Development of a Concept for the Public Transport Interconnectivity for Savaria International Airport

Report

CENTRAL EUROPE Programme Project CHAMPIONS
Development of a Concept for the Public Transport Interconnectivity for Savaria International Airport

Report

CENTRAL EUROPE Programme Project CHAMPIONS
# Table of Contents

1. **INTRODUCTION**  
   1.1 Planned Greenfield Airport  
   1.2 Planned location of the airport  
   1.3 Public transport to and from Savaria Airport  

2. **BASIC CONSIDERATIONS FOR THE ANALYSIS OF EXISTING AND FUTURE PUBLIC TRANSPORT IN SZOMBATHELY AND VICINITY**  
   2.1 Demand analysis  
   2.2 Evaluation of train vs. bus service  
   2.3 Evaluation of dedicated vs. regular bus service  
   2.4 Re-routing of existing bus-services  
   2.5 Benefit of a shuttle service  

3. **ANALYSIS OF EXISTING PUBLIC TRANSPORT IN SZOMBATHELY AND VICINITY (INCL. NEIGHBOURING STATES)**  

4. **BASIC CONSIDERATIONS FOR THE DEFINITION OF REQUIREMENTS FOR THE PUBLIC TRANSPORT TO AND FROM SAVARIA INTERNATIONAL AIRPORT**  
   4.1 General requirements  
   4.2 Definition of requirements for the network and timetable concept  
   4.3 Definition of requirements for the price system, ticket sales and passenger information  

5. **SUMMARY AND RECOMMENDATIONS**
## Table of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Location of Savaria International Airport in Hungary</td>
<td>2</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Location of the airport east of Szombathely</td>
<td>2</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Location of the airport between the villages Vát and Porpác</td>
<td>3</td>
</tr>
<tr>
<td>Figure 4</td>
<td>User groups travelling to and from the airport, relevant parameter</td>
<td>4</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Comparison of train, light rail / tram and bus</td>
<td>5</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Example for a new airport railway station at an existing railway line</td>
<td>6</td>
</tr>
<tr>
<td>Figure 7</td>
<td>S-train network Hamburg</td>
<td>7</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Example for a shuttle service for tourists</td>
<td>9</td>
</tr>
<tr>
<td>Figure 9</td>
<td>Special requirements for public transport to and from airports</td>
<td>11</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

1.1 Planned Greenfield Airport

The SIA-PORT Ltd. was established in 2006 with the aim to realize in the West-Pannon Region an international airport able to serve out international cargo and passenger traffic. The most important challenge of the project was to find a suitable place for the realization. After the principle planning of the project the airport company started negotiations with the representatives and the inhabitants of the concerned municipalities.

The SIA-PORT Ltd. dedicated to establish not only an international airport but a special industrial, commercial and logistic area, which exceeds with its employment and operational effects the significance of a traditional airport.

The viability of the planned airport is highly supported by railway and road developments in the region. These two kinds of developments have an advantageous effect of each other. With the operation of the new international airport the economic power of Szombathely city and the whole region will be intensified.

In the framework of the Central Europe Programme Project CHAMPIONS, Pannon Business Network plans to elaborate two studies. First an analysis of the air transport demand, which has to be based on the ex-ante passenger potential forecast for the dedicated region’s airports, will be elaborated enabling the approach to attract airlines for improved regional accessibility already on the short run in line with the timetable planning of airlines.

The second study focuses on a SWOT-Analysis of public transport interconnectivity. Beside the fact that air travel needs at Central Europe’s airports have to be identified in order to strengthen accessibility, a focus in this CHAMPIONS project will be laid on improving interconnectivity. Missing interconnectivity between air and public transport can be a reason for the lack of accessibility of regions or cities. Thus interaction between airports and public transport shall be strengthened. The regions in the periphery of the airports are to receive a better accessibility. Interconnectivity begins with the departure of the passengers. Information about the local public transport operators within the destination region can be already given here. The focus is on improvement of the information service of public transport at the interfaces of air and public transport (airports, railway stations and public places).
1.2 Planned location of the airport
Savaria International Airport will be located in the Hungarian Region West Pannon, near the city of Szombathely.

**Figure 1** Location of Savaria International Airport in Hungary

![Location of Savaria International Airport in Hungary](image1)

Source: Savaria Airport

The planned location is east of Szombathely, between the villages of Vát and Porpác.

**Figure 2** Location of the airport east of Szombathely

![Location of the airport east of Szombathely](image2)

Source: Google Earth

The map below shows the location between the villages Vat and Porpac as well as the direction of the runway (3.720 m long). The airport is located south of the E65 road and north railway line between Szombathely and Sárvár.
The airport will be close to the border between Austria and Hungary. Via the existing route network several larger cities in Austria, Croatia and Hungary are located less than 200 km away. Road distances:

- Sopron: 65 km
- Győr: 105 km
- Graz: 131 km
- Vienna: 140 km
- Zagreb: 192 km
- Budapest: 216 km.

1.3 Public transport to and from Savaria Airport

Savaria International Airport is a planned “greenfield” airport project. Public transport connections do not exist today. According to the application of the CHAMPIONS project a SWOT-analysis is planned. The task was adapted to the compilation of basic considerations for the development of a public transport interconnectivity concept for the airport.
2. BASIC CONSIDERATIONS FOR THE ANALYSIS OF EXISTING AND FUTURE PUBLIC TRANSPORT IN SZOMBATHELY AND VICINITY

2.1 Demand analysis

The demand analysis has to consider the needs of different public transport user groups. The two most relevant are air transport passenger and people working at the airport. The overview below shows user groups and the most relevant parameter for the development of a public transport supply to and from Savaria International Airport.

Figure 4 User groups travelling to and from the airport, relevant parameter

- Air transport passenger
  - Number per year
  - Number per day
  - Arrival and departure times per day
  - Number of passenger per arriving and departing plane
  - Number of plane arrivals and departures at one time
  - Origin and destination of air transport passengers in the catchment area of Savaria Airport

- People working at the airport
  - People working at the airport (general airport business, passenger and cargo handling)
  - Aviation industry, e.g. maintenance base
  - Logistic sector
  - Working times
  - Location of employees’ homes

- Airport visitor
  - People bringing / taking relatives and friends to and from the airport
  - General visitor of the airport

Source: UNICONSULT 2011

The total daily and annual number of potential public transport user is the most important number for the development of a public transport concept. A higher number of potential user can support the implementation of a train service, a higher number of train or bus lines and a schedule with higher frequencies of trains and busses.

The origin and destination of air transport passengers in the catchment area of an airport as well the location of employees’ homes is relevant for an efficient network. A higher concentration of demand supports an attractive public transport supply. A strong connection point (hub), e.g. a main station in a big city close to the airports helps to gain a high market share for public transport.
2.2 Evaluation of train vs. bus service

A general planning topic for public transport services is the choice of the transport mode. Each transport mode (classic train, light rail / tram and bus) has specific advantages and disadvantages (see a compilation in the following figure).

Figure 5 Comparison of train, light rail / tram and bus

<table>
<thead>
<tr>
<th></th>
<th>Train</th>
<th>Light rail / tram</th>
<th>Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Fast connection to the</td>
<td>+ Fast connection to the main station or other important connection</td>
<td>+ Very low infrastructure costs compared to train and light rail</td>
<td></td>
</tr>
<tr>
<td>main station or other</td>
<td>points</td>
<td>+ Comfortable vehicles (space for luggage, air condition)</td>
<td></td>
</tr>
<tr>
<td>important transfer points</td>
<td></td>
<td>+ Comfortable vehicles (space for luggage, air condition, low entry)</td>
<td>+ Lower costs for vehicles purchase</td>
</tr>
<tr>
<td>- Often very high</td>
<td></td>
<td>+ Lower investment for infrastructure compared to heavy rail</td>
<td></td>
</tr>
<tr>
<td>investment in new line</td>
<td></td>
<td>+ Lower operation cost per bus-km (no cost for operation, maintenance and renewal of tracks)</td>
<td></td>
</tr>
<tr>
<td>(in case of new tunnel,</td>
<td></td>
<td>+ Higher operational flexibility</td>
<td></td>
</tr>
<tr>
<td>elevated line)</td>
<td></td>
<td>+ No individual infrastructure, therefore risk of delays</td>
<td></td>
</tr>
<tr>
<td>+ Low investment in case</td>
<td></td>
<td>+ Longer travel times</td>
<td></td>
</tr>
<tr>
<td>of new stations at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>existing lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ High operation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cost/train-km</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: UNICONSULT 2011

Main advantages of rail connections to and from airports are travel times and punctuality, but a high number of passengers is needed for viable operations. Probably the single most important factor beside demand of people travelling to and from the airport is the need for rail infrastructure investment. The amount of necessary investment is depending on the length of new line and the way it will be built. Short new rail connections to and from an airport are possible when the airport is located in the vicinity of an existing railway line. A new line to an airport is very expensive when the line is long and the airport station is located in a tunnel / underground. In Lübeck it was possible to build a new stop at an existing line very close to the airport. Therefore only the investment in a platform was necessary. The airport terminal is within walking distance to the train station.

When a station exists close to an airport it should be evaluated if a shuttle service between the airport terminal and the train station is an attractive offer to the potential user. In case of a shuttle service no infrastructure investment is needed. A bus shuttle might have lower operation cost than a train to a new built airport station. On the other hand an additional change of transport mode is not very attractive.
In general a high passenger demand is necessary for the justification of rail infrastructure investment. In some cases other reasons might be relevant for the investment of rail infrastructure to the airport: Fuel supply for planes by rail, rail cargo transport for the industry at the airport.

For the operation of train services (e.g. timetable concept, frequencies) the same considerations are relevant that are discussed below for bus services:

- Evaluation of dedicated vs. regular services
- Re-routing of existing train services
- Supply of a shuttle service.

Example for low (additional) operation cost of an airport train link:

Since December 2008 Hamburg Airport is connected to the S-train network. Instead of additional trains existing trains are split and merged at the station of Ohlsdorf, very close to the airport. Regular S 1-trains (green line) between Wedel and Poppenbüttel, consisting of two train parts are split in Ohlsdorf and only for the short section of 3 kilometres (see red marking) extra train operating costs for the airport connection occur.
2.3 Evaluation of dedicated vs. regular bus service

After the opening of Savaria Airport it is likely that the number of people working at the airport is limited and that air passenger numbers are not very high. In this case it will be suitable that dedicated bus services operate to and from the airport. Bus services could be offered to serve each arriving and departing plane or at times of the day when a higher number of people start / finish working at the airport. Depending on the number of potential passenger an adequate bus size can be operated.

In this case it won’t be possible to serve several bus routes. In case of low potential bus passenger numbers the demand has to be combined to one destination where a lot of people would like to ride. The main train / bus station of Szombathely might be a suitable destination for a dedicated bus service, especially when it is possible to get connections to other areas of Szombathely, Western Hungary and Austria.

The dedicated bus service can operate as bus with several stops on its route from Savaria International Airport or as a shuttle bus (see next chapter).

A regular bus service (e.g. each our) in a situation with low employee and passenger numbers at Savaria Airport is realistic only in the case of an existing bus service that does not have to be re-routed or nearly needs no re-routing.

When the number of flights, passengers and people working at the airport is growing the dedicated bus service could be changed into a regular bus service with e.g. one bus per hour or every 30 minutes. An hourly bus service is not very attractive to some users. Only if the bus ticket price of the bus is very cheap compared to other
transport modes potential user might accept longer waiting times. Therefore the air
transport customer groups should be considered as well. Time-sensitive business
traveller probably won’t accept long waiting times, whereas price-sensitive passenger
of low cost airlines could accept longer waiting times.

Further, economic factors like operation costs of busses, average number of
passengers and revenues per trip have to be considered for the evaluation of
dedicated vs. regular bus services.

2.4 Re-routing of existing bus-services

The re-routing of existing bus-services might be a cheap and easy to establish
solution for a public-transport service to and from Savaria Airport. The solution is
cheap when the additional distance due to the re-routing is short and no extra
resources (vehicles, driver) are needed. A solution has to be found for the financing
of additional fuel consumption and longer duty times of staff.

For an existing regular bus-service a re-routing can be considered for each bus or
only selected busses. The re-routing might not applicable when the operating times of
existing bus services do not fit to flight arrival and departure times and / or working
times of people at the airport.

2.5 Benefit of a shuttle service

The main benefit of a shuttle service is a fast ride to an important connection point or
destination. A shuttle service is a fast, often non-stop service to a major connection
point, e.g. to a rail and/or public transport station (e.g. main station Szombathely) or
tourist destination.

The dedicated bus service can be a shuttle service with no other stop:

- In this case the disadvantage is that e.g. no residential areas where airport
  worker live are served. No revenues from other travelers with be generated.

- Main advantage of a non-stop service are reduced travel-times.

Therefore the decision to establish a shuttle service has to consider the transport
needs of different public transport user groups and existing bus routes. If the demand
is sufficient a shuttle service and a line with additional stops might be operated
parallel or alternating: Two times per hour a shuttle service is offered and two times
per hour a service with additional stops is offered. In total the number of departures
per hour is four.

For incoming tourists a dedicated shuttle service to holiday resorts might be useful
(and support for the development of the local tourism sector, see example).
Example: Rostock Airport offers a shuttle service to several tourism resorts at the coast of the Baltic Sea and in the “lake district” of Mecklenburg-Vorpommern. The service is part-funded by the Federal State of Mecklenburg-Vorpommern in order to support Rostock Airport and the local tourism industry. The shuttle is offered after arrival of most scheduled flights. A pre-booking is requested.

A German tour operator offers package tours that use scheduled flight to Rostock Airport and the shuttle bus service to the resorts.

**Figure 8 Example for a shuttle service for tourists**

Source: Rostock Airport
3. **ANALYSIS OF EXISTING PUBLIC TRANSPORT IN SZOMBATHELY AND VICINITY (INCL. NEIGHBOURING STATES)**

Based on the considerations above the existing public transport in Szombathely and vicinity should be analysed:

- Is the expected demand sufficient for the creation of a rail link to and from the airport?
- Which bus routes operate near the airport and could be re-routed via the airport. Which timetable adaptations are necessary? Should the entire line be re-routed or only selected busses? Should one or several bus lines serve the airport? Should the busses on the relevant route operate more frequent? Does the demand require larger vehicles?
- The same questions should be answered when the demand is sufficient to create a rail link to and from the airport.
- Is a shuttle (non-stop) service to and from a major connecting point (e.g. Szombathely main station) suitable? This depends on the individual origins and destinations of air transport passenger and the location of homes of the people working at the airport.
- Potential operator: In case of dedicated bus services (as shuttle service) the question is relevant which transport company should operate bus (train) services.
- Funding: Which sources are available to finance operations and infrastructure investment?
- For the case of a rail connection (if demand is sufficient): How much railway infrastructure investment is necessary? The relevance of this question is lower when the decision for a rail link was already made due to other reasons (e.g. the supply of fuel for planes by rail or possibility to transport air cargo, general cargo for industry located at the airport).
4. BASIC CONSIDERATIONS FOR THE DEFINITION OF REQUIREMENTS FOR THE PUBLIC TRANSPORT TO AND FROM SAVARIA INTERNATIONAL AIRPORT

4.1 General requirements

In the competition with other transport modes the public transport to and from airports has to fulfill several requirements. Some of these requirements are special for airport connections:

Figure 9 Special requirements for public transport to and from airports

- **Availability**: Timetable adapted to flight arrival and departure times
- **Distance** between terminal and **Public Transport station** (people have to carry luggage)
- **Network**: **Multiple destination**, need for short travel time to major transfer points in the network
- **Comfort**:
  - Space for **luggage** in vehicles, low entry
  - **Air condition** in vehicles
- **Information**: All information have to be provided in **English**
- **Information for new user**: User have to get information about the network, timetable, ticket purchase etc.
- **Ticket purchase** with **credit card or other currencies** (Traveler might have no local currency)

Source: UNICONSULT

4.2 Definition of requirements for the network and timetable concept

The network and timetable will depend on the expected user numbers. The passenger forecast for Savaria Airport and the expected number of employees working at the airport / in the industry located at the airport give a first indication of the demand. With the help of an assumption for the market share of public transport the number of potential user can be calculated. On this base a draft for the design of the network and timetable can be developed.
4.3 Definition of requirements for the price system, ticket sales and passenger information

Price system

The price for public transport services to and from Savaria airport should fulfil at least two basic requirements:

- Competitiveness: In comparison with other transport means the price should be attractive in order to influence the preference of potential user.
- Complexity of prices: For different user of public transport often a diversity of tickets is offered (e.g. single ticket, weekly or monthly ticket, ticket for a certain number of trips, tickets for different distances, reduced tickets for children, students, senior citizens). The offered tickets should be easy to understand. The complexity must not restrain potential passengers from using public transport.

Ticket sales

Experience shows two aspects for public transport ticketing systems:

1. A ticket is more attractive when it is valid for the use of several transport modes (e.g. bus + local train + long distance train).
2. The introduction of a new ticketing system is a large effort when several transport companies are involved.

Therefore a recommendation is to use existing ticketing systems incl. the existing ticket sales methods.

For ticket sales at the airport the demand will be probably to low to justify a ticket sales office with dedicated staff. Feasible alternative solutions are

- sale of tickets by the driver of the bus,
- online via the website of the bus company,
- with a vending machine,
- at the information desk of the airport,
- in a shop of the airport.

Passenger information

Before the trip

Passenger information for public transport to and from airports has to meet special requirements. A high share of potential users – especially “incoming” passengers - is not familiar with the supply. Therefore comprehensive information should be provided

- at the airport’s website
- in printed media like the airport’s timetable or separate brochures
- it the public transport companies website and
- at the airlines’ websites: General information about destinations and individual information provided when a flight is booked online.

At the airport

The most important information will be:

- Location of the bus stop
- Departure time of the next bus
- Ticket: Price to the most important destinations (e.g. Szombathely main station) and information where passenger can buy tickets.

The amount of effort for these tasks depends to a large degree on the size and clear arrangement of the airport’s passenger terminal. In case of small airports the signage similar to regular bus stops might be sufficient. In addition the above listed information should be provided in the arrivals area (baggage claim area) of the passenger terminal.

For public transport user working at the airport information could be provided with the help of the companies employing people at the airport.
5. SUMMARY AND RECOMMENDATIONS

The demand for public transport services to and from Savaria International Airport will depend on the number of people working at the airport and on the number of air transport passengers using the airport. Both parts of the demand will grow after the start of operations. Therefore a step-by-step development of the public transport seems to be likely. At first dedicated bus services could serve each arriving and departing plane. In addition busses could serve the airport at the times when a larger number of people start to work at the airport and finish the work day.

Two more aspects are relevant for the design of the public transport concept for Savaria Airport: The possibility to re-route existing bus (or train) via the airport without much effort and the availability of funding sources if the public transport supply shall be established with the help of public authorities or public companies.