

## EVALUATION OF AVAILABILITY OF REGIONAL PASSENGER TRANSPORT SERVICE IN JELGAVA DISTRICT

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**Abstract.** The aim of many regional governments is to develop an effective regional passenger traffic system. In order that the system could successfully operate, it is important to develop a route network which would provide the transport service for the majority of people who live in the region. The regional public passenger transport routes should provide certain functions which are determined by the “Law on Public Transport Services” (2007). The aim of this research is to evaluate the existing regional passenger route network in Jelgava district according to the requirements set in this Law. The study is based on information about configuration and location of the existing regional passenger route network in the region and bus running time and frequency in each route.

**Keywords:** public passenger transport, low – density areas, accessibility.

### Introduction

Regular passenger transport services in the Republic of Latvia are regulated by the “Law on Public Transport Services” (2007) and related Regulations of the Cabinet of Ministers (RCM) (Fig. 1).

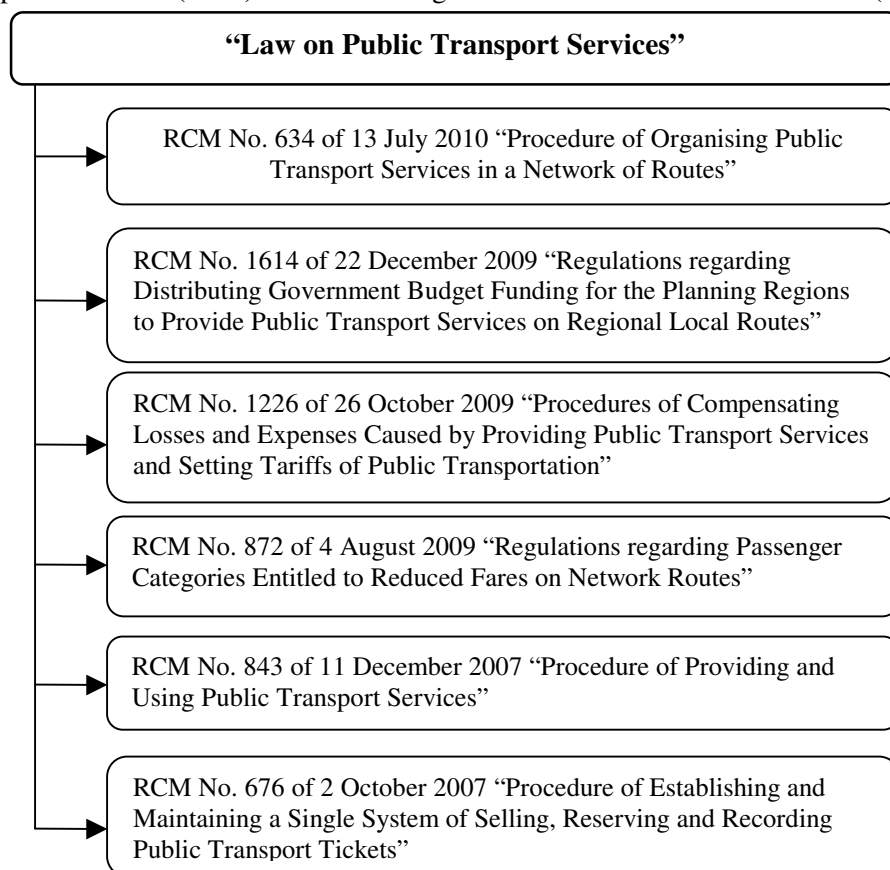


Fig. 1. Latvian legal framework for public transport services

The Law stipulates the way of organising regular public passenger transport services in the Republic of Latvia. The Law states that regular passenger transport services in the Republic of Latvia are organised on the following routes:

- regional local routes – the routes that provide passenger movement within the administrative territory of one municipality and from this municipality to the closest neighbouring territories or to another municipality within a planning region;

- regional intercity routes – the routes that provide passenger movement within the country mainly from one administrative territory to an administrative territory in another planning region or those connecting republican cities;
- city routes – the routes that provide passenger movement within the administrative borders of a republican city as well as from this city to the closest neighbouring territories [1].

The Law states that a network of routes has to be designed to satisfy the demand of residents for public transport services and ensure a possibility in the network of routes to visit educational institutions, medical institutions, work places, national and local government institutions during their normal (general) business hours. While designing a network of routes for outside city borders, first of all, a possibility for school children to attend their educational institutions is ensured.

### Materials and methods

The accordance of the network of regional local public transport routes in Jelgava municipality with the “Law on Public Transport Services” was analysed in the present research. Regional local passenger transport routes are designed to provide:

- public transport connections among neighbouring municipalities;
- reaching the parish or town administration in any municipality;
- public transport interconnections among neighbouring towns within a planning region;
- public transport connections between municipalities and the closest city within a planning region.

Regional local public transport routes in a municipality have to meet the mentioned requirements. Fig. 2 presents an idealized model of these requirements.

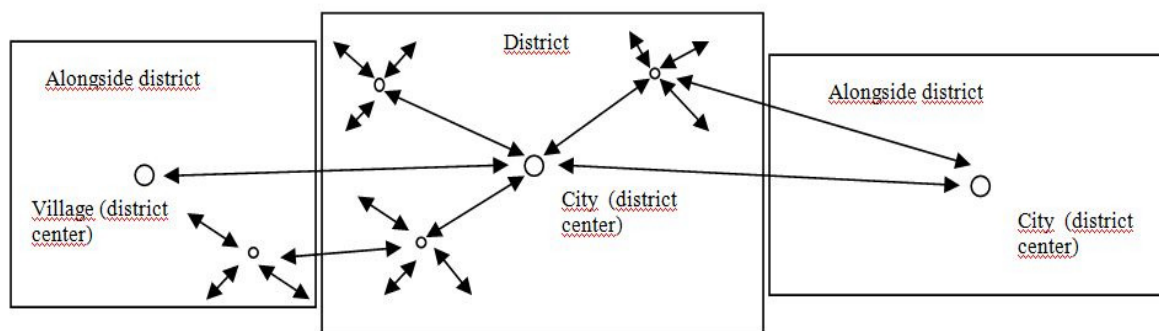


Fig. 2. Model for regional local passenger transport routes

The Law stipulates that regional local passenger transport routes have to ensure that neighbouring municipalities are interconnected. This requirement may be met in the following ways:

- public transport connections are provided between neighbouring municipality centres;
- public transport connections are provided among settlements, which are not municipality centres, in neighbouring municipalities;
- public transport connections are provided between a populated place (village, town) in a municipality, which is not a municipality centre, and the centre of a neighbouring municipality (Fig. 2).

### Results and discussion

Jelgava municipality is located in the central part of Latvia. In the south, its border is also the country's border with the Republic of Lithuania. In accordance with the “Law on Public Transport Services”, regional local routes have to ensure that neighbouring municipalities, which are located within one planning region, may be reached. Five planning regions were established in Latvia:

- Kurzeme planning region;
- Zemgale planning region;
- Latgale planning region;

- Vidzeme planning region;
- Rīga planning region [2].

Jelgava municipality is included in Zemgale planning region and borders on the municipalities of Tērvete, Dobele, Ozolnieki, and Rundāle which also are included in Zemgale planning region. In the north, the municipality borders on Rīga planning region.

In accordance with the “Law on Administrative Territories and Populated Areas”, the territorial division of a municipality includes municipality towns and municipality rural territories. Jelgava municipality includes the following municipality rural territories that have obtained the status of territorial unit of municipality after the regional reform: Eleja, Glūda, Jaunsvirlauka, Kalnciems, Lielplatone, Līvberze, Platone, Sesava, Svēte, Valgunde, Vilce, Vircava, and Zaļenieki.

According to Fig.2, regional local passenger transport routes in Jelgava municipality have to provide transport connections between the mentioned municipality rural territories and their municipality centre. However, transport connections have to be provided to neighbouring municipality centres that are included in Zemgale planning region. These neighbouring municipality centres are: Dobele, Tērvete, Ozolnieki, and Pilsrundāle.

A transport connection to Dobele is provided on weekdays beginning at 7.00 a.m. when the first bus trip departs until 10.40 p.m., but on weekends from 7.47 a.m. to 10.40 p.m. (Fig. 3).

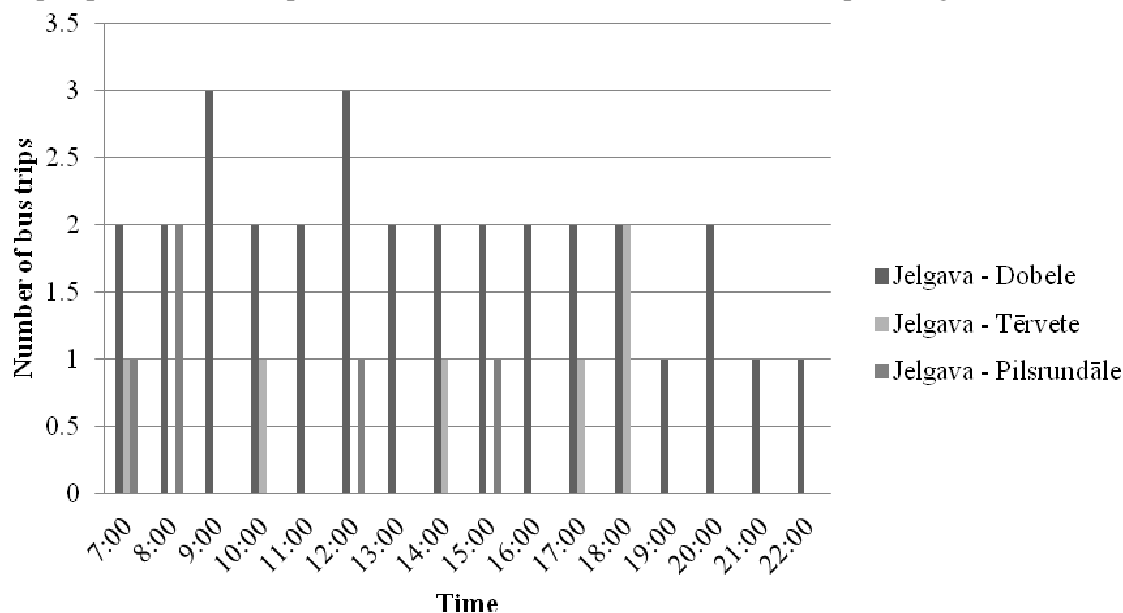


Fig. 3. Number of bus trips to the centre of neighbouring municipalities [3]

On average, there are two bus trips an hour towards Dobele during the mentioned period. The majority of these bus trips are provided from Rīga in transit through Jelgava, and their final destinations are Dobele, Saldus, or Liepāja. During some hours, there are three bus trips an hour towards Dobele.

A transport connection to Tērvete is provided by five bus trips a day. The first bus trip departs at 7.40 a.m. and the last one at 6.50 p.m.

There are four bus trips a day to Pilsrundāle, which provide public transportation beginning at 7.00 a.m. until 3.20 p.m.

A transport connection to Ozolnieki is provided within the network of Jelgava city public transport routes. On average, three bus trips an hour are available to Ozolnieki in the period from 5.00 a.m. to 8.00 p.m. Trains also provide a transport connection to Ozolnieki, which run on the regional intercity route Rīga – Jelgava – Rīga. Train trips are provided on average once an hour.

It is found out in the present research that all regional local public transport routes in Jelgava municipality make a direct connection to the municipality centre. A public transport system of several levels is not established in Jelgava municipality, in which the public transport routes serve territorial

units of municipalities, i.e. make connections to their largest populated places, which, in their turn, would be connected to certain routes that make a direct connection to the municipality centre.

The size of populated places, in terms of the number of residents, in Jelgava municipality are different. Depending on the number of residents and the available infrastructure there, the populated places are classified into 15 development centres. It is determined that four populated places make up local development centres: Eleja, Kalnciems, Nākotne, and Staļģene, while 11 populated places make up first-level development centres: Valgunde, Līvberze, Svēte, Mežciems, Vircava, Platone, Zaļenieki, Vilce, Lielplatone, Sesava, and Bērvircava.

Table 1 presents summarised information on bus trips from the municipality centre to the first-level development centres.

As one can see, the numbers of bus trips to these populated places are not evenly distributed. There is an even distribution of bus trips to Platone, Līvberze, Svēte, and Zaļenieki all day long, while a public transport connection to other populated places is provided only within certain hours.

A transport connection to Mežciems is provided within the network of Jelgava city public transport routes

Table 1

Number of bus trips to the first-level development centres [4]

Route Operating time	Jelgava – Lielplatone	Jelgava – Līvberze	Jelgava – Platone	Jelgava – Sesava	Jelgava – Svēte	Jelgava – Valgunde	Jelgava – Vilce	Jelgava – Vircava	Jelgava – Zaļenieki	Jelgava – Mežciems	Jelgava – Bērvircava
5:00	1	1	1							1	
6:00	1		2		2				1	4	
7:00		1	2	1	1	1	1	1	1	2	1
8:00			1	1		1				4	1
9:00		1			1				1	2	
10:00		1	1		1		1		1	2	
11:00		1						1	1	2	
12:00		1	1	1						2	1
13:00			1			1				2	
14:00		1	1		3	1	1		2		
15:00			1	1		1		1		3	1
16:00		1			1				1	1	
17:00		1	1		3	1	1		3	1	1
18:00	1		1		1			1	1	1	
19:00		1	1		1				1	3	
20:00		1	1							2	
<b>Total</b>	<b>3</b>	<b>11</b>	<b>15</b>	<b>4</b>	<b>14</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>13</b>	<b>32</b>	<b>5</b>

Table 2 includes summarised information on bus trips from the first-level development centres to the municipality centre.

As one can see in Table 2, in this direction a similar trend as in the opposite direction is observed as well. Only two bus trips a day are available from Lielplatone to the municipality centre, whereas the numbers of bus trips are on average five times greater for such populated places as Līvberze, Platone, Svēte, and Zaļenieki.

Table 2

Number of bus trips from the first-level development centres [4]

Route Operating time	Lielplatone – Jelgava	Līvberze – Jelgava	Platone – Jelgava	Sesava – Jelgava	Svēte – Jelgava	Valgunde – Jelgava	Vilce – Jelgava	Vircava – Jelgava	Zaļenieki – Jelgava	Mežciems – Jelgava	Bērvircava – Jelgava
6:00		1	1	1		1		1		2	1
7:00	1		1		2					4	1
8:00		1	2		1	1	1	1	2	2	
9:00				1					1	1	1
10:00			1		1					2	
11:00		1		1			1			2	1
12:00			1		1			1	2	2	
13:00										2	
14:00	1		1	1		1		1		1	1
15:00		1	1		2		1		2	2	
16:00			1		1	1				1	
17:00		1			1			1	1	2	
18:00		1		1	2	1	2		1	3	1
19:00			1		2				2	3	
20:00		1								1	
21:00		1								1	
<b>Total</b>	<b>2</b>	<b>8</b>	<b>10</b>	<b>5</b>	<b>13</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>11</b>	<b>31</b>	<b>6</b>

Fig. 4 presents the number of bus trips to and from the local development centres during the period of one day. As one can see in Fig.4, the distribution of bus trips to these populated places is not even. A number of bus trips are mainly determined by the geographical situation of a populated place. Through Eleja and Nākotne, a large number of bus trips are available on regional intercity routes, which ensure passenger transportation among all the populated places on this route.

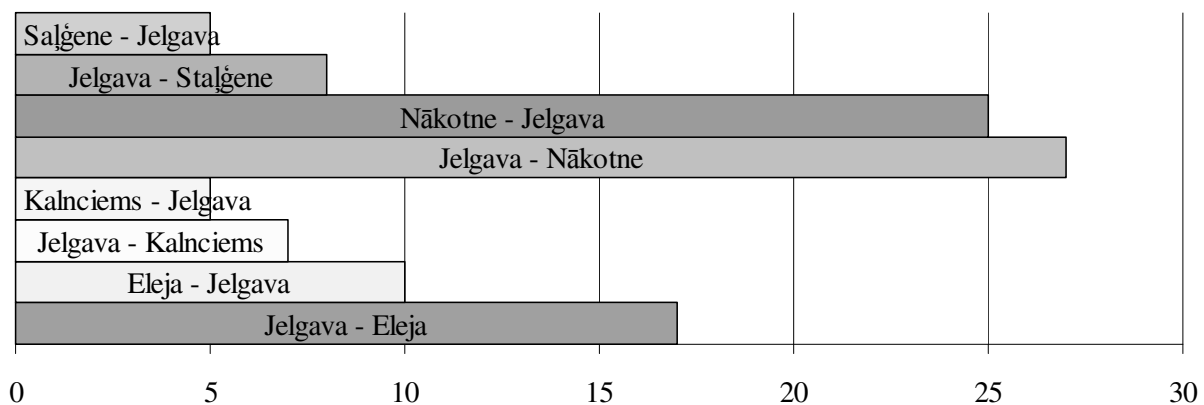


Fig. 4. Number of bus rides to and from the local development centres [4]

In the direction of the bus trips from the local development centres to the municipality centre in Jelgava municipality, a similar trend as in the opposite direction is also observed. The bus trips from Staļģene and Kalnciems are provided 5 times a day, 8 from Eleja, and 15 times a day from Nākotne.

## Conclusions

1. Regional local passenger transport services in Jelgava municipality are provided by busses.

2. A transport connection between Jelgava municipality and its neighbouring municipalities, which are included in one planning region, is ensured and meets the requirements of the “Law on Public Transport Services”.
3. The regional local passenger transport routes in Jelgava municipality are radially-shaped relative to the municipality centre.
4. All the populated places in Jelgava municipality are included in the regional local passenger transport routes.
5. The numbers of bus trips between the populated places in Jelgava municipality differ very much. It is mainly determined by the geographical situation of a populated place.

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