made at the central cordon, which measures two-way traffic volume at the entry points to the greater city centre, delineated roughly at Petřín in the west, Letná in the north, Riegrovy sady in the east and Vyšehrad in the south (the Strahov and Mrázovka tunnels lie outside the central cordon), automobile traffic dropped by 2.9 % compared to the previous year.

Over the 24 hours of an average workday, 285 000 vehicles drove into the greater city centre, of which 273 000 were passenger automobiles. In comparison with 1990 this was roughly 19 % more vehicles. All growth can be attributed to passenger automobiles, as the number of freight vehicles and buses entering the central area has fallen by nearly two thirds since 1990.

The volume of automobile traffic in the greater city centre increased every year up until 1998, when it reached its historic peak. Since then it has fallen, with slight fluctuations. Since the year 2000 automobile traffic in the greater city centre has dropped by 18 %, roughly to the level of 1994.

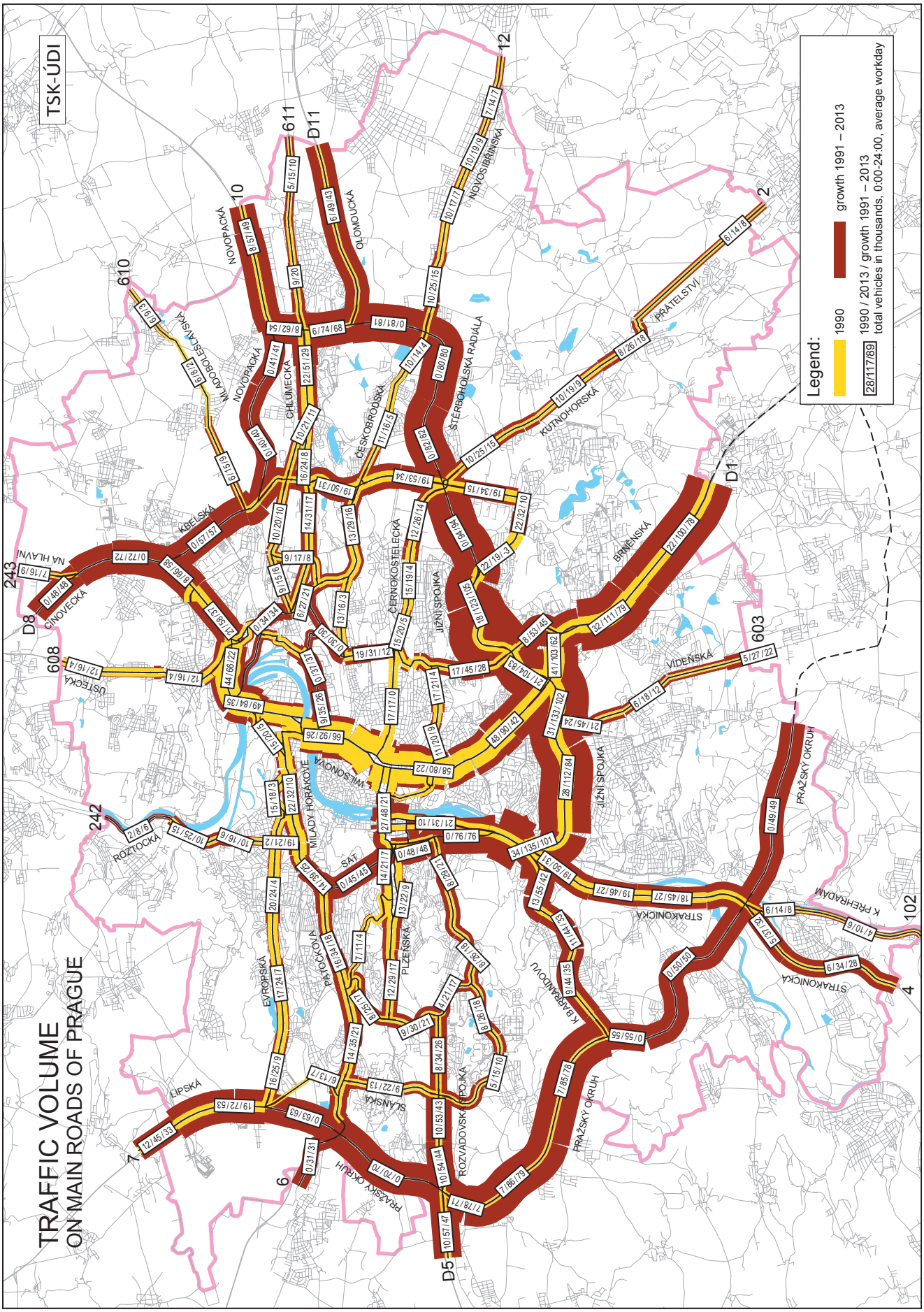
Jižní spojka (cable bridge)

Kbelská – Novopacká interchange

In the middle zone of the city, traffic increased constantly and markedly in the years 1990 – 2007, increasing as much as three to fourfold over 1990 levels on some roads. In 2013 levels fluctuated in the range of ±1 % compared to the previous year.

In the outer zone of the city (based on counts done at the outer cordon, which expresses the two-way volume of traffic at the entrances from the main arterial roads and motorways into the continually settled area of the city), the volume of automobile traffic increased by 2.8 % in 2013 compared to 2012. Over the 24 hours of an average workday, 299 000 vehicles entered Prague across the boundary of the outer cordon, of which 266 000 were passenger cars.

Automobile traffic in the outer zone of the city rose steadily from 1990 until 2008. The year 2009 saw the first slight drop since 1991 (presumably under the influence of the economic crisis), of 1.2 %, with a return to slight growth in 2010. In comparison with the base year of 1990, 3.9 times more vehicles (+288 %) entered Prague daily from its surroundings (from the suburban zone, from other parts of the country and from abroad) in 2013. Passenger automobiles played the key role in this growth, their numbers having increased 4.8 times (+379 %).


TSK-ÚDI
TRAFFIC VOLUME
ON MAIN ROADS OF PRAGUE
Legend:
1990
growth 1991 – 2013
28/117/89
1990 / 2013 / growth 1991 – 2013
total vehicles in thousands, 0:00-24:00, average workday
D1
D5
D8
D11
NOVOPACKÁ
OHLUMECKÁ
ČESKOBRODSKÁ
ŠTĚRBOHOLSKÁ RADIÁLA
KUTNOHORSKÁ
PŘÁTELSTVÍ
NOVOSTAVBA
OLOMOUCKÁ
MLADOBOLESLAVSKÁ
KBELSKÁ
NA HLÁVNÍ
ČÍNOVECKÁ
ÚSTECKÁ
JIŽNÍ SPOJKA
ČERNOKOSTELECKÁ
BRNĚNSKÁ
VÍDEŇSKÁ
PRAŽSKÝ OKRUH
STRAKONICKÁ
K PŘEHRADĚ
K BARRANDOVU
WILSONOVA
MILADY HORÁKOVÉ
ROZTOCKÁ
SAT
PLZEŇSKÁ
PAŤOCKOVA
EVROPSKÁ
LIPSKÁ
SLANSKÁ
ROZVADOVSKÁ SPOJKA
610
611
608
603
242
243
102
2
4
6
7
10
12

Traffic volume at central and outer cordons in Prague (workday, both directions total, 0:00-24:00)

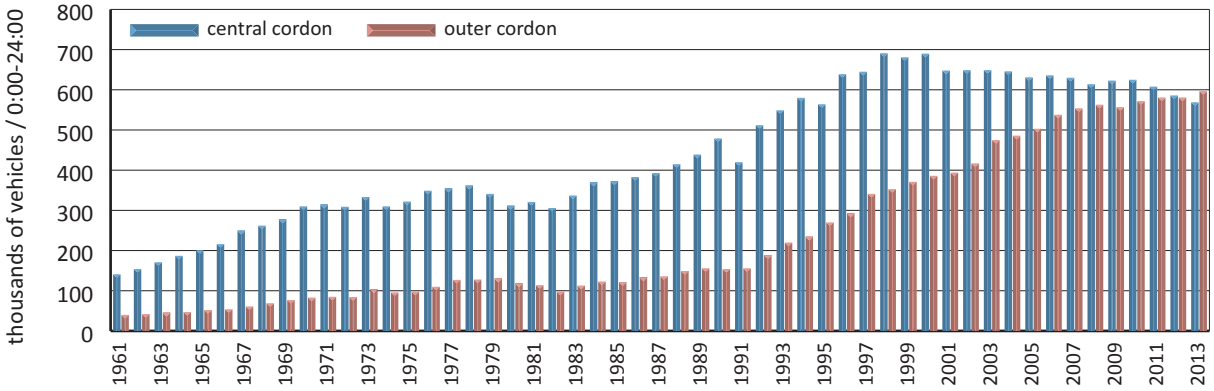
Year	Central cordon						Outer cordon					
	Passenger		Freight		Vehicles total		Passenger		Freight		Vehicles total	
	number	%	number	%	number	%	number	%	number	%	number	%
1961	76 000	18 %	35 000	81 %	141 000	29 %	15 000	14 %	15 000	41 %	40 000	26 %
1971	265 000	62 %	42 000	98 %	314 000	66 %	56 000	50 %	25 000	68 %	85 000	55 %
1981	272 000	64 %	43 000	100 %	321 000	67 %	74 000	67 %	34 000	92 %	114 000	74 %
1990	424 000	100 %	43 000	100 %	479 000	100 %	111 000	100 %	37 000	100 %	154 000	100 %
2000	653 000	154 %	25 000	58 %	690 000	144 %	334 000	301 %	47 000	127 %	386 000	251 %
2010	598 000	141 %	14 000	33 %	625 000	130 %	505 000	455 %	58 000	157 %	572 000	371 %
2011	582 000	137 %	13 000	30 %	608 000	127 %	517 000	466 %	54 000	146 %	581 000	377 %
2012	562 000	133 %	17 000	40 %	586 000	122 %	518 000	467 %	54 000	146 %	581 000	377 %
2013	**546 000**	**129 %**	**11 000**	**26 %**	**569 000**	**119 %**	**532 000**	**479 %**	**52 000**	**141 %**	**597 000**	**388 %**

100 % = year 1990

Nuselský bridge after renovation of the median

Trailers driving onto the new Ke garážím bridge

Development of traffic volume at cordons in Prague (workday, both directions total, 0:00-24:00)



Average occupancy of passenger automobiles (persons per vehicle)

Year	Centre (central cordon)	Outer zone (outer cordon)	Prague total
1990	1.57	1.90	1.71
2000	1.37	1.49	1.44
2010	1.30	1.30	1.30
2011	1.30	1.30	1.30
2012	1.30	1.30	1.30
2013	**1.30**	**1.30**	**1.30**

2.3 Vehicle mode share and temporal traffic patterns

The mode share of traffic is dominated by passenger automobiles. In terms of territorial breakdown, the proportion of passenger vehicles increases toward the centre of the city. In 2013, this rate was 96 % at the central cordon, 89 % at the outer cordon and 92 % on average for the whole network.

Mode share 1961 – 2013 (workday, both directions, 0:00-24:00)

Year	Central cordon				Outer cordon			
	Passenger vehicles	Motorcycles	Freight vehicles	Buses (excl. pub. trans.)	Passenger vehicles	Motorcycles	Freight vehicles	Buses (excl. pub. trans.)
1961	53.7 %	19.4 %	29.4 %	2.0 %	38.6 %	22.1 %	34.4 %	4.9 %
1971	79.3 %	5.6 %	13.3 %	1.8 %	63.2 %	8.6 %	25.1 %	3.1 %
1981	84.3 %	0.4 %	13.2 %	2.0 %	65.1 %	0.6 %	30.3 %	4.0 %
1990	88.6 %	0.7 %	9.1 %	1.6 %	72.1 %	0.5 %	24.0 %	3.4 %
2000	94.7 %	0.6 %	3.7 %	1.0 %	86.5 %	0.2 %	12.1 %	1.2 %
2010	95.7 %	1.0 %	2.4 %	0.9 %	88.4 %	0.3 %	10.2 %	1.1 %
2011	95.7 %	1.1 %	2.2 %	1.0 %	89.1 %	0.6 %	9.2 %	1.1 %
2012	95.8 %	1.1 %	2.1 %	1.0 %	89.1 %	0.5 %	9.3 %	1.1 %
2013	**96.0 %**	**1.3 %**	**1.8 %**	**0.9 %**	**89.1 %**	**0.7 %**	**8.9 %**	**1.3 %**

Note: The mode share of cyclists in the overall number of vehicles in traffic ranges from 0.1 – 1.0 %.

Svatovítská street during refurbishment

Street 5. května

Basic characteristics of daily variation of workday traffic volume in Prague

- The majority of traffic volume for the whole day takes place during the daytime period (74 % for 6:00-18:00), with the period 6:00-22:00 accounting for approx. 92 %.
- After 18:00, traffic volume begins to drop off steeply and more or less uniformly until midnight.
- The morning peak is at 8:00-9:00; the afternoon peak is 16:00-17:00 and 17:00-18:00.
- The volume of the morning peak hour makes up 6.6 % of the total; the afternoon peak hour accounts for 6.9 % (100 % = 0:00-24:00).
- The difference between the peak hours and the noon sag is not very pronounced. The noon hour (12:00-13:00) represents 5.9 % of the whole day.

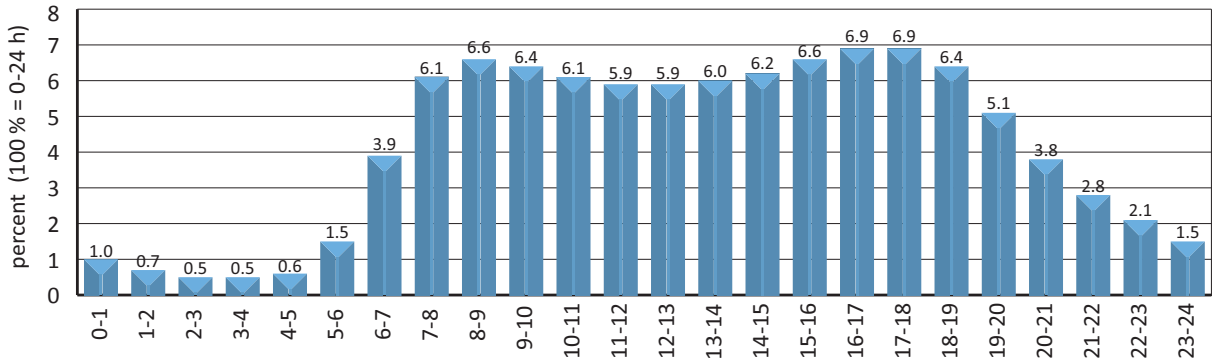
Significant changes to temporal traffic patterns in Prague 1990 – 2013

- Daily variation – the volume of the morning peak hour has fallen from its original 8 – 9 % to 6.6 % and has shifted from 6:00-7:00 to 8:00-9:00. The difference between the peak hours and the morning lull period has been reduced. The afternoon peak hours are now 16:00-17:00 and 17:00-18:00 and are higher (6.9 %) than the morning peak (6.6 %).
- Weekly variation – The volume for Friday, which used to be higher than other workdays, has fallen to the level of Monday through Thursday.
- Yearly variation – The share of January and February has increased in relation to the average for the year.

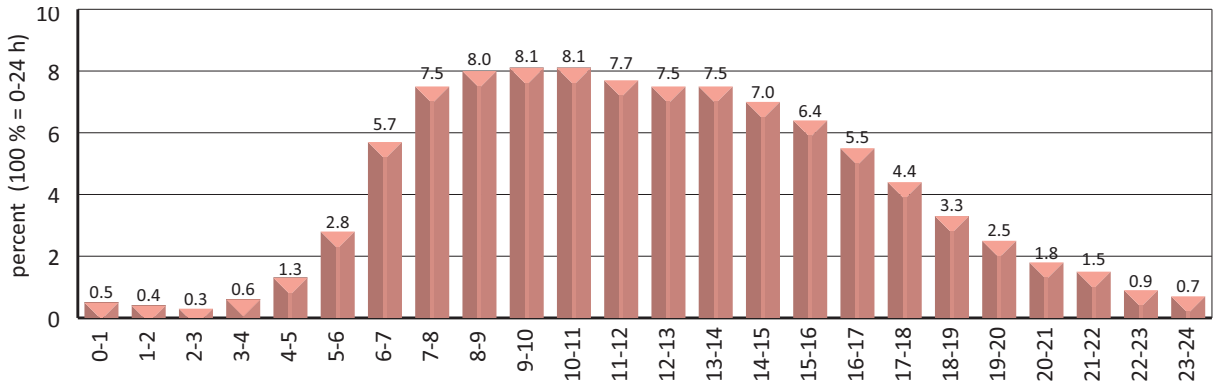
Nábřeží Kapitána Jaroše

Nábřeží Ludvíka Svobody

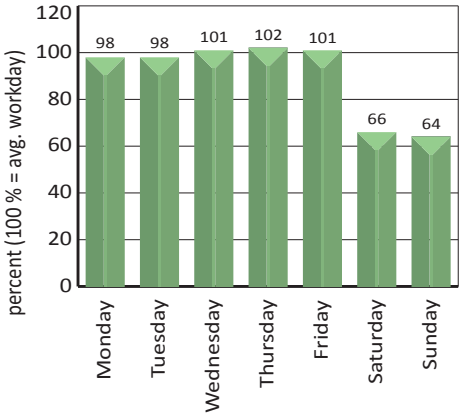
Daily variation of total automobile traffic (2013, Prague, whole network, workday)



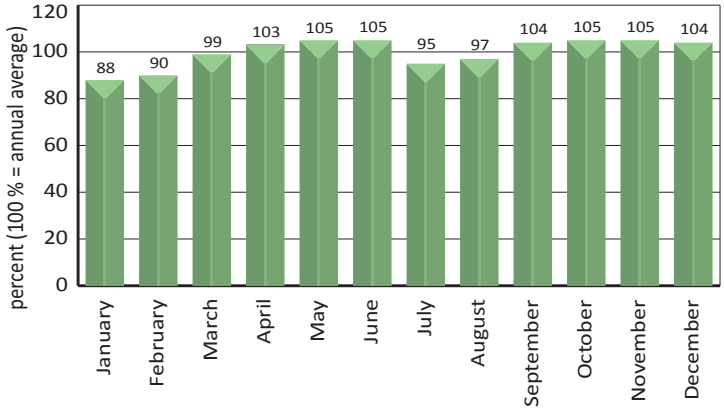
Daily variation of freight vehicles and buses, not including public transport (2013, Prague, whole network, workday)



Weekly variation (Prague, whole network, total vehicles)



Yearly variation (Prague, whole network, total vehicles)



3 PUBLIC TRANSPORT

3.1 Basic information on Prague Integrated Public Transport (PID)

Prague Integrated Public Transport (PID) serves the whole City of Prague and part of the adjacent territory of the Central Bohemian Region (approx. one third of the territory and half the population). PID includes the metro, trams, urban and suburban bus lines, railways, ferries and the Petřín funicular. PID is coordinated by the publicly subsidised Regional Organiser of Prague Integrated Transport (ROPID), which was founded by the City of Prague in 1993.

The integrated system allows passengers to use a single ticket regardless of the mode of transport, thereby giving public transport a competitive edge over individual transport. On 1 June 1996 a zone-based fare system was introduced, and since then there has been steady growth in the scope of suburban bus routes, the territorial reach of the service, the number of municipalities included, and the number of tariff zones.

Development of PID system (suburban bus lines, municipalities served and railway stations)

Year	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2013
Number of PID suburban bus lines	2	6	31	48	89	130	147	158	152	150	155	**156**
Number of PID buses serving municipalities	2	7	55	83	159	251	299	299	299	299	308	**308**
Number of PID railway stations and stops	23	43	181	181	190	219	211	207	220	222	222	**222***

** Of these, 50 % – 111 stations and stops – are fully integrated into PID (equipped with ticket-stamping machines).*

The City of Prague and an array of other municipalities contribute to the operating costs for PID lines, as does the Central Bohemian Region. Some funding is also provided by other entities (municipal districts, shopping centres and large businesses.

Temporary final stop at Bořislavka

Háje bus terminal

Basic data on volume of Prague Integrated Public Transport

Year	2006	2007	2008	2009	2010	2011	2012	2013
Traffic volume of metro, trams and PID urban bus lines (mil. of VKT/year)	164.7	165.0	170.0	168.5	171.8	168.8	165.4	**161.8***
Traffic volume of PID suburban bus lines (mil. of VKT/year)	22.4	23.6	24.3	24.6	25.1	25.9	26.9	**26.8**
Traffic volume of PID railway lines ** (mil. of VKT/year)	–	–	–	–	13.2	13.9	14.3	**14.3**

** Including substitute bus transport. ** No data available before 2010.*

Number of lines operated under PID

Mode of transport	Lines	Nature and numbering of lines
Metro	**3**	A, B and C
Trams	**32**	22 day lines (numbered 1-26), 9 night lines (numbered 51-59), 1 historical line
Urban buses with route only within City of Prague boundaries	**157**	118 day lines (numbered 100-297), 15 night lines (numbered 501-515), 21 school lines (numbered 551-576), 2 lines for persons with reduced mobility (H1 and H2) and the AE line
Suburban buses with route between city and region	**91**	81 day lines (numbered 301-398), 10 night lines (numbered 601-610)
Regional buses with route only in region	**65**	64 day lines (numbered 401-495), 1 seasonal cyclobus
Railway 26 routes under PID, of which 11 enter the territory of Prague (incl. ML)	**34**	13 S lines btw. Prague and the region (S1-S9, S20, S41, S65, S80) 3 R lines btw. Prague and the region (R3, R4, R5) 14 S lines in the region only (S11-S88) 3 seasonal lines (Prague and Podlipansko Motor Trains and a cyclotrain)
Ferries	**5**	Lines P1, P2, P3 (seasonal starting Oct 13), P5 (seasonal), P6 (seasonal starting Dec 13)
Funicular	**1**	Újezd – Petřín

The total number of carriers operating PID lines is 17. The primary carriers are the Prague Public Transport Company (Dopravní podnik hlavního města Prahy, a. s. – DPP), which operates the metro, trams, funicular and most of the bus lines within the city, and Czech Railways (České dráhy, a. s. – ČD), which provides rail transport.

A further 12 private carriers operate urban, suburban and regional bus lines under PID. Two companies operated ferries in 2013 and one the Prague and Podlipansko Motor Trains as well as the urban rail line S34 starting in 2013.

The most bus lines within the city (133) were operated by the Prague Public Transport Company. Within the Central Bohemian Region the most lines were operated by Arriva Praha s. r. o. (51 lines) and ČSAD Střední Čechy, a. s. (31 lines).

Operators of PID bus lines within the city and region*

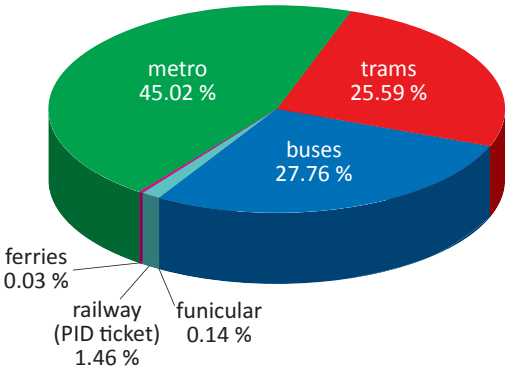
Operator	Urban lines	Suburban and regional lines
Prague Public Transport Company	133 (85 %)	16 (10 %)
Other operators	24 (15 %)	140 (90 %)
TOTAL	**157 (100 %)**	**156 (100 %)**

** Numbers include school lines, the AE line and lines for persons with reduced mobility.*

PID ridership and share of total passengers within the City of Prague for 2013

Mode of transport (operator)	Persons/year
Metro (DPP)	583 867 000
Tram (DPP)	331 960 770
Bus (DPP)	302 303 000
Bus (private carriers)*	57 765 610
Railway (ČD with PID ticket)*	18 967 000
Funicular (DPP)*	1 817 230
Ferry (private carriers)*	330 900
TOTAL	**1 297 011 510**

** Data from ridership survey, other data are estimates.*



Composite data on PID operated by Prague Public Transport Company (DPP) in 2013

	Metro	Trams	Buses	TOTAL
Operating length of network within Prague (km)	59.1	142.4	691.9	**893.4**
Percentage of network on dedicated track bed (%)	100 %	52 %	–	–
Operating length outside Prague (km)	–	–	142.3	**142.3**
Average distance between stations and stops (m)	1 094	534	702	–
Average travelling speed (km/h)	35.6	18.7	25.8	–
Annual VKT in Prague (in thousands)	53 532	43 879	64 888	**162 299**
Annual VKT outside Prague (in thousands)	–	–	1 719	**1 719**
Expenses per operational vehicle-km* (CZK)	108.04	64.39	52.74	–
Passengers transported annually in Prague (000s)	583 867	333 778**	302 303	**1 219 948**
Passengers transported annually outside Prague (000s)	–	–	12 736	**12 736**
Number of DPP employees	**10 514**			
Fare revenues (CZK millions)	**4 447**			
Total operating costs of DPP (CZK millions)	**17 732**			
Revenue to cost ratio for DPP (%)	**25.1**			

* *The calculation of the cost of 1 operational vehicle-km is derived from the costs directly associated with the service. It does not include the costs for building and maintaining infrastructure.*

** *includes the funicular to Petřín*

Malostranská stop

15T trams at the Kubánské square balloon loop

Development of basic characteristics of PID operated by DPP

Year	Operating length of network (km)+			Average travelling speed (km/h)			Number of vehicles deployed (workday morning peak/lull)		
	metro	tram	bus	metro	tram	bus	metro	tram	bus
1981	20.0	122.9	545.0	33.3	15.7	23.8	150/85	750/459	871/317
1990	38.5	130.5	607.3	34.6	18.7	23.7	322/158	699/423	918/317
1995	43.6	136.2	695.3	34.9	19.0	23.3	395/190	647/476	957/381
2000	49.8	136.4	812.4*	35.7	18.9	25.2*	345/180	676/530	968/418
2005	53.7	140.9	810.6*	34.6	18.7	25.9*	405/205	702/557	946/442
2010	59.1	141.6	823.0*	35.5	19.0	26.0*	448/245	665/513	904/505
2011	59.1	142.4	840.0*	35.6	18.6	25.8*	457/244	663/514	923/510
2012	59.1	142.4	829.0*	35.6	18.6	26.0*	456/244	656/512	921/513
2013	**59.1**	**142.4**	**834.2***	**35.6**	**18.7**	**25.8***	**457/245**	**618/466**	**892/499**

\+ *The operating length is the total length of regularly operated passenger routes. For the metro it is the sum of the track lengths between the centres of the end station waiting platforms, for trams it is measured along the track axis, for buses the street axis.*

* *Including PID suburban lines operated by DPP (with sections also beyond the boundaries of Prague).*

3.2 Metro

The metro forms the backbone of the MHD transportation network. During one workday an average of 1 778 train connections are dispatched in the Prague metro, carrying approximately 1 500 000 passengers (if a passenger transfers, each ride is counted separately). If a transfer is included as a single ride, passengers make 1 210 000 rides by Prague metro each day.

Basic data on the metro network in Prague

Operator	Number of lines	Operating length
Prague Public Transport Company	3 (A, B, C)	59.1 km
Number of stations	**Average distance btw. stations**	**Average travelling speed**
57 (transfer stations counted twice)	1 094 m	35.6 km/h
Ridership and share of persons transported in 2013		**Operating time**
583 867 000	45.02 %	daily approx. 4:45 – 0:15

Completing work on replacing a switch at Háje station

A historical 81-71 train at Radlická station on PID Day

Barrier-free access via passenger elevator, stair lift platform or direct barrier-free entrance from pedestrian pathways (Vyšehrad station) is possible at 34 of the 57 stations on the Prague metro network (60 %). Barrier-free transfer between lines is possible at the stations Muzeum and Florenc.

Metro stations with barrier-free access in Prague

A line (5 stations of 13)	B line (14 stations of 24)	C line (15 stations of 20)
Dejvická, Muzeum, Strašnická, Skalka, Depo Hostivař	Zličín, Stodůlky, Luka, Lužiny, Hůrka, Nové Butovice, Smíchovské nádraží, Národní třída*, Florenc, Vysočanská, Kolbenova, Hloubětín, Rajská zahrada, Černý Most	Letňany, Prosek, Střížkov, Ládví, Kobylisy, Nádraží Holešovice, Vltavská, Florenc, Hlavní nádraží, Muzeum, Vyšehrad, Budějovická, Pankrác, Chodov, Háje

* *Národní třída was closed along with its elevator 10 July 2012 for roughly two years (while a multifunctional building is being built above the metro station). Trains continued to pass through without stopping in 2013.*

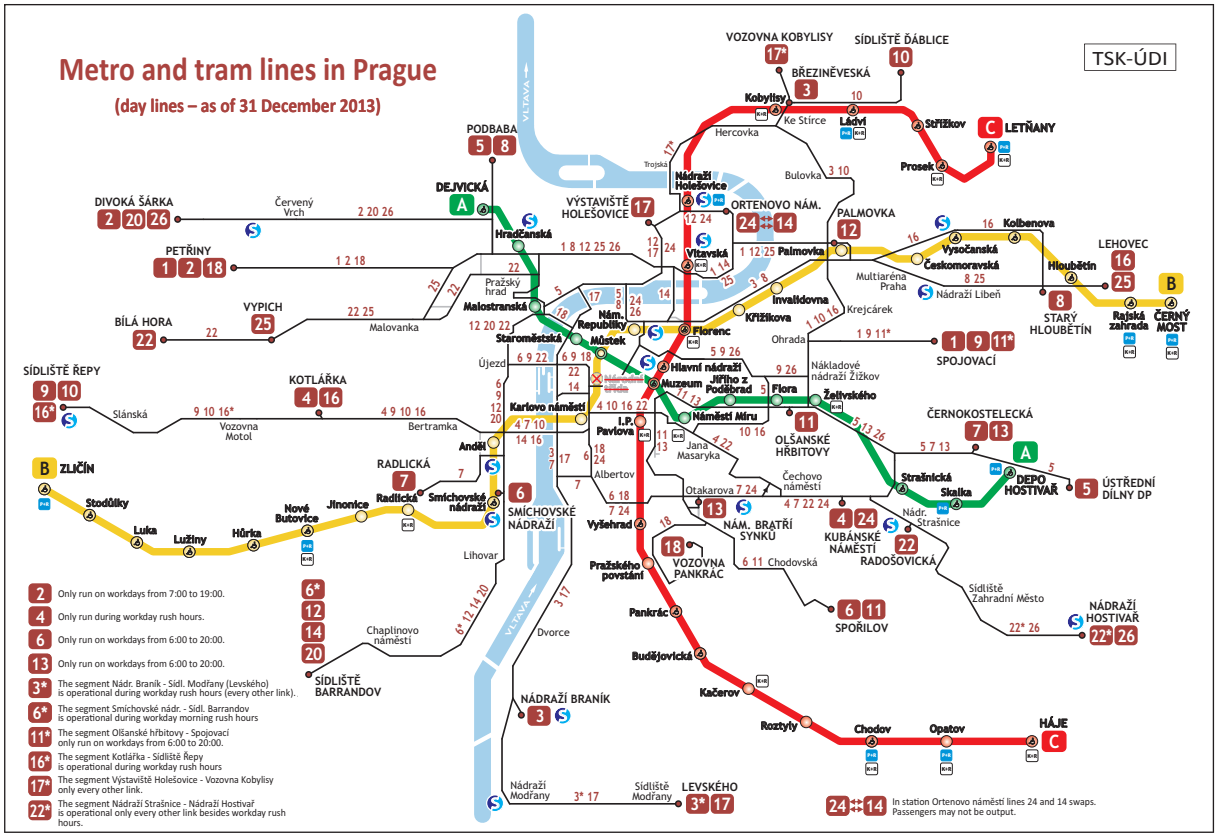
During 2013, artificial guidance lines were added to the floors of the last eight metro stations so as to meet the requirements of visually impaired riders. These stations were Budějovická, Kačerov, Pankrác, Pražského povstání, Skalka, Smíchovské nádraží, Strašnická and Vltavská.

Number of trains designated for individual lines of the Prague metro

A line (type 81 – 71M)	B line (type 81 – 71M)	C line (type M1)
17 trains running at morning peak	38 trains running at morning peak	37 trains running at morning peak
41 trains designated for the line	52 trains designated for the line	53 trains designated for the line

At the beginning of June 2013 (2 – 9 June) the increased water level of the Vltava required gradual closure of several metro stations and segments for safety reasons. At first trains passed through the stations, then whole segments and stations were closed. Substitute bus transport was put in place and several tram and bus lines were suspended or rerouted. Of the total of 57 metro stations, the number closed reached 24 on 3 June. In contrast to the floods in 2002, no station or track segment was flooded, only Nádraží Holešovice recorded increased water seepage.

Metro and tram lines in Prague (day lines – permanent state as of 31 December 2013)



3.3 Trams

Trams form a complementary network to the metro. Tram lines have both a radial and a tangential function, also serving as feeders for metro stations. Over the course of one workday an average of 6 360 connections are dispatched on the Prague tram network (including night trams), transporting approximately 1 132 000 passengers.

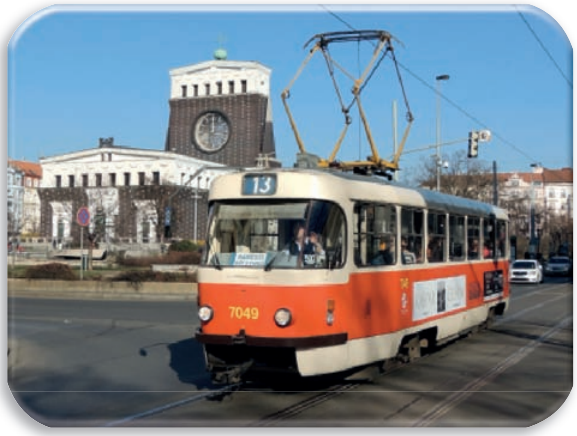
Basic data on the tram network in Prague

Operator	Number of lines	Operating length
Prague Public Transport Company	32 (22 day, 9 night, 1 historical)	142.4 km (52 % dedicated track bed)
Total length of tram lines	**Average distance between stops**	**Average travelling speed**
519 km	534 m	18.7 km/h
Ridership and share of persons transported in 2013		**Operating time**
331 960 770	25.59 %	day 4:45 – 0:15, night 0:00 – 5:00

The “metropolitan” network of public transport lines launched in September 2012 underwent several alterations in 2013. Minor changes took place as early as 7 January, with more extensive modifications added 29 June 2013. The route of five lines was changed, while the intervals, zoning and number of cars were adjusted for others. A new 13 line was introduced, forming a new arterial tandem with the 11 line in the stretch Náměstí Bratří Synků – Želivského.

Changes to tram line routes as of 29 June 2013			
Description	**Lines**	**Type of line**	**Lines**
Cancelled	none	**Arterial line**	3, 9, 17, 22
Route change	2, 3, 4, 5, 7, 8, 11, 17, 22	**Arterial line tandem**	1+25, 10+16, 11+13, 12+20
New line	13	**Other**	2, 4, 5, 6, 7, 8, 14, 18, 24, 26

At the end of 2013 two new tram stops were established, Kabešova and Krymská in the direction toward the centre (the stop is currently in a provisional state and in the near future will be modified to its final form). A further three stops were changed to request stops – Vozovna Hloubětín (starting 13 November 2013), Nový Hloubětín and Starý Hloubětín (starting 23 December 2013). Along with the stop ČSAD Smíchov, which has been a request stop since the end of 2012, these are for the time being the only four request stops of the total number of 268 stops (calculated by stop name).



The new 13 line at Jiřího z Poděbrad

The new Kabešova stop on Poděbradská street

3.4 PID buses

Urban and suburban bus transport is operated within the city as part of PID. Urban bus transport forms a supplementary network to the metro and trams, also providing blanket service in some areas and many important tangential connections, particularly in the outlying areas of the city. Suburban bus transport connects the city with the surrounding region.

During a single workday an average of 23 000 PID bus connections are dispatched within the city, transporting approx. 1.18 million passengers. Of this number, 19 200 are urban connections (the 100, 200 and 500 series) and approx. 3 800 are suburban connections (the 300 and 600 series). Nine carriers operated urban bus lines in 2013, with DPP accounting for 133 of those (85 %) and eight private carriers the remaining 24 (15 %).

Basic data on the PID bus network in Prague		
Operators of urban lines*	**Number of urban lines**	**Operating length in Prague**
9 (85 % DPP and 15 % private)	133 (118 day* and 15 night)	691.9 km**
Length of urban bus lines	**Avg. distance btw. urban bus stops**	**Avg. travelling speed of urban buses**
1 664 km	595 m	24.6 km/h
Ridership and share of persons transported in Prague in 2012		**Operating time**
360 068 610 (urban + suburban lines)	27.76 % (urban + suburban lines)	day approx. 4:30 – 0:30 night 0:00 – 5:00

** only lines 100 through 297 ** only including the bus network operated by DPP*

In 2013, urban and suburban bus lines had a total of 1 122 stops available to them within Prague (number calculated from stop names). The most lines (22) and connections (around 2 600) of urban and suburban buses left from the stop Nemocnice Krč on workdays. PID suburban bus transport used a total of 23 locations in Prague as terminal stops for serving the outlying areas.

On an average workday, 81 day and 10 night suburban bus lines (the 300 and 600 series) crossed the boundaries of Prague in both directions with around 3 800 connections, carrying approximately 88 000 passengers across the city limits. These lines were operated by a total of 10 carriers, with private carriers operating 75 lines (82 %) and DPP the remaining 16 (18 %).

V olšinách – Průběžná intersection

Metodějova bus stop

The network of PID bus lines is also supplemented by regional lines that do not enter the territory of Prague (the 400 series). At the end of 2013 there were 64 of these in operation and they carried approximately 22 630 passengers out of the city limits on 1 440 connections per workday. These were all operated by private carriers (a total of 8).

The most significant changes in the organisation of bus lines in 2013 took place in order to optimise the metropolitan network of public transport lines from September 2012. Eleven lines were permanently rerouted while a further nine changed their zoning or intervals, three were cancelled and one was re-introduced (the H2 line for the physically disabled).

Changes in the routing of PID urban bus lines as of 29 June 2013

Description of change	Number of lines	Type of urban bus line	Number of lines
Eliminated	3	**Metrobus**	40
Rerouted	20	**Standard**	56
New line	1 (H2)	**Midibus**	22
No change	100	**TOTAL**	118

3.5 PID railway transport

Railway transport has been under development under PID since 1992. In 2007 the process of labelling suburban lines with the letters “S” or “R” was begun, with emphasis on regular intervals and easy-to-remember times. Recent efforts have focused on offering public transport connections that pass quickly through Prague in some directions (some of the S7 line connections from Beroun continue to Úvaly and some of the S9 line connections from Benešov pass through the metropolis to Praha-Horní Počernice).

Within Prague a total of 859 train connections were dispatched under PID on workdays in 2013, carrying approximately 113 500 passengers a day.

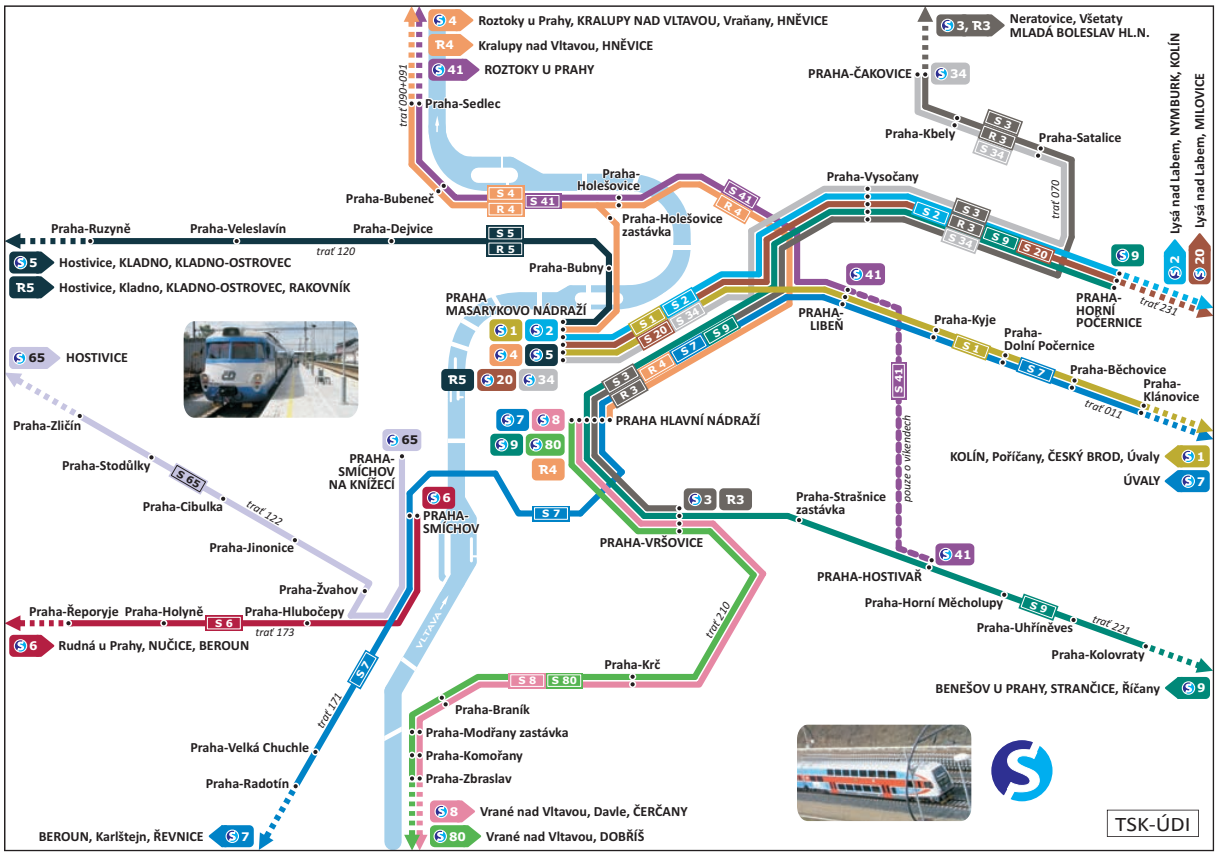
Basic data on the PID rail network within Prague

Operators	Number of lines and tracks	Operating length
České dráhy, a. s., KŽC Doprava, s. r. o	17 S and R lines, 11 tracks (incl. ML)	160.0 km
Number of stations and stops	**Average distance btw. stops**	**Avg. speed of PID local trains**
44	3 800 m	45.2 km/h
Ridership and share of persons transported in 2013		**Operating time**
18 967 000	1.46 %	daily from approx. 4:00–1:00

A train on the S41 line before Praha-Holešovice station

List of stops on a car of the new S34 line

S and R railway lines within the City of Prague



Since 2010 all 11 railway tracks within Prague have been fully integrated into PID, meaning that in addition to time-based passes it is also possible to use individual PID tickets (all stations and stops in Prague are equipped with yellow ticket-stamping machines). Following integration of the Senohraby

– Čerčany segment (track 221, line S9) in 2013, the number of fully integrated stations reached 111 (50 %).

On 1 October 2013 a new line S34 rolled out on a trial basis, following the route Praha Masarykovo nádraží – Praha-Vysočany – Praha-Satalice – Praha-Kbely – Praha-Čakovice. The line only runs on workdays and the carrier is KŽC Doprava s. r. o. (the first private rail carrier under PID within the city), which uses motor railcars from the 810 series.

With the introduction of regular intervals on S lines and the offer of new connections (for example passing through the territory of Prague), railway transport is becoming more attractive for passengers. On the most important tracks the travel time from the first stop within the city limits to the centre of the city does not exceed 25 minutes and the intervals between connections during peak hours generally range between 15 and 30 minutes.

Frequency and travel time to the centre on most important railways segments in Prague

Section (line)	Average frequency during morning peak	Average trip time	Length
Praha-Klánovice – Praha Masarykovo nádraží/Praha hl. n. (S1, S7)	15 min	22 min	18 km
Praha-Kolovraty – Praha hlavní nádraží (S9)	15 min	23 min	17 km
Praha-Radotín – Praha hlavní nádraží (S7)	10 min	17 min	13 km
Praha-Čakovice – Praha hl. n. (S3)/Praha Masarykovo nádraží (S34)	30 min	20 min	19 km
Praha-Sedlec – Praha Masarykovo nádraží (S4)	20 min	14 min	9 km
Praha-H. Počernice – Praha Masarykovo nádraží/Praha hl. n. (S2, S20, S9)	15 min	15 min	15 km
Praha-Ruzyně – Praha Masarykovo nádraží (S5)	30 min	23 min	13 km

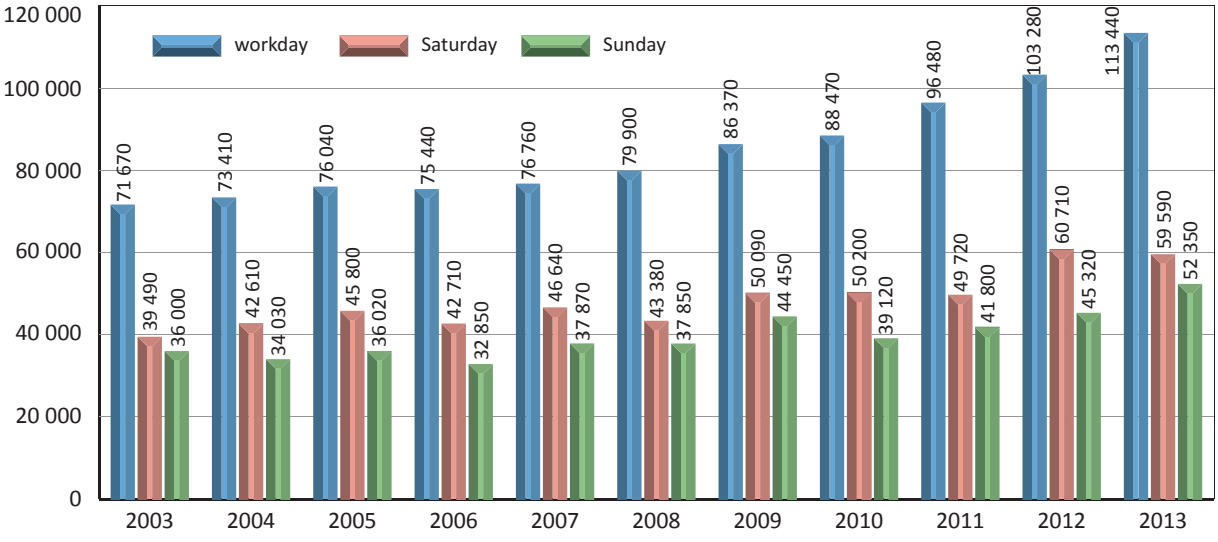
Number of persons transported by rail in Prague under PID per year (trips made using PID ticket)

Year	2006	2007	2008	2009	2010	2011	2012	2013
Persons	16 531 000	17 192 000	17 278 000	17 751 000	18 126 000	18 421 000	18 863 000	**18 967 000**

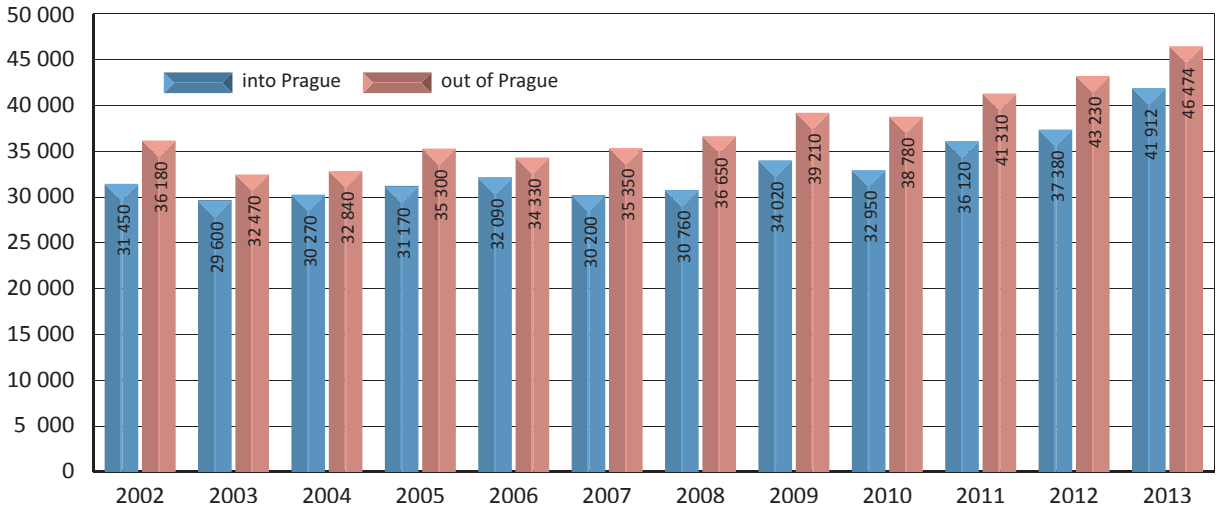
According to a state-wide ridership survey carried out by Czech Railways in 2013, the most heavily trafficked railway within Prague was track 221, which connects the capital with the Benešov region (on average 23 710 persons transported per workday) and the least trafficked was track 122 (Praha hlavní nádraží – Praha-Zličín – Hostivice – Rudná u Prahy) with an average of 390 persons transported per workday.

On an average Saturday in 2013, PID trains within Prague transported 53 % of the amount of passengers carried on an average workday. On an average Sunday PID trains within Prague transported only 46 % of the passengers carried on a workday.

Number of persons transported by PID trains on tracks within Prague by day of the week



Number of persons crossing the city limits on PID trains in an average workday



Taking PID buses and trains together, around 176 400 persons cross the border of Prague on an average workday, with PID trains accounting for 50 % of this number and PID buses also 50 %. At the 44 railway stations and stops within Prague, a total of 153 000 passengers get on/off PID trains on an average workday.

A train on the R5 line below Svatovítská street

A train on the S9 line at the station Praha-Hostivař

With the number of connections on S and R lines growing each year, so too does the percentage of passengers using PID single tickets or time-based passes. In 2013 this number exceeded 73 % on workdays and 56.9 % on weekends.

Percentage of travel documents used by passengers on PID trains within Prague (workday)

Year	1998	2000	2002	2004	2006	2008	2009	2010	2011	2012	2013
PID document* (%)	32.5	39.2	52.1	57.7	60.4	63.8	66.6	68.7	70.3	72.7	**73.2**
– individual PID tickets (%)	–	–	7.2	10.6	7.5	5.6	7.3	8.5	5.4	5.3	**5.6**
ČD document or free (%)	67.5	60.8	47.9	42.3	39.6	36.2	33.4	31.3	29.7	27.3	**26.8**

** including individual PID tickets*

3.6 Funicular and ferries

The **funicular** is part of PID and provides a connection between Újezd, Nebozízek and Petřín. In 2013 it carried a total of 1 817 230 passengers (a daily average of 5 000) and accounted for 0.14 % of the overall number of persons transported by PID within the city. The funicular consists of two cable cars

with a capacity of 100 persons moving along a 510 m long track covering a height of 130.45 m. The average travelling speed is 6.12 km/h. The cars are suspended on a cable with a diameter of 35.3 mm.

The funicular transports the most people on Saturdays and holidays in the months May, June, July and August. In the summer the funicular runs 75 times a day, in winter 57, and when there is increased demand it runs outside the scheduled timetable as well. Every year the funicular has two regular closures, a spring one in March and an autumn one in October. On 28 August 2013 the Petřín funicular transported its sixty-millionth visitor.

River ferries across the Vltava have been an element of PID since 2005 and are becoming a commonplace component of public transport in the city. Their primary importance is for recreational travel (connecting to cycle paths, connecting housing developments to recreational areas, serving the islands on the Vltava). Over the nine years this form of transport has been in place it has transported approximately 2.8 million passengers. In 2013 there were 5 ferries in operation, carrying 331 000 passengers (0.03 % of the total number of passengers transported under PID within Prague).

The operator of the P3 ferry is Vittus group s. r. o., while the other ferries are run by Pražské Benátky, s. r. o. All ferries are served by boats with a maximum capacity of 12 persons. A second boat is added to P2 on a seasonal basis.

Changes in ferry operation in 2013

Line	Description of change
P3	Service changed from year-round to seasonal – operation from April to October (effective 28 October 2013)
P6	Service changed from year-round to seasonal – operation from April to October (effective 15 December 2013)

The most heavily used ferries in terms of total number of passengers transported in 2013 were ferries P2 and P3, which together ferried approximately 259 000 people (78 % of the total).

Overview of Prague ferries operated in 2013 and selected operating parameters

Line	Route	Beginning of operation	Season in 2013	Persons transported per day*	Persons transported in 2013
P1	Sedlec – Zámky	1 July 2005	year-round	83	**25 240**
P2	V Podbabě – Podhoří	1 July 2006	year-round	463	**140 340**
P3	Lihovar – Veslařský ostrov	17 July 2007	Jan-Oct	346	**118 300**
P5	Kotevní – Císařská louka – Výtoň	31 March 2012	seasonal	180	**33 640**
P6	Lahovičky – Nádraží Modřany	19 Sept 2009	year-round**	46	**13 380**

** average number of persons transported per day in 2013*
***change to seasonal not until end of year*

In 2013 all the ferries were influenced first in February by the increased water levels and subsequently in June by floods, which along with the consequent need to clear the damages caused thereby resulted in operation being suspended for a total of two months.

During daily service in 2013 on ferries P1 and P6, trips could also be made outside those listed on the schedule (as long as it did not disrupt the scheduled connections). Ferries P2 and P3 were operated according to the timetable; during periods of high demand however the ferries could be operated continuously. In 2013 the P5 ferry only travelled at the times indicated on the schedule.

3.7 Non-PID public transport in Prague

Mass passenger transport outside the PID system is predominantly operated in Prague for special occasions. One such example is the dispatching of ten bus lines during the Prague Museum Night, which was shifted to September in 2013 due to the June floods. These lines were in service from 18:30 until 1:15 at intervals of 4 to 15 minutes, providing free transportation between various cultural institutions with a central transfer point at the Staroměstská stop.

A chapter of its own is formed by service to shopping, office or multifunctional centres. This transportation is generally free and paid for by the individual centre or shops. Two special lines, the 751 Nádraží Holešovice – Výstaviště Holešovice and 758 Letňany – Výstaviště Letňany, are dispatched for various exhibitions and fairs, particularly intended for persons with reduced mobility and orientation.

For holders of the ZTP and ZTP-P cards (people with physical handicaps) whose registered address is in Prague or certain municipalities in the Central Bohemian Region, a service is operated whereby they can order a microbus or assistant-staffed microbus by telephone. There is a boarding fee of CZK 10 and then a fare of CZK 32 per trip around Prague.

3.8 Public transport between Prague and external territory

Public mass transport between the capital and other areas in the region and the country as a whole is provided by a number of carriers. Prague is an important hub for regional, domestic and international rail travel as well as a point of departure, destination and transit stop for many long-distance Czech and international bus lines.

Non-PID rail transportation

A total of 1 106 train connections operated by Czech Railways started, ended or passed through Prague on an average workday in 2013, carrying around 138 000 passengers across the city limits. 25.4 % (281) of these were non-PID connections, while the remaining 74.6 % (825) were incorporated under PID.

In terms of volume, the most important train station in Prague for external rail transport has long been the station Praha hlavní nádraží. A total of 665 train connections pass through this station daily, of which 42.5 % are non-PID connections.

A LEO Express train at the bridge over Seifertova street

Maintenance on a ČD Pendolino train

The operation of (non-PID) long-distance passenger rail transportation is provided by Czech Railways, RegioJet and LEO Express. The infrastructure for transportation is provided by the state organisation the Railway Infrastructure Administration.

Number of trains operated by ČD at most important railway stations in Prague*

Station	Praha hlavní nádraží	Praha Masarykovo nádraží	Praha-Smíchov	Praha-Vršovice	Praha-Libeň	Praha-Vysočany	Praha-Holešovice	Praha-Radotín
Trains per year	225 684	96 756	84 487	83 160	81 385	58 094	32 589	41 498
Trains per day**	665	286	255	249	240	184	117	129
– PID	382	286	183	218	153	153	83	129
– non-PID	283	0	72	31	87	31	34	0

** number of trains starting, ending or stopping ** average workday 2013*

Development of number of trains starting and ending at Prague stations per year (all ČD trains)										
Year		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
of trains	starting	159 681	159 524	161 193	160 360	174 615	215 189	217 472	217 481	219 679	214 483
	ending	160 888	160 731	163 510	160 665	174 947	215 598	217 886	217 895	220 098	214 892
	total	**320 569**	**320 255**	**324 703**	**321 025**	**349 562**	**430 787**	**435 358**	**435 376**	**439 777**	**429 374**

Non-PID bus transportation

Public bus transportation between Prague and other areas is operated by a number of carriers from the Czech Republic, and some international lines are also run by carriers from other countries. The only bus station in Prague that dispatches exclusively non-PID buses is ÚAN Florenc. It has also long been the most heavily trafficked station for regular external, generally long-distance, bus transportation. The largest carrier is Student Agency.

Development of selected characteristics of Florenc bus station								
	2006	2007	2008	2009	2010	2011	2012	2013
Connections per year	210 000	200 000	180 000	160 000	145 000	145 000	150 000	**155 000**
Connections per average workday	650	620	550	460	420	420	425	**435**
– international	140	140	120	100	105	130	145	**155**
– domestic long-distance	510	480	430	360	315	290	280	**280**
Number of carriers	90	90	85	93	100	100	100	**105**

Other lines connecting Prague with external areas are dispatched and terminated at the bus stations Černý Most, Dejvická, Hradčanská, Nádraží Holešovice, Na Knížecí, Roztyly and Zličín. To a lesser extent (up to 2 000 connections a year) long-distance buses also leave from Ládví, Letňany and Opatov.

Nádraží Holešovice bus station

The A32 line at Hradčanská

Central Bohemian Integrated Transport (SID) also contributes to suburban transport in Prague. SID provides public transport in selected parts of the Central Bohemian Region on regional and municipal lines, but without any shared fare with PID or Czech Railways trains. SID lines entering the territory of Prague are designated by the letters A (Kladno district), B (Rakovník district), C (Beroun district), D (Příbram district), E (Benešov district), F (Kutná Hora district) and a corresponding number.

Development of selected characteristics of SID transport				
Year	2010	2011	2012	2013
Number of lines entering Prague	39	41	40	**33**
Average number of connections per workday*	602	572	591	**455**
Persons transported across Prague boundaries(000s)	4 970	4 476	3 470	**3 453**

** total into + out of Prague*

SID
Středočeská integrovaná doprava

4 BICYCLE TRAFFIC

The marked cycle route network in the City of Prague has a total length of 417 kilometres. The individual cycle routes are broken down into arterial, main, supplementary and local. They are marked starting with the letter A. This system is supplemented by cyclo-tourist routes.

Basic information on bicycle infrastructure in Prague

Total length of marked cycle routes	Total length of protected marked and recommended cycle routes	Two-way lanes for cyclists
417 km	161 km	17.8 km (95 sections)
Cycle pictocorridors	**Separate cycle lanes**	**Shared cycle lanes (+ bus + taxi)**
30.2 km	37.1 km	17.8 km
Bicycle stands	**Advance stop lines for cyclists**	**Bicycle crossings**
approx. 1 500	195 intersections, 794 lanes	48 (19 with traffic signals)

Hanging bridge under Prague Outer Ring Route

Cycle track on A26 route by Freyova street

Bicycle investment projects launched in 2013

Location	Route	Description
Záběhlice – Hostivařská přehrada, Phase 1b	A23	Cycle track + cycle route, length 1.55 km.
Zbraslav – Jarov	A2	Cycle track along Vltava at a length of 2.8 km.
Lahovice – on ramps	A200	Connection to bridge over Vltava, 0.8 km of ramp.

Of the non-investment projects realised in 2013, worthy of mention is the cycle lane going against the one-way traffic marked between the sidewalk and parked cars on Na příkopě between Hybernská and Panská. It has been open for cyclists from mid-November. In the near future it is the intent of the Prague 1 Municipal District to hook up a further opposite direction cycle lane on Hybernská.

Two-way lanes for cyclists were marked on originally one-way streets at three locations in Prague 1 in 2013. On Barvířská and Klimentská streets between Petrské náměstí and Samcova street (length 150 m), on Haštalská street between

Intersection of Jaromírova – Sekaninova – Křesomyslova

Kozí and Rybná (150 m) and on Jeruzalémská street between the streets U půjčovny and Opletalova (80 m).

Cyclists on Prague Integrated Public Transport (PID)

Pictogram: entry with a bicycle permitted / forbidden

For passengers with a valid PID ticket the transport of bicycles as an accompanying piece of luggage is free within Prague (zones P, 0 and B).

In the **metro**, at most two bicycles can be transported at the back of each train car. Selected lifts may also be used to transport bicycles at selected stations.

Marking on stops where it is possible to board a tram with a bicycle.

In **trams**, a bicycle may only be transported in the space designated for prams on selected stretches on workdays between 19:00 and 7:00 and all day on non-workdays.

On all **railway tracks** integrated under PID, service is provided by vehicles that allow the transportation of bicycles. Outside of Prague there is a fee for transporting bicycles (according to the ČD rates CZK 25 per ride). A **cycle train** allowing for the transportation of a large number of bicycles was in operation in 2013 on all weekends and holidays on the route Praha-Masarykovo nádraží – Slaný.

For the eleventh season now, a **PID cycle bus** ran every non-workday from April to October on the route Dobřichovice – Kytín. The service is provided by a modified bus with holders for 25 bicycles. PID fare is valid on the cycle bus line and the cost for transporting one bicycle is CZK 16 regardless of distance and whether a train was taken.

On the **funicular** up Petřín, bicycles are always transported in the second section of the car (marked with a pictogram). At most 2 bicycles can be transported in the car. Transportation of bicycles is free and is also possible on all the ferries connecting the banks of the Vltava.

Starting 1 September 2013 it is also possible to transport (as a piece of luggage) a folding bicycle, children's scooter or children's bicycle for a child up to 6 years of age. The transportation of large pieces of luggage must be paid for (CZK 16) but holders of pre-paid fare cards can transport such a piece of luggage for free.

Annual cyclist volume detected by automatic bicycle counters

Name of station	Placement of station	Cyclists per year		Change 13/12 (%)	Cyclists/day
		2012	2013		max. in 2013
Dubeč	cycle route A24, Netlucká street	31 067	31 114	+ 0.15 %	367 (Sun)
nábř. Kpt. Jaroše	cycle route A1, 200 m from Hlávkův bridge	113 732	148 121	+ 30.24 %	1 173 (Wed)
Kolčavka	cycle route A26, by underpass of Čuprova street	97 581	93 235	- 4.45 %	1 341 (Sun)
Podolské nábřeží	cycle route A2, 150 m south of Vyšehrad tunnel	344 992	234 466	- 32.04 %	2 735 (Tues)
Rohanské nábřeží	cycle route A2, btw. Hlávkův bridge a Ke Štvanici	184 027	179 008	- 2.73 %	1 781 (Wed)
V Šáreckém údolí	cycle route A17, by Žežulka bus stop	39 888	28 854	- 27.66 %	455 (Wed)
Strakonická	cycle route A1, by Lahovický bridge	170 891	160 499	- 6.08 %	3 192 (Sun)
Císařský ostrov	cycle route A160, by bridge over navigation channel	296 227	282 962	- 4.48 %	3 890 (Wed)
Vršovická	cycle route A23, on cycle lanes by Vršovice station	96 744	94 127	- 2.71 %	843 (Wed)
Sulická	cycle route A22, under Jižní spojka	166 246	150 716	- 9.34 %	1 855 (Wed)
TOTAL		1 541 395	1 403 102	- 8.97 %	–

Automatic bicycle counters allow on-line access to data 24 hours a day year-round, thus providing a detailed summary of bicycle activity at various times of year, as well as the changes in volume over the day or week. In Phase I (2009) these counters were installed at 10 locations, over the course

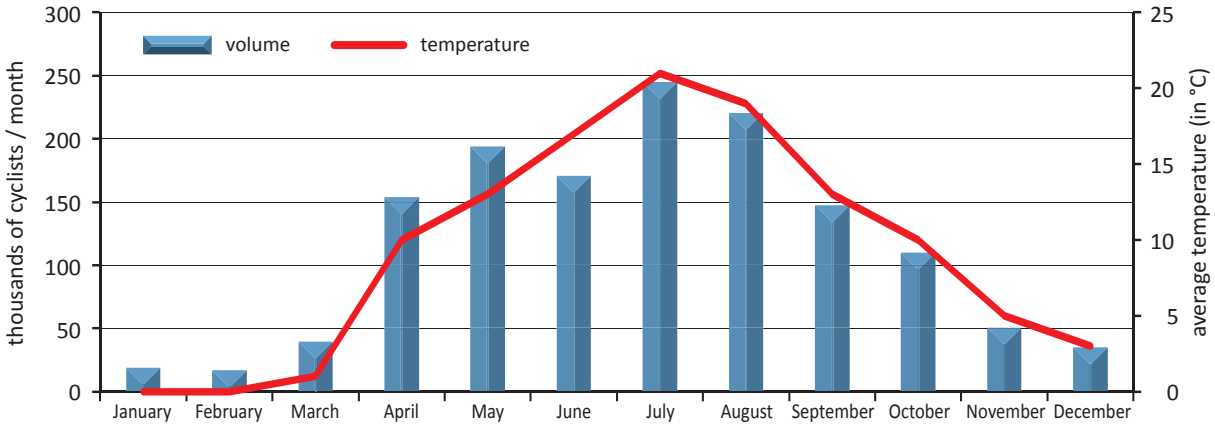
of 2011 (Phase II) a further 15 bicycles counters were progressively put into operation and in 2012 a further 3 were added.

Comparing the values for 2013 to those from 2012, a drop in cyclist volumes can be seen at the sites installed in 2009 (Phase I) by a total of 9 %. The results of the automatic bicycle counters were influenced in 2013 by the long winter and the floods in June, when the majority of arterial routes along the Vltava (Strakonická, Císařský ostrov, etc.) were flooded. Bicycle traffic was also prohibited here for a time after the water receded due to safety concerns and checking the condition of the route.

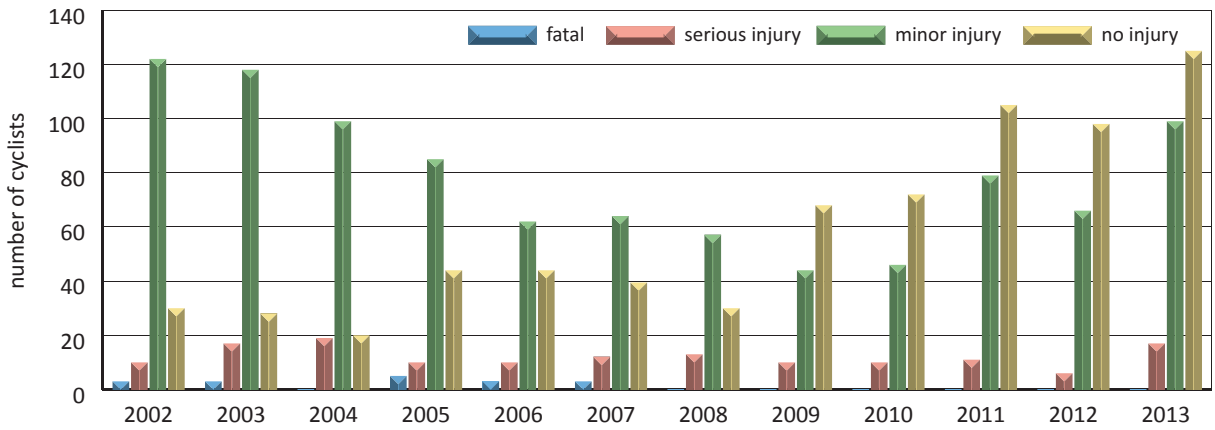
Intersection of Výpadová ul. and the track to Radotín port

Bicycle counter on Podolské nábřeží

Annual variation 2013, according to automatic bicycle counters



Results of cyclist accidents in Prague 2002 – 2013 (source OSDP KŘP hl. m. Prahy)



5 PEDESTRIAN TRAFFIC

Walking (pedestrian transportation) is part of every trip and has an irreplaceable and unique social function and ability to form the cityscape while allowing for instant mobility independent of spatially and economically more demanding forms of transportation.

The quality of pedestrian movement depends on factors such as barrier-free and fluid movement, feeling of safety, freedom of movement (passing, crossing, changing speed), attractiveness of the route, clarity and ease of orientation in one's surroundings.

The greatest volumes of pedestrians remain in the centre of the city (Václavské náměstí – Na můstku – 28. října – Na příkopě) and hover around 7 000 – 8 000 pedestrians an hour at the peak. Areas such as the Prague Castle, Malá Strana and Old Town are attractive for tourists and visitors of historic Prague and volumes here reach 4 000 pedestrians an hour.

The system of traffic signs indicating cultural and tourist destinations falls under the Prague Information Service, which has on register 350 connections between departure points and destinations within the Prague Conservation Area. The most important location is the Old Town Square, from which routes lead out to 18 destinations.

Aside from the city-wide system of orientation signs for cultural and tourist destinations, a system of orientation signs was also later developed for the territory of the individual municipal districts.

Tourist destination signs

Charles Bridge

In terms of safe movement of pedestrians, emphasis is placed above all on routes with a high volume of children (routes to schools, sports facilities and similar institutions) and areas with a higher occurrence of seniors and persons with limited mobility and orientation.

Modifications leading to increased pedestrian safety on roads administered by TSK take place as part of standard road refurbishment, the pavement programme and the BESIP programme (Chapter 8 discusses new traffic islands and extra lighting for pedestrians). Further modifications are funded by the Municipal Districts, and in some cases also private investors.

New pedestrian crossings were established across Bohúňova street and by the elementary school ZŠ K Miličovu in Prague 11. In Prague 12 a new crossing was added across Hornocholupická and at the final bus stop Na Beránku. In Prague 15 pedestrians can now cross Hornoměcholupská at the Janovská bus stops.

Barrier-free modifications of crossings with tactile elements for the blind were implemented in a number of places in Prague, e.g. in Prague 15 (residential areas Hornoměcholupská, Košík, Horní Měcholupy and at the intersection Hostivařská – Pražská), in Prague 4 (Novodvorská) and in Prague 9 (Černý Most, Vysočany, Hrdlořezy).

The most demanding work structurally was carried out as part of the modifications to the intersection Korunní – Jičínská – Šrobárova (Prague 3), where a new pedestrian crossing was established across Šrobárova. At the intersection Ke Smíchovu – Na Křenkově (Prague 5) the height of Na Křenkově was raised and a place for crossing was created. A new pedestrian crossing and modification of the extended kerbs were also implemented in Prague 7 at the intersection of the streets U Sparty and Nad Královskou oborou.

Complete refurbishment was conducted on the streets Doupovská (Prague 15) and Rozdělená (Prague 22). A built-in speed hump was implemented as part of traffic calming on Soukenická street in Prague 1.

An integrated speed hump with a pedestrian crossing was built at the intersections Jeseniova – Strážní and Fibichova – Křížkovského (Prague 3) and on Šárecká (Prague 6).

Korunní – Jičínská – Šrobárova

U Sparty – Nad Královskou oborou

New sidewalks were built on the streets Sámova, U vršovického nádraží and U záběhlického zámku (Prague 10). New bituminous surface was laid down on sidewalks on the streets Vinohradská, Přemyšlenská, Ďáblická and 18 other locations. Mosaic cobble pavement was installed in the neighbourhood of Žižkov (Bořivojova, Chelčického, Zelenky-Hajského and Biskupcova).

Pedestrian safety is also negatively affected by high vehicle speeds. These can be reduced using regulatory measures such as speed humps, traffic buttons, enhanced traffic signs and carriageway surface roughening.

Radar speed displays were installed on the streets Jankovcova (Prague 7), Milánská, Hornoměcholupská and Kutnohorská before entering Dolní Měcholupy (Prague 15) and in Prague 21 at the intersection of streets K Dubči and Na prostřední cestě.

Residential zones were expanded in 2013 in Prague 13 in Malá Ohrada and in Prague 20 in the area of Horní Počernice. In Prague 10 a “30 Zone” was defined in the area of the streets Jahodová – Ostružinová – Karafiátová – Topolová and in Prague 20 on the streets U jeslí and Štverákova.

Also serving to increase pedestrian safety in 2013 was the enhancement of road signs and road markings and the use of several traffic-calming devices – installed pre-fabricated elements such as concrete barriers, bollards, speed humps or traffic buttons.

Over the course of five Saturdays from mid-September until mid-October, Smetanovo nábřeží alongside the river was closed to automobile traffic. For a time the embankment belonged only to public transport, pedestrians and cyclists. The goal was to ascertain the possibilities for improving the conditions for non-motorised transportation in this area, to arouse public discussion and then to determine the implementability of possible measures.

6 TRANSPORT TELEMATICS AND TRAFFIC MANAGEMENT

Transportation telematics integrates information and communication technology with traffic engineering in order to optimise the performance of the existing infrastructure, improve traffic safety and increase the quality of transportation in general. The field has increasingly extensive applications in traffic management processes using traffic lights and control centres, as well as in monitoring, early warning and information systems.

6.1 Construction and renewal of traffic signals

In 2013 a total of 17 new traffic signals were built within the City of Prague by TSK and other investors, seven of them at stand-alone pedestrian crossings. Three traffic signals were removed in connection with completion of work on parts of the City Ring Road. The total number of traffic signals in Prague thus reached 626. The number of traffic signals on the tram network grew by five over the past year, with the number of traffic signals with tram right-of-way increasing by 10 and the number giving priority to buses by 13 (see Chapter 7).

Basic data on traffic signals in Prague		
Total in Prague	**Stand-alone pedestrian crossings**	**Centrally controlled**
626	125	321
On tram network	**Tram right-of-way**	**Bus right-of-way**
243	174	180
Number of new and refurbished traffic signals in 2013		
17 new, of those 7 at new stand-alone pedestrian crossings (3 signals removed)		16 refurbished

When installing new traffic signals in recent years, much emphasis has been placed on pedestrian safety. Thus a number of stand-alone pedestrian crossings have been created along important pedestrian routes or by public transport stops. Examples of those installed in 2013 are at the crossing of Opatovská street by the Metodějova bus stop and the new crossing on Radlická by Karla Engliše. One of the important intersections where traffic signals were reinstalled was Patočkova – Myslbekova. New signals also increased safety primarily in the left-turn lane at the intersection Černokostelecká – Dřevčická.

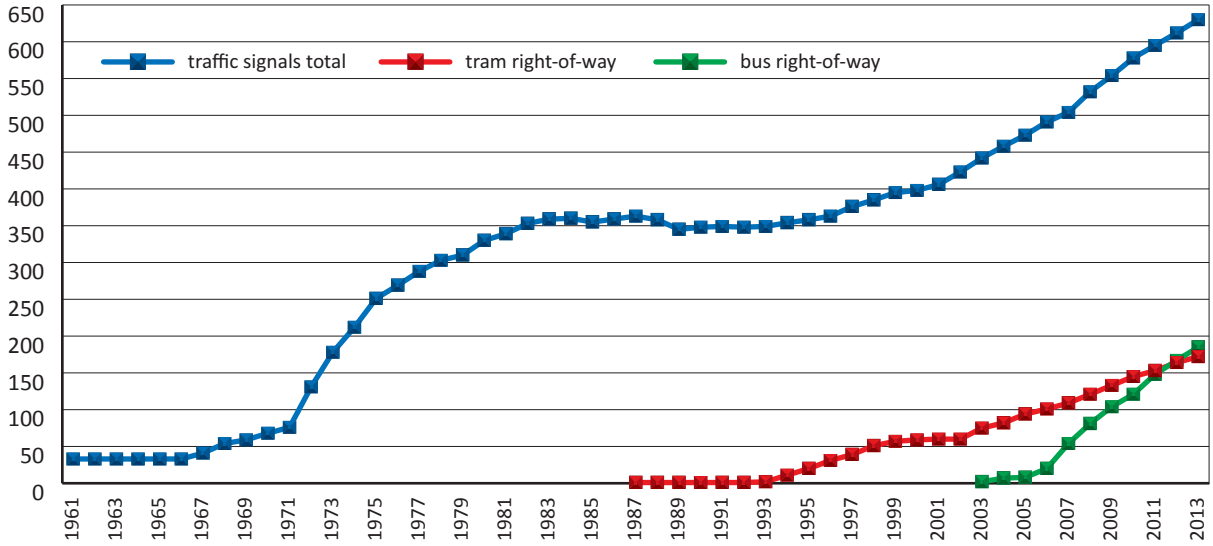
Refurbished traffic signal 6.149 Patočkova – Myslbekova

Refurbished traffic signal 2.332 náměstí Míru – Francouzská

The refurbishing of traffic signals also continued. The most important of these were in the part of Prague 6 where the surface component of construction on the Blanka tunnel complex was completed. Traffic signal 6.145 Prašný most was put back into service in its final form. The nearby highly trafficked intersection Patočkova – Střešovická also underwent refurbishing, including taking into account bicycle traffic heading toward the Prague Castle. On Náměstí I. P. Pavlova (4), on Revoluční street (1) and by

the Charles Bridge (1) testing continued on devices that count down the length of the “walk” and “don’t walk” signals for pedestrians, who thus have a better idea of how long they will have to cross.

Development of number of traffic signals and those with preference for public transport vehicles



Development of basic data on traffic signals in Prague

Year	1961	1971	1981	1990	2000	2005	2007	2008	2009	2010	2011	2012	2013
Traffic signals total	33	76	339	348	398	473	504	532	554	578	594	612	**626**
Stand-along crossings	–	9	37	45	57	72	78	86	96	108	112	118	**125**
Centrally controlled TS	–	–	–	20	116	192	218	231	236	270	283	294	**321**
TS with tram right-of-way	–	–	–	1	59	94	109	121	133	145	158	164	**174**
TS with bus right-of-way	–	–	–	–	–	8	53	81	104	121	144	167	**180**

6.2 Control centres

The system of traffic management in Prague is divided up into several levels. At the lowest level are the individual traffic signals which are gradually being connected to the Area Traffic Control Centres (ATCC). Control of traffic signals and management of whole areas is centralised through the automated ATCCs into the main Urban Traffic Control Centre (UTCC), which is located in the MHD Central Dispatching building on the street Na bojišti in Prague 2. From the UTCC dispatchers can control around half (51.2 %) of all the traffic signals in Prague. The system of control centres is administered by TSK.

Main hall of UTCC Prague

Dispatching visualisation of the Malovanka intersection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CHUCHELSKÁ RADIÁLA
LIBOCHOVIČKY
SVRKYNĚ
ZÁJEZD
ÚHOLIČKY
ROZTOKY
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TUCHOMĚŘICE
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STŘEDOKLUKY
HOROMĚŘICE
SUCHDOL
BOHNICE
SEDLEC
KOBYLIS
PŘEDNÍ KOPANINA
LYSOLAJE
DOBROVÍZ
KNĚŽEVES
TROJA
NEBUŠICE
DEJVICE
BUBENEČ
HOLEŠOVICE
LIBOC
VOKOVICE
VELEŠLAVÍN
HRADČANY
HOSTIVICE
STŘEŠOVICE
JOSEFOV
MALÁ STRANA
STARÉ MĚSTO
BŘEVNOV
RUZYNĚ
NOVÉ MĚSTO
SMÍCHOV
VINOHRADY
ŘEPY
MOTOL
KOŠÍŘE
VYŠEHRAD
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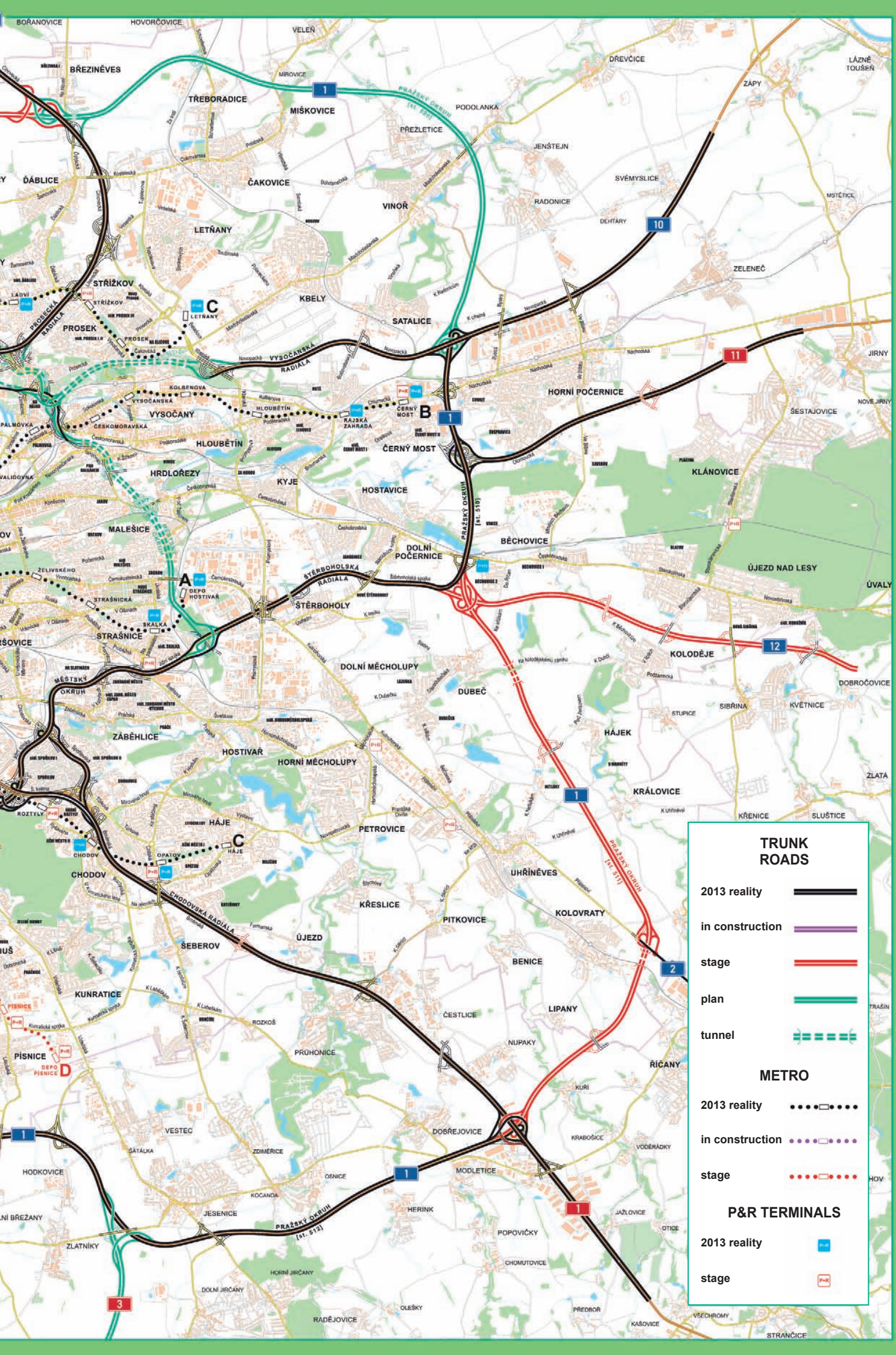
HOLYNĚ
KRČ
ZBUZANY
MALÁ CHUCHLE
HODKOVIČKY
LHOTKA
DOBŘÍČ
OŘECH
NUČICE
TACHLOVICE
VELKÁ CHUCHLE
SLIVENEC
MODŘANY
KAMÝK
MEZOUŇ
ZADNÍ KOPANINA
LOCHKOV
CHÝNICE
KOSOŘ
RADOTÍN
LAHOVICE
CHOLUPICE
KOMOŘANY
KUCHAŘ
CHOTEČ
ZBRASLAV
TOČNÁ
LIPENCE
TŘNĚNÝ ÚJEZD
VONOKLASY
ČERNOŠICE
STARÁ VRÁŽ
DOLNÍ MOKROPSY
JAROV
ZÁLEPY
KÁROV
OHROBEC


TRUNK ROADS
2013 reality
in construction
stage
plan
tunnel
METRO
2013 reality
in construction
stage
P&R TERMINALS
2013 reality
stage
BOŘANOVICE
HOVORČOVICE
VELEŇ
BŘEZINĚVES
MIŠKOVICE
DŘEVČICE
LÁZNĚ TOUŠEŇ
ZÁPY
TŘEBORADICE
MIROVICE
PRAŽSKÝ OKRUH
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VINOŘ
SVÉMYSLICE
RADONICE
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LETŇANY
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PROSEK
VYSOČANSKÁ RADIÁLA
JIRNY
HORNÍ POČERNICE
KOLBENOVA
VYSOČANY
ČERNÝ MOST
RAJSKÁ ZAHRADA
ŠESTAJOVICE
NOVÉ JIRNY
ČESKOMORAVSKÁ
HLOUBĚTÍN
KLÁNOVICE
HRDLOŘEZY
KYJE
HOSTAVICE
MALEŠICE
DOLNÍ POČERNICE
BĚCHOVICE
ÚJEZD NAD LESY
ÚVALY
ŠTĚRBOHOLSKÁ RADIÁLA
ŠTĚRBOHOLY
STRAŠNICE
KOLODĚJE
DOLNÍ MĚCHOLUPY
DOBROČOVICE
DUBEČ
SIBŘINA
KVĚTNICE
STUPICE
HÁJEK
ZÁBĚHLICE
HOSTIVAŘ
HORNÍ MĚCHOLUPY
ZLATÁ
KRÁLOVICE
KŘENICE
SLUŠTICE
ROZTYLY
HÁJE
PETROVICE
CHODOV
UHŘÍNĚVES
CHODOVSKÁ RADIÁLA
KŘESLICE
KOLOVRATY
PITKOVICE
ŠEBEROV
ÚJEZD
BENICE
KUNRATICE
LIPANY
ČESTLICE
ROZKOŠ
NUPAKY
PÍSNICE
PRŮHONICE
ŘÍČANY
KUŘÍ
VESTEC
DOBŘEJOVICE
KRABOŠICE
VODĚRÁDKY
ŠÁTALKA
ZDIMĚŘICE
HODKOVICE
MODLETICE
OBNICE
KOCANDA
JESENICE
HERINK
JAŽLOVICE
OTICE
ZLATNÍKY
POPOVIČKY
CHOMUTOVICE
HORNÍ JIŘČANY
DOLNÍ JIŘČANY
OLEŠKY
PŘEDBOŘ
KAŠOVICE
VŠECHROMY
RADĚJOVICE
STRANČICE

In 2013, 27 traffic signals were added to the central management system (the majority in the areas of Smíchov, Pankrác and Skalka). As of 31 December 2013 dispatchers could thus control 321 traffic signals from the top level. A new type of control centre VRS 5000 was installed at ATCC Vltavská (currently only one traffic signal is hooked up for testing) which in time will replace the current VRS 2100.

6.3 Traffic Information Centre (TIC) Prague

TIC Prague has been in operation since 1 July 2005, offering information services in monitoring and classifying traffic levels, providing information on planned long-term closures and exceptional circumstances on the road network and providing output from the city's information database, primarily for websites. The sources of data for the information distributed are the UTCC Prague systems and a number of devices installed on the streets.

Another important TIC Prague service for drivers is RDS-TMC (Radio Data System – Traffic Message Channel), which is able to display current traffic information on navigation maps inside vehicles and adapt routes to the current situation. The appearance of the messages (broadcasting is provided in cooperation with Czech Radio) is completely standardised according to the international ALERT C standards. RDS-TMC broadcasting was launched for the territory of Prague on 1 July 2005, making it the first such site in the Czech Republic and in the whole former Eastern Bloc.

Since 1 September 2010, TIC Prague has been operated exclusively by employees of TSK and the activity of dispatchers was expanded to include checking the information entered into the TIC Prague editing system, servicing the system of variable message signs (VMS), recording any differences between the automatically generated information and the actual situation, and last but not least monitoring alternative sources of traffic information and entering the ascertained facts into the editing system.

Visualisation of current text on VMS

Monitoring and video detection cameras at Vypich intersection

A new aspect of the work of dispatchers is verifying the "traffic scenarios" with the proposed automatic measures for providing traffic information through the VMSs. During the floods, the public was informed both by the information boards at the disposal of the City of Prague and those located on motorways (administered by the Road and Motorway Directorate – RMD). The Prague Urban Traffic Control Centre Na bojišti and the RMD traffic control centre in Rudná u Prahy worked closely together in creating and placing texts, optimising the provision of relevant information in time and space for the whole region.

Current traffic information acquired from TIC Prague is used by City of Prague and TSK web traffic applications (dic.tsk-praha.cz) to create traffic volume maps, tables with traffic levels, to distribute screen captures from selected traffic cameras and to provide information about road restrictions and closures. Starting in 2013 these websites also include information on what texts are being displayed on the traffic information devices in the city.

6.4 Other transport telematics systems and facilities

The transport telematics systems in the City of Prague also include television monitoring systems, devices for traffic information, devices for determining and providing travel time information, systems for high-speed weighing of freight vehicles (WIM), devices for speed measurement and capturing red-light violations, strategic detectors and weather detectors.

Television monitoring systems in the City of Prague (TVD)

System	Cameras	System description	As of
TVD-TSK	272	Monitoring of traffic situation – run by TSK	31 Dec 2013
MKS	792	Monitoring of (traffic) safety situation – run by City Hall Crisis Management Department	1 Oct 2013
DP	1 200	Monitoring of situation in metro – run by DPP	31 Dec 2013

The centre of the TVD-TSK **camera monitoring system** is the Urban Traffic Control Centre and the main users are the dispatchers at UTCC and TIC Prague. Of the overall count of 272 traffic monitoring cameras, 140 have a video detection function. Of these, 94 are located in Prague's road tunnels (46 in the Strahov tunnel, 31 in Mrázovka tunnel, 11 in the Letná tunnel and 6 in the Zlíchov automobile tunnel). Using a software definition of potential events that could take place within the camera's field of vision, these cameras can detect a stopped vehicle, recognise emerging congestion or identify an object on the carriageway that is blocking traffic.

The remaining 46 video detection cameras are located on the Jižní spojka, on the streets Spořilovská and 5. května, Průmyslová, Kbelská, Strakonická and the Štěrboholy Radial Road. These are cameras of the Comprehensive Telematic Monitoring System (CTMS) and they can be rotated and used by operators for general traffic monitoring as well. Stills from 129 TSK traffic cameras are available along with other traffic information on the TSK Prague website. The process of digitising TSK's traffic cameras and integrating them into the city-wide Municipal Camera System continues.

VMS Na Františku

VMS-512 Strakonická with ability to display maps

Variable Message Signs (VMS)

Also serving to directly or indirectly manage and influence traffic in Prague are the **variable message signs – VMS**. 2013 saw the conclusion of the VMS Prague project, under which 17 existing VMSs were refurbished and 37 new ones installed. In total there are 58 VMSs in Prague. Employees of the Traffic Information Centre can thus use the editing system that collects current traffic information from various subsystems to inform drivers about exceptional situations, closures and restrictions or on the current traffic situation immediately in front of the driver.

The placement of VMSs is planned with regard for the important points where a decision must be made so that a driver can re-evaluate his route choice in time. The system also includes three full-colour boards that can graphically display current volume maps. The majority of other signs are equipped with a space for displaying variable traffic signs.

Information on travel times in Prague

One of the types of information displayed on VMSs is **information on travel times**. As of 31 December 2013, travel times were being displayed on 10 VMSs. Once work is complete it is expected that at the start of 2014 16 VMSs and one display board will be used for this purpose. The principle of determining travel times is based on sensors monitoring the actual time it takes for vehicles to travel through a given segment.

Travel time information on 5. května

Travel time information on Nad Šutkou

Video detection or Bluetooth scanners are installed at the beginning and end points of the segments and they automatically – without any human intervention – evaluate the travel time by comparing the device ID or licence plate. In the future the accuracy of the system could be increased by using data from an FCD (floating car data) system. This would allow for the number of displayed travel times to be significantly increased, thereby helping drivers to become better informed and thus able to select an alternative route.

Devices for high-speed weighing of freight vehicles (WIM)

The **system of weighing of vehicles while they are in motion** (WIM – Weight in Motion) is in place at 7 locations heavily trafficked by freight vehicles. The principle of the system is based on the measurement of the dynamic effects of individual wheels on the carriageway (pressure sensors). When the vehicle passes the speed, acceleration and deceleration are also determined. The system also categorises vehicles into classes and in connection with other WIM locations (licence plate capturing) makes it possible to evaluate whether vehicles are in transit or heading for their destination.

Section speed measurement

Devices for measuring speed on a road section consist of a pair of gates with cameras that take a picture of the vehicle at the beginning and end of the section. On the basis of vehicle identification from the licence plate, the length of the section and the time data, the average speed is calculated. Since this system was installed in 2006, the number of misdemeanours for breaking the speed limit has fallen in the given locations from 30 – 60 % of vehicles to roughly 1 – 5 % of recorded vehicles.

At the end of 2013, speed was measured in this manner at 28 stretches in Prague. Three new sections were prepared structurally and measurement and sending of misdemeanours will begin after a metrological test at the beginning of 2014. Two new sections are in both directions on Libocká street and one on the street U vršovického hřbitova.

Section speed measurement on Podolské nábřeží

Midpoint of bidirectional measured section on Libocká street

Spot speed measurement

Spot speed measurement using just one camera and detection loops was first realised in Prague in 2010 near the Ořechovka tram stop in the direction toward the city centre. At the end of 2013 spot speed measurement was conducted at seven locations and a further three locations were being prepared, the same as the new locations for section speed measurement.

Intersections with system of documenting red-light violations

As part of the applications for recording misdemeanours, **devices for detecting and documenting the running of red lights** are in place at 16 intersections in the city (at one site for yielding to pedestrians). The system is comprised of a pair of cameras (overview and detail) that record the current state of the traffic light and the moment the vehicle crosses the stop line.

Documentation of red-light violations at Vypich intersection

Strategic spot detector on Žitná street

Strategic spot detectors (SDDŘ), section detectors (SDDÚ) and weather detectors (KVD)

Detectors	No.	Description
SDDÚ	23	Two gates with cameras designed for collection of data on a section.
SDDŘ	143	Video detectors placed on VO columns designed for collection of data on a spot.
KVD	28	Sensors monitoring meteorological data useful for drivers, e.g. winter road maintenance.

The last types of traffic telematics device are strategic spot detectors and section detectors, which are a significant source of traffic data in the City of Prague. The whole network which covers the majority of main roads totals 166 such devices (23 are sectional, 143 spot detectors). Non-traffic information is collected by 28 weather detectors.

7 PRIORITY FOR PUBLIC TRANSPORT VEHICLES

Implementation of priority for public transport (MHD) vehicles has been ongoing in Prague since the beginning of the 1990s based on the "City of Prague Transportation Policy Principles". This process helps maintain a positive ratio of persons transported by mass transit in relation to individual transportation. It also helps keep public transport flowing smoothly and transportation quality standards high.

7.1 Priority for public transport vehicles at traffic signals

New and refurbished traffic signals are now by default equipped with technology that allows the right-of-way to be given to public transport vehicles. These vehicles can thus have the first choice and extended green lights adjusted in real time according to their needs so that they can pass through controlled intersections without stopping where possible, or with only a minimum of delay.

Traffic signals with tram priority – basic data

Total on tram network	With tram priority	With absolute* tram priority	With conditional * tram priority
243 TS (100.0 %)	174 TS (71.6 %)	62 TS (25.5 %)	112 TS (46.1 %)
2013: +5 traffic signals	2013: +10 TS	2013: +3 TS	2013: +7 TS

* *Absolute priority means that the tram will pass through the intersection without stopping; conditional means that a tram will be given the green at the earliest possible moment dependent on the prior demands at the other branches of the intersection.*

Seven new traffic signals were built on the tram network in 2013 and five of these had **priority for trams**. Two traffic signals were removed (temporary ones in Troja and at the Badeniho – Na valech intersection). The number of traffic signals with conditional priority grew by seven.

The greatest benefit for tram traffic came with the introduction of conditional priority at the refurbished and highly trafficked signal 6.145 Prašný most. Conditional priority also shortened the tram wait at signal 3.309 at the Flora intersection. The number of traffic signals with absolute priority grew by three in 2013. The percentage of intersections in Prague with some form of tram priority exceeded 71 %.

Traffic signal 3.309 Vinohradská – Jičínská (Flora)

Dedicated bus lane at Teplárna Michle stop

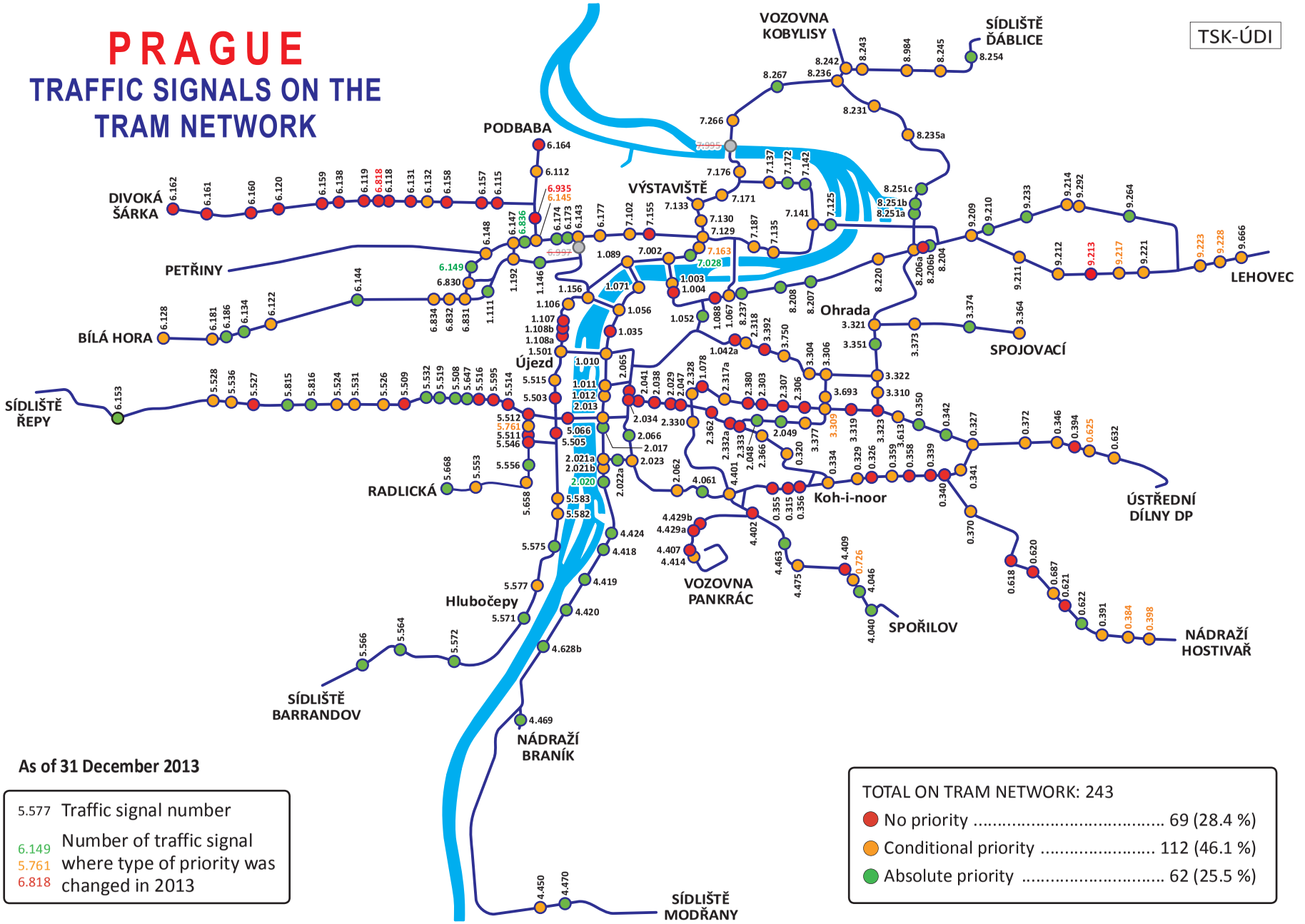
Bus priority at traffic signals – basic data

With bus priority	With active* bus detection	With passive* bus detection
180 TS (100.0 %)	171 TS (95.0 %)	9 TS (5.0 %)
2013: +13 traffic signals	2013: +11 TS	2013: +2 TS

* *Passive detection means buses are detected in a special lane through classic vehicle loop detection. Active detection works on the basis of radio communication between the vehicle and the traffic signal controller. An infrared beacon is used to locate vehicles approaching the intersection.*

PRAGUE
TRAFFIC SIGNALS ON THE TRAM NETWORK

TSK-ÚDI



As of 31 December 2013

5.577	Traffic signal number
6.149 5.761 6.818	Number of traffic signal where type of priority was changed in 2013

TOTAL ON TRAM NETWORK: 243

- No priority ..... 69 (28.4 %)
- Conditional priority ..... 112 (46.1 %)
- Absolute priority ..... 62 (25.5 %)

Bus priority was put in place at the first pair of intersections in Prague in 2003 as part of the city's participation in the Trendsetter project. After that, bus priority was primarily implemented at the traffic signals around the new sections of the metro; more recently it has become the standard for most new or refurbished traffic signals. In 2013, the number of traffic signals where buses are given priority using active detection rose by 13.

The most significant impact on bus line operation in 2013 was made with the installation of priority at the intersections along the route of several arterial lines on Chodovská and around Bohdalec in connection with the construction of a pair of new traffic signals (Chodovská – Baumax and Bohdalecká – crossing at Bohdalec bus stop). Bus traffic was also helped by priority measures implemented around Prašný most.

Traffic signals on the bus network

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Signals with bus priority	0	8	20	53	81	104	121	144	167	**180**

7.2 Other measures for public transport vehicle priority

An important indicator of the quality of public transport in a city is the degree to which public mass transport is separated from individual transport. For trams, reduction of the number of areas with mixed traffic and an increase in public transport vehicle priority is achieved by constructing tracks on own track bed, potentially also separated from other traffic by concrete dividers (in Prague 52 % of the 142.4 km of tram track is on its own track bed). For buses, greater fluidity is achieved with separate bus lanes.

Tram priority – raised thresholds along tram tracks

The first longitudinal divider used in Prague was a classic concrete kerbstone, built into the 50 m of carriageway on Bělehradská street before the intersection with Anglická in 1996. The installation of this first object used to prevent cars from driving into the tram lane worked and since 1997 concrete thresholds began being installed in other areas as well. The only difference was they received a makeover with a more rounded and later also narrowed design so that vehicles could drive over them more easily when passing.

At the end of 2013, concrete dividers along tram tracks had reached a total length of approximately 10 630 m. Additions were made last year on the streets Svatovítská (in both directions between Vítězné náměstí and Kafkova street), Milady Horákové (heading out of the centre before the intersection with U Brusnice), Dukelských hrdinů (out of the centre before Veletržní) and at the intersection at Ostrčilovo náměstí.

Bus priority – dedicated lanes

Dedicated BUS lanes on tram tracks serve to increase the flow of public transport and to provide better conditions for transferring between buses and trams. Other dedicated lanes on roads are generally created in areas where bus lines are held up in congestion and the width of the road allows for the demarcation of a separate lane for buses (along with bicycles and taxis).

At the end of 2013 the total length of dedicated bus lanes had reached around 20 500 metres on roads (an increase of 500 metres) and around 8 800 metres on tram track bed (an increase of 1 100 metres). Important bus lanes were implemented over the past year on the streets Jugoslávských partyzánů (heading into the centre, 240 m), Opatovská (in both directions around the new traffic signal at the Metodějova stops) and Na strži (into the centre, extended by 175 m). Changes were also made to the classification with exclusive bus lanes on Československého exilu and Svatovítská. Buses now drive onto the tram tracks in both directions by the refurbished Prašný most stops and they began stopping at the Teplárna Michle stop when heading away from the centre as well in September 2013.

8 ROAD TRAFFIC SAFETY

8.1 Traffic accidents

In 2013 there were 18 593 accidents recorded in Prague (+4 % compared to 2012), with 29 casualties (+12 %) and 2 344 injuries (+4 %). There were 640 accidents involving pedestrians (+2 %), with 17 persons killed (+42 %) and 601 injured (-2 %). Pedestrians themselves were at fault for 257 accidents (-8 %), resulting in 6 casualties (+100 %) and 232 injuries (-8 %).

The decisive majority of accidents were caused by drivers (17 985 of 18 593 accidents, or 97 %). The main causes of accidents caused by drivers were improper driving and failure to yield. The number of accidents where alcohol was detected in the culprit was 471 (-2 %).

Number, impact on health and main causes of traffic accidents in Prague

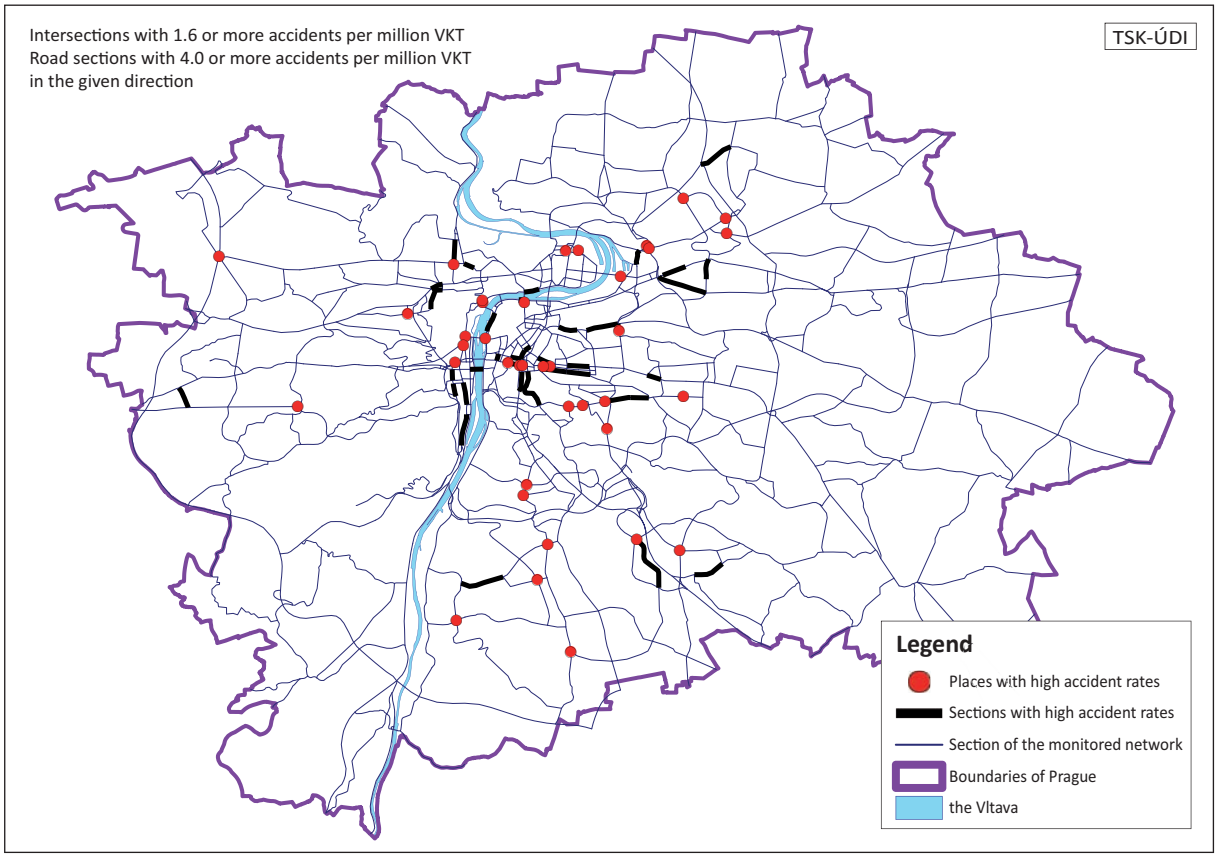
Year	2011	2012	2013	Diff. 13/12
Number of accidents	16 572	17 795	18 593	**+4 %**
Number of fatal injuries	39	26	29	**+12 %**
Number of serious injuries	279	236	228	**-3 %**
Number of minor injuries	1 962	2 009	2 116	**+5 %**
Number of accidents with injury	1 955	1 914	1 965	**+3 %**
Number of accidents without injury	14 617	15 881	16 628	**+5 %**
Number caused by the driver	15 991	17 206	17 985	**+5 %**
due to: failure to keep proper distance	2 848	3 266	3 290	**+1 %**
lack of due care and attention	2 506	2 367	2 556	**+8 %**
red-light violation	289	288	308	**+7 %**
failure to yield in violation of a traffic sign	1 003	948	1 002	**+6 %**
failure to yield when making a left turn	525	577	568	**-2 %**
failure to yield when passing from lane to lane	1 215	1 185	1 270	**+7 %**
exceeding the speed limit	11	5	3	**-40 %**
failure to adapt speed to density of traffic	160	138	138	**0 %**
failure to adapt speed to vehicle condition	126	118	103	**-13 %**
failure to adapt speed to road conditions (ice, potholes, wetness, mud, etc.)	682	785	792	**+1 %**
failure to adapt speed to road (turn, width, decline, incline, etc.)	194	163	157	**-4 %**
Caused by road defect	44	18	37	**+105 %**
Caused by pedestrian	245	278	257	**-8 %**
Caused by cyclist	105	98	127	**+30 %**

The basic trends in accident rate in 2013 can be characterised by a growth in the number of recorded accidents in comparison with the preceding year, a slight increase in the number of fatalities, a decrease in the number of seriously injured persons, an increase in the number of minor injuries and a slight increase in the number of accidents resulting in injury.

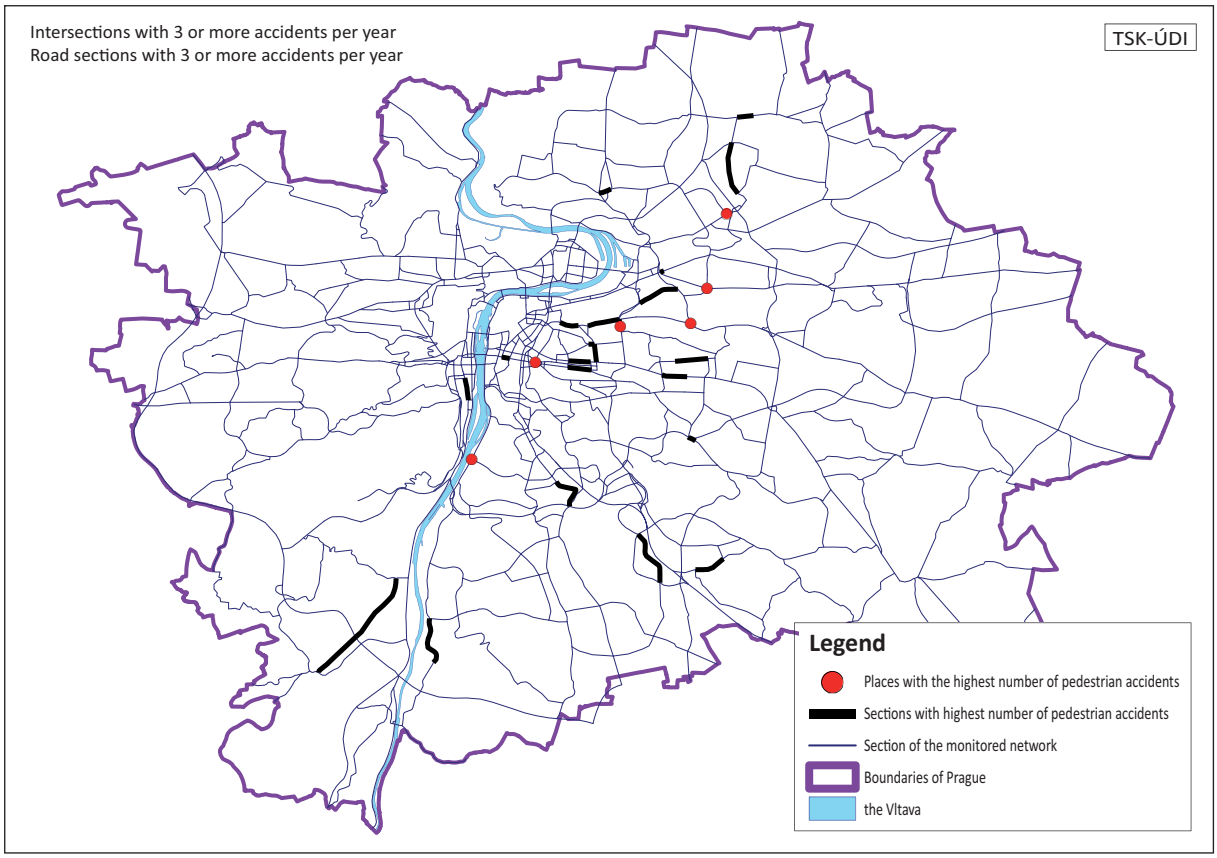
In assessing the long-term trends in accident rates it can be stated that from the 1960s through the 1980s, the long-term development of the accident rate was relatively positive, as the number of recorded traffic accidents roughly corresponded to the development of traffic volume and increased at a slower rate than traffic volume. In the 1990s the general tendency of development reversed to become quite negative, as the number of traffic accidents started growing more rapidly than the volume of traffic. This led to an increase in the risk of accident, expressed as an indicator of the relative accident rate (the number of accidents per million vehicle kilometres travelled).

Only after 2001 did the number of recorded traffic accidents begin to fall again, despite the ongoing rise in automobile traffic. The relative accident rate has also decreased, by 65 % in 2013 compared to 2000. In 2013 the Prague-wide average was 2.6 recorded accidents per million vehicle kilometres travelled.

Places and stretches with high accident rates in Prague in 2013



Places and stretches with the highest number of pedestrian accidents in Prague in 2013



The provisions of Act No 361/2000 Coll. on Road Traffic and its subsequent amendments have also had an influence on the marked drop in the number of recorded accidents since 2001, having several times changed the obligation to report an accident to the police. Traffic accidents without injury or damage to third party property need only be reported where the material damage exceeds the following amounts:

Until end of 2000	From January 2001	From July 2006	From January 2009
CZK 1 000	CZK 20 000	CZK 50 000	CZK 100 000

A positive long-term trend in traffic safety is the reduction in the number of fatal, serious and minor injuries incurred in traffic accidents, despite the ongoing growth of automobile traffic in the city. The overall number of injuries in traffic accidents has fallen from 3 861 in 2000 to 2 373 in 2013, by 39 %, while in the same period automobile traffic in Prague has risen more than 31 %.

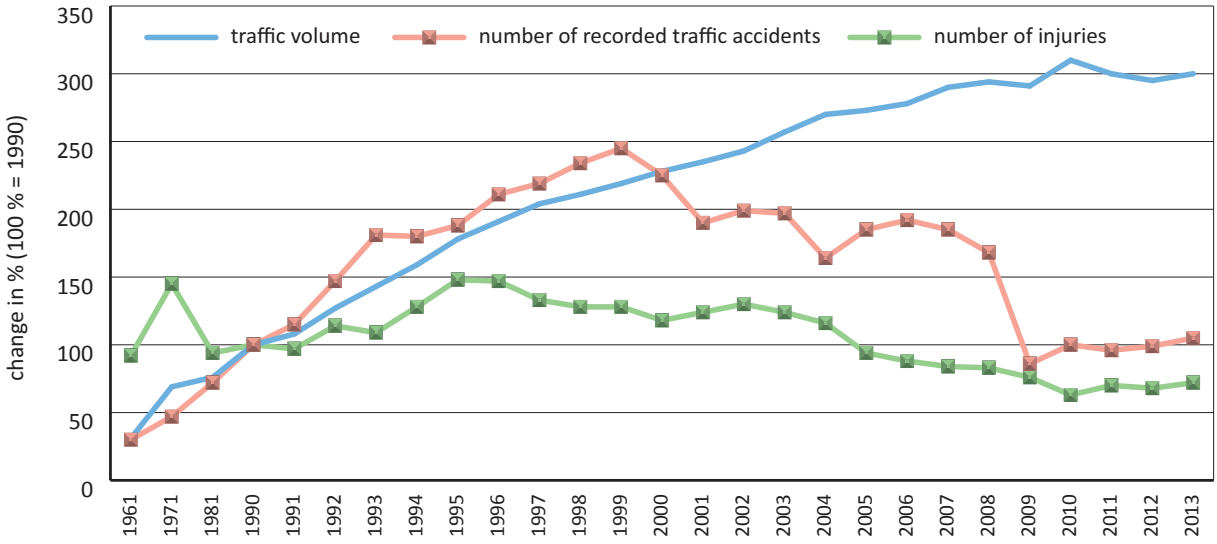
Also still positive is a comparison of the long-term trend in the number of injuries with the volume of automobile traffic. Over the past 23 years, automobile traffic has risen to triple 1990 levels (by 200 %), while the number of injuries in traffic accidents has fallen 27 % (from 3 269 injuries in 1990 to 2 373 in 2013), covering all kinds of injury – fatal, serious and minor.

Number of traffic accidents, injuries and relative accident rate in Prague

Year	Total accidents		Fatal injuries		Serious injuries		Minor injuries		Relative accident rate	Traffic volume (%)
	number	%	number	%	number	%	number	%		
1961	5 495	30 %	63	69 %	580	157 %	2 361	84 %	7.3	31 %
1971	8 496	47 %	123	135 %	567	154 %	4 046	144 %	5.1	69 %
1981	13 064	72 %	81	89 %	401	109 %	2 572	92 %	7.1	76 %
1990	18 024	100 %	94	100 %	369	100 %	2 806	100 %	7.5	100 %
2000	40 560	225 %	80	85 %	521	141 %	3 260	116 %	7.4	228 %
2010	18 190	101 %	29	31 %	279	76 %	1 893	67 %	2.5	304 %
2011	16 572	92 %	39	41 %	279	76 %	1 955	70 %	2.3	301 %
2012	17 795	99 %	26	28 %	236	64 %	2 009	72 %	2.5	299 %
2013	**18 593**	**103 %**	**29**	**31 %**	**228**	**62 %**	**2 116**	**75 %**	**2.6**	**300 %**

100 % = 1990 *Relative accident rate = number of accidents per million VKT (average values, whole road network in Prague)*
Traffic volume = vehicle kilometres travelled on whole road network

Accidents, injuries and traffic volume in Prague 1961 – 2013 (whole road network, annual total)

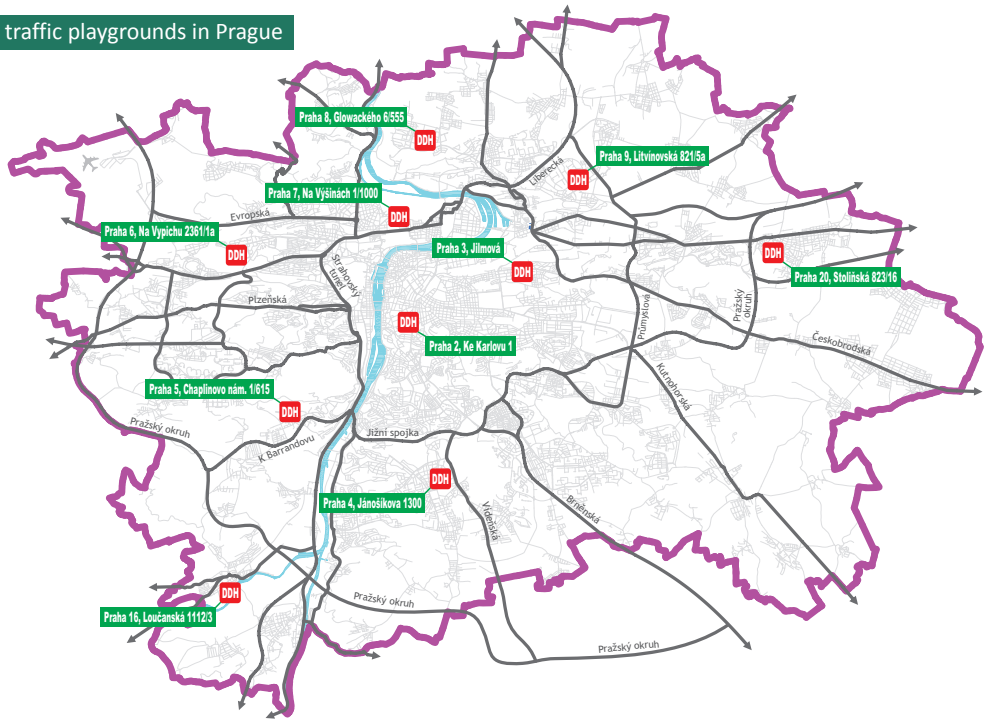


8.2 Traffic education

A number of traffic education programmes took place in Prague in 2013, above all for children and youth. A number of programmes were provided with the goal of helping increase the effectiveness of traffic education at schools. A central aspect was education at child traffic playgrounds (hereinafter CTPs), as well as the programme for beginning cyclists (Young Cyclist Traffic Competition), traffic education shows for children and youth, interactive theatre presentations with traffic education themes and more.

Children were taught according to the thematic plan at ten permanent CTPs. This plan, drawn up by the Ministry of Transport, is binding for CTPs in all the regions of the Czech Republic. In 2013 a total of 46 549 primary school students went through organised training at Prague CTPs. In 2013 planning documentation was drawn up for construction of a further CTP in Prague 15 – Horní Měcholupy..

Children's traffic playgrounds in Prague



A programme for beginning cyclists – the Young Cyclist Traffic Competition (YCTC) – is held by the Ministry of Transport in cooperation with the Ministry of Education, Youth and Sport and is made up of four parts: tests on the rules of the road, a practical road test (in Prague these take place at child traffic playgrounds), a road skill test (a practical ride around various obstacles) and first aid knowledge. This event is primarily focused on primary school students in their senior years (ISCED 2 – grades 6-9) and the winning teams move on through district, city and national rounds to an international competition, which in 2013 took place in Montenegro. In 2013, 140 schools took part in the first round, a growth of 3.6 % over the previous year. The national round took place in the Plzeň Region.

Forty-six interactive theatre performances for children of "The Fairytale Traffic Light" and "Aunt Berta's Bike" were presented at the Police Museum. Children are pulled into the action, working together with the actors and puppets. For the youngest age group this is a very interesting and effective form of traffic education.

A number of safety drives took place for adult participants of road traffic as well in 2013 (spring and autumn skill rides for the driving public, events for hearing-impaired motorists). Altogether there were eight events for adult drivers as well as several traffic safety events for the whole family. Seminars continued to be provided on methods of traffic education at schools, for CTP employees as well as for seniors, who were provided with reflective materials at the end of the sessions.

Another element of traffic education for adults is the driver training that every employer is required to provide within the meaning of the Labour Code for employees that drive a business or personal vehicle of up to 3.5 t while carrying out their work. In 2013, 1 925 persons went through this training.

8.3 Measures to increase traffic safety

In 2013, a total of CZK 14.4 million was spent under the BESIP (road traffic safety) budget to implement measures to increase safety on the road network in Prague. These measures included minor structural modifications, modifications of traffic markings and the installation of traffic devices. Important modifications are performed both as investment projects and as part of road maintenance.

An amount of CZK 13.8 million was drawn (including contributions from Prague 3 and Prague 6) for capital spending on construction of structural speed humps, installing extra lighting at pedestrian crossings and other primarily structural safety measures.

Current expenditures (CZK 0.6 million spent in 2013) are designated in particular for installing assembled speed humps, performing carriageway surface roughening, installing road mirrors, modifying and placing crash barriers and railings, as well as for other non-structural traffic safety devices, in particular near schools and pedestrian crossings.

New traffic islands on Koněvova street by Rečkova street

Traffic islands at the crossing on Budějovická street

As part of BESIP activities in the past year, traffic islands were built for a total cost of CZK 2.6 million at four pedestrian crossings and one location for crossing the tram tracks on Koněvova street in the stretch Jana Želivského – Na vápence (Prague 3), in Prague 4 on Budějovická at the crossing before the Kačerov bus terminal and at the intersection Podle Kačerova – Na nivách. Others were also installed on Vrážská street by the Nádr. Radotín bus stop (Praha 16) and on Františka Diviše (Prague 22).

Long structurally modified speed humps were installed at a cost of CZK 3.4 million in 2013 at the intersections Fibichova – Křižkovského, Jeseniova – Strážní (Prague 3 project) and Šárecká – Na Karlovce (Prague 6 project). Other structural measures included the modification of the intersection U Sparty – Nad Královskou oborou, modification of the intersection Korunní – Jičínská and modifications as part of the project Safe Routes to School (Ke Smíchovu – Na Křenkově) at a total cost of CZK 1.2 million.

Other non-structural traffic safety measures, particularly by schools and pedestrian crossings (extra lighting for pedestrian crossings, modification of traffic signs, installation of traffic mirrors and railings) were realised at a cost of CZK 0.6 million.

Extra lighting at pedestrian crossings was installed in five locations: Bělehradská – U Zvonařky (Prague 2), Ke Smíchovu (Prague 5), Kutnohorská – by the Kutnohorská stop (Prague 15), Vrážská – by the stop Nádraží Radotín (Prague 16) and Hrozenkovská – by the stop Sídliště Zličín (Prague 17).

9 CHANGES IN TRAFFIC ORGANISATION

No significant changes in traffic organisation took place in 2013.

One change of local importance was part of the Jinočanská spojka being put into service in October 2013 between the streets k Třebonicům and Jeremiášova (1.5 km). The four-lane road, which is part of the Jinočanská spojka and which includes a bridge over the Dalejský potok and a pedestrian underpass for future development in the area, will speed up connection between the Stodůlky neighbourhood and the Prague Outer Ring Road, while also easing traffic pressure in Řeporyje.

In the second half of the year, the streets Patočkova and Milady Horákové, including the intersection at Prašný most, were put back into operation in their final form in connection with ongoing work on the City Ring Road.

Once the new bridge structure over the Jižní spojka on Ke garážím was opened at the end of November, it was possible to permanently ban heavy freight traffic from Spořilovská heading out of the centre and reroute this traffic via Jižní spojka – Ke garážím – 5. května, thereby improving the environment around Spořilovská.

Short-term changes in traffic organisation continued over the course of 2013, though often on streets that number among the most important for transportation in Prague. Measures that had a significant impact on the flow of traffic in the whole city included those on the Jižní spojka during construction of the new bridge structure at Ke garážím, at the future site of the "Rybníčky" interchange as part of the project "Increasing the capacity of the Štěrboholy Radial Road", during construction of sound barriers in Záběhlice and on the Štěrboholy Radial Road during repairs to the road surface.

Traffic measures with a local impact included those related to the completion of the City Ring Road on Svatovítská, to the construction of the A line metro stations in the segment Dejvická – Motol on Evropská and Kukulova, to the renovation of the ceiling panels in the Dejvická metro station on Evropská and to the refurbishing of the tram tracks on Francouzská, Moskevská, V olšinách, Poděbradská and Badeniho.

Partial restrictions also took place over the course of the year on the Prague Outer Ring Road, specifically by the Třebonice Interchange in the west and between Českobrodská and Chlumecká in the east. Restrictions on Strakonická associated with the construction of anti-flood walls lasted nearly the whole first half of the year.

During the flood situation in June of 2013 the Department of Transportation Engineering along with the Dispatching for TSK IIKS (integrated inspection control system) provided for ongoing processing of the most recent information on road closures in Prague, at first due to the installation of anti-flood measures and increased water levels and later due to repairs, clean-up and technical inspection of road conditions. Maps with road closures were put up on the main page of the TSK website with links to the City of Prague website.

It was also necessary to produce documentation on the ongoing changes to the traffic regime on the roads of Prague for the purposes of the crisis team, the City Hall Transport Department and other city management entities. An example is the modification of traffic regime associated with installing temporary road signs in the areas Dvořákovo nábřeží – Dušní – Kozí, Řásnovka – Štefánikův most, Strakonická, Wilsonova, nábř. Kpt. Jaroše – Hlávkův most, V Šáreckém údolí.

As part of the emergency organisation of traffic during the floods, modification of individual traffic signals was arranged and traffic signals in danger of flooding were disconnected and the internal electronic device dismantled.

In terms of changes to traffic organisation in the centre it is important to mention the Saturday closures of Smetanovo nábřeží for automobile traffic in the months of September and October. These closures meant increased traffic volume in Malá Strana, as well as on the streets Wilsonova, Legerova, Sokolská, nábř. Ludvíka Svobody, Resslova and in the Strahov Tunnel.

10 PARKING

10.1 Parking in the city centre

The core of the city centre is the Prague Conservation Area (PCA) with an area of 8.7 km^2, which is 1.7 % of the city's territory. In this area there are approximately 33 000 parking spots, of which roughly half are located on the road network (16 000) and the other half in public (9 300) or private (4 700) parking garages or in courtyards (3 000).

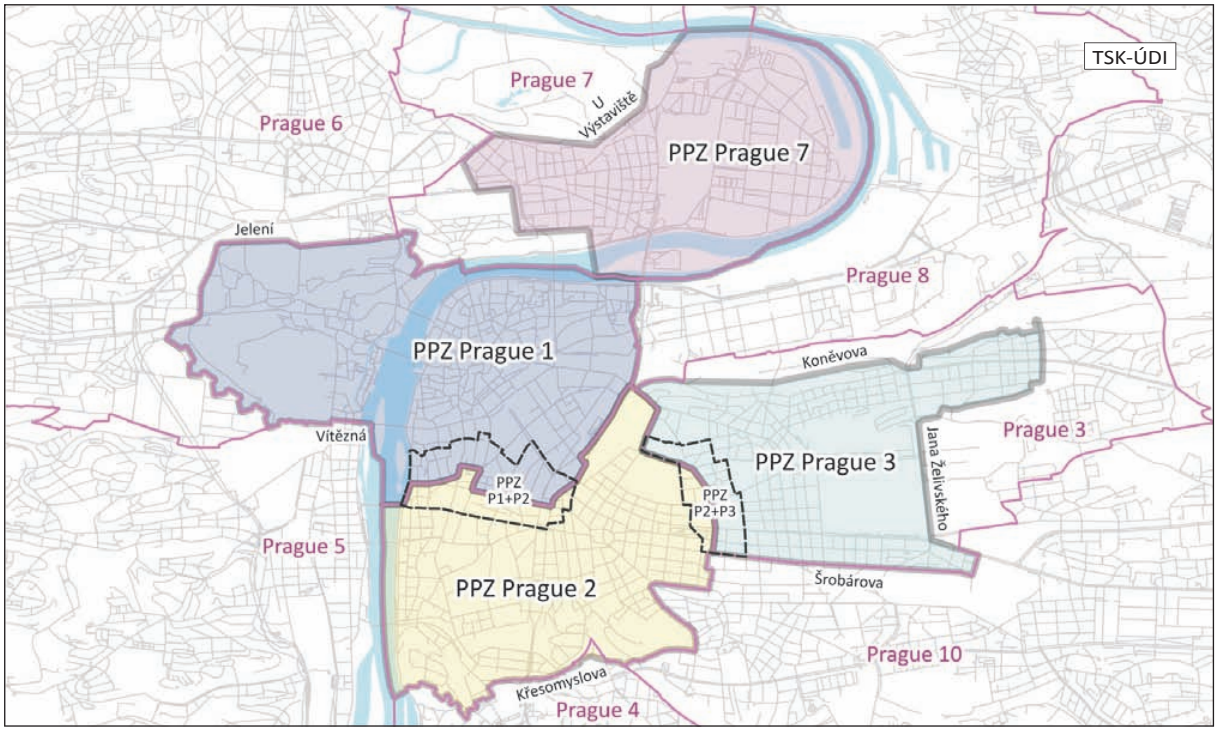
The PCA and adjoining historic neighbourhoods (Smíchov and Holešovice on the left bank of the Vltava and Karlín, Žižkov and Vinohrady on the right bank) form the citywide centre with the greatest concentration of institutions and administrative authorities of citywide and national importance as well as a considerable proportion of the commercial premises, facilities, shops, services and other civic amenities and quantity of cultural historical monuments. The attractiveness of this area, the large number of job opportunities and the vibrant tourist industry lead to high demand for automobile parking, which must be regulated through a system of paid parking zones (PPZ).

Types of PPZ in the centre of Prague

	Blue zone*	Green zone	Orange zone	Mixed zone
Type of parking	Resident and subscriber parking	Paid parking	Paid parking	Combination of residential and paid parking
Time of parking	Long-term parking for holders of parking cards	Medium-term paid parking (6 hrs)	Short-term paid parking (2 hrs)	For holders of parking cards and for paid parking (during the day)
Users	Residents with permanent residence and businesses with place of business	Visitors to city centre	Visitors to city centre	Residents, business owners and visitors in order to have more uniform use of parking capacity
Operation	Mon – Sun 8 AM – 6 AM	Mon – Fri (Sat, Sun) 8 AM – 6 PM (7 PM, 8 PM)	Mon – Fri (Sat, Sun) 8 AM – 6 PM (8 PM)	Mon – Fri (Sat, Sun) 8 AM – 6 PM (7 PM, 8 PM)

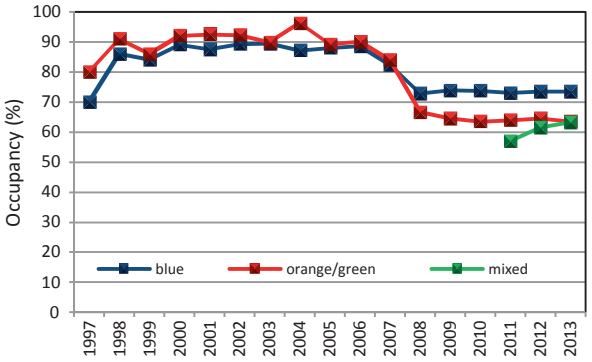
* *At the borders of the PPZs in the city districts 1, 2 and 3 there are also so-called "intersecting zones" where residents and subscribers that are holders of valid parking cards in the neighbouring district can park.*

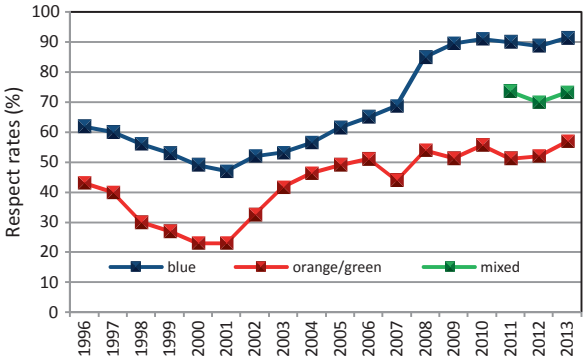
Map of paid parking zones in the centre of Prague



In 2013 there were paid parking zones in place in the municipal districts of Prague 1, Prague 2, Prague 7 and the part of Prague 3 adjacent to the centre (this has been the scope of PPZs since 2007). PPZs take into account the interests of residents – though they do not guarantee them a free parking spot, they do limit the options for those who do not live in such zones. The graphs of the development in occupancy and respecting of paid parking zones since 1996, when the first PPZs were launched in the right-bank part of Prague 1, show positive trends.

Development of occupancy and respect rates in PPZs (%)*





* *occupancy coefficient = percentage of full spots in the PPZ*
respect coefficient = the percentage of drivers who have duly paid the parking fee

After the zones were expanded in 2007 the average occupancy dropped and the respecting of zones increased. The lower occupancy rate after 2007 shows that some areas of the PPZ are not fully utilised (in particular areas at the periphery where the demand for parking was not that high even before PPZs were implemented). The growing level of respect for the zones shows the increased effectiveness of parking enforcement.

Parking in a resident zone on Lublaňská street

Intersecting resident zone (zones 2+3), Laubova street

Comparison of occupancy and respect rate in PPZs in 2008 and 2013

PPZ	Prague 1		Prague 2		Prague 3		Prague 7	
	blue	orange/gr.	blue	orange/gr.	blue	orange/gr.	blue	orange/gr.
OCCUPANCY RATE								
2008	85.4 %	89.2 %	79.3 %	78.7 %	67.5 %	56.5 %	70.5 %	62.0 %
2013	80.2 %	76.6 %	75.7 %	62.4 %	64.9 %	58.1 %	72.8 %	56.9 %
difference	**-5.2 %**	**-12.6 %**	**-3.6 %**	**-16.3 %**	**-2.6 %**	**1.6 %**	**2.3 %**	**-5.1 %**
RESPECT RATE								
2008	64.9 %	41.4 %	72.6 %	46.4 %	86.7 %	54.4 %	87.4 %	54.2 %
2013	89.7 %	51.5 %	92.6 %	62.4 %	89.2 %	56.6 %	93.5 %	56.9 %
difference	**+24.8 %**	**+10.1 %**	**+20.0 %**	**+16.0 %**	**+2.5 %**	**+2.2 %**	**+6.1 %**	**+2.7 %**

The number of spots in PPZs changes slightly over the course of the year, generally as a result of various road restrictions or changes in traffic organisation.

In the PCA and its immediate surroundings it is also possible to park in mass parking garages (with a total of approximately 10 000 parking spots), which are generally underground and part of shopping or administrative centres, hotels or cultural destinations. To a lesser extent there are also facilities serving solely for parking (e.g. Slovan).

Mass garages are being built in the centre of the city in connection with construction of the Blanka tunnel complex – Letná (860 spaces) and Prašný most (460 spaces).

10.2 Parking in the rest of the city

The basic characteristics of the parking situation in the rest of the city, particularly in those areas with multi-story buildings, are as follows:

- Demand for parking spaces considerably exceeds the existing supply. The options for organising parking are limited by the layout (width) of the streets.
- The number of parking spaces on roads and in parking garages is not recorded.
- When new blocks of flats are built, new parking spaces are created, but the number is not recorded.
- The lack of parking spaces around metro stations is made worse by the fact that existing spots are taken up by motorists from Prague and its surroundings driving to the metro.
- Full use is not made of the paid parking in existing parking garages.
- The various city districts are ordering studies and projects to organise the parking situation or are updating existing documents.

10.3 Park and Ride facilities (P+R)

The combination of automobile and public transportation holds many advantages for both travellers and the city itself. For travellers, transportation outside the city remains as flexible as possible, while inside the city transportation by mass transit is quicker and often less complicated as well. The city on the other hand benefits from the improved modal share and the demands for travelling through the heavily settled area of the city is reduced.

What this means for the city however is an increased demand for parking around attractive public transportation stations. This is one of the reasons it is important to systematically expand and maintain the network of park and ride facilities.

Basic data on the P+R system in Prague

Number of parking lots in P+R system	Total structural capacity	Number of spots per 1 million residents
16 (13 locations)	3 008 spots	2 420
Permitted vehicles	**Operating hours**	**Daily rate**
passenger automobiles, bicycles	4:00 – 1:00 (Běchovice 7:00 – 19:00)	CZK 20

The system of P+R lots in Prague has been in operation since 1997 and provides a secure place where primarily visitors to the city can safely park their personal automobile at stations of high-capacity rail public transport. P+R lots are guarded public parking lots with regulated hours.

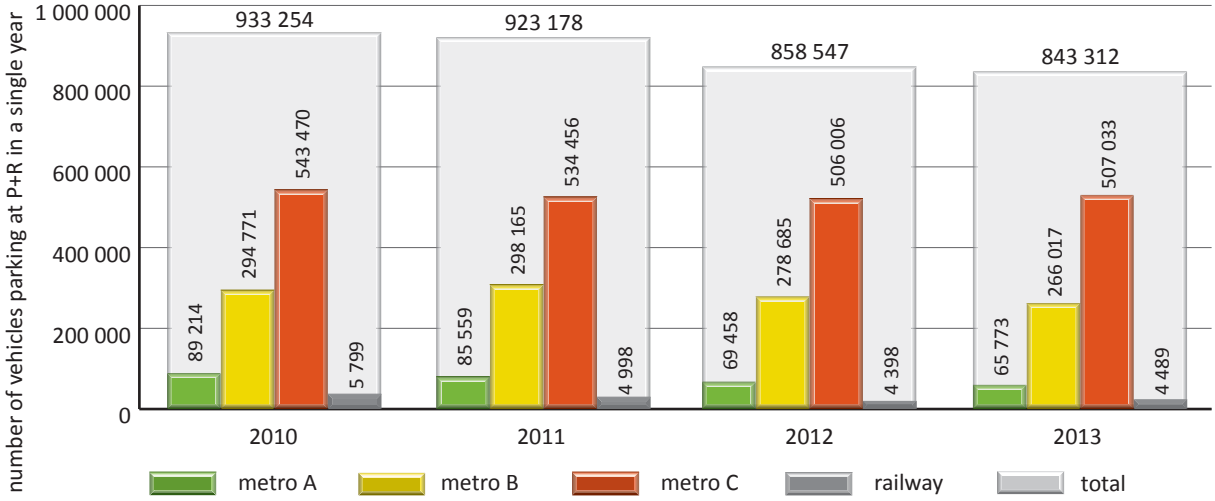
The total structural capacity of the P+R system is broken down according to use between spots for the basic function of the P+R system (2 739 spots), spots permanently reserved for vehicles transporting a person with a serious handicap – marked in accordance with the Act on Land Roads (130 spots) and spots for other purposes or residents with a valid contract on long-term parking of a vehicle (139 spots).

Day parking is set at the flat rate of CZK 20. Each violation of the terms and conditions leads to a CZK 100 fee. Violation of the terms and conditions includes, for example, leaving a transportation device (car or bike) at the lot outside the operating hours (i.e. overnight), or parking an automobile at the lot without demonstrating subsequent use of public transport.

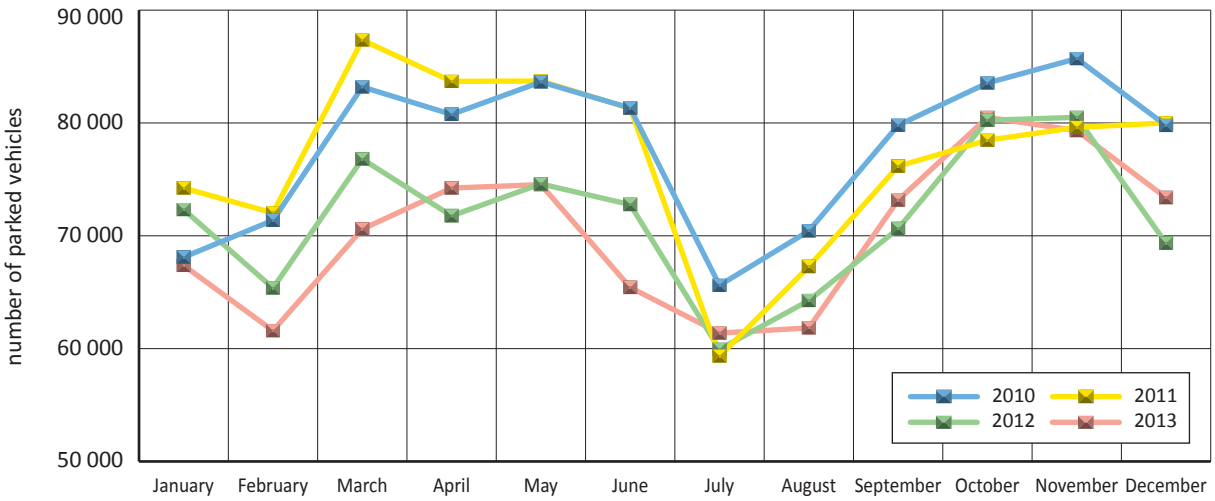
Spots reserved for the basic function of the P+R system and vehicles parked monthly (October)

Lot	of spots	Cars parked monthly		Lot	of spots	Cars parked monthly	
		10/2012	10/2013			10/2012	10/2013
Běchovice	86	53	63	B Nové Butovice	57	2 045	2 012
B Černý Most 1	294	10 733	10 909	C Opatov	181	5 653	5 640
B Černý Most 2	131	3 327	3 363	Radotín	15	331	375
A Depo Hostivař	169	4 727	4 647	B Rajská zahrada	88	2 695	2 578
C Holešovice	74	3 681	3 690	A Skalka 1	63	1 473	1 333
C Chodov	653	19 249	18 711	A Skalka 2	74	368	290
C Ládví	78	2 216	2 119	B Zličín 1	83	3 109	3 297
C Letňany	633	18 029	18 881	B Zličín 2	60	2 551	2 588

Year-on-year development of use of P+R system



Annual variation in use of the P+R system



B+R (Bike and Ride) at P+R lots

A bicycle can be left in the guarded premises of the P+R lot during the operating hours for free. The cyclist announce his arrival to the lot attendant, from whom they receive a lock for locking the bicycle to a stand. They return the key to the attendant and are issued a control card for a returnable deposit (CZK 20). This card allows them to pick up the bicycle. Bicycle storage is not possible at P+R Chodov,

P+R Černý Most 2, P+R Skalka 2 and P+R Zličín 2. All other P+R facilities are equipped with a stand for at least 4 bicycles (P+R Zličín 1 has a covered stand structure for 10 bicycles).

Economics of operating system of P+R lots (amounts in thousands of CZK before VAT)			
Year	**Operating income**	**Operating costs**	**Economic balance**
2010	9 077	30 961	-21 884
2011	11 775	31 204	-19 429
2012	14 529	30 864	-16 335
2013	**15 283**	**31 086**	**-15 803**

Source: TSK and Prague Public Transport Company

With a rate hike for day parking in the second half of 2011 (from CZK 10 to 20), the economic balance of the P+R system was improved, accompanied by a drop in the number of parked cars. The most significant drops were recorded at the lots on the A metro line (P+R Depo Hostivař, Skalka 1 a 2) and P+R Běchovice.

Operation of the P+R nevertheless continues to require a subsidy of roughly half its operating costs.

P+R Zličín 1

K+R Opatov

10.4 Kiss and Ride points

IP13e

K+R is a method of combined transportation of passengers that connects passenger automobile transport and public mass transit and vice versa without long-term vehicle parking. K+R "Kiss and Ride" stopping points allow for short-term stopping of vehicles (max. 3 min) in order for passengers to exit or enter near metro stations.

K+R stopping points within the City of Prague are labelled with a "Sign on the carriageway" (V15) road marking with the text "K+R" along with a vertical "K+R Parking Lot" sign (IP13e) with the text "MAX 3 min".

Currently there are 24 lots of this type available within the City of Prague. During 2013 three locations were removed (one of them only temporarily).

Due to the demarcation of a reserved bus lane on Jugoslávských partyzánů, the K+R point near Dejvická metro station was removed and the K+R markings by the Pankrác metro station were removed at the request of the Prague 4 Municipal Authority. The second K+R point by Dejvická station was removed only temporarily in connection with the renovation of the metro ceiling panel on Vítězné náměstí.

11 TRANSPORTATION INFRASTRUCTURE AND ROAD MAINTENANCE

Transportation infrastructure in Prague is primarily financed by the chapters of the City of Prague budget (see Chapter 12) and investment is organised above all by the Prague City Hall Municipal Investment Division (OMI), the Technical Administration of Roads of the City of Prague (TSK) and the Prague Public Transport Company (DPP). State funds (via the State Fund of Transportation Infrastructure – SFDI) go to finance railway track within Prague, the Prague Outer Ring Road and also help finance city roads that make up for (or until recently made up for) the as yet unbuilt sections of these state-guaranteed structures.

The most important transportation work put into operation in 2013 was the second part of the Jinočanská spojka between the streets K Řeporyjím and Jeremiášova. Construction continued on the north part of the City Ring Road (the Blanka tunnel complex) and the extension of the A metro line from Dejvická to Nemocnice Motol. Optimisation of the Praha-Bubeneč – Praha-Holešovice railway track was also launched.

Jinočanská spojka (Poncarova street)

Construction of new Trojský bridge

Most important transportation works in 2013

Name [investor]	Description
Blanka tunnel complex (City Ring Road section Malovanka – Pelc-Tyrolka) [OMI]	• Work continued on the whole 6 382 m long section of the tunnel complex. • On 1 May 2013 the section of Patočkova street between Střešovická and Myslbekova was opened in both directions. • In October 2013 the extensive renovation of the Prašný most intersection and adjoining section of Svatovítská street was completed.
Trojský bridge (part of construction of Blanka tunnel complex) [OMI]	• Connects the banks of Holešovice and Troja, total bridge length 262 m, width 36 m. • Work was launched on laying the tram track, the final surfaces and installation of sidewalk panels on the console.
New section of metro A Dejvická – Motol [DPP]	• 6 134 m long section includes 4 stations – Bořislavka, Nádraží Veleslavín, Petřiny and Nemocnice Motol (names of stations were modified slightly in 2013). • Drilling of track and station tunnels and drilling of escalator tunnels completed. • Final work on surfaces affected by construction was gradually carried out.
Jinočanská spojka (Poncarova street) [OMI]	• 1 436 m long section connects to the first part of the road and leads from K Řeporyjím to Jeremiášova. • The new part of the road was opened in October 2013 and connects the Prague Outer Ring Road (EXIT 21 Jinočany) to Stodůlky. • Jinočanská spojka received a new name – Poncarova street.
Ke garážím bridge [TSK]	• Original bridge demolished and only reinforced concrete piles and pillar foundations retained. • New bridge, 85.7 m long, opened in November 2013; serves primarily as a connection between Jižní spojka and 5. května for heavy freight traffic, which thus does not need to travel via the more residential Spořilovská street.

Freight transport on the new Ke garážím bridge

Construction of the Prašný most intersection

Overview of most important road refurbishment and repairs in 2013

Name [investor]	Description
Prašný most intersection (part of construction of Blanka tunnel complex) [OMI]	• Refurbishment of intersection completed to final appearance. • Included new surfaces, connection to tunnel ramps, traffic markings, including LED signs. • Service also began on the new tram intersection, where the first high-speed switch in Prague was installed in the direction from Hradčanská, allowing trams to drive into the switch at high speeds. • A system of pedestrian underpasses was built and opened under the intersection.
Svatovítská street (part of construction of Blanka tunnel complex) [OMI]	• A new bridge over the Buštěhrad railway, the width of which corresponds to the increased demands for tram and automobile traffic. • Tram track was refurbished, definitive carriageway and sidewalk surface treatments carried out and final traffic markings installed.
Svatovítská street [TSK]	• In order to reduce street noise, the lower part of Svatovítská between Generála Píky and Vítězné náměstí was completely refurbished. • Refurbishment included replacement of part of the paving stone surface for bituminous, modification of pedestrian crossings, sidewalks, traffic markings and public transport stops.
Phase III of repairs to the street Na Větrníku [TSK]	• Phase III (section Myslivečkova – Ankarská) comprised replacement of paving stone surfaces for bituminous surfaces. • Parking spaces were also modified, greenspace planted, and traffic islands installed for pedestrians.
Repair of K Barrandovu street [TSK]	• Eighth stage of repairs took place (laying of Viaphone surface with anti-noise properties) in the direction out of the centre between Lamačova and Štěpařská.
Repair of Ankarská street [TSK]	• Comprehensive maintenance in the section Brunclíkova – Na Větrníku was performed, including bus stop surfaces. • Traffic island for pedestrians built on Brunclíkova.
Refurbishment of Badeniho street [DPP, OMI]	• Section between Milady Horákové and Na Valech refurbished. • Refurbishment included exchange of carriageway surface, tram track repairs, widening of sidewalks and removal of provisional traffic signal on Na Valech.
Repair of Ruská street [TSK]	• Comprehensive maintenance of road surface from Moskevská to Vlašimská, including modifications to pedestrian crossings
Repair of Na Florenci street [private investor]	• Renewal of street surfaces (part of construction of Florentinum administrative centre).

Among the further important projects were the repairs of the pile walls at the north portal of the Strahov Tunnel, remediation of the median, rails and lighting on Nuselský most and renewal of the surfaces and traffic markings on the streets Vinořská, Střížkovská, Jeremenkova, Československého exilu and others. Work also took place on the Štěrboholská spojka (renovation of the north branch) and on the streets Hornopočernická, Ve Žlíbku, Žitomírská, Doupovská, Náchodská, Ďáblická, Cínovecká, Budínova and V mezihoří. In the city centre repairs took place on Londýnská street (Jugoslávská – Rumunská), on Železná, 17. listopadu, Na rejdišti and Dvořákovo nábř. In connection

with repairs to the ceiling panel of the Dejvická metro station, the lower part of Evropská street, from Gymnasijní up to Vítězné náměstí, was closed for the majority of 2013. Repairs to this road will continue in 2014.

Renovation of tram tracks on Evropská street

Refurbished track on Poděbradská street

Overview of most important repairs and reconstruction in public transport in 2013

Name [investor]	Description
Refurbishment of Poděbradská tram track [DPP]	• Complete refurbishment of the tram track from Čerpadlová to Průmyslová. Original large-scale panels replaced with classic track construction with concrete ties and an open track top. All tram stops were also refurbished. A new stop – Kabešova – was built along with new traffic signals.
Prašný most tram stop (part of construction of Blanka tunnel complex) [OMI]	• Temporarily removed tram stop Prašný most was renewed. • New stop from the east side is accessible from the underpass under the Prašný most intersection, from the west along the new light-controlled pedestrian crossing.
Refurbishment of Evropská tram track [DPP]	• Refurbishing of the segment between Gymnasijní and Vítězné náměstí took place in connection with the renovation of the ceiling panel of Dejvická metro station. • The Dejvická tram stop was refurbished and the track made of large-scale panels was replaced with concrete ties covered in bitumen. • In the second, 2.6 km long segment between Horoměřická and Za vokovickou vozovnou the large-scale panels were replaced with open track top.
Refurbishment of Francouzská and Moskevská tram track [DPP, TSK, PVK, Prague 10]	• 1.7 km of tram track from Blanická – Minská was refurbished. • Large-scale BKV panels replaced with W-tram system with bituminous covering. • On Francouzská DPP acted independently, on Moskevská the project was coordinated with the first phase of revitalisation of the whole street (coordination with replacement of infrastructure and sidewalk modifications). • A temporary Krymská stop was made heading into the centre, the Ruská stops were built as barrier-free stops in both directions at the northernmost part of Moskevská, where new sidewalks and pedestrian crossings were also installed.
Refurbishment of tram track on V Olšinách [DPP]	• In November and December tram track was refurbished between Kubánské náměstí and Průběžná, where the noisy large-scale panels were replaced with an open track top (grass will be added in 2014). • Barrier-free access was established for the refurbished Kubánské náměstí stop heading into the centre.

The Technical Administration of Roads of the City of Prague, as the administrator of most roads and road accessories in the city, is responsible for keeping them in satisfactory working order. It therefore provides for all necessary repairs, cleaning, and winter and summer maintenance. These are financed from the current expenditure section of the City of Prague budget and from contributions from SFDI and certain municipal districts. In 2013, CZK 1 104 million was spent on repairs and maintenance, CZK 564 million on cleaning and greenspace and CZK 542 million on winter street maintenance. Capital expenditures totalled CZK 978 million.

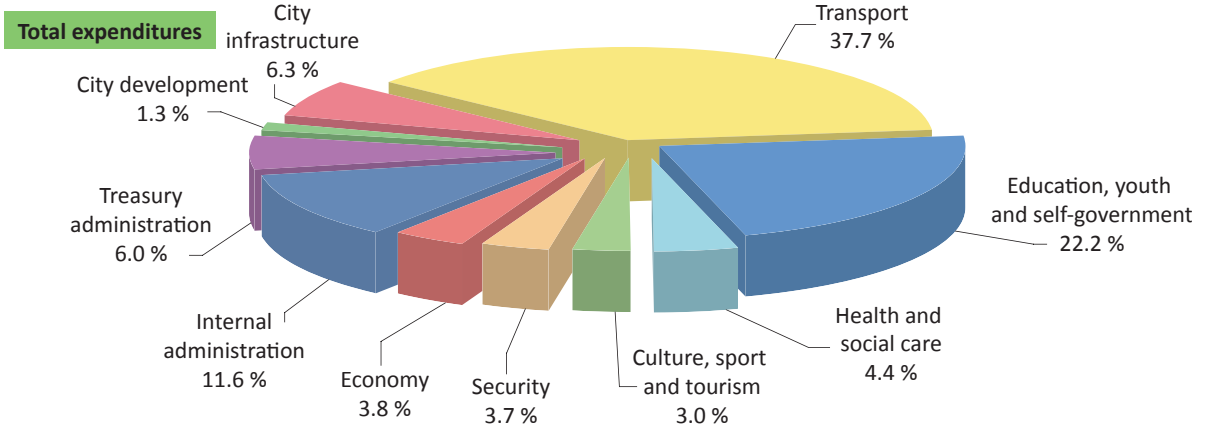
12 FINANCING THE OPERATION AND DEVELOPMENT OF MOBILITY

The operation of urban transport and the realisation of transportation infrastructure in 2013 was financed from the budget of the City of Prague, with contributions from the state budget, the own resources of the Prague Public Transport Company, and other city organisations. Funding also came from grants from EU funds and European Investment Bank (EIB) loans.

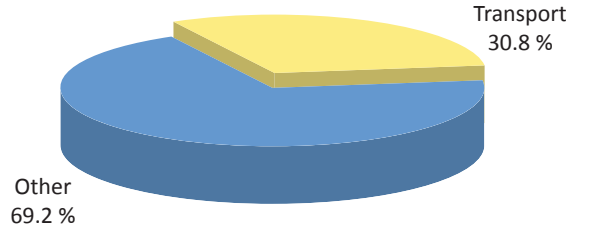
The City of Prague municipal budget, updated 30 June 2013, totalled CZK 66.4 billion in expenditures, of which the expenditures under Chapter 03 Transport totalled CZK 25.05 billion. Chapter 03 was thus once again the most substantial chapter of the municipal budget in terms of expenditures in 2013 (38 %). A further CZK 45 million earmarked for covering the operation of safety systems for the metro and Strahov automobile tunnel was drawn from Chapter 07 Security.

Transport accounted for just under 31 % of the City of Prague's current expenditures and transport investments over 53 % of capital spending.

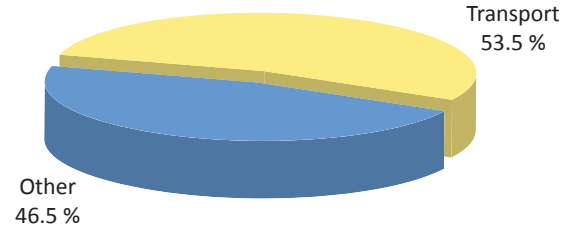
Breakdown of municipal budget expenditures in 2013 (budget updated as of 30 June 2013)



Transport as % of current expenditures



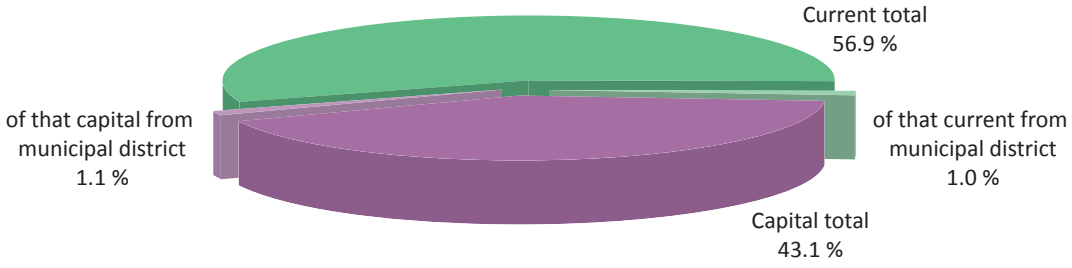
Transport as % of capital expenditures



Of the total amount planned for transport in the adjusted budget (CZK 25.1 billion), CZK 14.3 billion was earmarked for current expenditures and CZK 10.8 billion for capital spending.

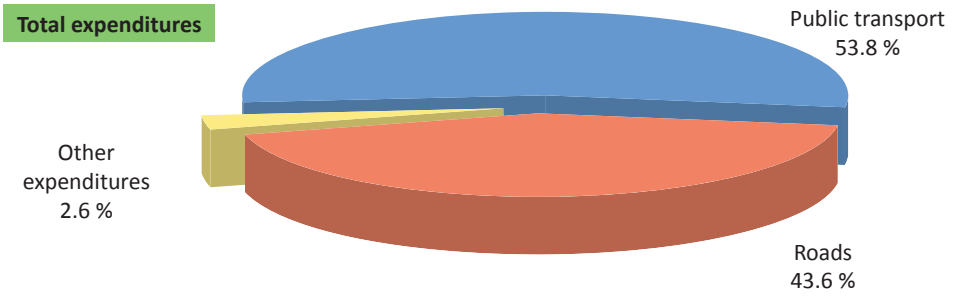
Proportion of current and capital expenditures in Chapter 03 Transport (budget updated 30 June 2013)

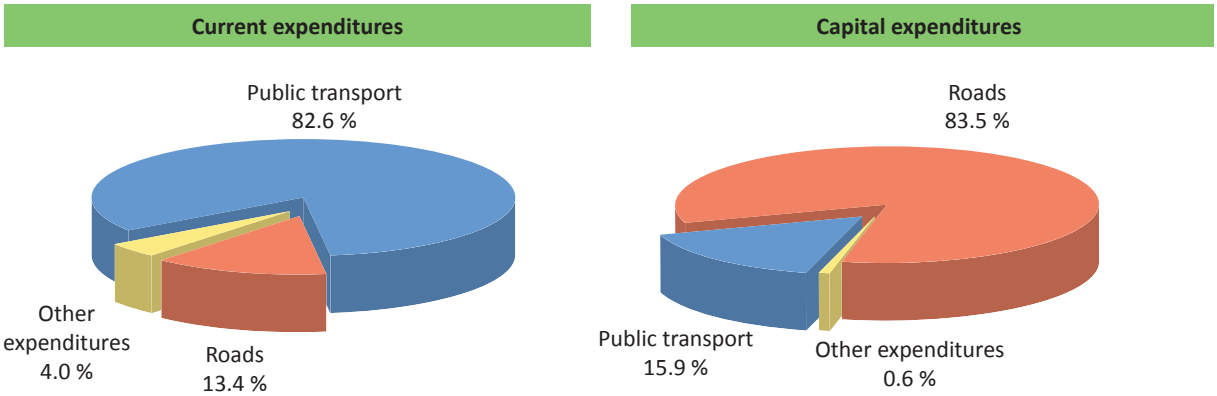
Proportion of current and capital expenditures in Chapter 03 Transport (budget updated 30 June 2013)



Ever year, expenditures associated with passenger public transport form the decisive bulk of current expenditures. CZK 11.8 billion was set aside for this purpose in the adjusted budget. CZK 1.9 billion was earmarked for administration, maintenance and operation of roads and CZK 0.6 billion went to cover various other necessary expenditures.

Structure of municipal budget transport expenditures in 2013 (budget updated 30 June 2013)



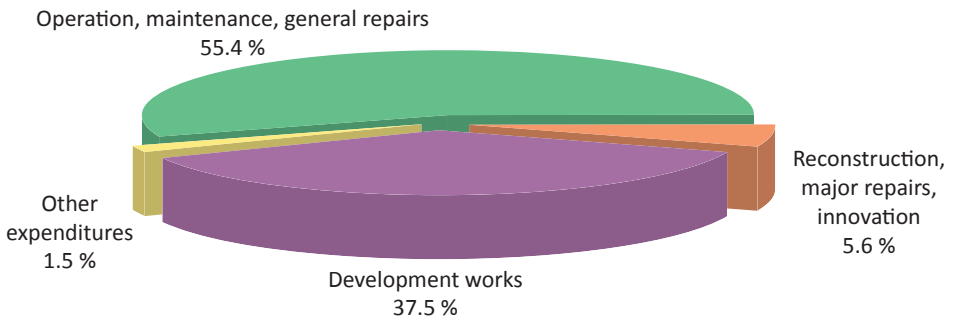


The capital expenditures went primarily to pay for development investments, i.e. construction of new roads and metro lines and other transportation equipment (87 %), as well as more extensive repairs and refurbishment of transport routes and equipment (13 %). Capital expenditures were dominated by expenditures for improving the road network and the conditions for road traffic. Of the total amount of CZK 10.8 billion, over CZK 1.7 billion went to renewal and development of public transport, more than CZK 9.0 billion to investment in the road network and just under CZK 0.1 billion for other necessary expenditures.

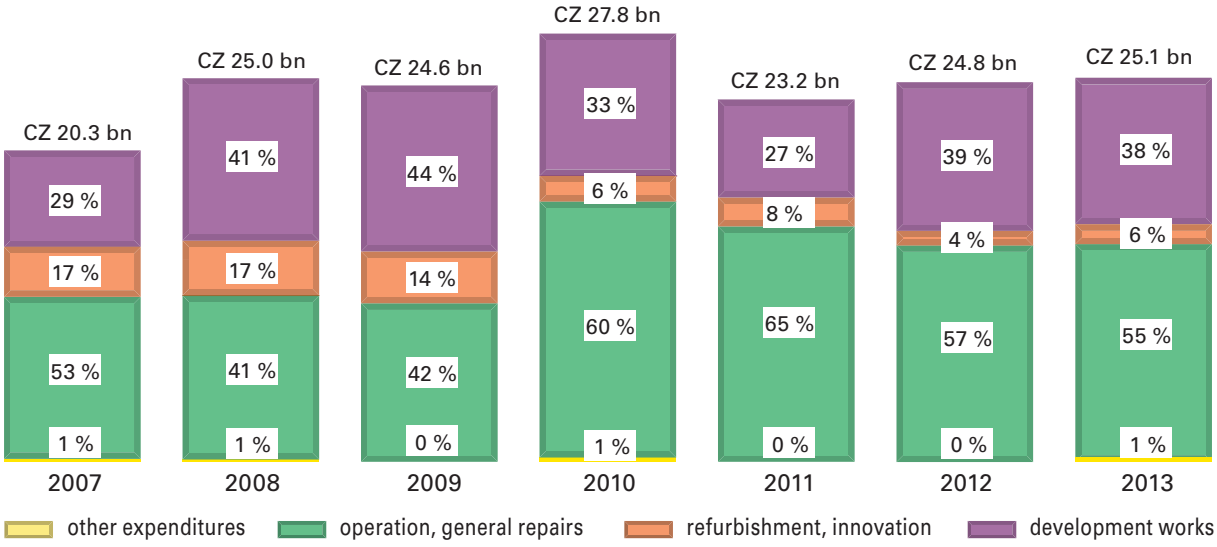
Of the total transportation expenditures in the adjusted 2013 budget, the amount set aside for ensuring the operation, renewal and development of public passenger transport was 54 % and the amount for ensuring road transport and development of the road network was 44 %.

A more detailed breakdown of the items in the expenditures on transport shows that CZK 13.9 billion went to providing for operation, general repairs and maintenance of the city's transportation system, CZK 1.4 billion went to major repairs, refurbishing and renewal of technical facilities, CZK 9.4 billion was earmarked for development investments, and just under CZK 0.4 billion to other expenditures.

Structure of total transport expenditures in 2013 city budget (budget updated 30 June 2013)



Development of structure of transport expenditures in City of Prague budgets (budgets adjusted as of 30 June)

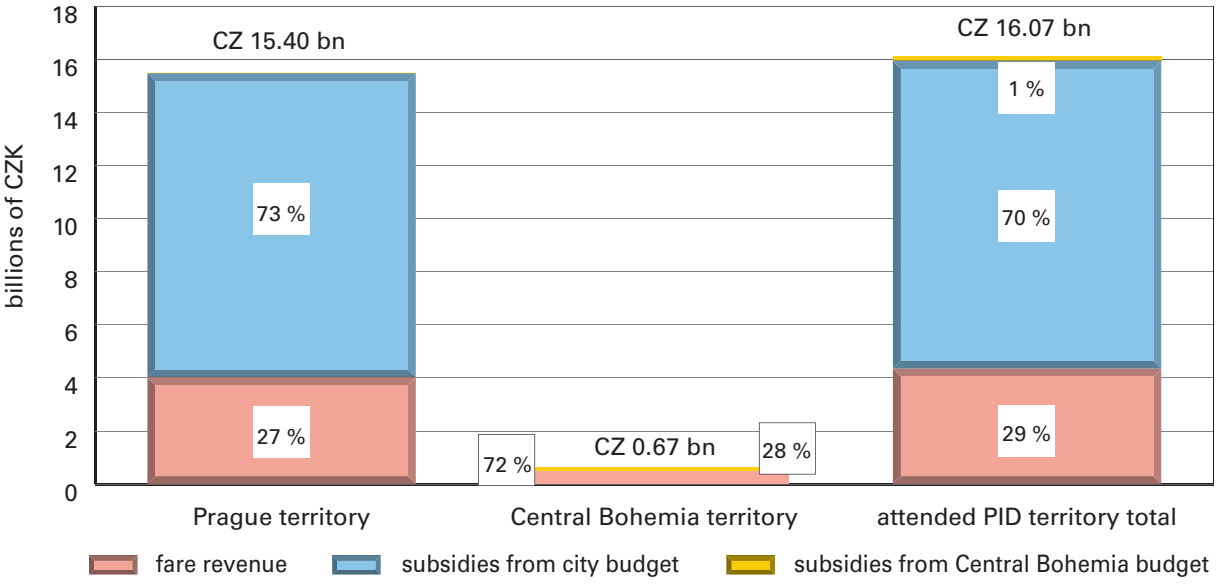


Targeted bound contributions were provided to the City of Prague from the state budget for operating the metro and Strahov tunnel safety systems, and to cover certain PID operating costs. A contribution was allotted from the budget of the State Fund for Transport Infrastructure (SFDI) for the maintenance, repair and construction of roads that are temporarily fulfilling the function of the lacking superior road network. The state budget also adds to EU funds to help finance EU operational programmes.

The state also fully finances construction of the Prague Outer Ring Road as one of the most important motor roads in the Czech Republic which connects eight motorways and motor roads. In 2013 a total of CZK 103.94 million (including VAT and valorisation) was drawn for construction work on the southwest part of the ring road.

An important source of funding for operation of the city's public transportation system is the fare revenue or other minor revenue. The basic relationship between the volume of revenue and subsidies in operating Prague Integrated Public Transport is evident from the following graph.

Operating subsidies and fare revenue in PID (2013, not including railway revenue and subsidies)



The Prague Public Transport Company contributed CZK 4.3 billion of its own resources to cover investment costs for the city's transportation system, of which CZK 2.7 billion went to renewing the MHD fleet.

13 EU PROJECTS WITH PARTICIPATION OF TSK

One of the important tasks that must be addressed in developing the Czech Republic's capital city is ensuring that the whole territory of Prague lives up to the level demanded by the European Union in terms of transportation, i.e. that the goals of the European Transport Policy be fulfilled. These objectives are defined in a document called a White Paper and they are to be achieved through "initiatives" that include specific measures. In the initiative entitled "Innovating for the future – technology and behaviour" there is a demand for more effective application of integrated traffic management systems, traffic information systems and systems allowing better use of transportation infrastructure.

The demands outlined by the European Union in the White Paper, as well as in its other documents and directives focusing on transportation policy, are naturally also reflected in the transportation policy of the Czech Republic and documents approved by the responsible bodies of the capital city.

What is important in all this is that all steps to improve transportation in Prague count on significant contributions from EU sources of funding. For this reason, important transportation projects affecting Prague are realised under the Operational Programme Transportation under priority axis 5 – "Modernisation and Development of the Prague Metro and the Road Traffic Management Systems in the City of Prague".

Operational Programme Transport (OPD)

The first project under priority axis 5 was the Prague Urban Road Traffic Management and Regulation System. Implementation was provided for by the City of Prague Technical Administration of Roads, which is charged with planning and realising projects that deal with the development of transportation telematics. Implementation took place in the years 2007 – 2011 and was supported financially by the European Union. The Cohesion Fund contribution was approved by the European Union in the amount of CZK 556 million, which comprised 85 % of the total costs. The remaining 15 % was co-financed by the City of Prague from its budget.

Monitoring traffic in road tunnels at UTCC Prague

Information for drivers on VMS-433 on Modřanská street

Following up on the successful establishment of a road traffic management and regulation system in the capital is Prague's second project approved for support under priority axis 5 of OPD, entitled Increasing Road Safety in Prague. Implementation was launched in 2009. The project was approved for CZK 493 million in financial support from the Cohesion Fund, which represents 85 % of the planned total costs.

The project was divided into three basic areas:
- Traffic management and monitoring in tunnels
- Provision of traffic information
- Harmonisation of telematic systems on the City Ring Road and radial roads

Realisation of the project in 2012 – 2013 took place in all three basic areas. In 2012 two areas were completed – “Traffic management and monitoring in the Strahov automobile tunnel” and “Harmonisation of telematic systems on the City Ring Road and radial roads in connection with new structures”. The remaining area “Provision of traffic information using a system of VMSs” was completed in May 2013.

Provision of traffic information using a system of VMSs

Drivers in Prague are now navigated by a total of 58 new and modernised information boards. These boards are placed so as to cover the most important traffic nodes and inform drivers sufficiently in advance of the current traffic situation. The system is unique in its scope. In place of the roughly 20 original boards with pre-set statements predominantly concerning traffic in nearby City Ring Road Tunnels, by the end of 2013 there were nearly 60 new boards spread over the whole road network. Although installation of new devices is not currently planned, the possibilities for using the current ones are ever increasing.

For the system to work it was necessary to divide Prague’s road network into more than 300 sections. Each section was assigned three groups of boards based on the distance from the section about which they were informing. As the devices were installed over the whole city and there are many events on city streets, a system of priorities for displaying messages was also devised. Closures and events in the immediate vicinity are given a higher priority.

TSK constantly monitors tips from the public, updates the database of messages that can appear on the boards, develops the client application for inputting texts, updates and modifies the displayed maps and works on further systems that can acquire data for the variable signs. On its website (http://dic.tsk-praha.cz) TSK also offers an application that displays what messages are currently being displayed on the individual boards.

Dispatcher workstation at UTCC Prague

CTMS camera on Spořilovská street

Comprehensive Telematic Monitoring System

A new project under OPD launched in June 2013 is the “Comprehensive Telematic Monitoring System’ (hereinafter CTMS).
The subject of this project is:

- On-line pictorial monitoring of the traffic situation (monitoring by traffic control centre operator)
- Collection of transportation engineering data – volume, classification and spot measurement of vehicle speed.
- Bidirectional detection of congestion and detection of a stopped vehicle within roughly 100 m of the camera.
- Bidirectional linear calculation of arrival times. The elementary component of CTMS is the nearly thirty rotating monitoring cameras and nearly half that of supplementary detectors. Completion of the project is planned for 2014.

14 OTHER FORMS OF TRANSPORT

14.1 Air transport

Both passenger and freight air transport in Prague are primarily operated at Václav Havel Airport Prague located in Ruzyně at the northwest edge of the city (public international airport with an external border). Aside from this there are several other smaller airports within the city or its close surroundings (Letňany – grass-covered public domestic airport and private international airport, Kbely – military airport, Točná – grass-covered public domestic airport (under renovation in 2013), Vodochody – private international airport).

The Prague Airport has three take-off and landing runways, one of which is in long-term closure. The total capacity of the runway system is approximately 200 000 aircraft movements (take-offs and landings) per year. The maximum capacity is 46 aircraft movements an hour. There are three terminals for checking through passengers at the airport. In the north part of the airport are Terminals 1 and 2 (1 – flights outside the Schengen area, 2 – flights to the Schengen area), while Terminal 3 (predominantly general aviation) is located in the south part. The overall capacity of the terminals that serve to check through passengers is 15.5 million per year. There are two terminals for freight in the north part of the airport with a total capacity of 200 000 t/year.

In 2013 a total of 382 carriers used the services of the Václav Havel Airport, of those 53 carriers on regular passenger lines, 9 low-cost carriers and 5 regular freight carriers. The other carriers operated charter flights, private flights and irregular freight transport. Altogether flights were made to 641 destinations from the airport in 2013, of those 146 destinations in regular transport and 634 destinations in charter transport. Some destinations were the subject of both regular and irregular connections.

North section – Terminal 1

A KLM aircraft at the airport in Prague

The greatest volume of passengers was dispatched to destinations in the United Kingdom (1.21 m), Russia (1.11 m), Germany (1.10 m), France (0.94 m) and Italy (0.87 m). The most heavily trafficked destination was the Charles de Gaulle Airport in Paris with a volume of 0.76 million passengers, followed by Moscow Sheremetyevo (0.64 m), Frankfurt (0.50 m), Amsterdam (0.44 m) and London Heathrow (0.41 m). Czech Airlines had the greatest share of passengers in 2013 (25.3 %), followed by Travel Service (15.1 %).

Compared to 2009, when a general drop-off was recorded, both passenger and freight air transport saw a worldwide recovery in 2010 and in terms of passenger transport this trend has continued. In 2013, compared with 2012, the average number of passengers increased worldwide by 3.9 % on average, with broad variation by region – in Europe and America the growth was 2.6 % and 1.3 % respectively, while in the Middle East it was 10.1 %, in Africa it dropped by 0.6 %, in Asia-Pacific it grew 7.2 % and in South America and the Caribbean it rose 4.8 %. Freight transport grew 1.0 % on average worldwide,

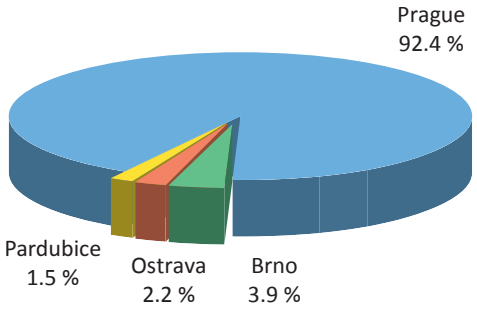
rising only 0.8 % in Europe, in North America 0.5 % and falling in South America and Africa by 0.2 % and 2.7 % respectively.

The total volume of passengers checked through in 2013 at the four most highly trafficked Czech airports (Prague, Brno, Ostrava, Pardubice) totalled 11.9 million, 1.2 % more than in 2012. The volume of freight transported by air (goods and post) fell by 3.5 %, totalling 57 300 tonnes.

The contribution of Prague's airport to the total volume at the four aforementioned Czech airports in passenger transport was 92.4 %, in freight transport 90.6 %.

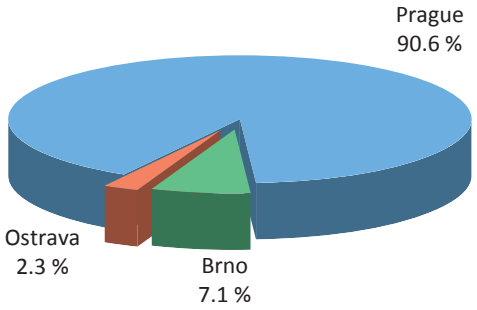
Share of airports in passenger volume

% of total volume of passengers



Share of airports in freight volume

% of total volume of goods and post



In 2013 a total of 10 974 196 passengers were checked through at the airport in Prague, which represents a rise of 1.5 % compared to 2012. The growth of "local" passengers was relatively higher (3.7 %), while transfer and transit passengers dropped.

The majority of passengers (90.3 %) were checked through on regular flights. Of the total volume of 11 million, 64.7 % were transported on network carrier lines, while the share of low-cost companies totalled 25.6 % and the share of charter companies 9.5 %. The share of private flights was 0.2 %. The most passengers were checked through in August (1 280 100), the least in February (551 500). In comparison with 2012 the monthly maximum achieved in 2013 was 6.5 % higher. More than a third of the passengers checked through in 2013 stated their place of residence as the Czech Republic (38 %); 73 % were travelling privately, 27 % on business; 29 % were managers and entrepreneurs, 45 % employees; 98 % flew economy class.

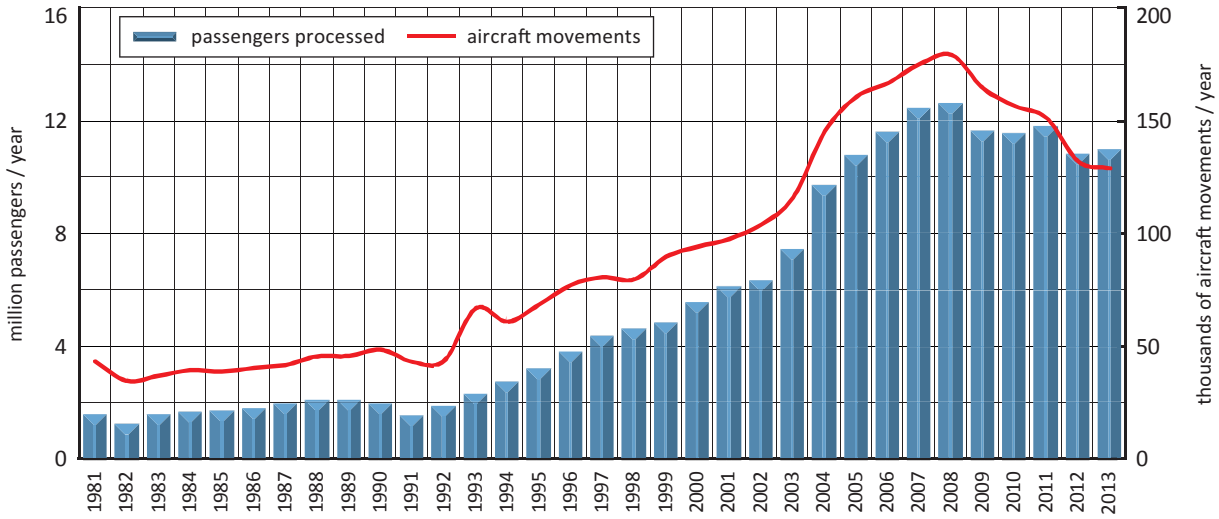
In air freight transport in 2013, a total volume of 51 902.1 t was transported. Freight transport was thus 1 075.5 t less than in 2012 (a drop of 2.0 %). The most freight was transported in October (4 818.3 t), the least in February (3 676.6 t). The monthly maximum in 2013 was 4.3 % lower than in 2012.

The number of aircraft movements in 2013 totalled 128 633, which is 2 931 less than in 2012 (a fall of 2.2 %). The greatest number of movements (12 863) was recorded in August, the lowest (7 943) in February. In comparison with 2012 the maximum monthly number of movements in 2013 was 3.4 % higher.

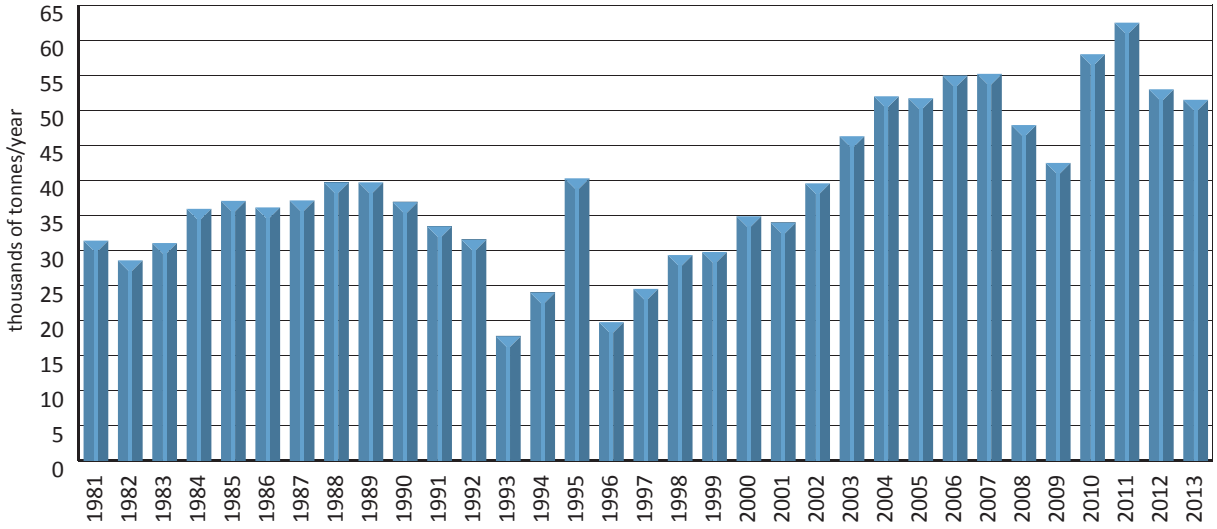
After 1991, which was the weakest year for passenger transport since 1982, the number of passengers checked through began to grow sharply, so that already in 1993 the highest values in the history of the airport (around 2.2 million/year in 1978-79) had been surpassed. At the same time the number of aircraft movements also grew. This long-term trend of growth in air transport was interrupted in 2008 and 2009 due to the economic crisis and the monthly numbers of passengers cleared fell below the level of past comparable periods. Overall the passenger volume at Prague's airport in 2009 dropped nearly to the level of 2006, where it remained in 2010 as well. Following a slight increase in 2011 (by 2 %), in 2012 it dropped again. Having risen again in 2013, the annual volume of passengers cleared reached the level of 2005 – 2006.

In terms of long-term trends, a slight shift can be seen in passenger interest to the period outside the traditional summer tourist season. While in 1990 the two main summer holiday months accounted for 25 % of the annual volume, in recent years this has oscillated around 22 %, though in 2013 it rose slightly once again to 23.1 %. In the long-term the number of persons per aircraft movement has also increased, in 2013 reaching 85.3 persons/movement (1990 – 40 persons/movement).

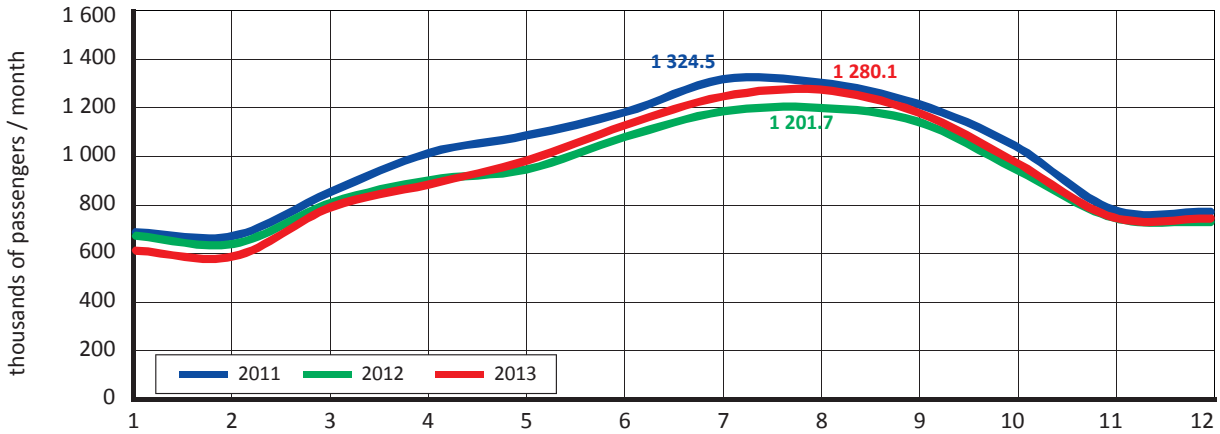
Development of volume at Prague Airport (number of passengers and aircraft movements)



Development of volume at Prague Airport (freight clear – goods and post)



Monthly passenger numbers at Prague Airport in 2011 – 2013

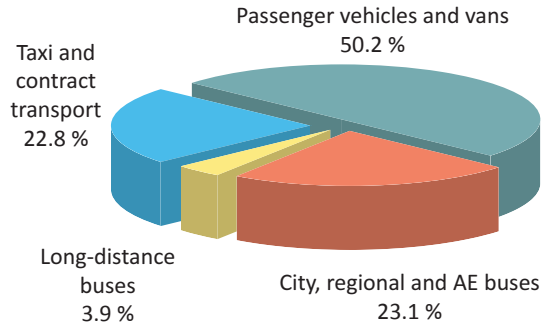


Freight transportation at the airport in Prague also grew from the mid-nineties and in 2005 the long-term average surpassed the highest average volume reached in the past. In comparison with the years 1981-90, when the average annual volume was 35 400 t/year, the average of the years 2004 – 2013 (53 000 t/year) was 49.8 % higher, despite the drop-off in the years 2008-9 and 2012-13.

The airport is located approximately 11 km from the centre of the city. It is served by two express bus lines to the end stations of the A and B metro lines in Dejvice (A) and Zličín (B) as well as other PID bus lines. Long-distance and regional bus lines also pass through. The special Airport Express bus line, intended primarily for airline passengers, goes from Praha hlavní nádraží train station to Terminals 1 and 2. Taxi service is also provided, both by passenger automobiles and minibuses, and a number of car rental services operate here. Individual automobile transport is the predominant method of transporting persons between the airport and the city, both in the aggregate spectrum of traffic system users (airline passengers, employees, visitors, etc.) and, though to a lesser extent, in the category of departing airline passengers, for whom this parameter is monitored at Prague Airport year-round.

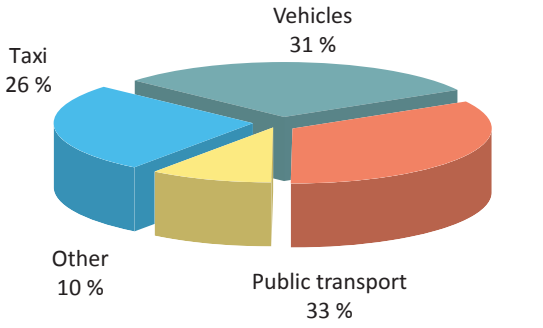
Modal split of trips to and from airport

All categories total, June 2012, workday, 6:00-22:00



Modal split of trips to airport

Only departing passengers, average 2013



In 2013, more than 7 000 stopping and parking spots were available to the public and airport employees in the north part of the airport complex, of which 600 places were located in the cargo zone. The largest number of parking spots (over 5 000) is available for the public and employees in parking sectors A, C, D and T1+2. The majority of spots are mid-term and long-term; 474 short-term spots are available for operative access.

In the south part of the complex are 110 public parking spaces situated by Terminal 3. Other spots in this part of the complex are for airport employees, organisations with a relationship to the airport and residents of the adjacent residential buildings.

At the end of September 2013 a second general repair of the main runway RWY 06/24 was completed, having taken place over two phases in 2012-13. A new concrete carriageway was laid and all associated facilities were renovated. Part of the adjacent F track was also repaired and the neighbouring RWY 13/31 runway was renamed RWY 12/30.

14.2 Water transport

Water transport in Prague provides for the transportation of persons and cargo along the Vltava, of which 30.9 km flows within the boundaries of Prague. There are five locks in Prague (Modřany, Smíchov, Mánes, Štvanice, Podbaba). The capacity of the waterway is determined by the capacity of the Podbaba (5.2 million t/year) and Smíchov (2.8 million t/year) locks.

Development of number of boats passed through locks in Prague in 2000 – 2013

Year	Lock				
	Modřany	Smíchov	Mánes	Štvanice	Podbaba
2000	1 898	21 716	3 747	5 775	1 897
2005	2 530	24 576	2 329	7 740	1 799
2010	2 414	25 797	2 720	8 950	2 335
2011	2 713	24 599	3 738	11 858	2 640
2012	3 405	27 518	3 611	10 317	2 695
2013	**1 649**	**24 498**	**3 199**	**7 877**	**1 062**

Passenger boat transport along the Vltava is predominantly for tourist and social purposes. Several companies operate year-round, specialising in various types of sightseeing tours around Prague and a wide range of other services. Regular transport service is provided by the Prague ferries, which are part of Prague Integrated Public Transport (PID) – see Chapter 3.6.

The largest operators of passenger boat transport include Pražská paroplavební společnost, a. s. (PPS), Prague Boats, s. r. o. (a part of EVD), AQUAVIA Praha, s. r. o. and Pražské Benátky, s. r. o.

The oldest operator of water transport along the Vltava is Pražská paroplavební společnost, a. s. (PPS), which was founded in 1865. This company currently operates 8 large boats that anchor at Rašínovo nábřeží between Palackého most and Jiráskův most. The company organises regular boat line cruises and a number of sight-seeing cruises through Prague.

Prague Boats, s. r. o. was created with the partition of the company Evropská vodní doprava (EVD) and operates 18 modern boats docking by Čechův most. All boats are operated year-round, either at regular time intervals or according to the individual wishes of those ordering. The boat fleet also includes smaller ecological boats with a capacity of 12 persons powered by electricity. The Elektronemo is powered by solar energy (solar panels cover as much as 45 % of the consumption of the electric motors) and provides sightseeing tours along the Vltava, anchoring at Kampa. Šárka is a boat with a hybrid electric motor and is used for rides around Malá Strana, Charles Bridge and the Čertovka stream.

The Praha and Moravia boats

Freight boat transport on the Vltava

Development of number of persons transported by two largest carriers (thousands of persons/year)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Prague Boats (EVD)	196	199	230	179	145	193	205	209	**246**
PPS	86	115	229	208	94	91	107	98	**149**

The company AQUAVIA Praha, s. r. o. organises social events on three boats – Moravia, Czechie and Klára. The company organises one- and two-hour cruises or according to the customer's wishes. It docks at Na Františku.

Pražské Benátky, s. r. o runs canal sight-seeing cruises along the Vltava year-round. The parlour express boat Nepomuk is used for private events. The company also operates four all-wood covered boats and seven open boats. Some have now been constructed as copies of the Vltava boats with flat bottoms and nearly vertical sides which can also sail through shallow areas without any problem. Boats leave from the "Judita" and "Čertovka" docks every hour. The company also operates Prague ferries.

A number of smaller companies also operate tours and social events based on individual orders. There are docks for these companies on both banks of the Vltava in the centre of the city, for example at Na Františku, Kampa and Dvořákovo nábřeží. They organise trips around Prague and also to Slapy, Nelahozeves, Poděbrady, Mělník and Dresden.

In addition to restaurant sight-seeing boats, there are also historical OLD TIME BOATS for 6-10 persons and TAXI BOAT motor boats for 2-3 persons.

Various domestic and foreign operators also carry out **freight transport** on the river. One of the largest operators is Evropská vodní doprava – Sped, s. r. o., which runs domestic and international transport of bulk cargo, heavy loads, containers, liquids, etc. Their fleet includes 38 vessels and one tanker.

There are 4 harbours within the city – Radotín, Smíchov, Holešovice and Libeň – which serve for the transhipment of various types of cargo. The operator is České přístavy, a. s. The greatest volume of cargo is manipulated in Praha-Holešovice harbour (60 136 t in 2013). The users of the harbours are transportation, warehousing, transhipment and manufacturing companies. In addition to these ports, temporary transhipment stations and mobile floating ramps are also used for handling freight.

Development of volume of goods passed through locks in Prague (tonnes/year)

Year	Lock				
	Modřany	Smíchov	Mánes	Štvanice	Podbaba
2000	108 168	197 740	238	201 712	370 037
2005	56 759	59 378	690	106 749	302 726
2010	3 476	5 868	829	6 698	165 166
2011	0	2 805	264	1 647	180 634
2012	0	7 383	6 277	11 845	194 720
2013	**0**	**9 211**	**13 849**	**15 044**	**100 906**

14.3 Freight rail transport

The Prague railway node, the largest and most important railway node in the Czech Republic, is an important crossroads of railway corridors on the trans-European network and of combined transport routes according to the international agreements AGC and AGTC (AGC – European Agreement on Main International Railway Lines, AGTC – European Agreement on Important International Combined Transport Lines and Related Installations).

Freight train heading into Praha-Libeň station

Container transhipment in Uhříněves

The greatest volume of goods transported by rail in Prague moves along the tracks designated for freight transport, i.e. Malešice – Libeň and Běchovice – Malešice. An exception is the segment Hostivař – Uhříněves, which is highly trafficked by both passenger and freight trains.

Number of freight trains beginning and ending at selected Prague stations in 2013

	Bubny	Hostivař	Krč	Libeň	Malešice	Radotín	Smíchov	Uhříněves	Vršovice	Zličín
starting	102	375	156	4 255	1 590	197	33	4 114	323	12
ending	118	371	152	4 181	1 946	221	29	3 995	304	13

Roughly 25 000 trains beginning and ending at railway stations within Prague were recorded in 2013 (an increase of approximately 6 % over 2012). The most transit freight trains passed through the station Praha-Malešice, nearly 18 000.

The largest Czech freight carrier is ČD Cargo. In Prague it contributes about 88 % of the starting and ending trains and at Praha-Malešice about 85 % of the transit trains. In Prague ČD Cargo serves above all the combined transport terminals of the company Metrans in Praha-Uhříněves and ČSKD Intrans in Praha-Žižkov. From these terminals their trains are connected to the north German ports of Hamburg and Bremerhaven as well as with other terminals in the Czech Republic and surrounding countries.

Among the main raw materials shipped are black coal, at Praha-Radotín slag and cement and in Praha-Krč scrap metal. Also important is the siding yard in Praha-Hostivař for loading scrap metal and transporting cable spools, metallurgical material and shipments for the Prague Public Transport Company.

The main loads at the Praha-Strašnice station are waste paper for further processing at paper plants, new tyres for freight vehicles and construction equipment. Compressed gas travels to Praha-Satalice in tank cars and various chemical products and raw materials go to Praha-Horní Počernice.

Attached to the Praha-Malešice station is the Czech Post siding from which the ČD Cargo “postal express” trains leave every evening to North Moravia. Also leading into this station is the siding from the heating plant Teplárna Malešice, to which whole trains of black coal are delivered in the heating season.

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TELEMATIC APLIANCES ON THE ROADS OF PRAGUE

TSK-ÚDI

Evropská
Bělohorská
Plzeňská
Radlická
D5
Pražský okruh
K Barrandovu
Strakonická
Jižní spojka
Pražský okruh
Vídeňská
Brněnská (D1)
Průmyslová
Kutnohorská
Českobrodská
Pražský okruh
D1
Chlumecká
Novopacká
Mladoboleslavská
Kbelská
Liberecká
D8

Legend

- Strategic sectional detectors for one direction
- Strategic point detectors for both direction
- Strategic point detectors for one direction
- Cameras for section speed measurement for one direction
- Documentation of red-light violations
- Variable information signs
- Cameras for complex monitoring system (monitoring + traffic data collection)

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