

# THE TECHNICAL ADMINISTRATION OF ROADS OF THE CITY OF PRAGUE

## Department of Transportation Engineering

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# THE YEARBOOK OF TRANSPORTATION

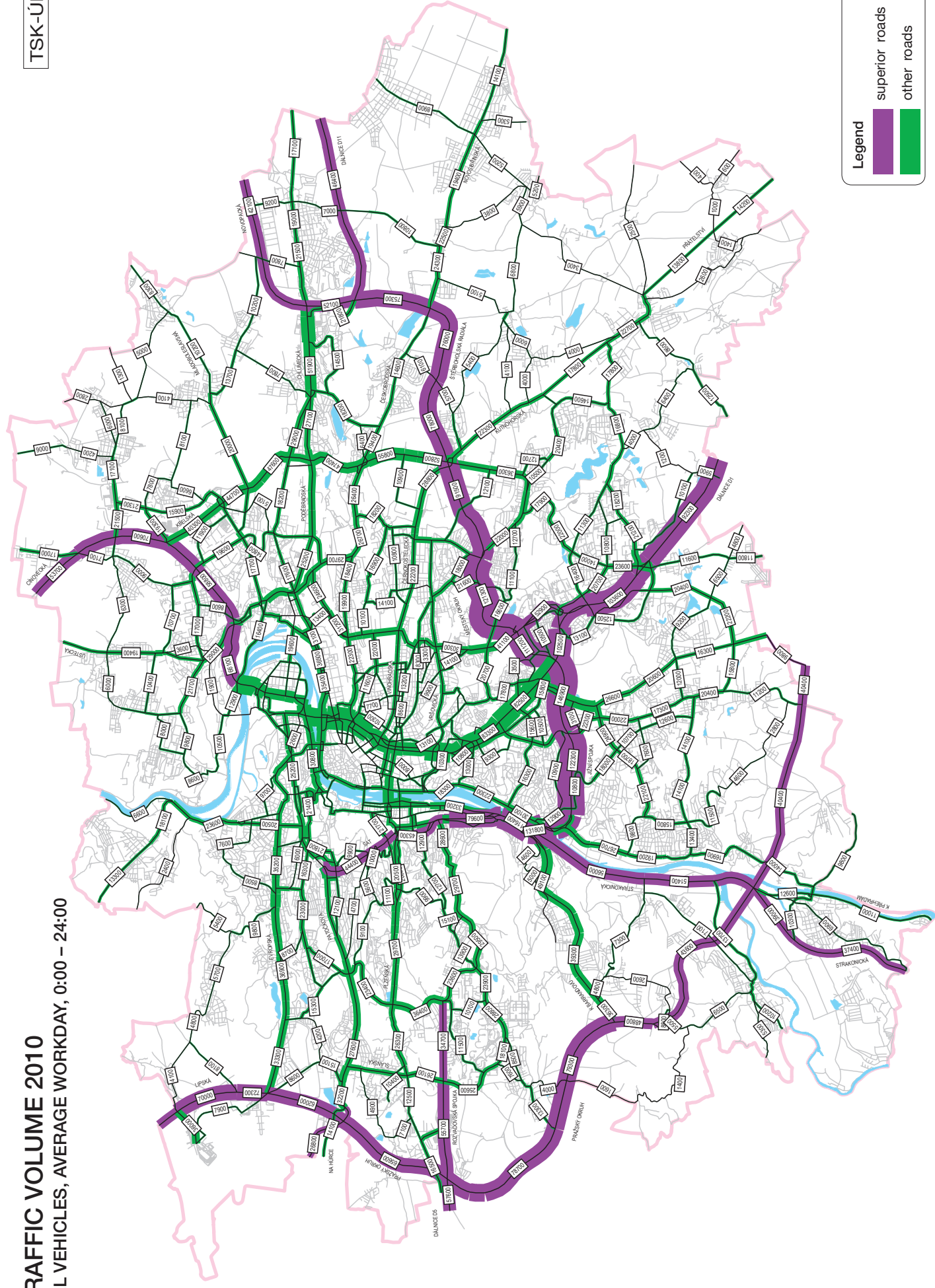
## PRAGUE 2010



# TRAFFIC VOLUME 2010

ALL VEHICLES, AVERAGE WORKDAY, 0:00 – 24:00

TSK-ÚDI



Legend

- superior roads
- other roads



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



# **THE YEARBOOK OF TRANSPORTATION PRAGUE 2010**



Dear readers,

Thanks to the hard work of the Department of Transportation Engineering at the Technical Administration of Roads of the City of Prague, you are now holding in your hands the 2010 Transportation Yearbook. Compiled from data acquired from its own activities as well as that provided by other city and state organisations and transportation operators, this yearbook is a source of comprehensive information on the state of transportation in Prague and the changes that took place in 2010. These changes are evident from the texts, tables and development graphs contained herein or from comparison with the yearbook for 2009.



A particularly positive development last year was the increase in transportation funding from the City of Prague budget, which was principally earmarked for public transportation operating costs, including covering losses from 2009. This made it possible to further expand the services of Prague Integrated Public Transport, raising the quality for passengers. New bus lines were established, including night lines, metro and tram service was extended on Friday and Saturday night, and the conditions for passengers with reduced mobility were improved. Transportation engineering measures such as bus and tram right-of-ways at controlled intersections, dedicated lanes and others also helped improve the quality of mass transit.

Despite constraints on capital expenditures, construction was launched on extending the "A" metro line from Dejvice to Motol, and the western entrance to the Stodůlky metro station was reopened following renovations. Construction of the northern segment of the City Ring Road continued, meaning that tram lines could be renewed along their regular routes on Milady Horákové Street in Letná and by the Hradčanská metro station. Unfortunately, the increase in investment costs for this extensive construction project in combination with the city's financial situation will not make it possible to meet the original deadline for opening it to use.

The state's role in addressing Prague's transportation needs must also be highlighted. Over the past year, the southwest section of the Prague Ring Road was completed with funding from the State Fund for Transportation Infrastructure; the importance of this road for both transportation and the environment is incalculable. In conjunction with budget funding from the city, contributions from this fund also help build and repair other city roads that temporarily fill in for uncompleted sections of the Prague Ring Road, allowing these highly important routes to be kept in a satisfactory state. Of no small importance are also state investments in railway tracks and facilities (for example, the renovations of the Main Train Station and the Libeň – Běchovice track in 2009 and 2010), the benefits of which include expansion of the number of "S" suburban lines and a greater number of daily connections. The number of persons transported by rail has thus increased, with the number of passengers at the Main Train Station rising by as much as 20 % over 2009.

As is evident from the content of this yearbook, the year 2010 brought further improvements for transportation in the city and its users, both passengers and drivers, citizens and visitors. In conclusion I can add that the city's new leadership, formed following the 2010 elections to the City of Prague Assembly, is also aware of the importance of transportation for city life, and will continue to lay the foundations for its development over the coming years as it has been doing thus far.

A handwritten signature in blue ink, which appears to read "Karel Březina". The signature is fluid and stylized, with a long horizontal stroke at the end.

Ing. Karel Březina

First Deputy Mayor, City of Prague

In Prague, 11 April 2011



Dear readers,

We have assembled this 2010 Transportation Yearbook and are presenting it to you for your information and use. We have preserved the traditional structure of the contents, allowing comparison of the data to data from previous years.

The greatest change for transportation in Prague took place in September 2010, when the south-west section of the Prague Ring Road between the D1 motorway and Slivenec was opened to the public. Traffic measures were put into place at the same time, with trucks being barred from the segment of the City Ring Road between Spořilov and Barrandov and the street K Barrandovu, bringing about a reduction in the volume of motor freight traffic on this previously congested route. The freed up capacity for other traffic led to rerouting of traffic for the whole southern part of Prague. The traffic volume of 40 000 – 44 000 vehicles a day on the new section of the Prague Ring Road attests to the legitimacy of giving preference to further construction of the Prague Ring Road over other motorways in the Czech Republic.

Despite the problems accompanying the construction of the Malovanka – Pelc-Tyrolka section of the City Ring Road, it was possible to allow traffic to return to Milady Horákové street on Letná and around the Hradčanská metro station in 2010. Among the important accomplishments for pedestrian traffic, in particular for tourists, was the completion of renovations on the Charles Bridge and the Old Castle Stairs. New cycling routes and tracks were also created.

Traffic telematics also recorded developments in 2010, supported in part by subsidies from the EU's Operational Programme Transport. One of the projects realised under this programme was "Prague Urban Road Traffic Management and Regulation System", which included replacing traffic signals at intersections and crosswalks, renovations and additions to the main and regional traffic control centres, placing of optic cables in metro tunnels, and the installation of spot and sectional detectors and meteorological sensors. Twenty-six new traffic signals were erected in 2010, of which 12 were at stand-alone pedestrian crossings. The number of traffic signals with tram and bus right-of-ways also increased, as did the number of sites with information about current travel times.

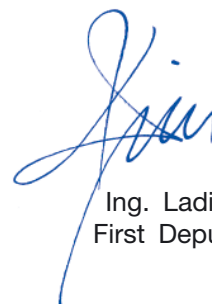
A range of further measures and initiatives aimed at increasing road safety in the city also no doubt contributed to the reduction by more than 10 % of the number of persons injured in traffic accidents compared to 2009, despite a 4 % increase in motor vehicle traffic. Another positive is the reduction in injured pedestrians.

Dear readers, we trust that the content of this yearbook will provide you with further important information about transportation in Prague.

In Prague, 11 April 2011



Ing. Luděk Dostál  
Director of TSK



Ing. Ladislav Pivec  
First Deputy Director



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## BASIC DATA

### 1.1 City of Prague

Selected data on the City of Prague as of 31 December 2010

<b>Land area</b>	.....	496 km <sup>2</sup>
<b>Number of inhabitants</b>	.....	1 257 158
<b>Total length of road network</b>	.....	3 897 km
of which motorways within the city	.....	10 km
other motor roads	.....	88 km
<b>Number of bridge structures in the road network *</b>	.....	598
of which bridge structures across the Vltava	.....	27
grade separated crossings	.....	218
underpasses	.....	123
<b>Number of road tunnels</b> (total length 8 530 m)	.....	10
<b>Number of motor vehicles</b>	.....	928 769
of which number of passenger automobiles	.....	699 630
<b>Vehicle ownership</b>		
vehicles per 1 000 inhabitants	.....	739
<b>Automobile ownership</b>		
passenger automobiles per 1 000 inhabitants	.....	557
<b>Length of metro network</b> (operational)	.....	59.1 km
<b>Length of tram network</b>	.....	141.6 km
dedicated track bed	.....	52 %
<b>Length of public transport bus network</b>	.....	681.0 km
<b>Number of traffic signals</b>	.....	578
of which separate pedestrian crossings	.....	108
<b>Vehicle kilometres travelled (VKT) on whole road network</b>		
average workday	.....	22.2 m VKT
annually	.....	7.3 bn VKT
<b>Modal split – motor transport</b> (by number of trips on city territory over the whole workday)		
public transport	.....	57 %
automobile transport	.....	43 %
<b>Modal split – motor and non-motor transport</b> (by number of trips on city territory over the whole workday)		
public transport	.....	43 %
automobile transport	.....	33 %
cyclists	.....	1 %
pedestrians	.....	23 %
<b>Number of recorded traffic accidents</b>	.....	18 190
<b>Number of traffic accident injuries:</b>		
fatal	.....	29
serious	.....	279
minor	.....	1 893
<b>Relative accident rate</b> (number of accidents per 1 million VKT) .....		2.5

\* administered by The Technical Administration of Roads of the City of Prague



## 1.2 Comparison of Prague and the Czech Republic

	Prague	Czech Republic	Prague/CZ (%)
Land area (km <sup>2</sup> )	496	78 864	0.6
Population (millions)	1.257	10.533	11.9
of which economically active (mil.)	0.656	4.912	13.4
Number of motor vehicles (thousands)	929	6 037	15.4
of which passenger cars	700	4 494	15.6
Vehicle ownership (motor vehicles per 1000 persons)	739	573	-
(persons per 1 motor vehicle)	1.4	1.7	-
Car ownership (passenger cars per 1000 persons)	557	427	-
(persons per 1 passenger car)	1.8	2.3	-

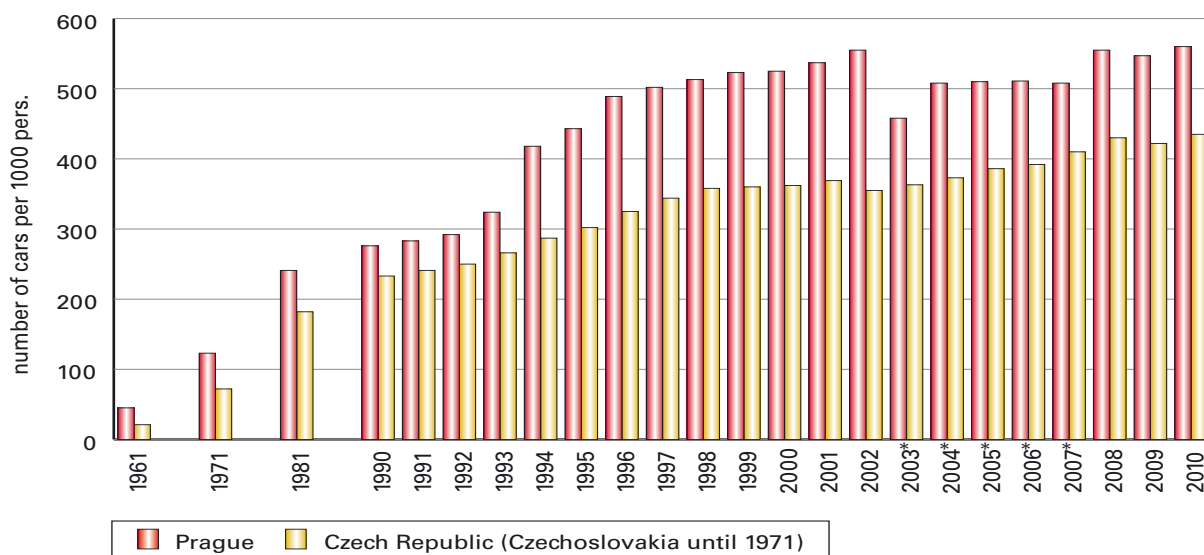


Poděbradská – Kbelská intersection in Prague



D1 motorway in Ostrava

### Level of car ownership 1961 – 2010



\* Prague data for the years 2003 – 2007 affected by an error in the vehicle registry

### Vehicle kilometres 1990 – 2010 (millions of VKT/avg. Workday 0:00-24:00)

Year	1990	2000	2005	2008	2009	2010	Index 10/90 (%)	Index 10/09 (%)
Prague*	7.3	16.6	19.9	21	21.2	<b>22.2</b>	304	104.6
ČR+	80.9	131.2	148.5	167.6	172.9	<b>184.7**</b>	215.9	101

\* whole road network

+ motorways + class 1, 2 and 3 roads, including segments within Prague

\*\* preliminary data

## AUTOMOBILE TRANSPORT

### 2.1 Development of vehicle and car ownership

The total number of motor vehicles registered on the territory of Prague increased dramatically up until 1999, after which the growth slowed. As of the end of 2010, there was one passenger car per 1.8 inhabitants in Prague.

Number of registered motor vehicles 1961 – 2010

Year	PRAGUE					Czech Republic (until 1971 Czechoslovakia)				
	Inhabitants	Motor vehicles		Motor vehicles		Inhabitants	Motor vehicles		Motor vehicles	
	(in 000s)	total	%	total	%	(in 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
1995	1 210	641 590	150	535 805	159	10 321	4 728 859	117	3 113 476	129
2000	1 181	746 832	174	620 663	185	10 267	5 230 846	129	3 720 316	154
2005	1 180	749 786*	175*	602 339*	179*	10 247	5 401 917	134	3 954 769	164
2008	1 233	906 571	211	678 056	202	10 468	5 943 953	147	4 423 370	183
2009	1 249	914 224	213	683 295	203	10 507	5 945 373	147	4 435 052	184
2010	1 257	928 769	217	699 630	208	10 533	6 036 576	149	4 494 425	186

100 % = the year 1990

\* data affected by error in vehicle registry

### 2.2 Volume of automobile traffic on workdays

The capital city of Prague occupies a unique position in automobile transportation in the Czech Republic, which manifests in the exceptionally high volume and vehicle kilometres travelled 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) on the whole road network, which has been monitored since 1978. Alongside this data, another method of determining trends in Prague's automobile traffic is "cordon monitoring", meaning periodic traffic counts at sites that form a connected cordon of important entrance roads into the designated zone. 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 traffic counts performed reveal that the annual growth in automobile traffic recorded within the city in the period following 1990 practically ceased in 2008 and 2009. In 2010 there was a slight increase.

Overall, automobile traffic within the City of Prague, as measured by vehicle kilometres travelled on the whole road network, rose on average by 4.6 % in 2010 over the previous year. Broken down by vehicle type, passenger car traffic rose by 4.9 % while bus and freight traffic grew by 1.1 %.

In the period from 0:00-24:00 of an average workday, motor vehicles travelled a total of 22.205 million vehicle kilometres on the territory of Prague. Of this amount, passenger automobiles made up 20.435 million vehicle kilometres, or 92 %. Compared with the preceding year, this means that motor vehicles in Prague travelled 974 000 vehicle kilometres a day more in 2010 than in 2009.

**In the greater city centre**, based on the counts done at the central cordon, automobile traffic increased only slightly – by 0.3 % – compared to the preceding year. Over the 24 hours of an average day in 2010, 312 000 vehicles drove into the greater centre of the city, of which 299 000 were passenger cars.

**In the middle zone of the city**, traffic increased constantly and markedly in the years 1990 – 2007, increasing as much as three or fourfold over 1990 levels on some roads. In 2010 it rose 1 – 3 % over the previous year.



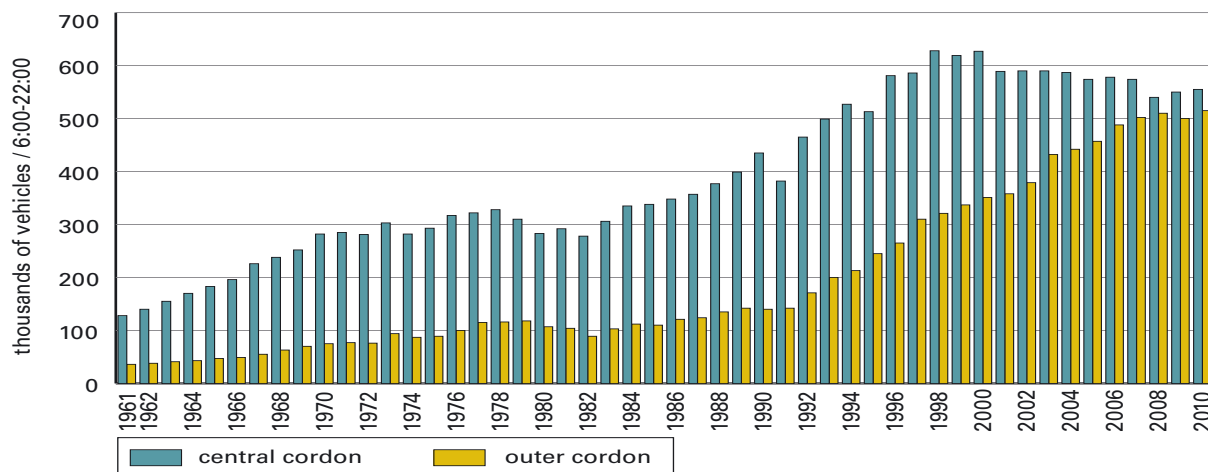
### Traffic volume at central and outer cordons 1961 – 2010

Workday, both directions total, period from 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
1995	521 000	123	34 000	79	564 000	118	224 000	202	40 000	108	270 000	175
2000	653 000	154	25 000	58	690 000	144	334 000	301	47 000	127	386 000	251
2005	602 000	142	19 000	44	631 000	132	433 000	390	62 000	168	503 000	327
2008	583 000	137	17 000	40	614 000	128	490 000	441	63 000	170	563 000	366
2009	596 000	141	15 000	35	623 000	130	491 000	442	58 000	157	557 000	362
2010	598 000	141	14 000	33	625 000	130	505 000	455	58 000	157	572 000	371

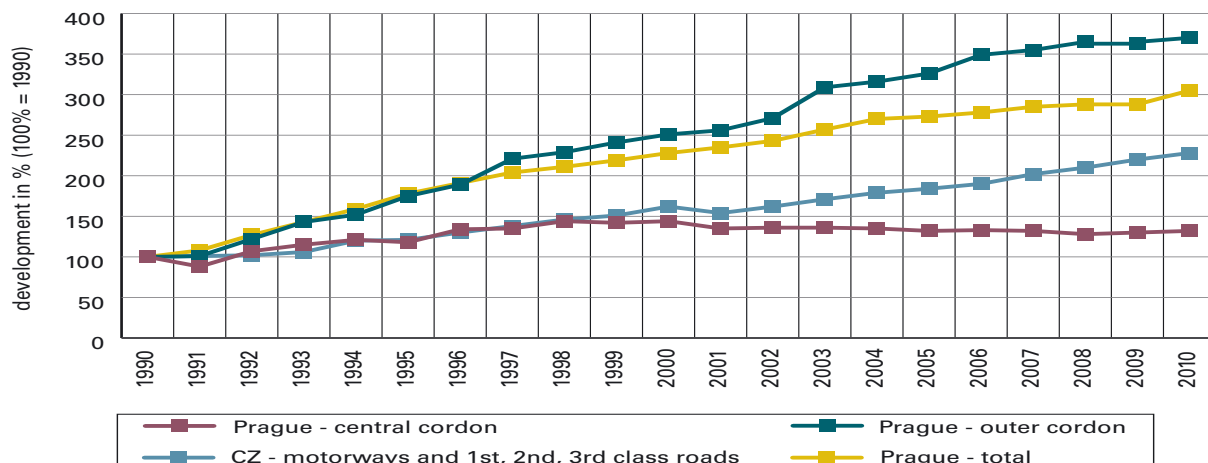
100 % = the year 1990

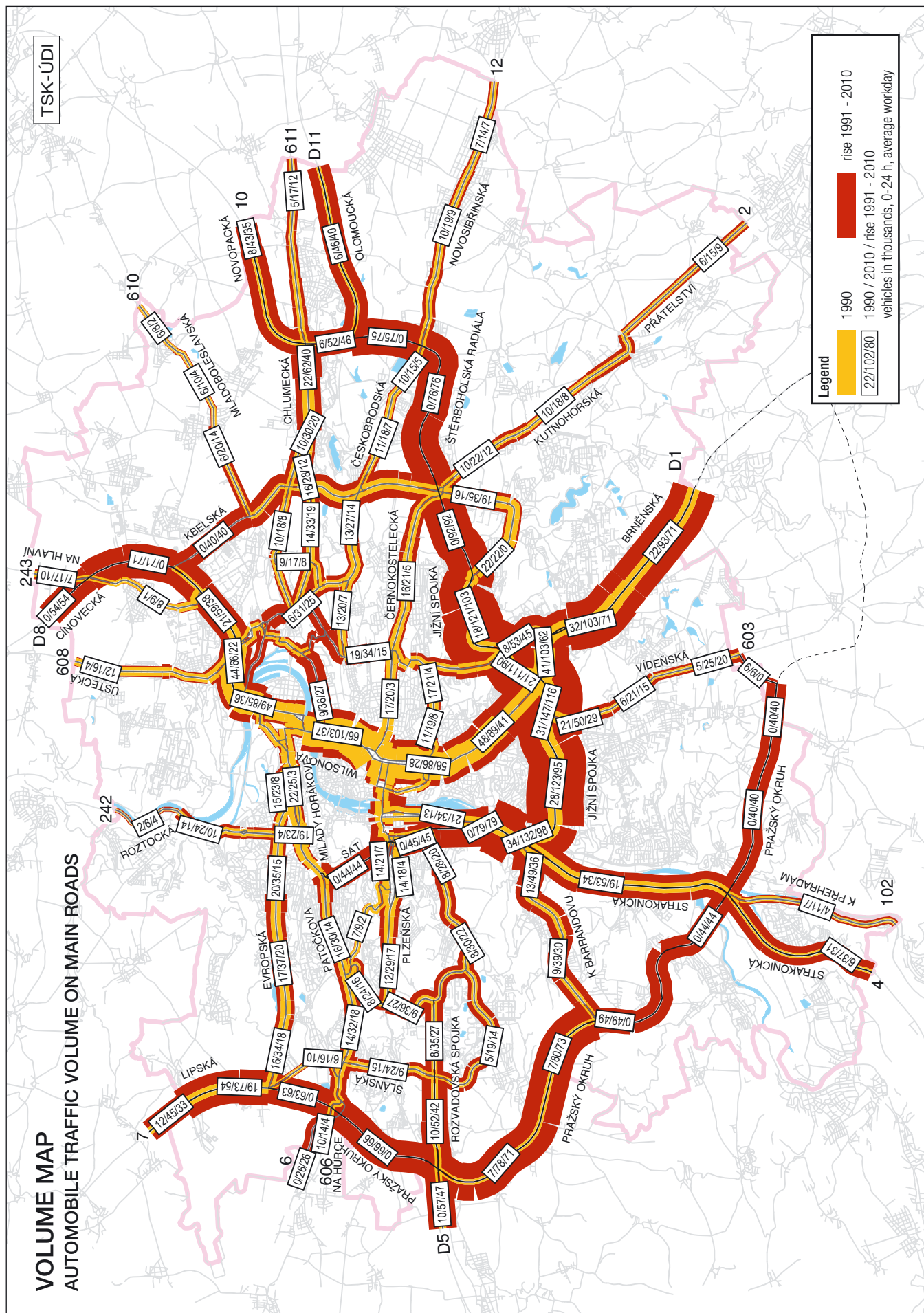
**Traffic volume at central and outer cordons 1961 – 2010**  
Average workday, both directions total, period from 0:00-24:00



**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 rose by 2.7 % in 2010 compared to the previous year. Over the 24 hours of an average workday, 286 000 vehicles entered Prague across the boundary of the outer cordon, of which 252 000 were passenger cars.

**Development of traffic volume in Prague and Czech Republic 1990 – 2010**  
average workday







In 2010, 147 000 vehicles passed through the most frequented segment (Jižní spojka between 5. května and Vídeňská) per day (0:00-24:00). The most heavily trafficked grade-separated intersection (5. května – Jižní spojka) saw 222 000 vehicles per day and the most heavily trafficked at-grade intersection (Poděbradská – Kbelská) saw 74 000 per day.

**The rate of VKT growth in Prague after 1990** in comparison with the 80s was highest in the first half of the 90s.

Average year-on-year growth in vehicle kilometres travelled on the whole road network:

1981 – 1990	year-on-year	+192 000 VKT/day
1991 – 1995	year-on-year	+1 134 000 VKT/day
1996 – 2000	year-on-year	+736 000 VKT/day
2001 – 2005	year-on-year	+652 000 VKT/day
2006 – 2010	year-on-year	+461 000 VKT/day

The majority of the increase in automobile traffic in Prague after 1990 was caused by passenger vehicles. In the period 1991 – 2010 the automobile traffic volume in Prague increased as follows, by type of vehicle:

passenger automobiles	+249 %
freight vehicles and buses	+22 %
vehicles overall	+204 %

The level of traffic growth varied in the different city zones. In 1991 – 2010 automobile traffic increased as follows:

average in the whole network	+204 %
in the greater city centre	+30 %
in the outer zone	+271 %
in the middle zone	+100 to +300 %



*Smetanovo nábřeží*



*Intersection Švehlova – Pražská*

#### Automobile traffic volume in Prague 1961 – 2010

Whole road network, average workday, 0:00-24:00

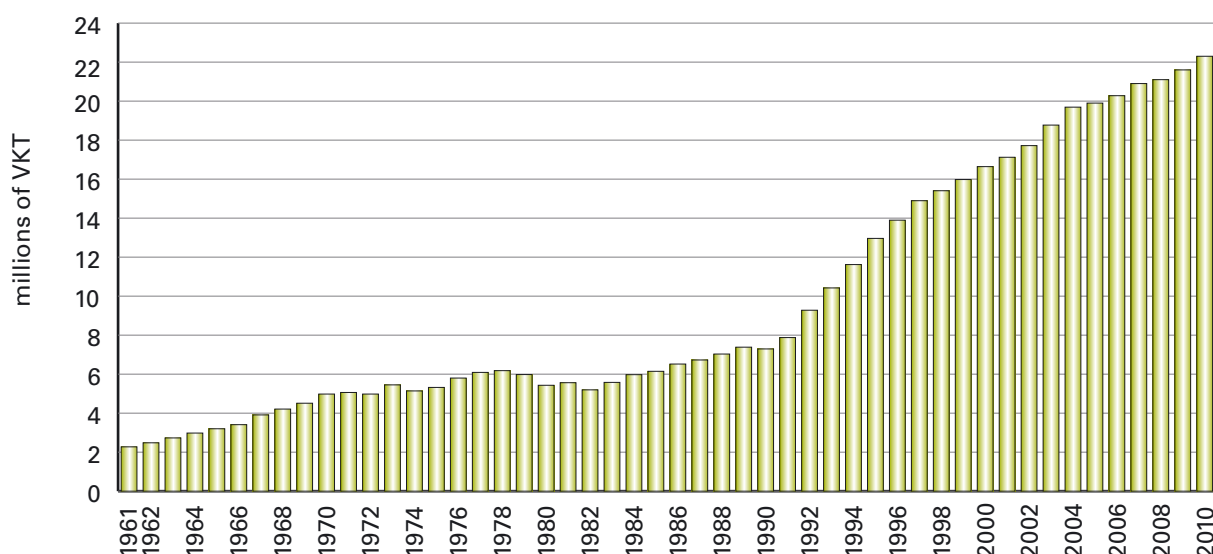
Year	Motor vehicles total		Passenger vehicles		Contribution of passenger vehicles to overall output (%)
	millions of VKT	%	millions of VKT	%	
1961	2.273*	31	1.273*	23	56
1971	5.061*	69	3.543*	65	70
1981	5.562	76	4.338	79	78
1990	7.293	100	5.848	100	80
1995	12.961	178	11.509	197	89
2000	16.641	228	15.131	259	91
2005	19.899	273	18.023	308	91
2008	21.040	288	19.139	327	91
2009	21.231	291	19.481	333	92
2010	22.205	304	20.435	349	92

100 % = the year 1990

\* estimate based on traffic volume trends at the central and outer cordon (traffic volume in Prague has only been monitored since 1978)

### Automobile traffic volume in Prague 1961 – 2010

whole road network, average workday, 0:00-24:00



### Impact of automobile traffic on transportation conditions in the city

The first problems resulting from the growing numbers of automobiles began to be felt in Prague as early as the 1930s. Automobile traffic in the city was significantly diminished for a time as a result of World War II and post-War developments (the level of car ownership from 1937, when there was 1 passenger vehicle for 32 inhabitants in Prague, was only reached again in 1959, after having dropped off during and after the War). The expansion of automobile transportation from the beginning of the 60s brought with it a return of the earlier traffic problems. One of these was insufficient capacity at key intersections, which resulted in long lines of slowly moving vehicles.



Barrandov bridge – Strakonická interchange



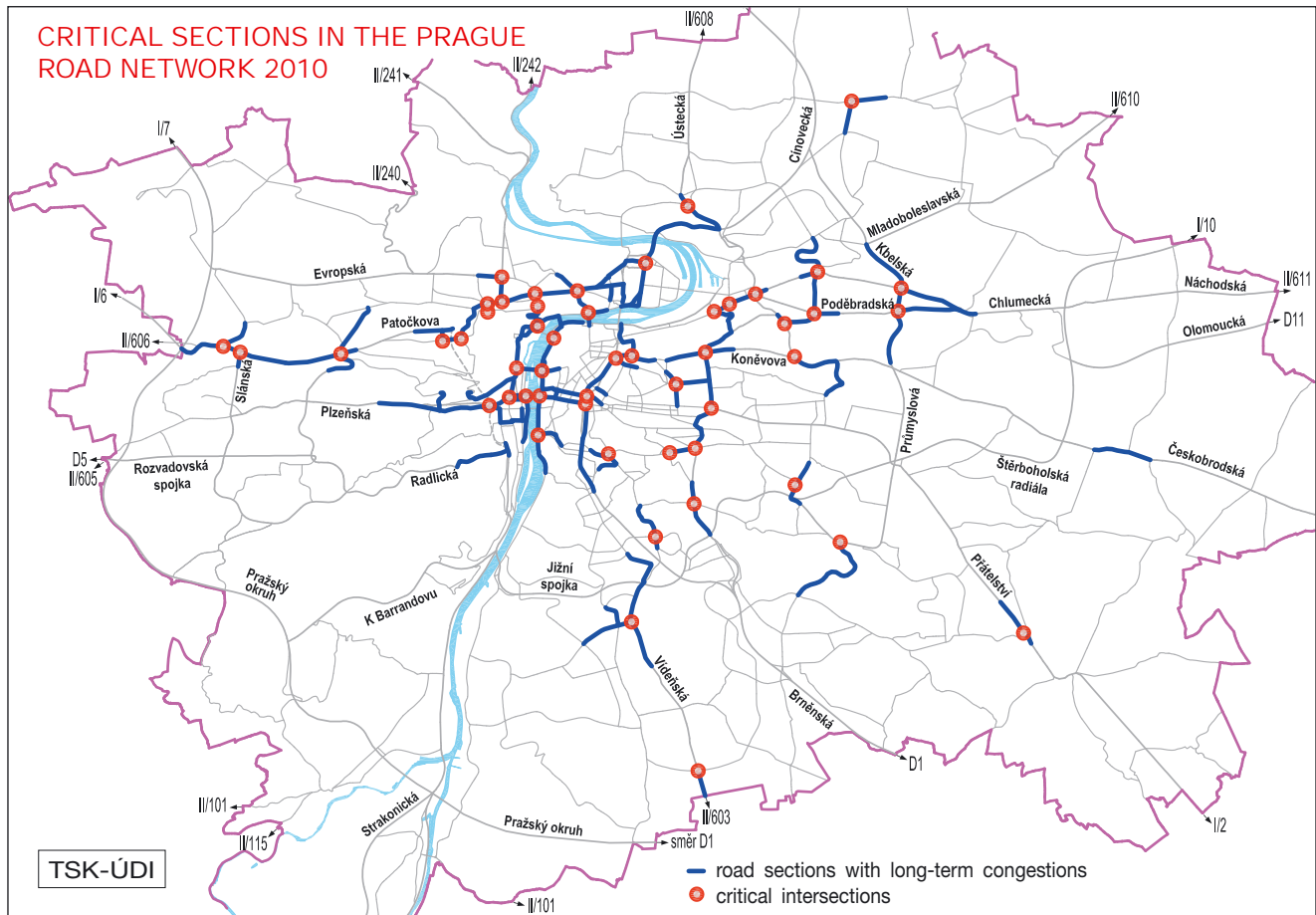
Mánes bridge

In comparison with today, until the end of the 80s these problems were generally felt only at a limited number of intersections, predominantly in the city centre, lasted only a short time, and largely occurred only during rush hour.

The explosive growth of automobile transportation in Prague in the 1990s resulted in a new situation:

- Congestion on the road network is no longer limited to certain spots, but is of a blanket nature. The whole centre of the city and neighbouring medial zone can be considered congested, with a total area of approximately 7 x 6 km.
- As a result of the sharp climb in automobile traffic in Prague, traffic jams are becoming more frequent in recent years, not only in the centre of the city, but also at many other sites in the road network.
- The difference between traffic peaks and lulls is gradually diminishing as in many places the traffic volume can only increase during non-peak periods, because during rush hour these sites cannot allow any more vehicles through.





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
1995	1.45	1.60	1.50
2000	1.37	1.49	1.44
2005	1.35	1.42	1.40
2008	1.33	1.37	1.36
2009	1.31	1.32	1.31
2010	1.30	1.30	1.30

## 2.3 Workday vehicle mode share

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 2010, this rate was:

- at the central cordon 96 %
- at the outer cordon 88 %
- whole network average 92 %



Intersection Milady Horákové - Svatovítská

**Mode share 1961 – 2010** (as a percentage)

Workday, both directions, period from 0:00 – 24:00

Year	Central cordon				Outer cordon			
	Passenger vehicles	Motorcycles	Freight	Buses (excl. publ. transit)	Passenger vehicles	Motorcycles	Freight	Buses (excl. publ. transit)
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
1995	92.4	0.3	6.0	1.3	83.4	0.2	14.7	1.7
2000	94.7	0.6	3.7	1.0	86.5	0.2	12.1	1.2
2005	95.4	0.7	2.9	1.0	86.2	0.4	12.2	1.2
2008	95.0	1.1	2.7	1.2	87.0	0.5	11.3	1.2
2009	95.5	1.2	2.4	0.9	88.0	0.5	10.4	1.1
<b>2010</b>	<b>95.7</b>	<b>1.0</b>	<b>2.4</b>	<b>0.9</b>	<b>88.4</b>	<b>0.3</b>	<b>10.2</b>	<b>1.1</b>

Note: The level of cyclists in the overall vehicle count ranges from 0.1 – 0.8 %.

## 2.4 Temporal traffic patterns

The daily variation in automobile traffic volume on workdays is characterised by the following facts.

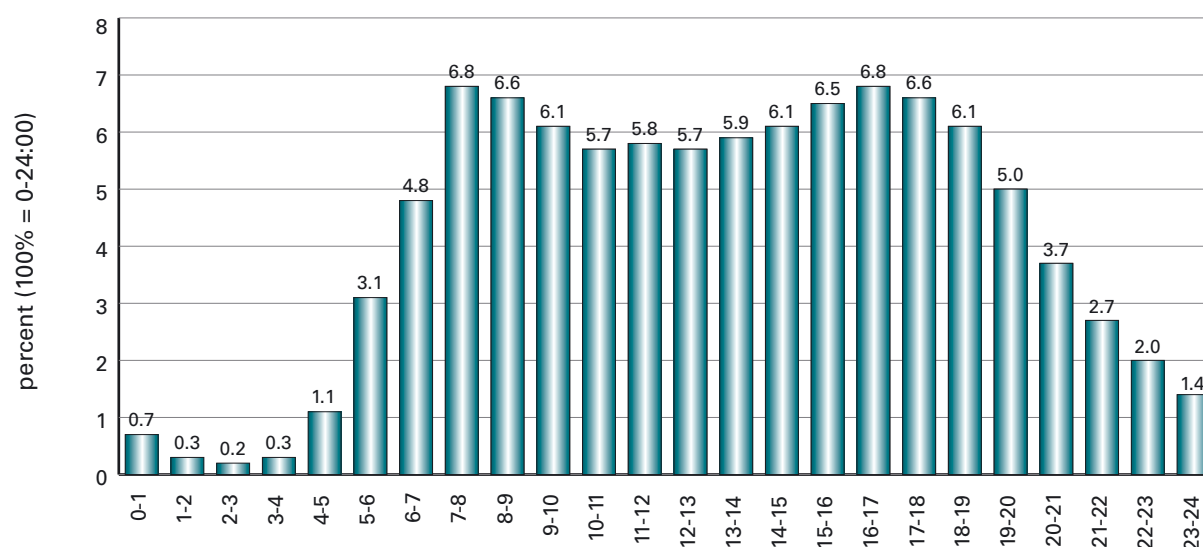
- The majority of traffic volume for the whole day takes place during the daytime period (73 % for 6:00-18:00), with the period 6:00-22:00 accounting for approx. 91 %.
- The morning peak is at 7:00-8:00; the afternoon peak is 16:00-17:00.
- The volume of the morning peak hour makes up 6.8 % of the total; the afternoon peak also contributes 6.8 % (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 5.7 % of the whole day.

Significant changes to temporal traffic patterns from 1990 – 2010:

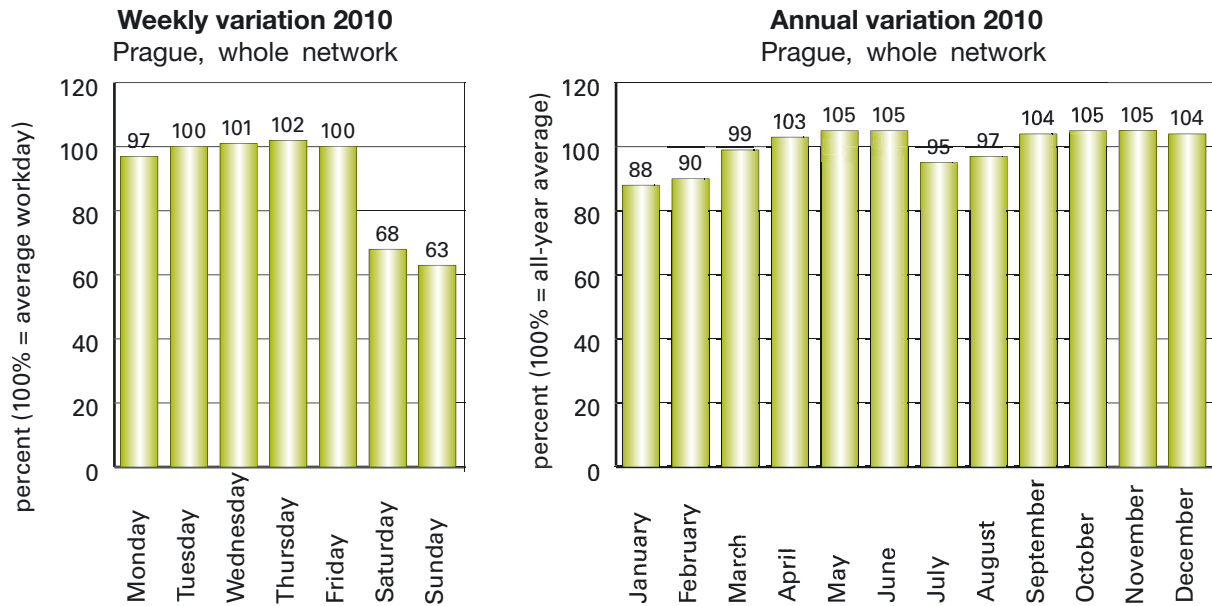
- Daily variation: the volume of the morning peak hour has fallen from its original 8 – 9 % to 6.8 % and has shifted from 6:00-7:00 to 7:00-8:00. The difference between the peak hours and the morning lull period has been reduced.
- Weekly variation: the volume for Friday, which used to be higher than 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.

Over the last five years, the temporal patterns have essentially stabilised.

**Daily variation 2010 – Prague, whole network**  
workday, vehicles total







## 2.5 Effect of opening the Slivenec – D1 motorway segment of the Prague Ring Road on automobile transport in Prague

On 20 September 2010, the 23 km south-west segment of the Prague Ring Road between Slivenec and the D1 motorway was put into service. This had a significant impact on traffic volumes in the affected part of the city.

Traffic volumes on the newly opened segment of the Prague Ring Road reach 40 000 – 44 000 vehicles a day. The traffic burden on the already existing connecting sections of the ring road has also increased.

By contrast, the burden on the street K Barrandovu has been reduced by 8 000 – 10 000 vehicles a day as a result of the shift in primarily transit traffic to the ring road, as has traffic on Brněnská (the D1 motorway) within the Prague city limits by 10 000 – 12 000 vehicles a day.



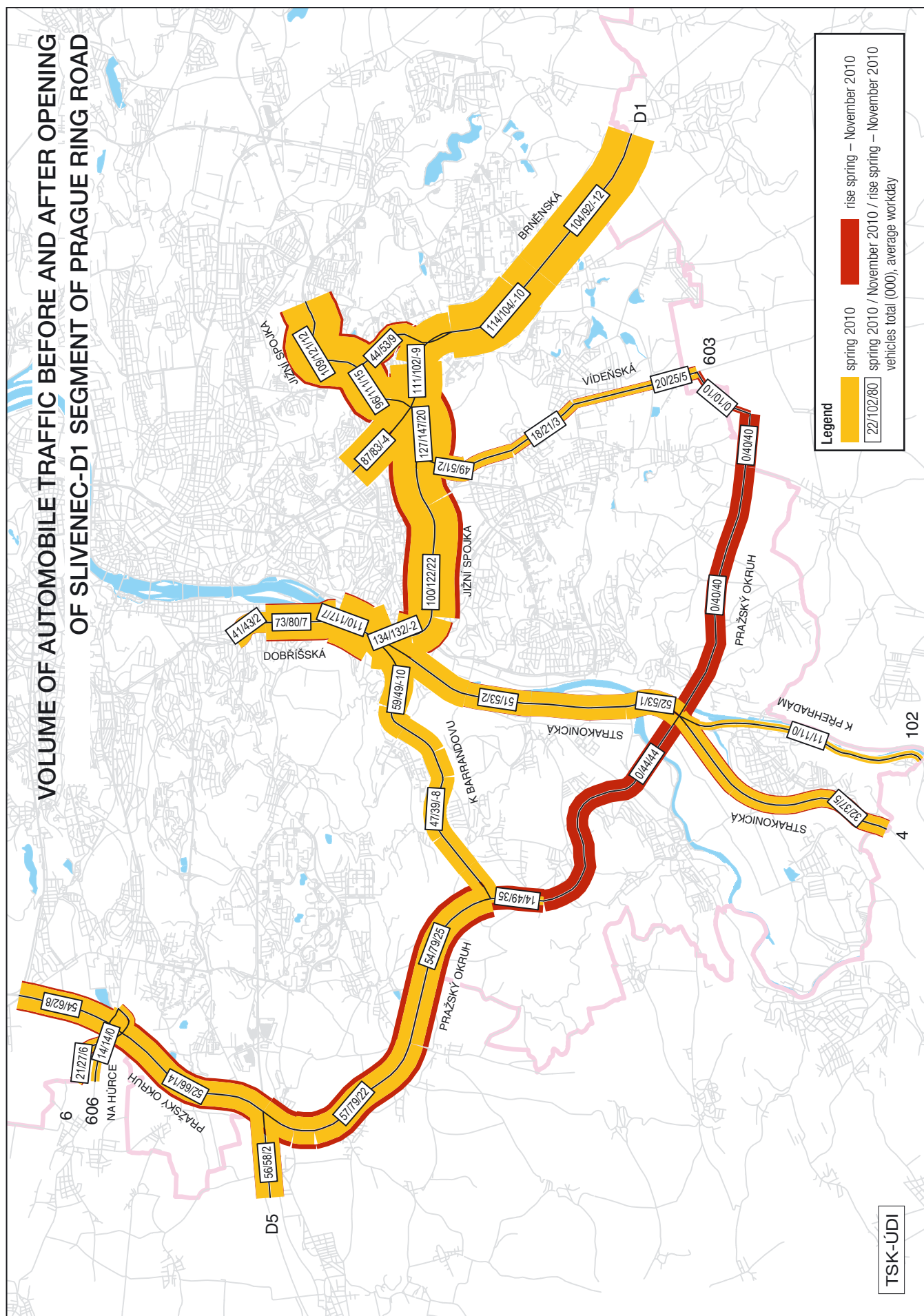
Prague Ring Road bridge over the Vltava and Berounka valley in operation



Traffic signals at the Barrandov bridge switched to a flashing yellow light

On the Jižní spojka in Krčské údolí, the number of vehicles dropped by 21 000 (from 100 000 to 79 000) in the first week after the new section of the outer ring road was opened.

Over the following two months, however, the freed up capacity was gradually taken over by vehicles for intracity transport and the burden on the Jižní spojka in this segment grew by 22 000 over and above the original level from before the new section of the Prague Ring Road was opened (from 100 000 to 122 000).



## PUBLIC TRANSPORT (MHD)

### 3.1 Prague Integrated Public Transport (PID)

#### 3.1.1 Basic information and development of the PID system

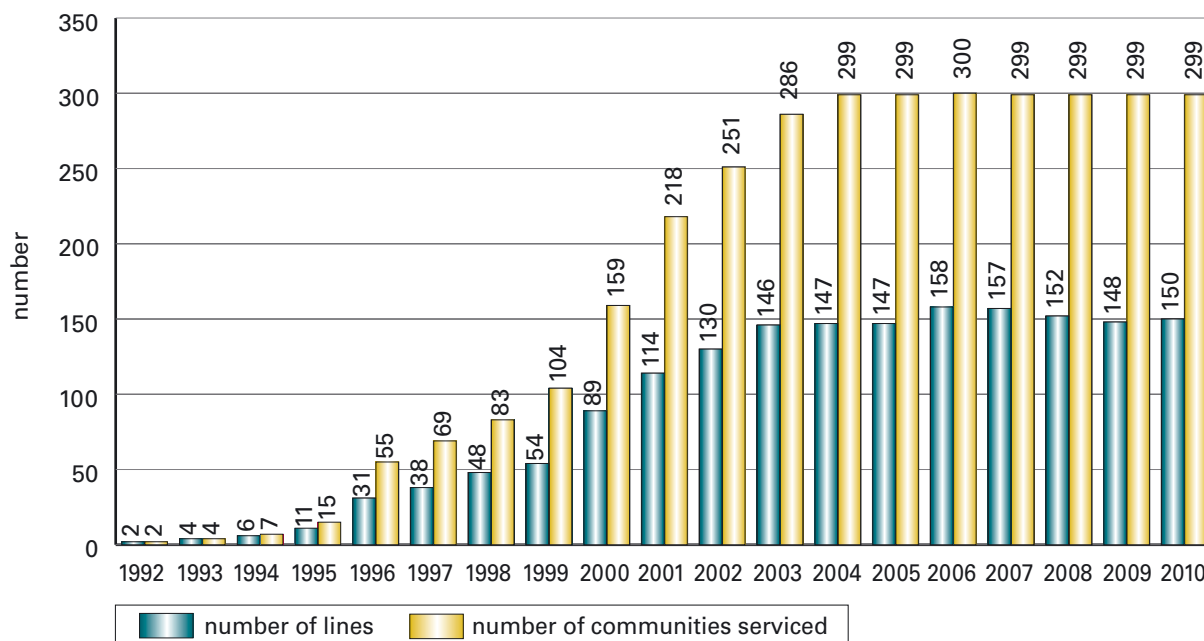
The PID system is a modern integrated system for the public transport of passengers and is primarily located within the City of Prague, along with adjacent areas in the Central Bohemian Region that have important transportation relations to the capital.



Prague Integrated Public Transport includes the metro, trams, urban and suburban bus lines, railroads, ferries and the Petřín funicular. The possibility of using one ticket regardless of the mode of transport or carrier is an important instrument for giving a competitive edge to public transport over individual transport.

The beginnings of the integrated public transport system in Prague date back to 1991. In 1993, the City of Prague founded the publically subsidised Regional Organiser of Prague Integrated Transport (ROPID) in order to coordinate the creation and operation of the PID system. On 1 June 1996 a zone-based fare system was introduced, and since then there has been steady growth in the number and length of suburban bus routes, the territorial reach of the service, the number of municipalities included, and the number of tariff zones.

Development of PID suburban bus lines



Strančice transfer point

There are 25 railway tracks included under PID, of which 11 tracks spill over into the city limits (including the ML track) and 14 are located only within the region.

The City of Prague and an array of other municipalities contribute to the operating costs for public transport lines, as does the Central Bohemian Region. The primary carriers under PID are the Prague Public Transport Company (Dopravní podnik hlavního města Prahy, a. s.), which operates the metro, trams, funicular and most of the bus lines within the city, and Czech Railways (České dráhy, a. s.), which operates rail travel.



A further 12 private carriers operate bus lines both within Prague and in the region. There are also six river ferries included in the integrated transport system. The total number of carriers taking part in the provision of PID is 17.

#### Basic information about Prague Integrated Public Transport 2000 – 2010

	2000	2005	2006	2007	2008	2009	2010
Number of municipalities serviced by PID suburban buses	159	299	300	299	299	299	<b>299</b>
Number of railway stations and stops included in PID	190	212	207	223	223	224	<b>225</b>
Number of PID suburban bus lines	89	147	158	157	152	148	<b>150</b>
Traffic volume of PID suburban bus lines (millions of VKT)	9.36	22.2	22.4	23.6	24.3	24.6	<b>25.1</b>
Traffic volume of all PID lines excluding rail (mil. of VKT) (metro+trams+urban and suburban buses)	157	178.9	187.1	188.6	194.3	193.1	<b>196.9</b>
Percentage of passengers using PID travel documents on railways included in PID	39.2	59.7	60.4	63.3	63.8	66.6	<b>68.7</b>

As of 31 December 2010, the following were being operated under PID:

- **3 metro lines**
- **33 tram lines** (24 day and 9 night)
- **320 bus lines**, consisting of:
  - 170 urban lines with their route only within city limits (134 day, 16 night, 18 school lines and 2 lines for persons with reduced mobility)
  - 89 regional lines providing transportation between the city and the region (80 day and 9 night)
  - 61 regional lines operating fully outside the city limits (only day buses)
- **17 railway lines with the S or R label**, consisting of:
  - 16 lines crossing the border of Prague
  - 1 line operated only within the region
- **6 ferry lines**
- **1 funicular**

**Number of PID bus lines operated** (including night lines, school lines, AE line and lines for persons with limited mobility)

Carrier	Within the city	In the region
Prague Public Transport Company	151	16
Other operators	19	134
Total (as of 31 December 2010)	170	150

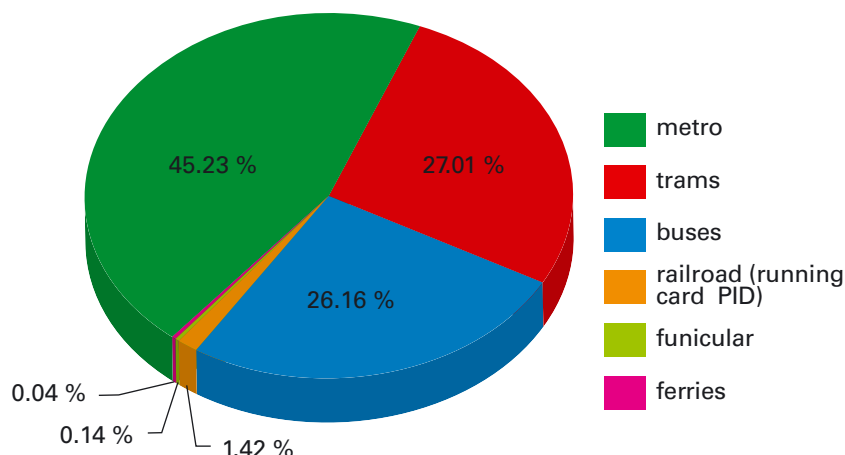
In September 2010, a significant change took place in the operation of PID day and night lines. On Friday and Saturday night (as well as the night before a state holiday), the operation of the metro, day trams and most bus lines was extended by 50-60 minutes. This shifted the beginning of night lines by approximately 1 hour.

#### PID ridership within City of Prague 2010

Carrier, mode of transport	thousands of persons/year
Prague Public Transport Company. metro	578 515
trams	345 485
buses	287 804
funicular	1 778
Contracted carriers buses	46 842*
Czech Railways (with a PID ticket)	18 126
Ferries	492
Total	1 279 042

\* source ROPID

### Share of individual PID transportation systems in the total number of passengers transported within the City of Prague in 2010



### 3.1.2 PID transportation systems

#### 3.1.2.1 Metro

The metro forms the backbone of the MHD transportation network. It has three lines with a total operating length of 59.1 km and 57 stations (including three transfer nodes, each of which is counted as two stations).

The average travelling speed of the metro trains is 35.5 km/h and the average distance between stations is 1 094 m. The metro accounted for 45.2 % of the total number of passengers transported under PID on city territory in 2010.

The most frequented stations are Můstek on the “A” Line, with a turnover of 188 000 passengers a day (including transfers), and Muzeum on the “C” Line, with a total turnover of 162 000 passengers a day (including transfers). A total of 569 000 passengers a day (including entry, exit and transfer) pass through all the metro transfer stations (Můstek, Muzeum and Florenc). The stations with the highest passenger turnover (total entry and exit) are I. P. Pavlova (119 000 persons/day), Dejvická (118 000 persons/day) and Anděl (101 000 persons/day).



*New western entrance to Stodůlky metro station opened in 2010*



*New information system at Karlovo náměstí station*

The most heavily frequented segment on the whole metro network is the section between I. P. Pavlova and Vyšehrad on the “C” Line, through which 292 000 passengers pass in a whole workday, counting both directions.

Barrier-free access by passenger elevator, stair lift platform or direct barrier-free entrance is possible at 32 of the total 57 stations.

April 2010 saw the official launch of work on extending the “A” metro line from the current end station Dejvická (preparatory work had already begun in December 2009). The length of

the extension, entitled “VA”, will be 6 134 m. Four new stations will be added. Construction is expected to finish in 2014. The total investment costs are CZK 18.7 billion (at 2008 prices), including a contribution from EU funds.

### 3.1.2.2 Trams

The length of the tram network in the city at the end of 2010 was 141.6 km. Of that amount, 52 % was dedicated track (in a raised tram lane on roads and in some places also on separate routes apart from the roads).

The average distance between stops on the tram network was 534 m. Tram transport contributed 27 % of the total persons transported under PID on city territory in 2010.

As of 31 December 2010, there were 24 day tram lines in operation and 9 night lines. The total length of all the tram lines operated was 547 km.

According to the results of a “Transportation Study of the Tram Network” done in March 2008, the most heavily trafficked segment on the tram network is between the stops I. P. Pavlova and Štěpánská (97 000 passengers/day in both directions) and the most frequented junction was Karlovo náměstí (turnover of approx. 110 700 persons/day).

According to the results of a study from October 2010, 14 954 people per night are transported by night trams.

In 2010 there was a marked growth in the number of low-floor trams dispatched on individual day lines. As of the end of 2010, low-floor trams were used for selected connections on a total of 20 lines. Guaranteed barrier-free connections are marked on the schedules posted at individual stops.



*Night line 54 at the stop Geologická*



*Line number 17 at the provisional one-lane track in Troja*

Over the course of 2010 the construction of the Blanka tunnel complex continued to have an impact on the organisation of tram service. During the summer, service was renewed on Milady Horákové street between Hradčanská and Vítězné náměstí, which allowed a number of day lines to return to their original routes.

Construction of the “A” line extension to Motol also already had an effect on tram routes in Prague 6 in 2010, causing the tram loop at Červený Vrch to be taken over. This led to a change in the routes of trams 2 (Petřiny – Podbaba) and 15 (Vysočanská – Špejchar, during the morning rush Vysočanská – Hradčanská – Divoká Šárka).

The operation of trams was also considerably influenced by renovations and repairs to tram lines (e.g. on the streets Plzeňská, Makovského, Národní, Spálená, Myslíkova and Na slupi).

### 3.1.2.3 PID buses

**Urban bus transport** forms a supplementary network to the metro and trams, providing blanket service in some areas and many important tangential connections, particularly in the outlying areas of the city.



Bus transport (urban lines and suburban lines within the city limits) accounted for 26.2 % of the total number of persons transported under PID within the city in 2010. The operating distance of the bus transport network within the city was 681 km. The average distance between stops was 628 m.

There were 133 day bus lines operating solely within the Prague city limits as of December 2010 (plus the AE line, which has a special fare). There were 16 night bus lines also operating solely within the Prague city limits. At the end of 2010 there were also 18 school lines as well as two lines for persons with limited mobility and orientation, marked H1 and H2.

The Prague Public Transport Company put low-floor buses on 100 regular urban lines and 4 suburban lines, with six lines being serviced exclusively by low-floor models. On the other lines these vehicles are operated on selected connections with a special symbol marked on the schedule (so-called “guaranteed connections”). During the morning rush on workdays, 313 low-floor buses are dispatched (261 standard and 52 articulated).



*Electric bus on the 292 line leaving Nemocnice pod Petřínem*



*The H2 line at Náměstí Republiky*

New “midibus” lines were successfully added to the PID system of urban bus lines in 2010. These were created as part of a project aiming to improve the accessibility of healthcare and social facilities, public offices and shopping centres.

#### **PID lines fully operated with low-floor buses within the City of Prague as of 31 December 2010**

Line	Route	Launched	Operator	Number of persons transported on workday	Operation (Mon-Fri / Sat,Sun)
128	Hlubočepy – Žvahov	1.9.2005	DP hl. m. Prahy, a. s.	480*	5-24 h/6-24 h
236	Zámky – Podhoří	1.4.2009	DP hl. m. Prahy, a. s.	650	5-22 h/6-22 h
291	I. P. Pavlova – Karlovo nám.	18.4.2003	DP hl. m. Prahy, a. s.	2 100	6-19 h/7-18 h
292	Malostranské nám. – Nemocnice pod Petřínem	13.1.2010	DP hl. m. Prahy, a. s.	560	5-20 h/5-20 h
293	Háje – Poliklinika Budějovická	7.3.2010	Veolia Transport s. r. o.	2 215	5-21 h / -
295	Nemocnice Bulovka – Třeboradice	10.10.2010	ABOUT ME s. r. o.	1 804	6-21 h / -
296	Nádraží Horní Počernice – Sídliště Skalka	12.12.2010	ABOUT ME s. r. o.	3 828	5-22 h / 5-22 h
297	Nemocnice Vinohrady – Poliklinika Malešice	10.10.2010	ABOUT ME s. r. o.	1 093	6-24 h / 6-24 h
H2	Centrum Zahradní Město – Kodymova	22.2.2010	ABOUT ME s. r. o.	not monitored	5-22 h / -

\* value for period 6:00-20:00

Aside from the aforementioned new midibus lines, two other new and interesting urban bus lines were created in 2010, labelled 125 and 206.

The creation of the 125 express line, which leads along the Jižní spojka, was made possible by the opening of the south-west section of the Prague Ring Road, which freed the City Ring Road of transport truck traffic. The trip between Jižní Město and Prague 5 (Smíchovské nádraží) by public transport was thus cut to an unrivalled 20 minutes, and so the line was soon transporting 8 500 passengers a day.

The 206 line replaced the original contracted line connecting the Dejvická metro station and the Ruzyně Shopping Centre. The normal PID fare is now applicable on the line, but operation is still paid for by the shopping centre.



*The 125 line on the Jižní spojka*



*The 206 line at Vítězné náměstí*

Toward the close of 2010 (starting 12 December), night bus service began to several peripheral parts of Prague that had previously not been served in the night. Two new suburban night bus lines were also introduced.

**PID suburban bus transport** was made up of 150 lines as of 31 December 2010, of which 89 linked the Central Bohemian Region and the City of Prague. On an average work day, these 89 lines crossed the city limits in both directions around 3 780 times, transporting approximately 82 260 passengers across the city's boundary. These lines were operated by a total of 10 carriers, with private carriers operating 82 % of the lines and the Prague Public Transport Company the remaining 18 %.

Just in the region (i.e. outside the territory of Prague) there were 61 PID bus lines in operation at the end of 2010, transporting approximately 20 700 passengers per workday. These were only operated by private carriers.

In 2010 PID suburban bus transport used a total of 22 locations on the territory of Prague as terminal stops for serving the outlying areas.



*The 317 line at Smíchovské nádraží*



*The 329 line in Koloděje*

#### 3.1.2.4 PID railway transport

Railway transport (only counting passengers with a PID ticket) contributed 1.42 % to the overall PID ridership within the city in 2010.

Development of number of passenger within Prague transported by rail on a PID ticket.

Year	2000	2005	2006	2007	2008	2009	2010
Ridership (in thousands)	10 048	16 584	16 531	17 192	17 278	17 751	18 126

Rail transport is operated by Czech Railways on all eleven of the railway tracks that lead into Prague (including the ML track/line). As of 2010, all these tracks are completely incorporated into PID. Complete integration means that in addition to time-based passes it is also possible to use individual PID tickets (stations are equipped with yellow ticket stamping machines).

The length of railway track on the territory of Prague is 160 km, and there are 44 train stations and stops (all are fully incorporated into the PID system as of 2010).

Train lines marked with the „S“ symbol have been in operation since the end of 2007. This symbol indicates train connections on urban and suburban passenger trains that predominantly run at regular intervals and easy-to-remember times and provide a fast and comfortable link between the Central Bohemian Region and Prague, as well as connections within Prague. On the key arterial lines these trains are primarily made up of the modern CityElefant and Regionova cars.

A number of significant changes were made to the S lines during 2010:

- A new S65 line was introduced, first serving as a replacement during the tram detour on Plzeňská street, and as of 1 October 2010 permanently running on the route Praha-Smíchov Na Knížecí – Praha-Řepy – Hostivice.
- The urban S41 line begun to run also on weekends as well as of 12 December 2010 and during this period its route was extended from the station Praha-Libeň to the station Praha-Hostivař.
- As of the new 2010/2011 schedule, the S7 line has begun to fulfil the function of a transit line through Prague. Its track of Beroun – Praha hl. n. was extended to the station Úvaly on weekday rush hours (16 pairs of trains). Along with the S1 line it forms a combined interval of 15 minutes on the Prague – Úvaly segment. The S7 line uses exclusively cars from the 471 CityElefant line.



New train stop in Smíchov with S65 line train



S7 line leaving Smíchovské nádraží toward Úvaly

List of S and R railway lines crossing in to Prague (since 12 December 2010) – workday

Line	Track	Route
<b>S1</b>	011	<b>Praha Masarykovo nádraží</b> – Praha-Libeň – <i>Praha-Klánovice</i> – <b>Český Brod</b> – Poříčany – <b>Pečky</b> – Kolín
<b>S2</b>	231	<b>Praha Masarykovo nádraží</b> – Praha-Vysočany – <i>Praha-Horní Počernice</i> – Lysá nad Labem – <b>Stratov</b> – Nymburk – Kolín
<b>S3</b>	070	<b>Praha-Vršovice</b> – Praha hlavní nádraží – Praha-Vysočany – <i>Praha-Čakovice</i> – Neratovice – <b>Všetaty</b> – Mladá Boleslav
<b>S4</b>	091+090	<b>Praha Masarykovo nádraží</b> – <i>Praha-Sedlec</i> – Roztoky u Prahy – <b>Kralupy nad Vltavou</b> – <b>Vraňany</b> – Hněvice
<b>S5</b>	120	<b>Praha Masarykovo nádraží</b> – Praha-Dejvice – <i>Praha-Ruzyně</i> – Hostivice – <b>Kladno</b>
<b>S6</b>	173	<b>Praha-Smíchov</b> – Praha-Holyně – <i>Praha-Řeporyje</i> – Rudná u Prahy – <b>Nučice</b> – Beroun
<b>S7</b>	011+171	<b>Úvaly</b> – <i>Praha-Klánovice</i> – <b>Praha hlavní nádraží</b> – Praha-Smíchov – <i>Praha-Radotín</i> – Řevnice – Karlštejn – Beroun
<b>S8</b>	210	<b>Praha hlavní nádraží</b> – Praha-Vršovice – Praha-Braník – <i>Praha-Zbraslav</i> – Vrané nad Vltavou – <b>Čerčany</b>
<b>S9</b>	221	<b>Praha-Vysočany</b> – Praha hlavní nádraží – Praha-Vršovice – <i>Praha-Kolovraty</i> – <b>Strančice</b> – <b>Čerčany</b> – Benešov u Prahy
<b>S20</b>	231+232	<b>Praha Masarykovo nádraží</b> – Praha-Vysočany – <i>Praha-Horní Počernice</i> – Lysá nad Labem – <b>Milovice</b>
<b>S41</b>	ML	<b>Praha-Libeň</b> – Praha-Holešovice – <i>Praha-Sedlec</i> – <b>Roztoky u Prahy</b>
<b>S65</b>	122	<b>Praha-Smíchov Na Knížecí</b> – Praha-Jinonice – <i>Praha-Řepy</i> – Hostivice
<b>S80</b>	210	<b>Praha hlavní nádraží</b> – Praha-Vršovice – Praha-Braník – <i>Praha-Zbraslav</i> – Vrané nad Vltavou – <b>Dobříš</b>
<b>R3</b>	070	<b>Praha-Vršovice</b> – Praha hlavní nádraží – Praha-Vysočany – <i>Praha-Čakovice</i> – Neratovice – <b>Všetaty</b> – Mladá Boleslav
<b>R4</b>	091+090	<b>Praha hlavní nádraží</b> – <i>Praha-Holešovice</i> – <b>Kralupy nad Vltavou</b> – Hněvice
<b>R5</b>	120	<b>Praha Masarykovo nádraží</b> – <i>Praha-Veleslavin</i> – Hostivice – <b>Kladno</b> – Rakovník

Stops marked in **bold** are the final/initial stops of the line. Stops marked in *italics* are the last (first) on the territory of the City of Prague. Stations marked in **colour** are stations where integration under PID stops.



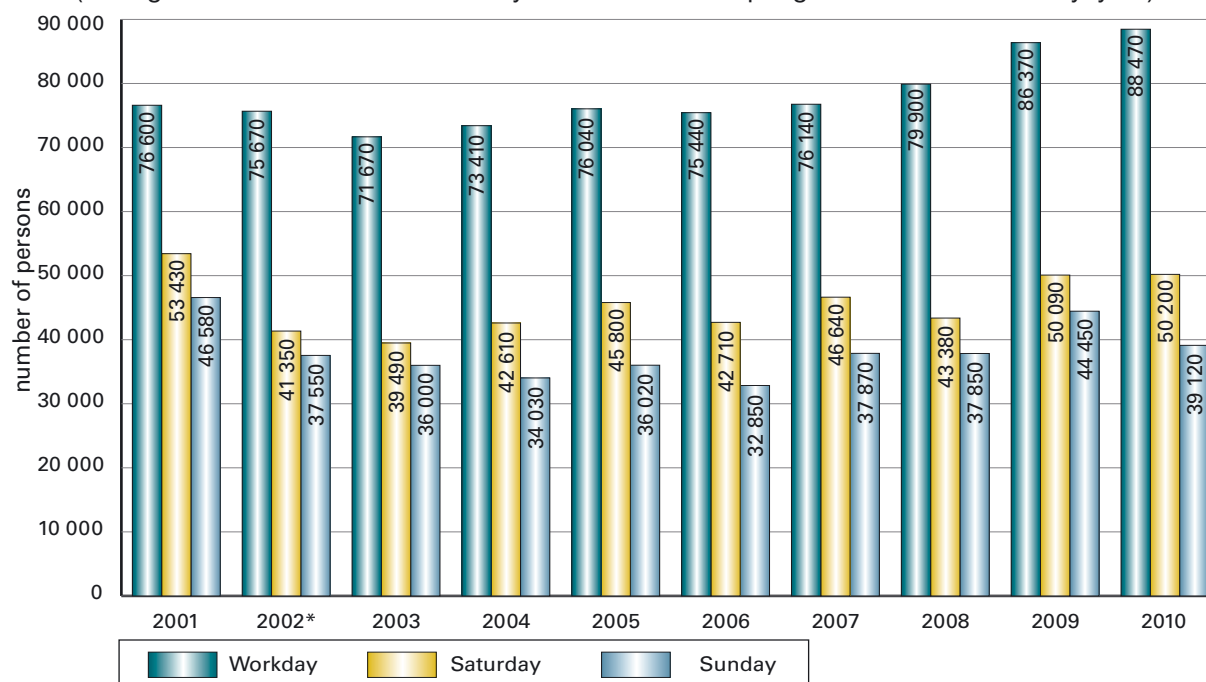
With the introduction of regular intervals and new connections under the S lines, railway transport is becoming more attractive for passengers. The following table presents the travel time between the stop at the edge of the city boundaries and the centre, as well as the average interval during peak hours (in some cases different for morning and afternoon rush hours) on the six most important train routes.

**Transport data on most important railway segments in Prague** (since 12 December 2010)

Section (line)	Average peak frequency	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 / 15 min*	17 min	13 km
Praha-Sedlec – Praha Masarykovo nádraží (S4)	30 min	13 min	9 km
Praha-Horní Počernice – Praha Masarykovo nádraží (S2, S20)	20 min / 30 min*	15 min	15 km
Praha-Ruzyně – Praha Masarykovo nádraží (S5)	30 min / 60 min*	25 min	13 km

\* morning / afternoon peaks

**Number of persons transported in Prague (zones P+0+B) in 24 hours by trains integrated into PID**  
(average value from two PID surveys carried out in spring and autumn of every year)

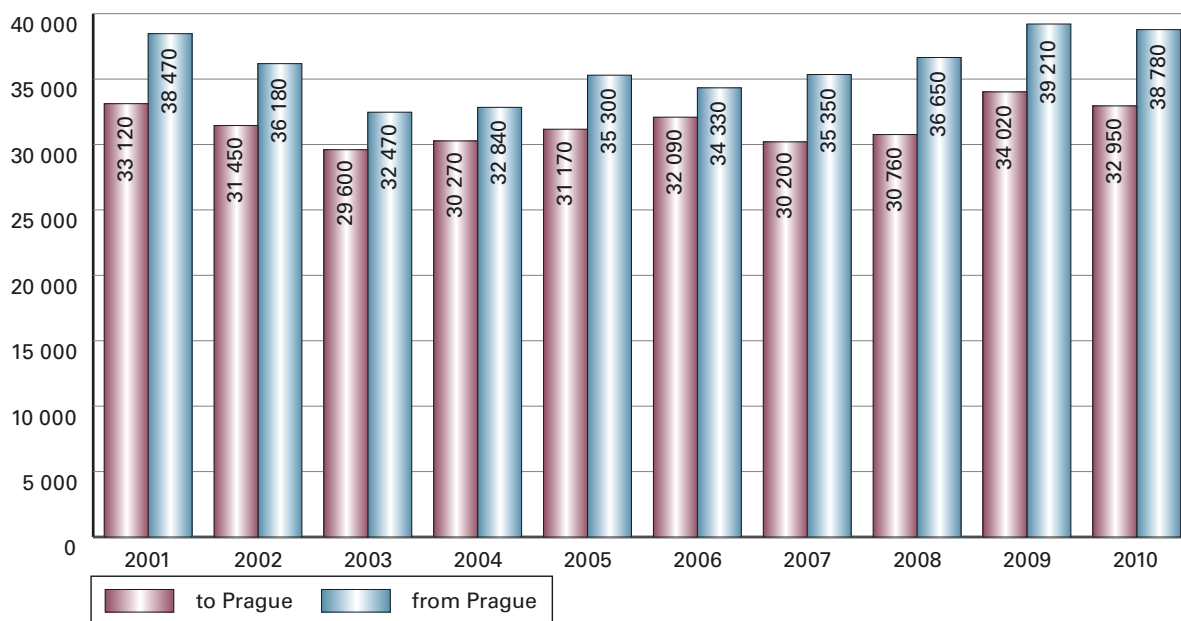


\* data do not include shuttle transport operated due to floods

In order to satisfy the transportation demand for one workday in 2010, 784 trains integrated into the PID system were sent out, of which 38 were express trains. These trains carried an average of 86 785 passengers (in the P, 0 and B zones). The heaviest load was on the 171 track connecting the capital to the region around Beroun (18 970 persons transported per workday) and track 011 Prague – Kolín (17 570 persons transported per workday).

On an average workday 112 880 passengers enter and exit PID trains at all stations and stops on the territory of Prague. The most heavily frequented station in terms of turnover of PID passengers is Praha Masarykovo nádraží with an average workday turnover of 32 910. All values are taken from Czech Railways' nation-wide frequency data from a study done in the spring, specifically from March 2010.

### Number of persons crossing the border of Prague on an average workday (0:00-24:00) on trains integrated into the PID system

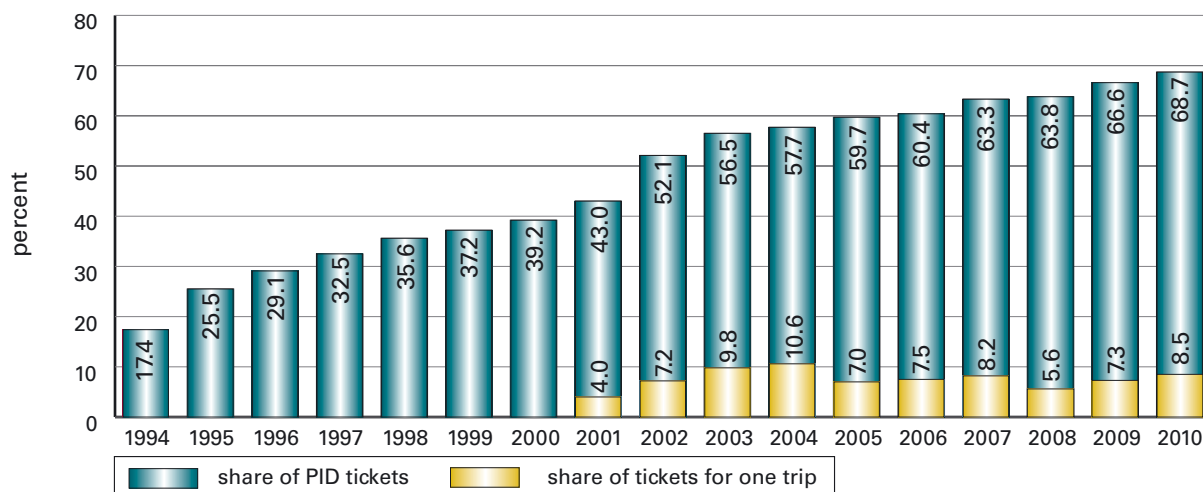


The most frequented entry points (at the boundary of Prague) according to the study from March 2010 were the sections:

- Zeleneč – Praha-Horní Počernice (track 231/lines S2 and S20) – 13 940 passengers/day in both directions
- Úvaly – Praha-Klánovice (track 011/line S1) – 13 210 passengers/day in both directions
- Černošice – Praha-Radotín (track 171/line S7) – 12 710 passengers/day in both directions

The above numbers of passengers are only recorded for trains included in the PID system and are subsequently converted to average workday numbers.

### Percentage of PID travel documents in railway transport in Prague



Approximately 154 000 people cross the city boundaries in both directions using PID buses and trains on an average workday, with the railways accounting for 47 % and PID buses for 53 %.



The S2 line at the renovated Praha-Běchovice station



An S9 line train at the Mnichovice stop

### 3.1.2.5 Other PID transportation systems

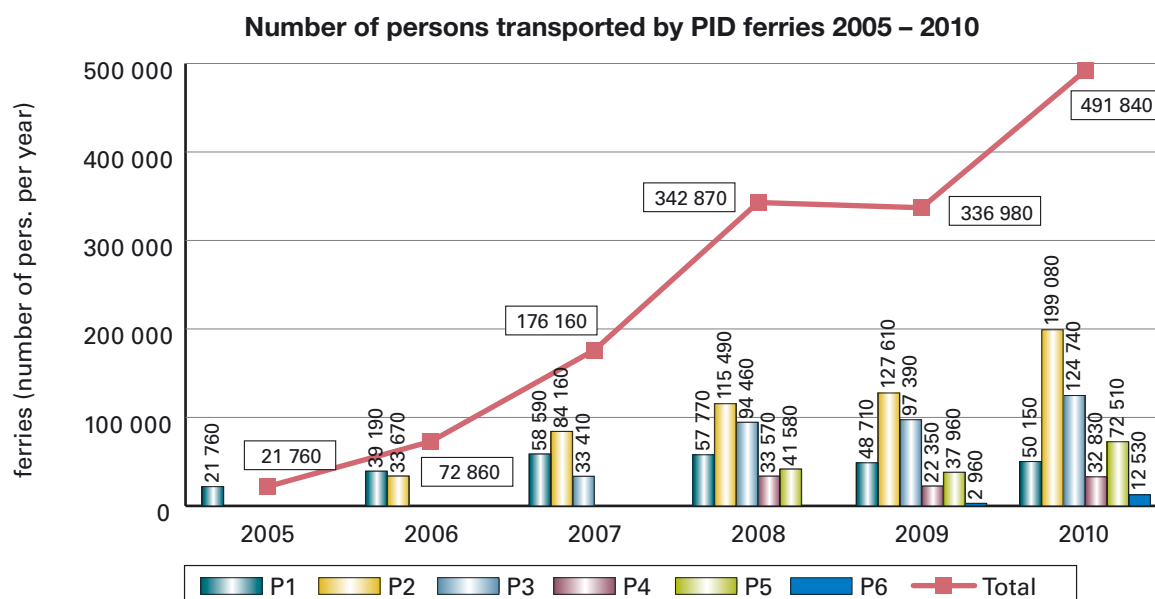
The **funicular** provides a connection between Újezd, Nebozízek and Petřín. Two cable cars with a capacity of 100 persons move along a 510 m long track at an average speed of 6.12 km/h, covering a height of 130.45 m. In 2010 the funicular transported 1 778 000 passengers and accounted for 0.14 % of the total number of persons transported under PID in the city that year. On 1 July 2010, a trial period was launched for the transportation of bicycles on the funicular.

**River ferries** across the Vltava have been an element of PID since 2005. In 2010 there were 6 such ferries in operation in Prague.

Overview of Prague ferries operated in 2010 and selected operating parameters

Name	Route	Launched	Season	Boat capacity (in persons)	Persons transported/2010	Persons transported/total***
P1	Sedlec – Zámky	1.7.2005	year-round	11	50 150	276 170
P2	V Podbabě – Podhoří	1.7.2006	year-round	11**	199 080	560 010
P3	Lihovar – Veslařský ostrov	17.7.2007	year-round*	12	124 740	350 000
P4	Národní divadlo (Hollar) – Střelecký ostrov – Slovanský ostrov (Žofín) – Dětský ostrov	1.8.2008	Seasonal (Apr-Oct)	11	32 830	88 750
P5	Jiráskovo náměstí – Botel Admirál – Výtoň – Císařská louka	1.8.2008	year-round*	50	72 510	152 050
P6	Nádraží Modřany – Lahovičky	19.9.2009	year-round*	11	12 530	15 490

\* in 2010 in operation from April-December \*\* from April to October two boats in operation \*\*\* since ferry began operation





On ferries P1 and P6, trips can also be made outside those listed on the schedule.

The operator of the P3 ferry is Vittus group s. r. o., while the other ferries are operated by První Všeobecná Člunovací Společnost s. r. o.

It total, all Prague ferries transported nearly 492 000 passengers in 2010, contributing 0.04 % of the total PID ridership within Prague.

### 3.1.2.6 Basic data on PID for Prague Public Transport Company

#### Summarised basic data 2010

	Metro	Trams	Buses	Total
Operating length of network (km)	59.1	141.6	681.0	881.7
percentage on dedicated track bed (%)	100	52	-	-
Operating length outside Prague (km)	-	-	142.0	142.0
Average distance between stations and stops (m)	1 094	534	628	-
Average travelling speed (km/h)	35.5	19.04	26.0	-
Annual VKT in Prague (in thousands)	53 341	47 097	62 194	162 632
Annual VKT outside Prague (in thousands)	-	-	1 664	1 664
Passengers transported annually in Prague (000s)	578 515	345 485	287 804	1 211 804
Passengers transported annually outside Prague (000s)	-	-	12 131	12 131
Number of Prague Public Transport Company employees	10 728			
Fare revenues (CZK millions)	4 461			
Operating costs (CZK millions)	16 573			
Revenue to cost ratio (%)	26.9 %			



Meeting of two generations at the Sokolovská – U Balabenky intersection SOR NB 18 bus at the stop Náměstí Republiky

#### Development of selected PID characteristics

Year	Operating length of network (km)+			Average travelling speed (km/h)			Number of vehicles used during morning peak/lull of regular operation for 1 workday		
	metro	trams	buses	metro	trams	buses	metro	trams	buses
1981	19.3	122.9	545.0	32.2	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	671.4	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
2006	54.7	140.9	817.0*	34.6	18.9	25.8*	405 / 205	703 / 552	955 / 451
2007	54.7	140.9	820.2*	35.8	18.8	25.7*	405 / 205	707 / 554	958 / 455
2008	59.1	141.6	822.0*	35.5	18.5	25.7*	440 / 240	686 / 536	938 / 484
2009	59.1	141.6	825.0*	35.5	18.5	26.0*	445 / 245	674 / 522	915 / 502
<b>2010</b>	<b>59.1</b>	<b>141.6</b>	<b>823.0*</b>	<b>35.5</b>	<b>19.0</b>	<b>26.0*</b>	<b>448 / 245</b>	<b>665 / 513</b>	<b>904 / 505</b>

+ The length is the total length of regularly operated routes available to passengers, measured along the track axis, for buses the street axis. For the metro it is the sum of the track between the centres of the end station waiting platforms.

\* including PID suburban lines operated by the Prague Public Transport Company

### 3.1.3 PID carrier fleets

**Metro fleet** (as of 31 December 2010)

Train type	Inventory	Operational
81 – 71	71	0
81 – 71M	400	395
M 1	240	240
Total	711	635

The modernisation of 81-71 cars to 81-71M cars was completed in 2010. The average age of operational metro cars is 6.08 years.



81-71



81-71 M



M1

**Tram fleet** (as of 31 December 2010)

Car type	Inventory	Operational
standard (T3, T3M, T3R, T3R.PV, T6)	837	794
low-floor (T3R.PLF)	33	33
standard articulated bidirectional (KT8D5)	17	13
low-floor articulated bidirectional (KT8N2)	30	30
low-floor articulated unidirectional (14T, 15T)	61	61
Total	968	931



T3



T6



T3R.PLF



KT8N2



14T



15T

The fleet of Prague trams was expanded in 2010 to include the first low-floor tram of the 15T type. The average age of the operational tram fleet is 13.18 years, while the average age of buses operated by the Prague Public Transport Company was 9.46 years.

**Bus fleet** (as of 31 December 2010)

Type	Prague Public Transport Company		Private carriers
	Inventory	Operational	Operational
standard	367	360	429
articulated	248	245	28
standard low-floor	417	417	64
articulated low-floor	99	99	16
midibus	0	0	7
low-floor midibus	23	23	23
Total	1 154	1 144	567



standard



articulated standard



low-floor  
SOR NB 12



low-floor  
articulated SOR NB 18



midibus  
SOR CN 8.5



midibus  
Ikarus E91

### 3.1.4 PID quality standards

The quality standards for Prague Integrated Public Transport set a unified level of quality for the services provided and are based on the recommendations of European standard ČSN EN 13 816 as well as the financial means of the transportation clients. The standards were configured according to the key needs of passengers in order to form a foundation for the minimum unified level of quality for the services provided.

The following basic qualitative indicators were monitored: fulfilment of traffic diagram, observing vehicle capacity, vehicle accessibility, guaranteed barrier-free connections, service of stops, additional sale of tickets on urban lines, sale of tickets on suburban lines, functionality of information devices in vehicles, information about stops, punctuality of operation, transfer links, behaviour of staff, uniform discipline, cleanliness of vehicles, cleanliness of stop facilities, risky situations and vehicle age.

In 2010 the unified quality standards were put in place on a trial basis for bus and rail transport.

## 3.2 Non-PID public transport in Prague

Mass passenger transport outside the PID system is operated for specific purposes and various events. As this is special purpose transportation, these lines have special fares, which can be symbolic or even free.

Bus lines serving large shopping centres function in a special regime. Transportation to these shopping centres, which are located at the edge of the city or in hard-to-access areas, tends to be free for passengers from public transport terminals. The operation of such lines is paid for by the shopping centres.

#### Free lines to shopping centres within Prague

Shopping centre	of lines	Approx. operating time	of connections/workday	of connections/Sat,Sun,hol.
OC Letňany	3	9:00 – 22:00	159	159
Avion shopping park Zličín	1	5:00 – 23:30	114	139
Centrum Černý Most	1	7:00 – 23:30	57	62
Šestka Ruzyně *	1	8:00 – 21:30	20	20
Globus Zličín	1	8:00 – 22:00	85	75

\* up until 1 November 2010, when the free line to OC Šestka Ruzyně was replaced by PID line 206

Free supplementary public transport lines were also operated for important cultural, social and sporting events in 2010. The 751 line connected the Nádraží Holešovice metro station with the Výstaviště Holešovice fair grounds and the 758 line connected the Letňany metro station with the Výstaviště Letňany grounds.

Every weekend and holiday from April to September 2010 there was a special line supporting the regular PID 112 line from Nádraží Holešovice to the Prague ZOO in ten-minute intervals.

Several bus lines are also operated in Prague that primarily serve large business and distribution centres. These are generally non-public transport for employees in areas where it would not be worthwhile to operate public transport. Examples include the lines from Opatov to Čestlice, from Zličín to Chrástany and others.

A special service for holders of ZTP and ZTP-P cards (those with physical handicaps) was introduced in Prague in 2009 whereby they could order a microbus by telephone. As of 1 July 2010 this service has been expanded to include orderable minibuses with assistance. These assistance services are meant to help persons with severe handicaps. Since 1 August 2010 this service has also been extended to beyond the boundaries of Prague, and can now be used in the first PID tariff zone as well. The rate of the fare was set at CZK 26 for a trip only within Prague or only within the first zone, and CZK 32 for a trip from Prague to the first zone and vice versa. Five minibuses provided this service in 2010, and two of them were operated around the clock.



### 3.3 External public transport

#### 3.3.1 Rail transportation

Prague is an important hub for regional, domestic and international rail travel. Rail transportation between the capital and other territories is also provided by trains that are not included under PID. The operation of passenger rail travel is provided by Czech Railways (České dráhy, a. s.).

The infrastructure for transportation is provided by the state organisation the Railway Infrastructure Administration (Správa železniční dopravní cesty).

**Number of trains at Prague railway stations 2002 – 2010**

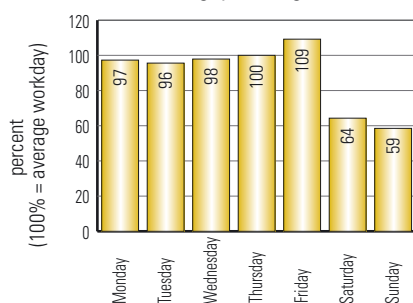
		2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of trains	starting	162 578	170 706	159 681	159 524	161 193	160 360	174 615	215 189	<b>217 472</b>
	ending	162 990	170 324	160 888	160 731	163 510	160 665	174 947	215 598	<b>217 886</b>
	total	325 568	341 030	320 569	320 255	324 703	321 025	349 562	430 787	<b>435 358</b>

**Volume of most important railway stations in Prague in 2010**

	Boarding (000 persons/yr)	Disembarking (000 persons/yr)	Total (000 persons/yr)	Number of trains at individual stations
Praha hlavní nádraží	11 649	10 357	22 006	132 560
Praha Masarykovo nádraží	5 686	3 964	9 650	48 838
Praha-Smíchov	2 059	1 961	4 020	70 481
Praha-Vršovice	672	697	1 369	69 130
Praha-Libeň	377	977	1 354	88 770
Praha-Vysočany	685	817	1 502	59 332
Praha-Holešovice	570	863	1 433	34 927

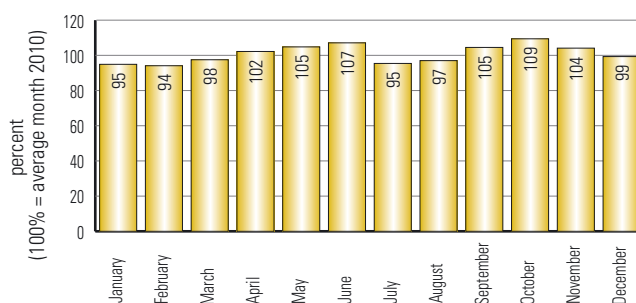
**Weekly variation in passenger demand on the railways 2010**

coefficient from number of boarding passengers



**Annual variation in passenger demand on the railways 2010**

coefficient from connection by type of travel document (TR 10 tariff) in the district of KCOD Praha



Compared to 2009, the number of trains at the Praha-Vršovice train station dropped by 35 %, while the number of trains at the Praha-Libeň station rose 47 %. These year-on-year changes were caused by the completion of the track modernisation on the Libeň – Běchovice segment.

The most important train station in Prague in terms of external transport has long been the Main Train Station – Praha hlavní nádraží.

In 2010 the renovations of Prague's main station Hlavní nádraží were completed, having been progressing since 2006. The space for passengers grew by nearly double and commercial spaces



*Renovated hall of Hlavní nádraží with travelators*

now cover an area of almost 10 000 m<sup>2</sup>. People with reduced mobility were taken into account during the renovations and a second set of moving walkways (travelators) was opened in 2010, as were elevators for passengers in the main boarding area.

### 3.3.2 Bus transportation

Public bus transportation between Prague and other areas in the region (excluding PID) and the whole country 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 only dispatches non-PID buses is ÚAN Florenc. It has also long been the most heavily trafficked station for regular external, generally long-distance, bus transportation. Over the course of 2010 the station was used by as many as 100 carriers (at the end of the year only 83), yet the five largest carriers alone account for 50 % of the traffic there.

#### Development of selected characteristics of Florenc bus station 2003 – 2010

	2003	2004	2005	2006	2007	2008	2009	2010
Connections per year	230 000	220 000	220 000	210 000	200 000	180 000	160 000	<b>145 000</b>
Connections per average workday	700	700	660	650	620	550	460	<b>420</b>
of which international	110	150	140	140	140	120	100	<b>105</b>
domestic long-distance	590	550	520	510	480	430	360	<b>315</b>
Number of carriers	100	95	90	90	90	85	93	<b>83*</b>

\* as of 31 December 2010

Other non-PID connections between Prague and the rest of the Czech Republic and international connections are dispatched and concluded at bus stations at Černý Most, Dejvická, Hradčanská, Nádraží Holešovice, Na Knížecí, Roztyly and Zličín.

#### Selected characteristics of bus terminals on the territory of Prague for 2010 (excluding PID lines)

	Dejvická	Nádraží Holešovice	Černý Most	Na Knížecí	Zličín	Roztyly	Hradčanská	Total
Connections per year	157 709	105 351	101 985	91 624	77 111	46 552	39 361	619 693
Connections per workday*	537	369	343	311	275	175	154	2 164
international	0	0	0	0	0	15	0	15
domestic long-distance	84	119	248	99	87	96	31	764
intraregional	453	250	95	212	188	64	123	1 385
Number of carriers*	12	11	14	11	11	27	7	-

\* as of 10 December 2010

SID (Central Bohemian Integrated Transport) also contributes to suburban transport in Prague to a significant degree. SID coordinates public transport in the cities of the Central Bohemian Region, regional suburban transport in the area around Prague and basic connections to Prague Integrated Public Transport with an outlook to rail transport as well.

SID lines departing from 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), G (Kolín district) and a corresponding number.

#### SID lines dispatched from end stations on the territory of the City of Prague in 2010

	Na Knížecí	Roztyly	Nové Butovice	Airport (T 1+3)	Hradčanská	Zličín	Dejvická	ÚAN Florenc	Černý Most	Divoká Šárka
Number of lines	19	12	5	4	3	2	2	2	1	1
Workday connections	226	52	95	15	57	96	59	12	6	2
Saturday connections	83	14	28	0	10	37	42	0	0	2
Sun/holiday connections	100	35	22	0	10	37	42	0	0	2
Number of persons transported across boundary of Prague (thousands/yr)	2 476	373	934	33	192	717	186	31	18	10

# TRANSPORT TELEMATICS AND TRAFFIC MANAGEMENT

## 4.1 Transport telematics

Transport 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.

Of the eleven areas laid out in the “Principles for the Development of Transport Telematics”, approved in 2002, the areas developed most last year were Area 1 (Road Traffic Management) and Area 10 (Data Collection and Management). Modernisation of the Urban Traffic Control Centre (UTCC) was nearly completed and 131 strategic spot and sectional detectors were installed in the streets of the capital.

## 4.2 Construction and renewal of traffic signals

As of 31 December 2010, there were a total of 578 traffic signals in service within the City of Prague. Twenty-five new traffic signals were erected in 2010. A further 34 traffic signals were refurbished in 2010, including structural modifications to pedestrian crossings and curbs.

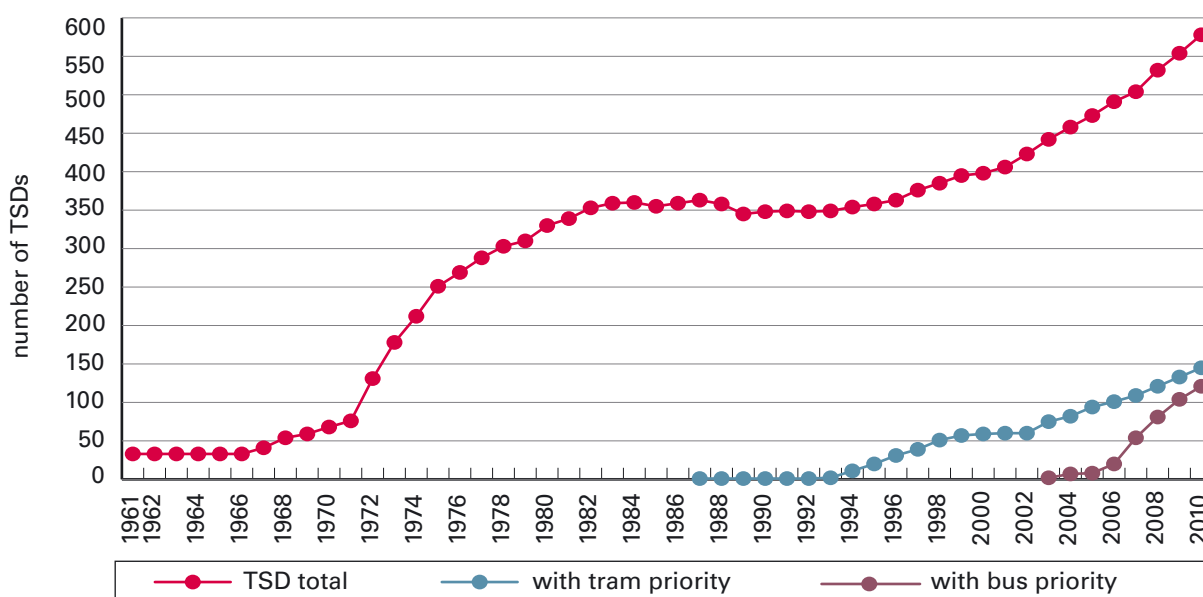


Traffic signal 6.830 Myslbekova – Hládkov crossing



Traffic signal 1.011 Masarykovo nábřeží – Myslíkova

Traffic signals in Prague 1961 – 2010





# PRAHA

## NETWORK OF TRUNK ROADS AND METRO (UNDERGROUND)



TECHNICKÁ SPRÁVA KOMUNIKACÍ HLAVNÍHO MĚSTA PRAHY  
Úsek dopravního inženýrství  
Rásoňská 770/8, 110 15 Praha 1  
Tel.: 257 015 111 e-mail: udi@tsk-praha.cz  
Fax: 257 015 435 http://www.tsk-praha.cz

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1 : 90 000

0 0,2 0,4 0,6 0,8 1 1,2 1,4 1,6 1,8 2 km

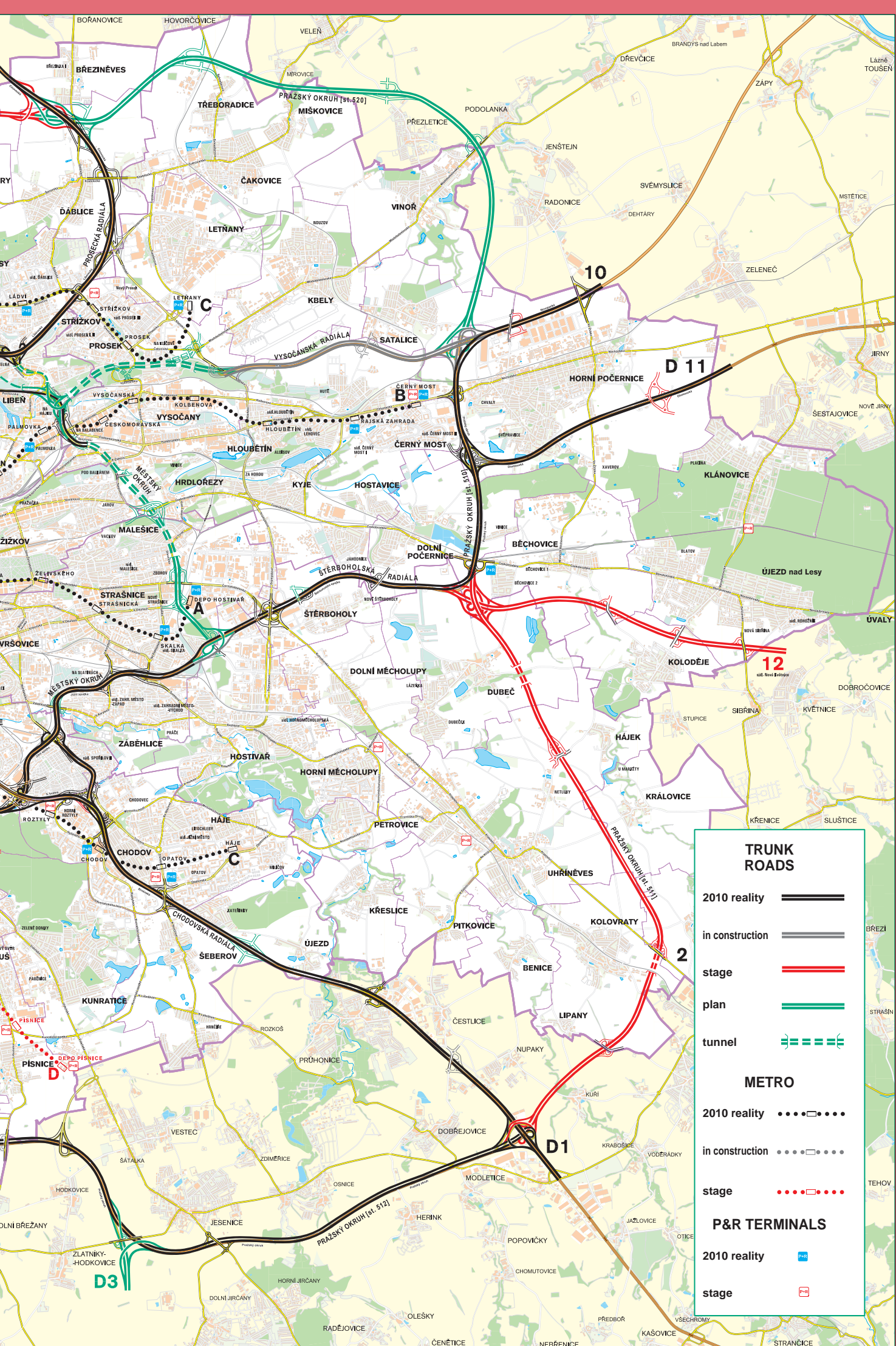
VONOKLÁSY

STARÁ VRAŽ

DOLNÍ MOKROPSY

OHROBEC







At the end of 2010 there were a total of 108 stand-alone pedestrian crossings with a traffic signal. Twelve such crossings were added. There were 228 traffic signals in service on the tram network. At 145 of them (63.6 %) trams have the right-of-way. At a total of 121 traffic signals MHD buses can also use the right-of-way.

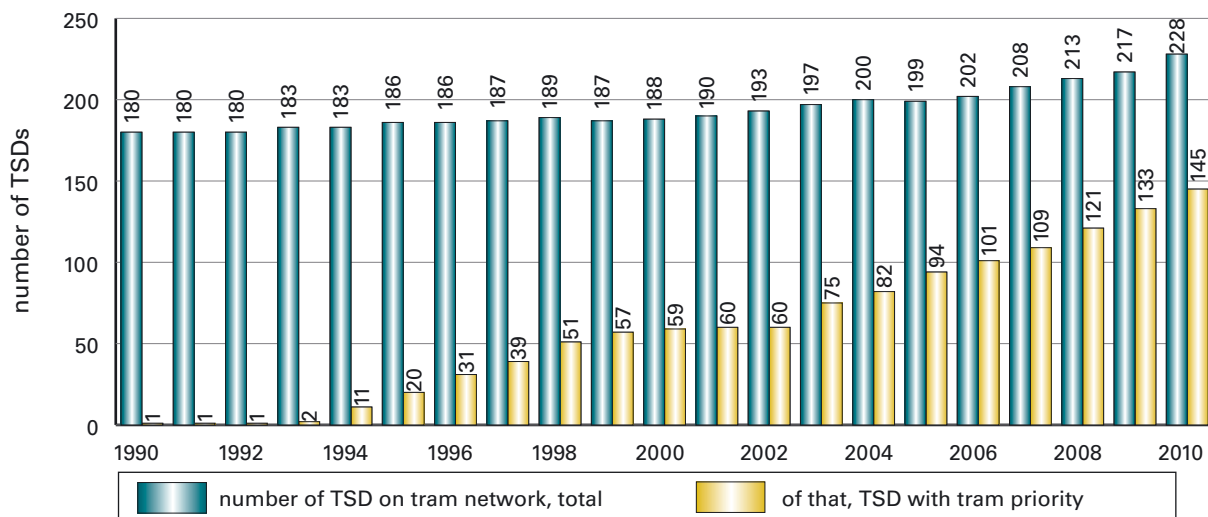
Basic data on traffic signals 1961 – 2010

	1961	1971	1981	1990	2000	2005	2006	2007	2008	2009	2010
Total traffic signals (from 2005 number of controllers)	33	76	339	348	398	473	491	504	532	554	578
Dedicated pedestrian crossings	-	9	37	45	57	72	76	78	86	96	108
Traffic signals with tram right-of-way	-	-	-	1	59	94	101	109	121	133	145
Traffic signals with bus right-of-way	-	-	-	-	-	8	20	53	81	104	121

### 4.3 Priority for MHD vehicles at traffic signals

New and refurbished traffic signals are now by default equipped with technology which, in addition to dynamically managing traffic on the basis of vehicle and pedestrian demand, allows the right-of-way to be given to public transport vehicles.

Traffic signals on the tram network 1990 – 2010



During 2010 the total number of traffic signals with **tram priority** increased by 12. Twelve new traffic signals were installed on the tram network, and one traffic signal was temporarily taken offline. Of the total of 228 traffic signals on the tram network, as of 31 December 2010 functional priority was given to trams at 145 (63.6 %), with the right-of-way absolute at 58 of those (25.4 %).

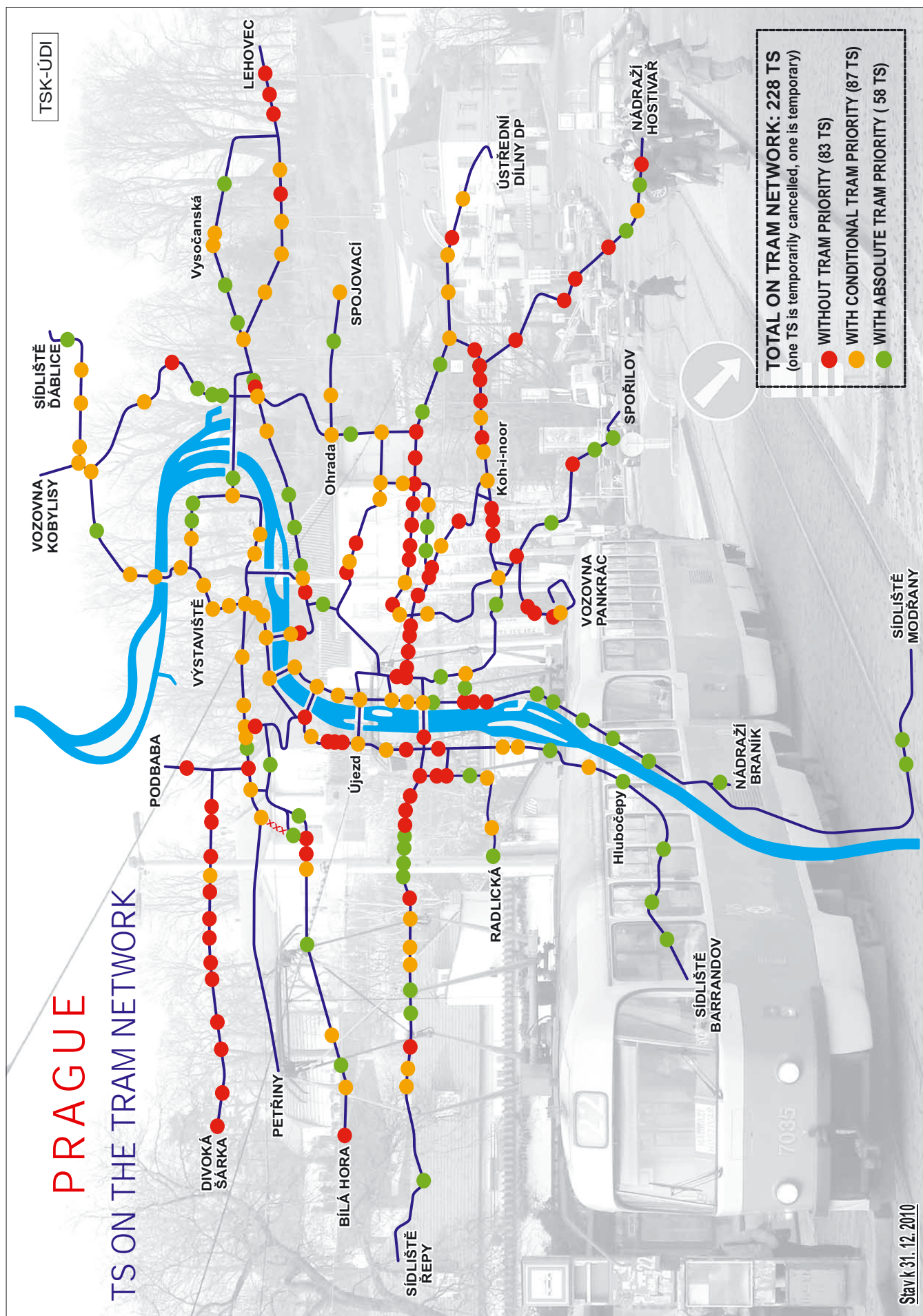


Traffic signal 5.816 Plzeňská – crossing at Poštovka stop



Traffic signal 6.174 Milady Horákové – Pod baštami crossing





**Bus priority** was put in place at the first pair of intersections in 2003 as part of the European project Trendsetter. In 2010 a further 17 traffic signals equipped for allowing priority to be given to buses were installed, bringing the total to 121, of which 114 work on the basis of active detection (on the principle of radio communication) and 7 on passive detection (vehicle loop detectors or video detectors in a dedicated lane).

## 4.4 Control centres

The system of central traffic management in the city is administered by the Technical Administration of Roads of the City of Prague – Department of Transportation Engineering. The Urban Traffic Control Centre (UTCC), located in the building of the MHD Central Dispatching on Na bojišti street in Prague 2, underwent extensive and demanding renovations in 2009.

A web application for providing traffic information and a software application for transportation engineering (using data from the centre for traffic analyses) were financed as part of the OPD project (see Chapter 14). Work continued on creating pre-set traffic scenarios in 2010, to be put in place either based on the time of day or on the basis of specific current traffic situations ascertained by detectors.

As of 31 December 2010, a total of 270 traffic signals were connected to the UTCC Prague via the various automatic Area Traffic Control Centres (ATCC). It was thus possible to control nearly half (47 %) of all the traffic signals installed in Prague's streets from the top level. The connection of further traffic signals was made easier by the completion of construction on all 11 ATCCs in 2010. VRS 2100, MIGRA and SCALA remained the three main systems for monitoring and managing traffic.



*BARCO video wall at UTCC Prague*



*Strategic section detectors on Spořilovská street*

Modernisation of the UTCC has also allowed for wider application in terms of collecting and providing traffic information from the territory of Prague, including full compatibility with the system of the National Transportation Information Centre. Another asset in terms of traffic oversight and management was the data connection between the UTCC and the new Prague Ring Road dispatch centre in Rudná. Information for the UTCC is provided primarily by 23 sectional and 108 spot strategic traffic detectors and 28 climatic carriageway detectors. Traffic detectors provide information on traffic volume, vehicle occupancy, traffic jams, traffic composition and the like. Their installation was completed in 2010.

## 4.5 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 source of data for the information distributed is 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 Regina) is completely standardised according to the international ALERT C standards. RDS-TMC broadcasting was launched for the territory of Prague on 1 July 2005, the first place in the Czech Republic and in the whole former Eastern Bloc.

Current traffic information acquired from TIC Prague is used by City of Prague web traffic applications to create a traffic volume map, tables with traffic levels, to distribute screen captures from selected traffic cameras and to provide information about road restrictions (closures).

## 4.6 Television monitoring systems (TVD)

At the end of 2010 there were three camera monitoring systems in operation in Prague. The Technical Administration of Roads of the City of Prague (TSK) administers a TVD system that primarily monitors traffic. The centre for the TVD system is the Urban Traffic Control Centre on Na bojišti street and it is primarily used by UTCC dispatchers and TIC Prague.

There were a total of 245 cameras connected to the TVD-TSK system at the close of 2010. Of this number, 86 cameras located in Prague tunnels have a video detection function (48 in the Strahov tunnel, 32 in the Mrázovka tunnel and 6 in the Zlíchov automobile tunnel).

In 2009 and 2010, 20 cameras with a comprehensive telematic monitoring system were installed on the Jižní spojka, Spořilovská and 5. května streets. These cameras generally have a fixed position and primarily serve to count traffic on the basis of video detection. They can also detect traffic congestion and evaluate several other traffic situations.

Two further systems serve to monitor the situation in the metro (Prague Public Transport Company's system) and for general security purposes and monitoring public order (the Municipal Camera System).



*Comprehensive telematic monitoring system on Spořilovská street*



*VMS Podbabská*

## 4.7 Variable message signs (VMS)

Variable message signs (VMS) are installed in Prague in order to display up-to-date information about the traffic situation on connected roads and on short-term and long-term closures, particularly in relation to the tunnels of the City Ring Road. Altogether there were 22 functional VMSs in Prague as of 31 December 2010 (the device located near the Patočková – Střešovická intersection was temporarily taken offline due to ongoing work on the City Ring Road).

## 4.8 Speed measurement and capturing red-light violations

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.

At the end of 2010, speed was determined in this manner at 21 stretches in Prague (five in both directions is counted as two sections). Two new sections were implemented – one on the Jižní



spoinka between Spořilovská and 5. května and the second connecting the already existing end measurement portal on Dobříšská with the start portal in the Mrázovka tunnel.

**Section speed measurement in Prague** (as of 31 December 2010) – in parentheses the percent of infractions for Nov 2010

1	5. května toward centre (5 %)	12	Patočkova – toward centre (9 %)
2	Bělohorská – from centre (3 %)	13	Poděbradská – toward centre (1 %)
3	Dobříšská – toward Barrandovský most (5 %)	14	Poděbradská – from centre (under 1 %)
4	Dobříšská – toward Mrázovka tunnel (3 %)	15	Podolské nábřeží – toward centre (3 %)
5	Dobříšská – Mrázovka tunnel – sections 4 a 20*	16	Strahovský tunel – direction Mrázovka (1 %)
6	Evropská – toward centre (2 %)	17	Strahovský tunel – direction Patočkova (1 %)
7	Jižní spojka 1 – by Vrbova, direction Krč (1 %)	18	Strakonická – toward centre (under 1 %)
8	Jižní spojka 2 – section 5. května – Chodovská (2 %)	19	Mrázovka tunnel – direction Barrandovský most (4 %)
9	Jižní spojka 3 – Průmyslová – cable bridge (3 %)	20	Mrázovka tunnel – direction Strahovský tunel (3 %)
10	Jižní spojka 4 – sections 1 and 2 (15 %)	21	Ústecká – from centre (3 %)
11	Jižní spojka 5 – Spořilovská – 5. května*		

\* new section, no data available for November 2010



Section speed measurement on Evropská



Information on travel time on Evropská street

A technically similar, but straight profile, device for measuring speed was installed near the Ořechovka tram stop in 2010 in the direction toward the city centre. At this site, one camera is installed along with two induction loops in the carriageway. The new restrictive application replaces the former speed measurement device, which was only of an informative nature.

Also falling into the category of devices for recording traffic infractions are 14 devices installed at intersections for detecting and documenting the **running of red lights** in the city. In 2010 this device was not added to any traffic light controlled intersection, but implementation is planned for further traffic signals in the future.

**Traffic signals with monitoring of red-light violations** (as of 31 December 2010)

0.612a	Černokostelecká – Průmyslová (new technology)	5.499	K Barrandovu – K Holyni (new technology)
2.029	nám. I. P. Pavlova – Sokolská (new technology)	5.529	Plzeňská – Jeremiášova
2.069	Legerova – Rumunská	5.569	K Barrandovu – Lamačova (new technology)
4.409	Chodovská – U plynárny	5.974	K Barrandovu – Ke Smíchovu (new technology)
4.449	Chilská – Opatovská	6.122	Bělohorská – Kukulova (new technology)
4.450	Generála Šišky – Československého exilu	8.278	Střelnická – Dábská
5.018	Jiráskův most – Janáčkovo nábřeží	9.297	Kolbenova – Kbelská

## 4.9 Travel time information

As of 31 December 2010 there were 8 segments in operation where drivers were provided with information on the actual expected trip time between two points. The same camera technology is used for measuring travel times as is for measuring vehicle speed and recording red light violations. Licence plate recognition does not serve for restrictive measures in this case, but to inform drivers. The travel time is calculated automatically from the licence plates without any human intervention and the licence plate photos are immediately erased from the system.

## CHANGES IN TRAFFIC ORGANISATION

The most significant change in the organisation of transportation in Prague in 2010 was the opening of the south-west section of the Prague Ring Road on 20 September 2010. In connection with this, the following adjustments to traffic organisation were made:

- heavy freight vehicles of over 12 tonnes were barred from the City Ring Road and K Barrandovu street
- increased capacity on alternate route to Prague Ring Road
- traffic signal at the connection from the ramp from Modřanská to the Barrandov bridge turned off and the number of lanes reduced from three to two before the place where they meet
- “no entry” signs put in place for freight vehicles over 7.5 t and 3.5 t on local roads in Prague 4 so that these vehicles could not abuse them as alternate routes

The above traffic measures along with boosting the capacity of the Štěřboholy Radial Road, increasing the awareness of drivers about the travel time on the Jižní spojka, and the use of other telematic applications has led to a marked reduction in the level of heavy freight traffic on the Jižní spojka and K Barrandovu street and thereby a reduction in negative repercussions (noise, emissions, vibrations) for the residential areas in Krč, Braník and Barrandov, along with an overall increase in the fluency and safety of transportation on the above roads.

The reduced volume of freight traffic on the Jižní spojka was taken advantage of to introduce an express MHD bus line for fast connection between Jižní Město and Smíchov.

Over the course of 2010, transitional changes continued to take place in traffic organisation during the construction of the City Ring Road and the Malovanka, Prašný most and Špejchar grade-separated intersections which, though they can be considered local in nature, have a significant influence on the flow of traffic on the roads of Prague 6, as well as the whole north-west sector of the city.

In March, Patočkova street was closed in the section between the Malovanka interchange and Myslbekova in connection with the launch of construction on the deepened tunnel section of the 2.B phase of the Strahov tunnel. Automobile traffic was rerouted to a bidirectional detour via Myslbekova, Bělohorská and Pod Královkou. The measure also affected the routing of MHD bus and tram lines.

From July on, construction work on connecting up to the Brusnice tunnel section required Patočkova street to be closed all the way to Střešovická, and motor vehicle traffic was rerouted from the intersection with Střešovická along a provisional road alongside the castle ramparts up to the intersection of Myslbekova and Nad vojenským hřbitovem.

In the second half of the year, traffic was renewed along the final north carriageway of Milady Horákové street from Letná through Špejchar to Prašný most.

Traffic restrictions also remained in 2010 on the roads of the Prague Ring Road, Novopacká and Kbelská where they connect to the Vysočany Radial Road, as well as on Kbelská and Veselská during construction of the Letňany interchange.

In connection with the construction of “A” metro line stations for the Dejvická – Motol extension, traffic was restricted on Evropská and Kukulova streets from October on.

There were significant traffic restrictions on the Prague Ring Road during reconstruction on the Slivenec – Třebonice segment (complete closure of one carriageway from March to September 2010 with traffic diverted in both directions to other carriageway) and a reduction in the number of lanes on Strakonická until the Prague Ring Road was opened in connection with construction of the Zbraslav interchange.

Minor traffic organisation changes took place in making local roads one-way and establishing residential zones and “Tempo 30” zones in some city districts.

Minor modifications in traffic organisations took place in the centre of Prague in 2010 on some service roads, for example expansion of the pedestrian zone on Jilská in the Old Town or the creation of residential zones in front of school buildings in Prague 2 (Na hrobci, Kladská, and Sázavská streets).

## ROAD TRAFFIC SAFETY

### 6.1 Traffic accidents

In 2010, 18 190 accidents were recorded in Prague (+17 % compared to 2009). There were 594 accidents involving pedestrians (-12 %), with 16 casualties (+23 %) and 560 injuries (-11 %). Pedestrians themselves caused 262 accidents (-14 %), in which 5 persons were killed (+0 %) and 243 injured (-14 %). The decisive majority of accidents were caused by drivers (17 555 of 18 190 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 510 (-12 %).

#### Accidents, impact on health and main causes

Year	2008	2009	2010	diff. 10/09 (%)
Number of accidents	30 251	15 583	<b>18 190</b>	+17
Number of fatal injuries	38	40	<b>29</b>	-27
Number of serious injuries	334	347	<b>279</b>	-20
Number of minor injuries	1 941	2 082	<b>1 893</b>	-9
Number of accidents with injury	1 909	2 094	<b>1 885</b>	-10
Number of accidents without injury	28 342	13 489	<b>16 305</b>	+21
Number caused by the driver	29 530	14 968	<b>17 555</b>	+17
failure to keep proper distance	7 777	2 555	<b>3 240</b>	+27
lack of due care and attention	4 506	2 211	<b>2 784</b>	+26
red light violation	461	327	<b>338</b>	+3
failure to yield in violation of traffic sign	1 981	933	<b>1 065</b>	+14
failure to yield when turning left	962	589	<b>577</b>	-2
failure to yield when passing from lane to lane	2 601	1 175	<b>1 444</b>	+23
failure to adapt to speed and density of traffic	154	104	<b>92</b>	-12
failure to adapt to vehicle condition	216	158	<b>101</b>	-36
failure to adapt to road conditions (ice, potholes, wetness, mud, etc.)	989	911	<b>1 172</b>	+29
failure to adapt speed to road (turn, width, decline, incline, etc.)	281	208	<b>152</b>	-27
Caused by road defect	77	72	<b>96</b>	+33
Caused by pedestrian	326	304	<b>262</b>	-14
Caused by cyclist	45	68	<b>72</b>	+6

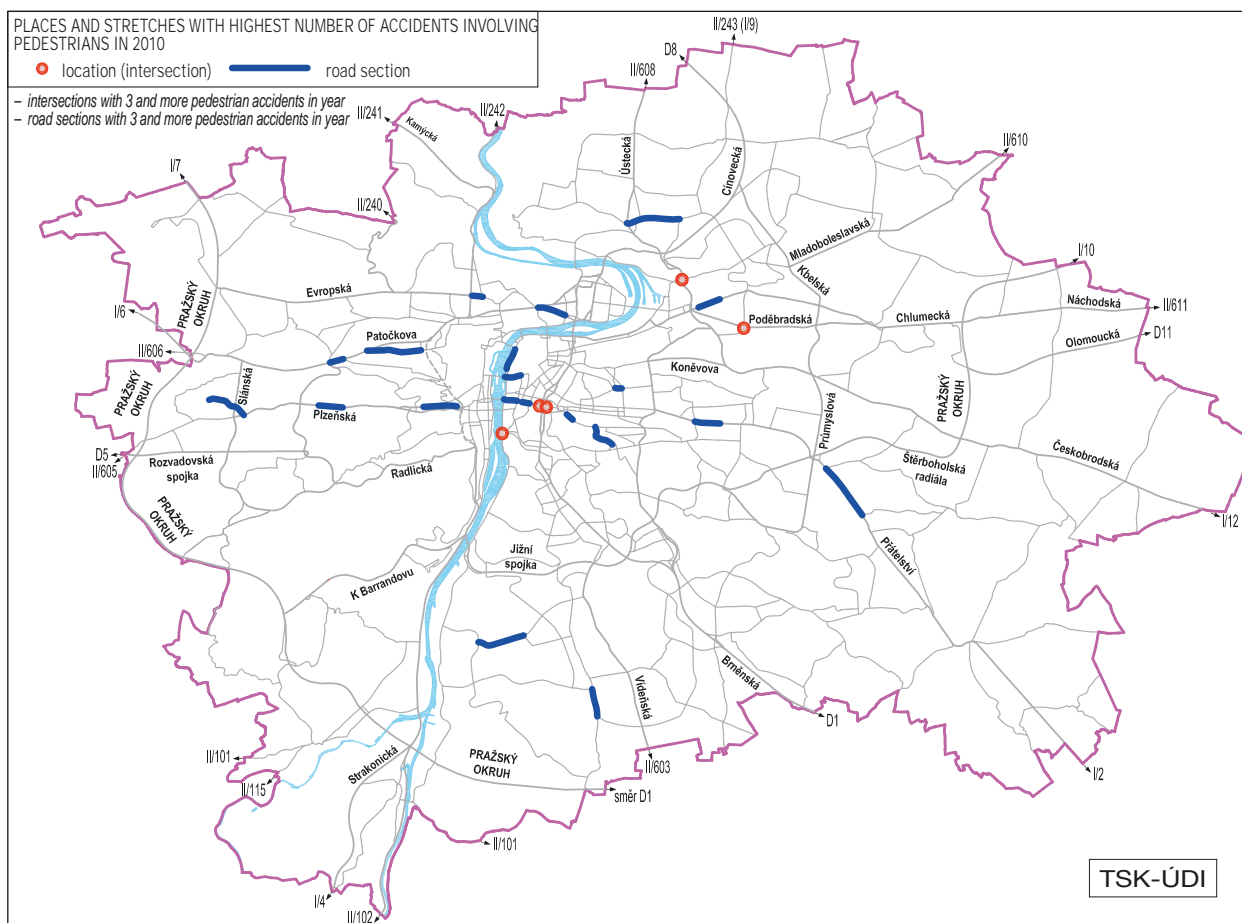
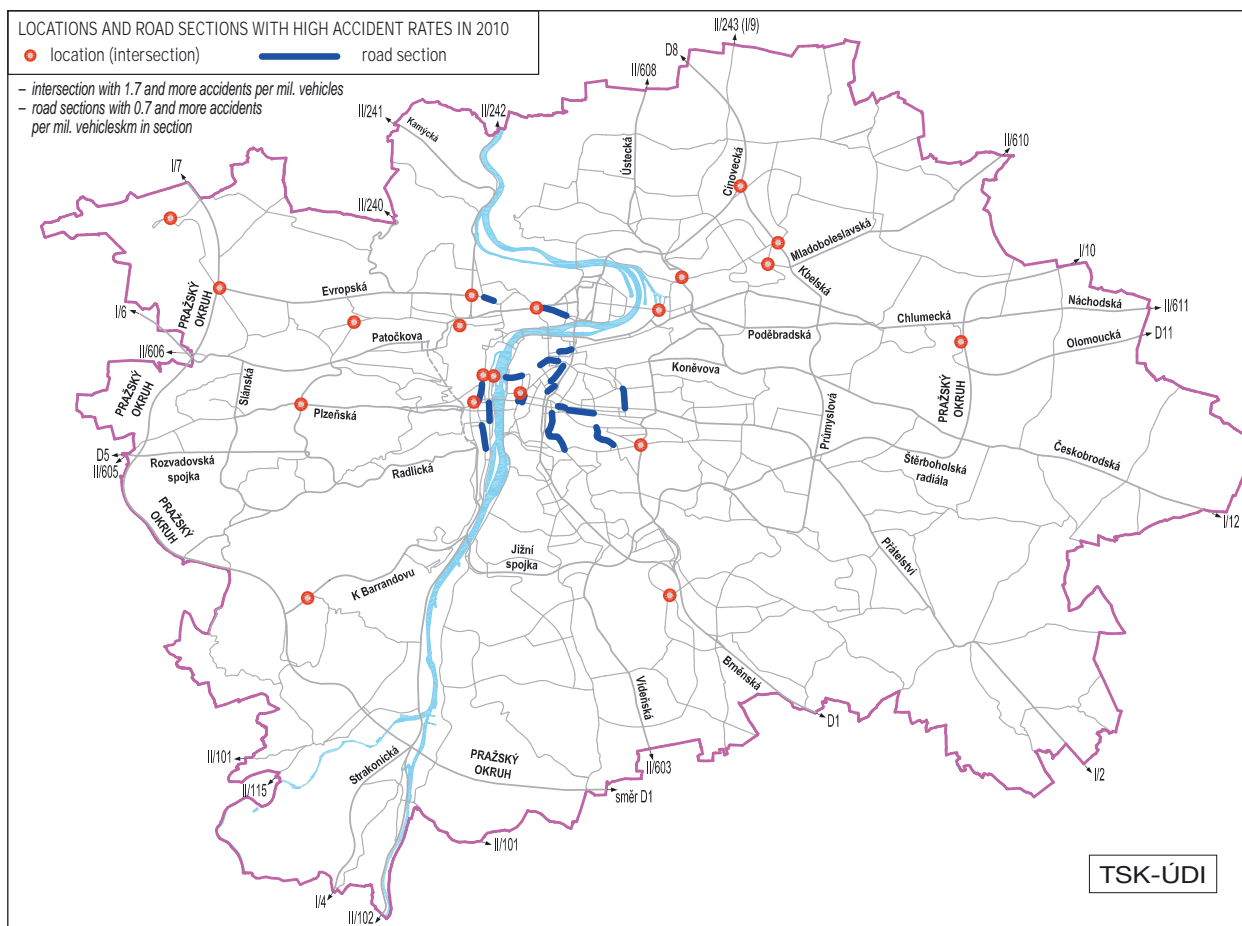
In assessing the long-term trends in accident rates it can be stated that from the 1960s through the 1980s, the long-term development of the accident rate was relatively positive, as the number of recorded traffic accidents roughly corresponded to the development of traffic volume and increased at a 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 faster 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).

Since 2001, the number of recorded traffic accidents has gone down despite ongoing growth of automobile traffic, thus the relative accident rate has also decreased (by 66 % in 2010 against 2000).

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 accidents to the police. Traffic accidents without injury or damage to a third party need only be reported where the material damage exceeds the following amounts:

- until end of 2000           CZK 1 000
- since January 2001       CZK 20 000
- since July 2006           CZK 50 000
- since January 2009       CZK 100 000





A positive 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 fell from 3 861 in 2000 to 2 201 in 2010, by 43 %, while in the same period automobile traffic in Prague has risen 33 %.

Even more positive is a comparison of the long-term trend in the number of injuries with the volume of automobile traffic. Over the last 20 years, automobile traffic has risen to more than triple 1990 levels (by 204 %), while the number of injuries in traffic accidents has fallen 33 % (from 3 269 injuries in 1990 to 2 201 in 2010), covering all kinds of injury – fatal, serious and minor.



*Accident at intersection of Legerova – Rumunská*

#### Number of traffic accidents, injuries and relative accident rate 1961 – 2010

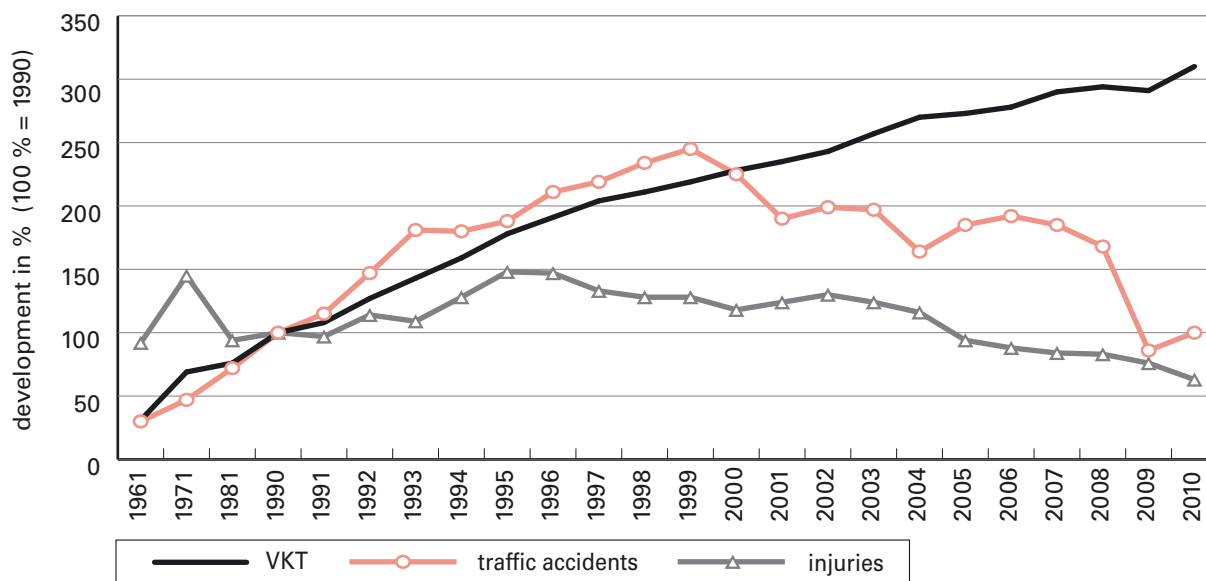
Year	Total accidents		Fatal injuries		Serious injuries		Minor injuries		Relative accident rate	Traffic volume %
	number	%	number	%	number	%	number	%		
1961	5 495	30	63	69	580	157	2 361	84	7.3	31
1971	8 496	47	123	135	567	154	4 046	144	5.1	69
1981	13 064	72	81	89	401	109	2 572	92	7.1	76
1990	18 024	100	94	100	369	100	2 806	100	7.5	100
1995	33 898	188	123	131	679	184	4 044	144	7.9	178
2000	40 560	225	80	85	521	141	3 260	116	7.4	228
2005	33 349	185	61	65	393	107	2 603	93	5.1	273
2008	30 251	168	38	40	334	91	1 941	69	4.7	288
2009	15 583	86	40	42	347	94	2 082	74	2.2	291
2010	18 190	101	29	31	279	76	1 893	67	2.5	304

100 % = the year 1990

Relative accident rate = number of accidents per million VKT (average values, whole road network)

Traffic volume = vehicle kilometres travelled (VKT), whole road network

#### Accidents, injuries and traffic volume in Prague 1961 – 2010 whole road network, annual total



## 6.2 Traffic education

The City of Prague devoted significant attention to child traffic education in 2010. A number of programmes were provided, in particular including a programme for systematic training at child traffic playgrounds (hereinafter CTPs), a programme for beginning cyclists (Young Cyclist Traffic Competition), traffic education programmes for children and youth, interactive theatre presentations for children with traffic education themes, and other events.

There were nine permanent CTPs in operation in Prague in 2010. Education at these child traffic playgrounds took place according to the traffic education thematic plan drawn up by the Ministry of Transport. This plan is primarily focused on 4th grade elementary school students, because these are beginning cyclists. In the case of extra room at the CTP, students of other elementary schools grades or nursery school children can also take part in the exercises. In 2010 a total of 36 041 elementary school students went through organised training at Prague CTPs. Taking part in the afternoon programmes were 19 705 children.

The programme for beginning cyclists – Young Cyclist Traffic Competition – 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.

A number of safety drives took place for adult participants of road traffic as well in 2010 (spring and autumn skill drives for the driving public, events for hearing impaired motorists).

Traffic education also includes the training for drivers 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.



*Child traffic playground in Karlov*

## 6.3 Measures to increase traffic safety

In 2010, a total of CZK 11.8 million was spent on current expenditures under the BESIP (road traffic safety) budget to implement measures to increase safety on the road network in Prague. Current expenditures are primarily used to install assembled speed humps and highway mirrors, install and adjust crash barriers and railings, perform carriageway surface roughening, run the project “Safe route to school – pedestrian crossings” and other traffic safety measures. An amount of CZK 31.3 million was drawn for capital spending on construction of speed humps, installing lighting for pedestrian crossings (installed in a total of 34 locations in 2010 at a cost of CZK 17.7 million), and other structural and non-structural safety measures.



*New Z-type crossing across Bělohorská street*



*New dividing islands at Pod hranicí – V hůrkách intersection*



## PARKING

### 7.1 The city centre

In the centre of the city, predominately made up of the approximately 9 km<sup>2</sup> of the Prague Conservation Area (PCA), no significant changes to the organisation of parking took place in 2010. Paid parking zones (PPZ) are in operation to the same extent as in 2009 on local streets over the whole territory of city districts Prague 1 and Prague 2, and the parts of Prague 3 and Prague 7 that fall under the narrow city centre. The number of spots in the PPZs changes slightly every year as the result of various, generally temporary, traffic restrictions.

PPZ operators, and thanks to them also the municipal authorities of the city districts where PPZs are in place, have a very good overview of the number of parking/stopping spots on local streets in the territory they administer and the use of those spots. The most important data on the state of PPZs in 2010, particularly in terms of occupancy rates and respecting of spots reserved for residents/subscribers and visitors, as well as changes compared to 2009, are given in the following table.

**Situation in established PPZs in 2010, development of occupancy and respecting of zones**

Occupancy and respect coefficients	Prague 1		Prague 2		Prague 3		Prague 7	
	of spots	%	of spots	%	of spots	%	of spots	%
Total	9 090	100	12 570	100	13 560	100	9 120	100
<b>Residents + subscribers (blue zone)</b>	<b>6 680</b>	<b>73</b>	<b>10 255</b>	<b>82</b>	<b>11 670</b>	<b>86</b>	<b>7 620</b>	<b>83</b>
occupancy coefficient 2010	-	79.6	-	75.6	-	68.1	-	71.7
occupancy coefficient 2009	-	79.4	-	75.6	-	67.3	-	73.0
change in occupancy coefficient 2010-2009	-	+0.2	-	0.0	-	+0.8	-	- 1.3
respect coefficient 2010	-	87.8	-	91.9	-	90.8	-	93.4
respect coefficient 2009	-	85.1	-	90.0	-	91.4	-	91.2
change in respect coefficient 2010-2009	-	+2.7	-	+1.9	-	-0.6	-	+2.2
<b>Visitors (orange and green zones)</b>	<b>2 260</b>	<b>25</b>	<b>2 185</b>	<b>17</b>	<b>1 690</b>	<b>12</b>	<b>1 420</b>	<b>16</b>
occupancy coefficient 2010	-	75.1	-	63.2	-	57.5	-	58.1
occupancy coefficient 2009	-	77.3	-	65.8	-	55.0	-	59.5
change in occupancy coefficient 2010-2009	-	-2.2	-	-2.6	-	+2.5	-	-1.4
respect coefficient 2010	-	45.8	-	50.2	-	71.5	-	50.9
respect coefficient 2009	-	46.0	-	54.4	-	59.1	-	49.9
change in respect coefficient 2010-2009	-	-0.2	-	-4.2	-	+12.4	-	+1.0

It is apparent from the above table that respect for the “visitor” zone was much lower in 2009 – 2010 than in the zone for residents and subscribers, hovering between 46 and 72 %. It was lowest in Prague 1 (around 46 %) and highest in Prague 3 (around 60 – 71.5 %).

Following a decision by the City of Prague Council from 2009 on the introduction of “mixed zones”, which would allow more effective use of parking capacity on several stretches of local road, a mixed zone was introduced on the territory of Prague 2, for now as its 1st part on Španělská street between Vinohradská and Mánesova.

For daytime visitor parking in the centre of Prague there are also guarded surface parking lots with a linear hourly rate for parking (e.g. at Florenc, Wilsonova by Hlavní nádraží, Alšovo nábř., Malostranské nám., etc.). The price for 1 hour of parking at these guarded parking lots currently ranges from CZK 20/hr (Florenc) to CZK 40/hr (Alšovo nábř., Malostranské nám.).

Motorised visitors of the city centre can also park their cars in mass parking lots or garages, which are generally underground and were built as part of large shopping centres, hotels, social facilities and other commercial properties.

The price for 1 hour of visitor parking in public parking garages in the centre ranges between CZK 40 and 50, while the prices in some large shopping centres have been discounted for the vehicles of shoppers.

Residents and subscribers can also use the unused capacity of such mass parking lots and garages. The price for parking a vehicle is rather high however, often reaching CZK 5 000 – 6 000 a month. Night parking is generally cheaper.

## 7.2 The rest of the city

The situation for stopping and parking vehicles in parts of the city outside the centre continues to worsen, particularly in residential areas with high-rise apartment blocks. Residents living here and their visitors can primarily make use of parking spots on local roads, and to a lesser extent also the occasional mass parking garage or guarded surface lot. In areas with low-rise buildings, locals can park their vehicles on private property or in individual garages.

In some areas outside the city centre it is more and more difficult to find a spot for short-term parking near local amenities (educational and healthcare facilities, shopping centres, etc.). For this reason, short-term and potentially even paid parking is being created.

The prices for visitor parking in parking lots and garages in the middle zone of the city tend to fall the farther from the centre one is. For example, at the Flora garage in Prague 3 the price is CZK 300/day, while the Limuzská garage in Prague 10 charges just CZK 120/day.



*Paid parking near Nové náměstí in Uhřetěves*



*Flora garages*

The number of parking spots in public and private garages within the city but outside the centre is estimated at around 200 000. Around 40 000 vehicles can park on parking lots not on the street.

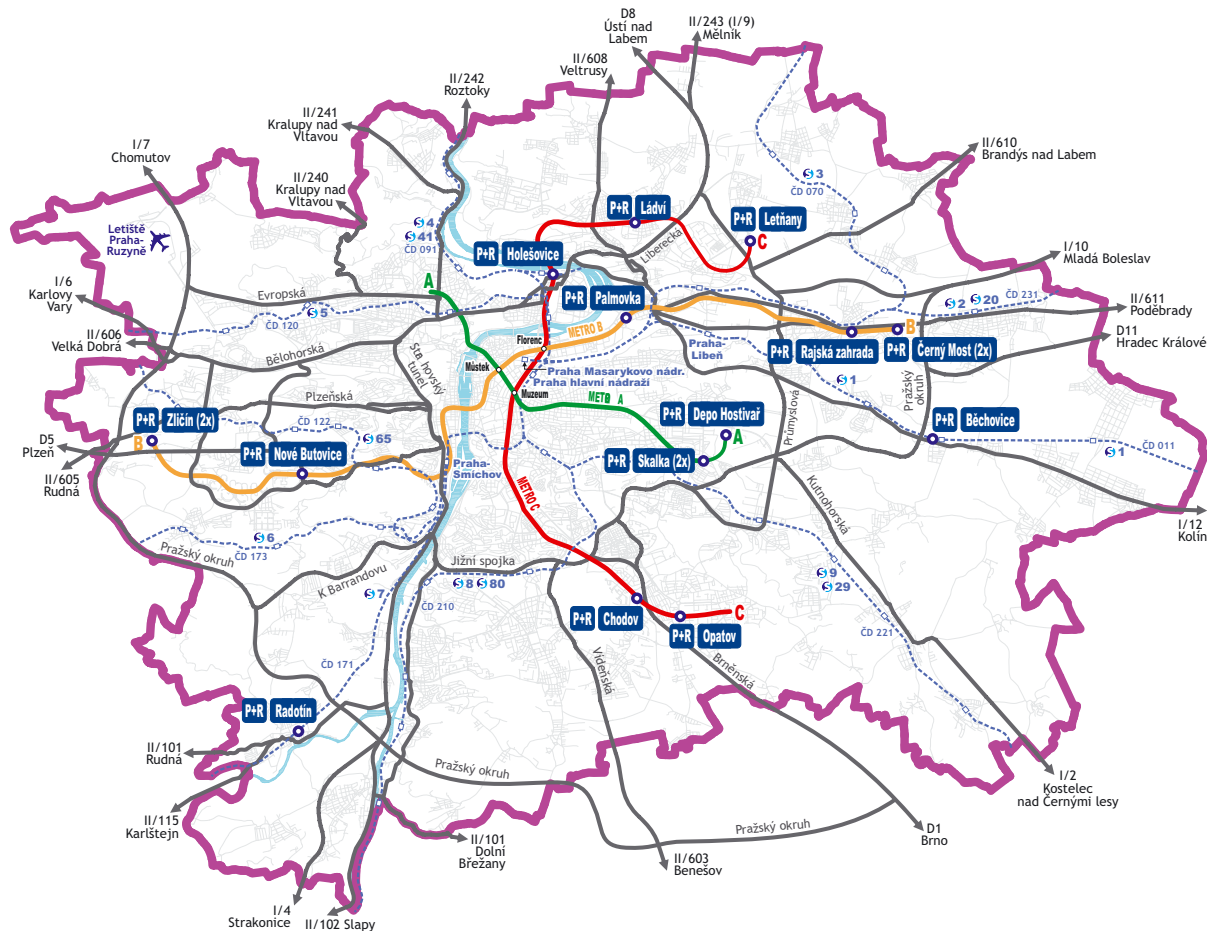
## 7.3 Park and Ride facilities (P+R)

The system of P+R facilities provides potential users with a more appropriate method of realising their trips through the city than driving a passenger automobile. In many cases it provides the best possible parameters for navigating areas that cannot be covered by a single type of transportation. Park and Ride lots have a positive effect on the environment city-wide and can help resolve traffic situations during extreme or even crisis situations that have a negative effect on the flow of traffic.

The capacity of the system of P+R lots has been expanding in the capital since 1997. The most recent increase took place in 2008 when the P+R Letňany facilities were put into service.

Currently there are approximately 2 900 spots for the basic functions of the P+R system available at 17 lots in 14 locations.

## Locations of existing lots in the P+R system



### Operation

Park and Ride lots are set up as public, fenced-off, guarded parking lots for passenger vehicles with a regulated parking period. The operating period is from 4:00 in the morning until 1:00 in the morning of the following day. On Friday and Saturday night the operating period is extended until 2:00.



P+R Zličín 1



Multi-level P+R Letňany

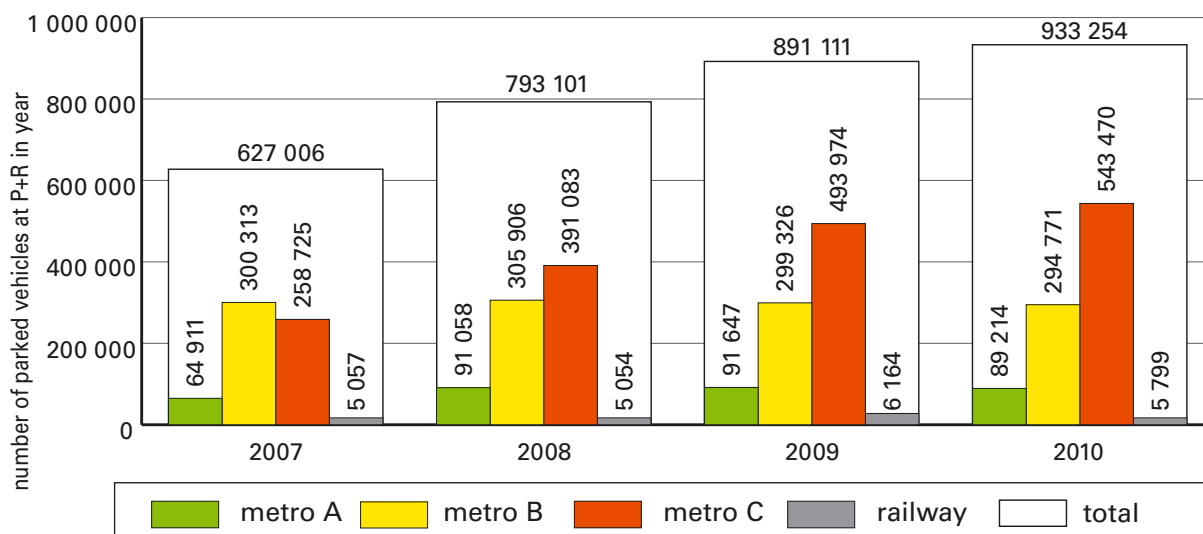
### Price for parking and integration into PID

The price for parking is set at CZK 10 for each single uninterrupted stay of the vehicle during the lot's operating period. It is forbidden to use the parking lot outside the stipulated operating hours and if the user is not continuing on to their destination by PID transit. For every violation of the operating rules the lot operator is entitled to collect an amount of CZK 100.

In terms of fare, the P+R lots are integrated into the Prague integrated public transport system through pre-paid tickets and discounted daily or return tickets.



Development of the number of parked vehicles at P+R parking lots



### Use of P+R system lots

The effect of the gradual growth in use of P+R lots connected to the “C” metro line was perceptible in 2010, made possible by the high-capacity lots at P+R Chodov and P+R Letňany. The capacity of these relatively new lots was now almost completely filled on workdays.

Aside from three lots (P+R Běchovice, P+R Palmovka and P+R Skalka 2), the capacity for the basic function of the P+R system is regularly fully exploited.

It is possible to put together a summary of orientational characteristics for the various P+R lots based on the daily variations of capacity use in the month of October, such as most frequent filling of lot capacity (on weekdays) or maximum period of lot being 99 % full.

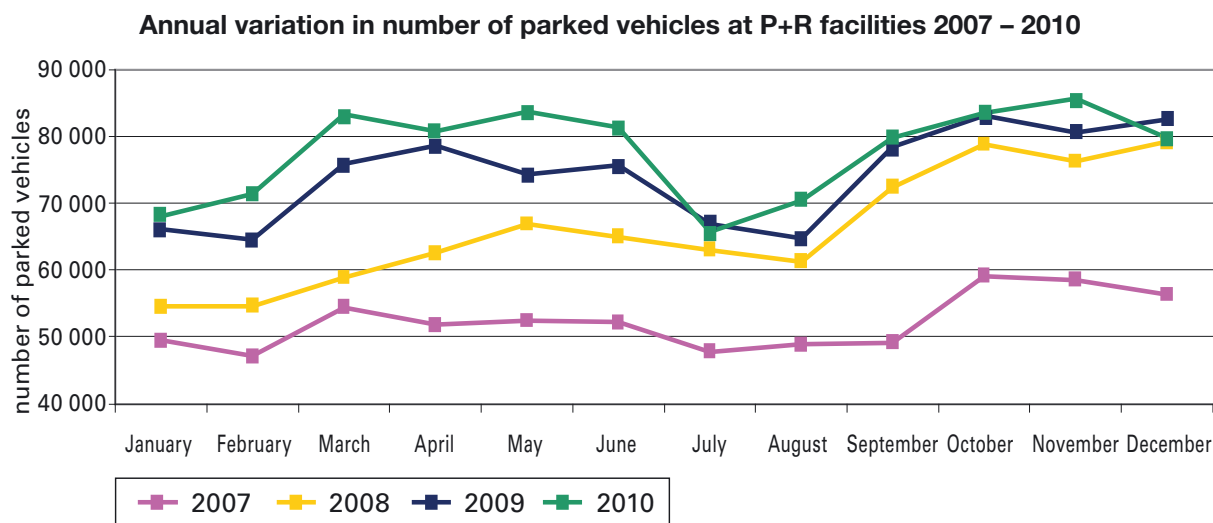


P+R Opatov

### Orientation period of full capacity at individual lots (ranked by time of filled capacity)

Parking lot	Capacity	Connecting transport	Capacity full at	Period of 99 % utilisation
P+R Zličín 2	60	Metro B	6:15	9 h 30 min
P+R Holešovice	74	Metro C	6:35	9 h 35 min
P+R Nové Butovice	57	Metro B	6:40	8 h 50 min
P+R Zličín 1	84	Metro B	6:45	7 h 55 min
P+R Ládví	78	Metro C	7:00	8 h 05 min
P+R Rajská zahrada	90	Metro B	7:40	7 h 20 min
P+R Černý Most 1	294	Metro B	7:45	7 h 40 min
P+R Radotín	15	Train S7	8:00	7 h 25 min
P+R Černý Most 2	131	Metro B	8:10	5 h 40 min
P+R Opatov	181	Metro C	8:40	6 h 00 min
P+R Skalka 1	43	Metro A	8:40	6 h 40 min
P+R Depo Hostivař	169	Metro A	8:45	6 h 10 min
P+R Chodov	653	Metro C	10:20	3 h 45 min
P+R Letňany	633	Metro C	10:50	3 h 00 min
P+R Skalka 2	74	Metro A	-	-
P+R Palmovka	168	Metro B	-	-
P+R Běchovice	87	Train S1	-	-

The use of P+R lots changes regularly over the year. There is a drop in the use of P+R lots during periods with less motor vehicle traffic (the winter months and summer holidays).



**Number of vehicles parked at P+R lots in the month of October (2007 – 2010)**

Parking lot	2007	2008	2009	2010
Běchovice	173	215	191	90
Černý Most 1	11 727	11 294	10 942	10 881
Černý Most 2	3 281	3 482	2 912	2 817
Depo Hostivař	4 519	5 936	5 737	5 474
Holešovice	2 890	3 500	3 785	3 940
Chodov	12 857	17 607	19 763	18 668
Ládví	2 748	2 593	2 284	2 175
Letňany	-	12 456	16 567	18 510
Nové Butovice	2 264	2 346	2 164	2 228
Opatov	6 180	6 143	6 039	5 790
Palmovka	1 417	1 416	1 225	1 277
Radotín	296	286	431	348
Rajská zahrada	2 595	2 920	2 805	2 502
Skalka 1	2 029	1 917	1 745	1 824
Skalka 2	318	731	757	647
Zličín 1	3 109	3 175	2 879	3 722
Zličín 2	2 735	2 746	2 924	2 649
Total	59 138	78 763	83 150	83 542



*Some of the types of bike stands used P+R lots*

#### **Additional service at P+R facilities**

Additional services include bicycle storage (Bike & Ride), long-term parking at four selected lots, as well as night and weekend parking at P+R lot Rajská zahrada.

## Economics of operations

Data on the economics of P+R lots only pertain to the 14 parking lots administered by TSK and do not include VAT.

The operating costs in 2010 totalled CZK 20 495 000. Of that, 73.4 % was used to pay the operators, 17.8 % on services, electricity and rent and 8.8 % for repairs and revision of the technology and equipment at P+R lots.

The operating revenue of P+R lots is comprised of the parking fees and other fees connected to the use of P+R lots (fines, additional services). In 2010 the total revenues totalled roughly CZK 6 727 000.

The total balance of operations at the 14 P+R lots (administered by TSK) therefore amounts to a loss and in 2010 the operation of these parking lots was subsidised with an amount of CZK 13 768 000.

## 7.4 Kiss and Ride points (K+R)

Kiss and Ride points are a system of combined transportation of persons with connection between individual automobile transportation and public mass transit without the need for long-term parking. “Kiss and Ride” stopping points allow for short-term stopping of vehicles in order for passengers to exit or enter the vehicle near metro stations. The system is primarily used for trips to work, school, or recreation, where the passengers in the vehicle have differing points of departure or destinations.

K+R stopping spots are labelled with horizontal road markings with a vertical “Parking” sign with the text “5 minutes” and an added “K+R” panel, or with a vertical “No Parking” sign and sometimes an added panel with the text “K+R”.



IP11a + E13



B29 + E13



New vertical  
“K+R Parking Lot”  
traffic sign  
IP13e



K+R Radlická in the direction out of the centre

On 14 September 2010, an amendment to Decree No 30/2001 Coll., on implementing the road traffic rules and the management of road traffic entered into force. The amending Decree No 247/2010 Coll. introduces the term “K+R parking lot” and specifies the new vertical “K+R Parking Lot” traffic sign. The current vertical traffic signs will gradually be replaced on the basis of this decree.

As of the end of 2010, the following K+R points were available at public transport stations (in parentheses is the location of the stopping point specified by the street name).

K+R stopping point		
direction into centre		direction out of centre
Kobylisy (Nad Šutkou)	Háje (U modré školy)	Černý Most (Chlumecká)
Ládví (Střelnická)	Kačerov (Michelská)	Chodov (Rožtylská)
Letňany (Beladova)	Opatov (Chilská)	Letňany (Beladova)
Prosek (Vysočanská)	Radlická (Radlická)	Radlická (Radlická)
Prosek (Prosecká)	Vltavská (nábř. Kpt. Jaroše)	Radotín (Vrážská)
I. P. Pavlova (Legerova)	Želivského (Vinohradská)	Kačerov (Michelská)



## BICYCLE TRAFFIC

### New structures, traffic measures and signage

A new cycle track was opened in Vysočany in 2010, along which arterial cycle routes lead. New routes were also realised in Opatov, and the abandoned railway line in Žižkov was also prepared to use for cyclists. New traffic signs for marking cycle routes were also completed in several areas, including traffic signal provisions.



*Cycle track in Vysočany*



*Passage and view through the Hunger Wall at Petřín*

In April 2010, the labelling of a legal passage through Petřín between Malá Strana, Strahov and Pohořelec was completed. The section between Strahov and Pohořelec is part of the arterial A32 cycle route. Small cycle pictocorridors were used to mark the passage, being more appropriate for the park environment than vertical traffic signs.

In connection with the construction of new bridges on the Prague Ring Road, cyclist bridges were added to these structures.



*Completed hanging bridge across the Berounka, route A50*



*New signals for cyclists at Milady Horákové – Pelléova intersection*

### Cyclists in Prague Integrated Public Transport (PID)

All PID ferries connecting the banks of the Vltava (and thereby also the arterial A1 and A2 cycle routes) transport bicycles free of charge. On non-workdays from 3 April through 3 October 2010, a PID cycle bus was operated along the route Dobřichovice – Černolice – Řitka – Mníšek pod Brdy – Kytín.

Transportation of bicycles is possible on stipulated stretches and directions of all trams. Bicycles cannot be transported on workdays between 6:00 and 20:00 and further conditions must also be met.

Vehicles allowing the transportation of bicycles provide service on all the railway lines included in PID. Greater numbers of bicycles can be transported in particular on lines serviced by electric units or those with extra cars for the transportation of bicycles. Bicycles on Czech Railways trains must be covered according to the ČD Tariff (as accompanying luggage for CZK 25).

The “cycle-train” on the route Praha Masarykovo nádraží – Praha-Dejvice – Hostivice – Středokluky – Podlešín – Slaný was in operation on non-workdays from 27 March until 31 October 2010.

On 1 July 2010, a trial period was launched allowing bicycles to be transported on the Petřín funicular. At most two bicycles can be transported.

### Support for cyclists

A further 57 bicycle stands were installed within Prague in 2010.

### Bicycle traffic survey in Prague in 2010

Ten automatic counters with on-line output provide highly comprehensive data 24 hours a day year-round. Seventeen further locations are being prepared. Further important information is provided by annual manual surveys at selected sites. Compared to 2009, cyclist volume increased at 33 of 60 comparable sites. The total volume at comparable sites increased approximately 30 % in one year (from 16 228 to 21 314 cyclists). The most heavily trafficked points remained Podolské nábřeží – the area around the Vyšehrad tunnel (2 775 cyclists a day, approx. +40 % compared to 2009), Trojská lávka (1 794 cyclists a day) and Vltavanů (1 290 cyclists a day). On the new cycle track in Vysočany, 1 108 cyclists per day were counted.

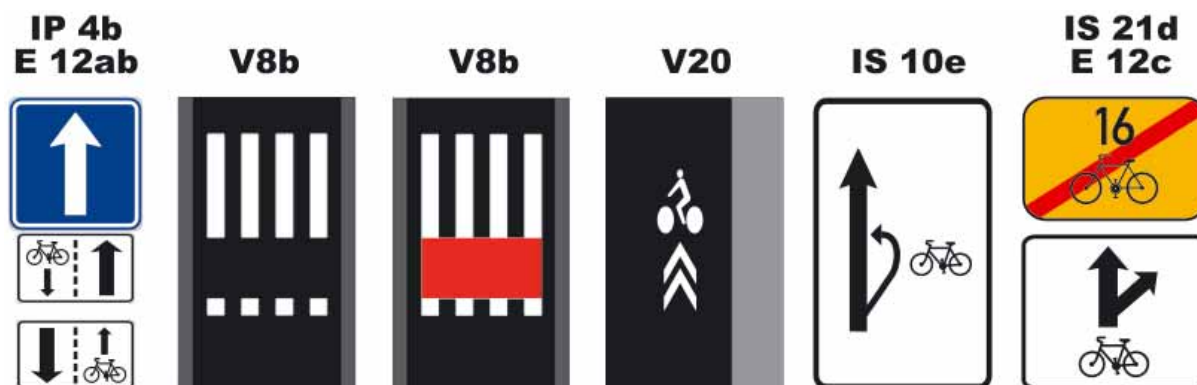


Cyclists waiting for the P2 ferry V Podbabě – Podhoří

**Selected cyclist survey stations** (total number of cyclists in both directions, workday, 7:00–20:00)

Name of station	Placement of station	2007	2008	2009	2010
Podolské nábřeží	by Dvorce tram stop	1 121	1 116	596	1 332
Hostivař reservoir	by the dam	405	378	409	218
Vltavanů	by the cinema	1 243	791	1 585	1 290
Trojská lávka	on the bridge (including cyclists walking their bikes)	1 070	2 142	1 918	1 794
Stromovka	Gotthardská	318	256	406	441
Podbabská	by the MHD bus stop V Podbabě	331	574	248	622
Kampa	south bridging of the Čertovka	438	478	241	613
Na Příkopě	Václavské náměstí – Havířská	280	376	303	418
Jindřišská	Václavské náměstí – Panská	148	99	140	135
Nuselský most	on the bridge	165	98	160	187

On 14 September 2010, Decree No 247/2010 Coll., on implementing the road traffic rules, entered into force. This decree introduced 7 new types of traffic signs for cyclists.



E12a, E12b – Cyclists allowed entry in opposite direction (supplemental plates are added to signs IP4b or B2), V8b – Crossing for cyclists tied to pedestrian crossing (two possible designs), V20 – Pictogram corridor for cyclists, IS 10e – Signal for recommended left-turn for cyclists, IS 21d – End of cycle route, E12c – Direction permitted for cyclists

### Development concept

On 26 October 2010, with its Resolution 1776, the Prague City Council approved the “Concept for development of bicycle transportation and recreational cycling in the City of Prague through 2020”, including the general plan for arterial and main cycle routes. The main goal of the document is to increase the role of cyclists in Prague’s overall transportation volume.

## PEDESTRIAN TRAFFIC

Walking has indisputable importance as a fundamental, inexpensive and environmentally friendly method of transportation, serving not only to move people around, but also to consolidate their physical and mental health, for relaxation, and for establishing contact among people.

In 2010, attention was rightly paid primarily to increasing the safety of pedestrian traffic at collision sites with other types of traffic, in particular with automobile traffic, as well as revitalising parks and other recreational areas and construction or refurbishing of pedestrian routes (pavements, trails).

The highest volumes of pedestrian traffic in Prague are reached at the so-called “golden cross”, where the pedestrian route Václavské náměstí – Na můstku crosses with the streets 28. října – Na příkopě (5 000 to 8 000 pedestrians/hr on workdays).

“Tourist” pedestrian traffic is also significant, particularly on routes connecting the Old Town to Malá Strana. Following the removal of restrictions to pedestrian traffic on the Charles Bridge, which were caused by its long-term reconstruction, the volume of pedestrian traffic on this important section of the historic “Royal Route” once again reached values of around 4 000 pedestrians at the peak hour.

During the period that pedestrian traffic on Charles Bridge was restricted, pedestrians began to make more use of other alternative routes connecting Hradčany or Malá Strana with the Old Town, which was seen in the increase of pedestrian traffic, particular in the afternoon, on the Legií and Mánes bridges, which are the closest to the Charles Bridge.

Among the main activities that contributed to the improvement of conditions for movement, sport and relaxation for pedestrians in 2010, we can name the following based on information from Prague city districts:

- **establishing of pedestrian zones (PZ)** in the city districts of Prague 1 (expansion of PZ on Jilská in the section Karlova – Zlatá), Prague 7 (PZ Antonínská – Bubenská, PZ Sádky), and Prague 11 (PZ at the entrance to Central Park by the street U modré školy)
- **establishing of residential zones (OZ)** in nine city districts
- **construction of new paths for pedestrians:** e.g. the pavement connecting Heřmanova street with the Vltavská metro station in Prague 7, on the street U nádrže in Prague 8, on Jáchymovská, K Řeporyjím and K Náplavce streets in Prague 13 and underpasses under Kukulova street in Prague 6 and under the railway tracks in Prague 19 – Kbely
- **refurbishing and repairs for existing pavements** in eleven city districts
- **modification of public spaces for relaxation or sport:** e.g. by the intersection Odborů – Na zbořenci in Prague 2, the recreational area near the intersection Vypich in Prague 6, the park “Srdce” between the streets Vysočanská and Prosecká in Prague 9, Central Park on Obchodní náměstí and the spaces of U vlečky and Labe in Prague 12, Veronské náměstí in Prague 15, central park in Prague 19 – Kbely.



*Pedestrian crossing between Legií bridge and Národní třída*

A new impulse for increasing awareness of pedestrian traffic in the coming years could be the Prague City Council Resolution 1449 of 31 August 2010, which approved the “Development Principles for Pedestrian Traffic in the City of Prague” and where the council recommended that city organisations and all city districts do the maximum to fulfil these principles.



## AIR TRANSPORT

Passenger and freight air transport in Prague is primarily operated at Prague Airport, which lies on the north-west edge of the city. In addition there are several smaller airports situated within the city or in its close vicinity (Letňany – grass-covered public domestic airport, Kbely – military airport, Točná – grass-covered public domestic airport, currently out of service, Vodochody – private international airport).

Prague Airport has three take-off and landing runways, one of which has been out of operation for a long period. The total annual capacity of the runway system is about 200 000 aircraft movements/year. In 2010 the maximum hourly capacity was 46 aircraft movements (take-offs and landings). The total capacity of the passenger terminals is 15.5 million persons/year. There are two terminals for dealing with cargo, each with a capacity of 100 000 t/year.

In 2010 there were 47 carriers operating at Prague Airport, offering transportation to 131 destinations. Czech Airlines was the carrier with the largest share of passengers (42 %). The largest volumes of passengers were headed to Great Britain (1.2 million), Germany (1.1 million), France (0.89 million), Italy (0.84 million), and Russia (0.74 million). The majority of passengers (90.5 %) were headed to European destinations, with the second largest proportion (4.6 %) headed to African destinations.

Compared to 2009, when there was a general drop in both freight and passenger air transport, 2010 saw a rebound in these areas. The number of passengers rose world-wide by 6.2 % over 2009 levels, while cargo grew 16.8 %. At European airports the combined growth in passenger transport was 4.2 %, and 18.7 % in freight transport.

The international position of Prague Airport is evident from the following table. It is clear from the data presented that the majority of airports experienced an increase in passenger transport against 2009 numbers, in some cases even reaching or surpassing numbers from 2008.



*Planes on the runway from embarkment finger C*

**Number of passengers dispatched at selected airports (millions/year)**

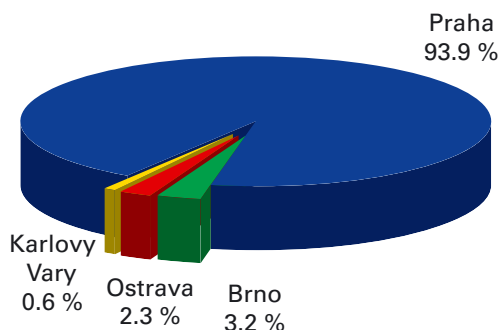
Airport	2000	2008	2009	2010	10/09 (%)
Hartsfield-Jackson International (Atlanta)	80.2	90.0	88.0	<b>89.3</b>	101.5
O'Hare International (Chicago)	72.1	69.4	64.4	<b>67.0</b>	104.0
London Heathrow	64.3	66.9	65.9	<b>65.7</b>	99.7
Paris Charles de Gaulle	47.8	60.9	57.9	<b>58.2</b>	100.5
Frankfurt	49.0	53.5	50.9	<b>53.0</b>	104.1
Madrid Barajas	32.6	50.8	48.3	<b>49.9</b>	103.3
Amsterdam Schiphol	39.3	47.4	43.5	<b>45.3</b>	104.1
Roma Fiumicino	25.9	35.2	33.8	<b>36.3</b>	107.4
Copenhagen Kastrup	18.2	21.5	19.7	<b>21.5</b>	109.1
Vienna Schwechat	11.8	19.7	18.1	<b>19.7</b>	108.8
Brussels Airport	21.5	18.5	17.0	<b>17.1</b>	100.6
Stockholm Arlanda	18.3	18.1	16.1	<b>17.0</b>	105.6
Prague Airport	5.8	12.6	11.6	<b>11.6</b>	100.0
Warsaw Frederic Chopin	4.3	9.5	8.3	<b>9.0</b>	108.4
Budapest Ferihegy	4.7	8.4	8.1	<b>8.2</b>	101.2
Bratislava M. R. Štefánik	0.3	2.2	1.7	<b>1.7</b>	100.0

Source: The Chicago Department of Aviation, Fraport Group, ACI, airport websites

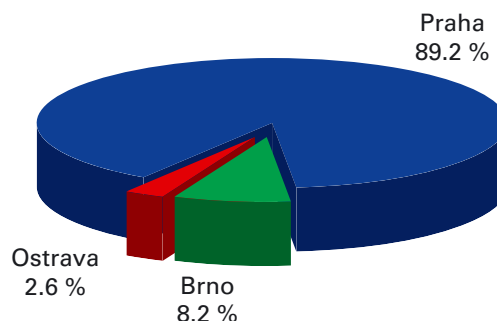
The total volume of passengers processed in 2010 at the four Czech international airports (Prague, Brno, Ostrava, Karlovy Vary) was 12.3 million, 1.2 % less than in 2009. The volume

of transported cargo (goods and mail) on the other hand rose by 21.2 %, totalling 65 300 tonnes.

**Share of airports in passenger transport volume**  
% of total volume of passengers processed



**Share of airports in freight transport volume**  
% of total volume of transported goods and mail



In 2010 a total of 11 556 900 passengers were processed at Prague Airport, essentially stagnating at 2009 levels. A total of 58 275.0 t of cargo was processed in air freight transport in 2010, 15 798.8 t more than in 2009 (an increase of 37.2 %).

The number of take-offs and landings in 2010 was 156 052, which is 7 764 less than in 2009 (a drop of 4.8 %).

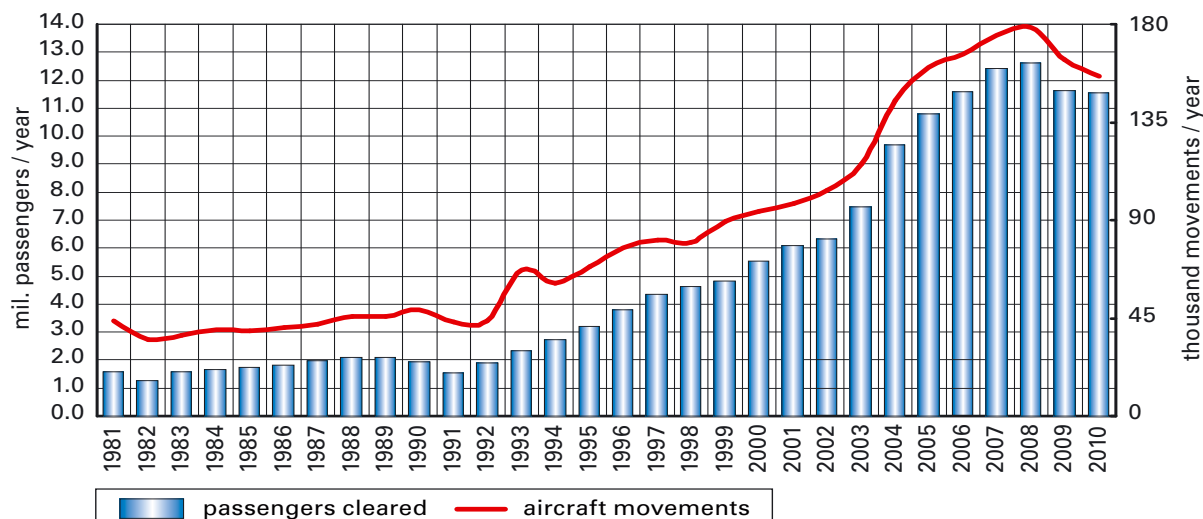


*Ruzyně control tower*

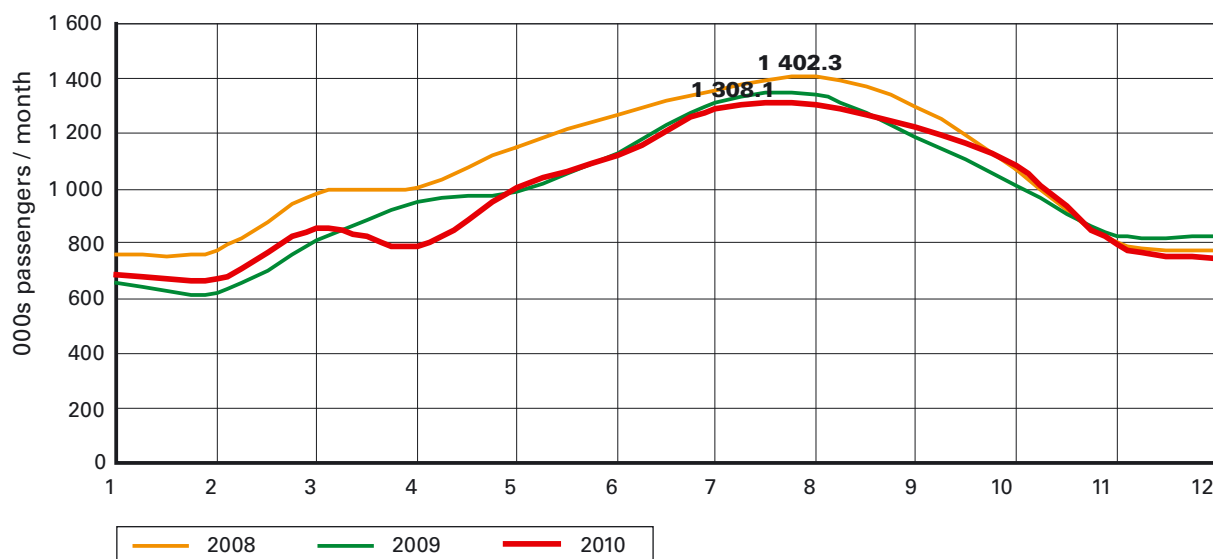


*Full view of Terminal 2 interior*

**Development of volume at Prague Airport**  
number of passengers processed and airplane movements



**Monthly numbers of passengers dispatched at Prague Airport in the years 2008 – 2010**



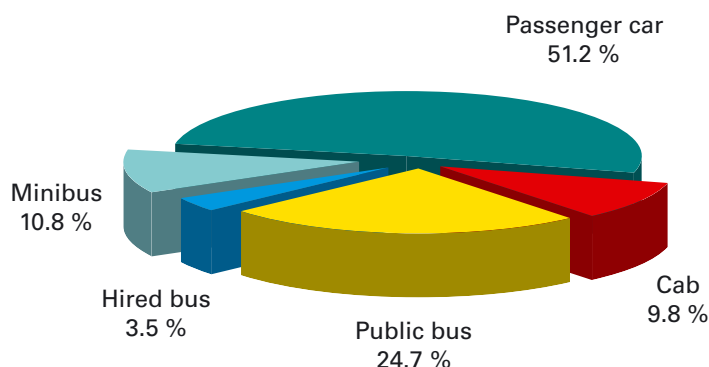
Prague Airport is approximately 11 km from the centre of the city. Special bus service is provided for airline passengers, and in addition the Airport Express line is timed to connect to Pendolino trains leaving the Praha hlavní nádraží train station.

The airport is also serviced by two express public transport bus lines from the end stations of the “A” and “B” metro lines in Dejvice (A) and Zličín (B). Other Prague Integrated Transport bus lines and long-distance and regional bus lines also pass through.

Taxi service is also available with both passenger cars and minibuses and a number of car rental outlets also operate at the airport. Individual automobile transport is the predominant method of transporting persons between the airport and the city.

**Modal split of trips to and from the airport**

September 2009, weekday, 6:00-22:00 h



In 2010, more than 7 200 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; 460 short-term spots are available for services.

In the south part of the complex are 110 parking spots for the public situated at Terminal 3. In this part of the complex there are also further spots for airport employees, organisations that have a relation to the airport and residents of the adjacent residential buildings.



## 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 and Smíchov locks.

Number of boats passed through locks in Prague 2000 – 2010

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
2006	2 265	24 247	2 285	6 492	1 736
2007	2 633	26 879	2 571	7 209	2 735
2008	2 824	28 622	2 286	7 810	2 788
2009	2 685	26 221	2 854	6 596	2 383
2010	2 414	25 797	2 720	8 950	2 335

**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.

The largest operators of passenger boat transport include Pražská paroplavební společnost, a. s. which operates also several regular lines (total 90 730 passengers in the year 2010), Evropská vodní doprava, s. r. o. (193 000 passengers in 2010), AQUAVIA Praha, s. r. o. and První všeobecná člunovací společnost, s. r. o. The docks of their boats are on Rašínovo nábřeží between Palacký and Jirásek bridges, at Čech bridge and at Na Františku.



*The boat Bohemia at the dock by Čech bridge*



*Sightseeing boat Elbis at the Čertovka narrows*

In addition to these large companies there are also a number of smaller companies that 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 Na Františku, Kampa and Dvořákovo nábřeží.

In 2010, the first water craft powered by solar energy, Elektronemo, began operations (solar panels cover as much as 45 % of the consumption of the electric motors). The vessel can take on as many as 30 people; in the past year it performed sightseeing tours around the Vltava and anchored at Kampa.



*The boat Moravia at Charles bridge*

Historical boats are also in operation – OLD TIME BOATS for 6 – 10 persons, motor boats – TAXI BOAT for 2 – 3 persons and a number of sight-seeing restaurant boats.

Various domestic and foreign operators also carry out **freight transport** on the river. One of the largest operators is Evropská vodní doprava, s. r. o., which runs domestic and international transport of bulk cargo, heavy loads, containers, liquids and the like. Their fleet includes 38 vessels and 1 tanker barge. The company also owns floating platforms for construction and other uses.

**Volume of goods passed through locks in Prague 2000 – 2010** (goods transported in 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
2006	12 482	33 109	545	54 743	236 344
2007	18 344	32 037	35	38 280	393 159
2008	15 968	19 403	757	20 048	309 259
2009	476	23 903	31	55 213	219 145
<b>2010</b>	<b>3 476</b>	<b>5 868</b>	<b>829</b>	<b>6 698</b>	<b>165 166</b>



Measuring boat by Štefánik bridge



Podbaba lock

There are 4 harbours within the city – Radotín, Smíchov, Holešovice and Libeň (out of service since 2006), which serve for the transshipment of various types of cargo.

The operator is České přístavy, a. s. The users of the harbours are transportation, warehousing, transshipment and manufacturing companies.

In addition to the harbours it is also possible to handle cargo using temporary transshipment stations and mobile floating ramps.

**Volume of cargo at Prague harbours 2004 – 2010** (total transported cargo in tonnes/year)

Year	Port			
	Praha-Radotín	Praha-Smíchov	Praha-Holešovice	Praha-Libeň
2004	58 961	19 642	31 311	14 236
2005	36 408	11 396	99 308	2 934
2006	13 932	559	114 462	0
2007	20 597	9 986	182 974	0
2008	10 068	4 016	84 792	0
2009	0	78 237	24 845	0
<b>2010</b>	<b>0</b>	<b>364</b>	<b>53 207</b>	<b>0</b>

According to the data provided by carriers, the operation of water freight transport is spasmodic, with the workload of the individual harbours oscillating heavily and the total volume of water freight transport in Prague falling.

## TRANSPORTATION INFRASTRUCTURE AND ROAD MAINTENANCE

Transportation infrastructure in Prague is primarily financed by the city (City of Prague budget) and partially also by the state (State Fund for Transport Infrastructure). The construction of transportation infrastructure is organised by the investors, which for municipal investments are principally the Municipal Investment Division (OMI), the Technical Administration of Roads of the City of Prague (TSK) and the Prague Public Transport Company (DPP). For state investments these are primarily the Road and Motorway Directorate of the Czech Republic (ŘSD) and Railway Infrastructure Administration (SŽDC).

On 20 September 2010, with the President of the Czech Republic in attendance, one of the most important transportation works was put into operation – **the south section of the Prague Ring Road (PO)** (ŘSD, total length 23 km, of which 11 km falls within the City of Prague), which by connecting the D1, R4, D5, R6 and R7 motorways and motor roads allowed for transit between them without the need to drive through Prague. This had a calming effect on a number of city roads and above all led to the removal of heavy freight traffic from the Jižní spojka, Barrandov bridge and K Barrandovu street.



*PO bridge over Vltava and Berounka valley under construction*



*PO carriageway on bridge across Vltava and Berounka before opening*

The D1 – Slivenec section of the Prague Ring Road is made up of 3 sites (512, 513, 514) constructed since 2007. The construction costs totalled CZK 18.3 billion. The total length of the new route is 23 km, of which 3.5 km is in tunnels and 2.3 km on bridge scaffolding. There are five new grade-separated intersections. The new structure had a considerable impact in helping change the organisation of transit traffic (especially freight traffic) in the south part of Prague.

Before structures 512, 513 and 514 were put into service, in the period March – September 2010, the connecting section of the Prague Ring Road 515 was reconstructed, including the Ořech and Chrást grade-separated intersections.

One of Prague's most closely watched investments is the construction of the Malovanka – Pelc Tyrolka segment of the **City Ring Road** (OMI), which includes the Blanka tunnel complex. The total length of this section of the City Ring Road is 6 382 m. It links up to the already functional western section of the City Ring Road with the Zlíchov, Mrázovka and Strahov tunnels, and along with them it will become the longest automobile tunnel complex in the Czech Republic. In summer 2010, construction of a new **Troja bridge** across the Vltava was launched, which is to be part of the City Ring Road in the Špejchar – Pelc-Tyrolka segment.

Over the course of 2010 work took place on increasing the capacity of the **Jižní spojka**; construction continued on the **Veselská – Kbelská** grade-separated intersection and the **Vysočany Radial Road**.

A range of **repairs** and **refurbishment of roads** (TSK) took place during 2010, the most important of which were repairs on 5. května – Brněnská from the on-ramp from the Jižní spojka up to the zero kilometre of the D1 motorway.

Significant refurbishment also took place on Národní and Myslíkova and parts of Michelská street.



After four years, the renovations of the trackage, platforms and main hall of **Hlavní nádraží** were completed.



*Construction on Národní třída*

In the spring of 2010 the foundation stone was laid and slightly later excavation was launched for the **5th operating segment of the "A" metro line Dejvice – Motol** (DPP). The costs for extending the metro by six kilometres, including 4 new stations (Červený Vrch, Veleslavín, Petřiny a Motol) will total approximately CZK 19 billion.

A number of tram tracks were refurbished in 2010. Construction was also launched in autumn 2010 on extending the **Podbaba tram track** (DPP).

In April 2010, for the first time in the modern history of the Prague train network, railway (i.e. non-grooved) rails 49E1 (better known as S49)

were installed on the tram **track on Poděbradská street** in the section between Kbelská and the final stop Lehovce. Among the reasons for using this type of rail is that the purchase price is 30 % lower and the noise caused by operation is reduced.

The most extensive refurbishment of tram tracks in the last 20 years took place on the segment **Klamovka – Sídliště Řepy** (DPP). Nearly 6 km of track was replaced and 49E1 flat bottom rails were also used on selected sections. Eleven tram stops were refurbished, with new electronic signs displaying on-line departure time information for individual connections.

Aside from its activities as an investor, which entailed capital spending of nearly CZK 1.6 billion in 2010 (including contributions from SFDI and city districts), TSK also fulfilled its role as the administrator of the city's roads, including bridges, tunnels and fixtures (traffic signs, street inlets, traffic signals, telematic systems, safety devices), as well as pavements, street greenery, parking lots, quayside and embankment walls, retaining walls, noise barriers, traffic management centres and other buildings.

Keeping these in satisfactory working order requires the performance of essential repairs, winter and summer maintenance, and cleaning. The current expenditures for these activities reached CZK 3.3 billion in 2010, of which CZK 1.5 billion was earmarked for road repairs and maintenance (including work covered by SFDI and city district contributions).



*Changeover from grooved to new flat bottom rail by Kotlářka stop*

The long and demanding winter in 2010 resulted in considerable damage to Prague's road network. Thousands of potholes on dozens of streets around the city were repaired, temporarily during the winter and then definitively over the rest of the year.

In recent years TSK has been focusing more on comprehensive road surface repairs, preferring predominantly stretches where road traffic safety can no longer be secured through regular maintenance and spots where the repair of individual potholes is not economical. In 2010, TSK performed a whole range of comprehensive repairs that both increased road safety and helped decrease noise for residents living near those roads

Large investments also fall under the auspices of TSK. This includes primarily refurbishment of the most important and most highly trafficked roads, for example the City Ring Road.

The most interesting thing for city residents, and not just from an aesthetic perspective, is the complete refurbishment of roads – the carriageway, including its width, pavements, bus stops, greenery and even sound barriers.

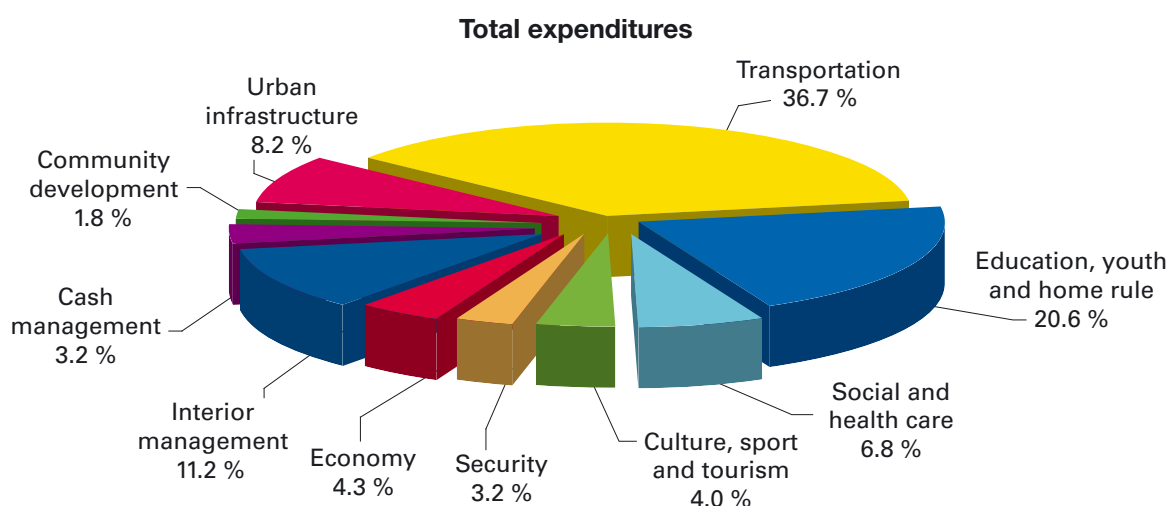
## FINANCING THE OPERATION AND DEVELOPMENT OF URBAN MOBILITY

The operation of urban transport and the realisation of transportation infrastructure was financed from the budget of the City of Prague in 2010, 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.

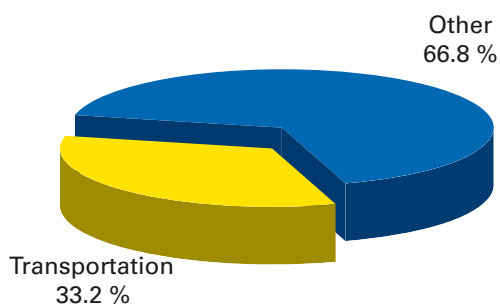
The City of Prague municipal budget, updated 30 September 2010, totalled CZK 75.6 billion in expenditures, of which the expenditures under Chapter 03 Transport totalled CZK 27.8 billion. Chapter 03 was thus once again the most substantial chapter of the municipal budget in terms of expenditures in 2010 (37 %). 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 33 % of the City of Prague's current expenditures and transport investments for 44 % of capital spending.

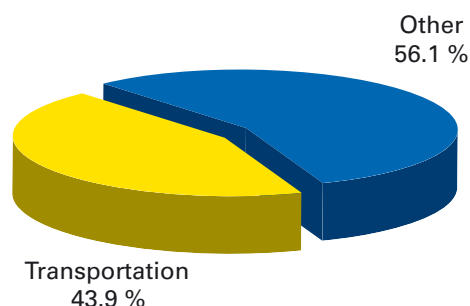
**Breakdown of municipal budget expenditures in 2010**  
(budget updated as of 30 September 2010)



**Transportation as % of current expenditures**

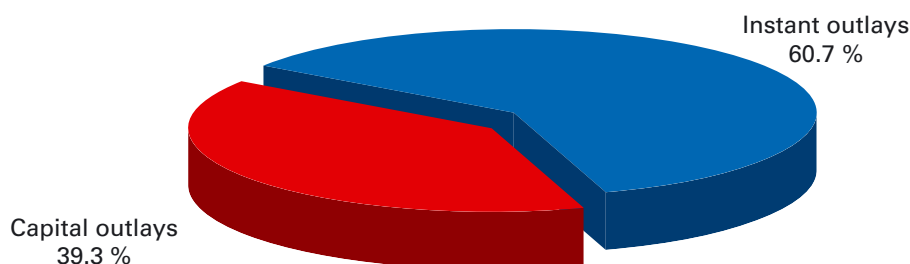


**Transportation as % of capital expenditures**



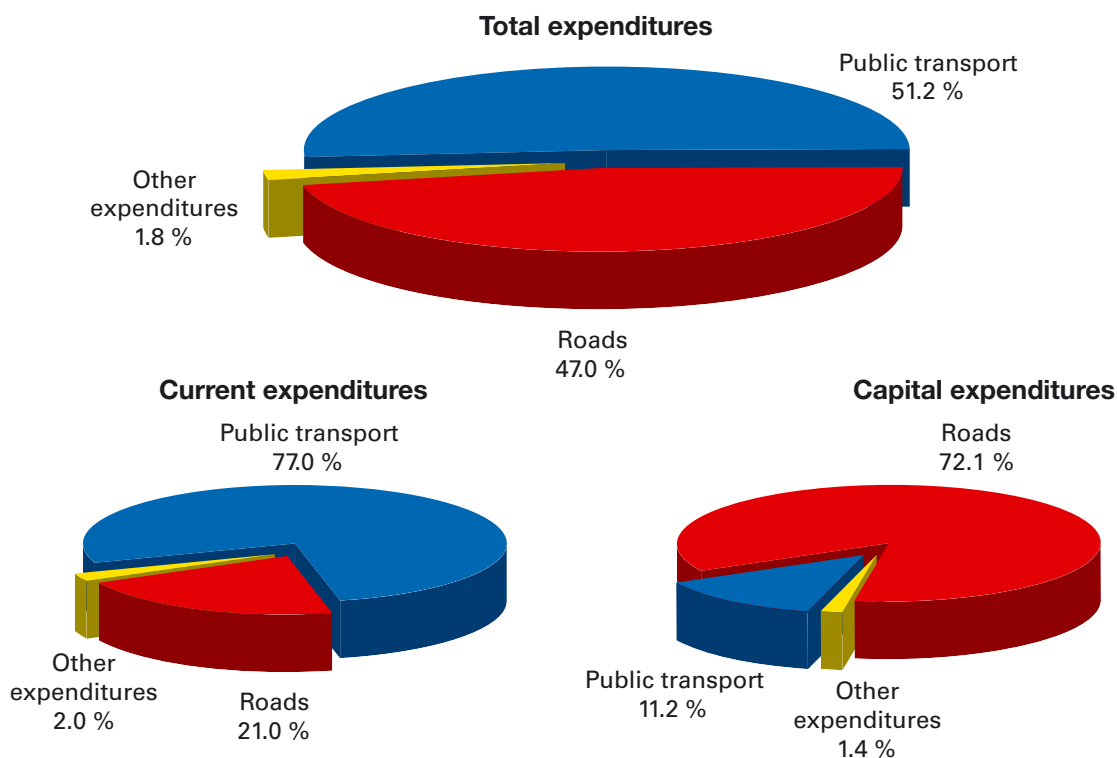
Of the listed amount of CZK 27.8 billion, CZK 16.9 billion was used to cover current expenditures and CZK 10.9 billion for capital expenditures.

**Proportions of current and capital expenditures in Chapter 03 Transportation**  
(budget updated as of 30 September 2010)



Every year, the subsidy of passenger mass transit plays a crucial role in the drawing of current expenditures. Nearly CZK 13 billion was set aside for this purpose in the adjusted budget, of which 650 million was a top-up subsidy for the operation of Prague Integrated Public Transport within Prague for 2009. CZK 3.5 billion was set aside for the administration, maintenance and operation of roads and more than CZK 0.3 billion went to cover current expenditures earmarked in city district budgets.

**Structure of municipal budget transport expenditures in 2010**  
(budget updated as of 30 September 2010)



The capital expenditures went to pay mainly for development investments, i.e. construction of new roads and metro lines and other transportation equipment (84 %), as well as more extensive repairs and refurbishment of transport routes and equipment (15 %). Capital expenditures were dominated by expenditures for improving the road network and the conditions for operation of road traffic. Of the total amount of CZK 10.9 billion, CZK 1.2 billion went to renewal and development of public transport and CZK 9.5 billion to investment in the road network.

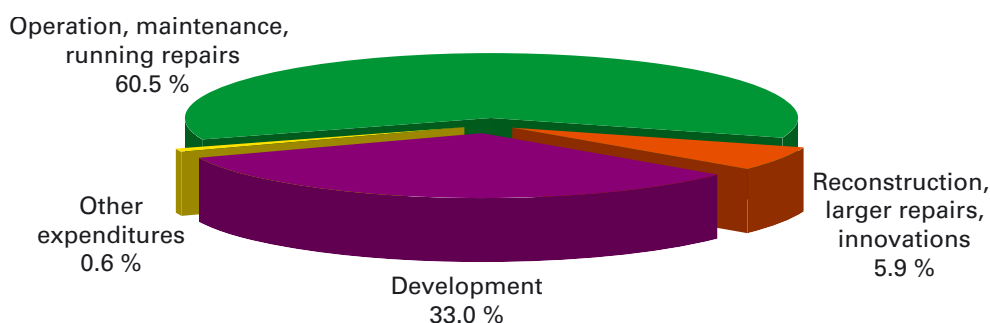
Of the total transportation expenditures in the adjusted 2010 budget, the amount set aside for ensuring the operation, renewal and development of public passenger transport was 51 % and the amount for ensuring road transport and development of the road network was 47 %.

A more detailed breakdown of the items in the expenditures of Chapter 03 shows that nearly CZK 17 billion went to securing operation, general repairs and maintenance of the city's traffic system, just under CZK 2 billion went to major repairs, renovation and renewal of technical facilities and over CZK 9 billion was earmarked for development investments.

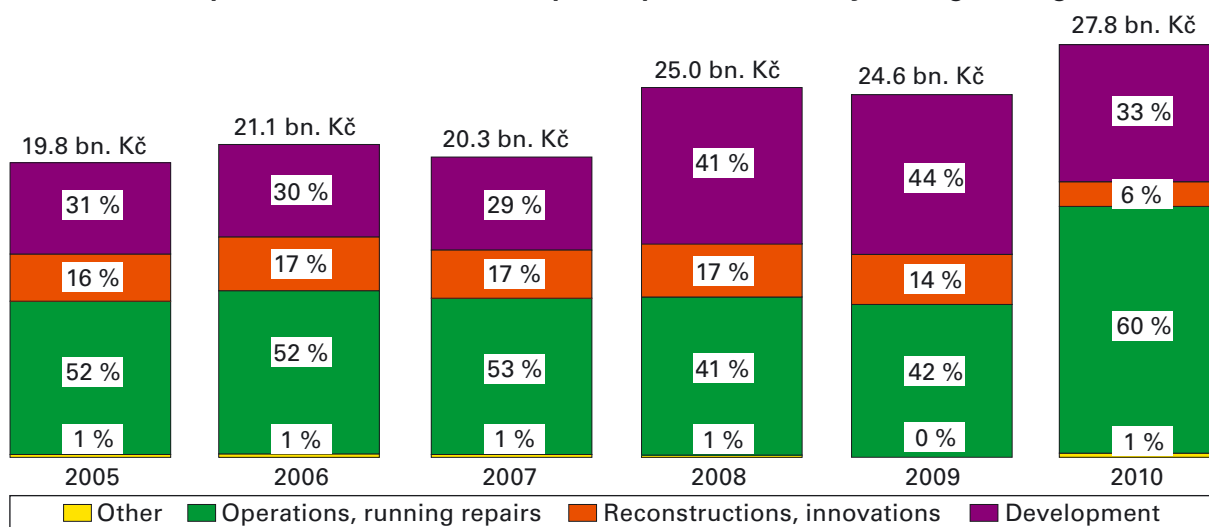


Compared to previous years, the expenditures for securing operation, general repairs and maintenance of the city's transportation system increased markedly, reaching 60.5 % in the expenditure structure of the budget adjusted as of 30 September 2010, 18 percentage points more than in the budget last amended 30 June 2009. This was primarily caused by the fact that capital expenditures (which mainly go to cover costs for innovation and development projects) are CZK 3.2 billion lower in the 2010 budget than in the budget for 2009, while current expenditures (which mainly go to cover costs for operation, regular repairs and maintenance) are CZK 6.5 billion higher. The predominant item behind this (CZK 4.7 billion) is the increase in the subsidy for operation of Prague Integration Public Transport, which of course also includes the aforementioned top-up subsidy for the 2009 public transport operating costs, as well as the increase in items for securing road repairs and winter services (CZK 1.1. billion)

**Structure of total transport expenditures in 2010 budget**  
(budget updated as of 30 September 2010)



**Development of structure of transport expenditures in City of Prague budgets**



Targeted bound contributions were provided to the City of Prague from the state budget for operating the metro and Strahov tunnel safety systems, for the purchase of low-floor buses and to help cover the PID operating costs. A contribution was allotted from the budget of the State Fund for Transport Infrastructure 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, and a contribution was provided to Prague for the Urban Road Traffic Management and Regulation System.

The state also took part in building the Prague Ring Road, having assumed full responsibility for financing it. A total of CZK 4.4 billion was drawn for ring road construction in 2010, of which CZK 1.8 billion came from the Transport Operational Programme and the Cohesion Fund, CZK 2 billion from the European Investment Bank and just under CZK 0.6 billion from the budget of the State Fund for Transport Infrastructure.

The Prague Public Transport Company contributed CZK 4.4 billion to cover the investment costs of the city transportation system, and also covered practically 100 % of the MHD fleet renewal costs spent in 2010 (CZK 3.5 billion).

## EU PROJECTS

### Operational Programme Transport (OPD)

The Technical Administration of Roads of the City of Prague continued to take part in projects falling under the Operational Programme Transport in 2010. In cooperation



OPD



with the Prague City Hall Transport Department and EU Funding Department and in coordination with the Prague City Development Authority, a separate detachment of priority axis number 5 was acquired for Prague for the years 2006 – 2008, entitled “Modernisation and Development of the Prague Metro and the Road Traffic Management Systems in the City of Prague”. The resulting financial allocation for this priority axis (following an equalising allocation from the ERDF) totalled EUR 330 million. This amount is drawn by both TSK and DPP.

### Project “Prague Urban Road Traffic Management and Regulation System”

The global goal of this project is to reduce the negative effects of the large volume of road traffic by implementing telematic systems in Prague with a view to optimising traffic on the existing road network using new modern control and information technology, including tying it into the comprehensive national telematic system (NDIC). The project budget is CZK 655 million, of which OPD subsidies cover 85 % (around CZK 560 million).

#### Various areas for drawing funds under TSK following reorganisation

Area 1 – Management through traffic signals	Area 4 – Traffic data collection
Area 2 – Urban Traffic Control Centre Prague	Area 5 – Expansion of functionality of urban radio network
Area 3 – Optical network	Area 6 – Meteorological sensors

In 2010, project funding from Area 1 went to renew traffic signals at further intersections, for example nám. Míru – Rumunská, Masarykovo nábř. – Myslíkova, Legerova – Rumunská, Budějovická – Za Zelenou liškou and many more (see Chapter 4). Area 1 was completed and in total 50 traffic signals were renewed under the project. In Area 2, as part of the UTCC Prague modernisation, funding went to web applications for providing traffic information, applications for traffic engineers and a delivery of pre-set traffic scenarios. In Area 3, OPD funds were used to complete the laying of optic cable into all metro tunnels and to hook it up to the City Hall network.

The ability to collect to traffic information (Area 4) was considerably expanded in 2010 with the installation of the final 108 spot detectors and 23 sectional detectors on the Prague road network. The functionality of the urban radio network (Area 5) was expanded during the past year with 46 radio modems, which were installed into remote traffic signals and hooked up to the functional whole. Under the final area, number 6, installation of 28 meteorological sensors was completed in 2010 from OPD funds (the streets Českobrodská, 5. května and others).

### Project “Increasing Road Safety in Prague”

Due to the approval of the project dealing with the management and regulation of urban road traffic, in December 2008 the City of Prague submitted a second project request for a subsidy from OPD funds under the title “Increasing Road Safety in Prague”.

On the basis of a Czech Ministry of Transport decision from March 2009, this project was approved for co-financing from the Cohesion Fund as part of OPD. The principle of financing is the same as with the preceding project – the OPD subsidy amounts to 85 % of costs. The total budget is CZK 580 million including VAT. The project will contain 3 areas, of which the first is already in the implementation phase.

#### Individual areas for drawing funding under TSK following finalisation of their definition

Area 1 – Management and monitoring of traffic in tunnels
Area 2 – Provision of traffic information
Area 3 – Harmonisation of telematic systems on the City Ring Road and Radial Roads

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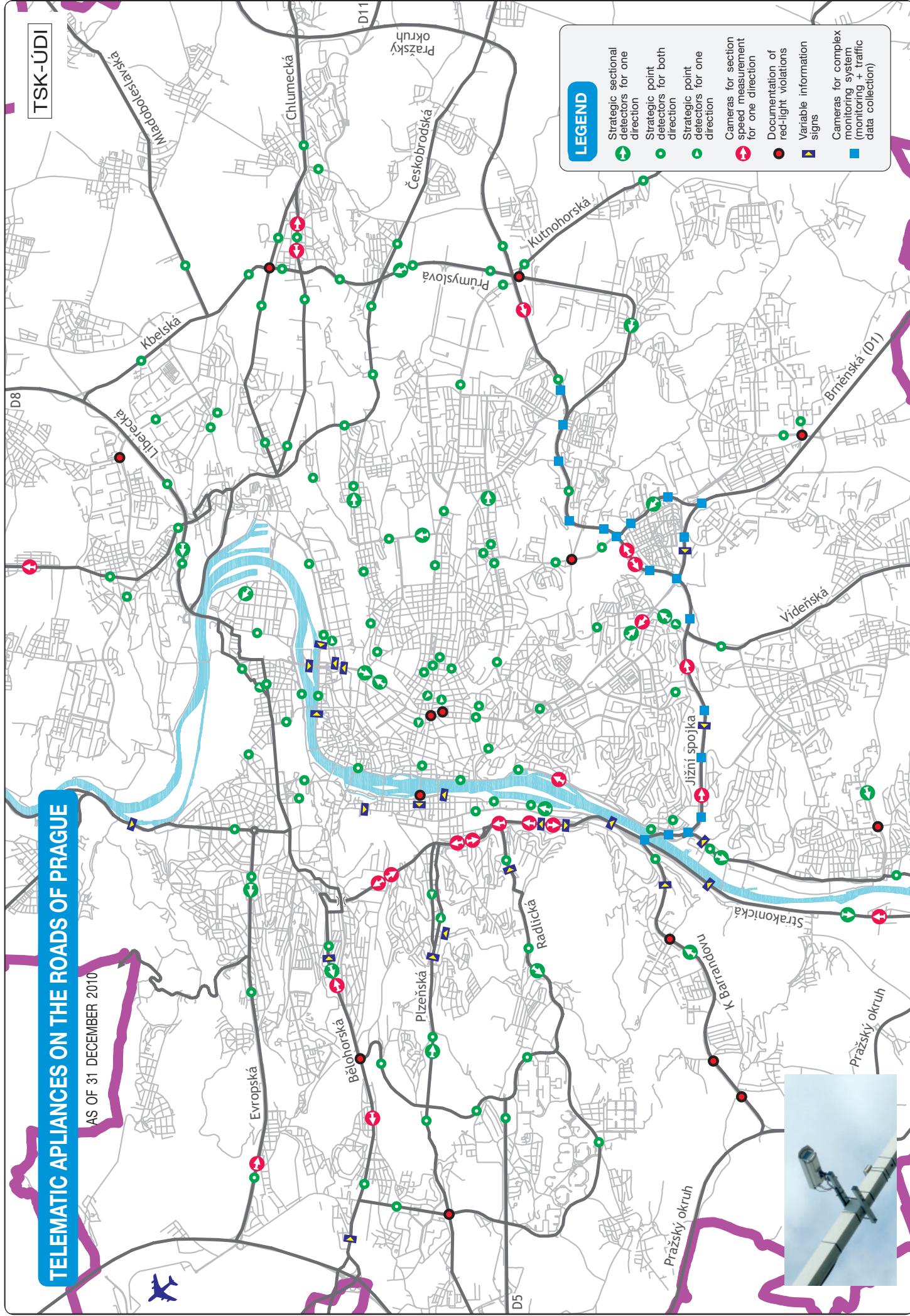
# TELEMATIC APPLIANCES ON THE ROADS OF PRAGUE

AS OF 31 DECEMBER 2010

TSK-ÚDI

## 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)







## THE TECHNICAL ADMINISTRATION OF ROADS OF THE CITY OF PRAGUE

Department of Transportation Engineering

110 15 Praha I, Řásnovka 8, Czech Republic

Tel.: +420 257 015 094, [udi@tskpraha.cz](mailto:udi@tskpraha.cz), [www.tskpraha.cz](http://www.tskpraha.cz)

