

Interoperability of Urban Nodes

Key Point Paper on the Integration of Urban Nodes in the Baltic Sea Region into the Trans-European Transport Network (TEN-T)

Work Package 3 | Activity 3.2

Final Version as of March 2021

Dr. Jürgen Neumüller, Joint Spatial Planning Department Berlin-Brandenburg
Ulrike Schütz, Joint Spatial Planning Department Berlin-Brandenburg
Sven Friedrich, INFRASTRUKTUR & UMWELT Professor Böhm und Partner

Table of Content

1. Background.....	1
2. Purpose and approach of the Key Point Paper on the Integration of Urban Nodes in the Baltic Sea Region into the Trans-European Transport Network (TEN-T).....	2
3. Urban nodes in the Baltic Sea Region: Lessons learnt and future needs.....	3
4. Future of urban nodes in the Baltic Sea Region.....	4
A concise yet flexible definition of urban in the revised TEN-T regulation	4
Smart financing of transport infrastructure development in urban nodes.....	5
The Baltic Sea Region as platform for urban node development.....	6
Annex: Challenges, strategies and policy added value of interviewed urban nodes in the Baltic Sea Region...	7

1. Background

In the light of the TEN-T regulation, “urban node’ means an urban area where the transport infrastructure of the trans-European transport network, such as ports including passenger terminals, airports, railway stations, logistic platforms and freight terminals located in and around an urban area, is connected with other parts of that infrastructure and with the infrastructure for regional and local traffic”. According to article 30 of the TEN-T regulation, member states have “to ensure interconnection between modes as well as between functional nodes inside the urban node and to mitigate negative effects caused by transport”. Annex II of the regulation is listing urban nodes, subject to the TEN-T regulation.

In 2016 the European Coordinators published several TEN-T issue papers. One issue paper identified and described the urban nodes. The appointed European Coordinators for Core Network Corridors acknowledged here the importance of urban nodes “as socio-economic and technological centres” and their “strong potential to promote the most environmentally and climate friendly transport modes”. The paper highlights the role of urban nodes as testbed and catalyser for “mobility schemes of tomorrow” like last-mile delivery or intermodality as well as the importance of integration of “planning of transport infrastructures with territorial planning” and governance.

The discussion of urban nodes in the TEN-T network is closely related to the urban mobility package of the European Commission published 2013 (COM/2013/0913) since urban mobility is partly using the TEN-T network. By the urban mobility package, the European Commission supports urban mobility actions via exchange of experiences and best practice (ELTIS / CIVITAS initiatives), guidance documents (i.e. on Sustainable Urban Mobility Plans), funding instruments, i.e. CEF, EIB’s ELENA programme and financial products, i.e. INTERREG programmes, LIFE programme, Horizon 2020 and the Fuel Cell and Hydrogen Joint Undertaking.

Within the Baltic Sea Region transport platform BSR Access, urban nodes in the Baltic Sea Region have been investigated to identify challenges associated with their role as interface between urban transport and trans-European transport. Consequently, measures have been recommended to support urban nodes in developing the transport function accordingly to meet future mobility requirements.

2. Purpose and approach of the Key Point Paper on the Integration of Urban Nodes in the Baltic Sea Region into the Trans-European Transport Network (TEN-T)

According to annex II of regulation 1315/2013 on EU guidelines for the development of the trans-European transport network, there are 21 urban nodes in the Baltic Sea Region plus Oslo and St. Petersburg. 15 of them have direct access to the Sea (mainly Baltic Sea, but also North Sea), all located along core network corridors (Scandinavian-Mediterranean, North Sea – Baltic or Baltic-Adriatic). Nearly all urban nodes have elaborated Sustainable Urban Development Plans (SUMP). The only exceptions are Hamburg, that is currently preparing a SUMP; Lodz, where a sustainable public transport plan is in force and St. Petersburg.



Figure 1: Urban nodes in the Baltic Sea Region. Map source: Interreg Baltic Sea Region

Based on this background the activities in the project BSR Access, documented within this paper focused on identifying best practice solutions and future needs in urban nodes of the Baltic Sea Region. To assess that information, interviews have been carried out with spatial and transport planners in the urban nodes in the entire Baltic Sea Region. These fed into a workshop held 10 June 2020 where plans to update the TEN-T regulation with regard to urban nodes as well as major requirements of urban nodes in the Baltic Sea Region have been presented and discussed. Based on the results a draft key point paper has been elaborated and circulated among all urban nodes in the Baltic Sea Region as well as BSR Access project partners for comments. The feedback has been incorporated into this paper.

The paper presents the key policy recommendations enabling the urban nodes to be fully integrated into the TEN-T network. Its outline has been presented at the BSSSC Annual Conference 2020 as well as contribution provided to discussions within an ERRIN-POLIS working group on urban nodes and is foreseen to be presented during a high-level agora event within BSR Access project in 2021.

3. Urban nodes in the Baltic Sea Region: Lessons learnt and future needs

Within this activity, nine of the nodes have been investigated, via interviews and an online workshop held 10 June 2020 (see table below).

Urban Node	Institution interviewed
Berlin	Joint Spatial Planning Department Berlin-Brandenburg
Bremen	Ministry of Science and Ports of the Free Hanseatic City of Bremen
Poznan	Marshal Office of Greater Poland Voivodship
Szczecin	Marshal Office of Western Pomerania Voivodship
Gothenburg	City of Gothenburg, Urban Transport Administration
Stockholm	The Council for the Stockholm Mälardalen
Helsinki	Helsinki-Uusimaa Regional Council
Tallinn	City of Tallinn, Tallinn Transport Department
Turku	City of Turku

Table 1: Interviewed urban nodes

According to these, as major challenges could be identified:

- Limited capacities of transport infrastructure resulting in growing investment needs that cannot be met with limited public resources,
- High interdependence between long-distance and urban transport since both are using same infrastructure resulting in conflicts,
- Slow change in mobility patterns with a still high proportion of individual cars and a growing number of light duty vehicles due to increased e-commerce,
- lack of formal planning / governance instruments allowing for an integrated spatial and transport planning across administrative borders,

Strategies of transport planners in the urban nodes to address these challenges mainly aim for increasing the transport system performance by increasing infrastructure capacities and effectiveness (minimizing individual car passenger transport) or by separating transport flows (commuting from freight) and to strengthen rail / public transport.

Although, spatially and sectoral integrated formal planning / governance instruments is a challenge, some best-practices could be identified in this respect, i.e. the regional land use, housing and transport plans in Finland or a collaborative approach to develop the future transport system in Stockholm-Mälardalen region.

It also arose the question, whether classical cost-benefit-analysis does sufficiently consider the complexity of urban nodes, i.e. by looking into the urban node comprehensively, taking alternative solutions like bypasses into account.

However, investigated urban nodes developed their own strategies to cope with the challenges. Annex I presents the situation in some of the urban nodes investigated exemplary.

4. Future of urban nodes in the Baltic Sea Region

A concise yet flexible definition of urban nodes in the revised TEN-T regulation

Currently Urban Nodes are defined in the EU regulation No 1315/2013, article 30, for the development of the trans-European network of transport (TEN-T) as follows:

“[...] 'urban node' means an urban area where the transport infrastructure of the trans-European transport network, such as ports including passenger terminals, airports, railway stations, logistic platforms and freight terminals located in and around an urban area, is connected with other parts of that infrastructure and with the infrastructure for regional and local traffic; [...].”

A further developed definition of urban nodes is very much appreciated. It helps to focus on the interaction between the urban transport network and the European transport network. A definition needs to draw a clear interface between urban mobility and the urban node function in the context of TEN-T. It needs to be flexible enough to respond to dynamic developments of the access points to the TEN-T network within urban nodes like market developments, innovation processes, political decisions and global challenges like climate change and pandemics. And it needs to reflect functional relationships between the urban core and its catchment area, going beyond administrative borders.

It has been investigated whether the concept of functional urban nodes, used in urban mobility planning, could be used to determine urban nodes. We have concluded, that the functional urban areas are not always a good concept to identify potential urban nodes. Since functional urban areas are based on criteria as population and commuting, they do not fully reflect the functionality of urban nodes, especially with regard to freight transport. Furthermore, an urban node should fulfil yet another criterion: it should be interconnected to the TEN-T-network providing access for people and freight to long distance transport incl. last and first mile.

Thus, it is recommended to define urban nodes as follows:

“An urban node is a functional area where long distance, regional and local traffic is interconnected. It provides access from and to the trans-European network, for both freight and passengers including first and last mile connections.

An urban node consists of:

- *transport infrastructure in the urban node being part of the TEN-T network or being functionally linked, including bypasses that increase the performance of the TEN-T network,*
- *access points to the TEN-T network like multimodal railway stations, multimodal terminals, ports or airports irrespective of the fact, whether they are included in the TEN-T network or not, provided that they are relevant for the interaction of the urban node with the TEN-T network,*
- *first and last mile connections to these access points.”*

In the frame of the extension of the core network corridors ScanMed and NSB to the northern areas of Finland, Sweden and Norway based on the legislative resolution of the European Parliament in April 2019, further Urban Nodes have to be defined based on the above-mentioned criteria's and existing definition of the TEN-T regulation. In the context of the BSR Access Platform - candidates could be for example Luleå, Umeå, Seinäjoki, Oulu, Narvik.

Urban nodes often combining different functions:

- Regional hubs, connecting a larger regional catchment area to the Trans-European transport network via major railway stations, multimodal terminals or airports;
- Research and innovation hubs, connecting research and innovation environments at European scale;

- Industrial hubs, connecting large industries or industry clusters to European / overseas supply;
- Tourism hubs, connecting international tourism destinations to their source areas via high-speed rail network or airports;
- International policy hubs, connecting seats of international organisations.

Measures considered relevant in urban nodes should include all measures that:

- improve the performance of more sustainable long-distance transport in the TEN-T network, preferable by eco-friendly transport modes,
- better connect the access points to the TEN-T network into urban transport networks,
- mitigate negative impacts of traffic in the TEN-T network for the urban node inhabitants i.e. noise, congestion and emissions,
- support the transition into a smart, multimodal, zero-emission transport system within urban nodes by innovative measures in the fields of digitalization and clean fuel deployment related to all used transport modes and types of transport (passenger and freight),
- support the development of new sustainable concepts for urban last mile delivery in terms of consolidation centres and KEP logistics,
- address urban node development within integrated mobility plans and strategies like the Sustainable Urban Mobility Plans,

Smart financing of transport infrastructure development in urban nodes

Urban nodes are facing a growing need in terms of transport infrastructure investments to address current and future mobility needs and to implement mobility transition. Although seemingly mostly well reflected in strategic transport planning, a number of essential investments cannot get realised in a sufficient pace since resources, mainly provided by national level, are limited.

Therefore, it seems to be essential to further develop and use smart financing schemes that correspond to societal needs for a balanced and sustainable transport development and involve innovative financing instruments, combining public finance, loans and guarantees as currently offered under the Connecting Europe Facility.

It has to be considered, that municipalities and regions, constituting the urban nodes, have mostly no direct access to infrastructure funds, thus it is essential to consider financing models already in an early planning stage.

Especially it should be assured, that supporting schemes work hand-in-hand to optimally support measures in urban nodes that are beneficial to the functioning of the TEN-T network by improving the interfaces between funding schemes. A very good example is the linkage between Connecting Europe Facility and Horizon2020 energy and transport budgets, coordinated by INEA.

From a regional perspective it would be appreciated if also the link to European Territorial Cooperation (ETC) could be strengthened as ETC provides the opportunity to develop strategies, realise pilot applications at the regional level, thus embedding TEN-T infrastructure deployment and research into regional context. Therefore, ETC programmes should provide sufficient possibilities to address issues within urban nodes relevant to TEN-T network development, like first and last mile, mitigation of negative effects of transit traffic as well as development of infrastructure for clean fuels.

Furthermore, there should be a regular exchange on strategy level, i.e. between DG MOVE, DG REGIO, the European Coordinators, the Priority Area on Transport of the EU Strategy for the Baltic Sea Region and representatives of urban nodes in the Baltic Sea Region about strategies and relevant project activities.

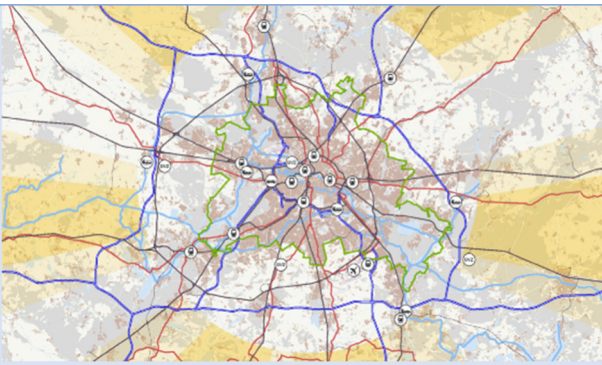
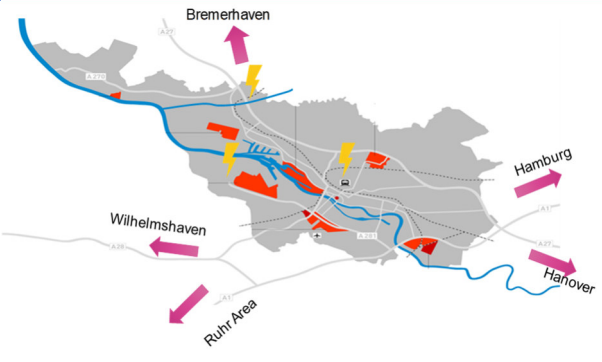
The Baltic Sea Region as platform for urban node development

Especially the mobility transition towards a sustainable transport system poses additional challenges in future, where urban nodes will play an important role as mobility hotspots but also as laboratories for innovative and sustainable mobility solutions. In this context, urban nodes are facing similar challenges.

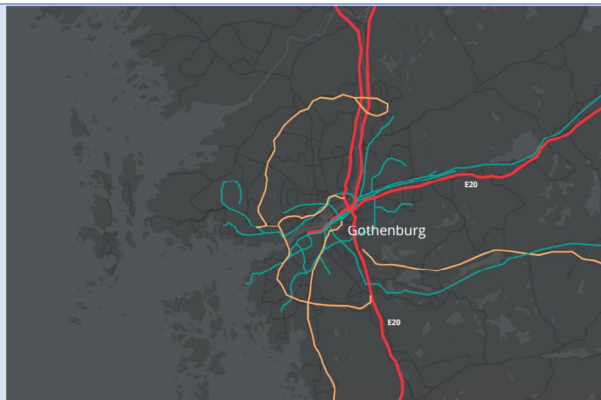
Thus it is recommended to maintain a regular exchange on expert and political level about urban node development issues in the Baltic Sea Region, involving urban nodes in the Baltic Sea Region, the PA Transport of the EU Strategy for the Baltic Sea Region, European Commission – DG MOVE and DG REGIO, the EU-Coordinators for the core network corridors running within the Baltic Sea Region as well as relevant European networks, i.e. the CIVITAS network or the ELTIS platform.

Through its long-lasting tradition fostered especially by the EU Strategy for the Baltic Sea Region and the INTERREG Baltic Sea Region Programme, collaboration within the Baltic Sea Region is very well established. Thus, the Baltic Sea Region could serve as a platform for future collaboration of urban nodes, developing solutions for tackling urban node issues like integrated urban node planning or financing of urban node transport infrastructure within joint projects, possibly funded by the upcoming INTERREG Baltic Sea Region Programme.

Annex: Challenges, strategies and policy added value of interviewed urban nodes in the Baltic Sea Region

Nodes		Challenges identified	Strategy
Berlin-Brandenburg		<ul style="list-style-type: none"> growing mobility needs / car-based commuter traffic Capacity bottlenecks of the rail network Last mile freight distribution organised from freight villages located along the outer ringroad 	<ul style="list-style-type: none"> I2030: set of measures to strengthen rail transport (infrastructure & public transport services) Strengthening freight hubs and innovative concepts for city logistics
Bremen		<ul style="list-style-type: none"> Port-hinterland traffic running straight through city of Bremen (Rail & road capacity bottlenecks) Coordination of large infra-structure projects, with Federal State of Niedersachsen and Federal Government 	<ul style="list-style-type: none"> Increasing infrastructure capacity on rail (additional rail track) and road (new bridge North of the city center) Informal coordination with the Land of Niedersachsen and Federal government, but no formal instruments in place

Gothenburg



- Connection to the port of Gothenburg, Scandinavia's largest port
- development of the rail network connecting Gothenburg to neighbouring metropolises, mainly Stockholm and Oslo

- improving the fairway into port of Gothenburg
- upgrade rail infrastructure (Hamnbanan, Gothenburg – Oslo and Gothenburg – Stockholm)

Helsinki



- HGV traffic and port development
- Rail bottlenecks between Helsinki and Vantaa as well as to the Helsinki outskirts

- Separate RoRo-traffic from commuter traffic
- Strengthen rail traffic between Helsinki and neighbouring municipalities

Poznań I

Poznań II

Legend:

Type	Symbol	Infrastructure
Rail road terminal	●	Locust
	●	Gabary
	●	Kublińska
	●	CLIP
	●	Hub
Passenger station	○	Main station
	○	Poznań airport
Airport	✈	Poznań airport
Road	■	North Sea Baltic
Road	■	Baltic Adriatic
Corridor	■	Red
Corridor	■	Blue

Map Labels:

- Poznań airport
- Container Terminal Kublińska
- Container Terminal Gabary
- Poznań main station
- CLIP Container Terminal
- Locust Intermodal S.A. Terminal Poznań
- Container Terminal Poznań Pomorski
- Hub Terminal Poznań
- Container Terminal Gdki

- Capacity bottlenecks in the metropolitan rail system and loss of nodal functions of the railway station
- Commuter traffic by car
- Weak public transport to Poznan-Lawica airport
- Infrastructure capacity improvements (new rail tracks, modernising the station, Poznan Metropolitan Trains system, new tram line to airport)

- new port Norvik not integrated into national road network
- capacity bottlenecks in road and rail system as well as insufficient quality of rail services due to lack of maintenance
- capacity enlargement of Hallsberg shunting yard
- investments into the road network (new ringroad E4, Stockholm - Arlanda)
- new HSR (East Link Project), but not connected to Stockholm Central
- longer rail tracks at Hallsberg (740 m)

Szczecin



- Port Szczecin-Swinoujście with the only Polish rail ferry to Scandinavia still not fully exploiting rail hinterland connections due to infrastructure bottlenecks
- Inland waterway Odra river not exploited due to weak navigability
- Growing commuter traffic to Szczecin, mainly car-based, a metropolitan rail system is under development
- Cross-border rail connection to Berlin not fully exploited due to infrastructure bottlenecks

- Strengthening port-hinterland connections by upgrading rail infrastructure
- Set-up of a metropolitan rail system connecting neighbouring cities and hubs, like the airport in Goleniów
- Upgrading rail infrastructure to Berlin to electrified double track by 2026

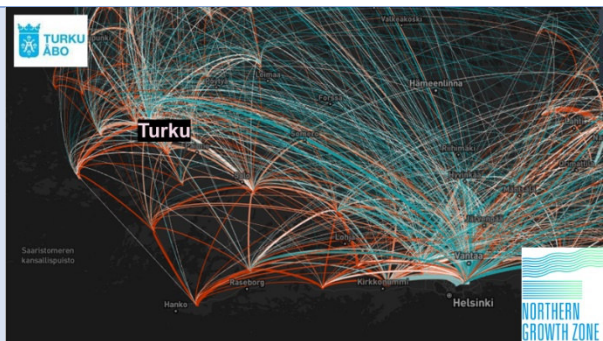
Tallinn



- RoRo traffic (Heavy goods vehicles passing the city center)
- high car usage
- Cross-border regional development (Rail Baltica / FINEST LINK)

- Intelligent HGV traffic management
- Increasing infrastructure capacity (ring road)
- New tram line, urban planning, joint initiative with City of Helsinki to establish the FINEST link
- SUMP, Free public transport, Initiatives to promote sustainable transport and alternative fuels

Turku



- RoRo traffic (HGV passing the city center)
- Using development potential the ScanMed Core Network Corridor
- Development of Turku Airport
- Becoming carbon neutral by 2040

- Driving ban for HGVs, traffic information system
- direct train service to the City port
- HSR Helsinki –Turku (“one hour train”)
- clean buses, new light rail