

Summary

There's a need in the region of Hoofddorp for a railterminal to connect a European railwaynetwork for express-cargo with an underground logistic system, the "Ondergronds Logistiek Systeem (OLS)". In the OLS cargo is being transported through an underground tunnel connection by Automatic Guided Vehicles between the airport Schiphol, flower auction Aalsmeer and a railterminal at Hoofddorp.

In this report a conceptual design has been presented for this fully automated railterminal. The physical proces of transport and the lay-out of the terminal have been determined in this design.

First, the specifications have been phrased for such a railterminal. Within the OLS-project a unit load device has been chosen, called TRE. This unit load device has the same size as a 125x96inch maindeck-pallet. These unit load devices are expected to be almost identical and to be used through out one another.

The type of trains that will be handled at the railterminal have also been analysed. Highspeedtrains, like the french TGV-Fret and the german ICE-Fracht, are the most important ones. On short term more conventional trains like the CargoSprinter and the ExpressShuttle will be handled at the railterminal.

Because express-cargo is to be transported fast, the transfer of cargo must also be fast. It has been phrased that a train must be unloaded and loaded within 10 minutes (at conventional railterminals this proces is taking up several hours).

A fictitious time table for trains has been made based on the forecast of the volume of cargo and the possibilities of the rail network. From the time table the following can be derived: On a busy day 79 trains will have to be handled at the terminal and a total of 6700 TRE's will be moved through the terminal. At the busiest moments 6 trains per hour will be handled.

On the basis of a program of specifications 8 concepts for the railterminal have been made. By means of a multi-criteria-analysis the best concept has been selected, which has been further developed.

The proces of loading and unloading of the trains will be conducted by a flexible loading/unloading-vehicle. A conceptual design has been made for this vehicle, called Rail Guided Vehicle (RGV).

The storage of the TRE's is done in a roll-through storage on shelves. The TRE's are transfered in and out of the storage by so called Storage Retrieval Devices. A conceptual design has been made for these vehicles, that move parallel to the railtrack along the storages shelves. The terminal is split in 2 parts by the railway-tracks that are passing through the middle of the terminal. In this way, together with storage on shelves, the overall floor dimensions of the railterminal stay low.

The total cost of investment for the terminal is a 100 million guilders. Taking interest and depreciations into account, this results in an ammount of 16 guilders per handled TRE (in the year 2020).