# Dry Port Development

# Case Sudy :
# Dry Port Poznan Poland

**TransBaltic**
**Work Package : WP5.1.**

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# Executive summary

One of the work package within TransBaltic project promotes the idea of dry ports. It is a question of growing relevance due to the increasing traffic congestion in many seaports resulted from shortage of space. A few case studies were developed. The Institute of Logistics and Warehousing has worked out the case study devoted to dry port in Poznan.

Poznan is a classic example of a distant dry port that supports the North Range European ports in the supply of containers coming from the other continents and directed to Poland and neighbouring countries. The rationale behind this classification is close co-operation of the local rail container terminals with the seaports of Hamburg, Bremerhaven, Rotterdam or Antwerp in relieving their traffic congestion resulting from the excess of transhipment operations to be carried on a limited area in a very short time.

In this study will look at the scale of containerised flows passing through the Poznan agglomeration and and the prospects for their development in the long term. The quality of the local transport infrastructure which is used for transport of containers will be analyzed and the bottlenecks specified. Particular attention will be devoted to six container terminals functioning in the city - their suitability to act as a dry port and the possibilities of adaptation to the increasing volumes.

According to the practice investments in intermodal infrastructure in Poland are financed by the private sector while new road and rail track investments are the public sector domain. Priorities are sometimes divergent so there is a need for the co-operation platform of private and public investors to synchronize private investments in container terminals with public ones in rail tracks and roads on investment strategy, priorities and time schedule. Establishment of the logistics cluster will be proposed to represent private investors in logistics infrastructure before the public administration with the main target of improving city's transport infrastructure.

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# 1. Introduction

## 1.1. Definition of a dry port

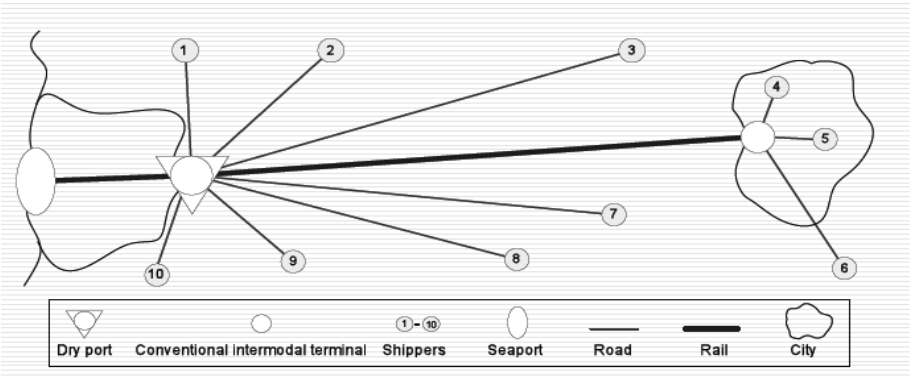
Dynamic growth of containerised transports more often encounters handling bottlenecks of sea ports there is hence rising understanding of the dry port concept as a way of relieving congestion. According to one of the definition "a dry port is an inland intermodal terminal directly connected to a seaport by rail, where customers can leave and/or collect their standardised units as if directly to the seaport"[1].

The essence of the dry port solution is:

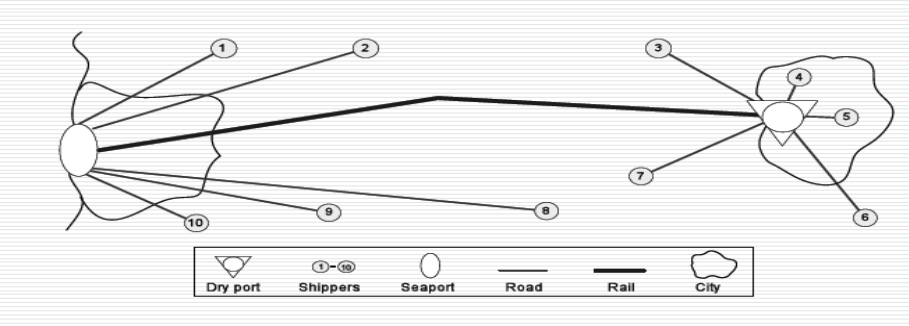
- Significant extension of seaports' operational surface through creating dry ports in strategic locations being close to seaports or in vicinity to the main markets.
- Increase of seaports productivity by optimising reloading and distribution of containers as well as outsourcing of many activities not being strictly connected with transfer of containers.
- Carriage of large volumes on rails through densely populated urban areas results in reduced congestion. Much bigger environmental effect is obtained by long distance shuttles connecting seaports with distant dry ports.

There are two main kinds of a dry port considering a distance from a seaport. The most popular solution is a dry port located relatively close to the corresponding seaport (ca.100-200 km) The other type may be quite far from the seaport but close to the destination markets. This solution enable simultaneous co-operation of a dry port with many seaports.

**Fig. 1-1 Close and distant types of a dry port**




[1] "Dry ports .An international overview" VIOLETA ROSO Chalmers University of Technology, Sweden Division of Logistics and Transportation




*Source: Violeta Roso, Division of Logistics and Dry Port Seminar Transportation, Chalmers, Sweden Presentation on TransBaltic Dry Port Seminar, Falkoping, April 2010*

The concept has been implemented by the port of Gothenburg from which containers are transferred to the other parts of Sweden with the use of 26 shuttle trains. Another interesting example refers to Duisburg offering tri-modal transhipment services and shuttle waterway and rail connections of seaports of Antwerp, Zeebrügge, Rotterdam and Amsterdam with Central Europe. German ports of Hamburg and Bremerhaven try to base in their hinterland transport system on both close and distant dry ports being close to the main markets.

## 1.2. Poznan as transport node in a dry port function

The city of Poznan, located in the western part of Poland, is very good example of a distant dry port being gateway hub for a few intermodal operators transferring containers between the North Range European ports as Hamburg, Bremerhaven, Rotterdam, Antwerp or Zeebrugge and Poland as well as markets of Russia, Ukraine, Caucasus countries and Central Asia

The next figures demonstrate the intermodal networks of three main transport operators decided to use Poznan as a dry port for deliveries of containers reaching Poznan through the all Northern Range ports.

**Fig. 1-2 Hub Poznan in the concept of "Germany-Poland shuttle" of Polzug GmbH**


*Source: Joint presentation of Hamburg Port Authorities and Polzug GmbH "PRESS KIT OFFICIAL OPENING HUB TERMINAL POZNAN 27. September 2011*

**Fig. 1-3 Hub Poznan (Kobylnica) in the intermodal network of Hupac**


*Source: HUPAC web site (www.hupac.ch)*

**Fig. 1-4 Hub Poznan (Kobylnica) in the intermodal network of Kombiverkehr**


*Source:Kombiverkehr web site.*

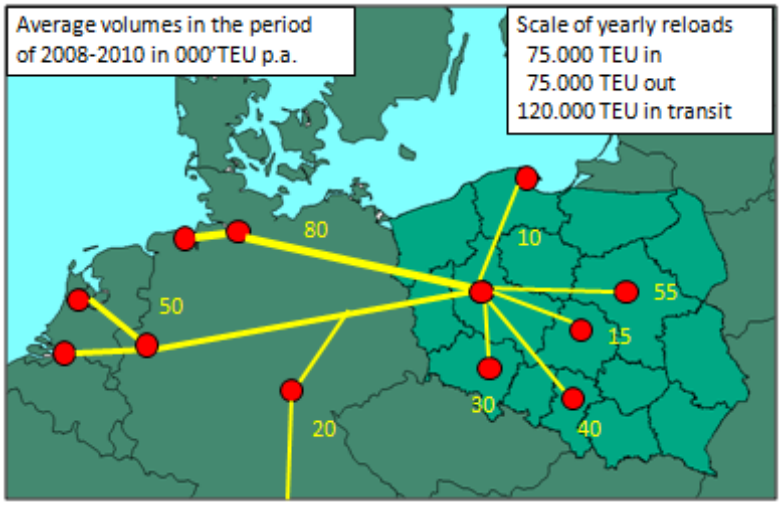
## 1.3. Current flows of containers through the Poznan agglomeration

Lying on the main trade route leading from Berlin to Moscow Poznan is an important hub handling the flows of cargo coming into Poland from Germany and other West European markets. Poznan is also an important link of the transport network for transfering containerised cargo addressed to Polish customers or dispatched by Polish exporters.

For some main intermodal carriers operating between the North Range ports of Hamburg, Rotterdam and Antwerp Poznan is used as a dry port receiving large number of containers in order to distribute them throughout the country.

It may be estimated that ca. 150.000 TEU are yearly transported on rails coming through Poznan container terminals. The main receiving regions in Poland are south of Poland (Upper and Lower Silesia) and central part of Poland (Warsaw and Lodz).

**Fig. 1-5 Estimated rail flows of containers through the Poznan agglomeration.**




*Source: Statistics of PKP Cargo SA*

Poznan agglomeration co-operates also with Polish ports. Traditionally Polish exports are often concluded on FOB Polish Port basis. The movements may be estimated as ca. 10.000 TEU p.a.

Extensive transit flows pass the Poznan rail junction. These movements resulting from the foreign trade between Russia and West Europe. may be estimated to 120.000 TEU p.a.

Besides supplies on rails, containers are also delivered with the use of road chassis. Some 20.000-30.000 TEU p.a. are addressed to receivers in the Poznan agglomeration or dispatch here. Another 50.000 - 60.000 TEU pass Poznan in transit.

# 2. Identification of container-related logistics processes available in the Dry Port Poznan

Due to its developed logistics infrastructure (Poznań-Franowo marshalling yard, container terminals, logistics and storage centres in the Poznań agglomeration), the Poznań agglomeration logistics node fully answers to the concept of a dry port. Many transport, freight forwarding and also logistics companies, including global logistics operators carry out their business activities involving the provision of logistics services in this agglomeration.

The strong advantage of the Poznań dry port is a multidirectional railway infrastructure that enables access to Poznań from all international and domestic directions and a very good railway infrastructure within the Poznań railway node connecting the Gądki, Kobylnica and Swarzędz-Jasin container terminals with the Poznań-Franowo marshalling yard. It should be noted, however, that upon the launch of a new

container terminal in Gądki by Polzug Intermodal Polska Sp. z o.o., trains carrying containers from departure stations arrive directly at that terminal without passing through the Poznań-Franowo station.

The local road transport infrastructure is also being intensively developed, which radically improves the quality of container terminal transport connections between senders and recipients of cargos susceptible to railway transport, including intermodal transport in international container transport operations.

The railway container transport operations are carried out in the Poznań agglomeration logistics node (Suchy Port Poznań) in two ways:

- Block trains (trains transporting containers only) arrive at the new container terminal of POLZUG Intermodal Polska Sp. z o.o. in Gądki, where they are handled and further shipped to their customers. At this terminal, the Gądki-Wrocław-Dąbrowa Górnicza and Gadki-Łódź-Pruszków aerial trains are formed.
- Freight trains including carriages with containers destined to the Kobylnica or Swarzędz-Jasin terminals arrive at the Poznań-Franowo marshalling yard of PKP CARGO SA, where they are handled in such as way as to provide for the containers to be transported by aerial trains from the Poznań-Franowo marshalling yard to those terminals.

In individual cases, carriages with containers are made available to customers at the sidings. On the other hand, at the Poznań-Franowo marshalling yard, no containers are reloaded from railway carriages to vehicles and no containers are delivered by vehicle transport to customers.

## 2.1. Handling of trains at the container terminals

### 2.1.1. Handling of imported containers shipped to Poznan as their point of destination

The container terminal as an intermodal transport link provides many services, which can be grouped in the following way:

➢ *Basic services*
- Reloading,
- Storing of intermodal transport units,
- Technical and operational handling of intermodal transport units,
- Handling of goods,
- Railway transport,

- *Complementary services*
  - Transporting of intermodal transport units by road transport on the terminal – final customer/sender-recipient – terminal route,
  - Notifying of intermodal deliveries, preparing and submitting of reports on progress in the carrying out of services,
  - Handling of deliveries containing hazardous loads,
  - Technical maintenance of containers, preparing of the INTERCHANGE reports,
  - Handling of isothermal deliveries, including: connection of a container's generator to power, power provision and control during power consumption,
  - Cleaning of containers.

The services are rendered at the terminal in accordance with the customer's order (instructions for individual services), including notification of the container's arrival. The order shall include information necessary for the proper provision of the terminal services (for example, date and time of delivery to the customer, return to the terminal upon unloading, storage until the first planned train departure on a certain route, information about the sender/recipient and any other information required for the freight documents to be prepared, container to be taken to the depot and other activities to be carried out).

#### 2.1.1.1. Container unloading from carriages

In terms of technology, an empty or loaded container is loaded or unloaded according to the same rules. The loading/unloading operations, generally referred to as the reloading operations are carried out in the following structures: carriage-yard, carriage-vehicle, carriage-yard-vehicle (and in reverse) and in the structure: carriage-carriage. The reloading operations are carried out using vertical reloading system, i.e. using self-propelled reloading equipment (the so-called reach-stackers or forklift truck for light containers). In the future, the new container terminal of Polzug Intermodal Polska Sp. z o.o. in Gądki (container hub) shall also be equipped with (track and road) container gantry cranes used for that purpose.
The reloading operation time depends on many factors such as:

- Type of the reloading equipment used,
- Type of the intermodal transport unit (UTI) – reloading of swap bodies and vehicle trailers requires additional specialist slings or clamps to be used, which designates the technology of the carried out reloading operation,
- Type of the reloading operation,
- Container storage location.

The average reloading time is approximately 5 minutes. In the event of double operation (for example, unloading from a carriage to a yard and next from the yard to a vehicle), the approximate time is up to 15 minutes.
The reloading operation price depends on the applied method for settlements and is subject to negotiations. The most frequently used systems of reloading charges include:

- Charges per each reloading operation carried out,
- Charges according to the lump sum settlement system,
- Charges for reloading included, for example in the railway freight;

The charge per each reloading operation ranging between EUR 20 and EUR 25 is the most common form of payment, however, as a rule a charge for two reloading is required (carriage-yard, yard, vehicle and vice versa). The price is EUR 40-45 then.

#### 2.1.1.2. Short-term container storage

Short-term storage may exist as:

- A derivative of transport and nature of handling activities resulting from the concluded transport and terminal agreements, i.e. based on the customer's order and its reasons include:
    - Waiting at the terminal for the dedicated train to depart - upon the delivery of a container to the terminal after its uploading or unloading at the customer's,
    - Waiting for administrative and customs-related activities to be carried out,
    - Waiting for delivery to the final customer by road transport according to the customer's instructions (order),
    - Waiting for the freight order,
    - Waiting for the activities related to the cleaning of the container to be carried out.
- A terminal operational strategy assuming a large number of daily handling operations of trains and in relation to that a fast turnover of containers connected with the reloading activities and minimum time for containers to be at the terminal. Such a strategy has been adopted by the container hub – the new container terminal of Polzug Intermodal Polska Sp. z o.o. in Gądki, which does not provide for empty containers to be taken to the container depot, but to be immediately returned to locations indicated by their owners.

The average container storage time is between 2 and 7 days.

The price for storage is based on one of the following:

- A charge unified with regard to large containers regardless of the load capacity (empty or full) and size of a container.
- Different charges depending on the load capacity and size of containers.
  Both options include a generally adopted period free of charge for storage, which obliges customers to move their containers quickly and lasts between 5 and 7 days. A daily charge of between EUR 2.5 and EUR 5 per container is collected for each following day.

### 2.1.1.3. Container customs clearance

The customs-related activities include:

- Performance of any activities stipulated by the provisions of the Customs Code before the customs authorities (representation of the customer before the customs office),
- Preparation and submission of SAD documents and also submission of collateral for amounts due to customs,
- Preparation of import, export and transit clearance – customs declarations, INTRASTAT notification handling, handling of excise tax deliveries, establishment of general collateral, preparation of bills of landing.

The customs-related activities are, as a rule, dealt with by the customer (goods recipient). The practice of a container terminal operator dealing with them at the customer's request is much less frequent.
An exemplary customs agency price list for intermodal transport deliveries:

- Customs clearance to the point of destination: EUR 40-50.
- Preparation of customs declarations in export: EUR 40-50.
- Preparation of the T2L form: EUR 70-80.

The customs clearance may take place in:

- The customs office (relation of goods to a customs officer).
- The container terminal (relation of a customs officer to goods), if such a terminal is granted by the customs authorities the status of a location, where activities stipulated by the provisions of the customs law can be carried out.

The Poznań agglomeration container terminals have not had such a status granted. The two locations of the customs offices that are convenient for the Gądki, Kobylnica and Swarzędz-Jasin container terminals include:

Customs Office in Gądki
Entity code: 391040
ul. Poznańska 71,
62-023 Gądki
Tel.: 061 817-11-55
Fax: 061 817-05-82
E-mail: ocgadki@poz.mofnet.gov.pl

and

Customs Office in Poznań

Entity code: 391010
ul. Wichrowa 4
60-449 Poznań
Tel.: 061 848-80-71 ext. 341
Fax: 061 848-80-52
E-mail: ocpoznan.sekretariat@poz.mofnet.gov.pl

The practice shows that the majority of containers are subject to customs in the port. The foregoing results from the fact that the opening of a container allows for any defects in the goods to be disclosed, which could result in defected goods being returned to their sender. This way the problem is avoided involving the payment for the transport of a container by intermodal road transport if it is to be returned to the port and further to its sender.

The customs agency, which acts as an intermediary for the customs purposes, reports the container as ready for transport once it has gone through customs. The intermodal transport organiser (intermodal transport operator – forwarding agent) acquires goods specification according to the harmonised commodity description ((NHM = Nomenclature Harmonisée Marchandises) between the port and the container terminal. Each commodity has the NHM code corresponding to the customs tariff code. The operator reserves the carriage and issues the CIM bill of landing for railway transporting of the container. If a container is transported along the whole transport route between the port and the point of delivery by road, the customs agency in the port or a road haulier issues a CMR document. The container is each time transferred on the basis of the INTERCHANGE document

**2.1.1.4. Container delivery from the container terminal to the customer**

The transport of the container between the container terminal and the point of destination is included in the intermodal transport operations that can be organised by the customer (recipient of goods) or by the container terminal operator. At the Poznań agglomeration terminals, in the majority of cases such operations are organised by the customer, who notifies the terminal operator which driver the container shall be released to.

The transport of an empty or full container between the container terminal and its point of destination can also be included in the handling services rendered by the terminal operator, which may also include road transport services, i.e. delivery of a container by road on the terminal-final customer-terminal route (“door to door” principle). A decision in that respect is made by the final customer acting as a recipient (loaded container availability) or by the goods sender (empty container availability).

Determination of the price for transporting a container by road between the terminal container and the customer:

Various pricing systems are applied to vehicle transport services:

- According to the actual number of kilometres – charge is collected per 1 current kilometre of road transport (number of kilometres both ways – to and from the customer).

- According to the zone system – the rate charged depends on the distance zone, within which a given recipient is located; the charge includes the route up and down, however the zone is determined on the basis of the distance from the terminal to the customer's.

The most frequently used division into distance zones is as follows:
0 - 35 km,
36 - 50 km,
51 - 80 km,
81 - 100 km,
101 - 120 km and more.
The transport of HIGH CUBE containers is subject to individual extra charges ranging from EUR 30 to EUR 50.

The extra charge for transporting hazardous materials is approximately EUR 100.
The most commonly adopted period, which is free of charge, for leaving the road vehicle and its trailer at the customer's during the container reloading operations is between 4 and 8 hours. An extra charge is collected for each following hour, which is to oblige the customer to carry out its reloading operations as soon as possible and prevent the container from being stored for too long.

Its averaged value is 20 EUR per container. A daily charge is also applied – approximately EUR 100 per each day of delay in returning the container. The method for settlement and the rates of charges for delays are determined by the container's owner.
The container is released to the driver at the container terminal on the basis of the freight order, including any related freight documents. The vehicle intermodal transport operations are carried out on the basis of the CMR documentation. Each departure of the container from the terminal is recorded in the intermodal transport unit technical report, the so-called INTERCHANGE, transport order or CMR document.

### 2.1.1.5. Empty container management

The largest group of intermodal transport operations are the operations carried out in the so-called closed transport cycle including a loaded container's arrival at the terminal, delivery of the container to its customer, container reloading and next its return to the terminal followed by its shipment or its being taken to the depot. Similarly, the customer may have an empty container made available, which can be loaded, collected and transported to the terminal, and next shipped out of the terminal. In the aforementioned events the transport of a loaded or empty container is usually organised by one of the entities that are the container's gestors.

Other events may include the arrival of a container to the terminal by railway with its final destination at its recipient, however the empty container is transported by railway to another container terminal (usually that involves the empty container's return to the container depot) or by road to another customer or depot. The empty container's point of return is indicated by its owner. Due to the distance between the terminal from which the loaded container was transported by road to the recipient and the location of the nearest container depot, between 40 and 80% of the containers delivered earlier as loaded are returned to the container terminal.

### 2.1.1.6. Long-term container storage

Long-term container storage usually refers to empty containers. The storage period may even be up to 6 months. The decision lies within the competence of the container's owner. The containers at the container depot wait for their use and decisions in this regards are made by their owners.

The storage of loaded containers results from the following circumstances:

- The container cannot be made available to the customer (cannot be unloaded at the customer's),
- The container's load cannot be handled due to technological restrictions,
- Lack of customs collateral, etc.

The price for storage is determined on an individual basis for a particular container or a group of containers. If a container depot is provided, a charge for storing a certain number of containers is usually collected.
An average rate for storing an empty or loaded container is between EUR 1.5 and EUR 3 per day.

### 2.1.1.7. Information about intermodal transport operations

Any change in the intermodal transport unit (UTI) at the terminal is subject to recording on the basis of which reports on transport and depot activities are prepared that are distributed by e-mail or by fax.
The organisation of transport, and the railway transport itself, are subject to monitoring on a continuous basis, and the information on any deviations in the transport operations is forwarded to the interested parties by the transport organiser / carrier (transport organisation departments, logistics departments, transport operation instruction issuing unit – individual organisational units participating in transport operations) and by the railway infrastructure representative (instruction issuing unit, employees directly related to train traffic) and by the customer. The information is distributed by e-mail or by fax.

## 2.2. Handling of containers shipped from the Poznan agglomeration in export

### 2.2.1. Shipment of empty containers from the container terminal

Containers usually belong to owners of seagoing ships and it is them who decide on their storage location. A container owner indicates to the party ordering an empty container a location to which it is to be delivered upon its use. Such a location may include a certain container terminal and a container shall be returned immediately to the port or container depot at the terminal. In both cases, the cost of returning a container is included in the price for its use.

If the owner needs empty containers in the port, it organises their transport from the container depot and commissions such a transport operation to be carried out by a forwarding agent/intermodal transport operator, with which it most often has been cooperating on fixed terms. The cost of transport is borne by the container owner.

#### 2.2.1.1. Delivery of empty containers to the ordering party

The intermodal transport services are rendered at arm's length, i.e. a customer selects the most attractive of all the available offers. On the part of the container transport operators the restriction lies in the possibility of ordering an empty container and its delivery to a customer for the purpose of loading goods. Access to empty containers have those forwarding agent/intermodal transport operators who cooperate with ship owners – container owners.

For example: The container terminal operator in Kobylnica cannot deliver empty containers, because it does not cooperate with any ship owners, but only with forwarding agents. It can organise a part of the intermodal transport operation involving the booking of space for a container on the train, receiving a container at the terminal, its loading to a railway carriage and making the train depart, but the whole process of the intermodal transport operation has to be organised by a forwarding agent having access to empty containers.

#### 2.2.1.2. Container loading and delivery to the terminal

<u>Time for loading goods to the container granted to the customer</u>

Time which the forwarding agent grants to the customer for loading goods to the container constitutes a part of the commercial agreement and is subject to negotiations. As a rule, it ranges between several to a dozen or so hours and is subject to restrictions of two kinds. The first type of restrictions refers to the cost of

making an empty container available and any additional charges for its detention, the second results from the requirement for the loaded container to be delivered to the container terminal within the time allowing for its loading to a railway carriage (at least 1.5 hours before the train's departure).

Time in which the container has to be delivered to the container terminal before the train's departure Activities related to the shipment of containers from the container terminal

In the case of the loading entities from the Wielkopolska region that use the intermodal transport services located in the Poznań agglomeration, the majority of container transport operations are carried out on the container terminal-sea port route. The minimum delivery time of an empty container to the terminal ranges from 1.5 to 3 hours and is related to the loading time of all containers to be transported on a certain train.

The actual time commencing this process is longer, because the customer must book a place on a certain train to start with. In addition, the intermodal transport organiser must take into account the road transport time of the container to the port and the requirement for the container to be delivered to the port in a time allowing for it to be loaded to the ship at least 12 hours before its departure. Such requirements result from the port procedures.

#### 2.2.1.3. Customs clearance

Customs clearance is within the competence of the loading entity. Customs clearance is done in the Customs Office in Poznań and Gądki.

#### 2.2.1.4. Activities accompanying the transfer of a container to the terminal operator

The freight documentation has to be submitted to the container terminal's cash desk at least 1.5 hours before the train's departure. The container terminal operator organising the container transport by rail checks whether the shipment matches the freight documentation and in the driver's presence inspects the container and prepares the INTERCHANGE report.

#### 2.2.1.5. Container loading to a railway carriage and train formation

Depending on the operations of the container terminal and the terms agreed on with the container's sender, a container is loaded to a railway carriage at the yard (container storage location at the terminal) or directly from a vehicle. Such activities shall take approximately 5 minutes (i.e. loading of a single container). The train formation depends on organisational and technical requirements of railway carriers.

For example: PKP CARGO SA provides intermodal transport services on the basis of agreements for transporting containers using the following parameters:

- Name of goods, including their classification as neutral or hazardous (classification of hazardous goods),
- Type of UTI (NHM item),
- Term of the agreement,
- Planned quantity to be transported,
- Transport routes,
- Type of transport,
- Ownership, series and number of carriage axles,
- Train length and gross weight.

The formation of a train starting its route (first station) includes the following activities (in general):

- Container loading to carriages,
- (loading/unloading of the whole train – averaged time at the reloading tracks is between 2 and 3 hours),
- Trade-related and shipping activities (train registration, trade-related verification, preparation of relevant freight documents, handling of IT systems related to the trade and shipping activities, provision of the engine driver with the complete set of documents),
- Technical activities (technical control, joining of train carriages into a train, arrival of the train locomotive, hanging up of end train signals)

The average time for the intermodal train formation, including port terminals, is also between 2 and 3 hours. The transport process is monitored from the start-up of the train on its whole route on a continuous basis.

## 2.3. Container related transport operations through the Poznan –Franowo marshalling yard

The customers in the Wielkopolskie Province and other provinces have their containers transported in individual carriages or groups of carriages being parts of standard freight trains organised and formed at the marshalling yards.

In Poznań, such a yard is the Poznań-Franowo station. For a container to be delivered to its recipient it needs to be earlier transported on the railway carriage from the Poznań-Franowo station to the relevant container terminal. Such transport services are provided using the so-called aerial trains organised by PKP CARGO SA at the Poznań-Franowo station. The aerial trains run to the terminals located in the following places: Kobylnica, Swarzędz-Jasin, Gliwice, Warszawa Praga, Sosnowiec and Sławków.
These so-called aerial trains comprise groups of carriages going to particular destinations along their whole route.

For example: An aerial train on the station A (nearer) + station B (further) route has to be formed i.e. prepared for the run at the Poznań-Franowo station. Firstly, the carriages are put together to form the first group (station A), and afterwards the next group of carriages is formed (station B). As results from the Poznań-Franowo station's technological process, when the trains are marshalled, the carriages are directed according to their destination station to the appropriate tracks (routed tracks), i.e. A, B, C or D direction ..., etc. In due time, the grouped carriages are moved from such tracks and incorporated into the train. The sequence of the carriage groups in the train depends on technical and technological conditions of the stations, on which they are incorporated into the train, for example, in an aerial train to Warsaw and Łódź the first group behind the locomotive is the Warsaw one and the second is the Łódź one, because in Łódź it is possible to disconnect a carriage group with the use of a local manoeuvre locomotive without the need for a train locomotive to be removed, which shortens significantly the so-called handling time at an intermediate station.

The aerial train formed as described above is the so-called multi-group train, i.e. it comprises carriage groups going to their determined destinations. The carriage groups have appropriate numbers assigned that correspond to their sequence behind the locomotive in the train formation list (TFL).

Aerial trains run according to a fixed timetable on a daily basis or on selected days. The foregoing involves a risk of prolonging the delivery time of a container to its customer, because in the formed train there may not be enough space for it. Then, it has to wait until the next train is formed.
The container transport operations at the Poznań-Franowo station are handled using the station infrastructure within the so-called technological route including admittance of a train with container carriages, technical inspection and preparation of the train for marshalling (deformation of the train), and next reformation of a new train and its forwarding to the containers' destinations. The whole process is carried out in accordance with the train formation list in relation to the applicable timetable (a train that is to leave as the earliest according to the timetable is formed first).

The basic documents accompanying the implementation of the technological route include: the R7 carriage arrival list, marshalling sheet and the R7 carriage departure list. The fundamental documents accompanying the intermodal transport operations are generated at the container terminal.

The handling activities at the Poznań-Franowo station are carried out using a dedicated IT solution. For this purpose, the System Kierowania Pracą Stacji (SKPS − station operation control system) is used, which helps in preparing carriage lists for trains ending their routes. On the basis of that the system generates a marshalling sheet, assists the marshalling (automatic marshalling system), allows for the situation on the arrival and departure tracks to be monitored for the purpose of preparing trains for handling and generates carriage lists for trains starting their routes. Currently, PKP CARGO SA is implementing the WIP (Wagony i Pociągi) application.

The standard times for processing carriages through the marshalling station are determined according to the annual timetable, regardless of the parameters (gross, length) and for individual timetable (competently) as needed, including optimal train parameters.
The train formation time is between 60 and 90 minutes. The time for the passage of a carriage from one train (arrival at the Poznań-Franowo station) to the other train (departure of the train from the Poznań-Franowo station) is 375 minutes.

For the purpose of handling the carriages with containers that arrived at the Poznań-Franowo station and going further to Kobylnica and Swarzędz, the carriages stay at the marshalling station for approximately 360 minutes, and in the opposite direction, i.e. from the arrival from Kobylnica and Swarzędz to the Poznań-Franowo station and to their departure, the carriages stay at the station approximately for 480 minutes. The foregoing covers the exchange of single carriages and groups of carriages, i.e. the so-called dispersed traffic. In other cases, the carriages with containers stay at the Poznań-Franowo station for approximately 900 minutes (this results from the lower frequency of trains in the timetable due to the purpose of obtaining maximum parameters of the train composition).

The stay of an aerial train at the container terminal does not depend on the time necessary for the reloading operations to be carried out, but is determined by the aerial train timetable. For example, an aerial train arrives at the terminal from Kobylnica at 11 am and departures at 5 pm, so it stays at the container terminal for 360 minutes.

Currently, for other types of railway transport operations, the average stay of carriages at the Poznań-Franowo station is approximately 1,680 minutes (28 hours), i.e. from arrival to departure; however, according to the PKP CARGO SA Freight Transport Regulations, the standard time for transporting a shipment through the Poznań-Franowo station is 36 hours.

The aerial trains delivering containers to the container terminal in Kobylnica operate on a daily basis, except for Sundays. Due to insignificant demand, containers are delivered to the container terminal in Swarzędz-Jasin on an on and off basis. Taking into account the fact that the CLIP logistics centre enters into cooperation with forwarding agents in the area of container transport operations, PKP CARGO SA plans to launch a regular aerial train from the Poznań-Franowo station to Swarzędz, which will deliver containers to the container terminal at the CLIP's site.
Empty containers are transported to the Poznań-Franowo station only if they are sent by the container terminal operators in the similar manner as loaded containers. For this purpose manoeuvrable aerial trains are used.No customs clearance is carried out at the Poznań-Franowo station.

## 2.4. Logistics services available in the agglomeration of Poznan

None of the existing in Poznan container terminal provides logistics services in relation to products.. These terminals are managed by specialized intermodal transport operators, who, at least at this stage of

their development, focus entirely on the core intermodal services. This does not mean that access to logistics services is in any way hindered.

Poznan is one of the biggest transport nodes in Poland. In 2010 there were 23.423 companies registered as transport and logistics services providers including 54 employing more than 250 persons[2] These companies are mainly local subsidiaries of multinational logistics operators as e.g. DHL, Kuehne+Nagel, Schenker, Dachser, Panopa, Rohlig, Rhenus, DSV e.t.c. These enterprises being located in the vicinity of the container terminals offer wide range of logistics services as e.g:

- Freight forwarding and transportation services with the use of all transport modes except inland waterway being executed as complete loads (FCL) or groupage (LCL).

- Door-to-door service becomes common standard as well as monitoring of transport progress. It should be noted that Poznań is an important hub for imported groupage coming mainly from the West European markets but also from other continents in the LCL containers. For many operators Poznan is very advantageously situated gateway hub receiving flows of small shipments throughout corporate groupage networks to consolidate them here for the final destination traffics.

- warehousing services embracing storage, handling cross-docking as well as wide range of the Vallue Added services as e.g.: commissioning, building mixed pallets, creating promotional sets or labeling. Poznan has quite large warehousing space available (more than 1 million square meters). Contract logistics services are provided on dedicated warehousing surface or in multi-user buildings . Logistics is tailored to the branch specificities as e.g. FMCG or automotive (VW factory in Poznan). For deliveries coming from other continents bonded or consignation stores are offered. Many warehouses are distribution centers proposing warehousing and distribution services in one package.

- Customs brokers and insurance companies offer complementary services to transportation and warehousing.

- Services enabling optimization of supply chains. Taking into account the current level of competition punctual delivery seems not to be satisfactory enough. It becomes increasingly important to organize logistics processes in such a way to reduce expenses not loosing fluency and flexibility. There is rising demand for arranging inbound supplies in order to reach optimal level of stocks. Such logistics advanced services as order release management or vendor managed inventory are offered by logistics operators. Downstream logistics focused on efficient distribution is equally important . Increasing number of logistics service providers offers end-to-end orders execution to optimize warehousing and distribution activities.

[2] Statistical Office in Poznan – Entities of the National Economy at the end of 2010

Thus local business community enjoys access to the wide range of transport and logistics services including intermodal deliveries of containers.

# 3. The Poznan agglomeration as a location for the efficient Dry Port

## 3.1. Potential of the Poznan agglomeration

The Poznań agglomeration is made up of: the city of Poznań, the district of Poznań constituting a local self government community of 17 communes around Poznań: Buk, Czerwonak, Dopiewo, Kleszczewo, Komorniki, Kostrzyn, Kórnik, Luboń, Mosina, Murowana Goślina, Pobiedziska, Puszczykowo, Rokietnica, Stęszew, Suchy Las, Swarzędz, Tarnowo Podgórne and some communes bordering with the district of Poznań, i.e. the town and commune of Śrem, Szamotuły and Skoki

**Fig. 3-1 Poznan agglomeration**


*Source: 2nd Congress of the Poznań Agglomeration Self-Governments (II Zjazd Samorządów Aglomeracji Poznańskiej). 2011-06-15 . http://www.poznan.pl/mim/public/wiadmag/news.html?co=print&id=45063&instance=1016&lang=pl. Viewed date 4 August 2011.*

The Poznan agglomeration is fifth in terms of population, but the GDP ranks it second, after Warsaw agglomeration. With people's incomes lower than those of the Warsaw and Silesia agglomerations, the Poznan agglomeration is second in terms of consumer demand measured by retail sale volume per capita.

**Tab. 3-1 The largest urban agglomerations in Poland**

| No. | Urban agglomeration | Population (thousands) | Gross domestic product per capita (kPLN) | Income per capita (kPLN) | Retail sale per capita (kPLN) | Sales in industry* (kPLN) |
|---|---|---|---|---|---|---|
| 1 | Warsaw | 2,800 | 77 | 21.3 | 27.2 | 166,349,000 |
| 2 | Silesia | 2,700 | 29.9 | 19.1 | 45.5 | 140,493,000 |
| 3 | Lodz | 1,100 | 30.6 | 17.2 | 9.5 | 39,976,000 |
| 4 | Cracow | 1,000 | 39.9 | 15.2 | 13.4 | 51,109,000 |
| 5 | Poznan | 949 | 53.3 | 17.9 | 37.2 | 89,218,000 |
| 6 | Wroclaw | 910 | 36 | 17.5 | 9.7 | 66,854,000 |

*Source: Own study based on the Central Statistical Office's data.*

The following railroads crossing the Wielkopolskie Province are significant for the logistic centre in Poznań (working name: Poznań Dry Port)[3]:

The following railroads are important in terms of access to the railway junction in Poznań:

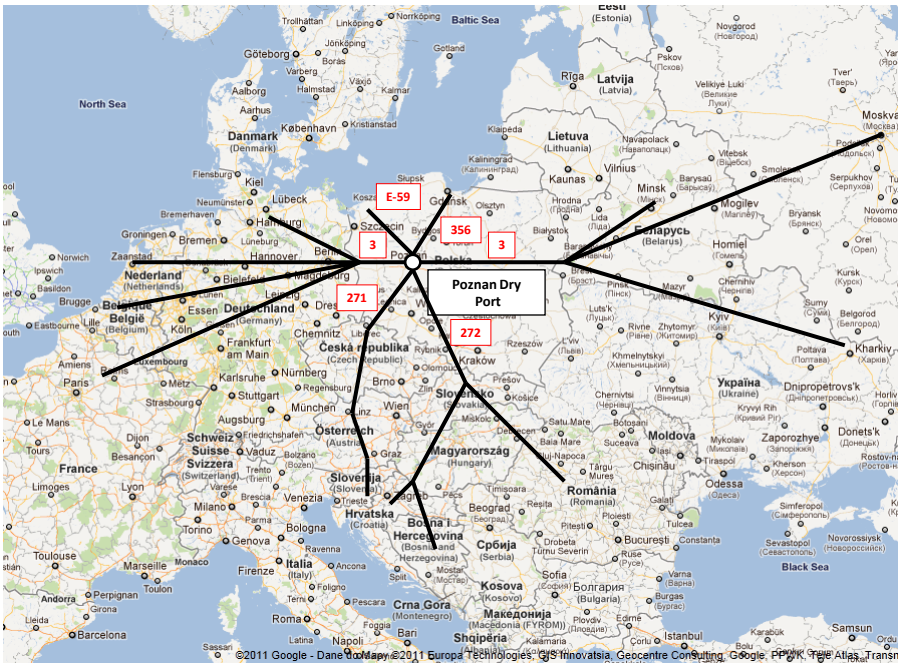
- From the western border (Kunowice): railroad no. 3
- From the north-west from the seaports in Świnoujście and Szczecin: railroad no. 351
- From the north and the seaports in Gdynia and Gdańsk: railroad no. 353
- From the east, from the eastern state border (Małaszewice): railroad no. 3.
- From the south, from the southern state border (Międzylesie): railroad no. 271, (Chałupki): railroad no. 272.

The Poznan railway junction offers connections in many directions. (Fig.3-2)

- Railroad no. 3 from the west connects the Poznań agglomeration with the North Sea ports: Hamburg, Bremerhaven, Rotterdam and Antwerp as well as with the Lubuskie Province.
- Railroad no. 3 from the east connects the Poznań agglomeration with the Eastern European markets (Belarus, Russia, Kazakhstan) and the following provinces: Łódzkie, Mazowieckie, Podlaskie and Lubelskie.
- Railroad no. 271 from the south of Poland assures the communication with the Central and Southern European markets (Czech Republic, Hungary, Austria, Slovenia and Croatia, as well as the Adriatic countries) and with the following provinces of Poland: Dolnośląskie and Opolskie.
- Railroad no. 272 from the south of Poland assures the communication with the Central and Southern European markets (Czech Republic, Slovakia, Austria, Bosnia and Herzegovina, Serbia, as well as the Adriatic countries) and with the following provinces of Poland: Opolskie and Śląskie.
- Railroad no. E-59 connects the Poznań agglomeration with the seaports of Szczecin and Świnoujście.
- Railroad no. 356 assures communication with the seaports in Gdańsk and Gdynia.

[3] Railroad numbering in line with PLK S.A. http://www.pkp.pl/files/mapa_linii_kolejowych.pdf. Date of download 2011-08-03.

**Fig. 3-2 Railroad connections of the Poznań agglomeration with Europe (railroad numbers in boxes)**




*Source: Own study*

<u>The following railroads are important for access from the Poznań centre to container terminals located in the city's area:</u>

- No. 3 for access to container terminals in Poznań-Franowo and Swarzędz-Jasin.
- No. 272 for access to container terminal in Gądki
- No. 353 for access to container terminal in Kobylnica.

The Poznan agglomeration has an extensive road system (Fig. 3-3), made up of: A2 west-east motorway, national roads no. 5 and 11, numerous province, district and commune roads. An issue related to road infrastructure is the absence of a ring road in Poznan which could be used as by-pass of the Poznan agglomeration. There are plans to build such a by-pass, but the implementation is very slow.

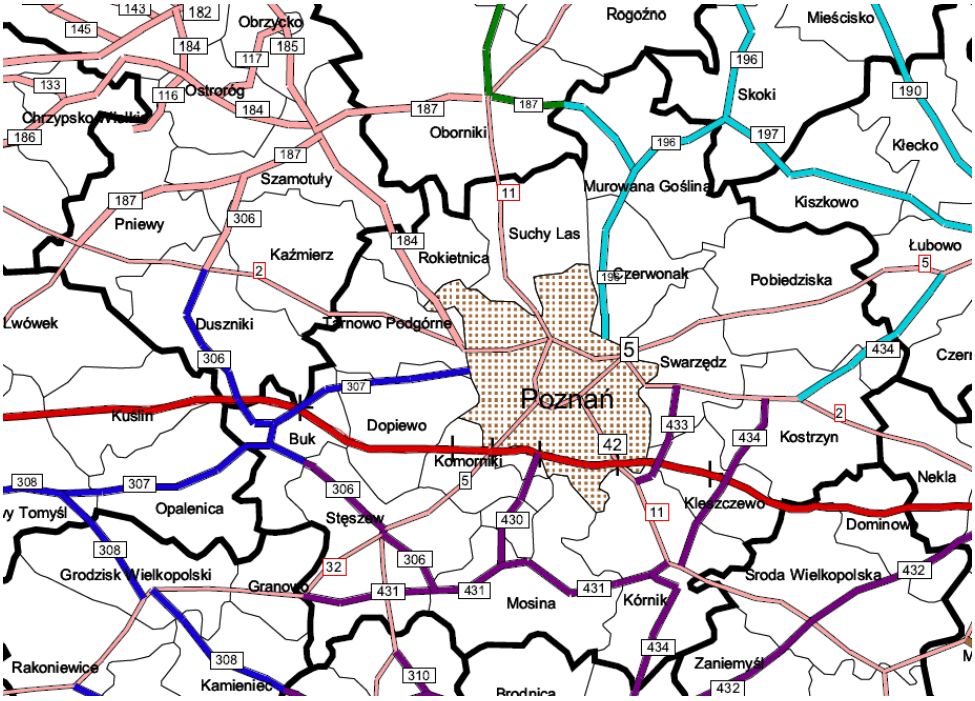
The A2 motorway is of key importance for the Poznań agglomeration, as it has a two-fold function:

- It is the major road connecting the Wielkopolskie Province with Germany, France and the Benelux states and with the following provinces: Lubuskie, Łódzkie, Mazowieckie and Lubelskie. It is located directly in the 2nd international transport corridor of the TEN-T network.
- As a southern section of the Poznań ring roads, it connects the Poznań agglomeration with national roads no. 5 and 11 and then with the following areas:
    - Via national road no. 5 with Dolnośląskie Province and southern state border (with the Czech Republic) and with the following provinces in the north: Kujawsko-Pomorskie and Pomorskie and the seaports of the Tricity (Gdynia and Gdańsk).

- Via national road no. 11 with the following provinces in the south: Opolskie and Śląskie and with the southern border (Slovakia) and with the Zachodniopomorskie Province in the north.

The national roads no. 5 and 11 are very important connectors of the road infrastructure of the Wielkopolskie Province with the 2nd, 3rd and 4th international transport corridors of the TEN-T network.

**Fig. 3-3 Roads within the Poznan agglomeration**




*Source: Wielkopolskie Province Roads Authority (Wielkopolski Zarząd Dróg Wojewódzkich). http://www.wzdw.pl/drogi_wojewodzkie/mapa/. Date of download 2 August 2011.*

At the moment, apart from the existing southern part of the ring road in Poznań, i.e. the free of charge section of the A2 motorway, two other roads are under construction: the western ring roads – a part of the S11 fast road between Złotkowo and A2 motorway (Głuchowo) and the eastern road as part of S5 fast roads between Czachurki and A2 motorway (Kleszczewo). To close the ring-road, its north section is necessary, the construction of which is not planned for the near future.

## 3.2. Forecast of containers flows through the Poznan agglomeration until 2010

What are the prospect for the development of Poznan In a role of dry port. ?

### 3.2.1. General trends

Container traffic has grown world wide tremendously over the past 20 years becoming the fastest growing market in the transport industry. The reasons lies in increase in global trade, migration of

production to low-cost countries and ongoing process of containerisation. Standardisation of loading units facilitates transhipments between modes what makes transport system more flexible.

According to UNCTAD statistics world wide containerised transports were stabilised during the period of 1980-2005 at the high development rate ranging from 9 to 10% per annum. Transport of containers became these time the most dinamic sector of transport increasing its share from 2,8 to 16,6%.

**Tab. 3-2 International seaborne trade in selected years (millions of tons loaded)**

| Year | 1980 | 1085 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|
| Containerised transports (mio tonnes) | 102 | 160 | 246 | 389 | 628 | 1 020 | 1 347 |
| Development rate | | 56,9% | 53,8% | 58,1% | 61,4% | 62,4% | 32,1% |
| Period | | 1980-1985 | 1986-90 | 1991-95 | 1996-00 | 2001-05. | 2006-10. |
| Yearly development rate | | 9,5% | 9,0% | 9,6% | 10,0% | 10,1% | 5,9% |
| Year | 1980 | 1085 | 1990 | 1995 | 2000 | 2005 | 2010 |
| Share of containerised transports in total transport volumes | 2,8% | 4,7% | 6,1% | 8,4% | 10,5% | 14,6% | 16,6% |

*Source : Review of Maritime Transport , UNCTAD 2011*

This trend was interrupted by the world-wide crisis in 2008-2009 while the rise of containerised flows was slowed down to 4% in 2008 and fallen down by 9% in the next year. This slowdown was quickly overcome as early as in 2010 when the traffic reached the level of 2008.

**Tab. 3-3 International seaborne trade in selected years (millions of tons loaded)**

| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|
| Containerised transports (mio tonnes) | 1 020 | 1 134 | 1 264 | 1 319 | 1 201 | 1 347 | 1 477 |
| Yearly development rate | | 11,2% | 11,5% | 4,4% | -8,9% | 12,2% | 9,7% |
| Share of containerised transports in total transport volumes | 14,6% | 14,7% | 15,7% | 16,0% | 15,3% | 16,0% | 16,6% |

*Source : Review of Maritime Transport , UNCTAD 2011*

Sudden and unexpected perturbations in 2008-2009 however resulted in significant diversification of long term forecasts concerning flows of containers. According to recent global forecast of OECD from 2012 prepared in 3 scenarios, the high rate of development of containerised traffic will be continued until 2015 (ca.9% p.a) to decrease slightly in the next fifteen years (ca. 5-6%p.a.). Beyond 2030 the forecast shows significanf slowdown to 2-3% of yearly rise. The process of containerisation of loads in seaborne transport is expected to be completed to the high degree.

**Tab. 3-4 World port container handling (including trans-shipment).Forecast 2010-2050**

| TEU growth scenario | Millions of TEUs per annum | | | | Yearly development rate | | |
|---|---|---|---|---|---|---|---|
| | 2010 | 2015 | 2030 | 2050 | 2010-2015 | 2015-2030 | 2030-2050 |
| Higher TEU growth | 500 | 790 | 2 000 | 3 200 | 9,5% | 6,4% | 2,4% |
| Medium TEU growth | 500 | 765 | 1 700 | 2 650 | 8,9% | 5,4% | 2,3% |
| Lower TEU growth | 500 | 745 | 1 500 | 2 300 | 8,3% | 4,7% | 2,2% |

*Source : Strategic Transport Infrastructure Needs to 2030, OECD 2012*

Long term forecasts concerning containerised flows adressed to the Balic Sea Region differ considerably. The study made by the Ocean Shipping Consultants Ltd in 2011 is very close to world wide predictions presented earlier.It expects ca 9% annual development of container traffics until 2020 to decrease slightly to 8% during the next 10 years.

**Tab. 3-5 Container Port Demand to 2025**

| Country | 2011 | 2012 | 2013 | 2014 | 2015 | 2020 | 2025 | Development 2025/2011 | Average yearly development | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 2015/2011 | 2020/2015 | 2025/2020 |
| Russia | 2 562 | 2 824 | 3 092 | 3 382 | 3 708 | 5 837 | 8 458 | 230,1% | 9,7% | 9,5% | 7,7% |
| Poland | 1 682 | 1 809 | 1 994 | 2 198 | 2 424 | 3 763 | 5 530 | 228,8% | 9,6% | 9,2% | 8,0% |
| Ukraine | 692 | 775 | 858 | 950 | 1 053 | 1 605 | 2 402 | 247,1% | 11,1% | 8,8% | 8,4% |
| Lithuania | 368 | 399 | 433 | 470 | 510 | 732 | 1 050 | 185,3% | 8,5% | 7,5% | 7,5% |
| Latvia | 287 | 308 | 334 | 369 | 393 | 585 | 869 | 202,8% | 8,1% | 8,3% | 8,3% |
| Estonia | 150 | 165 | 179 | 195 | 212 | 311 | 447 | 198,0% | 9,0% | 7,9% | 7,5% |
| **East BSR** | **5 741** | **6 280** | **6 890** | **7 564** | **8 300** | **12 833** | **18 756** | **226,7%** | **9,7%** | **9,1%** | **7,9%** |

*Source: Analysis based on DCT Gdansk presentation at Transport Week 2012, March 6th, original source: Ocean Shipping Consultants Ltd „Market Study Analysis" November 2011.*

Less optimistics is prediction of the Port of Hamburg Authorities concerning containerised transports to Poland in the period of 2009-2025 assumming 6,5% average yearly development rate.

**Tab. 3-6 Forecasts of containerised cargo flows ex Hamburg till 2025**

| | Mio. TEU | | | | | Jährl. Wachstumsrate | | Anteil an Gesamt | |
|---|---|---|---|---|---|---|---|---|---|
| **Hinterlandregionen** | 2008 | 2009* | 2015 | 2020 | 2025 | 2008-2009 | 2009-2025 | 2009* | 2025 |
| Deutschland | 4,1 | 3,7 | 5,3 | 6,7 | 8,5 | -10,8% | 5,4% | 78% | 77% |
| übr. West- und Nordeuropa | 0,4 | 0,4 | 0,5 | 0,7 | 0,8 | -11,9% | 4,9% | 8% | 7% |
| *Österreich* | *0,2* | *0,2* | *0,2* | *0,3* | *0,3* | *-12,6%* | *4,6%* | *4%* | *3%* |
| Mittel- und Osteuropa | 0,8 | 0,7 | 1,0 | 1,4 | 1,8 | -12,3% | 6,3% | 14% | 16% |
| *Tschechien* | *0,4* | *0,3* | *0,5* | *0,7* | *0,9* | *-12,0%* | *6,5%* | *7%* | *8%* |
| *Polen* | *0,3* | *0,2* | *0,4* | *0,5* | *0,7* | *-11,9%* | *6,3%* | *5%* | *6%* |
| **Hinterland gesamt** | **5,3** | **4,7** | **6,8** | **8,7** | **11,1** | **-11,1%** | **5,5%** | **100%** | **100%** |

*Source: Containerised cargo flows ex Port of Hamburg to Poland analysisHamburg Port Authorities, TransBaltic Seminar - Poznan, 10.06.2010*

According to the consultancy company NEA we will face rather slow development of container traffic in Europe in the coming 20 years limited to 2-3% pa. Elaboration shows also expected shifts between competing clusters of European ports. An extraordinary carrier of Adriatic and Black Sea ports is predicted capturing significant number of containers from the North Range ports. Status quo of the position of remaining clusters will be retained.

**Tab. 3-7 Forecast of containerised transport volumes until 2030 by European port clusters**

| Port clusters | Countries | 2000 | 2008 | 2030 | |
|---|---|---|---|---|---|
| | | | | Low Growth Forecast | High Growth Forecast |
| | | Port traffic containerised volumes (milion tonnes) | | | |
| NORTH RANGE | DE,NL,BE,FR | 170 | 328 | 416 | 531 |
| BLACK SEA | BG,CY,GR,HR,RO,SI,TR,AL.,ME | 39 | 26 | 147 | 195 |
| WEST MED. | ES,FR,IT,MT,PT | 125 | 222 | 251 | 323 |
| SOUTH BALTIC | PL,EE,LT,LV | 4 | 12 | 21 | 30 |
| UK & IRL | UK,IE | 57 | 68 | 111 | 145 |
| SCANDINAVIA | DK,FI,IS,NO,SE | 24 | 34 | 61 | 83 |
| **TOTAL** | | **419** | **690** | **1 007** | **1 307** |

| Port clusters | Countries | 2000 | 2008 | 2030 | |
|---|---|---|---|---|---|
| | | | | Low Growth Forecast | High Growth Forecast |
| | | share | | | |
| NORTH RANGE | DE,NL,BE,FR | 40,6% | 47,5% | 41,3% | 40,6% |
| BLACK SEA | BG,CY,GR,HR,RO,SI,TR,AL.,ME | 9,3% | 3,8% | 14,6% | 14,9% |
| WEST MED. | ES,FR,IT,MT,PT | 29,8% | 32,2% | 24,9% | 24,7% |
| SOUTH BALTIC | PL,EE,LT,LV | 1,0% | 1,7% | 2,1% | 2,3% |
| UK & IRL | UK,IE | 13,6% | 9,9% | 11,0% | 11,1% |
| SCANDINAVIA | DK,FI,IS,NO,SE | 5,7% | 4,9% | 6,1% | 6,4% |

| Port clusters | Countries | 2000 | 2000 - 2008 | 2008-2030 | |
|---|---|---|---|---|---|
| | | | | Low Growth Forecast | High Growth Forecast |
| | | | Average annual development rate | | |
| NORTH RANGE | DE,NL,BE,FR | | 8,5% | 1,1% | 2,2% |
| BLACK SEA | BG,CY,GR,HR,RO,SI,TR,AL.,ME | | -3,7% | 7,2% | 8,9% |
| WEST MED. | ES,FR,IT,MT,PT | | 7,5% | 0,6% | 1,7% |
| SOUTH BALTIC | PL,EE,LT,LV | | 14,8% | 2,6% | 4,3% |
| UK & IRL | UK,IE | | 2,3% | 2,2% | 3,4% |
| SCANDINAVIA | DK,FI,IS,NO,SE | | 4,4% | 2,7% | 4,2% |
| **TOTAL** | | | **6,4%** | **1,7%** | **3,0%** |

*Source :Ports and their connections within the TEN-T ,Final Report, NEA (member of Panteia), December 2010*

NEA has also presented deeper predictions concerning development of modal shift in different hinterland regions. Different attitudes towards green logistics may be observed. Three groups of regions may be distinguished.

**Tab. 3-8 Hinterland Traffic by European Region (millions tkm)**

Hinterland Traffic by European Region (milions tkm)

| Region | | | Road | Rail | IWW | TOTAL | Modal shift Road | Rail | IWW |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ALPINE | 2005 | 8 220 | 3 229 | 393 | 11 842 | 69,4% | 27,3% | 3,3% |
| | | 2030 | 15 209 | 5 164 | 865 | 21 238 | 71,6% | 24,3% | 4,1% |
| | | change | 85,0% | 59,9% | 120,1% | 79,3% | | | |
| 2 | BENELUX | 2005 | 23 102 | 5 085 | 35 514 | 63 701 | 36,3% | 8,0% | 55,8% |
| | | 2030 | 40 040 | 8 936 | 60 684 | 109 660 | 36,5% | 8,1% | 55,3% |
| | | change | 73,3% | 75,7% | 70,9% | 72,1% | | | |
| 3 | BALCANS | 2005 | 57 005 | 6 080 | 2 380 | 65 465 | 87,1% | 9,3% | 3,6% |
| | | 2030 | 159 271 | 15 773 | 4 544 | 179 588 | 88,7% | 8,8% | 2,5% |
| | | change | 179,4% | 159,4% | 90,9% | 174,3% | | | |
| 4 | CENTRAL | 2005 | 74 019 | 27 902 | 24 107 | 126 028 | 58,7% | 22,1% | 19,1% |
| | | 2030 | 153 611 | 53 777 | 38 896 | 246 284 | 62,4% | 21,8% | 15,8% |
| | | change | 107,5% | 92,7% | 61,3% | 95,4% | | | |
| 5 | NORDIC | 2005 | 35 766 | 20 970 | | 56 736 | 63,0% | 37,0% | 0,0% |
| | | 2030 | 70 247 | 49 928 | | 120 175 | 58,5% | 41,5% | 0,0% |
| | | change | 96,4% | 138,1% | | 111,8% | | | |
| 6 | BALTIC | 2005 | 14 874 | 5 486 | 2 188 | 22 548 | 66,0% | 24,3% | 9,7% |
| | | 2030 | 33 440 | 24 375 | 1 777 | 59 592 | 56,1% | 40,9% | 3,0% |
| | | change | 124,8% | 344,3% | -18,8% | 164,3% | | | |
| 7 | IBERIA | 2005 | 45 288 | 1 136 | | 46 424 | 97,6% | 2,4% | 0,0% |
| | | 2030 | 79 610 | 1 608 | | 81 218 | 98,0% | 2,0% | 0,0% |
| | | change | 75,8% | 41,5% | | 74,9% | | | |
| 8 | FRANCE | 2005 | 63 984 | 13 099 | 18 026 | 95 109 | 67,3% | 13,8% | 19,0% |
| | | 2030 | 94 149 | 19 794 | 27 415 | 141 358 | 66,6% | 14,0% | 19,4% |
| | | change | 47,1% | 51,1% | 52,1% | 48,6% | | | |
| 9 | UK /IRL | 2005 | 52 138 | 5 815 | 97 | 58 050 | 89,8% | 10,0% | 0,2% |
| | | 2030 | 91 544 | 7 451 | 98 | 99 093 | 92,4% | 7,5% | 0,1% |
| | | change | 75,6% | 28,1% | | 70,7% | | | |
| 10 | IT / ML | 2005 | 50 514 | 6 144 | | 56 658 | 89,2% | 10,8% | 0,0% |
| | | 2030 | 77 011 | 9 448 | | 86 459 | 89,1% | 10,9% | 0,0% |
| | | change | 52,5% | 53,8% | | 52,6% | | | |
| 9 | NEIGHB. | 2005 | 24 970 | 9 144 | 26 | 34 140 | 73,1% | 26,8% | 0,1% |
| | | 2030 | 65 365 | 25 842 | 36 | 91 243 | 71,6% | 28,3% | 0,0% |
| | | change | 161,8% | 182,6% | | 167,3% | | | |
| 10 | TOTAL | 2005 | 449 880 | 104 090 | 82 731 | 636 701 | 70,7% | 16,3% | 13,0% |
| | | 2030 | 879 497 | 222 096 | 134 315 | 1 235 908 | 71,2% | 18,0% | 10,9% |
| | | change | 95,5% | 113,4% | | 94,1% | | | |

*Source :Ports and their connections within the TEN-T ,Final Report, NEA (member of Panteia), December 2010*

Legend:

| | |
|---|---|
| Alpine | Austria, Switzerland, Liechtenstein, |
| Benelux | Belgium, Netherlands, Luxembourg, |
| Balcans | Bulgaria, Cyprus, Greece, Croatia, Romania, Slovenia, Turkey, Bosnia, Albania, Serbia, Montenegro, FYROM, |
| Central | Czech Republic, Germany, Hungary, Slovakia, |
| Nordic | Denmark, Finland, Norway, Sweden, |
| Baltic | Estonia, Lithuania, Latvia, Poland, |
| Iberia | Andorra, Portugal, Spain |
| Neighbouring | Belarus, Ukraine, Moldova |

Such countries as UK, Italy Iberian and Balcan countries will rather base on road transport in transferring containers from seaports to the hinterland regions. The other regions are focused on developing intermodal transport systems. There are some countries traditionally developing rail connections as Germany, Austria or Switzerland. There other expected to invest in this mode of transport as Nordic and Baltic countries. It is foreseen that until 2030 in these regions rail supplies will reach 40% of total volumes. Another countries intensively exploit their inland water ways as Netherlands, Belgium, Germany and France.

### 3.2.2. Forecast of containers flows through the Poznan agglomeration.

Until recently, it was relatively easy to foresee the positive development of Poznan transport node as the dry port cooperating with the North Range European seaports. For many years, the dominant option was to transport containers with reload in the ports of northern Europe. This network created quite competitive environment on the last section of the route leading from these ports to the final destination in the hinterland with the use of road chassis, container trains or feeders.

In overland supplies, between European seaports and point of loading or unloading in the hinterland, the increasing role of intermodal trains is visible. Intermodal services suffered much in the world wide crisis in 2009 loosing ca. 40% of volumes. Next year we faced rise of traffics but not great enough to make up for loses. Preliminary statistics for 2011 show moderate , 10% increase of volumes transported on rails..

**Tab. 3-9 Transport of large containers by standard gauge railway transport (in TEU)**

| TEU | 2008 | 2009 | 2010 | 2009/2008 | 2010/2009 |
|---|---|---|---|---|---|
| Domestic | 120 461 | 70 791 | 88 874 | -41,2% | 25,5% |
| Eksport | 207 143 | 115 172 | 129 499 | -44,4% | 12,4% |
| Import | 220 213 | 119 180 | 130 334 | -45,9% | 9,4% |
| Tranzit | 158 987 | 121 476 | 218 052 | -23,6% | 79,5% |
| **TOTAL** | **706 804** | **426 619** | **566 759** | **-39,6%** | **32,8%** |

*Source: GUS (Central Statistical Office) TRANSPORT – ACTIVITY RESULTS IN 2010*

One of the stream of containers reaches Poland through Polish seaports. Until 2010 all of them were reloaded in one of the ”gateway” West European ports. In 2010 direct deliveries from China were launched reaching ca. 25% of volumes coming by sea. Deliveries with the use of feeders have stabilised at lower level. Growing role of Belgian and Dutch ports has to be noticed while feeders coming from Hamburg noted significant decrease of volumes.

**Tab. 3-10 Cargo traffic (in 000' tonnes) at Polish seaports according to the place of loading and unloading**

| Place of loading / unloading | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| Germany | 4 047,00 | 4 620,40 | 4 513,70 | 3 516,50 | 2 644,10 |
| Belgium | 205,00 | 472,70 | 194,90 | 541,80 | 1 194,80 |
| Netherlands | 39,20 | 361,50 | 323,40 | 749,50 | 984,50 |
| **Total North Range ports** | **4 291,20** | **5 454,60** | **5 032,00** | **4 807,80** | **4 823,40** |
| **Asia** | | | | | **1 589,80** |
| **TOTAL** | **4 291,20** | **5 454,60** | **5 032,00** | **4 807,80** | **6 413,20** |

*Source: GUS (Central Statistical Office) TRANSPORT – ACTIVITY RESULTS IN 2010*

The great succes of direct deliveries through Gdansk led to the emergence of similar initiatives. At the beginning of this year the alliance of six shipping companies (Hapag-Lloyd, MOL, APL, OOCL, NYK and Hyundai MM known as G6 alliance) proposed the launch of direct competition for Maersk Line, based on the port of Gdansk or Gdynia. The final results of negotiations are not known yet but the port which will be entrusted with this significant contract estimated to 150.000 TEU p.a. will sharply increase its competitive position. The Port of Gdynia Administration declares deepening waters to 15,50- 16,00 meters to be able to provide services for large container vessels and compete with the neighbouring DCT terminal in Gdansk.

Initiative of Baltic Rail AS of launching regular intermodal service between the Slovenian port of Koper with Dabrowa Gornicza ( in the southern part of Poland) and Gdansk provided new opportunities for the Polish clients. This is how the long planned creation of a green transport corridor being landbridge between Baltic and Adriatic Seas started to materialise. According to our comparative analysis the new intermodal connection is competitive offering costs at the similar level as traditional sailings through the port of Hamburg. Shorter transit time may be competitive advantage here. Assuming direct port-to-port sailings and the same speed of vessel (being 25 knots for regular steaming and 20 knots for slow steaming) the route to Koper is shorter by 3-4 days comparing to Rotterdam and 5-6 days comparing to Gdansk.

**Tab. 3-11 Duration of port-to-port sailings**

| Sailing | | Nautical miles | Duration in days | |
|---|---|---|---|---|
| from | to | | 25 knots | 20 knots |
| Shanghai | Koper | 8 541 | 14,20 | 17,80 |
| Shanghai | Rotterdam | 10 530 | 17,60 | 21,90 |
| Shanghai | Antwerp | 10 525 | 17,50 | 21,90 |
| Shanghai | Hamburg | 10 778 | 18,00 | 22,50 |
| Shanghai | Gdansk | 11 342 | 18,90 | 23,60 |

*Source: Sea distances voyage calculator (http://sea-distances.com)*

This is of course only a theory. In reality shipping lines creating sailings time schedules take into consideration set of loading ports in Asia, set of unloading ports in Europe, sequence of ports' callings as

well as speed of a vessel. There are slow steaming [4] services as well as express ones. In this event, delivery time from Shanghai to Koper is 29 days in average what do not provide serious advantage comparing to average transit times to Rotterdam (30 days), Hamburg (30 days) Gdansk (32 days).

**Tab. 3-12 Delivery time of container deliveries ex the Far East to Warsaw depending on transport modal solution**

| Average transit time ex Shanghai to Warsaw (days) | | | |
|---|---|---|---|
| via port of: | Ocean sail | Total transit time with on-carriage by: | |
| | | Road | Rail |
| Rotterdam | 30 | 32 | 33 |
| Hamburg | 30 | 32 | 33 |
| Gdansk | 32 | 33 | 35 |
| Koper | 29 | 31 | 32 |

*Source: Andrzejewski L., Deployment of ICT toolbox supporting companies in optimal modal choice*

Nevertheless there is growing competitive environment between Adriatic ports of Koper, Rijeka and Trieste to provide intermodal hinterland connections with markets of Austria, south Germany or other Central European countries.

Quite soon, the next intermodal proposals may appear from the Black Sea ports (Ukraine, Romania, Bulgaria) , which may capture the containers transported through the Suez Canal and transfer them to the north. There is already regular container train connection between Odessa and Klajpeda in Lithuania. The next initiatives for supplying the markets of Hungary, Slovakia, Czech Republic or Poland are expected to come.

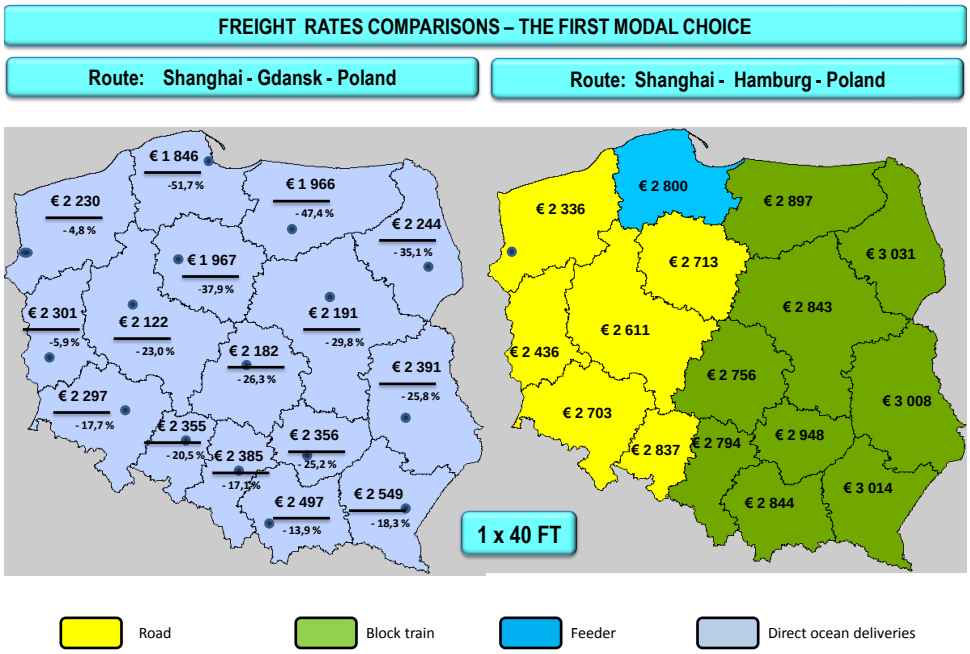
Summarising, It is quite difficult at this time to predict future developments of containerised flows preferences in the BSR area because we are at the beginning of major changes and processes. It seems that the transport solutions based on deliveries made with the use of large container vessels have the greatest development potential due to relatively low freight rates.

According to our analysis this new connections becomes revolutionary in terms of competition. Comparing to the second best solution – traditional deliveries via port of Hamburg it is much cheaper In case of 40FT containers , they are cheaper by:

- 35-50% for destinations in the north part of Poland,
- 20-30% for central locations and
- 15-20% for south of Poland.

[4] Slow steaming refers to the deliberate reduction of vessel cruising speed in order to cut fuel costs.

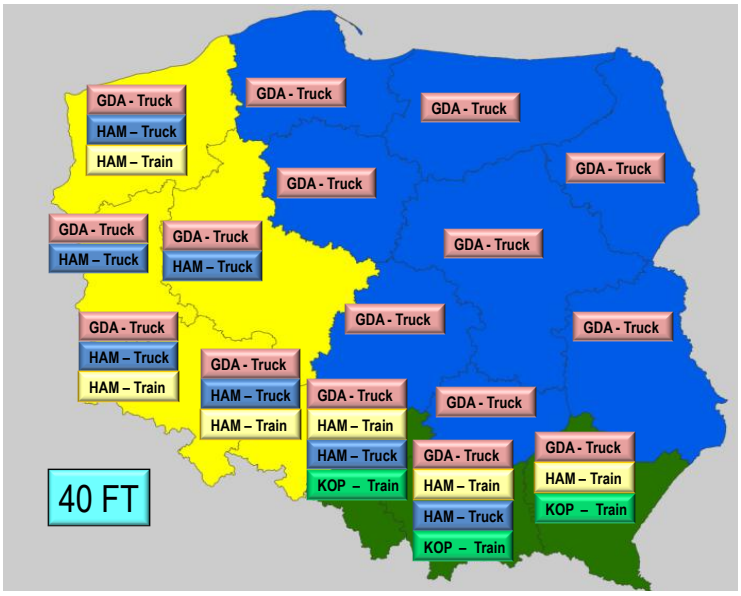
**Fig. 3-4 Comparison of cost of different modal solutions in on-carriage of 40FT containers from Shanghai to Poland with the use of the direct Shanghai-Gdansk connection**




*Source: Andrzejewski L., Deployment of ICT toolbox supporting companies in optimal modal choice, Poznan June'2012*

Introduction of the regular intermodal connection linking Koper with Poland turned to be attractive cost wise. Within TransBaltic we made an analysis of territorial influence from the three competing networks transporting containers from the Far East to the main cities in Poland alternatively via Hamburg, Gdansk or Koper. Analysis compares quotations being the best choice and these with max. 20% negotiable excess
In the final result the in the central and north part of Poland the direct deliveries through Gdansk have no competition at all. Receivers located in the west and south Poland may consider counteroffers from road transport and intermodal operators carrying containers via Hamburg. Importers seated in the south of Poland may additionally consider intermodal option from Koper.

**Fig. 3-5 Spheres of competitive influence of different modal solutions in transport of 40FT containers from Shanghai to Poland.**




*Source: Andrzejewski L., Deployment of ICT toolbox supporting companies in optimal modal choice, Poznan June'2012*

The choice of a particular transport alternative is not only a matter of price or transit time. Efficient customs service, possibility to defer VAT payment, fluency in completing phyto-sanitary formalities are equally important. Smooth customs service in the North Range ports is convincing argument for many Polish companies for which predictable transport processes are more important than difference in price. Reliable supplies are extremely important for large volume customers.[5]

Fluency of intermodal supplies depends much on handling capacities of the sea and inland container terminals. Intermodal operators invest in their networks of terminals to offer transit time comparable to road transport. Sometimes they are supported by seaports interested in the speeding up movements of containers.

For example, the port of Hamburg and intermodal operator Polzug Intermodal are implementing jointly the plan of building efficient network of rail supplies of containers from Hamburg to Poland and neighbouring countries. The network has significantly increase service quality in terms of transit time and punctuality by opening modern rail terminals in Poznan in the western part of Poland (being the dry port reloading all received containers into regional block trains) and in Dobrowa Gornicza in the south Poland). Another intermodal operator being active on the routes between the North Range ports and Poland (PCC

5 Marcin Bołtryk " Importerzy wolą Hamburg" – Puls Biznesu, 24.03.2010 (http://logistyka.pb.pl/2053365,11846,importerzy-wola-hamburg)

Intermodal) has opened their new main terminal in Kutno in central Poland. These investments confirm the trust of the intermodal carriers in development potential of the traditional intermodal routes leading from the main European ports.

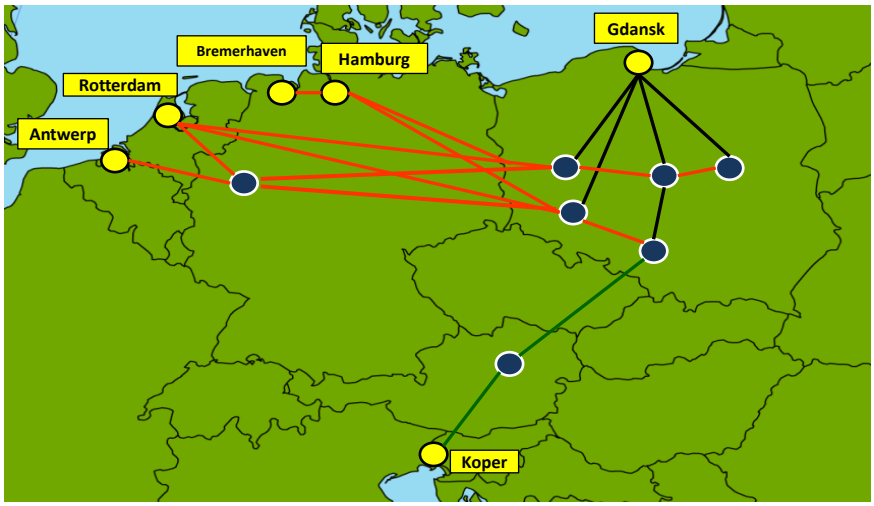
On the other hand successful introduction of the direct containerised deliveries through the port of Gdansk created necessity for improvement of on-carriage hinterland transport systems. Significant increase of containerised flows encounters infrastructural bottlenecks of the road and rail networks.[6]

In surroundings of Gdansk there are 5 competing container terminals located in the ports of Gdansk and Gdynia reloading together 1,3 mio TEU (2011). Each of them uses intermodal trains for quick transfer of containers (covering ca. 20% of volumes unloaded in Polish ports) however these movements are not coordinated. The intermodal system of separate trains connecting each sea terminal with inland terminals in the south of the country do not exploit the effect of scale what results in relatively high freight rates.

The problem may be solved by PCC Intermodal by building dry port close to Tczew (40 km south from Gdansk) in order to consolidate the loads from all of sea terminals increasing load factor and competitiveness of intermodal solutions. Intermodal Container Yard of reloading capacity ranging to 1,0 mio containers p.a. is scheduled to be built in 2014.

Thus, in the near future we will face numerous adjustment actions of competitors aimed at increasinng handling capacity of terminal networks as well as allowing for reduction of freight rates.

**Fig. 3-6 Intermodal networks offering transfer of containers between gateway European ports and Poland**




*Source: Andrzejewski L., Deployment of ICT toolbox supporting companies in optimal modal choice, Poznan June'2012*

[6] Maciej Borkowski, „Intermodal musi być", Namiary na morze i handel , 13.04.2011

Summarising, the further development of the Poznan agglomeration as a dry port will be result of many factors, as:

- global trends of containerisation,
- increased size of vessels,
- new initiatives in launching direct sailings of large vessels into deep not freezing ports located in the Baltic Region,
- intensity of competition from the Mediterranean and Black sea ports,
- readiness to adjust handling capacity of intermodal networks to the growing flows,
- price wise and time wise competition between alternative supply chains,

Taking into consideration recent level of transport expenses only, the domination of direct deliveries through Polish ports has to be foreseen since these supplies are by 15-30% towards any other solution.Considering however long run tendencies and ”non-price” aspects a coexistence of all existing supply chains is likely to happen. The pace of development of differnt transport systems may differ.

Taking all aspects of the matter some forecasts may be made. In a long run it is most probably that the annual rate of container traffics will be the highest on the south route linking Adriatic and Black sea ports. This route have the best competitive potential time wise and cost wise. The initiatives of direct deliveries with the use of large vessels willb be also dinamic.The future of deliveries via the North Range ports will depend on intermodal service quality rendered by high capacity terminal network offering short delivery time comparable to these offered by trucking companies.

**Tab. 3-13 Predicted annual growth rates of container traffic to/from Poland in 2012-2030**

| Supply chain | Low Growth Forecast | High Growth Forecast |
|---|---|---|
| Deliveries through the North Range ports | 2% | 6% |
| Direct deliveries through Polish ports | 4% | 8% |
| Deliveries through Adriatic and Balcan ports | 6% | 9% |

*Source: ILiM own study*

# 4. Survey of Wielkopolskie Province transport infrastructure

## 4.1. Linear transport infrastructure in the Wielkopolskie Province

The Wielkopolskie Province, as a location of the intermodal logistic centre is characterised by the following data regarding the transport infrastructure

**Tab. 4-1 Railroad infrastructure**

| Railroads in operation | Poland | | The Wielkopolskie Province | |
|---|---|---|---|---|
| | Length (km) | Penetration rate km per 100km$^2$ | Length (km) | Penetration rate km per 100km$^2$ |
| Total | 20,360 | 6.5 | 2,115 | 7.1 |
| Electrified | 11,956 | 3.8 | 1,257 | 4.2 |

*Source: Central Statistical Office (GUS): - Transport – business results in 2009. Warsaw 2010*

**Tab. 4-2 Road infrastructure**

| Hard-surfaced roads | Poland | | The Wielkopolskie Province | |
|---|---|---|---|---|
| | Length (km) | Penetration rate km per 100km$^2$ | Length (km) | Penetration rate km per 100km$^2$ |
| Total | 268 806 | 86,0 | 26 790 | 89,8 |
| National | 18 577 | 6,2 | 1 729 | 5,8 |
| Province | 28 403 | 9,1 | 2 693 | 9,0 |
| District | 114 501 | 36,6 | 11 372 | 38,1 |
| Commune | 107 316 | 34,3 | 10 996 | 36,9 |

*Source: Central Statistical Office (GUS): - Transport – business results in 2009. Warsaw 2010*

The average value of the linear railroad infrastructure ratio per 100 km² in the Wielkopolskie Province (7.1) is higher than the national average (6.5) (Tab. 4-1) and ranks the province as 5th, behind the following provinces: Śląskie (17.5), Opolskie (9.2), Dolnośląskie (8.8) and Kujawsko-Pomorskie (7.4). The average value of a similar ratio for the road infrastructure (89.8) is also slightly higher than the national average (86.0) (Tab.4-2) and ranks the Wielkopolskie Province as 6th, behind the following provinces: Śląskie (205), Małopolskie (186), Świętokrzyskie (144), and Kujawsko-Pomorskie (141).

Railroads

The Polish railroads are managed by Polskie Linie Kolejowe S.A., a member of the PKP S.A. group. The territorial division of the railroad infrastructure does not cover the administrative areas of the country. In the Wielkopolskie Province, the railroad infrastructure is managed by four branches of PLK S.A., with offices in Poznań, Ostrów Wielkopolski, Zielona Góra and Szczecin. The railroad network in the Wielkopolskie Province is 2,158 km in length, which accounts for over 10.4% of the total railroads in Poland. As much as 584.8 km of railroads are of international significance: E-20 (Brussels – Berlin – Poznań – Warsaw – Terespol located in the 2nd international transport corridor of the TEN-T network) and

E-59 (Świnoujście – Poznań – Wrocław – Bratislava, Vienna. Polish business circles are making attempts to include the latter in the TEN-T network)[7].

Roads

16 out of 93 national roads cross the Wielkopolskie Province8: These roads include: A2, 92, 5, 8, 10, 11, 12, 15, 22, 24, 25, 32, 36, 39, 72, 83 (fig. 1). The Wielkopolskie Province has 84 province roads managed by the Wielkopolskie Province Roads Authority (Wielkopolski Zarząd Dróg Wojewódzkich). The road network of the Wielkopolskie Province is also made up of district roads managed by the District Roads Authority (Powiatowy Zarząd Dróg) and commune roads governed by the commune self-governments. The network of roads is sufficient for the purpose of intermodal transport which covers car transport handled between the container terminal and the sender and recipient of the container. The key problem here is the so-called last kilometre, which limits the possibilities of access to some terminals due to their incorrect location (e.g. the CARGOSPED container terminal in Kobylnica) or makes the access of a car with a container impossible (e.g. SPEDCONT container terminal in Poznań at Poznań-Garbary railroad station). The problem of the quality of access roads to terminals in Poznań agglomeration is discussed in detail further.

The A2 motorway and national road 92 are a part of the 2nd international transport corridor of the TEN-T network. The other national roads in the Wielkopolskie Province constitute connectors between three international transport corridors of the TEN-T network: second, third and sixth corridor in different sub-regions of the province.

Inland waterways.

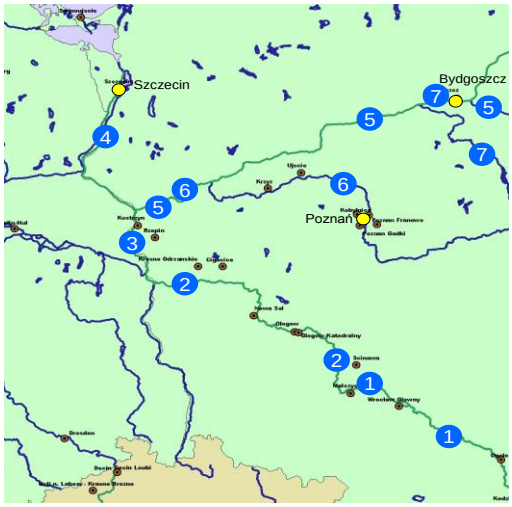
The Wielkopolskie Province has an advantageous system of inland waterways, which is made up of: navigable Warta river – from the junction with the Oder river and the estuary of the Ślesin Canal and the Bydgoszcz Canal (from the estuary of the Ślesin Canal to Bydgoszcz, through Ślesińskie and Gopło lakes and Noteć river).

The navigable stretch from the junction of the Warta and the Oder to the estuary of the Ślesin Canal is a water artery of considerable importance as it connects the Oder with the Vistula river and thus the waterway systems of the Western and Eastern Europe. Its current condition is poor and makes navigation impossible. What should be stressed, is the large, unused potential of inland navigation. However, recovery investments are required, pertaining to the improvement of waterways, upgrade of water equipment, reconstruction of hydrotechnical equipment and ports and renovation of watercraft.

[7] The Strategy of Wielkopolskie Province by 2020. Poznań 2005. Document adopted by the Wielkopolskie Province Parliament on 19 December 2005.

[8] The General Directorate for National Roads and Motorways. List of national roads of 28 July 2011: http://www.gddkia.gov.pl/userfiles/articles/s/siec-drog-krajowych-w-polsce_6848/documents/WYKAZ_DROG_KRAJ_28-07-201.pdf. Date of download 2 August 2011.

**Fig. 4-1 Navigable waterways in Western Poland.**




Legend:

1. Channelled Oder – from Kędzierzyn Koźle to Brzeg Dolny.
2. Free-flowing Oder – from Brzeg Dolny to the mouth of Nysa Łużycka.
3. Free-flowing Oder – from the mouth of Nysa Łużycka to the mouth of Warta.
4. Free-flowing Oder – from the mouth of Warta to Szczecin.
5. The Vistula – Oder connection – along the Warta, from the junction of the Warta and the Oder to the junction of the Noteć and the Warta junction; along the Noteć to the Bydgoszcz Canal; along the Bydgoszcz Canal to the Vistula.
6. The navigable Warta – from the junction with the Oder to the mouth of the Ślesin Canal.
7. The Warta – the Bydgoszcz Canal (from the mouth of the Ślesin Canal to Bydgoszcz, through the Ślesińskie and Gopło lakes and the Noteć river).

*Source: Own study.*

## 4.2. Container terminals in the Poznan agglomeration

In the Wielkopolska province there are container terminals serving the rail and road intermodal transport. All terminals are located within the Poznań agglomeration, including one in the very city. These are the terminals in Kobylnica, Poznań at the Poznań Garbary train station, in Swarzędz and in Gądki. Figure 4-2 shows the location of the existing, under construction and planned terminals and their data are presented in Tab. 4-3. In fact, the situation is as follows:

- The terminals in Kobylnica and Gądki are fully functioning (no. 1 and 3 in Fig.4-2).

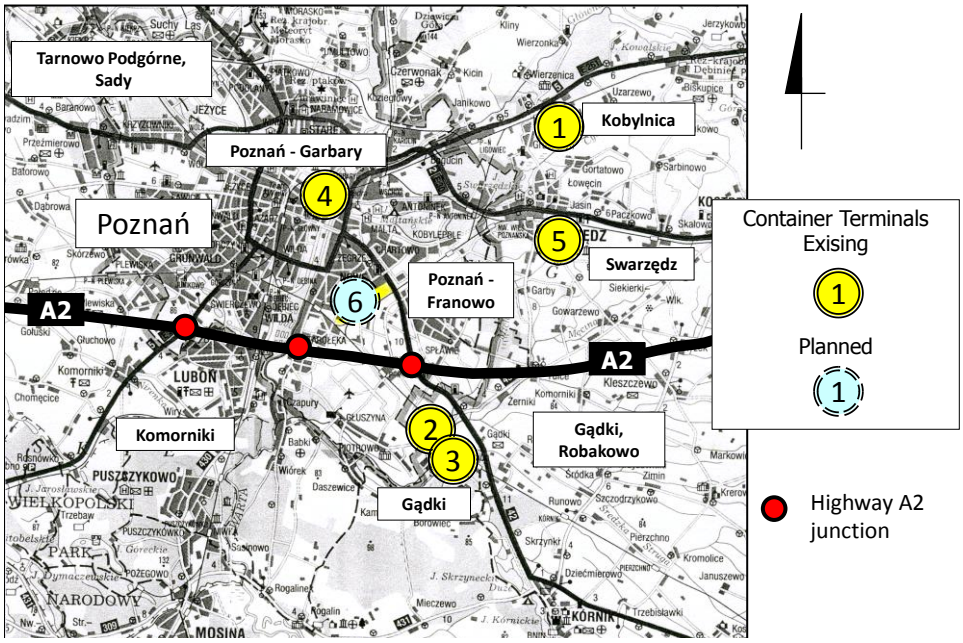
- The terminal at the Poznań-Garbary train station (no. 4 in Fig.4-2) is blocked by the city streets which do not allow transport of containers by cars, hence the terminal is not operational and scheduled for closing.

- The container terminal in Swarzędz (no. 5 in Fig.4-2) is a temporary one due to limited technical parameters (see Tab.4.3) and is just starting its operation. According to the owner's declaration, it will be extended as needed, there is enough space.

- The container terminal in Gądki, as it is at the moment, will be closed by 2011, because in September 2011, next to it, a new container terminal was commissioned for the same operator (POLZUG Intermodal Polska Sp. z o.o.), which meets any and all technical and operating requirements (no. 2 in Fig.4-2). The reason for building the new terminal was the growing volume of container transport by rail between the seaport in Hamburg and the old terminal in Gądki, which could not cope with the challenge and had not room for extension.

- The investor behind the construction of container terminal at the Poznań-Franowo yard (no. 6 in Fig.4-2) is PKP CARGO S.A. who owns the area to be used for that purpose.

**Fig. 4-2 Location of container terminals in Poznan agglomeration**




*Source: ILIM own study*

**Tab. 4-3 Container terminals in Poznan agglomeration**

| No. | Location | Owner | Terminal specification | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total area ($m^2$) | Storage area ($m^2$) | Number of transshipment tracks UTI* | Length of transshipment tracks UTI* (pcs x m) | Transshipment equipment (number and Q=capacity) | Annual transshipment capacity UTI/ | Container storage (pcs in TEU)** |
| 1 | Kobylnica near Poznań | CARGOSPED<br>PKP CARGO S.A. Group | 9 300 | 720 | 2 | 1 x 400<br>1 x 300 | 2 mobile cranes, Q=45 tonnes each | 1,000 | 450 |
| 2 | Gądki near Poznań | POLZUG Intermodal Polska Sp. z o.o. | 14,600 | 10,400 | 1 | 1 x 250 | 2 mobile cranes, Q=45 tonnes each<br>1 mobile crane, Q=42 tonnes<br>1 mobile crane, Q=37 tonnes | 18,000 | No data |
| 3 | Gądki near Poznań Container hub | POLZUG Intermodal Polska Sp. z o.o. | 320,000 | No data | 4 | 4 x 650 | 4 mobile cranes, Q=45 tonnes each | 84,600<br>Final:<br>230,400 | 1,700<br>Final<br>4,300 |
| 4 | Poznań Garbary | SPEDCONT Spedycja Polska Sp. z o.o. | 6,200 | 5,700 | 3 | 3 x 150 | 1 mobile crane, Q=42 tonnes | No data | No data |
| 5 | Swarzędz-Jasin near Poznań | Centrum Logistyczno-Inwestycyjne Poznań CLIP Sp. z o.o. | 100,000 | No data | 1 | 1 x 1000 | 1 mobile crane, Q=40 tonnes | 180,000 | 500 |
| 6 | Poznań Franowo | PKP CARGO S.A. | 26,000 | 7,900 | 4 | 2 x 600<br>2 x 650 | 2 mobile cranes, Q=45 tonnes each | 90,000 | 1,900 |

*French: Unites de Transport Intermodal (UTI) – intermodal transport unit: container, swap body, trailer, special unit.
** Twenty-Feed Equivalent Unit (TEU) – an equivalent of container of 20 x 8 x 8.5 feet in size

*.Source: Own study*

Project part-financed by the European Union (European Regional Development Fund)
Baltic Sea Region Programme 2007–2013
SKANE

The operating potential of the terminals after the commissioning of the container hub in Gądki is sufficient with regard to transhipment capacity, which exceeds current demand. However, it is not sufficient with regard to railroad infrastructure, because, except for the new container terminal of POLZUG Intermodal Polska in Gądki, none of the other container terminals in operation is equipped with transhipment tracks of required length of at least 600 m (Kobylnica) or a manoeuvring and transhipment yard along the transhipment tracks (Swarzędz-Jasin).

The container transhipment capacity of the Poznań railway junction underwent a dramatic change after the commissioning of the new container terminal (container hub of POLZUG Intermodal Polska Sp. z o.o.) in Gądki in September 2011. The terminal serves 5 pairs of block trains[9] a day (a train with platforms for container transport only) directly from Hamburg and 1 pair of trains from Gdynia. Some containers are transported to the recipients by car, other are loaded on two block trains running between the POLZUG terminal in Gądki and terminals in Dąbrowa Górnicza and Pruszków near Warsaw which belong to the same operator. The terminal owner stressed its full accessibility to all forwarders and carriers interested in cooperation. After the commissioning of the container terminal of POLZUG Intermodal Polska Sp. z o.o. in Gądki, the terminal used to-date was closed.

**The economic and transport conditions of the Poznan agglomeration enumerated above, as well as its advantageous geographical location in terms of international transport corridors and the domestic linear transport infrastructure connecting it with the European and domestic sea ports and economic regions, as well as the existing and potential considerable goods stream, prove that the Poznań agglomeration is a proper location for the international intermodal logistic centre, a dry port, which will serve as an entry/exit point of the national intermodal logistic network, connecting it to similar logistic systems of neighbouring countries.**

## 4.3. Linear transport infrastructure in Poznan agglomeration near container terminals

### 4.3.1. Access tracks

The Poznań agglomeration has sufficient railway infrastructure to carry out intermodal transport using its local container terminals.

- The access to the CARGOSPED Sp. z o.o. in Kobylnica is provided by a direct rail road no. 353 heading to Gniezno.

- The access to the POLZUG Intermodal Polska Sp. z o.o. in Gądki is provided by a direct rail road no. 272 heading to Jarocin. The same route will be use to access the new terminal of POLZUG Intermodal Polska Sp. z o.o. in Gądki.

[9] A pair of trains – the same train, bringing the containers to the terminals and taking the containers out.

- Direct access to the SPEDCONT Spedycja Polska Sp. z o.o. container terminal in Poznań at Poznań-Garbary station is assured by railroad no. 3 to Września, but this terminal is irrelevant due to closure.

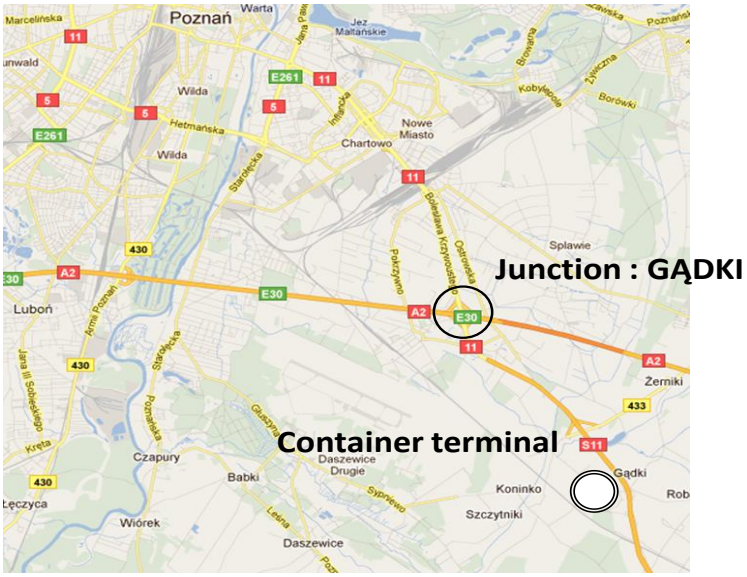
- The access to CLIP Sp. z o.o. container terminal in Swarzędz-Jasin is possible owing to the extension, in 2010, of the existing siding connecting the Poznań-Franowo station with Volkswagen company's vendor part and the Car Distribution Centre (Centrum Dystrybucji Samochodów, CDS) in Swarzędz-Jasin.

- The access to the planned container terminal of PKP CARGO S.A. in Poznań will be easy owing to its location within the Poznań-Franowo yard.

### 4.3.2. Access roads

Access to CARGOSPED Sp. z o.o. container terminal in Kobylnica is provided via national road no. 5 and then through Dworcowa street (Fig. 4-3). In terms of road infrastructure, the location of the terminal is not good. The only major road allowing access to the terminal is the national road no. 5. Dworcowa street, at which the terminal is located, does not meet the parameters set for a road for high-tonnage vehicles and is a local road for the residents.

**Fig. 4-3 Location conditions of the CARGOSPED Sp. z o.o. terminal in Kobylnica in terms of road infrastructure**



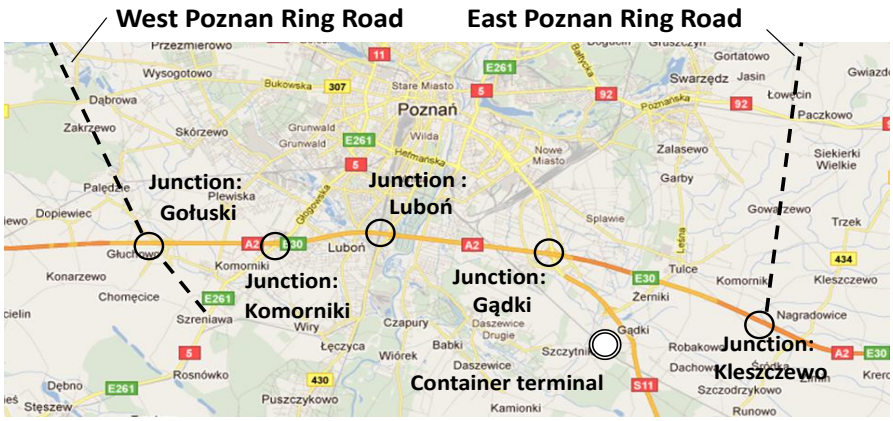

*Source: Own study. Google map 2011.*

There are two collision points between the national road no. 5 and the terminal. The first pertains to the exit from the national road no. 5 into Swarzędzka street, with the need to cross a one-level railway crossing at line no. 353 from Poznań to Gniezno. Due to high traffic of trains, queues form before the crossing, waiting for the train to pass. The second collision point is located directly behind the crossing

and pertains to a turn from Swarzędzka street into Dworcowa, with the need to cross a lane heading in the opposite direction. The turn into Dworcowa street is hindered by high car traffic from Swarzędz, increased additionally by cars waiting at the railway crossing for the train to pass. The container terminal is located between national roads no. 5 and 92. The access to the container terminal from the national road no. 92 is not possible, as it would require crossing the centre of Swarzędz.

The new container terminal of POLZUG Intermodal Polska Sp. z o.o. in Gądki has a similarly good connection with the national road system (Fig.4-4 - 4-5).

**Fig. 4-4 Connection of the to-date POLZUG Intermodal Polska Sp. z o.o. in Gądki with the Poznań ring roads**




*Source: Own study. Google map 2011.*

**Fig. 4-5 Locations of the to-date and new container terminals of POLZUG Intermodal Polska Sp. z o.o. in Gądki.**


*Source: Own study. Google map 2011.*

The access to the SPEDCONT Spedycja Polska Sp. z o.o. container terminal located in Poznań at the train station is impossible (Fig.4-6) due to urban street surrounding the terminal, which high-tonnage vehicle are prohibited from. For that reason the terminal suspended its operation.

**Fig. 4-6 Location of the SPEDCONT Spedycja Polska Sp. z o.o. container terminal in relation to the road system**


*Source: Own study. Google map 2011*

The access to the container terminal in Centrum Logistyczno-Inwestycyjne CLIP Sp. z o.o. in Swarzędz-Jasin is possible from the national road no. 92 in Swarzędz (Fig. 4-7), i.e. Poznańska street, then through Polna and Rabowicka streets. The junction of the national road no. 92 with road no. 433 poses problems, as accidents often occur there due to high traffic on road no. 92 in both directions. Bypassing the junction is not possible, as all potential diversions lead through the streets of Swarzędz. The container terminal has no alternative access road.

**Fig. 4-7 Location of the container terminal in CLIP Sp. z o.o. logistic centre in relation to the road system**


*Source: Own study. Google map 2011*

The access to the planned container terminal of PKP CARGO S.A. in Poznań, located at Poznań-Franowo train station is possible from Krzywoustego street which is the section of the national road no. 11 in the city. Krzywoustego street has two separate carriageways with two lanes each and leads straight to Gądki interchange at the A2 motorway (Fig.4-8). However, the last stretch of the access road to the terminal and the exit to public roads is a serious problem (Fig.4-9). The exit from Krzywoustego street leads to a double junction of Ługańska street with Ostrowska and Bodawska streets, marked with a dashed line circle and no. 2. High local passenger vehicle traffic in this part of Poznań is a reason for considerable congestion of these junctions and adjacent streets. The next point of conflict is the pass through a group of access tracks to Poznań-Franowo station from Bodawska street, its location is marked as 1 in figure 4-9. The City Hall of Poznań is planning to upgrade the double junction of Ługańska street with Ostrowska and Bodawska streets.

**Fig. 4-8 The location of the planned PKP CARGO S.A. container terminal in Poznan**


*Source: Own study. Google map 2011.*

**Fig. 4-9 Points of potential conflicts related to the location of the container terminal planned bPKP CARGO S.A. in Poznań.**


*Source: Own study. Google map 2011.*

Legend: 1 – exit from terminal at Bodawska street, 2 - double junction of Ługańska street with Ostrowska and Bodawska streets.

## Points of conflict

The points of conflict related to the location of the existing and planned container terminals have been discussed in detail above. As for the existing railroad infrastructure in the area surrounding the discussed container terminals, there are no such points. The railroad infrastructure in the Poznań agglomeration is sufficiently developed to allow railroad access to respective terminals. The only problems the railroad infrastructure may pose occur in some terminals and relate to insufficient length of tracks used for transshipment of containers. On the other hand, the road infrastructure near the container terminals contains some points of conflict, the elimination of which is a precondition for the use of individual terminals in terms of organisation, technical issues and costs. Table 4-4 shows the points of conflict pertaining to individual terminals and the possibility to eliminate them.

**Tab. 4-4 Points of conflict regarding the linear transport infrastructure in relation to container terminals in the Poznan agglomeration**

| No. | Location | Owner | Railroad infrastructure | | Road infrastructure | |
|---|---|---|---|---|---|---|
| | | | Point of conflict | Possibility of elimination | Point of conflict | Possibility of elimination |
| 1 | Kobylnica near Poznań | CARGOSPED<br>PKP CARGO S.A. Group | Both transshipment tracks are too short to serve the entire train formation without additional activities | Impossible to extend tracks due to limited size of the terminal. | Two points of conflict.<br>The first pertains to the railway crossing in Kobylnica from the national road no. 5.<br>The other related to Dworcowa street which is an access road and does not meet the requirements for this typo of road. | Both points of conflict are difficult to eliminate as it would require considerable investments. |
| 2 | Gądki near Poznań | POLZUG Intermodal Polska Sp. z o.o. | The existing track used for transshipment of containers is too short to serve the entire train formation without additional activities | Impossible to extend the track due to limited size of the terminal. | No points of conflict | - |
| 3 | Gądki near Poznań Container hub | POLZUG Intermodal Polska Sp. z o.o. | No points of conflict | - | No points of conflict | - |
| 4 | Poznań Garbary | SPEDCONT Spedycja Polska Sp. z o.o. | All three transshipment tracks are too short to serve the entire train formation without additional activities | Impossible to extend tracks due to limited size of the terminal. | Północna street, at which the container terminal is located, does not allow high-tonnage vehicle traffic. | No possibilities to eliminate the point of conflict. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | Swarzędz-Jasin near Poznań | Centrum Logistyczno-Inwestycyjne Poznań CLIP Sp. z o.o. | No points of conflict | - | The point of conflict in Swarzędz is the junction of Poznańska street (a fragment of the national road no. 92) with Polna street, the traffic carrying capacity of which is insufficient for the current traffic. | The problem could be solved by including Rabowicka street into the national road no. 92 from Paczkowo by building a grade-separated junction. This investment depends on the potential of Swarzędz commune and the General Director for National Roads and Motorways, the administrator of the national road no. 92. |
| 6 | Poznań Franowo | PKP CARGO S.A. | No points of conflict | - | Two points of conflict.<br>The first is related to the need to cross a group of tracks when leaving the terminal.<br>The second is related to the double junction of Ługańska street with Ostrowska and Bodawska, the insufficient traffic carrying capacity of which causes permanent congestions in the area. | The first point of conflict cannot be avoided. What remains to be done, is to organise the crossing to minimise the risk of collision of a train with a car.<br>The second point of conflict can be eliminated by extending the double junction. Such an investment has been declared. |

*Source: Own study*

## 4.4. Assessment of terminals' quality in terms of their functions

### 4.4.1. CARGOSPED container terminal in Kobylnica near Poznan

At the moment the terminal is one of the two operating terminals in the Poznań agglomeration and the Wielkopolskie Province. It serves intermodal transhipments of loading units in intermodal transport, mainly in the east-west direction. It is open to various logistic operators.

The terminal has no room for development. The area prohibits the extension of transhipment tracks to the required length of at least 600 m and the increase of container storage area. The location conditions make it difficult for the vehicles to access the terminal as the existing road is a local one, serving the residents. The road has a hardened surface which is in a bad technical condition. The access to the terminal from Poznań and Gniezno is possible by the national road no. 2, in both cases it is necessary to cross a one-level railway crossing in Kobylnica at the E-20 line which is busy with train traffic. The access from the south is practically impossible as it requires passing through the entire Swarzędz and the road is not adapted for high-tonnage vehicles.

**Final assessment: the terminal, failing to meet technical and location-related requirements and with no options for development, should not be considered while planning the supraregional intermodal logistic centre in the Poznań agglomeration.**

### 4.4.2. The to-date container terminal of POLZUG Intermodal Polska Sp. z o.o. in Gądki

Similarly as the container terminal in Kobylnica, the to-date terminal in Gądki is one of the two terminals operating in the Poznań agglomeration and in the entire Wielkopolskie Province. The major shareholder of POLZUG Intermodal Polska Sp. z o.o. is the Port of Hamburg. As a result the terminal serves mainly container transport by rail between Hamburg and Gądki.
The terminal has no room for development. The area prohibits the extension of transshipment tracks to the required length of at least 600 m and the increase of container storage area. The terminal offers good access for trucks thanks to the Poznań – Kórnik S-11 fast road.

The terminal is located 3 km from the A2 intersection, which permits the access to the city's stretch of the motorway offering three similar intersections: Eastern Poznań (Gądki), centre of Poznań (Luboń) and Western Poznań (Komorniki), these three intersections permit the access to roads leading in three directions. The container transshipment area within the terminal is restricted by the overbridge being the part of the S11 fast road which limits the operation of a mobile crane in the container transhipment yard to 300 m.

**Final assessment: the terminal, failing to meet technical and location-related requirements and with no options for development, should not be considered while planning the over-regional intermodal logistic centre in the Poznań agglomeration. The owner plans to close the terminal the moment the new container terminal is opened in Gądki in Q3 2011.**

### 4.4.3. The new container terminal of POLZUG Intermodal Polska Sp. z o.o. in Gądki – container hub

The new container terminal of POLZUG Intermodal Polska Sp. z o.o. is located in Gądki, near the existing container terminal of this company. The decision to build a new terminal was made for two reasons: no possibility to extend the current terminal and growing container transport between the port of Hamburg and Gądki.

The new terminal, designed as a container hub in Poland for containers brought into Poland from the port of Hamburg operates in the following manner: a few pairs of trains a day brings the containers to Gądki. The containers for receivers in the Poznań agglomeration and the Wielkopolskie Province are delivered from the terminal in Gądki by car transport. The containers for receivers in other regions are transhipped to two trains regularly transporting containers, i.e. block trains travelling between the terminal in Gądki and terminals owned by POLZUG in Pruszków near Warsaw, Wrocław and Dąbrowa Górnicza. The trains travel without the need to use yards.

Moreover, the terminal will provide services to intermodal transport operators organising container transport from other locations. As of its official commissioning in September 2011, the terminal has served container trains from Hamburg and Gdynia.

The terminal has a very good location and technical properties (table 4-3). At the moment it is equipped with 4 tracks for transhipment of containers, each of 650 m in length. At both sides of the four-track group of transhipment tracks two manoeuvring yards have been set up, of 700 x 26 m in size each, to be used by mobile cranes. The total area of the yards will amount to 18,200 m2.
As a target, the terminal will have 14 such tracks, including two electrified along the entire length and a third yard of the size as above.

After the first implementation stage which was completed in August 2011, the terminal has 4 mobile cranes of the capacity of Q=45 tonnes each, as a target the yard will also be equipped with two bridge cranes of a similar capacity. The capacity of the container storage yard will permit the storage of 1700 containers, with the target value of 3400 containers. For containers which require electricity supply 135 spots have been prepared.

The terminal is not focused on long term storage of full and empty containers, it aims at quick transhipment and delivery to the destination and return of empty containers to the port. In the first stage of operation (as of September 2011), the service of 5 trains a day is planned (288 TEUs) travelling along the route of

Hamburg-Gądki and 1 pair of trains a day, 6 days a week along the route of Gądki-Wrocław-Dąbrowa Górnicza and 1 pair a day 7 days a week along the route of Gądki-Łódź-Pruszków. As a target, as many as 8 pairs of trains are planned to be served a day (768 TEUs), mainly along the Hamburg-Gądki route, and the increase of the number of pairs travelling between domestic terminals, as needed. It is a four-fold increase against the number of trains served a day in the to-date terminal

.

For the purpose of the terminal the investor built a road, 320 m long and 10 m wide, which connected the terminal with the road joining the S11 road with the warehouse centres of Panattoni, Raben, Kuehne & Nagel and PointPark companies located in the vicinity (up to 1 km).

**Final assessment: The new container terminal of Polzug Intermodal Polska Sp. z o.o. is currently the largest Polish inland container terminal equipped with full infrastructure and with potential for development. The operation of the terminal justifies pointing the Wielkopolskie Province, including the Poznań agglomeration, as a location for the supraregional intermodal logistic centre, namely a dry port. The recommended location is the new container terminal of Polzug Intermodal Polska Sp. z o.o. Although the container terminal was established largely to serve container transport between the port of Hamburg and Gądki, the owner declares that it will also be accessible for other container transport carried out by other carriers transporting containers by rail in other directions.**

### 4.4.4. PKO CARGO S.A. container terminal at Poznań-Franowo yard

The terminal is scheduled for construction. The owner has a building permit, however failed to start the investment in declared time, the terminal is to be built on an area owned by PKP, well-equipped with railroad infrastructure. There are two separate groups of access tracks and exit trucks leading to the train uncoupling yard.

The investment has been divided into two stages. In the first stage the construction of two new tracks is planned, of total length amounting to 700 m and usable length totalling 600 m, as well as the alteration of the two existing tracks of 900 m in length each, so that their usable length is 650 m.
usable length is defined as a straight stretch of tracks along the hardened yard for mobile cranes for container transhipment.

The second stage involves the alteration of the next two existing tracks of 800 m in length each, to reach the usable length of 600 m.
The yard of 600 x 32 m in size will assure free access for transhipment equipment to carriages along the entire train. Part of the yard will be used for short-term storage of containers, moreover, a separate storage yard of 900 m2 will be commissioned.

**Final assessment: in investment assumptions, the terminal meets the technical requirements and will assure efficient service of intermodal transport. The only shortcoming is the location between**

**the two groups of operating access tracks to the train uncoupling yard, which may collide with the passage of cars bringing in containers into the terminals and the exit to the public road, which currently cannot provide a smooth flow of traffic in rush hours. The city of Poznań is planning to alter the street to increase its traffic carrying capacity.**

#### 4.4.5. Container terminal at Centrum Logistyczno-Inwestycyjne Poznań CLIP Sp. z o.o.

A site for the construction of the container terminal has been delineated in the logistic centre.
The CLIP logistic centre is owned by a private investor. The planned investments are development-oriented and consist in the construction or extension of the logistic infrastructure the moment it is demanded. The logistic centre has a railroad track of 1,000 m in length and a manoeuvring yard of 140 x 45 m in size, which requires additional activities when transhipping containers. The storage yard permits concurrent storage of 500 containers. A separate location has been delineated to store 10 containers which require electricity supply. The investor has a land reserve on which a full-size container terminal can be built.

**Final assessment: at the moment the terminal serves as a container transhipment point due to limited conditions to serve container trains. Leaving the terminal in its current technical condition will be assure efficient operation. Based on the large investments in warehouse facilities carried out earlier, the investment guarantees that development is possible, if need be.**

## 4.5. Warehouse resources in the Poznan agglomeration and the Wielkopolskie Province

An indicator of warehouse potential is the modern warehouse area, which is characterised by the following parameters:

- Area of the warehouse facility: at least 10,000 m2.
- Storage height: at least 9 m.
- Number of loading docks, at least 1 door per 1,000 m2 of area.
- Width of the manoeuvring yard for trucks: at least 35 m in length including all loading docks.
- Floor type: Non-dusting floor of minimum strength of 5 t/m2.
- Fire protection equipment: Fire protection equipment including sprinklers and smoke release vents,
- Total office area: 5-8% of the total area.

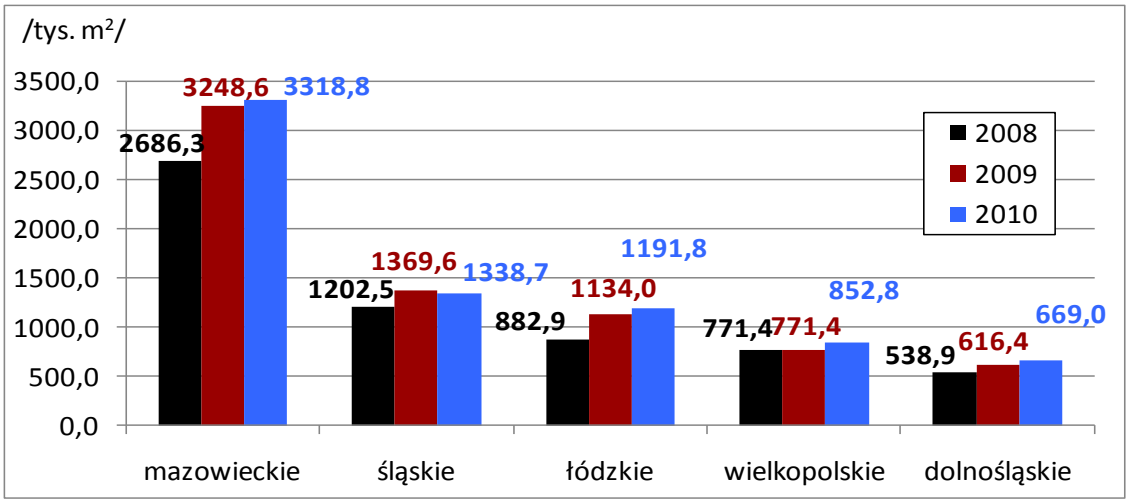
Table 4-5 shows the size of modern warehouse area in respective provinces. The warehouse resources in the Wielkopolskie Province is one of the largest in the country, ranking after the following provinces: Mazowieckie, Śląskie and Łódzkie (Fig 4-10). Moreover, in the Wielkopolskie Province the use of warehouse area, measured by the size on non-leased area, is the highest. At the end of 2010 size of vacancies in the Wielkopolskie Province, measured by the free space ration, was the lowest compared to the Mazowieckie, Śląskie and Łódzkie provinces (Table 4-6):

**Tab. 4-5 Modern warehouse area in Poland in respective provinces Points of conflict regarding the linear transport infrastructure**

| Province | Area (thousand $m^2$) |
|---|---|
| Dolnośląskie | 669.0 |
| Kujawsko-pomorskie | 102.3 |
| Lubelskie | 17.8 |
| Lubuskie | 13.8 |
| Łódzkie | 1191.8 |
| Małopolskie | 183.7 |
| Mazowieckie | 3318.8 |
| Opolskie | 0.0 |
| Podkarpackie | 50.0 |
| Podlaskie | 0.0 |
| Pomorskie | 145.0 |
| Śląskie | 1338.7 |
| Świętokrzyskie | 15.0 |
| Warmińsko-mazurskie | 2.0 |
| Wielkopolskie | 852.8 |
| Zachodniopomorskie | 184.3 |
| **Total** | **8085.0** |

*Source: Own study, Institute of Logistics and Warehousing (ILiM) 2010*

**Fig. 4-10 Provinces with the largest modern warehouse area**




*Source: Own study, Institute of Logistics and Warehousing (ILiM) 2010*

**Tab. 4-6 Vacancies in provinces with the largest volume of modern warehouse area**

| Province | Vacancy ratio (%) | Size of vacancies (thousand $m^2$) |
|---|---|---|
| Mazowieckie | 20.1 | 667.1 |
| Śląskie | 11.9 | 159.3 |
| Łódzkie | 14.3 | 170.4 |
| Wielkopolskie | 10.6 | 90.4 |
| Dolnośląskie | 13.1 | 87.6 |

*Source: Annual report on the real estate market in Poland. Warehouse area. Colliers International_rynek magazynowy w Polsce 2010_pl.pdf-Adobe AcrobatPro.pdf.-Adobe Reader. 2011-03-04.*

The share of the Wielkopolskie Province in the modern warehouse area in Poland accounts for 10.5%. The share of modern warehouse area in the Poznań agglomeration compared to the Wielkopolskie Province is 77.8%. Most of the area is located in warehouse facilities which constitute warehouse centres combining a number of such facilities (table 4-7).

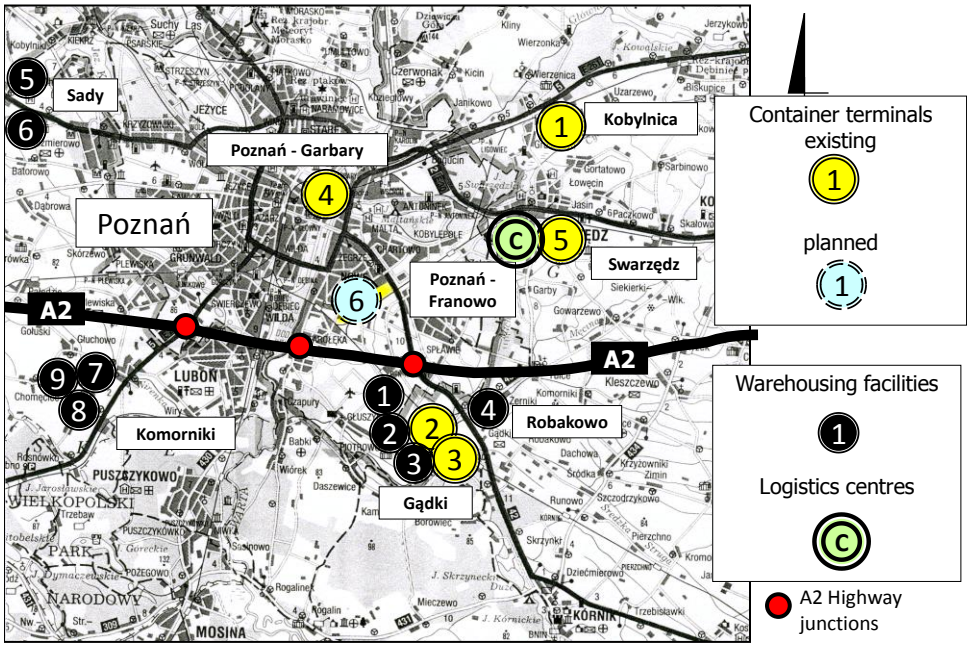
**Tab. 4-7 Warehouse centres owned by industrial developers in the Poznan agglomeration**

| Facility | Owner | Location | Area ($m^2$) | Target area ($m^2$) |
|---|---|---|---|---|
| Panattoni Park Poznań I | Panattoni,Europe | Gądki | 119,700 | 119 700 |
| Panattoni Park Poznań I | Panattoni,Europe | Gądki | 130,200 | 130 200 |
| Panattoni Park Robakowo | Panattoni,Europe | Robakowo | 24,000 | 24 000 |
| PointPark Poznań | PointPark,Properties | Gądki | 39,600 | 176 400 |
| Prologis Park Poznań I | Prologis | Sady | 43,250 | 43 250 |
| Prologis Park Poznań II | Prologis | Sady | 120,600 | 120 700 |
| Tulipan Poznań Park I | Segro | Komorniki | 73,800 | 73 800 |
| Tulipan Poznań Park II | Segro | Komorniki | 38,700 | 58 300 |
| Tulipan Poznań Park III | Segro | Komorniki | 0 | 97 850 |
| Centrum Logistyczno Inwestycyjne Poznań (CLIP) | CLIP Logistics | Swarzędz-Jasin | 73,800 | 236 000 |
| **Total** | | | **663,650** | **1,080,200** |

*Source: Own study based on: Cushman&Wakefield www industrial.pl Downloaded on 2011-08-09. CLIP sp. z o.o. and Polish warehouse area database of the Institute of Logistics and Warehousing Poznań 2011.*

Figure 4-11 shows the location of warehouse centres in the Poznań agglomeration. What should be stressed is the advantageous location of most of the warehouses against the location of container terminals. Centrum Logistyczno-Inwestycyjne Poznań (CLIP) – marked with C in figure 4-11 – has its own container terminal. Panattoni Park Poznań I and II, Panattonii Park Robakowo and PointPark Poznań warehouse centres – marked in figure 4-11 as items 1-4 are located within up to 1 km from the POLZUG container terminals in Gądki.

**Fig. 4-11 Location of warehouse centres in the Poznań agglomeration**




Źródło: Opracowanie własne

Legend: 1 - Panattoni Park Poznań I, 2 - Panattoni Park Poznań II, 3 - Panattoni Park Robakowo, 4 - PointPark Poznań, 5 - Prologis Park Poznań I, 6 - Prologis Park Poznań II, 7 - Tulipan Poznań Park I, 8 - Tulipan Poznań Park II, 9 - Tulipan Poznań Park III, 10 -Centrum Logistyczno-Inwestycyjne Poznań (CLIP).

*Source: Own study based on: Cushman&Wakefield www industrial.pl Downloaded on 2011-08-09. CLIP sp. z o.o. and Polish warehouse area database of the Institute of Logistics and Warehousing Poznań 2011.*

The Tulipan Poznań Park I-III warehouse centres located in Komorniki – marked in figure 4-11 as items 7-9 - are well connected with the POLZUG container terminals in Gądki via the city's stretch of the A2 motorway. Only the Prologis Park Poznań I and II – marked in figure 4-11 as items 5 and 6 – are less favourably connected to container terminals. However, after the commissioning of the western ring-road of Poznań (by 2012) such a connection will be established via an intersection of the ring-road in Swadzim, a part of the national road no. 92 then the ring-road to the intersection in Gołuski, a part of the A2 motorway, motorway to the intersection in Gądki and fast road no. 11 to container terminals in Gądki.

Apart from warehouse facilities owned by industrial developers who lease the warehouse area, also the TFL sector and production and trading enterprises own warehouses. The owners do not disclose

information on the amount of warehouse area at their disposal, but in the case of logistic enterprises, these are warehouse comparable to warehouse and logistic centres.

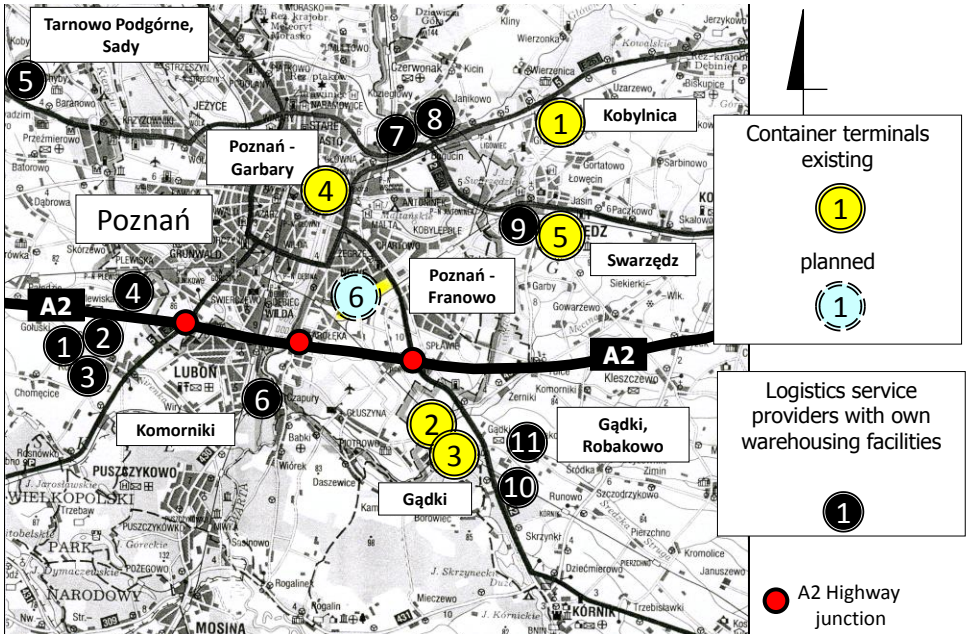
Table 8 shows logistic enterprises operating in the Poznań agglomeration which declare logistics, warehousing or forwarding as their main source of revenues, who own warehouse. Their approximate location is presented in figure 4-12.

**Tab. 4-8 Logistic enterprises in the Poznan agglomeration with own warehouses**

| No. | Enterprise | Location | District |
|---|---|---|---|
| 1 | Mandersloot Logistics | Komorniki | Poznań |
| 2 | DHL Express | Głuchowo | Poznań |
| 3 | Poczta Polska Centrum Infrastruktury | Głuchowo | Komorniki |
| 4 | Arvato Services<br>Centrum Logistyczne w Plewiskach | Plewiska | Komorniki |
| 5 | DB Schenker | Tarnowo Podgórne | Poznań |
| 6 | Park Przemysłowy LUVENA Logistcs | Luboń | Poznań |
| 7 | Schrader Internationale Logistic | Poznań | Poznań |
| 8 | ITM Baza Poznańska | Poznań | Poznań |
| 9 | PANOPA Logistik Polska | Swarzędz-Jasin | Poznań |
| 10 | RABEN group | Gądki | Kórnik |
| 11 | Kuehne & Nagel Polska Sp. z o.o. | Gądki | Kórnik |

*Source: Own study*

**Fig. 4-12 Logistic enterprises in the Poznan agglomeration with own warehouses**




*Source: Own study*

The warehouse area the logistic enterprises specified in table 4-8 have at their disposal totals app.120,000 m$^2$. Moreover, many manufacturing enterprises have their own universal warehouses as well as warehouse adapted, in terms of structure and organisation, to their own manufacturing processes. The number and size of these warehouse is not published.

The linear infrastructure and transport centres in the Wielkopolskie Province, including the Poznań agglomeration displays a considerable potential of manufacturing capacity, sufficient to satisfy the needs of enterprises in terms of logistic services. At the same time, there are many manufacturing, trade and service providing enterprises in the Wielkopolskie Province, which create demand for logistic services.

## 4.6. Investment demand necessary to improve the transport of containers in the Poznan agglomeration

### 4.6.1. The needs regarding linear transport infrastructure.

The investment needs related to linear transport infrastructure may be divided into two types:

#### 4.6.1.1.Investment needs regarding railroad infrastructure

The railroad infrastructure does not require extension. The railway network in the Poznań agglomeration is sufficient and the Poznań railway junction was thoroughly upgraded in the years 2007-2010, assuring the access to Poznań from all directions. Also the railway lines and sidings allowing access of railroad transport to individual container terminals are sufficient in terms of quantity and quality. The issue is the technical condition of railroad infrastructure along lines connecting the Poznań agglomeration with other parts of the country. Most of railroads have speed limits resulting from the poor technical condition of tracks or pending repairs.
Railroad no. 3 is in the best condition (west-east from Kunowice to Warsaw via Poznań), which has been repaired and upgraded since 2007.

Other railroads require urgent repairs:

- from the north-west from the ports in Świnoujście and Szczecin to Poznań: railroad no. 351. Upgrade of the railroad has been postponed until 2012.
- from the north, from the sea ports of Gdynia and Gdańsk, via Bydgoszcz to Poznań: railroad no. 353. The railroad is to be upgraded by 2011 in connection with European football championships in 2012.
- from the southern border (Międzylesie), via Wrocław and Leszno to Poznań, railroad no. 271. The railroad is to be upgraded by 2011 in connection with the European football championships in 2012.

— from the southern border (Chałupki), via Kluczbork and Jarocin to Poznań: railroad no, 272. No data on upgrade plans.

The investment needs regarding container terminals are presented in table 4. In container terminals which have needs for investments, they are not possible as the container transshipment tracks cannot be extended. This applies to the following terminals: CARGOSPED Sp. z o.o. in Kobylnica, SPEDCONT spedycja Polska Sp. z o.o. in Poznań and the to-date container terminal of POLZUG Intermodal Polska Sp. z o.o. in Gądki.

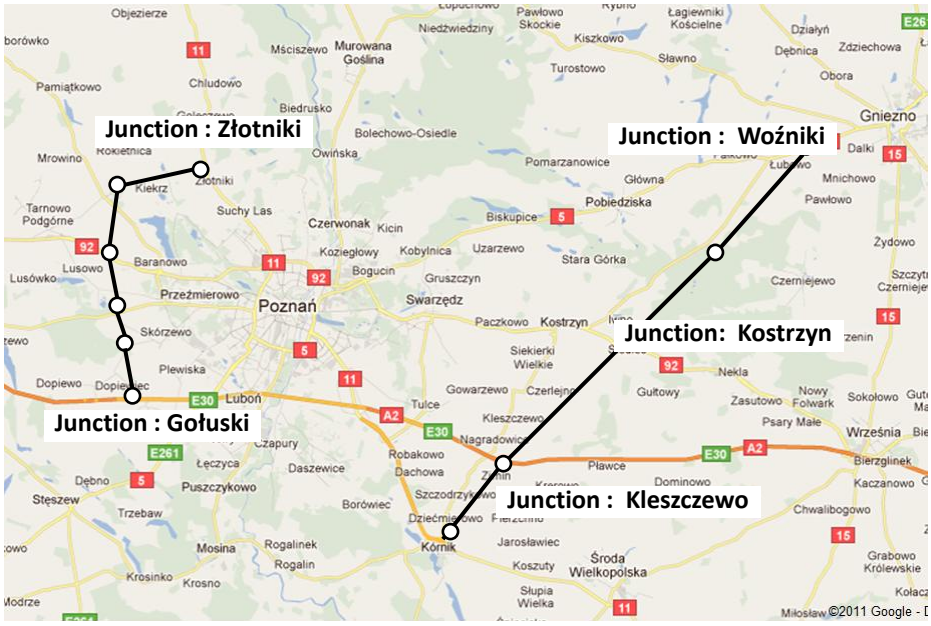
#### 4.6.1.2. Needs regarding road infrastructure.

The needs for investments in the road infrastructure pertain to the access of trucks to the container terminal (the last kilometre problem) and distribution of containers from the terminals to recipients in the Poznań agglomeration and beyond.
As for the access to terminals, the investment needs pertain to the road system surrounding the terminal: CARGOSPED Sp. z o.o. in Kobylnica (alteration of Dworcowa street), Centrum Logistyczno-Inwestycyjne CLIP Sp. z o.o. in Swarzędz-Jasin (construction of an intersection in the national road no. 92 and its connection with Rabowicka street from Paczkowo) and PKP CARGO S.A. in Poznań-Franowo (alternation of the double junction of . Ługańska street with Ostrowska and Bodawska streets.
To allow the delivery of containers by car transport from container terminals to recipients, it will be necessary to build a ring-road surrounding Poznań and eliminate the passage of high-tonnage trucks transporting containers through central streets which are part of the national roads no. 5, 11 and 92.

#### 4.6.1.3. Investment needs regarding the possibility to eliminate container transit through Poznan

With regard to transit, the Poznań railway junction does not require the extension of railroad infrastructure. Both the goods trains traffic to the Poznań-Franowo yard and the transit train traffic use the ring rail lines, thus bypassing the urban railroad infrastructure, including the Poznań-Główny train station.
A vital issue for goods road transport is the absence of a ring road in Poznań. At the moment, the two parts of the ring road under construction meet the needs only to a limited extent (Fig. 4-13).

**Fig. 4-13 Location of the western and eastern ring road in Poznan**



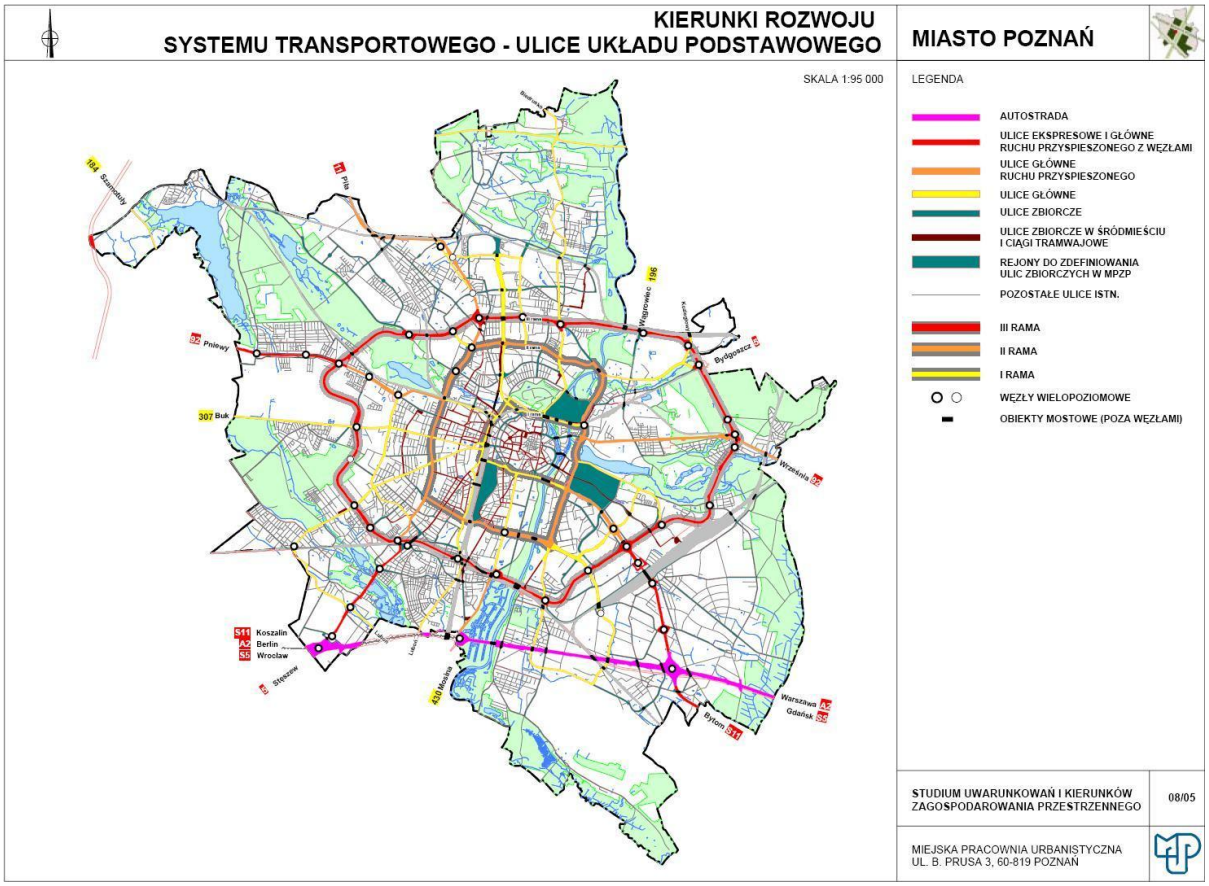

*Source: Own study*

The western ring road in Poznań, from the Gołuski intersection being a part of the A2 motorway to the Złotniki intersection being a part of the national road no. 11 meets the location terms for part of ring road for Poznań. As for the eastern ring-road of Poznań, from the Kleszczewo intersection being a part of the A2 motorway to the Woźniki intersection being a part of the national road no. 5, it fails to meet these terms (Fig. 4-13).

The ring road system presented in figure 4-13 does not meet the planned function of Poznań ring-road as it lacks the northern part. Moreover, the eastern ring-road directs traffic from the north-eastern part of Poznań to Gniezno. It is probable that the vehicles heading north will use it only at the stretch between the Kleszczewo and Kostrzyn intersections, and then north through the eastern districts of Poznań via the national road no. 92.

To solve the problem of transit, it would be more favourable to build the so-called 3rd by-pass of Poznań, as presented in figure 4-14. However, the Poznań City Hall, the author of this solutions did not specify the date for its implementation.

**Fig. 4-14 3rd by-pass as a ring-road of Poznan**




*Source: Study of zoning conditions. City of Poznań. City Planning Office in Poznań. Poznań 2008.*

The construction of the 3rd by-pass would solve the problem of transporting containers between container terminals, senders and recipients in the Poznań agglomeration. Absence of the 3rd by-pass results in drivers avoiding the eastern ring-road of Poznań and using a shortcut, i.e. crossing Poznań via the city's stretch of the national road no. 11.

## 4.7. Conclusions:

### 4.7.1. The Poznań agglomeration is an important junction for intermodal transport.

It is suitable as a location of the dry port owing to the following conditions:

- Excellent geographical location. The Poznań agglomeration is the first Polish agglomeration reached by goods carried from Western countries, including containers from North Sea ports.
- The density of railway lines per 100 km2 is higher than average (app. 10%).
- The route of the international railway line connecting Poznań with Brussels, Berlin, Warsaw and Moscow as well as Świnoujście, Szczecin, Wrocław, Bratislava and Vienna.
- The road network within the Poznań agglomeration is sufficient for road transport from the new container terminal of Polzug Intermodal Polska Sp. z o.o. to the end recipient. When the eastern and western ring-road of Poznań is completed, the situation will improve.
- The potential of network of inland waterways is unused due to neglected infrastructure, however in the case of upgrade, container transport will be possible on the Warta, Noteć and Oder rivers.
- The Poznań agglomeration is one of the largest Polish agglomeration in terms of economic potential and consumer market.
- The current and potential streams of goods that can be containerised provide good prospects for intermodal transport and the volume of service activities performed at container terminals.

### 4.7.2. Major shortcomings of the transport junction in the Poznań agglomeration:

- Unfavourable location of the oldest container terminals and no possibility of their extension.
- Limitations in terms of trackbed infrastructure of terminals (except for the new container terminal in Gądki) making it impossible to serve container trains without additional manoeuvres, whereas the effective service requires tracks of at least 600 m in length.
- Traffic problems of container terminals in Poznań, Kobylnica and Swarzędz-Jasin related to the quality and accessibility of local roads.
- Poor connection of warehouse centres in Sady with container terminals. The situation will improve after the western stretch of the ring-road of Poznań is completed in 2012.

### 4.7.3. Prospects for development of the logistic centre in the Poznań agglomeration as the dry port

- At the moment there is one full-size container terminal Gądki, with a very high operating capacity compared to the current needs. Moreover, the container terminal in Gądki has the potential of extending the track infrastructure and increase the transshipment capacity and it is well-prepared for that.

- Two further, existing container terminals should be regarded as a supplement of transshipment capacity in terms of container transport service: terminals in Kobylnica and Swarzedz-Jasin. The container terminal in Kobylnica has limited possibilities of development, whereas the terminal in Swarzędz-Jasin may be extended according to future needs as there is room and railroad infrastructure for it.

- If PKP CARGO opens its container terminal in Poznań-Franowo at the yard, the Poznań agglomeration will gain yet another element of intermodal infrastructure.

- The railroad yard of Poznań-Franowo is also an important element of the agglomeration railway junction, as it serves the transport of goods, including container transport by rail to many recipient stations in the Wielkopolskie Province and other regions. The yard is one of the largest in Poland and is the first yard on the route connecting Western Europe with Poland and Eastern European countries.

### 4.7.4. Identification of investment needs

- The railroad infrastructure related to the passage through the city and accessing the station and container terminals is sufficient. Poznań has a rail by-pass which eliminates the need of goods trains to cross through the city. However, it is required to upgrade railway lines connecting Poznań with other cities as numerous speed limits resulting from poor technical condition of the tracks limit the speed of trains. Poland is in the process of upgrading its railroad infrastructure. As for the Poznań railway junction, the following railway lines are being upgraded: Poznań-Wrocław, Poznań-Bydgoszcz-Gdańsk and Poznań-Warsaw.

- It is necessary to extend the local roads surrounding the container terminals in Kobylnica and Swarzędz-Jasin. At the moment no plans regarding road investments and implementation dates are available.

- As for transit car traffic and car transport of containers from terminals located within the Poznań agglomeration to recipients in other regions, it is necessary to complete the ring-road of Poznań. Its

eastern stretch will be commissioned in mid 2012. The western stretch will be put to use at the end of 2012. The northern section of the ring-road of Poznań is still missing and there is no information on its completion date. It should be assumed that it will be built after 2013.

- The absence of the northern stretch of the ring-road of Poznań and too distant location of the eastern section of the ring-road will, in the opinions of the authors hereof, require some trucks to pass through Poznan, which will extend the time of passage.

# 5. Logistics cluster – "Poznan Dry Port"

As it was presented in the previous parts of the study Poznan is the decentralised kind of Dry Port . Some of the intermodal transport operators use Poznan's container terminals as the collection points of massive transports of containers from the Northern Range European ports to distribute them to the final destinations in Poland and neighbouring countries. The local logistics community is able to provide customers with any additional transport and logistics services. The city has quite big potential to grow, both in logistics being region's speciality as well as in intermodal transport since the marshalling yard in Franowo is ready to invest in another container terminal able to operate large volumes of containers.

## 5.1. Concept of the logistics cluster : Poznan Dry Port

Competition between regions is one of the most important trends nowadays. Accessibility of a region as well as state of the transport infrastructure are significant aspects of this rivalry. After years of spontaneous development of the local logistics resources it is time for more systematic growth.
The concept of the Dry Port Poznan may be helpful in obtaining this target.

What Dry Port of Poznan suppose to be?

- It is significant hub linking regional logistics market with many important European hubs being the source of large volumes as the North Range ports of Hamburg, Rotterdam or Antwerp, the Polish sea ports, railway hubs located on the eastern border of Poland. In the future more flows through the southern border are expected.

- Dry Port Poznan is a logistics cluster of local entities running container terminals, logistics centres ,carriers, logistics companies as well as manufacturing or trading companies shipping significant volumes of cargo.

- The cluster is business supporting organization not running any business activities focusing on joint actions aiming at development of the transport infrastructure as well as supports in securing funds for investments in container terminals, roads, sidings or handling equipment.

- The cluster represents their members in co-operation with local government, public administration and institutions in actions aiming at improvement of competition position of the regional logistics

## 5.2. Overview of entities potential members of the logistics cluster

An overview of entities potentially interested in effective transport infrastructure in the Poznań Urban Area

### 5.2.1. Enterprises

Wielkopolska Voivodship has a great potential considering the number of the biggest companies. Table 5-1 shows the ranking of the biggest enterprises in the area according to the value of income sale. These companies represent different market options and different trades. However, taking into account their subject and scale of activities, they all prove a serious demand for logistics services.

**Tab. 5-1 The biggest companies in Wielkopolska Voivodship considering the value of turnover (2010)**

| No | Item of the ranking "Lista 2000" | Name | Place | Turnover /thousand PLN/ |
|---|---|---|---|---|
| 1 | 5 | Jeronimo Martins Dystrybucja | Kostrzyn | 16 801 773 |
| 2 | 19 | Volkswagen Poznań Sp. z o.o. | Poznań | 7 743 980 |
| 3 | 23 | Grupa Enea S.A. | Poznań | 7 167 337 |
| 4 | 26 | Grupa Eurocash S.A. | Komorniki | 6 930 763 |
| 5 | 40 | Lidl Sklepy Spożywcze | Tarnowo Podgórne | 5 100 000 |
| 6 | 49 | GlaxoSmithKline Pharmaceuticals S.A. | Poznań | 4 281 886 |
| 7 | 61 | Kompania Piwowarska S.A. | Poznań | 3 675 850 |
| 8 | 71 | Grupa Muszkieterów | Poznań | 3 270 000 |
| 9 | 81 | Selgros Sp. z o.o. | Poznań | 3 030 888 |
| 10 | 104 | PBG S.A. | Przeźmierowo | 2 577 980 |
| 11 | 137 | Żabka Polska | Poznań | 2 120 000 |
| 12 | 156 | Škoda Auto Polska S.A. | Poznań | 1 839 068 |
| 13 | 169 | Man Bus Sp. z o.o. | Tarnowo Podgórne | 1 759 390 |
| 14 | 186 | Imperial Tobacco S.A. | Tarnowo Podgórne | 1 648 522 |
| 15 | 201 | ZRP Farmutil HS S.A. | Śmiłowo | 1 514 411 |

| No | Item of the ranking "Lista 2000" | Name | Place | Turnover /thousand PLN/ |
|---|---|---|---|---|
| 16 | 227 | Amica Wronki S.A. | Wronki | 1 317 567 |
| 17 | 246 | Solaris Bus & Coach S.A. | Owińska | 1 186 577 |
| 18 | 254 | Grupa Raben Sp. z o.o. | Gądki | 1 108 263 |
| 19 | 286 | Komputronik S.A. | Poznań | 982 948 |
| 20 | 311 | Goldbeck Sp. z o.o. | Komorniki | 895 785 |
| 21 | 317 | Bridgestone Poznań Sp. z o.o. | Poznań | 885 644 |
| 22 | 354 | PH Arko Sp. z o.o. | Komorniki | 765 629 |
| 23 | 373 | PHUP Gniezno Sp. z o.o. | Gniezno | 731 360 |
| 24 | 379 | Agri Plus Sp. z o.o. | Poznań | 722 824 |
| 25 | 387 | Mar-Ol Sp. z o.o. | Poznań | 709 563 |
| 26 | 403 | Hochland Sp. z o.o. | Kaźmierz | 662 582 |
| 27 | 414 | Plus Discount Sp. z o.o. | Poznań | 648 609 |
| 28 | 422 | Nivea Sp. z o.o. | Poznań | 637 768 |
| 29 | 478 | Hudrobudowa 9 S.A. | Przeźmierowo | 538 951 |
| 30 | 480 | Dalgety Agra sp. z o.o. | Poznań | 537 693 |

*Source: Polish Enterprises „Lista 2000"; Rzeczpospolita Magazine, 27th October 2010. Rzeczpospolita's Supplement no 256 (8157), 31 October – 2 November 2010*

Taking into account the number of employees in Wielkopolska Voivodship there are 203 bigcompanies, mostly located in the City of Poznań (74 companies) and Poznań County (29 companies).
50,8% of all companies in Wielkopolska Voivodship run their businesses in the City of Poznań and Poznań County, which means in the Poznań Urban Area. Table 5-2 shows the biggest production companies running their businesses in the Poznań Urban Area.

**Tab. 5-2 The biggest production companies in the Poznan Urban Area**

| No | Company name | Profile | Address |
|---|---|---|---|
| 1. | Volkswagen Poznań Sp. z o.o. | automotive | Warszawska 349<br>61-060 Poznań |
| 2. | MAN Trucks & Busses Sp. z o. o. | automotive | Poznańska 4a,<br>62-080 Tarnowo Podgórne |
| 3. | Solaris Bus & Coach SA | automotive | Obornicka 46. Bolechowo-Osiedle |

| No | Company name | Profile | Address |
|---|---|---|---|
| | | | 62-005 Owińska |
| 4. | Bridgestone Poland Sp. z o. o. | automotive | Bałtycka 65<br>61-017 Poznań |
| 5. | EXIDE TECHNOLOGIES S.A. | automotive | Gdyńska 31/33<br>61-016 Poznań |
| 6. | Kimball Electronics Poland Sp. z o. o. | automotive | Marcelińska 92/94,<br>60-324 Poznań |
| 7. | Nordenia Polska Poznań Sp. z o.o. | packaging | Wyzwolenia 34/36<br>62-070 Dopiewo |
| 8. | Kompania Piwowarska S.A. | foodstuffs | Szwajcarska 11<br>61-285 Poznań |
| 9. | Unilever Poland S.A. | foodstuffs | Bałtycka 43<br>61-017 Poznań |
| 10. | Wrigley Poland Sp. z o.o. | foodstuffs | Obodrzycka 69,<br>61-249 Poznań |
| 11. | Wyborowa S.A. | foodstuffs | Komandoria 5<br>61-023 Poznań |
| 13. | Jutrzenka Colian Sp. z o.o. | foodstuffs | Św. Wawrzyńca 11<br>60-539 Poznań |
| 15. | Uniq Lisner Sp. z o. o. | foodstuffs | Strzeszyńska 38/42<br>60-479 Poznań |
| 18. | Hochland Polska Sp. z o.o. | foodstuffs | Okrężna 2<br>64-530 Kaźmierz |
| 19. | Kraft Food Polska Sp. z o.o. | foodstuffs | Poznańska 50<br>62-080 Jankowice |
| 20. | Terravita Sp. z o.o. | foodstuffs | Szarych Szeregów 48<br>60-462 Poznań |
| 21. | Sokołów-Pozmeat Sp. z o.o. | foodstuffs | Poznańska 14<br>62-023 Robakowo |
| 22. | Elite Cafe Sp. z o.o. | foodstuffs | Poznańska 50<br>62-080 Swadzim |
| 23. | Poznańska Palarnia Kawy Astra®<br>Sp. z o.o. | foodstuffs | Garbary 114<br>61-757 Poznań |
| 24. | Fawor Spółdzielnia Piekarsko – Ciastkarska | foodstuffs | Unii Lubelskiej 1<br>61-249 Poznań |
| 25. | GlaxoSmithKline Pharmaceuticals S.A | pharmacy | Grunwaldzka 189<br>60-322 Poznań |

| No | Company name | Profile | Address |
|---|---|---|---|
| 26. | Nivea Polska S.A. | cosmetics | Gnieźnieńska 32<br>61-021 Poznań |
| 27. | Przedsiębiorstwo Farmaceutyczne "Ziołolek" Sp. z o.o. | pharmacy | Starołęcka 189<br>61-341 Poznań |
| 28. | Poznańskie Zakłady Zielarskie Herbapol S.A. | pharmacy | Towarowa 47/51<br>61-896 Poznań |
| 29. | H. Cegielski - Poznań S.A. | heavy industry | 28 Czerwca 1956 223/229 60-965<br>Poznań |
| 30. | SKF Poznań S.A. | heavy industry | Nieszawska 15<br>61-022 Poznań |

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*Source: ILIM's own study, 2011*

Table 5- 3 presents the biggest trading companies in the Poznań Urban Area. Beside those one, there are app. 10 000 smaller enterprises connected with trade business. It needs to be underlined, that most of the companies listed in Table 6-3, keep their stocks in their own or rented warehouses located in the Poznań Urban Area.

**Tab. 5-3 The biggest trading companies in the Poznan Urban Area**

| No | Shopping Centre | Address |
|---|---|---|
| 1. | Galeria Malta | Abpa A. Baraniaka 8, 61-131 Poznań |
| 2. | Stary Browar | Półwiejska 32, 61-888 Poznań |
| 3. | M1 | Szwajcarska 14, 61-285 Poznań |
| 4. | Ikea | Szwedzka 10, 61-285 Poznań |
| 5. | Plaza | Drużbickiego 2, 61-693 Poznań |
| 6. | King Cross | Bukowska 156, 60-189 Poznań |
| 7. | Kupiec Poznański | pl. Wiosny Ludów 2, 61-831 Poznań |
| 8. | Selgros | Ludwika Zamenhofa 133, 61-131 Poznań |
| 9. | Makro | Aleja Solidarności 51, 61-696 Poznań |
| 10. | Auchan Swadzim | Św. Antoniego 2, 62-080 Swadzim |
| 11. | Auchan Komorniki | Głogowska 432, 60 - 004 Poznań |
| 12. | ETC | Poznańska 6, 62-020 Swarzędz |

| No | Shopping Centre | Address |
|---|---|---|
| 13. | Pestka | Aleja Solidarności 47, 61-696 Poznań |
| 14. | Panorama | Górecka 30, 60-201 Poznań |
| 15. | Pasaż Rondo | Zamenhofa 133, 61-131 Poznań |
| 16. | Galeria Podolany | Strzeszyńska 63, 60-479 Poznań |
| 17. | City Park | Wyspiańskiego 26, 60-751 Poznań |
| 18. | Factory Outlet | Dębiecka 1 (przy A2), 62-030 Poznań |
| 19. | PAJO Centrum | Żabikowska 66, 60-031 Poznań |
| 20. | Green Point | Hetmańska 91, 60-218 Poznań |
| 21. | Centrum Handlowe Piotr i Paweł | Promienista 160, 60-195 Poznań |
| 22. | Centrum Franowo | Szwedzka 6, 61-285 Poznań |
| 23. | Giant | B. Krzywoustego 68, 64-144 Poznań |
| 24. | Górczyńskie Centrum Handlowe | Głogowska 138, 60-240 Poznań |
| 25. | Centrum Handlowe Carrefour | Wojciechowskiego 7/17, 60-685 Poznań |
| 26. | Top Shopping Komorniki | Poznańska 140, 62-052 Poznań |
| 27. | Polskie Meble | Aleja Solidarności 34, 61-696 Poznań |
| 28. | Tesco Opieńskiego | Opieńskiego 1, 60-685 Poznań |
| 29. | Tesco Serbska | Serbska 7, 61-696 Poznań |
| 30. | Tesco Mrągowska | Mrągowska 4, 60-161 Poznań |

*Source: ILIM's own study, 2011*

Wielkopolska Voividship is a robust centre for logistics services. The region is the 4th in Poland considering the space of modern warehouses. Table 5-4 shows some examples of logistics companies located in the Poznań Urban Area.

**Tab. 5-4 The biggest logistics companies in the Poznan Urban Area**

| No | Company name | Location | County/ City |
|---|---|---|---|
| 1 | Mandersloot Logistics | Komorniki | Poznański/Komorniki |
| 2 | DHL Express | Głuchowo | Poznańskie/Komorniki |
| 3 | Poczta Polska Centrum Infrastruktury | Głuchowo | Komorniki/Komorniki |
| 4 | Arvato Services<br>Centrum Logistyczne w Plewiskach | Plewiska | Komorniki/Komorniki |
| 5 | DB Schenker | Tarnowo Podgórne | Poznańskie/Tarnowo Podgórne |
| 6 | DACHSER | Gądki | Poznański/Kórnik |
| 7 | CEVA Logistics Poland sp. z o.o. | Poznań | Poznań |
| 8 | Schrader Internationale Logistic | Poznań | Poznań |
| 9 | ROHLIG SUUS Logistics Polska | Sady | Poznańskie/Tarnowo Podgórne |
| 10 | PANOPA Logistik Polska | Swarzędz-Jasin | Poznański/Swarzędz |
| 11 | RABEN group | Gądki | Poznański/Kórnik |
| 12 | Kuehne & Nagel Polska Sp. z o.o. | Gądki | Poznański/Kórnik |
| 13 | JAS-FGB | Sady | Poznańskie/Tarnowo Podgórne |
| 14 | Rhenus Contract Logistics S.A. | Sady | Poznańskie/Tarnowo Podgórne |
| 15 | ITM Baza Poznańska | Poznań | Poznań |
| 16 | Solid Logistics Sp. z o.o. | Sady | Poznańskie/Tarnowo Podgórne |
| 17 | UNIVEG LOGISTICS POLAND Sp. z o.o. | Sady | Poznańskie/Tarnowo Podgórne |
| 18 | Apreo Logistics | Gądki | Kórnik |
| 19 | LOGWIN | Gądki | Kórnik |
| 20 | NAVO Polska Grupa Dystrybucyjna | Gądki | Kórnik |
| 21 | DSV | Sady | Poznańskie/Tarnowo Podgórne |
| 22 | Damco | Robakowo | Kórnik |
| 23 | H. Cegielski Logocentrum Sp. z o.o. | Poznań | Poznań |
| 24 | Nagel Polska Sp. z o.o. | Komorniki | Komorniki |
| 25 | General Logistics Systems Poland Sp. z o.o. (GLS Poland) | Komorniki | Komorniki |

*Source: ILIM's own study, 2011*

### 5.2.2. Intermodal transport operators

Intermodal transport operators cooperating with container terminals in the Poznan Urban Area:

**SPEDCONT Spedycja Polska Sp. z o.o.** – haulier/forwarder and transport operator having own container terminals in Poznań, Warsaw, Łódź, Cracow and Sosnowiec. Specialised in road-rail container transport between Gdynia/ Gdansk sea ports and in-land container terminals; organizes international container transport between Poland, East Europe, Asia (Belarus, Ukraine, Russia, Mongolia, Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, Kirgizstan, Afghanistan) and Baltic countries (Lithuania, Latvia, Estonia). The main shareholder of SPEDCONT is the Board of Gdynia Port S.A., owing 55% of shares.

**POLZUG Intermodal Polska Sp. z o.o.** – rail operator of cargo trains running between sea ports in Hamburg, Bremenhaven, Rotterdam and container terminals located in Poland and East Europe; the company has terminals in Gądki, Pruszków, Dąbrowa Górnicza and Wroclaw. The shareholders of POLZUG are DB Mobility Logistics AG, HHLA Intermodal GmbH and PKP CARGO S.A.

**TRADE TRANS Sp. z o.o**. – forwarding company, a joint venture with PKP S.A., PKP CARGO S.A. and Trade Trans Invest from Bratislava (Slovakia); specialised in container transport and forwarding services in Europe and Asia: Russia, Kazakhstan, Mongolia, Uzbekistan, Turkmenistan and China.

**CARGOSPED Sp. z o.o.** – logistic operator being a part of PKP CARGO S.A.; provides forwarding services for wide range of goods; for container services is a sales representative for European Rail Shuttle, HUPAC Intermodal; offers national and international intermodal connections based on its own container terminals in Kobylnica (near Poznan), Warsaw – Praga, Gliwice and Mlawa; runs fixed container connections with sea ports in Rotterdam, Antwerp and Gdynia.

**POLCONT Sp. z o.o.** – forwarder specialising in international cargo transport; belongs to TransInvest St. Gallen Group (Switzerland); provides intermodal transport from West Europe to Poland and transit between West and East Europe, mainly to CIS countries (Commonwealth of Independent States); terminal agent in Poland for IRS and Trans Eurasia Logistics Berlin (TEL) companies; does not have in Poland any container terminals.

**PROKONT Sp. z o.o.** – forwarder organizing road-rail container transport between sea ports in Gdynia, Rotterdam, Hamburg and in-land terminals in Tychy and Kąty Wrocławskie; the company uses also terminals belonging to CARGOSPED Sp. z o.o.

**HUPAC Intermodal** – Swiss intermodal transport operator, dominant in Switzerland and operating in the whole Europe; its shareholders are rail hauliers in 28% and road hauliers in 72%; has its own infrastructure (container terminals) and means of transport (locomotives and cargo wagons); runs fixed container connections between terminals and cooperates with many hauliers and container terminal operators.

**ERS Railways B.V** – Dutch rail haulier specialising in container transport; owns locomotives and cargo wagons; operates in the whole Europe; runs three rail connections per week from Rotterdam to Poland (CARGOSPED in Warsaw-Praga and CARGOSPED in Kobylnica).

**KOMBIVERKEHR** – German intermodal transport operator specialising in regular container transport between terminals; operates app. 510 rail connections across Europe; cooperates with other intermodal transport operators: Intermodal DB Logistics, Intercontainer Austria (ICA), Optima Nederland B.V., Hungari Intermodal Kft. etc. In Poland uses CARGOSPED Sp. z o.o. container terminal in Kobylnica, near Poznan.

**INTERCONTAINER INTERFRIGO (ICF)** – association gathering rail container forwarders, who are its capital shareholders; ICF deals exclusively with organization of international intermodal transport, at the same time being a sale office of transport services provided by its members. In Poland, POLCONT provides intermodal transports services as an ICF member.

**PCC Intermodal SA** – private intermodal transport operator, member of PCC SE group; has own terminals in Kutno, Gliwice and Dolny Brzeg; provides regular container transport between in-land terminals in Brzeg Dolny, Gliwice, Slawkow, Kutno, Frankfurt (Oder) and Heme.

Additionally, to some extent, in Poland also operate the following intermodal transport operators (mainly for container transport via Poland):
Adria Kombi – Slovenia,
Hungaria Intermodal Kft – Hungary,
Bohemiacombi – Czech Republic,
CSKD Intrans – Czech Republic,
Argo – Slovakia,
Cemat – Italy

Intermodal transport operators usually organise all aspects of transport and integrate the process of forwarding and transporting. Some of them operate using own container terminals and own fleet i.e. locomotives and container wagons. The majority of rail container transport is ordered by operators and performed by rail forwarders. Now, 98 forwarders in Poland have a licence for rail container transport.

### 5.2.3. National and local authorities, organizations and business associations

**Tab. 5-5. Marshal Office of the Wielkopolska Region**

| | |
|---|---|
| Marshal Office of the Wielkopolska Region | Marszałek:<br>Marshal:<br>al. Niepodległości 18<br>61-713 Poznań<br>pokój 142, budynek C<br>tel.: (61) 854-19-88, 854-18-47<br>fax: (61) 854-17-17<br>e-mail: marszalek@umww.pl<br>Kancelaria Ogólna:<br>Office:<br>budynek C, parter, pokój 7<br>al. Niepodległości 18<br>61-713 Poznań<br>tel.: (61) 854-19-08<br>e-mail: kancelaria@umww.pl |
| Department of Economy | ul. Przemysłowa 46 |

| | |
|---|---|
| | 61-541 Poznań<br>sekretariat - II piętro<br>tel.: (61) 658-07-00<br>faks: (61) 658-07-05 |
| Department of Infrastructure | ul. Kościuszki 95<br>61-716 Poznań<br>sekretariat - I piętro, pokój 102<br>tel.: (61) 854-17-88<br>faks: (61) 854-17-85<br>e-mail: di.sekretariat@umww.pl |
| Department of Regional Policy | ul. Szyperska 14<br>61-754 Poznań<br>pokój 300, III piętro<br>tel.: (61) 626-63-00<br>faks: (61) 625-63-01 |
| Department of Transport | ul. Piekary 19<br>61-823 Poznań<br>tel.: (61) 657-07-90<br>faks: (61) 657-07-95<br>e-mail: dt.sekretariat@umww.pl |

*Source: ILIM's own study, 2011*

## 6. Conclusions

The rapid growth of container traffic brought many benefits to the world wide transport system. Transport users are increasingly guided by the principle of co-modality, exploiting the competitive advantage of each particular mode in order to optimize their logistics systems. The further development of container traffic faces however serious constraints due to limited handling capacity of sea ports. In these circumstances there is growing demand for so called "dry ports" – spacious rail container terminals being able to receive large quantities of containers in order to distribute them into hinterland in a structured and optimal way. Expectations towards these dry ports are much bigger in terms of rendering comprehensive logistics services as logistics centres or so called freight villages.

Poznan is a classic example of a distant dry port that supports the North range European ports in the supply of containers coming from the other continents and directed to Poland and neighbouring countries. The rationale behind this classification is close co-operation of the local rail container terminals with the sea ports of Hamburg, Bremerhaven, Rotterdam or Antwerp in relieving their traffic congestion resulting from the excess of transhipment operations to be carried on a limited area in a very short time.

The creation of a dry port is usually very costly and lengthy investment process. A few conditions must be fulfilled to make this venture successful.

- One of the most essential condition is **strategic location** of a dry port in relation to the key regions being served through the co-operating sea port. Poznan centrally located in the west part of Poland is ideal as a gateway for supplies reaching Poland from the west. It is not only significant distribution point for deliveries addressed to the Polish market but also for deliveries targeted to

Russia, Belarus, Ukraine or the Baltic states. This location as well as good communication with the ports of northern Europe makes dry port in Poznan benefiting from cumulative volumes.

- A good location means usually a large **volumes** of freight to be handled. It is difficult to draw the exact size of the loads for which it pays to run a dry port, because it depends on many factors. In a very rough figures it may be estimated as 30.000 – 50.000 containers p.a., depending on infrastructural investments required. Poznan with its volume amounting to 150.000 TEU p.a. creates good conditions for efficient reloading hub.

- **Railway infrastructure** seems to be a decisive factor. Construction of a dry port is so capital-intensive project that it can be bankable in high volume circumstances only. In case of many ports the only possibility is to use existing rail and terminal infrastructure in the first phase.[10] .In Poznan it was exactly the same. The main intermodal operator closely co-operating with the port of Hamburg (Polzug GmbH) carrying significant amounts of containers has decided to invest jointly in the new terminal after nearly 10 years of exploitation of a small rail terminal and the new investments required a small connecting section of track with the main rail line.

The specificity of Poznan as a dry port lies in the fact that it is not separate entity or integrated area. There are several competing intermodal carriers using different container terminals. None of the terminals offers any additional logistics services beyond strictly related to container trains operations. In surroundings of Poznan however there is a large number of logistics and freight forwarding companies with warehousing space ranging to ca. 1.000.000 sqm offering all kinds of transport and logistics services.

Thus, we may consider Poznan as significant multimodal transport node. Taking advantage of its location it is commonly used by logistics companies as a gateway to the Polish market. It is gateway for container traffics but also for overland groupage services.

Poznan agglomeration is also a significant industrial centre and big consumer market so there is a huge logistics sector here offering comprehensive service. According to the practice investments in intermodal infrastructure in Poland are financed by the private sector while new roads and rail track investments are the public sector domain.

Sometimes the priorities of private investments are different from public ones so there is need for the co-operation platform of private and public investors in the transport infrastructure to synchronize private investments in container terminals with public ones in rail trucks and roads on investment strategy, priorities, location and time schedules.

Establishment of the logistics cluster is proposed to represent private investors in front of the public administration with the main target of improving city's transport infrastructure. The cluster is expected to

[10] Conclusions from the WP5.1. works

include; intermodal transport operators, container terminal operators, freight forwarders, transport integrators, shippers and research units competent in transport and logistics.

The logistics cluster is designed to support business and public sectors In the following areas

**Support for business sector**

- assessment the quality and accessibility of the local transport infrastructure,
- identification of problems and bottlenecks of the infrastructure and taking common measures for their elimination,
- consultancy in preparing grounds for logistics activities,
- applying for funds for development of container terminals, roads , railway sidings and loading facilities in order to increase capacity of the dry port as a whole.

**Support for local administration**

- presentation of development needs of transport infrastructure,
- recommendation of measures to eliminate problems and bottlenecks,
- consultancy of public legislative and planning initiatives referring to enhancement of containerised traffics.

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