Green Rail Logistics for excavated material on construction sites

Key Words:
Access to transport networks, infrastructure and nodes; Freight consolidation and transshipment; Implementation of low emission technologies; Communication between authorities: cooperation, procedures, legal frameworks; Innovative operational solutions; Transport management, fleet management; Environmental standards and policy; Interoperability and standardisation: vehicles, equipment, loading units, infrastructure

Case logo or picture

Description
The company Wiener Netze started the construction of its new head-quarter in 2012. For the planning of the facility, which is called “SMART CAMPUS”, various possibilities of smart and intelligent user-integration-concepts were considered, in order to achieve a multifunctional service building concept.

Considering this mission, also effort has been taken to evaluate alternative, environmentally friendly, secure and efficient means of transport already in the early stages of the construction phase. A large amount of excavated material has therefore been transported with an innovative green rail logistics solution.

Benefits
• The rail freight solution offers a reliable, stable and sustainable alternative for mass transportation on construction sites
• Usage of existing infrastructures without extra investment
• Innovative transport system that supports the needs of residents
• Less HGV, less congestions and increased road safety
• Reduction of emissions, pollution and noise caused by road transport

Success factors
• Commitment of the building-owner to support smart and sustainable concepts for excavated material transportation.
• Initiative of all partners within a feasibility study, where solutions were evaluated and implementation concepts were developed
• Cooperation and early communication with all involved partners to guarantee information and coordinated action.

Supported strategic targets
Ideal utilisation of infrastructure; Competitive logistics and transport system; Increased amenity value; Highest safety and security; Increased efficiency / productivity of logistics processes; Increased competitiveness; Increased quality; Image; Increased safety and security; Limited climate change; Reduced emissions; Conservation of resources

Starting point/objectives/motivation:
One of the first major project phases was the transportation of the excavated material. Due to the fact, that no railway line is directly connecting the building site with the public railway network, the transportation with heavy trucks seemed to be the only alternative at first glance.

With the situation that the public railway network goes very closely past the site, the building owner initiated a feasibility study to evaluate, if the transportation of the excavated material is technically and economically feasible by rail.

The feasibility study came to the solution that rail freight transport is possible, although innovative and flexible concepts were necessary concerning the operative solution, as well as the communication and cooperation structures between the partners.

With this information the building-owner took the opportunity to set up an obligatory requirement in the tender procedure for construction companies, to have a large amount of excavated material transport done by rail.

Solution
83 block trains transported more than 70,000 tons of excavated material from in inner-city construction site to the foresseen destination. This shift from road to rail led to a noticeable reduction of truck-trips and saved CO₂- and NOₓ- emissions and reduced the fine particulate air pollution.
### Case description (cont.):

**Savings achieved with the project:**
- 55,070 kg CO\(_2\)-equivalent
- 463 kg NO\(_x\)
- 2,970 HGV-trips
- 11 kg PM

### More information:

www.smart-campus.at

### Transport mode or supply chain elements:

Relevant transport modes or supply chain elements:
- heavy rail
- truck

Main actors involved:
- building owner
- project development company
- architect
- construction company
- logistics consultant
- rail freight operator
- rail infrastructure operator

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