



## Upgrade of Axis 3 (Brussels – Luxembourg)



### Description

As regards mobility and transport, the Brussels – Luxembourg – Strasbourg rail link is one of the trans-European projects that were identified as a priority by the European Commission (TEN-T – Trans-European Transport Network).

In that context, the Belgian Government and the Walloon Region decided in 2006 to undertake extensive upgrades on Lines 161 (Brussels - Namur) and 162 (Namur - Luxembourg).

With this upgrade, travel times between Brussels and Luxembourg will be shortened. This project also aims to strengthen railway competitiveness and profitability and to reduce road traffic.

Specifically, the aim is to increase the reference speed on both lines to 160 km / h where reasonably possible. The program also plans to supply Line 162 by 25 kV AC and to renew outdated equipment.

To this end, the following activities will be carried out:

1. Straightening of ten bends, to improve and standardise the velocity diagram;
2. Major renovation of Gembloux, Ciney and Jemelle stations and adjustment of other stations;
3. Widening of track pitch to 2,25 meters (necessary to allow a reference speed of 160 km/h);
4. Widening of track formation;
5. Re-electrification with 3 kV DC catenary for Line 161 and with mixed catenaries (3 kV DC / 25 kV AC) for

Line 162;

6. Adjustment of automatic blocks to achieve the necessary warning distances for a reference speed of 160 km/h;
7. Adjustment or replacement of structures of which the gage has become insufficient due to the widening of the track pitch and the re-electrification with mixed catenary;
8. Draining of the track formation and increase of the track quality;
9. Stabilisation of slopes and rock walls;
10. Renewal, because of their outdated state, of tracks, structures, signalling, catenaries and their supports;
11. Elimination of certain level crossings to increase safety.



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#### Mission of TUC RAIL

TUC RAIL, initially only in charge of the re-electrification of Line 162 with mixed catenaries, oversees the management of the entire program since March 2013.

Its mission includes the following activities:

- Project Management;
- Studies and pre-studies;
- Submission of requests for permits;
- Preparation of tender documents (specifications);
- Administrative procedures (public procurement);
- Site monitoring;
- Approval;
- Safety coordination during design and realisation phasesation.

#### Answers of TUC RAIL to program constraints

To bring a program of such magnitude to a successful conclusion inevitably implies looking for solutions to certain problems or constraints regarding safety, mobility, environment, environmental planning, ...

One of the solutions implemented concerns the catenary of Line 162. In order to make the change of supply voltage without major impact on rail traffic, TUC RAIL opted for a solution involving mixed catenaries, which can be supplied with 3 kV DC or 25 kV AC. These can be supplied with 3 kV for current traffic needs and with 25 kV AC once the line is upgraded in 2021.

Another solution concerns the draining of the track formation on Line 161. To determine the zones where the track formation had to be drained or strengthened, TUC RAIL opted for the use of a georadar, a device designed for measuring the quality of the ballast and the track formation and for detecting the presence of damp or muddy areas.

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