

Upgrading the Luino and Chiasso lines

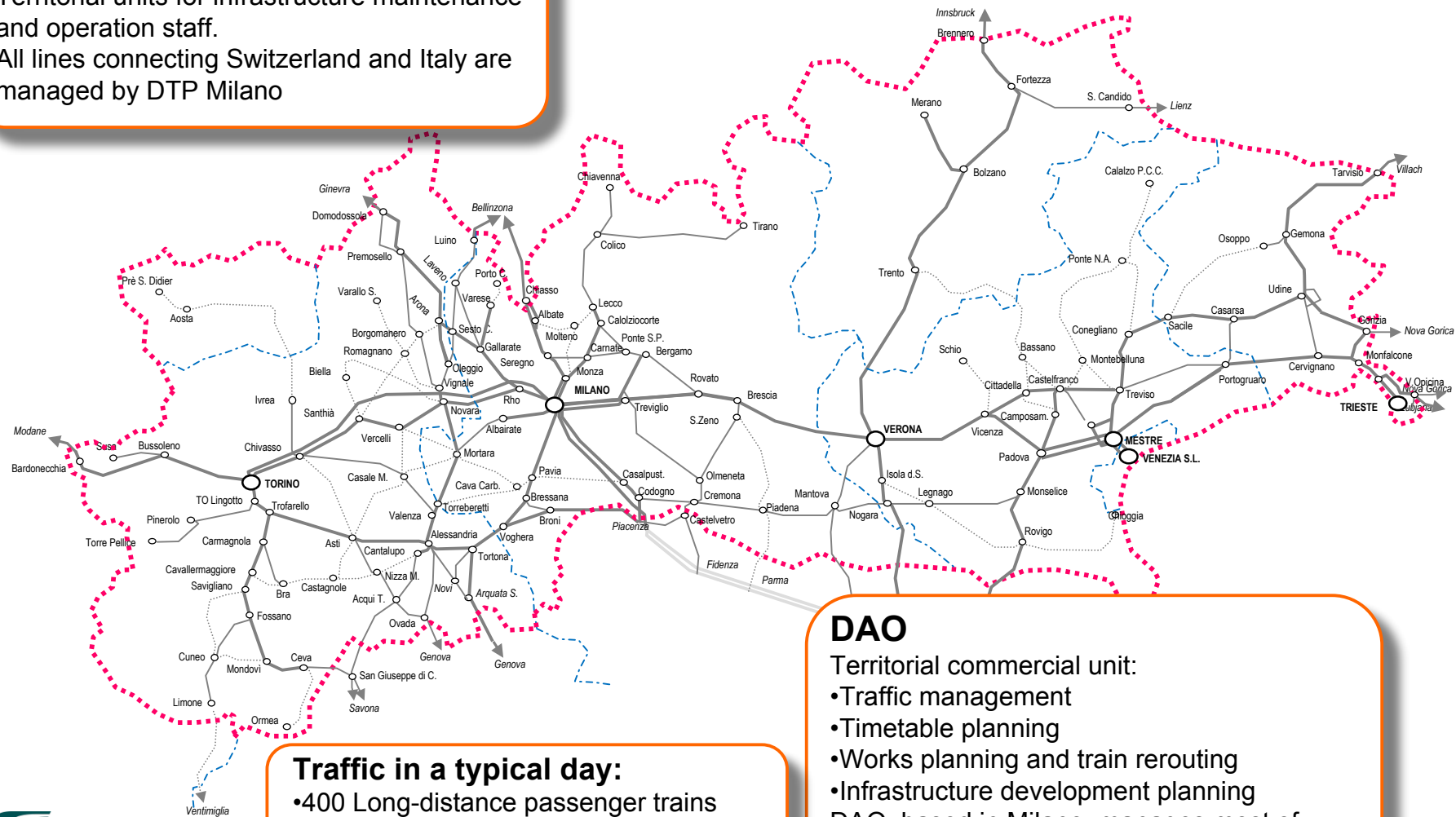
Development for freight traffic
on the Italian railways connected to the new Gotthard line

Novara, 17 September 2014

Rete Ferroviaria Italiana, territorial organization

DTP

Territorial units for infrastructure maintenance and operation staff.
All lines connecting Switzerland and Italy are managed by DTP Milano



Traffic in a typical day:

- 400 Long-distance passenger trains
- 3700 Short-distance passenger trains
- 700 Freight trains

DAO
Territorial commercial unit:

- Traffic management
- Timetable planning
- Works planning and train rerouting

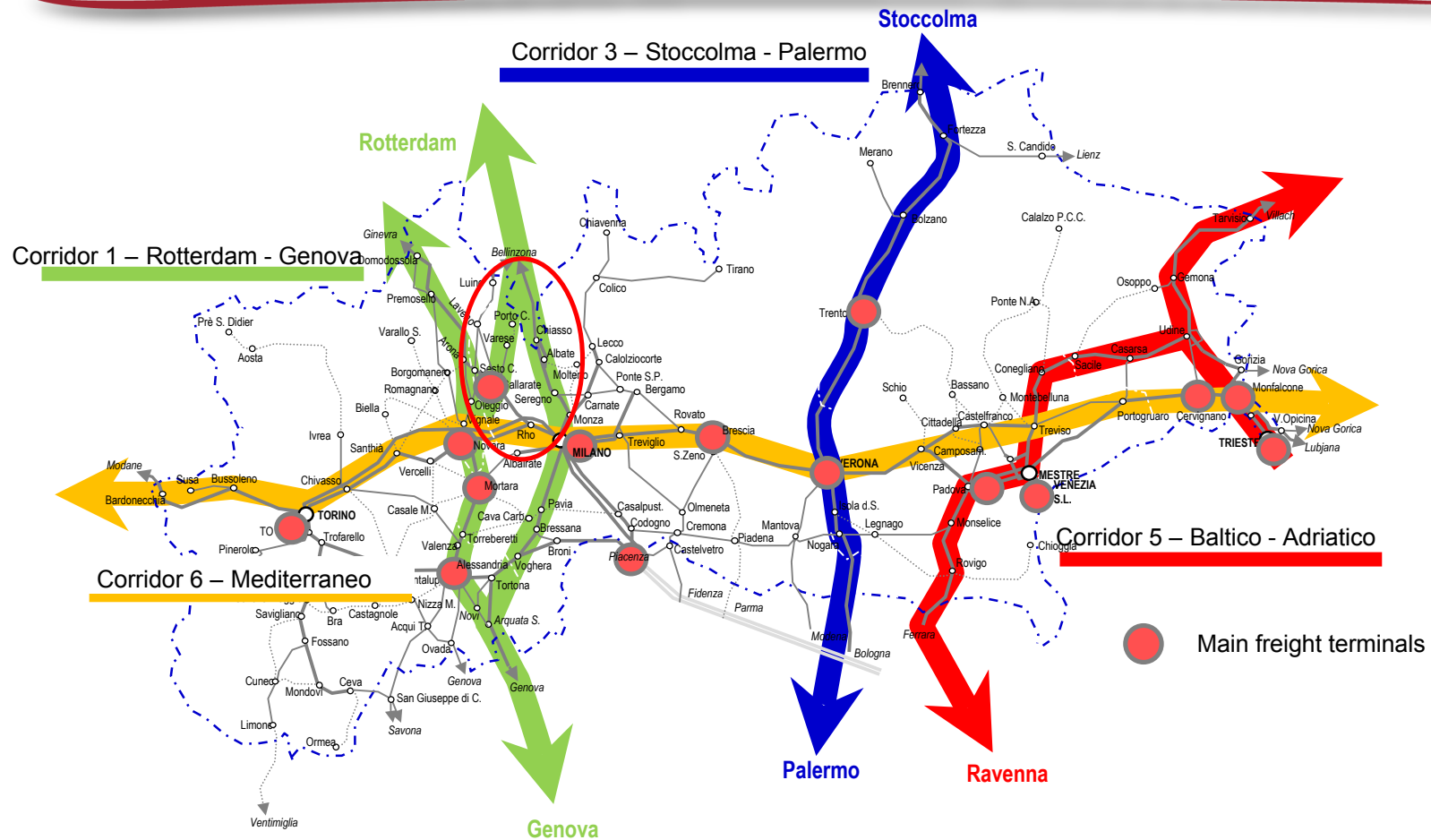
DAO, based in Milano, manages most of Northern Italy

Trans-European Rail Freight network in northern Italy



New Road-Rail Terminals mainly fed by cross-Alp traffic through Switzerland: Milano, Brescia, Piacenza, Novara, Gallarate

European Rail Freight Corridor



The Gotthard line, with its two Italian gateways Luino and Chiasso, as well as the Simplon line, belongs to the European Rail Freight Corridor 1. Freight Corridors are main freight routes with simplified procedures for customers interested in cross-boundary traffic.

Memorandum of Understanding Italy-Switzerland



Bern, 17 December 2012
Inter-governmental agreement



90 trains per day onto the
Luino line to Gallarate and
Novara terminals and beyond



170 trains per day onto the
Chiasso line to the new
Milano terminal and beyond

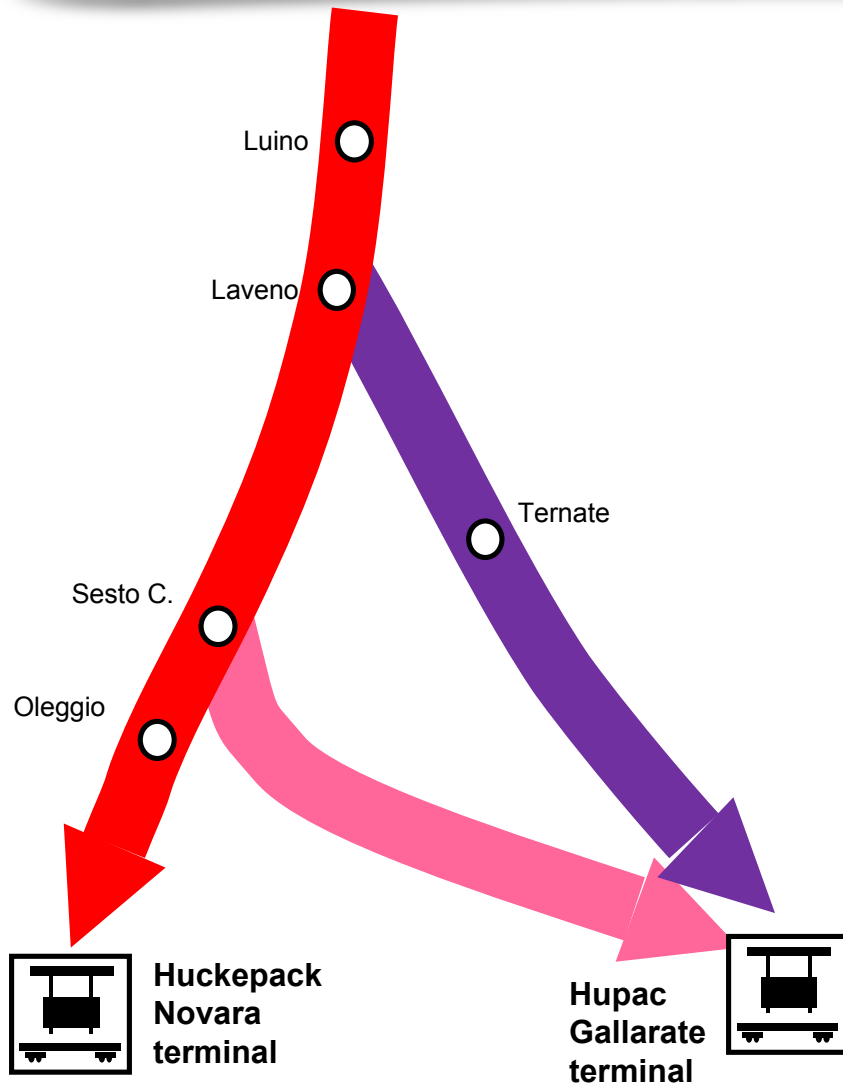
High performance Corridor trains:

- 700 m long
- PC/80 load gauge
- D4 axle load



Phasing the Luino line

- tunnel widening works
- 750 m - long trains



Objective:

PC/80 load gauge and 700 m-long trains to both Novara and Gallarate terminals, to be achieved as soon as possible.

Commitments:

To interrupt freight and passenger traffic as less as possible.

To work as effectively as possible, working at the same time on the Italian and Swiss sides.

Phases:

- 2018 - Novara branch completed
- 2018 - Gallarate branch (via Sesto) completed
- 2019 - Gallarate branch (via Ternate) completed

What works to upgrade the lines?

Chiasso line

- Technological upgrade (170 freight trains per day)
- Load gauge upgrade (PC/80)
- Train length upgrade (700 m)
- Level crossing removal

financed by



*Works on the
Chiasso line
already started*

Luino line

- Technological upgrade (90 freight trains per day)
- Load gauge upgrade (PC/80)
- Train length upgrade (700 m)
- Level crossing removal

financed by



Scheduled completion: 2020

High-complexity works

Load gauge upgrade

Tunnels suitable for trucks and containers have a rectangular shape different from the traditional rounded-at-the-top railway load gauge. Tunnel upgrade can be obtained by two different techniques:

- By consolidating the tunnel roof with concrete injections and then reshaping it
- By digging the tunnel floor to lower it

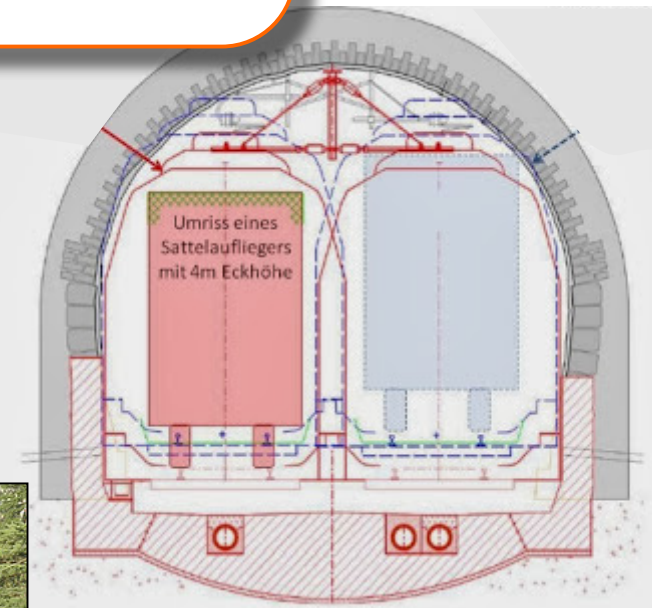
The choice is made by considering the geo-technical characteristics of rock and tunnel support walls and on the layout grades the railway line has.



Train length upgrade

Admitted train length is determined by the length of passing loops in station. To lengthen loops all switches and signals on one side of the station must be repositioned.

Enlarging the area occupied by stations can be a difficult task, either because they are located in a densely-built territory or because of terrain shapes that requires important works.



Objective: more trains, less trucks

For a cleaner environment

