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## Upgrading of freight railways to meet operational and market demands

The European objective of a modal shift of freight transports to railways will require extensive upgrading of existing railway lines since very few dedicated freight railways are currently being built and existing lines were built for traffic demands at the time of construction.

A transition to increased and enhanced railway freight operations can therefore be costly and complicated. To minimize negative effects, a guideline for upgrading was developed within the Capacity4Rail project (EC grant No. 605650). The current research presents the major findings from this guideline. In particular it outlines different upgrading possibilities and

their implications, and details structured approaches to upgrading analyses. Setting out from the Capacity4Rail handbook, the work discusses possibilities for upgrading of substructures, bridges, tunnels, and the track structure. In these areas, an overview of challenges and possibilities is presented together with examples of experience from operational upgrading. A conclusion is that freight line upgrading using a more streamlined approach as outlined in the guideline is a necessity if EU objectives on modal shifts in transportation are to be met. Further, it demonstrates why a political drive is necessary to increase efforts to upgrade freight lines •

