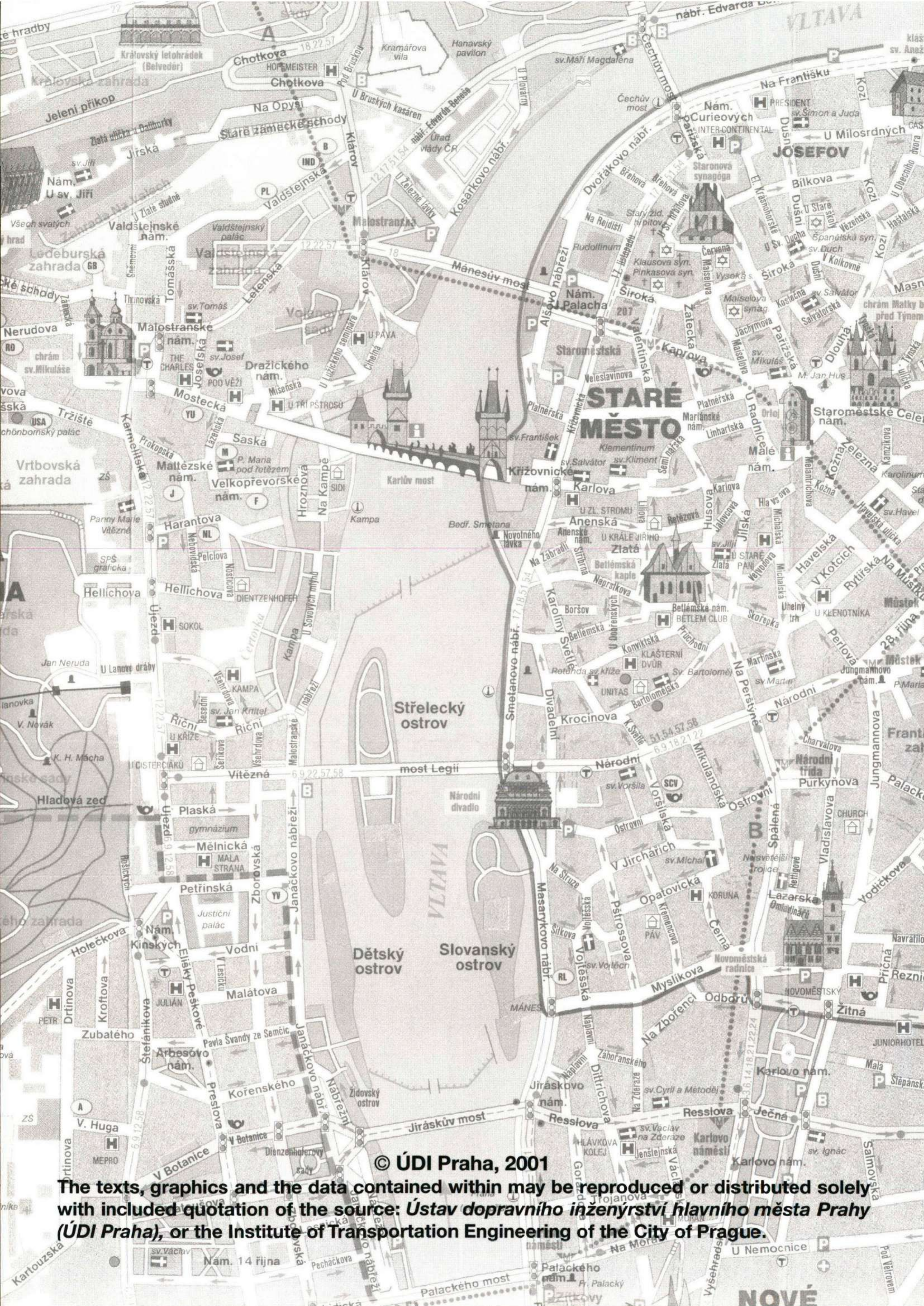
INSTITUTE OF TRANSPORTATION
ENGINEERING OF THE CITY OF PRAGUE

THE YEARBOOK OF TRANSPORTATION

PRAGUE 2000



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The Institute of Transportation Engineering of the City of Prague *(ÚDI Praha)* is a specialised organisation, the first of its kind in the Czech Republic, established in 1966. *ÚDI Praha* is concerned with engineering, design and consulting activities in the field of city transportation and traffic engineering, both for the City of Prague, and for other Prague and non-Prague customers.

Below are the main professional activities of *ÚDI Praha*:

- processing of all kinds of transportation and traffic engineering documentation
- creating transport solutions and traffic city planning
- setting of transportation engineering conditions and materials for planning and project documentation of constructions works
- proposing co-ordinated developments of city transportation system and solution of integrated public transport system
- processing of traffic surveys, investigation and analyses
- creating, operating and up-to-dating of transportation engineering data bank system
- proposing traffic condition improvements
- designing traffic organisation on street network
- projecting traffic calm, designing of residential street and pedestrian zones
- regulating and restrictive measures for motor car traffic and proposals for parking policy
- designing of traffic signal devices, co-ordinated control, centralised control and public transport priority on traffic signals
- developing traffic conditions, transportation constructions and measures from the environmental point of view

Dear readers,

this yearbook is provided for you to document the development of transport across the Capital of Prague during the last year of the 20. century. This century can also be called the century of automobile. For instance when greater Prague came into being in the year 1922 there were 2 026 motor vehicles, of which 1 451 were passenger cars. There was one passenger car per 467 inhabitants. By the end of the century already 746 832 motor vehicles have been registered in Prague, of which 620 663 are passenger cars. There is then one passenger car per 1,9 inhabitants and so Prague now belongs among cities with the highest level of automobile use in the world in general.

A public transport in Prague also experienced a great boom. Let's just compare for instance 156 million transported people in the year 1922 with more than one milliard in the year 2000 or seventy kilometres long network of the municipal public transport in the year 1922 (only trams) and almost one thousand kilometres of public transport network at the end of the century (metro, trams, buses).

How did the last decade and the last year look like in Prague's transport? An enormous growth of automobile traffic, which began after the year 1989 and lasted for 8 years, has already slowed down in the past three years. The number of passenger cars registered in the territory of the city has practically remained unchanged during the year 2000. The volume of traffic performance in Prague's road network - as the most accurate indicator, which characterises the development of motor car traffic in the city streets - increased only by 4 %. The traffic performance in Prague more than doubled in the last decade though (an increase to 228 %). So nowadays motor vehicles in Prague cover 16,6 million kilometres per day.

A continuing optimalization of organization and management of the municipal road operation, projects of transport engineering measures to lower traffic related accident rate, monitoring and evaluation of transport development and also a systematic adjustment of further development of the overall municipal transport system all belong among the principal tasks of the transport engineering branch. The Institute of Transportation Engineering of the City of Prague provides services in this field for the needs of the Capital of Prague, and also for other cities and regions.

Dear readers, I would be glad, if the information from this yearbook is of service for gaining the necessary overview of the current transport situation in Prague as well as for professional decision making concerning the transport system of Prague. We will gladly provide more detailed information as well as other data directly at our institute or post them on our internet site **www.udi-praha.cz**.

Ladislav Pivec
Director
1st April, 2001

1 BASIC DATA

Selected data on the Capital of Prague as of 31.12.2000

City area	496	sq.km
Population	1 181 126	
Job opportunities	about 780 000	
Length of road network	3 366	km
specifically, motorways within the city	10	km
other urban motorways	74	km
All motor vehicles	746 832	
specifically, passenger cars	620 663	
Motor vehicles per head (in vehicles per 1 000 inhabitants)	632	
Personal cars per head (in cars per 1 000 inhabitants)	525	
Metro (underground) network (in operation)	49,8	km
Tram network	136,4	km
specifically, tramlines on its own trackbed	51	%
Municipal Public Transport bus network within the city	812,6	km
Traffic lights	398	
specifically, co-ordinated in „green waves"	266	
with traffic actuated control	150	
with tram priority	59	
separate pedestrian crossings	57	
Vehicle-kilometres in car traffic over the whole road network:		
for an average workday	16,6	million veh.-km
for a year	5,5	milliard veh.-km
Modal split (based on the number of all trips within the municipal area in the course of a whole work day)		
public transport	57	%
car transport	43	%
Traffic accidents in 2000	40 560	
Injuries at traffic accidents:		
fatal injuries	80	
serious injuries	521	
slight injuries	3 260	
Relative accident rate (number of accidents per 1 million vehicle-kilometres travelled)	7,4	

2. CAR TRAFFIC

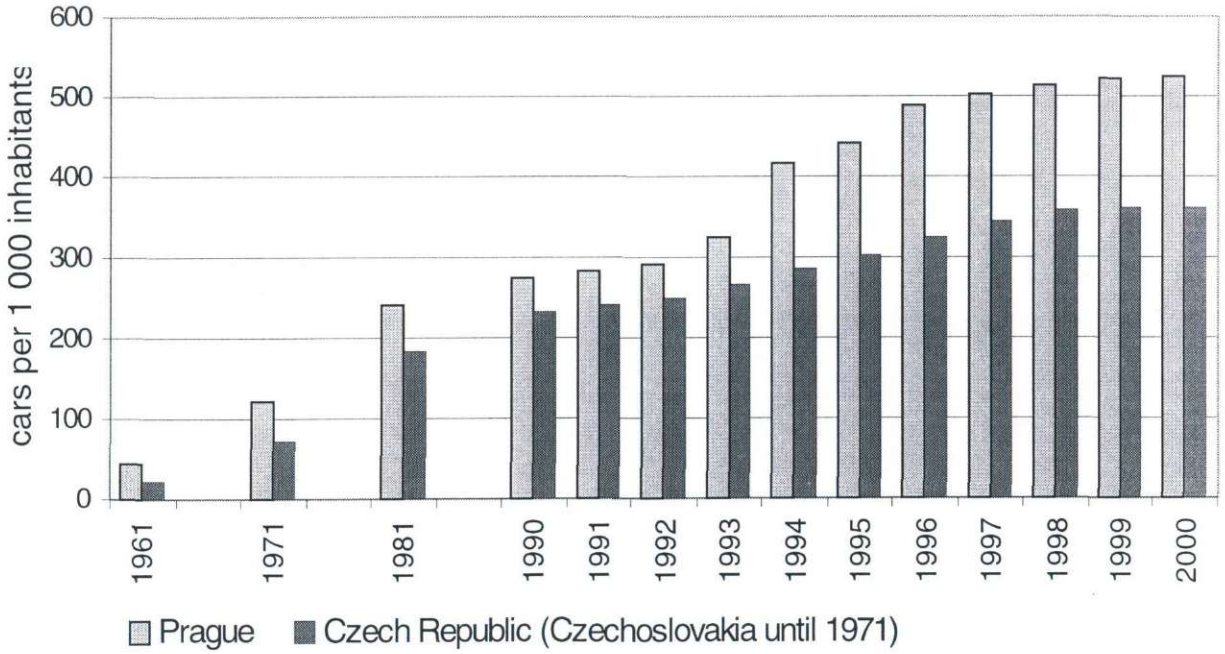
2.1 Development of Motorization and Passenger Car Motorization

The total number of motor vehicles registered within the Prague city area grows steadily, boosting also the vehicles-per-head and cars-per-head figures. Rather fast growth rate in 1960s to 1970s slowed down considerably throughout the 1980s, the number of motor vehicles began to rise again notably following 1990. The essential share in the motor vehicle build-up is brought about by passenger cars.

While in 1980s the volume of passenger cars increased on average only by 6 000 cars each year, during (1991 - 1996) the average year-to-year increase reached 42 100. In the period from 1997 - 1998 this increase was lowered to 11 600 passenger cars per year, in 1999 the number of registered passenger cars increased by only 8 500 and in the year 2000 the increase nearly stopped (an increase of only 77 private cars).

The 2000 year end counted 1 car per 1,9 inhabitants in Prague. In this respect Prague got ahead of the most motorised large cities in Western Europe, where the value of cars-per-head parameter usually ranges between 2,1 to 2,3 inhabitants per 1 passenger car.

1961 to 2000 personal car motorization (cars per inhabitants)



Registered motor vehicles in 1961 - 2000

Year	PRAHA					Czech Republic (Czechoslovakia until 1971)				
	Popul.(in thous.)	All motor vehicles		Personal cars		Popul.(in thous.)	All motor vehicles		Personal cars	
		number	%	number	%		number	%	number	%
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
1996	1 205	702 966	164	588 968	175	10 309	4 991 607	124	3 349 008	139
1997	1 200	721 962	168	602 246	179	10 299	5 208 529	129	3 547 745	147
1998	1 193	735 504	172	612 128	182	10 290	5 383 765	133	3 687 451	153
1999	1 187	744 125	174	620 586	185	10 278	5 238 776	130	3 695 792	153
2000	**1 181**	**746 832**	**174**	**620 663**	**185**	**10267**	**5 230 846**	**129**	**3 720 316**	**154**

100 % = year 1990

Number of motor vehicles per head and cars per head in 1961 - 2000

Year	PRAHA				Czech Republic (Czechoslovakia until 1971)			
	Vehicles per head		Personal cars per head		Vehicles per head		Personal cars per head	
	veh. per 1 000 pers .	pers. per 1 veh.	cars per 1 000 pers.	pers. per 1 car	veh. per 1 000 pers	pers. per 1 veh.	cars per 1 000 pers.	pers. per 1 car
1961	92	10,8	45	22,4	97	10,4	21	47,1
1971	188	5,3	123	8,1	203	4,9	72	13,8
1981	310	3,2	241	4,2	335	3,0	182	5,5
1990	353	2,8	276	3,6	390	2,6	233	4,3
1996	583	1,7	489	2,0	484	2,1	325	3,1
1997	601	1,7	502	2,0	506	2,0	344	2,9
1998	616	1,6	513	1,9	523	1,9	358	2,8
1999	627	1,6	523	1,9	510	2,0	360	2,8
2000	**632**	**1,6**	**525**	**1,9**	**510**	**2,0**	**362**	**2,8**

2.2 Motor Car Traffic Volumes and Traffic Performance

The motor car traffic in cities is a phenomenon which increasingly affects both the people and urban environment as the number of vehicles and the traffic grow. This is especially true in the last decades for our larger cities and particularly Prague. The position of the Capital of Prague in car traffic in the Czech Republic is specific, as evidenced in outstandingly high volumes and vehicle-kilometre values in comparison with other Czech cities or countryside motorways and highways.

The basic aggregated parameter of motor car traffic development in Prague is the traffic performance in vehicle-kilometres (motor car kilometres travelled) throughout the whole of the road network. The vehicle-kilometres have been registered by the Institute of Transportation Engineering since 1978, utilising its own database software IDIS (Information traffic engineering system).

In addition to vehicle-kilometres, the Prague car traffic development trends are monitored by means of cordon surveys, i.e. periodic traffic counts taken on spots which make

a rounded-off cordon over all the important in-roads entering a defined area. The downtown traffic development is monitored via the central cordon that reflects the two-way traffic volume at the entrances to the greater downtown area as delimited roughly by the *Petřín* hill on the west, the *Letná* hill north, the *Rieger* park east and the *Vyšehrad* castle south. The extra-urban traffic development is monitored through the outskirts cordon reflecting the two-way car traffic volume at the entry points of the main arterial roads and motorways into the densely built-up city area. The two cordons' time arrays have been registered and available in the Institute of Transportation Engineering since 1961.

Note: All data about the traffic performance refer to the time period 0 - 24 h of the average working day. All data about car traffic are presented excluding data about vehicles of Prague's integrated public transport.

The basic trends of development since the 1960s and their changes are documented with the following outline.

Average year-to-year growths in traffic volumes and vehicle-kilometres

	Year-to-year volume growth				Year-to-year veh.-km growth	
	Central cordon		Outskirts cordon		Total road network	
	(veh./6-22 h)	%	(veh./6-22 h)	%	(veh.-km/0-24 h)	%
1960s	17 000	9	4 000	8	279 000	8
1970s	0	0	3 000	3	50 000	1
1980s	14 000	5	4 000	3	192 000	3
1991 - 1996	24 000	5	21 000	11	1 101 000	11
1997	5 000	1	45 000	17	998 000	7
1998	42 000	7	11 000	4	511 000	3
1999	- 9 000	- 1	16 000	5	574 000	3,7
2000	**8 000**	**1**	**14 000**	**4**	**662 000**	**4,1**

In the 1960s the growth in both intra-urban and extra-urban traffic as well as the total vehicle-kilometres (traffic performance) was rather high, yet considering the low starting values the total car traffic in comparison to the current condition was low.

In the 1970s the intra-urban traffic stagnated and the growth of the extra-urban traffic as well as the total traffic performance slowed down markedly.

In the 1980s the growth in both the intra-urban and extra-urban traffic as well as the total traffic performance was restored, but comparing with 1960s the rate was lower.

In the 1990s the number of cars as well as the car traffic volumes in Prague grew at such an explosive rate unprecedented in Europe, apart from the former east German cities. The increasing trend continued even in 2000 though only outside the downtown area of the city. The growth rate in the past three years decelerated in comparison with the first half of the 1990s.

There was an overall increase in car traffic volume in the Capital of Prague in 2000 - measured by the traffic performance throughout the whole road network - **by an average of 4,1 % when compared to 1999.**

In the greater downtown area of the city (according to surveys on the central cordon the car traffic volume increased by 1 % when compared to 1999. In comparison with 1990

though, 44 % more vehicles entered the greater downtown area. All increase in the 1990s was formed by passenger cars only for the number of lorries on the contrary decreased by 34 % since 1990.

In the year 2000 about 314 thousand vehicles entered the greater downtown area during an average work day between 6 - 22 h, from that 297 thousand vehicles were passenger cars.

In the middle zone of the city the car traffic volume increased by 3 to 6 % compared to 1999. Compared to 1990 the traffic grew on some city roads in the middle zone by three or four times in the past 10 years.

In the outer zone of the city (according to surveys on the outskirts cordon) the volume of car traffic grew by 4 % in 2000 as compared to 1999. In comparison with the year 1990 approximately 150 % more vehicles entered Prague from suburban zone, from other state regions and from abroad.

In the year 2000 during 6 - 22 h average workday 175 thousand vehicles, from that 152 thousand cars entered Prague from its environs.

Sites with the heaviest traffic in Prague's road network in the year 2000 were the *Jižní spojka* (Southern Connexion road) at the section *5. května - Vídeňská*, where an average of 113 thousand vehicles passed through per day (0 - 24 h), 105 thousand vehicles per day through *Barrandov* bridge and 103 thousand vehicles per day through Wilson street on the bridge over *Masaryk* railway station.

Split level junctions with the heaviest traffic in the year 2000 were *5. Května - Jižní spojka* (172 000 vehicles per day), *Jižní spojka - Vídeňská* (142 000 vehicles per day) and *Strakonická - Barrandov* bridge (135 000 vehicles per day).

Average occupancy of cars in 2000 was:

- in the greater downtown area 1,37 persons/car
- in the outer zone of the city 1,49 persons/car
- on the average all over Prague 1,44 persons/car

The car traffic development in the Capital of Prague area since 1991 is characterized with the following basic trends:

The growth rate of car traffic performance in Prague after 1990 in comparison with the 1980s was in the first half of the 90s more than 5x higher, then in 2000 approximately 3,4x higher. Average year to year increments of daily traffic performance on the whole city road network were:

- 1981 - 1990 + 192 000 veh.-km/day per year
- 1991 - 1996 + 1 101 000 veh.-km/day per year
- 1997 + 998 000 veh,-km/day
- 1998 + 311 000 veh.-km/day
- 1999 + 574 000 veh.-km/day
- 2000 + 662 000 veh.-km/day

In comparison with the first half of the 1990s, when the average daily traffic performance had its annual increase of over 1 million vehicle-kilometres, the growth rate of the year to year daily traffic performance subsided to about 0,5 - 0,6 million vehicle-kilometres between 1998 and 2000. In spite of this abatement in the growth rate, though, the car traffic in Prague is still growing almost 3x faster than for example in the 1980s (when the year to year growth of daily traffic performance amounted to approx. 0,2 million veh.-kilometres).

The daily traffic performance has had an overall increase in the past 10 years (1991 - 2000) by 9,3 million vehicle-kilometres/day. It means that during the last 10 years the car traffic in Prague swelled more than in the past 100 years of automobile existence from the late 19th century until 1990.

The relative rate of traffic performance growth following 1990 is 2,1x higher in Prague in comparison with other regions of the country. During the period 1991 - 2000 the traffic performance increased:

in Prague (total road network)	by 128 %
on motorways and roads in Czech Republic (including sections on Prague territory)	by 62 %

Nearly all the rise in the car traffic in Prague following 1990 is due to passenger cars, as the lorries and buses stagnated. In the period of 1991 - 2000 the traffic performance per vehicle category in Prague went up as follows:

passenger cars	+ 159 %
lorries and buses	+ 4 %
all vehicles	+ 128 %

The car traffic growth rate differs in various city zones. During 1991 - 2000 the car traffic grew as follows:

average over the total network	+ 128 %
greater downtown area	+ 44 %
extra-urban traffic (municipal border)	+ 151 %
the middle zone of the city	+ 100 to + 300 %

The relatively lower growth rate of car traffic volume in the downtown area is due to the fact that during the peak period the traffic demand has reached capacity levels of key intersections at various parts of the city.

A high increase of passenger car traffic in Prague in the past years has been caused by a number of factors, some of decisive ones are:

- there is an overall increase in the number of trips in the city, evidently connected with the development of business activities and with the change of inhabitants' lifestyle.
- increasing number of passenger cars which enter Prague daily from other regions of the country or from abroad (an increase of 201 % for the period 1991 - 2000, that is triple the number of 1990)
- significant part of a population stopped using public transport on their trips around the city and instead of that travels around Prague by passenger cars. A decrease of public transport passengers, which happened until 1998 and their shift toward passenger cars is very adverse for the traffic situation and life in the city.

Note: In the year 1991 - 2000 the number of public transport passengers in Prague decreased by 0,9 million per day, as the following comparison of numbers of people transported by the public transport during one average workday, 0 - 24 h shows:

▪ in 1990	4,186 mil. people/day
▪ in 1997	3,393 mil. people/day
▪ in 1998	3,349 mil. people/day
▪ in 1999	3,302 mil. people/day
▪ in 2000	3,290 mil. people/day
▪ difference 2000/1990	- 0,896 mil. people/day
▪ difference 2000/1990 in percentage	- 21 %

Motor car traffic vehicle-kilometres (traffic performance) in Prague in 1961 - 2000

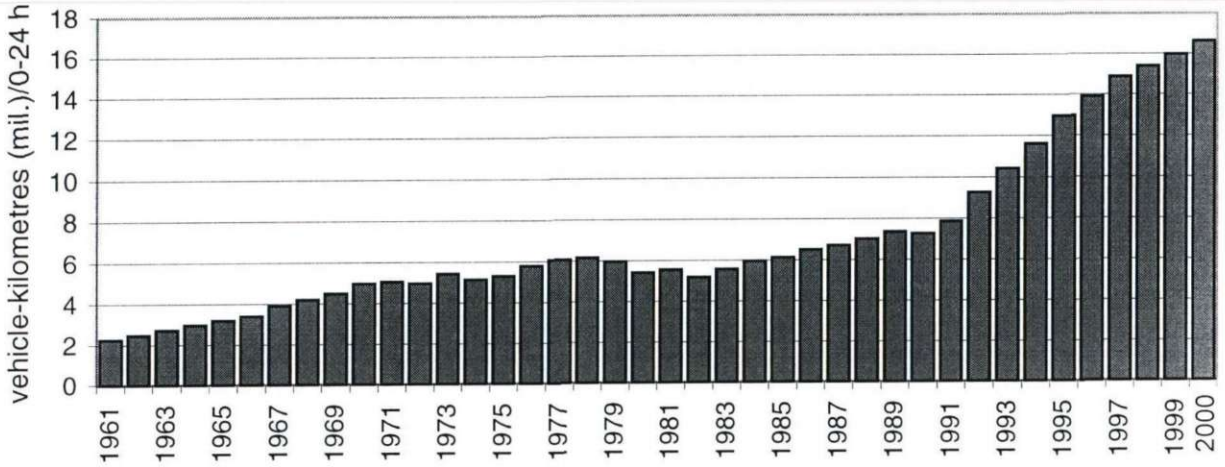
The whole of the road network, an average workday, 0 - 24 h

Year	All vehicles		Specifically, passenger cars		Passenger car share on traffic performance (%)
	veh.-km (in mill.)	%	veh.-km (in mill.)	%	
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
1996	13,896	191	12,426	212	89
1997	14,894	204	13,405	229	90
1998	15,405	211	14,001	239	91
1999	15,979	219	14,503	248	91
2000	**16,641**	**228**	**15,131**	**259**	**91**

100 % = year 1990

Motor car traffic vehicle-kilometres (traffic performance) development in 1961 - 2000

The whole of the road network, an average workday, 0 - 24 h



Traffic volume on central and outer cordon 1961 - 2000

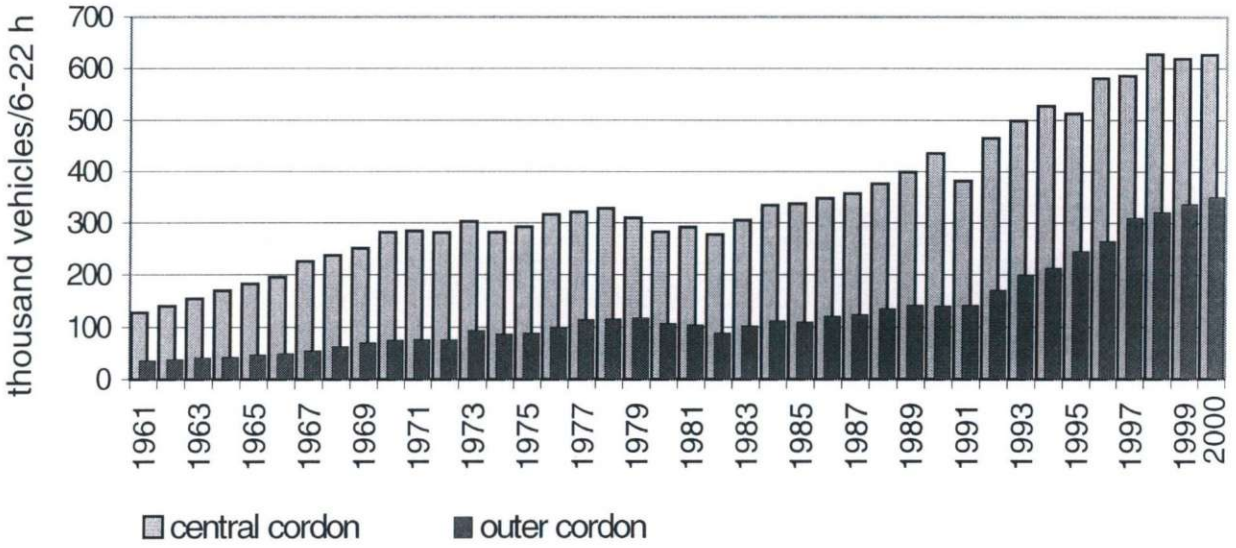
Workday, both directions in total, 6 - 22 h

	Central cordon						Outer cordon					
	Passenger cars		Lorries		All vehicles		Passenger cars		Lorries		All vehicles	
Year	number	%	number	%	number	%	number	%	number	%	number	%
1961	69 000	18	32 000	82	128 000	29	14 000	14	14 000	41	36 000	26
1971	241 000	63	38 000	97	299 000	69	50 000	50	23 000	68	77 000	55
1981	247 000	64	39 000	100	292 000	67	67 000	66	31 000	91	104 000	74
1990	385 000	100	39 000	100	435 000	100	101 000	100	34 000	100	140 000	100
1996	543 000	141	30 000	77	581 000	134	222 000	220	38 000	112	265 000	189
1997	550 000	143	27 000	69	586 000	135	263 000	263	43 000	126	310 000	221
1998	591 000	154	27 000	69	628 000	144	277 000	274	39 000	115	321 000	229
1999	584 000	152	25 000	64	619 000	142	290 000	287	42 000	124	337 000	241
2000	**594 000**	**154**	**23 000**	**59**	**627 000**	**144**	**304 000**	**301**	**43 000**	**126**	**351 000**	**251**

100 % = year 1990

Development of traffic on central and outer cordon 1961 - 2000

Average workday, both directions, 6 - 22 h



The first traffic problems started to originate in Prague as early as 1930s and resulted from the increasing number of cars. With the influence of the Second World War and a post-war development car use in the city decreased significantly (for example the level of automobile ownership from the year 1937 - when there was 1 passenger car to 32 inhabitants - was after the war and post-war decrease not reached until the year 1959). The development of automobile traffic from the early 1960s brought with itself a repeated origin of known traffic problems and one of these was an inadequate capacity of key intersections with respect to the traffic demands. Then as result was an origin of columns of slowly moving vehicles. In comparison with the contemporary condition the problems till the late 1980s concerned only a limited number of key intersections, were usually limited only to the inner city area, had only a short duration during the day and appeared primarily only during peak periods (for example, the automobile traffic in Prague in 1970 was on an average 3,3x lower, in 1990 approx. 2,3x lower in comparison with the year 2000).

A boom in automobile traffic in Prague in the nineties created quite a new situation.

- An overload of road network by now does not have a point but instead an areal character. The whole central area of the city and an adjoining middle zone of the city with the dimensions of 7 x 6 km are considered to be overloaded.
- Resulting from a sharp increase of automobile traffic in Prague, traffic jams have occurred more often in the past years not only in the inner part of the city, but also in a number of places all over the road network. Traffic jams are formed even on the major expressways (for example *Barrandov* bridge or *Jižní spojka*).
- A difference between peak and off-peak periods is gradually decreasing, because in number of places the automobile traffic load is increasing only during off-peak periods, when these places can no longer handle peak hour traffic.
- A period, when the capacity of key intersections is exhausted, is extended during the course of a day and consequently the traffic jams are still more numerous, more extensive and of longer duration. This slow moving traffic has a major negative effect upon the environment especially in the inner part of the city.
- A major negative consequence of the described development is, that not only the automobile traffic but also the public transport is mainly affected (because trams and buses are constrained by these automobiles); then as a result slowly moving public transport vehicles are stuck in slowly moving columns of automobiles.

3. PUBLIC TRANSPORT

Prague Municipal Public Transport is a component of Prague Integrated Transport System which comprises the City of Prague and several communities outside Prague. The operators include Prague Public Transport Company (*Dopravní podnik hl. m. Prahy*) operating the metro (underground), tram lines, funicular railway and most of the bus lines, Czech Railways (*České dráhy, s. o.*) operating the railways and additional twelve smaller bus operators.

A realization of integrated transportation system *(PID)* began in the year 1992 with the implementation of an integrated tariff in the first two suburban bus lines. An additional development continued with a gradual linking up of railway routes with the integrated system, by increasing a range of suburban bus transport in a number of lines, by increasing the size of served territory and the number of communities, served by the suburban buses *PID.*

Along with this a tariff system was also developed, a zone tariff was implemented and also the number of tariff zones gradually increased (at the present time there are 5 zones).

Basic data about Prague's integrated transport (PID) 1995 - 2000

Year	1995	1996	1997	1998	1999	**2000**
A number of communities served by suburban buses PID	15	55	69	83	104	**159**
A number of railroad stations and stops linked up with PID	60	181	181	181	181	**190**
A number of suburban bus lines PID	11	31	38	48	54	**89**
Transport performance of suburban bus lines PID (mill. veh.-km)	0,097	2,552	4,123	5,030	7,994	**9,357**
Transport performance of all the lines PID except railway /metro + trams + city and suburban buses/ (million veh.-km)	145	152	150	149	156	**157**

The **metro** (underground) makes up a backbone network of the municipal public transport. The metro network consists of three lines with a total operating length of 49,8 km and 50 stations (including three interchanges). The trains travel at an average commercial speed of 35,7 km/h, with the average distance between stations 1 038 m. The metro share of the number of transported passengers reached 41 % of the all passengers using the municipal public transport.

The **tramway network** is 136,4 km long. 51 % of the lines run on a distinct trackbed (a raised embankment or, in places, separate track lanes led outside of road), 49 % of the tracks are in the roadway. The average stop distance is 500 m. The trams share 30,5 % of the all transported persons.

The **buses** make up a complementary network to the metro and trams; they provide spread coverage of the area, especially at the outskirts. The operational length of the network is 812,6 km with an average distance between stops 698 m. 1342 bus are registered in the bus fleet from which 1 013 standard and 329 articulated version of the *Karosa* type. The bus fleet was upgraded in the course of the year with 80 low floor *Karosa* buses. There is a total of 175 low floor vehicles in the fleet. The bus share of the total transported persons is 28,5 %.

The **funicular** railway to the Petřín hill is 510 m long.

Basic data on Municipal Public Transport - in 2000
(run by Prague Public Transport Company *DP hl. m. Prahy, a. s.*)

	Metro	Trams	Buses	Total
Average commercial speed (km/h)	35,7	18,9	25,2	
Vehicle-kilometres covered per year (thous.)	40 713	46 856	65 414	152 983
Passengers transported per year (thous.)	423 187	315 220	294 763	1 033 170
Prague Public Transport Company employees	12 499			
Revenue from tickets (mil. CZK)	2 451			
Operational costs (mil. CZK)	10 236			
Revenue - costs ratio	23,94 %			

Development of selected characteristics of public transport

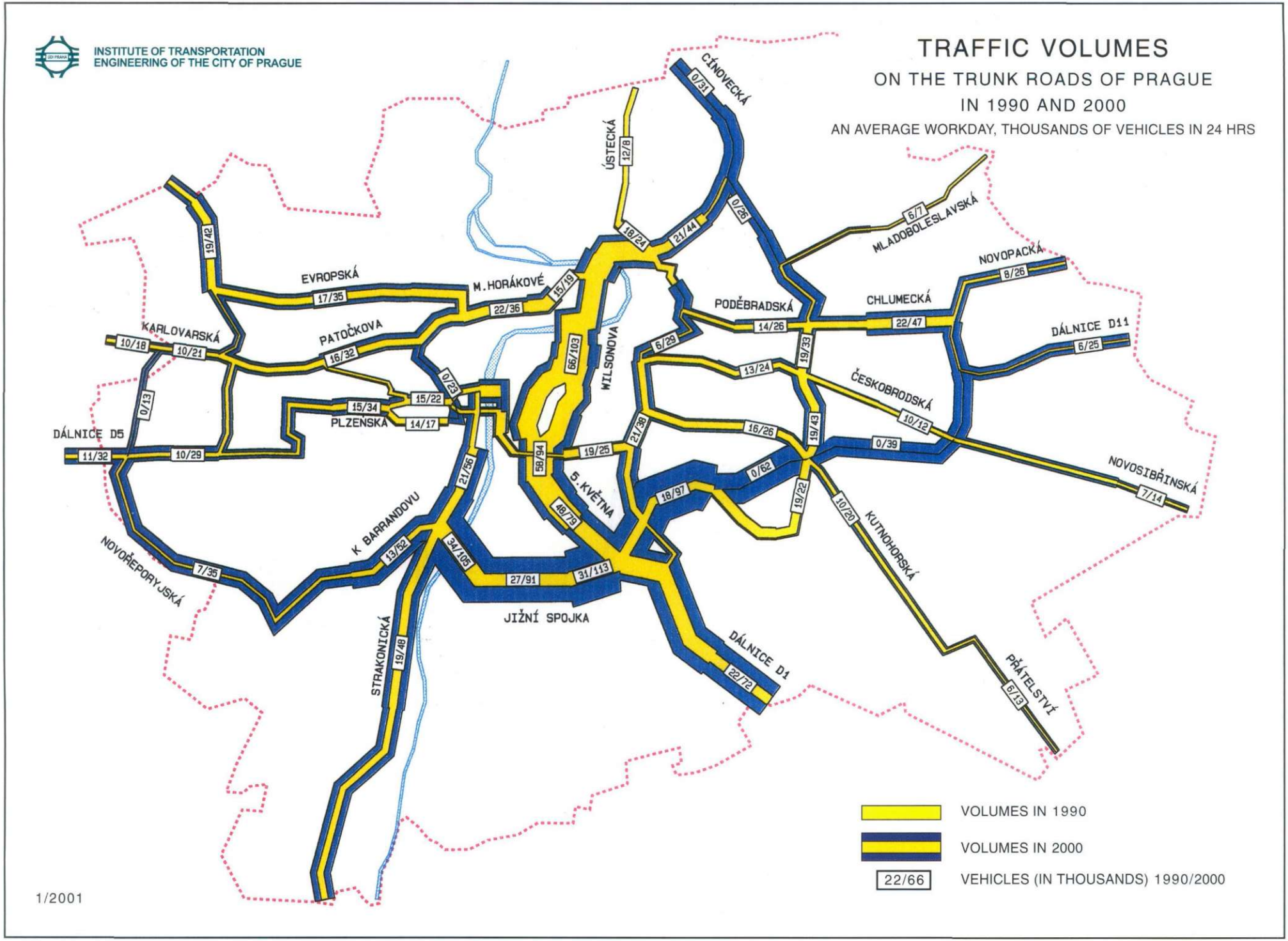
	Operational network length (km)				Average commercial speed (km/h)				Public Transport Performance on an average workday	
Year	metro	trams	buses	trolley-buses	metro	trams	buses	trolley-buses	place-km (mill.)	passengers transported (thous.)
1961	-	133	154	41	-	15,4	20,3	18,1	21	2 129
1971	-	138	332	9	-	15,6	20,2	18,1	30	1 745
1981	19,3	122,9	545	-	32,2	15,7	23,8	-	46,7	3 638
1990	38,5	130,5	607,3	-	34,6	18,7	23,7	-	57,6	4 186
1995	43,6	136,2	671,4	-	34,9	19,0	23,3	-	53,4	3 409
1998	49,8	136,4	759,7	-	34,9	18,7	24,3	-	54,4	3 349
1999	49,8	136,4	797,5	-	34,9	19,0	24,3	-	56,1	3 302
2000	**49,8**	**136,4**	**812,4**	**-**	**35,7**	**18,9**	**25,2**	**-**	**56,0**	**3 290**

The outer public transport (that is transport, extending beyond the border of the Capital of Prague) is partly provided by railway, partly by bus transport.

Railway transport is operated by The Czech Railways on 10 railway routes, leading to Prague. The length of railway routes in the territory of Prague is 145 km. On these routes an average of 544 trains are in operation during workdays and 108 500 passengers are transported on the average in both directions.

The regional bus transport is composed of 89 bus lines of Prague's integrated transport, from which 19 are quite outside the city territory. During a workday more than 2000 connections are either entering or leaving the city and about 40 thousand passengers are crossing the border of Prague daily in both directions.

The remaining outer public bus transport is operated by a number of transport carriers from the whole Czech Republic and some international bus lines are also operated by carriers from other countries. About 50 000 passengers are transported daily to and from Prague. From the total number of approx. 2 300 connections, crossing the border of Prague in both directions in 24 hours of an average workday, approx. 80 connections are international and approx. 830 connections are long distance domestic. In the city territory there are more than 200 stops and bus stations.


INSTITUTE OF TRANSPORTATION
ENGINEERING OF THE CITY OF PRAGUE
TRAFFIC VOLUMES
ON THE TRUNK ROADS OF PRAGUE
IN 1990 AND 2000
AN AVERAGE WORKDAY, THOUSANDS OF VEHICLES IN 24 HRS
ČÍNOVECKÁ
0/31
ÚSTECKÁ
12/8
18/24
21/44
0/26
6/7
MLADOBOLESLAVSKÁ
NOVOPACKÁ
8/26
CHLUMECKÁ
22/47
PODĚBRADSKÁ
14/26
DÁLNICE D11
6/25
19/42
EVROPSKÁ
17/35
M.HORÁKOVÉ
15/19
22/36
KARLOVARSKÁ
10/18
10/21
PATOČKOVA
16/32
66/103
WILSONOVA
6/29
19/33
13/24
ČESKOBRODSKÁ
10/12
0/23
15/22
15/34
PLZEŇSKÁ
14/17
0/13
DÁLNICE D5
11/32
10/29
58/94
19/25
21/38
16/26
19/43
0/39
NOVOSIBŘINSKÁ
7/14
5.KVĚTNA
0/62
18/97
19/22
10/20
KUTNOHORSKÁ
21/56
48/79
K BARRANDOVU
13/52
34/105
27/91
31/113
NOVOŘEPORYJSKÁ
7/36
JIŽNÍ SPOJKA
STRAKONICKÁ
19/48
DÁLNICE D1
22/72
PŘÁTELSTVÍ
6/13
VOLUMES IN 1990
VOLUMES IN 2000
22/66
VEHICLES (IN THOUSANDS) 1990/2000
1/2001

PRAHA

NETWORK OF TRUNK ROADS AND METRO (UNDERGROUND)

ÚDI PRAHA

INSTITUTE OF TRANSPORTATION ENGINEERING OF THE CITY OF PRAGUE

110 00 Praha 1, Bolzanova 1
Tel.: 02/24211094
Fax: 02/24211380
e-mail: udi@udi.mepnet.cz
http://www.udi-praha.cz

1 : 23 000

0 0,5 1 1,5 2 3 km

TRUNK ROADS

- 12/2000 reality
- stage
- plan (binding part)
- plan (non-binding part)

METRO

- 1/2000 reality
- stage

P&R TERMINALS

- 12/2000 reality
- stage

The networks are drawn in accordance with the Prague's Master City Plan in the state of 9. 9. 2000 and are subjected to possible changes.

Orientation map of streets with zones of standing for a fee in Prague 1

Příklad svislého dopravního značení

Modrá zóna (rezidentní a abonentní stání)

Určena držitelům parkovacích karet (obyvatelům s trvalým bydlištěm a podnikatelským subjektům se sídlem nebo provozovnou v zóně placeného stání v pravobřežní části Prahy 1)

Příklad svislého dopravního značení

Oranžová zóna (parkovací hodiny)

Určena pro krátkodobé placené stání (max. 2 hodiny). Provozní doba, způsob platby a cena je uvedena na parkovacích hodinách označených oranžovou barvou.

Příklad svislého dopravního značení

Zelená zóna (parkovací hodiny)

Určena pro střednědobé placené stání (max. 6 hodin). Provozní doba, způsob platby a cena je uvedena na parkovacích hodinách označených zelenou barvou.

Provozovatel zóny placeného stání : Evropark Praha a. s., Politických vězňů 21, 110 00 Praha 1
tel. : (02) 24221568, (02) 24212269, fax :(02) 24224828
informace na internetových stránkách : http://www.evropark.cz , e-mail : evropark@evropark.cz

4. TRAFFIC SIGNAL CONTROL

The spread of traffic signal devices (TSD) on a larger scale began in Prague after 1967. The development of TSDs involved the following characteristic features:

- the number of TSDs skyrocketed until the early 1980s, then stood virtually still; the number of TSDs started to grow again only in the last few years due to the sharp increase in car traffic,
- the proportion of the TSDs co-ordinated in „green waves" is kept steadily high (67 %),
- traffic actuated control started to be applied as late as the latter 1980s, and still only a minor number of TSDs have this type of control (35 % of the total number),
- tram priority at traffic signals has been gradually introduced in Prague since 1993; bus priority at traffic lights remains non-existent; tram priority was by 31.12.2000 installed in 59 from the total number of 188 TSDs which exist in the tram network.

The municipal road traffic is managed from the main traffic control centre and gradually also by local control centres (in the year 2000 only a local control centre in *Holešovice* with 27 controlled intersections was in operation). Not only all the traffic lights will be joined to them, but also other technical facilities for the regulation and management of the municipal road traffic.

The main traffic control centre is under the administration of *TSK* (organization of the city of Prague) and it is operated by the police officers of the Czech Republic. The firm Signalbau - Huber supplied the computer system VRS 2100 for the main traffic control centre.

In addition to the intersections from *Holešovice, Vinohrady* and part of *Nové Město*, the traffic control in *Strahov* and *Těšnov* car tunnel and selected parking places of the P+R system are also joined to the main traffic control centre. Critical spots of the city road network (intersections and tunnel entrances) are also monitored by means of movable or fixed cameras. Visual signals of all the cameras are transmitted to the main traffic control centre. From there shift information boards are also managed which in 5 localities inform about important actual changes in traffic (congestions, accidents, traffic situation).

As of 31.12.2000, Prague has had 398 sites controlled by traffic signals. Out of this number, 67 % TSDs have been interconnected in co-ordinated groups (with signal programs synchronised for the whole group so that the vehicles travelling in a synchronised direction may be provided with a smooth flow, free from stopping at traffic signals, so-called „green waves"). 57 sites out of all the TSDs (14 %) are separate pedestrian crossings, most of them equipped with push buttons for WALK green on demand only. 115 traffic light signals are equipped with acoustical signals for visually handicapped.

Basic data of traffic signal devices, 1961 - 2000

Year	1961	1971	1981	1990	1996	1997	1998	1999	**2000**
All traffic signals	33	76	339	348	366	376	385	395	**398**
specifically, pedestrian crossings	-	9	37	45	49	51	54	55	**57**
in green waves	-	48	276	277	263	269	267	272	**266**
traffic-actuated	-	1	3	19	72	93	117	149	**150**
with tram priority	-	-	-	1	31	39	51	57	**59**

5. TRAFFIC ROAD ACCIDENTS

From evaluating long-term development trends of traffic accidents it can be concluded the long-term progression in accidents had a relatively favourable trend in 1960s through 1980s as the number of accidents more or less closely followed the progression in traffic performance (vehicle-kilometres) and grew slower than the traffic performances.

Since 1990 the basic trend of development has turned unfavourable as traffic accidents started to increase faster than traffic performance. The total accidents in 1999 rose by 145 % compared with 1991 while the traffic performance only by 119 %. Consequently, the accident risk rate also grew, which is expressed through a relative accident rate parameter (the number of accidents per one million vehicle-kilometres covered). In the year 2000 the number of accidents though, decreased considerably so that the scope of accident risk expressed by a relative accident proneness had a year to year decrease by 12 % and in the meantime is on the same level as in the year 1990.

Comparing with 1980s (the average growth of 551 accidents/year), the average year-to-year growth in accidents is 4,1 times higher (2 254 accidents/year) in 1991 - 2000. The annual increases in accidents exhibited a steep upturning tendency until 1993. Only in 1994 at long last the accident growth stopped, in 1995 to 1999, however, the number of accidents turned again significantly upward. Only by the year 2000 the number of accidents decreased considerably (by 3 600 accidents during the year, that is by 8,2 %).

Year-to-year accidents increase

Year	(accidents/year)
1961 - 1971 average	300
1971 - 1981 average	457
1981 - 1990 average	551
1991 - 2000 average	2 254
specifically, 1991	2 763
1992	5 783
1993	6 030
1994	- 82
1995	1 380
1996	4 193
1997	1 382
1998	2 658
1999	2 061
2000	**- 3 632**

Accidents increased throughout the whole road network, at all places and road types: in straight sections, curves, both controlled and uncontrolled junctions, at trunk roads and minor service streets alike. One of the chief factors of this unfavourable development is a deterioration of traffic discipline with drivers as well as pedestrians, insufficient enforcement of the Highway Code observance and more of the easy-going, reckless and hazardous attitude. It is likely the deterioration of the drivers' discipline is affected by increasing impassability of the Prague road network.

What seems to be relatively favourable is - unlike the accident growth - that the number of accident injuries has a slower increase than both the total number of accidents and the traffic performance.

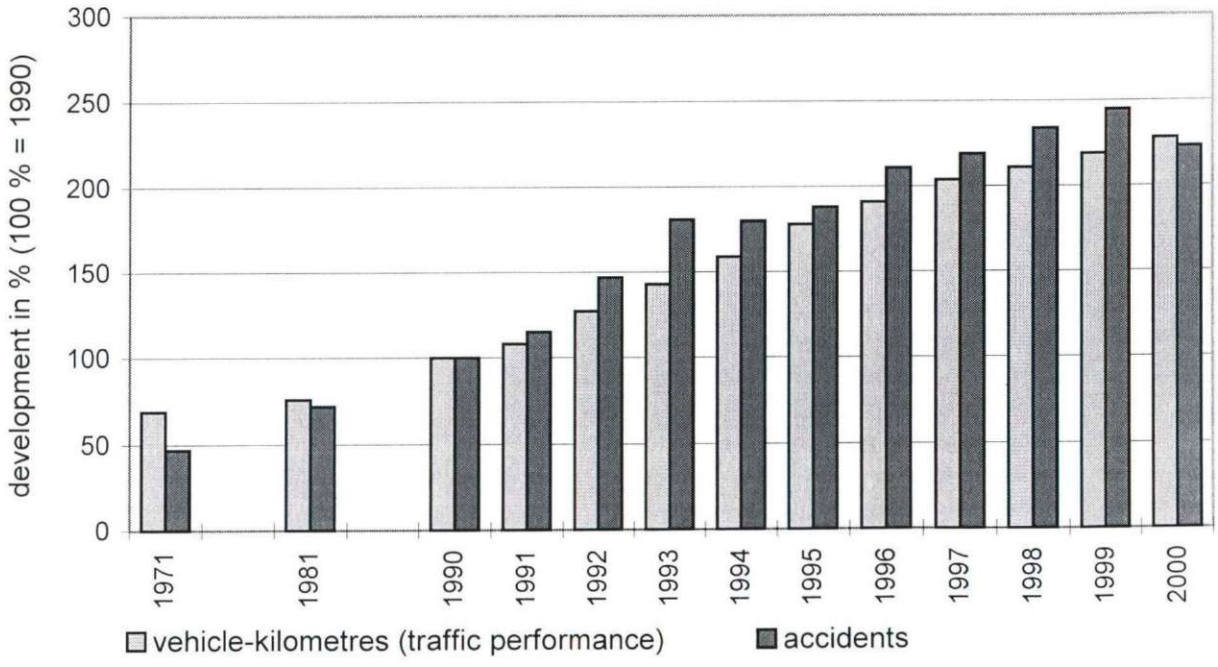
Traffic accidents, injuries and the relative accidents rate, 1961 - 2000

Year	Total accidents		Fatal injuries		Serious injuries		Slight injuries		Relative accident rate	Traffic performance %
	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	91	100	369	100	2 806	100	7,5	100
1997	39 473	219	90	99	539	146	3 720	133	8,0	204
1998	42 131	234	65	71	535	145	3 568	127	8,3	211
1999	44 192	245	74	81	540	146	3 558	127	8,4	219
2000	**40 560**	**225**	**80**	**88**	**521**	**141**	**3 260**	**116**	**7,4**	**228**

100 % = year 1990

Relative accident rate = number of accidents per million vehicle-kilometres travelled (average values, total Prague road network)

Accidents and vehicle-kilometres, 1961 - 2000



6. PARKING

6.1 Parking in the city centre

Parking in the city centre is regulated with regard to the scope of demand for parking and the scarcity of parking places.

Regulation is in the meantime thoroughly enforced in the territory of the right embankment of Prague 1 (approx. 3 km^2), and by a form of „Zones of standing for a fee" *(ZPS)*.

Street sections in *ZPS* are divided:

- into standing with a time limit the so-called „orange and green zone", designated for the vehicles of visitors (orange zone till 2 hours, green zone till 6 hours),
- into standing without a time limit, the so-called „blue zone", designated for the residents (car owners permanently living in *ZPS*) and subscribers (business or private individuals with a residency or a place of business in *ZPS*).

Number of parking places in *ZPS*:

- short - term (orange and green zone)	2 290 places
- long - term (blue zone)	6 154 places
- handicapped	225 places
- other (reserved standing places for institutions and organizations	335 places

Average occupancy of standing places in *ZPS* (2000):

- short - term standing	92 %
- long - term standing	89 %

Rate of compliance with the regulations specified in *ZPS* for the utilisation of standing places (2000):

- short - term standing	23 %
- long - term standing	49 %

Fees for the utilisation of standing places in *ZPS*:

- short - term standing (orange zone)	40 CZK/h
- short - term standing (green zone)	30 CZK/h
- short - term standing (green zone - border sectors)	15 CZK/h
- 1. vehicle of private individual	500 CZK/year
- 2. vehicle of private individual	5 000 CZK/year
- 3. and additional vehicle of private individual	10 000 CZK/year
- vehicle of a businessman	50 000 CZK/year

In the left embankment of Prague 1 with the area of 2,4 km^2 and capacity of 1,5 thousand parking places, a zone is designated in which outside of reserved standing places and supervised parking places only vehicles of residents can be parked, marked with an approval from the municipal authority of Prague 1.

6.2 Park and Ride places P+R

Park and Ride parking places were integrated into a system P+R, which was brought into operation in the year 1997. Its aim has to lower the number of radial trips of passenger cars, to lower the number of parked cars in the downtown area and to improve the quality of the environment of the city centre.

In the beginning of the year 2000 there was a total of 1 108 parking lots available in the P+R system of parking places *Zličín I, II, Nové Butovice, Radlická, Opatov, Skalka, Černý Most, Rajská zahrada* and *Nádraží Holešovice*. In April two new parking places *Palmovka* (122 places) and *Radotín* (62) were brought into operation. The parking place *Radotín* is the first locality of P+R, which is not connected to the metro but to the railway.

The total capacity of all the parking places has thus increased to 1 289 parking lots (including a decrease of P+R capacity *Radlická* from 40 to 37 standing places due to reconstruction).

An overview of parking place utilisation in October 2000 is depicted by the following table.

A number of vehicles parked in P+R parking places for the month of October 1999 and October 2000

Parking place	Capacity		A number of parked vehicles		An average number of vehicles for 1 standing place	
	1999	**2000**	10/1999	10/2000	10/1999	10/2000
Zličín I	94	**94**	3 970	2 973	42	32
Zličín II	70	**70**	2 006	2 085	29	30
Nové Butovice	60	**60**	2 313	2 608	39	43
Radlická	40	**37**	1 274	1 391	32	35
Skalka	175	**175**	1 702	2 695	10	15
Opatov	212	**212**	2 934	3 901	17	18
Rajská zahrada	80	**80**	1 976	2 345	25	29
Černý Most	300	**300**	7 785	9 649	26	32
Holešovice	77	**77**	2 835	3 125	37	41
Palmovka	0	**122**	0	3 224	0	26
Radotín	0	**62**	0	158	0	3
Total	1 108	**1 289**	26 795	34 154	24	26

A user demand varies from different directions into the city centre. In some localities the capacity of parking places is no longer sufficient *(Zličín I, Zličín II, Nové Butovice, Radlická)*, some parking places still have a reserve capacity (*Skalka, Opatov, Radotín).*

P+R parking places with a higher reserve capacity are temporarily used for parking of residents from the vicinity of the parking place. In October 2000 a permanent parking place for residents was temporarily implemented with a monthly advance payment at parking places *Skalka* (selected 61 standing places) and *Opatov* (26). All of these standing places were rented. In this manner it is possible in *Radotín* to utilise arbitrary standing places (regarding for a small utilisation a conflict with the P+R system does not occur).

Overall capacity of P+R system after designating a part of an area in *Skalka* and in *Opatov* amounts to 1 202 standing places. A parking system for residents at P+R parking places during the evening and night-time hours is at a stage of deliberation and screening.

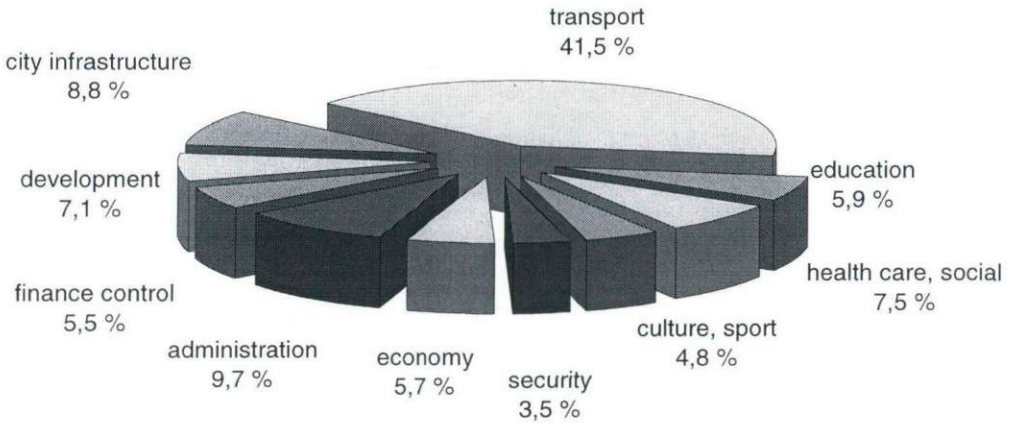
An integral part of a rational functioning of P+R system is a vehicle guidance system with a utilisation of static or dynamic traffic signs.

7. FUNDING OF THE MUNICIPAL TRANSPORT AND THE TRAFFIC CONSTRUCTIONS

The transport needs of the year 2000 were financed from Prague's municipal budget while only a minor share was contributed from the national budget and the corporate resources of the Prague Public Transport Company (*Dopravní podnik hl. m. Prahy, a. s.).*

The adjusted Prague municipal budget in October 2000 reached a total expenditures of 29,7 milliard CZK, with specific expenditures amounted to 12,3 milliard CZK in the chapter 03 - Transportation. This share of 41,5 % made transportation the most substantial portion of the spending part of the municipal budget in 2000.

The budget chapters sharing in the adjusted 2000 budget expenditures



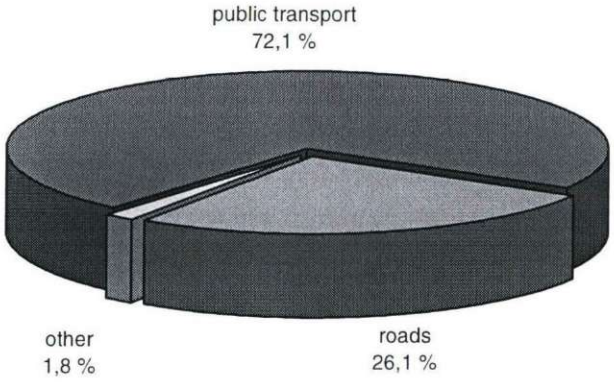
The amount of CZK 12,3 milliard earmarked for transportation in the adjusted budget was sub-divided into CZK 7,6 milliard to cover running operational expenditures, and CZK 4,7 milliard for capital expenditures.

The **operational expenditures** in transportation cover, predominantly, subsidies for public passenger transport in and around the city. A total budget of CZK 6,26 milliard was allotted for this purpose, including CZK 6,12 milliard for the Public Transport Company (*Dopravní podnik hl. m. Prahy, a. s.*) as a subsidy to municipal public transport operation. The remaining CZK 1,34 milliard was set aside to cover running road repairs and other expenditures needed to keep the system of traffic going.

The **investment spending (capital expenditures)** covered mostly investment in development, i.e. construction of new roads, tram and metro lines, as well as other transportation facilities (56 %) plus also larger repairs and reconstruction of traffic routes (44 %). Expenditures allotted for improving the condition of public passenger transport prevailed also in this portion of the budget (out of the total CZK 4,7 milliard, CZK 2,6 milliard was earmarked for public transport investments, CZK 2,1 milliard for reconstruction and development of the road network).

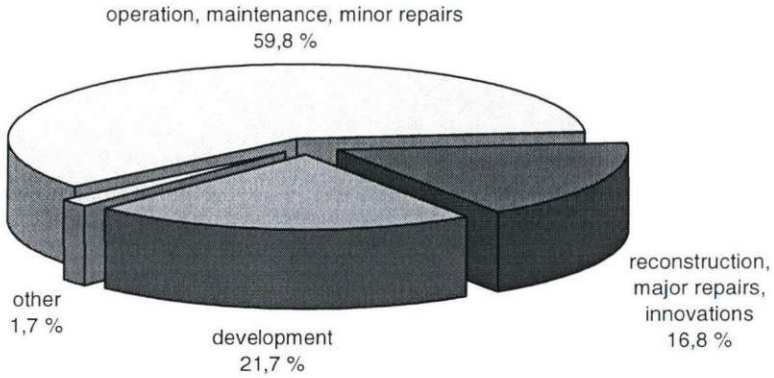
Expenditures for providing operation, modernisation and development of public transport dominated in the budget for the year 2000. Their share in the total expenditures in the chapter of transportation exceeded 70 %.

Total expenditures



A more detailed analysis of the items listed in the breakdown of the Transportation chapter shows that about CZK 7,4 milliard was directed toward operation, running repairs and maintenance of the city transport system, CZK 2,1 milliard to provide for larger repairs, reconstruction and renewal of the technical equipment, CZK 2,6 milliard was earmarked for investments into development, and CZK 0,2 milliard for other expenditures needed to keep the traffic system going.

Structure of overall expenditures of chapter 3 of the adjusted 2000 budget



The targeted means from the national budget were provided to the Capital of Prague as contributions for repair and maintenance of the city streets serving as roads and for the construction of selected road segments, for the construction of metro (370 mil. CZK) and a purchase of low - floor buses (148 mil. CZK). The government also provided a contribution of 30 million CZK to the Capital to cover the operational costs of the public transport, which, according to the road transport legislation, is supposed to be provided for the operation of basic transport service in the region. The government through the Ministry of Transportation and Communication already in the past years accepted a commitment to gradually build a ring road encircling Prague. A total of 761 million CZK were spent in the year 2000 for this purpose from the national resources. For the completion of urban motorway *Třebonice - Řepy* 265 million CZK were spent, the remaining 496 million CZK were invested into a section *Řepy - Ruzyně* under construction which should be put into operation in the year 2001.

8. PEDESTRIAN TRAFFIC

Walking is the most natural and the most frequent manner of moving people. Every trip undertaken by transport means starts and ends with walking. Approximately 23 % of all the inner-city trips are performed by walking.

From a standpoint of time, trips on foot are usually, with the exception of recreational trips, short; 63 % of individual trips on foot are shorter than 10 minutes and only 10 % longer than 20 minutes. The most frequent origin or destination of individual trips on foot is a place of living (44 %), others are work or school (30 %) and shopping facilities (15 %).

The highest number of pedestrian trips is performed in the downtown area of the city, namely in the territory of municipal part Prague 1. From all the inner city trips performed by walking (without the use of transport means), 23 % of trips have its origin or destination in Prague 1, the other 9 % of pedestrian trips take place exclusively within this territory, that is, do not extend beyond the border of this municipal part. Almost one third of all the pedestrian trips in Prague take place in the municipal part of Prague 1.

For this reason *ÚDI Praha* conducts verification surveys of pedestrian traffic during an average workday in selected streets of the municipal part of Prague 1 since 1963 in time periods of 10 - 15 years. The latest extensive surveys of pedestrian traffic in this region were performed in the years 1999 - 2000. Some interesting results of regularly repeated surveys of pedestrian traffic are specified in the following table (development in a maximum peak hour of a workday):

Street	Section	1963	1975	1990	**2000**
Václavské náměstí	*Vodičkova - Na Příkopě*	18 420	17 000	16 000	**7 380**
Vodičkova	*Palackého - Václavské nám.*	7 470	10 800	6 400	**4 710**
Jindřišská	*Václavské nám. - Panská*	7 250	10 500	6 250	**3 320**
Národní	*Spálená - Jungmannova*	8 400	10 540	9 000	**5 350**
Na Příkopě	*Panská - Nekázanka*	11 680	11 600	12 600	**4 890**
Revoluční	*Truhlářská - Soukenická*	-	6 630	4 300	**1 670**
Na Poříčí	*Revoluční - Havlíčkova*	4 890	5 730	4 450	**1 650**
Karlův most		1 310	2 200	2 600	**3 450**
Karlova	*Seminářská - Husova*	-	-	2 400	**2 890**
Staré zámecké schody		-	-	600	**1 980**
Palackého most		-	-	350	**350**
Jiráskův most		-	-	250	**200**
Štefánikův most		-	-	150	**210**

From hitherto conducted surveys it is possible to come to the following most important conclusions:

- from 1963 up to present time there has been a steady decrease in the number of pedestrians moving around in the streets of Prague during peak hours,
- whereas between the years 1963 - 1990 there was a decrease in the number of pedestrians the falling percentage being in single digits, in the decade between 1990 - 2000 the decrease is in double digit percentage,

- a growing popularity and visit rate of Prague by foreign as well as domestic tourists is supported by the evidence of increasing intensity of pedestrian traffic during the peak hour of a workday in the period between the years 1990 - 2000 on the pedestrian routes connecting the Prague's castle and the old town. For instance, on the Charles bridge a pedestrian traffic during this period grew by approx. 36 % and in Charles street by 20 - 28 %, on the Old Castle Stairs by 230 % and on the *Mánes* bridge by 122 %. During weekend (especially on Saturday) or on other off days the volume of pedestrian traffic on tourist attractive routes is steadily increasing approx. 15 - 20 %.
- The volume of pedestrian traffic on the majority of bridges remain practically unchanged.

To facilitate orientation of domestic as well as foreign visitors of downtown Prague approx. 1 300 info-directional signs were installed in April 2000 all over the Prague historical district.

Routes were marked to about 50 culturally historical objects from 56 starting points, located in the historical district and to several other points of interest (metro stops, funicular stops, main post office, first aid, tourist information - *PIS*). The design of information-directional signs was created by The Institute of Transportation Engineering of the City of Prague. Info-directional signs are usually created as an arrangement of individual signs fastened onto individual signpost or onto lightpoles or timeposts. Each sign contains a directional arrow, name of destination and a symbol (pictogram) of destination. Info-directional signs in Prague historical district is an open system which can eventually be modified, supplemented and expanded in the entire region of the city of Prague.

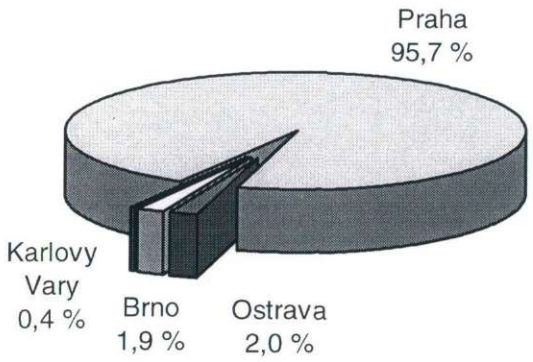
9. AIR TRANSPORT

Air passenger and air freight transport is conducted namely at the *Praha - Ruzyně* airport. The other three Prague airports are usually used for other special purposes. The airport *Praha - Ruzyně* has three take-off and landing runways, with the maximum capacity of 36 movements (take-off and landings) of aircraft/hour. The overall annual transport capacity of the airport is 6,2 million passengers. In the meantime over 30 airline companies operate at the airport, which provide regular direct connection to practically 70 destinations all over the world. Route connection with European cities and New York is provided daily.

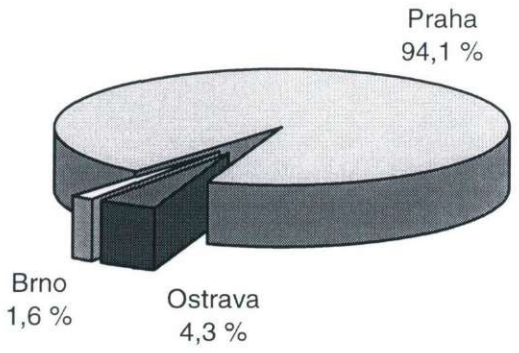
The overall volume of passengers cleared at the four airports, which have in the Czech Republic an international status (*Praha, Brno, Ostrava, Karlovy Vary*), increased when compared with the year 1999 by 14,2 %, the volume of transported air cargo (goods and postal service) by 13 %.

A share of the airport *Praha - Ruzyně* on the overall volume of air transport in the Czech Republic is rising. As opposed to the year 1999 it rose in the year 2000 by 0,7 % in the passenger transport, by 6,7 % in air cargo transport.

Share of airports
in passenger transport performance
% from the overall volume
of cleared passengers



Share of airports
in cargo transport performance
% from the overall volume
of cleared air cargo including postal air service



In the year 2000, 5 554 thousand passengers were cleared by the airport *Praha Ruzyně*, which represents an increase of 15,2 % compared with the year 1999. Furthermore 30 284 tons of cargo and 4 609 tons of postal cargo were cleared there, so that air cargo transport increased by 17,1 %. The highest increase in number of passengers was in comparison with the year 1999 recorded in the period of January - April (up to 23,4 %), in the summer months the increase (with the exception of June - 9,7 %) exceeded 14 %. Most passengers (621,1 thousand people) were cleared in August, the least (296,3 thousand people) in January. The number of movements of aircrafts in the year 2000 amounted to 94 117, which is by 5 498 more than in the year 1999 (+5 %). The lower relative increase in the number of aircraft movement than the number of cleared passengers means that airline companies engaged in the year 2000 to a greater extent aircrafts with a higher transport capacity.

After the year 1991, which was in passenger transport the weakest since 1982, the number of cleared passengers began to grow rapidly, so that by the year 1993 the highest

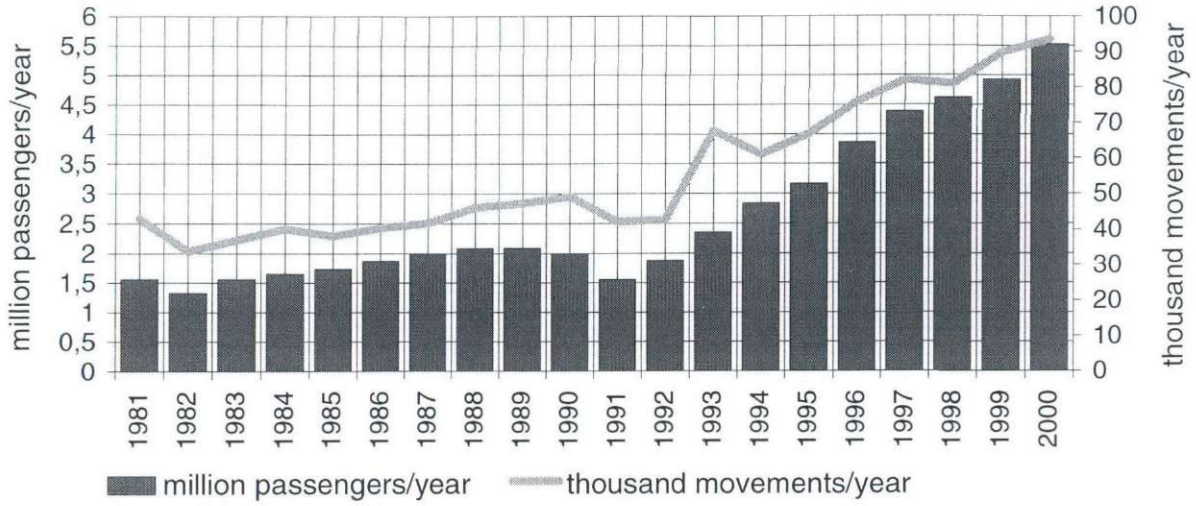
values of previous airport data were surpassed (approx. 2,2 million air passengers/year in the years 1978 - 79). Air cargo transport is in the period 1991 - 2000 in comparison to the years 1981 - 90 invariably lower (on the average 28,5 thousand/year, compared with 35,4 thousand/year).

The airport *Praha - Ruzyně* is located at a distance of approx. 11 km from the city centre, where an inner-city air terminal is located. Connection to the airport is provided for air travellers by a special commuter bus service. In addition there is a public transport bus service to the airport running in radial direction to *Dejvice* up to metro line A, in tangent direction through *Břevnov* and *Motol* to the south-western part of the city. A decisive share (68 %) of transport for people between the airport and the city is provided by passenger cars. In the vicinity of the clearance building, 3,5 thousand parking places are at disposal, from which 1,2 thousand are public.

Development of individual transport means providing service for travellers to the airport *Praha - Ruzyně* (workday).

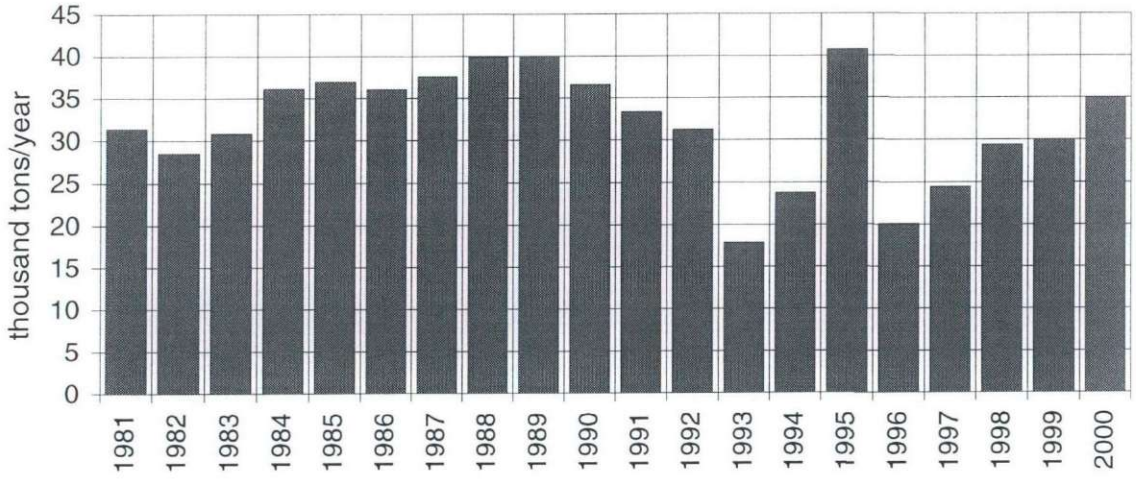
Development of *Praha - Ruzyně*

airport performance numbers of cleared passengers and aircraft movements

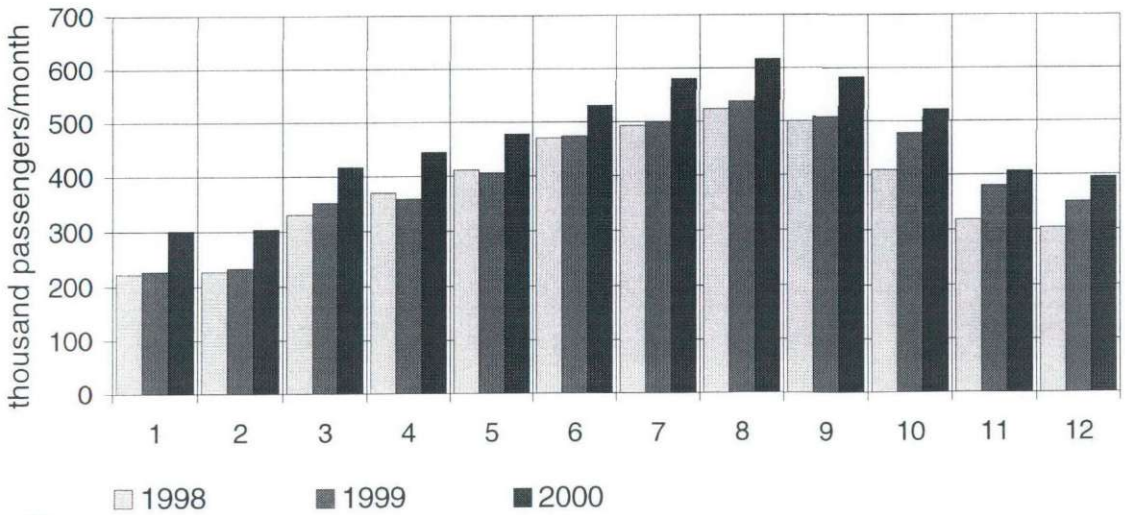


Development of *Praha - Ruzyně*

airport performance handled freight (goods and post)



Numbers of passengers handled at the airport *Praha - Ruzyně* during individual months 1998 - 2000



10. A JOINT CO-OPERATION ON THE EU PROGRAM

In the passed years and in the year 2000 the Capital of Prague and its organisations took part in the solution of a number of projects in the 4th and 5th framework program of the EU concerning transport.

Project CAPE (Coordinated Action for Pan - European Transport and Environment Telematics Implementation Support)

Project of the 4th Framework Program EU whose aim was to support a higher utilisation of the telematics in the European Union and countries of central and eastern Europe, was worked on by a consortium of partners from Belgium, Germany, Austria, Italy, Hungary and the Czech Republic during the years 1998 - 99. *ÚDI Praha* compiled the main data about Prague for the solution, which the engineer studio PPU - BABTIE provided the guarantee for the Czech Republic.

Project LEDA (Legal and Regulatory Measures for Sustainable Transport in Cities)

The project focused on legal and regulatory means of reaching sustainable transport from a standpoint of the environment. 21 countries divided into 4 groups took part in the project, which in the 5th framework program was solved in the years 1998 - 2000. In the group with Austria, Switzerland, Slovakia, Slovenia, Hungary and Poland a partner from the Czech Republic was *ÚDI Praha*. The project dealt with an extensive collection of a total of 216 measures to ensure sustainable transport in the cities, from which 20 less usual measures were analysed in detail.

Benchmarking local passenger transport systems

A pilot project was commissioned by EU to promote implementation of the so-called „citizens` network" and its purpose was to support public transport, cycling and walking and to decrease inhabitants' dependency on passenger cars. 15 cities participated in the project since 1998, a leader for Prague was *DP hl. m. Prahy, a. s.* and joint co-partners *ÚDI Praha*, *ÚRM* and *ROPID.* After the completion of the pilot project in the year 1999, the European commission approved a continuation, to which already 35 partners have applied under the management of a Belgian firm OGM and it is open to other countries of the EU including affiliated countries.

Project PRISMATICA (Pro-active Integrated Systems for Security Management by Technological, Institutional and Communication Assistance).

A project of the 5th framework program of EU, compiled by 15 partners from Prague, Great Britain, Portugal, Italy and the Czech Republic, is aimed at a public transport safety in the cities. Works which for the Capital of Prague are performed by *DP hl. m. Prahy, a. s.*, are laid out into the years 2000 - 2003.

Project MOST (Mobility Management Strategies for the Next Decades)

A project of the 5th framework program EU is worked on in six topic groups consortium of 16 countries. The Capital of Prague with the help of an intermediary *DP hl. m. Prahy, a. s.* is engaged in „transport consultations and centres of multimedia transport information - centres of mobility." An outcome of this part of project, dealt with in the years 2000 - 2002, should be among others a study about establishing the centre of mobility in Prague, which is going to centralize all up to now fragmented information about the public transport in Prague and its environs.

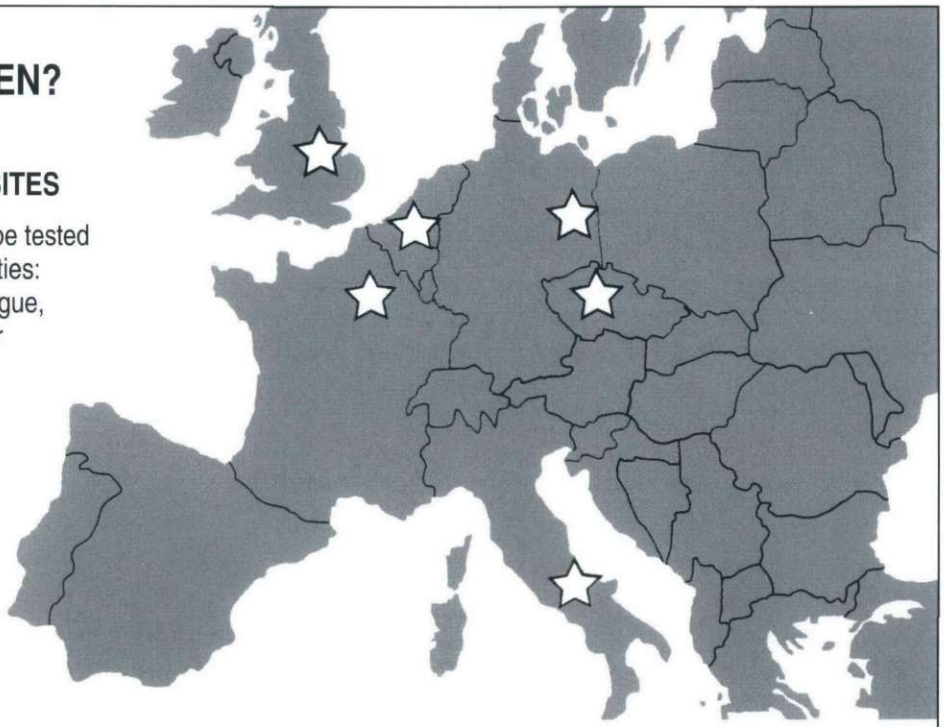
Project HEAVEN (Healthier Environment through Abatement of Vehicle Emission and Noise)

A project of the 5th framework program of EU, focused on integration of data about traffic, air-pollution and noise and on their utilisation for operational management of *traffic* as related to a condition of the environment, is dealt with by a consortium of cities Rome, Berlin, Paris, Rotterdam, Leicester and Prague under the direction of STA Rome. In Prague a main emphasis is placed on possibilities of predicting levels of air-pollution on the basis of modelling (model AIRVIRO) and on the decision-making strategies during traffic management based on the results of model evaluation. For Prague those participating in the solution process are *ÚRM*, *ČHMÚ* and *ÚDI Praha*. Work on the project was started in the year 2000 and will last until the year 2002. In the year 2000 a user demand analysis of information systems and their utilisation, architecture of the system were completed and a work was started on the design of a validation system.

Where is HEAVEN?

THE APPLICATION SITES

The HEAVEN tools will be tested in six major European cities: Berlin, Rome, Paris, Prague, Rotterdam and Leicester



THE PARTNERSHIP

Società Transporti Automobilistici, Rome,
Elsag,
Mizar Automazione,
World Health Organisation,

Senatsverwaltung für Stadtentwicklung Berlin,
IVU Traffic Technologies AG,
European Academy for the Urban Environment,
Beratungs-und Servicegesellschaft Umwelt mbH,

City of Rotterdam,
Environmental Protection Agency (DCMR),
Netherlands Organisation for Applied Scientific Research (TNO),
Goudappel Coffeng,

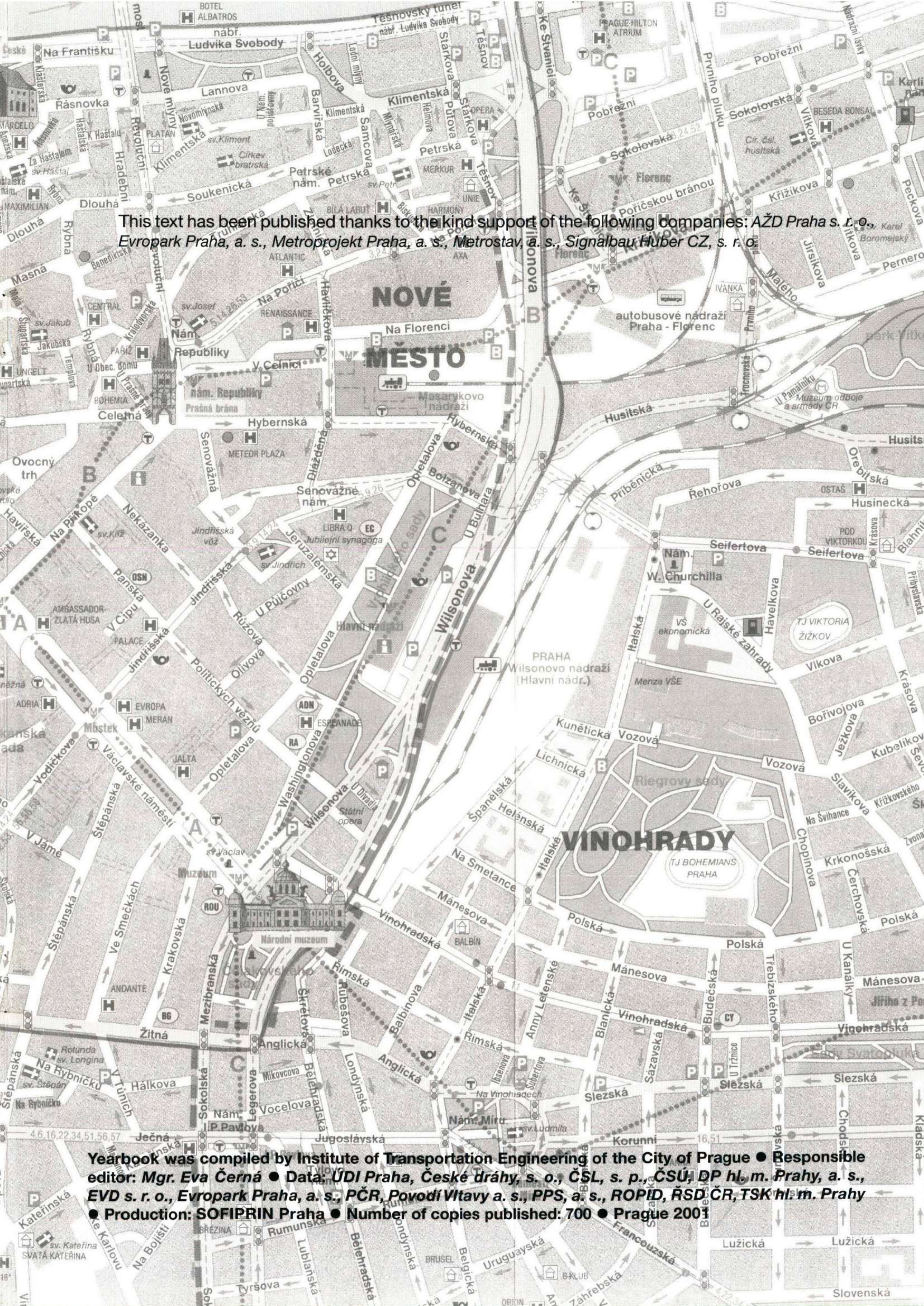
Airparif,
Ville de Paris,
Carte Blanche Conseil,
DREIF/SIER,
MERCUR,

Leicester City Council,
Institute for Transport Studies Leeds,
Swedish Meteorological & Hydrological Institute,

City Development Authority of Prague,
Institute of Transportation Engineering of Prague,
Czech Hydrometeorological Institute.

Project RUBENS - RUE (Rational Use of Energy - Best Practise Guide for Urban Public Transport in European Cities)

A project is part of the program SAVE and its embodiment is the efficient use of energy in public transport. Planned for the years 1999 - 2003 *DP hl. m. Prahy, a. s.* representing Prague participates in this project.



This text has been published thanks to the kind support of the following companies: *AŽD Praha s. r. o., Evropark Praha, a. s., Metroprojekt Praha, a. s., Metrostav, a. s., Signalbau Huber CZ, s. r. o.*

Yearbook was compiled by Institute of Transportation Engineering of the City of Prague ● Responsible editor: *Mgr. Eva Černá* ● Data: *ÚDI Praha, České dráhy, s. o., ČSL, s. p., ČSÚ, DP hl. m. Prahy, a. s., EVD s. r. o., Evropark Praha, a. s., PČR, Povodí Vltavy a. s., PPS, a. s., ROPID, ŘSD ČR, TSK hl. m. Prahy* ● Production: SOFIPRIN Praha ● Number of copies published: 700 ● Prague 2001

INSTITUTE OF TRANSPORTATION ENGINEERING
OF THE CITY OF PRAGUE
ÚSTAV DOPRAVNÍHO INŽENÝRSTVÍ
HLAVNÍHO MĚSTA PRAHY
CZ-110 00 Praha 1, Bolzanova 1
Czech Republic
Tel.: (+420 2) 24 21 10 94
Fax: (+420 2) 24 21 13 80
e-mail: udi@udi.mepnet.cz
http://www.udi-praha.cz