Summary of IAP Tallinn

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Introduction to the city

Tallinn is the capital and largest city in Estonia, with approximately 33% of Estonia's total population. Tallinn never fails to amaze visitors with its historic charm. At its heart is the Medieval Old Town, an area of cobblestone streets, gabled houses, churches and squares that developed here from the 13th to the 15th centuries when Tallinn was a booming Hanseatic commercial hub. The Old Town has long been the main draw for visitors – in fact it is so unique that UNESCO added it to its World Heritage List in 1997.

Other areas of the city reflect different ages, from the romantic, Tsarist-era Kadriorg Park to the unforgettable, early-20th-century wooden house district of Kalamaja. A modern shopping and business district in the city centre completes the city and blends the old and new faces of Tallinn. Tallinn is a small, relatively quiet city with 40 km^2 of parks and forests and a beautiful 2 km sand beach bordering its bay, providing fresh air and relaxation.

Tallinn and Freight

Tallinn participated in the URBACT Freight TAILS project (Delivering Tailored Approaches for Innovative Logistics Solutions), to begin to tackle the city's existing freight traffic problems. This summary gives a brief overview of these current issues and the considerations for future solutions.

The movement of goods and services in urban areas is one of the most important activities for people who live or work in the city; either indirectly as end users, or directly involved in the supply chain. There are lots of companies in the city that depend on goods movement, such as restaurants, cafes, shops, factories, offices, etc. and the high demand for goods means large amounts of commercial traffic, resulting in congestion and poor air quality.

To deliver goods on time, and be responsive and effective for their customers, logistics operators must carefully choose their own fleet, routes and delivery times. In urban areas there is the additional problem for the movement of goods; the specifics of city space. The city can place physical constraints on vehicle sizes and conflict can also arise because of the large numbers and concentration of people who live, work and visit the city.

The movement of goods takes place in the same street network with other traffic, and conflicts arise due to differing goals: companies want to maximise business efficiency and ensure customer satisfaction, and local residents want their living environment to be as undisturbed as possible. However, as trucks are considerably larger than cars and are more visible, there is the widespread perception that all congestion and other traffic issues such as pedestrian safety on the streets is due to the movement of commercial vehicles.

As far as Tallinn is concerned, there is no data on which to base claims that the movement of goods in the urban area affects the course of other traffic. It could be possible that the movement of goods affects other traffic in only a few places, which could be improved using limitations imposed on commercial vehicles.

Tallinn has already established both timed access and vehicle-based weight limits, but the results of their implementation have unfortunately not been analysed. Practice elsewhere in Europe has shown that implementing restrictions has a very different effect on companies that carry goods and general traffic. As a result, any restrictions should be implemented gradually and the impacts monitored to understand if the desired effects are achieved.

Urban logistics is becoming an increasingly important element in traffic generation as an e-commerce and intermediary carrier. At the same time, with the advancement of technology, the range of ways to deliver goods to the customer is constantly increasing, and the suitability of these should be analysed in the context of Tallinn.

Current traffic data and modelling show that freight traffic is basically moving around the city's outskirts using the Tallinn ring road, although freight flows through the city centre are important. A major driver of this traffic is retail, especially shopping malls, where goods are often delivered by multiple vehicles during the working day. As a result, the main demand on the road network falls at the time when the traffic in the city centre is already the heaviest.

Urban logistics involves very diverse sectors (Figure 1), which is mainly concerned with retail, postal and courier services.

Figure 1. Market for intra-urban transport. Source: (Stefanelli, Di Bartolo, Galli, Pastori, &Quak, 2015, lk 9)

Particularly problematic is the organization of freight traffic in the Old Town of Tallinn, where, in practice, the time limits that were introduced in 2015 are not being respected. A range of possible solutions that are used elsewhere, such as consolidation centres or delivery times, have been suggested, and analysis of these is now required.

The role of time constraints in Tallinn Old Town

During the Freight TAILS project, Tallinn focused on two topics: Tallinn's Old Town transportation and general road haulage. The major focus was to improve conditions in the Old Town area, the applicability of the existing or any new regulations and the future range of solutions that could be considered to reduce the impacts of urban freight transport.

The regulatory constraints a city could impose include rules and bans to control the traffic system, designed to restrict the private sector to the benefit of the wider public. Regulatory

constraints are often easier to implement and more acceptable to all stakeholders, in contrast to market-based constraints that are more traditional in nature but need more precise enforcement to avoid potential violations.

Regulatory restrictions are often mandatory for trucks and general traffic, such as speed limits, parking restrictions, unidirectional streets and such like. On the other hand, there are ways that regulate only trucks, such as access time constraints, volume or weight restrictions, pollution restrictions and loading restrictions.

Two different types of timed, traffic access restrictions can be distinguished: time when goods are allowed in to the area (generally during the day) and restrictions on when the delivery of goods to the area are prohibited (generally at night). In Tallinn, daytime access restrictions are currently used as a measure, to increase the occupancy of vehicles and reduce the exposure of residents and visitors to heavy goods vehicles.

Although it is difficult to assess the impact on transport costs, the majority of studies on time restrictions show access restrictions increase costs, with the correlation between narrower time access restrictions and total transport costs. However, most intra-city freight traffic takes place during the peak hours of the morning, increasing costs, vehicle mileage and the number of commercial vehicles on the streets. This increases emissions from commercial vehicles and general traffic. Research also suggests the use of time constraints increases social sustainability; improving the quality of life, and the safety and accessibility of the restricted area; through noise, visual constraint and physical barriers. (Arvidsson, 2013, p 2)

The implementation of the time windows appears to significantly reduce the movement of trucks in the restricted areas, provided that there is sufficient control over it. Access is often controlled in some physical way, such as barriers or a vehicle identification system, as well as through police checks. Exceptions to the time controls are generally given for utility vehicles or low-emission vehicles.

The time windows used in Tallinn's Old Town apply to all traffic. For road safety reasons, road vehicles are not allowed on many streets (Figure 2). Access to motor vehicles is allowed for logistics operators and businesses between 06:00 and 10:00. It is also possible to apply for a one-off special permit from the Tallinn Transport Board.

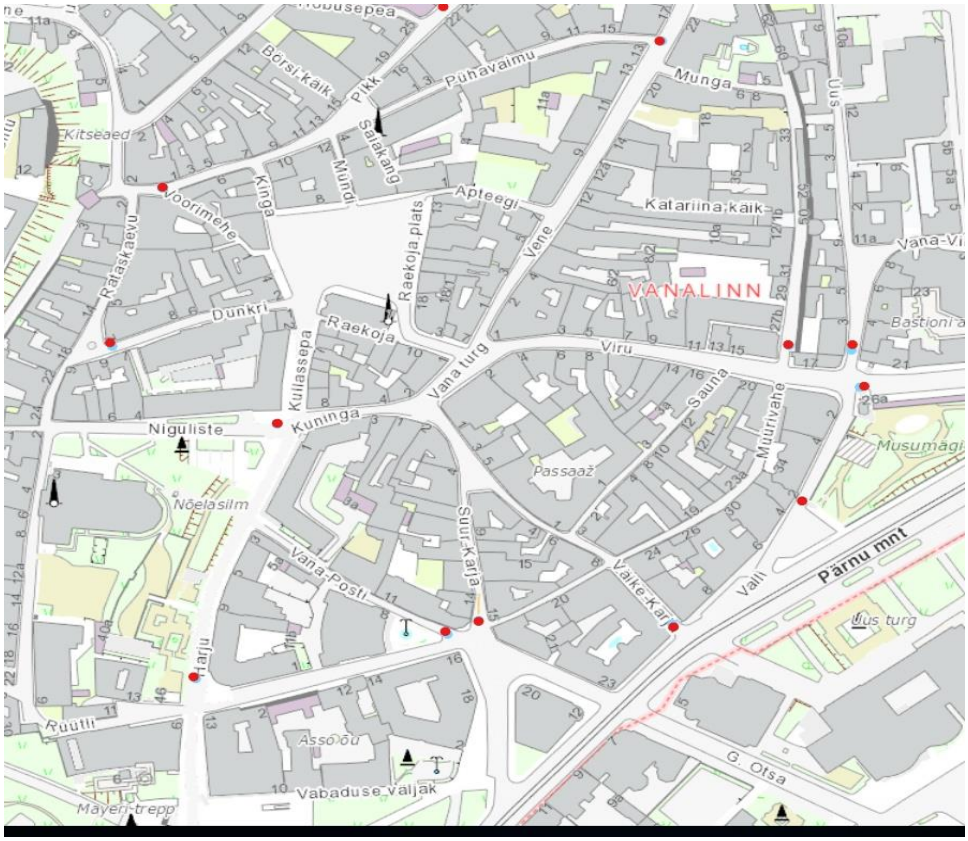


Figure 2 – Map of the Old Town area showing where traffic signage restricts entry after 10:00am.

<u>The activities carried out during the Freight TAIL project</u>

The City's main objectives during the Freight TAILS project were to:

- Understand why the timed-access regulations in the Old Town were not working by talking to logistics companies and completing a survey of businesses based in the area
- Understand where freight traffic is travelling in and around Tallinn through a traffic survey procured through Hendrikson and Co.
- Develop a group of local stakeholders who are committed to improving the situation in the Old Town, and
- Identify how bad the current situation is in the Old Town and to be able to accurately describe this and the range of potential solutions for the City's decision makers (the Mayor and Deputy Mayor)

Between May and June 2017, a survey of freight deliveries was carried out among businesses in the Old Town. 59 companies participated, and the survey revealed the main suppliers and potential problems in the Old Town area. Retailers often use their own transport, various suppliers (the largest ones A Le Coq, Saku, Prike) bring goods to the catering companies, which in turn significantly increases the traffic load, as several vehicles have to arrive at each destination.

Enforcement operations were also carried out in the Old Town area, in cooperation with the Municipal Police. These identified the level of violations occurring after the time window (i.e. between 10:10 and 11:45). These varied between 39 and 59 violations, but demonstrated that even if they knew they would be fined, logistics operators would still break the rules to deliver to their customers.

A survey of heavy vehicle traffic flows was conducted for the Transport Department by Hendrikson & Co in 2017. This survey provided a very good overview of the current situation in the Old Town and the general freight movement around Tallinn's road network. The data has also provided useful input in to the city Sustainable Urban Mobility plan.

A local stakeholder group (the URBACT Local Group) was developed to assist the city in understanding the local freight issues. This involved identifying the appropriate stakeholders, defining the role of the group and agreeing the activities to be achieved.

The main ULG group members were:

- Tallinn Transport Department
- Tallinn urban planning department
- Tallinn municipal police
- Tallinn Harbour
- Association of Old Town companies
- Estonian Ministry of Economic Affairs and Communications
- Estonian Road Administration
- Estonian Police
- Hendrikson & Co
- Association of Harju local Municipalities (HOL)

Throughout the project ULG meetings were held with different stakeholder groups, including business owners and logistics carriers. The largest meeting was on 23.10.2017 where the results of the freight movement survey and Police operations were discussed with local business owners and logistics operators.

Potential solutions

An important aspect of the project was to identify the range of potential solutions and activities required to address future urban freight transport in Tallinn. Following the work of the Local Stakeholder Group, the Transport Board has mapped out possible activities that could reduce the impact of freight transport in the Old Town. These include:

- Bollards - In the framework of the Freight TAILS project, there has been a growing awareness of the Old Town access issues. Through the police enforcement operations and the discussions with Stakeholders, the potential to introduce timed bollard control to the Old Town area appears to be the most practical, short term solution.
- 'Wise parking' – where logistics operators can pre-book a parking location for a fixed time period near the Old Town, and then goods can be transported to the customer. This appears to be a practical solution and the Tallinn Transport Board are exploring the possibilities for such parking spaces.
- Changing delivery times or implementing access charging periods – It is very difficult to assess the effects of any such changes and these solutions may need to be considered in the longer-term future.
- Cargo bikes and electric vehicles - The city is aware that some companies want to test these solutions, but there appears to be no incentive as they can bring the goods with trucks and vans. If future regulations change this, and it is not possible to bring the goods with trucks, this may become a good alternative for logistics operators.
- Consolidation Centres - The idea behind the centres would be to bring the goods for one area together in one centre and then delivery all goods with one vehicle. These would

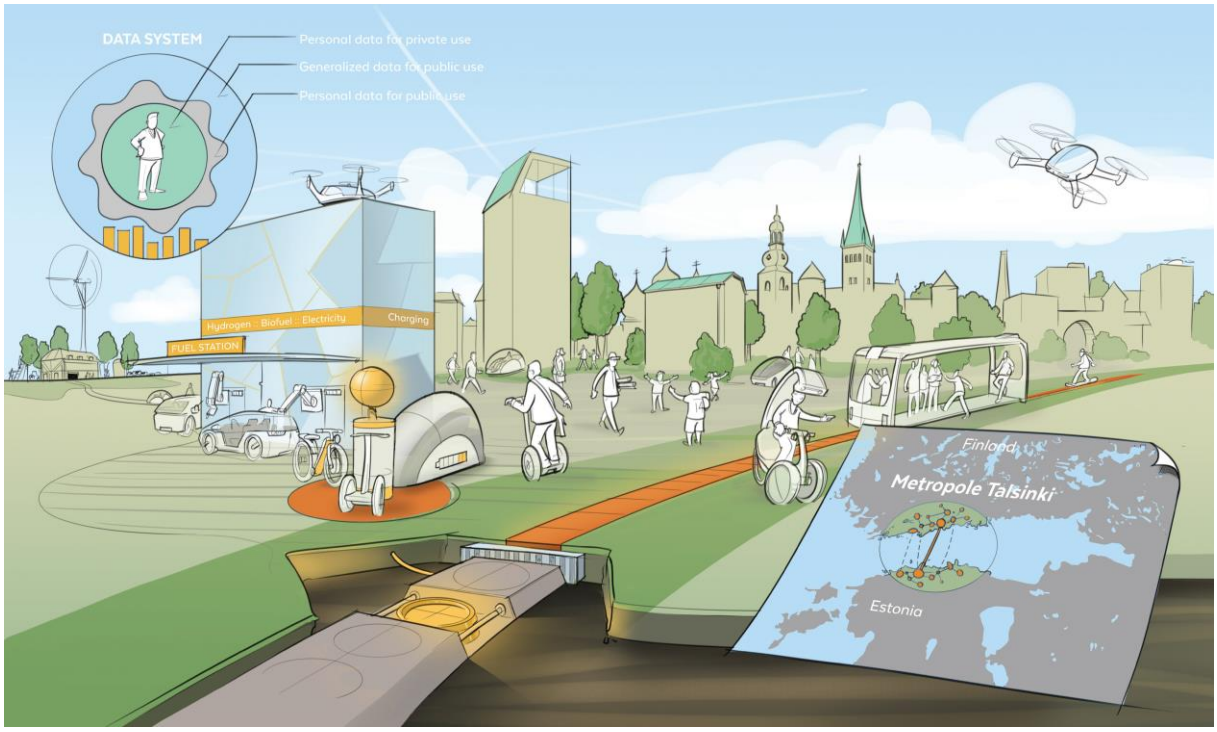
require good locations close to the Old Town which are currently not available. The question also remains of who would pay for any centre's financing and administrative costs, making this solution unlikely in Tallinn at present.

- New technology – trials are already underway of delivery robots in the old town area. Changing the accessibility of the Old Town for delivery and servicing vehicles (e.g. bollards) will require companies to re-think solutions to bring goods into the Old Town. These may include cargo bikes, E-Scooter, Starship robots etc.

Next Steps

The city authority is currently drafting a three-year plan to reduce the impacts of deliveries into the Old Town area. This plan is due to be finalised in the summer of 2018. It will outline the steps needed to make the Old Town much safer, including changes to the existing regulations to introduce a stricter access control system involving bollards. However, some areas for action are still open to debate, especially to ensure access for Old Town residents and to ensure any decisions recognise the views of all city residents.

The City of Tallinn has also developed a roadmap for 2050. This includes the desire for 'citizens in Tallinn to enjoy an attractive, clean and quiet living environment that encourages sustainable behaviour … with all services within easy reach ... more public space is allocated to living, and less to motorised transport, and smart planning is used to respond dynamically to the changing demand for the transport of people and goods.'



Webpage: http://roadmapsforenergy.eu/wp-content/uploads/2018/03/20170818-D6.4-Final-City-Report-Smart-Mobility-Tallinn.pdf