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**CiViTAS**  
Cleaner and better transport in cities

**PORTIS**



## SUMMARY

**The Study on optimisation of public transport system (networks, scheduling, pricing)**

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**PORTIS**

## Project partners

Organisation	Country	Abbreviation
1 City of Antwerp	BE	ANTWERP
2 Port Authority	BE	APA
3 Province Antwerp	BE	PROVANT
4 De Lijn	BE	DE LIJN
5 NMBS, Federal Road association	BE	NMBS
6 Traject	BE	Trajeck
7 Department Mobility and Public Works, Flemish Government	BE	BAM
8 City of Aberdeen	UK	ACC
9 Aberdeenshire Council	UK	A-Shire
10 Aberdeen Harbour Board	UK	AHB
11 Nestrans	UK	Nestrans
12 Robert Gordon University	UK	RGU
13 City of Trieste	IT	COM TS
14 Port Authority	IT	APT
15 Trieste research and science consortium AREA	IT	AREA
16 Trieste transport	IT	TT
17 University of Trieste - Department of Engineering and Architecture	IT	DIA
18 City of Constanta	RO	PMC
19 ADI Constanta metropolitan Area	RO	ADI-ZMC
20 Centre for European Development Association	RO	CED
21 Ovidius University	RO	OUC
22 Association for alternative energy MED Green	RO	MEDGreen

23 C.N. APM Constanta (Port)	RO	APM
24 City of Klaipeda LT	LT	KMSA
25 Klaipėdos kelevinis transportas	LT	KKT
26 Smart Continent LT	LT	SC LT
27 Ningbo University	CN	NBU
28 The University Court of the University of Aberdeen	UK	UNIABDN
29 Transport & Mobility Leuven (TML)	BE	Belgium
30 EIP	EIP	RO
31 Austrian Mobility Research, FGM-AMOR	BE	FgM AMOR
32 Vectos	UK	VECTOS
33 ISIS – Institute of Studies for the Integration of Systems	IT	ISIS

### Document story

Date	Person	Action	Status	Diss. Level
31-03-2017	Andrius Jaržemskis Ieva Černeckytė	Analysis on modal shift	draft	SC
28-02-2017	Andrius Jaržemskis Ieva Černeckytė Ilona Jaržemskienė	Analysis of stops and routes network	draft	SC
31-03-2017	Andrius Jaržemskis Ieva Černeckytė Agnė Ramelytė Sandra Bukatkaitė	Analysis on pricing and scheduling	draft	SC

31-05-2017	Andrius Jaržemskis Ieva Černeckytė Agnė Ramelytė Ilona Jaržemskiene Sandra Bukatkaitė Andželika Želichovskaja	Draft report	draft	SC
30-06-2017	Ieva Černeckytė	Proofreading and corrections	final	SC
31-07-2017	Andrius Jaržemskis	Amendments after last camera-drone traffic data	Final	Public

Status: Draft, Final, Approved, and Submitted (to European Commission).

Dissemination Level: PC = Project Coordinator, SC=Site Coordinator, TC=Technical Coordinator, EM=Evaluation Manager.

The Study is implemented in parallel to design of Klaipeda SUMP. Klaipeda SUMP is designed by consortium of Civitta, Pupa and Vilnius Gediminas Technical University. The data for study is collected by Smart Continent as well as used SUMP data.

In year 2017 modal shift in Klaipeda is in favour of personal vehicles. Cars took 36 percent of transport. Public transport takes 30 percent. The approved vision in SUMP for 2030 is at least 35 percent of public transport usage as opposite; only 24 percent shall leave for cars.

A new routing scheme suggested in SUMP for Klaipeda is oriented on integration of various carriers into one routing, pricing and scheduling system. The main attributes for new designing system shall be:

- Rational network of public transport routes which correspond to the need of the population due to changes in living and working conditions;
- Inclusion of newly created attractions: shopping and entertainment centres, cinemas, sports clubs, etc.;
- Hierarchy of the public transport routes in order to reduce costs for public transport and increase service levels;

Now seven different carriers serve Klaipeda. The hugest one is Klaipeda municipality owned Bus company Klaipedos Autobusu Parkas (72 vehicles). Another two companies Pajurio Autobusai and Gintarinis Vairas hold 34 and 35 buses respectively. Other companies are smaller. Common bus fleet in Klaipeda is 180 transport means. The issue is the age of the buses – average is about 15 years. The old buses are pollutant and not attractive to passengers.

A general scheme must be planned in Klaipėda City, regardless of the ownership of the routes:

Small-scale vehicles are designed to serve off-centre departures, with lower passenger flows, and to leave the city centre at the heart of routes that are not harmful to the public transport. At present, the Klaipėda route network is difficult to reconcile; a special route optimization route should be performed, which would hierarchize and simplify the Klaipėda city route system and establish specific service levels for routes.

Currently the public transport is organised by Klaipedos keleivinis transportas. The company belongs to Klaipeda municipality. Since 2010 there are implemented changes in route mapping. The high speed bus lines were designed in 2013.



**Figure 1.** Public transport in Klaipėda

Source: VšĮ „Klaipėdos kelevinis transportas“

Currently routes are divided into urban (28 routes, in blue, Figure 1) and urban-express (3 routes, in green, Figure 1) routes. Express routes are assumed as high speed lanes and differ by reduced number of stops. The 19 feeder routes (in red, Figure 1) are assumed as routes that serving the urban routes.

Klaipėda (as well as other Lithuanian cities) has a route taxi. Route taxi means the small micro-buses (up to 17 seats). Route taxi is historically shaped kind of urban transportation that worked as first private passenger carriers nearby to state owned bus pars. The serious shortage of taxi routes system is the billing system. Many years historically taxi routes carriers worked separately from integrated urban transport system with own tickets (mainly cash payments direct to driver). Another obstacle was the non-scheduling. Actually the traffic of taxi routes was just party regular and depending on demand. Direct competition between municipal carriers and taxi routes carries was serious issue in many of Lithuanian cities.

During past five year many of Lithuanian cities decided to remove taxi routes carriers from urban transport system or as alternative – to integrate them into common scheduling and pricing system.

As far as Klaipėdos Kelevinis transportas already integrated taxi routes in common system the common pricing and ticketing also would be recommended.

Ticketing system is based on zones and time limits in Klaipėda. Simple ticket for one journey costs 0,8 EUR (I zone), discounts are used for students and seniors. There are three types of short-term tickets (I zone) – one day, three days and seven days, and prices are respectively 2,5; 6,0 and 11,0 EUR. Long term tickets are divided to 30 days (all week, working days).

The full price Monthly ticket costs 27,0 EUR for zone I. Monthly tickets are available also for II zone where 30 days full price ticket costs 51 EUR. In principle zone 2 could be assumed as suburb routes where the travel distances and distances between stops are significantly longer. For suburb routes there are also one journey tickets available. Zone II is presented in Figure 1 in violet colour.

After in depth analysis of Klaipeda public transport routing, scheduling and pricing there are several recommendations prepared by Smart Continent:

The system hierarchy could be based on three types of routes – main (4-5 routes), feeder lines (15-20 routes) and additional (integrated route taxi). Frequency on main routes shall take 5-7min during the rush hour and 10-15 (regularly), feeder lines 10-15 min \*rush hour and 15-25 min (regularly). Suburb routes shall be designed with frequency 15-20 min on rush hour and 30-45 min. regularly.

The important is intersection of those different kinds of routes by adjusting schedules and selecting the hubs for change the bus. When designing the hub-and spoke (or main and feeder lines) system it is important to shift from one-journey tickets to time based tickets such as half hour ticket or one-hour tickets. By using hub and spoke principle passenger often needs one or to interchanges and one journey based tickets is too expensive when it need to use three of them per one long journey by different buses. Now the citizens are motivated to obtain Monthly tickets by best average prising principle, however the system is not attractive for time-to-time users which regularly use the cars. Seeking to achieve modal shift Smart Continent recommend implementing half hour and hourly tickets.

Having in mind that city-shape and structure of streets in Klaipeda there is an option of new high capacity and frequency transport mean. The tram line or Bus Rapid Transport (BRT) system is under discussion and it could be used for Taikos avenue – the highly public transport crowded north-south connection in Klaipeda. Smart Continent recommend in depth feasibility study on new transport mode in Klaipeda to implement in 2018.