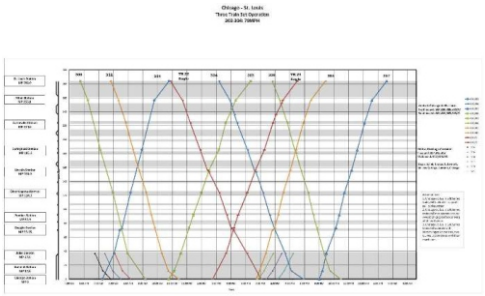
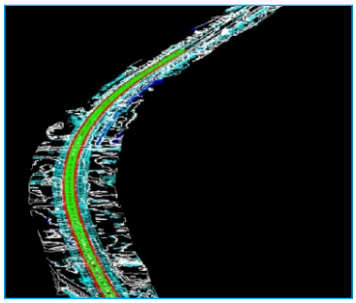
CHICAGO-ST.LOUIS HIGH SPEED RAIL PROGRAM MANAGEMENT

As a member of the program management team for the Chicago - St. Louis High Speed Rail Project, Quandel Consultants has completed multiple preliminary and final track design tasks to implement ground-breaking high-speed intercity passenger rail service reaching 110 MPH in the State of Illinois. The federally funded project is a cooperative agreement among the Federal Railroad Administration (FRA), Illinois Department of Transportation (IDOT), Union Pacific Railway (UP) and Amtrak for high-speed intercity passenger rail and freight rail improvements in the corridor. The project requires a multi-faceted design approach to accommodates both passenger and freight rail. The track renewal program used by Union Pacific required a fast-paced design and construction schedule with close coordination between the UP and IDOT teams.





Client: Illinois Department of Transportation

Location: Chicago to St. Louis

Project size: 300 miles

Track Design

Quandel was responsible for designing spiraled horizontal curves that accommodate both high-speed passenger and regular freight operations. Superelevation and spiral lengths were developed in accordance with AREMA passenger design criteria. Quandel utilized several civil and rail engineering software programs including Bentley Microstation V8i, Bentley RailTrack and a proprietary LIDAR survey modeling program, to complete the task. A 3D digital terrain model (DTM) was produced to create contours, and multiple topographic features were extracted along the corridor including top of rail, track centerline, points of switch and frog, bungalows, grade crossing warning equipment, roadways and buildings. The final plan set, which depicted curve alignments, curve parameters, stationing, and topographic information, was submitted to the FRA.

Corridor Modeling

Quandel assessed the horizontal clearance impacts to physical obstructions or right-of-way limits due to the proposed shift of siding and second main tracks from 13 ft. to 20 ft. centers. To undertake this work, Quandel completed a corridor clearance evaluation using property VAL maps, aerial images, track charts and a 3D DTM produced from a 2001 LIDAR survey data. A corridor model enabled the analysis of the impacts of proposed track and earthwork construction on existing terrain, property and utilities. Cross-sections at each conflict site were developed, which depicted the existing groundline, the proposed track configuration, available horizontal clearances, and estimated conflict distances.

Operations Planning

Quandel assisted in the schedule refinement process by preparing stringline diagrams. The diagrams depict train meets between track sidings in single track territory. Train performance calculators were also used to model train speeds and acceleration, and assisted with the evaluation of the potential benefits of planned infrastructure improvements.

System Safety Program Plan

Quandel also developed several elements of the System Safety Program Plan (SSPP), in accordance with guidance published by the FRA and American Public Transportation Association. Elements of the SSPP included policy statements, scope, goals, objectives, system change management policy, and an internal safety management assessment.

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