

Study of railway operation stability between Wattwil and Nesslau-Neu St. Johann



In accordance with a recently adopted federal plan to expand Switzerland's railway infrastructure (STEP AS 2025), the service interval for trains running between the Wattwil and Nesslau-Neu St. Johann railway stations is to be shortened to 30 minutes. The service schedules that have been submitted so far specify the deployment of an additional train consist to accomplish this objective. In the interest of lowering the cost of operation while at the same time securing the 30-minute interval, EBP carried out a study of an alternative solution that would not require an additional train.

The proposed solution centered on the installation of a reverse loop at the Nesslau-Neu St. Johann railway station and accompanying train-speed increases along the route, as well as when entering and exiting the Wattwil station. However, when consulted about the proposal, the Turbo Railway Company expressed misgivings about a reverse loop, arguing that it would undermine operational stability. As the operator of the railway infrastructure, the Swiss Southeast Railway (SOB) therefore commissioned EBP to carry out an open-track simulation between the various stations at Bütschwil, Brunnadern, Kaltbrunn, Wattwil and Nesslau-Neu St. Johann as a means of obtaining relevant information on the stability of future railway operation. To secure the reliability of the simulation, EBP first defined a set of different system-entry delays and dwell-time overruns for weekdays and weekends.

Confirmation of possible operational instability

After first taking account of data relating to system-entry

Client

Schweizerische Südostbahn (SOB)

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delays from the annual schedule for the year 2016, EBP's study indicated that the introduction of a reverse loop would fail to sufficiently ensure that passengers catch their connecting trains in Wattwil. As it turned out, the only way to secure the schedule as stipulated in the STEP AS 2025 and prevent scheduling interruptions in Wattwil in case of delays outside the reference area (e.g. affecting trains coming from St. Gallen, Wil or Rapperswil) would be to eliminate the train stop in Krummenau. In the context of its study, EBP used OpenTrack 50 to simulate daily train operation from 5:35 a.m. to 11:00 p.m. Conclusions were based on the following train and infrastructure assumptions: Voralpen-Express trains (the new, eight-car FLIRT "Traverso" operated by SOB); Turbo FLIRT SOB or GTW 2/8 trains operated in single and multiple-unit train control in the case of the urban-suburban trains (i.e. corresponding to the time of day under investigation); and current-state infrastructure augmented through the addition of the planned expansion measures up to 2025.

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