

Deliverable Summary



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Author(s)	City of Utrecht, Department for City Development, Unit for Traffic and transport
Editor(s)	Stefano Proietti (ISIS) 31/05/2011
Project Coordinator	Andrea Arcelli Via Marsala, 23 40126 Bologna - Italy +39.051.2194746 andrea.arcelli@comune.bologna.it

Context and Purpose

Traffic related to construction work is of vital importance to the functioning of the economy of Utrecht. Due to the economic growth, the amount of construction traffic will continue to increase. However this also means more congestion and emissions. Construction traffic can take a share of up to 60% of total amount of freight traffic in the city. It would be ineffective to let an increase in construction traffic ruin the successes achieved in, for example, the supply of regular goods (to e.g. retailers). This is why construction logistics, i.e. better organising the flows of construction materials and construction workers to the building site, is an essential part of Utrecht's Action Plan on Freight Traffic 2010-2015.

By giving sufficient attention to construction logistics, other logistic, traffic and environmental problems that could occur during or after the building work can be prevented. In the Action Plan for Freight Traffic it states that the organisation of traffic related to construction work needs to be a fixed part of the building process of the City of Utrecht.

In the next ten years, the central railway station area in Utrecht will be reconstructed. This means, among others, that in the coming five years the infrastructure will be dramatically improved. This results in large construction work traffic flows that also interact with each other. In addition, the traffic of construction workers to and from the building site contributes to increased congestion and emissions.

On the peak of the construction activities, around 250 trucks will drive to and from the central railway station area every day – many more than normally. Already in an early stage of the construction work, the capacity for construction traffic around the building site was not sufficient.

Parking on the streets is not an option, as it would influence the surroundings too much (inhabitants, shops etc) and it would also interfere with regular goods supplies. So the big impact that this traffic has on the city, but also on the progress of the construction projects themselves, warrants a coordinated approach. It is important to avoid peaks in demand, or to level out the peaks in construction work traffic during the day. This MIMOSA measure helps Utrecht to achieve this.

This report (Deliverable 7.1.2) describes the motivations of the different stakeholders to participate in construction logistics. It also describes the solutions that Utrecht is implementing within this CIVITAS project and summarizes the research that preceded this. Furthermore, current and future developments are described, as well as the cooperation with private construction and transport companies. Finally, relevant developments in other large cities (London and Rotterdam) are described.

Summary Contents

Motivations of the different stakeholders to participate in construction logistics

Private parties are mainly interested in measures that help to make the construction project as cheap and fast as possible. Often, logistics are arranged so that materials are stored on site as shortly as possible and are delivered just when needed. This “just in time” principle is of great importance for the accessibility of the building site. If the Central Station area is difficult to reach, the supplier of materials runs a financial risk because he has a contractual responsibility towards the builder. This risk will (in financial terms) also be transferred from the builder to the contractor (developer). This means that all parties involved benefit from optimal accessibility.

The motivation of the **municipality** has to do with the responsibility to keep the city attractive, accessible and liveable. Utrecht wants to minimize the disturbance for a) the surroundings of the construction area, b) the surroundings of the construction routes and c) the users of the public roads. The contractor needs to be made aware of the risks of his project for these areas and he needs to be enabled to optimise his work. The city wants to take a role in guiding and informing the companies that are (re-)developing (large) construction areas. One part of doing this is the development of a brochure with the various available construction logistics measures to offer to potential users.

Solutions that Utrecht is implementing (or intends to) and the research that preceded this

To optimise Construction logistics, Utrecht determined various concepts for solutions. The first concerns decentralised (temporary) parking locations: trucks can be temporarily parked at a buffer location and construction workers can park their cars at a designated decentralised area. The second solution focuses on transfer locations: clustering or bundling of flows of (smaller) construction materials in a so-called consolidation centre.

It is expected that accessibility of construction sites in the centre is very poor sometimes. **Decentralised parking/buffer locations** allow trucks to enter the Central Station area in a phased (or dosed) way. This is especially relevant in the first phase of a construction project, when large materials need to be delivered to the site. In case of calamities or stagnation, trucks can be diverted to this temporary waiting spot. Less time is lost and the building process becomes more efficient. Trucks and cars of construction workers can also be parked there when they are not being used. The buffer location is arranged by the municipality. The locations should preferably be available throughout the project and they do not need many facilities. Utrecht looked in to 7 different options, of which 3 were researched in more detail (costs and design). The preconditions were places for minimum 25 trucks and 200 parking places for cars of personnel, until 2018.

Transfer locations require quite a large area which needs to be specifically furnished to make temporary storage or transfer of materials possible. Materials are being bundled before they are taken to the construction site in one big load. This increases efficiency of the construction activities, because the same transport can be done with fewer trips. Furthermore, waiting times for construction traffic at the building site get shorter and there is need for less storage place on the construction site. Such a transfer location needs to be secure and very accessible.

Research and discussions with stakeholders showed some **barriers** to this solution. The concept is difficult to use by different parties, because the **responsibility** for the maintenance of the location and for the stored materials will be unclear. A warehouse like this would be best used by one (construction) company at the time, but the costs will then be (too) high and there is insufficient place in/near the centre. A **solution** would be to create an integrated approach, where an independent party takes care of the logistics on the depot to receive and transfer materials. It needs to be sufficiently large to cover the costs, which will be paid by the (private) stakeholders who committed themselves to this kind of construction logistics management. Many parties need to be involved and the depot should be close to the building site.

Utrecht's cooperation with private construction and transport companies

In Utrecht's Central Station area, a variety of contractors work on different projects. They are interdependent since they work in the same area with limited accessibility. The bundling of materials of different parties in one truck to (and also from) the construction site requires much coordination and a comprehensive logistic organisation.

The transport company Hoek, already very active in Utrecht and in its cooperation with the city, has plans that match well with the plans of Utrecht. A **Construction Logistics Centre Utrecht** (CLCU) could serve as a decentralised collection place of a large part of the construction materials. Transport companies can deliver their materials there at any given time, without being stuck in the city centre. At the CLCU, the materials are combined and *completely full* trucks deliver it to the building site on a suitable, *pre-agreed*, time to the various contractors. Hoek already has the entire *necessary infrastructure* (e.g. distribution centre, buffer zone) that would make this possible. The CLCU could be open 24/7, if necessary. The CLCU would also take care of the *communication* with e.g. the truck drivers and would closely communicate with the various building sites. Building companies could even temporarily second one of their employees to the CLCU. Ideally, construction companies would agree with their suppliers beforehand that they can only deliver their materials through the CLCU.

Advantages of this concept for the city are that the CLCU delivers materials to the construction site **outside rush hours**. This has benefits for the **traffic safety** (e.g. fewer cyclists on the road at those times). It also increases the **accessibility** of the centre, which increases the **traffic flow** of other traffic. This in turn improves **air quality** (indirectly). Furthermore, it is important for Utrecht to again stimulate "the Utrecht model", where city and private parties work together to put Utrecht on the map as a sustainable distribution city, just like in the case of Cargohopper. Utrecht and also the Chamber of Commerce can play a large part in convincing stakeholders of the benefits of these sustainable concepts.

Functional Use

After the research was carried out, a buffer zone and a temporary construction logistic centre were put in place in Utrecht. However, it suffers from some barriers as described above. The aim remains to establish a more permanent CLCU and create optimal public-private cooperation. The research has been done, the conditions and requirements are clear and one enthusiastic partner has already been found.

Utrecht will continue the process by organising multiple “inspiration workshops” to raise the enthusiasm of all stakeholders. Together with the Chamber of Commerce, Utrecht acts as advocates of the innovative concept and as “ambassadors” to bring parties together.

Lessons Learned

- Private parties are often not interested yet if the Construction projects are in a very early stage (before implementation). Furthermore, sometimes the developers do not know yet which construction firms will carry out the future work. Once the construction starts and developers experience logistics problems, they become interested in alternative solutions.
- Project developers do not have much faith in the measure to let workers park their cars in some buffer zone outside the centre. Construction workers often use their own tools, which they need to bring to the construction site.
- There need to be strong advocates for the Consolidation Centre approach – both from the public and the private side. Political support from the municipality, like in Utrecht, is important for this.
- Private parties focus on the financial aspects of the new system. It is important to show evidence of the benefits. It is worth considering including a cost specialist in the team to develop the compelling cost argument on each project.
- Not many like to make change; they are largely content in following the practices and routines that have served them well in the past. For example, the common practice of ‘over-ordering’ of materials, just in case, leads to wasted materials. Introducing fundamental changes to working practices in an industry can be challenging and it is difficult to try trying to influence the entire supply chain in an established industry.
- It is not so easy to really measure and prove the business case. Although people with experience in this sector will intuitively know that significant benefits can be experienced, it is difficult to measure and tie these together in the form of a complete business case. The key issue is to get visibility of changes and measuring impacts.
- The standard approach to construction logistics is fragmented, with each contractor, subcontractor and supplier responsible for its own deliveries. This approach requires a different, more holistic way of thinking.
- The increasing environmental awareness and need to deliver improved sustainability impacts, such as reductions in waste and emissions help with the uptake of the Consolidation Centre approach.

Contacts

Measure Leader: Mr. Mark Degenkamp
City of Utrecht, Department for City Development, Unit for Traffic and transport
Email: m.degenkamp@utrecht.nl
Phone: +31 30 286 3747