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Evaluation of traffic surveys

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Abbreviations

AADT	Annual average daily traffic
ATC	Automatic traffic counter
HGV	Heavy goods vehicle
HGVT	Heavy goods vehicle with trailer
HV	Heavy vehicles
LCV	Light commercial vehicle
LV	Light vehicles
MGVT	Medium goods vehicle with trailer
O-D	Origin – Destination
ODS	Origin-destination survey
PC	Passenger car
ST	Semi-trailer
WADT	Weekly average daily traffic

1. The questionnaire traffic survey on the border crossings (SK-CZ, CZ-PL, SK-PL)

The main objective of the survey was to perform a 12-hour continuous origin and destination traffic survey (ODS) at following border crossings:

- I/10-I/35 Makov – Bíla, Bumbálka (SK-CZ) – 27.9.2018 (both directions)
- I/11 Svrčinovec – Mosty u Jablunkova (SK-CZ) - 27.9.2018 (both directions)
- D3-S1 Skalité – Zwardoń (SK-PL) - 27.9.2018 (both directions)
- I/59-7 Trstená – Chyzne (SK-PL) -27.9.2018 (both directions)
- I/57-41 Bartultovice-Vysoká – Trzebina (CZ-PL) – 14.5.2019 (direction CZ), 20.5.2019 (direction PL)
- D1-A1 Antošovice/Šilheřovice (CZ-PL) – 17.6.2019 (direction PL), 18.6.2019 (direction CZ)
- I/48-52 Český Těšín – Czieszyn (CZ-PL) – 30.5.2019 (direction PL), 13.6.2019 (direction CZ)

The ODS was conducted by means of stopping vehicles and asking the drivers a predefined set of questions. The survey was performed separately for each driving direction at pre-selected survey sites. Obtained information were recorded in questionnaire sheets, processed and evaluated.

The basis for obtaining relevant inputs for the transport model was the preparation of survey questions. Definition of specific questions was a part of the preparatory phase of the survey and their purpose was to get detailed information about the transport relations in the context of the relevant area by applying the principles of clarity and brevity, which are essential for the communication with drivers and the subsequent recording of data into check sheets.

At the same time, a sever day continuous profile intensity measurement was conducted during the border crossing survey to capture the remaining vehicles not captured by the survey. Measurements were made by mobile automatic counters or permanent counters operated by the road administrators at the same location, where the survey on the border crossing was executed. Profile measurements provided data on the structure of vehicles and weekly traffic development on the measured sections, which was subsequently used to transform the O-D matrix from survey to the annual average daily traffic (AADT).

The outputs of ODS form the data basis on the routing of traffic and composition of traffic flows entering and exiting the Slovakia at respective border crossings to question (estimation of Origin-Destination matrices). Consequently, these data can be used in the development and calibration of the transport model for the study area.

The preparation and performance stages of the traffic survey (questionnaire and profile traffic survey) were followed by the processing of sheets, their analysis and subsequent interpretation of the results for respective border crossings. The following chapter provides information on the methodology of processing and conversion of questionnaire traffic survey results to required outputs.

In order to obtain reliable results of the origin and-destination survey (ODS) and to cover the actual transport relations in the relevant area, it was necessary to deal with the methodology for processing of results even at the time of the preparation of data collection. First of all, it was necessary summarise the information gathered from drivers from respective border crossings, categorise and identify weaknesses (inconsistence of records in check sheets, incorrect records of origins and destinations of traffic, or routing nodes).

Given the level of training of interviewers, it is possible to conclude that from the side of interviewers the level concerning the check sheets correctness and completeness was high. The next step was to proceed

to processing of check sheets into a spreadsheet environment of the Microsoft Excel. This phase was necessary in terms of defining the future automated processing operations and subsequent interpretation of the results.

The table form, which constitutes the Annex 2 (only in the electronic version) includes all summarised information in the form of O-D matrices. Based on these data, charts and tabular comparisons were then compiled in the form of outputs that represent the actual evaluation of the survey.

The preparation and performance stages of the traffic survey (ODS and TS) were followed by the processing of sheets, their analysis and subsequent interpretation of the results for respective border crossings. The following chapter provides information on the methodology of processing and conversion of ODS results to required outputs.

1.1. Methodology for processing of data from ODS

In order to obtain reliable results of the ODS and to cover the actual transport relations in the relevant area, it was necessary to deal with the methodology for processing of results even at the time of the preparation of data collection. First of all, it was necessary summarise the information gathered from drivers from respective border crossings, categorise and identify weaknesses (inconsistence of records in check sheets, incorrect records of origins and destinations of traffic, or routing nodes).

Given the level of training of interviewers, it is possible to conclude that from the side of interviewers the level concerning the check sheets correctness and completeness was high. The next step was to proceed to processing of check sheets into a spreadsheet environment of the Microsoft Excel. This phase was necessary in terms of defining the future automated processing operations and subsequent interpretation of the results.

The table form, which constitutes the Annex 1 and 2 (only in the electronic version) includes all summarised information in the form of O-D matrices. Based on these data, charts and tabular comparisons were then compiled in the form of outputs that represent the actual evaluation of the survey.

1.2. Methodology of conversion from 12 hours to 24 hours AADT

Given the fact that the ODS records represent a random selection from a statistical ensemble of volumes recorded during the manual count, it was necessary as a first step to recalculate the sample for 12-hour O-D matrix. The calculation considered the fact that the structure of the traffic flow in individual hour intervals within the period from 06:00 a.m. to 06:00 p.m. was different. In order to obtain the most reliable estimates possible, hourly coefficients for each vehicle category were calculated within the calculation of the 12-hour O-D matrixes for each border crossing and driving direction within.

The second step was the conversion of 12-hour O-D matrix to 24 hours of the current day. This calculation has been made possible by quantifying the coefficients (Annex 1) for each vehicle category on the basis of the estimation of the share of traffic at the time of the survey in the respective day of the ODS performance. This ratio was estimated from the data from automated traffic counters (hereinafter referred to as ATCs), which continuously recorded data on traffic for 7 consecutive days at each border crossing separately for both driving directions (part of the traffic survey-Annex 3). The result of this calculation is a 24-hour O-D matrix for the terms of survey execution.

In order to obtain relevant input for the development of the traffic model and cost-benefit analysis it was necessary to elaborate O-D matrixes for the AADT. The conversion of the 24-hour O-D matrix of the respective day to the weekly average was carried out as the third step. Coefficients of the conversion to the weekly average of daily traffic (hereinafter referred to as WADT) for each vehicle category were estimated on the basis of the data from ATCs. The final AADT matrix is thus representing a product of WADT matrix and the corresponding monthly coefficient of traffic variation (September) for the section

with the economic nature of traffic, which is estimated in Methodology of the execution and evaluation of the national traffic census 2015 in Slovakia and TP189 in Czech.

A data used in conversion procedure is presented in the Annex 1 (only in the electronic version).

This procedure resulted in reliable data, using which it is possible to elaborate the final evaluation of the questionnaire traffic survey, in particular the calculation of the O-D matrixes necessary for the traffic modelling, or the cost-benefit analysis of the investment project

The calculation process considered all the circumstances affecting the correct results, for example, the date of the traffic survey, nature or function of traffic at different border crossings.

The analysis of the survey results included the calculation of the survey error. The extent of the error is conditional to the size of sample obtained within the survey, the sample proportion to the daily volume and the level of the area zoning level.

The error has been calculated on the basis of the general formula authored by Dr. M. Krišťák for the area of random selections and statistical estimates within traffic surveys, which was mathematically adjusted for the calculating purpose into the following form:

$$\sigma = \frac{\sqrt{\left(1 - {}^{1}/_{OD_{ij}}\right) * \left({}^{1}/_{OD_{ij}}\right)^{-1}}}{[(n)^{-1} - (N)^{-1}]^{-1/2}}$$

Where:

- σ = error (deviation),
- OD_{ij} = number of origins and destinations in the defined territory (sum of the number of initial origins and final destinations inside the zone and of the number of transition origins and destinations)
- n = sample (number of vehicles per 12 hours within questionnaire traffic survey),
- N = total number (number of vehicles per 24 hours within the profile traffic survey)

Following table summarises values of errors of the performed ODS for each border crossing and in total.

Table 1 Error of O-D survey

Border crossing	Sample - number of vehicles/12 h	Number of vehicles/12 h	Number of vehicles/24 h	Number of zones	Error of the survey 12h	Error of the survey 24 h
I/10-I/35 Makov – Bíla Bumbálka	915	1105	1603	43	0.089	0.140
I/11 Svrčinovec – Mosty u Jablunkova	1449	2494	3938	43	0.110	0.135
D3-S1 Skalité – Zwardoń	594	696	1185	43	0.102	0.188
I/59-7 Trstená - Chyzne	737	871	1271	43	0.094	0.155
I/57-41 Bartulovice-Vysoká - Trzebina	356	889	1200	43	0.266	0.288
D1-A1 Bohumín – Gorzycki Laziska	2348	5902	8343	43	0.104	0.113
I/48-52 Český Těšín - Cieszyn	1517	2517	4001	43	0.105	0.131
Total	7916	14474	21541	43	0.049	0.058

The values listed above it results that the extent of the survey error in the detail of surveyed origins and destinations for the 12-hour matrix reaches 4.9% and 5.8% for the 24-hour matrix

1.3. Counting sites on SK-CZ, SK-PL, CZ-PL border crossings

The list of border crossings where was executed traffic survey:

1. SK/CZ, I/10-I/35 Makov – Bíla Bumbálka,
2. SK/CZ, I/11 Svrčinovec – Mosty u Jablunkova,
3. SK/PL, D3-S1 Skalité – Zwardoń,
4. SK/PL, I/59-7 Trstená – Chyzne,
5. CZ/PL I/57-41 Bartultovice-Vysoká – Trzebina,
6. CZ/PL D1-A1 Antošovice/Šilheřovice,
7. CZ/PL I/48-52 Český Těšín – Czieszyn.

1.3.1. Border crossing Makov – Bíla Bumbálka

Border crossing Makov – Velké Karlovice – Bílá Bumbálka represents an international road border crossing between the Slovak Republic and the Czech Republic with continuous traffic for road passenger and freight traffic without restrictions. Makov border crossing is one of the busiest border crossings in the Slovak Republic.

During ODS 416 records in total were realized at this border crossing in direction SK-CZ. The structure of stopped vehicles according to the selected categorization is shown in Figure 1.

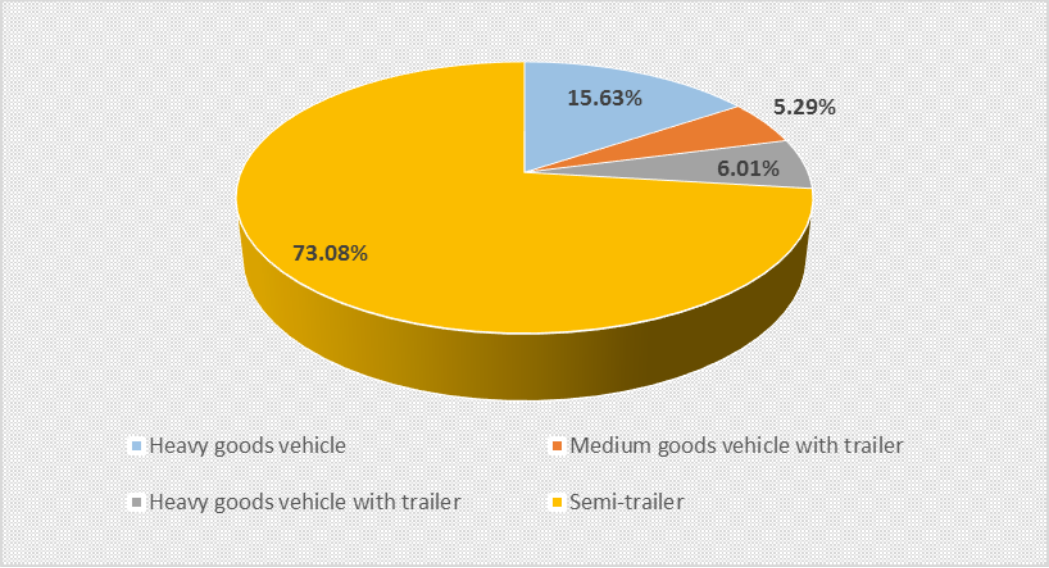

Figure 1 Composition of recorded traffic flow: Makov site, SK-CZ

The share of semi-trailers recorded during ODS represented almost three quarters of the total sample and the rest were other categories of vehicles.

In the driving direction CZ-SK, 499 interviewed vehicles were recorded and their structure is shown in Figure 2.

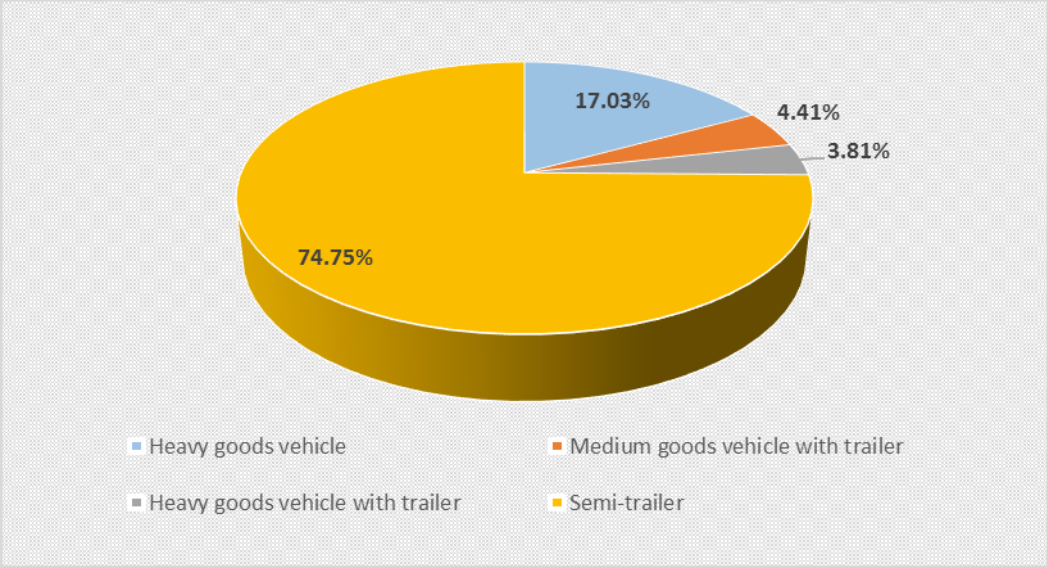

Figure 2 Composition of recorded traffic flow: Makov site, CZ-SK

The graph shows that the biggest number of questioned vehicles were semi-trailers, which represented about 74.75 % of all stopped vehicles. The rest goods vehicles – about 26.25 % of stopped vehicles.

The number and share of successfully interviewed drivers on their total number recorded by manual count in distribution by both driving directions is in Table 2.

Table 2 Number of interviewed participants: Makov – Bíla Bumbálka

Border crossing		Number of actual vehicles						Share of sample
	Direction	Category of vehicle	Profile traffic survey	Share of sample	Category of vehicle	Questionnaire traffic survey	Share of sample	
Makov - Bíla Bumbálka	SK-CZ	**Total**	**528**	**100 %**	**Total**	**416**	**100 %**	**78.79 %**
		HGV	87	16.48 %	HGV	65	15.6 %	
		MGVT+HGV+ST	441	83.52 %	MGVT	22	5.3 %	
					HGVT	25	6.0 %	
					ST	304	73.1 %	
	CZ-SK	**Total**	**577**	**100 %**	**Total**	**499**	**100 %**	**86.48 %**
		HGV	107	18.54 %	HGV	85	17.0 %	
		MGVT+HGV+ST	470	81.46 %	MGVT	22	4.4 %	
					HGVT	19	3.8 %	
					ST	373	74.8 %	

The share of successfully interviewed drivers of goods vehicles at the border crossing Makov for both driving directions achieved about 82.81 %.

Detailed route directions for the questions of transport source and destination (from whence to where the vehicle went) is recorded in OD matrix, that is a part of Annex 2.

During the survey on the border crossing Makov was performed profile 7-day continuous measuring by the automatic traffic counter Sierzega SR4. There were used 2 devices for both lanes independently during the survey. Mobile automatic counters recorded traffic volume that were stopped during the survey, remaining traffic flow out of the survey and also vehicles from the monitored sample that was stopped during the survey. Location of the counting site and automatic traffic counter is presented in Figure 3.

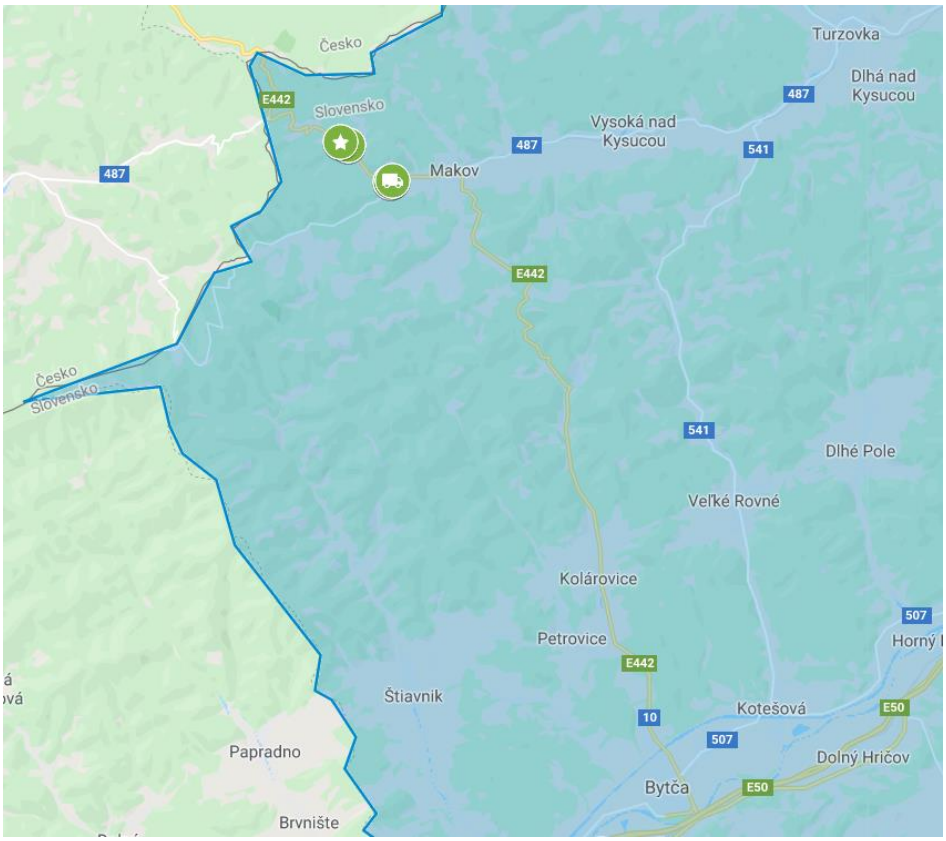

Figure 3 Localization of border crossing traffic survey and profile survey in Makov

Automatic traffic counter recorded the weekly development of traffic volume on the border crossing Makov during the day of the survey and week of the border crossing survey performing. The results of the weekly measurements from border crossing Makov are in Table 3.

Table 3 The results of the profile traffic survey – counting site Makov – Bíla Bumbálka

Vehicle category	PC		LCV		MGV		HGV		ST	
Direction	SK	CZ	SK	CZ	SK	CZ	SK	CZ	SK	CZ
Monday	1466	1381	210	134	62	42	129	73	723	704
Tuesday	1338	1200	262	159	59	39	132	86	686	633
Wednesday	1678	1246	299	188	58	70	149	88	615	688
Thursday	**3307**	**1478**	**395**	**211**	**84**	**62**	**162**	**112**	**712**	**617**
Friday	2288	1922	299	191	57	49	135	78	474	536
Saturday	1520	1392	160	93	14	14	32	39	120	149
Sunday	1595	2290	149	145	10	27	21	40	53	141
WADT - total	3451		424		101		190		987	
Share of freight transport	33.03 %									
Share of heavy freight transport	22.84 %									

During the day of the survey on the border crossing Makov was recorded intensity 7 140 veh./24h. The weekly average daily traffic from measured data is 5 153 veh./24 h, while the share of freight transport was 33.03 % and share of heavy freight transport 22.84 % from whole traffic volume.

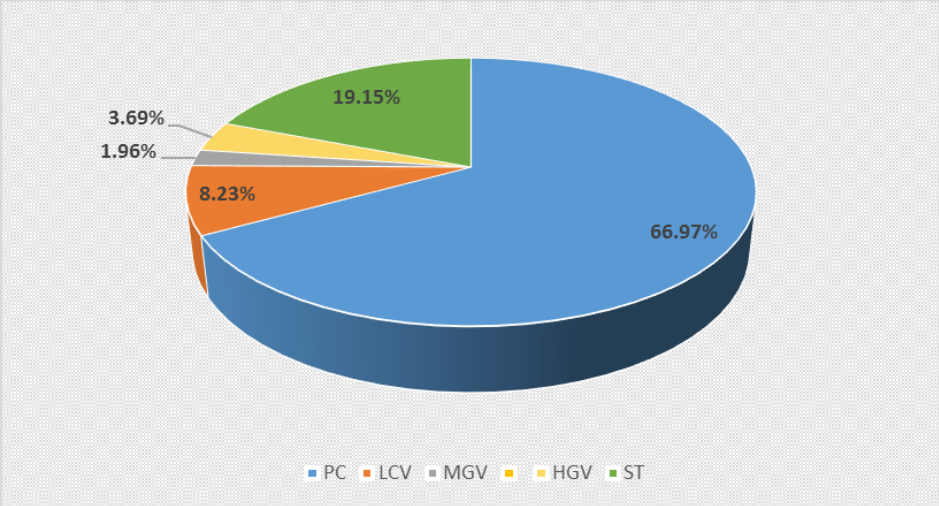

Figure 4 Structure of traffic flow during profile survey in Makov (WADT)

Passenger cars were around 67 % of traffic flow on the border crossing Makov. Captured sample of vehicles during the survey on border crossing Makov was 22.84 % of total traffic flow.

1.3.2. Border crossing Svrčinovec – Mosty u Jablunkova

Border crossing Svrčinovec – Mosty u Jablunkova represents an international road border crossing between the Slovak Republic and the Czech Republic with continuous traffic for road passenger and freight traffic without restrictions.

It is located on access road I/11 (European route E75).

Regarding approved international basic and aggregated TEN-T corridors, international roads crossing the Slovak Republic and planned network of motorways and expressways (outlook for R5), Svrčinovec border crossing is one of the main and the most busiest border crossings in Slovakia.

Within ODS there were realized in total 666 records in direction SK-CZ. The structure of successfully interviewed drivers according to chosen categorization is shown in Figure 5.

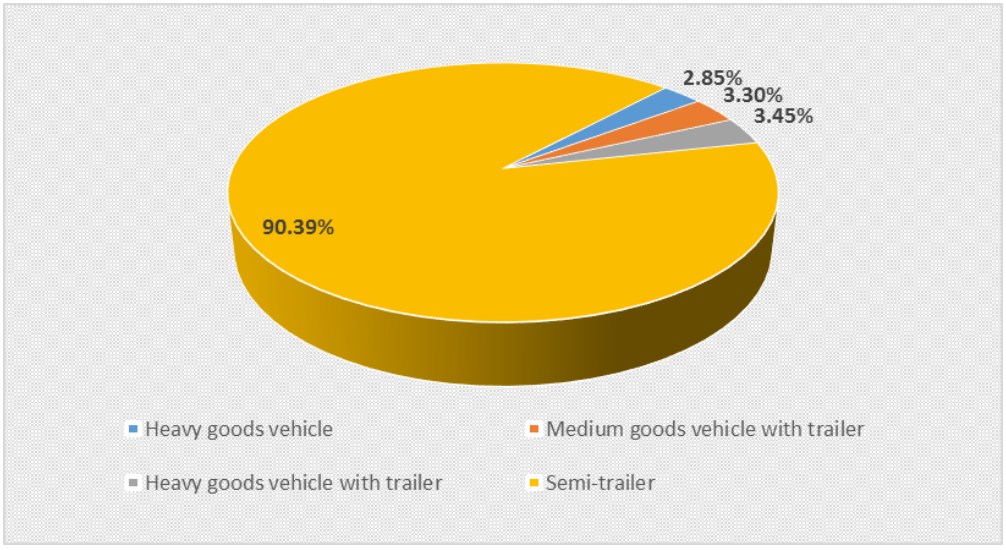

Figure 5 Composition of recorded traffic flow: Svrčinovec site, SK-CZ

In the driving direction to the Czech Republic were interviewed more than 90 % of semi-trailers, 10 % of records were represented by other heavy goods vehicle drivers.

In the driving direction CZ-SK were interviewed 783 stopped vehicles. The share of each category is shown in Figure 6.

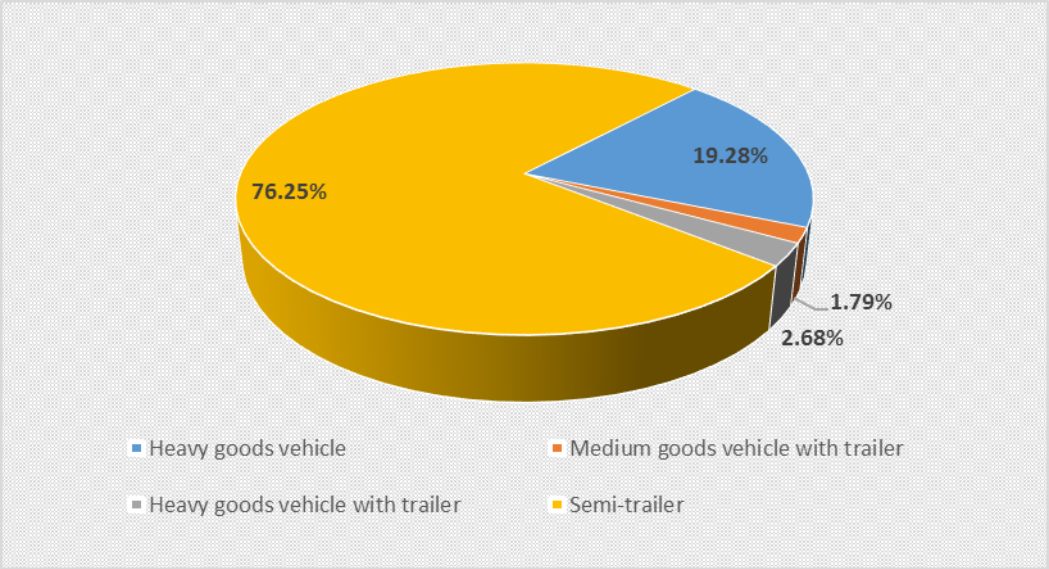

Figure 6 Composition of recorded traffic flow: Svrčinovec site, CZ-SK

The graph shows that in driving direction to Slovakia the share of semi-trailer drivers participating in ODS was around 76 %. The other heavy goods vehicle drivers represented almost 24 %.

The number and share of successfully interviewed drivers in their total number recorded by manual count in distribution by both driving directions is shown in Table 4.

Table 4 Number of interviewed participants: Svrčinovec – Mosty u Jablunkova

Border crossing		Number of actual vehicles						Share of sample
	Direction	Category of vehicle	Profile traffic survey	Share of sample	Category of vehicle	Questionnaire traffic survey	Share of sample	
Svrčinovec - Mosty u Jablunkova	SK-CZ	**Total**	**1276**	**100 %**	**Total**	**666**	**100 %**	**52.19 %**
		HGV	86	6.74 %	HGV	19	2.85 %	
		MGVT+HGV+ST	1190	93.26 %	MGVT	22	3.30 %	
					HGVT	23	3.45 %	
					ST	602	90.39 %	
	CZ-SK	**Total**	**1218**	**100 %**	**Total**	**783**	**100 %**	**64.29 %**
		HGV	190	15.60 %	HGV	151	19.28 %	
		MGVT+HGV+ST	1028	84.40 %	MGVT	14	1.79 %	
					HGVT	21	2.68 %	
					ST	**597**	**76.25 %**	

At the Svrčinovec border crossing the share of interviewed drivers in total number of vehicles crossing the road represented 52.19 % in direction to the Czech Republic, and 64.29 % in direction to Slovakia.

Detailed route directions for the questions of transport source and destination (from whence to where the vehicle went) is recorded in OD matrix, that is a part of Annex 2.

On the border crossing Svrčinovec were placed 2 mobile automatic traffic counters for both lanes independently during the survey. Mobile automatic counters recorded traffic volume that were stopped during the survey, remaining traffic flow out of the survey and also vehicles from the monitored sample

that was stopped during the survey. Location of the counting site and automatic traffic counter is presented in Figure 7.

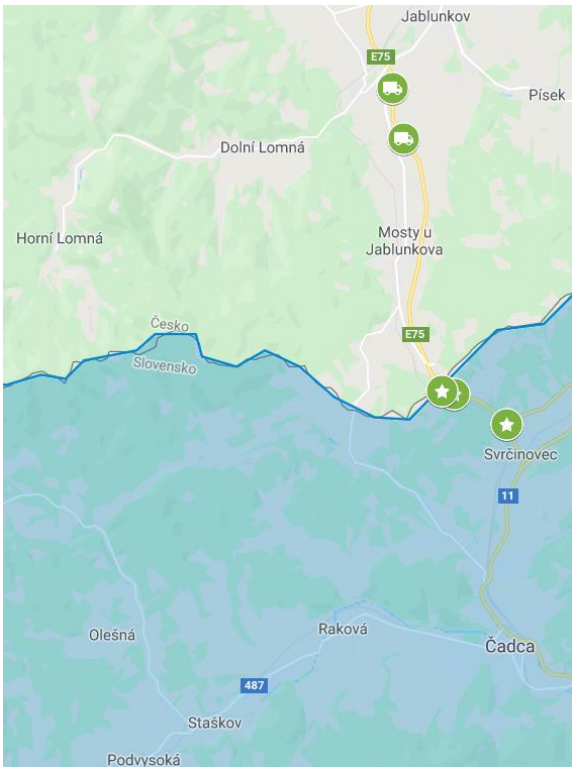

Figure 7 Localization of border crossing traffic survey and profile survey in Svrčinovec

Automatic traffic counter recorded the weekly development of traffic volume on the border crossing Svrčinovec during the day of the survey and week of the border crossing survey performing. The results of the weekly measurements from border crossing Svrčinovec are in Table 5.

Table 5 The results of the profile traffic survey - counting site Svrčinovec - Mosty u Jablunkova

Vehicle category	PC		LCV		MGV		HGV		ST	
Direction	SK	CZ	SK	CZ	SK	CZ	SK	CZ	SK	CZ
Monday	1777	2327	120	276	81	147	198	87	1970	1461
Tuesday	1524	1831	82	281	85	155	171	94	1901	1834
Wednesday	1675	1850	114	347	122	160	201	82	1842	1768
Thursday	**3010**	**2602**	**185**	**348**	**159**	**171**	**284**	**109**	**1770**	**1775**
Friday	2658	2283	113	279	127	136	190	92	1463	1814
Saturday	2749	2226	96	135	84	66	119	23	599	751
Sunday	2027	3037	93	137	72	34	106	7	305	218
WADT - total	4528		384		239		263		2794	
Share of freight transport	44.83 %									
Share of heavy freight transport	37.24 %									

During the day of the survey on the border crossing Svrčinovec was recorded intensity 10 413 veh./24h. The weekly average daily traffic from measured data is 8 208 veh./24 h, while the share of freight transport was 44.83 % and share of heavy freight transport 37.24 % from whole traffic volume.

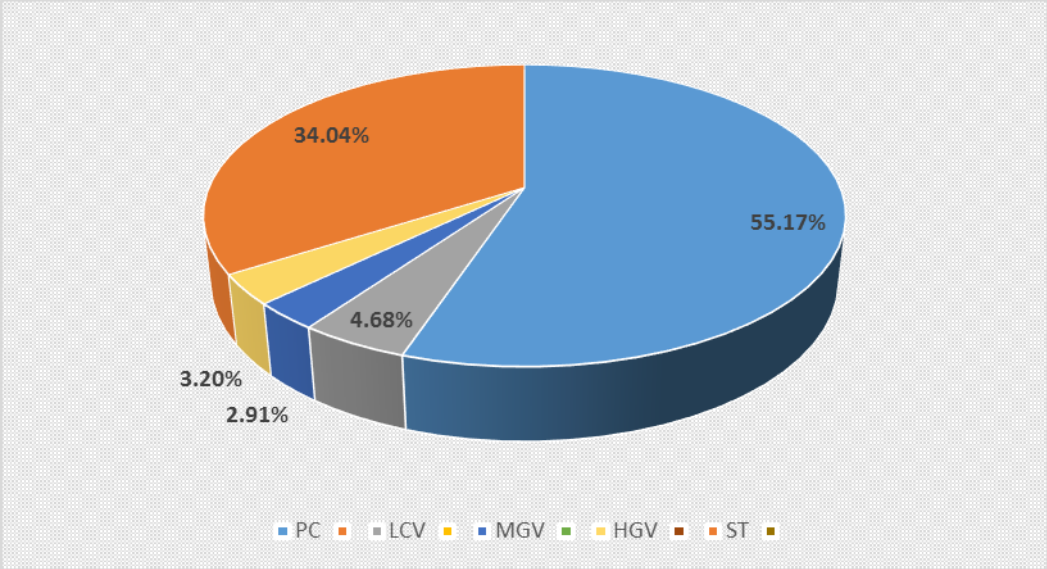

Figure 8 Structure of traffic flow during profile survey in Svrčinovec (WADT)

Passenger cars were around 55 % of traffic flow on the border crossing Svrčinovec. Captured sample of vehicles during the survey on border crossing Svrčinovec was 34.24 % of total traffic flow.

1.3.3. Border crossing Skalité - Zwardoń

Border crossing Skalité – Zwardoň represents an international road border crossing with continuous traffic for road passenger and freight traffic without restriction between the Slovak Republic and Poland. It is located on access road D3 that was opened in 2017 and represents one of the main road border crossings in Slovakia.

During ODS were realized total 360 records - answers from the drivers in direction SK-PL. The structure of stopped vehicles according to the selected categorization is shown in Figure 9.

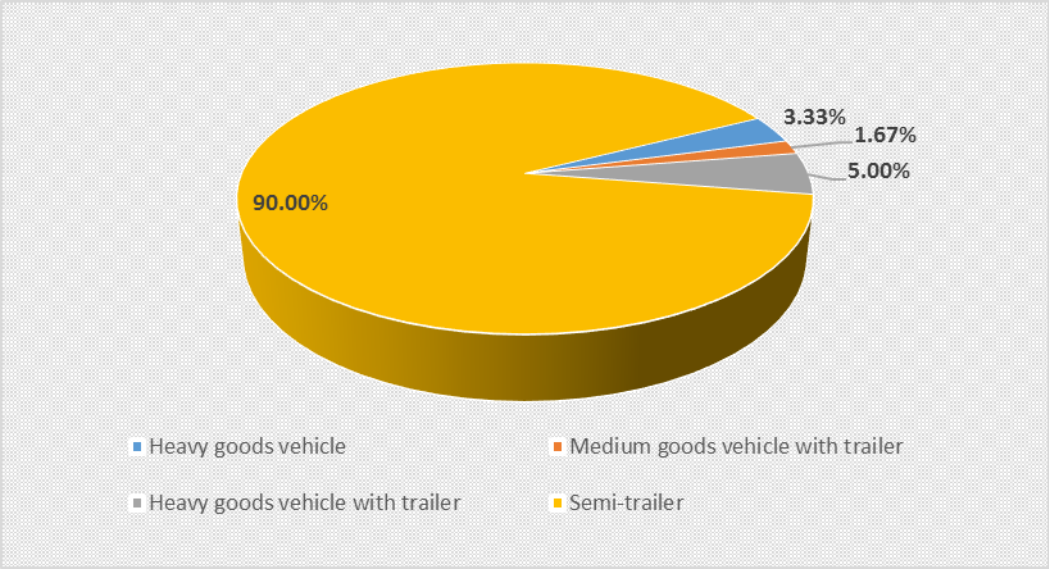

Figure 9 Composition of recorded traffic flow: Skalité site, SK-PL

The share of interviewed semi-trailer drivers in direction to Poland was represented by 90 % of stopped vehicles, the rest represented other monitored goods vehicles.

In direction PL-SK there were 234 successfully interviewed drivers of freight vehicles. The share of each category is shown in Figure 10.

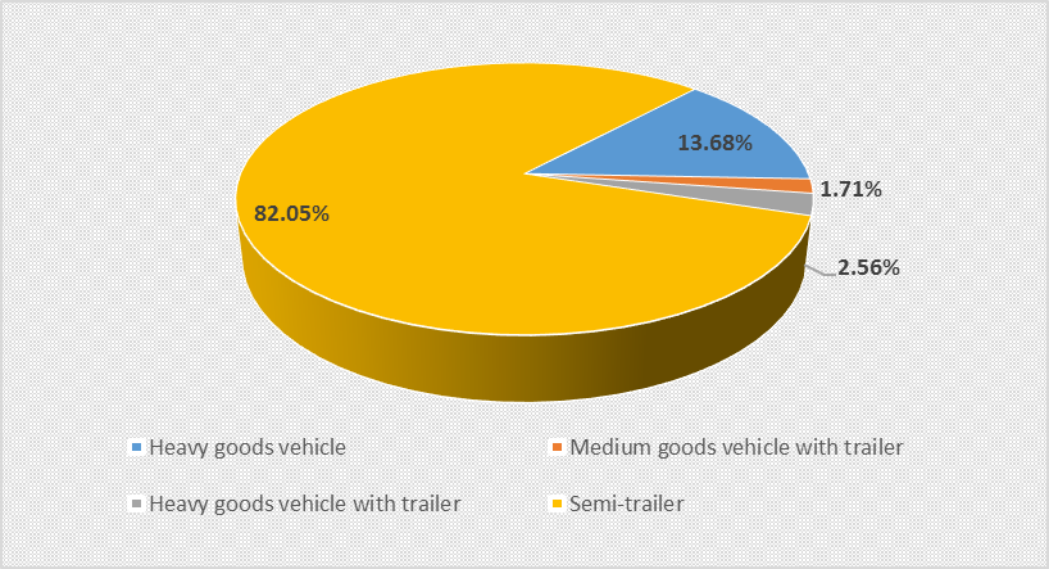

Figure 10 Composition of recorded traffic flow: Skalité site, PL-SK

The graph shows that about 82 % of semi-trailer drivers were stopped and interviewed in direction to Slovakia. The remaining share is represented mainly by heavy goods vehicles, followed by medium and heavy goods vehicles with trailer.

The number and share of successfully interviewed drivers in their total number recorded by manual count in distribution by both driving directions is shown in Table 6.

Table 6 Number of interviewed participants: Skalité - Zwardoń

Border crossing		Number of actual vehicles						Share of sample
	Direction	Category of vehicle	Profile traffic survey	Share of sample	Category of vehicle	Questionnaire traffic survey	Share of sample	
Skalité - Zwardoń	SK-PL	**Total**	**420**	**100 %**	**Total**	**360**	**100 %**	**85.71 %**
		HGV	28	6.37 %	HGV	12	3.33 %	
		MGVT+HGV+ST	392	93.33 %	MGVT	6	1.67 %	
					HGVT	18	5.00 %	
					ST	324	90.00 %	
	PL-SK	**Total**	**276**	**100 %**	**Total**	**234**	**100 %**	**84.78 %**
		HGV	44	15.94 %	HGV	32	13.65 %	
		MGVT+HGV+ST	232	84.06 %	MGVT	4	1.71 %	
					HGVT	6	2.56 %	
					ST	192	82.05 %	

At the Skalité border crossing, the share of interviewed drivers in total number of vehicles crossing the road represented 85.71 % in direction to Poland, and almost 84.78 % in direction do Slovakia.

Detailed route directions for the questions of transport source and destination (from whence to where the vehicle went) is recorded in OD matrix, that is a part of Annex 2.

On the border crossing Skalité were placed 2 mobile automatic traffic counters for both lanes independently during the survey. Mobile automatic counters recorded traffic volume that were stopped during the survey, remaining traffic flow out of the survey and also vehicles from the monitored sample

that was stopped during the survey. Location of the counting site and automatic traffic counter is presented in Figure 11

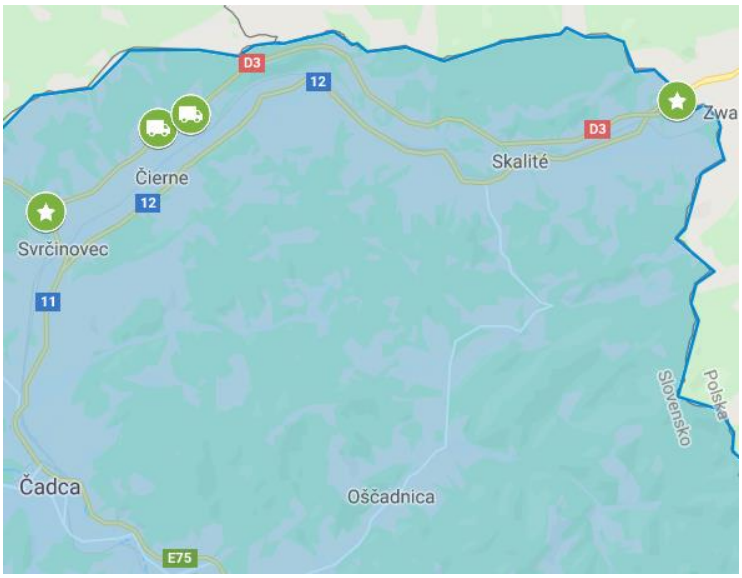

Figure 11 Localization of border crossing traffic survey and profile survey in Skalité

Automatic traffic counter recorded the weekly development of traffic volume on the border crossing Skalité during the day of the survey and week of the border crossing survey performing. The results of the weekly measurements from border crossing Skalité are in Table 7.

Table 7 The results of the profile traffic survey – counting site Skalité - Zwardoń

Vehicle category	PC		LCV		MGV		HGV		ST	
Direction	SK	CZ	SK	CZ	SK	CZ	SK	CZ	SK	CZ
Monday	365	538	26	53	81	68	83	46	638	344
Tuesday	313	523	45	58	82	80	78	49	521	540
Wednesday	290	495	45	39	120	100	83	79	490	530
Thursday	**327**	**602**	**52**	**68**	**89**	**112**	**90**	**55**	**399**	**641**
Friday	395	802	49	48	79	114	63	49	284	646
Saturday	475	679	19	38	25	42	17	37	102	261
Sunday	594	571	35	34	52	24	19	12	135	61
WADT - total	1006		97		164		118		810	
Share of freight transport	54.17 %									
Share of heavy freight transport	42.28 %									

During the day of the survey on the border crossing Skalité was recorded intensity 2 435 veh./24h. The weekly average daily traffic from measured data is 2 195 veh./24 h, while the share of freight transport was 54.17 % and share of heavy freight transport 42.28 % from whole traffic volume.

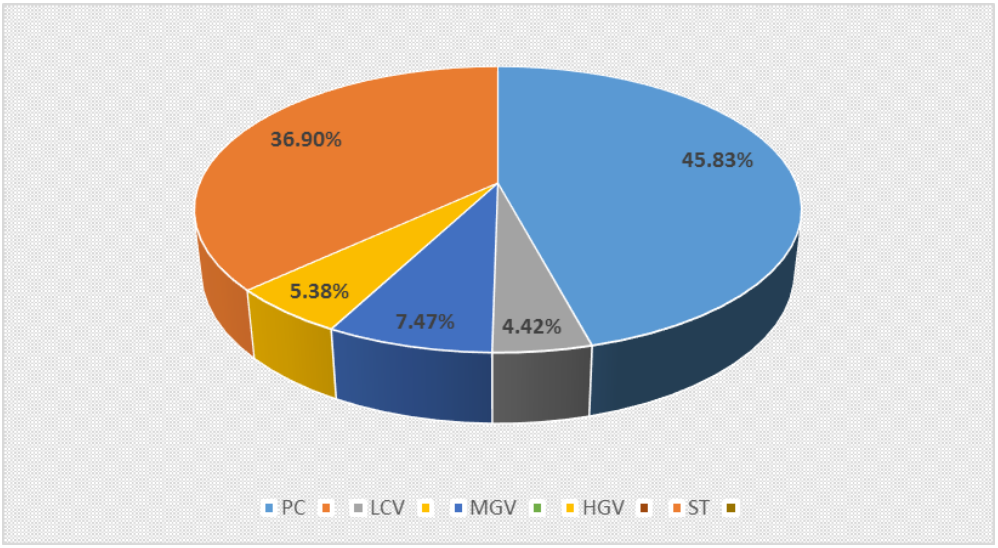

Figure 12 Structure of traffic flow during profile survey in Skalité (WADT)

Passenger cars were around 46 % of traffic flow on the border crossing Skalité. Captured sample of vehicles during the survey on border crossing Skalité was 42.28 % of total traffic flow.

The utilization of border crossing Skalité for international transport is very low, because of missing section of S1 road in Poland between Milówka and Zywiec in direction to Bielsko-Biala.

1.3.4. Border crossing Trstená - Chyzne

Border crossing Trstená – Chyžné represents an international road border crossing- with continuous traffic for passenger road and freight road transport with no restrictions. The border cross is situated on the driveway I/59 (European route E77).

In the direction to Poland during the survey total of 478 responses were registered. The structure of stopped vehicles according to the chosen categorization is given in Figure 13.

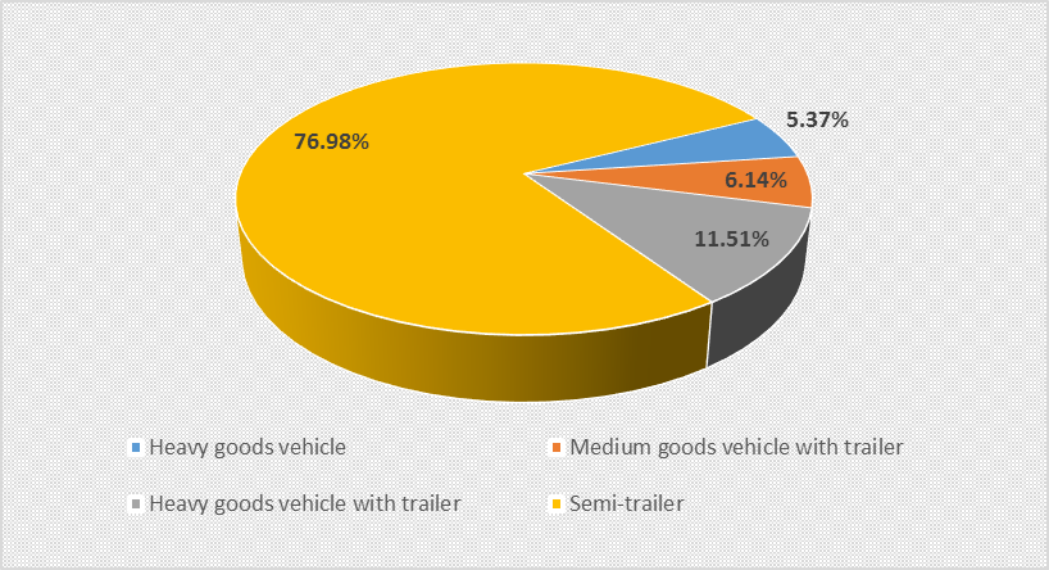

Figure 13 Composition of recorded traffic flow: Trstená site, SK-PL

At the border crossing Trstená (in the direction to Poland) almost 77 % of surveyed vehicles were semi-trailers. Heavy goods vehicles with trailer were the second most numerous category with a share of about

11 %. On the next place there were medium goods vehicles with trailer with a share of 6 % and rest of vehicles was formed by heavy goods vehicles- 5 %.

In the direction to Slovakia, 393 vehicles were recorded. The share of vehicles is shown in the Figure 14.

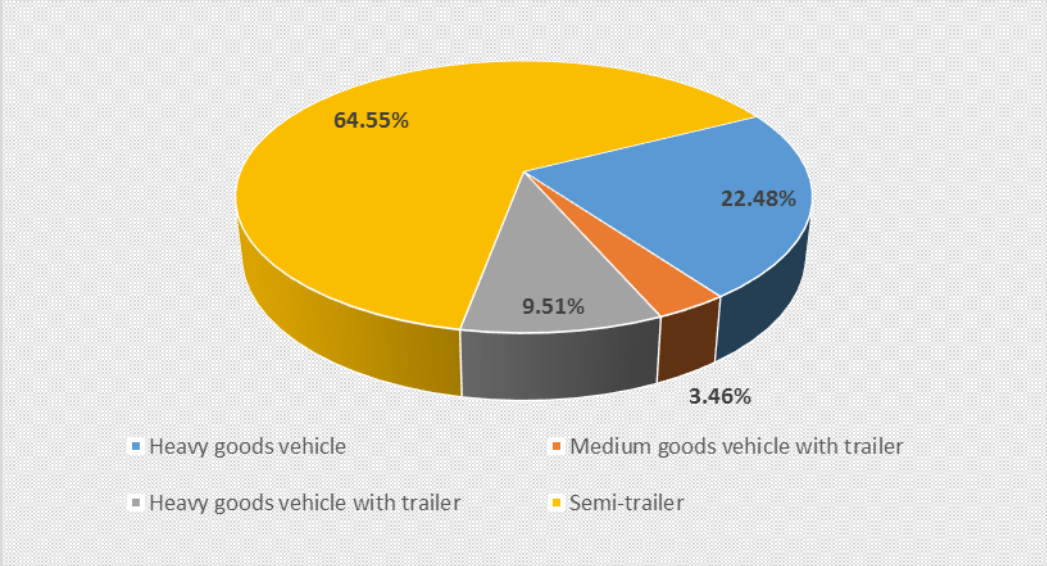

Figure 14 Composition of recorded traffic flow: Trstená site, PL-SK

Composition of stopped vehicles says that more than 64 % of surveyed drivers were drivers of semi-trailers. More than 22 % of the vehicles were heavy goods vehicles.

The number and share of successfully questioned drivers on their total number (reported by manual survey) in both driving directions is shown in Table 8.

Table 8 Number of interviewed participants: Trstená - Chyzne

Border crossing		Number of actual vehicles						Share of sample
	Direction	Category of vehicle	Profile traffic survey	Share of sample	Category of vehicle	Questionnaire traffic survey	Share of sample	
Trstená - Chyzne	SK-PL	**Total**	**478**	**100 %**	**Total**	**391**	**100 %**	**81.80 %**
		HGV	39	8.16 %	HGV	21	5.37 %	
		MGVT+HGV+ST	439	91.84 %	MGVT	24	6.14 %	
					HGVT	45	11.51 %	
					ST	301	76.98 %	
	PL-SK	**Total**	**393**	**100 %**	**Total**	**347**	**100 %**	**88.30 %**
		HGV	87	22.14 %	HGV	78	22.48 %	
		MGVT+HGV+ST	306	77.86 %	MGVT	12	3.46 %	
					HGVT	33	9.51 %	
					ST	224	64.55 %	

From the total number of vehicles, that passed the profile of the road in the direction to Poland, were involved 81.80 % of the vehicles in survey and in direction to Slovakia 88.30 %.

Detailed route directions for the questions of transport source and destination (from whence to where the vehicle went) is recorded in OD matrix, that is a part of Annex 2.

On the border crossing Trstená were placed 2 mobile automatic traffic counters for both lanes independently during the survey. Mobile automatic counters recorded traffic volume that were stopped

during the survey, remaining traffic flow out of the survey and also vehicles from the monitored sample that was stopped during the survey. Location of the counting site and automatic traffic counter is presented in Figure 15.

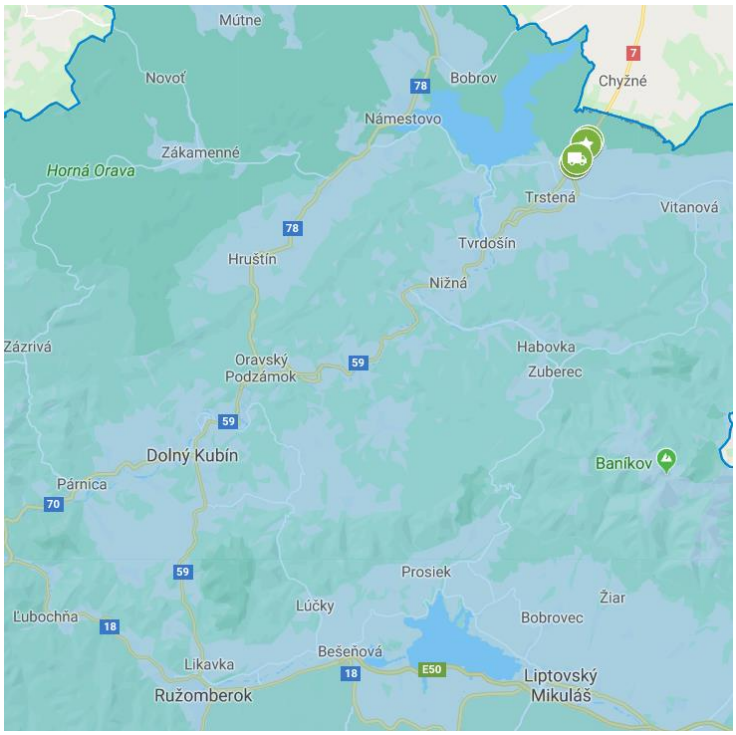

Figure 15 Localization of border crossing traffic survey and profile survey in Trstená

Automatic traffic counter recorded the weekly development of traffic volume on the border crossing Trstená during the day of the survey and week of the border crossing survey performing. The results of the weekly measurements from border crossing Trstená are in Table 9.

Table 9 The results of the profile traffic survey - counting site Trstená - Chyzne

Vehicle category	PC		LCV		MGV		HGV		ST	
Direction	SK	CZ	SK	CZ	SK	CZ	SK	CZ	SK	CZ
Monday	1281	1520	83	92	70	139	163	51	793	442
Tuesday	989	1021	112	114	49	123	108	35	602	494
Wednesday	1754	1873	125	150	52	135	140	46	533	603
Thursday	**1170**	**1510**	**122**	**129**	**74**	**154**	**129**	**46**	**476**	**620**
Friday	1388	1994	89	133	47	160	83	37	327	722
Saturday	1542	1894	24	76	12	53	36	11	131	321
Sunday	1826	1562	25	43	18	35	33	12	173	69
WADT - total	3050		199		170		143		913	
Share of freight transport	31.84%									
Share of heavy freight transport	23.60%									

During the day of the survey on the border crossing Trstená was recorded intensity 4 430 veh./24h. The weekly average daily traffic from measured data is 4 475 veh./24 h, while the share of freight transport was 31.84% and share of heavy freight transport 23.60 % from whole traffic volume.

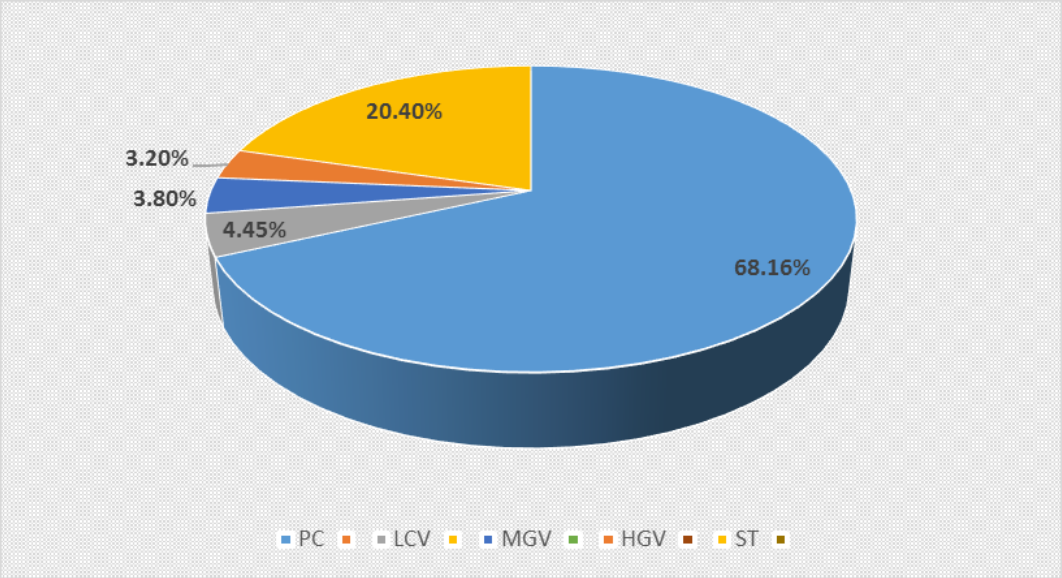

Figure 16 Structure of traffic flow during profile survey in Trstená (WADT)

Passenger cars were around 68 % of traffic flow on the border crossing Trstená. Captured sample of vehicles during the survey on border crossing Trstená was 23.60 % of total traffic flow.

1.3.5. Border crossing Bartultovice-Vysoká - Trzebina

The border crossing Vysoká-Bartultovice presents the international road border crossing between Czech republic and Poland. It is located on the I/57 (first class road), which is one of the main roads in the eastern part of the Czech Republic. It continues abroad at both ends (Poland respectively Slovakia). It is also often used as a junction of the entrance ramp of the motorway near Olomouc or Fulnek.

In the direction to Poland during the survey total of 186 responses were registered. The structure of stopped vehicles according to the chosen categorization is given in Figure 17.

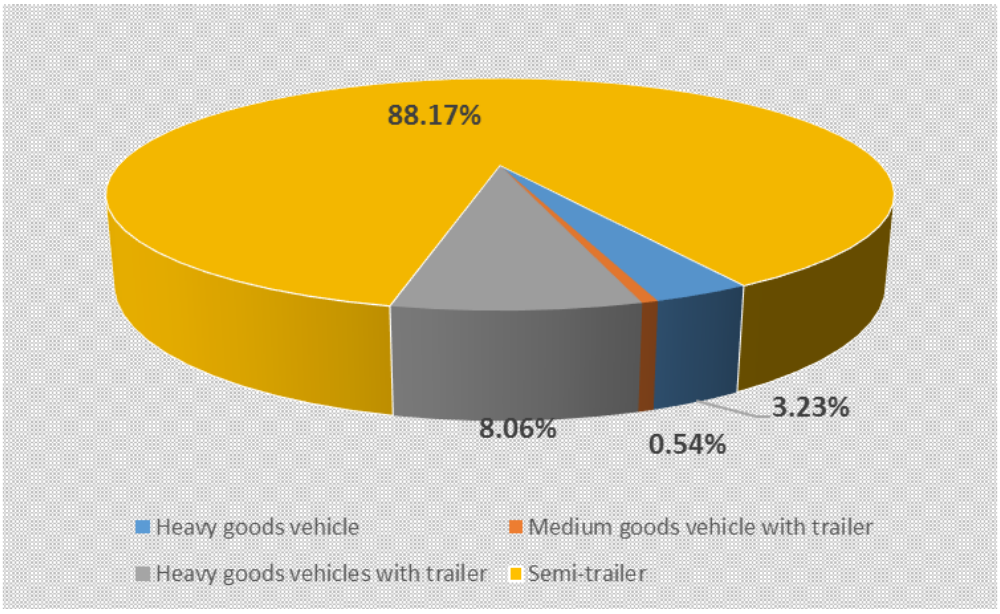

Figure 17 Composition of recorded traffic flow: Bartultovice-Vysoká site, CZ-PL

At the border crossing Vysoká (in the direction to Poland) almost 88 % of surveyed vehicles were semi-trailers. Heavy goods vehicles with trailer were the second most numerous category with a share of about

8 %. On the next place there were heavy goods vehicles a share of 3 % and rest of vehicles was formed by medium goods vehicles with trailer 1 %.

In the direction to Czech Republic, 170 vehicles were recorded. The share of vehicles is shown in the Figure 18.

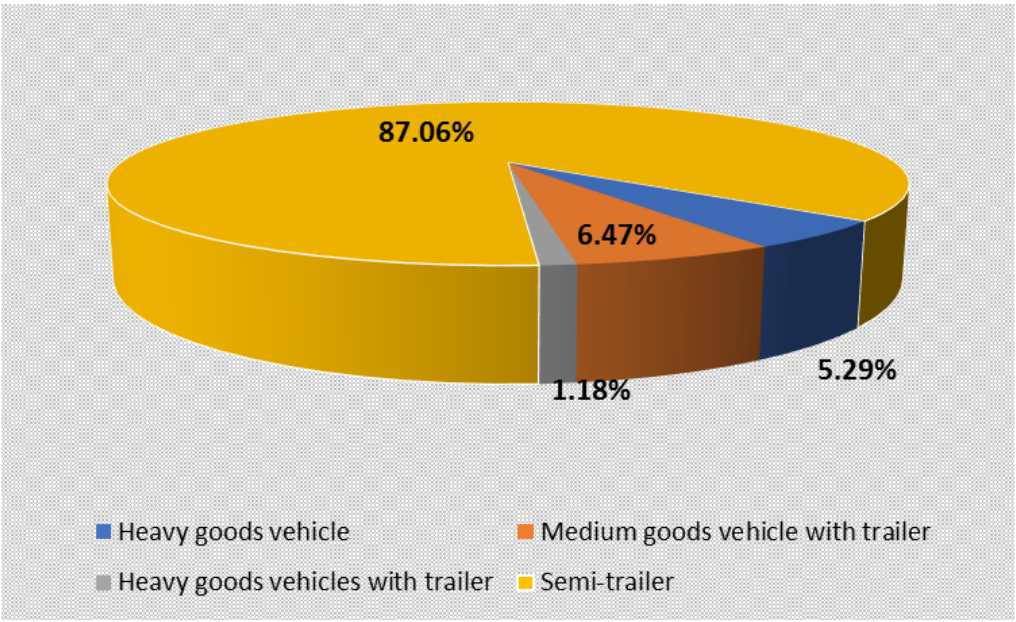

Figure 18 Composition of recorded traffic flow: Bartultovice-Vysoká site, PL-CZ

At the border crossing Vysoká (in the direction to Czech Republic) almost 87 % of surveyed vehicles were semi-trailers. Medium goods vehicles with trailer were the second most numerous category with a share of about 7 %. On the next place there were heavy goods vehicles a share of 5 % and rest of vehicles was formed by heavy goods vehicles with trailer 1 %.

The number and share of successfully questioned drivers on their total number (reported by manual survey) in both driving directions is shown in Table 10.

Table 10 Number of interviewed participants: Bartultovice-Vysoká - Trzebina

Border crossing		Number of actual vehicles						Share of sample
	Direction	Category of vehicle	Profile traffic survey	Share of sample	Category of vehicle	Questionnaire traffic survey	Share of sample	
Bartultovice-Vysoká - Trzebina	CZ-PL	**Total**	**301**	**100 %**	**Total**	**186**	**100 %**	**61.79 %**
		HGV	12	3.99 %	HGV	6	3.23 %	
		MGVT+HGV+ST	289	96.01 %	MGVT	1	0.54 %	
					HGVT	15	8.06 %	
					ST	164	88.17 %	
	PL-CZ	**Total**	**588**	**100 %**	**Total**	**170**	**100 %**	**28.91 %**
		HGV	27	4.59 %	HGV	9	5.29 %	
		MGVT+HGV+ST	561	95.41 %	MGVT	11	6.47%	
					HGVT	2	1.18 %	
					ST	148	87.06 %	

From the total number of vehicles, that passed the profile of the road in the direction to Poland, were involved 61.79 % of the vehicles in survey and in direction to the Czech republic 28.91 %.

Detailed route directions for the questions of transport source and destination (from whence to where the vehicle went) is recorded in OD matrix, that is a part of Annex 2.

On the border crossing Vysoká were placed 2 mobile automatic traffic counters for both lanes independently during the survey. Mobile automatic counters recorded traffic volume that were stopped during the survey, remaining traffic flow out of the survey and also vehicles from the monitored sample that was stopped during the survey. Location of the counting site and automatic traffic counter is presented in Figure 19.

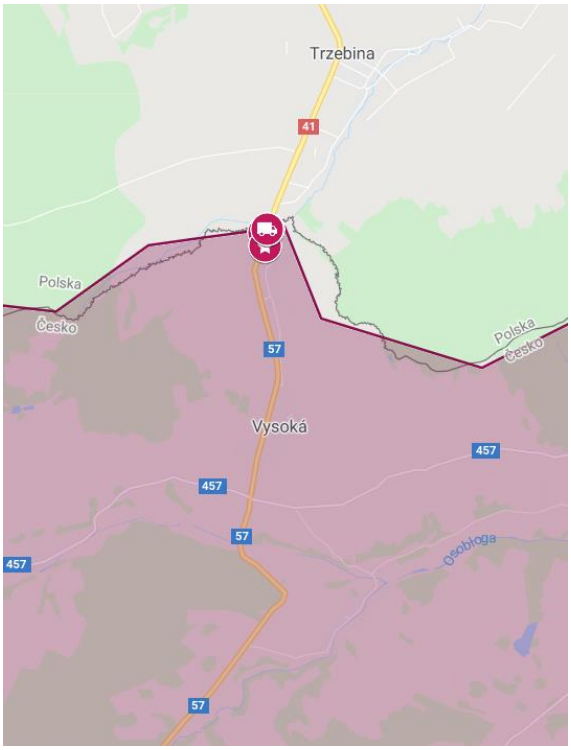

Figure 19 Localization of border crossing traffic survey and profile survey in Bartultovice-Vysoká

Automatic traffic counter recorded the weekly development of traffic volume on the border crossing Vysoká during the day of the survey and week of the border crossing survey performing. The results of the weekly measurements from border crossing Vysoká are in Table 11.

Table 11 The results of the profile traffic survey – counting site Bartultovice-Vysoká – Trzebina

Vehicle category	PC		LCV		MGV		HGV		ST	
Direction	CZ	PL	CZ	PL	CZ	PL	CZ	PL	CZ	PL
Monday	695	**372**	47	**31**	43	**29**	21	**17**	657	**406**
Tuesday	**900**	357	**68**	42	**44**	28	**32**	15	**745**	456
Wednesday	578	382	30	34	28	28	25	16	557	442
Thursday	668	484	49	57	46	27	30	21	609	428
Friday	559	575	64	32	26	35	21	17	395	383
Saturday	484	482	73	19	24	16	12	7	187	153
Sunday	605	525	66	9	32	16	8	5	163	66
WADT - category	641	454	57	32	35	26	21	14	473	333
WADT - total	1105		101		69		48		816	
Share of freight transport	43.62 %									
Share of heavy freight transport	40.39 %									

During the day of the survey on the border crossing Vysoká was recorded intensity 2 644 veh./24h. The weekly average daily traffic from measured data is 2 139 veh./24 h, while the share of freight transport was 43.62 % and share of heavy freight transport 40.39 % from whole traffic volume.

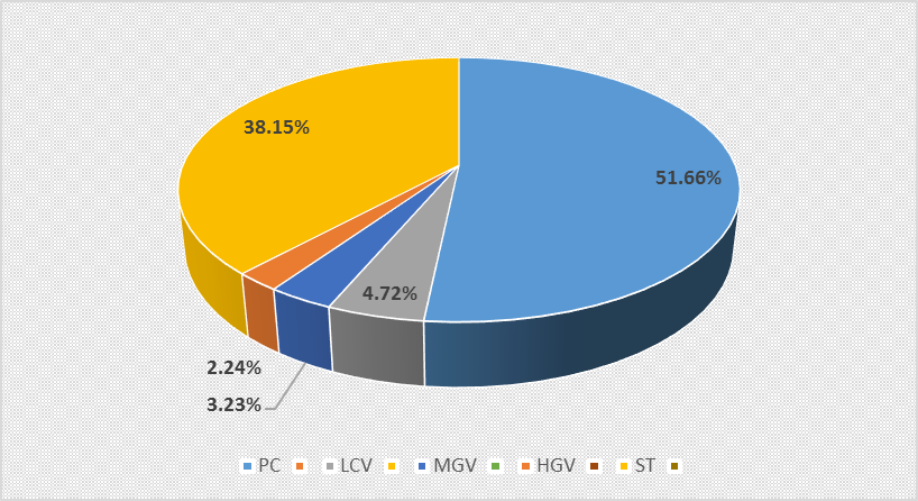

Figure 20 Structure of traffic flow during profile survey in Bartultovice-Vysoká (WADT)

Passenger cars were around 51.66 % of traffic flow on the border crossing Vysoká. Captured sample of vehicles during the survey on border crossing Vysoká was 40.39 % of total traffic flow.

1.3.6. Border crossing Bohumín – Gorzycki Laziska

The border crossing Bohumín - Gorzycki presents the international road border crossing between Czech republic and Poland. It is located on the section of the D1 motorway, which is part of the TEN-T core network (Baltic-Adriatic Corridor). This border crossing is one of the main and the busiest border crossings in Czech republic.

In the direction to Poland during the survey total of 1 157 responses were registered. The structure of stopped vehicles according to the chosen categorization is given in Figure 21.

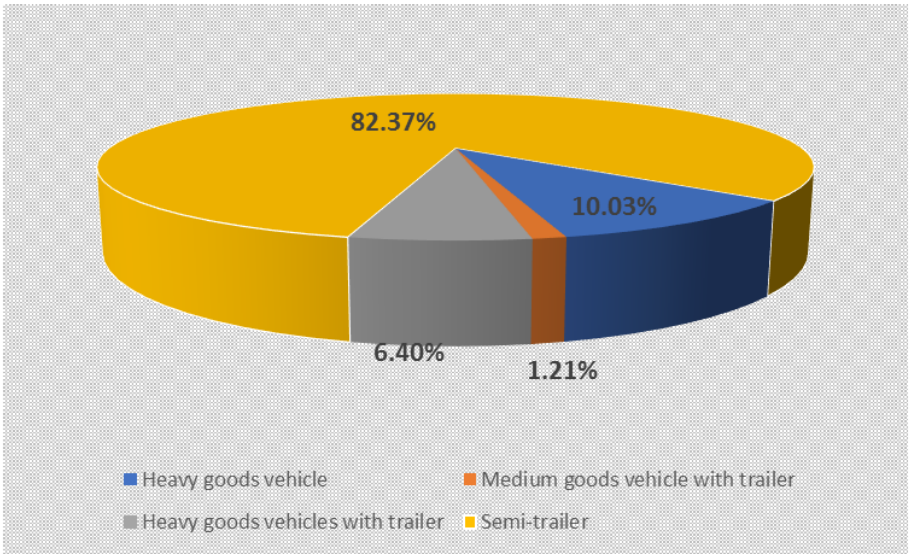

Figure 21 Composition of recorded traffic flow: Antošovice/Šilheřovice site, CZ-PL

At the border crossing Bohumín (in the direction to Poland) almost 82 % of surveyed vehicles were semi-trailers. Heavy goods vehicles were the second most numerous category with a share of about 10 %. On the

next place there were heavy goods vehicles with trailers a share of 7 % and rest of vehicles was formed by medium goods vehicles with trailer 1 %.

In the direction to Czech Republic, 1 191 vehicles were recorded. The share of vehicles is shown in the Figure 22.

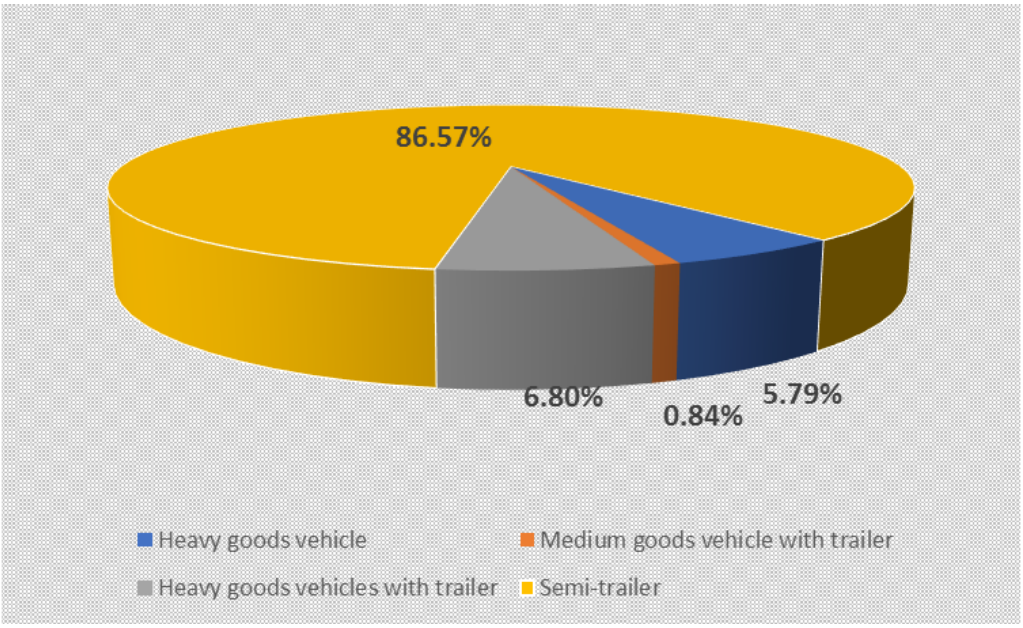

Figure 22 Composition of recorded traffic flow: Antošovice/Šilheřovice site, PL-CZ

At the border crossing Bohumín (in the direction to Czech Republic) almost 86 % of surveyed drivers were drivers of semi-trailers. Heavy goods vehicles with trailer were the second most numerous category with a share of about 7 %. On the next place there were heavy goods vehicles with trailers a share of 6 % and rest of vehicles was formed by medium goods vehicles with trailer 1 %.

The number and share of successfully questioned drivers on their total number (reported by manual survey) in both driving directions is shown in Table 12.

Table 12 Number of interviewed participants: Antošovice/Šilheřovice

Border crossing		Number of actual vehicles						Share of sample
	Direction	Category of vehicle	Profile traffic survey	Share of sample	Category of vehicle	Questionnaire traffic survey	Share of sample	
Bohumín - Gorzycki Laziska	CZ-PL	**Total**	**2425**	**100 %**	**Total**	**1157**	**100 %**	**47.71 %**
		HGV	315	12.99 %	HGV	116	10.03 %	
		MGVT+HGV+ST	2110	87.01 %	MGVT	14	1.21 %	
					HGVT	74	6.40 %	
					ST	953	82.37 %	
	PL-CZ	**Total**	**3477**	**100 %**	**Total**	**1191**	**100 %**	**34.25 %**
		HGV	430	12.37 %	HGV	69	5.79 %	
		MGVT+HGV+ST	3047	87.63 %	MGVT	10	0.84 %	
					HGVT	81	6.80 %	
					ST	1031	86.57 %	

From the total number of vehicles, that passed the profile of the road in the direction to Poland, were involved 47.71 % of the vehicles in survey and in direction to the Czech republic 34.25 %.

Detailed route directions for the questions of transport source and destination (from whence to where the vehicle went) is recorded in OD matrix, that is a part of Annex 2.

On the border crossing Bohumín were placed 2 mobile automatic traffic counters for both lanes independently during the survey. Mobile automatic counters recorded traffic volume that were stopped during the survey, remaining traffic flow out of the survey and also vehicles from the monitored sample that was stopped during the survey. Location of the counting site and automatic traffic counter is presented in Figure 23.

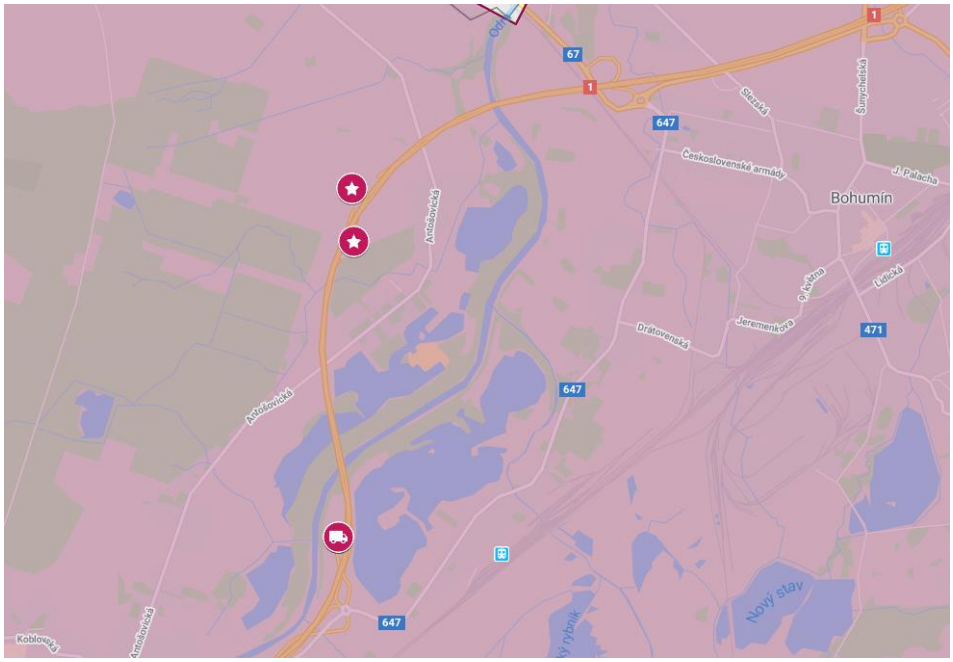

Figure 23 Localization of border crossing traffic survey and profile survey in Antošovice/Šilheřovice

Automatic traffic counter recorded the weekly development of traffic volume on the border crossing Vysoká during the day of the survey and week of the border crossing survey performing. The results of the weekly measurements from border crossing Bohumín are in Table 13.

Table 13 The results of the profile traffic survey – counting site Antošovice/Šilheřovice

Vehicle category	PC		LCV		MGV		HGV		ST	
Direction	CZ	PL	CZ	PL	CZ	PL	CZ	PL	CZ	PL
Monday	7107	**7405**	1537	**1027**	922	**571**	695	**461**	5719	**2837**
Tuesday	**6470**	8026	**1469**	904	**878**	607	**668**	467	**4377**	3348
Wednesday	7748	10982	1168	1122	882	640	680	495	3393	3406
Thursday	10721	10928	1976	1032	704	473	575	397	1696	2569
Friday	8940	8736	1761	803	771	478	604	388	2176	3430
Saturday	8637	7471	1506	737	349	238	328	224	930	1796
Sunday	10868	7587	2188	753	439	212	344	204	761	434
WADT - category	8642	8734	1731	911	706	460	556	377	2722	2546
WADT - total	20040		2653		1177		942		5277	
Share of freight transport	26.96 %									
Share of heavy freight transport	22.67 %									

During the day of the survey on the border crossing Bohumín was recorded intensity 26 163 veh./24h. The weekly average daily traffic from measured data is 30 089 veh./24 h, while the share of freight transport was 26.96 % and share of heavy freight transport 22.67 % from whole traffic volume.

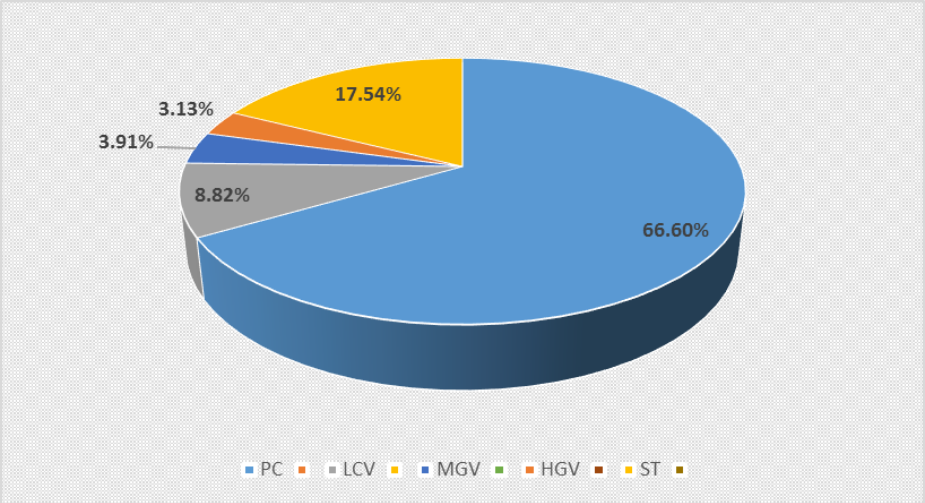

Figure 24 Structure of traffic flow during profile survey in Antošovice/Šilheřovice (WADT)

Passenger cars were around 66.60 % of traffic flow on the border crossing Bohumín. Captured sample of vehicles during the survey on border crossing Bohumín was 20.67 % of total traffic flow.

1.3.7. Border crossing Český Těšín - Czieszyn

The border crossing Český Těšín - Cieszyn presents the international road border crossing between Czech republic and Poland. It is located on the first class road I/11 (road of European importance E75), which is one of the backbone roads in the Moravian-Silesian Region and belongs to the global network TEN-T (part comprehensive).

In the direction to Poland during the survey total of 863 responses were registered. The structure of stopped vehicles according to the chosen categorization is given in Figure 25.

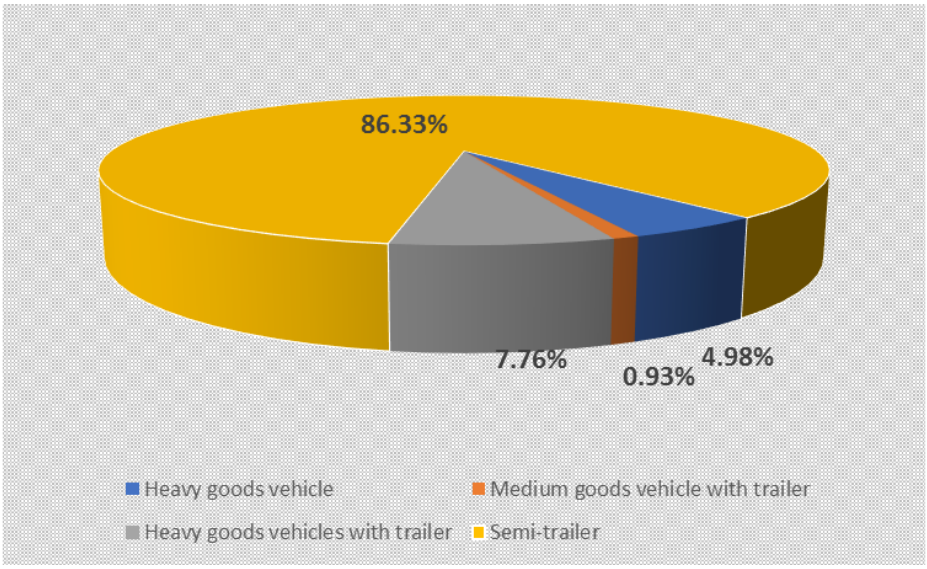

Figure 25 Composition of recorded traffic flow: Český Těšín - Czieszyn, CZ-PL

At the border crossing Český Těšín (in the direction to Poland) almost 86 % of surveyed vehicles were semi-trailers. Heavy goods vehicles with trailer were the second most numerous category with a share of about

8 %. On the next place there were heavy goods vehicles a share of 5 % and rest of vehicles was formed by medium goods vehicles with trailer 1 %.

In the direction to Czech Republic, 654 vehicles were recorded. The share of vehicles is shown in the Figure 26.

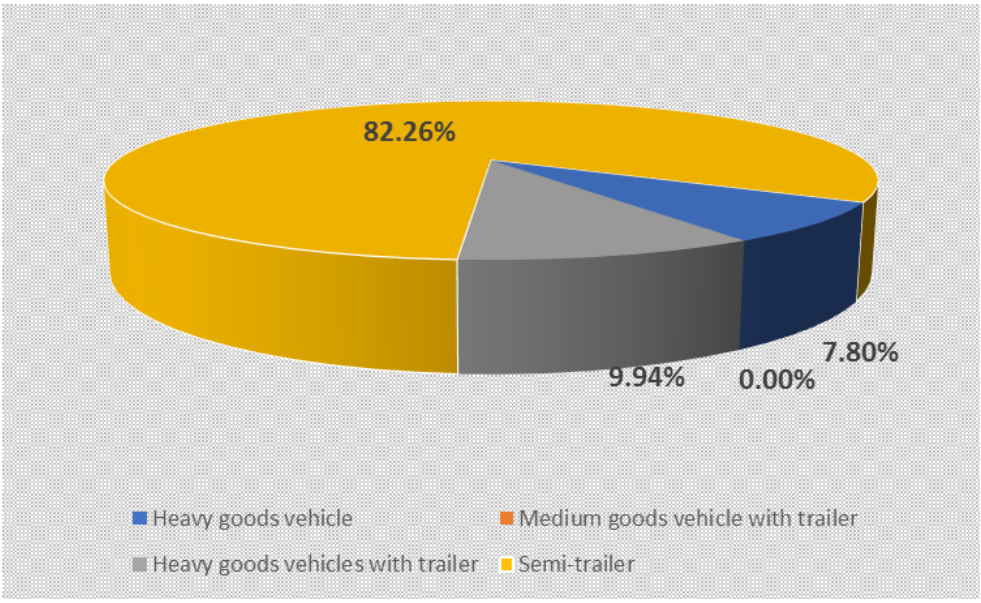

Figure 26 Composition of recorded traffic flow: Český Těšín - Czieszyn, PL-CZ

At the border crossing Český Těšín (in the direction to Czech Republic) almost 82 % of surveyed drivers were drivers of semi-trailers. Heavy goods vehicles with trailer were the second most numerous category with a share of about 10 %. On the next place there were heavy goods vehicles a share of 8 % and rest of vehicles was formed by medium goods vehicles with trailer 0 %.

The number and share of successfully questioned drivers on their total number (reported by manual survey) in both driving directions is shown in Table 14.

Table 14 Number of interviewed participants: Český Těšín - Czieszyn

Border crossing		Number of actual vehicles						Share of sample
	Direction	Category of vehicle	Profile traffic survey	Share of sample	Category of vehicle	Questionnaire traffic survey	Share of sample	
Český Těšín - Czieszyn	CZ-PL	**Total**	**1311**	**100 %**	**Total**	**863**	**100 %**	**65.82 %**
		HGV	33	2.52 %	HGV	43	4.98 %	
		MGVT+HGV+ST	1278	97.48 %	MGVT	8	0.92 %	
					HGVT	67	7.76 %	
					ST	745	86.32 %	
	PL-CZ	**Total**	**1206**	**100 %**	**Total**	**654**	**100 %**	**54.22 %**
		HGV	62	5.14 %	HGV	51	7.79 %	
		MGVT+HGV+ST	1144	94.86 %	MGVT	0	0 %	
					HGVT	65	9.93 %	
					ST	538	82.26 %	

From the total number of vehicles, that passed the profile of the road in the direction to Poland, were involved 65.82 % of the vehicles in survey and in direction to the Czech republic 54.22 %.

Detailed route directions for the questions of transport source and destination (from whence to where the vehicle went) is recorded in OD matrix, that is a part of Annex 2.

On the border crossing Český Těšín were placed 2 mobile automatic traffic counters for both lanes independently during the survey. Mobile automatic counters recorded traffic volume that were stopped during the survey, remaining traffic flow out of the survey and also vehicles from the monitored sample that was stopped during the survey. Location of the counting site and automatic traffic counter is presented in Figure 27.

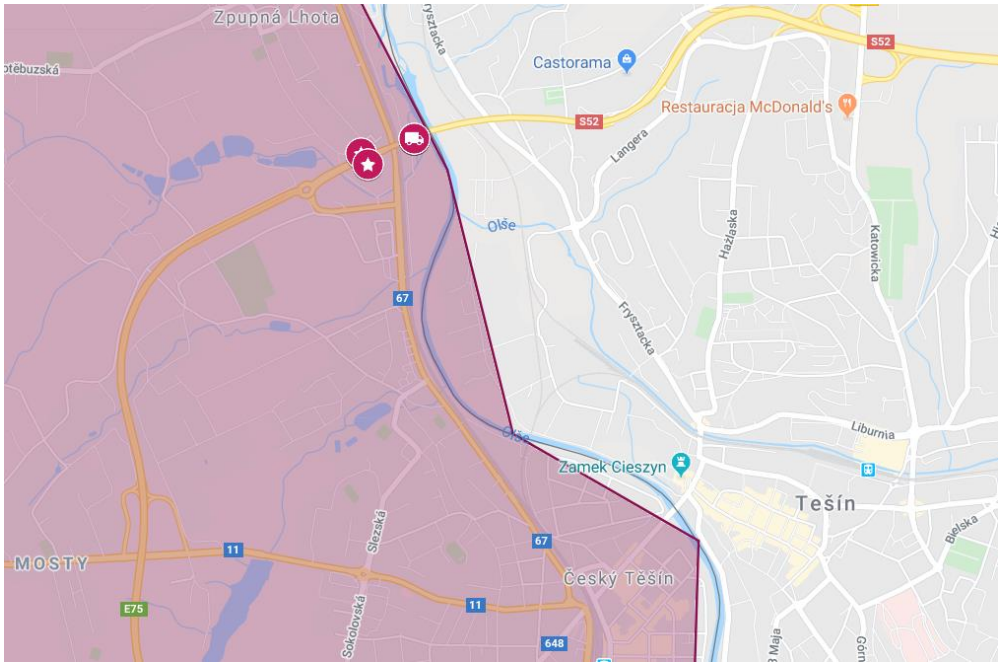

Figure 27 Localization of border crossing traffic survey and profile survey in Český Těšín - Czieszyn

Automatic traffic counter recorded the weekly development of traffic volume on the border crossing Vysoká during the day of the survey and week of the border crossing survey performing. The results of the weekly measurements from border crossing Vysoká are in Table 15.

Table 15 The results of the profile traffic survey - counting site Český Těšín - Czieszyn

Vehicle category	PC		LCV		MGV		HGV		ST	
Direction	CZ**	PL*	CZ**	PL*	CZ**	PL*	CZ**	PL*	CZ**	PL*
Monday	2840	2311	804	619	787	529	105	50	2520	1520
Tuesday	2365	2586	611	652	704	511	93	56	2160	1864
Wednesday	2529	2764	610	725	686	574	103	56	1908	1928
Thursday	**2395**	**2952**	**646**	**724**	**693**	**654**	**89**	**56**	**1838**	**2018**
Friday	2674	2861	656	686	623	609	84	62	1459	2185
Saturday	2926	2910	615	485	391	340	44	35	592	976
Sunday	2322	2195	470	396	329	204	28	27	344	254
WADT - category	2579	2652	630	612	602	489	78	49	1546	1535

*execution of the survey: 30.5.2019
**execution of the survey: 13.6.2019

During the day of the survey on the border crossing Český Těšín was recorded intensity 12 065 veh./24h. The weekly average daily traffic from measured data is 10 072 veh./24 h, while the share of freight transport was 19.95 % and share of heavy freight transport 14.89 % from whole traffic volume.

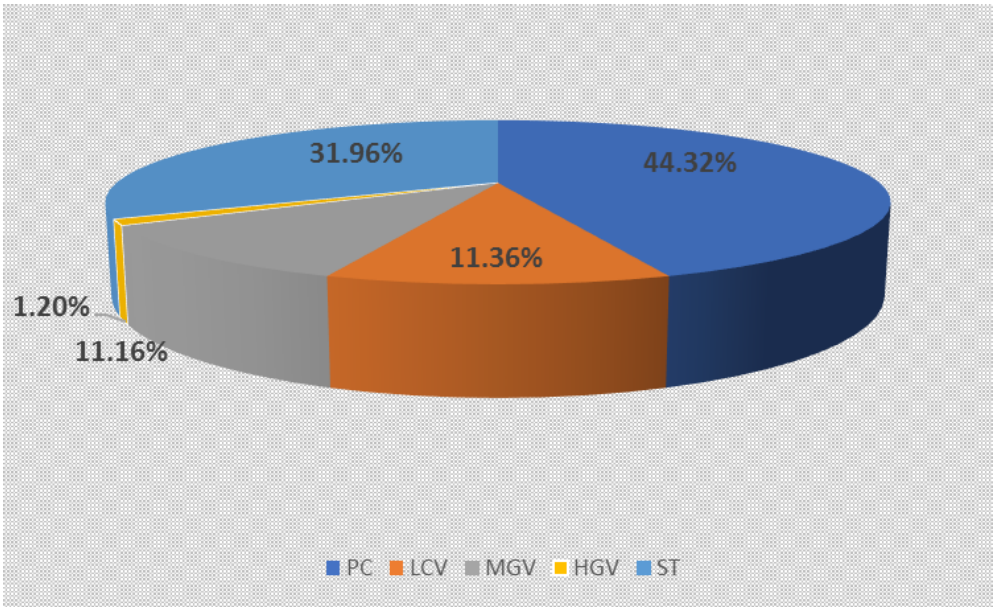

Figure 28 Structure of traffic flow during profile survey in Český Těšín (WADT)

Passenger cars were around 44.32 % of traffic flow on the border crossing Český Těšín. Captured sample of vehicles during the survey on border crossing Český Těšín was 12.56 % of total traffic flow.

1.4. Major transport relations

This subchapter includes the description of the most important transport relations. Generally, major relations include border traffic, the most relevant origins and destinations, as well as transport relations with highest share of the traffic at each border crossing. The interesting are major cross-border transit relations with importance for TRITIA region. In the next tables and figures are presented the most frequent recorded sections from the survey on the border crossings for Žilina and Moravian-Silesian region, Silesia and Opole Voivodships.

Table 16 Major transport relation in Žilina region

Counting section						Traffic volume
Country	Node ID	Section beginning	Country	Node ID	Section end	[veh./survey]
Slovakia	S 7	Krásno nad Kysucou	Slovakia	S 6	Čadca	**2347**
Slovakia	S 7	Krásno nad Kysucou	Slovakia	S 2	Žilina	**2094**
Slovakia	S 1	Bytča	Slovakia	S 2	Žilina	**1617**
Slovakia	S 20	Púchov	Slovakia	S 1	Bytča	**1190**
Slovakia	S 18	Trenčín	Slovakia	S 20	Púchov	**1052**
Slovakia	S 3	Martin	Slovakia	S 2	Žilina	**1035**
Slovakia	S 11	Tvrdošín	Poland	P 20	Rabka-Zdroj	**704**
Slovakia	S 8	Dolný Kubín	Slovakia	S 9	Oravský Podzámok	**602**
Slovakia	S 9	Oravský Podzámok	Slovakia	S 11	Tvrdošín	**592**
Slovakia	S 13	Turčianske Teplice	Slovakia	S 3	Martin	**541**
Slovakia	S 8	Dolný Kubín	Slovakia	S 4	Ružomberok	**410**
Slovakia	S 4	Ružomberok	Slovakia	S 3	Martin	**381**
Slovakia	S 1	Bytča	Slovakia	S 18	Trenčín	**340**
Slovakia	S 12	Liptovský Mikuláš	Slovakia	S 4	Ružomberok	**328**

Counting section						Traffic volume
Country	Node ID	Section beginning	Country	Node ID	Section end	[veh./survey]
Slovakia	S 6	Čadca	Poland	P 19	Żywiec	**321**
Slovakia	S 17	Poprad	Slovakia	S 12	Liptovský Mikuláš	**302**
Slovakia	S 16	Žiar nad Hronom	Slovakia	S 13	Turčianske Teplice	**279**
Slovakia	S 14	Banská Bystrica	Slovakia	S 4	Ružomberok	**233**
Slovakia	S 2	Žilina	Slovakia	S 6	Čadca	**182**
Slovakia	S 14	Banská Bystrica	Slovakia	S 13	Turčianske Teplice	**166**
Slovakia	S 3	Martin	Slovakia	S 8	Dolný Kubín	**146**

Questionnaire traffic survey at border crossings demonstrates using of main transit routes in Žilina region:

- North-South connection:
  - I/11, I/18, I/65 - Border crossing Svrčinovec – Žilina – Martin – Turčianske Teplice
  - D3, I/18, I/65 – Border crossing Skalité – Žilina – Martin – Turčianske Teplice
  - I/59, I/70, I/18, I/65 – Border crossing Trstená – Dolný Kubín – Martin – Turčianske Teplice
  - I/59 - Border crossing Trstená – Dolný Kubín – Ružomberok – Donovaly
- West-East connection:
  - I/10, D1, I/18 – Border crossing Makov – Žilina – Martin – Ružomberok – Liptovský Mikuláš
- North-East connection:
  - I/11, I/18, D1 – Border crossing Svrčinovec – Žilina – Martin – Ružomberok – Liptovský Mikuláš
  - D3, I/11, I/18, D1 – Border crossing Skalité – Žilina – Martin – Ružomberok – Liptovský Mikuláš
  - I/59, I/18, D1 – Border crossing Trstená – Ružomberok – Liptovský Mikuláš
- North-West connection:
  - I/11, D1 – Border crossing Svrčinovec – Žilina – Bytča
  - D3, I/11, D1 – Border crossing Skalité – Žilina – Bytča
  - I/10, D1 – Border crossing Makov – Bytča
  - I/59, I/70, I/18, D3, D1 – Hraničný priechod Trstená – Dolný Kubín – Martin – Žilina – Bytča

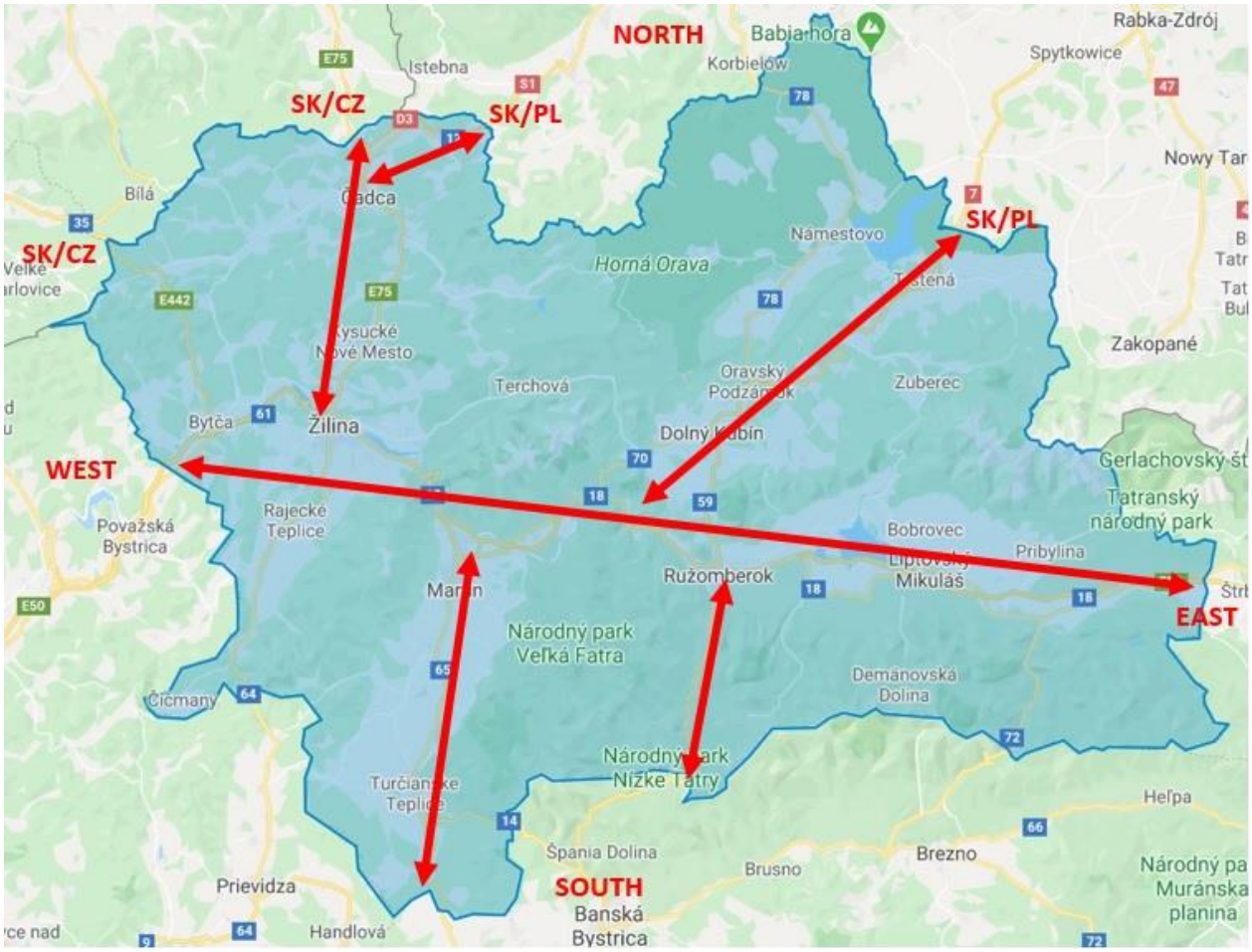

Figure 29 Transit directions in Žilina region

Table 17 Major transport relation in Moravian-Silesian region

Counting section						Traffic volume
Country	Node ID	Section beginning	Country	Node ID	Section end	[veh./survey]
Poland	P 25	Myslovicze	Czechia	C 20	Ostrava	**2592**
Poland	P 28	Dabrowa Górnicza	Slovakia	S 6	Čadca	**2163**
Slovakia	S 8	Dolný Kubín	Czechia	C 15	Třinec	**1626**
Czechia	C 26	Krnov	Czechia	C 24	Hladké Životice	**1387**
Czechia	C 17	Frýdek-Místek	Czechia	C 29	Olomouc	**1281**
Czechia	C 33	Valašské Meziříčí	Czechia	C 17	Frýdek-Místek	**760**
Poland	P 35	Reńska Wieś	Czechia	C 17	Frýdek-Místek	**363**
Czechia	C 25	Opava	Poland	P 37	Prudnik	**352**
Czechia	C 29	Olomouc	Czechia	C 15	Třinec	**346**
Czechia	C 29	Olomouc	Slovakia	S 5	Makov	**291**
Poland	P 43	A4 - 46	Czechia	C 34	Rožnov pod Radhoštem	**278**
Czechia	C 23	Nový Jičín	Czechia	C 17	Frýdek-Místek	**255**
Poland	P 30	Tarnowskie Góry	Czechia	C 26	Krnov	**232**
Poland	P 27	Gliwice	Czechia	C 22	Příbor	**206**
Poland	P 24	Tychy	Czechia	C 18	Havířov	**164**
Poland	P 19	Żywiec	Czechia	C 20	Ostrava	**161**

Counting section						Traffic volume
Country	Node ID	Section beginning	Country	Node ID	Section end	[veh./survey]
Poland	P 20	Rabka-Zdroj	Czechia	C 27	Bruntál	**156**
Slovakia	S 11	Tvrdošín	Czechia	C 26	Krnov	**138**
Poland	P 26	Katovice	Czechia	C 21	Bohumín	**131**
Poland	P 36	Opole	Czechia	C 18	Havířov	**128**
Poland	P 37	Prudnik	Czechia	C 33	Valašské Meziříčí	**126**
Czechia	C 27	Bruntál	Czechia	C 24	Hladké Životice	**118**
Czechia	C 22	Příbor	Czechia	C 23	Nový Jičín	**116**
Poland	P 24	Tychy	Czechia	C 33	Valašské Meziříčí	**100**

Traffic survey on the border crossings demonstrated use of main transit routes in Moravian-Silesian region:

- North-South connection:
  - D1 border crossing Bohumín – Gorzycki Laziska – Ostrava – Olomouc
  - D1, R56, E462, I/68, I/11 – border crossing Bohumín – Gorzycki Laziska – Ostrava – Frýdek-Mýstek – Třinec – border crossing Svrčinovec – Mosty u Jablůnkova
  - I/57, I/45 - – border crossing Bartulovice-Vysoká – Trzebina – Krnov – Bruntál
- North-East connection:
  - I/57, I/35 – border crossing Bartulovice-Vysoká – Trzebina – Krnov – Opava – Fulnek – Nový Jičín – Valašské Meziříčí – border crossing Makov – Bílá Bumbálka
- West-East connection:
  - E462 – Nový Jičín – Frýdek-Mýstek – Český Těšín
  - I/11 – Bruntál – Opava – Ostrava – Český Těšín

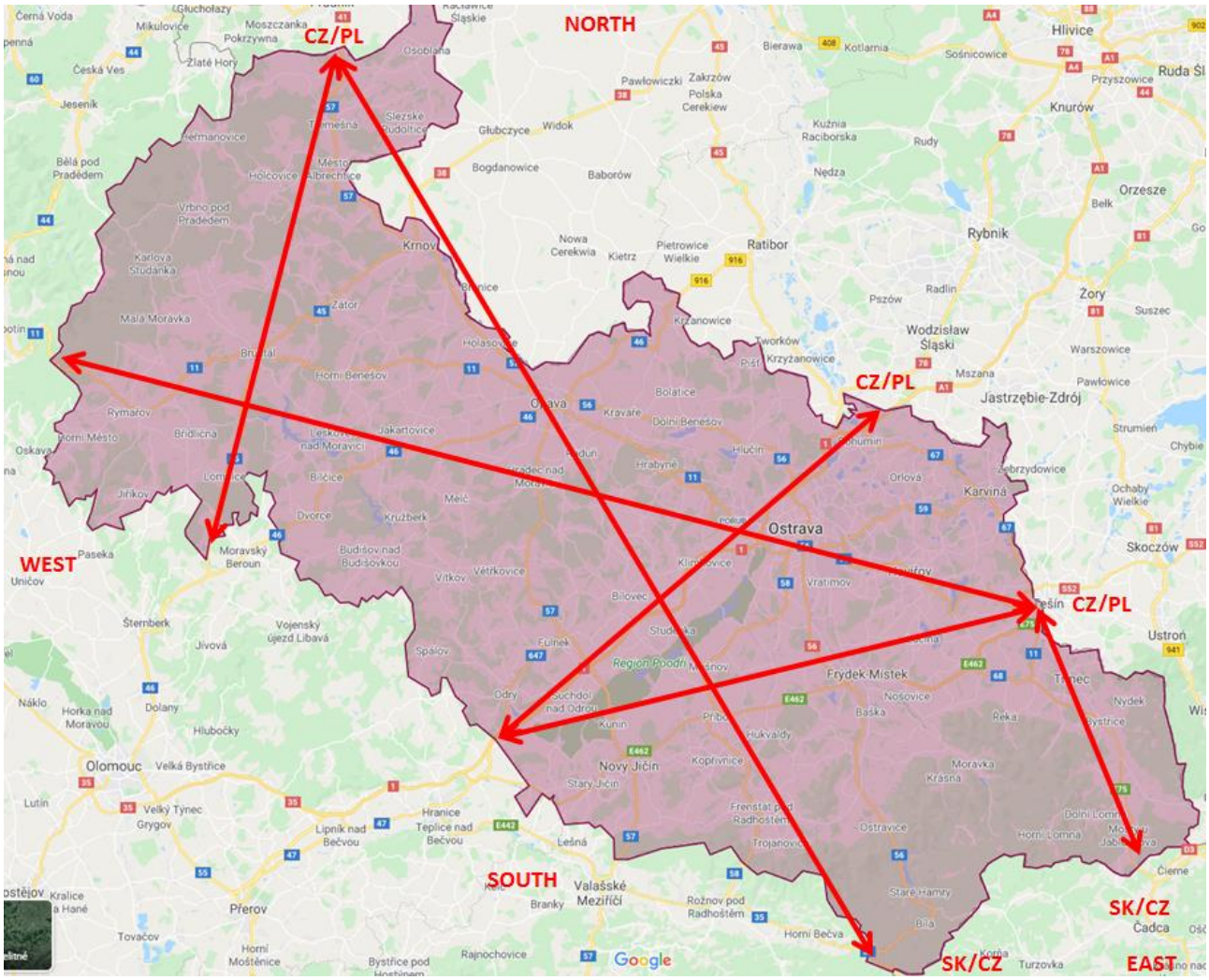

Figure 30 Transit directions in Moravian-Silesian region

Table 18 Major transport relation in Silesia and Opole Voivodeships

Counting section						Traffic volume
Country	Node ID	Section beginning	Country	Node ID	Section end	[veh./survey]
Poland	P 18	Skoczow	Czechia	C 16	Český Těšín	**1999**
Poland	P 27	Gliwice	Czechia	C 21	Bohumín	**1540**
Poland	P 29	Siewierz	Poland	P 31	Czestochowa	**1091**
Poland	P 18	Skoczow	Poland	P 17	Bielsko-Biala	**1051**
Poland	P 17	Bielsko-Biala	Poland	P 24	Tychy	**914**
Poland	P 18	Skoczow	Poland	P 33	Žory	**849**
Poland	P 27	Gliwice	Poland	P 33	Žory	**543**
Poland	P 24	Tychy	Poland	P 25	Myslovicze	**538**
Poland	P 26	Katovice	Poland	P 27	Gliwice	**521**
Poland	P 25	Myslovicze	Poland	P 28	Dabrowa Górnicza	**494**
Poland	P 27	Gliwice	Poland	P 43	A4 - 46	**460**
Poland	P 28	Dabrowa Górnicza	Poland	P 29	Siewierz	**446**

Counting section						Traffic volume
Country	Node ID	Section beginning	Country	Node ID	Section end	[veh./survey]
Poland	P 41	Krakov	Poland	P 20	Rabka-Zdroj	**427**
Poland	P 29	Siewierz	Poland	P 27	Gliwice	**425**
Poland	P 27	Gliwice	Poland	P 30	Tarnowskie Góry	**310**
Poland	P 37	Prudnik	Poland	P 38	Nysa	**289**
Poland	P 48	Mikolów	Poland	P 33	Žory	**256**
Poland	P 19	Żywiec	Poland	P 17	Bielsko-Biala	**242**
Poland	P 34	Racibórz	Czechia	C 21	Bohumín	**229**
Poland	P 25	Myslovicze	Poland	P 26	Katovice	**226**
Poland	P 25	Myslovicze	Poland	P 41	Krakov	**223**
Poland	P 29	Siewierz	Poland	P 30	Tarnowskie Góry	**218**
Poland	P 33	Žory	Czechia	C 21	Bohumín	**198**
Poland	P 29	Siewierz	Poland	P 26	Katovice	**182**
Poland	P 35	Reńska Wieś	Poland	P 34	Racibórz	**161**
Poland	P 26	Katovice	Poland	P 48	Mikolów	**154**
Poland	P 24	Tychy	Poland	P 26	Katovice	**121**
Poland	P 43	A4 - 46	Poland	P 35	Reńska Wieś	**117**

Traffic survey on the border crossings demonstrated use of main transit routes in Silesia and Opole Voivodeships in Poland:

- North-South connection:
  - A1 – Czestochowa – Katowice – Border crossing Bohumín – Gorzycki Laziska
  - 414 – Opole – Prudnik – border crossing Bartulovice-Vysoká – Trzebina
  - A4, A1 – Opole – Katowice – border crossing Bohumín – Gorzycki Laziska
  - 86, 1, S52 – Katowice – Tychy – Bielsko-Biala – border crossing Český Těšín – Cieszyn
- East-South connection:
  - S1, S52 – Zywiec – border crossing Český Těšín – Cieszyn
  - S1 – Zywiec – border crossing Skalité – Zwardoń

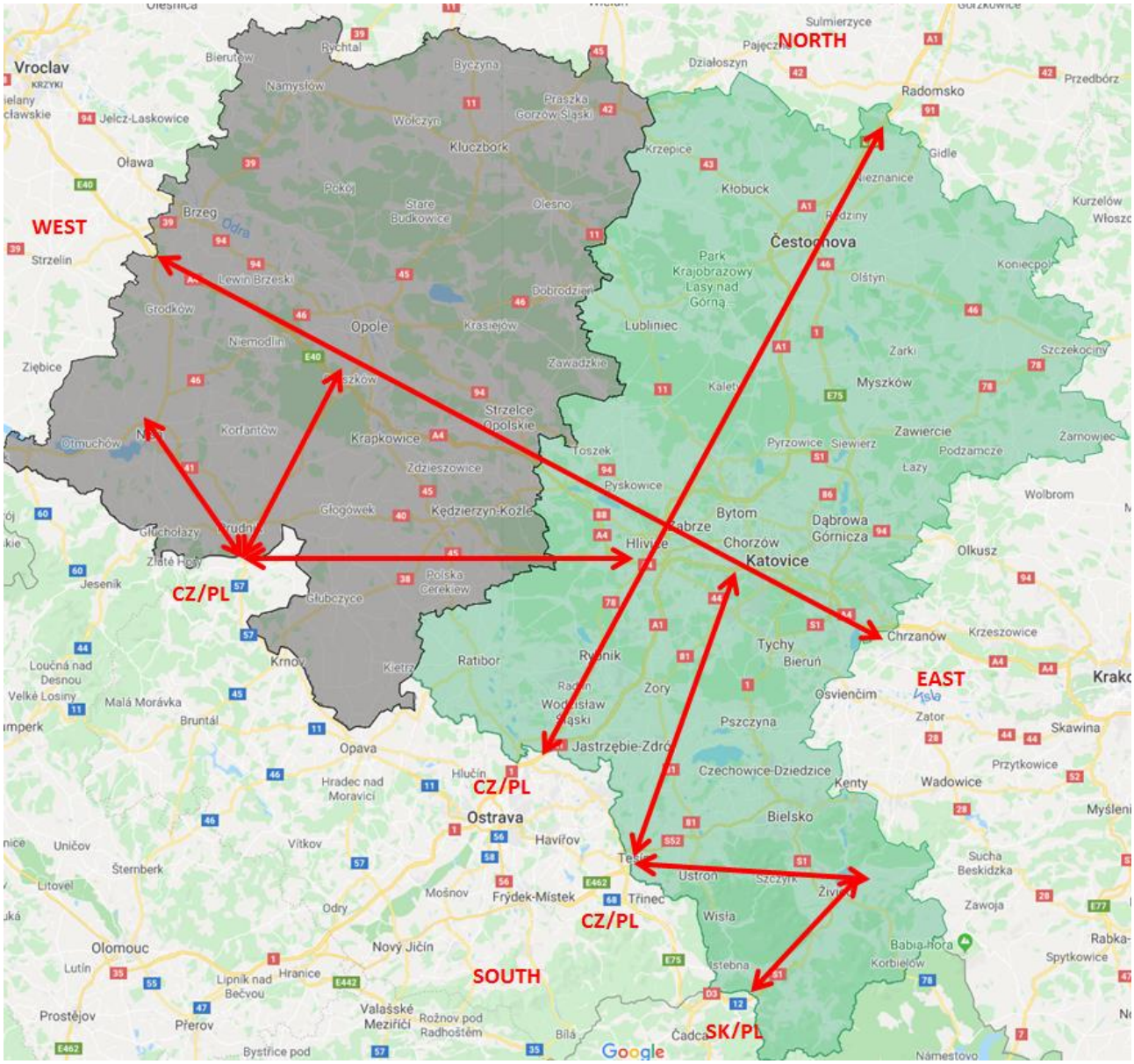

Figure 31 Transit directions in Silesia and Opole Voivodeships

1.4.1. Border crossing Makov – Bíla Bumbálka

The Makov- Bílá Bumbálka is border crossing between Slovak and Czech Republic for passenger transport and freight transport without restrictions. Border crossing is located on the I. class road I/10, which is part of international road network „E“, namely it is additional B class road with mark E 422 leading on route Karlovy Vary – Teplice – Turnov – Hradec Králové – Olomouc – Žilina.

Border crossing Makov – Bíla Bumbálka is part of the main transit route North-West and West-East in Žilina region. The results of the traffic survey demonstrated utilization mainly these transit routes in Žilina and Moravian-Silesian region.

Table 19 The most frequent sections from the survey on the border crossing Makov – Bíla Bumbálka – direction SK

Node ID	Name of the section	Share to the total records captured during the survey
S5 – S1	Makov – Bytča	19.34 %
C17 – S5	Frýdek-Místek – Makov	13.08 %
S1 - S2	Bytča – Žilina	8.09 %
C20 - C17	Ostrava – Frýdek-Místek	7.48 %
C34 – S5	Rožnov pod Radhoštem – Makov	5.95 %
C33 – C34	Valašské Meziříčí – Rožnov pod Radhoštem	5.82 %
S1 – S20	Bytča – Púchov	5.64 %
S20 – S18	Púchov – Trenčín	4.68 %
S2 – S3	Žilina – Martin	4.46 %
S3 - S4	Martin - Ružomberok	3.06 %

Table 20 The most frequent sections from the survey on the border crossing Makov – Bíla Bumbálka – direction CZ

Node ID	Name of the section	Share to the total records captured during the survey
S1 – S5	Bytča – Makov	18.26 %
S5 – C17	Makov – Frýdek-Místek	12.88 %
C17 – C20	Frýdek-Místek - Ostrava	8.72 %
S5 – C34	Makov - Rožnov pod Radhoštem	7.71 %
C34 – C33	Rožnov pod Radhoštem - Valašské Meziříčí	7.20 %
S20 – S1	Púchov - Bytča	6.69 %
S18 – S20	Trenčín - Púchov	6.14 %
S2 – S1	Žilina - Bytča	4.56 %
S3 – S2	Martin - Žilina	3.70 %

The most frequent recorded connection on the border crossing Makov – Bíla-Bumbálka is Ostrava – Žilina, what is based on the results of the survey. It is important cross border connection for the TRITIA region, what presents next figure.

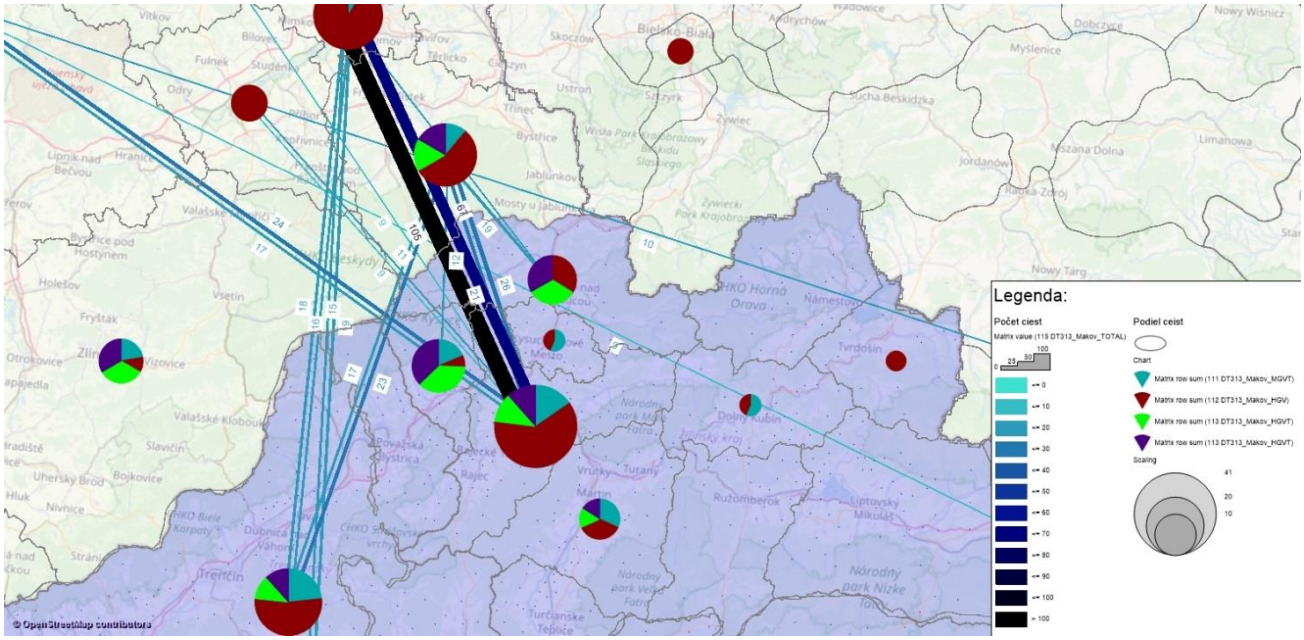

Figure 32 Transport relations in using border crossing Makov - Bíla Bumbálka

1.4.2. Border crossing Svrčinovec – Mosty u Jablunkova

The Svrčinovec – Mosty u Jablunkova is border crossing between Slovak and Czech Republic for passenger transport and freight transport without restrictions. Border crossing is located on the I. class road I/11, which is part of international road network „E“, namely it is main A class road with mark E75 leading on route Vardø - Vadsø - Varangerbotn - Utsjoki - Inari - Ivalo - Sodankylä - Rovaniemi - Kemi - Oulu - Jyväskylä - Heinola - Lahti - Helsinki - Gdańsk - Świecie - Łódź - Piotrków Trybunalski - Katowice - Žilina - Bratislava - Györ - Budapest - Szeged - Belgrade - Niš - Kumanovo - Skopje - Thessaloniki - Larissa - Lamia - Athens - Chaniá - Iraklion - ágios Nikólaos – Sitía.

In the corridor of road I/11 between Čadca and state border is planned to build the R5 expressway.

The border crossing Svrčinovec - Mosty u Jablunkova is part of the main transit routes North-South, North-East and North-West in Žilina region. A traffic survey at the border crossing demonstrated the use of these transit routes mainly in the Žilina and Moravian-Silesian region.

Table 21 The most frequent sections from the survey on the border crossing Svrčinovec – Mosty u Jablunkova – direction SK

Node ID	Name of the section	Share to the total records captured during the survey
C15 – S6	Třinec - Čadca	11.14 %
S6 – S7	Čadca – Krásno nad Kysucou	11.00 %
S7 – S2	Krásno nad Kysucou – Žilina	9.04 %
S2 – S1	Žilina –Bytča	4.81 %
C16 – C15	Český Těšín - Třinec	4.78 %
P18 – C16	Skoczow – Český Těšín	4.35 %
S1 – S20	Bytča – Púchov	3.98 %
S20 – S18	Púchov – Trenčín	3.65 %
S2 – S3	Žilina - Martin	3.19 %

Table 22 The most frequent sections from the survey on the border crossing Svrčinovec – Mosty u Jablunkova – direction CZ

Node ID	Name of the section	Share to the total records captured during the survey
S6 – C15	Čadca – Třinec	11.42 %
S7 – S6	Krásno nad Kysucou – Čadca	11.15 %
S2 – S7	Žilina – Krásno nad Kysucou	9.22 %
C15 – C16	Třinec – Český Těšín	6.73 %
C16 – P18	Český Těšín – Skoczow	6.21 %
S1 – S2	Bytča – Žilina	5.02 %
P18 – P17	Skoczow – Bielsko-Biala	4.69 %
S20 – S1	Púchov – Bytča	4.21 %
S3 – S2	Martin – Žilina	3.80 %
P17 – P24	Bielsko-Biala – Tychy	3.63 %
C15 – C17	Třinec – Frídek-Místek	3.51 %
S18 – S20	Trenčín - Púchov	3.43 %

The most frequent sections of transit routes passing through the border crossing Svrčinovec - Mosty u Jablunkova point out to the fact that the strongest cross-border transit relationship with significance for the TRITIA region is on the route Žilina - Čadca - Frýdek-Mýstek - Ostrava, which is illustrated by the following picture.

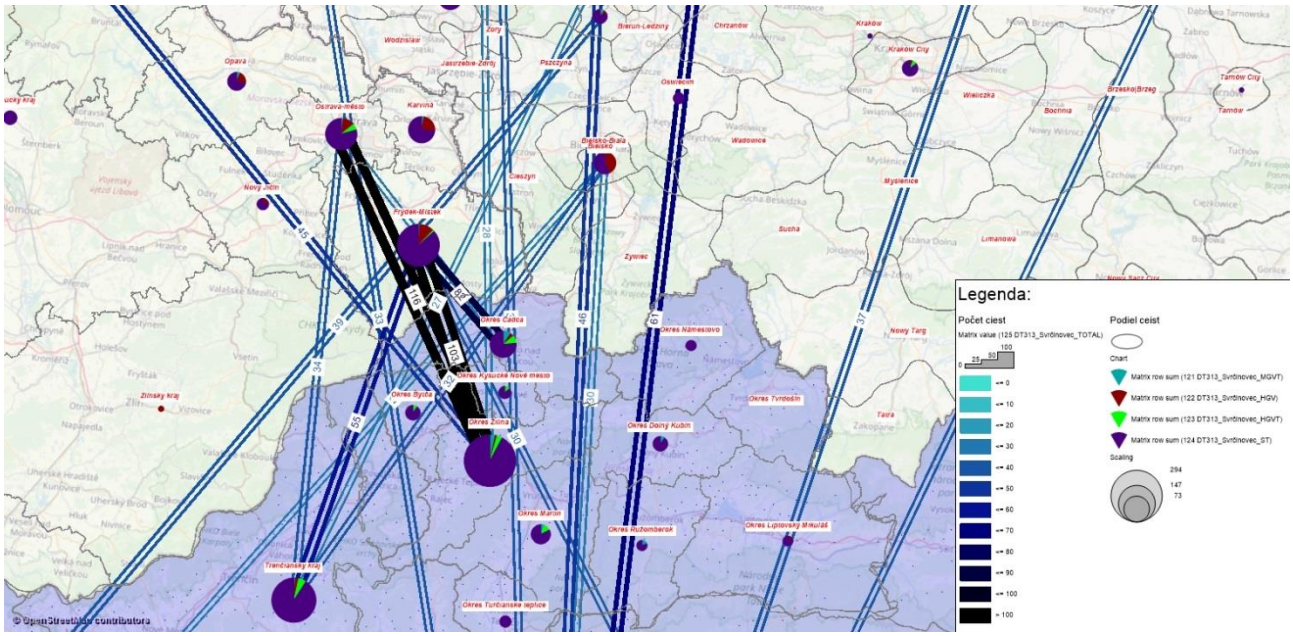

Figure 33 Transport relations in using border crossing Svrčinovec – Mosty u Jablunkova

1.4.3. Border crossing Skalité - Zwardoń

The border crossing Skalité - Zwardoń is a border crossing for road passenger and freight transport without restrictions between the Slovak Republic and the Republic of Poland. It is located on the D3 motorway, which is currently built in half profile with the prospect of completion in full profile. The D3 motorway is part of the TEN-T CORE multimodal corridor of the Baltic - Adriatic Corridor.

At the same time, the D3 motorway in Čadca is attached to the international road network "E", namely on the class A main road with the marking E 75 on the route E75 - Vardø - Vadsø - Varangerbotn - Utsjoki - Inari - Ivalo - Heinola - Lahti - Helsinki - Gdańsk - Świecie - Łódź - Piotrków Trybunalski - Katowice - Zilina - Bratislava - Gyor - Budapest - Szeged - Belgrade - Nis - Kumanovo - Skopje - Thessaloniki - Larissa - Lamia - Athens - Heraklion - Agios Nikolaos - Sitia.

The border crossing Skalité - Zwardoň is part of the main transit routes North-South, North-East and North-West in Žilina region. A traffic survey at the border crossing demonstrated the use of these transit routes mainly in Žilina region and Silesian voivodeship.

Table 23 The most frequent sections from the survey on the border crossing Skalité - Zwardoň - direction SK

Node ID	Name of the section	Share to the total records captured during the survey
S6 – S7	Čadca – Krásno nad Kysucou	11.85 %
S7 – S2	Krásno nad Kysucou – Žilina	10.28 %
P19 – S6	Żywiec - Čadca	9.54 %
S2 – S1	Žilina –Bytča	9.24 %
S1 – S20	Bytča – Púchov	9.24 %
P17 – P19	Bielsko-Biala – Żywiec	7.75 %
P24 – P17	Tychy – Bielsko-Biala	7.53 %
S20 – S18	Púchov – Trenčín	7.45 %
P25 – P24	Myslovicze – Tychy	6.41 %
P28 – P25	Dabrowa Górnicza – Myslovicze	5.96 %
P29 – P28	Siewierz - Dabrowa Górnicza	4.99 %
P31 – P29	Czestochowa - Siewierz	4.99 %

Table 24 The most frequent sections from the survey on the border crossing Skalité - Zwardoń - direction PL

Node ID	Name of the section	Share to the total records captured during the survey
S20 - S1	Púchov - Bytča	10.73 %
S18 - S20	Trenčín - Púchov	10.68 %
S6 - P19	Čadca - Żywiec	9.84 %
S1 - S2	Bytča - Žilina	9.63 %
S2 - S6	Žilina - Čadca	9.47 %
P19 - P17	Żywiec - Bielsko-Biala	5.58 %
P17 - P24	Bielsko-Biala - Tychy	5.52 %
S7 - S6	Krásno nad Kysucou - Čadca	3.95 %
S2 - S7	Žilina - Krásno nad Kysucou	3.84 %
S6 - P17	Čadca - Bielsko-Biala	3.31 %

The most frequent sections of transit routes passing through the border crossing Skalité - Zwardoń point to the fact that the strongest cross-border transit relationship with significance for the TRITIA region is on the route Žilina - Čadca - Żywiec - Bialsko-Biala, which is illustrated by the following figure.

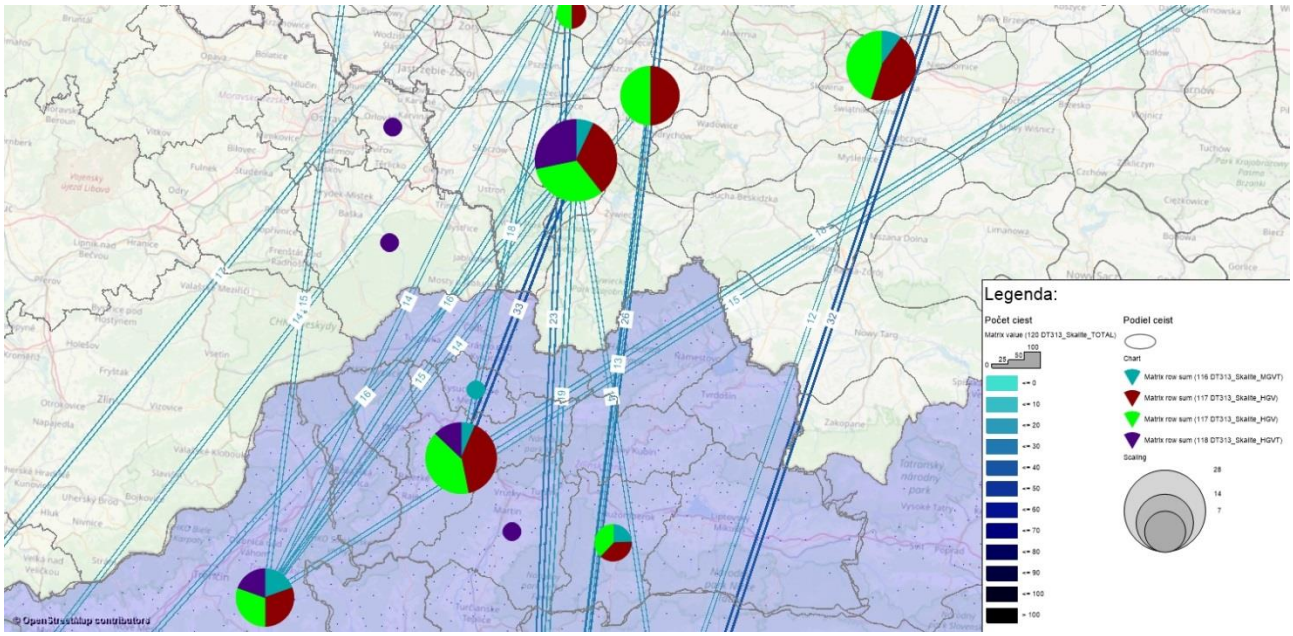

Figure 34 Transport relations in using border crossing Skalité - Zwardoń

1.4.4. Border crossing Trstená - Chyzne

The border crossing Trstená - Chyzne is a border crossing for road passenger and freight transport without restrictions between the Slovak Republic and the Republic of Poland. It is located on the road I/59, which is part of the international road network "E", namely the additional road E77 of A-class leading on the route E77 - Pskov - Riga - Siauliai - Tolpaki - Kaliningrad - Gdańsk - Elbląg - Warsaw - Radom - Kraków - Trstena - Ruzomberok - Zvolen - Budapest.

The border crossing Trstená - Chyzne is part of the main transit routes North-South, North-East and North-West in Žilina region. A traffic survey at the border crossing has demonstrated the use of these transit routes mainly in Žilina region and the Republic of Poland.

Table 25 The most frequent sections from the survey on the border crossing Trstená - Chyzne – direction SK

Node ID	Name of the section	Share to the total records captured during the survey
P20 – S11	Rabka-Zdroj – Tvrdošín	17.62 %
S11 – S9	Tvrdošín – Oravský Podzámok	14.18 %
S9 – S8	Oravský Podzámok – Dolný Kubín	14.08 %
P41 – P20	Krakov – Rabka-Zdroj	11.67 %
S8 – S4	Dolný Kubín - Ružomberok	8.18 %
S4 – S14	Ružomberok – Banská Bystrica	5.78 %
S8 – S3	Dolný Kubín - Martin	3.98 %

Table 26 The most frequent sections from the survey on the border crossing Trstená - Chyzne – direction PL

Node ID	Name of the section	Share to the total records captured during the survey
S11 – P20	Tvrdošín – Rabka-Zdroj	16.04 %
S9 – S11	Oravský Podzámok – Tvrdošín	13.97 %
S8 – S9	Dolný Kubín – Oravský Podzámok	13.63 %
S4 – S8	Ružomberok – Dolný Kubín	10.98 %
P20 – P41	Rabka-Zdroj – Krakov	8.99 %
S14 – S4	Banská Bystrica – Ružomberok	5.15 %
S2 – S3	Žilina – Martin	3.12 %
S1 – S2	Bytča - Žilina	3.12 %

The most frequent sections of the transit routes passing through the border crossing Trstená - Chyzne point out that, from the point of view of the TRITIA region, this border crossing is particularly important as the transit border between the Republic of Poland and Southern Europe. It is mainly used by vehicles passing through the territory of the Slovak Republic, which is illustrated by the following figure.

In relation to the Trans Tritia region, the relationship between the Tvrdošín district in the Zilina region and Nový Sad in Poland is important.

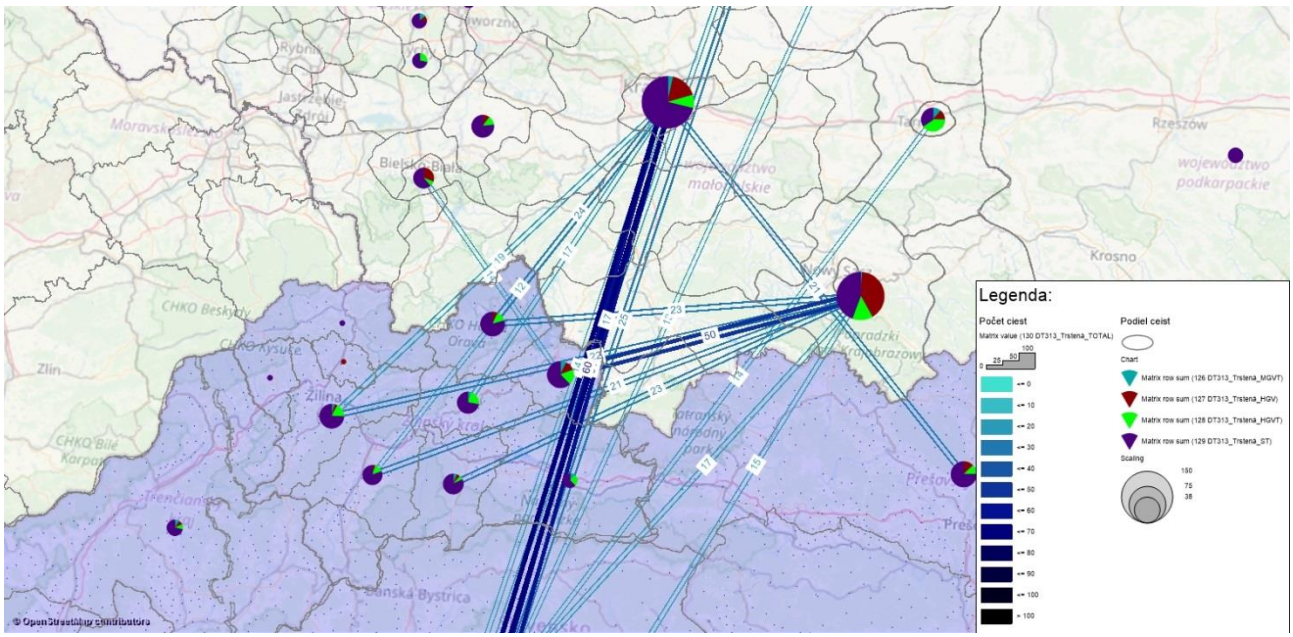

Figure 35 Transport relations in using border crossing Trstená - Chyzne

1.4.5. Border crossing Bartultovice-Vysoká -Trzebina

The border crossing Bartultovice-Vysoká –Trzebina is a border crossing for road passenger and freight traffic without restrictions between the Czech Republic and the Republic of Poland. It lies on the road I/57, which is connected to the international route of the class A main road with the marking E40 north of Opole and to the international route of class B main road with the marking E442 to the south of Nový Jičín.

The border crossing Bartultovice-Vysoká - Trzebina is part of the main transit routes North-South and North-East in the Moravian-Silesian region. The border crossing is important in terms of transit freight traffic to the Opole Voivodeship in Poland. A traffic survey at the border crossing demonstrated the use of these transit routes mainly in the Žilina and Moravian-Silesian regions.

Table 27 The most frequent sections from the survey on the border crossing Bartultovice-Vysoká - Trzebina – direction CZ

Node ID	Name of the section	Share to the total records captured during the survey
P37 - C26	Prudnik – Krnov	23.42 %
P38 - P37	Nysa – Prudnik	20.76 %
C26 - C27	Krnov – Bruntál	17.95 %
C27 - C29	Bruntál - Olomouc	15.29 %
C26 - C25	Krnov - Opava	4.91 %

Table 28 The most frequent sections from the survey on the border crossing Bartultovice-Vysoká - Trzebina – direction PL

Node ID	Name of the section	Share to the total records captured during the survey
C26 - P37	Krnov – Prudnik	22.98 %
P37 - P38	Prudnik – Nysa	17.17 %
C27 - C26	Bruntál – Krnov	11.36 %
C25 - C26	Opava – Krnov	10.35 %
C29 - C27	Olomouc – Bruntál	5.81 %
P37 - P36	Prudnik – Opole	3.79 %
C20 - C25	Ostrava - Opava	3.54 %

The most frequent sections of transit routes passing the Bartultovice - Trzebina border crossing point to the fact that the strongest cross-border transit in relation to relevance for the TRITIA region is on the route Germany / Nysa - Prudnik - Krnov - Bruntal - Olomouc and Germany / Nysa - Prudnik - Krnov - Opava - Ostrava, which is illustrated in the following figure.

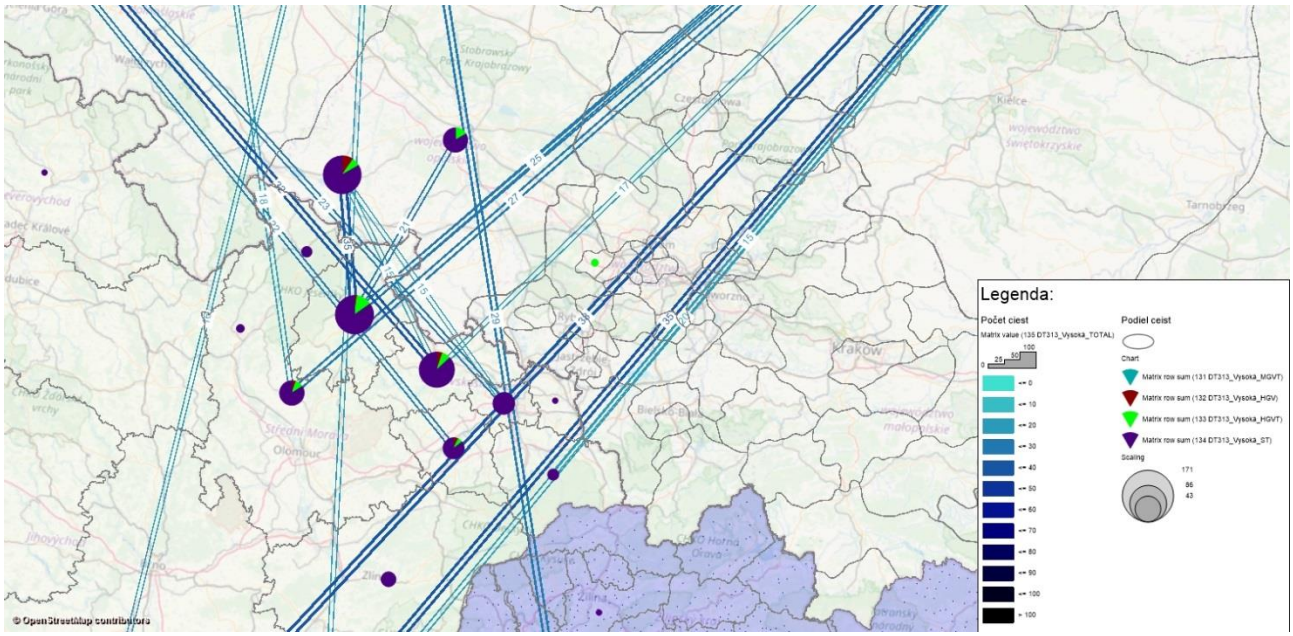

Figure 36 Transport relations in using border crossing Bartultovice-Vysoká -Trzebina

1.4.6. Border crossing Bohumín – Gorzycki Laziska

It is located on the D1 motorway, which is part of the TEN-T multimodal core network (Baltic-Adriatic Corridor), and it is connected to the international B-class highway routes E442, more precisely E462 at Lipník nad Bečvou.

The border crossing Bohumín-Gorzycki is a part of the main North-South and North-East - South-West transit routes in the Moravian-Silesian Region. This crossing is important in terms of origin and destination transport to the Silesian Voivodeship. The traffic research at the border crossing proved the use of transit routes in the Moravian-Silesian Region and Poland.

Table 29 The most frequent sections from the survey on the border crossing Bohumín – Gorzycki Laziska – direction CZ

Node ID	Name of the section	Share to the total records captured during the survey
C21 - C20	Bohumín – Ostrava	20.48 %
C20 - C24	Ostrava – Hladké Životice	14.71 %
C24 - C29	Hladké Životice – Olomouc	13.65 %
P27 - C21	Gliwice – Bohumín	13.44 %
P31 - P29	Czestochowa – Siewierz	5.58 %
P29 - P27	Siewierz – Gliwice	5.03 %
P26 - P27	Katowice - Gliwice	4.61 %

Table 30 The most frequent sections from the survey on the border crossing Bohumín – Gorzycki Laziska – direction PL

Node ID	Name of the section	Share to the total records captured during the survey
C20 - C21	Ostrava – Bohumín	23.07 %
C21 - P27	Bohumín – Gliwice	13.26 %
C24 - C20	Hladké Životice – Ostrava	11.44 %
C29 - C24	Olomouc – Hladké Životice	9.35 %
P27 - P26	Gliwice – Katowice	4.15 %
P29 - P31	Siewierz - Czestochowa	3.98 %

The most frequent sections of transit routes passing through the Bohumín - Gorzycki border crossing point to the fact that, from the perspective of TRITIA, this crossing is particularly important as the transit border between the countries of the former Soviet Union, Poland and southern Europe plus Austria. It is mainly used for vehicles passing through the Czech Republic, as illustrated in the following figure. There are also numerous transports of goods starting or ending in the TRITIA region.

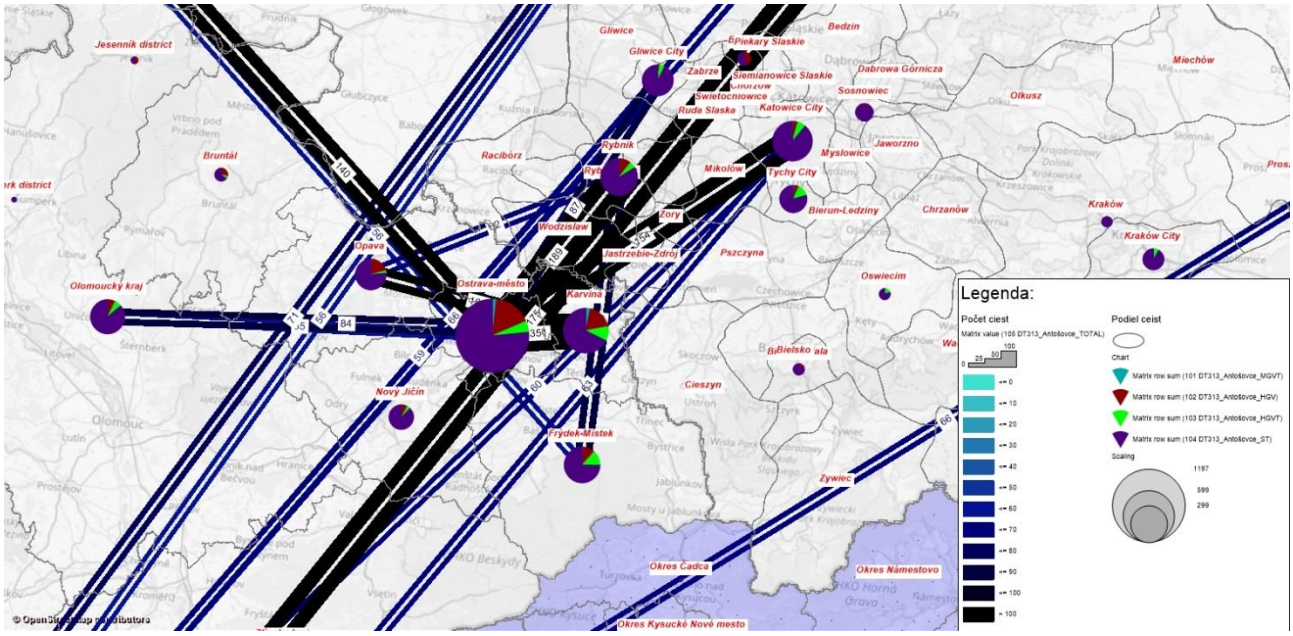

Figure 37 Transport relations in using border crossing Bohumín – Gorzycki Laziska

1.4.7. Border crossing Český Těšín - Czieszyn

It is located on class I/48 road, which is a part of the international road network "E", namely on the A-class road with the E75 mark on the route - Vardø - Vadsø - Varangerbotn - Utsjoki - Inari - Ivalo - Heinola - Lahti - Helsinki ... Gdańsk - Świecie - Łódź - Piotrków Trybunalski - Katowice - Zilina - Bratislava - Gyor - Budapest - Szeged - Beograd - Nis - Kumanovo - Skopje - Thessaloniki - Larissa - Lamia - Athens ... Heraklion - Agios Nikolaos - Sitia.

In the near future, it is planned to build the remaining part of the I/68 road, which is supposed to link I/48 and I/11 affected by the research.

The border crossing Český Těšín - Cieszyn is a part of the main North-South, but also East-West transit routes in the Moravian-Silesian Region. A traffic survey at the border crossing showed the use of these transit routes between the industrial Silesian Voivodeship, the Czech Republic and especially Slovakia.

Table 31 The most frequent sections from the survey on the border crossing Český Těšín - Czieszyn – direction CZ

Node ID	Name of the section	Share to the total records captured during the survey
P18 - C16	Skoczow – Český Těšín	11.64 %
C16 – C15	Český Těšín – Třinec	8.67 %
C15 - S6	Třinec – Čadca	7.45 %
S6 - S7	Čadca – Krásno nad Kysucou	7.33 %
S7 - S2	Krásno nad Kysucou - Žilina	7.27 %
P17 - P18	Bielsko-Biala - Skoczow	5.45 %
P33 - P18	Žory – Skoczow	5.24 %

Node ID	Name of the section	Share to the total records captured during the survey
P24 - P17	Tychy – Bielsko-Biala	3.48 %
S2 - S3	Žilina – Martin	3.26 %
P27 - P33	Gliwice - Žory	3.16 %

Table 32 The most frequent sections from the survey on the border crossing Český Těšín - Czieszyn – direction PL

Node ID	Name of the section	Share to the total records captured during the survey
C16 - P18	Český Těšín - Skoczow	12.13 %
C15 - C16	Třinec – Český Těšín	8.03 %
S6 - C15	Čadca - Třinec	7.11 %
S7 - S6	Krásno nad Kysucou – Čadca	6.76 %
S2 - S7	Žilina – Krásno nad Kysucou	6.62 %
P18 - P17	Skoczow – Bielsko-Blala	5.70 %
P18 - P33	Skoczow – Žory	5.50 %
S1 - S2	Bytča - Žilina	3.34 %
S18 - S1	Trenčín – Bytča	3.28 %
C17 - C16	Frýdek-Mýstek – Český Těšín	3.13 %
P17 - P24	Bielsko-Biala - Tychy	3.05 %

The most frequent sections of transit routes passing through the border crossing Český Těšín - Cieszyn show that, from the perspective of the TRITIA region, this crossing is particularly important as the transit border between Poland and the Balkans plus Hungary. It is mainly used for vehicles passing through Slovakia, as illustrated in the following figure.

In relation to the TRITIA region, the links between the Silesian Voivodeship, the Moravian-Silesian Region and especially the Žilina Region are very important.

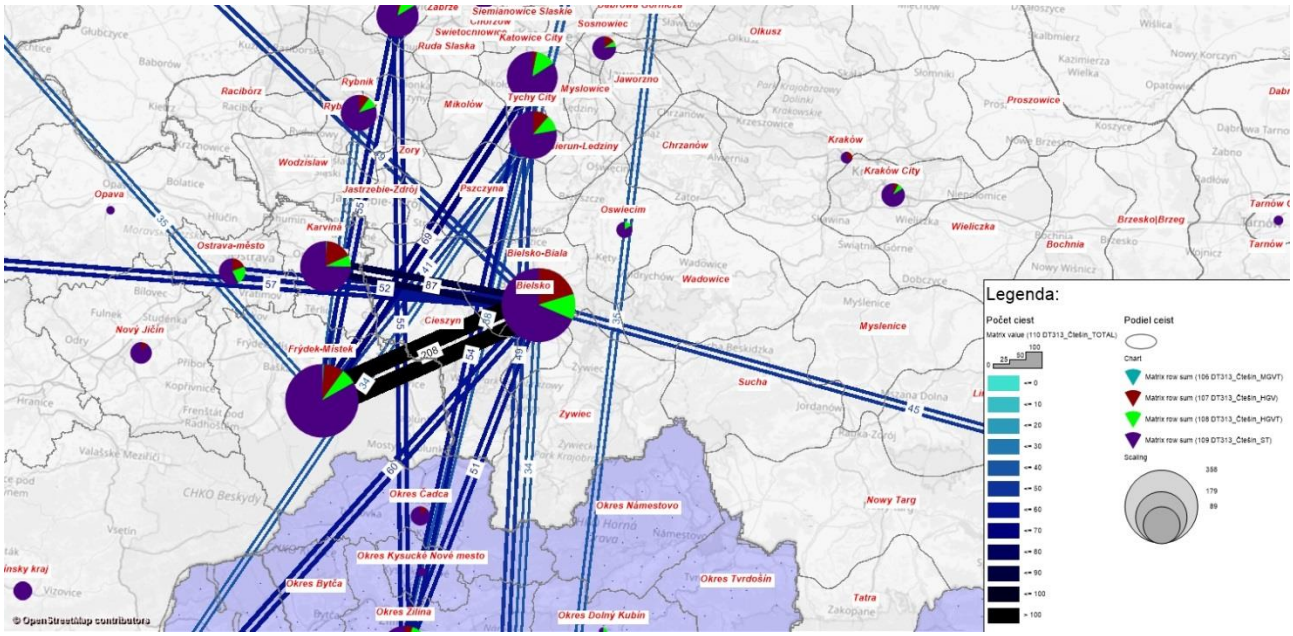

Figure 38 Transport relations in using border crossing Český Těšín - Czieszyn

1.5. Assessment of traffic in respect to the monitored area

24-hour O-D matrix was the basis for determining the contribution of each transport mode in terms of their relation to the territory of TRITIA. The resulting representations are summarized in the following table and graphs separately for each border crossing (origin, destination and transit traffic in the TRITIA area).

Table 33 The share of traffic in respect to the monitored area

Border crossing	Traffic	Destination and origin traffic		Transit traffic		Inter traffic	
		Number	Share	Number	Share	Number	Share
I/10-I/35 Makov – Bíla Bumbálka	1273	623	48.94%	233	18.30%	417	32.76%
I/11 Svrčinovec – Mosty u Jablunkova	3315	1509	45.52%	964	29.08%	842	25.40%
D3-S1 Skalité – Zwardoń	959	381	39.73%	467	48.70%	111	11.57%
I/59-7 Trstená - Chyzne	1134	440	38.80%	617	54.41%	77	6.79%
I/57-41 Bartulovice-Vysoká – Trzebina	919	379	41.24%	427	46.46%	113	12.30%
D1-A1 Bohumín – Gorzycki Laziska	6754	2677	39.64%	2037	30.16%	2040	30.20%
I/48-52 Český Těšín - Cieszyn	3513	1531	43.58%	856	24.37%	1126	32.05%

The analysis, the outputs of which are given in the table above shows, which border crossing within TRITIA territory are mainly used by origin or destination transport beginning or ending in TRITIA territory, by transit transport beginning and ending outside TRITIA territory, or internal cross-border transport, which begins and ends within TRITIA territory.

The following subchapters deal with the issue of transport relations and the structure of traffic flows at the level of individual border crossing in the TRITIA territory.

1.5.1. Border crossing Makov – Bíla Bumbálka

The share of scheduled traffic to the total recorded traffic during survey in border crossing Makov – Bíla Bumbálka was 74.86 %. The resulting representations are summarized in the following table and graphs.

Table 34 The share of traffic in respect to monitored area: Makov – Bíla Bumbálka

I/10-I/35 Makov - Bíla, Bumbálka	Traffic	Destination and origin traffic	Transit traffic	Inter traffic
MGVT	63	38	18	7
HGV	188	110	36	42
HGVT	64	33	15	16
ST	958	442	164	352
TOTAL	1273	623	233	417
Regular traffic total	953	443	155	355
	74.86 %	71.11 %	66.52 %	85.13 %

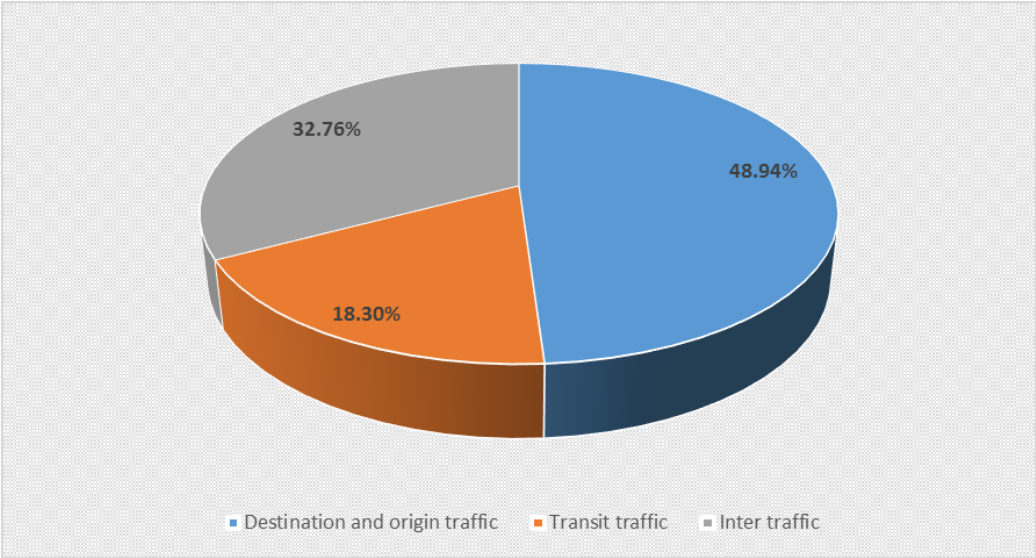

Figure 39 The share of traffic (total): Makov – Bíla Bumbálka

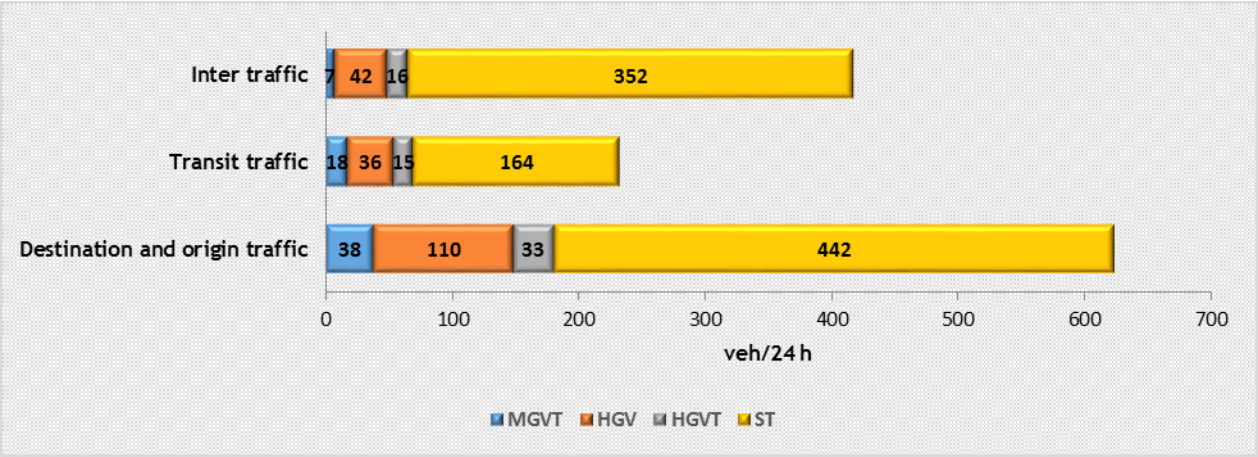

Figure 40 The share of traffic in vehicle categories: Makov – Bíla Bumbálka

From the point of view of the TRITIA region, the border crossing between the Slovak Republic and the Czech Republic Makov - Bílá Bumbálka is particularly important for the origin and destination transport (48.49%), which is regularly realized by 71.11% of goods vehicle. The most frequent origin and destination of transport are the Žilina district and the Ostrava-City district.

Transit transport with a link to the territory of TRITIA is less important.

In term of the overall composition of the traffic flow of goods vehicle, semi-trailer vehicles (75.25%) predominate, for origin and destination transport their share is 70.95%.

1.5.2. Border crossing Svrčinovec – Mosty u Jablunkova

The share of scheduled traffic to the total recorded traffic during survey in border crossing Svrčinovec – Mosty u Jablunkova was 80.21 %. The resulting representations are summarized in the following table and graphs.

Table 35 The share of traffic in respect to monitored area: Svrčinovec – Mosty u Jablunkova

I/11 Svrčinovec - Mosty u Jablunkova	Traffic	Destination and origin traffic	Transit traffic	Inter traffic
MGVT	86	47	13	26
HGV	281	136	89	56
HGVT	104	55	24	25
ST	2844	1271	838	735
TOTAL	3315	1509	964	842
Regular traffic total	2659	1227	685	747
	80.21 %	81.31 %	71.06 %	88.72 %

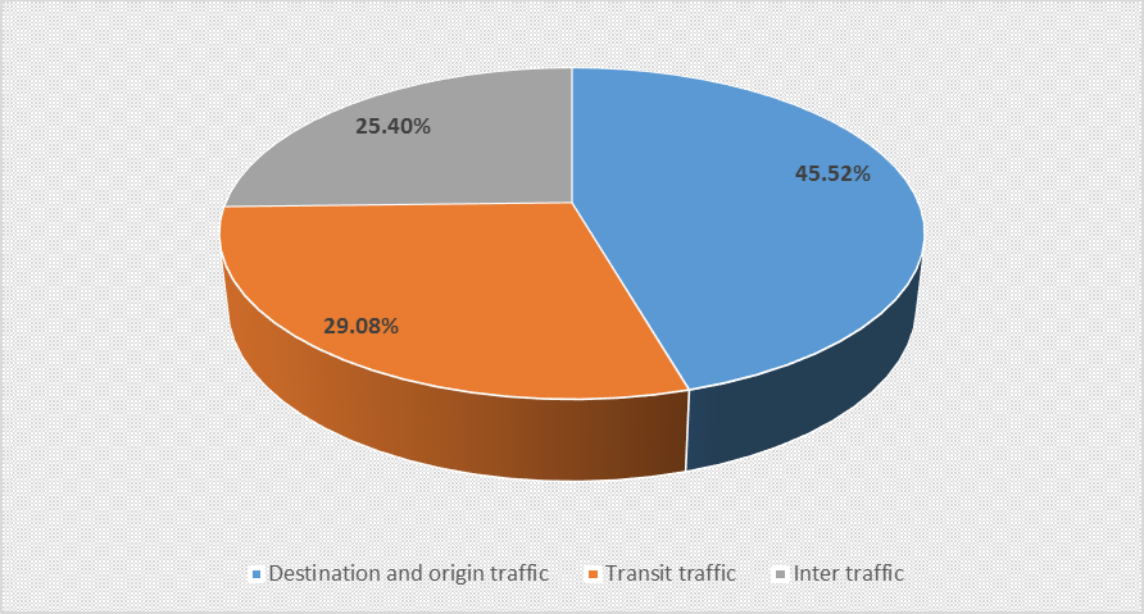

Figure 41 The share of traffic (total): Svrčinovec – Mosty u Jablunkova

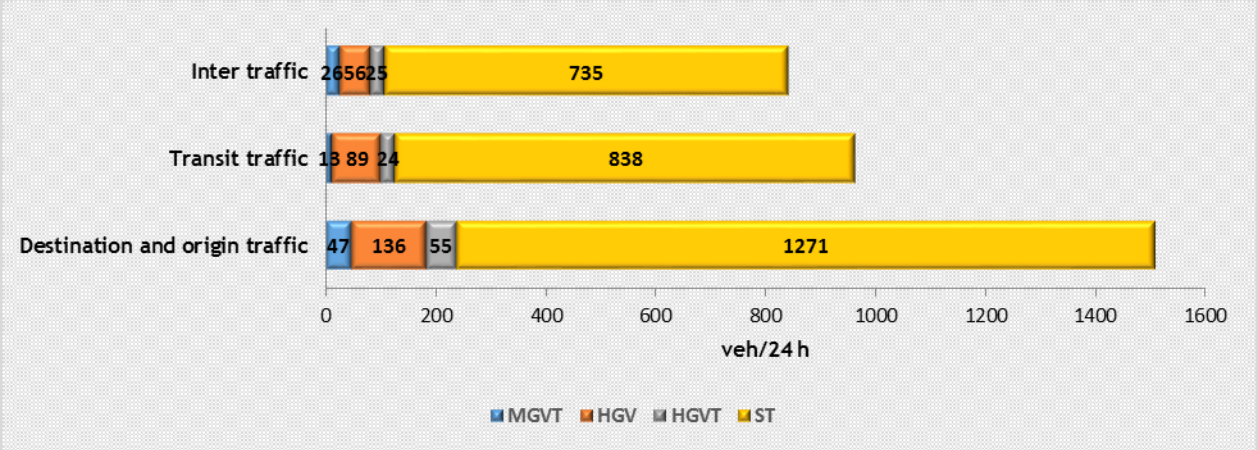

Figure 42 The share of traffic in vehicle categories: Svrčinovec – Mosty u Jablunkova

From the point of view of the TRITIA region, the border crossing between the Slovak Republic and the Czech Republic Svrčinovec - Most U Jablunkova is particularly important for the origin and destination transport (45.52%), which is regularly realized by up to 81.31% of goods vehicle. The most frequent origins of transport are the Žilina and Frýdek-Místek districts, and the Ostrava-City and Katowice districts are also important, and the most frequent transport destinations are the Žilina and Frýdek-Místek districts, and the Ostrava-City and Bielsko-Biala districts.

From the point of view of transit transport with a link to the territory of TRITIA it is more important than the neighbouring border crossing between the Slovak Republic and the Czech Republic. The routing of transit sessions is mostly south-north and vice versa.

In terms of the overall composition of the goods vehicle traffic flow, semi-trailer vehicles predominate (85.79%), their share is 84.23% for origin and destination transport.

1.5.3. Border crossing Skalité – Zwardoń

The share of scheduled traffic to the total recorded traffic during survey in border crossing Skalité - Zwardoń was 65.38 %. The resulting representations are summarized in the following table and graphs.

Table 36 The share of traffic in respect to monitored area: Skalité - Zwardoń

D3-S1 Skalité - Zwardoń	Traffic	Destination and origin traffic	Transit traffic	Inter traffic
MGVT	16	5	5	6
HGV	84	32	38	14
HGVT	36	9	16	11
ST	823	335	408	80
TOTAL	959	381	467	111
Regular traffic total	627	256	274	97
	65.38 %	67.19 %	58.67 %	87.39 %

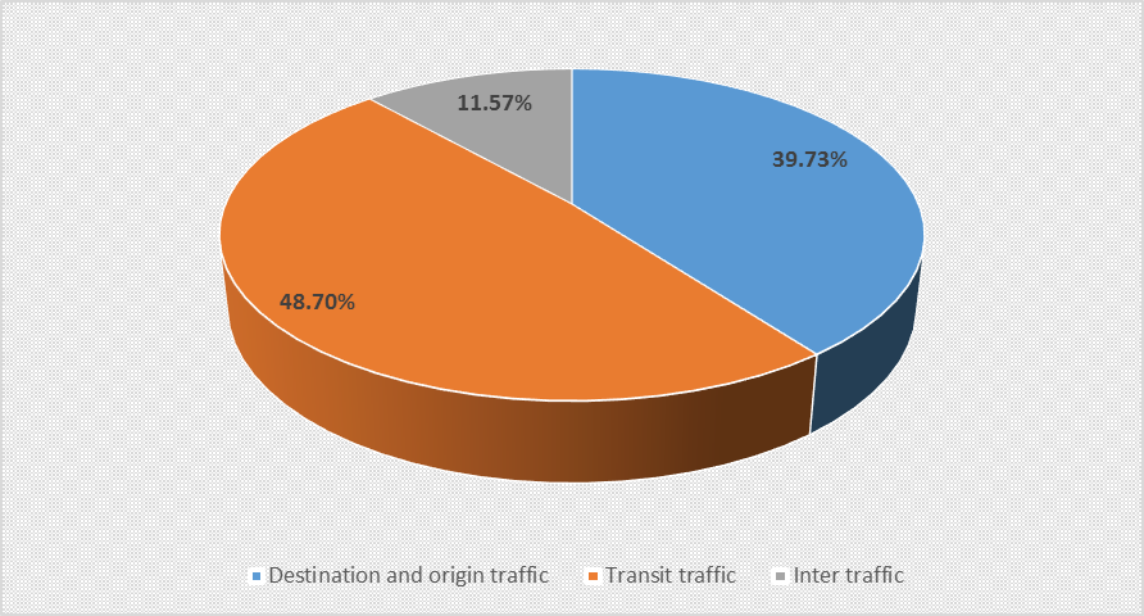

Figure 43 The share of traffic (total): Skalité – Zwardoń

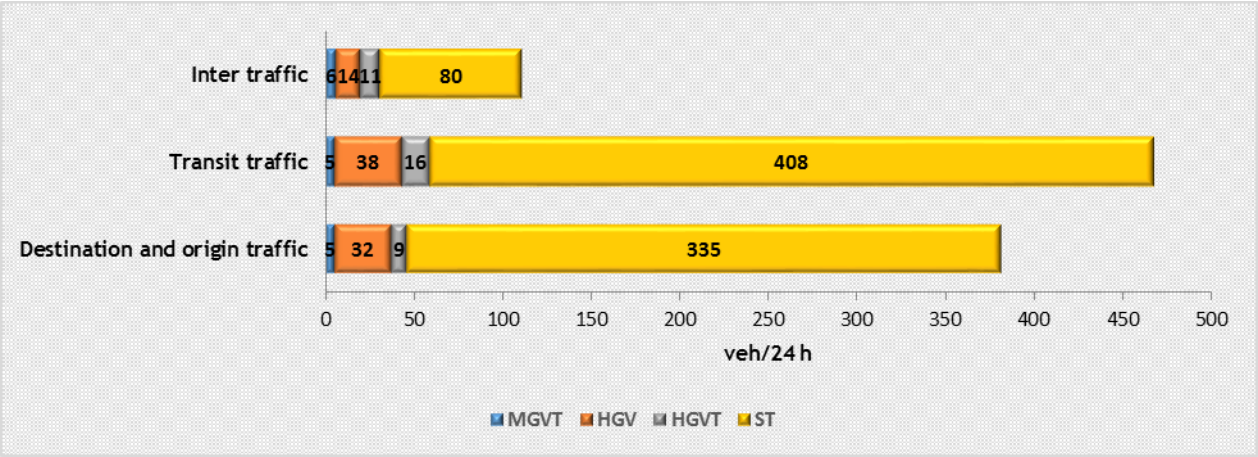

Figure 44 The share of traffic in vehicle categories: Skalité - Zwardoń

From the point of view of the TRITIA region, the border crossing between the Slovak Republic and Republic of Poland Skalité - Zwardoň is particularly important for transit transport (48.70%), which is regularly realized by 58.67% of goods vehicle. The most important transit sessions are in the south-north direction and vice versa, mainly between Hungary and Poland, but the East-West sessions also have a significant presence and between the former Soviet countries and Poland respectively Western Europe.

From the point of view of origin and destination transport, the border crossing is less important for the TRITIA region than the border crossing between Slovakia and the Czech Republic.

In terms of the overall composition of the traffic flow of goods vehicle, semi-trailer predominate (85.82%); while their share is 87.37% in transit transport.

1.5.4. Border crossing Trstená - Chyzne

The share of scheduled traffic to the total recorded traffic during survey in border crossing Trstená - Chyzne was 80.34 %. The resulting representations are summarized in the following table and graphs.

Table 37 The share of traffic in respect to monitored area: Trstená - Chyzne

I/59-7 Trstená - Chyzne	Traffic	Destination and origin traffic	Transit traffic	Inter traffic
MGVT	55	18	35	2
HGV	136	79	48	9
HGVT	122	67	47	8
ST	821	276	487	58
TOTAL	1134	440	617	77
Regular traffic total	911	376	468	67
	80.34 %	85.45 %	75.85 %	87.01 %

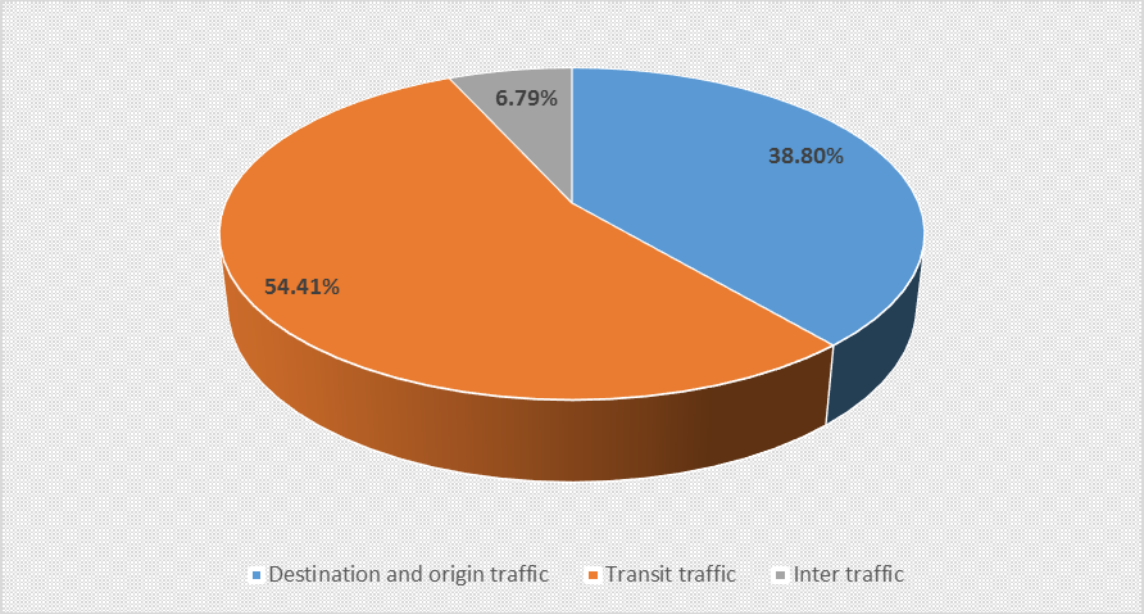

Figure 45 The share of traffic (total): Trstená - Chyzne

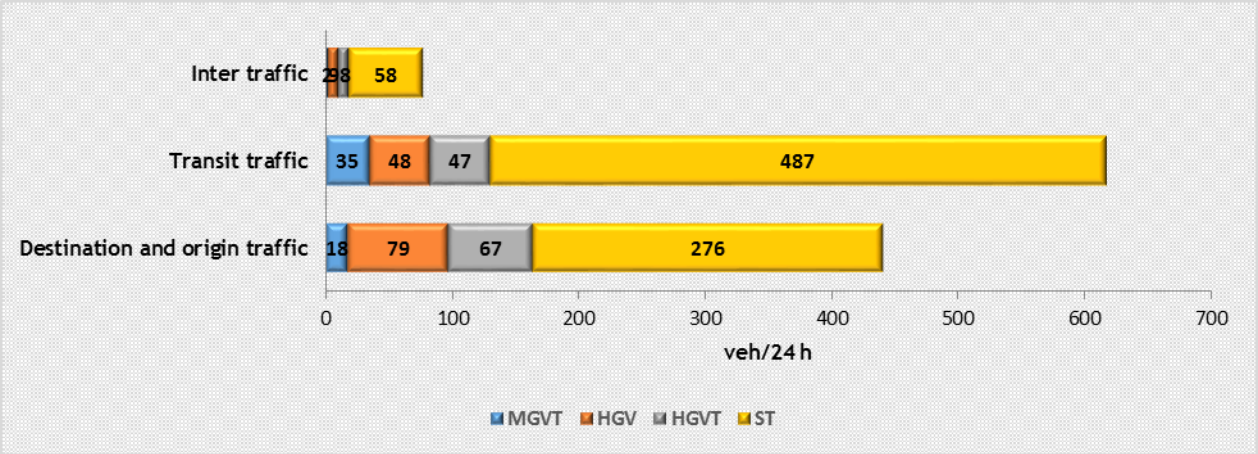

Figure 46 The share of traffic in vehicle categories: Trstená - Chyzne

From the point of view of the TRITIA region, the border crossing between the Slovak Republic and Republic of Poland the border crossing Trstená - Chyzne is the most important for transit transport (54.41%) in the Slovak Republic. The most important transit sessions are directed in the south-north direction and vice versa, mainly between Hungary and Poland, namely the area of Krakow and Novi Sad

From the point of view of origin and destination transport and internal cross-border transport, the border crossing has the lowest importance for the TRITIA region because it is located on the external border of the TRITIA region.

In terms of the overall composition of traffic flow of goods vehicle, semi-trailer predominate (72.40%), while their share is 78.93% in transit transport.

1.5.5. Border crossing Bartulovice-Vysoká - Trzebina

The share of scheduled traffic to the total recorded traffic during survey in border crossing Bartultovice-Vysoká - Trzebina was 65.83 %. The resulting representations are summarized in the following table and graphs.

Table 38 The share of traffic in respect to monitored area: Bartulovice-Vysoká - Trzebina

I/57-41 Bartultovice-Vysoká - Trzebina	Traffic	Destination and origin traffic	Transit traffic	Inter traffic
MGVT	8	6	2	0
HGV	39	15	11	13
HGVT	65	29	24	12
ST	807	329	390	88
TOTAL	919	379	427	113
Regular traffic total	605	250	267	88
	65.83 %	65.96 %	62.53 %	77.88 %

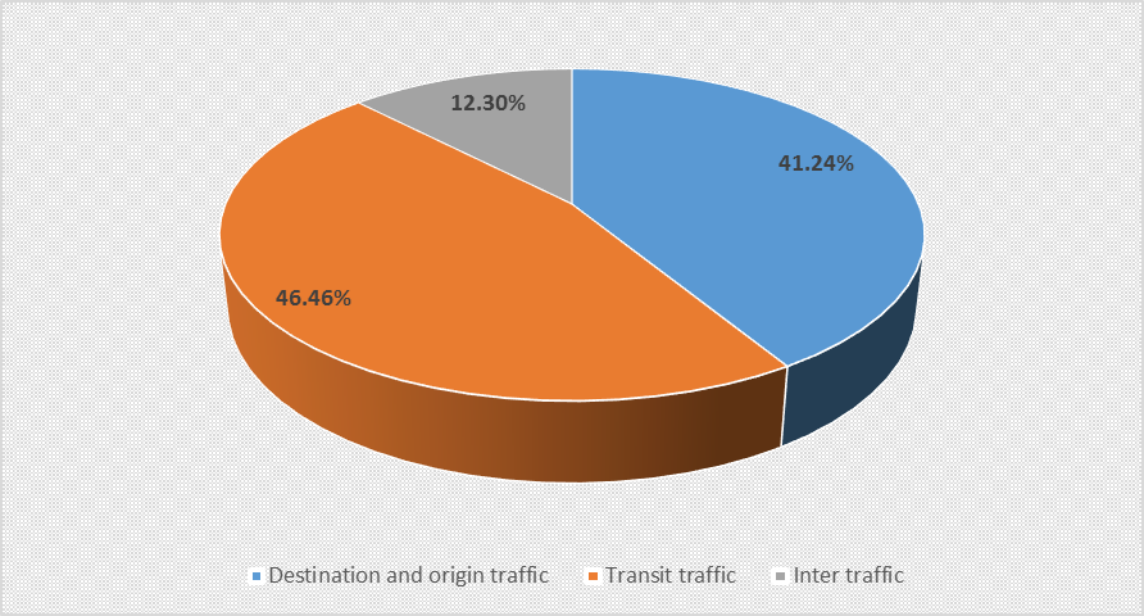

Figure 47 The share of traffic (total): Bartulovice-Vysoká - Trzebina

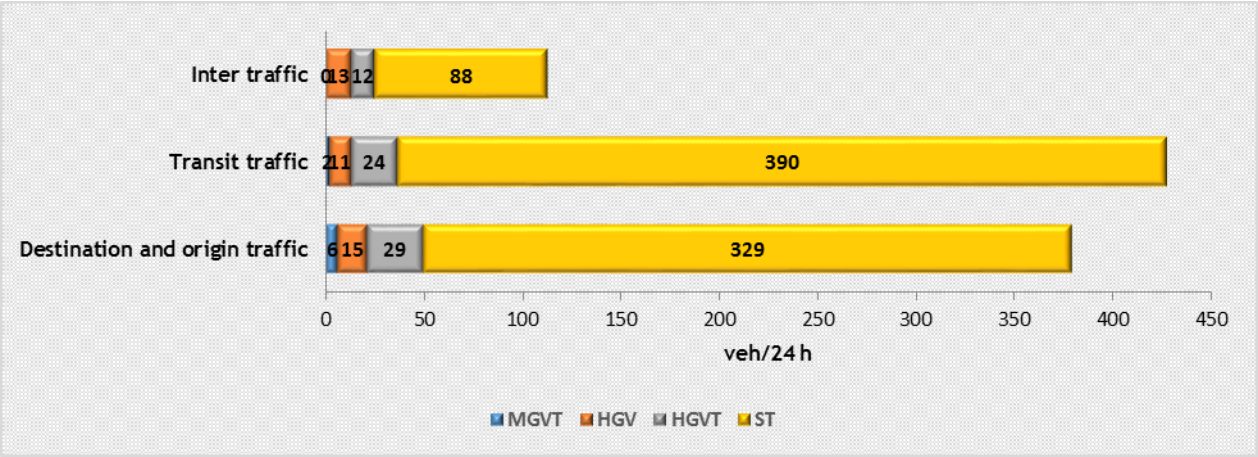

Figure 48 The share of traffic in vehicle categories: Bartulovice-Vysoká - Trzebina

From the perspective of the TRITIA region, the border crossing between the Czech Republic and Poland is particularly important for transit traffic (46.46%), which is regularly carried out by 62.53% of trucks. The most frequent transit relations are mainly between Poland - Austria, Italy, or Hungary.

It is less important in terms of origin and destination transport, but it is important for the transport of goods between the Moravian-Silesian Region (Opava, Bruntál) and Germany.

Regarding the composition of the total freight traffic, vehicles with a trailer predominate (87.8%), and their share in transit traffic is then 91.33%.

1.5.6. Border crossing Bohumín – Gorzycki Laziska

The share of scheduled traffic to the total recorded traffic during survey in border crossing Bohumín – Gorzycki Laziska was 68.76 %. The resulting representations are summarized in the following table and graphs.

Table 39 The share of traffic in respect to monitored area: Bohumín – Gorzycki Laziska

D1-A1 Antošovice - Šilheřovice	Traffic	Destination and origin traffic	Transit traffic	Inter traffic
MGVT	68	28	3	37
HGV	618	198	58	362
HGVT	439	184	105	150
ST	5629	2267	1871	1491
TOTAL	6754	2677	2037	2040
Regular traffic total	4644	1893	1091	1660
	68.76 %	70.71 %	53.56 %	81.37 %

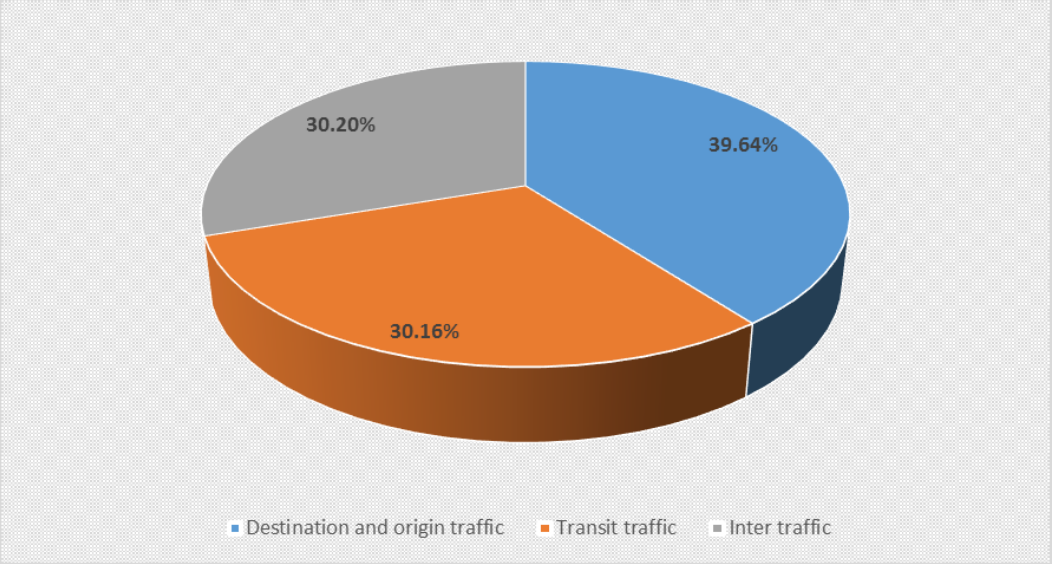

Figure 49 The share of traffic (total): Bohumín – Gorzycki Laziska

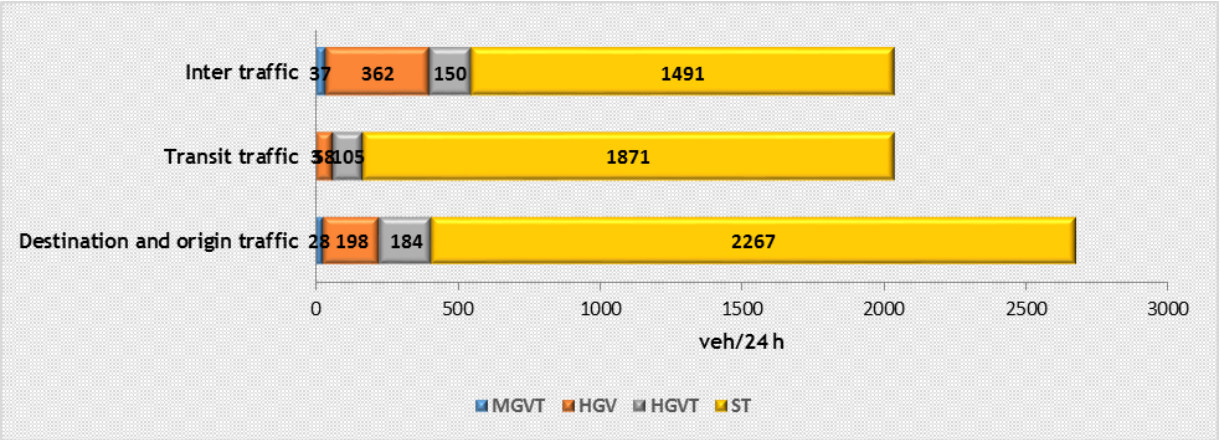

Figure 50 The share of traffic in vehicle categories: Bohumín – Gorzycki Laziska

From the perspective of the TRITIA region, the border crossing between the Czech Republic and Poland is particularly important for the origin and destination transport (39.64%), which is regularly realized by 70.71% of trucks. The most frequent starting and ending points in the Czech Republic are the districts of Ostrava, Karviná, Frýdek-Místek and in Poland the districts of Gliwice, Katowice and Rybnik.

It is less important from the point of view of transit transport, but it has its importance for the transport of goods between Ostrava and Germany, eventually countries of the former Soviet Union, Poland and Austria, respectively Italy.

Regarding the composition of the total freight traffic, vehicles with a trailer predominate (83.34%), their share in the original and destination traffic makes then 84.68%.

1.5.7. Border crossing Český Těšín - Cieszyn

The share of scheduled traffic to the total recorded traffic during survey in border crossing Český Těšín - Cieszyn was 74.30 %. The resulting representations are summarized in the following table and graphs.

Table 40 The share of traffic in respect to monitored area: Český Tešín - Cieszyn

I/48-52 Český Těšín - Czieszyn	Traffic	Destination and origin traffic	Transit traffic	Inter traffic
MGVT	16	6	4	6
HGV	266	82	26	158
HGVT	307	133	65	109
ST	2924	1310	761	853
TOTAL	3513	1531	856	1126
Regular traffic total	2610	1077	539	994
	74.30 %	70.35 %	62.97 %	88.28 %

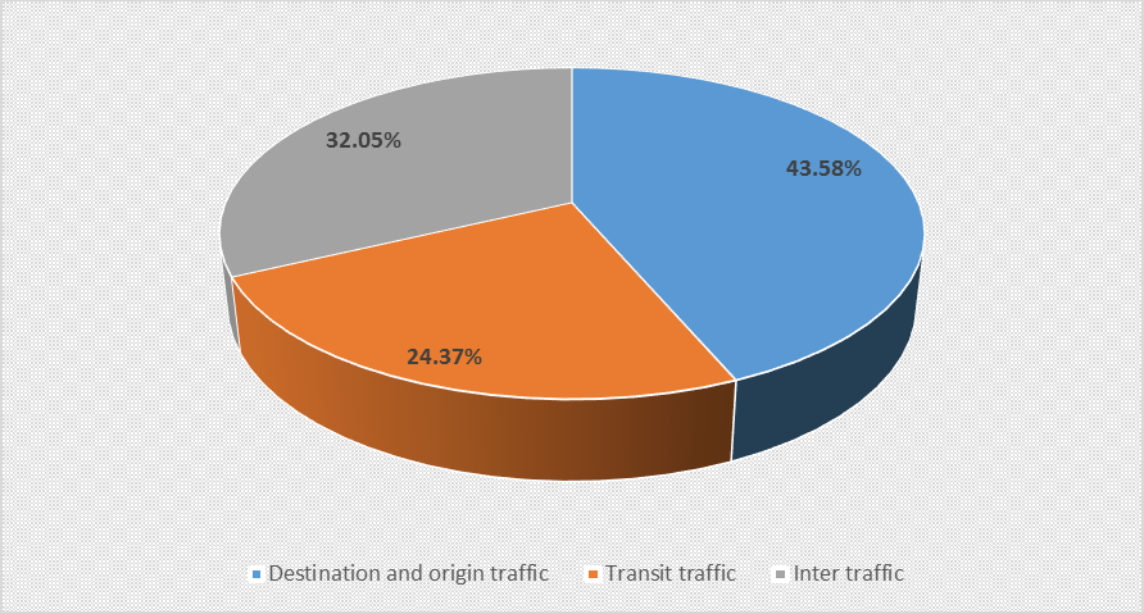

Figure 51 The share of traffic (total): Český Tešín - Cieszyn

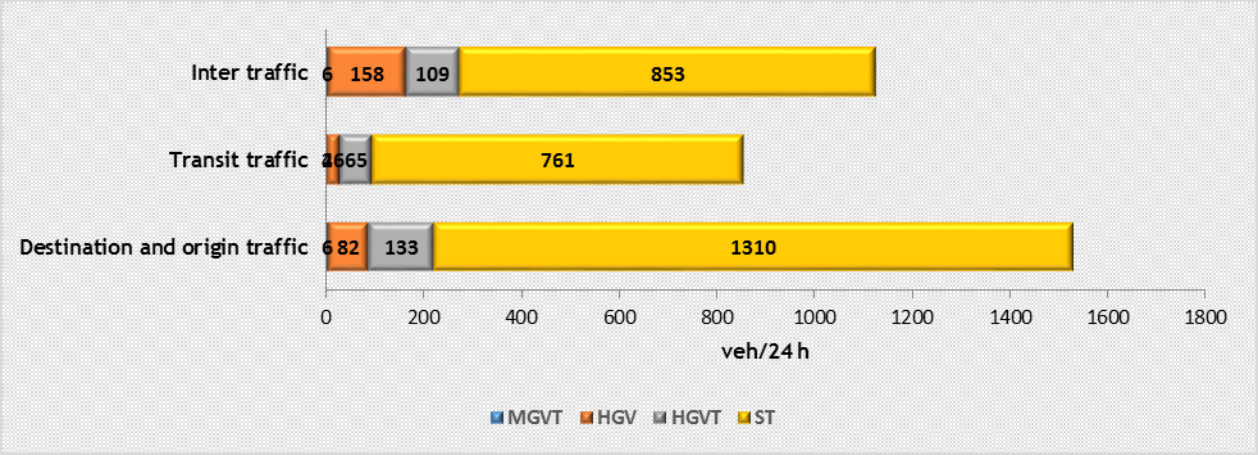

Figure 52 The share of traffic in vehicle categories: Český Těšín - Cieszyn

From the perspective of the TRITIA region, the border crossing between the Czech Republic and Poland is particularly important for the original and destination transport (43.58%), which is regularly realized by 70.35% of trucks. The most frequent starting and ending points in the Czech Republic are the districts of Karviná, Frýdek-Místek, Slovakia the Žilina region and in Poland the district Bielsko-Biala, so borderline relations prevail.

From the point of view of transit transport, it is less important, but it is significant for the transport of goods between the points mentioned above and Hungary, or between the southern part of Poland and Italy.

Regarding the composition of total freight traffic, vehicles with a semi-trailer predominate (83.23%), their share in the original and destination traffic is then 85.56%.

1.6. Conclusions and recommendations for the questionnaire traffic survey on the border crossings

The part of this report documents and summarizes the results of the O-D traffic survey (questionnaire traffic survey) conducted at seven border crossings in the TRITIA region..

The traffic survey was carried out at border crossings Makov – Bíla Bumbálka, Svrčinovec – Mosty u Jablunkova, Skalité – Zwardoń, Trstená – Chyzne on 27.9.2018 , Bartulovice-Vysoká – Trzebina on 14.5.2019 and 20.5.2019, Bohumín – Gorzycki Laziska on 17.6.2019 and 18.6.2019, Český Těšín - Cieszyn on 30.5.2019 and 18.6.2019, during the period from 6:00 a.m. to 6:00 p.m., together with a complementary 12-hour traffic survey conducted for the purpose of conversion of the O-D matrices to AADT values .

During the SK-PL and SK-CZ surveys (27.9.2018), the weather was cold without rain falls, anyway, this did not prevent execution of the survey. The traffic conditions corresponded to the traffic on the current Thursday, except for milder complications in the afternoon (14:00 - 18:00), which showed a higher traffic intensity in the direction from the Czech Republic, which was probably due to the approaching public holidays in the Czech Republic (28.9.2018). This fact was most apparent at the border crossing Svrčinovec in the direction CZ - SK. This caused the stopping of trucks in Svrčinovec and the subsequent long column beyond the border bound. This may have affected the survey.

Border crossing Vysoká-Bartultovice

The survey was conducted on the 14th of May (Tuesday), the weather was relatively cold 8 °C, overcast, afternoon rain. For the second driving direction, it took place on the 20th of May (Monday). On this day it was 16 °C and overcast, in the morning rain showers. As the volume of traffic at the Bartultovice border

crossing is lower as a standard, it was observed no effect on the results and course of the event. Perhaps only in the second part of Monday, the number of stopped trucks was slightly lower, but in the afternoon everything got back to normal. The traffic was smooth throughout the whole event. The big advantage was that the interviewers tried the survey in practice before and therefore they gained experience for other more complex sites.

Border crossing Český Těšín

The survey was conducted for the direction of Poland on the 30th of May (Thursday), on that day it was 14 °C, cloudy, afternoon rain. For the second driving direction, it took place on the 13th of June (Thursday). The weather was quite hot 31 °C, clear skies and sunny all day long. On the first day, the number of stopped trucks was a little higher, therefore the nearby roundabout was sometimes blocked. In the second part of the day, it was minimal effect on the fluency of operation, but the weather conditions were very difficult for counters. Since almost all vehicles of the monitored categories had been stopped, we can assume that the obtained sample is not biased.

Border crossing Antošovice/Šilheřovice

The survey was conducted for the direction to Poland on the 17th of June (Monday), on this day it was 25 °C, partly cloudy to cloudy. For the second driving direction, it took place a day later, on the 18th of June (Tuesday), it was 26 °C and cloudy, the weather was quite stable for both days. The number of stopped vehicles during the first day was slightly lower in the morning, but in the afternoon everything got back to normal. The effect on traffic flow was thus minimal. On the second day, the number of completed questionnaires was slightly higher and in peak hours it was several kilometres of columns reaching in some places to the Polish border. In the view of the fact that we managed to stop almost all vehicles of the monitored categories, we can assert that the obtained sample is high quality.

Slight complications were caused by the limitation of the highway due to repairs of its undulating surface. This issue made impossible to use two ramps nr. 361 and 366 in the direction of Brno. As a result, some of the cars headed from the northern part of Ostrava and originally planned to drive in the direction of Brno, had to drive into a motorway in the opposite side and use the exit number 370, which was located between our census stations and the aforementioned restriction. Thus, on the first day of the survey, there were situations, when trucks headed to Brno were stopped in the direction of Poland. Furthermore, the next day the vehicles that had Ostrava as their starting point were stopped as well. There was no transport across the Czech-Polish border at all. These data were adjusted during the final inspection and reconstruction of routes.

Performed O-D survey had following objectives:

- To establish the basis for development of traffic-engineering documents for the traffic model of the relevant area of the TRITIA region,
- To create conditions for the estimation of the current and future traffic volumes in TRITIA region
- To identify the actual transport relations and to define major transport relations in the relevant territory of TRITIA region concerning individual categories of vehicles.

Since the conditions for the performance of questionnaire traffic survey can be evaluated as appropriate and the actual performance of the survey can be considered successful, the results form a reliable basis for the elaboration of O-D matrices for the current state of traffic volumes at respective origin-destination relations.

The processing of information in the form of O-D matrices (for both actual 12-hour results, as well as 24-hour data converted to the annual average daily traffic) has produced data representing relevant input for the identification of the actual traffic passing through the respective border crossings TRITIA region.

The analytical part of the questionnaire traffic survey technical report, as well as the detailed results of the survey represent an easy to use document useful also for other purposes related to the relevant territory in terms of the future infrastructure solutions and traffic control. This assumption is maintained mainly on the basis of a detailed elaboration of the zoning of the reference territory, the extent of survey questions, or the vehicle categorisation.

From a wide range of data obtained at the surveyed border crossings and outputs analytically derived from the results of the questionnaire traffic survey, following significant findings on traffic routing should be summarised

Makov – Bíla Bumbálka

The border crossing Makov - Bíla Bumbálka is part of the main transit routes North-West and West-East in Žilina region. The border crossing is part of the international route of the Class B road with the marking E 422 leading on the route E442 - Karlovy Vary - Teplice - Turnov - Hradec Kralove - Olomouc - Žilina.

In the direction of SK - CZ, 78.90 % of all freight transport recorded by ATC during survey was interviewed within the questionnaire survey. ST vehicles had the highest share (73.10 %). In the CZ - SK direction, 86.50 % of all freight transport recorded by ATC during survey was interviewed within the questionnaire survey. ST vehicles had the highest share (74.80 %).

A traffic survey at the border crossing demostrated the use of the following transit routes mainly in Žilina region:

- I/10 (E442) - D1 (E75) direction to Trenčín
- I/10 (E442) - D1 + D3 + I/18 (E50) direction to Presov
- I/10 (E442) - D1 + D3 + I/18 (E50) direction to Ružomberok - I/59 (E77) direction to Banská Bystrica
- I/10 (E442) - D1 + D3 + I/18 (E50) direction to Martin - I/65 direction to Turčianske Teplice

Svrčinovec – Mosty u Jablunkova

The border crossing Svrčinovec - Mosty u Jablunkova is part of the main transit routes North-South, North-East and North-West in Žilina region. The border crossing is part of the international route of the A-class main road with the marking E 75 on the route E75 - Vardø - Vadsø - Varangerbotn - Utsjoki - Inari - Ivalo - Sodankylä - Rovaniemi - Kemi - Oulu - Jyväskylä - Heinola - Lahti - Helsinki ... Gdańsk - Świecie - Łódź - Piotrków Trybunalski - Katowice - Žilina - Bratislava - Györ - Budapest - Szeged - Belgrade - Niš - Kumanovo - Skopje - Thessaloniki - Larissa - Lamia - Athens ... Chaniá - Iraklion - ágios Nikólaos - Sitía.

In the direction to SK - CZ 52.20 % of all freight transport recorded by ATC during survey was interviewed within the questionnaire survey. ST vehicles had the highest share (90.40 %). In the direction to CZ - SK, 64.30 % of all freight transport recorded by ATC was interviewed within the questionnaire survey. ST vehicles had the highest share (76.20 %).

A traffic survey at the border crossing demonstrated the use of the following transit routes mainly in Žilina region:

- I/11 + D3 (E75) - D3 + D1 (E50) direction to Trenčín
- I/11 + D3 (E75) - D1 + I/18 (E50) direction to Prešov
- I/11 + D3 (E75) - D1 + I/18 (E50) direction to Ružomberok - I/59 (E77) direction to Banská Bystrica
- I/11 + D3 (E75) - D1 + I/18 (E50) direction to Martin - I/65 direction to Turčianske Teplice
- I/11 + D3 (E75) - D1 + I/18 (E50) direction to Kraľovany - I/70 - I/59 (E77) direction to Trstená

Skalité – Zwardoń

The border crossing Skalité - Zwardon is part of the main transit routes North-South, North-East and North-West in Žilina region. The border crossing is part of the motorway D3 with connection to the international A-class main road with the marking E 75 on the route E75 - Vardø - Vadsø - Varangerbotn - Utsjoki - Inari - Ivalo - Sodankylä - Rovaniemi - Kemi - Oulu - Jyväskylä - Heinola - Lahti Helsinki ... Gdańsk - Świecie - Łódź - Piotrków Trybunalski - Katowice - Zilina - Bratislava - Gyor - Budapest - Szeged - Belgrade - Nis - Kumanovo - Skopje - Thessaloniki - Larissa - Lamia - Athens ... Chania - Iraklion - Agios Nikólaos -Sitía.

In the direction to SK - PL, 85.70 % of all freight transport recorded by ATC during survey was interviewed within the questionnaire survey. ST vehicles had the highest share (90.00 %). In the direction to PL – SK, 84.80 % of all freight transport recorded by ATC during survey was interviewed within the questionnaire survey. ST vehicles had the highest share (82.00 %).

A traffic survey at the border crossing demonstrated the use of the following transit routes mainly in Žilina region:

- I/11 + D3 (E75) - D3 + D1 (E50) direction to Trenčín
- I/11 + D3 (E75) - D1 + I/18 (E50) direction to Presov
- I/11 + D3 (E75) - D1 + I/18 (E50) direction to Ružomberok - I/59 (E77) direction to Banská Bystrica
- I/11 + D3 (E75) - D1 + I/18 (E50) direction to Martin - I/65 direction to Turčianske Teplice

Trstená – Chyzne

The border crossing Trstená - Chyzne is part of the main transit routes North-South, North-East and North-West in Žilina region. The border crossing is part of the international route of Class A additional road with the marking E 77 on the route E77 - Pskov - Riga - Siauliai - Tolpaki - Kaliningrad ... Gdańsk - Elbląg - Warsaw - Radom - Kraków - Trstena - Ruzomberok - Zvolen - Budapest.

In the direction to SK - PL, 81.80 % of all freight transport recorded by ATC was interviewed within the questionnaire survey. ST vehicles had the highest share (77.00 %). In the direction to PL – SK, 88.30 % of all freight transport recorded by ATC was interviewed within the questionnaire survey. ST vehicles had the highest share (64.60 %)

A traffic survey at the border crossing demonstrated the use of the following transit routes mainly in Žilina region:

- I/59 (E77) direction to Banská Bystrica
- I/59 (E77) direction to Dolný Kubín - I/70 - I/18 + D1 direction to Martin (E50) - I/65 direction to Turčianske Teplice
- I/59 (E77) direction to Ružomberok - I/18 + D1 (E50) direction to Prešov

Bartultovice-Vysoká -Trzebina

In the direction of PL - CZ, it was stopped and interviewed 28.9% of all freight traffic recorded by ATC during the event. ST vehicles had the highest share (87.1%). In the opposite direction, 61.8% of all ATC freight traffic captured during the event was stopped within the survey. ST vehicles had the highest share (88.2%).

Traffic research at the border crossing point showed the use of the following transit routes:

- I/57 – I/45 + I/46 direction to Olomouc – I/55 + D35 (E442) + D46 (E462) + D1 (E462) direction to Brno
- I/57 – I/11 direction to Ostrava
- I/57 direction to Nový Jičín or Wallachia

- I/57 – I/35 (E442) direction to Slovakia

Bohumín – Gorzycki Laziska

In the direction of PL - CZ, it was stopped and interviewed 34.3% of all freight traffic recorded by ATC during the event. ST vehicles had the highest share (86.6%). In the opposite direction, 47.7% of all ATC freight traffic captured during the event was stopped within the survey. ST vehicles had the highest share (82.4%).

Traffic research at the border crossing point showed the use of the following transit routes:

- D1 direction to Ostrava
- D1 - D35 (E442) direction to Olomouc - D46 (E462) + D1 (E462) direction to Brno
- D1 – I/56 + D56 direction to Frýdek-Místek
- D1 – I/67 direction to Karviná
- D1 – I/11 direction to Opava

Český Těšín – Czieszyn

In the direction of PL - CZ, it was stopped and interviewed 54.2% of all freight traffic recorded by ATC during the event. ST vehicles had the highest share (82.3%). In the opposite direction, 65.8% of all ATC freight traffic captured during the event was stopped within the survey. ST vehicles had the highest share (86.3%).

Traffic research at the border crossing point showed the use of the following transit routes:

- I/48 – D48 (E462) direction to Frýdek-Místek
- I/48 – D48 (E462) + I/48 + D1 (E462) + D35 (E442) direction to Olomouc - D46 (E462) + D1 (E442) direction to Brno
- I/48 – D48 (E462) + I/11 (E75) direction to Slovakia
- I/48 – D48 (E462) + D56 direction to Ostrava
- I/48 direction to Karviná

O-D matrices were elaborated separately for each border crossing, driving direction and individual vehicle category (medium good vehicles with trailer, heavy goods vehicles, heavy goods vehicles with trailer, semi-trailer) represent an important part of the outcomes (Annex 2).

2. Profile traffic survey

Automatic traffic counters (ATC) records crossings vehicles according to the direction with assignment of the date and time of the crossing. The definition of the traffic flow structure is according to the length of the vehicle. Processed data in table and graphic form from ATC and their analysis are assumption for obtaining traffic engineering characteristics like:

- morning and afternoon traffic peaks,
- course of the daily traffic volume variations with diversion according to the direction
- weekly traffic volume variations and etc.

It is possible to find out exact daily traffic volume according to the data obtained from the ATC (in case of complete data from ATC). Competent processing and evaluation of the data is condition of the accuracy of

the results from the survey. Calculation of the hourly traffic volume and vehicle categorization is highly dependent from the conversion mechanism based on the vehicle length.

The results of the profile traffic survey are processed individually for each counting site in tabular and graphic form. Concerning the amount of the profile traffic survey outputs are in the report presented representative outputs, which allows obtaining basic information about traffic in the counting sites.

2.1. Czech Republic

The principles of the distribution of profile surveys counting sites in the Moravian-Silesian region are described in the report D.T3.1.2 Preparation and performance of traffic surveys in chapter 2.2. Permanent traffic counters operated by the infrastructure manager and mobile devices for 7-day continuous measurements were used for profile measurements of traffic intensity. The main transit routes in the Moravian-Silesian region and its surroundings resulted in 25 sites (Figure 53) on motorways, expressways and I. class roads, which were measured by mobile devices in 2020. From the motorway infrastructure manager another 23 sites (Figure 104) with permanent traffic counters located on motorways, expressways and I. class roads in Moravian-Silesian region. Overall, profile intensities were measured at 48 sites in the Moravian-Silesian region.

The results of the measurements are profile intensities at the counting sites divided into 5 categories of vehicles (PC, LCV, MGV, HGV, ST) expressed as the annual average daily traffic (AADT) i.e. vehicle/24 h. Table 66 and Table 94 present summary results of profile measurements in Žilina region. The following chapters describe the results of the individual sites where profile measurements were performed.

The results of the measurements are profile intensities at the counting sites divided into 5 categories of vehicles (PC, LCV, MGV, HGV, ST) expressed as the annual average daily traffic (AADT) i.e. vehicle/24 h. Table 41 and Table 67 present summary results of profile measurements in Žilina region. The following chapters describe the results of the individual sites where profile measurements were performed.

From the WADT values of traffic volumes that was result from the profile measures on the selected profiles were calculated values of annual average daily traffic (AADT) according to the technical regulation „TP189 Determination of transport intensity on the roads“. The share of buses was expressed from the detailed vehicles categorization of national traffic census at the same section.

2.1.1. Mobile automatic traffic counters in Moravian-Silesian region

The results of the profile traffic survey measured by mobile ATC are processed individually for each site in a clear graphical and table format. Given the scope of the profile survey outputs, only representative outputs are presented in the report, which make it possible to obtain basic information on traffic at the sites concerned. Complete outputs of the profile traffic survey are given in Annex 4, which is available in electronic form.

Table 41 The results of profile traffic surveys in Moravian-Silesian region – mobile ATC (veh./24 h)

ID	Locality	Measuring device	Road	GPS	Census section	Date of the survey	AADT								
							PC	LCV	MGV	HGV	ST	Total	LV	HV+BUS	BUS
CZ-P-6	Frýdek-Místek	mobile ATC	D56	49.67417, 18.33001	7-1757	5.2. - 11.2.2020	23 118	1 699	1 047	1 093	2 410	29 367	24 817	4 550	118
CZ-P-8	Krásne Loučky	mobile ATC	I/57	50.12237, 17.63902	7-3040	13.2. - 19.2.2020	5 775	203	188	293	654	7 113	5 978	1 135	95
CZ-P-9	Podlízaná	mobile ATC	I/35	49.41928, 18.34997	7-0217	5.2. - 11.2.2020	2 875	178	126	88	462	3 729	3 053	676	62
CZ-P-11	Krnov JZ	mobile ATC	I/45	50.08474, 17.66827	7-0851	13.2. - 19.2.2020	5 689	368	182	208	636	7 083	6 057	1 026	137
CZ-P-12	Nový Jičín	mobile ATC	I/48	49.60759, 18.02741	7-1510	5.2. - 11.2.2020	9 375	1 035	487	323	624	11 844	10 410	1 434	80
CZ-P-13	Šenov	mobile ATC	I/11	49.78288, 18.37001	7-3154	5.2. - 11.2.2020	20 188	1 187	500	464	555	22 894	21 375	1 519	170
CZ-P-15	Dětřichov nad Bystřicí	mobile ATC	I/45	49.82082, 17.39468	7-1459	13.2. - 19.2.2020	2 445	256	107	67	690	3 565	2 701	864	12
CZ-P-16	Holasovice	mobile ATC	I/57	49.99515, 17.81138	7-0837	13.2. - 19.2.2020	7 690	651	337	331	429	9 438	8 341	1 097	121
CZ-P-17	Dolní Lutyně	mobile ATC	I/67	49.89993, 18.40986	7-1620	5.2. - 11.2.2020	7 032	514	139	124	641	8 450	7 546	904	34
CZ-P-18	Český Těšín	mobile ATC	R48	49.73922, 18.60196	7-1585	5.2. - 11.2.2020	7 323	1 054	396	334	3 637	12 744	8 377	4 367	45
CZ-P-19	Kunín	mobile ATC	I/57	49.65219, 17.9847	7-1226	5.2. - 11.2.2020	5 200	556	258	163	407	6 584	5 756	828	68
CZ-P-20	Starý Jičín	mobile ATC	R48	49.58073, 17.97458	7-1507	5.2. - 11.2.2020	7 237	1 058	518	261	912	9 986	8 295	1 691	48
CZ-P-21	Nový Jičín	mobile ATC	I/57	49.57956, 18.02301	7-1240	5.2. - 11.2.2020	6 789	619	239	104	410	8 161	7 408	753	65
CZ-P-22	Bohumín	mobile ATC	I/67	49.91362, 18.32811	7-0438	5.2. - 11.2.2020	3 209	219	118	61	688	4 295	3 428	867	24
CZ-P-23	Důl Lazy	mobile ATC	I/59	49.83926, 18.44837	7-1055	5.2. - 11.2.2020	7 719	1 504	586	364	981	11 154	9 223	1 931	198
CZ-P-24	Český Těšín	mobile ATC	I/11	49.74776, 18.58431	7-0450	5.2. - 11.2.2020	5 305	382	114	72	41	5 914	5 687	227	108
CZ-P-25	Ropice	mobile ATC	I/68	49.67438, 18.5963	7-2630	5.2. - 11.2.2020	10 077	908	333	274	362	11 954	10 985	969	101
CZ-P-26	Vlaštovičky	mobile ATC	I/11	49.96607, 17.82705	7-0710	13.2. - 19.2.2020	5 540	466	132	171	261	6 570	6 006	564	83
CZ-P-27	Dvorce	mobile ATC	I/46	49.83032, 17.54093	7-3260	13.2. - 19.2.2020	1 420	111	80	69	85	1 765	1 531	234	27
CZ-P-28	Hradec n. M.	mobile ATC	I/57	49.85193, 17.88183	7-3270	13.2. - 19.2.2020	5 856	637	300	168	629	7 590	6 493	1 097	56
CZ-P-29	Bílá	mobile ATC	I/56	49.44696, 18.46248	7-3378	5.2. - 11.2.2020	1 674	156	105	88	146	2 169	1 830	339	29
CZ-P-30	Krnov S	mobile ATC	I/45	50.11297, 17.69522	7-3701	13.2. - 19.2.2020	960	54	17	17	10	1 058	1 014	44	16
CZ-P-31	Pusté Jakartice	mobile ATC	I/46	49.96744, 17.95071	7-2960	13.2. - 19.2.2020	3 221	207	73	78	87	3 666	3 428	238	46
CZ-P-32	Č. Těšín S	mobile ATC	I/67	49.78811, 18.59425	7-1590	5.2. - 11.2.2020	8 212	628	242	141	729	9 952	8 840	1 112	84
CZ-P-33	Horní Suchá	mobile ATC	II/475	49.79944, 18.51661	7-1677	5.2. - 11.2.2020	3 912	330	137	113	249	4 741	4 242	499	45

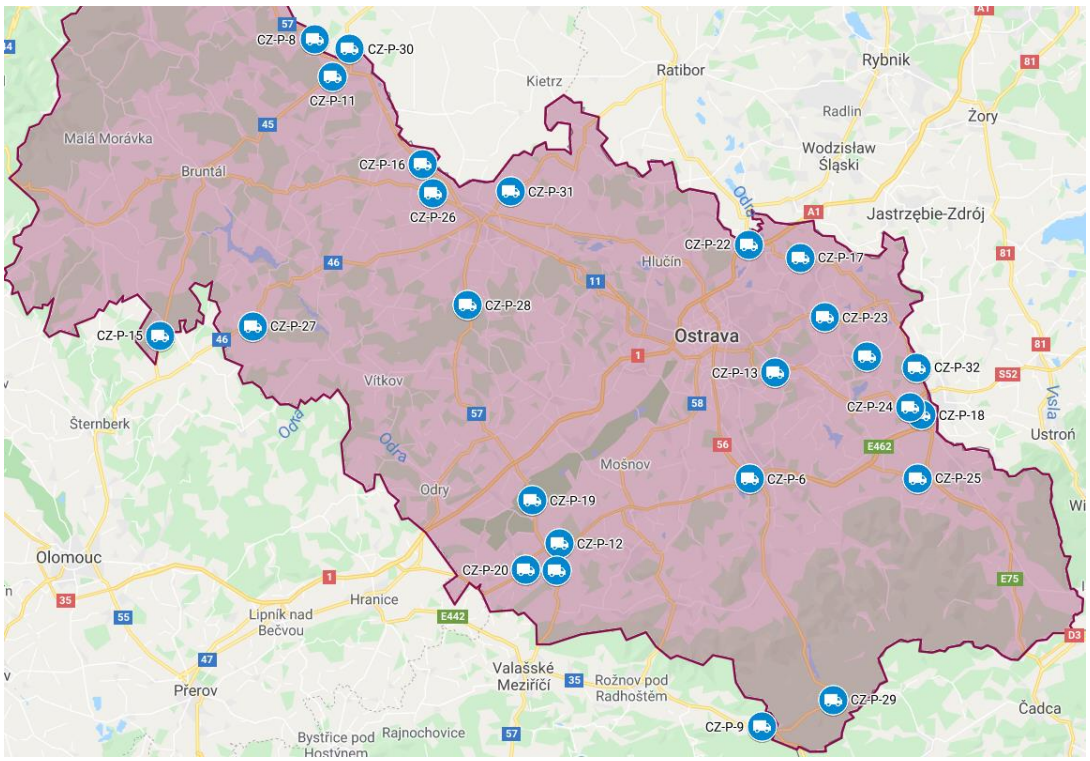

Figure 53 Distribution of counting sites for the profile traffic surveys in Moravian-Silesian region by mobile ATC

Table 66 lists precisely each traffic site using mobile intensity measurement devices, the measurement date, counting site number and results in the form of 5 monitored vehicle categories (PC, LCV, MGV, HGV, ST) and simplified categorization required for a traffic model with identification of light (PC, LCV) and heavy vehicles (MGV, HGV, ST). A specific case is the bus, which is detected by the counter as a vehicle with a length belonging to the category of heavy goods vehicles. The number of buses was based on the structure of the traffic flow of the National Census in 2016 on the same counting section.

Table 92 lists precisely each traffic site using mobile intensity measurement devices, the measurement date, counting site number and results in the form of 5 monitored vehicle categories (PC, LCV, MGV, HGV, ST) and simplified categorization required for a traffic model with identification of light (PC, LCV) and heavy vehicles (MGV, HGV, ST). A specific case is the bus, which is detected by the counter as a vehicle with a length belonging to the category of heavy goods vehicles. The number of buses was based on the structure of the traffic flow of the National Census in 2016 on the same counting section.

The distribution of counting sites in Moravian-Silesian region for measurements by mobile traffic counters is presented in Figure 53.

2.1.1.1. Counting site CZ-P-6: Frýdek-Místek

Road: D56

GPS coordinates of survey profile: 49.67417, 18.33001

The counting point was located in a rural area in a strategic position near the town of Paskov in the middle of D56 between Ostrava and Frýdek-Místek. This road is also used as a connection to the D1 motorway and other routes to Poland. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 42 The results of the profile traffic survey - counting site CZ-P-6 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	21 451	1 612	1 149	1 151	2 379
Tuesday	22 078	1 679	1 112	1 352	2 783
Wednesday	21 727	2 024	1 036	1 183	3 029
Thursday	21 773	2 196	1 223	1 299	3 267
Friday	24 398	1 167	1 030	1 095	2 348
Saturday	18 051	1 069	414	389	716
Sunday	16 097	780	493	273	473
WADT - category	**20 806**	**1 513**	**932**	**973**	**2 154**
AADT - category	**23 118**	**1 699**	**1 047**	**1 093**	**2 410**
WADT - total	**26 378**				
AADT - total	**29 378**				
Share of freight transport	**15.49 %**				
Share of heavy freight transport	**11.92%**				

In the counting site CZ-P-6 was recorded average intensity 29 378 veh/24 h with share of freight transport, 15.49 %.

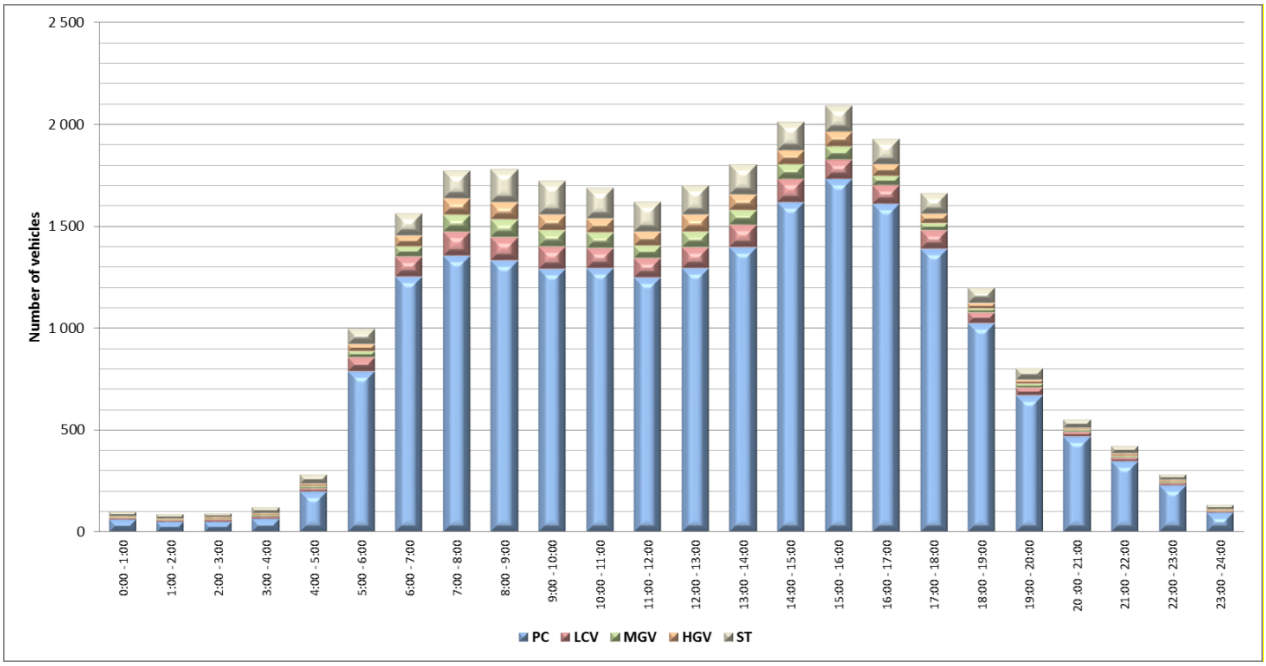

Figure 54 Hourly variation of the WADT traffic volume - counting site CZ-P-6

The average hourly intensity variation higher than 2000 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 9:00am and afternoon peak between 2:00pm – 5:00pm.

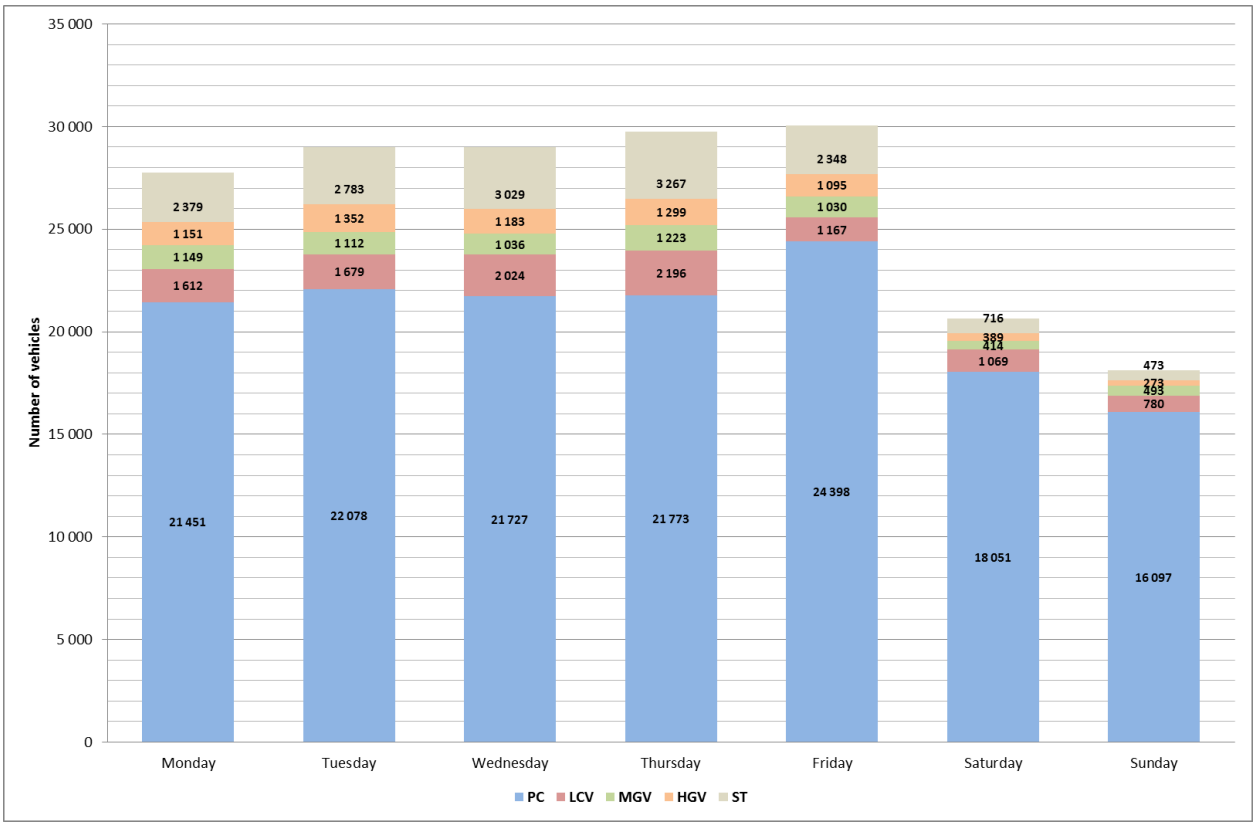

Figure 55 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-6

From the point of view of total traffic volume is the busiest day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.1.1.2. Counting site CZ-P-8: Krásne Loučky

Road: I/57

GPS coordinates of survey profile: 50.12237, 17.63902

The counting point was placed on road I/57 at the beginning/end of the Krnov town district of Krásné Loučky. This road is used for other routes to Poland, Western and Northern Europe via the border crossing Trzebina. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 43 The results of the profile traffic survey - counting site CZ-P-8 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	5 464	197	164	285	829
Tuesday	5 154	193	171	289	822
Wednesday	5 354	195	177	299	837
Thursday	5 409	193	198	316	737
Friday	6 343	192	195	307	657
Saturday	4 726	90	81	79	197
Sunday	4 332	57	44	64	135
WADT - category	**5 266**	**171**	**158**	**247**	**609**
AADT - category	**5 775**	**203**	**188**	**293**	**654**
WADT - total	**6 451**				
AADT - total	**7 113**				
Share of freight transport	**15.96%**				
Share of heavy freight transport	**13.31%**				

In the counting site CZ-P-8 was recorded average intensity 7 113 veh/24 h with share of freight transport, 15.96 %.

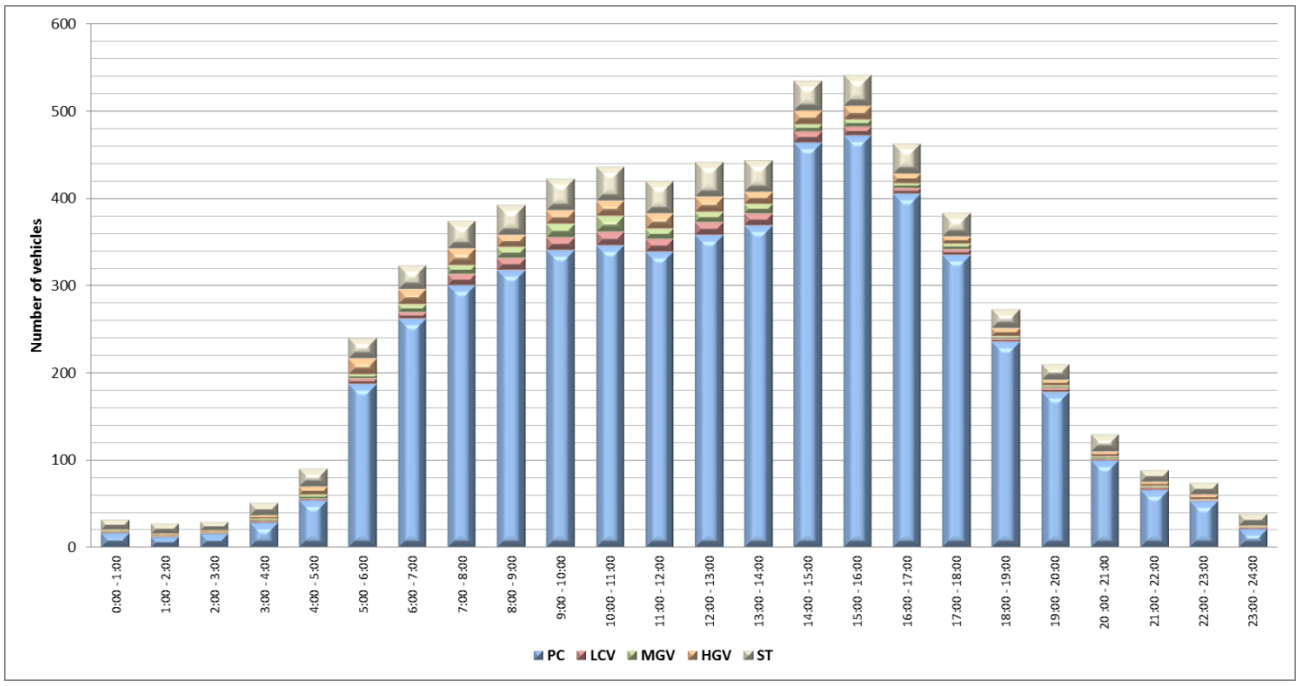

Figure 56 Hourly variation of the WADT traffic volume - counting site CZ-P-8

The average hourly intensity variation higher than 500 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 5:00pm.

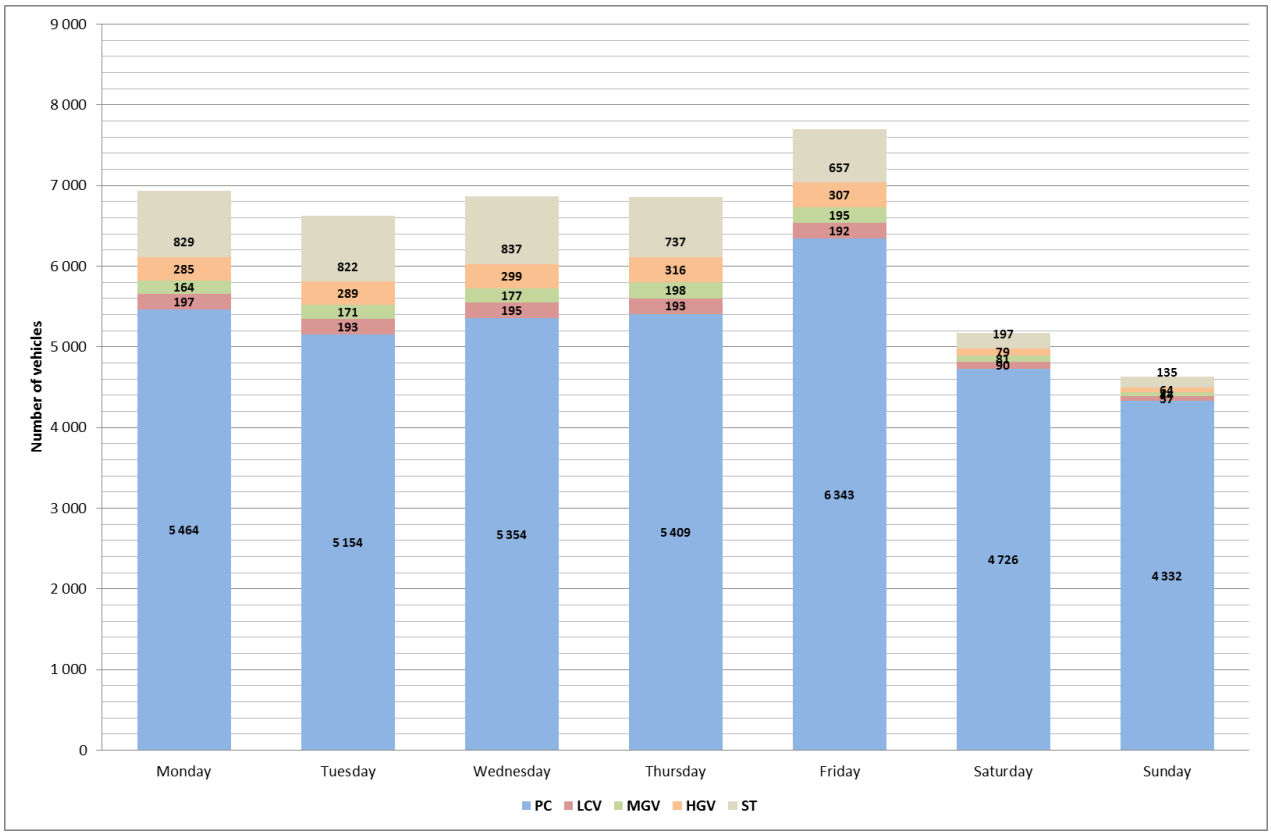

Figure 57 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-8

From the point of view of total traffic volume is the busiest day Friday and least busy is Sunday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.1.1.3. Counting site CZ-P-9: Podlízaná

Road: I/35

GPS coordinates of survey profile: 49.41928, 18.34997

The counting point was located in a rural mountain area on road I/35 between Rožnov pod Radhoštěm and the Czech-Slovak border crossing Makov. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 44 The results of the profile traffic survey – counting site CZ-P-9 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	1 970	192	108	112	714
Tuesday	1 949	222	116	104	627
Wednesday	2 099	219	105	87	618
Thursday	2 245	177	79	87	625

	PC	LCV	MGV	HGV	ST
Friday	1 888	76	60	37	188
Saturday	3 818	119	25	27	126
Sunday	3 777	29	214	26	116
WADT - category	**2544**	**158**	**112**	**78**	**440**
AADT - category	**2875**	**178**	**126**	**88**	**462**
WADT - total	**3 332**				
AADT - total	**3 729**				
Share of freight transport	**18.13%**				
Share of heavy freight transport	**14.75%**				

In the counting site CZ-P-9 was recorded average intensity 3 729 veh/24 h with share of freight transport, 18.13 %.

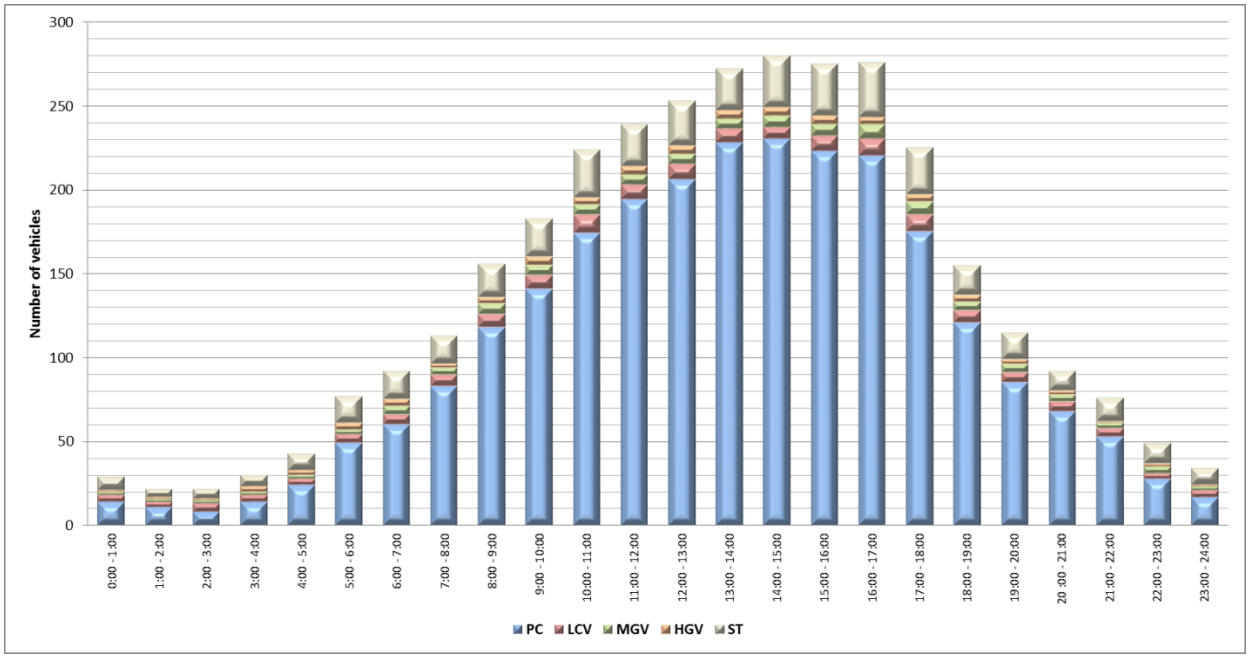

Figure 58 Hourly variation of the WADT traffic volume – counting site CZ-P-9

The average hourly intensity variation higher than 250 veh/h was reached between 12:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 5:00pm.

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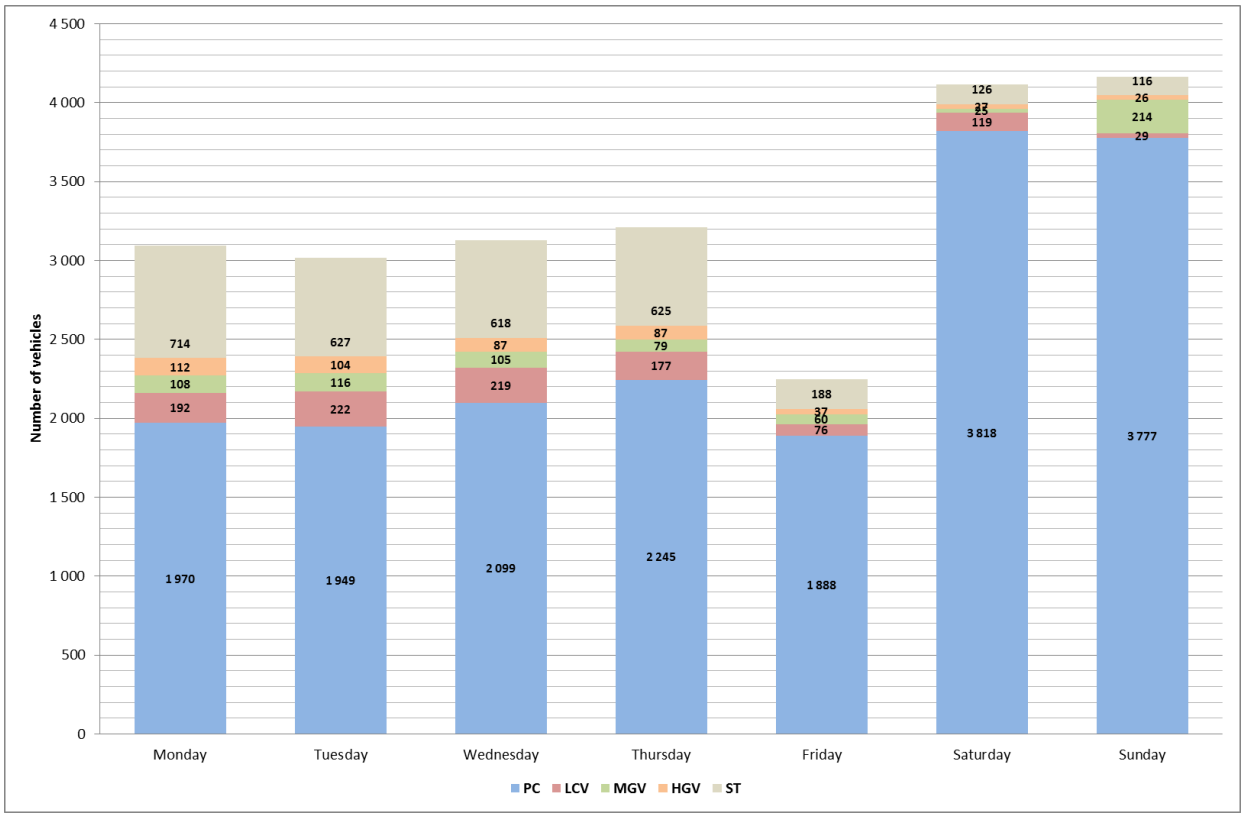

Figure 59 Daily variation of WADT traffic volume with vehicles structure - counting site CZ-P-9

From the point of view of total traffic volume is the busiest day Sunday and least busy is Friday. The most freight vehicles was recorded during Monday and least Saturday.

2.1.1.4. Counting site CZ-P-11: Krnov JZ

Road: I/45

GPS coordinates of survey profile: 50.08474, 17.66827

The counting point was placed on road I/45 at the entrance/exit to Krnov in the direction of Bruntál. This road is used for other routes to Olomouc or the D1 motorway. In the opposite direction, especially to roads to Poland, Western and Northern Europe through the border crossing Trzebina. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 45 The results of the profile traffic survey - counting site CZ-P-11 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	5 278	408	215	232	739
Tuesday	5 125	365	178	207	824
Wednesday	5 417	358	149	206	820

	PC	LCV	MGV	HGV	ST
Thursday	5 643	319	169	178	767
Friday	6 069	316	175	207	600
Saturday	4 678	190	44	74	194
Sunday	4 024	135	74	39	132
WADT - category	**5 188**	**310**	**153**	**175**	**592**
AADT - category	**5 689**	**368**	**182**	**208**	**636**
WADT - total	**6 418**				
AADT - total	**7 083**				
Share of freight transport	**14.48%**				
Share of heavy freight transport	**11.92%**				

In the counting site CZ-P-11 was recorded average intensity 7 083 veh/24 h with share of freight transport, 14.48 %.

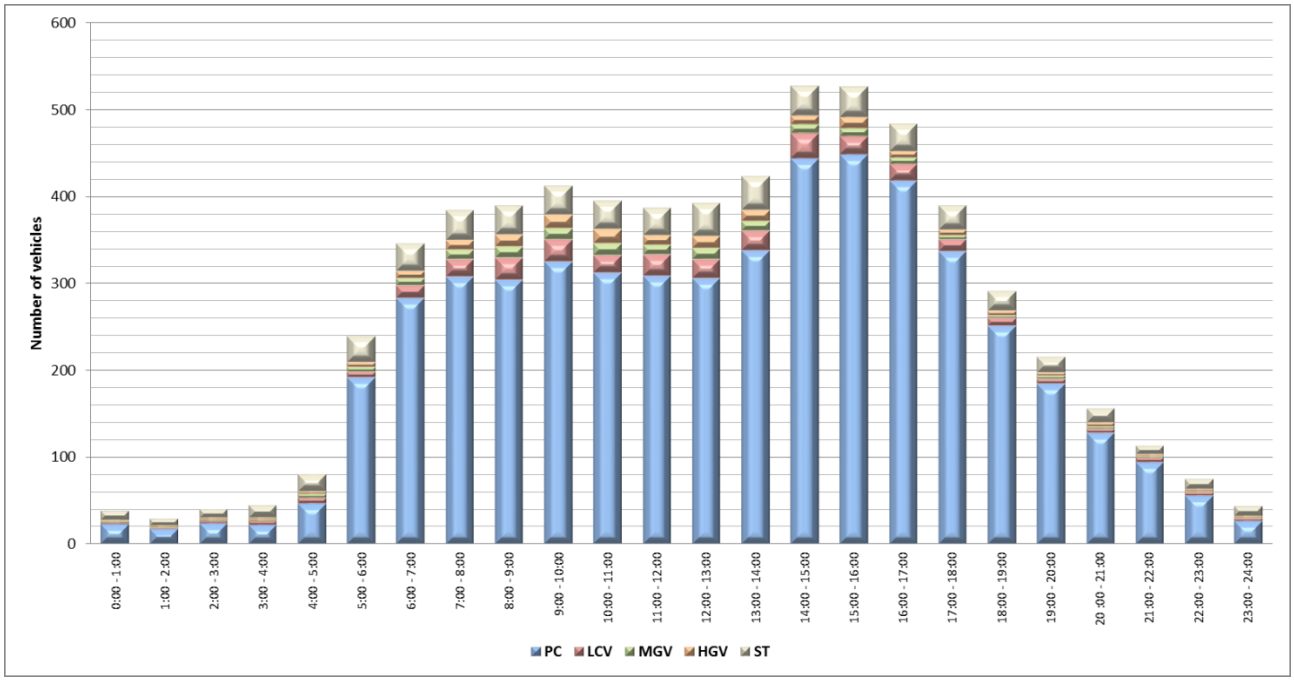

Figure 60 Hourly variation of the WADT traffic volume - counting site CZ-P-11

The average hourly intensity variation higher than 500 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 9:00am – 10:00 am and afternoon peak between 2:00pm – 5:00pm.

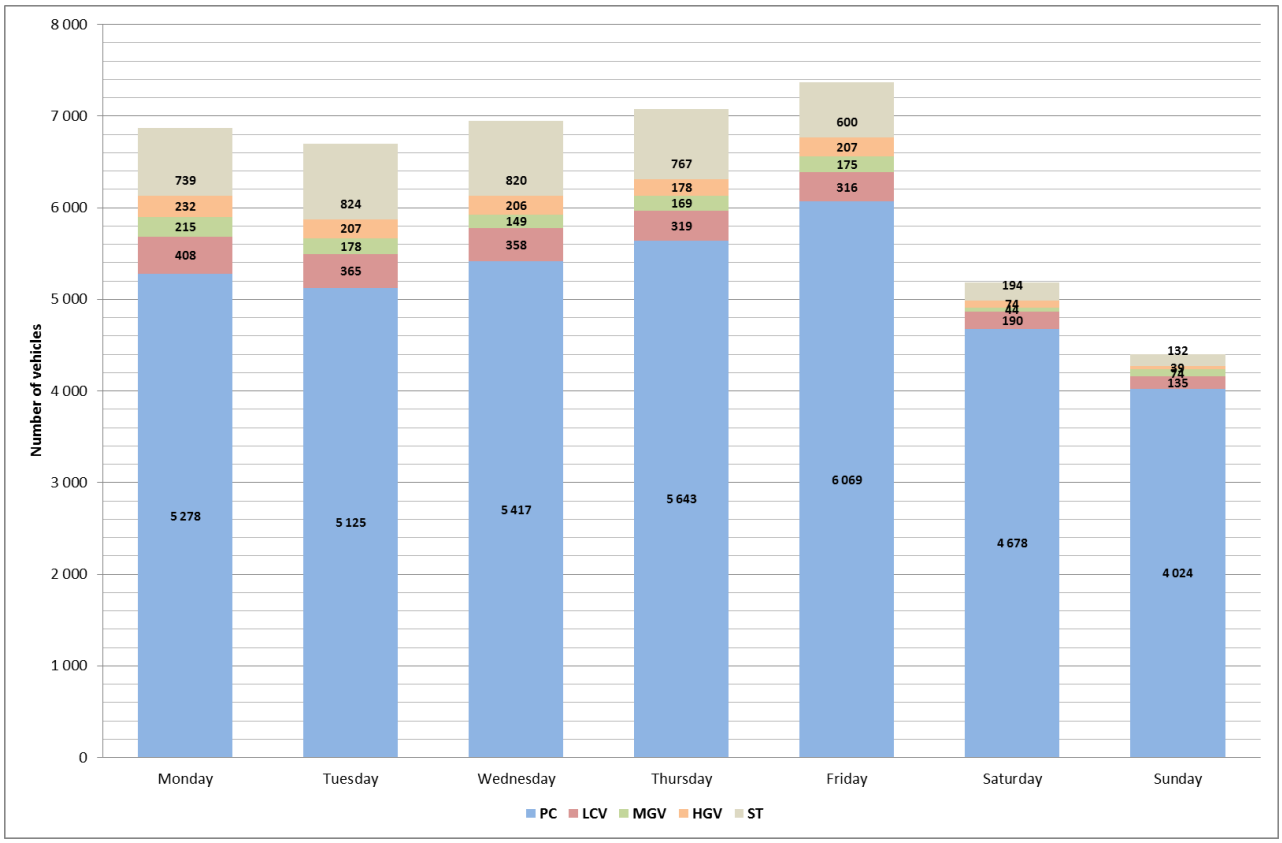

Figure 61 Daily variation of WADT traffic volume with vehicles structure - counting site CZ-P-11

From the point of view of total traffic volume is the busiest day Friday and the least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.1.1.5. Counting site CZ-P-12: Nový Jičín

Road: I/48

GPS coordinates of survey profile: 49.60759, 18.02741

The counting point was placed on road I/48 (E462) at the petrol station at the entrance/exit to Nový Jičín in the direction of Příbor. This is the main east-west transit route in the Moravian-Silesian Region. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 46 The results of the profile traffic survey - counting site CZ-P-12 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	8 073	997	513	301	633
Tuesday	8 492	1 013	533	360	714
Wednesday	8 289	1 084	550	343	746

	PC	LCV	MGV	HGV	ST
Thursday	8 773	1 263	579	394	772
Friday	9 869	867	472	319	752
Saturday	7 166	575	189	135	240
Sunday	7 350	582	116	84	221
WADT - category	**8 296**	**921**	**433**	**287**	**594**
AADT - category	**9 375**	**1 035**	**487**	**323**	**624**
WADT - total	**10 531**				
AADT - total	**11 844**				
Share of freight transport	**12.11%**				
Share of heavy freight transport	**8.00%**				

In the counting site CZ-P-12 was recorded average intensity 11 844 veh/24 h with share of freight transport, 12.11 %.

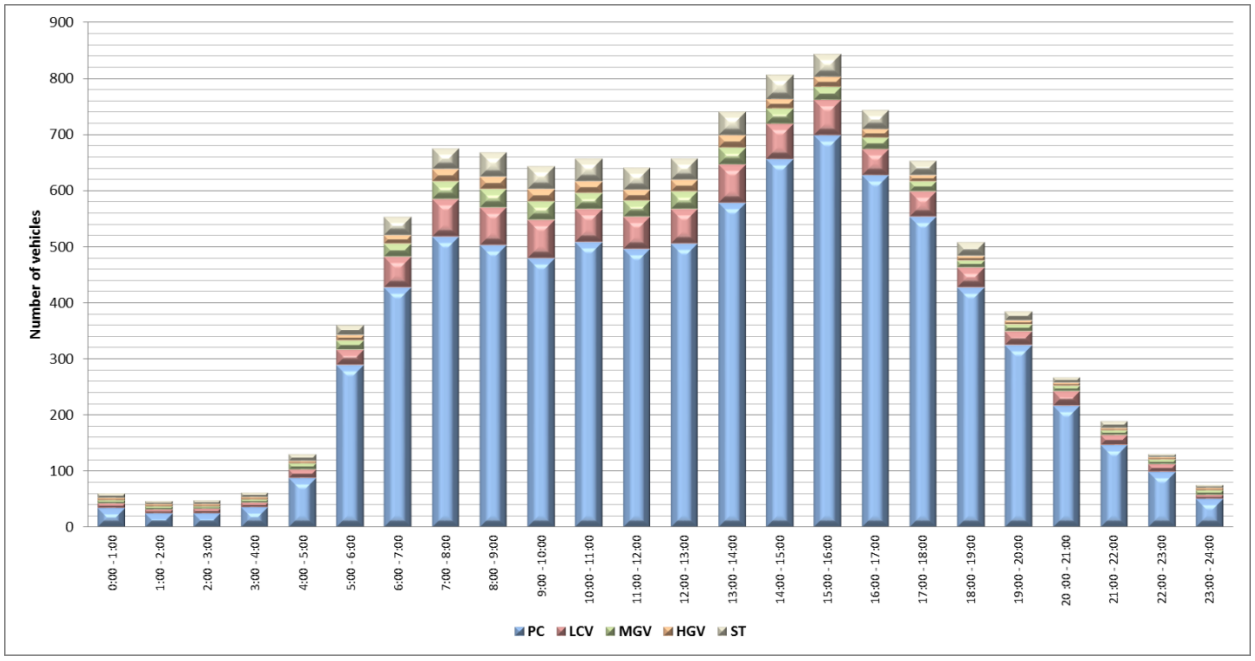

Figure 62 Hourly variation of the WADT traffic volume – counting site CZ-P-12

The average hourly intensity variation higher than 800 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 9:00am and afternoon peak between 1:00pm – 5:00pm.

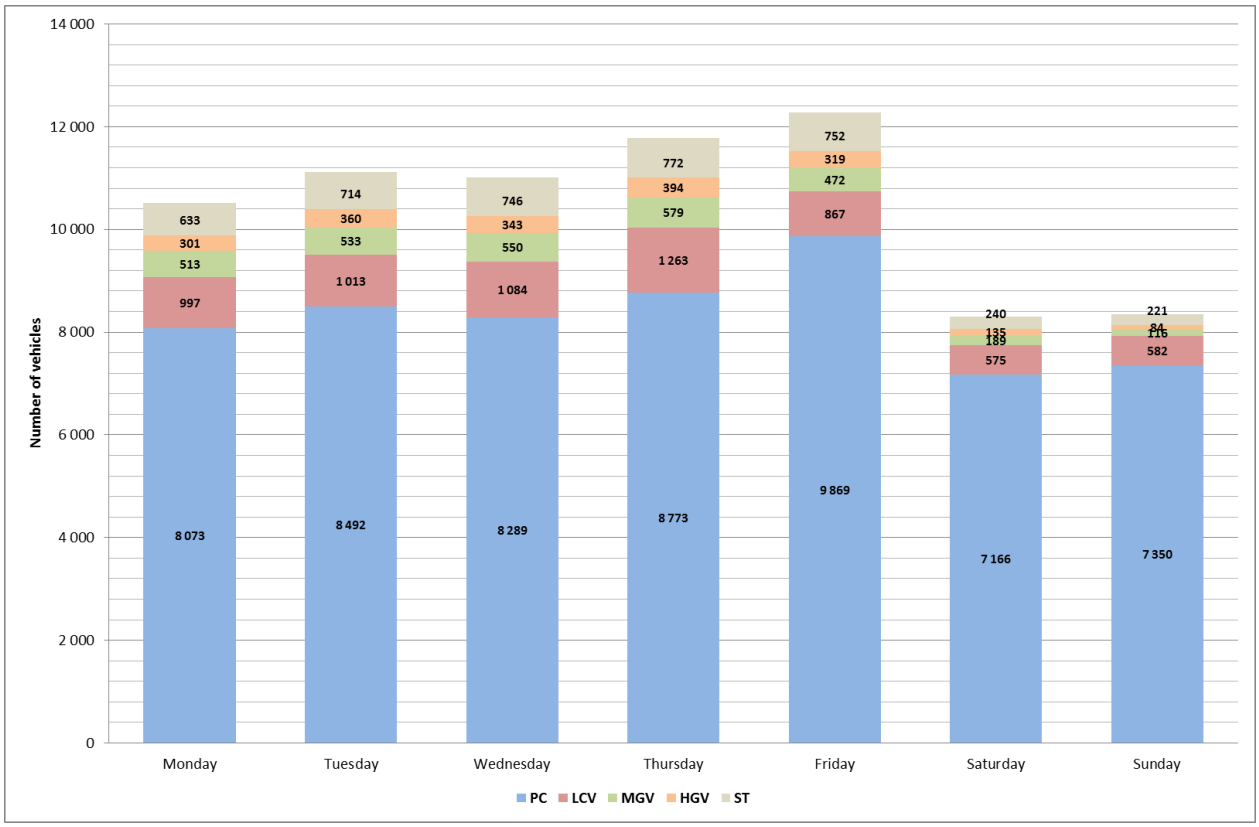

Figure 63 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-12

From the point of view of total traffic volume is the busiest day Friday and least busy is Saturday. The most freight vehicles was recorded during Thursday and least Sunday.

2.1.1.6. Counting site CZ-P-13: Šenov

Road: I/11

GPS coordinates of survey profile: 49.78288, 18.37001

The counting point was located on road I/11 near the town of Šenov between Ostrava and Havířov. This road is used for other routes to Poland via the border crossing Cieszyn. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 47 The results of the profile traffic survey – counting site CZ-P-13 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	19 651	1 179	520	452	697
Tuesday	20 097	1 343	606	509	726
Wednesday	20 342	1 271	524	571	766

	PC	LCV	MGV	HGV	ST
Thursday	20 405	1 494	551	586	787
Friday	22 123	971	357	284	395
Saturday	13 930	430	153	152	102
Sunday	12 239	251	185	107	66
WADT - category	**18 411**	**1 001**	**422**	**391**	**517**
AADT - category	**20 188**	**1 187**	**500**	**464**	**555**
WADT - total	**20 742**				
AADT - total	**22 894**				
Share of freight transport	**6.63%**				
Share of heavy freight transport	**4.45%**				

In the counting site CZ-P-13 was recorded average intensity 22 894 veh/24 h with share of freight transport, 6.63 %.

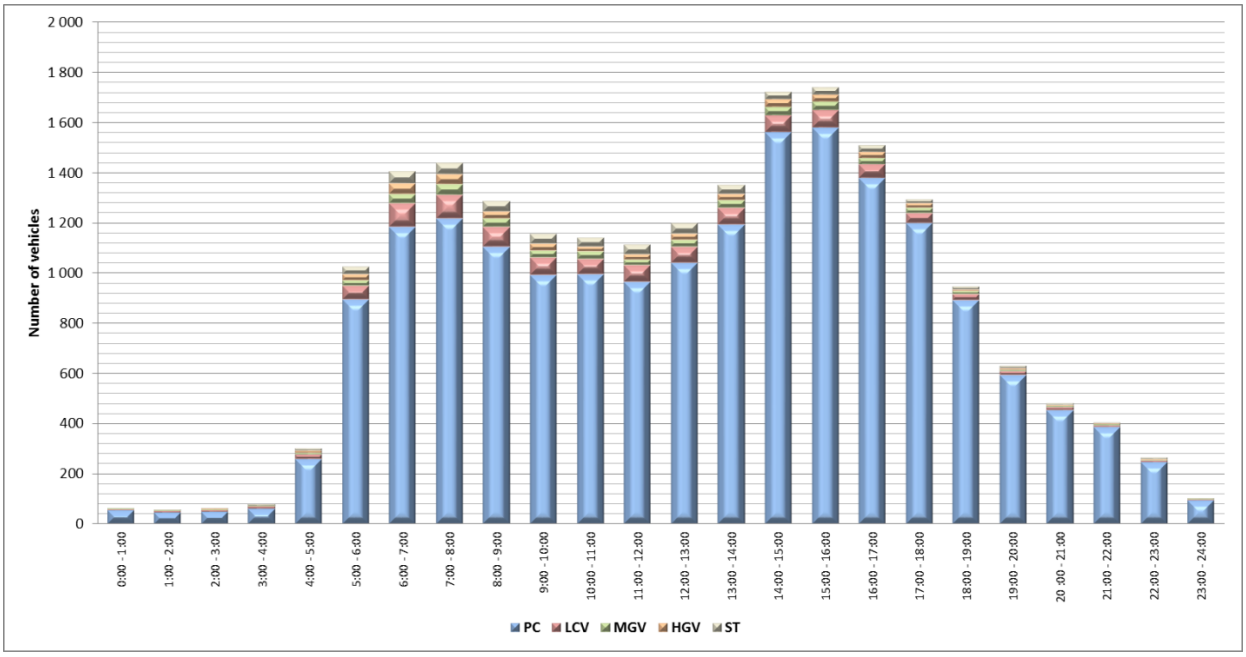

Figure 64 Hourly variation of the WADT traffic volume – counting site CZ-P-13

The average hourly intensity variation higher than 1 600 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 8:00am and afternoon peak between 2:00pm – 5:00pm.

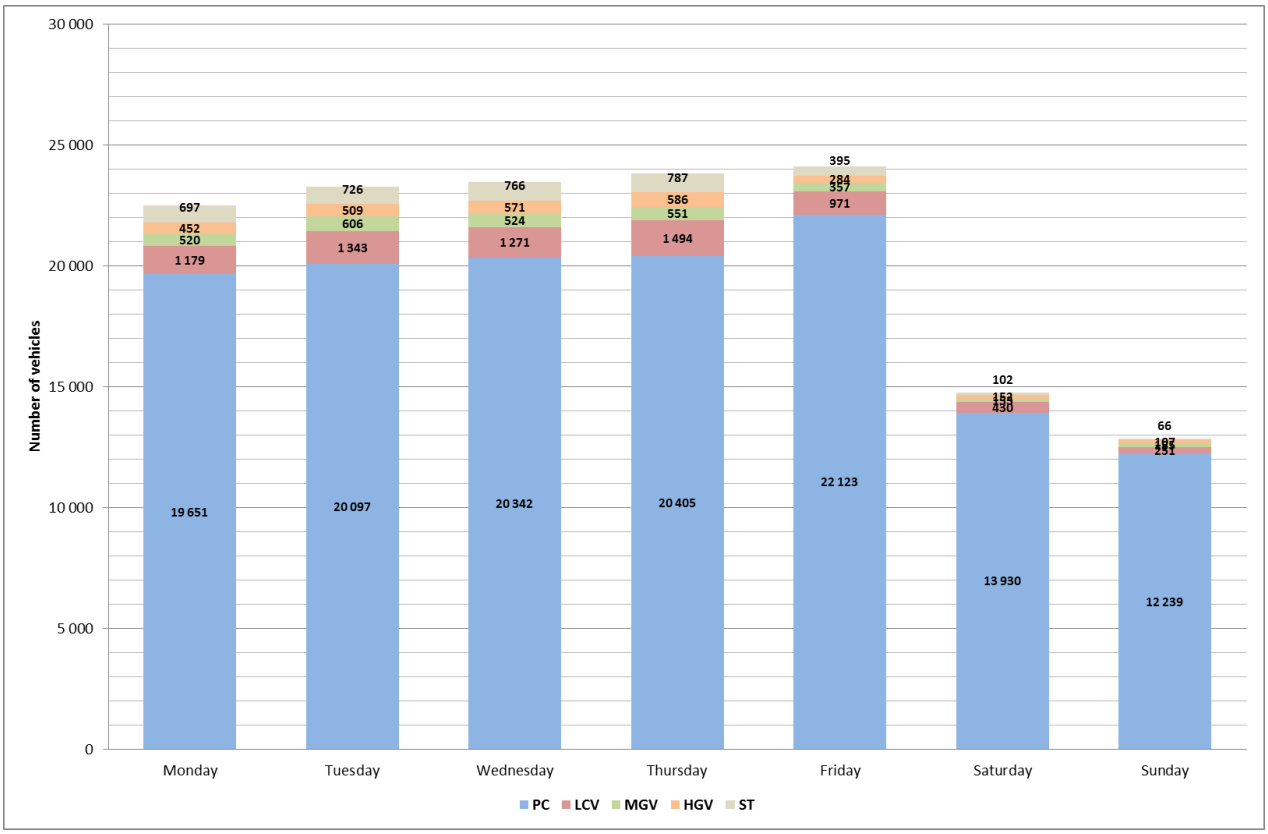

Figure 65 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-13

From the point of view of total traffic volume is the busiest day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.1.1.7. Counting site CZ-P-15: Dětřichov nad Bystřicí

Road: I/45

GPS coordinates of survey profile: 49.82082, 17.39468

The counting point was located in a rural area on road I/45 near Dětřichov nad Bystřicí between Bruntál and Šternberk. This road is used for other routes to Olomouc or the D1 motorway. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 48 The results of the profile traffic survey – counting site CZ-P-15 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	1 968	260	112	59	796
Tuesday	1 746	257	102	78	862
Wednesday	2 045	217	89	51	821

	PC	LCV	MGV	HGV	ST
Thursday	2 233	273	109	64	859
Friday	2 602	236	108	54	772
Saturday	2 435	121	22	9	200
Sunday	2 531	71	25	9	128
WADT - category	**2 229**	**216**	**90**	**56**	**643**
AADT - category	**2 445**	**256**	**107**	**67**	**690**
WADT - total	**3 234**				
AADT - total	**3 565**				
Share of freight transport	**24.24%**				
Share of heavy freight transport	**21.23%**				

In the counting site CZ-P-15 was recorded average intensity 3 565 veh/24 h with share of freight transport, 24.24%.

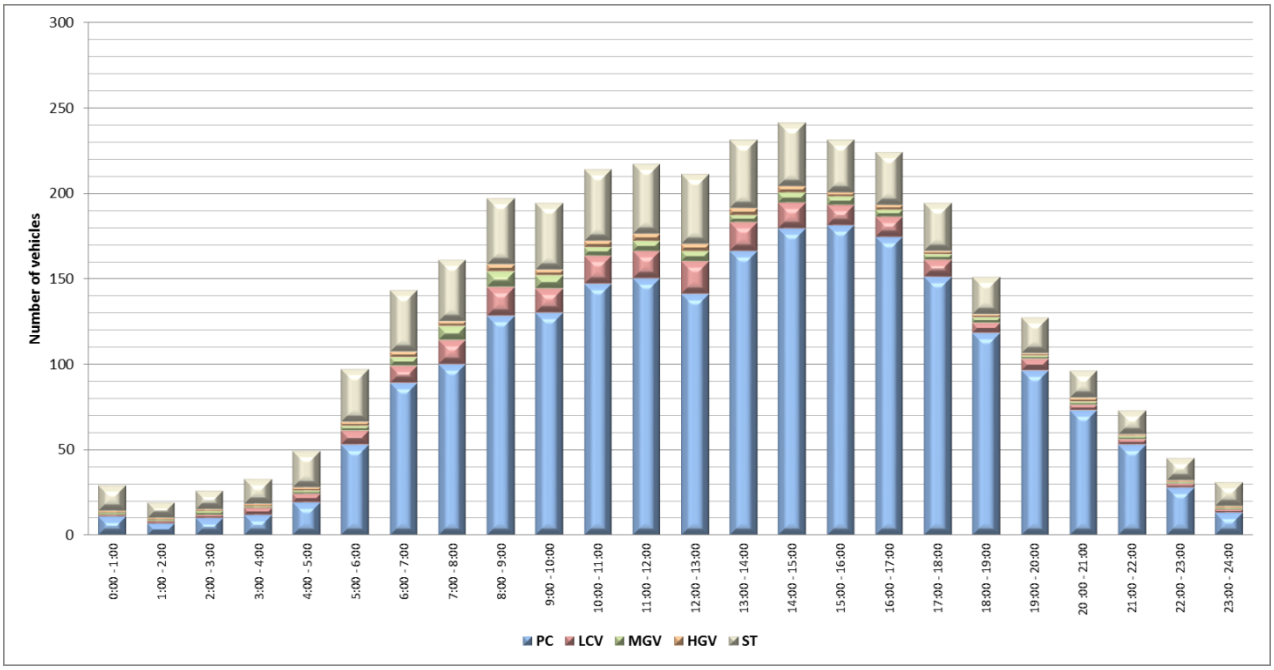

Figure 66 Hourly variation of the WADT traffic volume - counting site CZ-P-15

The average hourly intensity variation higher than 240 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 8:00am – 9:00am and afternoon peak between 1:00pm – 5:00pm.

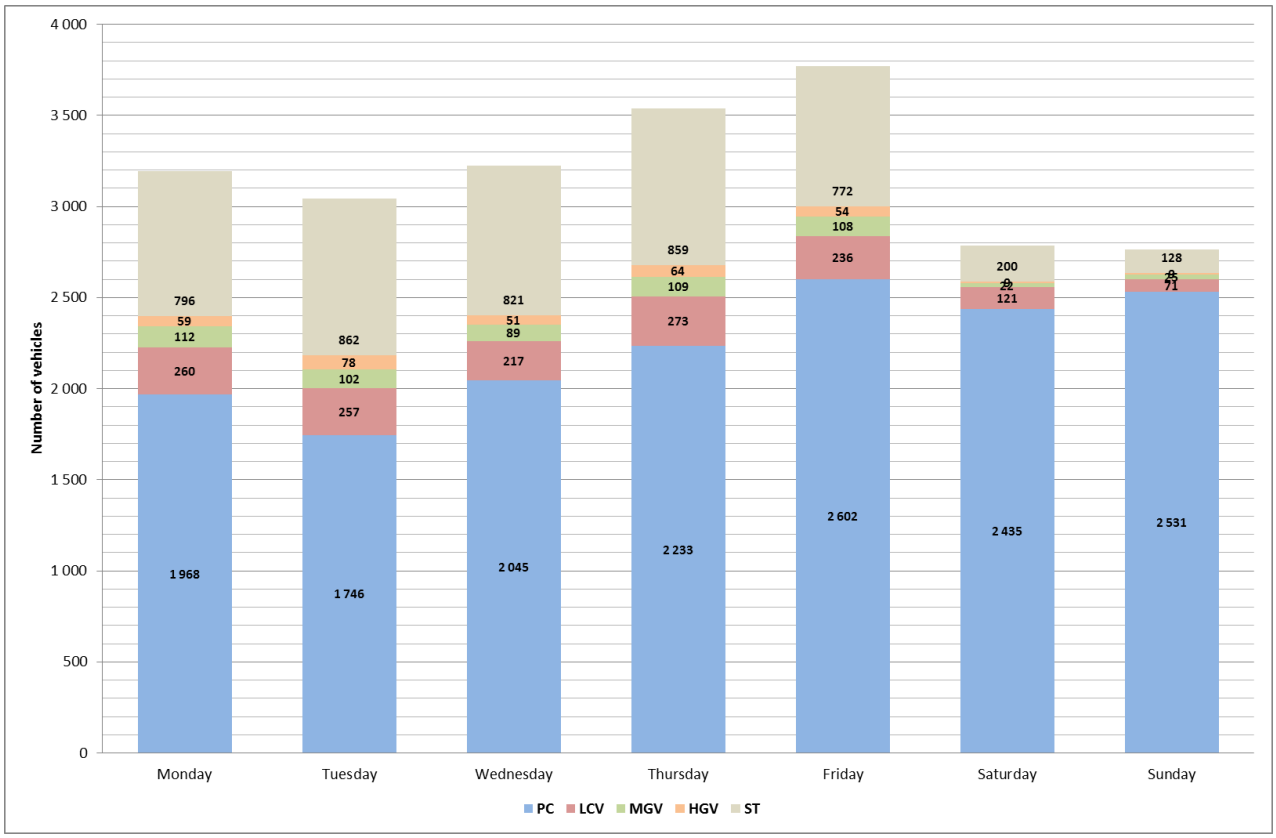

Figure 67 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-15

From the point of view of total traffic volume is the busiest day Friday and least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.1.1.8. Counting site CZ-P-16: Holasovice

Road: I/57

GPS coordinates of survey profile: 49.99515, 17.81138

The counting point was placed on road I/57 at the beginning/end of the village Holasovice between Opava and Krnov. This road is used for other routes to Poland, Western and Northern Europe via the border crossing Trzebina. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 49 The results of the profile traffic survey – counting site CZ-P-16 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	7 054	720	361	407	587
Tuesday	7 146	750	350	419	506
Wednesday	7 238	679	335	309	492

	PC	LCV	MGV	HGV	ST
Thursday	7 458	616	311	316	496
Friday	8 333	584	334	309	483
Saturday	6 119	275	125	72	84
Sunday	5 693	139	98	39	77
WADT - category	**7 013**	**549**	**284**	**279**	**399**
AADT - category	**7 690**	**651**	**337**	**331**	**429**
WADT - total	**8 524**				
AADT - total	**9 438**				
Share of freight transport	**11.62%**				
Share of heavy freight transport	**8.05%**				

In the counting site CZ-P-16 was recorded average intensity 8 524 veh/24 h with share of freight transport, 11.62%.

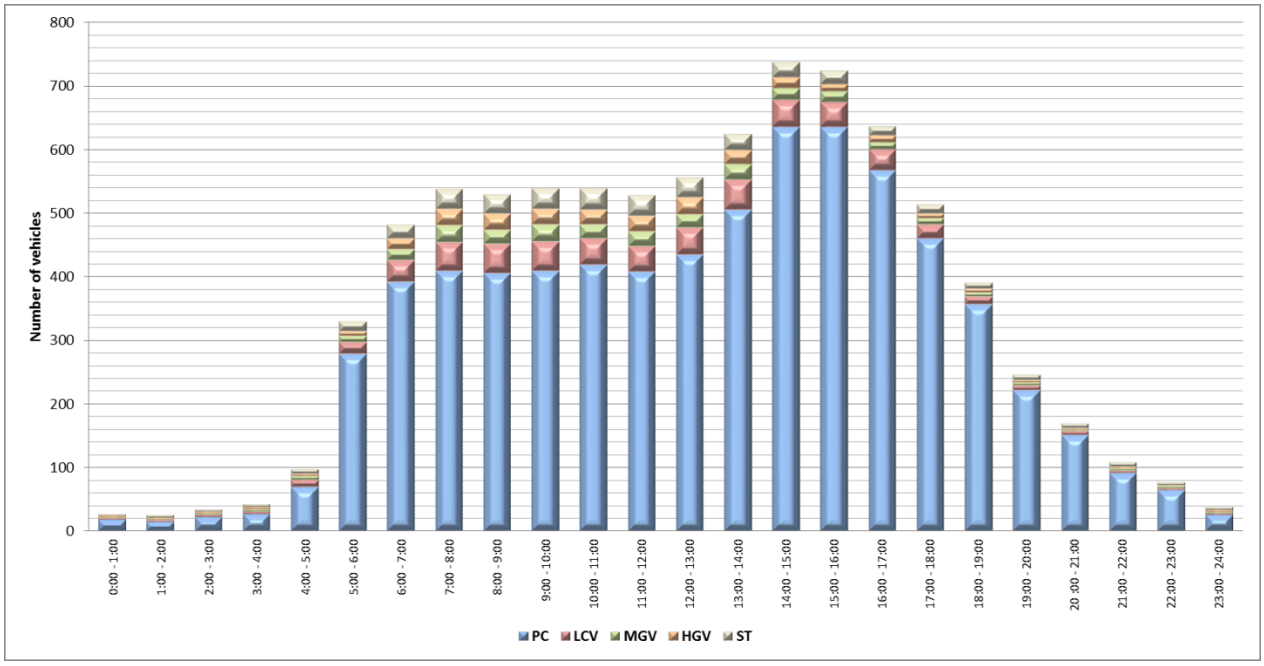

Figure 68 Hourly variation of the WADT traffic volume - counting site CZ-P-16

The average hourly intensity variation higher than 700 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 1:00pm – 5:00pm.

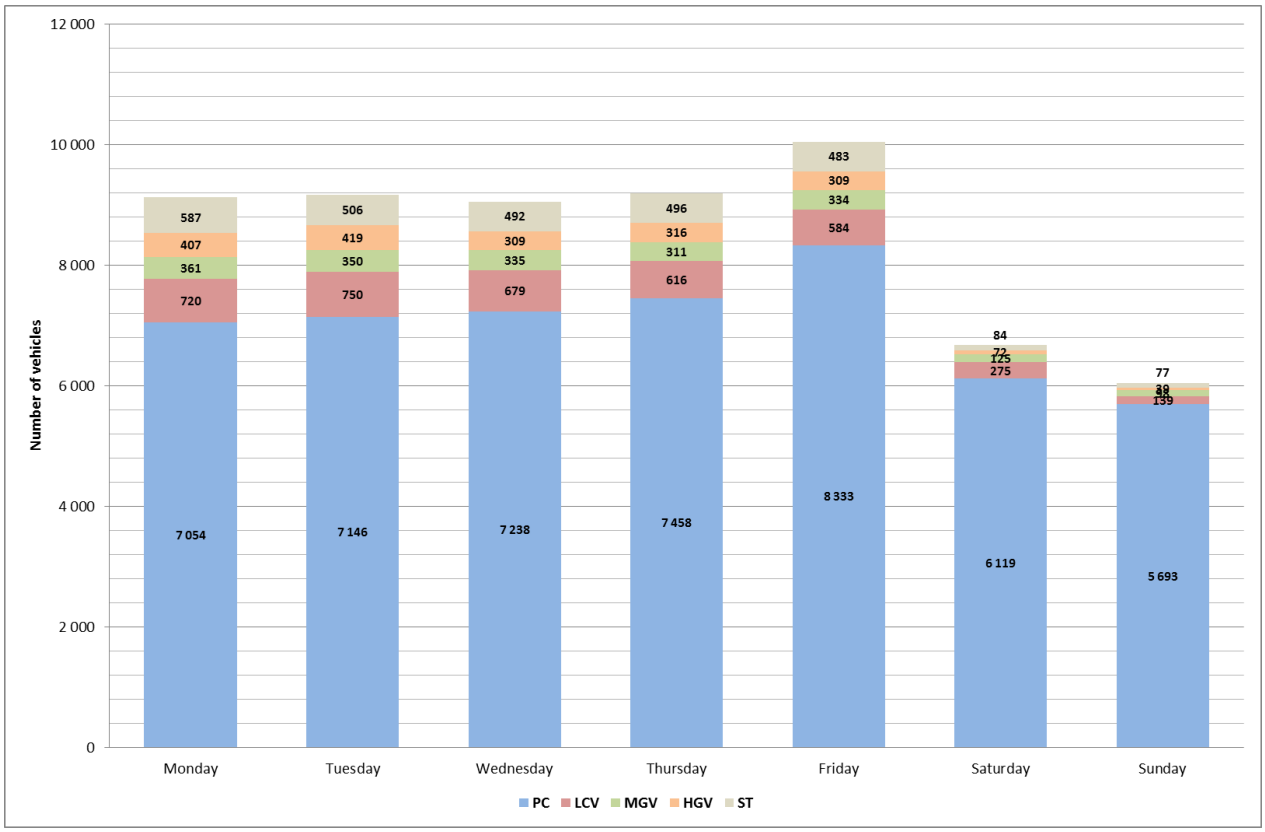

Figure 69 Daily variation of WADT traffic volume with vehicles structure - counting site CZ-P-16

From the point of view of total traffic volume is the busiest day Friday and least busy is Sunday. The most freight vehicles was recorded during Monday and least Sunday.

2.1.1.9. Counting site CZ-P-17: Dolní Lutyně

Road: I/67

GPS coordinates of survey profile: 49.89993, 18.40986

The counting point was located in a rural area on road I/67 nearby the village of Dolní Lutyně between Karviná and Bohumín. This road is used for other routes to the D1 motorway, or the Czech-Polish border crossing Chalupki in one direction. In the opposite direction, it is used as a road to Poland via the border crossing Cieszyn or to Slovakia via the border crossing Svrčinovec. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 50 The results of the profile traffic survey - counting site CZ-P-17 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	7 321	519	136	131	794
Tuesday	6 744	494	127	119	769

	PC	LCV	MGV	HGV	ST
Wednesday	7 094	572	133	134	830
Thursday	6 694	591	141	117	735
Friday	7 554	434	163	119	706
Saturday	5 013	201	38	18	194
Sunday	4 407	158	17	22	76
WADT - category	**6 413**	**433**	**117**	**104**	**597**
AADT - category	**7 032**	**514**	**139**	**124**	**641**
WADT - total	**7 664**				
AADT - total	**8 450**				
Share of freight transport	**10.70%**				
Share of heavy freight transport	**9.05%**				

In the counting site CZ-P-17 was recorded average intensity 8 450 veh/24 h with share of freight transport, 10.70 %.

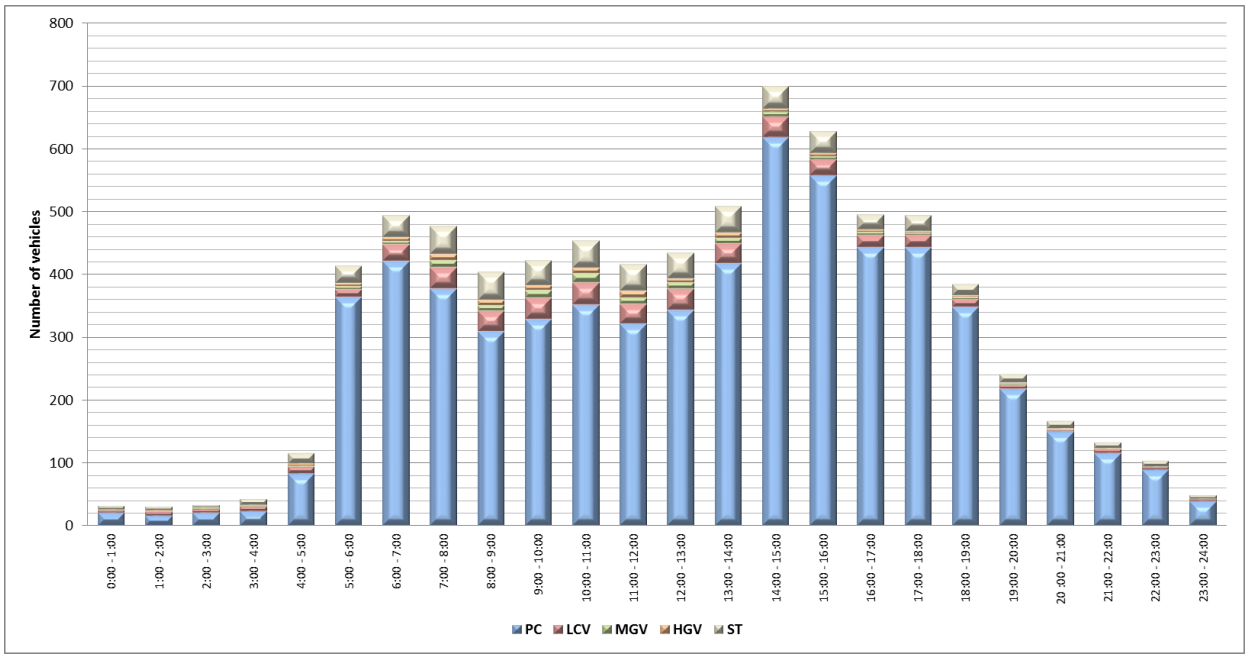

Figure 70 Hourly variation of the WADT traffic volume - counting site CZ-P-17

The average hourly intensity variation higher than 600 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 8:00am and afternoon peak between 2:00pm – 4:00pm.

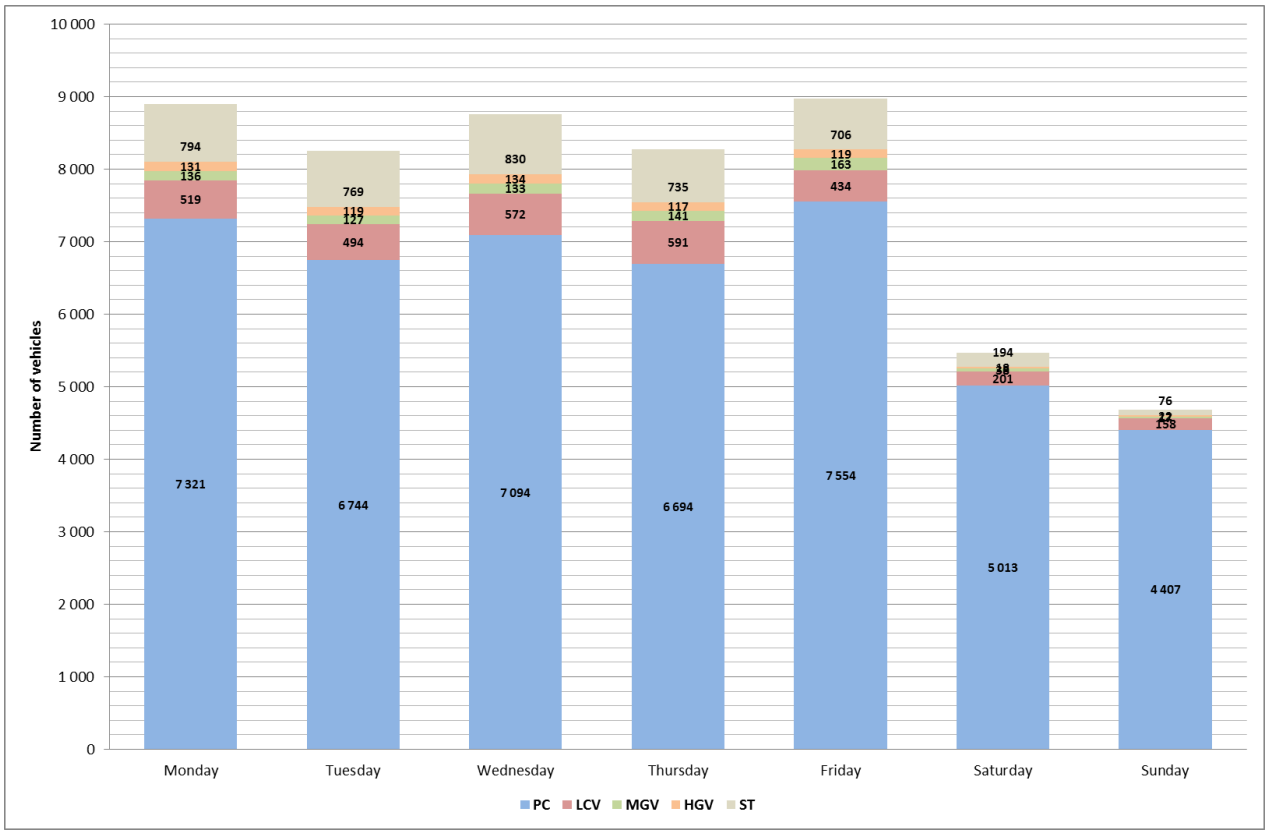

Figure 71 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-17

From the point of view of total traffic volume is the busiest day Friday and least busy is Sunday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.1.1.10. Counting site CZ-P-18: Český Těšín

Road: R48

GPS coordinates of survey profile: 49.73922, 18.60196

The counting point was located on the road I/48 (E75) near the industrial sites in Český Těšín near the border crossing with Poland. It is the main east-west transit route in the Moravian-Silesian Region belonging to the TEN-T network. The fact that this road connects two parts of the road I/11 contains two directions - from Třinec and Frýdek-Místek. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 51 The results of the profile traffic survey – counting site CZ-P-18 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	6 468	1 010	383	329	4 381
Tuesday	6 732	1 004	428	381	4 731
Wednesday	6 741	1 141	451	410	4 540

	PC	LCV	MGV	HGV	ST
Thursday	6 563	1 130	439	366	4 507
Friday	7 185	776	346	303	3 999
Saturday	6 217	807	198	126	1 357
Sunday	5 366	618	155	101	678
WADT - category	**6 480**	**938**	**352**	**297**	**3 466**
AADT - category	**7 323**	**1 054**	**396**	**334**	**3 637**
WADT - total	**11 533**				
AADT - total	**12 744**				
Share of freight transport	**34.27%**				
Share of heavy freight transport	**31.16%**				

In the counting site CZ-P-18 was recorded average intensity 12 744 veh/24 h with share of freight transport, 34.27 %.

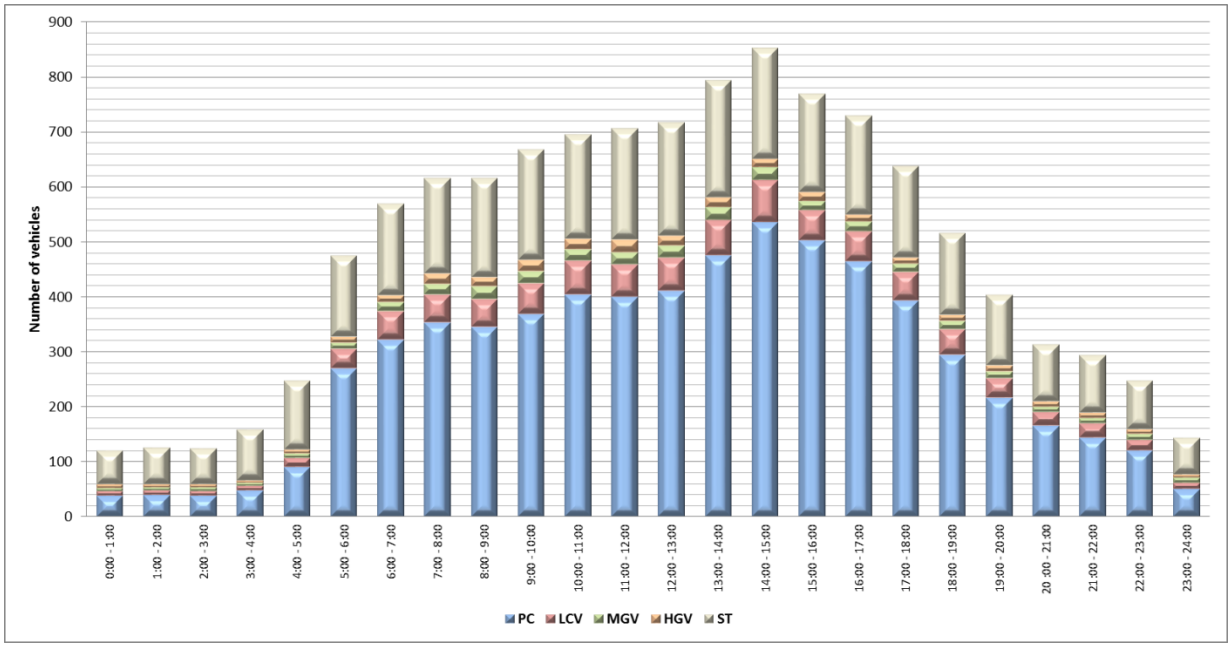

Figure 72 Hourly variation of the WADT traffic volume - counting site CZ-P-18

The average hourly intensity variation higher than 800 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 1:00pm – 4:00pm.

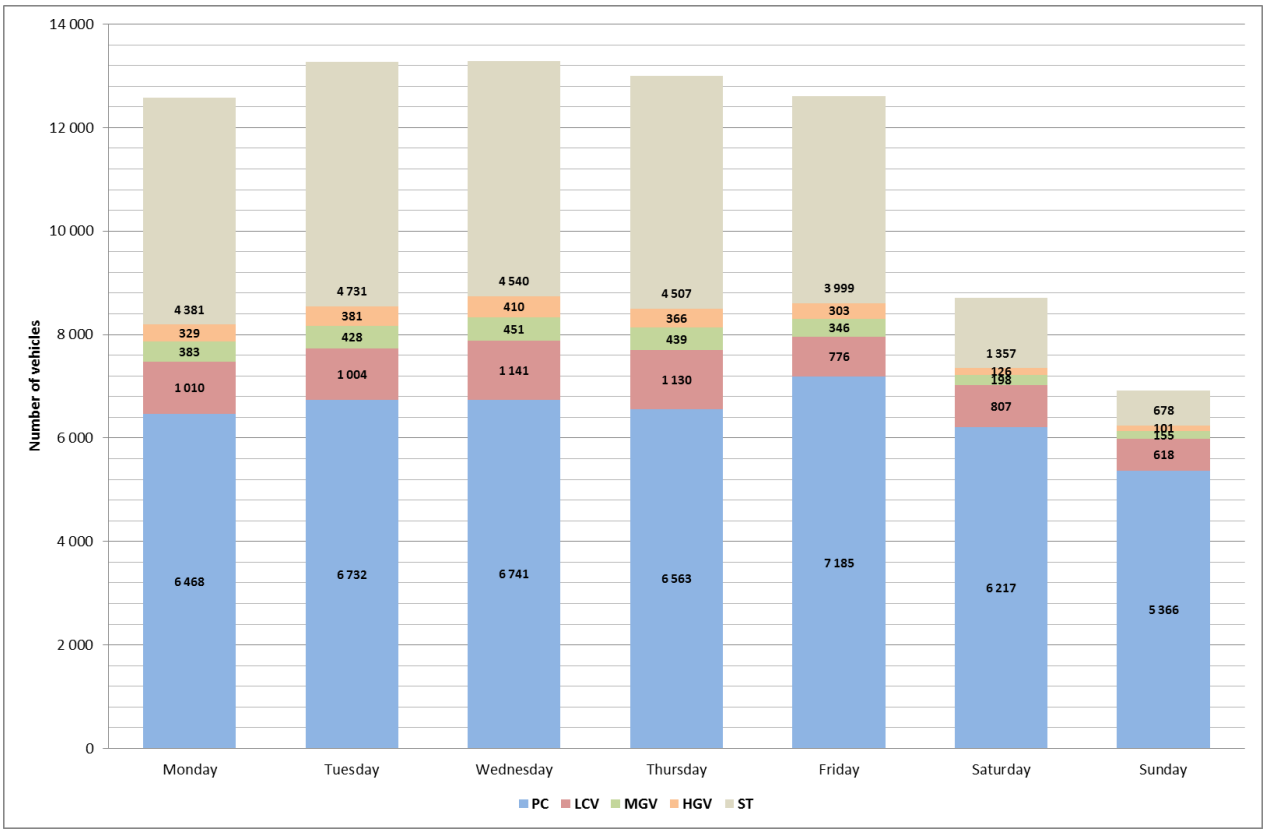

Figure 73 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-18

From the point of view of total traffic volume is the busiest day Wednesday and least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.1.1.11. Counting site CZ-P-19: Kunín

Road: I/57

GPS coordinates of survey profile: 49.65219, 17.9847

The counting point was located in a rural area on road I/57 at the beginning/end of the village of Kunín between Nový Jičín and Fulnek. This road is also used as a connection to the D1 motorway. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 52 The results of the profile traffic survey – counting site CZ-P-19 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	5 328	564	275	183	535
Tuesday	5 296	578	277	194	455
Wednesday	5 261	622	265	151	463

	PC	LCV	MGV	HGV	ST
Thursday	5 226	603	275	148	519
Friday	5 432	555	250	146	461
Saturday	3 622	172	58	41	84
Sunday	2 958	104	64	32	61
WADT - category	**4 742**	**469**	**217**	**137**	**379**
AADT - category	**5 200**	**556**	**258**	**163**	**407**
WADT - total	**5 944**				
AADT - total	**6 584**				
Share of freight transport	**12.58%**				
Share of heavy freight transport	**8.66%**				

In the counting site CZ-P-19 was recorded average intensity 6 584 veh/24 h with share of freight transport, 12.58 %.

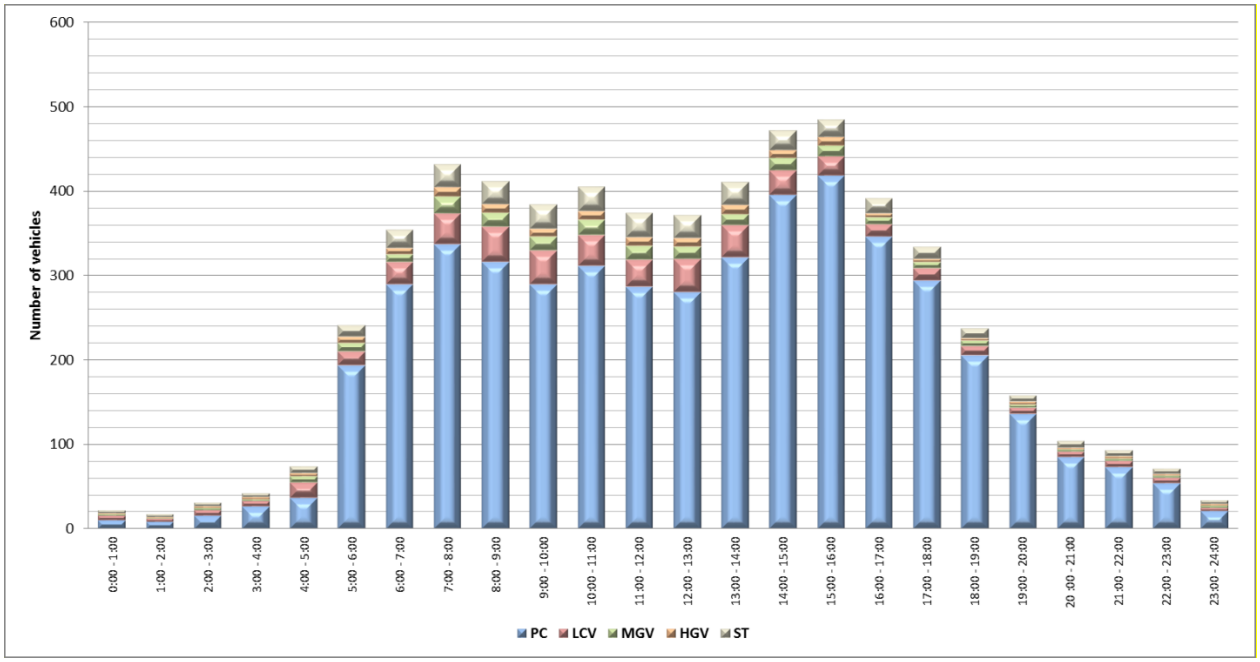

Figure 74 Hourly variation of the WADT traffic volume - counting site CZ-P-19

The average hourly intensity variation higher than 450 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 9:00 am and afternoon peak between 2:00pm – 4:00pm.

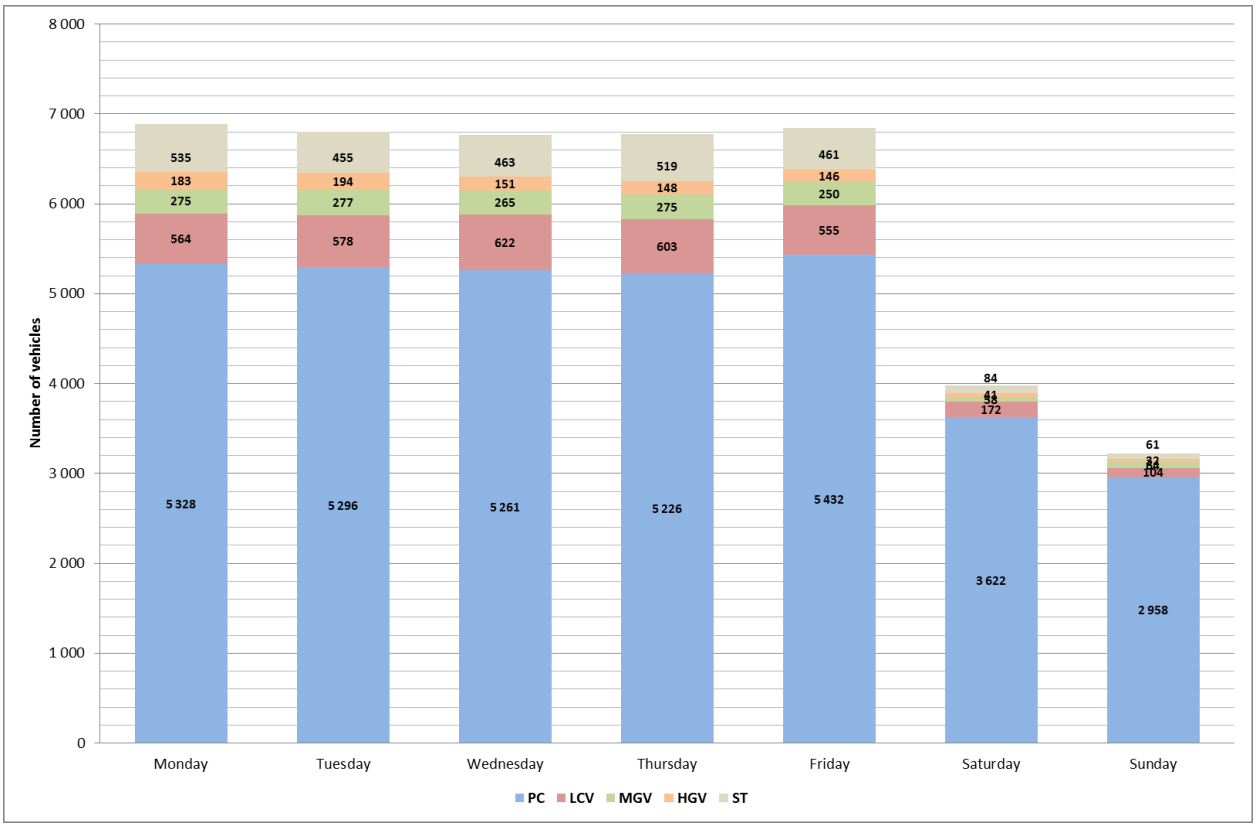

Figure 75 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-19

From the point of view of total traffic volume is the busiest day Monday and least busy is Sunday. The most freight vehicles was recorded during Monday and least Sunday.

2.1.1.12. Counting site CZ-P-20: Starý Jičín

Road: R48

GPS coordinates of survey profile: 49.58073, 17.97458

The counting point was located in a rural area on the road I/48 (E462) at the level of the village Starý Jičín between Nový Jičín and Hranice na Moravě, respectively by the slip road to D1 motorway near Bělotín. It is the main east-west transit route in the Moravian-Silesian Region. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 53 The results of the profile traffic survey – counting site CZ-P-20 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	6 156	1 024	481	287	1 047
Tuesday	6 857	1 059	509	283	1 106
Wednesday	6 023	1 108	540	273	1 111

	PC	LCV	MGV	HGV	ST
Thursday	6 673	1 270	592	319	1 122
Friday	7 809	871	441	255	1 058
Saturday	5 405	664	233	73	303
Sunday	5 834	519	353	85	269
WADT - category	**6 404**	**941**	**461**	**232**	**869**
AADT - category	**7 237**	**1 058**	**518**	**261**	**912**
WADT - total	**8 907**				
AADT - total	**9 986**				
Share of freight transport	**16.93%**				
Share of heavy freight transport	**11.75%**				

In the counting site CZ-P-20 was recorded average intensity 9 986 veh/24 h with share of freight transport, 16.93 %.

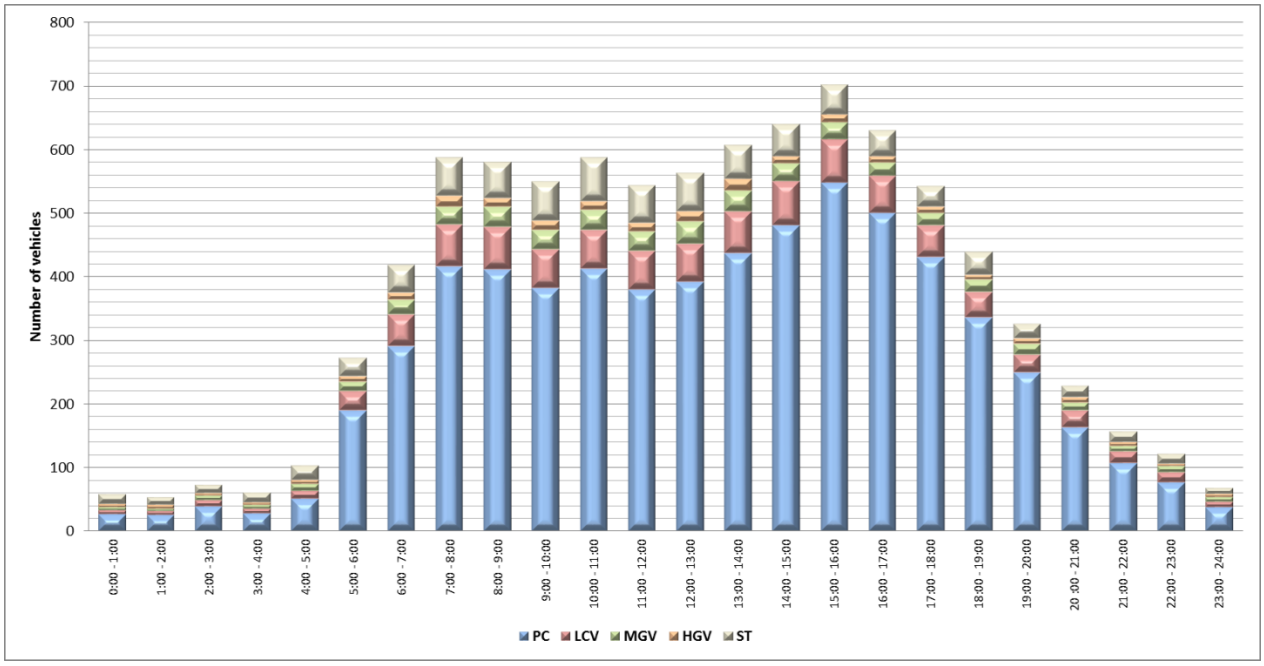

Figure 76 Hourly variation of the WADT traffic volume - counting site CZ-P-20

The average hourly intensity variation higher than 700 veh/h was reached between 3:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 9:00am and afternoon peak between 2:00pm – 5:00pm.

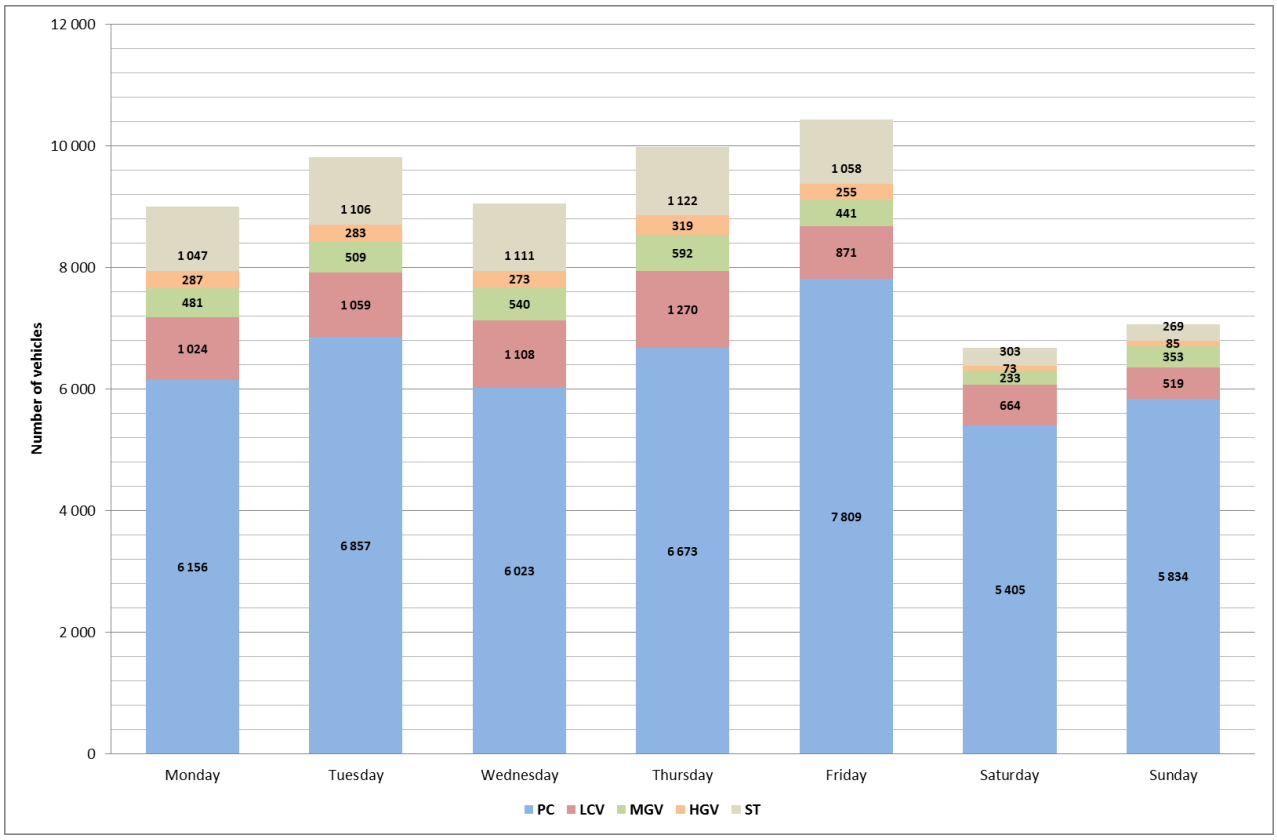

Figure 77 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-20

From the point of view of total traffic volume is the busiest day Friday and least busy is Saturday. The most freight vehicles was recorded during Thursday and least Saturday.

2.1.1.13. Counting site CZ-P-21: Nový Jičín

Road: I/57

GPS coordinates of survey profile: 49.57956, 18.02301

The counting point was located on road I/58 on the border of Nový Jičín and its town district Bludovice between Nový Jičín and Valašské Meziříčí. This part of the road connects two important transit routes of the Moravian-Silesian Region - I/48 (E462) and I/35 (E442). The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 54 The results of the profile traffic survey – counting site CZ-P-21 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	6 874	581	257	112	455
Tuesday	6 897	554	229	110	417
Wednesday	6 637	678	241	90	456

	PC	LCV	MGV	HGV	ST
Thursday	6 492	727	244	96	598
Friday	6 936	620	264	83	490
Saturday	5 007	262	60	23	113
Sunday	4 423	169	37	24	91
WADT - category	**6 191**	**522**	**201**	**87**	**382**
AADT - category	**6 789**	**619**	**239**	**104**	**410**
WADT - total	**7 383**				
AADT - total	**8 161**				
Share of freight transport	**9.23%**				
Share of heavy freight transport	**6.30%**				

In the counting site CZ-P-21 was recorded average intensity 8 161 veh/24 h with share of freight transport, 9.23%.

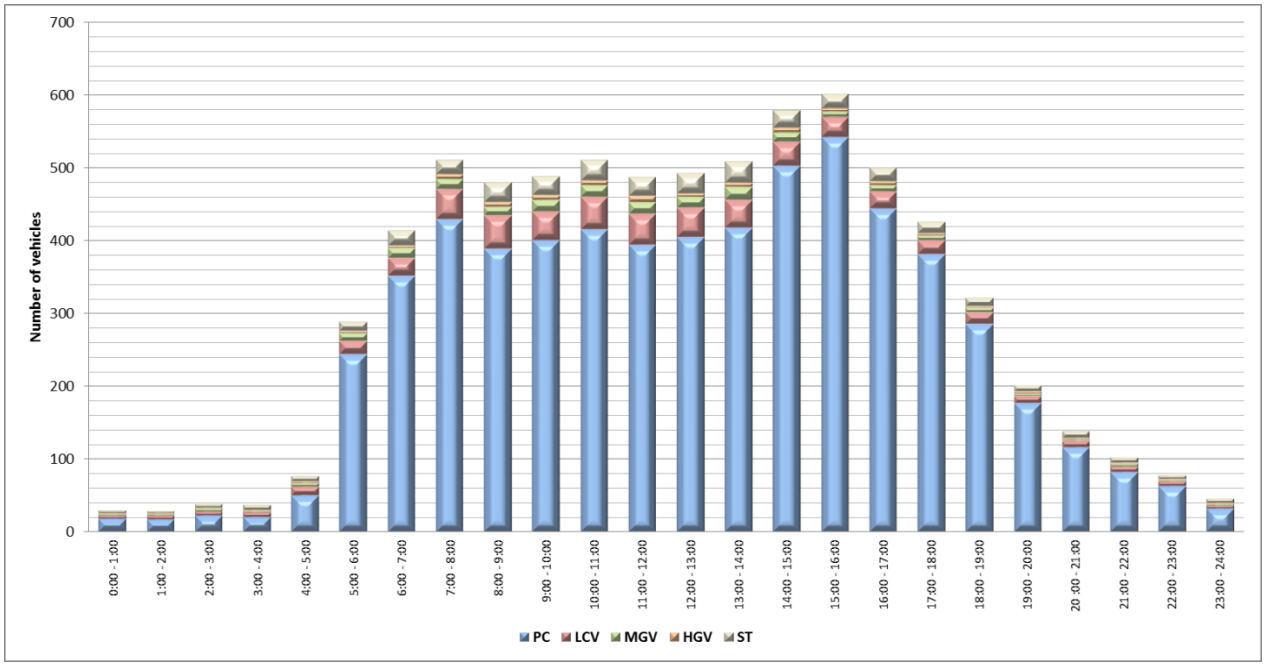

Figure 78 Hourly variation of the WADT traffic volume - counting site CZ-P-21

The average hourly intensity variation higher than 600 veh/h was reached between 3:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 2:00pm – 4:00pm.

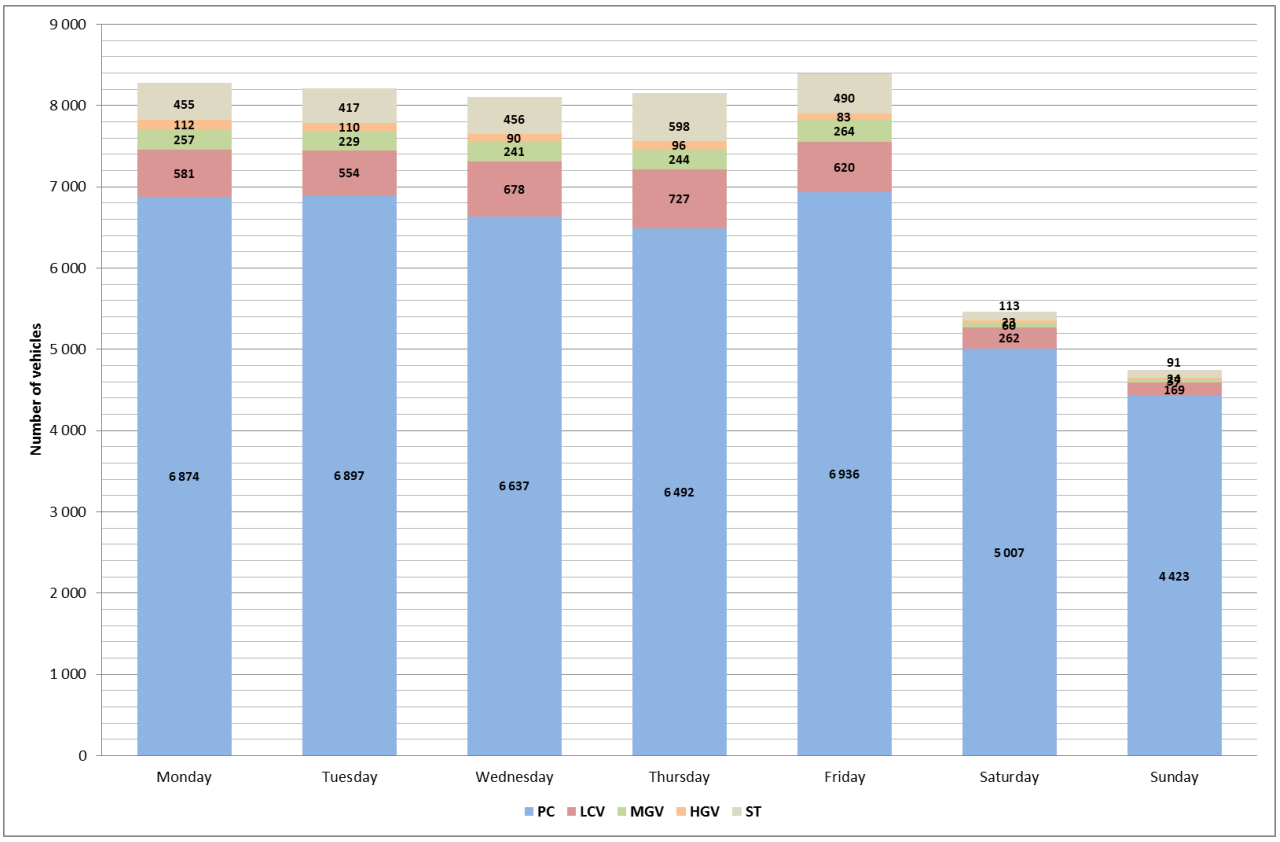

Figure 79 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-21

From the point of view of total traffic volume is the busiest day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.1.1.14. Counting site CZ-P-22: Bohumín

Road: I/67

GPS coordinates of survey profile: 49.91362, 18.32811

The counting point was located in a rural area on road I/67 near the Czech-Polish border crossing Bohumín - Chalupki. This link is also often used as a connection to the D1 motorway and other routes in the direction of Karviná. The adder is suspended on a vertical road sign near the road.

Note: ASD is placed in the position of the originally planned questionnaire survey, which was rejected by the police for security reasons.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 55 The results of the profile traffic survey – counting site CZ-P-22 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	2 623	188	100	54	956

	PC	LCV	MGV	HGV	ST
Tuesday	2 642	196	124	45	903
Wednesday	2 971	174	121	55	960
Thursday	3 559	205	115	41	867
Friday	2 463	203	87	49	412
Saturday	3 260	113	37	16	191
Sunday	2 898	127	31	15	107
WADT - category	**2 926**	**184**	**99**	**51**	**641**
AADT - category	**3 209**	**219**	**118**	**61**	**688**
WADT - total	**3 901**				
AADT - total	**4 295**				
Share of freight transport	**20.19%**				
Share of heavy freight transport	**17.44%**				

In the counting site CZ-P-22 was recorded average intensity 4 295 veh/24 h with share of freight transport, 20.19%.

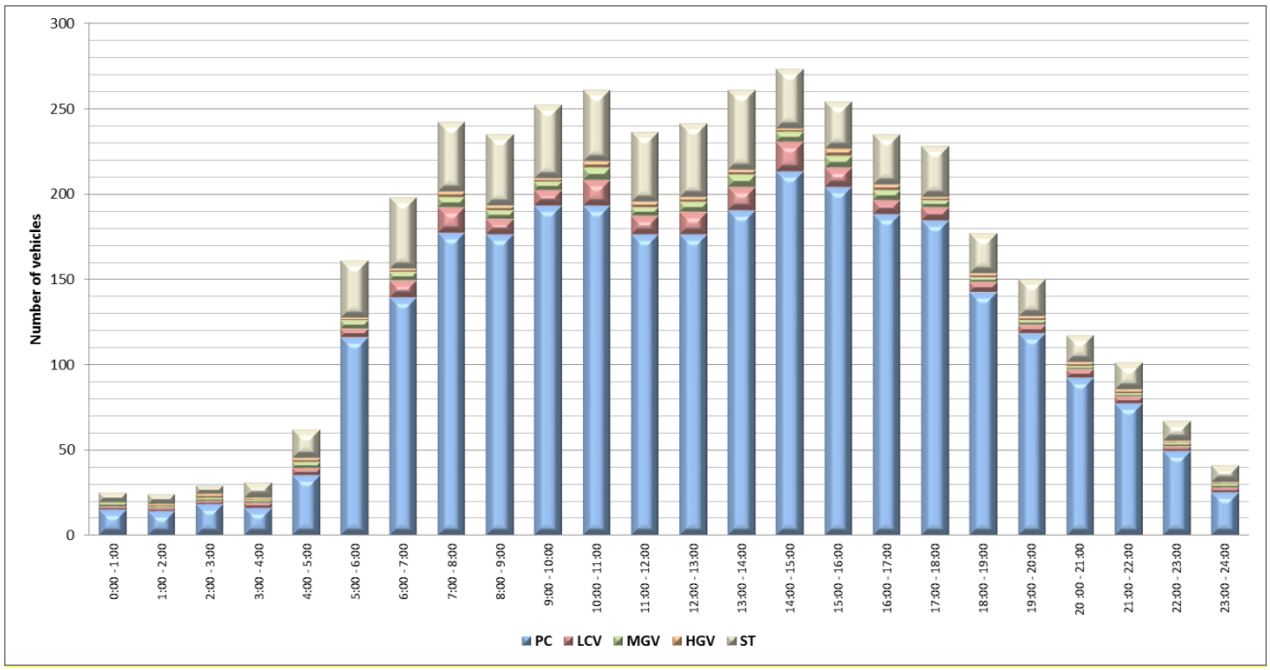

Figure 80 Hourly variation of the WADT traffic volume - counting site CZ-P-22

The average hourly intensity variation higher than 270 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 1:00pm – 4:00pm.

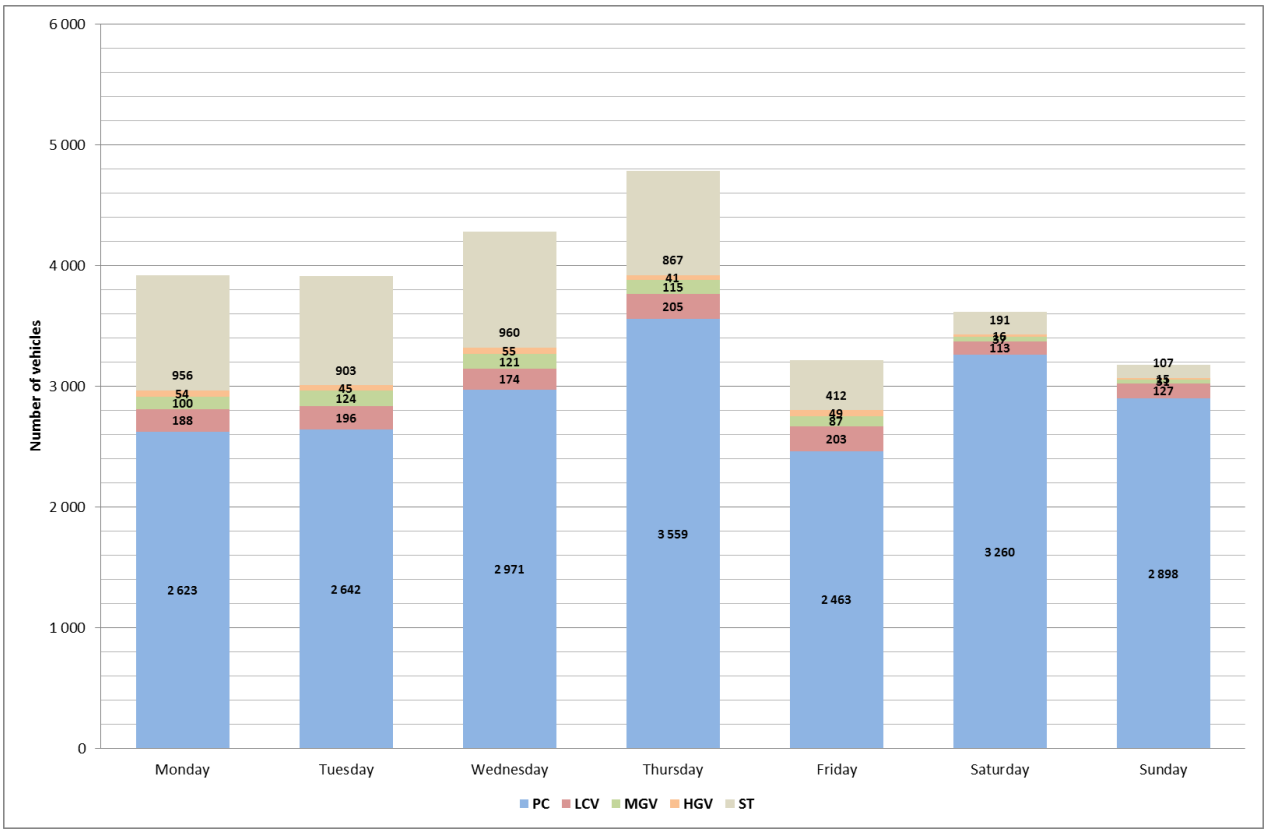

Figure 81 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-22

From the point of view of total traffic volume is the busiest day Thursday and least busy is Sunday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.1.1.15. Counting site CZ-P-23: Důl Lazy

Road: I/59

GPS coordinates of survey profile: 49.83926, 18.44837

The counting point was located in a rural area on the I/59 road near Orlová between Ostrava and Karviná. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 56 The results of the profile traffic survey – counting site CZ-P-23 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	8 082	1 207	462	322	1 248
Tuesday	8 899	805	373	250	813
Wednesday	7 952	1 372	670	344	950
Thursday	7 021	1 959	781	430	1 428

	PC	LCV	MGV	HGV	ST
Friday	8 963	767	299	218	989
Saturday	4 572	1 254	477	279	477
Sunday	3 706	1 427	307	231	404
WADT - category	**7 039**	**1 269**	**494**	**307**	**914**
AADT - category	**7 719**	**1 504**	**586**	**364**	**981**
WADT - total	**10 023**				
AADT - total	**11 154**				
Share of freight transport	**17.31%**				
Share of heavy freight transport	**12.06%**				

In the counting site CZ-P-23 was recorded average intensity 11 154 veh/24 h with share of freight transport 17.31%.

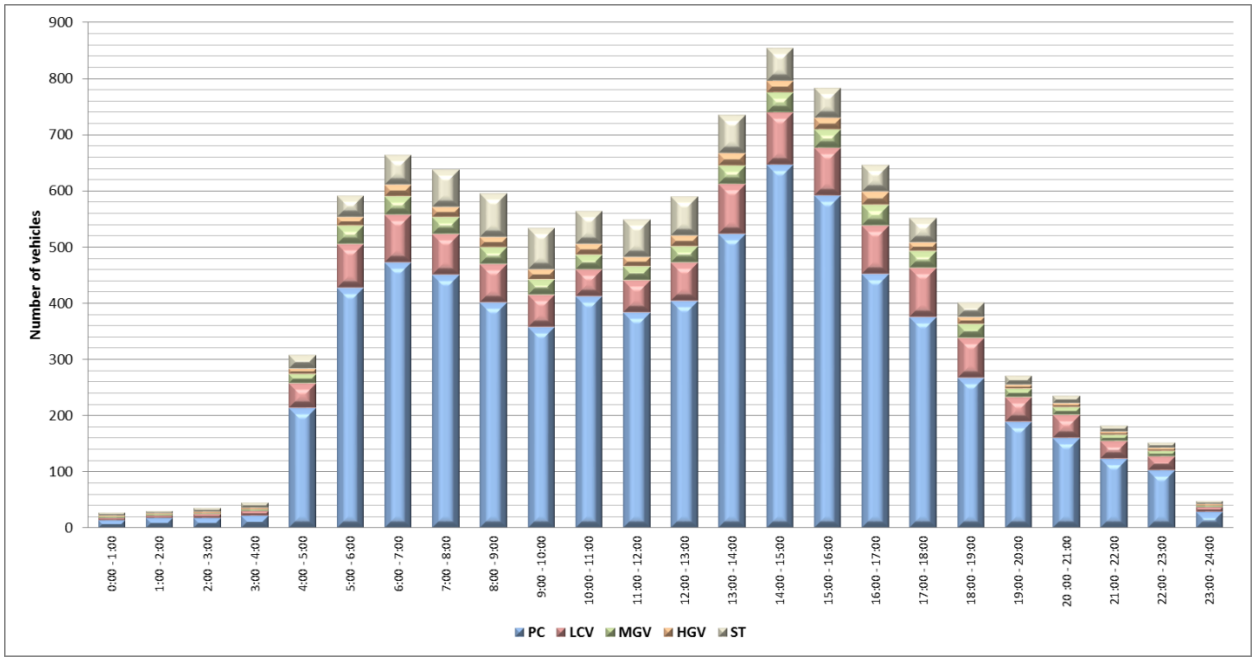

Figure 82 Hourly variation of the WADT traffic volume - counting site CZ-P-23

The average hourly intensity variation higher than 800 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 5:00am – 9:00am and afternoon peak between 1:00pm – 5:00pm.

Figure 83 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-23

From the point of view of total traffic volume is the busiest day Thursday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.1.1.16. Counting site CZ-P-24: Český Těšín

Road: I/11

GPS coordinates of survey profile: 49.74776, 18.58431

The counting point was located on road I/11 on the border of Český Těšín and its town district Mistřovice between Český Těšín and Karviná. This road is mainly used as a connection to I/48 (E75). The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 57 The results of the profile traffic survey – counting site CZ-P-24 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	5 221	368	106	53	30
Tuesday	5 235	383	99	48	43
Wednesday	5 222	414	96	59	41
Thursday	5 063	421	135	65	27

	PC	LCV	MGV	HGV	ST
Friday	5 772	314	104	56	20
Saturday	3 946	193	45	31	19
Sunday	3 327	92	29	39	17
WADT - category	**4 838**	**322**	**96**	**60**	**38**
AADT - category	**5 305**	**382**	**114**	**72**	**41**
WADT - total	**5 354**				
AADT - total	**5 914**				
Share of freight transport	**3.84%**				
Share of heavy freight transport	**1.91%**				

In the counting site CZ-P-24 was recorded average intensity 5 914 veh/24 h with share of freight transport 3.84%.

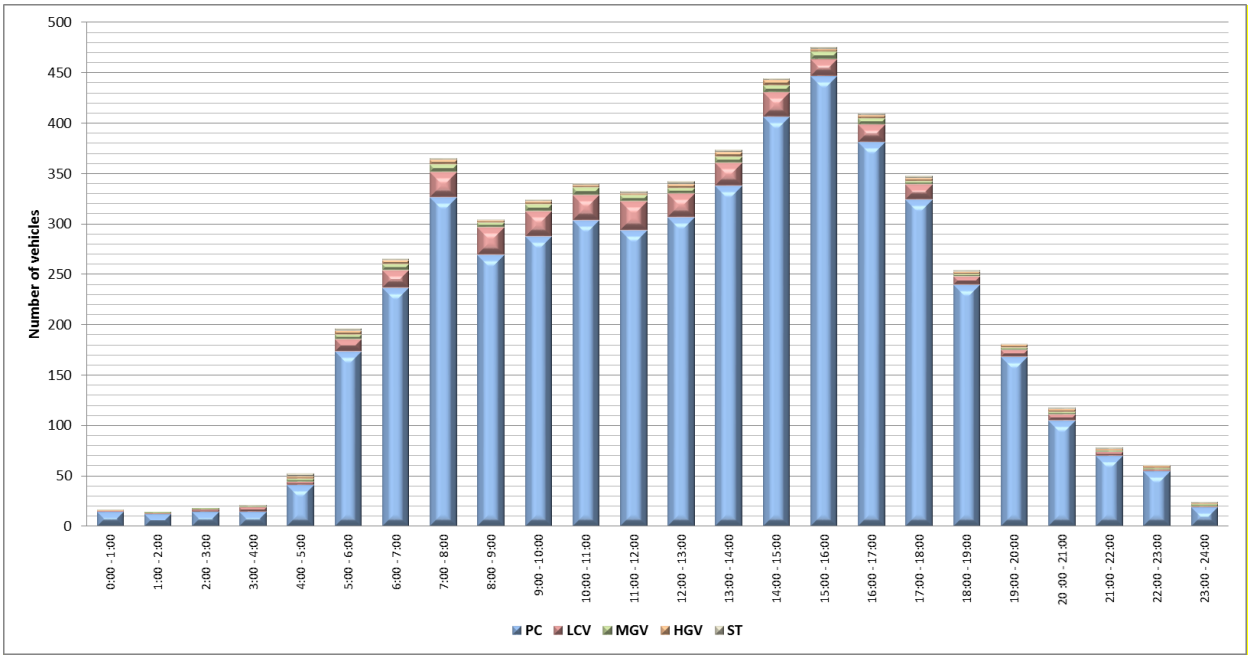

Figure 84 Hourly variation of the WADT traffic volume - counting site CZ-P-24

The average hourly intensity variation higher than 450 veh/h was reached between 3:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 2:00pm – 5:00pm.

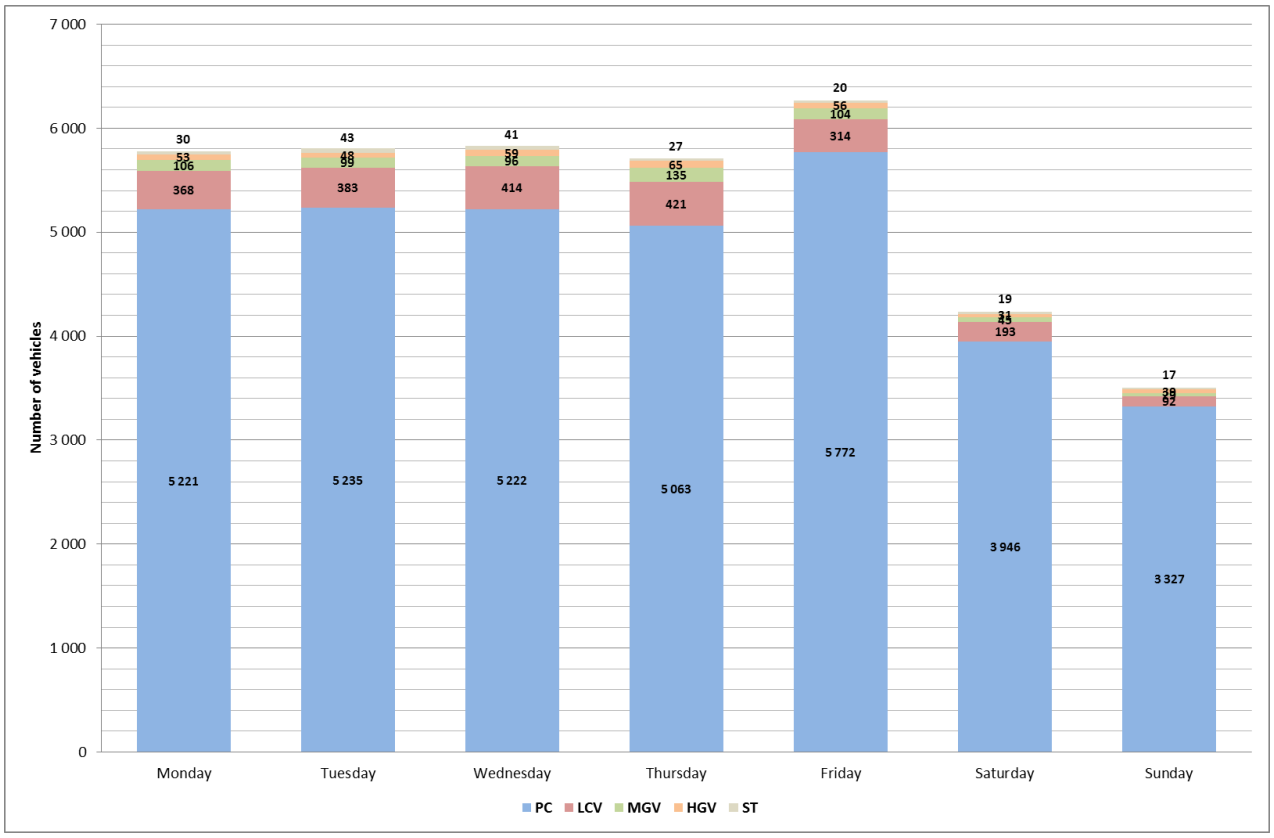

Figure 85 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-24

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.1.1.17. Counting site CZ-P-25: Ropice

Road: I/68

GPS coordinates of survey profile: 49.67438, 18.5963

The counting point was located in a rural area on road I/68 at the beginning/end of the village of Ropice between Frýdek-Místek and Třinec. This road is mainly used as a connection to I/11 (E75) and other routes to Slovakia via the border crossing Svrčinovec. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 58 The results of the profile traffic survey – counting site CZ-P-25 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	10 253	761	332	160	179
Tuesday	9 249	1 016	406	296	407
Wednesday	9 003	1 135	330	333	603

	PC	LCV	MGV	HGV	ST
Thursday	9 424	1 094	333	355	583
Friday	10 285	856	306	310	421
Saturday	7 926	317	96	67	75
Sunday	8 110	113	89	14	13
WADT - category	**9 190**	**766**	**281**	**231**	**337**
AADT - category	**10 077**	**908**	**333**	**274**	**362**
WADT - total	**10 805**				
AADT - total	**11 954**				
Share of freight transport	**8.11%**				
Share of heavy freight transport	**5.32%**				

In the counting site CZ-P-24 was recorded average intensity 11 954 veh/24 h with share of freight transport 8.11%.

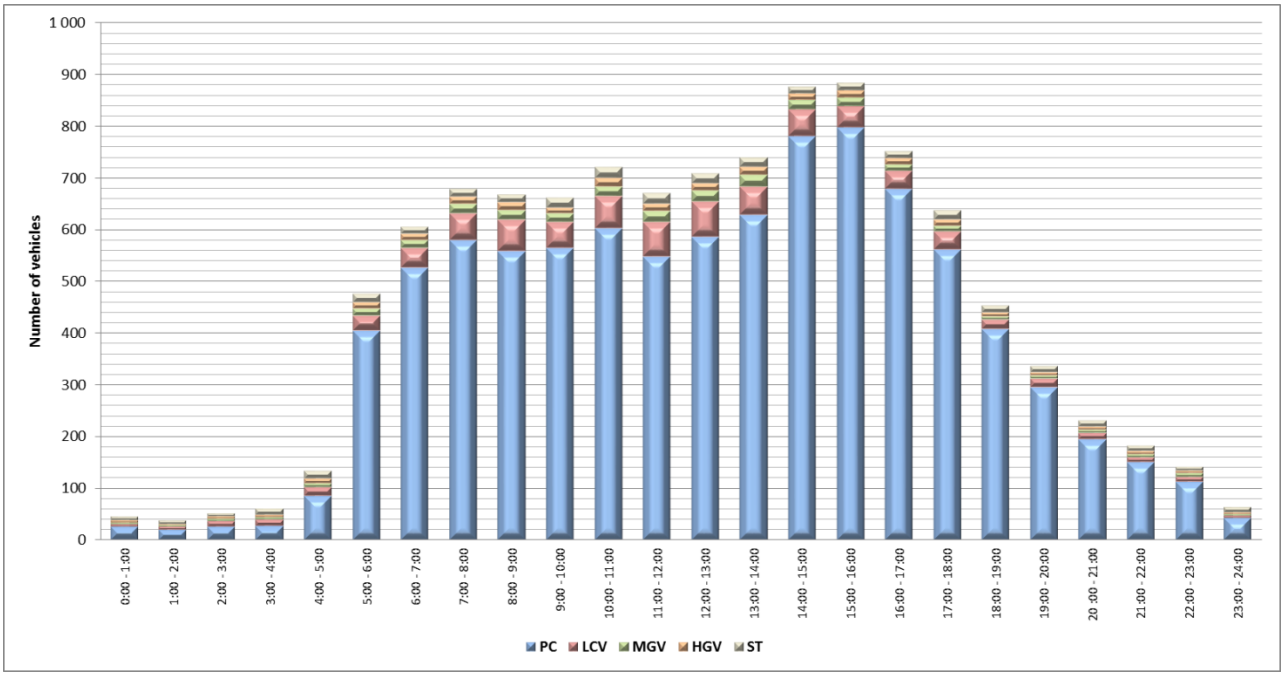

Figure 86 Hourly variation of the WADT traffic volume - counting site CZ-P-25

The average hourly intensity variation higher than 850 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 2:00pm – 4:00pm.

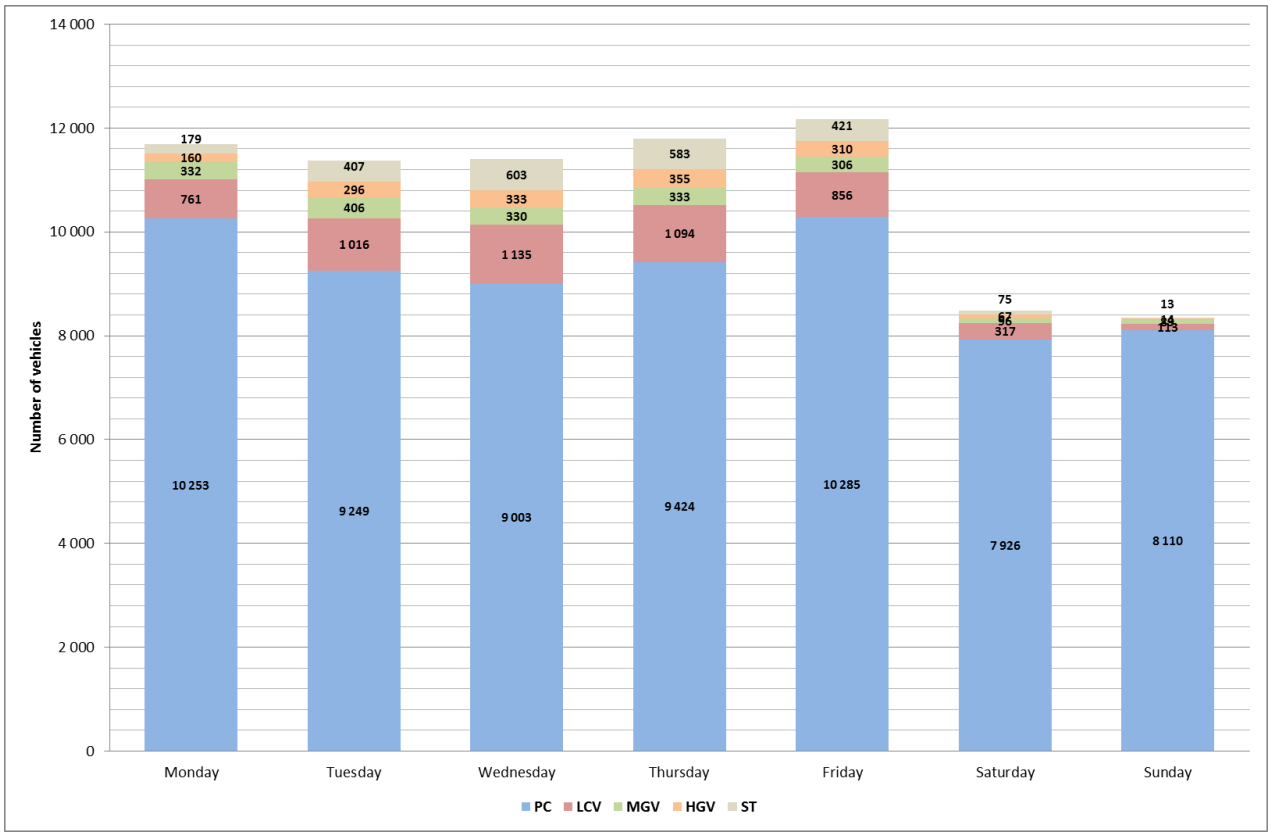

Figure 87 Daily variation of WADT traffic volume with vehicles structure - counting site CZ-P-25

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.1.1.18. Counting site CZ-P-26: Vlaštovičky

Road: I/11

GPS coordinates of survey profile: 49.96607, 17.82705

The counting point was placed on road I/11 at the beginning/end of the Opava town district of Vlaštovičky between Opava and Bruntál. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 59 The results of the profile traffic survey - counting site CZ-P-26 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	4 545	479	139	174	358
Tuesday	4 683	514	139	151	283
Wednesday	4 839	473	131	172	283
Thursday	5 241	403	118	145	304

	PC	LCV	MGV	HGV	ST
Friday	6 012	498	116	153	316
Saturday	5 404	186	42	70	47
Sunday	4 556	145	28	60	39
WADT - category	**5 052**	**393**	**111**	**144**	**243**
AADT - category	**5 540**	**466**	**132**	**171**	**261**
WADT - total	**5 943**				
AADT - total	**6 570**				
Share of freight transport	**8.58%**				
Share of heavy freight transport	**6.58%**				

In the counting site CZ-P-26 was recorded average intensity 6 570 veh/24 h with share of freight transport 8.58%.

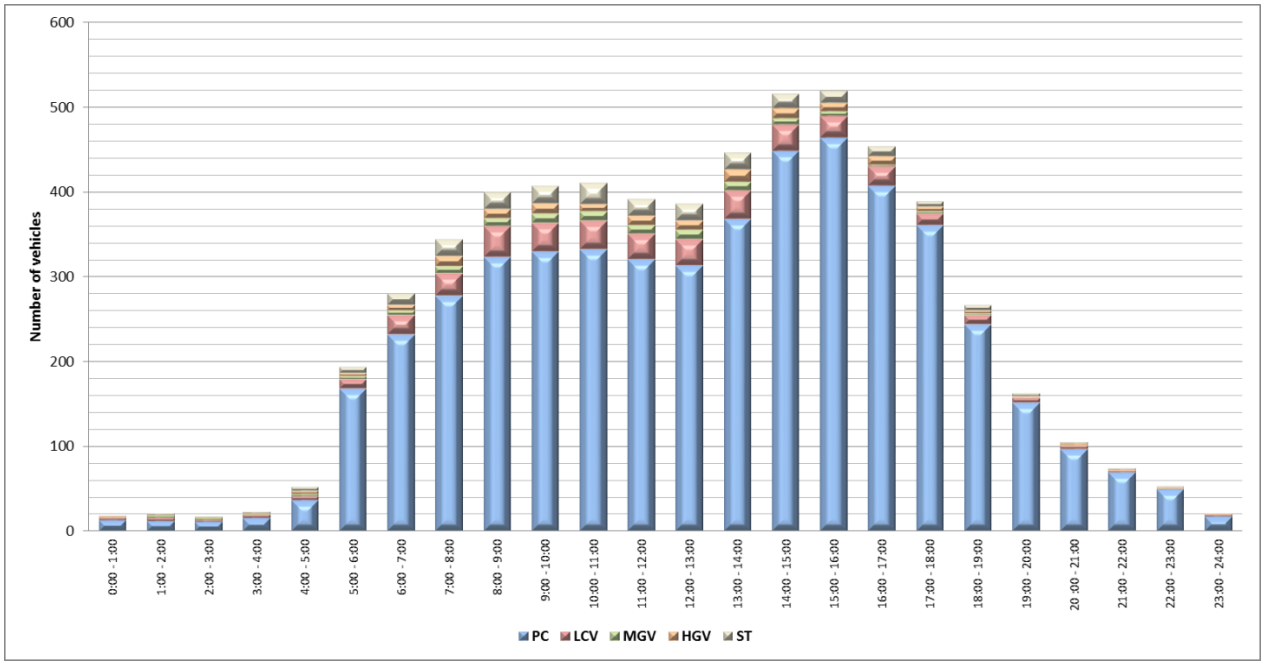

Figure 88 Hourly variation of the WADT traffic volume – counting site CZ-P-26

The average hourly intensity variation higher than 500 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 8:00am – 11:00am and afternoon peak between 1:00pm – 5:00pm.

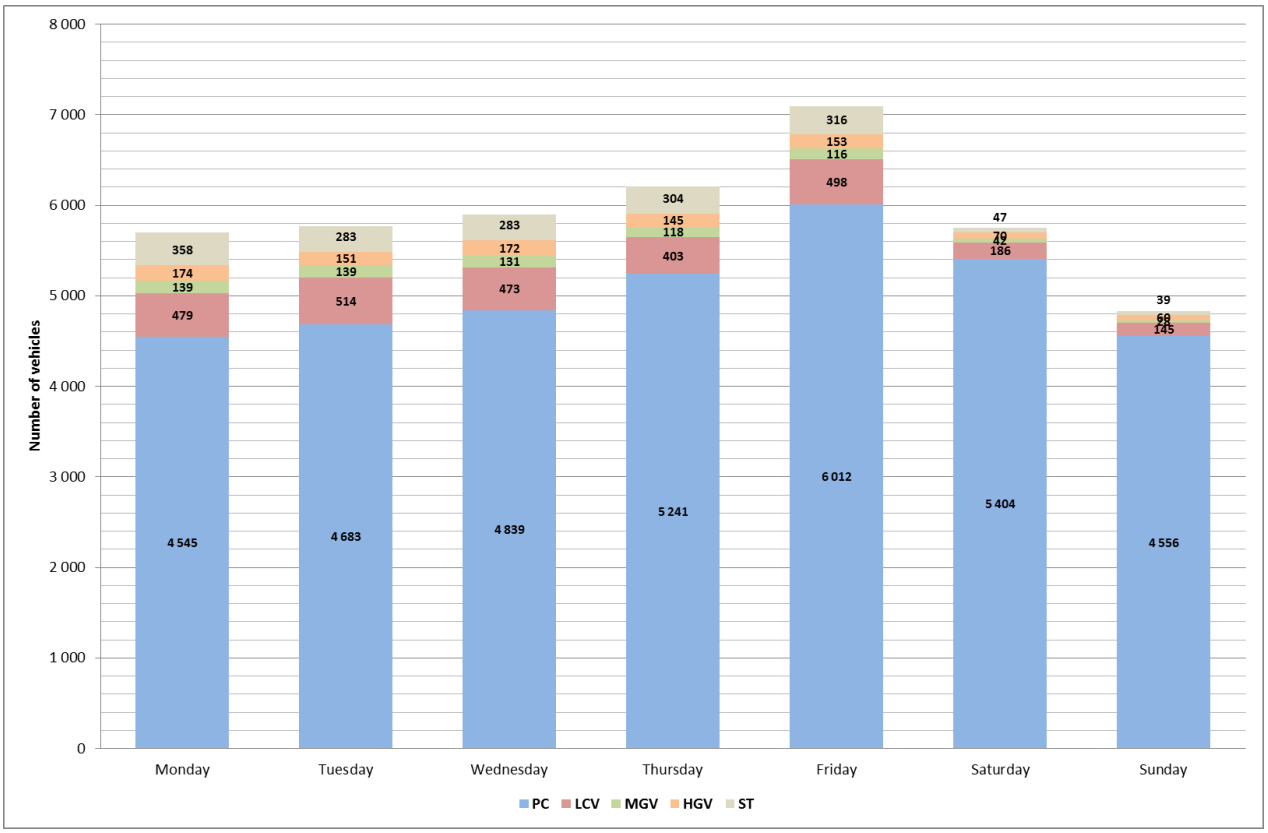

Figure 89 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-26

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Monday and least Sunday.

2.1.1.19. Counting site CZ-P-27: Dvorce

Road: I/46

GPS coordinates of survey profile: 49.83032, 17.54093

The counting point was located in a rural area on road I/46 at the beginning/end of Dvorce between Opava and Šternberk. This road is used for other routes to Olomouc or the D1 motorway. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 60 The results of the profile traffic survey – counting site CZ-P-27 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	1 291	103	69	58	127
Tuesday	1 211	115	72	77	100
Wednesday	1 291	118	74	46	69

	PC	LCV	MGV	HGV	ST
Thursday	1 338	114	61	67	80
Friday	1 515	88	80	57	86
Saturday	1 206	28	19	16	18
Sunday	1 133	20	15	17	14
WADT - category	**1 295**	**93**	**67**	**58**	**79**
AADT - category	**1 420**	**111**	**80**	**69**	**85**
WADT - total	**1 592**				
AADT - total	**1 765**				
Share of freight transport	**13.26%**				
Share of heavy freight transport	**8.72%**				

In the counting site CZ-P-27 was recorded average intensity 1 765 veh/24 h with share of freight transport 13.26%.

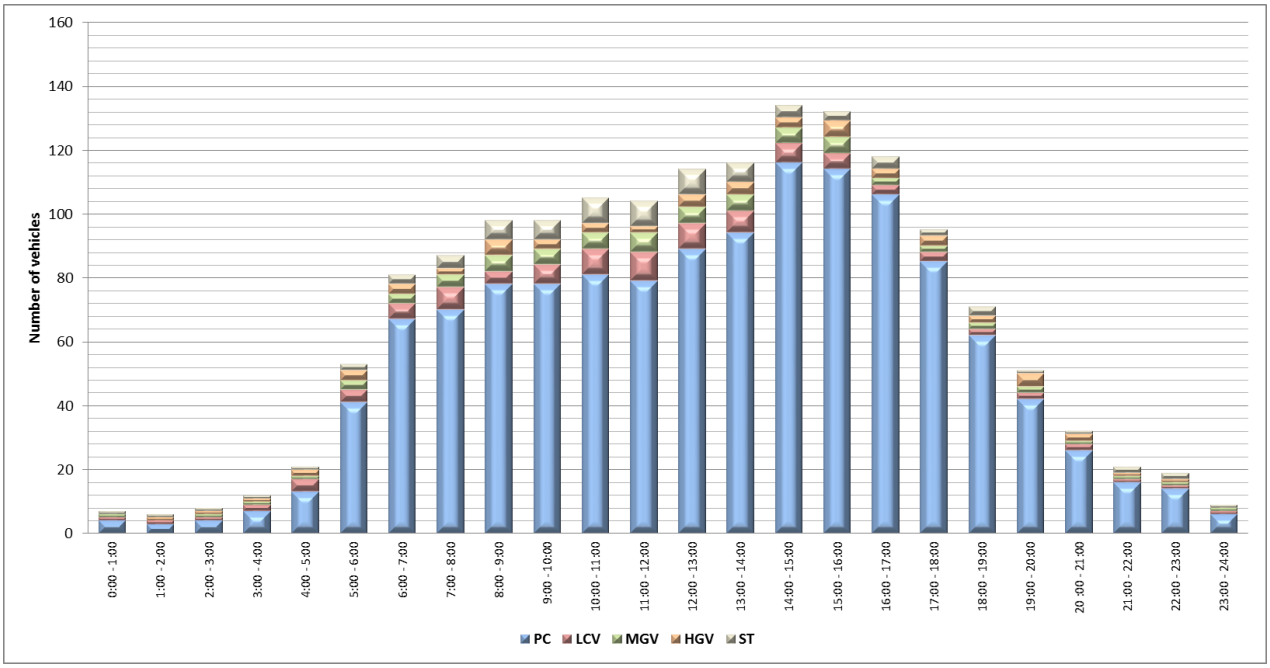

Figure 90 Hourly variation of the WADT traffic volume - counting site CZ-P-27

The average hourly intensity variation higher than 120 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 8:00am – 9:00am and afternoon peak between 2:00pm – 5:00pm.

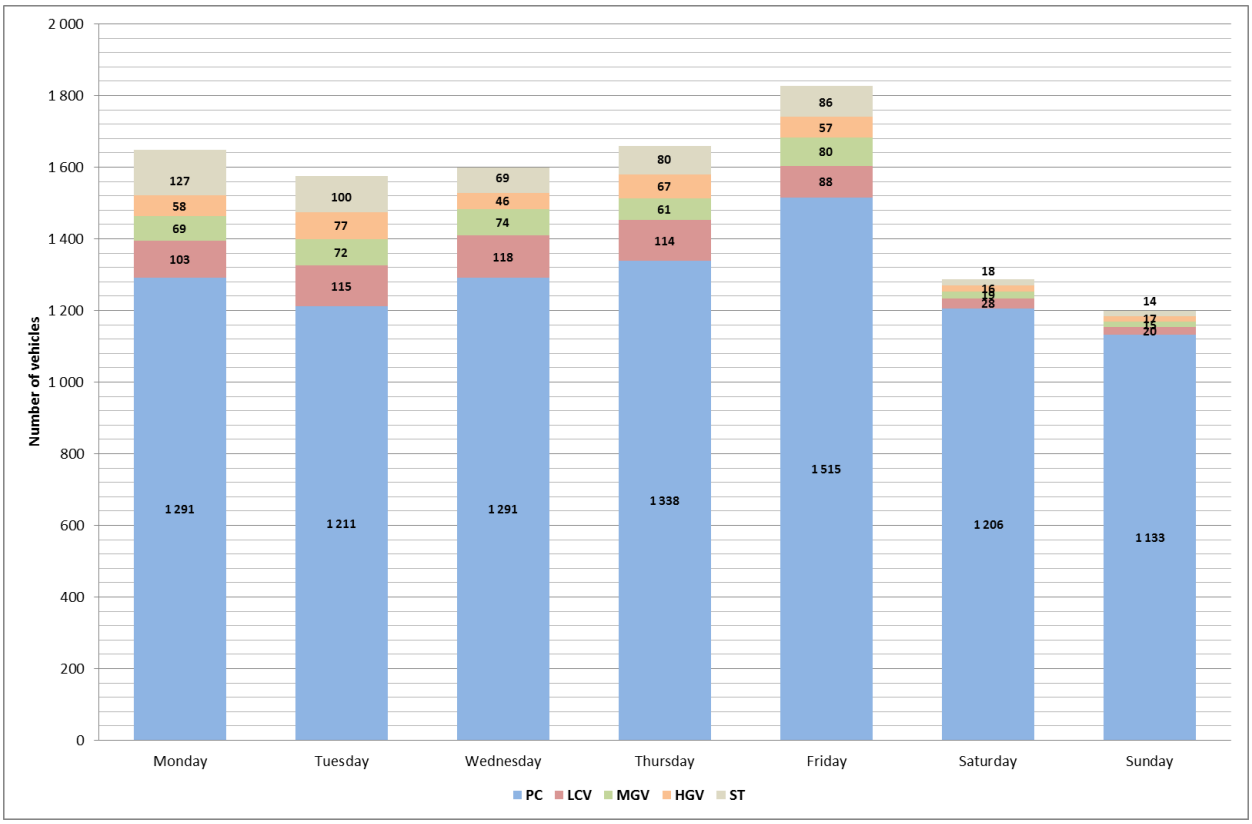

Figure 91 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-27

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Monday and least Sunday.

2.1.1.20. Counting site CZ-P-28: Hradec nad Moravicí.

Road: I/57

GPS coordinates of survey profile: 49.85193, 17.88183

The counting point was placed on the I/57 road at the beginning/end of Hradec nad Moravicí and its town district Kajlovec between Opava and Fulnek. This road is mainly used as a connection to the D1 motorway and other routes in the direction of the south (Brno). The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 61 The results of the profile traffic survey – counting site CZ-P-28 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	5 504	609	293	172	844
Tuesday	5 393	688	330	167	726
Wednesday	5 712	658	323	178	757

	PC	LCV	MGV	HGV	ST
Thursday	5 742	659	333	192	754
Friday	6 333	664	314	152	685
Saturday	4 382	228	83	28	139
Sunday	4 236	191	33	23	107
WADT - category	**5 340**	**537**	**253**	**141**	**586**
AADT - category	**5 856**	**637**	**300**	**168**	**629**
WADT - total	**6 857**				
AADT - total	**7 590**				
Share of freight transport	**14.45%**				
Share of heavy freight transport	**10.50%**				

In the counting site CZ-P-28 was recorded average intensity 7 590 veh/24 h with share of freight transport 14.45%.

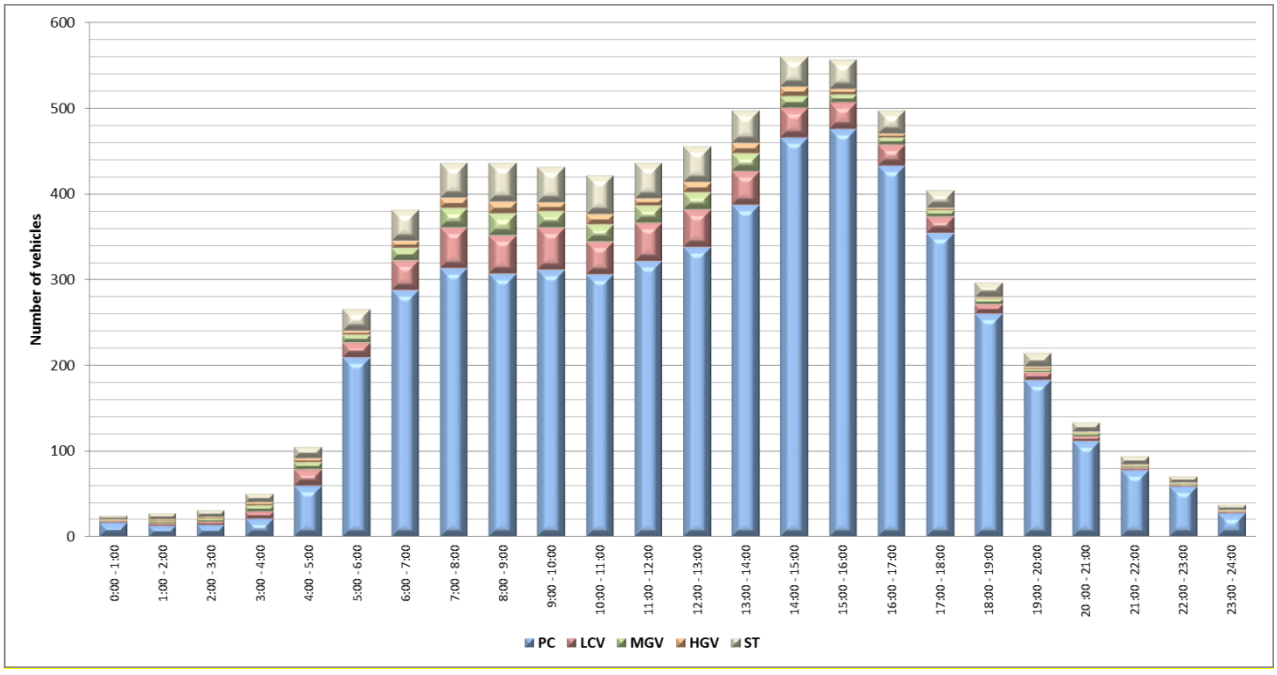

Figure 92 Hourly variation of the WADT traffic volume - counting site CZ-P-28

The average hourly intensity variation higher than 500 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 9:00am and afternoon peak between 1:00pm – 5:00pm.

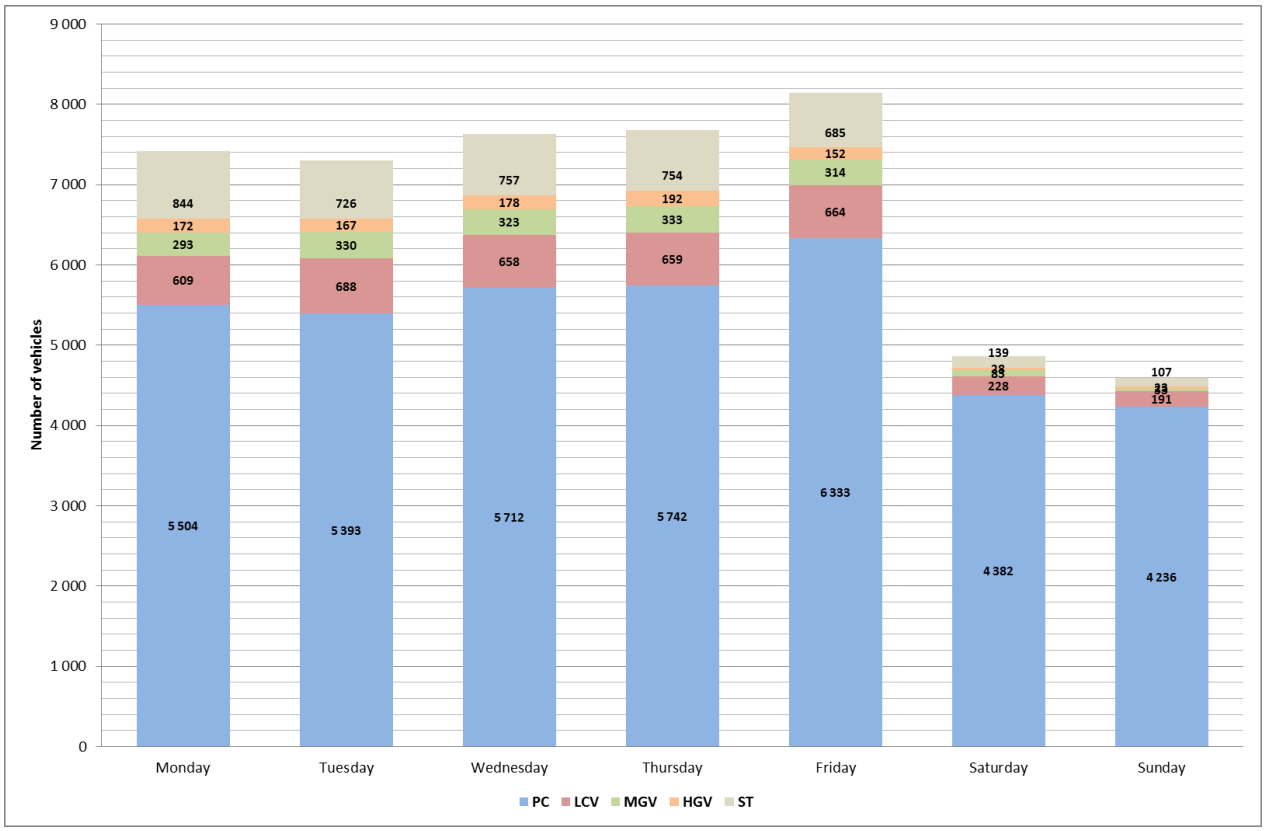

Figure 93 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-28

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Monday and least Sunday.

2.1.1.21. Counting site CZ-P-29: Bílá

Road: I/56

GPS coordinates of survey profile: 49.44696, 18.46248

The counting point was located in a rural mountain area on the I/56 road between Frýdek-Místek and the Czech-Slovak border crossing Makov. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 62 The results of the profile traffic survey – counting site CZ-P-29 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	1 329	56	68	60	188
Tuesday	1 586	73	73	74	185
Wednesday	1 606	230	139	114	193
Thursday	1 613	405	177	110	203

	PC	LCV	MGV	HGV	ST
Friday	921	15	34	37	67
Saturday	1 583	10	6	13	14
Sunday	1 986	42	8	14	41
WADT - category	**1 526**	**131**	**88**	**74**	**136**
AADT - category	**1 674**	**156**	**105**	**88**	**146**
WADT - total	**1 955**				
AADT - total	**2 169**				
Share of freight transport	**15.63%**				
Share of heavy freight transport	**10.79%**				

In the counting site CZ-P-29 was recorded average intensity 2 169 veh/24 h with share of freight transport 15.63%.

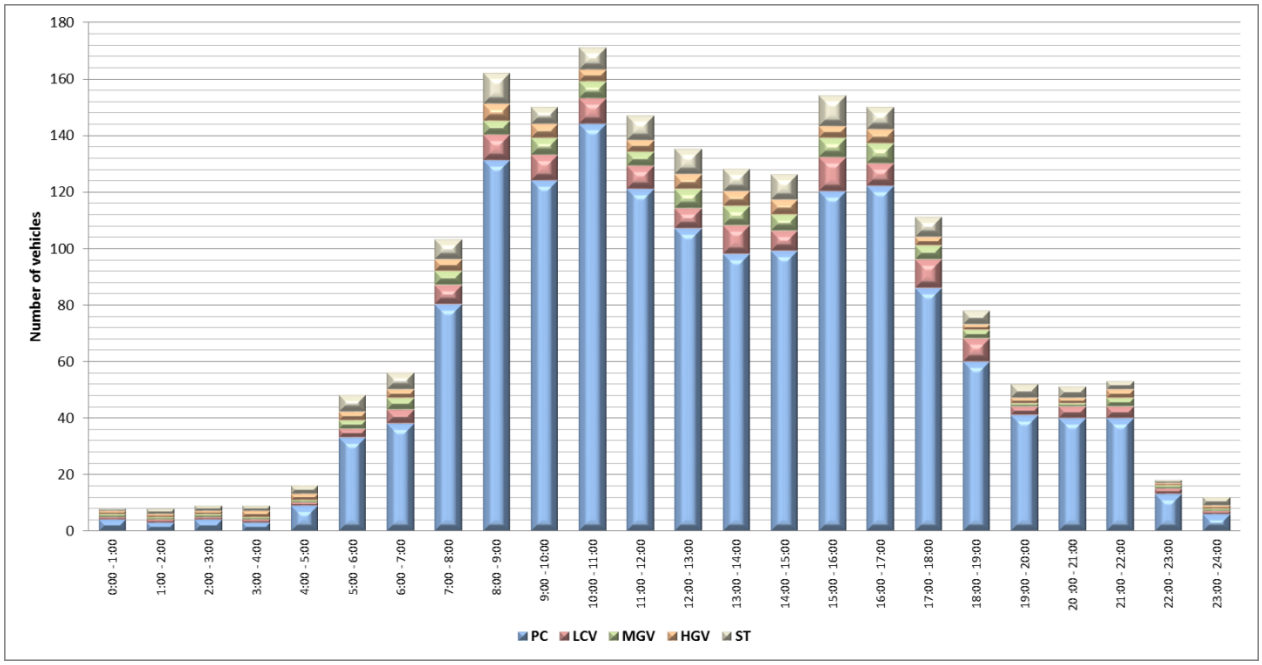

Figure 94 Hourly variation of the WADT traffic volume - counting site CZ-P-29

The average hourly intensity variation higher than 170 veh/h was reached between 10:00am – 11:00am. From the development of average hourly intensity during day it's possible to determinate morning peak between 8:00am – 9:00am and afternoon peak between 3:00pm – 5:00pm.

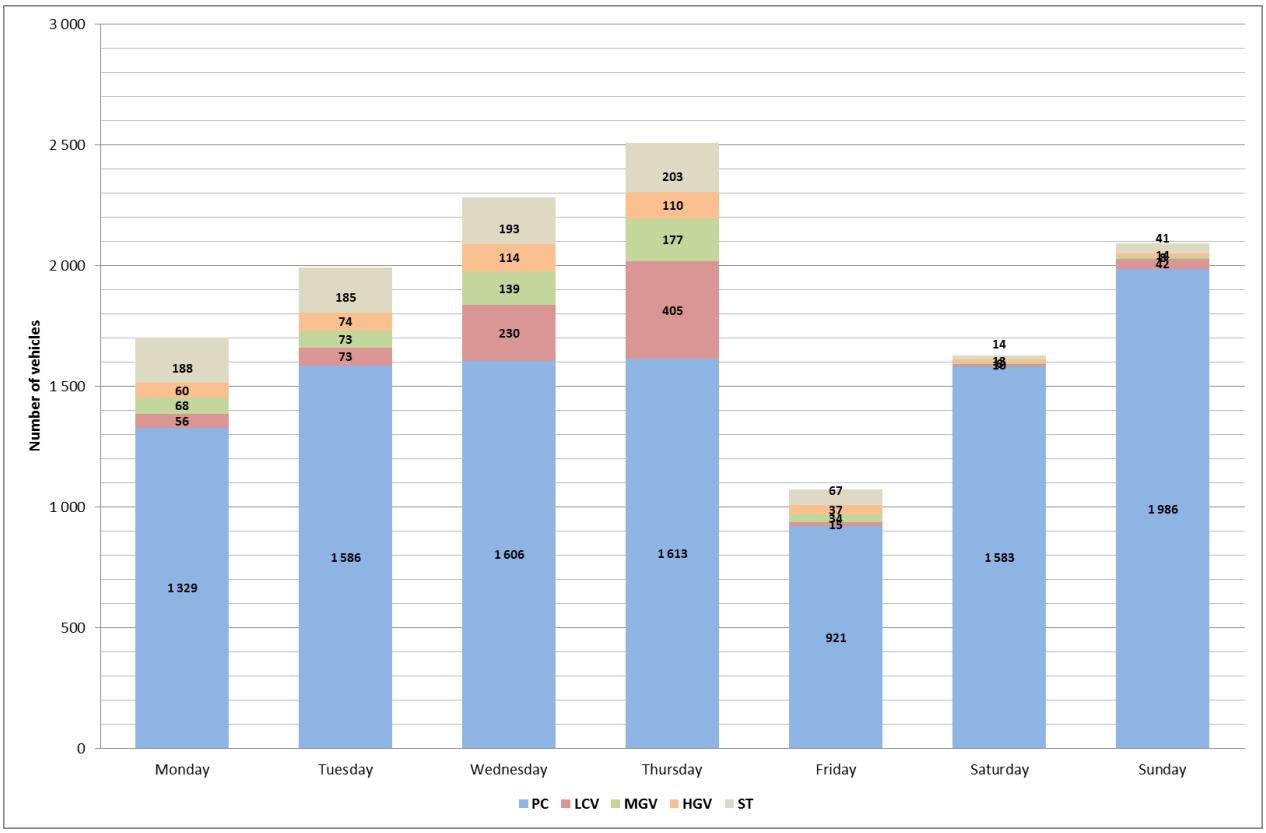

Figure 95 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-29

From the point of view of total traffic volume is the most busy day Thursday and least busy is Friday. The most freight vehicles was recorded during Thursday and least Saturday.

2.1.1.22. Counting site CZ-P-30: Krnov S

Road: I/45

GPS coordinates of survey profile: 50.11297, 17.69522

The counting point was located in a rural area on the I/45 road between Krnov and the Czech-Polish border crossing Pietrowice. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 63 The results of the profile traffic survey – counting site CZ-P-30 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	761	41	4	1	1
Tuesday	757	39	8	2	2
Wednesday	756	40	4	2	6
Thursday	920	51	4	3	2

	PC	LCV	MGV	HGV	ST
Friday	1 033	38	8	10	1
Saturday	857	24	5	4	1
Sunday	961	11	7	6	1
WADT - category	**875**	**45**	**14**	**14**	**9**
AADT - category	**960**	**54**	**17**	**17**	**10**
WADT - total	**957**				
AADT - total	**1 058**				
Share of freight transport	**4.16%**				
Share of heavy freight transport	**2.55%**				

In the counting site CZ-P-30 was recorded average intensity 1 058 veh/24 h with share of freight transport 4.16%.

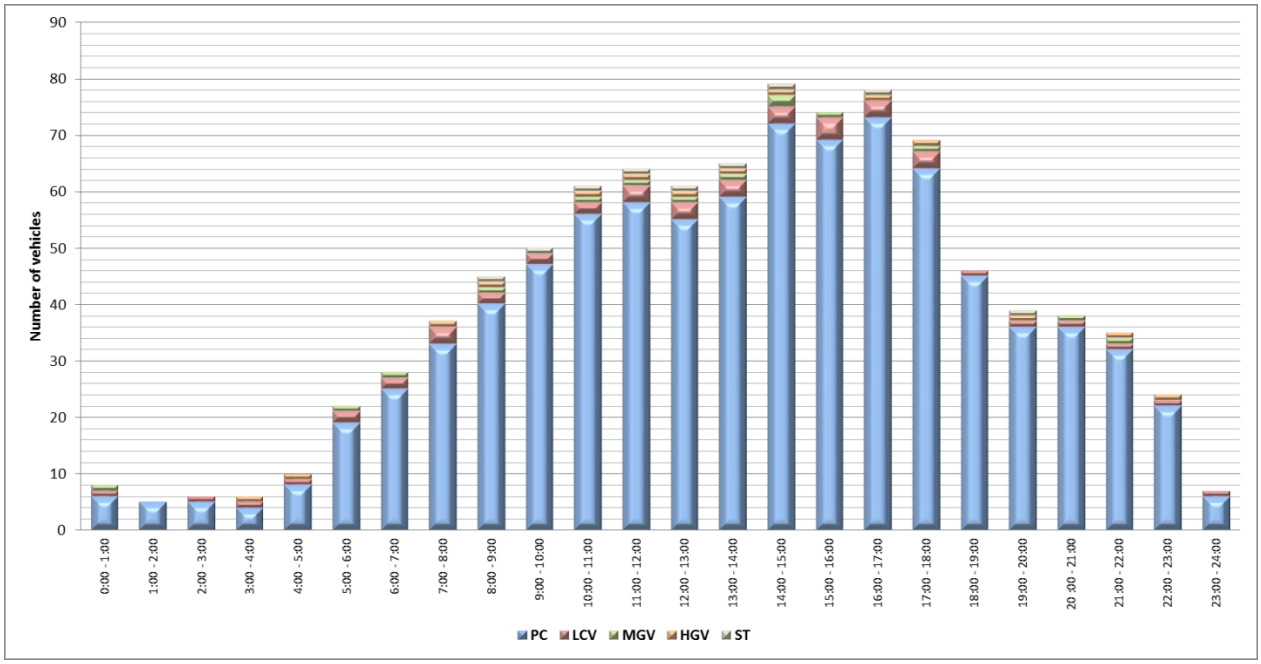

Figure 96 Hourly variation of the WADT traffic volume - counting site CZ-P-30

The average hourly intensity variation higher than 70 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 6:00pm.

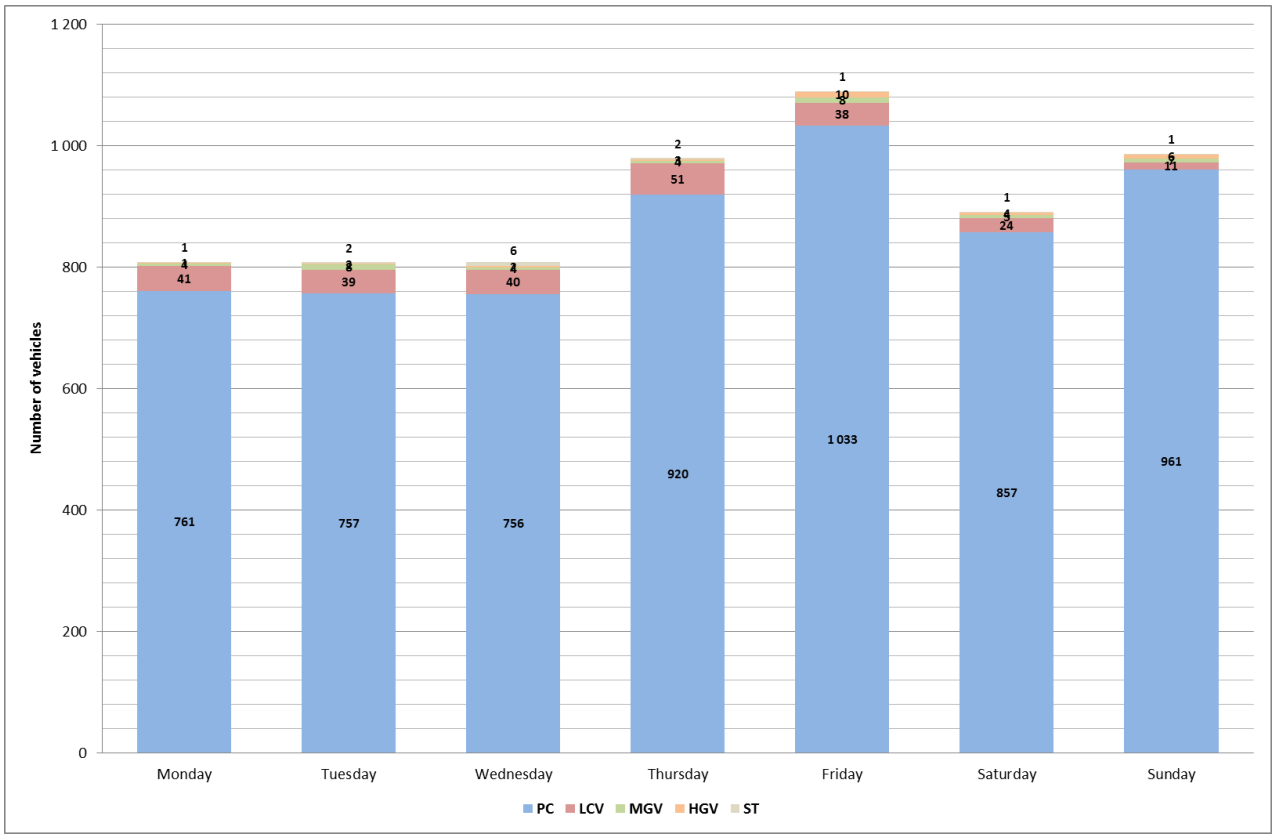

Figure 97 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-30

From the point of view of total traffic volume is the most busy day Friday and least busy is Monday, Tuesday and Wednesday. The most freight vehicles was recorded during Friday and least Monday.

2.1.1.23. Counting site CZ-P-31: Pusté Jakartice

Road: I/46

GPS coordinates of survey profile: 49.96744, 17.95071

The counting point was located on road I/46 between Opava and the Czech-Polish border crossing Pietraszyn. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 64 The results of the profile traffic survey – counting site CZ-P-31 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 163	200	65	62	87
Tuesday	3 162	208	63	75	104
Wednesday	3 273	218	62	86	115
Thursday	3 265	176	48	70	67

	PC	LCV	MGV	HGV	ST
Friday	3 373	220	72	67	102
Saturday	2 299	77	18	14	13
Sunday	1 943	31	11	11	7
WADT - category	**2 937**	**174**	**61**	**65**	**81**
AADT - category	**3 221**	**207**	**73**	**78**	**87**
WADT - total	**3 318**				
AADT - total	**3 666**				
Share of freight transport	**6.49%**				
Share of heavy freight transport	**4.50%**				

In the counting site CZ-P-31 was recorded average intensity 3 666 veh/24 h with share of freight transport 6.49%.

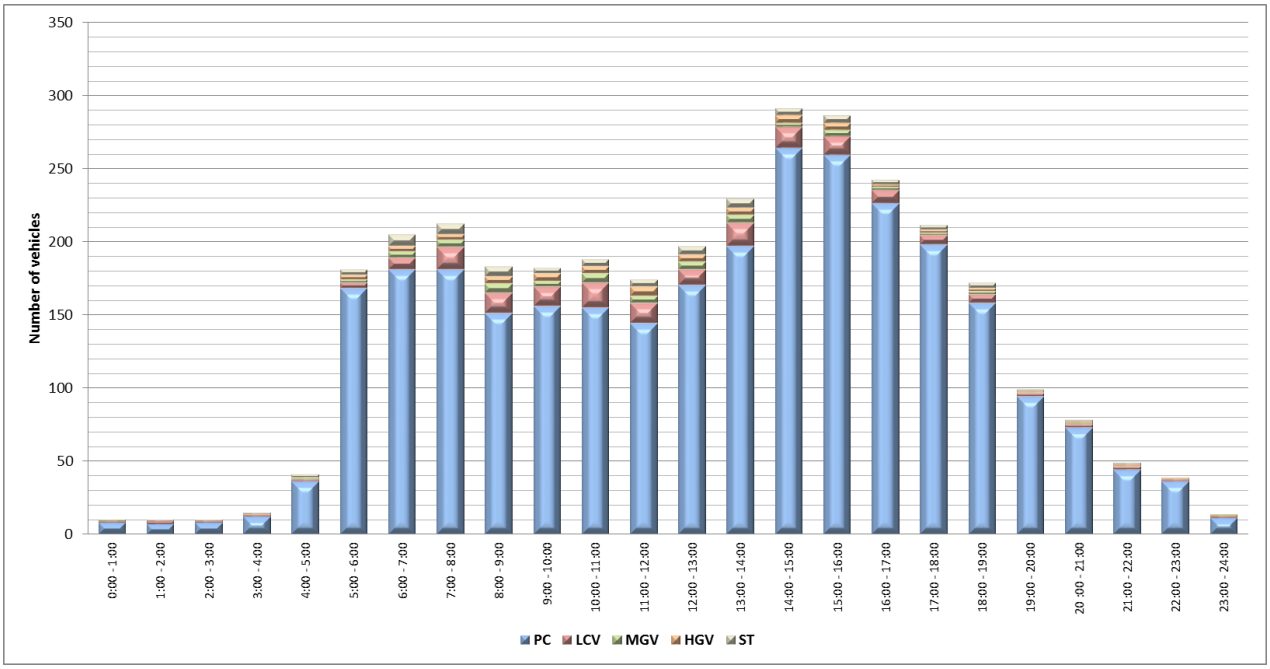

Figure 98 Hourly variation of the WADT traffic volume – counting site CZ-P-31

The average hourly intensity variation higher than 250 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 8:00am and afternoon peak between 2:00pm – 5:00pm.

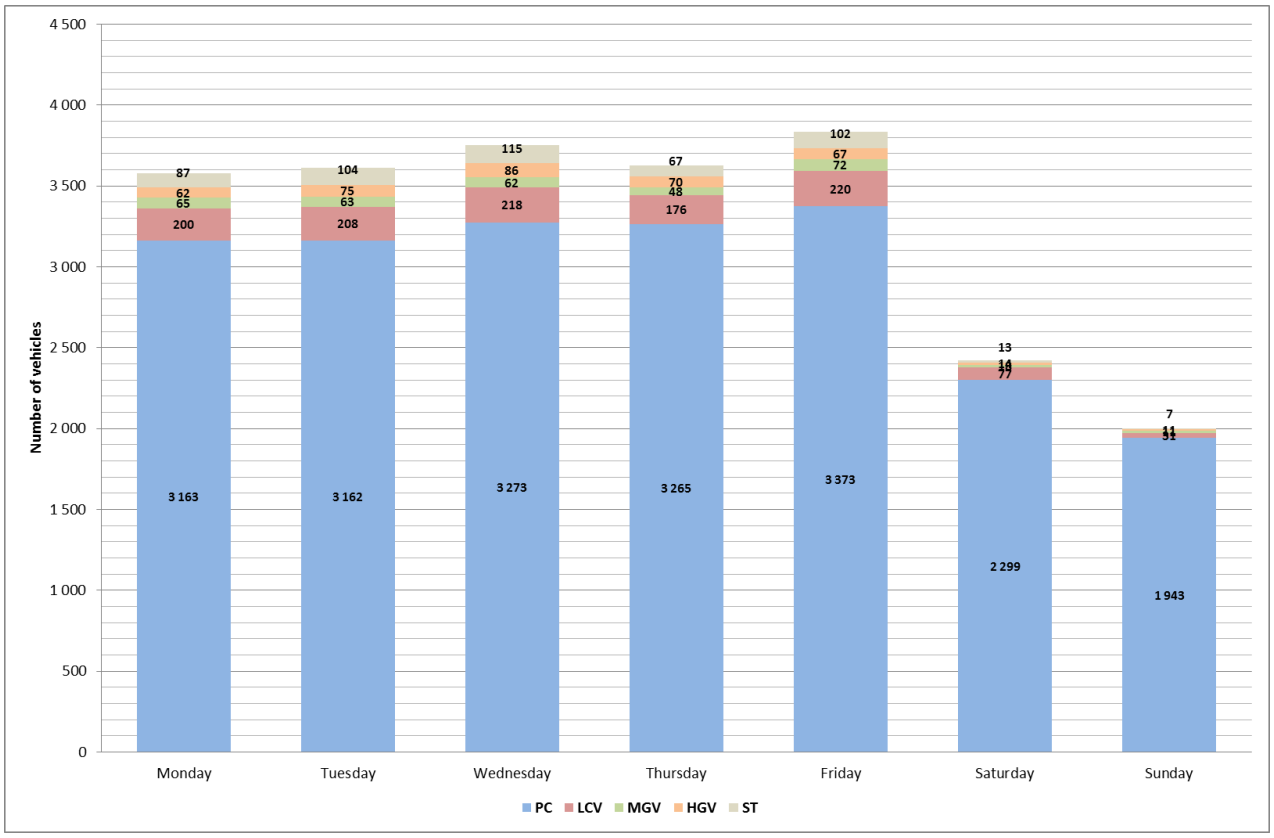

Figure 99 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-31

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.1.1.24. Counting site CZ-P-32: Český. Těšín S

Road: I/67

GPS coordinates of survey profile: 49.78811, 18.59425

The counting point was located in a rural area on the I/67 road between Karviná and Český Těšín. This road is used for other routes to the D1 motorway, or the Czech-Polish border crossing Chalupki in one direction. In the opposite direction, it is used as a road to Poland via the border crossing Cieszyn or to Slovakia via the border crossing Svrčinovec. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 65 The results of the profile traffic survey – counting site CZ-P-32 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	7 692	657	251	137	848
Tuesday	7 722	581	242	151	888
Wednesday	7 863	698	274	129	968

	PC	LCV	MGV	HGV	ST
Thursday	7 653	711	270	151	930
Friday	8 537	310	208	135	735
Saturday	6 830	369	55	42	196
Sunday	6 054	327	44	25	123
WADT - category	**7 489**	**530**	**204**	**119**	**679**
AADT - category	**8 212**	**628**	**242**	**141**	**729**
WADT - total	**9 021**				
AADT - total	**9 952**				
Share of freight transport	**11.17%**				
Share of heavy freight transport	**8.74%**				

In the counting site CZ-P-32 was recorded average intensity 9 952 veh/24 h with share of freight transport 11.17%.

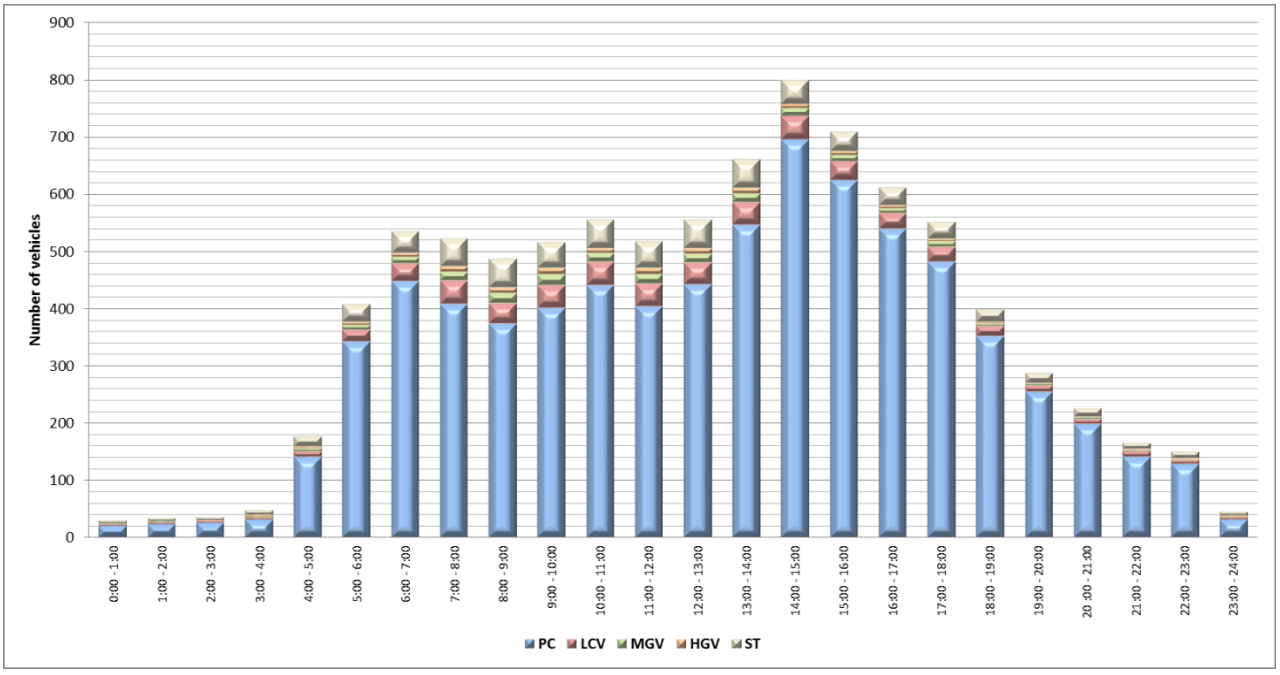

Figure 100 Hourly variation of the WADT traffic volume – counting site CZ-P-32

The average hourly intensity variation higher than 700 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 8:00am and afternoon peak between 1:00pm – 5:00pm.

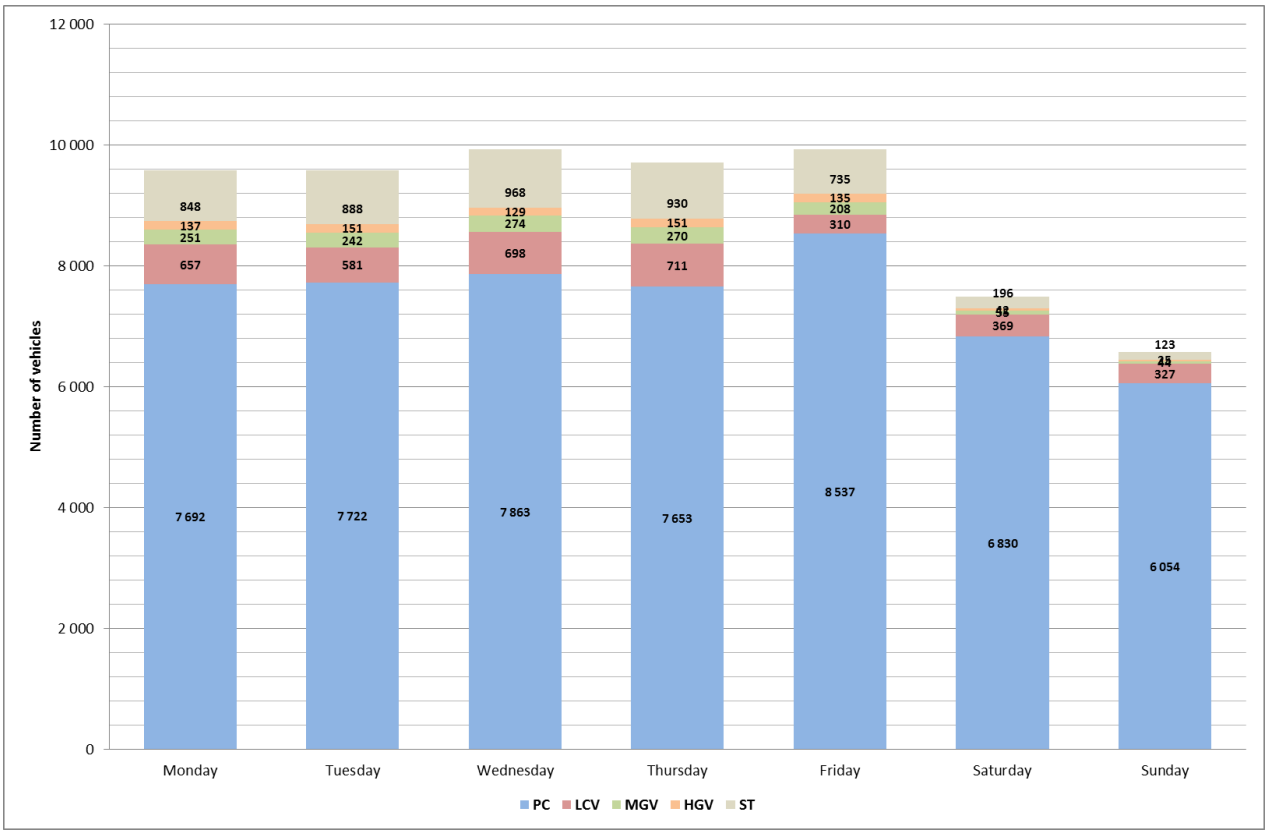

Figure 101 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-32

From the point of view of total traffic volume is the most busy day Wednesday and least busy is Sunday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.1.1.25. Counting site CZ-P-33: Horní Suchá

Road: II/475

GPS coordinates of survey profile: 49.79944, 18.51661

The counting point was located in a rural area on road II/475 near Havířov. The fact that this road connects roads I/67 and I/11 contains two directions - from Karviná and Český Těšín. The adder is suspended on a vertical road sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 66 The results of the profile traffic survey – counting site CZ-P-33 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	4 138	278	146	105	294
Tuesday	4 073	247	130	153	326
Wednesday	3 737	369	113	107	301

	PC	LCV	MGV	HGV	ST
Thursday	3 907	475	136	115	303
Friday	4 152	163	108	93	262
Saturday	2 822	178	51	21	45
Sunday	2 265	143	36	14	32
WADT - category	**3 595**	**278**	**115**	**95**	**232**
AADT - category	**3 912**	**330**	**137**	**113**	**249**
WADT - total	**4 315**				
AADT - total	**4 741**				
Share of freight transport	**10.24%**				
Share of heavy freight transport	**7.58%**				

In the counting site CZ-P-33 was recorded average intensity 4 741 veh/24 h with share of freight transport 10.24%.

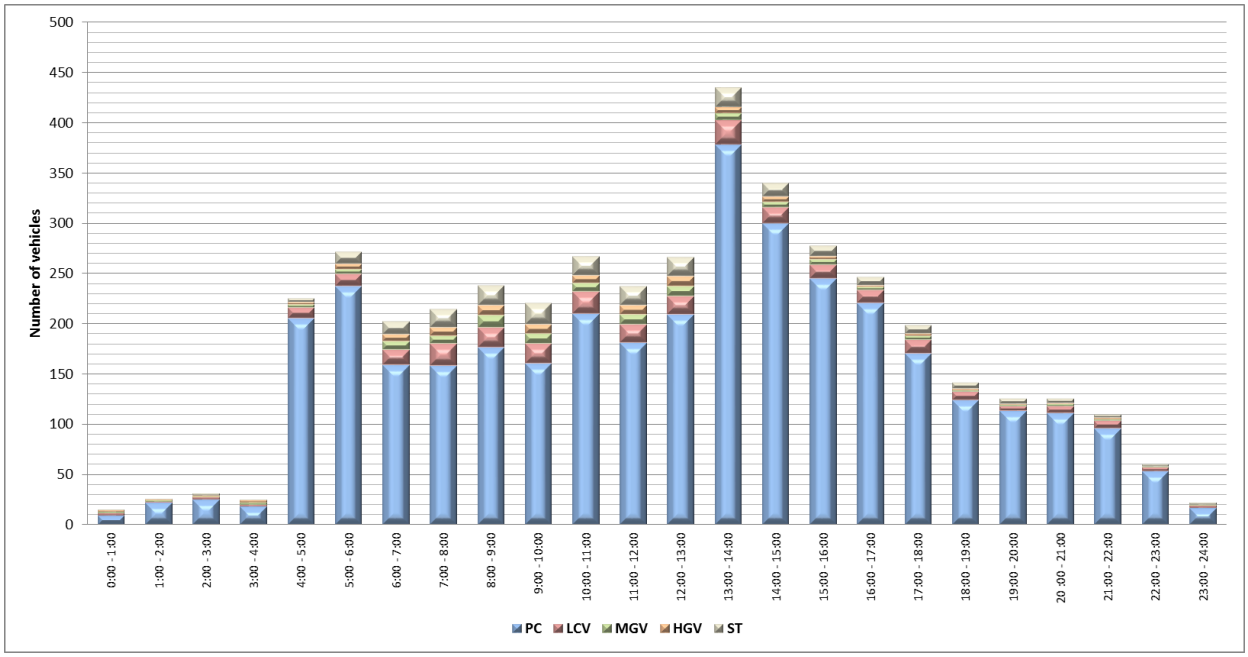

Figure 102 Hourly variation of the WADT traffic volume – counting site CZ-P-33

The average hourly intensity variation higher than 400 veh/h was reached between 1:00pm – 2:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 5:00am – 6:00am and afternoon peak between 1:00pm – 4:00pm.

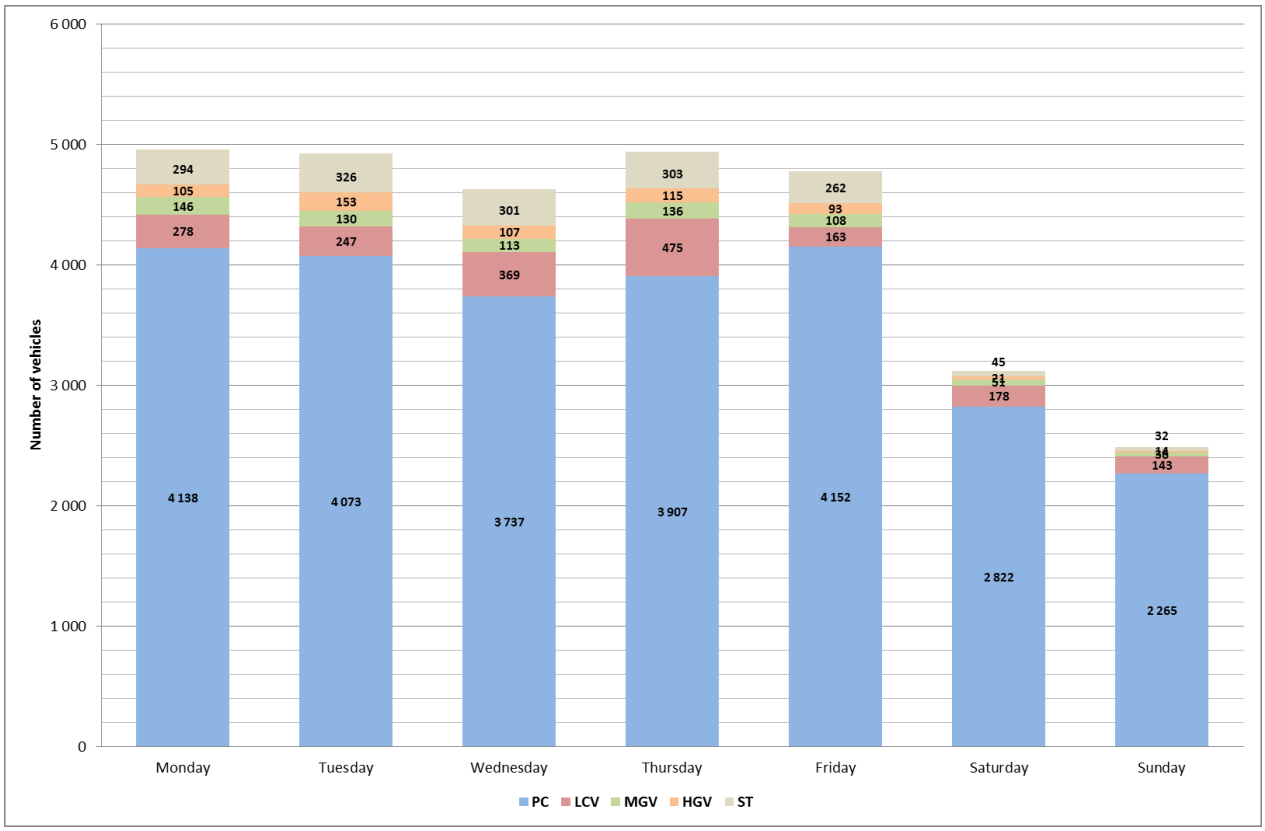

Figure 103 Daily variation of WADT traffic volume with vehicles structure – counting site CZ-P-33

From the point of view of total traffic volume is the most busy day Monday and least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.1.2. Permanent automatic traffic counters in Moravian-Silesian region

Permanent traffic counters built into the road are used for continuous measurements of traffic flow and traffic flow structure on selected sections of infrastructure. In the Moravian-Silesian region, Ředitelství silnic a dálnic ČR (Directorate of Roads and Motorways of the Czech Republic – motorway infrastructure manager) operates permanent counters on motorway sections, expressways and some I. class roads. In case of tamperproof operation it is possible to obtain complete data for 365 days a year on the measured section, which provides an ideal input for the calculation of the daily intensity average (AADT). We asked the permanent counter operator for data for the last full year of operation, i.e. 2018. Measurements that were more than 180 days per year (6 months) were considered relevant data. From Ředitelství silnic a dálnic (Directorate of Roads and Motorways) we received data from permanent counters in the Moravian-Silesian region containing:

- location of the counting sites,
- number of days measured per year,
- average of daily intensities in the structure of vehicles - motorcycles, passenger cars, passenger cars with trailers, trucks, lorries with trailers, semi-trailers.

The distribution of census positions of permanent counters in the Moravian-Silesian region is presented in Figure 104.

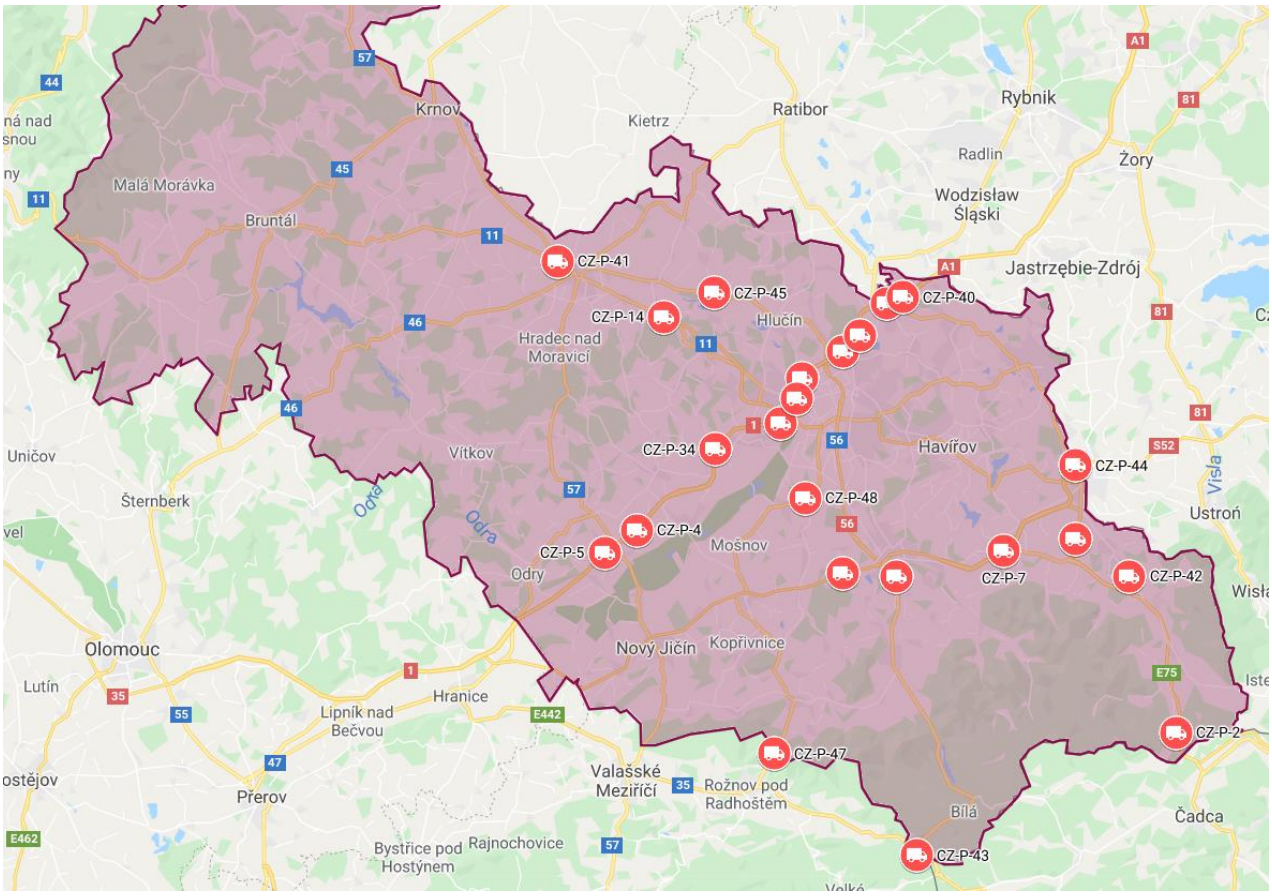

Figure 104 Distribution of counting sites for the profile traffic surveys in Moravian-Silesian region by permanent ATC

Counting sites of permanent traffic counters can be found on almost every intersection of a motorway in the Moravian-Silesian region. Individual permanent traffic counters are also located in newly constructed or reconstructed sections of expressways and first class roads. It follows that major transit routes that are part of international corridors (E, TEN-T) are monitored. In the case of the Moravian-Silesian region especially:

- built sections of D1 motorway in the south-north direction (Hranice, Odry, Ostrava, Bohumín)
- built sections of R48 motorway in the west-east direction (Frýdek-Místek, Český Těšín)
- newly built sections of I/11 in the west-east direction (Opava, Třinec, Mosty u Jablunkova)

Table 67 The results of profile traffic surveys in Moravian-Silesian – permanent ATC (veh./24 h)

ID	Section		Measuring device	Road	GPS	Census section	Number of measured days (2018)	AADT								
								PC	LCV	MGV	HGV	ST	Total	LV	HV+ BUS	BUS
CZ-P-1	Ostrava, Prívoz	Ostrava, Starý Bohumín	permanent ATC	D1	49.86805, 18.28075	7-8974	363	13 830	2 727	1 116	693	4 954	23 320	16 557	6 763	88
CZ-P-2	Jablunkov	št. hranica CZ/SR	permanent ATC	I/11	49.51616, 18.75635	7-0508	351	3 480	451	279	83	2 662	6 955	3 931	3 024	41
CZ-P-3	Nebory	Ropice	permanent ATC	I/11	49.6955058, 18.6128053	7-0479	344	5 624	107	170	98	2 041	8 040	5 731	2 309	16
CZ-P-4	Butovice	Hl.Životice	permanent ATC	D1	49.7031947, 17.9866489	7-8950	352	20 060	4 221	1 110	389	4 154	29 934	24 281	5 653	118
CZ-P-5	Mankovice	Hladké Životice	permanent ATC	D1	49.68274, 17.94014	7-8940	351	19 720	2 492	1 092	326	4 155	27 785	22 212	5 573	62
CZ-P-7	Dobrá	Horní Tošanovice	permanent ATC	D48	49.68468, 18.51076	7-1547	356	13 474	225	365	154	1 876	16 094	13 699	2 395	44
CZ-P-10	Rychaltice	Frýdek-Místek	permanent ATC	D48	49.66355, 18.27981	7-1536	203	11 451	1 165	556	235	1 573	14 980	12 616	2 364	62
CZ-P-14	Opava	Ostrava	permanent ATC	I/11	49.873436, 18.104289	7-5182	364	11 325	970	361	158	481	13 295	12 295	1 000	50
CZ-P-34	Bravantice	Václavovice	permanent ATC	D1	49.77791, 18.09794	7-8970	361	19 538	3 318	1 204	392	4 077	28 529	22 856	5 673	93
CZ-P-35	Václavovice	ul. Rudná I/11	permanent ATC	D1	49.80201, 18.19089	7-8971	359	19 385	3 373	1 593	491	4 481	29 323	22 758	6 565	91
CZ-P-36	ul. Rudná I/11	križovatka II/470	permanent ATC	D1	49.82449, 18.21405	7-8972	362	20 216	3 497	716	370	4 312	29 111	23 713	5 398	133
CZ-P-37	križovatka II/470	križovatka I/56	permanent ATC	D1	49.84305, 18.22159	7-8973	362	16 303	995	1 403	1 035	1 891	21 627	17 298	4 329	432
CZ-P-38	Vrbice	Starý Bohumín	permanent ATC	D1	49.88259, 18.30492	7-8980	358	13 696	2 141	923	728	4 663	22 151	15 837	6 314	98
CZ-P-39	Starý Bohumín	križovatka I/67	permanent ATC	D1	49.91261, 18.34265	7-8990	363	7 103	1 211	430	358	3 851	12 953	8 314	4 639	65
CZ-P-40	križovatka I/67	št. hranica CZ/PL	permanent ATC	D1	49.91838, 18.36605	7-8998	364	8 224	1 452	480	397	4 199	14 752	9 676	5 076	70
CZ-P-41	Opava	križovatka I/11-	permanent	I/11	49.95117,	7-0721	289	14 536	436	296	203	356	15 827	14 972	855	58

ID	Section		Measuring device	Road	GPS	Census section	Number of measured days (2018)	AADT								
								PC	LCV	MGV	HGV	ST	Total	LV	HV+ BUS	BUS
		I/57	ATC		17.87286											
CZ-P-42	Bystřice	Třinec	permanent ATC	I/11	49.66062, 18.68992	7-0490	274	11 875	500	176	261	26	12 838	12 375	463	190
CZ-P-43	križovatka I/56-I/35	št. hranica CZ/SR	permanent ATC	I/35	49.40224, 18.38608	7-0220	360	2 781	477	210	59	728	4 255	3 258	997	24
CZ-P-44	Č. Těšín	št. hranica CZ/PL	permanent ATC	R48	49.76305, 18.61222	7-1599	355	4 971	1 092	958	85	2 825	9 931	6 063	3 868	41
CZ-P-45	Opava	Ostrava	permanent ATC	I/56	49.92194, 18.09611	7-0740	305	5 599	360	180	150	167	6 456	5 959	497	31
CZ-P-46	Frýdek-Místek	Frýdlant nad Ostravicí	permanent ATC	I/56	49.66027, 18.35666	7-1764	364	22 359	1 276	497	357	562	25 051	23 635	1 416	120
CZ-P-47	Buzkovice	Chumchálky	permanent ATC	I/58	49.49671, 18.18161	7-1730	345	5 916	562	227	139	203	7 047	6 478	569	75
CZ-P-48	Ostrava	Příbor	permanent ATC	I/58	49.7332444, 18.2271467	7-3810	349	7 904	88	204	126	272	8 594	7 992	602	67

Table 67 shows the results of measurements of permanent traffic counters in the Moravian-Silesian region at 23 counting sites. The resulting table also includes the identification of the counting section of the national census corresponding to the counting site. The results are presented for all required vehicle categories (PC, LCV, MGV, HGV, ST) and also in a simplified structure of light and heavy vehicles for the needs of the transport model. The number of buses was based on the structure of the traffic flow of the National Census in 2016 on the same counting section.

On more continuous sections of motorways and expressways, the intensity is measured at the level of 16 000 – 30 000 vehicles/24 h. For sections of motorways, expressways and Ist class roads that are not yet continuous built, the total intensity is approximately 6 000 - 15 000 vehicles/24 h. The only fare is the I/56 road in section Frýdek-Místek – Frýdlant with 25 000 vehicles per day.

2.1.3. Summary results of the profile surveys in Moravian-Silesian region

The result of profile measurements of traffic intensities is the identification of the structure and total amount of traffic flow on selected road sections in the Moravian-Silesian region. The following tables summarize in a clear form the main results of measurements with the distribution of individual routes in the Moravian-Silesian region.

Table 68 Results of profile traffic survey – Moravian-Silesian region, road D1

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-40	križovatka I/67 - št. hranica CZ/PL	permanent ATC	D1	14 752	9 676	5 076	70	33.93%
CZ-P-39	Starý Bohumín - križovatka I/67	permanent ATC	D1	12 953	8 314	4 639	65	35.31%
CZ-P-38	Vrbice - Starý Bohumín	permanent ATC	D1	22 151	15 837	6 314	98	28.06%
CZ-P-1	Ostrava, Prívoz - Ostrava, Starý Bohumín	permanent ATC	D1	23 320	16 557	6 763	88	28.62%
CZ-P-37	križovatka II/470 - križovatka I/56	permanent ATC	D1	21 627	17 298	4 329	432	18.02%
CZ-P-36	ul. Rudná I/11 - križovatka II/470	permanent ATC	D1	29 111	23 713	5 398	133	18.09%
CZ-P-35	Václavovice - ul. Rudná I/11	permanent ATC	D1	29 323	22 758	6 565	91	22.08%
CZ-P-34	Bravantice - Václavovice	permanent ATC	D1	28 529	22 856	5 673	93	19.56%
CZ-P-4	Butovice - Hl.Životice	permanent ATC	D1	29 934	24 281	5 653	118	18.49%
CZ-P-5	Mankovice - Hladké Životice	permanent ATC	D1	27 785	22 212	5 573	62	19.83%

From the point of view of the Moravian-Silesian Region, the D1 motorway is the most important road in relation to international and domestic transport. As part of the North-South link, it is an important link between the Baltic and the Adriatic. It provides connection of Ostrava with Olomouc, Brno and Prague. In addition to the D48, it is the main link between Moravia, Silesia and Poland with further links to the Baltic Republic and Russia. It is also relevant for national and intra-regional relations. It is part of the so-called Silesian Cross, the main backbone route of the Moravian-Silesian Region.

The road load ranges from 13 000 to 30 000 vehicles per day. The most stressed are the sections in the city district of Ostrava, which serve for movement within the city. The least burdened is the cross-border section to Poland, which serves exclusively international and transit traffic. The share of freight transport varies from 18% to 35% in the measured sections.

Table 69 Results of profile traffic survey – Moravian-Silesian region, road I/11

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-2	Jablunkov - št. hranica CZ/SR	permanent ATC	I/11	6 955	3 931	3 024	41	42.89%

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-3	Nebory - Ropice	permanent ATC	I/11	8 040	5 731	2 309	16	28.52%
CZ-P-42	Bystřice - Třinec	permanent ATC	I/11	12 838	12 375	463	190	2.13%
CZ-P-24	Český Těšín	mobile ATC	I/11	5 914	5 687	227	108	2.01%
CZ-P-13	Šenov	mobile ATC	I/11	22 894	21 375	1 519	170	5.89%
CZ-P-14	Opava - Ostrava	permanent ATC	I/11	13 295	12 295	1 000	50	7.15%
CZ-P-41	Opava - križovatka I/11-I/57	permanent ATC	I/11	15 827	14 972	855	58	5.04%
CZ-P-26	Vlaštovičky	mobile ATC	I/11	6 570	6 006	564	83	7.32%

From the point of view of the Moravian-Silesian Region, 1st class road I/11 is the backbone road in relation to international and domestic traffic. As part of the West-East link, it is an important link between Bohemia, North Moravia, Silesia and Slovakia. It provides connection of the Ostrava region with Hradec Králové and Prague. In its eastern part it is important for international transit traffic from the Ostrava region via the Jablunkov Pass and further towards Slovakia (as the international route E75). It is also important for national and intra-regional relations. It is part of the so-called Silesian Cross, the main backbone route of the Moravian-Silesian Region.

The road load ranges from 6 000 to 16 000 vehicles per day. The most stressed are the sections in the district of the Ostrava agglomeration (Šenov on the border of Ostrava and Havířov), where they reach up to 23 000 vehicles in 24 hours. The share of freight transport varies from 2% to 8% in the measured sections, with a significant share in the Třinec and Jablunkov regions, with a value of 42% in the cross-border section in the direction to Slovakia.

Table 70 Results of profile traffic survey – Moravian-Silesian region, roads R48, I/48

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-44	Č. Těšín - št. hranica CZ/PL	permanent ATC	R48	9 931	6 063	3 868	41	38.54%
CZ-P-18	Český Těšín	mobile ATC	R48	12 744	8 377	4 367	45	33.91%
CZ-P-7	Dobrá - Horní Tošanovice	permanent ATC	D48	16 094	13 699	2 395	44	14.61%
CZ-P-10	Rychaltice - Frýdek-Místek	permanent ATC	D48	14 980	12 616	2 364	62	15.37%
CZ-P-12	Nový Jičín	mobile ATC	I/48	11 844	10 410	1 434	80	11.43%
CZ-P-20	Starý Jičín	mobile ATC	R48	9 986	8 295	1 691	48	16.45%

From the point of view of the Moravian-Silesian Region, the road, which is marked as D48, R48 and I/48, on the passage through the area, is the backbone road in relation to international and domestic traffic. As part of the west-east link, it connects to the D1 motorway and 1st class road No. I/11, with which they form the so-called Silesian Cross, the main backbone routes of the Moravian-Silesian Region. In addition to D1, it is the main link between Moravia, Silesia and Poland with further links to the Baltic Republic and Russia (as the international E462 route). It is also relevant for national and intra-regional relations.

The road load ranges from 9 000 to 16 000 vehicles per day. The most stressed are the sections between Frýdek-Místek and Český Těšín. The least burdened is the cross-border section to Poland, which serves exclusively international and transit traffic. The share of freight transport varies from 11% to 38% in the measured sections.

Table 71 Results of profile traffic survey – Moravian-Silesian region, road I/57

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-21	Nový Jičín	mobile ATC	I/57	8 161	7 408	753	65	8.43%
CZ-P-19	Kunín	mobile ATC	I/57	6 584	5 756	828	68	11.54%
CZ-P-28	Hradec n. M.	mobile ATC	I/57	7 590	6 493	1 097	56	13.72%

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-16	Holasovice	mobile ATC	I/57	9 438	8 341	1 097	121	10.34%
CZ-P-8	Krásne Loučky	mobile ATC	I/57	7 113	5 978	1 135	95	14.62%

From the perspective of the Moravian-Silesian Region, 1st class road I/57 is an important road in relation to international and domestic transport. As part of the north-south link it is an important link of Poland, Silesia, North Moravia, Wallachia with a link to Slovakia. It connects important regional centres of Krnov, Opava, Nový Jičín with Poland and Slovakia. It is also relevant for national and intra-regional relations.

The road load ranges from 7 000 to 9 000 vehicles per day. The share of freight transport varies from 8% to 14% in the measured sections.

Table 72 Results of profile traffic survey – Moravian-Silesian region, roads D56, I/56

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-29	Bílá	mobile ATC	I/56	2 169	1 830	339	29	14.29%
CZ-P-46	Frýdek-Místek - Frýdlant nad Ostravicí	permanent ATC	I/56	25 051	23 635	1 416	120	5.17%
CZ-P-6	Frýdek-Místek	mobile ATC	D56	29 367	24 817	4 550	118	15.09%
CZ-P-45	Opava - Ostrava	permanent ATC	I/56	6 456	5 959	497	31	7.22%

From the point of view of the Moravian-Silesian Region, the road, which is marked as D56 and I/56 in the individual sections, is an important road in relation to international and domestic transport. As part of the Northwest-Southeast connection, it is an important connection between Silesia and Slovakia. It connects important regional centres of Opava, Hlučín, Ostrava, Frýdek-Místek with Slovakia. It is also relevant for national and intra-regional relations.

The road load ranges from 2 000 to 6 000 vehicles per day. The most stressed are the sections in the district of the Ostrava agglomeration (on the border of Ostrava and Frýdek-Místek), where they reach up to 29 000 vehicles in 24 hours. The share of freight transport varies from 5% to 14% in the measured sections.

Table 73 Results of profile traffic survey – Moravian-Silesian region, road I/67

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-32	Č. Těšín S	mobile ATC	I/67	9 952	8 840	1 112	84	10.33%
CZ-P-17	Dolní Lutyně	mobile ATC	I/67	8 450	7 546	904	34	10.30%
CZ-P-22	Bohumín	mobile ATC	I/67	4 295	3 428	867	24	19.63%

From the point of view of the Moravian-Silesian Region, 1st class road I/67 is an important road providing interconnection of major roads D1 and D48, which is led in the northern part of the region. It connects important regional centres of Bohumín, Karviná and Český Těšín with links to Slovakia and Poland. It is therefore also important for national and intra-regional relations.

The road load ranges from 4 000 to 10 000 vehicles per day. The share of freight transport varies from 10% to 20% over the measured sections.

Table 74 Results of profile traffic survey – Moravian-Silesian region, road I/45

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-15	Dětřichov nad Bystřicí	mobile ATC	I/45	3 565	2 701	864	12	23.90%
CZ-P-11	Krnov JZ	mobile ATC	I/45	7 083	6 057	1 026	137	12.55%
CZ-P-30	Krnov S	mobile ATC	I/45	1 058	1 014	44	16	2.65%

From the point of view of the Moravian-Silesian Region, the 1st class road I/45 is the backbone road ensuring the connection of the northwest part of the region with Olomouc on the one hand and the Polish territory on the other. It provides connection of important regional centres of Krnov and Bruntál with links to Poland. It is therefore also important for national and intra-regional relations.

The road load ranges from 1 000 to 7 000 vehicles per day. The share of freight transport varies from 2% to 24% in the measured sections.

Table 75 Results of profile traffic survey – Moravian-Silesian region, road I/35

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-43	křižovatka I/56-I/35 - št. hranica CZ/SR	permanent ATC	I/35	4 255	3 258	997	24	22.87%
CZ-P-9	Podlízaná	mobile ATC	I/35	3 729	3 053	676	62	16.47%

The 1st class I/35 road section is insignificant in length in the Moravian-Silesian Region, but from the point of view of the Czech Republic and Europe it forms one of the main backbone networks in the west-east direction (like the international E442 route). It connects Hradec Kralove, Olomouc and Slovak Povazie. From the point of view of transport of the Moravian-Silesian Region, it ensures the continuity of the I/56 during the crossing of the mountain section between the Czech Republic and Slovakia.

The road load ranges from 3 000 to 4 000 vehicles per day. The share of freight transport varies from 16% to 22% in the measured sections.

Table 76 Results of profile traffic survey – Moravian-Silesian region, road I/46

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-27	Dvorce	mobile ATC	I/46	1 765	1 531	234	27	11.73%
CZ-P-31	Pusté Jakartice	mobile ATC	I/46	3 666	3 428	238	46	5.24%

From the point of view of the Moravian-Silesian Region, the 1st class road I/46 is the backbone road ensuring the connection of the western part of the region with Olomouc on the one hand and the Polish territory on the other. It connects important centres of Opava and Olomouc with a link to Poland. It is therefore also important for national and intra-regional relations.

Road traffic ranges from 1 000 to 4 000 vehicles per day. The share of freight transport varies from 5% to 11% over the measured sections.

Table 77 Results of profile traffic survey – Moravian-Silesian region, road I/58

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-47	Buzkovice - Chumchálky	permanent ATC	I/58	7 047	6 478	569	75	7.01%
CZ-P-48	Ostrava - Příbor	permanent ATC	I/58	8 594	7 992	602	67	6.23%

From the point of view of the Moravian-Silesian Region, the 1st class road I/58 is the backbone road providing the connection of Ostrava in the north-south direction with the Wallachia region, linked to the interstate road I/35 (E 442). It connects important regional centres of Ostrava, Příbor, Kopřivnice and Frenštát. It is therefore also important for national and intra-regional relations.

The road load ranges from 7 000 to 8 000 vehicles per day. The share of freight transport varies from 6% to 7% in the measured sections.

Table 78 Results of profile traffic survey – Moravian-Silesian region, road I/59

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-23	Důl Lazy	mobile ATC	I/59	11 154	9 223	1 931	198	15.54%

From the point of view of the Moravian-Silesian Region, 1st class I/59 road is an important road providing interconnection in the Ostrava-Karviná agglomeration. It connects important regional centres of Ostrava, Orlová and Karviná. It is therefore particularly important for national and intra-regional relations.

The road traffic is around 11 000 vehicles per day. The share of freight transport is about 15%.

Table 79 Results of profile traffic survey – Moravian-Silesian region, road I/68

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-25	Ropice	mobile ATC	I/68	11 954	10 985	969	101	7.26%

From the point of view of the Moravian-Silesian Region, the 1st class road I/68 is an important link ensuring the interconnection of the backbone roads of the so-called Silesian Cross D48 and I/11 and further in relation to Slovakia. In terms of interstate moves, it is the link between E462 and E75. Its importance is especially in international and transit transport.

It connects important regional centres of Frýdek-Místek, Třinec and Jablunkov. It is therefore also important for national and intra-regional relations.

The road traffic is around 11 000 vehicles per day. The share of freight transport is about 7%.

Table 80 Results of profile traffic survey – Moravian-Silesian region, road II/457

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
CZ-P-33	Horní Suchá	mobile ATC	II/475	4 741	4 242	499	45	9.58%

The 2nd Class II/457 communication is classified into a lower category, but in terms of design parameters and significance it becomes more important. It connects important regional centres of Havířov and Karviná. It is therefore particularly important for national and intra-regional relations.

The road load is around 4 000 vehicles per day. The share of freight transport is about 9%.

2.2. Poland

The principles of the distribution of profile surveys counting sites in the Opole and Silesia voivodeships region are described in the report D.T3.1.2 Preparation and performance of traffic surveys, chapter 2.3. Permanent traffic counters operated by the infrastructure manager and mobile devices for 7-day continuous measurements were used for profile measurements of traffic intensity. The main transit routes in the Opole and Silesia voivodeships and its surroundings resulted in 22 sites (Figure 105) on national roads (DK) and motorways, which were measured by mobile devices during October and November in 2019. From the motorway infrastructure manager another 8 sites with permanent traffic counters located as it was presented in the report D.T3.1.2 Preparation and performance of traffic surveys, chapter 2.3 (Table 23).

The results of the measurements are profile intensities at the counting sites divided into 5 categories of vehicles (PC, LCV, MGV, HGV, ST) expressed as the annual average daily traffic (AADT) i.e. vehicle/24 h. Table 82 present summary results of profile measurements. The following chapters describe the results of the individual sites where profile measurements were performed.

From the WADT values of traffic volumes that was result from the profile measures on the selected profiles were calculated values of annual average daily traffic (AADT) according to the variation

coefficients obtained from the permanent traffic counters 2017 in Opole and Silesia voivodeship separately (Table 81). The share of buses was expressed from the detailed vehicles categorization of national traffic census at the same section.

Table 81 Yearly variation coefficients for calculation AADT in Opole and Silesia voivodeship

	Opole, DK45, ID: 16501 (2017)		Katowice, DK81, ID:24605 (2017)	
	Total month average	Coefficient	Total month average	Coefficient
January	6035	0.674	21594	0.908
February	7059	0.788	22663	0.953
March	8864	0.990	23701	0.996
April	9488	1.059	23740	0.998
May	9571	1.068	24533	1.031
June	9999	1.116	25125	1.056
July	9968	1.113	24223	1.018
August	9647	1.077	23410	0.984
September	9778	1.092	24276	1.021
October	**9854**	**1.100**	**25144**	**1.057**
November	**8928**	**0.997**	**24012**	**1.009**
December	8314	0.928	23042	0.969
AADT	8958	1.000	23788	1.000

2.2.1. Mobile automatic traffic counters in Silesian and Opole voivodeship

The results of the profile traffic survey measured by mobile ATC are processed individually for each site in a clear graphical and table format. Given the scope of the profile survey outputs, only representative outputs are presented in the report, which make it possible to obtain basic information on traffic at the sites concerned. Complete outputs of the profile traffic survey are given in Annex 5, which is available in electronic form.

Table 82 The results of profile traffic surveys in Silesia and Opole voivodeship – mobile ATC (veh./24 h)

ID	Locality	Measuring device	Road	GPS	Census section	Date of the survey	AADT 2019								
							PC	LCV	MGV	HGV	ST	Total	LV	HV+BUS	BUS
PL-P-1	Szonowice	mobile ATC	DK45	50.65789, 18.65781	40303	19.10. - 25.10.2019	3 517	362	61	116	765	4 823	3 880	943	38
PL-P-2	Rudziczka	mobile ATC	DK41	50.65789, 18.65781	41210	11.10. - 17.10.2019	3 335	445	49	156	707	4 693	3 780	913	48
PL-P-3	Góra Św.Anny	mobile ATC	A4	50.65789, 18.65781	41014	17.10. - 23.10.2019	29 133	5 041	653	1 023	12 133	47 983	34 174	13 809	323
PL-P-4	Dąbrowa Górnicza	mobile ATC	DK86	50.65789, 18.65781	40702	20.10. - 26.10.2019	21 865	2 353	624	469	3 055	28 366	24 218	4 149	164
PL-P-5	Ruda Śląska	mobile ATC	A4/E40	50.65789, 18.65781	40622	14.11 - 20.11.2019	96 357	10 209	2 379	4 957	15 344	129 245	106 566	22 679	764
PL-P-6	Tychy	mobile ATC	E462/DK1	50.65789, 18.65781	40616	4.11 - 10.11.2019	34 627	3 794	697	1 012	7 316	47 447	38 421	9 026	135
PL-P-7	Strumień	mobile ATC	DK81	50.65789, 18.65781	40527	4.11 - 10.11.2019	17 390	1 526	209	213	1 566	20 904	18 916	1 988	78
PL-P-8	Czechowice-Dziedzice	mobile ATC	E462/DK1	50.65789, 18.65781	40505	14.11 - 20.11.2019	29 646	3 434	700	701	4 338	38 819	33 080	5 740	187
PL-P-9	Jasienica	mobile ATC	E462/S52	50.65789, 18.65781	40531	4.11 - 10.11.2019	21 782	2 694	253	411	2 866	28 005	24 476	3 530	119
PL-P-10	Koziegłowy	mobile ATC	E75/DK1	50.65789, 18.65781	40204	24.10. - 30.10.2019	19 248	2 711	783	479	6 309	29 531	21 959	7 571	182
PL-P-11	Radlin	mobile ATC	DK78	50.65789, 18.65781	40745	19.10. - 25.10.2019	12 712	910	210	291	389	14 513	13 622	890	153
PL-P-12	Reńska Wieś	mobile ATC	DK45	50.65789, 18.65781	41019	16.10. - 22.10.2019	6 206	870	218	231	1 467	8 993	7 076	1 916	35
PL-P-13	Babice	mobile ATC	DK44	50.65789, 18.65781	40613	4.11 - 10.11.2019	14 285	1 224	434	310	1 303	17 557	15 510	2 047	261
PL-P-14	Sosnowiec	mobile ATC	S86	50.65789, 18.65781	40703	20.10. - 26.10.2019	118 024	9 213	1 923	2 732	6 719	138 612	127 237	11 375	1 298
PL-P-15	Godów	mobile ATC	A1	50.65789, 18.65781	40734	14.11 - 20.11.2019	9 702	1 581	171	312	4 312	16 079	11 283	4 796	115
PL-P-16	Kamesznica	mobile ATC	S1	50.65789, 18.65781	40538	14.11 - 20.11.2019	3 044	412	208	398	623	4 686	3 456	1 229	190
PL-P-17	Zabrze	mobile ATC	DK78	50.65789, 18.65781	40318	4.11 - 10.11.2019	14 869	1 411	331	398	2 116	19 125	16 280	2 845	70
PL-P-18	Dąbrowa Górnicza	mobile ATC	S1	50.65789, 18.65781	40705	4.11 - 10.11.2019	18 733	2 739	388	637	5 612	28 109	21 472	6 637	131
PL-P-19	Bierdzany	mobile ATC	DK45	50.65789, 18.65781	41306	16.10. - 22.10.2019	3 701	441	116	147	795	5 200	4 142	1 058	45
PL-P-20	Zabrze	mobile ATC	DW902	50.65789, 18.65781	-	22.11. - 28.11.2019	28 916	3 120	563	402	4 682	37 682	32 035	5 647	306
PL-P-21	Otchuchów	mobile ATC	DK46	50.65789, 18.65781	41206	11.10. - 17.10.2019	5 346	721	119	204	1 239	7 629	6 067	1 562	54
PL-P-22	Lubliniec	mobile ATC	DK11	50.65789, 18.65781	40401	13.11 - 19.10.2019	3 317	568	102	245	1 356	5 587	3 884	1 703	8

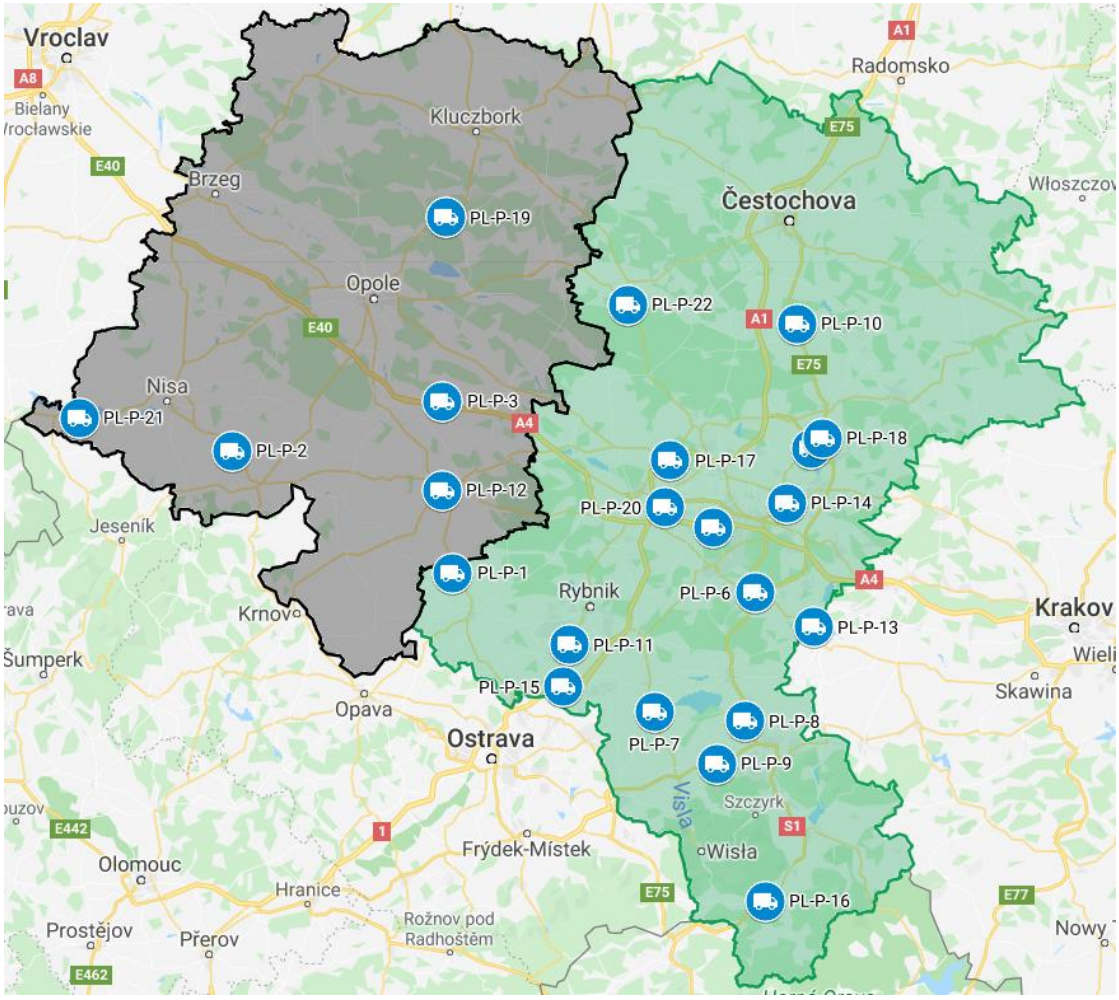

Figure 105 Distribution of counting sites for the profile traffic surveys in Silesia and Opole voivodeship by mobile ATC

Table 82 lists precisely each traffic site using mobile intensity measurement devices, the measurement date, counting site number and results in the form of 5 monitored vehicle categories (PC, LCV, MGV, HGV, ST) and simplified categorization required for a traffic model with identification of light (PC, LCV) and heavy vehicles (MGV, HGV, ST). A specific case is the bus, which is detected by the counter as a vehicle with a length belonging to the category of heavy goods vehicles.

The distribution of counting sites in Silesia and Opole voivodeship for measurements by mobile traffic counters is presented in Figure 105.

2.2.1.1. Counting site PL-P-1: Szonowice

Road: DK45

GPS coordinates of survey profile: 50.16489, 18.15293

The counting site was placed in the in a not built-up area on the road DK45 between the Reńska Wieś - Racibórz -Krapkowice. The DK45 road is an important north-south communication route for both Czech and Slovakian transport (borders of the CR/PL and SR/PL).The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 83 The results of the profile traffic survey – counting site PL-P-1 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 406	437	51	141	1 075
Tuesday	3 136	407	60	134	977
Wednesday	3 026	402	50	146	963
Thursday	3 617	418	59	128	996
Friday	4 205	504	63	133	1 010
Saturday	3 966	267	37	71	335
Sunday	4 583	170	54	42	238
WADT - category	**3 718**	**383**	**65**	**123**	**809**
AADT - category	**3517**	**362**	**61**	**116**	**765**
WADT - total	**5 098**				
AADT - total	**4 823**				
Share of freight transport	**19.56%**				
Share of heavy freight transport	**18.28%**				

In the counting site PL-P-1 was recorded average intensity 4 823 veh/24 h with share of freight transport, 19.56 %. The counting site was ranked on 20th place in term of AADT – total but at the 10th place in term of share of freight transport, so the road section is used to a medium extent by freight transport and confirm its importance.

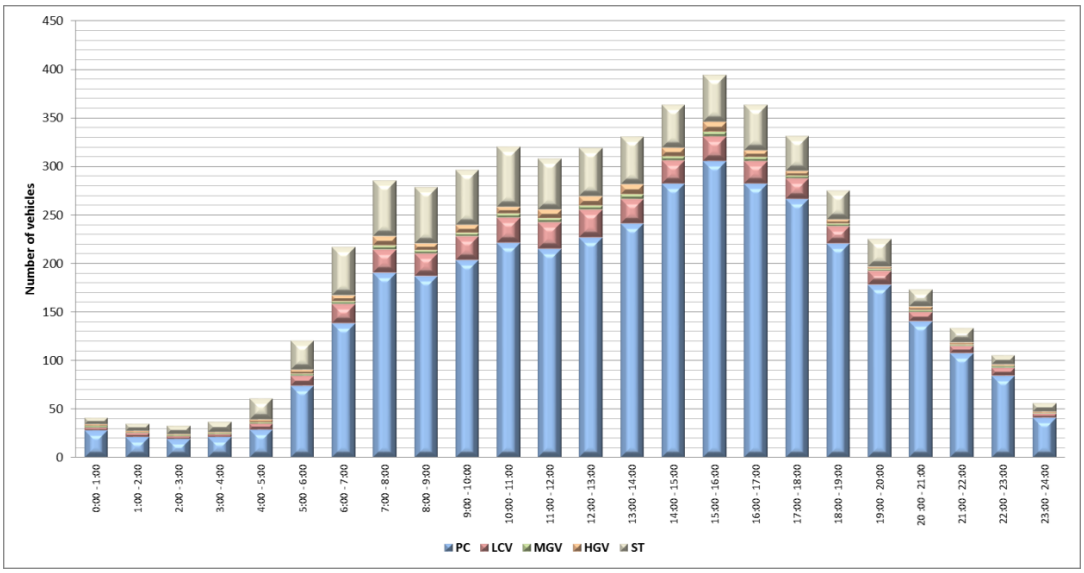

Figure 106 Hourly variation of the WADT traffic volume – counting site PL-P-1

The average hourly intensity variation higher than 350 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 1:00pm – 6:00pm.

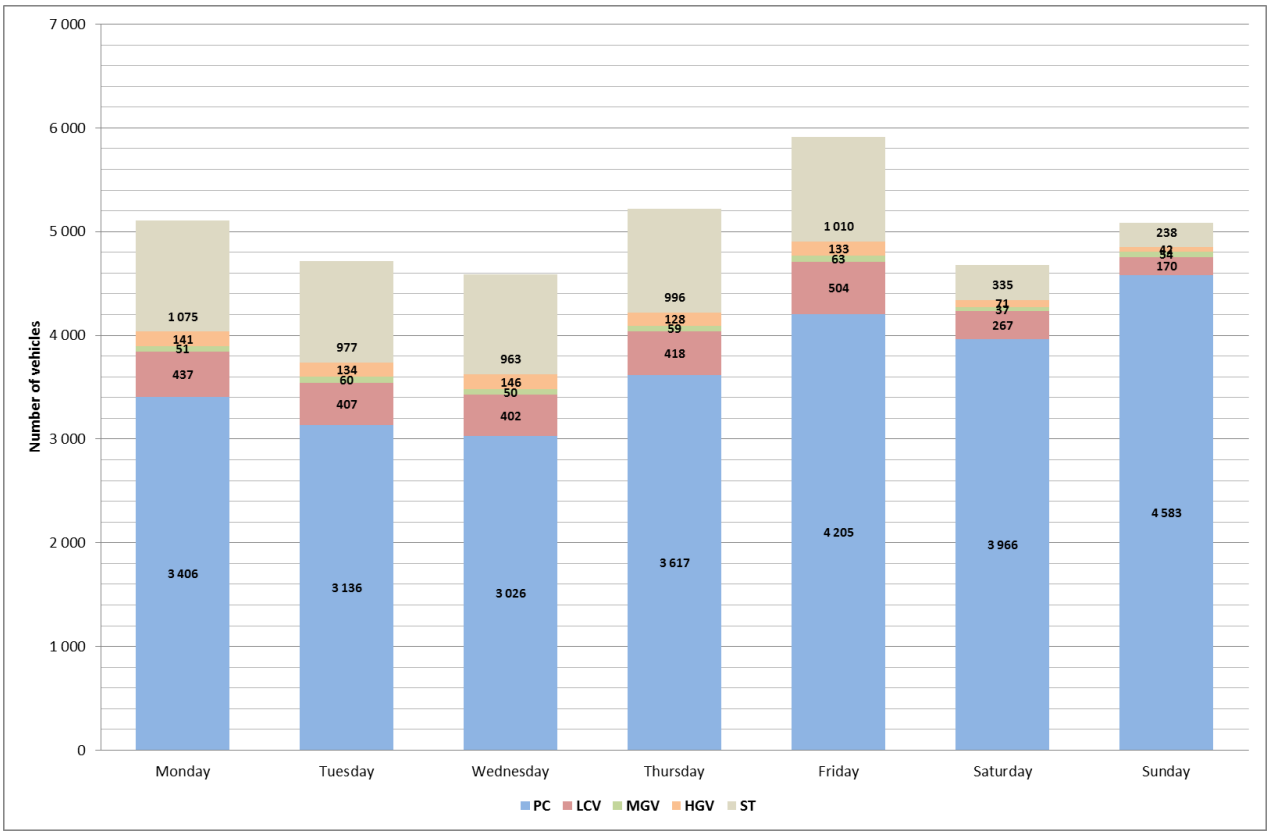

Figure 107 Daily variation of WADT traffic volume with vehicles structure - counting site PL-P-1

From the point of view of total traffic volume is the most busy day Friday and least busy is Wednesday. The most freight vehicles was recorded during Monday and least Sunday.

2.2.1.2. Counting site PL-P-2: Rudziczka

Road: DK41

GPS coordinates of survey profile: 50.38985, 17.51693

The counting site was placed in the in a not built-up area on the road DK41 between the Rudziczka - Prudnik - Nysa. The DK41 road is an important communication route on the PL / SL route and connects to the S7 road in Slovakia. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 84 The results of the profile traffic survey - counting site PL-P-2 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 285	590	47	190	803
Tuesday	3 119	543	55	197	937
Wednesday	3 333	588	38	207	1 047
Thursday	3 323	534	50	179	1 076
Friday	4 034	599	45	212	979
Saturday	4 338	328	24	94	340
Sunday	4 171	163	32	52	184
WADT - category	**3 669**	**489**	**54**	**172**	**778**
AADT - category	**3 335**	**445**	**49**	**156**	**707**
WADT - total	**5 162**				
AADT - total	**4 693**				
Share of freight transport	**19.45%**				
Share of heavy freight transport	**18.40%**				

In the counting site PL-P-2 was recorded average intensity 4 963 veh/24 h with share of freight transport, 19.45 %. The counting site was ranked on 21th place in term of AADT - total but at the 11th place in term of share of freight transport, so the road section is used to a medium extent by freight transport and confirm its importance.

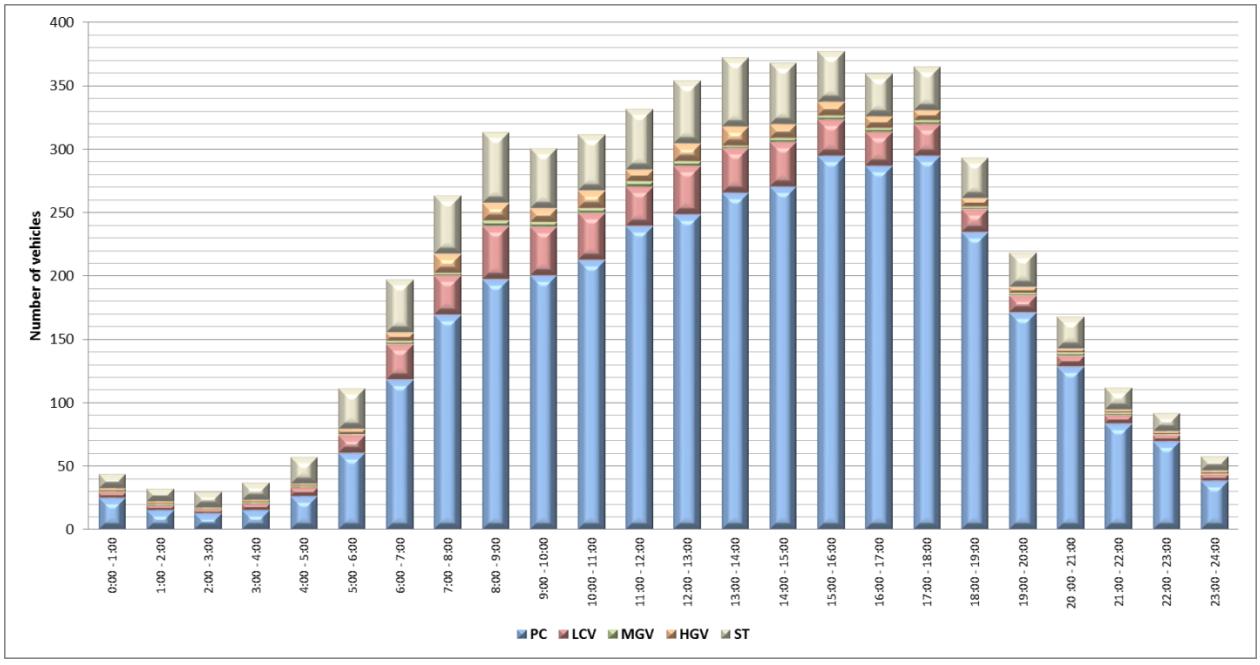

Figure 108 Hourly variation of the WADT traffic volume - counting site PL-P-2

The average hourly intensity variation higher than 350 veh/h was reached between 12:00am - 6:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 8:00am - 9:00am and afternoon peak between 1:00pm - 4:00pm.

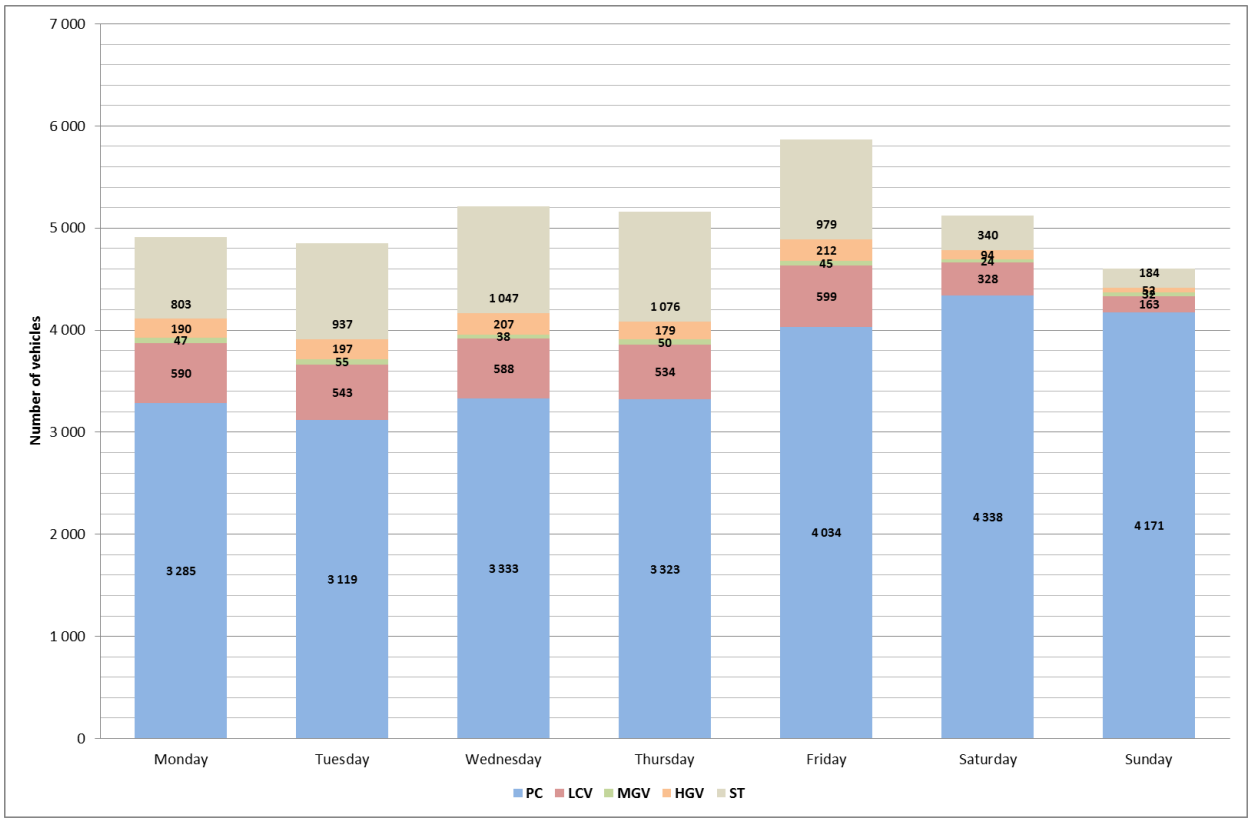

Figure 109 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-2

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.2.1.3. Counting site PL-P-3: Góra Św.Anny

Road: A4

GPS coordinates of survey profile: 50.48031, 18.12323

The counting site was placed in the in a not built-up area on the A4 highway (road E40) between the Strzelce Opolskie and Krapkowice. The A4 highway is part of the TEN-T core network and it is also part of the main transit route in Poland in the direction from the east to west. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 85 The results of the profile traffic survey – counting site PL-P-3 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	27 011	5 308	612	1 023	14 758
Tuesday	26 396	5 268	652	1 196	15 869
Wednesday	28 154	5 546	661	1 151	16 058

	PC	LCV	MGV	HGV	ST
Thursday	30 394	6 123	692	1 324	16 534
Friday	37 168	7 196	692	1 400	16 534
Saturday	34 093	5 084	484	877	8 793
Sunday	41 039	4 236	1 164	847	4 819
WADT - category	**32 047**	**5 545**	**718**	**1 125**	**13 347**
AADT - category	**29 133**	**5 041**	**653**	**1 023**	**12 133**
WADT - total	**52 782**				
AADT - total	**47 983**				
Share of freight transport	**28.78%**				
Share of heavy freight transport	**27.42%**				

In the counting site PL-P-3 was recorded average intensity 47 983 veh/24 h with share of freight transport, 28.78 %. The counting site was ranked on 3rd place in term of AADT – total and at the 3rd place in term of share of freight transport, so the road section is used to an extremely large extent by freight transport and confirm its high importance.

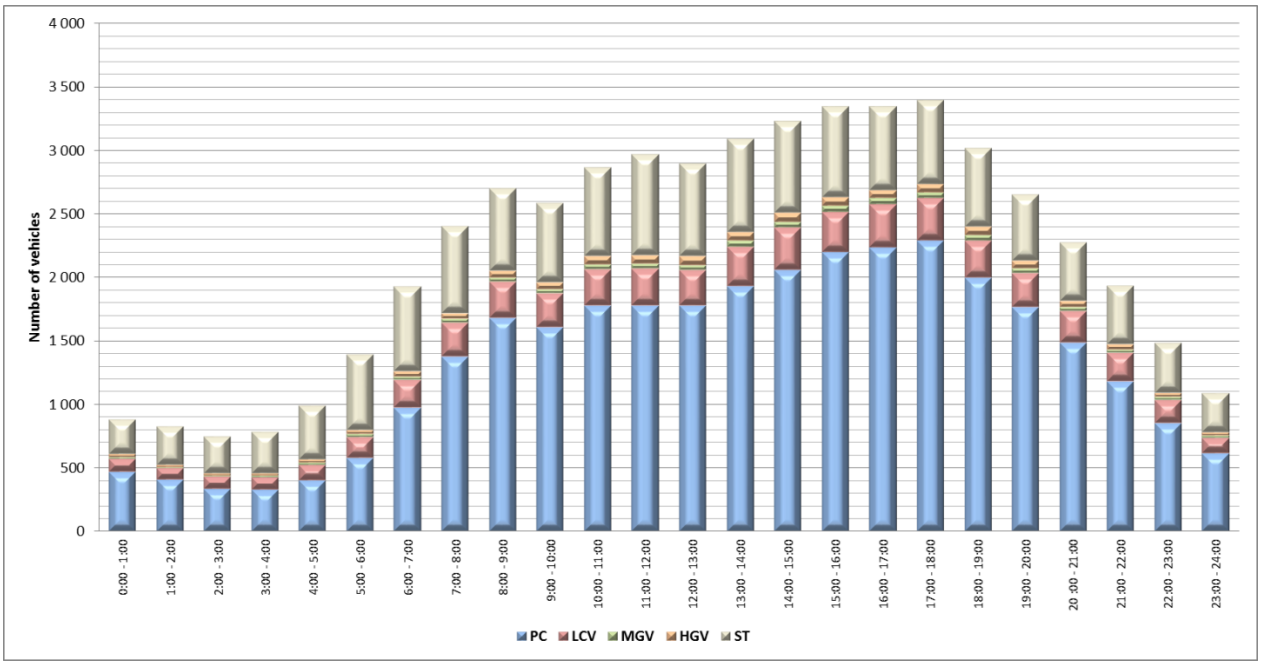

Figure 110 Hourly variation of the WADT traffic volume – counting site PL-P-3

The average hourly intensity variation higher than 3 000 veh/h was reached between 1:00pm – 7:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 8:00am – 9:00am and afternoon peak between 3:00pm – 6:00pm.

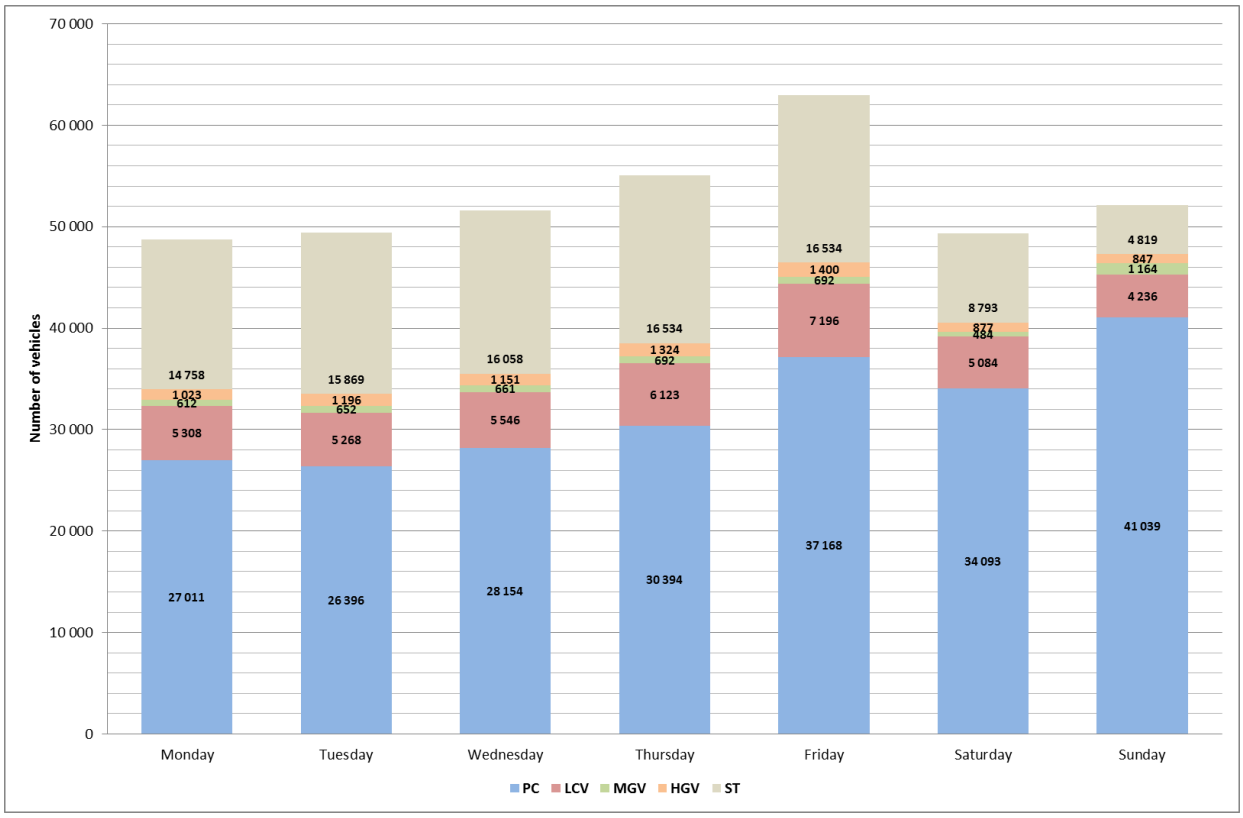

Figure 111 Daily variation of WADT traffic volume with vehicles structure - counting site PL-P-3

From the point of view of total traffic volume is the most busy day Friday and least busy is Monday. The most freight vehicles was recorded during Friday and least Sunday.

2.2.1.4. Counting site PL-P-4: Dąbrowa Górnicza

Road: DK86

GPS coordinates of survey profile: 50.39403, 19.18732

The counting site was placed in the in a not built-up area on the road DK86 between the Dąbrowa Górnicza - Będzin - Siewierz. Thanks to the connection with road DK1, it connects Katowice and the cities of the Dąbrowski Basin with Łódź, Częstochowa and Cieszyn. It is about 40 km long and is located in the Silesian Province. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 86 The results of the profile traffic survey - counting site PL-P-4 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	22 381	2 561	760	563	3 974
Tuesday	22 779	2 727	724	507	3 929
Wednesday	22 983	2 642	768	564	4 092

	PC	LCV	MGV	HGV	ST
Thursday	23 270	2 691	766	599	4 047
Friday	24 930	3 035	863	578	3 927
Saturday	23 877	2 100	481	320	1 606
Sunday	21 472	1 578	175	273	944
WADT - category	**23 111**	**2 487**	**660**	**496**	**3 229**
AADT - category	**21 865**	**2 353**	**624**	**469**	**3 055**
WADT - total	**29 983**				
AADT - total	**28 366**				
Share of freight transport	**14.62%**				
Share of heavy freight transport	**12.42%**				

In the counting site PL-P-4 was recorded average intensity 28 366 veh/24 h with share of freight transport, 14.62 %. The counting site was ranked on 8th place in term of AADT – total but at the 17th place in term of share of freight transport, so the road section is used to a rather large extent by light transport but low extent by freight transport.

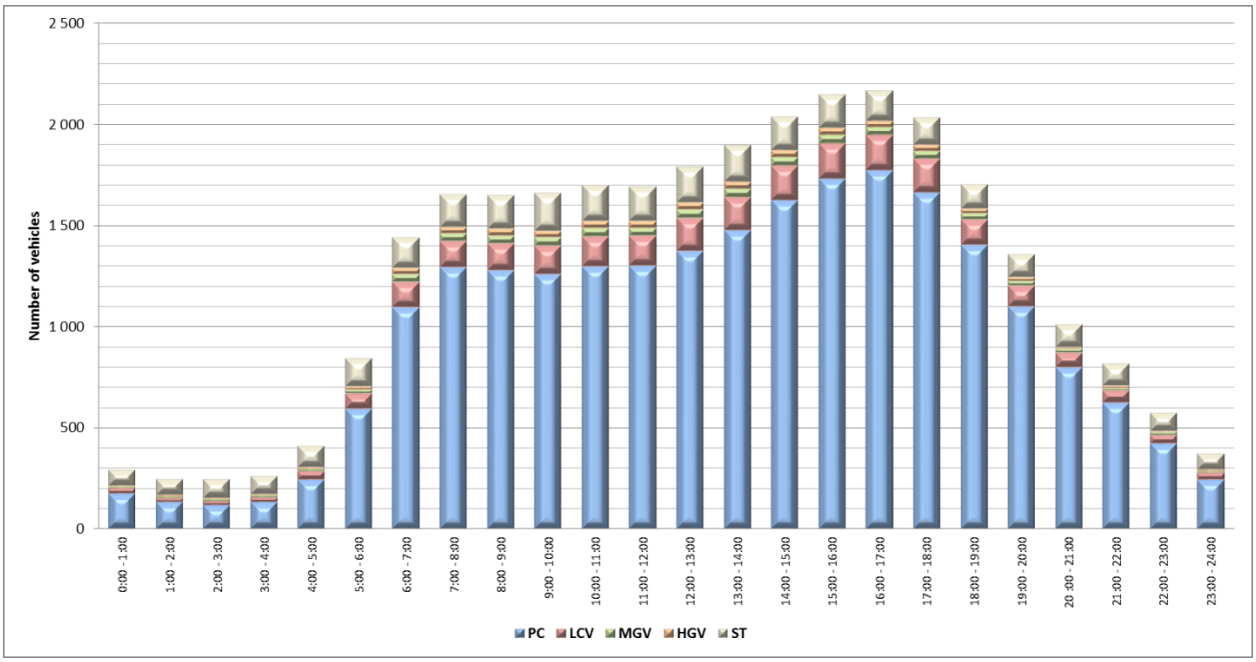

Figure 112 Hourly variation of the WADT traffic volume – counting site PL-P-4

The average hourly intensity variation higher than 2 000 veh/h was reached between 2:00pm – 6:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 6:00pm.

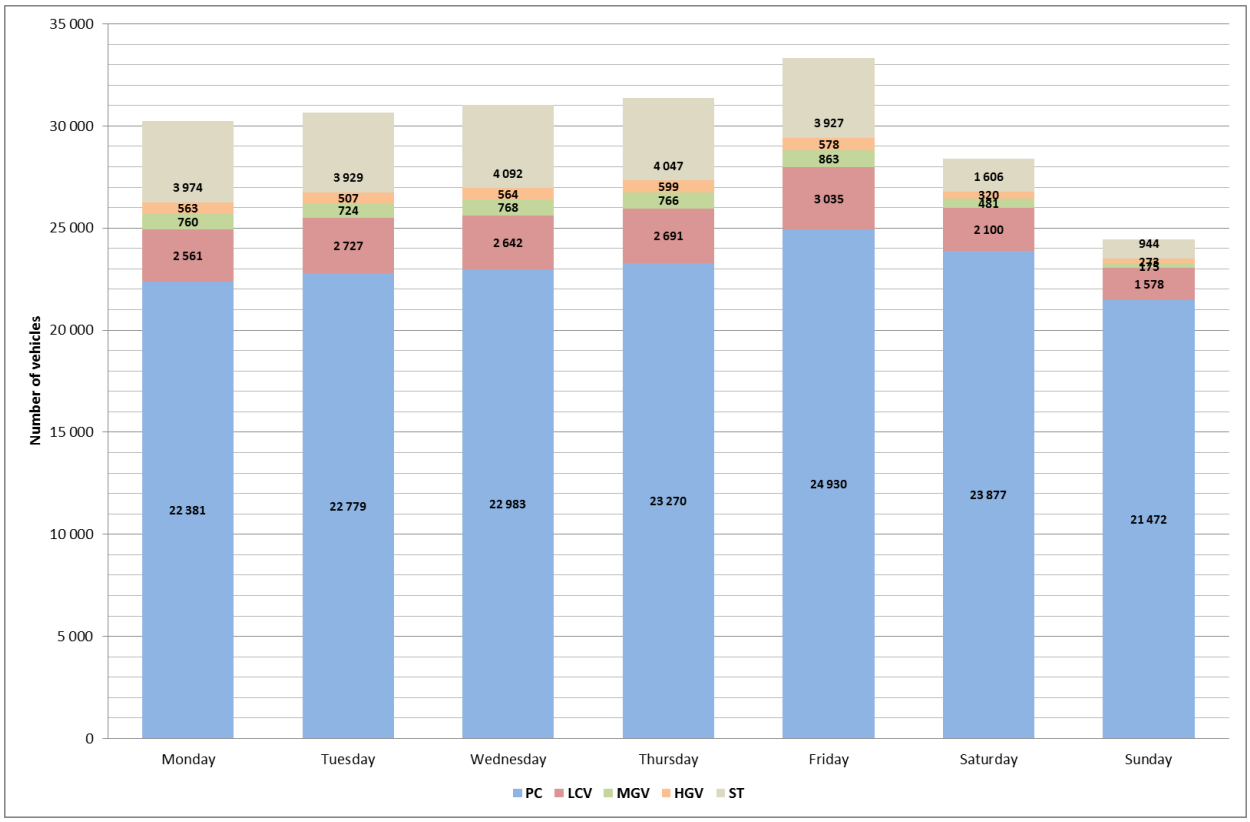

Figure 113 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-4

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.2.1.5. Counting site PL-P-5: Ruda Śląska

Road: A4/E40

GPS coordinates of survey profile: 50.24803, 18.90351

The counting site was placed on the A4 highway (road E40) in the in a not built-up area between the Ruda Śląska - Gliwice - Katowice. At the measuring point, the A4 motorway runs in a congested urban area. It belongs to the III Pan-European Transport Corridor (TEN-T core network). Continuing the German A4 motorway from the direction of Dresden, in Poland it runs from the border with Germany in Jędrzychowice near Zgorzelec through Legnica, Wrocław, Opole, Gliwice, Katowice, Kraków, Tarnów, Dębica, Rzeszów, Jarosław to the border crossing with Ukraine Korczowa - Krakowiec. The A4 motorway is the second (along the S7 road) the longest expressway in Poland. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 87 The results of the profile traffic survey - counting site PL-P-5 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	98 418	11 438	2 441	5 555	19 187
Tuesday	96 640	11 626	2 567	5 761	19 281
Wednesday	98 512	11 811	2 564	5 856	18 918
Thursday	103 998	12 518	2 670	6 295	18 490
Friday	112 695	13 523	2 950	6 505	18 684
Saturday	87 823	6 820	1 312	2 871	7 927
Sunday	82 680	4 333	2 236	2 116	5 859
WADT - category	**97 264**	**10 305**	**2 401**	**5 004**	**15 488**
AADT - category	**96 357**	**10 209**	**2 379**	**4 957**	**15 344**
WADT - total	**130 462**				
AADT - total	**129 245**				
Share of freight transport	**17.55%**				
Share of heavy freight transport	**15.71%**				

In the counting site PL-P-5 was recorded average intensity 129 245 veh/24 h with share of freight transport, 17.55 %. The counting site was ranked on 2nd place in term of AADT - total but at the 13th place in term of share of freight transport with the most larger number of heavy vehicles (22 679), so the road section is used to an extremely large extent by light transport but percentage medium extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is highest for the conducted profile surveys.

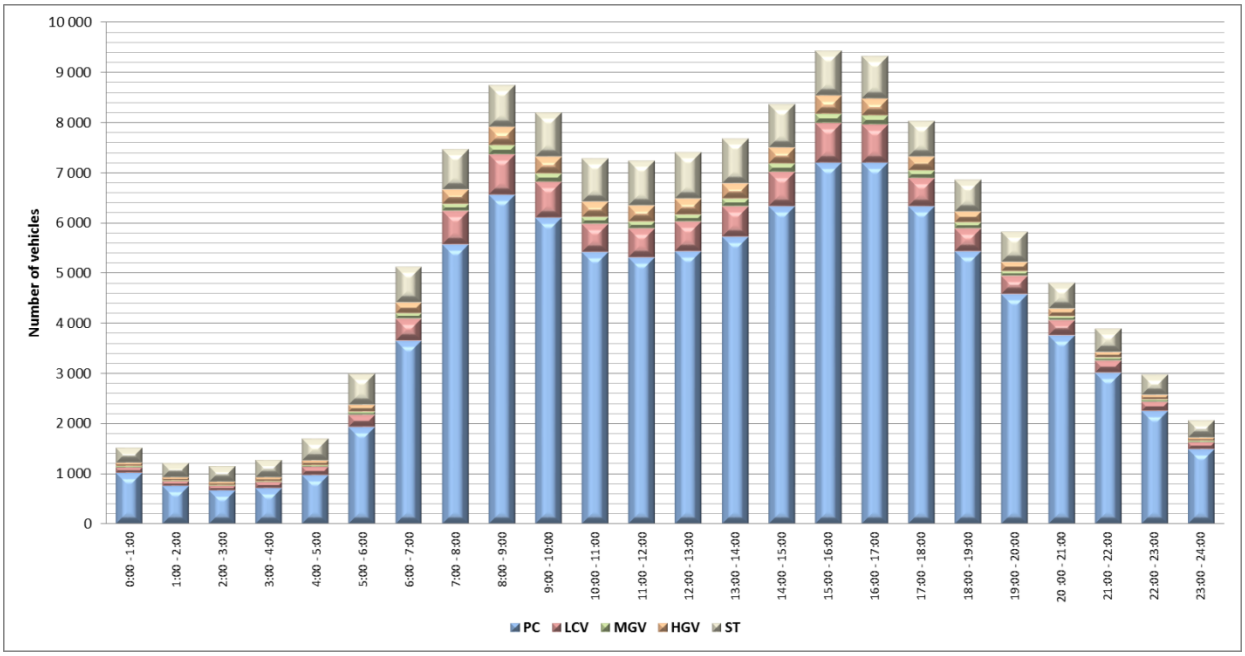

Figure 114 Hourly variation of the WADT traffic volume - counting site PL-P-5

The average hourly intensity variation higher than 9 000 veh/h was reached between 3:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 10:00am and afternoon peak between 2:00pm – 6:00pm.

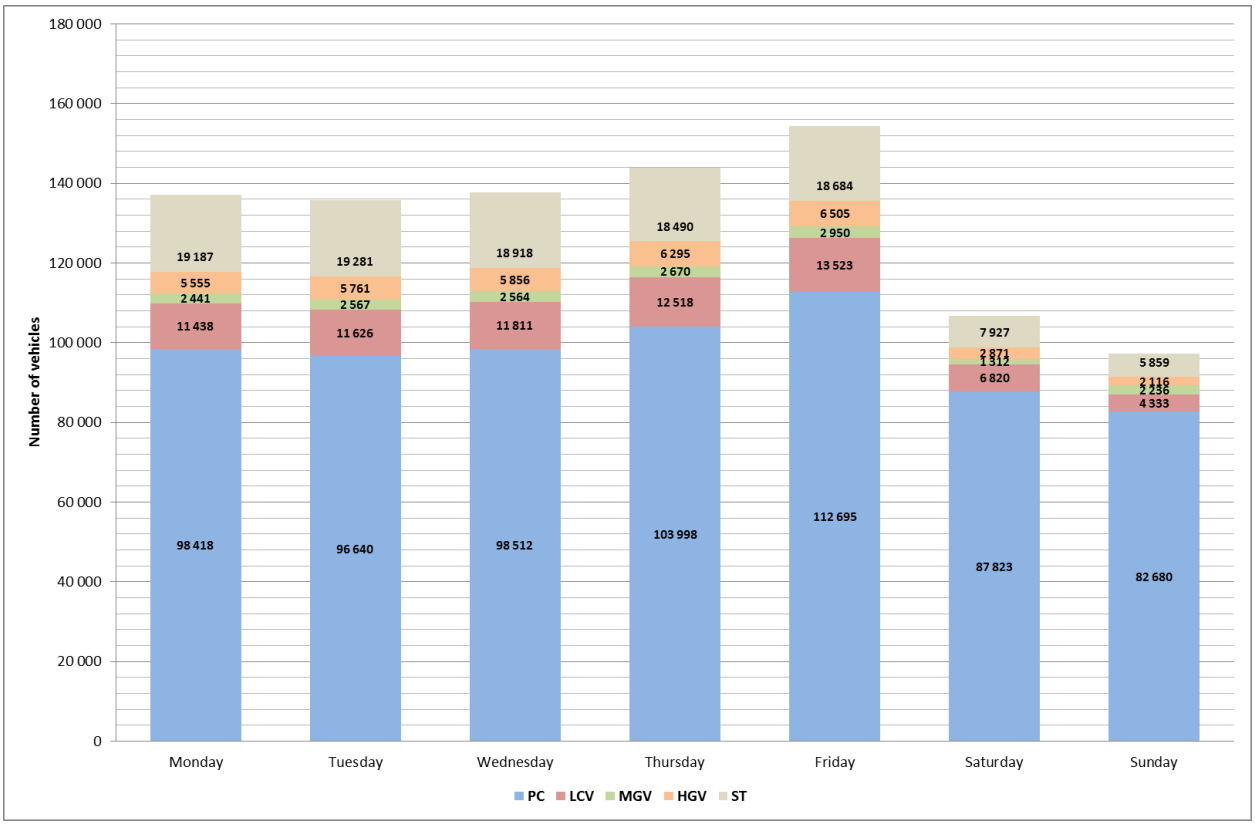

Figure 115 Daily variation of WADT traffic volume with vehicles structure - counting site PL-P-5

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Sunday.

2.2.1.6. Counting site PL-P-6: Tychy

Road: E462/DK1

GPS coordinates of survey profile: 50.12792, 19.02448

The counting site was placed in the in a built-up area on the road DK1 (E462) in the city Tychy. DK1 is a road connecting the north of Poland (Gdańsk) with the south (Gorzyczki, PL / Cz border). It is one of the main meridian routes in Poland. It is the Polish part of the international communication route E75 Helsinki - Gdańsk - Łódź - Budapest - Athens. In the south of Poland, it runs along the A1 highway to Pyrzowice to the junction with the S1 expressway, where it fork (starts double route): from Pyrzowice to the border with the Czech Republic in Gorzyczki and from Pyrzowice through Dąbrowa Górnicza, Tychy, Bielsko - Biała, Żywiec to the border with Slovakia in Zwardoń. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 88 The results of the profile traffic survey - counting site PL-P-6 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	35 699	4 029	790	1 143	9 459
Tuesday	36 971	3 654	822	1 198	8 891
Wednesday	35 916	4 715	850	1 295	9 357
Thursday	36 190	5 326	882	1 274	9 569
Friday	38 276	5 217	921	1 276	9 696
Saturday	34 852	2 529	508	651	3 662
Sunday	26 698	1 269	101	227	979
WADT - category	**34 953**	**3 830**	**704**	**1 022**	**7 385**
AADT - category	**34 627**	**3 794**	**697**	**1 012**	**7 316**
WADT - total	**47 894**				
AADT - total	**47 447**				
Share of freight transport	**19.02%**				
Share of heavy freight transport	**17.55%**				

In the counting site PL-P-6 was recorded average intensity 47 447 veh/24 h with share of freight transport, 19.02 %. The counting site was ranked on 4th place in term of AADT - total but at the 12th place in term of share of freight transport with the 4th place of absolute number of heavy vehicles (9 026), so the road section is used to a large extent by light transport but percentage medium extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is large for the conducted profile surveys.

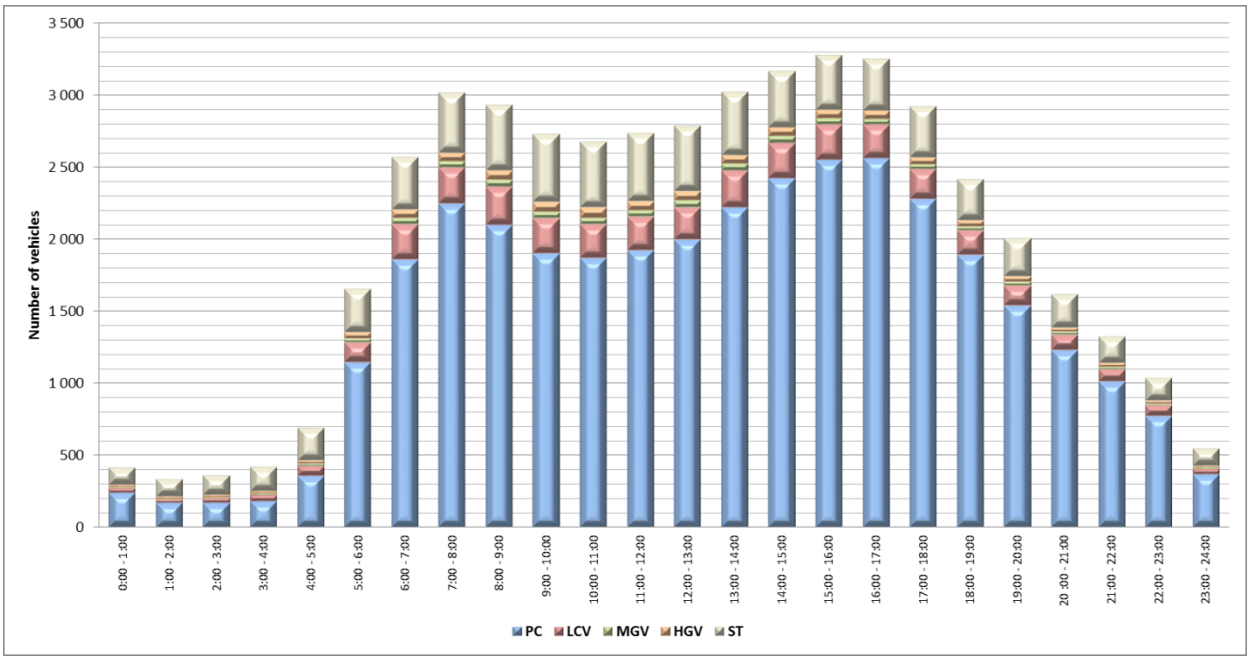

Figure 116 Hourly variation of the WADT traffic volume - counting site PL-P-6

The average hourly intensity variation higher than 3 000 veh/h was reached between 7:00am – 8:00am and 3:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 10:00am and afternoon peak between 1:00pm – 5:00pm.

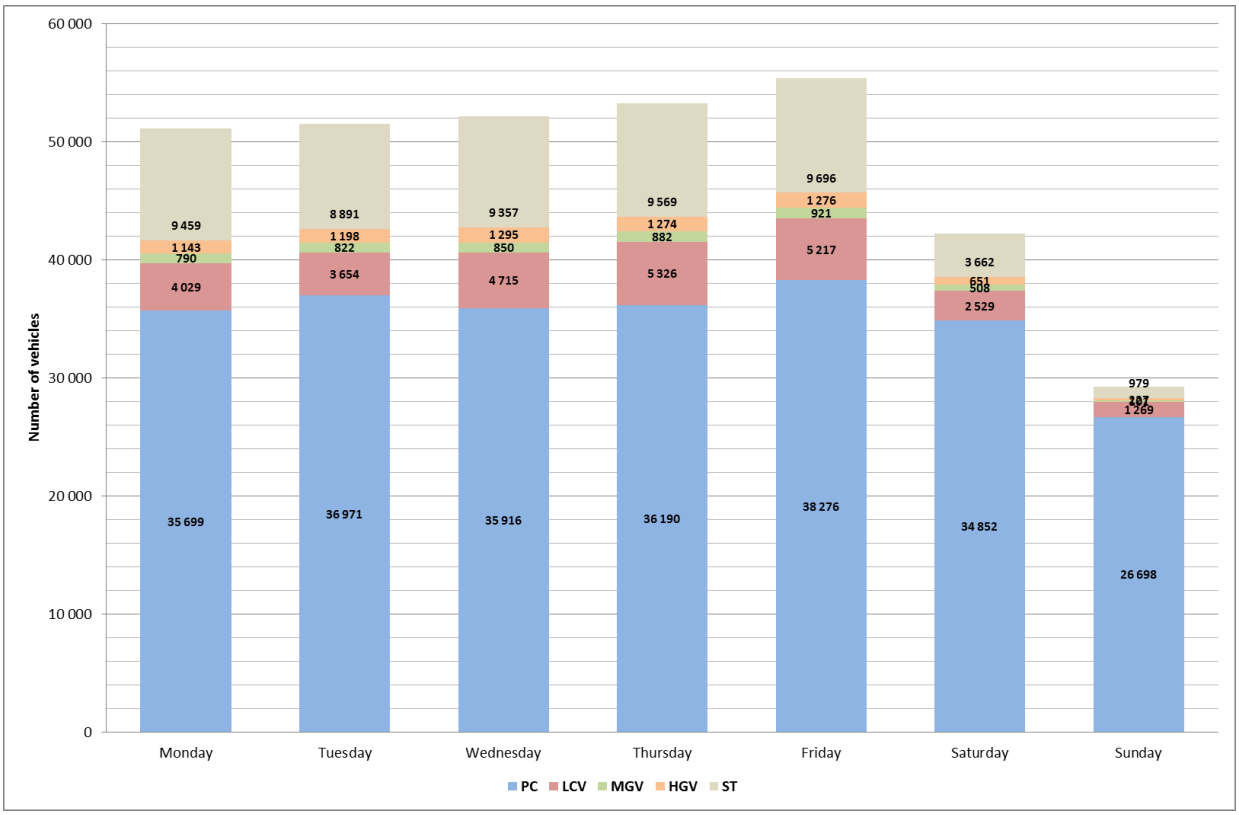

Figure 117 Daily variation of WADT traffic volume with vehicles structure - counting site PL-P-6

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Sunday.

2.2.1.7. Counting site PL-P-7: Strumień

Road: DK81

GPS coordinates of survey profile: 49.90826, 18.73567

The counting site was placed in the in a built-up area on the road DK81 between the Strumień - Żory - Skoczów. Road DK 81 approx. 60 km long, leading from Katowice interchange with national road DK86 to the intersection with the S52 express road in Harbutowice near Skoczów. It is located in the Silesian Province. From the first of July 2011, it has been paid in the electronic viaTOLL system for the passage of buses and vehicles with a maximum total weight of over 3.5 tonnes. The counter was placed on a vertical traffic sign near the road. The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 89 The results of the profile traffic survey - counting site PL-P-7 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	16 160	1 565	146	245	1 687
Tuesday	16 927	1 536	184	246	1 911
Wednesday	17 209	1 831	207	231	1 932
Thursday	17 966	1 930	205	217	1 923
Friday	21 382	2 168	253	306	2 155
Saturday	18 066	956	103	79	650
Sunday	15 083	729	307	106	740
WADT - category	**17 554**	**1 540**	**211**	**215**	**1 581**
AADT - category	**17 390**	**1 526**	**209**	**213**	**1 566**
WADT - total	**21 101**				
AADT - total	**20 904**				
Share of freight transport	**9.51%**				
Share of heavy freight transport	**8.51%**				

In the counting site PL-P-7 was recorded average intensity 20 904 veh/24 h with share of freight transport, 9.51 %. The counting site was ranked on 11thh place in term of AADT - total but at the 20th place in term of share of freight transport, so the road section is used to a medium large extent by light transport but low extent by freight transport.

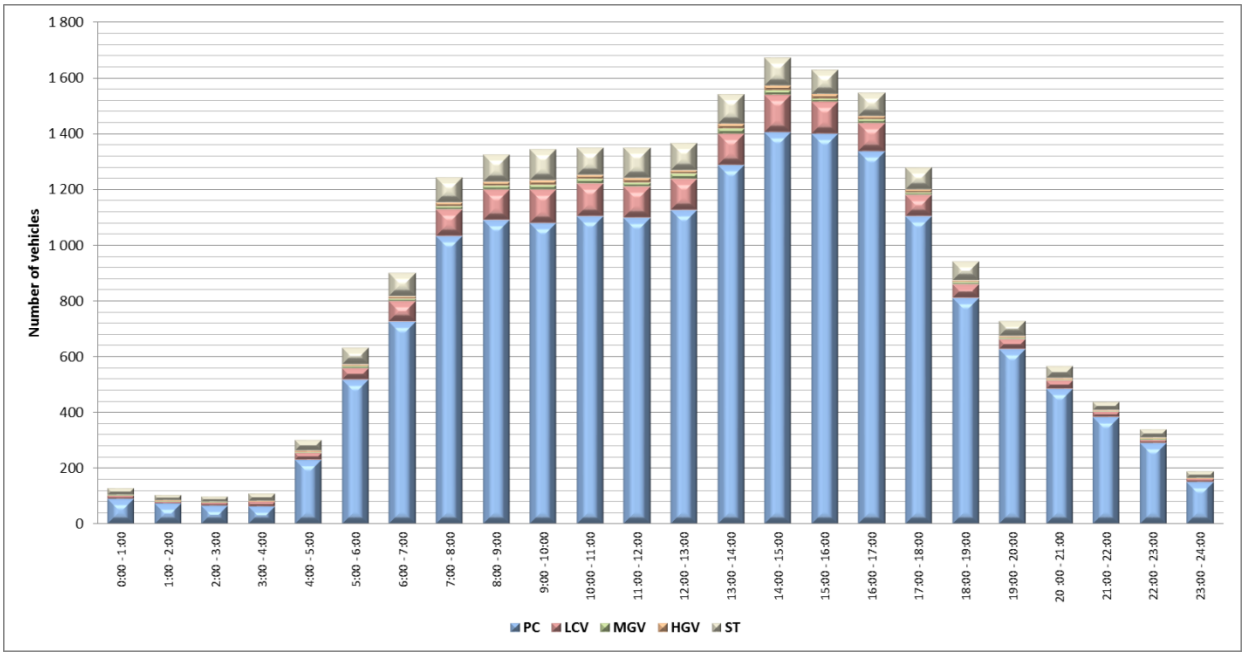

Figure 118 Hourly variation of the WADT traffic volume - counting site PL-P-7

The average hourly intensity variation higher than 1 600 veh/h was reached between 2:00pm - 4:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 1:00pm - 5:00pm.

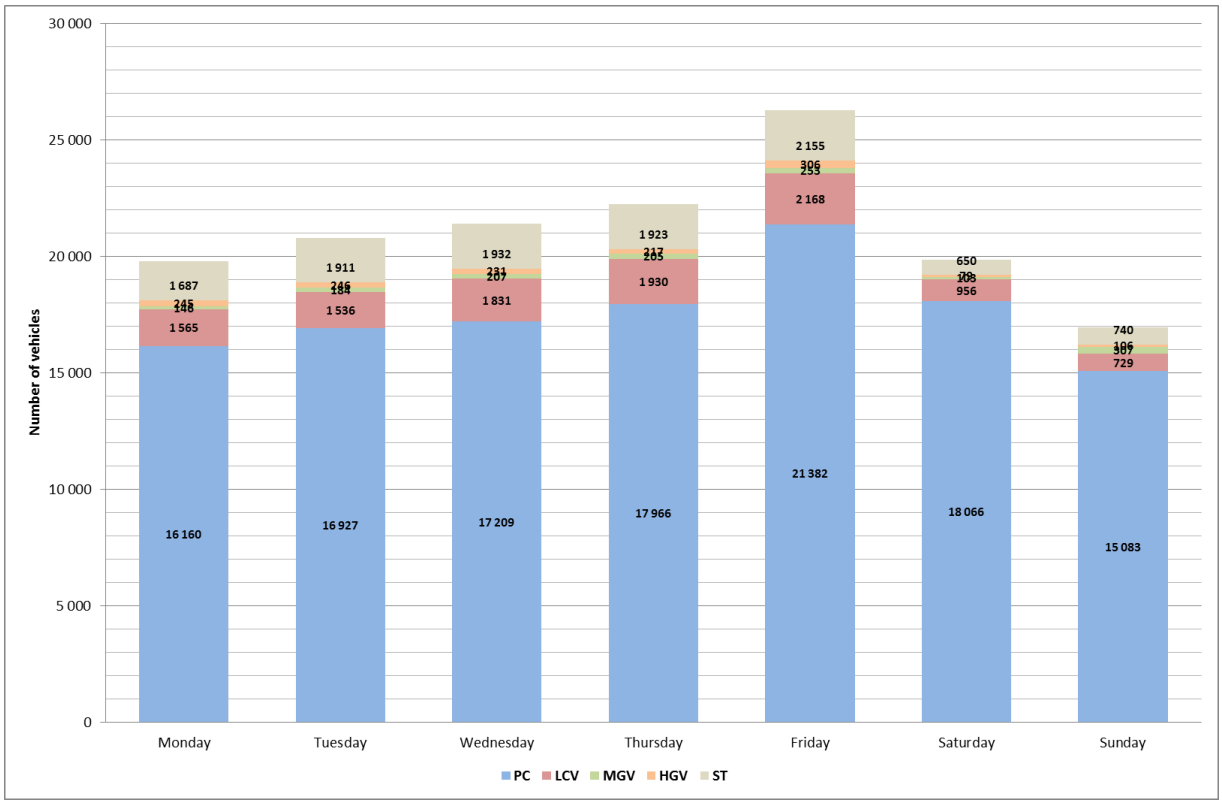

Figure 119 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-7

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Saturday.

2.2.1.8. Counting site PL-P-8: Czechowice-Dziedzice

Road: E462/DK1

GPS coordinates of survey profile: 49.89047, 18.99494

The counting site was placed in the in a built-up area on the road DK1 (E462) between Czechowice-Dziedzice - Bielsko Biała - Pszczyna. DK1 is a road connecting the north of Poland (Gdańsk) with the south (Gorzyczki, PL / Cz border). It is one of the main meridian routes in Poland. It is the Polish part of the international communication route E75 Helsinki - Gdańsk - Łódź - Budapest - Athens. In the south of Poland, it runs along the A1 highway to Pyrzowice to the junction with the S1 expressway, where it fork (starts double route): from Pyrzowice to the border with the Czech Republic in Gorzyczki and from Pyrzowice through Dąbrowa Górnicza, Tychy, Bielsko - Biała, Żywiec to the border with Slovakia in Zwardoń. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 90 The results of the profile traffic survey – counting site PL-P-8 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	31 157	3 666	252	747	5 236
Tuesday	34 281	4 688	367	906	4 791
Wednesday	23 923	4 175	464	1 053	5 972
Thursday	30 301	3 683	272	734	5 250
Friday	33 604	3 956	325	742	5 236
Saturday	30 683	2 709	174	380	2 375
Sunday	25 449	1 339	3 012	314	1 722
WADT - category	**29 925**	**3 466**	**707**	**708**	**4 379**
AADT - category	**29 646**	**3 434**	**700**	**701**	**4 338**
WADT - total	**39 185**				
AADT - total	**38 819**				
Share of freight transport	**14.79%**				
Share of heavy freight transport	**12.98%**				

In the counting site PL-P-8 was recorded average intensity 38 819 veh/24 h with share of freight transport, 14.79 %. The counting site was ranked on 5th place in term of AADT – total but at the 16th place in term of share of freight transport with the 7th place of absolute number of heavy vehicles (5 740), so the road section is used to a large extent by light transport but percentage low extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is medium for the conducted profile surveys.

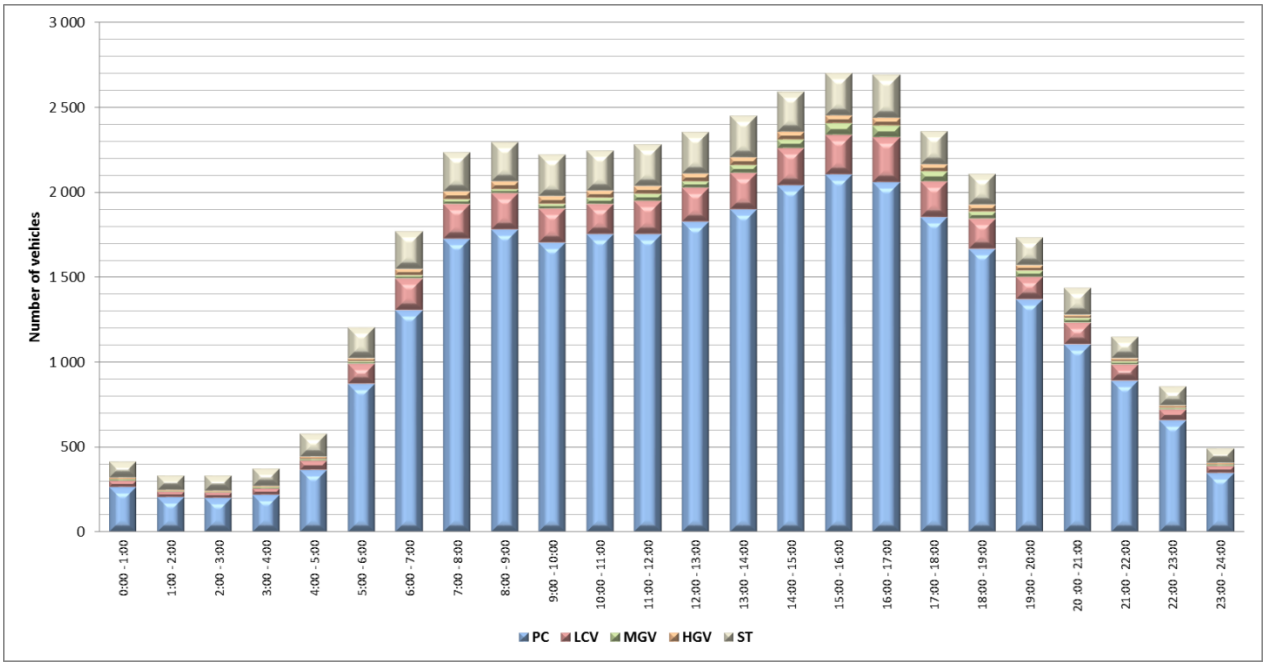

Figure 120 Hourly variation of the WADT traffic volume – counting site PL-P-8

The average hourly intensity variation higher than 2 500 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 9:00am and afternoon peak between 1:00pm – 5:00pm.

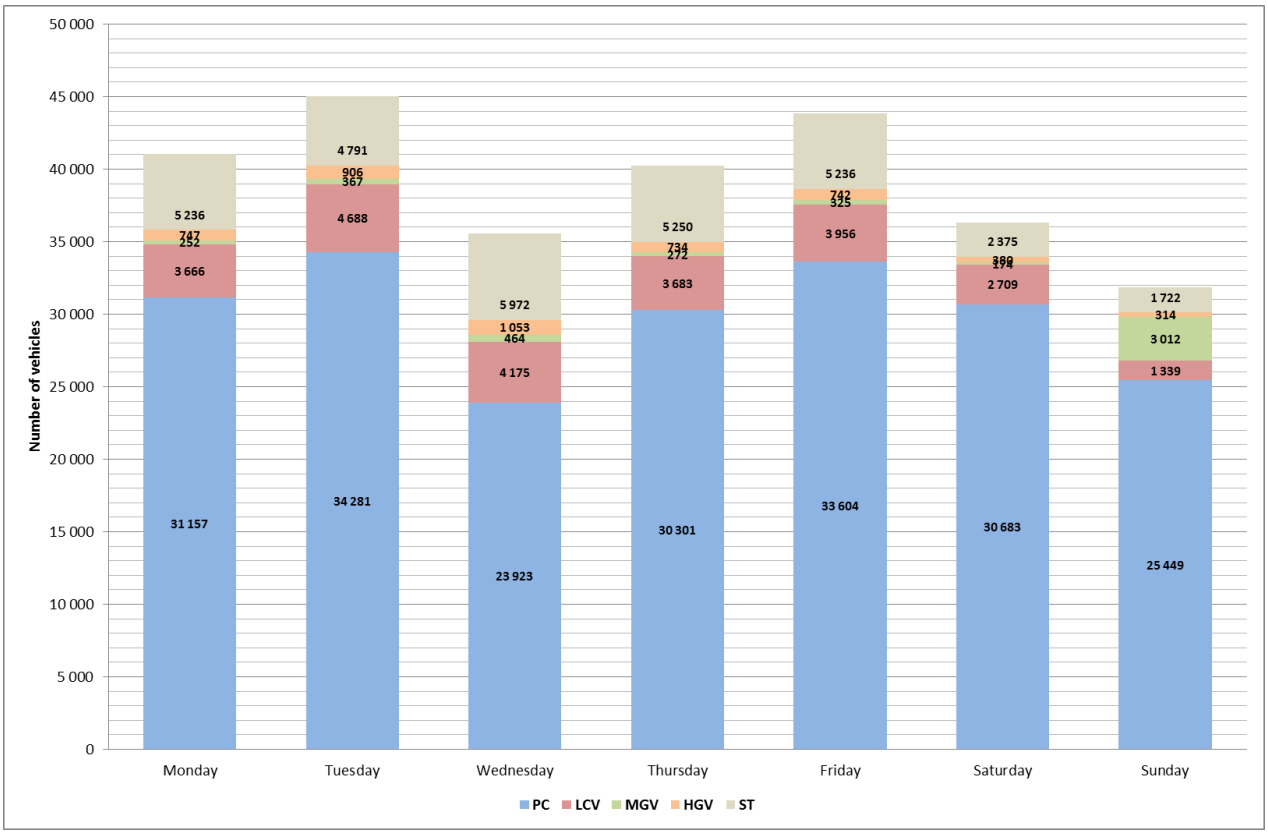

Figure 121 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-8

From the point of view of total traffic volume is the most busy day Tuesday and least busy is Sunday. The most freight vehicles was recorded during Wednesday and least Saturday.

2.2.1.9. Counting site PL-P-9: Jasienica

Road: E462/S52

GPS coordinates of survey profile: 49.81042, 18.91302

The counting site was placed in the in a built-up area on the road DK1 (E462) between Jasienica - Skoczów - Bielsko Biała. S52 express road running through the Śląskie and Małopolskie voivodships. Ultimately, the route will be about 143 km long. The road runs from the border in Cieszyn to Bielsko-Biała in the trail of the European route E75 and E462 (section until August 4, 2016 marked with the number S1). On the section from Bielsko-Biała to Głogoczów (connection with DK7) the road is to follow a new trail (Beskidzka Integration Road). Further on, along the thoroughfare, the planned northern Kraków bypass is to be connected, connecting the A4 highway in Balice with the S7 expressway in Krakow. The new route on the Bielsko-Biała - Głogoczów section is to replace the existing national road DK52. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 91 The results of the profile traffic survey - counting site PL-P-9 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	22 707	2 908	256	489	3 781
Tuesday	21 517	2 681	263	447	3 354
Wednesday	22 363	3 216	294	500	3 709
Thursday	22 360	3 604	350	552	3 688
Friday	25 657	3 847	349	596	4 022
Saturday	23 660	2 176	148	218	1 233
Sunday	15 569	523	64	40	401
WADT - category	**21 987**	**2 719**	**255**	**415**	**2 893**
AADT - category	**21 782**	**2 694**	**253**	**411**	**2 866**
WADT - total	**28 269**				
AADT - total	**28 005**				
Share of freight transport	**12.60%**				
Share of heavy freight transport	**11.70%**				

In the counting site PL-P-9 was recorded average intensity 28 005 veh/24 h with share of freight transport, 12.60 %. The counting site was ranked on 10th place in term of AADT - total but at the 18th place in term of share of freight transport with the 11th place of absolute number of heavy vehicles (3 530), so the road section is used to a medium extent by light transport but percentage low extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is medium for the conducted profile surveys.

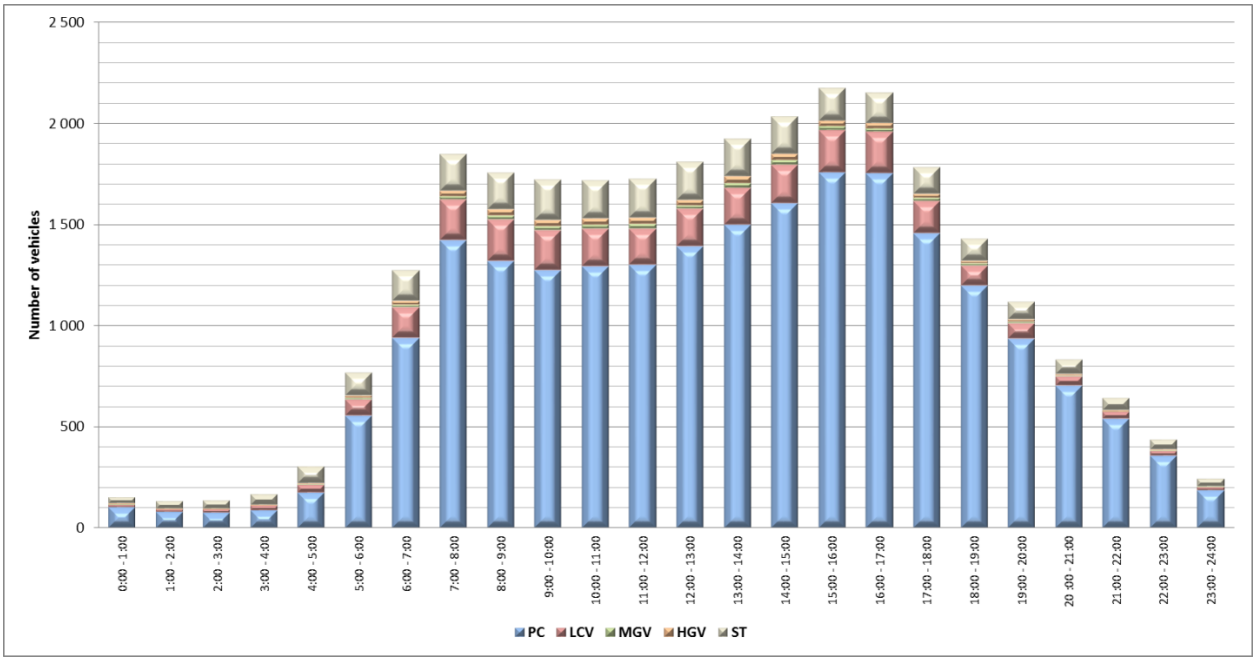

Figure 122 Hourly variation of the WADT traffic volume - counting site PL-P-9

The average hourly intensity variation higher than 2 000 veh/h was reached between 2:00pm - 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am - 8:00am and afternoon peak between 1:00pm - 5:00pm.

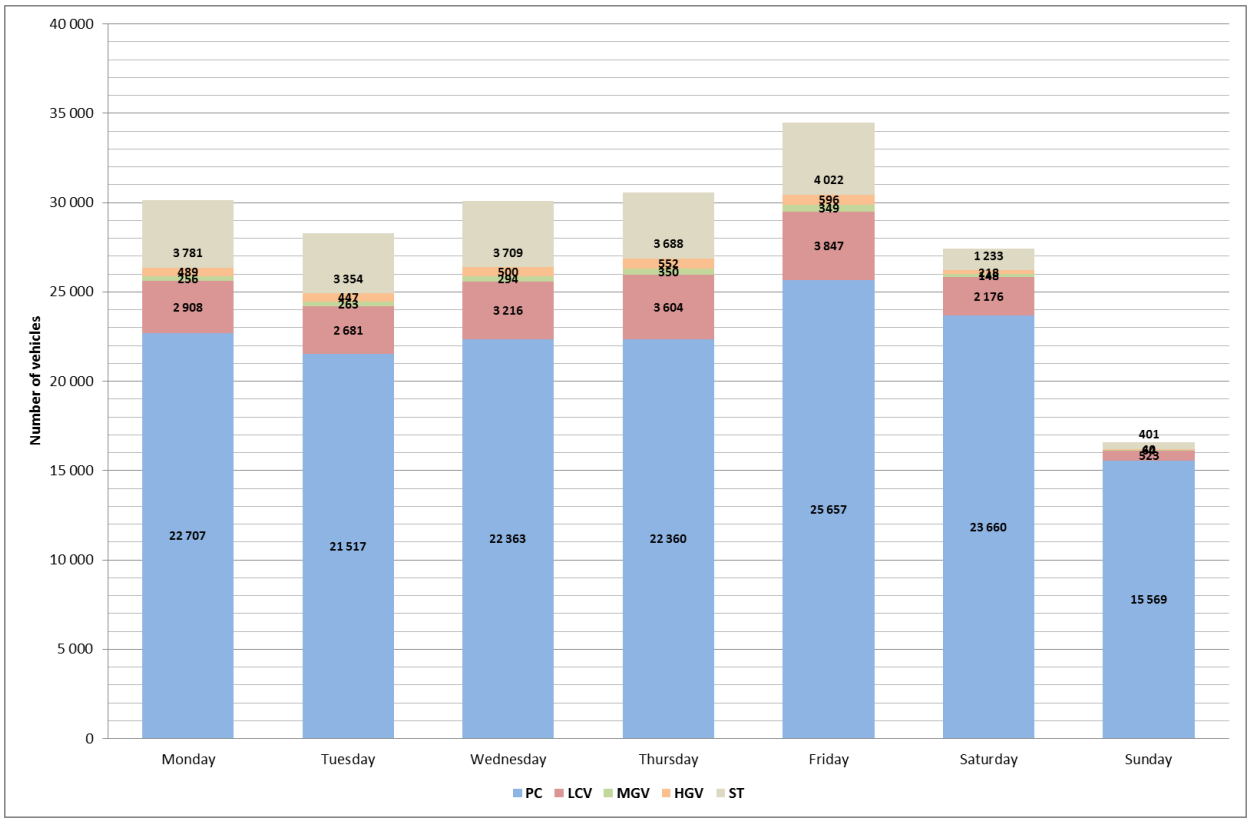

Figure 123 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-9

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Saturday.

2.2.1.10. Counting site PL-P-10: Koziegłowy

Road: E75/DK1

GPS coordinates of survey profile: 50.62332, 19.14455

The counting site was placed in the in a not built-up area on the road DK1 (E75) between Koziegłowy - Częstochowa - Siewierz. DK1 is a road connecting the north of Poland (Gdańsk) with the south (Gorzyczki, PL / Cz border). It is one of the main meridian routes in Poland. It is the Polish part of the international communication route E75 Helsinki - Gdańsk - Łódź - Budapest - Athens. In the south of Poland, it runs along the A1 highway to Pyrzowice to the junction with the S1 expressway, where it fork (starts double route): from Pyrzowice to the border with the Czech Republic in Gorzyczki and from Pyrzowice through Dąbrowa Górnicza, Tychy, Bielsko - Biała, Żywiec to the border with Slovakia in Zwardoń. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 92 The results of the profile traffic survey - counting site PL-P-10 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	19 232	3 168	871	547	7 647
Tuesday	18 226	3 294	950	631	8 797
Wednesday	19 982	3 455	990	651	8 875
Thursday	19 240	3 414	1 068	574	8 124
Friday	21 856	3 528	977	619	7 560
Saturday	20 689	1 687	488	263	3 453
Sunday	23 129	1 441	402	188	2 161
WADT - category	**20 345**	**2 866**	**828**	**506**	**6 669**
AADT - category	**19 248**	**2 711**	**783**	**479**	**6 309**
WADT - total	**31 214**				
AADT - total	**29 531**				
Share of freight transport	**25.64%**				
Share of heavy freight transport	**22.99%**				

In the counting site PL-P-10 was recorded average intensity 29 531 veh/24 h with share of freight transport, 25.64 %. The counting site was ranked on 7th place in term of AADT - total but at the 5th place in term of share of freight transport, so the road section is used to a medium/large extent by light transport but percentage large extent by freight transport.

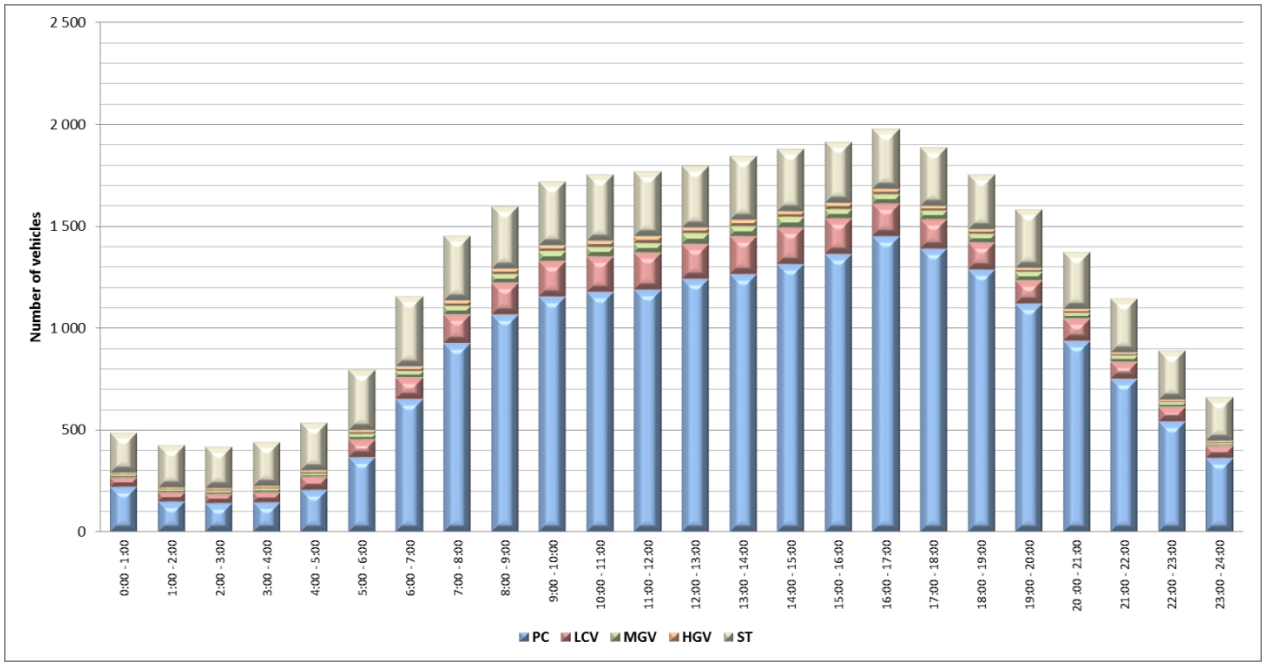

Figure 124 Hourly variation of the WADT traffic volume - counting site PL-P-10

The average hourly intensity variation higher than 1 900 veh/h was reached between 3:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 6:00pm.

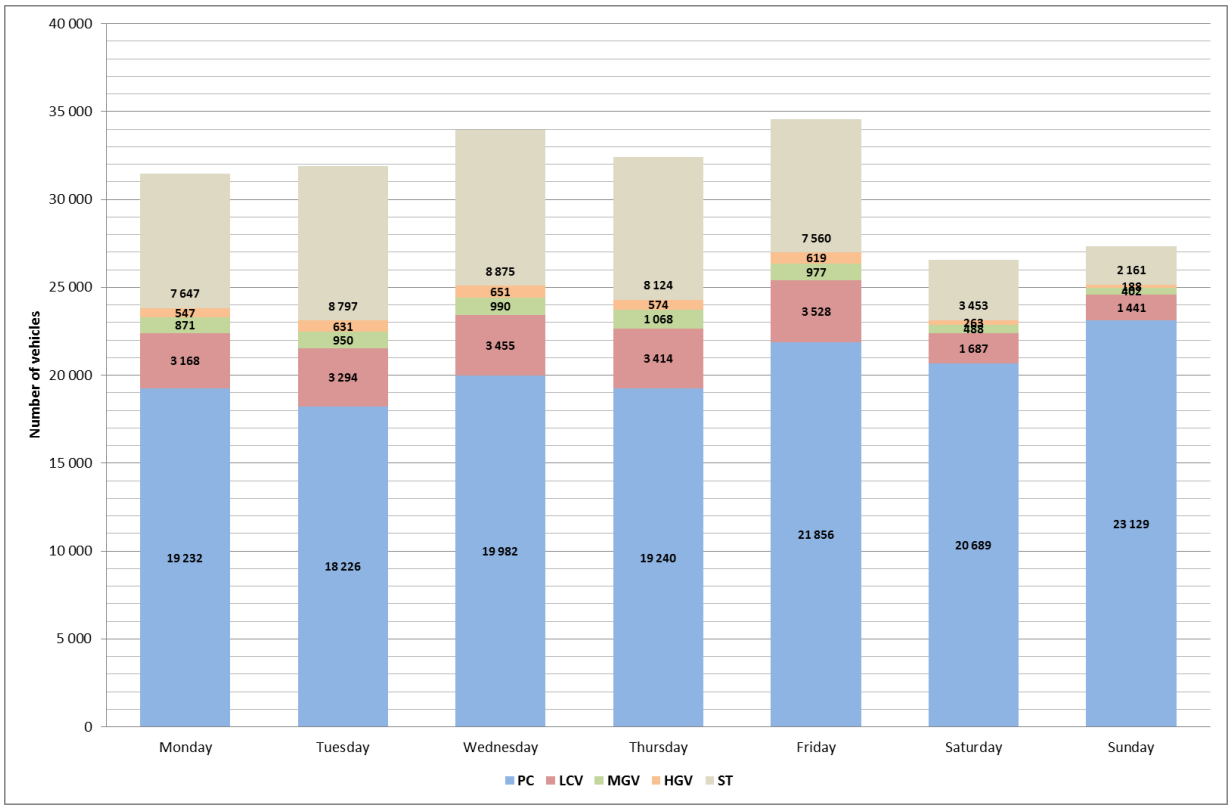

Figure 125 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-10

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.2.1.11. Counting site PL-P-11: Radlin

Road: DK78

GPS coordinates of survey profile: 50.03178, 18.48962

The counting site was placed in the in a built-up area on the road DK78 between Radlin - Wodzisław Śląski - Rybnik. The DK78 road, approx. 230 km long, leading from Chałupy to Chmielnik, runs through the Śląskie and Świętokrzyskie voivodships. After the introduction of tolls on the A1 Sośnica-Gorzyczki motorway section, this route will be a free alternative for him. National road DK78 also connects nearby towns with the Katowice Airport in Pyrzowice. The counter was placed on a vertical traffic sign near the road. The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 93 The results of the profile traffic survey – counting site PL-P-11 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	14 178	1 216	226	369	522
Tuesday	14 284	1 091	226	380	521
Wednesday	14 482	1 065	263	374	460

	PC	LCV	MGV	HGV	ST
Thursday	14 605	1 145	252	355	450
Friday	14 882	1 193	268	372	521
Saturday	12 700	707	119	175	217
Sunday	8 844	229	124	73	114
WADT - category	**13 437**	**962**	**222**	**308**	**411**
AADT - category	**12 712**	**910**	**210**	**291**	**389**
WADT - total	**15 340**				
AADT - total	**14 513**				
Share of freight transport	**6.13%**				
Share of heavy freight transport	**4.69%**				

In the counting site PL-P-11 was recorded average intensity 14 513 veh/24 h with share of freight transport, 6.13 %. The counting site was ranked on 15th place in term of AADT – total but at the 22nd (last) place in term of share of freight transport, so the road section is used to a medium/low extent by light transport but percentage extremely low extent by freight transport. It shows that this section isn't important to the freight transport.

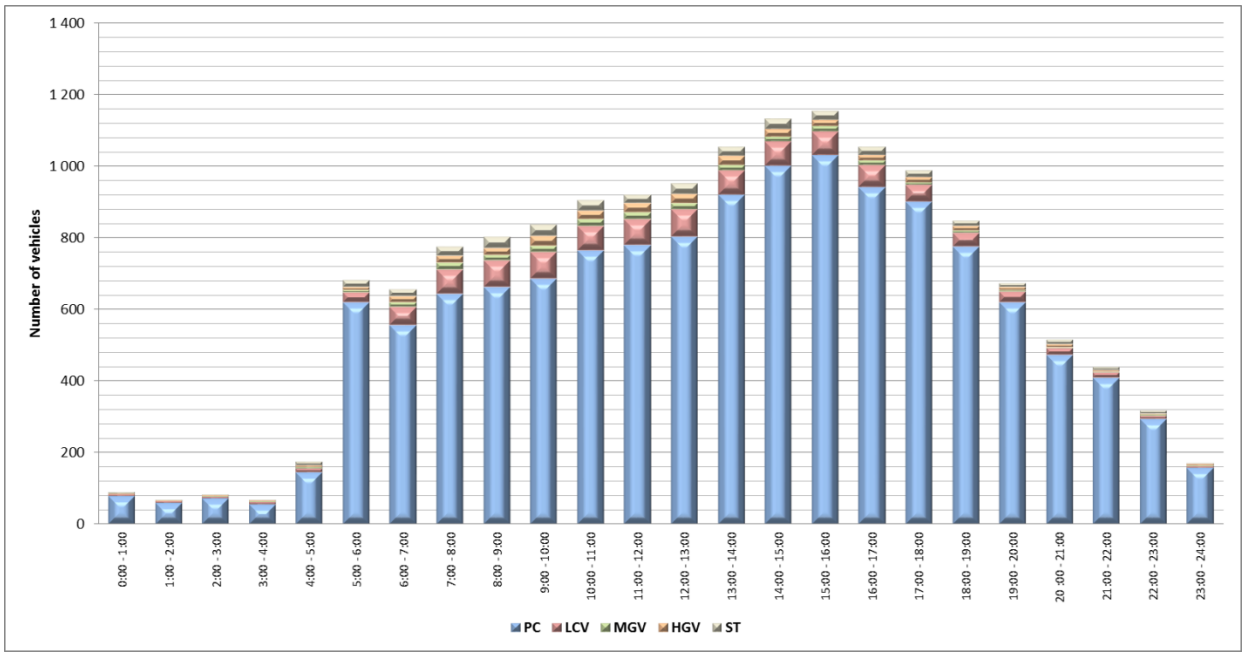

Figure 126 Hourly variation of the WADT traffic volume – counting site PL-P-11

The average hourly intensity variation higher than 1 100 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak between 1:00pm – 6:00pm.

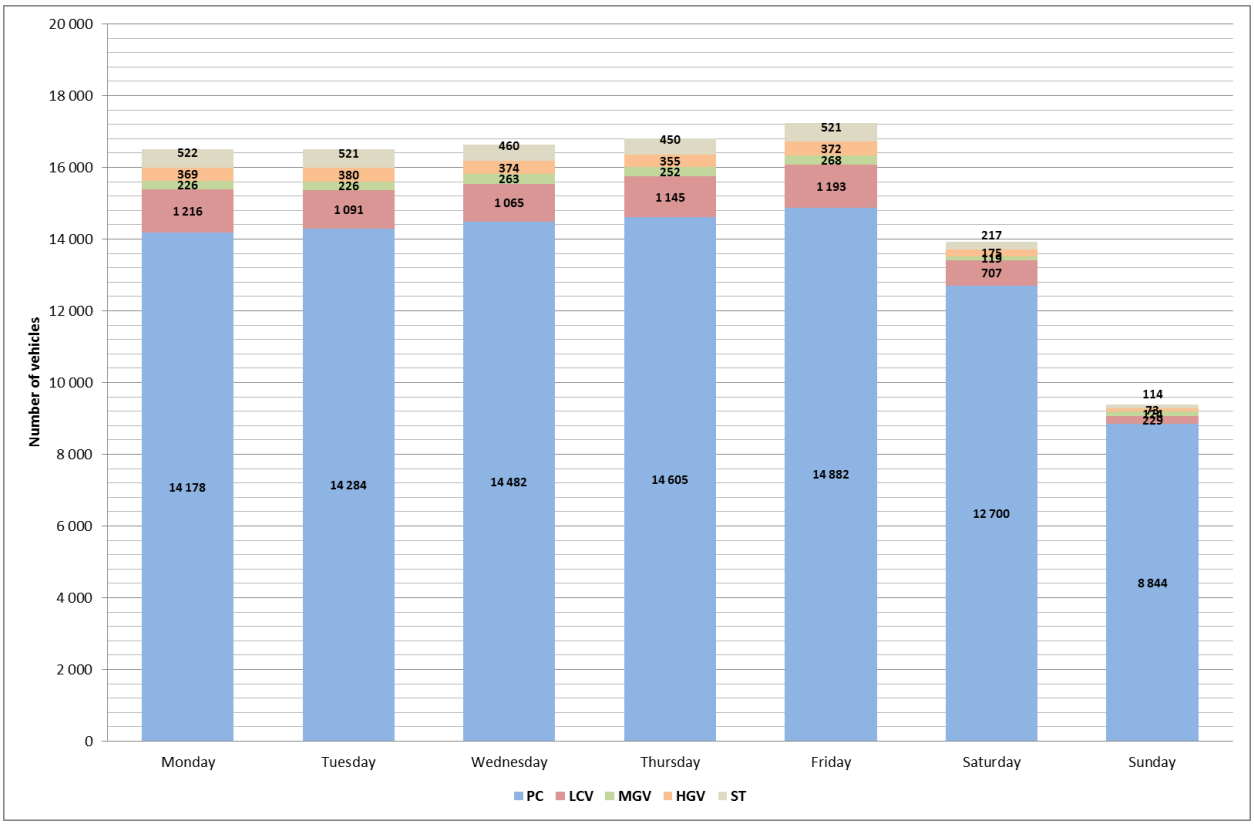

Figure 127 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-11

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Saturday.

2.2.1.12. Counting site PL-P-12: Reńska Wieś

Road: DK45

GPS coordinates of survey profile: 50.31647, 18.12051

The counting site was placed in the in a not built-up area on the road DK45 between Reńska Wieś - Racibórz -Krapkowice. The DK45 road, with a total length of 217 km leading through the following provinces: Łódź, Śląskie and Opolskie. It has a joint section with the road DK42 between Praszka and Kluczbork with a length of about 22 km. Its main advantage is the fast connection with the Czech border in Chałupki bypassing the Upper Silesian Industrial District and Rybnik Coal District from the west, but with the possibility of a smooth journey to these two agglomerations. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 94 The results of the profile traffic survey – counting site PL-P-12 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	6 683	1 096	274	309	1 881
Tuesday	6 167	1 015	246	296	1 987
Wednesday	6 289	1 072	272	291	2 278
Thursday	6 654	1 160	277	315	2 290
Friday	7 762	1 180	318	317	2 058
Saturday	6 888	664	140	118	479
Sunday	7 275	442	69	57	249
WADT - category	**6 827**	**957**	**240**	**254**	**1 614**
AADT - category	**6 206**	**870**	**218**	**231**	**1 467**
WADT - total	**9 892**				
AADT - total	**8 993**				
Share of freight transport	**21.31%**				
Share of heavy freight transport	**18.88%**				

In the counting site PL-P-12 was recorded average intensity 8 993 veh/24 h with share of freight transport, 21.31 %. The counting site was ranked on 16th place in term of AADT – total but at the 7th place in term of share of freight transport, so the road section is used to a low extent by light transport but percentage medium/large extent by freight transport.

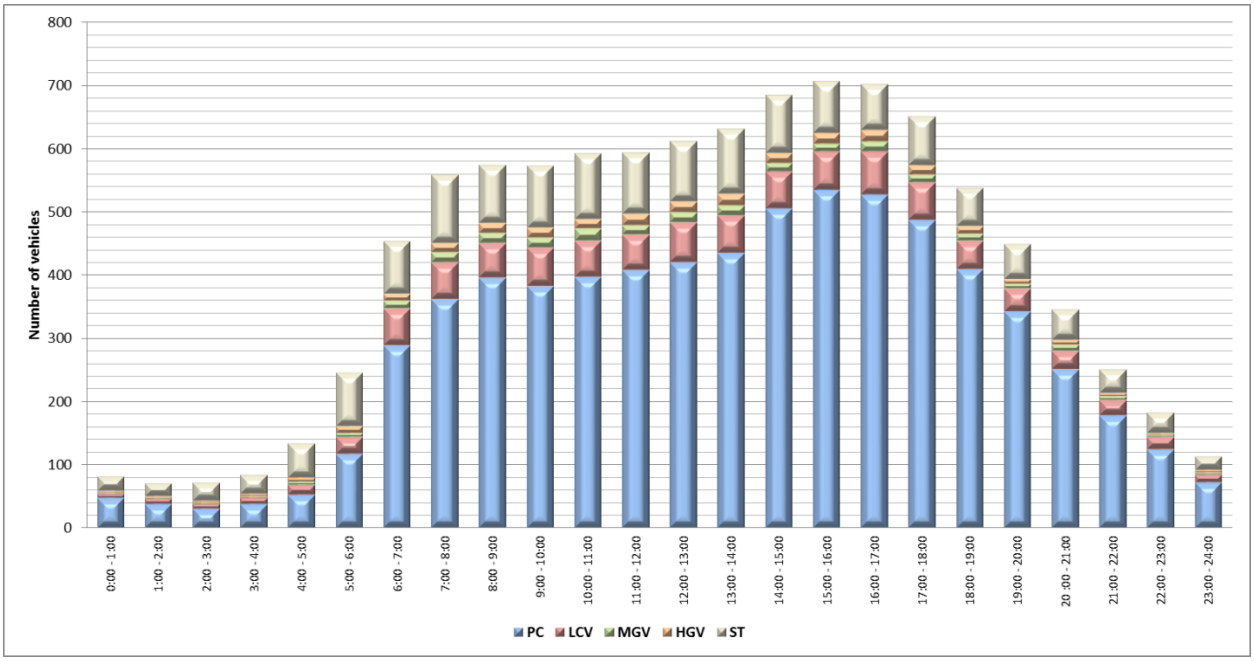

Figure 128 Hourly variation of the WADT traffic volume – counting site PL-P-12

The average hourly intensity variation higher than 700 veh/h was reached between 3:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to determinate morning peak and afternoon peak between 1:00pm – 6:00pm.

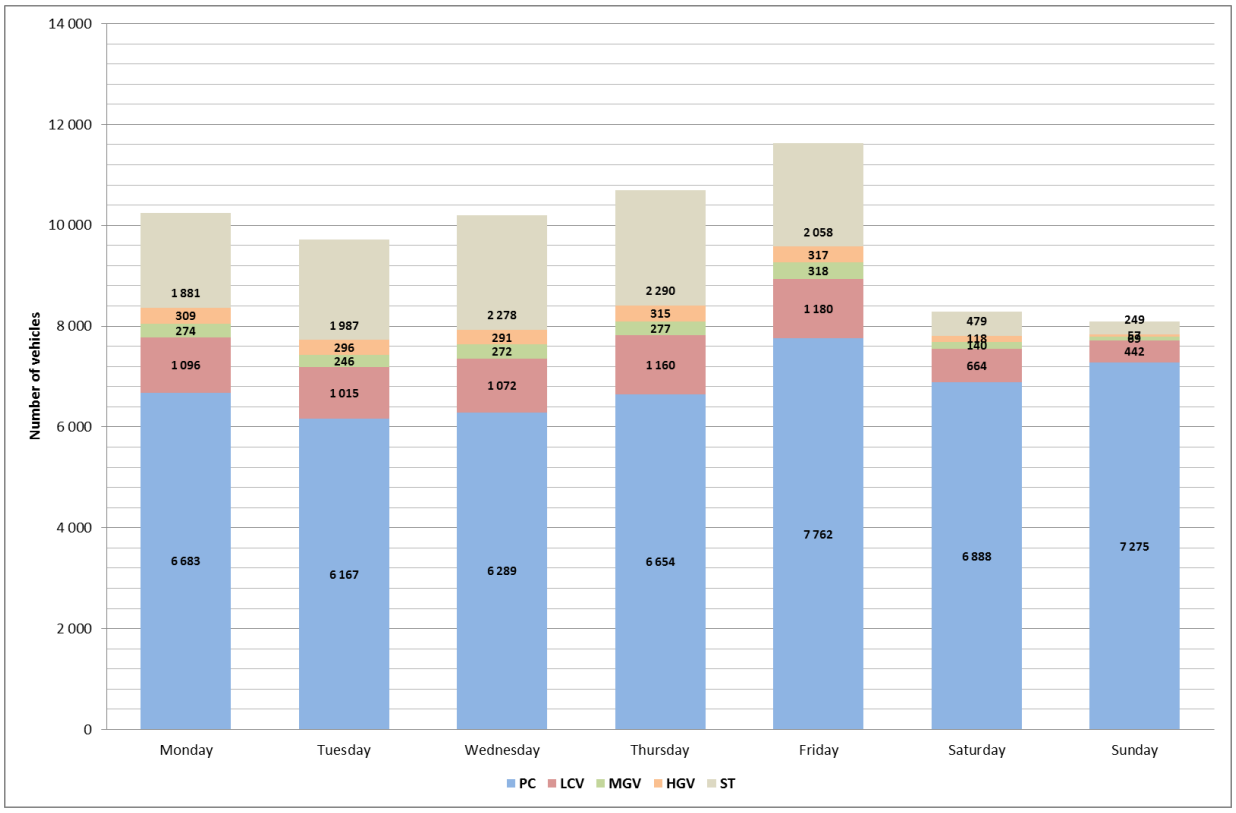

Figure 129 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-12

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.2.1.13. Counting site PL-P-13: Babice

Road: DK44

GPS coordinates of survey profile: 50.0644, 19.19209

The counting site was placed in the in a not built-up area on the road DK44 between Babice - Oświęcim - Bieruń. The DK44 road running through the Silesia and Małopolskie voivodships. It is one of five roads, next to DW780, A4, DK79, DK94, connecting Upper Silesia with Krakow, and also the southernmost of the listed. It bypasses the Katowice conurbation from the south, connecting Gliwice with Mikołów, Tychy, Bieruń, Oświęcim and Krakow on its territory. It plays a particularly important role for cities in western Lesser Poland, because it connects them with the Upper Silesian Industrial District. The area that crosses DK44 is industrialized. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 95 The results of the profile traffic survey – counting site PL-P-13 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	14 400	1 294	479	390	1 810

	PC	LCV	MGV	HGV	ST
Tuesday	14 707	1 248	507	393	1 628
Wednesday	14 401	1 531	592	406	1 703
Thursday	15 102	1 676	567	380	1 685
Friday	16 039	1 694	588	408	1 778
Saturday	15 316	870	233	108	439
Sunday	10 911	269	40	31	89
WADT - category	**14 420**	**1 236**	**438**	**313**	**1 315**
AADT - category	**14 285**	**1 224**	**434**	**310**	**1 303**
WADT - total	**17 722**				
AADT - total	**17 557**				
Share of freight transport	**11.66%**				
Share of heavy freight transport	**9.19%**				

In the counting site PL-P-13 was recorded average intensity 17 557 veh/24 h with share of freight transport, 11.66 %. The counting site was ranked on 13th place in term of AADT – total but at the 19th place in term of share of freight transport, so the road section is used to a medium extent by light transport but percentage low extent by freight transport. It shows that this section isn't so important to the freight transport.

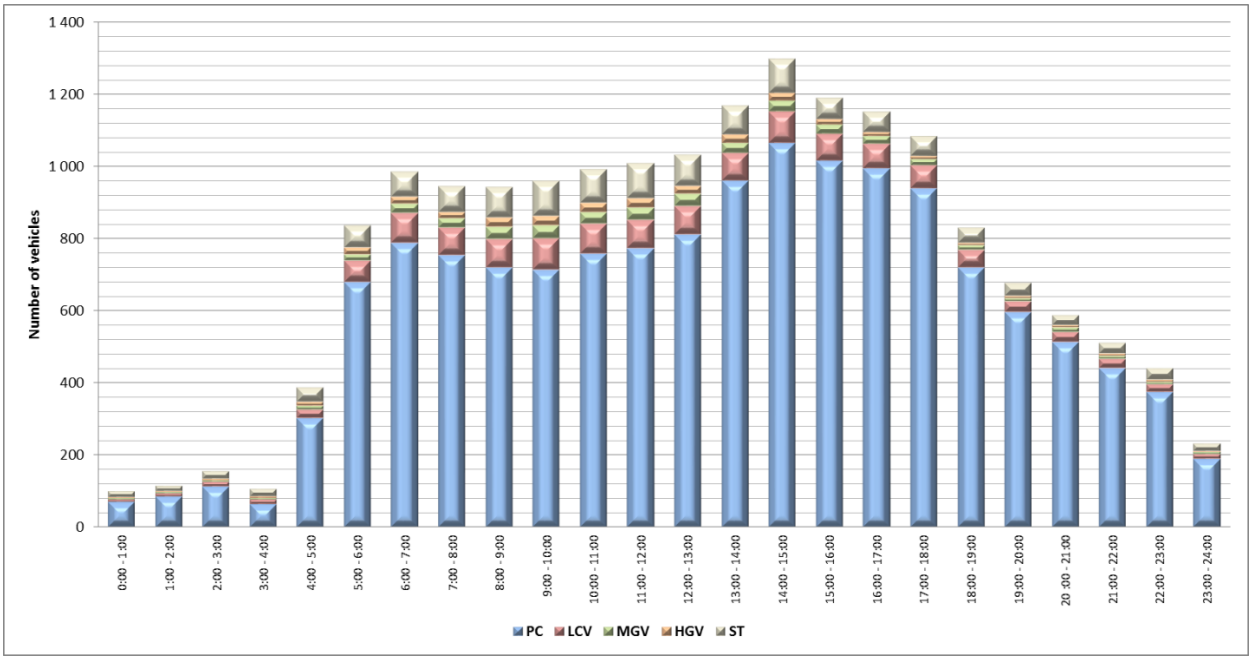

Figure 130 Hourly variation of the WADT traffic volume – counting site PL-P-13

The average hourly intensity variation higher than 1 200 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 7:00am and afternoon peak between 1:00pm – 6:00pm.

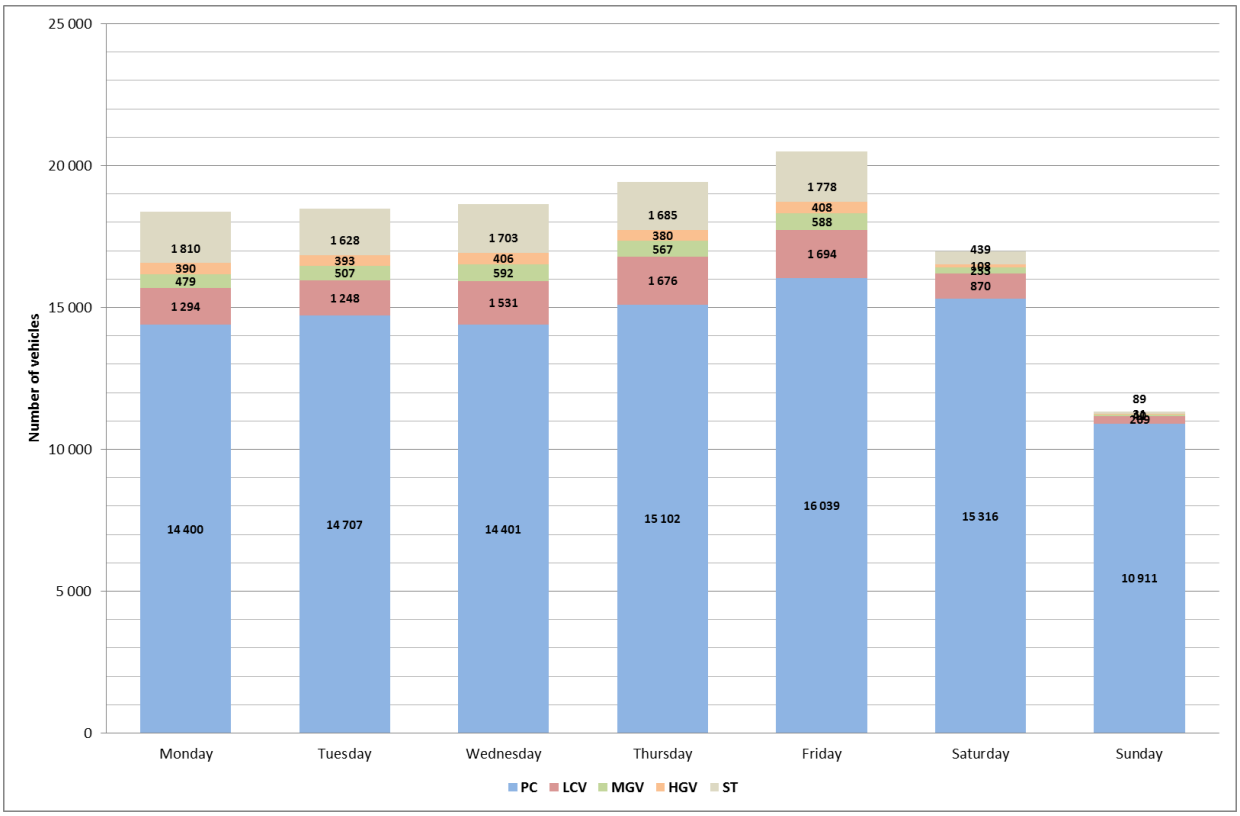

Figure 131 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-13

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Sunday.

2.2.1.14. Counting site PL-P-14: Sosnowiec

Road: S86

GPS coordinates of survey profile: 50.29354, 19.11517

The counting site was placed in the in a built-up area on the express road S86 in city Sosnowiec (between Katowice and Będzin). S86 as a section of the national road DK86 with a length of 6.8 km connecting Katowice and Sosnowiec. As the main communication channel connecting Zagłębie Dąbrowskie with the Upper Silesian part of the Katowice Conurbation, the S86 road is a road with high traffic, on which traffic jams often occur. According to the results of the General Traffic Measurement in 2010, this route was the road with the highest traffic volume in Poland. The average measured intensity was 104,339 vehicles per day. According to the GPR, in 2015 it was the second largest national road traffic after the Warsaw section of S8, with a volume of 112,122 vehicles / day. In Katowice it is part of Walenty Roździeński Avenue. On October 13, 2015, the government amended the regulation on the highway and expressway network, officially adding the S86 route to the expressway list. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 96 The results of the profile traffic survey - counting site PL-P-14 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	122 922	10 760	2 033	3 517	8 970
Tuesday	128 762	11 433	2 288	3 489	8 971
Wednesday	130 062	11 979	2 328	3 669	9 091
Thursday	130 681	11 693	2 216	3 720	8 900
Friday	135 347	12 239	2 381	3 731	9 311
Saturday	125 211	7 209	1 049	1 365	2 921
Sunday	100 219	2 776	1 864	657	1 477
WADT - category	**124 752**	**9 738**	**2 033**	**2 888**	**7 102**
AADT - category	**118 024**	**9 213**	**1 923**	**2 732**	**6 719**
WADT - total	**146 513**				
AADT - total	**138 612**				
Share of freight transport	**8.21%**				
Share of heavy freight transport	**6.82%**				

In the counting site PL-P-14 was recorded average intensity 138 612 veh/24 h with share of freight transport 8.21 %. The counting site was ranked on 1st place in term of AADT - total but at the 21st place in term of share of freight transport with the 3rd most larger number of heavy vehicles (11 375), so the road section is used to an extremely large extent by light transport but percentage very low extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is 3rd highest for the conducted profile surveys. This section is heavily used for the personal transport in the agglomeration, especially between the Katowice and Sosnowiec.

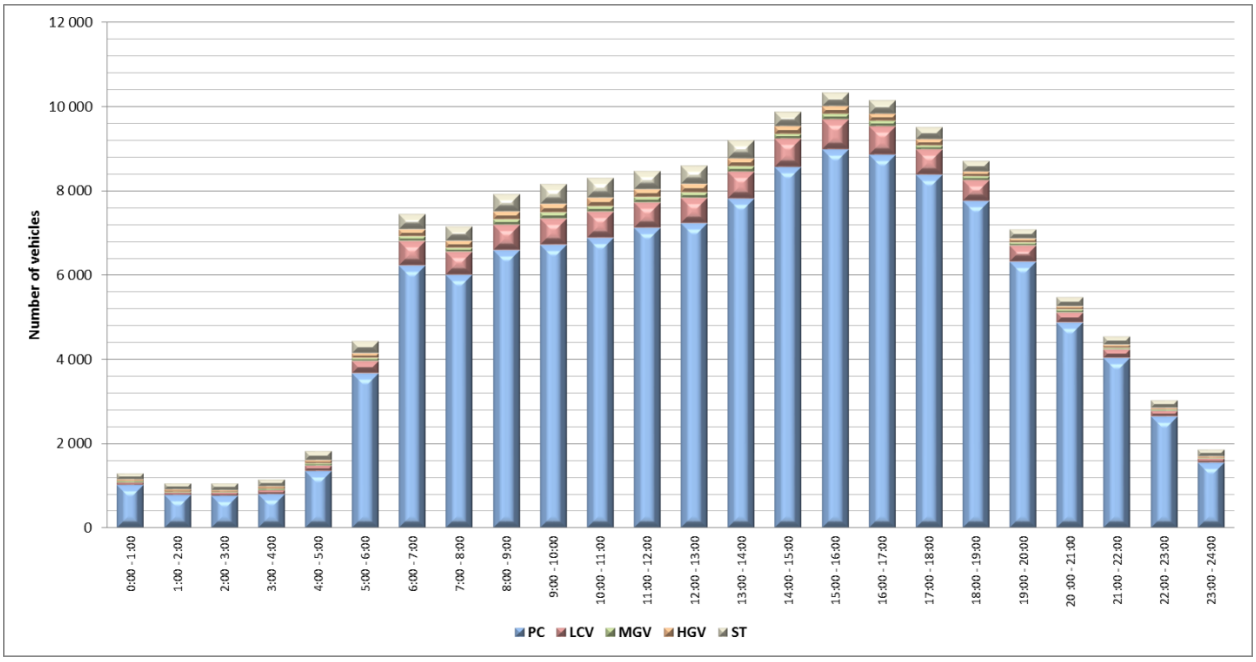

Figure 132 Hourly variation of the WADT traffic volume - counting site PL-P-14

The average hourly intensity variation higher than 10 000 veh/h was reached between 3:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 7:00am and afternoon peak between 1:00pm – 6:00pm.

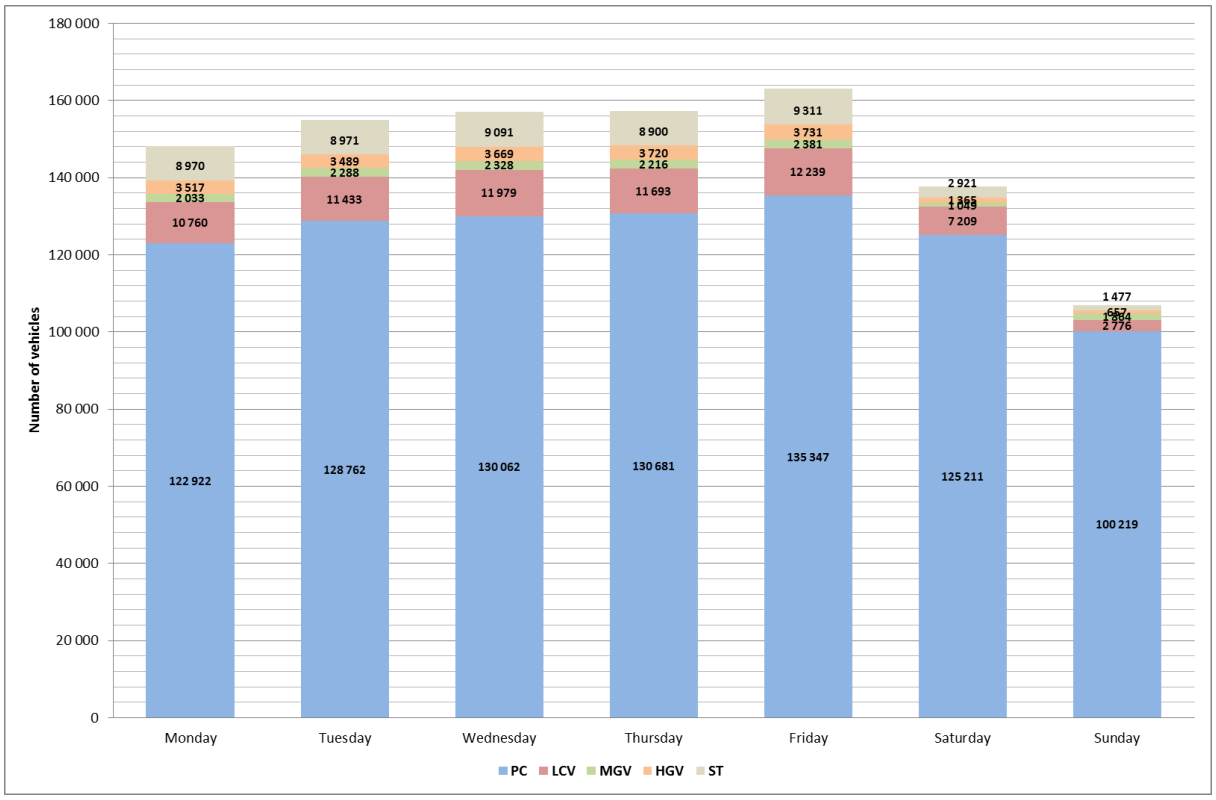

Figure 133 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-14

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Sunday.

2.2.1.15. Counting site PL-P-15: Godów

Road: A1

GPS coordinates of survey profile: 49.95403, 18.47256

The counting site was placed on the A1 highway in the in a not built-up area between the Godów - Gorzyczki - Mszana. The A1 motorway is a partially tolled motorway in Poland located along the international route E75, lying in the 6th Trans-European Transport Corridor is the only Polish meridian motorway. Currently, it connects the Tri-City with Grudziądz, Toruń and Łódź, Częstochowa with Gliwice and the border with the Czech Republic in Gorzyczki. Ultimately, it will run from the Tri-City through Toruń, Łódź, Częstochowa, Pyrzowice, Gliwice to the Polish-Czech border in Gorzyczki. The last section of the motorway is to be completed in October 2022. At the Łódź Północ node (formerly called Stryków I), north of Łódź, it intersects with the A2 motorway. At the Gliwice-Sośnica intersection, it crosses the A4 motorway, while on the state border near Wodzisław Śląski and the Czech Bohumín it connects with the Czech D1 highway. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 97 The results of the profile traffic survey – counting site PL-P-15 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	9 919	1 780	155	354	5 590
Tuesday	9 118	1 886	145	326	5 492
Wednesday	9 200	1 865	151	356	5 574
Thursday	10 243	1 969	183	491	5 194
Friday	11 408	1 977	157	357	4 797
Saturday	7 787	928	67	138	2 450
Sunday	10 796	683	281	103	1 297
WADT - category	**9 793**	**1 596**	**173**	**315**	**4 353**
AADT - category	**9 702**	**1 581**	**171**	**312**	**4 312**
WADT - total	**16 230**				
AADT - total	**16 079**				
Share of freight transport	**29.83%**				
Share of heavy freight transport	**28.76%**				

In the counting site PL-P-15 was recorded average intensity 16 079 veh/24 h with share of freight transport, 29.83 %. The counting site was ranked on 14th place in term of AADT – total but at the 2nd place in term of share of freight transport with the 9th absolute number of heavy vehicles (4 796), so the road section is used to a medium/low extent by light transport but percentage extremely large extent by freight transport. It shows that this section is very important to the freight transport.

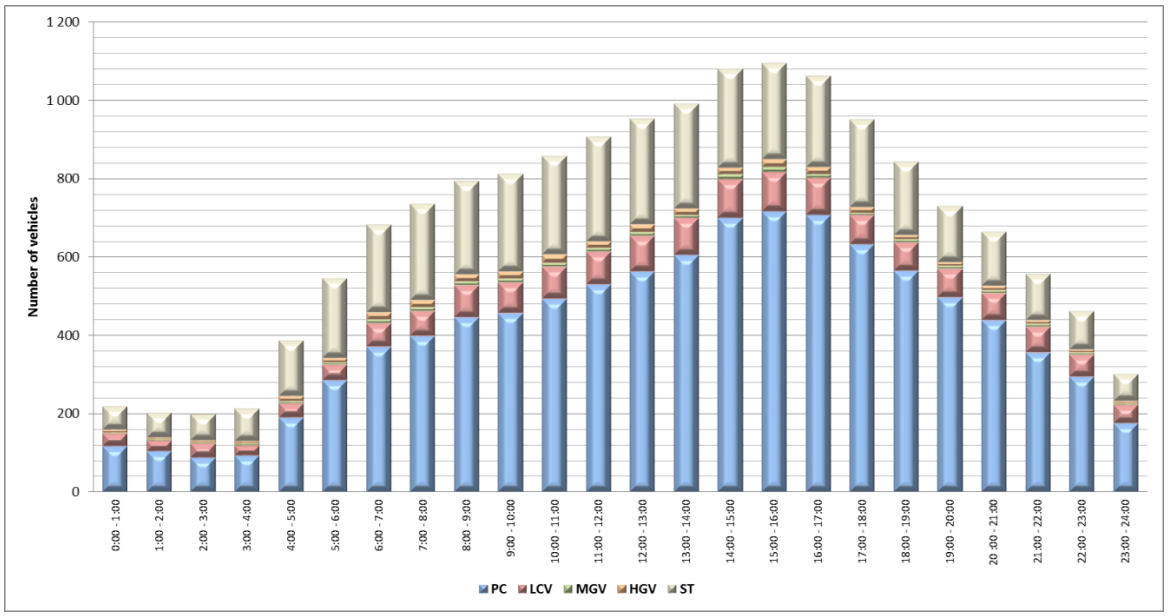

Figure 134 Hourly variation of the WADT traffic volume – counting site PL-P-15

The average hourly intensity variation higher than 1 000 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak between 2:00pm – 5:00pm.

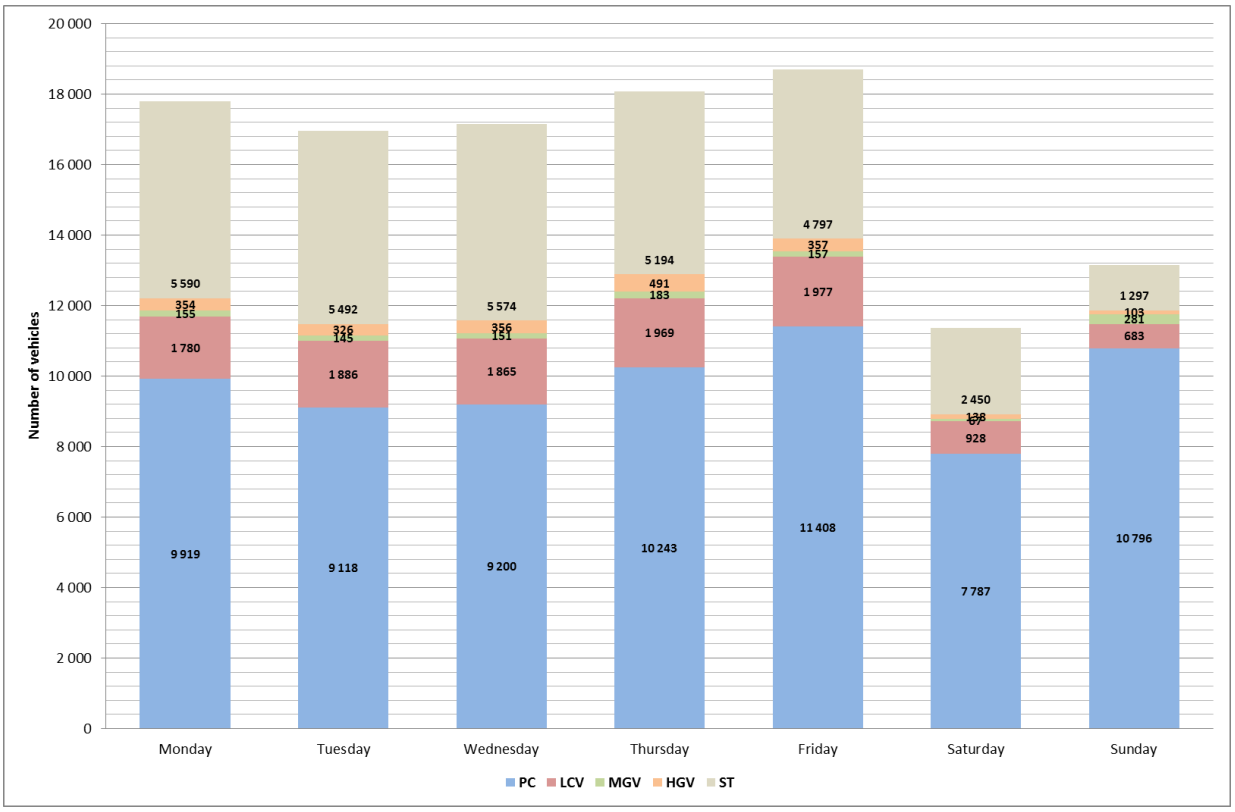

Figure 135 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-15

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Monday and least Sunday.

2.2.1.16. Counting site PL-P-16: Kamesznica

Road: S1

GPS coordinates of survey profile: 49.55531, 19.05329

The counting site was placed in the in a not built-up area on the express road S1 between the Kamesznica - Zwardoń - Milówka. Expressway S1 - a Polish expressway under construction with a total target length of about 142 km, located in the Silesia Voivodeship. According to the plans, it connects Pyrzowice (A1) with the border with Slovakia in Zwardoń and with the Slovak highway D3. Part of the route is the eastern beltway of the Upper Silesian Industrial District. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 98 The results of the profile traffic survey – counting site PL-P-16 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	2 890	498	204	435	739
Tuesday	2 933	532	210	462	744
Wednesday	2 932	474	191	480	778
Thursday	3 098	520	237	535	803
Friday	3 526	452	183	463	704
Saturday	3 061	252	84	243	355
Sunday	3 002	126	276	121	217
WADT - category	**3 073**	**416**	**210**	**402**	**629**
AADT - category	**3 044**	**412**	**208**	**398**	**623**
WADT - total	**4 730**				
AADT - total	**4 686**				
Share of freight transport	**26.54%**				
Share of heavy freight transport	**21.80%**				

In the counting site PL-P-16 was recorded average intensity 4 686 veh/24 h with share of freight transport, 26.54 %. The counting site was ranked on 22nd (last) place in term of AADT – total but at the 4th place in term of share of freight transport with the 18th absolute number of heavy vehicles (1 229), so the road section is used to an extremely low extent by light transport but percentage large extent by freight transport. It has to be remarked that the absolute number of heavy vehicle is rather low. It is hard to estimate how this section is important to the freight transport.

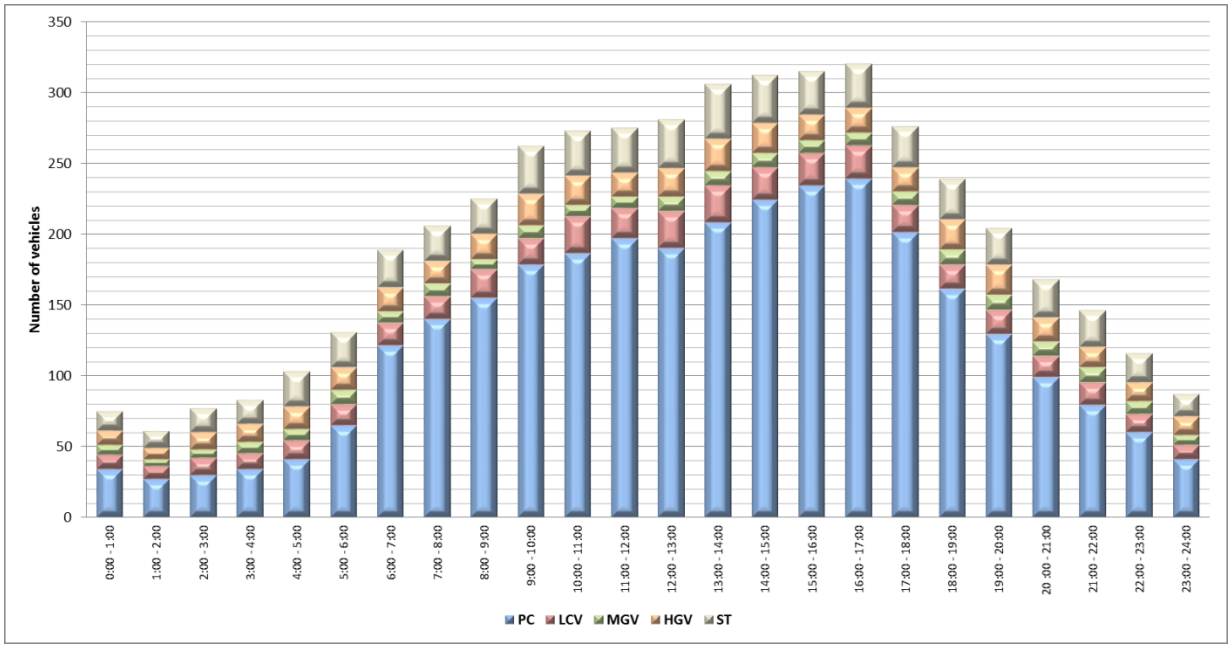

Figure 136 Hourly variation of the WADT traffic volume – counting site PL-P-16

The average hourly intensity variation higher than 300 veh/h was reached between 1:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak between 1:00pm – 5:00pm.

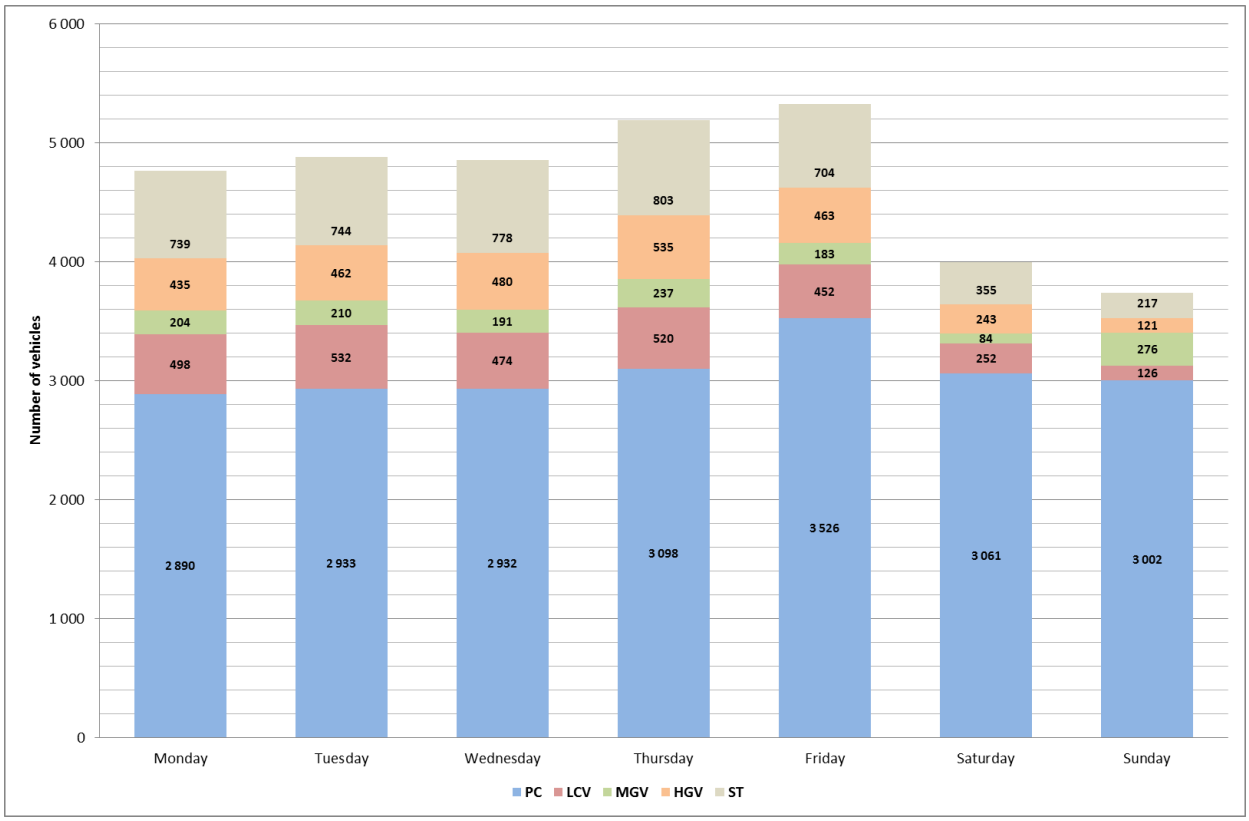

Figure 137 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-16

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.2.1.17. Counting site PL-P-17: Zabrze

Road: DK78

GPS coordinates of survey profile: 50.37227, 18.78055

The counting site was placed in the in a built-up area on the road DK78 between the Zabrze - Gliwice - Tarnowskie Góry. The DK78 road, approx. 230 km long, leading from Chałupy to Chmielnik, runs through the Śląskie and Świętokrzyskie voivodships. After the introduction of tolls on the A1 Sośnica-Gorzyczki motorway section, this route will be a free alternative for him. National road DK78 also connects nearby towns with the Katowice Airport in Pyrzowice. The counter was placed on a vertical traffic sign near the road. The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 99 The results of the profile traffic survey - counting site PL-P-17 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	15 303	1 599	406	481	2 782
Tuesday	15 831	1 497	385	485	2 616
Wednesday	15 732	1 650	405	525	2 705
Thursday	15 842	1 780	404	528	2 756
Friday	16 371	1 758	461	482	2 768
Saturday	14 693	990	194	173	896
Sunday	11 204	627	21	66	359
WADT - category	**15 009**	**1 424**	**334**	**402**	**2 136**
AADT - category	**14 869**	**1 411**	**331**	**398**	**2 116**
WADT - total	**19 305**				
AADT - total	**19 125**				
Share of freight transport	**14.88%**				
Share of heavy freight transport	**13.15%**				

In the counting site PL-P-17 was recorded average intensity 19 125 veh/24 h with share of freight transport, 14.88 %. The counting site was ranked on 12th place in term of AADT – total but at the 15th place in term of share of freight transport, so the road section is used to a medium extent by light transport and percentage medium/low extent by freight transport.

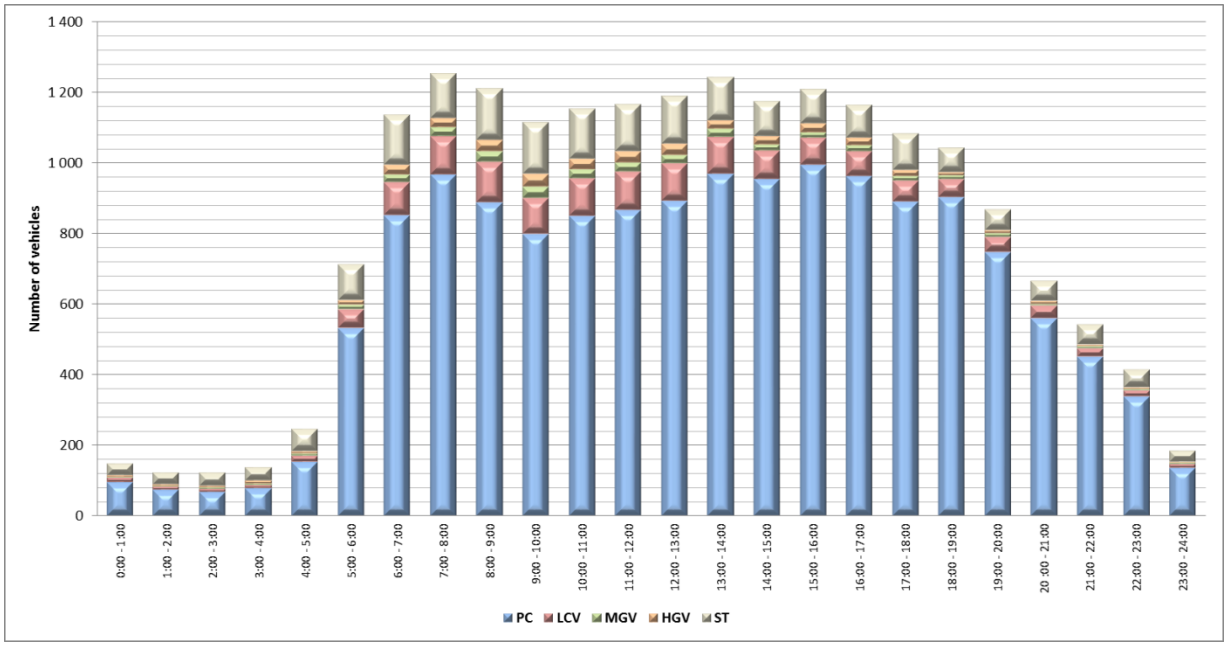

Figure 138 Hourly variation of the WADT traffic volume - counting site PL-P-17

The average hourly intensity variation higher than 1 200 veh/h was reached between 7:00am – 9:00am, 1:00pm – 2:00pm and 3:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 9:00am and afternoon peak between 1:00pm – 4:00pm.

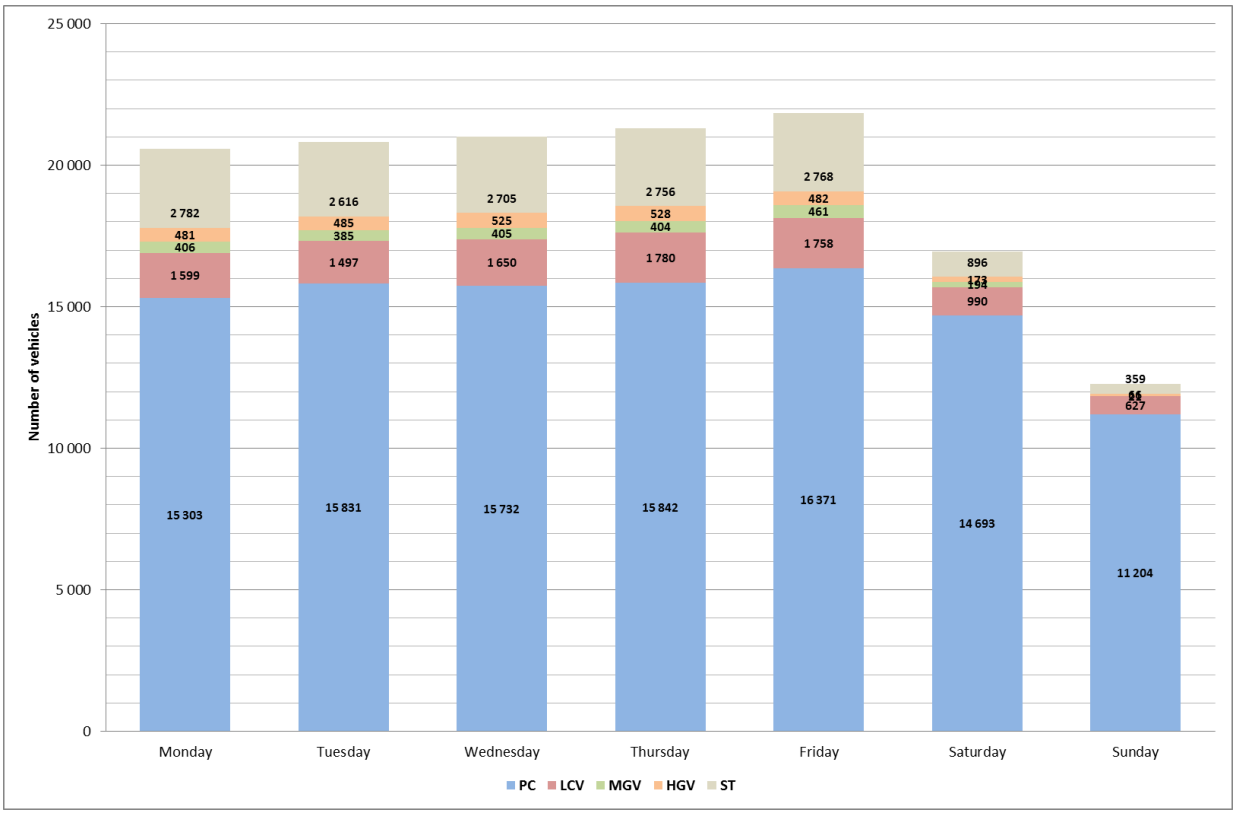

Figure 139 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-17

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Sunday.

2.2.1.18. Counting site PL-P-18: Dąbrowa Górnicza

Road: S1

GPS coordinates of survey profile: 50.41336, 19.21982

The counting site was placed in the in a not built-up area on the express road S1 in city Dąbrowa Górnicza (between the Mysłowice – Siewierz DK78). Expressway S1 - a Polish expressway under construction with a total target length of about 142 km, located in the Silesia Voivodeship. According to the plans, it connects Pyrzowice (A1) with the border with Slovakia in Zwardoń and with the Slovak highway D3. Part of the route is the eastern beltway of the Upper Silesian Industrial District. The counter was placed on a vertical traffic sign near the road. The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 100 The results of the profile traffic survey – counting site PL-P-18 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	18 610	3 278	424	766	7 358
Tuesday	18 308	2 934	463	734	7 315

	PC	LCV	MGV	HGV	ST
Wednesday	17 974	3 472	490	847	7 414
Thursday	18 694	3 440	506	838	7 598
Friday	22 404	3 751	506	812	7 098
Saturday	20 430	1 611	246	310	2 222
Sunday	15 877	803	44	119	563
WADT - category	**18 909**	**2 765**	**392**	**643**	**5 665**
AADT - category	**18 733**	**2 739**	**388**	**637**	**5 612**
WADT - total	**28 374**				
AADT - total	**28 109**				
Share of freight transport	**23.61%**				
Share of heavy freight transport	**22.23%**				

In the counting site PL-P-2 was recorded average intensity 28 109 veh/24 h with share of freight transport, 23.61 %. The counting site was ranked on 9th place in term of AADT – total but at the 6th place in term of share of freight transport, so the road section is used to a medium extent by light transport and percentage medium/large extent by freight transport.

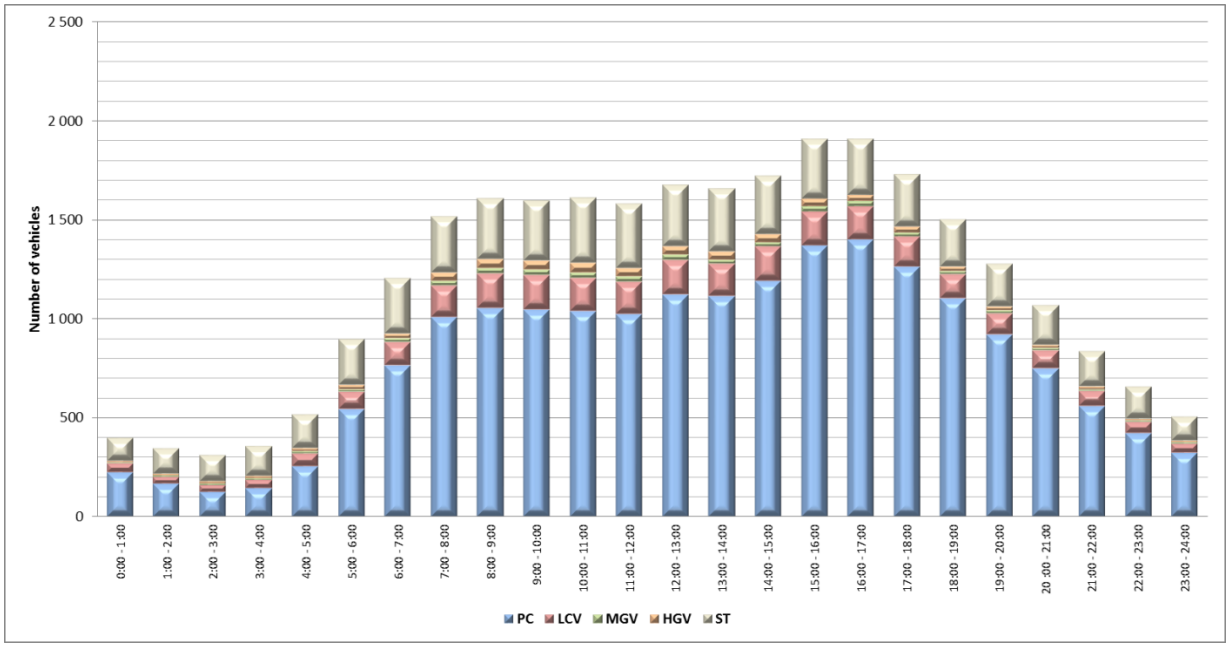

Figure 140 Hourly variation of the WADT traffic volume – counting site PL-P-18

The average hourly intensity variation higher than 1 900 veh/h was reached between 3:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 8:00am – 9:00am and afternoon peak between 2:00pm – 6:00pm.

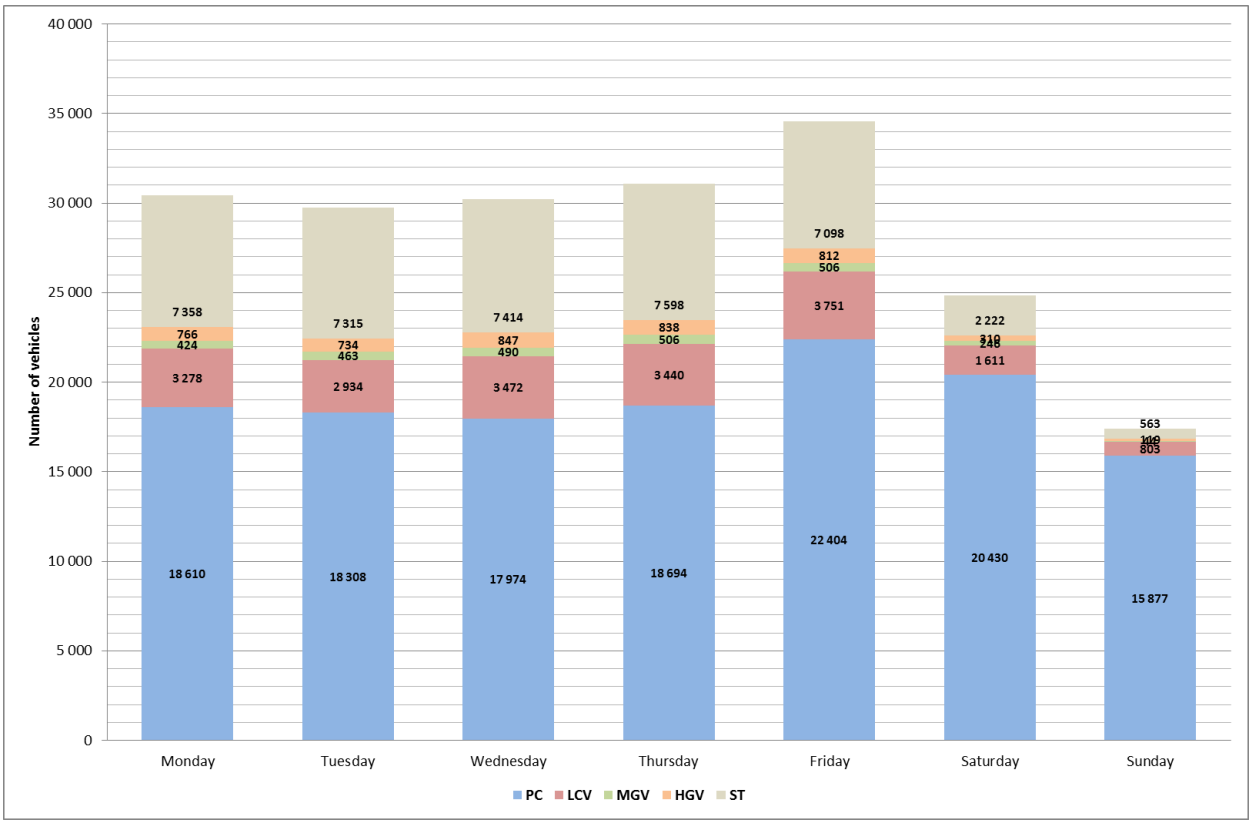

Figure 141 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-18

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.2.1.19. Counting site PL-P-19: Bierdzany

Road: DK45

GPS coordinates of survey profile: 50.81666, 18.13369

The counting site was placed in the in a not built-up area on the road DK45 between the Bierdzany - Opole - Kluczbork. The DK45 road, with a total length of 217 km leading through the following provinces: Łódź, Śląskie and Opolskie. It has a joint section with the road DK42 between Praszka and Kluczbork with a length of about 22 km. Its main advantage is the fast connection with the Czech border in Chałupki bypassing the Upper Silesian Industrial District and Rybnik Coal District from the west, but with the possibility of a smooth journey to these two agglomerations. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 101 The results of the profile traffic survey – counting site PL-P-19 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 710	524	152	175	1 165
Tuesday	3 466	513	126	192	1 075
Wednesday	3 423	563	135	167	997
Thursday	3 692	526	133	196	1 077
Friday	4 511	586	153	192	1 036
Saturday	4 789	376	90	78	418
Sunday	4 821	231	35	50	265
WADT - category	**4 071**	**485**	**128**	**162**	**874**
AADT - category	**3 701**	**441**	**116**	**147**	**795**
WADT - total	**5 720**				
AADT - total	**5 200**				
Share of freight transport	**20.35%**				
Share of heavy freight transport	**18.11%**				

In the counting site PL-P-19 was recorded average intensity 5 200 veh/24 h with share of freight transport, 20.35 %. The counting site was ranked on 19th place in term of AADT – total but at the 9th place in term of share of freight transport with the 19th absolute number of heavy vehicles (1 058), so the road section is used to a low extent by light transport but percentage medium extent by freight transport. It has to be remarked that the absolute number of heavy vehicle is rather low. It is hard to estimate how this section is important to the freight transport.

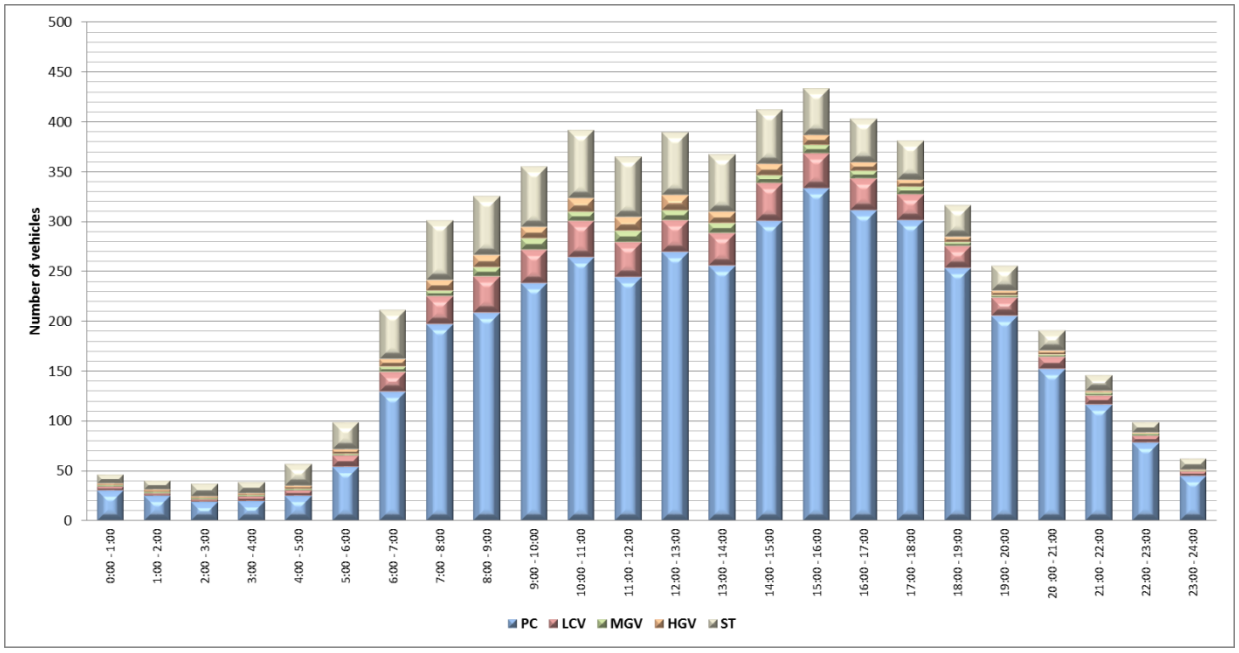

Figure 142 Hourly variation of the WADT traffic volume – counting site PL-P-19

The average hourly intensity variation higher than 1 900 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 6:00pm.

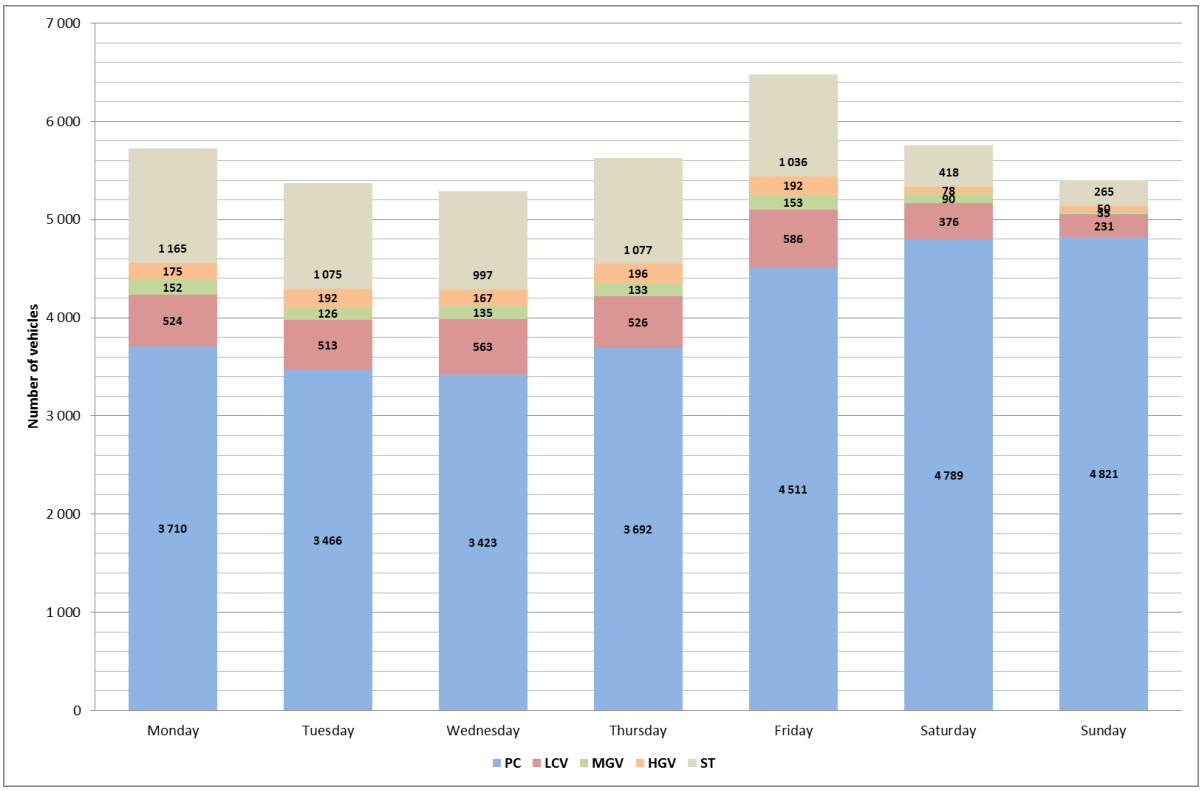

Figure 143 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-19

From the point of view of total traffic volume is the most busy day Friday and least busy is Wednesday. The most freight vehicles was recorded during Monday and least Sunday.

2.2.1.20. Counting site PL-P-20: Zabrze

Road: DW902

GPS coordinates of survey profile: 50.28578, 18.7637

The counting site was placed in the in a not built-up area on the road DW902 between the Zabrze - Gliwice - Ruda Śląska. DW902 - A provincial road located entirely within the Silesia Voivodeship. It runs latitudinally almost parallel to the A4 motorway, north of it. It connects the cities of the Upper Silesian Industrial District: Katowice, Chorzów, Świętochłowice, Ruda Śląska, Zabrze and Gliwice, constituting the western part of Road Medium Route (DTŚ). Road Medium Route (DTŚ) - express road connecting six cities of the Upper Silesian conurbation. The entire length of the road is collision-free, dual carriageway and has a minimum of three lanes for each direction. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 102 The results of the profile traffic survey – counting site PL-P-20 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	30 433	3 374	635	451	5 808
Tuesday	31 673	3 693	705	478	6 138
Wednesday	31 667	3 675	739	495	5 769
Thursday	32 588	3 678	723	483	5 823
Friday	32 724	3 658	697	492	6 088
Saturday	24 623	2 119	316	213	2 077
Sunday	20 539	1 756	69	142	1 316
WADT - category	**29 188**	**3 149**	**568**	**406**	**4 726**
AADT - category	**28 916**	**3 120**	**563**	**402**	**4 682**
WADT - total	**38 037**				
AADT - total	**37 682**				
Share of freight transport	**14.99%**				
Share of heavy freight transport	**13.49%**				

In the counting site PL-P-20 was recorded average intensity 37 682 veh/24 h with share of freight transport, 14.99 %. The counting site was ranked on 6th place in term of AADT – total but at the 14th place in term of share of freight transport with the 8th place of absolute number of heavy vehicles (5 647), so the road section is used to a large extent by light transport but percentage low extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is medium for the conducted profile surveys.

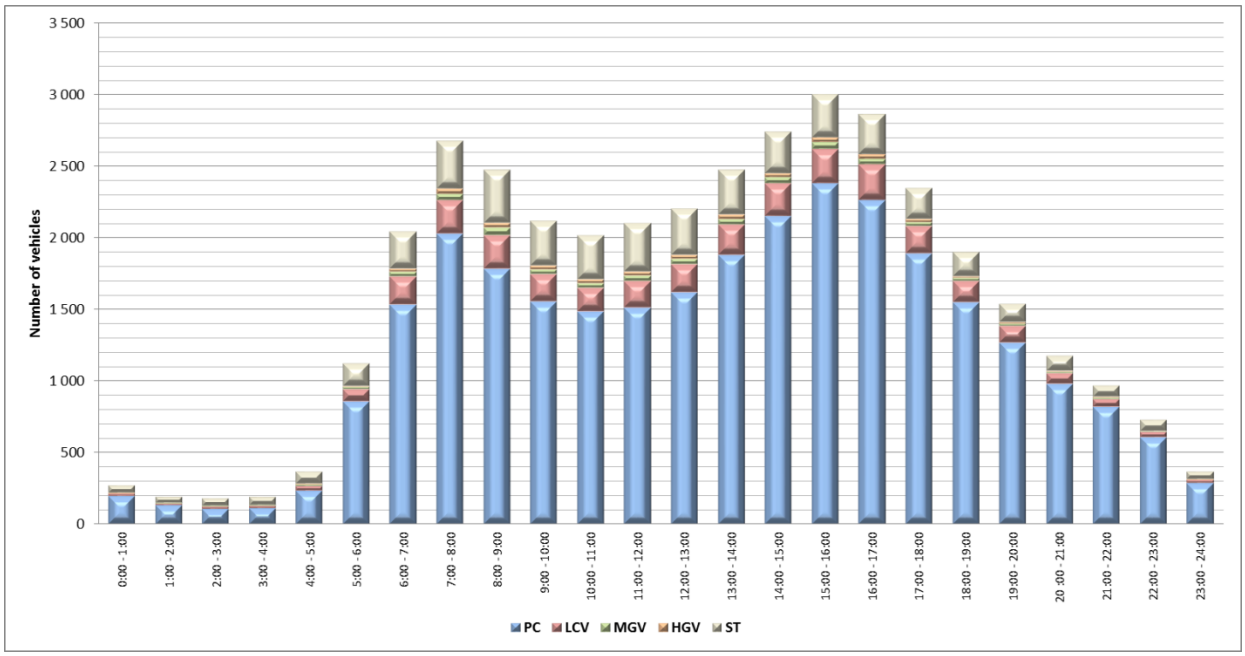

Figure 144 Hourly variation of the WADT traffic volume – counting site PL-P-20

The average hourly intensity variation higher than 2 800 veh/h was reached between 3:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 9:00am and afternoon peak between 2:00pm – 5:00pm.

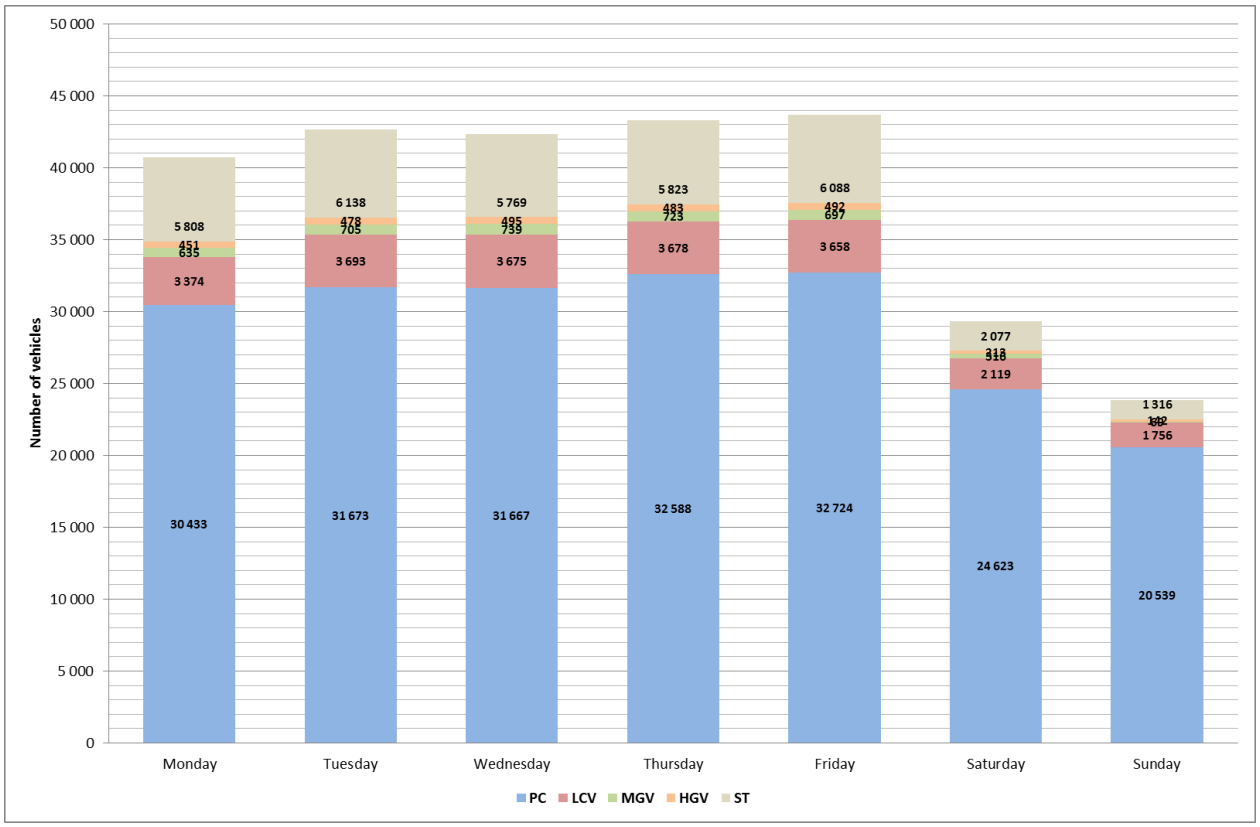

Figure 145 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-20

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.2.1.21. Counting site PL-P-21: Otchuchów

Road: DK46

GPS coordinates of survey profile: 50.45028, 17.07645

The counting site was placed in the in a not built-up area on the road DK46 between the Otchuchów - Nysa - Paczków. The DK46 road, with a length of 270 km running through the Dolnośląskie, Opole and Silesia voivodships. From the Kłodzko side, it is a branch of the DK8 national road (although it does not formally connect to it) running from the Kudowa-Zdrój - Nachod border. The route connects Kotlina Kłodzka and the southwestern part of the Opole Voivodeship with Opole, Lubliniec and Częstochowa. The road has a common short section with DK43 in Częstochowa. The counter was placed on a vertical traffic sign near the road. The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 103 The results of the profile traffic survey – counting site PL-P-21 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	5 216	857	108	225	1 756
Tuesday	4 535	920	118	289	1 765
Wednesday	4 712	861	138	273	1 829
Thursday	4 958	799	105	230	1 685
Friday	6 624	915	118	246	1 482
Saturday	6 270	662	81	112	563
Sunday	8 779	464	178	114	392
WADT - category	**5881**	**793**	**131**	**224**	**1363**
AADT - category	**5346**	**721**	**119**	**204**	**1239**
WADT - total	**8 392**				
AADT - total	**7 629**				
Share of freight transport	**20.47%**				
Share of heavy freight transport	**18.91%**				

In the counting site PL-P-21 was recorded average intensity 7 629 veh/24 h with share of freight transport, 20.47 %. The counting site was ranked on 17th place in term of AADT – total but at the 8th place in term of share of freight transport with the 17th absolute number of heavy vehicles (1 562), so the road section is used to a low extent by light transport but percentage medium extent by freight transport. It has to be remarked that the absolute number of heavy vehicle is rather low. It is hard to estimate how this section is important to the freight transport.

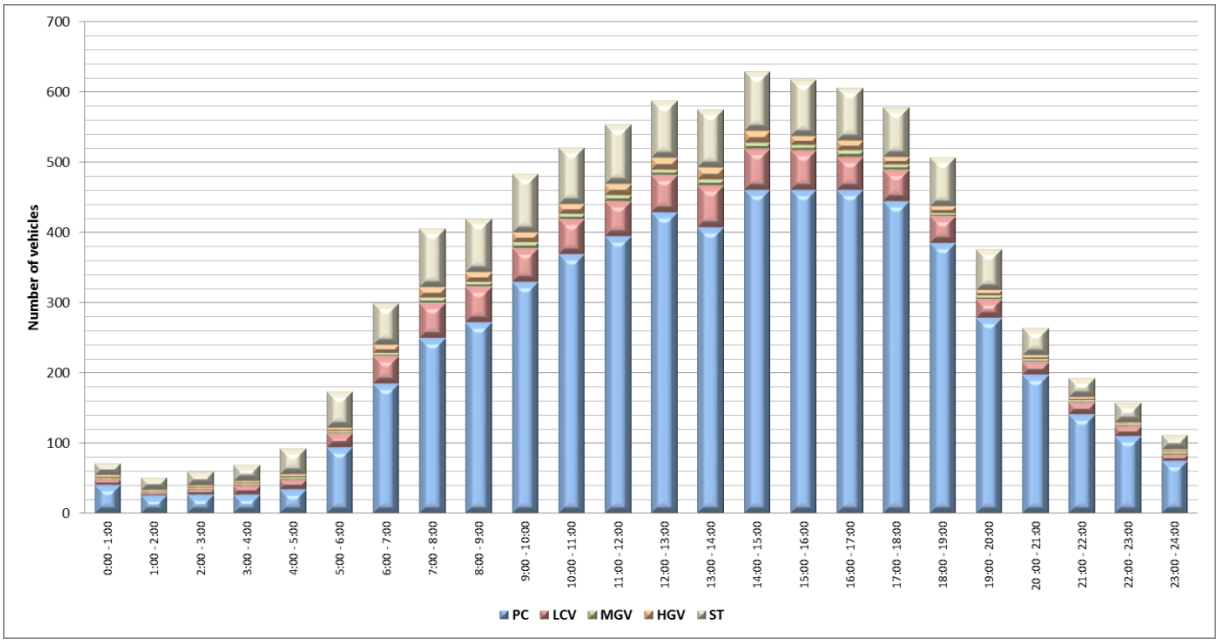

Figure 146 Hourly variation of the WADT traffic volume – counting site PL-P-21

The average hourly intensity variation higher than 600 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 6:00pm.

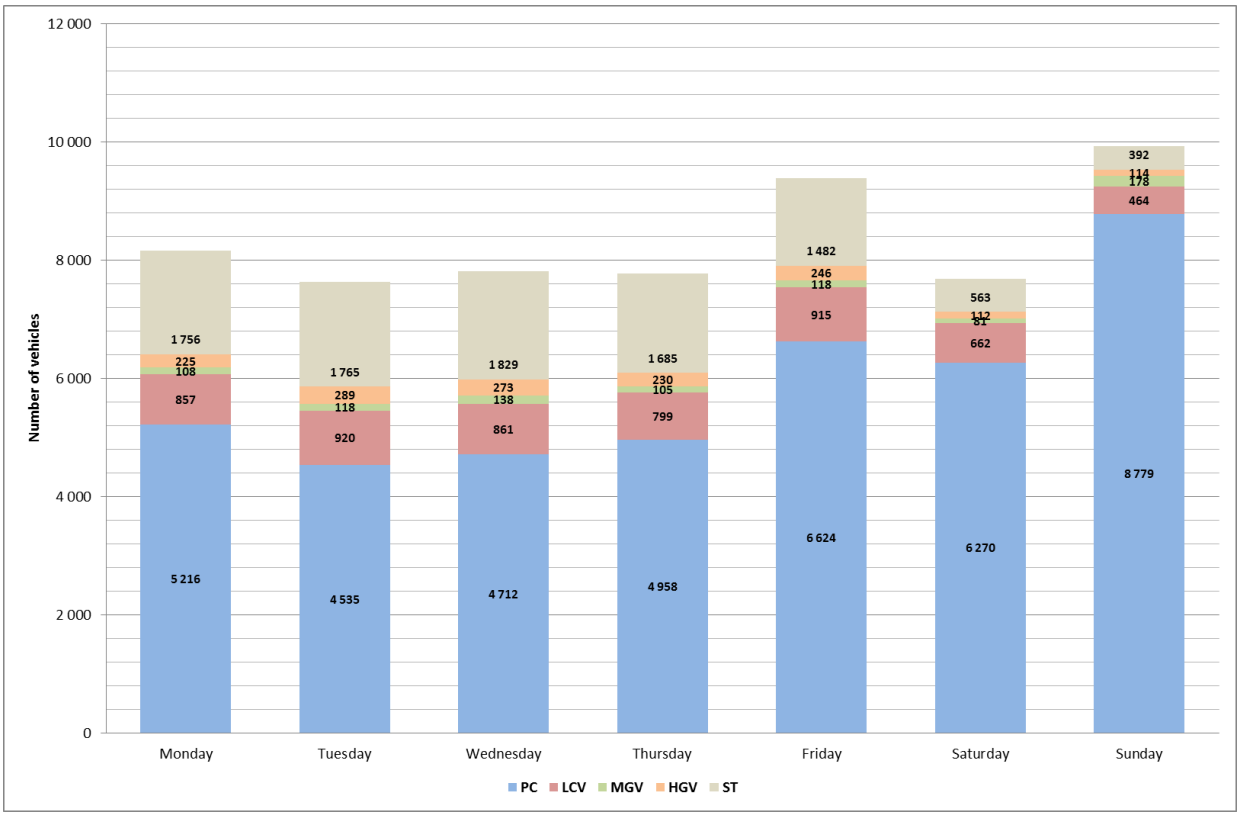

Figure 147 Daily variation of WADT traffic volume with vehicles structure – counting site PL-P-21

From the point of view of total traffic volume is the most busy day Sunday and least busy is Tuesday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.2.1.22. Counting site PL-P-22: Lubliniec

Road: DK11

GPS coordinates of survey profile: 50.65789, 18.65781

The counting site was placed in the in a not built-up area on the road DK11 in the city Lubliniec (bypass section). The DK11 road in the western part of Poland with a length of 596 km. It runs meridially through the following voivodships: Zachodniopomorskie, Wielkopolskie, Opolskie and Śląskie. It is a frequently used road in the summer season, when the inhabitants of Silesia and Wielkopolska go to rest on the Baltic Sea, near Kołobrzeg. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 104 The results of the profile traffic survey – counting site PL-P-22 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 150	624	94	288	1 808
Tuesday	3 146	649	129	318	1 805
Wednesday	3 124	490	97	296	1 667
Thursday	3 108	711	120	319	1 877
Friday	3 767	748	125	299	1 582
Saturday	3 488	445	61	92	487
Sunday	3 580	283	30	46	280
WADT - category	**3348**	**573**	**103**	**247**	**1369**
AADT - category	**3317**	**568**	**102**	**245**	**1356**
WADT - total	**5 640**				
AADT - total	**5 587**				
Share of freight transport	**30.48%**				
Share of heavy freight transport	**28.65%**				

In the counting site PL-P-22 was recorded average intensity 5 587 veh/24 h with share of freight transport, 30.48 %. The counting site was ranked on 18th place in term of AADT – total but at the 1st place in term of share of freight transport with the 16th absolute number of heavy vehicles (1 703), so the road section is used to a low extent by light transport but percentage extremely large extent by freight transport. It shows that this section is important to the freight transport.

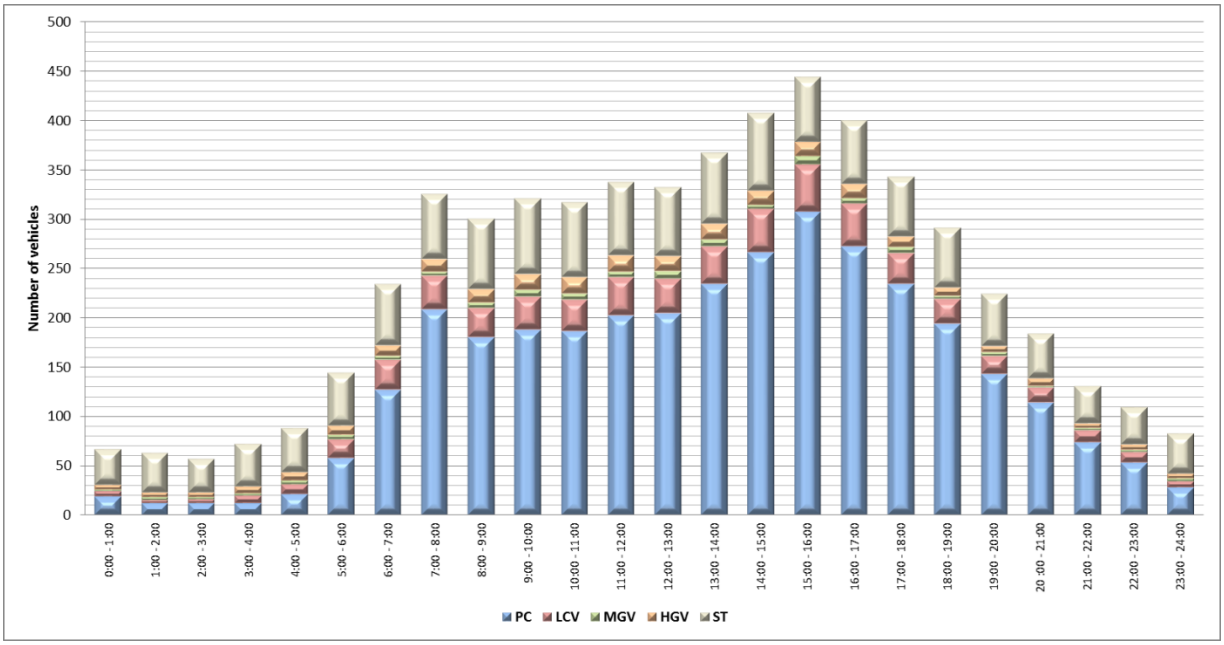

Figure 148 Hourly variation of the WADT traffic volume – counting site PL-P-22

The average hourly intensity variation higher than 400 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 1:00pm – 6:00pm.

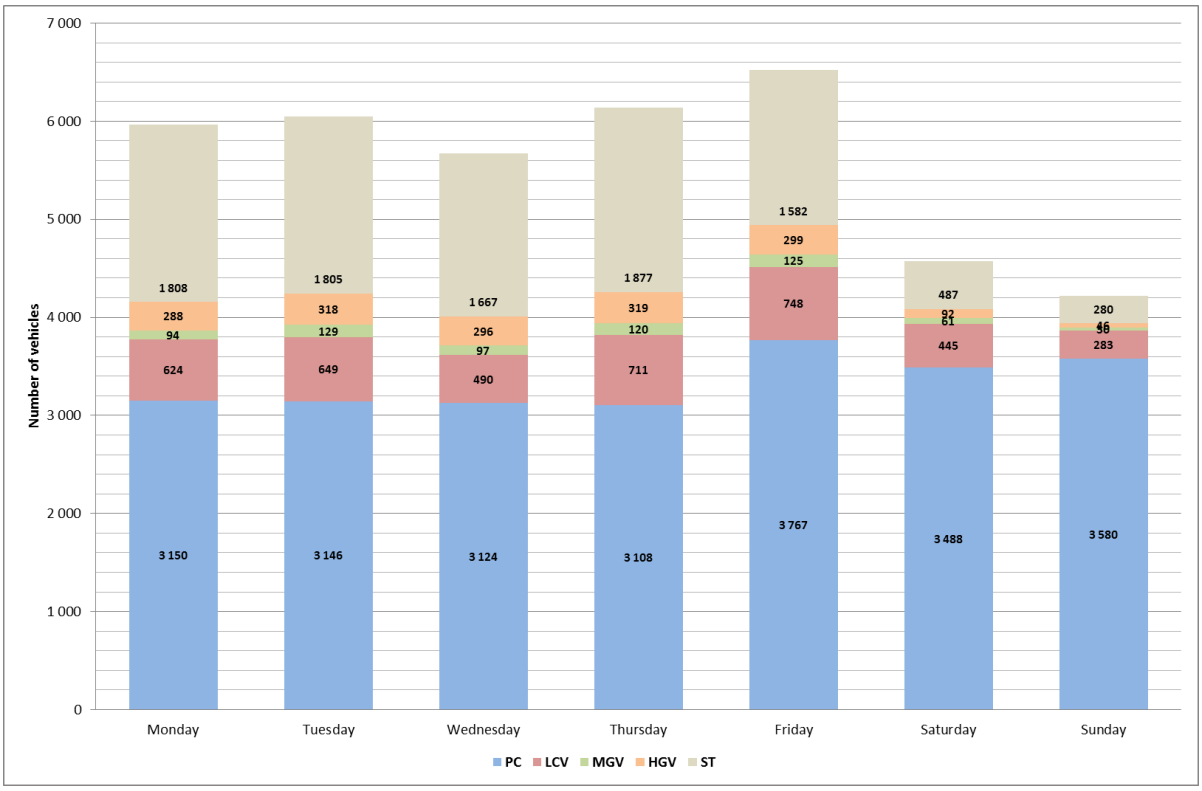

Figure 149 Daily variation of WADT traffic volume with vehicles structure - counting site PL-P-22

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.2.2. Summary results of the profile surveys in Silesia and Opole Voivodeship

The result of profile measurements of traffic intensities is the identification of the structure and total amount of traffic flow on selected road sections in the Silesia and Opole Voivodeships. The following tables summarize in a clear form the main results of measurements with the distribution of individual routes in the Silesia and Opole Voivodeships.

Table 105 Results of profile traffic survey - Silesia and Opole voivodeship, road A4

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-3	Góra Św.Anny	mobile ATC	A4	47 983	34 174	13 809	323	28.11%
PL-P-5	Ruda Śląska	mobile ATC	A4/E40	129 245	106 566	22 679	764	16.96%

The A4 highway (road E40) belongs to the III Pan-European Transport Corridor (TEN-T core network). Continuing the German A4 motorway from the direction of Dresden, in Poland it runs from the border with Germany in Jędrzychowice near Zgorzelec through Legnica, Wrocław, Opole, Gliwice, Katowice, Kraków, Tarnów, Dębica, Rzeszów, Jarosław to the border crossing with Ukraine Korczowa - Krakowiec. The A4 motorway is the second (along the S7 road) the longest expressway in Poland.

According to the results of surveys on the main section between the Strzelce Opolskie and Krapkowice, the total intensity is approximately 48 000 vehicles/24 hours with a share of goods vehicles to approximately 30%. On the section of between the Ruda Śląska - Gliwice – Katowice the A4 motorway runs in a congested urban area, the total intensity is 2nd highest with 129 245 vehicles/24 hours, but the share of freight transport is just 17,55% (13th place in term of share of freight transport). The reason of this

difference in section is that section PL-P-3 is placed out of conurbation area and section PL-P-3 is in the middle of Silesian-Zagłębie metropolis (Upper Silesian Industrial District).

Table 106 Results of profile traffic survey - Silesia voivodeship, road A1

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-15	Godów	mobile ATC	A1	16 079	11 283	4 796	115	29.11%

The A1 motorway is a partially tolled motorway in Poland located along the international route E75, lying in the 6th Trans-European Transport Corridor is the only Polish meridian motorway. Currently, it connects the Tri-City with Grudziądz, Toruń and Łódź, Częstochowa with Gliwice and the border with the Czech Republic in Gorzyczki. Ultimately, it will run from the Tri-City through Toruń, Łódź, Częstochowa, Pyrzowice, Gliwice to the Polish-Czech border in Gorzyczki. The last section of the motorway is to be completed in October 2022. At the Łódź Północ node (formerly called Stryków I), north of Łódź, it intersects with the A2 motorway. At the Gliwice-Sośnica intersection, it crosses the A4 motorway, while on the state border near Wodzisław Śląski and the Czech Bohumín it connects with the Czech D1 highway.

The counting site was placed on the A1 highway in the in a not built-up area between the Godów - Gorzyczki – Mszana, 5 km from the CZ/PL border. In the counting site PL-P-15 was recorded average intensity approximately 16 000 veh/24 h with share of freight transport about 30%. The counting site was ranked on 14th place in term of AADT – total but at the 2nd place in term of share of freight transport with the 9th absolute number of heavy vehicles (4 796), so the road section is used to a medium/low extent by light transport but percentage extremely large extent by freight transport. It shows that this section is very important to the freight transport.

Table 107 Results of profile traffic survey - Silesia voivodeship, road S1

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-16	Kamesznica	mobile ATC	S1	4 686	3 456	1 229	190	22.18%
PL-P-18	Dąbrowa Górnicza	mobile ATC	S1	28 109	21 472	6 637	131	23.15%

Expressway S1 - a Polish expressway under construction with a total target length of about 142 km, located in the Silesia Voivodeship. According to the plans, it connects Pyrzowice (A1) with the border with Slovakia in Zwardoń and with the Slovak highway D3. Part of the route is the eastern beltway of the Upper Silesian Industrial District.

The counting site PL-P-16 was placed in the in a not built-up area on the express road S1 between the Kamesznica - Zwardoń - Milówka. It was recorded average intensity 4 700 veh/24 h with share of freight transport about 27%. The counting site was ranked on 22nd (last) place in term of AADT – total but at the 4th place in term of share of freight transport with the 18th absolute number of heavy vehicles (1 229), so the road section is used to an extremely low extent by light transport but percentage large extent by freight transport. It has to be remarked that the absolute number of heavy vehicle is rather low. It is hard to estimate how this section is important to the freight transport.

The counting site PL-P-18 was placed in the in a not built-up area on the express road S1 in city Dąbrowa Górnicza (between the Mysłowice – Siewierz DK78). It was recorded average intensity 28 000 veh/24 h with share of freight transport about 24%. The counting site was ranked on 9th place in term of AADT – total but at the 6th place in term of share of freight transport, so the road section is used to a medium extent by light transport and percentage medium/large extent by freight transport.

Table 108 Results of profile traffic survey - Silesia voivodeship, road S52

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-9	Jasienica	mobile ATC	E462/S52	28 005	24 476	3 530	119	12.18%

S52 express road running through the Śląskie and Małopolskie voivodships. Ultimately, the route will be about 143 km long. The road runs from the border in Cieszyn to Bielsko-Biała in the trail of the European

route E75 and E462 (section until August 4, 2016 marked with the number S1). On the section from Bielsko-Biała to Głogoczów (connection with DK7) the road is to follow a new trail (Beskidzka Integration Road). Further on, along the thoroughfare, the planned northern Kraków bypass is to be connected, connecting the A4 highway in Balice with the S7 expressway in Krakow. The new route on the Bielsko-Biała - Głogoczów section is to replace the existing national road DK52.

The counting site PL-P-9 was placed in the in a built-up area on the road DK1 (E462) between Jasienica - Skoczów - Bielsko Biała. In the counting site PL-P-9 was recorded average intensity 28 000 veh/24 h with share of freight transport about 13%. The counting site was ranked on 10th place in term of AADT – total but at the 18th place in term of share of freight transport with the 11th place of absolute number of heavy vehicles (3 530), so the road section is used to a medium extent by light transport but percentage low extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is medium for the conducted profile surveys.

Table 109 Results of profile traffic survey – Silesia voivodeship, road S86

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-14	Sosnowiec	mobile ATC	S86	138 612	127 237	11 375	1 298	7.27%

S86 as a section of the national road DK86 with a length of 6.8 km connecting Katowice and Sosnowiec. As the main communication channel connecting Zagłębie Dąbrowskie with the Upper Silesian part of the Katowice Conurbation, the S86 road is a road with high traffic, on which traffic jams often occur. According to the results of the General Traffic Measurement in 2010, this route was the road with the highest traffic volume in Poland. The average measured intensity was 104,339 vehicles per day. According to the GPR, in 2015 it was the second largest national road traffic after the Warsaw section of S8, with a volume of 112,122 vehicles / day. In Katowice it is part of Walenty Roździeński Avenue. On October 13, 2015, the government amended the regulation on the highway and expressway network, officially adding the S86 route to the expressway list.

The counting site was placed in the in a built-up area on the express road S86 in city Sosnowiec (between Katowice and Będzin). In the counting site PL-P-14 was recorded average intensity 138 600 veh/24 h with share of freight transport about 8%. The counting site was ranked on 1st place in term of AADT – total but at the 21st place in term of share of freight transport with the 3rd most larger number of heavy vehicles (11 375), so the road section is used to an extremely large extent by light transport but percentage very low extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is 3rd highest for the conducted profile surveys. This section is heavily used for the personal transport in the agglomeration, especially between the Katowice and Sosnowiec.

Table 110 Results of profile traffic survey – Silesia voivodeship, road DK1

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-6	Tychy	mobile ATC	E462/DK1	47 447	38 421	9 026	135	18.74%
PL-P-8	Czechowice-Dziedzice	mobile ATC	E462/DK1	38 819	33 080	5 740	187	14.30%
PL-P-10	Koziegłowy	mobile ATC	E75/DK1	29 531	21 959	7 571	182	25.02%

DK1 is a road connecting the north of Poland (Gdańsk) with the south (Gorzyczki, PL / Cz border). It is one of the main meridian routes in Poland. It is the Polish part of the international communication route E75 Helsinki - Gdańsk - Łódź - Budapest - Athens. In the south of Poland, it runs along the A1 highway to Pyrzowice to the junction with the S1 expressway, where it fork (starts double route): from Pyrzowice to the border with the Czech Republic in Gorzyczki and from Pyrzowice through Dąbrowa Górnicza, Tychy, Bielsko - Biała, Żywiec to the border with Slovakia in Zwardoń.

The counting site PL-P-6 was placed in the in a built-up area on the road DK1 (E462) in the city Tychy. In the counting site PL-P-6 was recorded average intensity 47 500 veh/24 h with share of freight transport about 19%. The counting site was ranked on 4th place in term of AADT – total but at the 12th place in term

of share of freight transport with the 4th place of absolute number of heavy vehicles (9 026), so the road section is used to a large extent by light transport but percentage medium extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is large for the conducted profile surveys. The counting site PL-P-8 was placed in the in a built-up area on the road DK1 (E462) between Czechowice-Dziedzice - Bielsko Biała - Pszczyna. In the counting site PL-P-8 was recorded average intensity 38 800 veh/24 h with share of freight transport about 15%. The counting site was ranked on 5th place in term of AADT – total but at the 16th place in term of share of freight transport with the 7th place of absolute number of heavy vehicles (5 740), so the road section is used to a large extent by light transport but percentage low extent by freight transport. But it has to be remarked that absolute number of heavy vehicles is medium for the conducted profile surveys. The counting site PL-P-10 was placed in the in a not built-up area on the road DK1 (E75) between Koziegłowy - Częstochowa - Siewierz. In the counting site PL-P-10 was recorded average intensity 29 500 veh/24 h with share of freight transport about 26%. The counting site was ranked on 7th place in term of AADT – total but at the 5th place in term of share of freight transport, so the road section is used to a medium/large extent by light transport but percentage large extent by freight transport.

Table 111 Results of profile traffic survey – Silesia and Opole voivodeship, road DK45

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-1	Szonowice	mobile ATC	DK45	4 823	3 880	943	38	18.77%
PL-P-12	Reńska Wieś	mobile ATC	DK45	8 993	7 076	1 916	35	20.92%
PL-P-19	Bierdzany	mobile ATC	DK45	5 200	4 142	1 058	45	19.48%

The DK45 road is an important north-south communication route for both Czech and Slovakian transport (borders of the CR/PL and SR/PL). The DK45 road, with a total length of 217 km leading through the following provinces: Łódź, Śląskie and Opolskie. It has a joint section with the road DK42 between Praszka and Kluczbork with a length of about 22 km. Its main advantage is the fast connection with the Czech border in Chałupki bypassing the Upper Silesian Industrial District and Rybnik Coal District from the west, but with the possibility of a smooth journey to these two agglomerations.

The counting site PL-P-1 was placed in the in a not built-up area on the road DK45 between the Reńska Wieś - Racibórz -Krapkowice. In the counting site PL-P-1 was recorded average intensity 4 800 veh/24 h with share of freight transport about 20%. The counting site was ranked on 20th place in term of AADT – total but at the 10th place in term of share of freight transport, so the road section is used to a medium extent by freight transport and confirm its importance. The counting site PL-P-12 was placed in the in a not built-up area on the road DK45 between Reńska Wieś - Racibórz -Krapkowice. In the counting site PL-P-12 was recorded average intensity 9 000 veh/24 h with share of freight transport about 21%. The counting site was ranked on 16th place in term of AADT – total but at the 7th place in term of share of freight transport, so the road section is used to a low extent by light transport but percentage medium/large extent by freight transport. The counting site PL-P-19 was placed in the in a not built-up area on the road DK45 between the Bierdzany - Opole - Kluczbork. In the counting site PL-P-19 was recorded average intensity 5 200 veh/24 h with share of freight transport about 20%. The counting site was ranked on 19th place in term of AADT – total but at the 9th place in term of share of freight transport with the 19th absolute number of heavy vehicles (1 058), so the road section is used to a low extent by light transport but percentage medium extent by freight transport. It has to be remarked that the absolute number of heavy vehicle is rather low. It is hard to estimate how this section is important to the freight transport.

Table 112 Results of profile traffic survey – Silesia voivodeship, road DK78

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-11	Radlin	mobile ATC	DK78	14 513	13 622	890	153	5.08%
PL-P-17	Zabrze	mobile ATC	DK78	19 125	16 280	2 845	70	14.51%

The DK78 road, approx. 230 km long, leading from Chałupy to Chmielnik, runs through the Śląskie and Świętokrzyskie voivodships. After the introduction of tolls on the A1 Sośnica-Gorzyczki motorway section, this route will be a free alternative for him. National road DK78 also connects nearby towns with the Katowice Airport in Pyrzowice.

The counting site PL-P-11was placed in the in a built-up area on the road DK78 between Radlin - Wodzisław Śląski - Rybnik. In the counting site PL-P-11 was recorded average intensity 14 500 veh/24 h with share of freight transport about 6%. The counting site was ranked on 15th place in term of AADT – total but at the 22nd (last) place in term of share of freight transport, so the road section is used to a medium/low extent by light transport but percentage extremely low extent by freight transport. It shows that this section isn't important to the freight transport. The counting site PL-P-17 was placed in the in a built-up area on the road DK78 between the Zabrze - Gliwice - Tarnowskie Góry. In the counting site PL-P-17 was recorded average intensity 19 000 veh/24 h with share of freight transport about 15%. The counting site was ranked on 12th place in term of AADT – total but at the 15th place in term of share of freight transport, so the road section is used to a medium extent by light transport and percentage medium/low extent by freight transport.

Table 113 Results of profile traffic survey – Silesia voivodeship, road DK11

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-22	Lubliniec	mobile ATC	DK11	5 587	3 884	1 703	8	30.34%

The DK11 road in the western part of Poland with a length of 596 km. It runs meridially through the following voivodships: Zachodniopomorskie, Wielkopolskie, Opolskie and Śląskie. It is a frequently used road in the summer season, when the inhabitants of Silesia and Wielkopolska go to rest on the Baltic Sea, near Kołobrzeg. The counter was placed on a vertical traffic sign near the road.

The counting site was placed in the in a not built-up area on the road DK11 in the city Lubliniec (bypass section). In the counting site PL-P-22 was recorded average intensity 5 600 veh/24 h with share of freight transport about 30%. The counting site was ranked on 18th place in term of AADT – total but at the 1st place in term of share of freight transport with the 16th absolute number of heavy vehicles (1 703), so the road section is used to a low extent by light transport but percentage extremely large extent by freight transport. It shows that this section is important to the freight transport.

Table 114 Results of profile traffic survey – Opole voivodeship, road DK41

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-2	Rudziczka	mobile ATC	DK41	4 693	3 780	913	48	18.43%

The DK41 road is an important communication route on the PL / SL route and connects to the S7 road in Slovakia. DK41 is located in the Opolskie Voivodeship and runs through the Nysa and Prudnicki poviats with a length of approx. 33 km. It connects Nysa with Prudnik and the border with the Czech Republic (former Trzebina-Bartultovice border crossing). Apart from these towns, it does not run through any commune town or population with more than 1000, which distinguishes DK41 from national roads. A significant part of it, together with roads DK 40, DK 46 and voivodships Nos. 386 and 382, is a busy fragment connecting the southern areas of Upper Silesia with the Wałbrzych Basin.

The counting site was placed in the in a not built-up area on the road DK41 between the Rudziczka - Prudnik - Nysa. In the counting site PL-P-2 was recorded average intensity 4 700 veh/24 h with share of freight transport about 19%. The counting site was ranked on 21th place in term of AADT – total but at the 11th place in term of share of freight transport, so the road section is used to a medium extent by freight transport and confirm its medium importance.

Table 115 Results of profile traffic survey – Silesia voivodeship, road DK44

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-13	Babice	mobile ATC	DK44	17 557	15 510	2 047	261	10.17%

The DK44 road running through the Silesia and Małopolskie voivodships. It is one of five roads, next to DW780, A4, DK79, DK94, connecting Upper Silesia with Krakow, and also the southernmost of the listed. It bypasses the Katowice conurbation from the south, connecting Gliwice with Mikołów, Tychy, Bieruń, Oświęcim and Krakow on its territory. It plays a particularly important role for cities in western Lesser Poland, because it connects them with the Upper Silesian Industrial District. The area that crosses DK44 is industrialized.

The counting site was placed in the in a not built-up area on the road DK44 between Babice - Oświęcim - Bieruń. In the counting site PL-P-13 was recorded average intensity 17 600 veh/24 h with share of freight transport about 12%. The counting site was ranked on 13th place in term of AADT – total but at the 19th place in term of share of freight transport, so the road section is used to a medium extent by light transport but percentage low extent by freight transport. It shows that this section isn't so important to the freight transport.

Table 116 Results of profile traffic survey – Opole voivodeship, road DK46

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-21	Otchuchów	mobile ATC	DK46	7 629	6 067	1 562	54	19.76%

The DK46 road, with a length of 270 km running through the Dolnośląskie, Opole and Silesia voivodships. From the Kłodzko side, it is a branch of the DK8 national road (although it does not formally connect to it) running from the Kudowa-Zdrój - Nachod border. The route connects Kotlina Kłodzka and the southwestern part of the Opole Voivodeship with Opole, Lubliniec and Częstochowa. The road has a common short section with DK43 in Częstochowa.

The counting site was placed in the in a not built-up area on the road DK46 between the Otchuchów - Nysa - Paczków. In the counting site PL-P-21 was recorded average intensity 7 600 veh/24 h with share of freight transport about 20%. The counting site was ranked on 17th place in term of AADT – total but at the 8th place in term of share of freight transport with the 17th absolute number of heavy vehicles (1 562), so the road section is used to a low extent by light transport but percentage medium extent by freight transport. It has to be remarked that the absolute number of heavy vehicle is rather low. It is hard to estimate how this section is important to the freight transport.

Table 117 Results of profile traffic survey – Silesia voivodeship, road DK81

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-7	Strumień	mobile ATC	DK81	20 904	18 916	1 988	78	9.14%

Road DK 81 approx. 60 km long, leading from Katowice interchange with national road DK86 to the intersection with the S52 express road in Harbutowice near Skoczów. It is located in the Silesian Province. From the first of July 2011, it has been paid in the electronic viaTOLL system for the passage of buses and vehicles with a maximum total weight of over 3.5 tonnes.

The counting site was placed in the in a built-up area on the road DK81 between the Strumień - Żory - Skoczów. In the counting site PL-P-7 was recorded average intensity 20 900 veh/24 h with share of freight transport about 10%. The counting site was ranked on 11th place in term of AADT – total but at the 20th place in term of share of freight transport, so the road section is used to a medium large extent by light transport but low extent by freight transport.

Table 118 Results of profile traffic survey – Silesia voivodeship, road DK86

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-4	Dąbrowa Górnicza	mobile ATC	DK86	28 366	24 218	4 149	164	14.05%

DK 86 thanks to the connection with road DK1, it connects Katowice and the cities of the Dąbrowski Basin with Łódź, Częstochowa and Cieszyn. It is about 40 km long and is located in the Silesian Province.

The counting site was placed in the in a not built-up area on the road DK86 between the Dąbrowa Górnicza - Będzin - Siewierz. In the counting site PL-P-4 was recorded average intensity 28 400 veh/24 h with share of freight transport about 15%. The counting site was ranked on 8th place in term of AADT – total but at the 17th place in term of share of freight transport, so the road section is used to a rather large extent by light transport but low extent by freight transport.

Table 119 Results of profile traffic survey – Silesia voivodeship, road DW902

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
PL-P-20	Zabrze	mobile ATC	DW902	37 682	32 035	5 647	306	14.17%

The ranking list of the share of freight transport results from the profile survey is presented in table below.

Table 120 Ranking list according to the share of freight transport in Silesia and Opole voivodeship

Place	ID	Locality	Share of freight transport [%]
1	PL-P-22	Lubliniec	30.48
2	PL-P-15	Godów	29.83
3	PL-P-3	Góra Św.Anny	28.78
4	PL-P-16	Kamesznica	26.23
5	PL-P-10	Koziegłowy	25.64
6	PL-P-18	Dąbrowa Górnicza	23.61
7	PL-P-12	Reńska Wieś	21.31
8	PL-P-21	Otchuchów	20.47
9	PL-P-19	Bierdzany	20.35
10	PL-P-1	Szonowice	19.55
11	PL-P-2	Rudziczka	19.45
12	PL-P-6	Tychy	19.02
13	PL-P-5	Ruda Śląska	17.55
14	PL-P-20	Zabrze	14.99
15	PL-P-17	Zabrze	14.88
16	PL-P-8	Czechowice-Dziedzice	14.79
17	PL-P-4	Dąbrowa Górnicza	14.63
18	PL-P-9	Jasienica	12.60
19	PL-P-13	Babice	11.66
20	PL-P-7	Strumień	9.51
21	PL-P-14	Sosnowiec	8.21
22	PL-P-11	Radlin	6.13

The ranking list of the absolute number of freight transport results from the profile survey is presented in table below.

Table 121 Ranking list according to the share of freight transport in Silesia and Opole voivodeship

Place	ID	Locality	Absolute number [veh/24 h]
1	PL-P-5	Ruda Śląska	22679
2	PL-P-3	Góra Św.Anny	13809
3	PL-P-14	Sosnowiec	11375
4	PL-P-6	Tychy	9026
5	PL-P-10	Koziegłowy	7571
6	PL-P-18	Dąbrowa Górnicza	6637
7	PL-P-8	Czechowice-Dziedzice	5740
8	PL-P-20	Zabrze	5647
9	PL-P-15	Godów	4796
10	PL-P-4	Dąbrowa Górnicza	4149
11	PL-P-9	Jasienica	3530
12	PL-P-17	Zabrze	2845
13	PL-P-13	Babice	2047
14	PL-P-7	Strumień	1988
15	PL-P-12	Reńska Wieś	1916
16	PL-P-22	Lubliniec	1703
17	PL-P-21	Otchuchów	1562
18	PL-P-16	Kamesznica	1229
19	PL-P-19	Bierdzany	1058
20	PL-P-1	Szonowice	943
21	PL-P-2	Rudziczka	913
22	PL-P-11	Radlin	890

2.3. Slovakia

The principles of the distribution of profile surveys counting sites in the Žilina region are described in the report D.T3.1.2 Preparation and performance of traffic surveys in chapter 2.4. Permanent traffic counters operated by the infrastructure manager and mobile devices for 7-day continuous measurements were used for profile measurements of traffic intensity. The main transit routes in the Žilina region and its surroundings resulted in 27 sites (Figure 150) on I. class roads, which were measured by mobile devices during 2018 and 2019. From the motorway infrastructure manager another 19 sites (Figure 205) with permanent traffic counters located mainly on motorways and expressways in the Žilina region. Overall, profile intensities were measured at 46 sites in the Žilina region.

The results of the measurements are profile intensities at the counting sites divided into 5 categories of vehicles (PC, LCV, MGV, HGV, ST) expressed as the annual average daily traffic (AADT) i.e. vehicle/24 h. Table 122 and Table 150 present summary results of profile measurements in Žilina region. The following chapters describe the results of the individual sites where profile measurements were performed.

From the WADT values of traffic volumes that was result from the profile measures on the selected profiles were flowing from the methodology of Slovak national traffic census 2015 calculated values of annual average daily traffic (AADT). The share of buses was expressed from the detailed vehicles categorization of national traffic census at the same section.

2.3.1. Mobile automatic traffic counters in Žilina region

The results of the profile traffic survey measured by mobile ATC are processed individually for each site in a clear graphical and table format. Given the scope of the profile survey outputs, only representative outputs are presented in the report, which make it possible to obtain basic information on traffic at the sites concerned. Complete outputs of the profile traffic survey are given in Annex 6, which is available in electronic form.

Table 122 The results of profile traffic surveys in Žilina region – mobile ATC (veh./24 h)

ID	Locality	Measuring device	Road	GPS	Census section	Date of the survey	AADT								
							PC	LCV	MGV	HGV	ST	Total	LV	HV+ BUS	BUS
SK-P-1	Border Čadca/Svrčinovec	mobile ATC	I/11	49.466270, 18.788863	90260	2.10. - 8.10.2018	6 253	644	259	1 328	2 655	11 139	6 897	4 242	204
SK-P-2	Čadca, Horelica	mobile ATC	D3 (I/11A)	49.425551, 18.820817	90276	2.10. - 8.10.2018	7 052	587	336	913	1 813	10 701	7 639	3 062	454
SK-P-3	Diviaky (road to Martin)	mobile ATC	I/65	48.891858, 18.863704	91287	2.10. - 8.10.2018	2 092	292	98	117	501	3 100	2 384	716	35
SK-P-4	Tur. Teplice (road to Kremnice)	mobile ATC	I/65	48.832060, 18.874997	91310	2.10. - 8.10.2018	3 871	445	247	194	765	5 522	4 316	1 206	67
SK-P-5	Kňažia	mobile ATC	I/59	49.230996, 19.322699	90750	11.10. - 17.10.2018	9 646	1 426	350	494	1 235	13 151	11 072	2 079	587
SK-P-6	Malý Bysterec	mobile ATC	I/70	49.211672, 19.271706	91230	11.10. - 17.10.2018	9 976	765	314	350	692	12 097	10 741	1 356	124
SK-P-7	Dolný Kubín	mobile ATC	I/59	49.192854, 19.304452	90740	11.10. - 17.10.2018	8 593	574	215	251	654	10 287	9 167	1 120	156
SK-P-8	Černová	mobile ATC	I/18	49.110849, 19.226195	90170	2.10. - 8.10.2018	13 075	1 330	618	498	1 428	16 949	14 405	2 544	116
SK-P-9	Likavka	mobile ATC	I/59	49.109765, 19.298816	90720	2.10. - 8.10.2018	6 382	684	257	250	563	8 136	7 066	1 070	126
SK-P-10	Ružomberok	mobile ATC	I/18	49.078807, 19.340638	90180	2.10. - 8.10.2018	21 187	1 627	590	719	1 715	25 838	22 814	3 024	202
SK-P-11	Liptovská Osada	mobile ATC	I/59	48.9774904, 19.2747483	90700	2.10. - 8.10.2018	8 679	684	255	225	589	10 432	9 363	1 069	130
SK-P-12	Donovaly	mobile ATC	I/59	48.876023, 19.2376463	90680	10.10. - 16.10.2018	6 916	602	181	132	576	8 407	7 518	889	83
SK-P-13	Hanesy (Donovaly)	mobile ATC	I/59	48.8785172, 19.2095232	90680	10.10. - 16.10.2018	7 437	606	186	129	595	8 953	8 043	910	85
SK-P-14	Párnica, South	mobile ATC	I/70	49.187928, 19.190402	91240	16.10. - 22.10.2018	3 665	389	179	205	524	4 962	4 054	908	34
SK-P-15	Tvrdošín, North	mobile ATC	I/59	49.341342, 19.567565	90783	19.10. - 25.10.2018	8 976	710	257	461	716	11 120	9 686	1 434	253
SK-P-16	Ľubochňa, West	mobile ATC	I/18	49.122723, 19.169443	90169	19.10.-25.10.2018	11 087	879	426	390	1 296	14 078	11 966	2 112	91
SK-P-17	Liptovský Hrádok, EAST	mobile ATC	I/18	49.038553, 19.730409	90230	19.10.-25.10.2018	3 437	201	84	188	135	4 045	3 638	407	61
SK-P-18	Istebné	mobile ATC	I/70	49.195534, 19.200472	91230	19.10.-25.10.2018	7 108	599	208	222	607	8 744	7 707	1 037	95
SK-P-19	Predmier	mobile ATC	I/61	49.19489, 18.53685	90069	5.6. - 11.6.2019	3 750	266	139	433	162	4 749	4 016	733	77
SK-P-20	Strážov	mobile ATC	I/61	49.240804, 18.693728	90090	20.6. - 26.6.2019	6 456	466	392	597	520	8 431	6 922	1 509	158
SK-P-21	Brodno	mobile ATC	I/11	49.241624, 18.737950	90309	20.6. - 26.6.2019	18 727	1 466	602	719	2 606	24 120	20 193	3 927	280
SK-P-22	Mojšová Lúčka	mobile ATC	I/18	49.191922, 18.819752	90100	20.6. - 26.6.2019	22 929	2 373	1 080	719	2 873	29 974	25 302	4 672	262
SK-P-23	Strečno	mobile ATC	I/18	49.177777, 18.863064	90118	20.6. - 26.6.2019	18 354	1 674	885	516	3 299	24 728	20 028	4 700	180

ID	Locality	Measuring device	Road	GPS	Census section	Date of the survey	AADT								
							PC	LCV	MGV	HGV	ST	Total	LV	HV+ BUS	BUS
SK-P-24	Lietavská Lúčka	mobile ATC	I/64	49.160897, 18.723971	91370	20.6. - 26.6.2019	11 557	658	270	397	344	13 226	12 215	1 011	225
SK-P-25	Slnečné Skaly	mobile ATC	I/64	49.141621, 18.719140	91380	20.6. - 26.6.2019	10 268	736	267	290	401	11 961	11 003	958	181
SK-P-26	Rajecká lesná	mobile ATC	I/64	49.049686, 18.621465	91390	20.6. - 26.6.2019	4 041	383	130	213	252	5 019	4 425	594	61
SK-P-27	Fačkov, crossroads	mobile ATC	I/64	48.989924, 18.587692	91418	20.6. - 26.6.2019	1 880	255	95	56	104	2 391	2 135	255	23

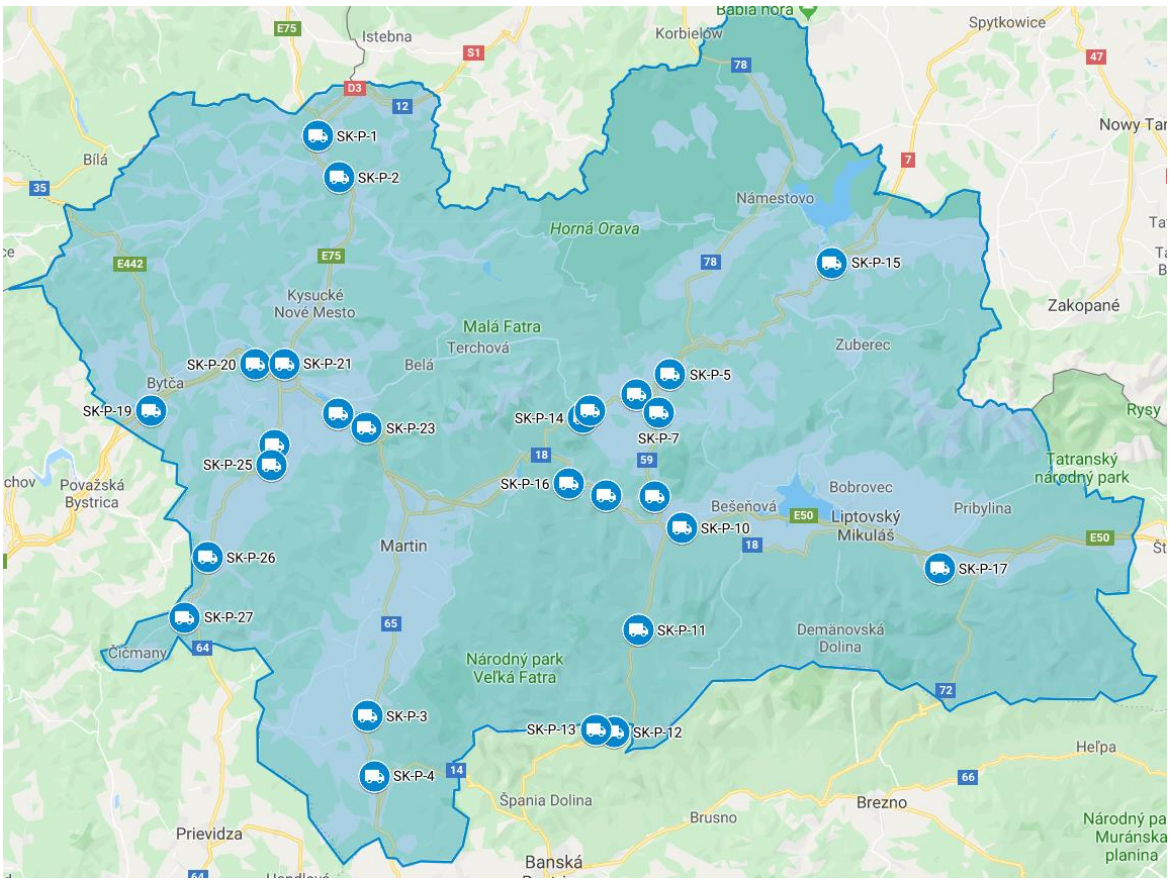

Figure 150 Distribution of counting sites for the profile traffic surveys in Žilina region by mobile ATC

Table 122 lists precisely each traffic site using mobile intensity measurement devices, the measurement date, counting site number and results in the form of 5 monitored vehicle categories (PC, LCV, MGV, HGV, ST) and simplified categorization required for a traffic model with identification of light (PC, LCV) and heavy vehicles (MGV, HGV, ST). A specific case is the bus, which is detected by the counter as a vehicle with a length belonging to the category of heavy goods vehicles. The number of buses was based on the structure of the traffic flow of the National Census in 2015 on the same counting section.

The distribution of counting sites in Žilina region for measurements by mobile traffic counters is presented in Figure 150.

2.3.1.1. Counting site SK-P-1: border crossing Čadca/Svrčinovec

Road: I/11

GPS coordinates of survey profile: 49.466270, 18.788863

The counting site was placed in the town residential area on the road I/11 between the villages of Čadca and Svrčinovec. The I/11 road is part of the TEN-T core network and it is located in the corridor of the planned D3 motorway in the direction from Žilina to the borders of the SR/CR and SR/PL and it is also part of the main transit route in the SR in the north. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 123 The results of the profile traffic survey – counting site SK-P-1 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	4 433	724	336	1 990	3 619
Tuesday	5 363	588	269	1 500	3 811
Wednesday	5 140	699	318	1 803	3 791
Thursday	6 432	758	325	1 884	3 453
Friday	7 611	874	364	1 762	3 262
Saturday	8 574	598	158	664	1 706
Sunday	8 538	581	122	445	722
WADT - category	**6595**	**701**	**281**	**1445**	**2918**
AADT - category	**6253**	**644**	**259**	**1328**	**2655**
WADT - total	**11 940**				
AADT - total	**11 139**				
Share of freight transport	**38.08 %**				
Share of heavy freight transport	**35.76 %**				

In the counting site SK-P-1 was recorded average intensity 11 139 veh/24 h with high share (38.08 %) of freight transport, so the road section is used to a large extent by freight transport and confirm its importance.

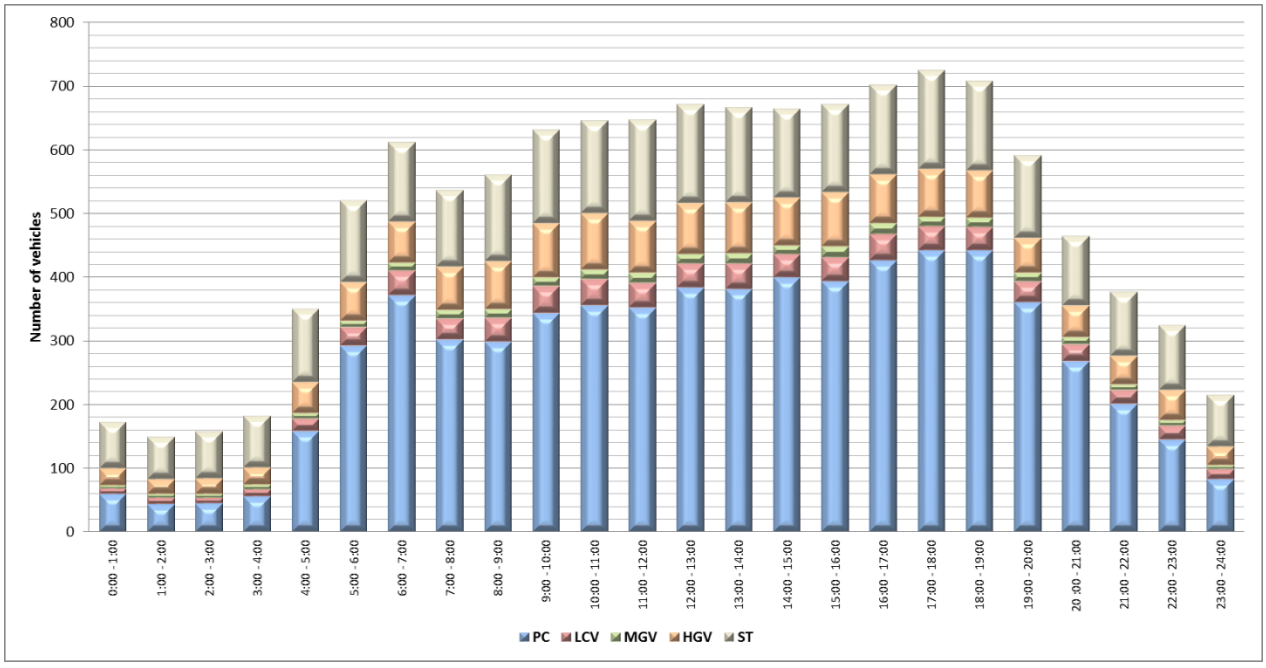

Figure 151 Hourly variation of the WADT traffic volume – counting site SK-P-1

The highest average hourly intensity (about 700 veh./h) during day are between 4:00pm – 7:00 pm. From the development of average hourly intensity during day it's possible to determinate morning peak from 6:00am to 7:00am and afternoon peak between 4:00pm – 7:00pm.

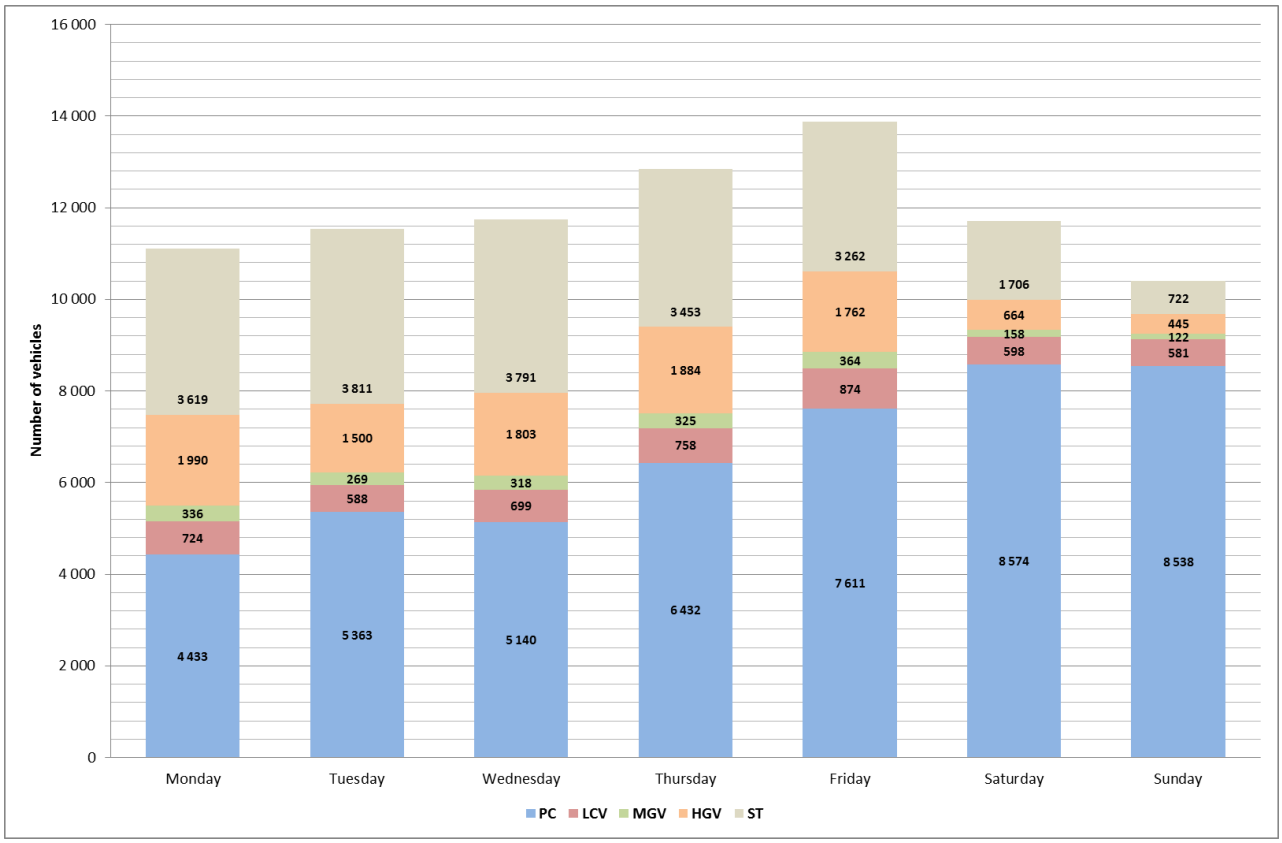

Figure 152 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-1

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Monday and least Sunday.

2.3.1.2. Counting site SK-P-2: Čadca/Horelica

Road: D3(I/11A)

GPS coordinates of counting site: 49.425551, 18.820817

The counting site was placed in the rural area on the road I/11A in front of the village Čadca near the tunnel Horelica. Road I/11A is a half-profile of the D3 motorway, which is part of the planned motorway bypass Čadca. The section of road I/11A is part of the TEN-T core network and it is also part of the main transit route in Slovakia in the direction from the north. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 124 The results of the profile traffic survey – counting site SK-P-2 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	9 790	888	544	1 538	2 631
Tuesday	8 873	779	402	1 096	3 083
Wednesday	9 334	831	536	1 353	3 019
Thursday	10 025	945	516	1 455	2 591
Friday	10 424	821	444	1 258	2 261
Saturday	42	14	0	1	0
Sunday	3 520	141	31	165	304
WADT - category	**7 438**	**639**	**365**	**993**	**1 993**
AADT - category	**7052**	**587**	**336**	**913**	**1813**
WADT - total	**11 428**				
AADT - total	**10 701**				
Share of freight transport	**28.61 %**				
Share of heavy freight transport	**25.47 %**				

In the counting site SK-P-2 was recorded average intensity 10 701 veh/24 h with share of freight transport, 28.61 %. In this section the share of freight transport is lower since in traffic flow are passenger cars bound to Čadca

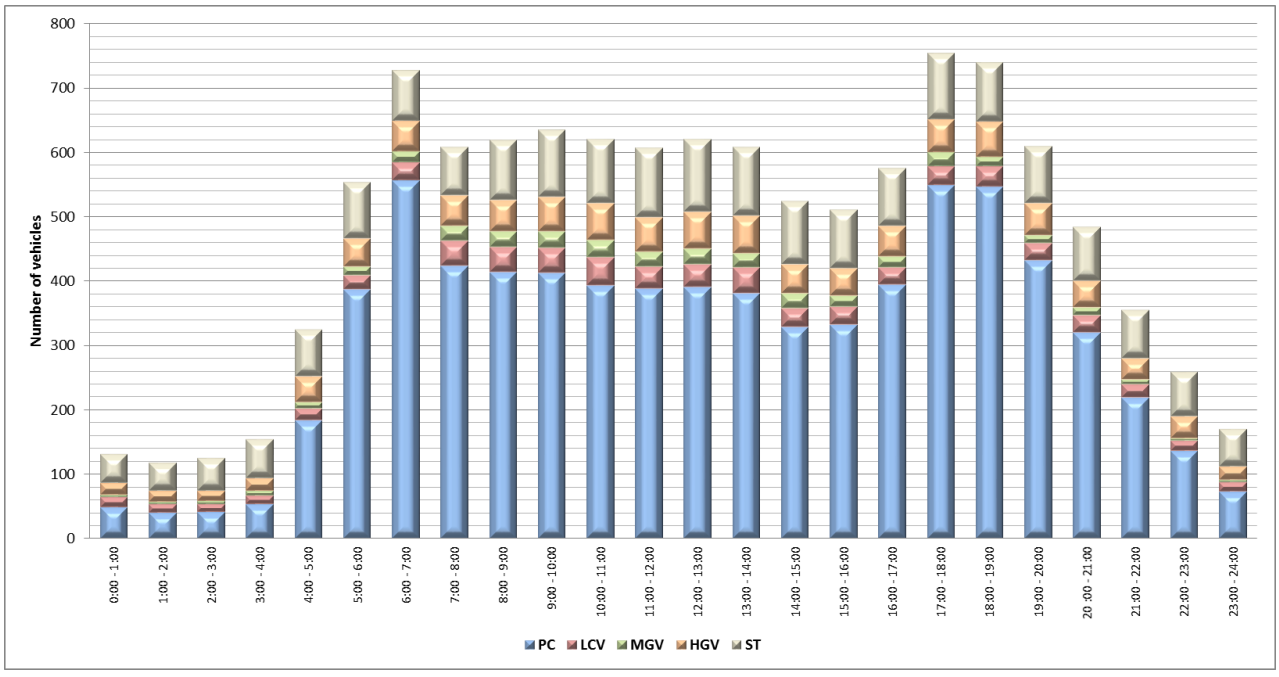

Figure 153 Hourly variation of the WADT traffic volume – counting site SK-P-2

The average hourly variation of intensity higher than 700 veh./h was reached between 5:00pm – 7:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak from 6:00am to 7:00am and afternoon peak between 5:00pm – 7:00pm.

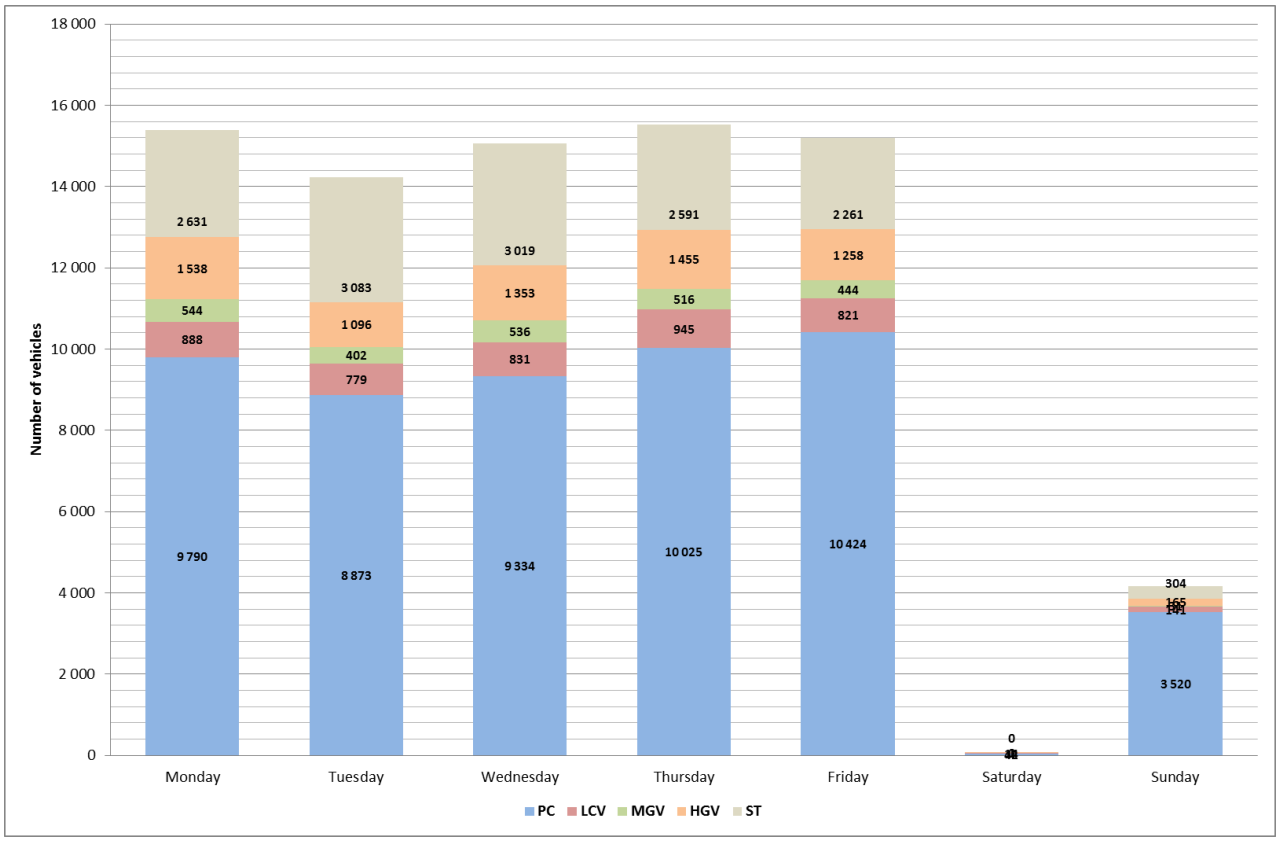

Figure 154 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-2

From the point of view of total traffic volume was the highest intensity on Thursday on the recorded counting site. The highest intensity of freight vehicles was on Wednesday. Zero intensity of vehicles on Saturday and very low intensity of vehicles on Sunday was caused by closed tunnel Horelica because of its maintenance. From this reason the result average intensity (WADT, AADT) is lower.

2.3.1.3. Counting site SK-P-3: Diviaky

Road: I/65

GPS coordinates of counting site: 48.891858, 18.863704

The counting site was placed in the rural area on the road I/65 in front of the village Diviaky. The I/65 road is part of the primary TEN-T network (other) in this section of the North-South Transit and lies in the planned R3 expressway corridor. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 125 The results of the profile traffic survey – counting site SK-P-3 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	2 287	422	125	140	675
Tuesday	1 266	443	122	175	765
Wednesday	1 345	415	113	143	789

	PC	LCV	MGV	HGV	ST
Thursday	2 759	341	132	129	693
Friday	2 938	365	111	142	584
Saturday	2 243	133	51	66	315
Sunday	2 527	48	11	21	72
WADT - category	**2 206**	**321**	**108**	**128**	**567**
AADT - category	**2092**	**292**	**98**	**117**	**501**
WADT - total	**3 330**				
AADT - total	**3 100**				
Share of freight transport	**23.10 %**				
Share of heavy freight transport	**19.94 %**				

In the counting site SK-P-3 was recorded average intensity 3 100 veh/24 h with share of freight transport, 23.10 %. Road I/65 is the alternative route for transit of freight transport, so the recorded values confirm its importance.

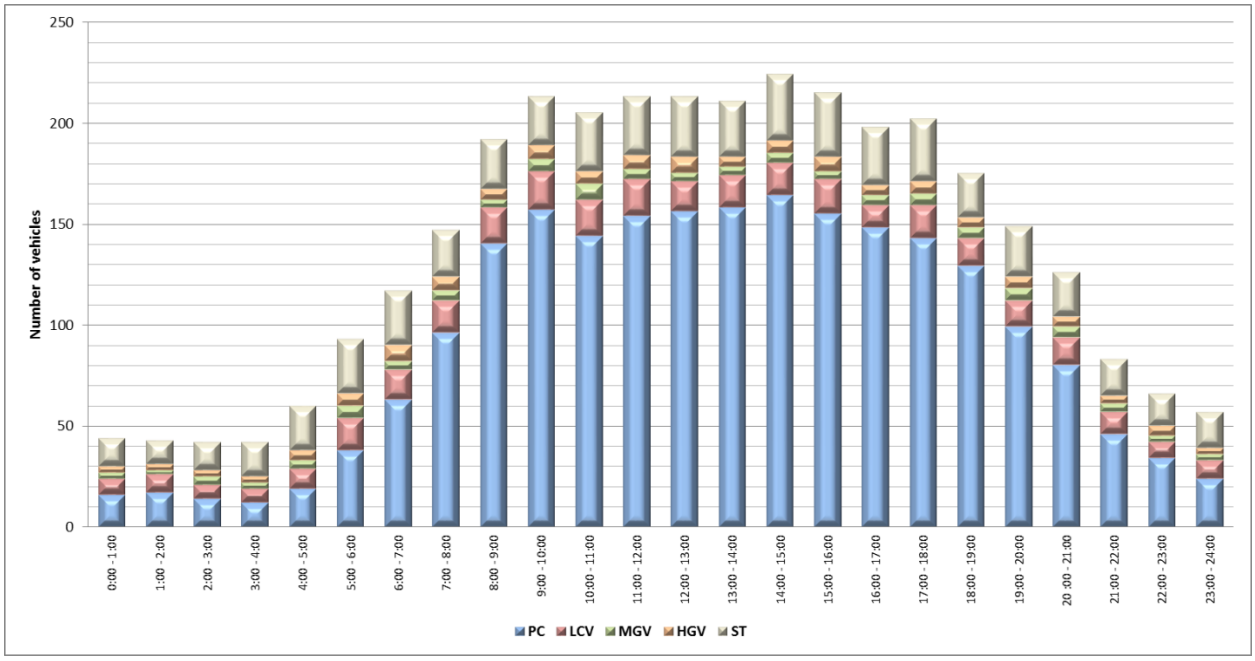

Figure 155 Hourly variation of the WADT traffic volume - counting site SK-P-3

The average hourly intensity around 230 veh./h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak from 9:00am to 10:00am and afternoon peak between 2:00pm – 4:00pm.

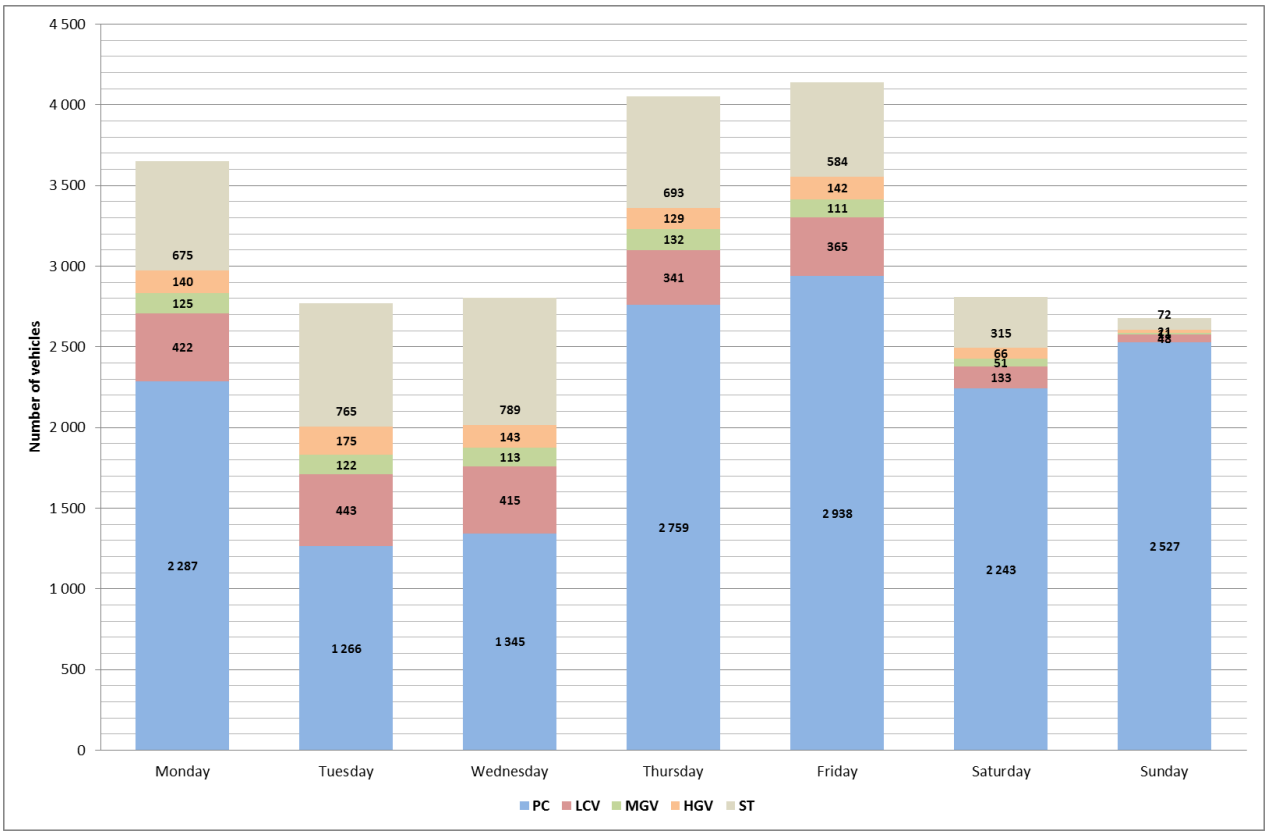

Figure 156 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-3

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.4. Counting site SK-P-4: Turčianske Teplice

Road: I/65

GPS coordinates of counting site: 48.832060, 18.874997

The counting site was placed in the rural area on the road I/65 between the villages Turčianske Teplice and Horná Štubňa. The I/65 road is part of the primary TEN-T network (other) in this section of the North-South Transit and lies in the planned R3 expressway corridor. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 126 The results of the profile traffic survey – counting site SK-P-4 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 631	578	358	290	1 016
Tuesday	3 977	475	307	229	1 208
Wednesday	3 863	563	290	248	1 202
Thursday	4 166	636	355	261	1 055

	PC	LCV	MGV	HGV	ST
Friday	4 794	669	350	239	946
Saturday	3 687	255	95	108	451
Sunday	4 387	179	61	51	117
WADT - category	**4 083**	**490**	**272**	**213**	**867**
AADT - category	**3871**	**445**	**247**	**194**	**765**
WADT - total	**5 925**				
AADT - total	**5 522**				
Share of freight transport	**21.84%**				
Share of heavy freight transport	**17.37%**				

In the counting site SK-P-4 was recorded average intensity 5 522 veh/24 h with share of freight transport, 21.84 %. High share of freight transport referring to the road importance as supplementary connection between North and South of the Slovakia.

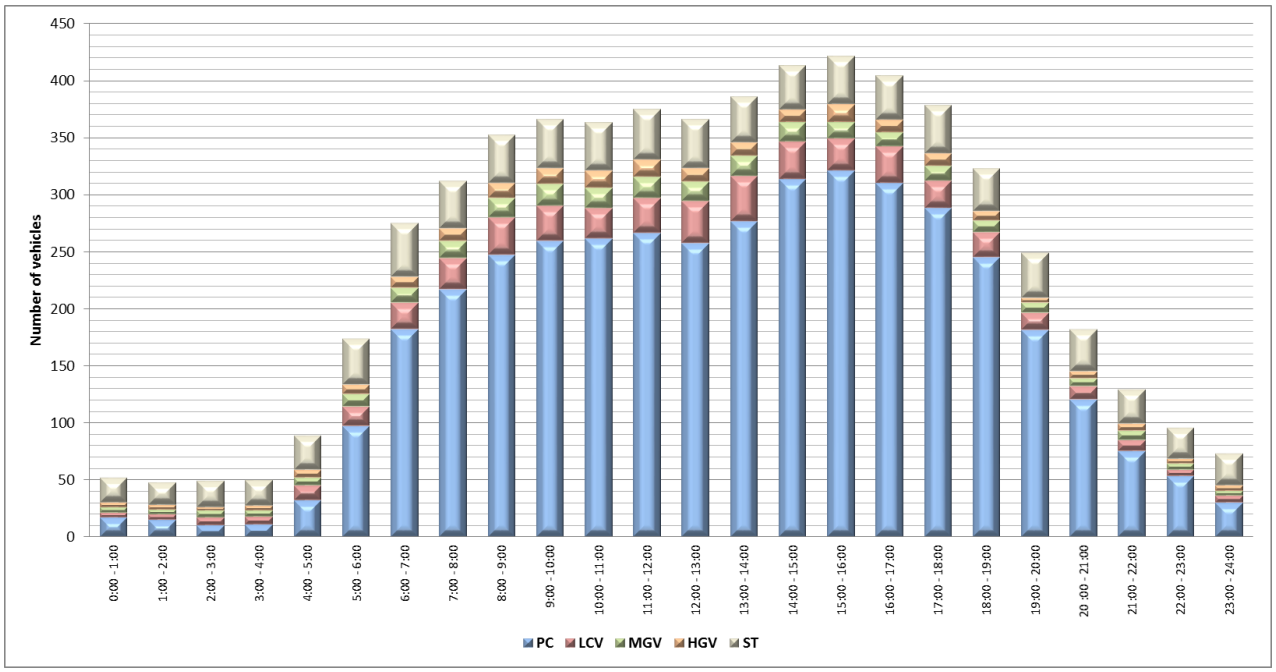

Figure 157 Hourly variation of the WADT traffic volume – counting site SK-P-4

The highest average hourly intensity (higher than 400 veh./h) was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 5:00pm.

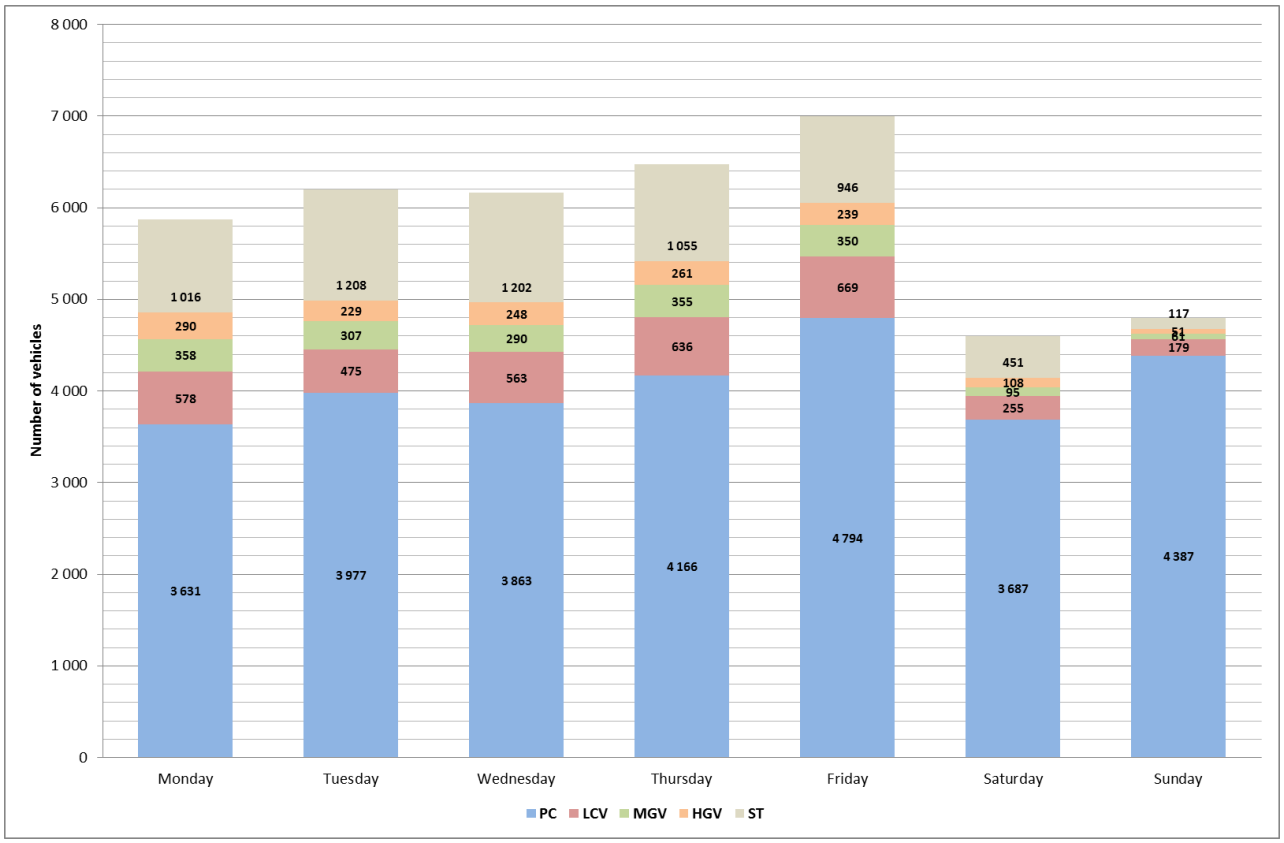

Figure 158 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-4

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.5. Counting site SK-P-5: Kňažia

Road: I/59

GPS coordinates of counting site: 49.230996, 19.322699

The counting site was placed in the rural area on the road I/59 beyond the town part of Dolný Kubín Kňažia. The I/59 road is located in the planned R3 expressway corridor and is part of the additional TEN-T network and the international route E77. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 127 The results of the profile traffic survey – counting site SK-P-5 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	10 262	1 594	402	639	1 830
Tuesday	9 289	1 638	420	650	1 653
Wednesday	9 956	1 868	505	711	1 638
Thursday	10 738	1 871	525	712	1 658

	PC	LCV	MGV	HGV	ST
Friday	12 553	2 095	486	603	1 638
Saturday	8 656	879	139	200	575
Sunday	9 698	843	98	185	422
WADT - category	**10 174**	**1 552**	**381**	**537**	**1 357**
AADT - category	**9646**	**1426**	**350**	**494**	**1235**
WADT - total	**14 001**				
AADT - total	**13 151**				
Share of freight transport	**15.81%**				
Share of heavy freight transport	**13.15%**				

In the counting site SK-P-5 was recorded average intensity 13 151 veh/24 h with share of freight transport, 15.81 %. Road I/59 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

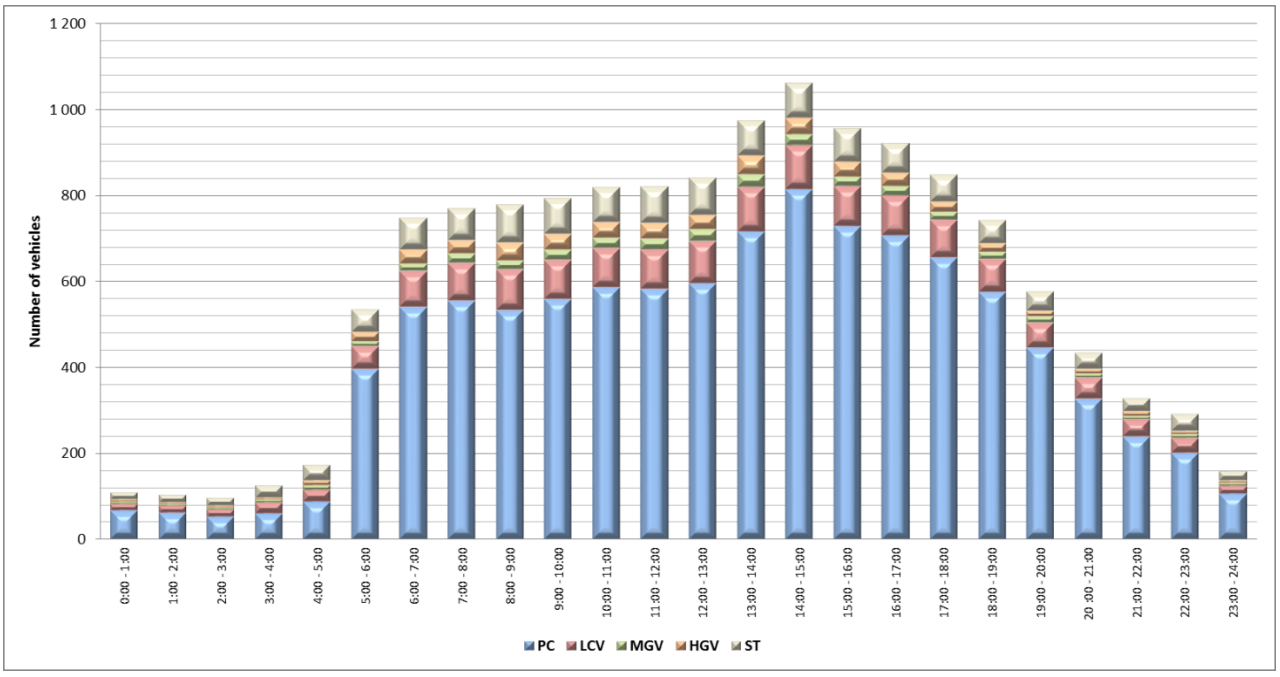

Figure 159 Hourly variation of the WADT traffic volume – counting site SK-P-5

The average hourly intensity variation higher than 1 000 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 1:00pm – 4:00pm.

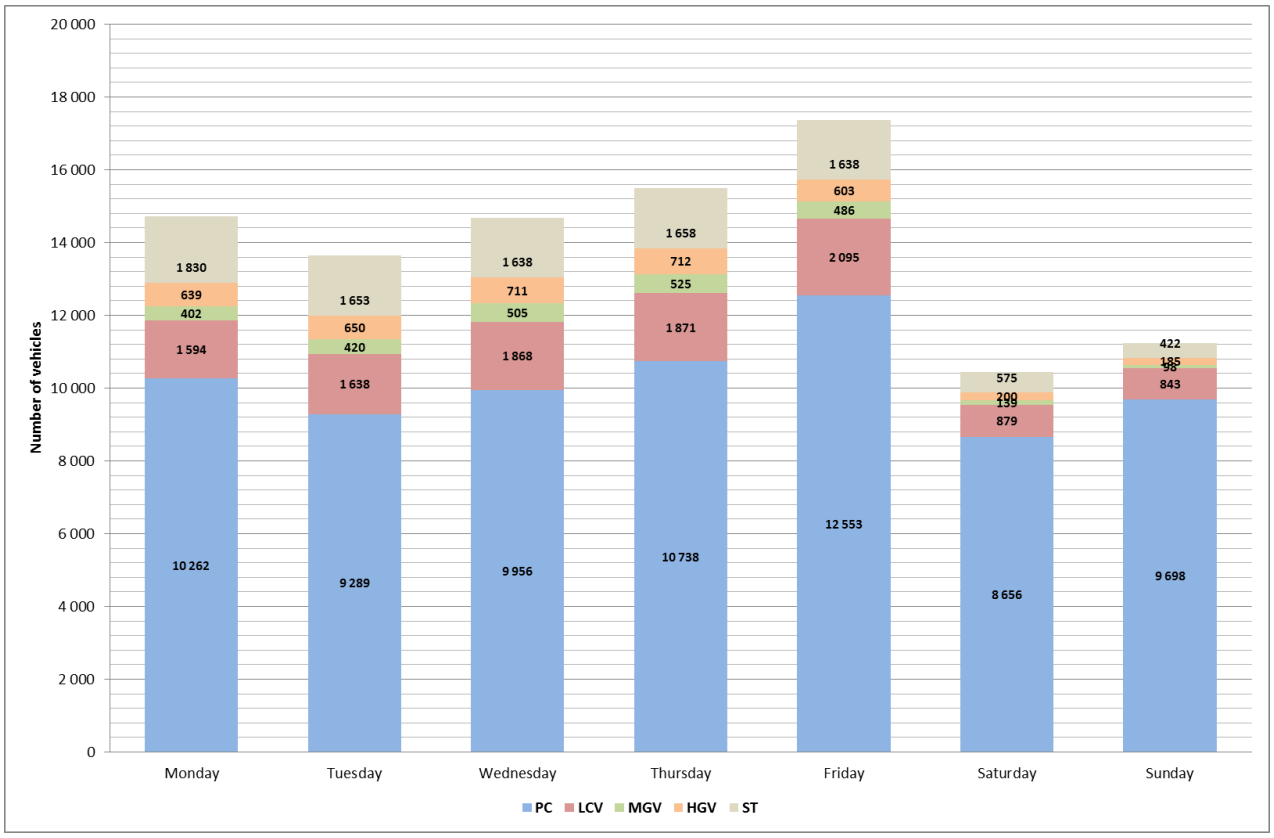

Figure 160 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-5

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.6. Counting site SK-P-6: Malý Bysterec

Road: I/70

GPS coordinates of counting site: 49.211672, 19.271706

The counting site was located in the rural are on the road I/70 between Malý Bysterec beyond Dolný Kubín in the direction of Párnice. The I/70 road is a part of the additional TEN-T network in this section and serves as the interconnection of the roads I/59 and I/18 between Dolný Kubín and Kraľovany. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 128 The results of the profile traffic survey – counting site SK-P-6 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	10 475	879	359	396	1 047
Tuesday	9 548	874	350	462	895
Wednesday	10 142	1 024	481	512	938

	PC	LCV	MGV	HGV	ST
Thursday	10 963	1 010	471	525	912
Friday	13 588	1 203	450	519	1 075
Saturday	9 162	397	132	120	329
Sunday	9 728	438	120	103	220
WADT - category	**10 523**	**843**	**346**	**385**	**784**
AADT - category	**9976**	**765**	**314**	**350**	**692**
WADT - total	**12 881**				
AADT - total	**12 097**				
Share of freight transport	**11.21%**				
Share of heavy freight transport	**8.61%**				

In the counting site SK-P-6 was recorded average intensity 12 097 veh/24 h with share of freight transport, 11.21 %. Road I/70 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

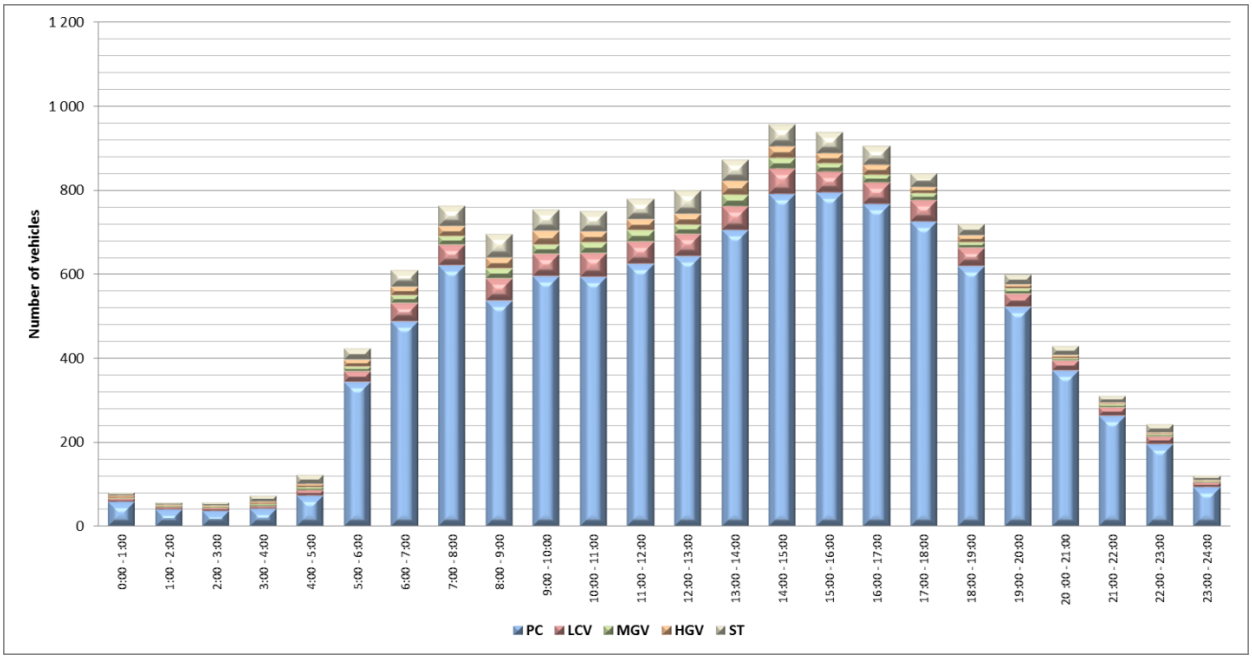

Figure 161 Hourly variation of the WADT traffic volume - counting site SK-P-6

The average hourly intensity variation higher than 950 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00 am and afternoon peak between 2:00pm – 5:00pm.

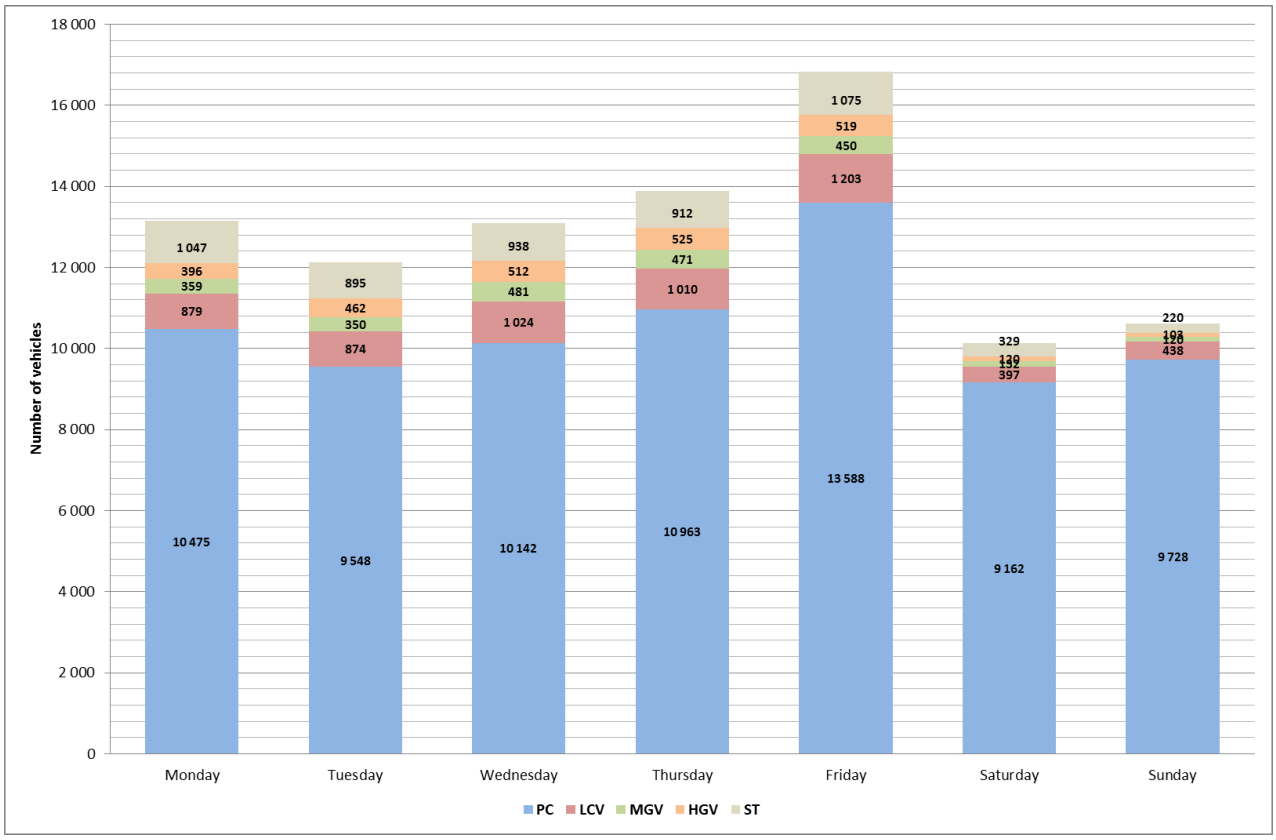

Figure 162 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-6

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Friday and least Sunday.

2.3.1.7. Counting site SK-P-7: Dolný Kubín

Road: I/59

GPS coordinates of counting site: 49.192854, 19.304452

The counting site was placed in the rural area on road I/59 between Dolný and Vyšný Kubín. Road I/59 is located in the planned R3 expressway corridor and is part of the international route E77. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 129 The results of the profile traffic survey – counting site SK-P-7 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	9 144	651	255	323	966
Tuesday	8 632	696	257	330	865
Wednesday	8 854	839	292	314	882
Thursday	9 550	865	314	360	894

	PC	LCV	MGV	HGV	ST
Friday	12 114	828	270	320	855
Saturday	7 656	261	82	92	298
Sunday	7 418	151	92	86	189
WADT - category	**9 064**	**624**	**233**	**273**	**718**
AADT - category	**8593**	**574**	**215**	**251**	**654**
WADT - total	**10 912**				
AADT - total	**10 287**				
Share of freight transport	**10.89%**				
Share of heavy freight transport	**8.80%**				

In the counting site SK-P-7 was recorded average intensity 10 287 veh/24 h with share of freight transport, 10.89 %. Road I/59 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

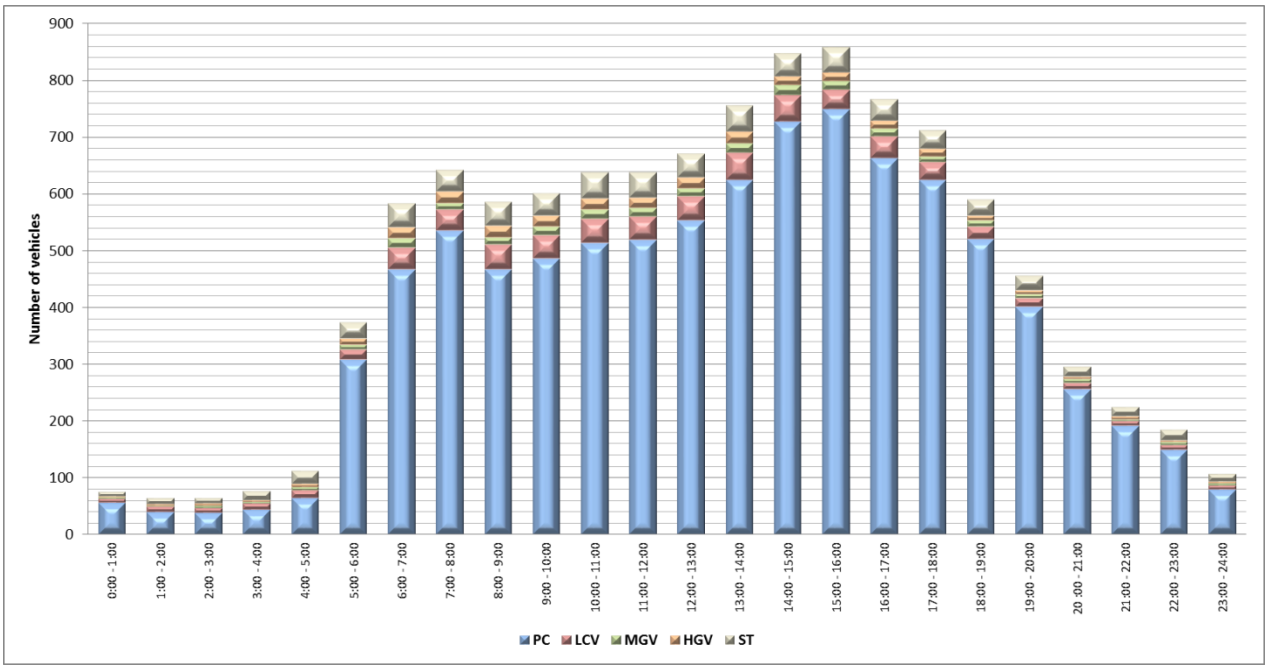

Figure 163 Hourly variation of the WADT traffic volume – counting site SK-P-7

The average hourly intensity variation higher than 800 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 1:00pm – 5:00pm.

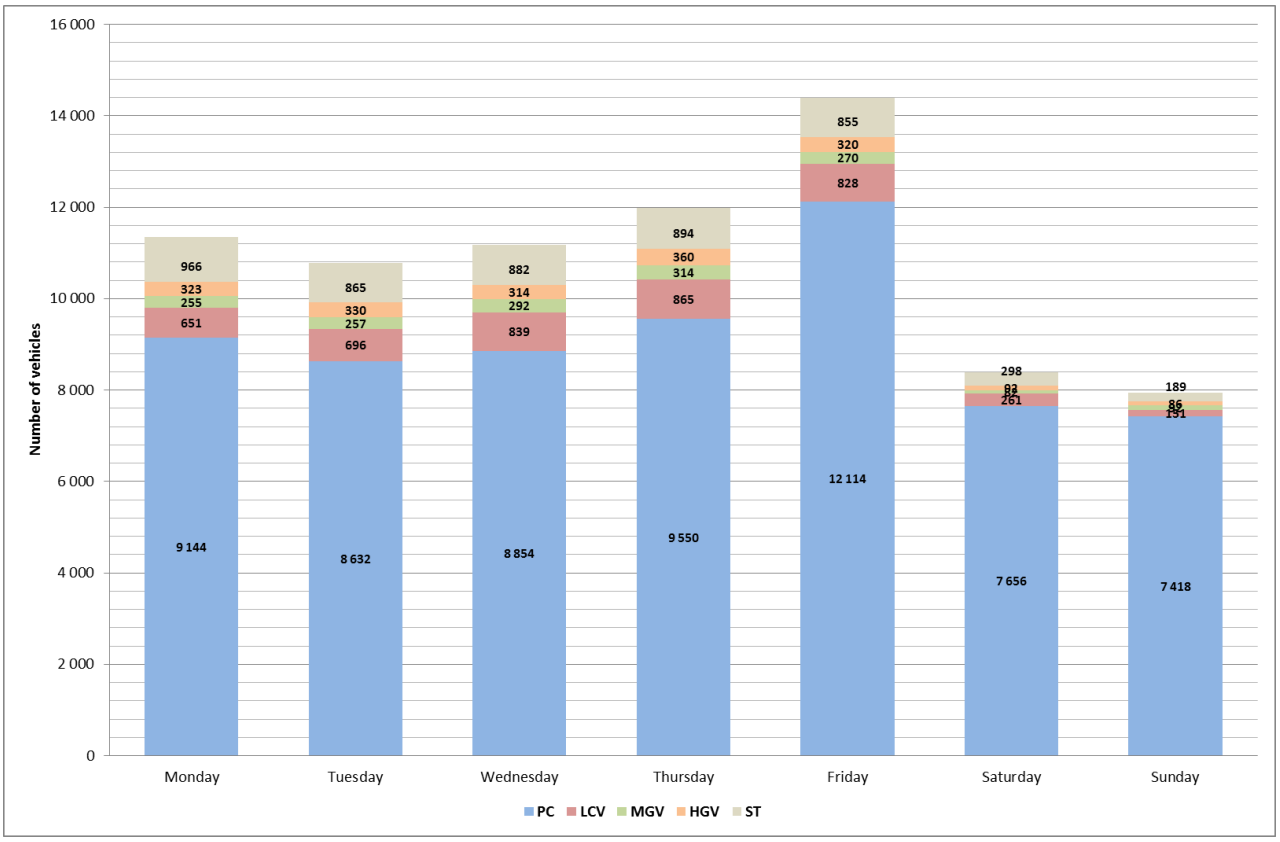

Figure 164 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-7

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Thursday and least Sunday.

2.3.1.8. Counting site SK-P-8: Černová

Road: I/18

GPS coordinates of counting site: 49.110849, 19.226195

The counting site was placed in the rural area on the road I/18 in front of the village Černová. The road I/18 is located in this section of the D1 motorway planned corridor and is part of the core TEN-T network and the international route E50. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 130 The results of the profile traffic survey – counting site SK-P-8 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	12 408	1 473	780	730	1 931
Tuesday	11 137	1 353	703	606	2 201
Wednesday	12 707	1 595	891	661	2 031
Thursday	15 603	1 855	922	706	1 838

	PC	LCV	MGV	HGV	ST
Friday	16 674	1 618	772	597	1 677
Saturday	11 537	938	377	205	693
Sunday	16 421	1 222	185	209	539
WADT - category	**13 792**	**1 447**	**672**	**542**	**1 569**
AADT - category	**13075**	**1330**	**618**	**498**	**1428**
WADT - total	**18 022**				
AADT - total	**16 949**				
Share of freight transport	**15.01%**				
Share of heavy freight transport	**11.36%**				

In the counting site SK-P-8 was recorded average intensity 16 949 veh/24 h with share of freight transport, 15.01 %. Road I/18 is important transit route in direction West – East, so is frequently used by freight and also passenger transport.

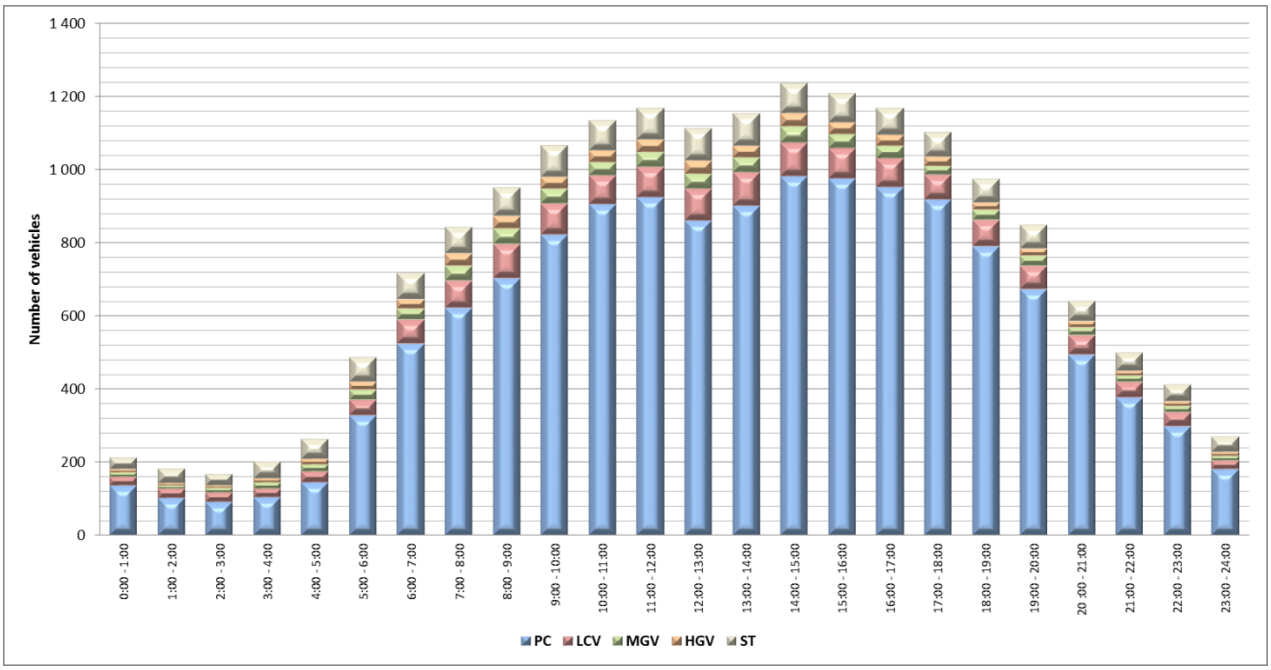

Figure 165 Hourly variation of the WADT traffic volume – counting site SK-P-8

The average hourly intensity variation higher than 1 200 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 1:00pm – 4:00pm.

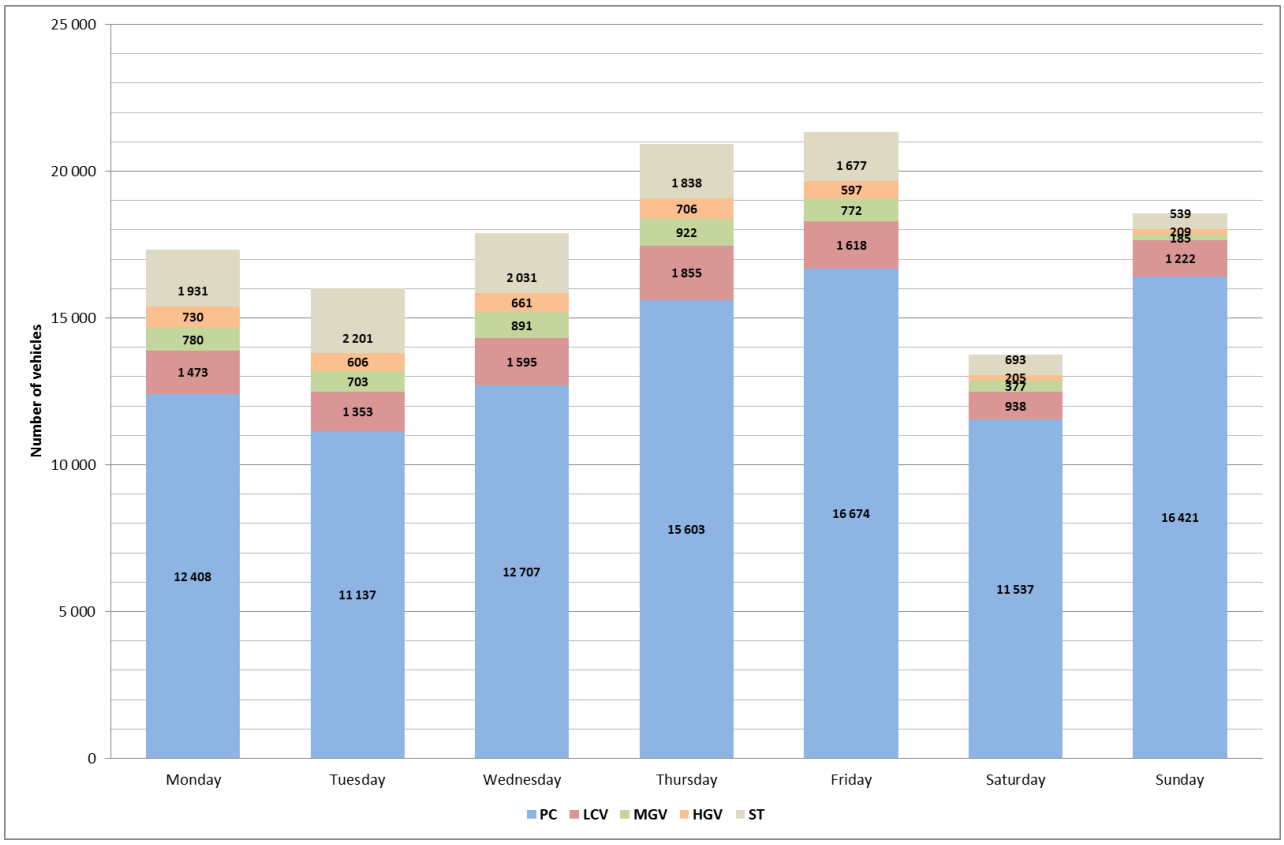

Figure 166 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-8

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.3.1.9. Counting site SK-P-9: Likavka

Road: I/59

GPS coordinates of counting site: 49.109765, 19.298816

The counting site was placed in the rural area on the road I/59 near the village Likavka. The road I/59 is located in the planned R3 expressway corridor and is part of the international route E77. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 131 The results of the profile traffic survey – counting site SK-P-9 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	6 480	951	348	282	903
Tuesday	6 281	789	289	306	771
Wednesday	6 641	905	309	328	752
Thursday	7 142	950	374	357	742

	PC	LCV	MGV	HGV	ST
Friday	8 083	938	348	340	695
Saturday	5 573	401	102	129	260
Sunday	6 841	201	111	97	129
WADT - category	**6 731**	**744**	**279**	**272**	**618**
AADT - category	**6382**	**684**	**257**	**250**	**563**
WADT - total	**8 644**				
AADT - total	**8 136**				
Share of freight transport	**13.15%**				
Share of heavy freight transport	**9.99%**				

In the counting site SK-P-9 was recorded average intensity 8 136 veh/24 h with share of freight transport, 13.15 %. Road I/59 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

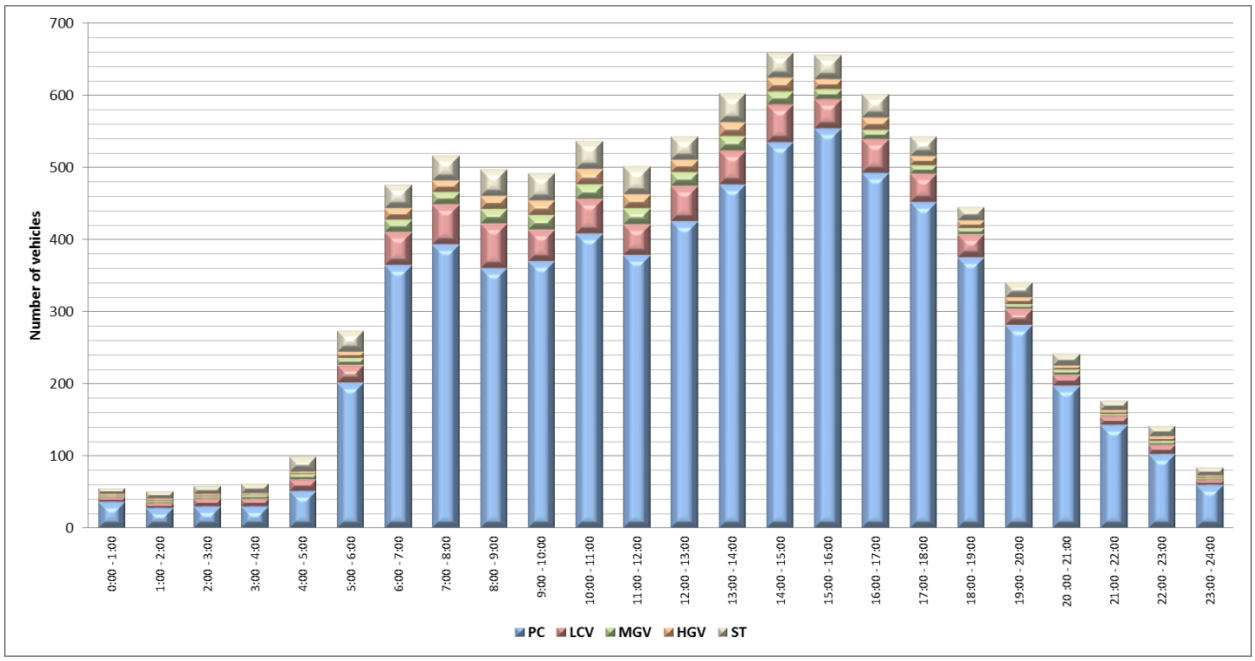

Figure 167 Hourly variation of the WADT traffic volume - counting site SK-P-9

The average hourly intensity variation higher than 600 veh/h was reached between 1:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 1:00pm – 5:00pm.

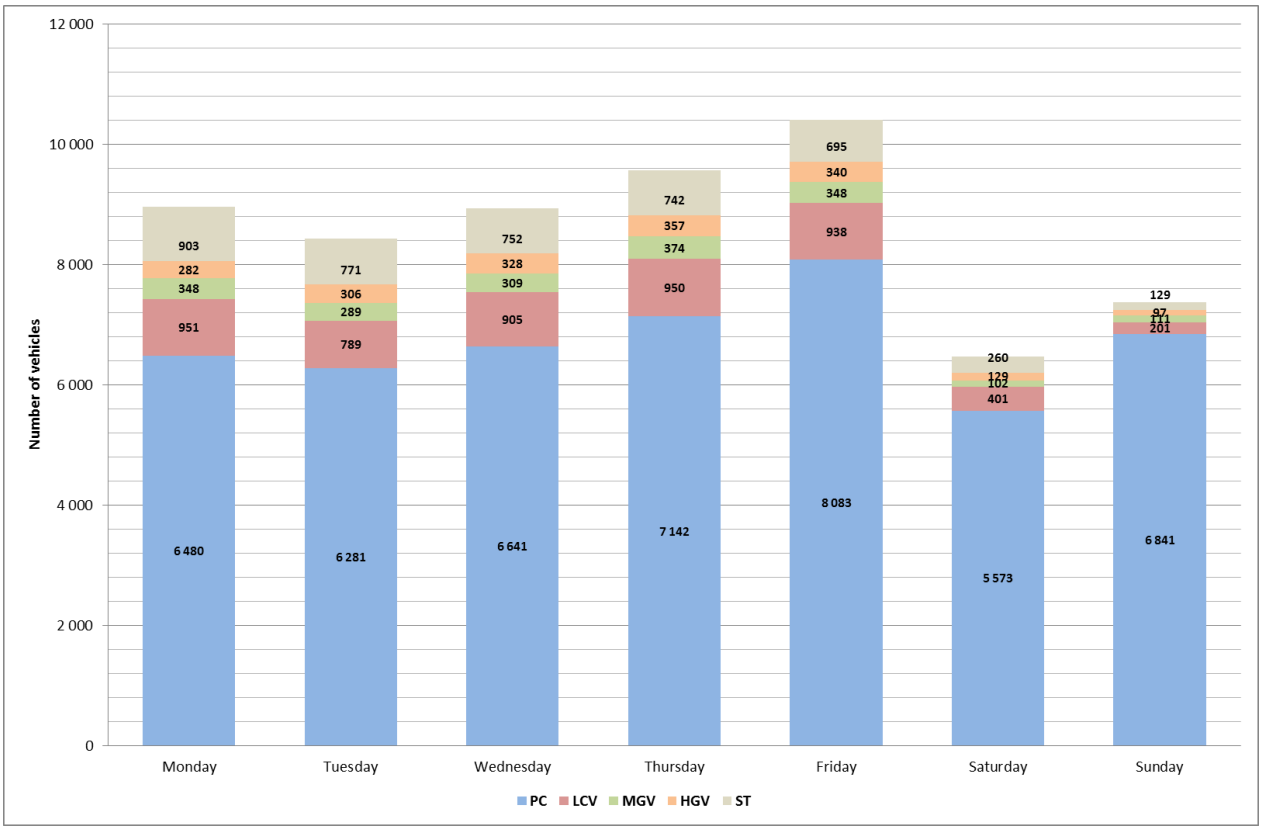

Figure 168 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-9

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Monday and least Sunday.

2.3.1.10. Counting site SK-P-10: Ružomberok

Road: I/18

GPS coordinates of counting site: 49.078807, 19.340638

The counting site was placed in the rural area on the road I/18 beyond the town Ružomberok in the direction of Prešov. The road I/18 is located in this section of the D1 planned expressway corridor and is part of the core TEN-T network and the international route E50. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 132 The results of the profile traffic survey – counting site SK-P-10 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	20 121	1 949	673	975	2 440
Tuesday	19 687	1 802	754	868	2 535
Wednesday	21 650	2 185	853	959	2 347
Thursday	25 523	2 292	846	982	2 350

	PC	LCV	MGV	HGV	ST
Friday	26 130	2 006	745	981	2 130
Saturday	20 794	1 209	216	340	771
Sunday	22 471	891	351	298	565
WADT - category	**22 348**	**1 771**	**642**	**782**	**1 885**
AADT - category	**21187**	**1627**	**590**	**719**	**1715**
WADT - total	**27 428**				
AADT - total	**25 838**				
Share of freight transport	**11.70%**				
Share of heavy freight transport	**9.42%**				

In the counting site SK-P-10 was recorded average intensity 25 838 veh/24 h with share of freight transport, 11.70 %. Road I/18 is important transit route in direction West – East, so is frequently used by freight and also passenger transport.

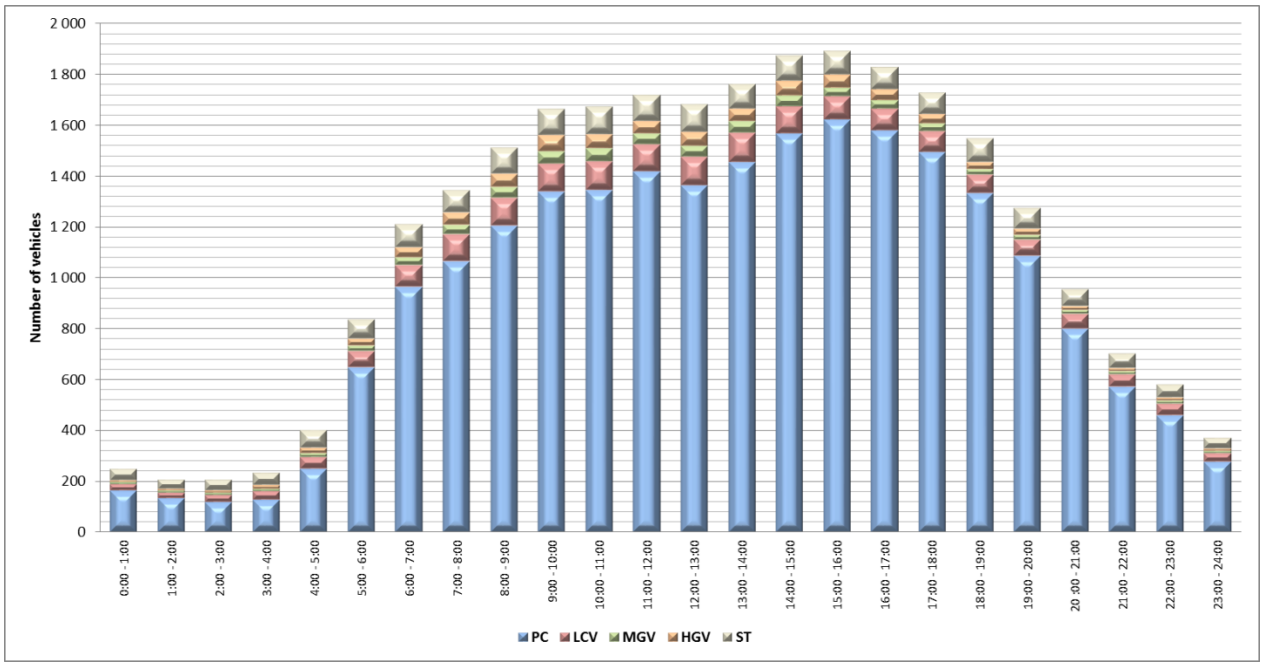

Figure 169 Hourly variation of the WADT traffic volume – counting site SK-P-10

The average hourly intensity variation higher than 1 800 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 5:00pm.

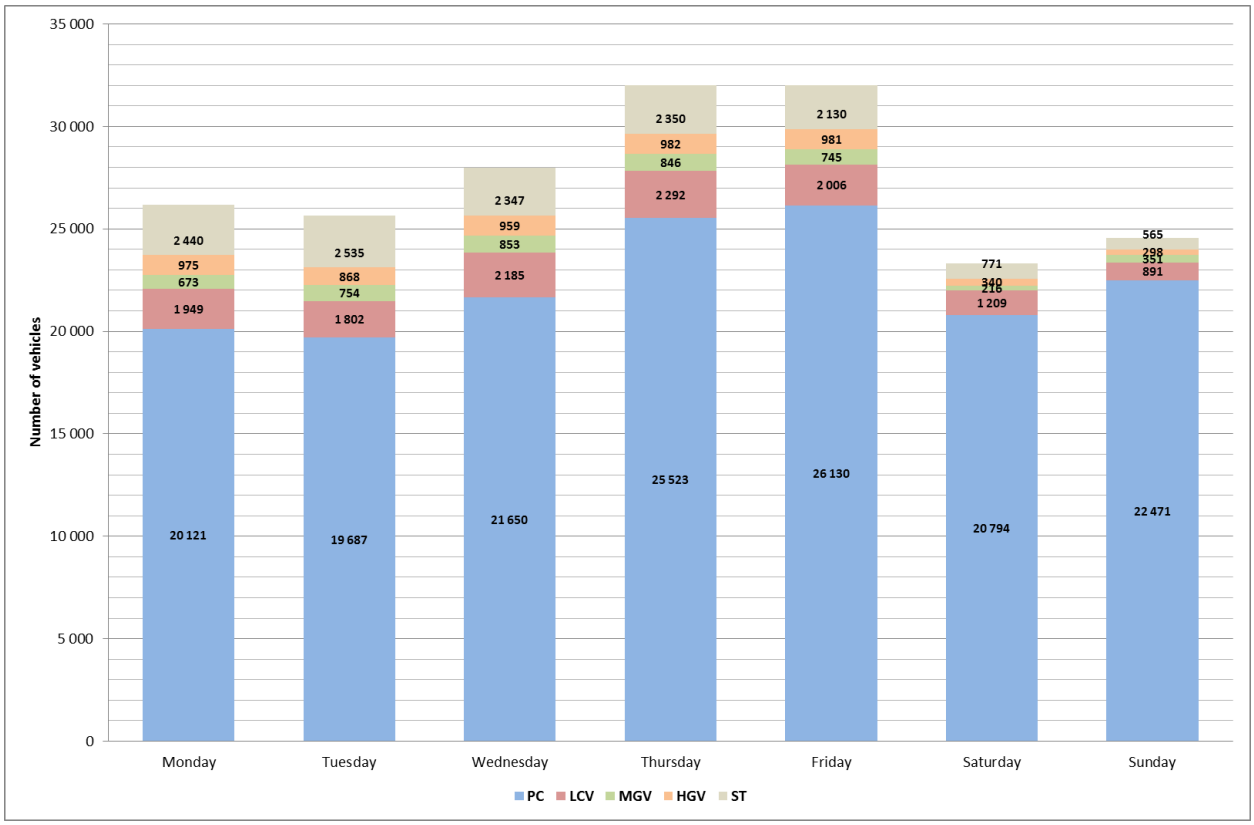

Figure 170 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-10

From the point of view of total traffic volume is the most busy day Thursday and least busy is Saturday. The most freight vehicles was recorded during Thursday and least Sunday.

2.3.1.11. Counting site SK-P-11: Liptovská Osada

Road: I/59

GPS coordinates of counting site: 48.9774904, 19.2747483

The counting site was located in the rural area on the road I/59 near the village Liptovská Osada. The road I/59 in this section is located in the planned R1 motorway corridor and is part of the comprehensive TEN-T network and the international route E77. The adder was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 133 The results of the profile traffic survey – counting site SK-P-11 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	8 072	824	360	347	753
Tuesday	7 760	834	247	198	969
Wednesday	8 314	894	315	243	872
Thursday	9 907	895	365	314	764
Friday	12 010	945	391	322	623

	PC	LCV	MGV	HGV	ST
Saturday	7 937	391	130	132	283
Sunday	10 002	359	55	81	177
WADT - category	**9 154**	**744**	**277**	**244**	**647**
AADT - category	**8679**	**684**	**255**	**225**	**589**
WADT - total	**11 066**				
AADT - total	**10 432**				
Share of freight transport	**10.25%**				
Share of heavy freight transport	**7.80%**				

In the counting site SK-P-11 was recorded average intensity 10 432 veh/24 h with share of freight transport, 7.80 %. Road I/59 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

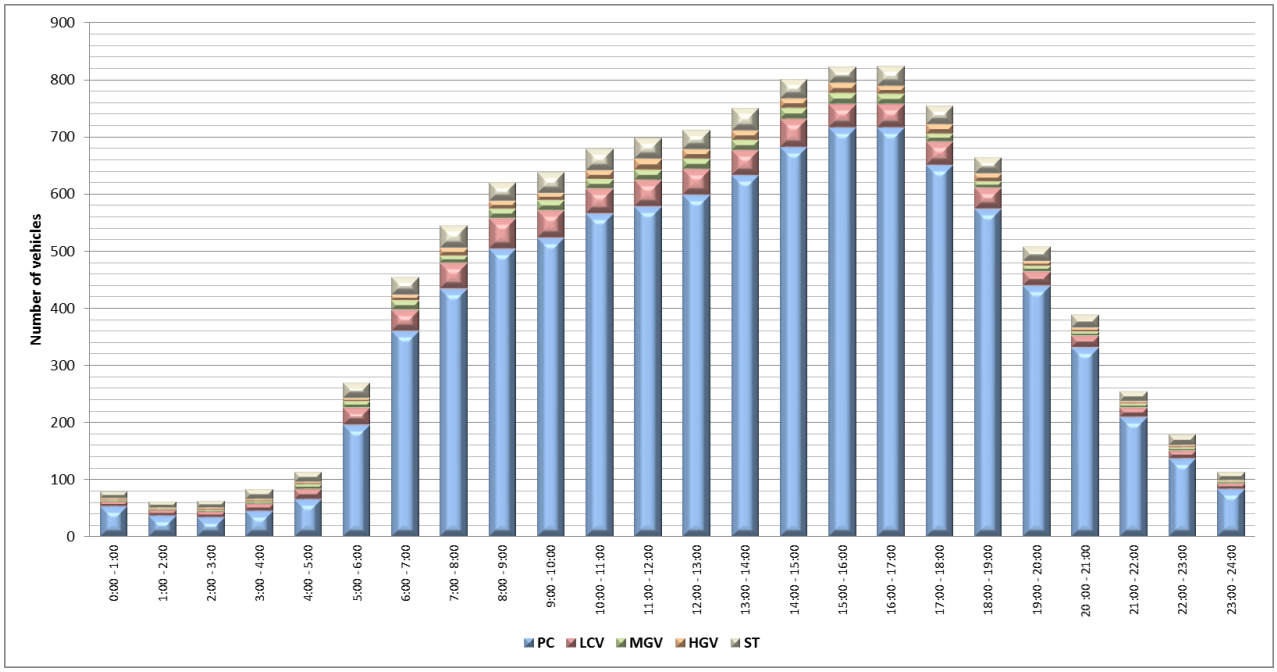

Figure 171 Hourly variation of the WADT traffic volume - counting site SK-P-11

The average hourly intensity variation higher than 800 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 5:00pm.

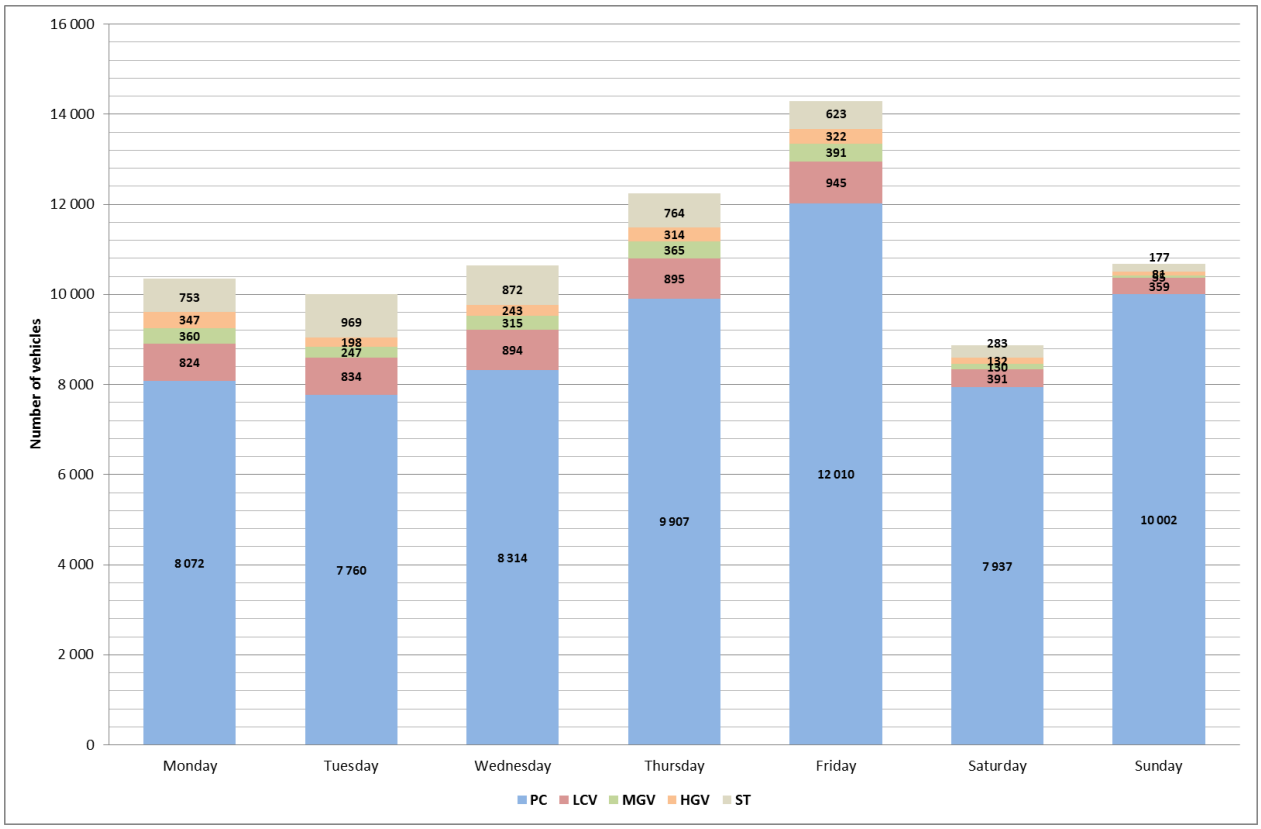

Figure 172 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-11

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Monday and least Sunday.

2.3.1.12. Counting site SK-P-12: Donovaly

Road: I/59

GPS coordinates of counting site: 48.876023, 19.2376463

The counting site was located in the rural area on the road I/59 at the entrance to the village Donovaly from Ružomberok. The road I/59 in this section is located in the planned R1 motorway corridor and is part of the comprehensive TEN-T network and the international route E77. The adder was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 134 The results of the profile traffic survey – counting site SK-P-12 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	6 165	669	156	156	867
Tuesday	5 665	754	182	164	809
Wednesday	6 510	852	229	163	826
Thursday	7 579	929	205	168	777

	PC	LCV	MGV	HGV	ST
Friday	9 827	810	207	158	675
Saturday	6 508	349	83	70	241
Sunday	8 729	161	240	41	158
WADT - category	**7 295**	**655**	**197**	**143**	**633**
AADT - category	**6916**	**602**	**181**	**132**	**576**
WADT - total	**8 923**				
AADT - total	**8 407**				
Share of freight transport	**10.57%**				
Share of heavy freight transport	**8.42%**				

In the counting site SK-P-12 was recorded average intensity 8 407 veh/24 h with share of freight transport, 10.57 %. Road I/59 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

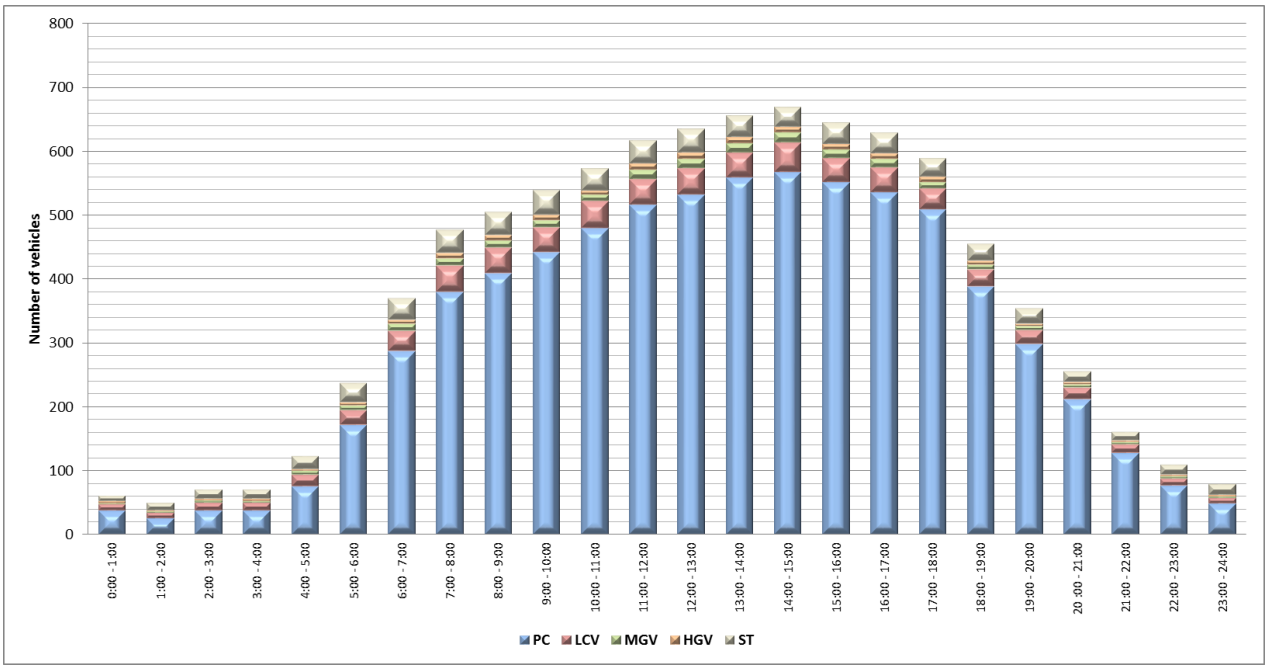

Figure 173 Hourly variation of the WADT traffic volume – counting site SK-P-12

The average hourly intensity variation higher than 600 veh/h was reached between 11:00am – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 1:00pm – 3:00pm.

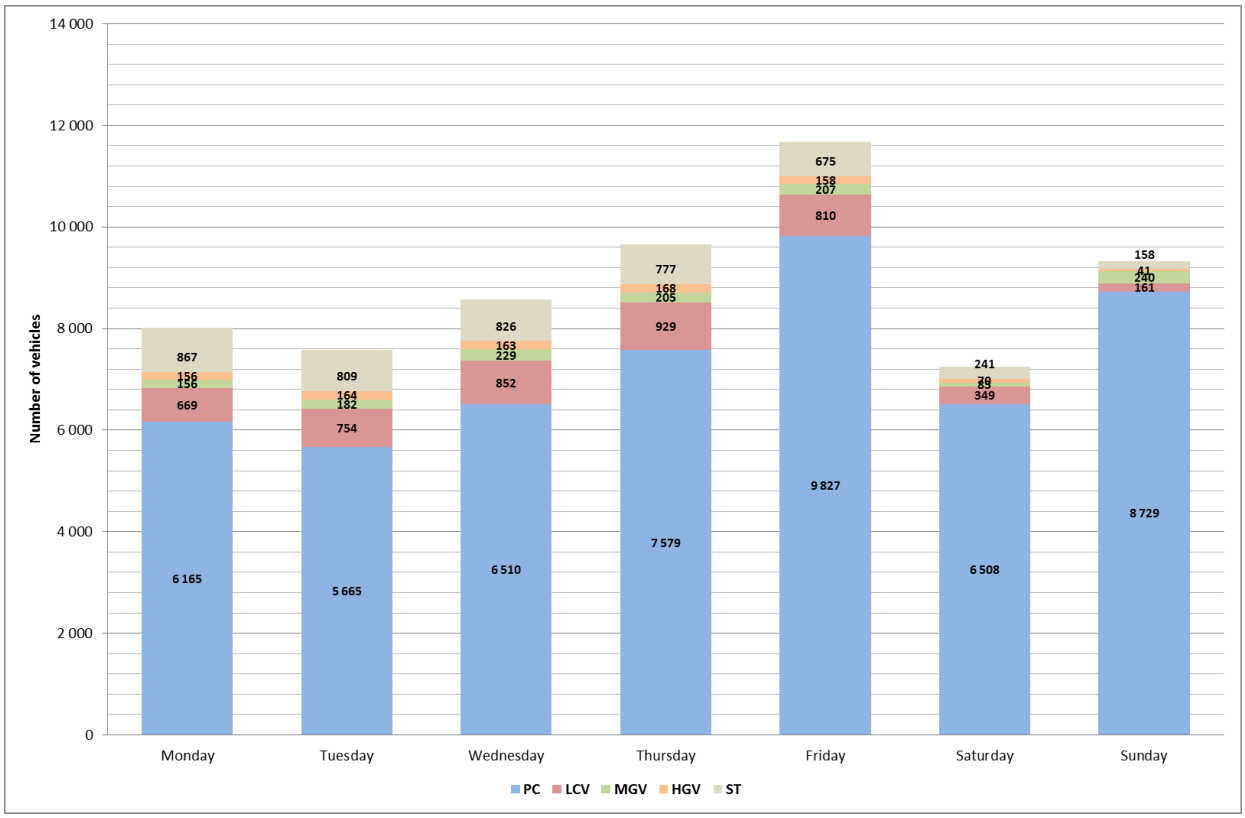

Figure 174 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-12

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Wednesday and least Saturday.

2.3.1.13. Counting site SK-P-13: Hanesy (Donovaly)

Road: I/59

GPS coordinates of counting site: 48.8785172, 19.2095232

The counting site was placed in the rural area on the road I/59 beyond the village Donovaly in the direction from Ružomberok. The road I/59 in this section is located in the planned R1 motorway corridor and is part of the comprehensive TEN-T network and the international route E77. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 135 The results of the profile traffic survey – counting site SK-P-13 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	6 794	631	203	172	857
Tuesday	6 285	737	219	158	821
Wednesday	7 290	847	241	143	854
Thursday	8 118	887	221	146	818

	PC	LCV	MGV	HGV	ST
Friday	10 239	887	214	138	700
Saturday	6 952	357	87	75	311
Sunday	9 161	209	170	75	152
WADT - category	**7 844**	**659**	**202**	**140**	**654**
AADT - category	**7437**	**606**	**186**	**129**	**595**
WADT - total	**9 499**				
AADT - total	**8 953**				
Share of freight transport	**10.16%**				
Share of heavy freight transport	**8.09%**				

In the counting site SK-P-13 was recorded average intensity 8 953 veh/24 h with share of freight transport, 10.16 %. Road I/59 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

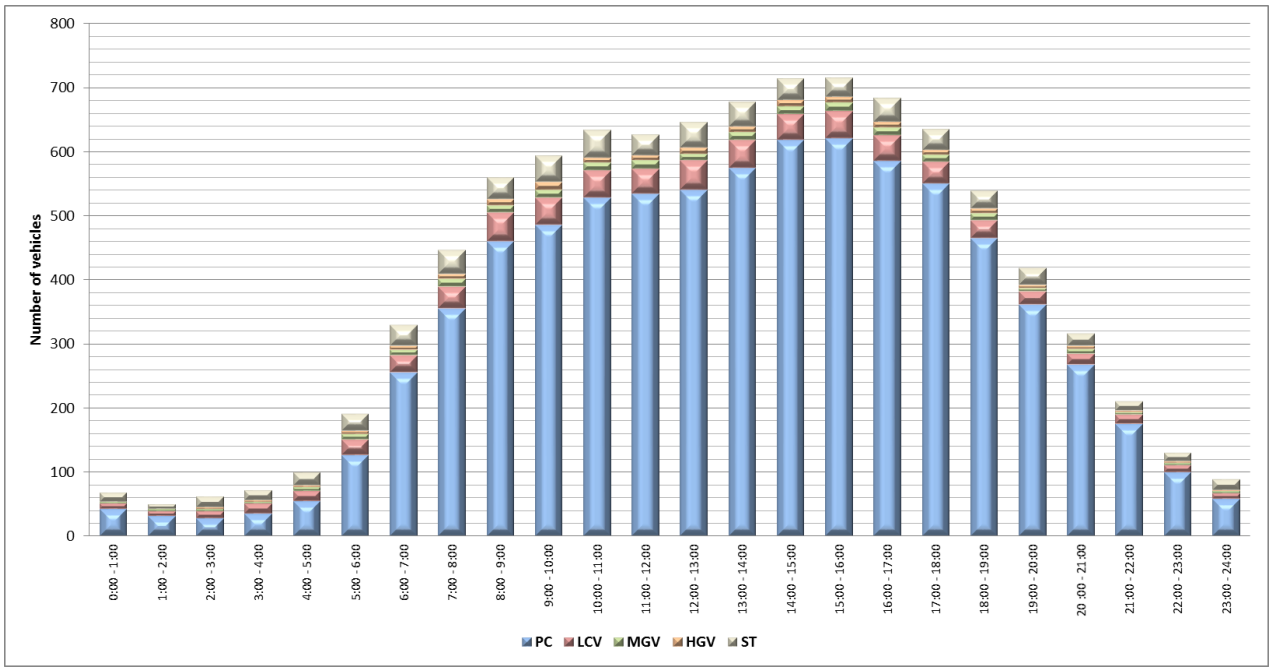

Figure 175 Hourly variation of the WADT traffic volume – counting site SK-P-13

The average hourly intensity variation higher than 700 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 1:00pm – 5:00pm.

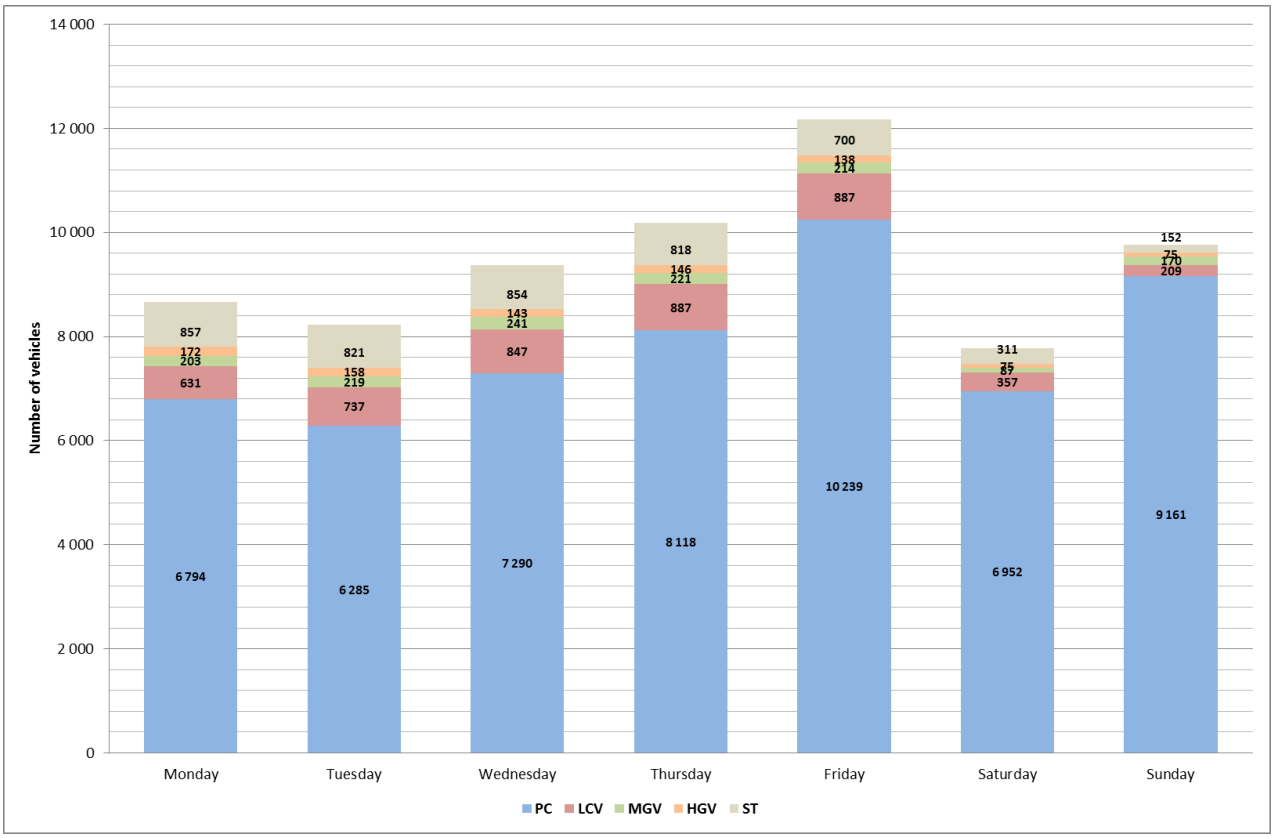

Figure 176 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-13

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.3.1.14. Counting site SK-P-14: Párnica

Road: I/70

GPS coordinates of counting site: 49.187928, 19.190402

The counting site was placed in the rural area on the road I/70 between the village Párnica in the direction of Kraľovany. The road I/70 is a part of the additional TEN-T network in this section and serves as the interconnection of the roads I/59 and I/18 between Dolný Kubín and Kraľovany. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 136 The results of the profile traffic survey – counting site SK-P-14 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 557	542	232	283	864
Tuesday	3 205	501	257	265	713
Wednesday	3 808	461	238	312	674

	PC	LCV	MGV	HGV	ST
Thursday	3 922	518	231	263	686
Friday	4 490	544	240	239	740
Saturday	4 004	208	64	90	277
Sunday	3 995	149	62	66	120
WADT - category	**3 865**	**428**	**197**	**226**	**594**
AADT - category	**3665**	**389**	**179**	**205**	**524**
WADT - total	**5 310**				
AADT - total	**4 962**				
Share of freight transport	**18.30%**				
Share of heavy freight transport	**14.69%**				

In the counting site SK-P-14 was recorded average intensity 4 962 veh/24 h with share of freight transport, 18.30 %. Road I/70 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

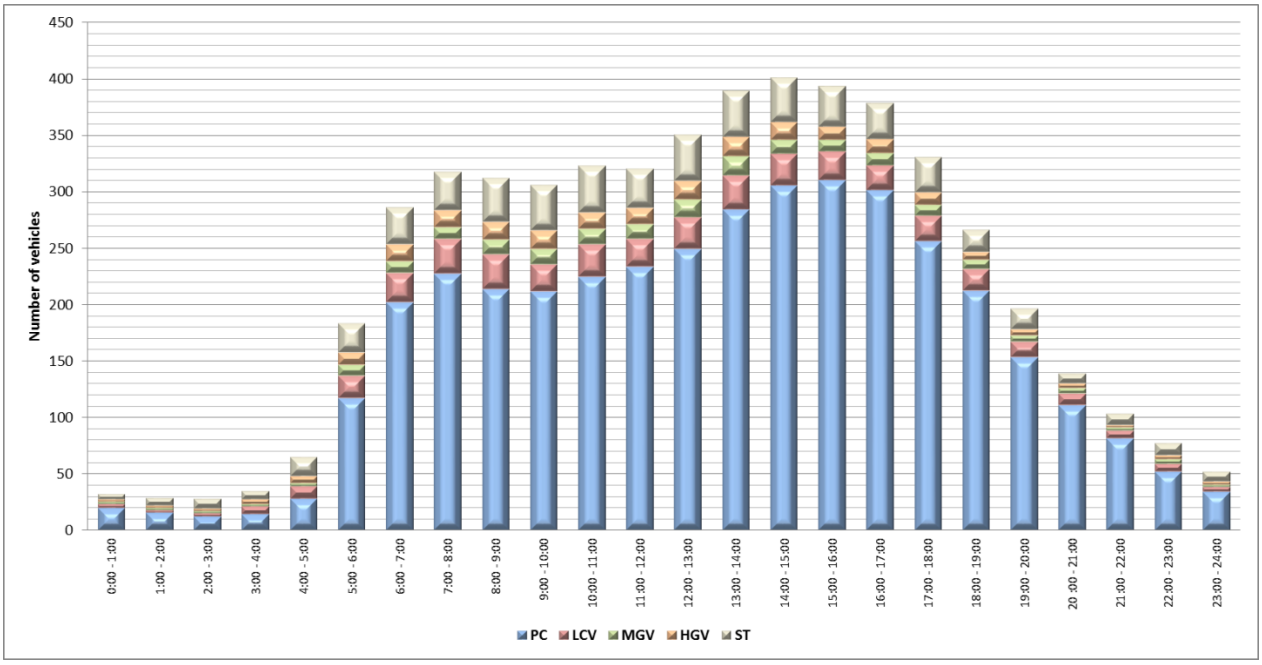

Figure 177 Hourly variation of the WADT traffic volume - counting site SK-P-14

The average hourly intensity variation higher than 400 veh/h was reached between 2:00pm – 3:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 9:00am and afternoon peak between 1:00pm – 5:00pm.

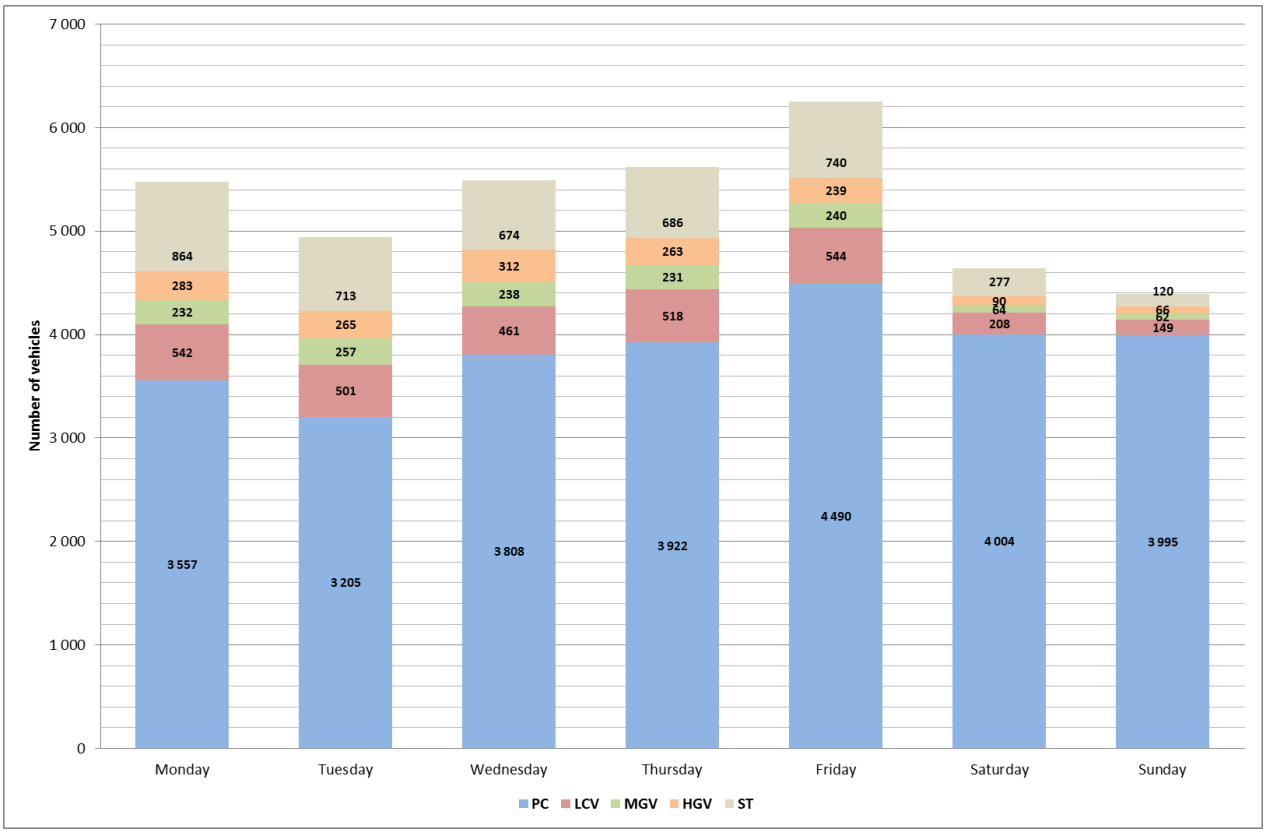

Figure 178 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-14

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Monday and least Sunday.

2.3.1.15. Counting site SK-P-15: Tvrdošín

Road: I/59

GPS coordinates of counting site: 49.341342, 19.567565

The counting site was located in the rural area on the road I/59 beyond the village Tvrdošín in the direction of the state border of the Slovak Republic/Poland. The road I/59 is located in the planned R3 expressway corridor and is part of the additional TEN-T network and the international route E77. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 137 The results of the profile traffic survey – counting site SK-P-15 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	9 412	957	270	602	1 062
Tuesday	9 369	924	363	658	818
Wednesday	10 415	1 031	296	567	916
Thursday	9 862	804	311	538	912

	PC	LCV	MGV	HGV	ST
Friday	10 734	938	305	608	1 064
Saturday	9 353	477	114	270	468
Sunday	7 070	192	217	176	194
WADT - category	**9 468**	**772**	**279**	**501**	**787**
AADT - category	**8976**	**710**	**257**	**461**	**716**
WADT - total	**11 807**				
AADT - total	**11 120**				
Share of freight transport	**12.90%**				
Share of heavy freight transport	**10.58%**				

In the counting site SK-P-15 was recorded average intensity 11 120 veh/24 h with share of freight transport, 12.90 %. Road I/59 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

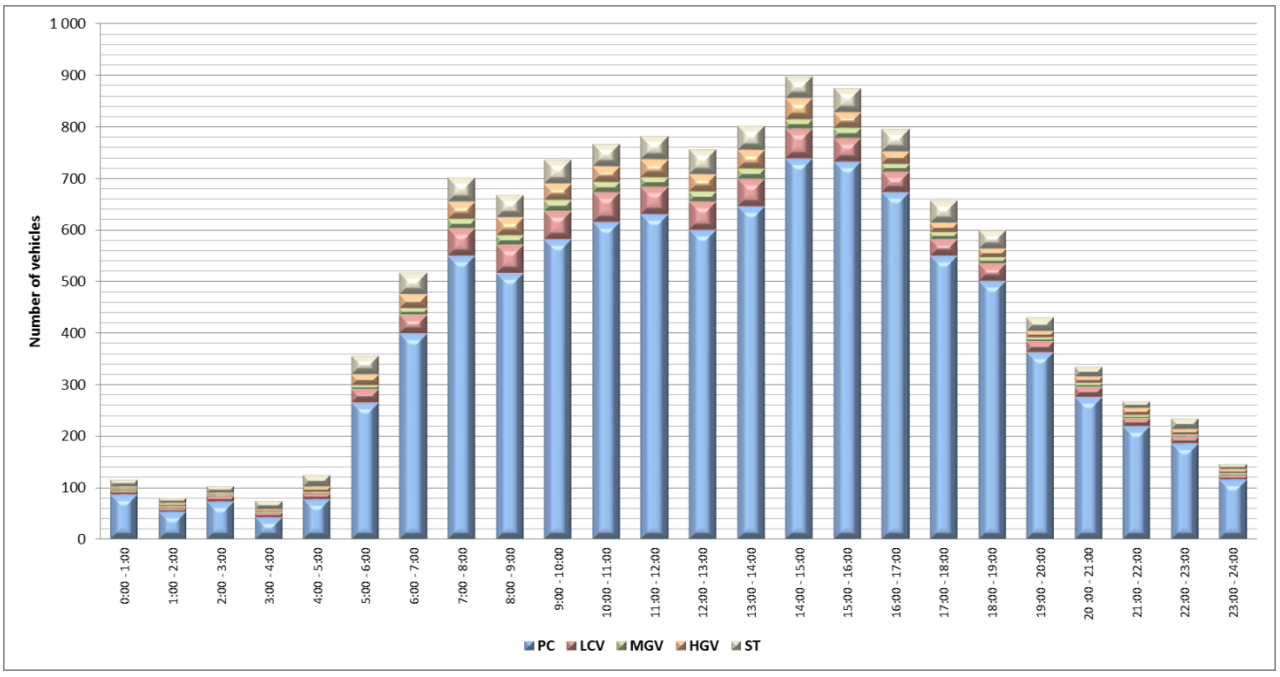

Figure 179 Hourly variation of the WADT traffic volume – counting site SK-P-15

The average hourly intensity variation higher than 800 veh/h was reached between 1:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 8:00am and afternoon peak between 2:00pm – 4:00pm.

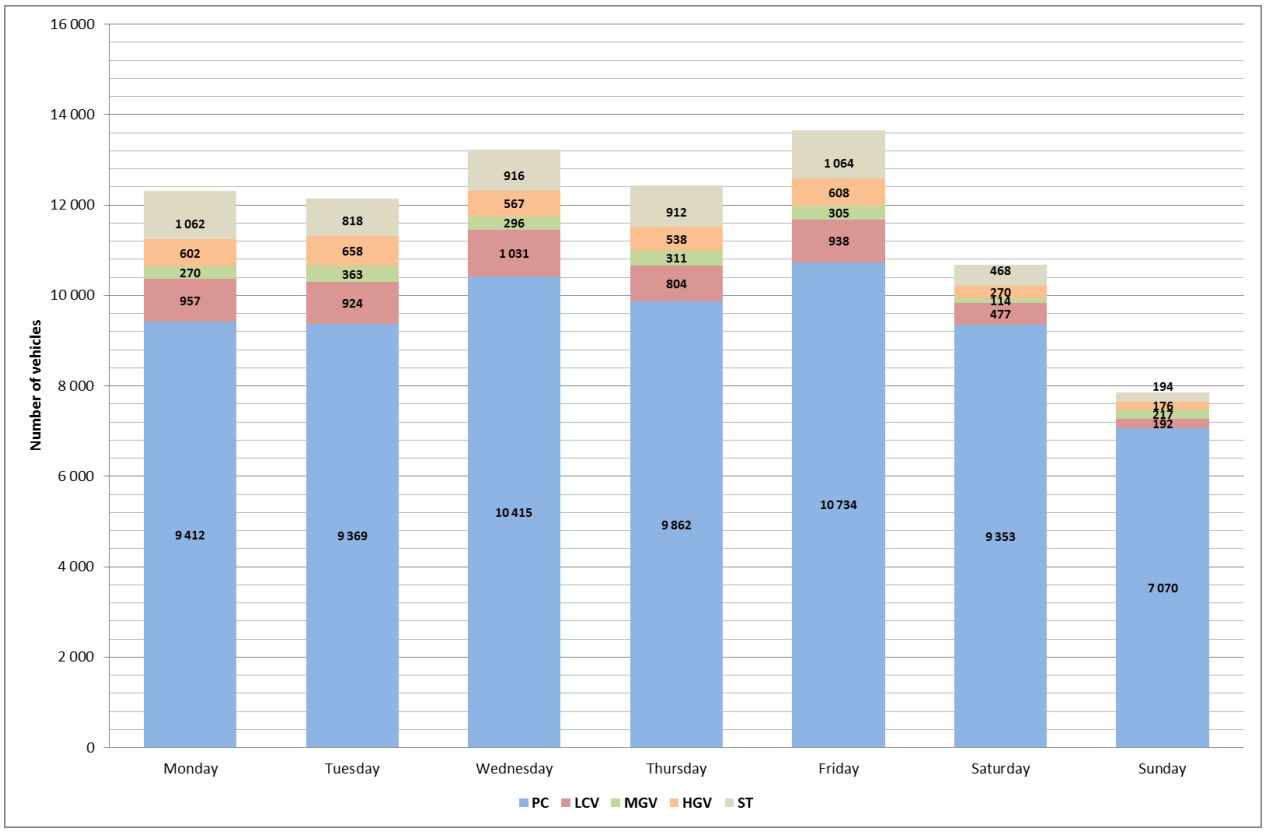

Figure 180 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-15

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Friday and least Sunday.

2.3.1.16. Counting site SK-P-16: Ľubochňa

Road: I/18

GPS coordinates of counting site: 49.122723, 19.169443

The counting site was placed on the border of town residential and rural areas of the village Ľubochňa on road I/18. The road I/18 is located in the planned D1 expressway corridor and is part of the core TEN-T network and the international route E50. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 138 The results of the profile traffic survey – counting site SK-P-16 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	11 299	1 102	571	598	1 933
Tuesday	10 817	1 150	563	509	1 828
Wednesday	11 084	1 111	547	489	1 872
Thursday	12 644	1 153	614	555	1 901
Friday	14 226	1 172	537	514	1 546

	PC	LCV	MGV	HGV	ST
Saturday	9 718	565	174	135	402
Sunday	12 002	370	154	88	428
WADT - category	**11 694**	**956**	**463**	**424**	**1 424**
AADT - category	**11087**	**879**	**426**	**390**	**1296**
WADT - total	**14 961**				
AADT - total	**14 078**				
Share of freight transport	**15.00%**				
Share of heavy freight transport	**11.98%**				

In the counting site SK-P-16 was recorded average intensity 14 078 veh/24 h with share of freight transport, 15.00 %. Road I/18 is important transit route in direction West – East, so is frequently used by freight and also passenger transport.

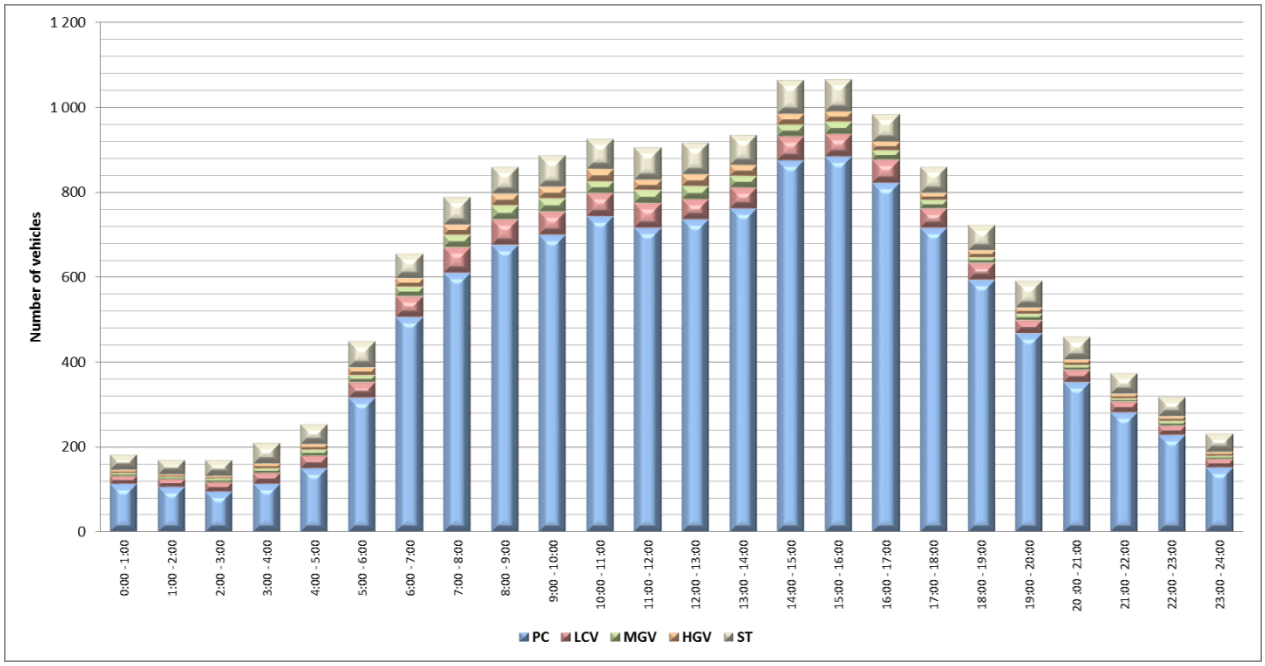

Figure 181 Hourly variation of the WADT traffic volume – counting site SK-P-16

The average hourly intensity variation higher than 1 000 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak between 2:00pm – 5:00pm.

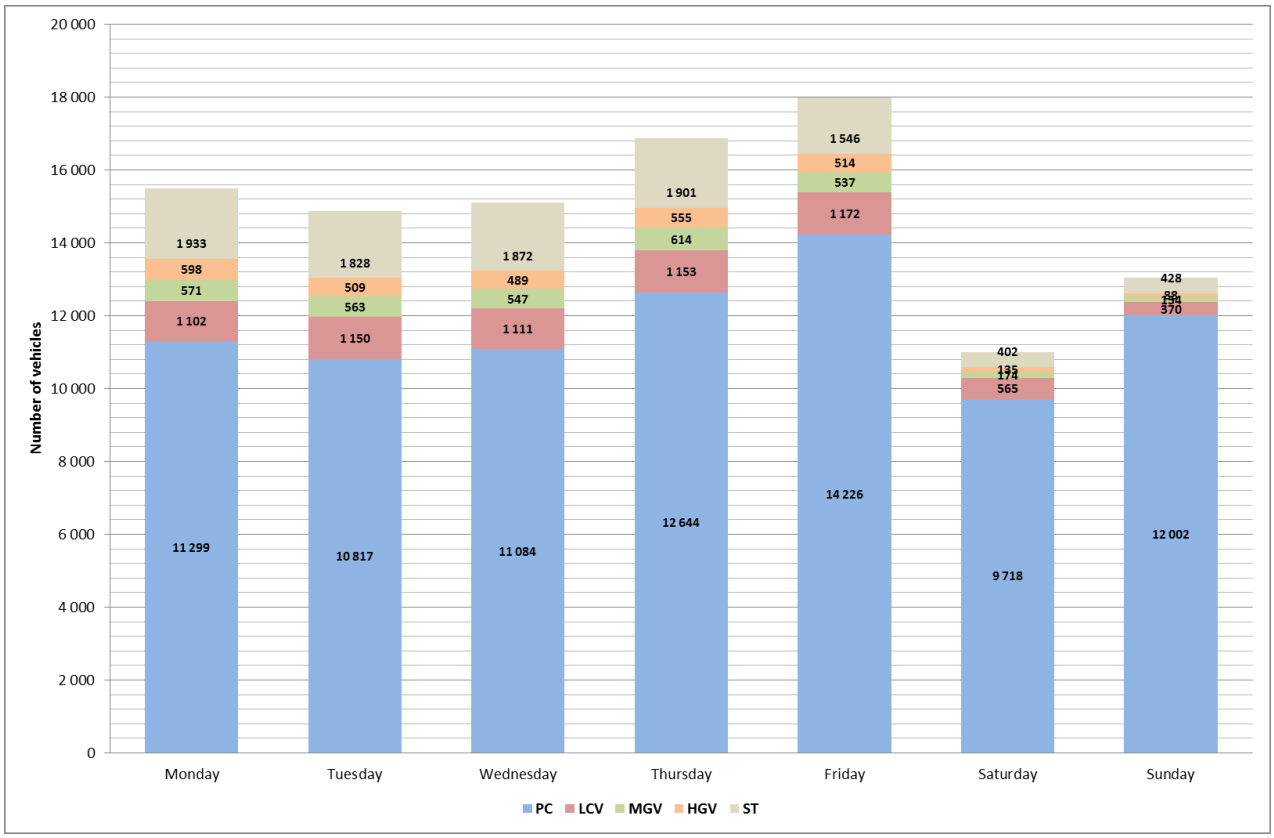

Figure 182 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-16

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Monday and least Sunday.

2.3.1.17. Counting site SK-P-17: Liptovský Hrádok

Road: I/18

GPS coordinates of counting site: 49.038553, 19.730409

The counting site was placed on the border of the town residential and rural area of Liptovský Hrádok on the road I/18. The road I/18 is a parallel road to the D1 motorway in this section. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 139 The results of the profile traffic survey – counting site SK-P-17 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 657	231	96	229	216
Tuesday	3 695	257	110	276	182
Wednesday	4 089	297	104	267	205
Thursday	3 904	236	104	259	177

	PC	LCV	MGV	HGV	ST
Friday	4 392	285	125	260	171
Saturday	2 708	90	23	59	19
Sunday	2 845	71	17	32	18
WADT - category	**3 625**	**221**	**92**	**207**	**152**
AADT - category	**3437**	**201**	**84**	**188**	**135**
WADT - total	**4 297**				
AADT - total	**4 045**				
Share of freight transport	**10.06%**				
Share of heavy freight transport	**7.99%**				

In the counting site SK-P-17 was recorded average intensity 4 045 veh/24 h with share of freight transport, 10.06 %. Road I/18 is alternative route to D1 motorway which implies, that transit traffic is already on the motorway.

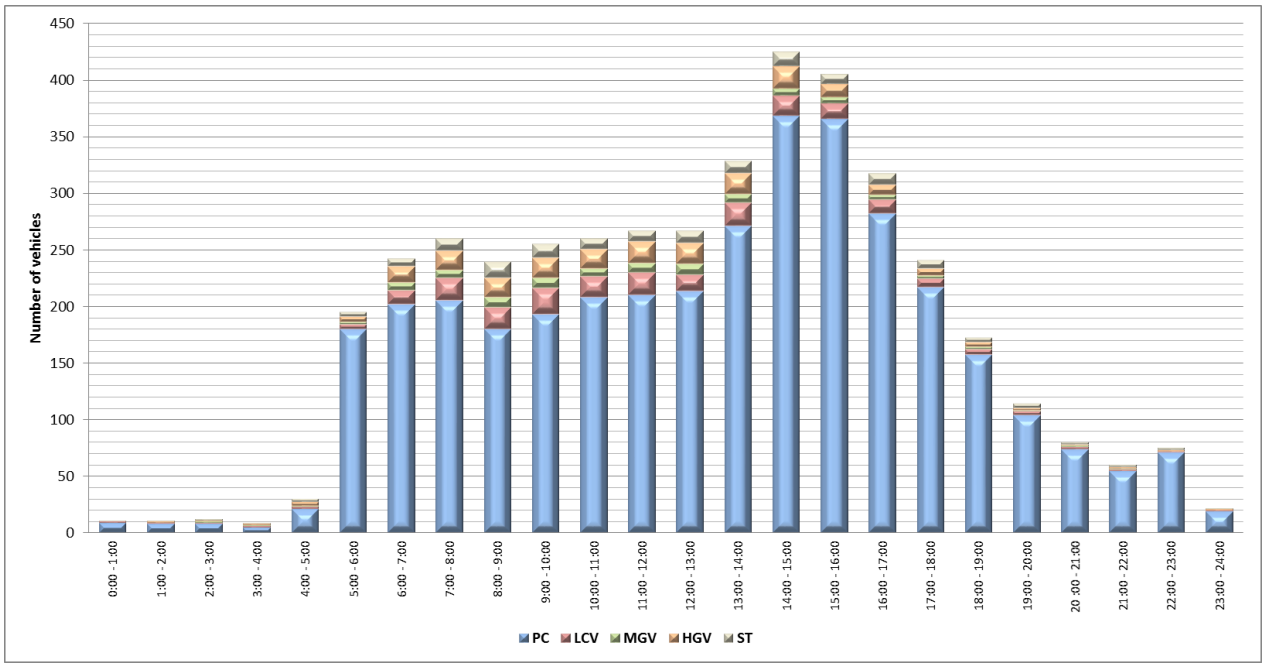

Figure 183 Hourly variation of the WADT traffic volume – counting site SK-P-17

The average hourly intensity variation higher than 400 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 8:00am and afternoon peak between 1:00pm – 5:00pm.

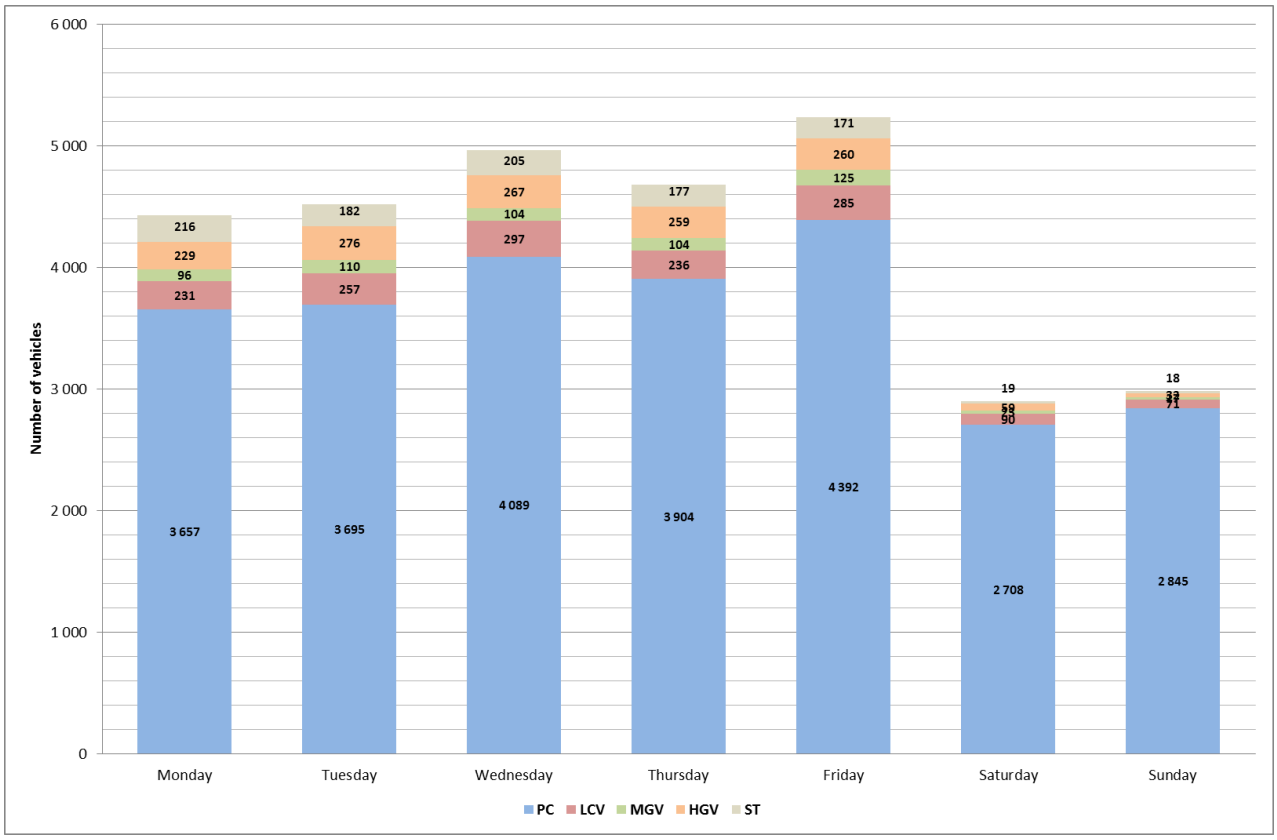

Figure 184 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-17

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.3.1.18. Counting site SK-P-18: Istebné

Road: I/70

GPS coordinates of counting site: 49.195534, 19.200472

The counting site was placed on the border of the town residential and rural area of Istebné on the road I/70. The road I/70 is a part of the additional TEN-T network in this section and serves as the interconnection of the roads I/59 and I/18 between Dolný Kubín and Kraľovany. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 140 The results of the profile traffic survey – counting site SK-P-18 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	7 067	782	271	262	997
Tuesday	6 849	830	274	283	813
Wednesday	7 535	802	268	305	807

	PC	LCV	MGV	HGV	ST
Thursday	7 568	782	259	306	874
Friday	9 136	808	298	301	902
Saturday	6 531	343	79	93	178
Sunday	7 737	195	76	83	179
WADT - category	**7 497**	**660**	**229**	**244**	**688**
AADT - category	**7108**	**599**	**208**	**222**	**607**
WADT - total	**9 318**				
AADT - total	**8 744**				
Share of freight transport	**11.86%**				
Share of heavy freight transport	**9.48%**				

In the counting site SK-P-18 was recorded average intensity 8 744 veh/24 h with share of freight transport, 11.86 %. Road I/70 is important for international transit SK/PL, because is headed to border crossing Trstená, so is frequently used by freight and also passenger transport.

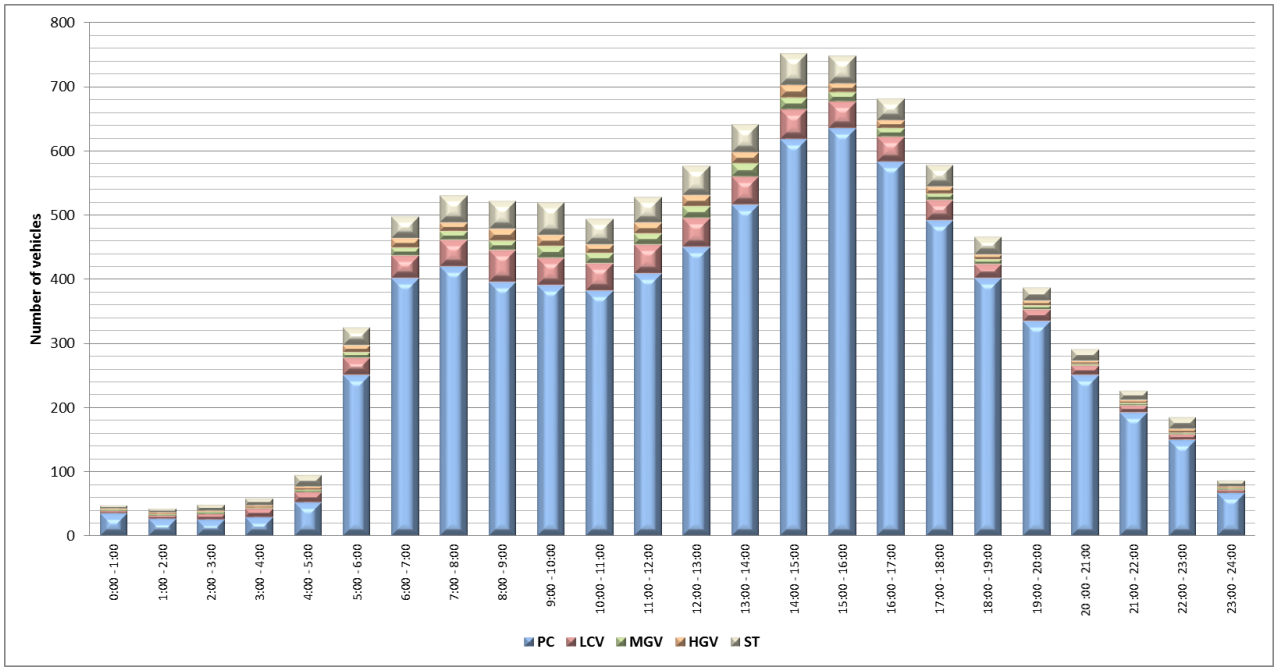

Figure 185 Hourly variation of the WADT traffic volume – counting site SK-P-18

The average hourly intensity variation higher than 700 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 7:00am – 10:00am and afternoon peak between 1:00pm – 5:00pm.

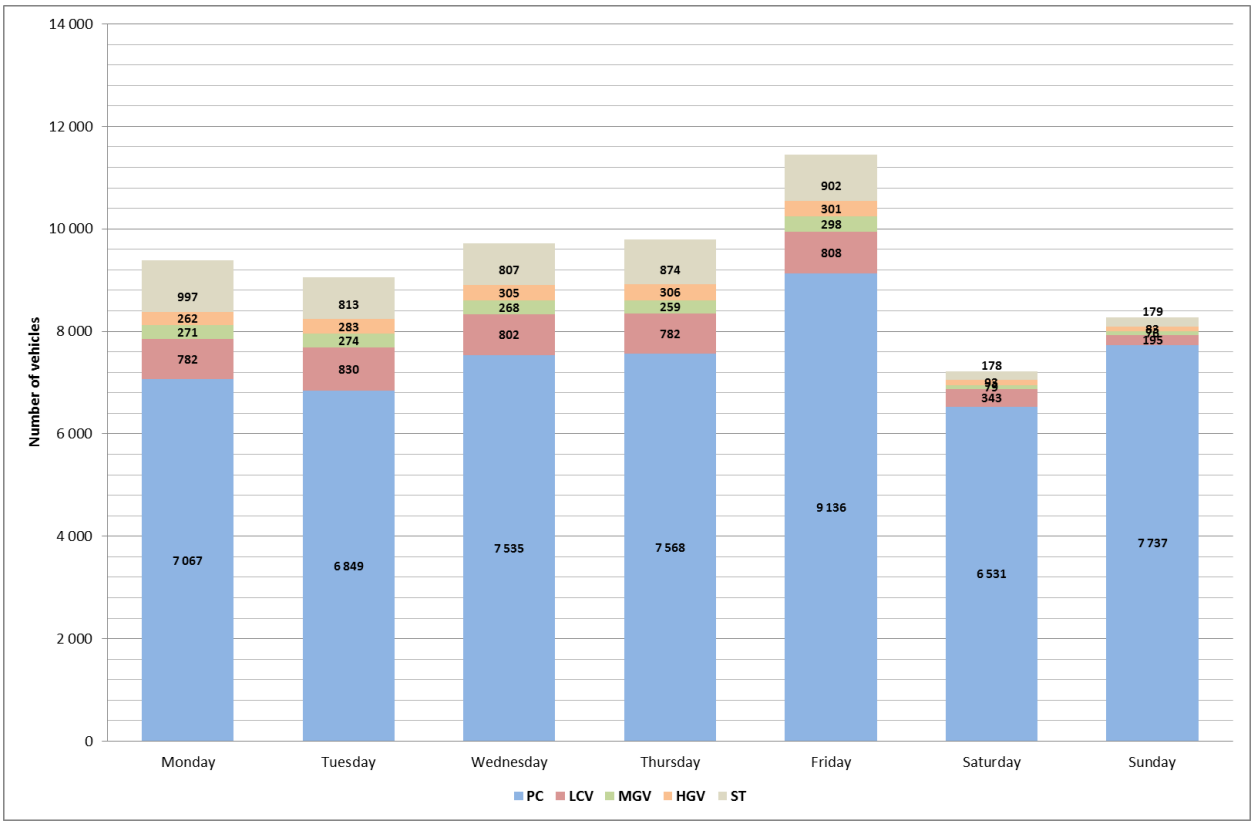

Figure 186 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-18

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Monday and least Sunday.

2.3.1.19. Counting site SK-P-19: Predmier

Road: I/61

GPS coordinates of counting site: 49.19489, 18.53685

The counting site was located in the rural area of the road I/61 near Predmier. The road I/61 is parallel to the D1 motorway in this section. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 141 The results of the profile traffic survey – counting site SK-P-19 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	4 068	322	181	579	227
Tuesday	3 799	342	181	605	211
Wednesday	3 912	161	125	524	176
Thursday	4 081	215	154	567	214
Friday	4 347	198	151	487	214

	PC	LCV	MGV	HGV	ST
Saturday	4 008	248	112	215	57
Sunday	3 893	409	41	152	11
WADT - category	**4 027**	**280**	**146**	**456**	**169**
AADT - category	**3750**	**266**	**139**	**433**	**162**
WADT - total	**5 078**				
AADT - total	**4 749**				
Share of freight transport	**15.44%**				
Share of heavy freight transport	**12.52 %**				

In the counting site SK-P-19 was recorded average intensity 4 749 veh/24 h with share of freight transport, 15.44 %. Road I/61 is alternative route to D1 motorway which implies, that transit traffic is already on the motorway.

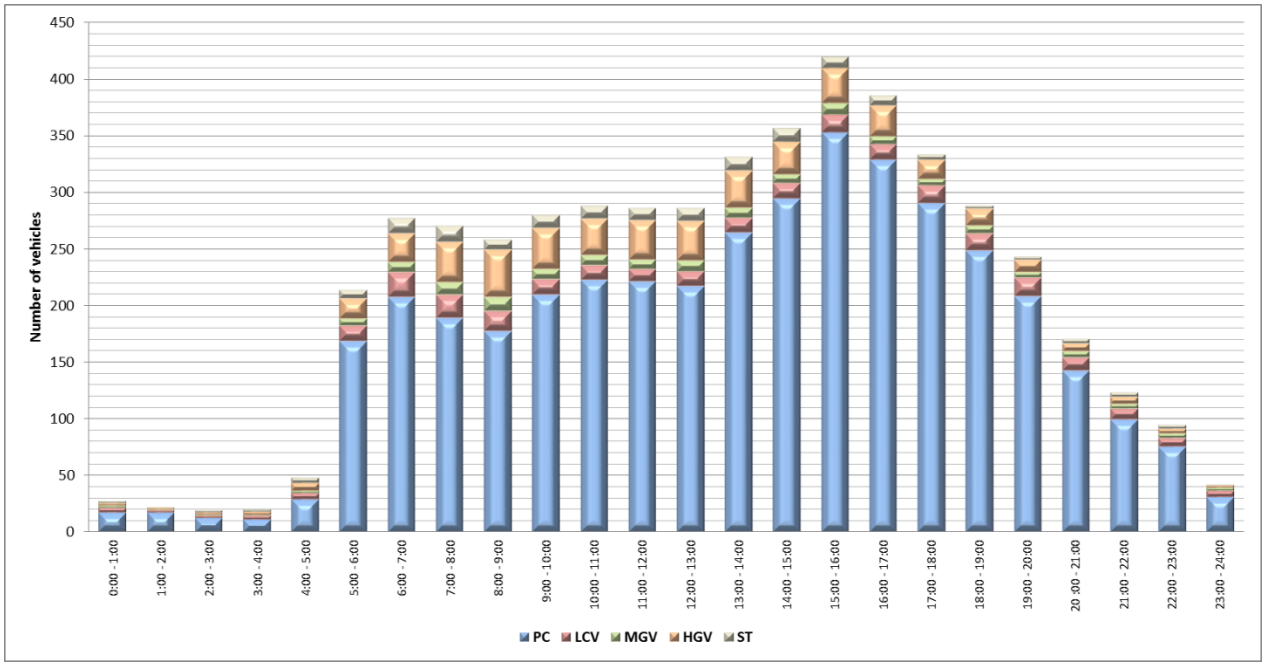

Figure 187 Hourly variation of the WADT traffic volume – counting site SK-P-19

The average hourly intensity variation higher than 400 veh/h was reached between 3:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 8:00am and afternoon peak between 1:00pm – 6:00pm.

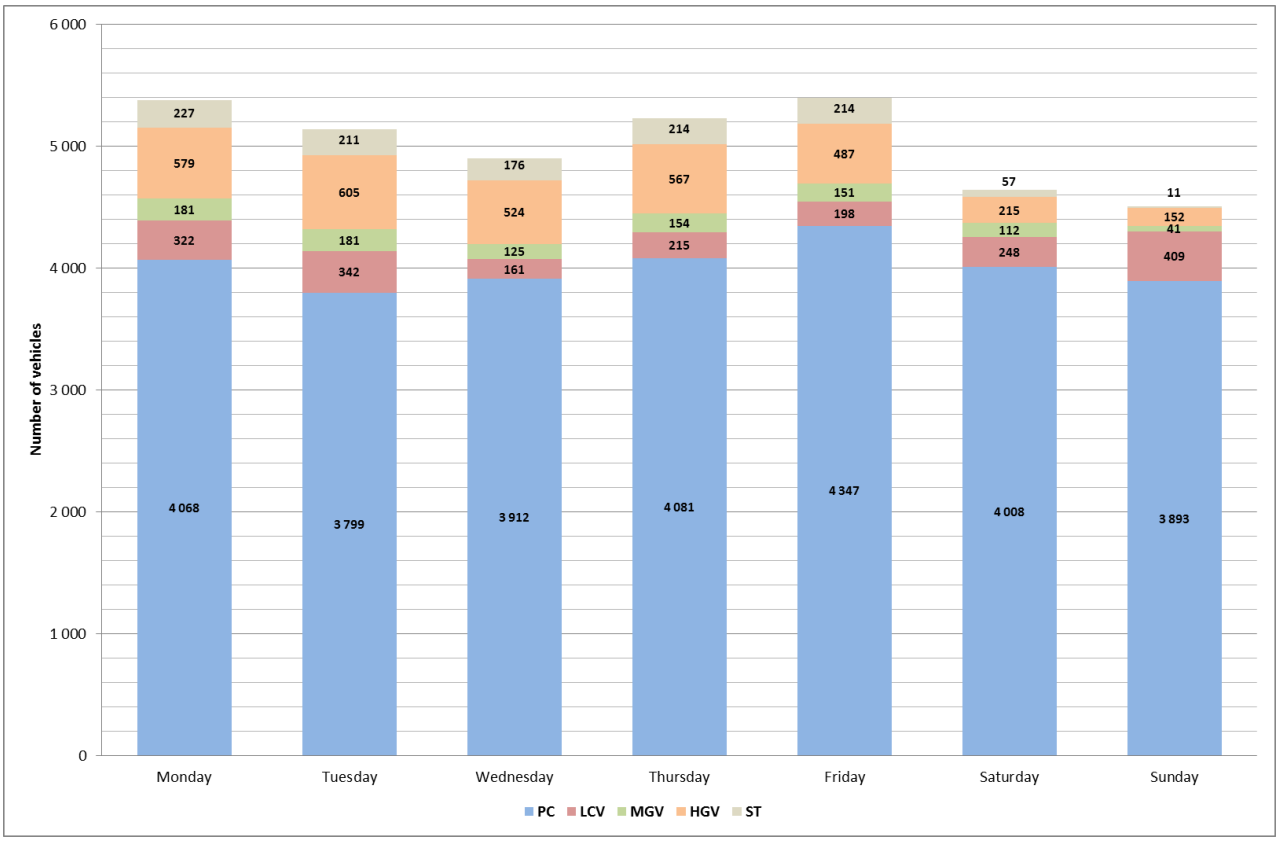

Figure 188 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-19

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.20. Counting site SK-P-20: Strážov

Road: I/61

GPS coordinates of counting site: 49.240804, 18.693728

The counting site was placed in the rural area of the road I/61 in front of the village Strážov in the direction from Bytča. The road I/61 is parallel to the D1 motorway in this section. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 142 The results of the profile traffic survey – counting site SK-P-20 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	7 348	569	533	770	709
Tuesday	7 336	614	530	817	690
Wednesday	7 470	545	501	846	636
Thursday	7 357	532	495	802	645

	PC	LCV	MGV	HGV	ST
Friday	7 814	566	487	729	592
Saturday	5 539	289	159	224	225
Sunday	5 599	270	102	151	239
WADT - category	**6 933**	**491**	**413**	**629**	**544**
AADT - category	**6 456**	**466**	**392**	**597**	**520**
WADT - total	**9 010**				
AADT - total	**8 431**				
Share of freight transport	**17.90%**				
Share of heavy freight transport	**13.25%**				

In the counting site SK-P-20 was recorded average intensity 8 431 veh/24 h with share of freight transport, 17.90 %. Road I/61 is alternative route to D1 motorway which implies, that transit traffic is already on the motorway.

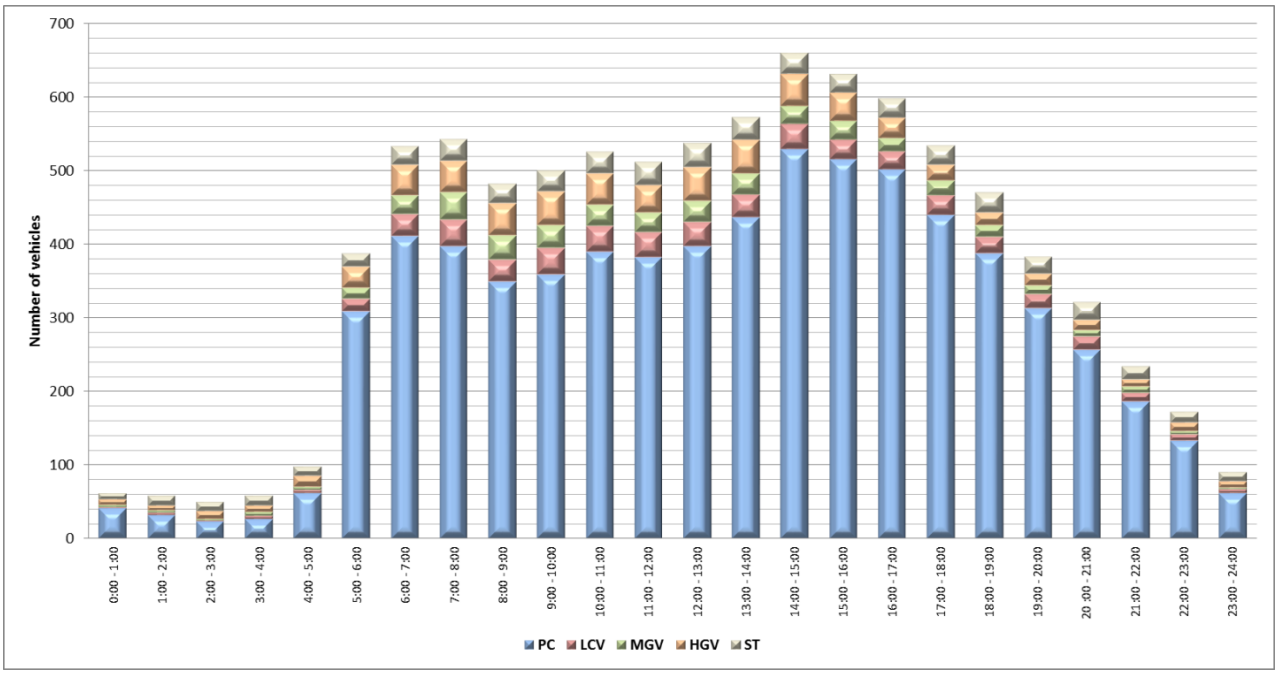

Figure 189 Hourly variation of the WADT traffic volume – counting site SK-P-20

The average hourly intensity variation higher than 600 veh/h was reached between 2:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 8:00am and afternoon peak between 1:00pm – 5:00pm.

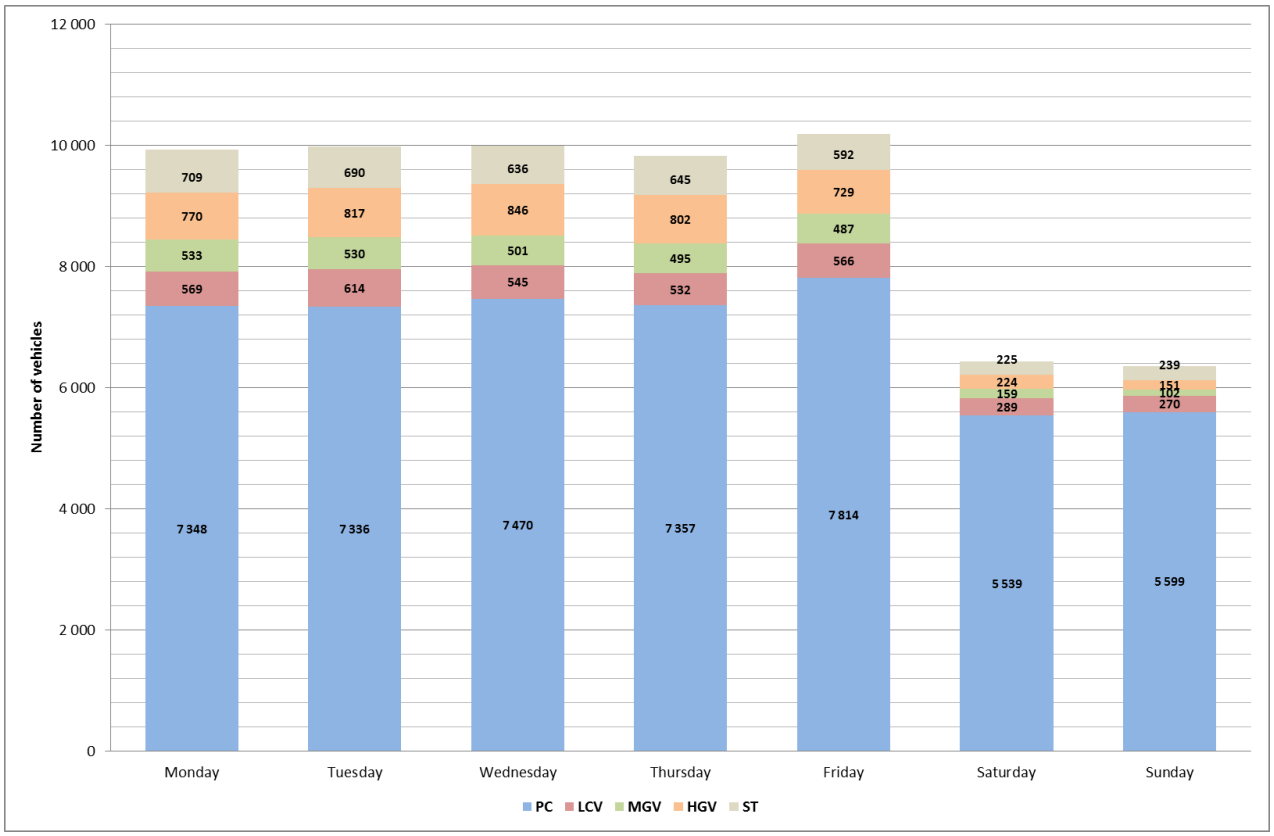

Figure 190 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-20

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.21. Counting site SK-P-21: Brodno

Road: I/11

GPS coordinates of counting site: 49.241624, 18.737950

The counting site was placed in the rural area of the road I/11 beyond the village of Žilina in the direction of Čadca. The road I/11 is parallel to the D3 motorway in this section. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 143 The results of the profile traffic survey – counting site SK-P-21 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	20 111	1 925	753	893	3 686
Tuesday	20 284	1 805	789	938	3 919
Wednesday	20 844	1 788	717	973	3 687
Thursday	22 313	1 265	704	872	2 721

	PC	LCV	MGV	HGV	ST
Friday	22 302	1 832	677	918	3 073
Saturday	17 131	1 147	386	326	1 356
Sunday	17 701	994	350	328	554
WADT - category	**20 110**	**1 545**	**634**	**758**	**2 725**
AADT - category	**18 727**	**1 466**	**602**	**719**	**2 606**
WADT - total	**25 772**				
AADT - total	**24 120**				
Share of freight transport	**16.28%**				
Share of heavy freight transport	**13.79%**				

In the counting site SK-P-21 was recorded average intensity 21 120 veh/24 h with share of freight transport, 16.28 %. Road I/11 is in this section alternative route to motorway D3 which implies, that transit traffic is already on the motorway. This section of the road I/11 also serves as northern drive from Žilina in direction to Čadca and then border crossing SK/CZ or SK/PL.

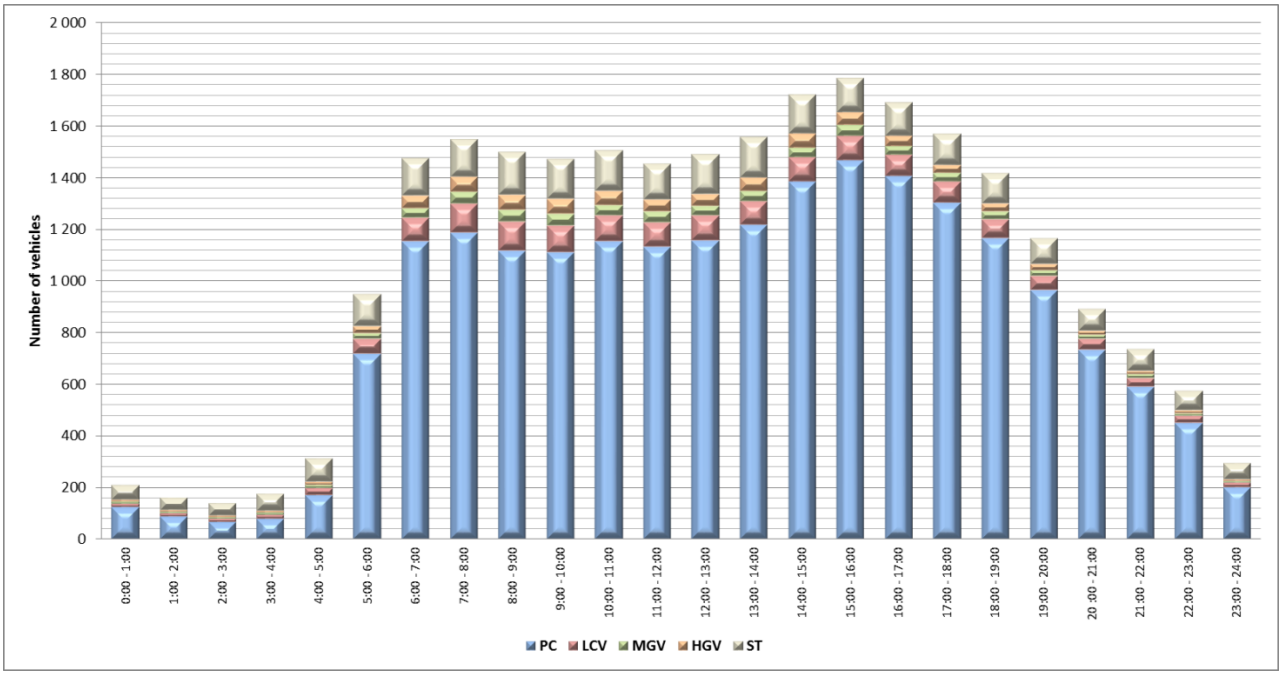

Figure 191 Hourly variation of the WADT traffic volume – counting site SK-P-21

The average hourly intensity variation higher than 1 600 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 9:00am and afternoon peak between 1:00pm – 6:00pm.

Figure 192 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-21

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.22. Counting site SK-P-22: Mojšova Lúčka

Road: I/18

GPS coordinates of counting site: 49.191922, 18.819752

The counting site was located in the rural area near Mojšová Lúčka on the road I/18. The road I/18 is located in this section of the planned D1 motorway corridor and is part of the core TEN-T network and the international route E50. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 144 The results of the profile traffic survey – counting site SK-P-22 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	24 358	2 916	1 454	963	3 878
Tuesday	23 965	3 215	1 721	989	4 059
Wednesday	24 365	3 314	1 655	935	3 960
Thursday	27 205	2 405	1 155	997	3 319

	PC	LCV	MGV	HGV	ST
Friday	27 891	2 545	1 143	769	3 022
Saturday	20 140	1 265	423	284	1 518
Sunday	24 343	1 360	177	172	704
WADT - category	**24 623**	**2 443**	**1 112**	**740**	**2 932**
AADT - category	**22 929**	**2 373**	**1 080**	**719**	**2 873**
WADT - total	**31 850**				
AADT - total	**29 974**				
Share of freight transport	**15.59%**				
Share of heavy freight transport	**11.98%**				

In the counting site SK-P-22 was recorded average intensity 29 974 veh/24 h with share of freight transport, 15.59 %. Road I/18 is important transit route in direction West – East, so is frequently used by freight and also passenger transport.

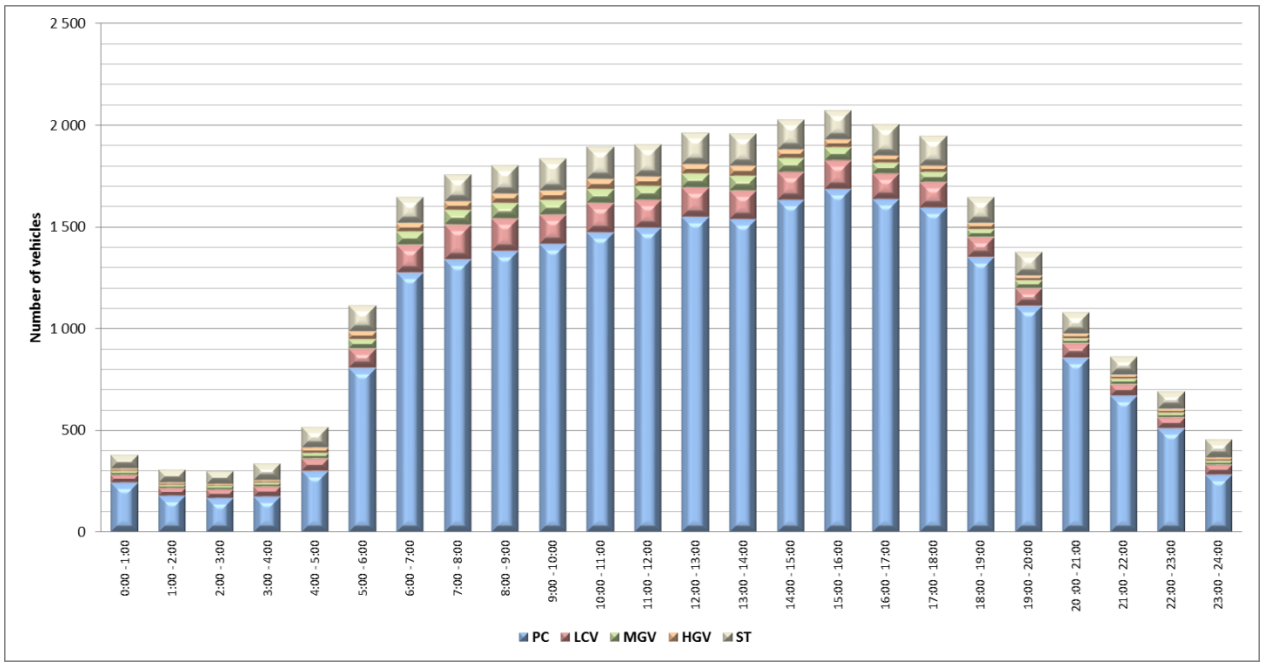

Figure 193 Hourly variation of the WADT traffic volume - counting site SK-P-22

The average hourly intensity variation higher than 2 000 veh/h was reached between 2:00pm – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 1:00pm – 6:00pm.

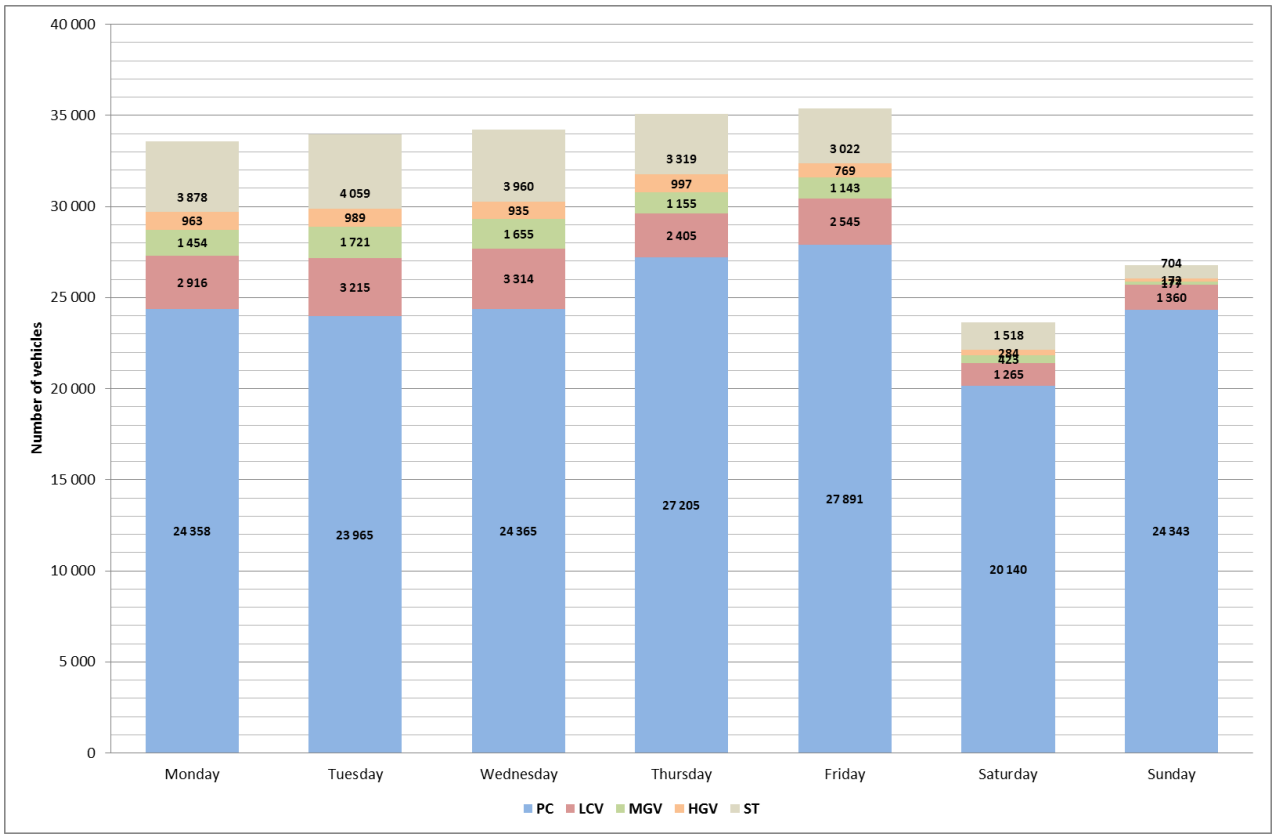

Figure 194 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-22

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.23. Counting site SK-P-23: Strečno

GPS coordinates of counting site: 49.177777, 18.863064

The counting site was placed in the rural area near Strečno on the road I/18. The road I/18 is located in this section of the planned D1 motorway corridor and is part of the core TEN-T network and the international route E50. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 145 The results of the profile traffic survey – counting site SK-P-23 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	19 020	1 902	1 133	661	4 468
Tuesday	19 065	2 046	1 225	718	4 510
Wednesday	19 313	2 078	1 216	730	4 338
Thursday	20 954	1 941	1 107	628	4 119
Friday	21 869	1 835	1 015	546	3 492
Saturday	16 539	958	413	187	1 660

	PC	LCV	MGV	HGV	ST
Sunday	21 129	1 210	193	158	913
WADT - category	**19 710**	**1 723**	**911**	**531**	**3 367**
AADT - category	**18 354**	**1 674**	**885**	**516**	**3 299**
WADT - total	**26 242**				
AADT - total	**24 728**				
Share of freight transport	**19.01%**				
Share of heavy freight transport	**15.43%**				

In the counting site SK-P-23 was recorded average intensity 24 728 veh/24 h with share of freight transport, 19.01 %. Road I/18 is important transit route in direction West – East, so is frequently used by freight and also passenger transport.

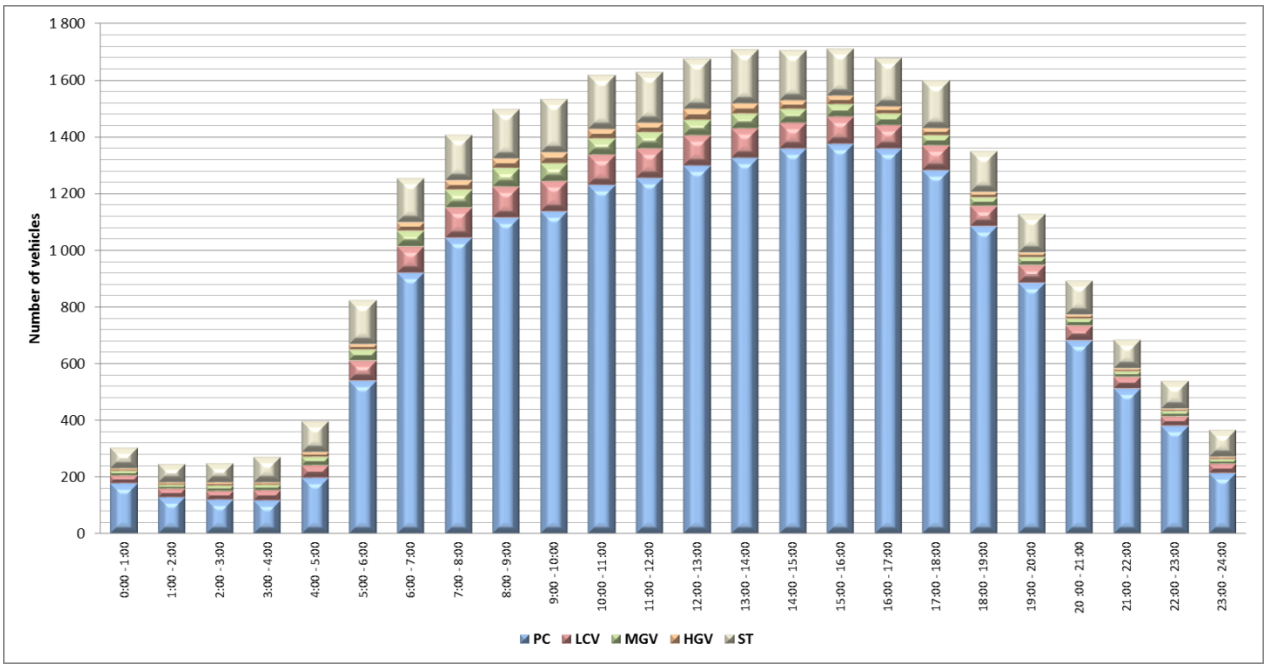

Figure 195 Hourly variation of the WADT traffic volume – counting site SK-P-23

The average hourly intensity variation higher than 1 600 veh/h was reached between 10:00am – 5:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 1:00pm – 6:00pm.

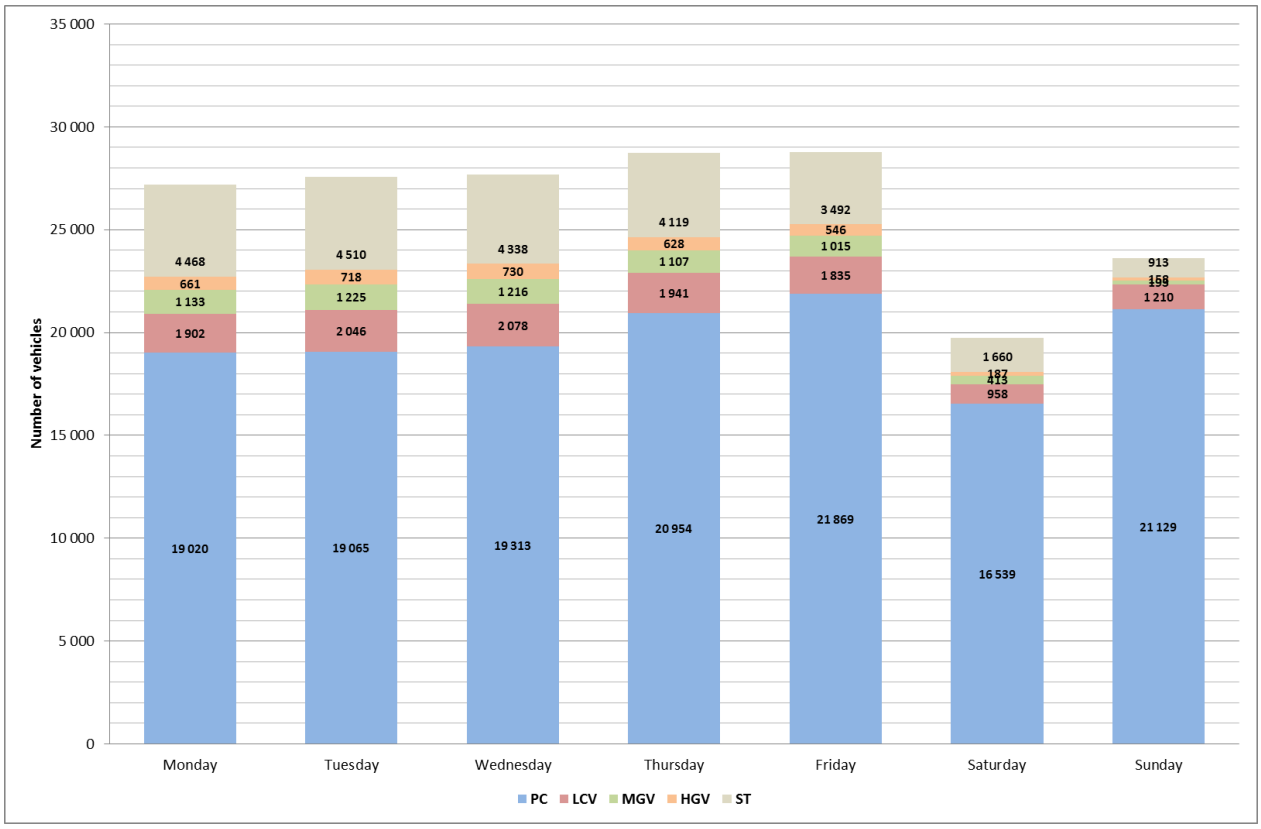

Figure 196 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-23

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.24. Counting site SK-P-24: Lietavská Lúčka

Road: I/64

GPS coordinates of counting site: 49.160897, 18.723971

The counting site was placed in the rural area between Lietavská Lúčka and Porúbka on the road I/64. The road I/64 is part of the important interconnection of the north and south of the SR. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 146 The results of the profile traffic survey – counting site SK-P-24 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	12 592	781	332	528	407
Tuesday	13 626	812	380	534	469
Wednesday	14 027	904	368	523	450
Thursday	12 389	636	303	476	432
Friday	13 444	748	355	508	463

	PC	LCV	MGV	HGV	ST
Saturday	9 909	409	141	183	125
Sunday	10 813	500	46	100	96
WADT - category	**12 411**	**693**	**284**	**418**	**360**
AADT - category	**11 557**	**658**	**270**	**397**	**344**
WADT - total	**14 166**				
AADT - total	**13 226**				
Share of freight transport	**7.64%**				
Share of heavy freight transport	**5.60%**				

In the counting site SK-P-24 was recorded average intensity 13 226 veh/24 h with share of freight transport, 7.64 %. Road I/64 is part of the North-South connection of Slovak Republic and is more frequently used by passenger transport than freight transport.

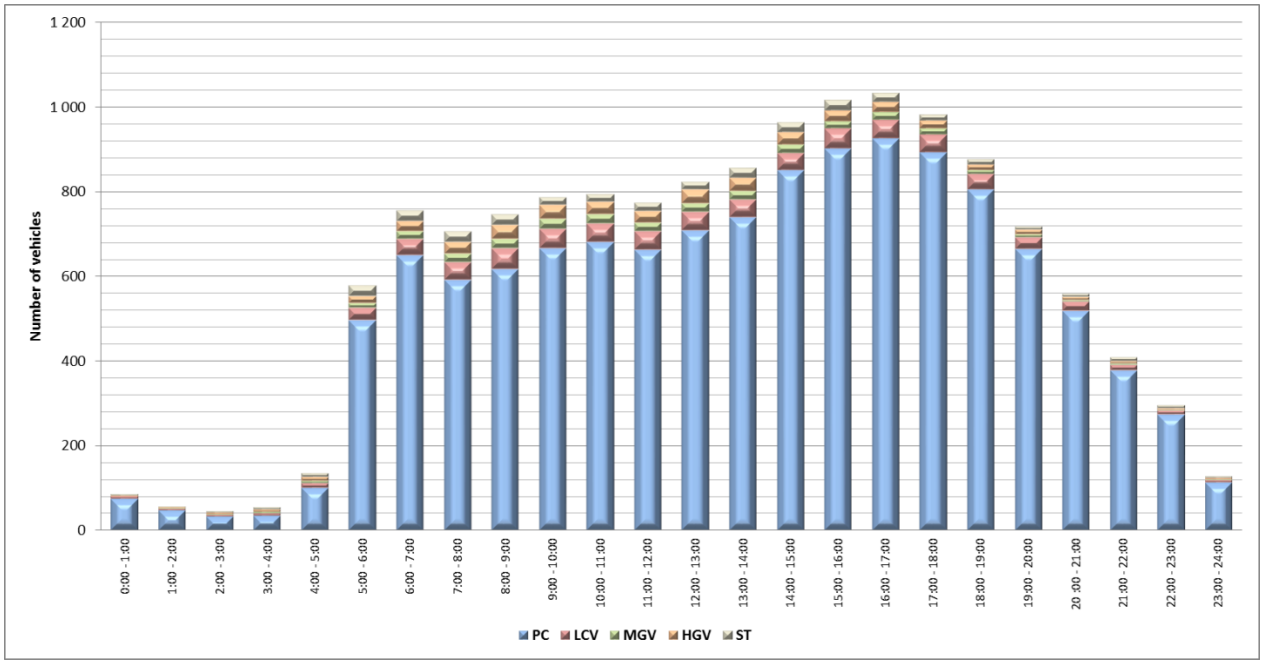

Figure 197 Hourly variation of the WADT traffic volume – counting site SK-P-24

The average hourly intensity variation higher than 1 000 veh/h was reached between 3:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 7:00am and afternoon peak between 2:00pm – 7:00pm.

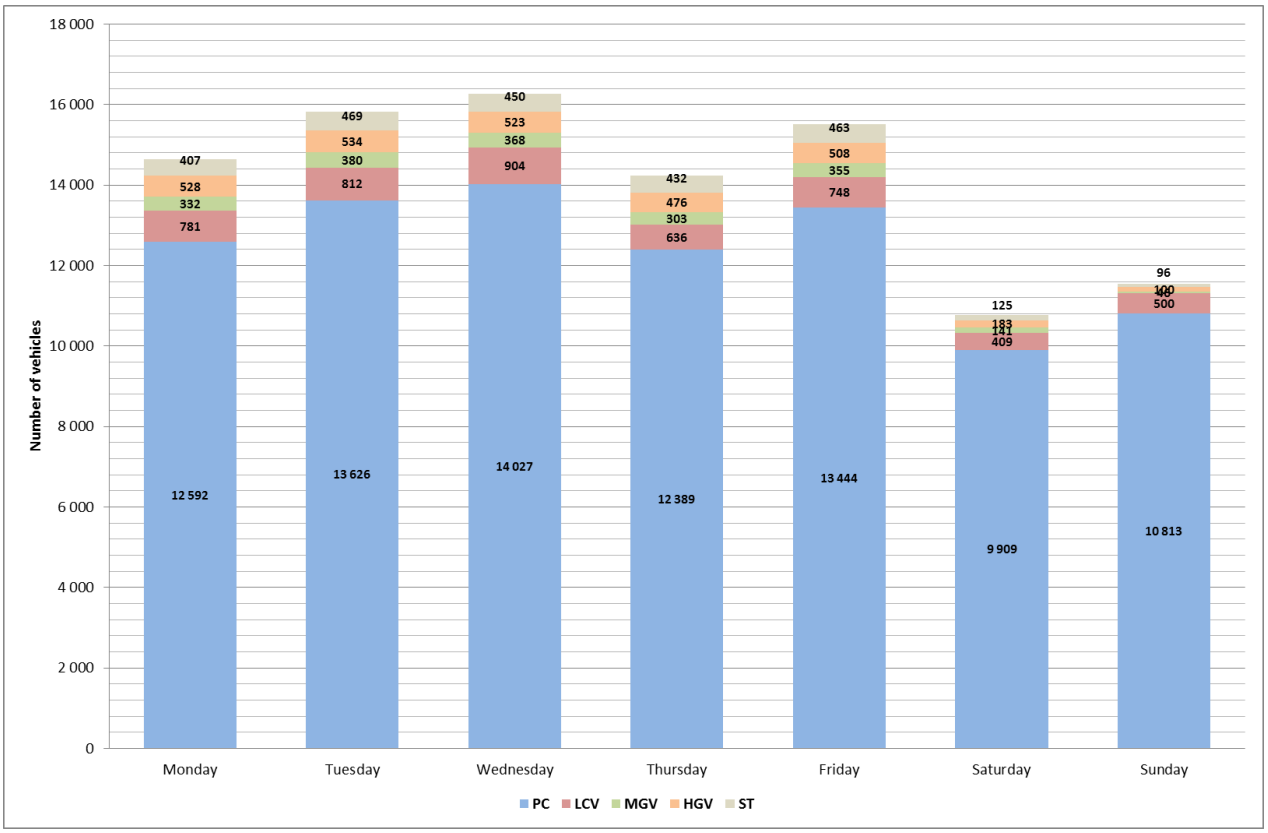

Figure 198 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-24

From the point of view of total traffic volume is the most busy day Wednesday and least busy is Saturday. The most freight vehicles was recorded during Tuesday and least Sunday.

2.3.1.25. Counting site SK-P-25: Slnečné Skaly

Road: I/64

GPS coordinates of counting site: 49.141621, 18.719140

The counting site was placed in the rural area in front of village Rajecké Teplice in the direction from Žilina on the road I/64. The road I/64 is part of the important interconnection of the north and south of the SR. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 147 The results of the profile traffic survey – counting site SK-P-25 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	11 151	905	302	352	484
Tuesday	11 240	990	370	418	555
Wednesday	11 532	946	388	410	546
Thursday	11 391	757	318	351	467

	PC	LCV	MGV	HGV	ST
Friday	12 257	913	329	384	528
Saturday	9 418	415	151	102	155
Sunday	10 133	423	33	55	110
WADT - category	**11 026**	**775**	**281**	**306**	**419**
AADT - category	**10 268**	**736**	**267**	**290**	**401**
WADT - total	**12 807**				
AADT - total	**11 961**				
Share of freight transport	**8.01%**				
Share of heavy freight transport	**5.78%**				

In the counting site SK-P-25 was recorded average intensity 11 961 veh/24 h with share of freight transport, 8.01 %. Road I/64 is part of the North-South connection of Slovak Republic and is more frequently used by passenger transport than freight transport.

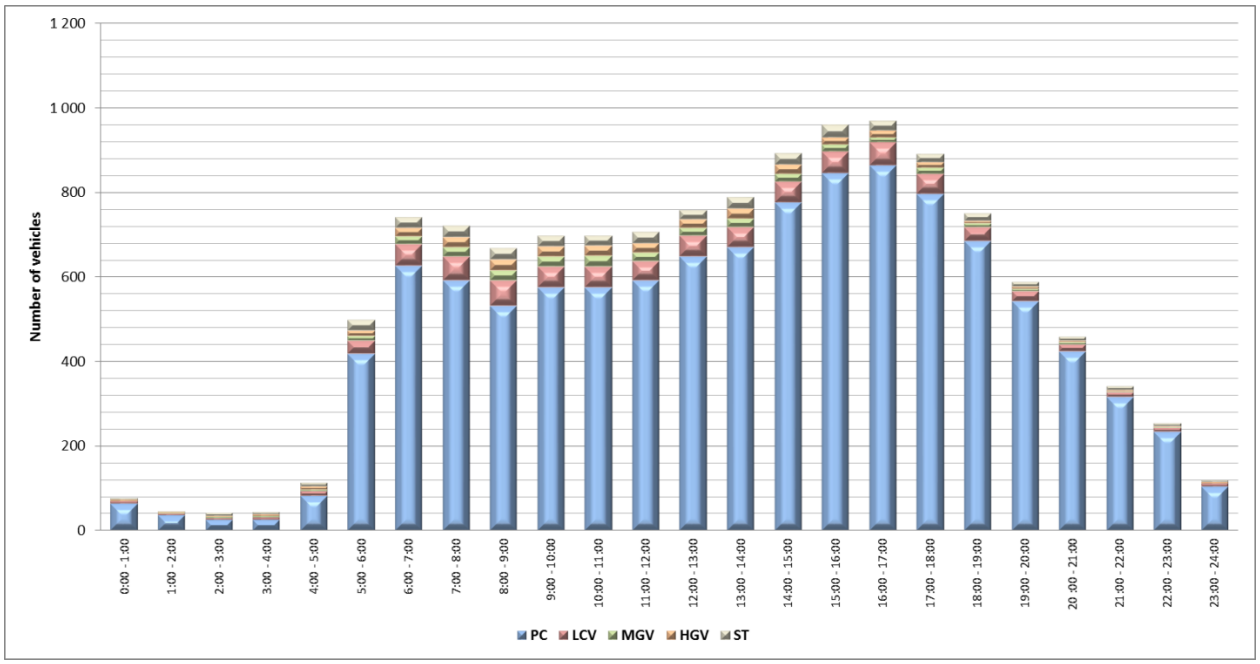

Figure 199 Hourly variation of the WADT traffic volume - counting site SK-P-25

The average hourly intensity variation higher than 900 veh/h was reached between 3:00pm – 5:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 6:00am – 8:00am and afternoon peak between 2:00pm – 6:00pm.

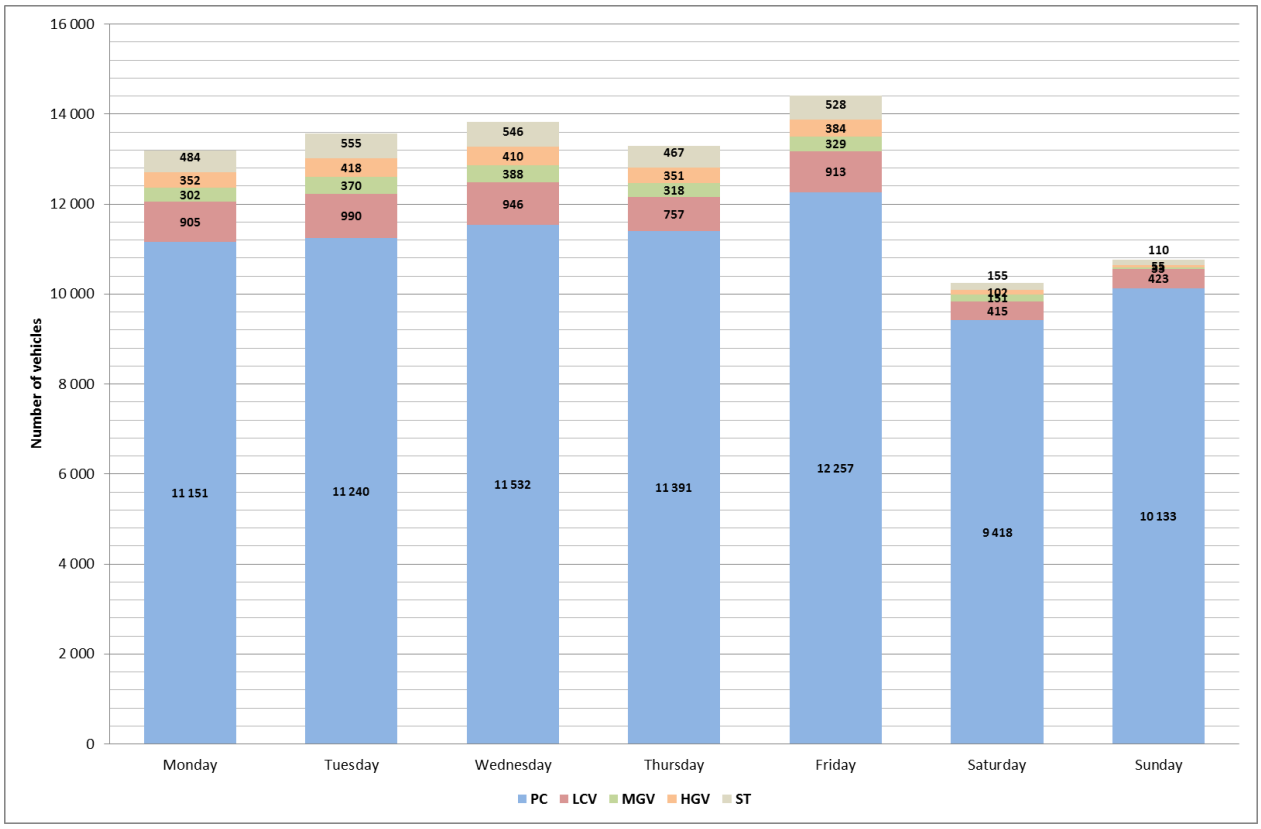

Figure 200 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-25

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.3.1.26. Counting site SK-P-26: Rajecká Lesná

Road: I/64

GPS coordinates of counting site: 49.049686, 18.621465

The counting site was located in the rural area near village Rajecká Lesná on the road I/64. The road I/64 is part of the important interconnection of the north and south of the SR. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 148 The results of the profile traffic survey – counting site SK-P-26 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	3 936	507	163	236	380
Tuesday	4 072	419	156	253	368
Wednesday	4 184	407	156	289	342
Thursday	4 274	374	136	272	322
Friday	4 843	414	151	283	312

	PC	LCV	MGV	HGV	ST
Saturday	4 536	268	77	94	35
Sunday	4 456	350	40	71	36
WADT - category	**4 340**	**404**	**137**	**224**	**263**
AADT - category	**4 041**	**383**	**130**	**213**	**252**
WADT - total	**5 368**				
AADT - total	**5 019**				
Share of freight transport	**11.84%**				
Share of heavy freight transport	**9.25%**				

In the counting site SK-P-26 was recorded average intensity 5 019 veh/24 h with share of freight transport, 11.84 %. Road I/64 is part of the North-South connection of Slovak Republic and is more frequently used by passenger transport than freight transport.

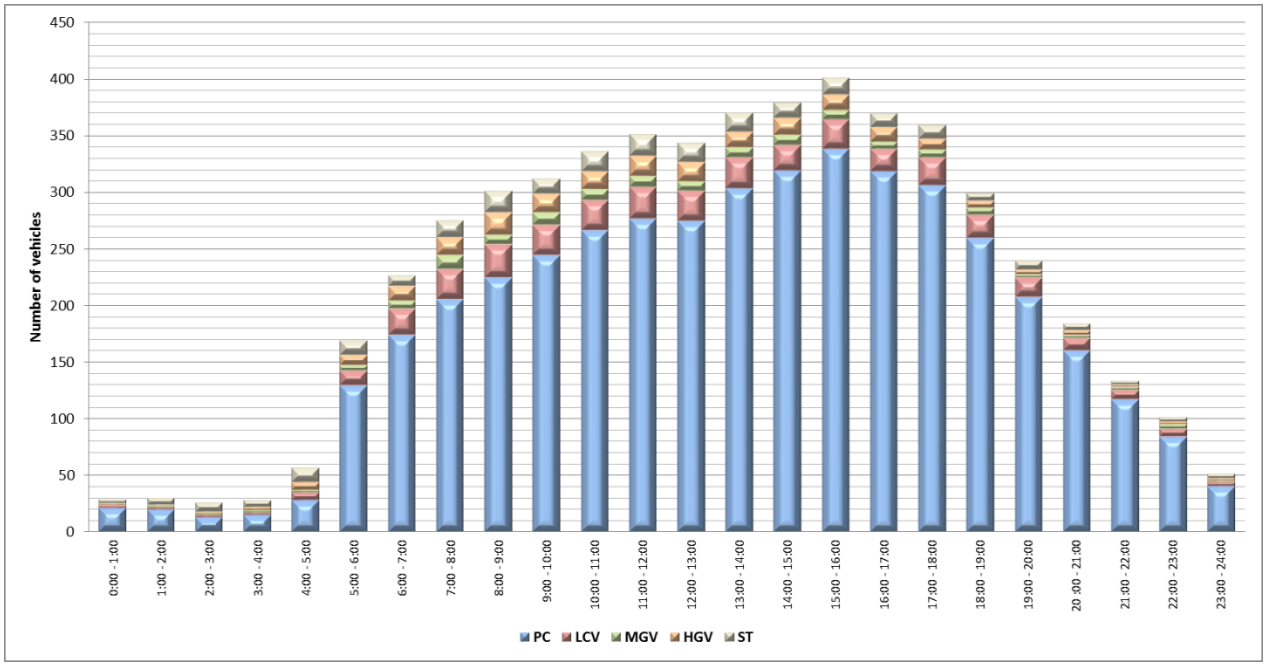

Figure 201 Hourly variation of the WADT traffic volume – counting site SK-P-26

The average hourly intensity variation higher than 400 veh/h was reached between 3:00pm – 4:00pm. From the development of average hourly intensity during day it's not possible to clearly determinate morning peak and afternoon peak is between 2:00pm – 6:00pm.

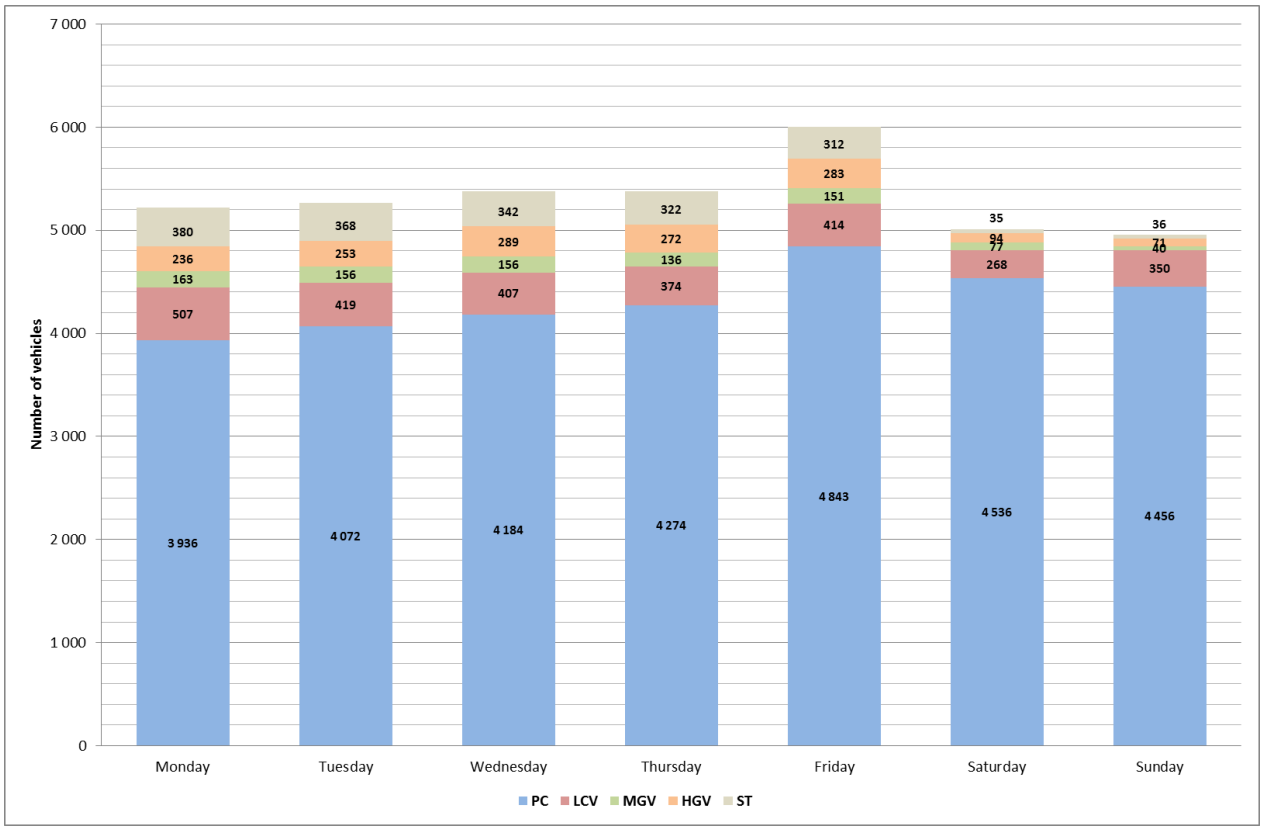

Figure 202 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-26

From the point of view of total traffic volume is the most busy day Friday and least busy is Sunday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.3.1.27. Counting site SK-P-27: Fačkov

Road: I/64

GPS coordinates of counting site: 48.989924, 18.587692

The counting site was placed in the rural area beyond the village Fačkov before uphill to the Fačkovské sedlo on the road I/64. The road I/64 is part of the important interconnection of the north and south of the SR. The counter was placed on a vertical traffic sign near the road.

The following graphical and tabular processing of traffic survey outputs documents vehicle intensity values recorded over the entire duration of the survey in the required categorization.

The weekly courses and the hourly intensities of traffic load on the given survey profile, which were calculated as the average of the data obtained for the entire survey period, are shown in the following table and graphs.

Table 149 The results of the profile traffic survey – counting site SK-P-27 (veh./24 h)

	PC	LCV	MGV	HGV	ST
Monday	1 770	318	113	61	129
Tuesday	1 734	362	92	63	147
Wednesday	1 833	334	134	66	146
Thursday	1 983	303	99	42	114
Friday	2 146	317	134	73	132

	PC	LCV	MGV	HGV	ST
Saturday	2 059	85	30	16	10
Sunday	2 554	86	26	15	8
WADT - category	**2 019**	**269**	**100**	**59**	**109**
AADT - category	**1 880**	**255**	**95**	**56**	**104**
WADT - total	**2 556**				
AADT - total	**2 391**				
Share of freight transport	**10.67%**				
Share of heavy freight transport	**6.70%**				

In the counting site SK-P-27 was recorded average intensity 2 391 veh/24 h with share of freight transport, 10.67 %. Road I/64 is part of the North-South connection of Slovak Republic and is more frequently used by passenger transport than freight transport.

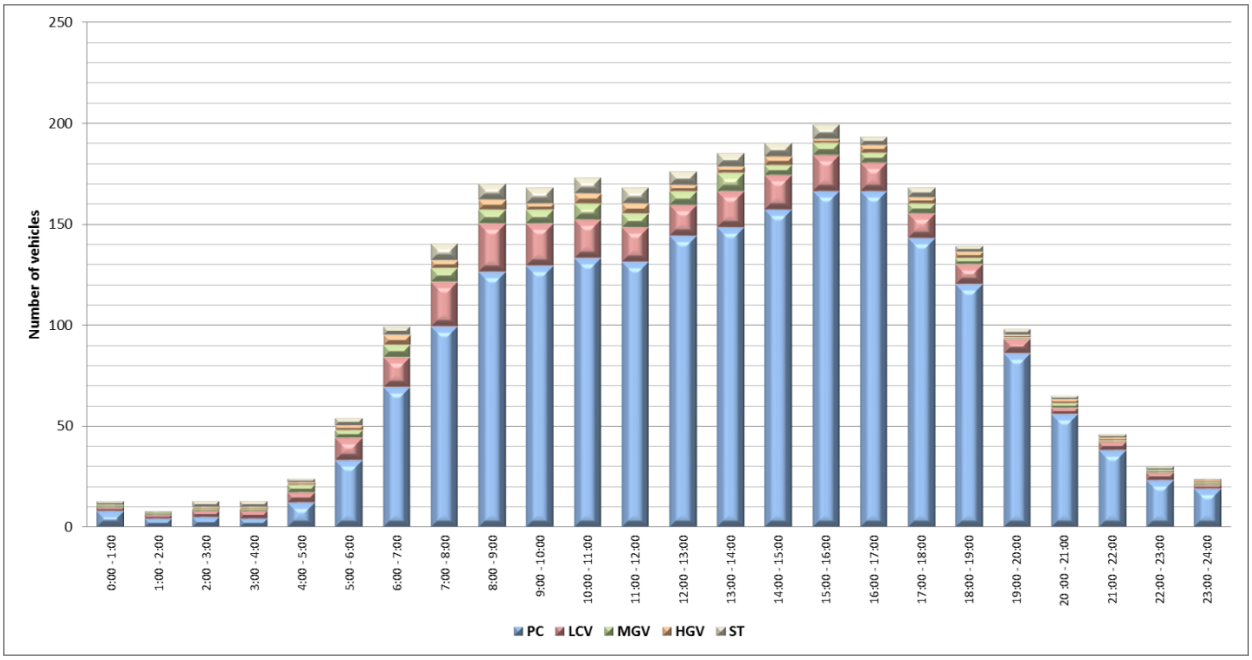

Figure 203 Hourly variation of the WADT traffic volume – counting site SK-P-27

The average hourly intensity variation higher than 200 veh/h was reached between 3:00pm – 4:00pm. From the development of average hourly intensity during day it's possible to determinate morning peak between 8:00am – 11:00am and afternoon peak between 1:00pm – 5:00pm.

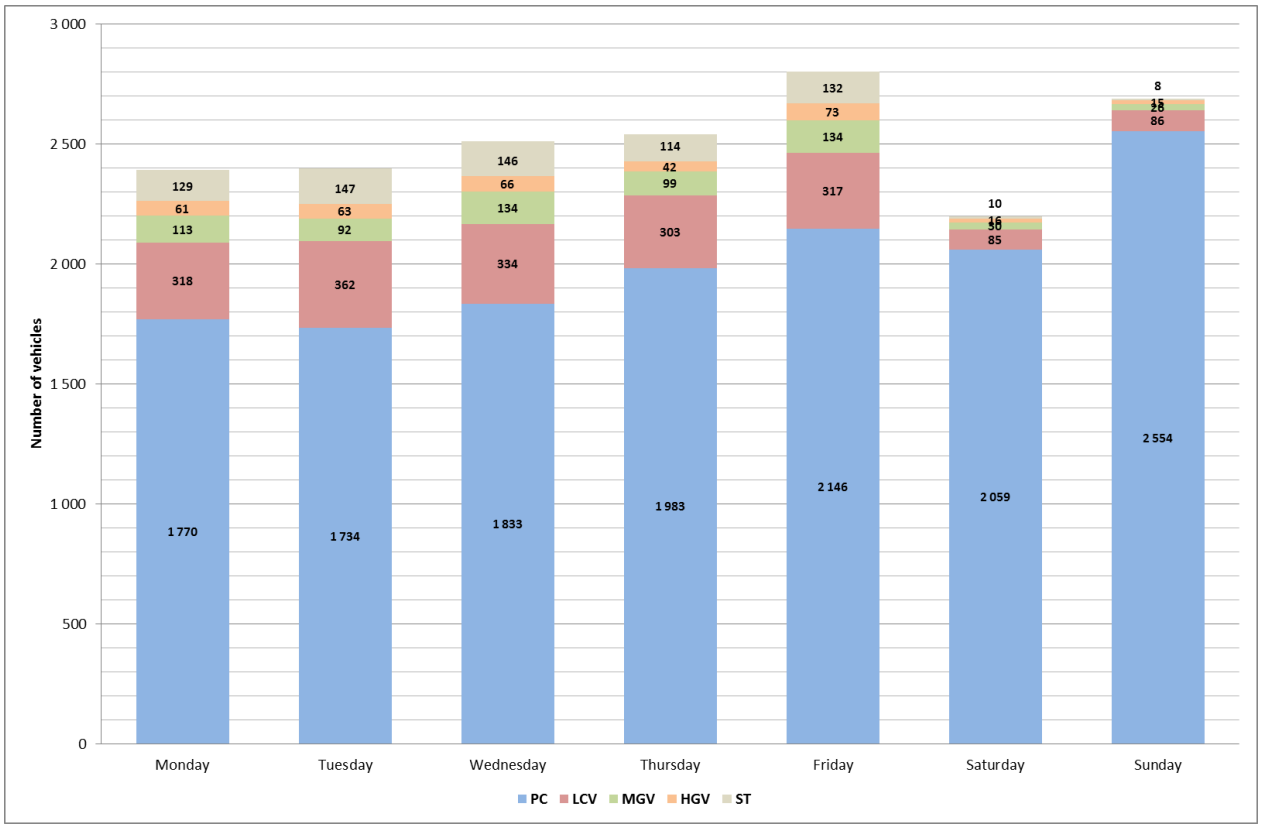

Figure 204 Daily variation of WADT traffic volume with vehicles structure – counting site SK-P-27

From the point of view of total traffic volume is the most busy day Friday and least busy is Saturday. The most freight vehicles was recorded during Wednesday and least Sunday.

2.3.2. Permanent automatic traffic counters in Žilina region

Permanent traffic counters built into the road are used for continuous measurements of traffic flow and traffic flow structure on selected sections of infrastructure. In Žilina region, NDS motorway infrastructure manager, JSC. operates permanent counters on motorway sections, expressways and some I. class roads. In case of tamperproof operation it is possible to obtain complete data for 365 days a year on the measured section, which provides an ideal input for the calculation of the daily intensity average (AADT). We asked the permanent counter operator for data for the last full year of operation, i.e. 2018. Measurements that were more than 180 days per year (6 months) were considered relevant data. From NDS, JSC. we received data from permanent counters in the Zilina region containing:

- location of the counting sites,
- number of days measured per year,
- average of daily intensities in the structure of vehicles - passenger car, light commerce vehicle, medium goods vehicle, heavy goods vehicle, semi-trailers.

The distribution of census positions of permanent counters in the Žilina region is presented in Figure 205.

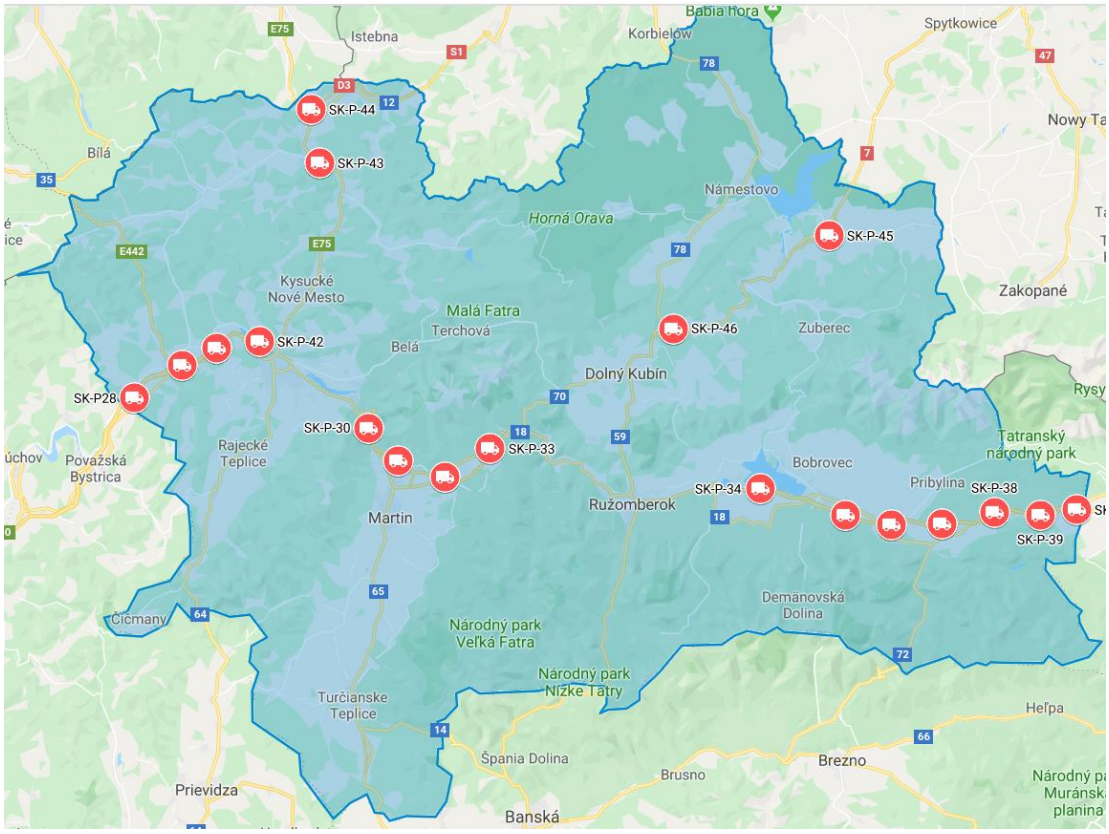

Figure 205 Distribution of counting sites for the profile traffic surveys in Žilina region by permanent ATC

Counting sites of permanent traffic counters can be found on almost every intersection of a motorway or expressway in the Žilina region. It follows that major transit routes that are part of international corridors (E, TEN-T) are monitored. In the case of the Žilina region:

- built sections of D1 motorway in the west-east direction (Bytča, Žilina, Martin, Ružomberok, Liptovský Mikuláš)
- built sections of D3 motorway in the north-south direction (Čadca, Kysucké Nové Mesto, Žilina)
- built sections of R3 expressway in the north-south direction (Trstená, Oravský Podzámok)

Table 150 The results of profile traffic surveys in Žilina region – permanent ATC (veh./24 h)

ID	Section	Measuring device	Road	GPS	Census section	Number of measured days (2018)	AADT 2018								
							PC	LCV	MGV	HGV	ST	Total	LV	HV+ BUS	BUS
SK-P-28	Považská Bystrica, North - Bytča	permanent ATC	D1	49.1871, 18.50844	97170	337	20 373	516	2 809	3 125	355	27 178	20 889	6 289	57
SK-P-29	Bytča - Hričovské Podhradie	permanent ATC	D1	49.22158, 18.58498	97180	318	21 804	564	2 867	3 083	332	28 650	22 368	6 281	50
SK-P-30	Strečno - Dubná Skala	permanent ATC	I/18	49.15542, 18.88402	90118	316	20 299	545	2 034	2 783	343	26 004	20 844	5 160	198
SK-P-31	Dubná Skala - Martin	permanent ATC	D1	49.1212, 18.93206	97280	333	8 973	293	1 206	1 694	96	12 264	9 266	2 997	103
SK-P-32	Martin - Turany	permanent ATC	D1	49.10396, 19.00645	97290	307	10 559	347	1 228	1 647	95	13 876	10 907	2 970	67
SK-P-33	Turany - Ratkovo	permanent ATC	I/18	49.13379, 19.07898	90158	304	15 377	399	1 849	1 878	166	19 670	15 777	3 893	163
SK-P-34	Ivachnová - Liptovský Mikuláš	permanent ATC	D1	49.09163, 19.51139	97220	361	16 261	359	2 032	1 593	172	20 417	16 620	3 797	109
SK-P-35	Liptovský Mikuláš - Liptovský Ján	permanent ATC	D1	49.06411, 19.64847	97230	299	18 400	252	927	852	84	20 516	18 653	1 863	48
SK-P-36	Liptovský Ján - Liptovský Hrádok	permanent ATC	D1	49.05366, 19.72097	97230	333	14 427	370	1 375	1 348	120	17 640	14 797	2 843	73
SK-P-37	Liptovský Hrádok - Hybe	permanent ATC	D1	49.05537, 19.80284	97250	333	13 012	380	1 271	1 309	119	16 091	13 392	2 699	84
SK-P-38	Hybe - Východná	permanent ATC	D1	49.06745, 19.88696	97260	203	14 631	299	1 746	1 271	139	18 085	14 930	3 155	76
SK-P-39	Východná - Važec	permanent ATC	D1	49.06425, 19.96042	97270	287	14 472	402	1 683	1 392	143	18 091	14 874	3 217	114
SK-P-40	Važec - Štrba	permanent ATC	D1	49.06995, 20.01883	07300	363	14 329	411	1 671	1 383	147	17 940	14 739	3 200	112
SK-P-41	Hričovské Podhradie - Žilina, West	permanent ATC	D3	49.23923, 18.64018	97190	346	22 146	692	2 972	3 274	369	29 452	22 837	6 615	55
SK-P-42	Žilina, West - Žilina, North	permanent ATC	D3	49.24597, 18.70875	-	324	3 707	195	766	1 373	153	6 195	3 902	2 293	85
SK-P-43	Krásno nad Kysucou - Čadca (tunnel	permanent ATC	D3	49.43213, 18.80524	90276	352	10 072	211	1 494	2 708	352	14 838	10 284	4 554	674

ID	Section	Measuring device	Road	GPS	Census section	Number of measured days (2018)	AADT 2018								
							PC	LCV	MGV	HGV	ST	Total	LV	HV+ BUS	BUS
	Horelica)														
SK-P-44	Svrčinovec - border crossing SK/PL (tunnel Svrčinovec)	permanent ATC	D3	49.4882, 18.79172	-	295	814	79	379	632	79	1 983	893	1 090	40
SK-P-45	R3 Trstená, bypass	permanent ATC	R3	49.35684, 19.62195	95850	188	2 550	298	346	611	121	3 666	2 848	1 078	49
SK-P-46	R3 Oravský Podzámok, bypass	permanent ATC	R3	49.25951, 19.37251	95780	193	5 241	631	514	785	163	6 739	5 872	1 463	95

Table 150 shows the results of measurements of permanent traffic counters in the Žilina region at 17 counting sites (SK-P-28 to SK-P-46). The resulting table also includes the identification of the counting section of the national census corresponding to the counting site. The results are presented for all required vehicle categories (PC, LCV, MGV, HGV, ST) and also in a simplified structure of light and heavy vehicles for the needs of the transport model. The number of buses was based on the structure of the traffic flow of the National Census in 2015 on the same counting section.

On more continuous sections of motorways and expressways, the intensity is measured at the level of 17 000 – 30 000 vehicles/24 h. For sections of motorways and expressways that are not yet continuous built, the total intensity is approximately 2 000 - 12 000 vehicles/24 h.

2.3.3. Summary results of the profile surveys in Žilina region

The result of profile measurements of traffic intensities is the identification of the structure and total amount of traffic flow on selected road sections in the Žilina region. The following tables summarize in a clear form the main results of measurements with the distribution of individual routes in the Žilina region.

Table 151 Results of profile traffic survey – Žilina region, roads D3, I/11

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
SK-P-1	Border Čadca/Svrčinovec	mobile ATC	I/11	11 139	6 897	4 242	204	36.25%
SK-P-44	Svrčinovec – border crossing SK/PL (tunnel Svrčinovec)	permanent ATC	D3	1 983	893	1 090	40	52.96%
SK-P-2	Čadca, Horelica	mobile ATC	D3 (I/11A)	10 701	7 639	3 062	454	24.37%
SK-P-43	Krásno nad Kysucou – Čadca (tunnel Horelica)	permanent ATC	D3	14 838	10 284	4 554	674	26.15%
SK-P-21	Brodno	mobile ATC	I/11	24 120	20 193	3 927	280	15.12%
SK-P-42	Žilina, West - Žilina, North	permanent ATC	D3	6 195	3 902	2 293	85	35.64%

The roads D3, I/11, I/12 connect the border crossings Svrčinovec/Mosty u Jablunkova and Skalité/Zwardon with Žilina. It is an important north-south connection from the Czech Republic, Poland in the Žilina region, which is also part of the core TEN-T network (Baltic-Adriatic corridor). At present, most of the route is made up of a I. class road, located in the corridor of the planned D3 motorway. The sections D3 Svrčinovec - Skalité (half profile), D3 (I/11A) Oščadnica - Čadca (half profile) and D3 Žilina, west - Žilina, north (bypass of Žilina) are in operation. In 2020, it is planned to launch section D3 Čadca - Svrčinovec.

According to the results of surveys on the main section between Čadca and Žilina, the total intensity is approximately 14 000 – 24 000 vehicles/24 hours with a share of goods vehicles to approximately 30%. On the section of the D3 motorway Svrčinovec - state border SR/PL, the total intensity is only 1 983 vehicles/24 hours, but the share of freight transport is almost 53%. The low load on this section is caused by the unfinished consequential infrastructure on the Polish side in direction to Bielsko-Biala (S1). In the section D3 Žilina, west - Žilina, north, the total intensities are 6 195 vehicles/24 hours but up to 35.64% share is formed by freight transport. In absolute terms, the intensities of freight transport on the section between Čadca and Žilina are approximately 2 500 - 4 000 vehicles/24 h. It follows that the section is important for freight transport, but also for passenger transport.

Table 152 Results of profile traffic survey – Žilina region, roads D1, I/18

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
SK-P-22	Mojšová Lúčka	mobile ATC	I/18	29 974	25 302	4 672	262	14.71%
SK-P-23	Strečno	mobile ATC	I/18	24 728	20 028	4 700	180	18.28%
SK-P-30	Strečno - Dubná Skala	permanent ATC	I/18	26 004	20 844	5 160	198	19.08%
SK-P-33	Turany - Ratkovo	permanent ATC	I/18	19 670	15 777	3 893	163	18.97%

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
SK-P-16	Ľubochňa, West	mobile ATC	I/18	14 078	11 966	2 112	91	14.36%
SK-P-8	Černová	mobile ATC	I/18	16 949	14 405	2 544	116	14.33%
SK-P-10	Ružomberok	mobile ATC	I/18	25 838	22 814	3 024	202	10.92%
SK-P-17	Liptovský Hrádok, EAST	mobile ATC	I/18	4 045	3 638	407	61	8.75%
SK-P-31	Dubná Skala - Martin	permanent ATC	D1	12 264	9 266	2 997	103	23.60%
SK-P-32	Martin - Turany	permanent ATC	D1	13 876	10 907	2 970	67	20.92%
SK-P-34	Ivachnová - Liptovský Mikuláš	permanent ATC	D1	20 417	16 620	3 797	109	18.06%
SK-P-35	Liptovský Mikuláš - Liptovský Ján	permanent ATC	D1	20 516	18 653	1 863	48	8.55%
SK-P-36	Liptovský Ján - Liptovský Hrádok	permanent ATC	D1	17 640	14 797	2 843	73	15.70%
SK-P-37	Liptovský Hrádok - Hybe	permanent ATC	D1	16 091	13 392	2 699	84	16.25%
SK-P-38	Hybe - Východná	permanent ATC	D1	18 085	14 930	3 155	76	17.03%
SK-P-39	Východná - Važec	permanent ATC	D1	18 091	14 874	3 217	114	17.15%
SK-P-40	Važec - Štrba	permanent ATC	D1	17 940	14 739	3 200	112	17.22%

There is a crossroad of the main routes of the SR from north to south and from west to east in Žilina. The roads D1 and I/18 are part of the route leading to the east of Slovakia to the state border with Ukraine. The route consisting of roads D1 and I/18 are part of the core TEN-T network (Rhine-Danube Corridor). The road I/18 lies on the route of the planned corridor of the D1 motorway, which is not yet fully completed in the Žilina region. The sections D1 Dubná Skala - Turany, Ivachnová - Štrba are in operation. In these sections, the road I/18 is an alternative parallel road to the D1 motorway. The sections of the D1 motorway Hričovské Podhradie - Lietavská Lúčka, Lietavská Lúčka - Dubná Skala and Hubová - Ivachnová are under construction and are expected to be operational by 2023. The last missing section is D1 Turany - Hubová, which is under preparation.

The results of profile traffic surveys on the route from Žilina in the direction to the east of the Slovak Republic show that parallel sections of the D1 motorway (road I/18) are loaded with lower intensities. The intensity on the main route in direction to the east is approximately 12 000 – 25 000 vehicles, with a share of freight transport around 20%. The route is used as the main transit route not only by passenger but also by freight transport. The most loaded section is Ružomberok with an intensity of 25 838 vehicles/24 hours with the share of freight transport 10.92%. On the continuous section of the D1 motorway from Ivachnova in the east direction, the intensity ranges from 16 000 to 20 000 vehicles/24 hours with a freight transport share of 15% -18%. The problematic section is I. class road I/18 from Žilina to Martin, where the intensities range from 20 000 to 25 000 vehicles/24 hours with a freight transport share of approximately 19%. The number of goods vehicles on the route D1 and I/18 is approximately 2 000 – 5 000 vehicles/24 hours depending on the section. The high overall vehicle intensities on this route, as well as the high share of goods vehicle, underline its importance and the need to build it.

Table 153 Results of profile traffic survey – Žilina region, roads D1, I/61

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
SK-P-19	Predmier	mobile ATC	I/61	4 749	4 016	733	77	13.81%
SK-P-20	Strážov	mobile ATC	I/61	8 431	6 922	1 509	158	16.03%
SK-P-28	Považská Bystrica, North - Bytča	permanent ATC	D1	27 178	20 889	6 289	57	22.93%
SK-P-29	Bytča - Hričovské Podhradie	permanent ATC	D1	28 650	22 368	6 281	50	21.75%
SK-P-41	Hričovské Podhradie – Žilina, West	permanent ATC	D3	29 452	22 837	6 615	55	22.27%

The roads D1, D3 and I/61 leading south-west from Žilina create a connection between Bratislava and Žilina. The motorways D1 and D3 form continuous motorway connection between Žilina and the Slovak

capital Bratislava. The D1 motorway will form the southern bypass of Žilina in the east direction from Hričovské Podhradie. After completing the section D1 Hričovské Podhradie - Lietavská Lúčka - Dubná Skala, the intersection of the D1 and D3 motorways will be in Hričovské Podhradie i.e. crossing the corridors in the west - north - east directions. Road I/61 forms a parallel section of the motorways D1 and D3 from Bratislava to Žilina. The roads D1 and D3 are part of the core TEN-T network in the Žilina region, consisting of the Baltic-Adriatic and Rhine-Danube corridors.

On the parallel road I/61 in the Žilina region, the total intensity of 4 500 – 8 500 vehicles/24 hours with freight transport share of 13% -16%. On the motorway sections from Považská Bystrica to Žilina, the total intensities are 27 000 – 29 500 vehicles/24 hours with freight transport share of 21% to 23%. During the traffic surveys, intensities of freight transport at the level of 6 200 – 6 660 vehicles/24 hours were measured on the motorway sections. The route Bratislava - Žilina is important for both the Slovak Republic and the Žilina region from the perspective of passenger and freight transport.

Table 154 Results of profile traffic survey – Žilina region, roads R3, I/59, I/70

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
SK-P-15	Tvrdošín, North	mobile ATC	I/59	11 120	9 686	1 434	253	10.62%
SK-P-5	Kňažia	mobile ATC	I/59	13 151	11 072	2 079	587	11.35%
SK-P-7	Dolný Kubín	mobile ATC	I/59	10 287	9 167	1 120	156	9.37%
SK-P-9	Likavka	mobile ATC	I/59	8 136	7 066	1 070	126	11.60%
SK-P-11	Biely Potok	mobile ATC	I/59	10 432	9 363	1 069	130	9.00%
SK-P-12	Donovaly	mobile ATC	I/59	8 407	7 518	889	83	9.59%
SK-P-13	Hanesy (Donovaly)	mobile ATC	I/59	8 953	8 043	910	85	9.21%
SK-P-6	Malý Bysterec	mobile ATC	I/70	12 097	10 741	1 356	124	10.18%
SK-P-18	Istebné	mobile ATC	I/70	8 744	7 707	1 037	95	10.77%
SK-P-14	Párnica, South	mobile ATC	I/70	4 962	4 054	908	34	17.61%
SK-P-45	R3 Trstená, bypass	permanent ATC	R3	3 666	2 848	1 078	49	28.07%
SK-P-46	R3 Oravský Podzámok, bypass	permanent ATC	R3	6 739	5 872	1 463	95	20.30%

The road I/59 is a road leading from the state border of SR/PL (north) through Trstená, Dolný Kubín, Ružomberok (crosses road I/18) to Banská Bystrica (south). In Dolný Kubín it intersects with the road I/70 leading through Párnica to Kraľovany, where it connects to the road I/18. The intersection of roads I/70 and I/59 in Dolný Kubín is important because of the redistribution of traffic flow. Vehicles heading to west use the road I/70 and vehicles heading to south and respectively east direction use road I/59. The road I/59 from the Slovak/Polish border to Dolný Kubín and road I/70 from Dolný Kubín to Kraľovany is part of the TEN-T network as well as the road section I/59 from Ružomberok to Banská Bystrica. The construction of expressway R3 is planned in the corridor of road I/59 to Ružomberok and from Dolný Kubín and partly road I/70 and construction of expressway R1 is planned from Ružomberok to Banská Bystrica. Up to now, section of expressway R3 in a half-section near Trstená and Oravský Podzámok were built. In the case of the expressway R1 in the direction, no sections have yet been built. For this reason, the main traffic load on the above-mentioned road sections is mainly conducted on I.class roads.

The traffic intensity in the section from the border of SR/PL to Dolný Kubín is approximately 10000 – 13 000 vehicles/24 hours with a freight transport share of 9% -11%. The traffic load is redistributed between roads I/59 and I/70 in Dolný Kubín. On the I/70 road, intensities of 5 000 – 12 000 vehicles/24 hours were measured with a freight transport share of 10% -17%. From Dolný Kubín in the direction to Ružomberok (I/59), the intensity of approximately 8 000 vehicles/24 hours was recorded with a freight transport share of approximately 11%. On the road I/59 from Ružomberok in the south direction, total intensities of approximately 8 000 – 10 000 vehicles/24 hours were recorded with the freight transport share about 9%. On the expressway R3 near Trstena, the intensity of 3 666 vehicles/24 hours was measured with freight transport share of 28.07% and near Oravský Podzámok 6 739 vehicles/24 hours with

freight transport share of 20.30%. Approximately 800 – 1 500 goods vehicle were recorded on the road sections I/59, I/70 and R3.

Table 155 Results of profile traffic survey - Žilina region, road I/64

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
SK-P-24	Lietavská Lúčka	mobile ATC	I/64	13 226	12 215	1 011	225	5.94%
SK-P-25	Slnečné Skaly	mobile ATC	I/64	11 961	11 003	958	181	6.49%
SK-P-26	Rajecká lesná	mobile ATC	I/64	5 019	4 425	594	61	10.62%
SK-P-27	Fačkov, crossroads	mobile ATC	I/64	2 391	2 135	255	23	9.71%

The road I/64 from Žilina in the direction to Prievidza is not part of any international road corridors. No motorway or expressway construction is planned in the I/64 corridor. The road is important mainly in the interregional connection of the Žilina and Trenčín regions and, if necessary, it can also serve as an alternative route when connecting from the south in the direction to Žilina.

The highest intensity on the road I/64 was recorded in Lietavská Lúčka near Žilina at the level of 13 226 vehicles/24 hours with a freight transport share of 5.94%. By increasing the distance from Žilina, the intensity decreases to approximately 2 391 vehicles/24 hours, which was measured for the Fačkov mountain pass. In all measured sections, the share of freight transport is approximately 6% to 11%, which in absolute terms represents 232 – 786 vehicles. The road is important mainly from the regional point of view and for passenger transport.

Table 156 Results of profile traffic survey - Žilina region, road I/65

ID	Locality	Measuring device	Road	Total	LV	HV+BUS	BUS	%-share of freight transport
SK-P-3	Diviaky (road to Martin)	mobile ATC	I/65	3 100	2 384	716	35	21.97%
SK-P-4	Tur. Teplice (road to Kremnice)	mobile ATC	I/65	5 522	4 316	1 206	67	20.63%

The road I/65 is connected to road I/18 in Martin and run through Turčianske Teplice to the south to Žiar nad Hronom. From Martin to the intersection with the expressway R1, the road I/65 is part of the other primary TEN-T network and at the same time lies on the corridor of the planned expressway R3. At present, only a short section of R3 at Horná Štubňa is operated in half profile.

On the measured sections of road I/65, low intensities of 3 100 – 5 500 vehicles/24 hours were measured with a quite high proportion of goods vehicles 20% - 22%. The road I/65 in the described section is an alternative to the road I/59.

3. Transport demand survey between operators of freight transport and manufacturing enterprises

In order to determine the volumes of goods transported by individual transport modes, a survey was carried out aimed at important business entities, which were expected to have a high volume of transport, whether for the import of raw materials and materials or export of finished products. The complete list of these companies can be found in Annex 6, List of requested companies in document DT3.1.2 Preparation and performance of traffic surveys. The survey was carried out by directly addressing selected businesses by e-mail. The questionnaires were sent to the companies on:

- 4.6.2018 and 7.11.2018 in Czech republic,
- 10.12.2019 in Poland,
- 3.7.2018 in Slovakia.

The structure of the questionnaire was as follows: In the first part, the company was asked to fill in some basic identification data: Company name, Contact details and Business activities of the company

Part A of the questionnaire itself used to determine the current use of the various modes of transport by the company, the nature of the transport (national or international), the type of commodity transported, the source and destination, the frequency (scheduled or non-scheduled). Each type of commodity should be listed separately in a separate line of the questionnaire.

Part B asked for the potential use of the Oder waterway for each commodity transported separately.

3.1. Results of the demand survey in the Czech Republic

In the first phase, 47 major companies were selected from the Silesian and Northern Moravian regions, which include the Moravian-Silesian Region. In case of a positive response, further questioning of less important enterprises in the Moravian-Silesian Region and extension of the territory to the whole of Moravia (in the inclusion of the Olomouc Zlin Region and the South Moravian Region) were considered.

The questionnaire was sent electronically to all companies listed on 5 June 2018. Due to the minimal return of the questionnaires of the right batch of the survey, a new questioning was carried out on 7.11.2018, again electronically. However, the success of the questionnaires' return of the questionnaires did not increase.

Feedback from the addressed companies reached about 6%, but none of the companies sent the required data. The responses mentioned the lack of interest in the project and the impossibility to provide data due to the company's business secrets.

Concerning the low number of answers received in share to successful sent questionnaires were not the results of demand survey accepted as a suitable sample for freight transport analysis and demand survey was considered unsuccessful.

The considered further phases of the questionnaire survey in the Czech Republic were not realized in agreement with the responsible partner.

3.2. Results of the demand survey in Poland

Concerning the low number of received answers in share to successful sent questionnaires (just one answer - incomplete) were not the results of demand survey accepted as suitable sample for freight transport analysis and demand survey was considered a unsuccessful. Even the most basic partial analysis cannot be carried out from such a small sample. Only one company has answered our demand survey (Table 157) – Budimex S.A (PL1). It is construction business company which uses only road transport in Silesia region. The frequency of transportation is about 3-4 times per week, i.e. year load is about 2 500 000 t.

The company completed Part B in the questionnaire but it was misunderstanding, so the data can’t be analysed.

Table 157 Answers from demand survey in Poland

S. no.	Company ID	Transport mode	Transport nature	Transported commodity	Transport source			Place of transhipment (intermodal transport)	Transport destination			Non-scheduled transport	Scheduled transport	Quantity of goods transported per calendar year (t)	Quantity of goods transported per calendar year (m3)
					Country (NUTS I)	Region (NUTS III)	City (LAU 1)		Country (NUTS I)	Region (NUTS III)	City (LAU 1)				
1	PL1	Road	Regional	Building Materials	PL	PL010L2			PL	PL010L2		non	3-4 times per week	2 500 000	2 500 000

3.3. Results of the demand survey in Slovakia

Concerning the low number of received answers in share to successful sent questionnaires (approximately 0.6%) were not the results of demand survey accepted as suitable sample for freight transport analysis and demand survey was considered a unsuccessful. Even the most basic partial analysis cannot be carried out from such a small sample

Only three companies have answered our demand survey (Table 158):

- SK1 – Plzeňský Prazdroj Slovakia, JSC, Veľký Sariš
- SK2 – Hyundai Steel Slovakia, Ltd., Gbeľany
- SK3 – TRATRAVAGÓNKA, JSC. Poprad

One was from food business located in Prešov region, which uses only road transport for their products within Slovakia and Czech Republic. Second company was heavy engineering enterprise located in Žilina district which uses in addition to road transport mode also intermodal mode of regular transport to France and Korea in total volume 130.000t of their metal products per year. For transport to Sweden, Germany and Austria uses only road transport. Third one was also heavy engineering enterprise from Poprad region which uses railway and road transport for their products. Railway is used as an irregular mode of transport for 200.000t (45% of production) of their products to Poland per year.

None of the companies completed Part B in the questionnaire, which might lead to the conclusion that none of the companies is even considering using the waterway to transport their products, but again it should be pointed out that with such a small sample of source data no relevant conclusion can be drawn.

Table 158 Answers from demand survey in Slovakia

S. no.	Company ID	Transport mode	Transport nature	Transported commodity	Transport source			Place of transhipment (intermodal transport)	Transport destination			Non-scheduled transport	Scheduled transport	Quantity of goods transported per calendar year (t)	Quantity of goods transported per calendar year (m3)
					Country (NUTS I)	Region (NUTS III)	City (LAU 1)		Country (NUTS I)	Region (NUTS III)	City (LAU 1)				
1	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Bratislava	Bratislava		5x-7x per week	5796	16470
2	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Žilina	Bytča		5x-7x per week	8676	24654
3	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Nitra	Topolčany		5x-7x per week	15804	44910
4	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Banská Bystrica	Zvolen		5x-7x per week	5670	16112
5	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Košice	Spišská Nová Ves		5x-7x per week	8982	25524
6	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Banská Bystrica	Lučenec	2-5x per year		54	153
7	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trnava	Senica	>10x per year		1026	2916
8	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Banská Bystrica	Krupina	>10x per year		522	1483
9	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Nitra	Topolčany	2-5x per year		90	256
10	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Žilina	Martin	>10x per year		882	2506
11	SK1	Road	National	food and beverages	CZ	Pilsen	Pilsen		SK	Bratislava	Bratislava		5x-7x per week	6570	18670
12	SK1	Road	National	food and beverages	CZ	Pilsen	Pilsen		SK	Žilina	Bytča		5x-7x per week	4284	12174

S. no.	Company ID	Transport mode	Transport nature	Transported commodity	Transport source			Place of transhipment (intermodal transport)	Transport destination			Non-scheduled transport	Scheduled transport	Quantity of goods transported per calendar year (t)	Quantity of goods transported per calendar year (m3)
					Country (NUTS I)	Region (NUTS III)	City (LAU 1)		Country (NUTS I)	Region (NUTS III)	City (LAU 1)				
13	SK1	Road	National	food and beverages	CZ	Pilsen	Pilsen		SK	Nitra	Topolčany		5x-7x per week	12636	35907
14	SK1	Road	National	food and beverages	CZ	Pilsen	Pilsen		SK	Banská Bystrica	Zvolen		5x-7x per week	2862	8133
15	SK1	Road	National	food and beverages	CZ	Pilsen	Pilsen		SK	Košice	Spišská Nová Ves		5x-7x per week	2070	5882
16	SK1	Road	National	food and beverages	CZ	Pilsen	Pilsen		SK	Prešov	Prešov		5x-7x per week	8190	23273
17	SK1	Road	International	food and beverages	CZ	Moravian-Silesian	Frýdek -Místek		SK	Žilina	Bytča		5x-7x per week	3312	9412
18	SK1	Road	International	food and beverages	CZ	Moravian-Silesian	Frýdek -Místek		SK	Nitra	Topolčany		5x-7x per week	10764	30588
19	SK1	Road	International	food and beverages	CZ	Moravian-Silesian	Frýdek -Místek		SK	Banská Bystrica	Zvolen		5x-7x per week	1476	4194
20	SK1	Road	International	food and beverages	CZ	Moravian-Silesian	Frýdek -Místek		SK	Košice	Spišská Nová Ves		5x-7x per week	108	307
21	SK1	Road	National	food and beverages	CZ	Moravian-Silesian	Frýdek -Místek		SK	Bratislava	Bratislava		5x-7x per week	1944	5524
22	SK1	Road	National	food and beverages	CZ	Moravian-Silesian	Frýdek -Místek		SK	Prešov	Prešov		5x-7x per week	3150	8951
23	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Prešov	Bardejov	>10x per year		1818	5166
24	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Košice	Košice	>10x per year		1854	5268
25	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Prešov	Prešov	>10x per year		4788	13606

S. no.	Company ID	Transport mode	Transport nature	Transported commodity	Transport source			Place of transhipment (intermodal transport)	Transport destination			Non-scheduled transport	Scheduled transport	Quantity of goods transported per calendar year (t)	Quantity of goods transported per calendar year (m3)
					Country (NUTS I)	Region (NUTS III)	City (LAU 1)		Country (NUTS I)	Region (NUTS III)	City (LAU 1)				
26	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Prešov	Stará Lubovna	2-5x per year		72	205
27	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trenčín	Banovce nad Bebravou	>10x per year		378	1074
28	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trnava	Trnava	>10x per year		3312	9412
29	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trnava	Hlohovec	2-5x per year		90	256
30	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trenčín	Ilava	>10x per year		4014	11406
31	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Nitra	Nitra	2-5x per year		72	205
32	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trenčín	Trenčín	>10x per year		972	2762
33	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trnava	Piestany	>10x per year		306	870
34	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trenčín	Prievidza	>10x per year		684	1944
35	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Nitra	Sala	>10x per year		288	818
36	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Bratislava	Senec	2-5x per year		36	102
37	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Nitra	Topolčany	>10x per year		1044	2967
38	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trenčín	Trenčín	>10x per year		1026	2916

S. no.	Company ID	Transport mode	Transport nature	Transported commodity	Transport source			Place of transhipment (intermodal transport)	Transport destination			Non-scheduled transport	Scheduled transport	Quantity of goods transported per calendar year (t)	Quantity of goods transported per calendar year (m3)
					Country (NUTS I)	Region (NUTS III)	City (LAU 1)		Country (NUTS I)	Region (NUTS III)	City (LAU 1)				
39	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trnava	Trnava	>10x per year		486	1381
40	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Žilina	Liptovský Mikuláš	>10x per year		648	1841
41	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trenčín	Trenčín	2-5x per year		54	153
42	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trenčín	Trenčín	>10x per year		3636	10332
43	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Bratislava	Bratislava	>10x per year		756	2148
44	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Nitra	Topolčany	>10x per year		972	2762
45	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Prešov	Humenne	>10x per year		2664	7570
46	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Trenčín	Ilava	>10x per year		5058	14373
47	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Banská Bystrica	Lučenec	>10x per year		756	2148
48	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Žilina	Martin	6-10x per year		144	409
49	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Trenčín	Trenčín	>10x per year		2358	6701
50	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Košice	Spišská Nová Ves	>10x per year		342	972
51	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Košice	Třebišov	>10x per year		2214	6291

S. no.	Company ID	Transport mode	Transport nature	Transported commodity	Transport source			Place of transhipment (intermodal transport)	Transport destination			Non-scheduled transport	Scheduled transport	Quantity of goods transported per calendar year (t)	Quantity of goods transported per calendar year (m3)
					Country (NUTS I)	Region (NUTS III)	City (LAU 1)		Country (NUTS I)	Region (NUTS III)	City (LAU 1)				
52	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Trnava	Trnava	6-10x per year		162	460
53	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Prešov	Vranov	>10x per year		450	1279
54	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Trnava	Trnava	>10x per year		2052	5831
55	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Bratislava	Senec	2-5x per year		36	102
56	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Banská Bystrica	Krupina	>10x per year		180	512
57	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Trnava	Trnava	>10x per year		396	1125
58	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Bratislava	Bratislava	>10x per year		1026	2916
59	SK1	Road	National	food and beverages	SK	Nitra	Topolčany		SK	Bratislava	Senec	2-5x per year		18	51
60	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Bratislava	Bratislava	2-5x per year		72	205
61	SK1	Road	National	food and beverages	SK	Prešov	Prešov		SK	Trenčín	Trenčín	>10x per year		180	512
62	SK2	Multimodal	International	metal products	KOR			SLO (Koper)	SK	Žilina	Žilina		1-2x per week	110000	
63	SK2	Multimodal	International	metal products	FRA			PL (Gliwice)	SK	Žilina	Žilina	>10x per year		10960	
64	SK2	Road	International	metal products	FRA				SK	Žilina	Žilina	2-5x per year		4040	

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					Country (NUTS I)	Region (NUTS III)	City (LAU 1)		Country (NUTS I)	Region (NUTS III)	City (LAU 1)				
65	SK2	Road	International	metal products	D				SK	Žilina	Žilina	2-5x per year		5000	
66	SK2	Road	International	metal products	D				SK	Žilina	Žilina	>10x per year		18000	
67	SK2	Road	International	metal products	AUT				SK	Žilina	Žilina	>10x per year		13000	
68	SK2	Road	International	metal products	SWE				SK	Žilina	Žilina	1x per year		890	
69	SK2	Road	National	metal products	SK	Košice	Košice		SK	Žilina	Žilina	2-5x per year		1270	
70	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Žilina	Martin	2-5x per year		2208	
71	SK2	Road	International	metal products	SK	Žilina	Žilina		CZ	Moravian-Silesian	Ostrava		1-2x per week	67477	
72	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Žilina	Turčianske Teplice	2-5x per year		4300	
73	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Žilina	Žilina	>10x per year		10839	
74	SK2	Road	International	metal products	SK	Žilina	Žilina		PL	Lower Silesian	Kobierzyce	2-5x per year		2390	
75	SK2	Road	International	metal products	SK	Žilina	Žilina		CZ	Moravian-Silesian	Třinec	1x per year		1236	
76	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Trenčín	Ilava	2-5x per year		3850	
77	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Žilina	Žilina	2-5x per year		1514	

S. no.	Company ID	Transport mode	Transport nature	Transported commodity	Transport source			Place of transhipment (intermodal transport)	Transport destination			Non-scheduled transport	Scheduled transport	Quantity of goods transported per calendar year (t)	Quantity of goods transported per calendar year (m3)
					Country (NUTS I)	Region (NUTS III)	City (LAU 1)		Country (NUTS I)	Region (NUTS III)	City (LAU 1)				
78	SK2	Road	International	metal products	SK	Žilina	Žilina		CZ	Olomouc	Přerov	2-5x per year		1255	
79	SK2	Road	International	metal products	SK	Žilina	Žilina		PL	Silesian	Plyskowice	2-5x per year		3002	
80	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Trnava	Trnava	2-5x per year		294	
81	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Trnava	Senica	2-5x per year		836	
82	SK2	Road	International	metal products	SK	Žilina	Žilina		NL			1x per year		141	
83	SK2	Road	International	metal products	SK	Žilina	Žilina		CZ	Moravian-Silesian	Ostrava	1x per year		610	
84	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Košice	KE	1x per year		573	
85	SK2	Road	International	metal products	SK	Žilina	Žilina		CZ	Moravian-Silesian	Kopřivnice	2-5x per year		1718	
86	SK2	Road	National	metal products	SK	Žilina	Žilina		SK	Trnava	Trnava	1x per year		425	
87	SK3	Railway	International	metal products	PL	Masovian	Plock		SK	Prešov	Poprad	2-5x per year		200000	
88	SK3	Road	International	metal products	PL	Warmian-Masurian	Ostroda		SK	Prešov	Poprad		1x per week	484300	
89	SK3	Road	International	raw materials	PL	Silesia	Katowice		SK	Prešov	Poprad		1-2x per week	17000	
90	SK3	Road	International	raw materials	CZ	Moravian-Silesian	Ostrava		SK	Prešov	Poprad		1-2x per week	23000	

ANNEXES

Annex 1 Conversion coefficient of matrix from origin destination survey to AADT (electronic annex – xlsx) – separate files

Annex 2 Matrices for respective border crossings (electronic annex – xlsx) – separate files

Annex 3 Profile survey results during the O-D survey (electronic annex – xlsx) – separate files

Annex 4 Detailed results of the profile traffic survey in Moravian-Silesian region: CZ (electronic annex – xlsx) – separate files

Annex 5 Detailed results of the profile traffic survey in Silesian and Opole Voivodeship: PL (electronic annex – xlsx) – separate files

Annex 6 Detailed results of the profile traffic survey in Žilina region: CZ (electronic annex – xlsx) – separate files

ANNEX 1

CONVERSION COEFFICIENTS OF MATRIX FROM ORIGIN DESTINATION SURVEY TO AADT (ELECTRONIC ANNEX – XLSX)

SEPARATE FILES

ANNEX 2

O-D MATRICES FOR RESPECTIVE BORDER CROSSINGS (ELECTRONIC ANNEX – XLSX)

SEPARATE FILE

ANNEX 3

PROFILE SURVEY RESULTS DURING THE O-D SURVEY (ELECTRONIC ANNEX – XLSX)

SEPARATE FILES

ANNEX 4

DETAILED RESULTS OF THE PROFILE TRAFFIC SURVEY IN MORAVIAN-SILESIAN REGION: CZ (ELECTRONIC ANNEX – XLSX)

SEPARATE FILES

ANNEX 5

DETAILED RESULTS OF THE PROFILE TRAFFIC SURVEY IN SILESIAN AND OPOLE VOIVODESHIP: PL (ELECTRONIC ANNEX – XLSX)

SEPARATE FILES

ANNEX 6

DETAILED RESULTS OF THE PROFILE TRAFFIC SURVEY IN ŽILINA REGION: SK (ELECTRONIC ANNEX – XLSX)

SEPARATE FILES