Chapter 8

Blended Approach: Efficient Track Structure for High Speed Rail

Richard Harnish
Midwest High Speed Rail Association, USA

F.K. Plous
Corridor Capital, USA

ABSTRACT

High Speed Rail development is an increasingly significant, interesting topic in the present and expected to continue to grow even more in the future. Implementation of high-speed rail would require the right type of track network system that would need to be maintained and/or built, as necessary. In this chapter, the author recommends that the United States will need to use the Blended or Building Block Approach to develop high-speed rail. He presents several examples of blended infrastructure worldwide for high-speed rail, which would offer a range of tools here in the United States for high-speed rail development.

INTRODUCTION

High-speed rail has been late to develop in North America, and one of the reasons is that it is widely misunderstood. The majority of key decision makers, along with the media that influence them and their constituents, believe that high-speed-rail systems are “too expensive” and take “too long to build.” They assume that bil-
lions of dollars must be spent over a period of as long as 10 years before a new high-speed rail line/track system network is open over its full length of 200-400 miles. A common misconception is that high-speed rail is a stand-alone system, separate from the conventional network. But that scenario actually is rare. In fact, only Taiwan’s system is completely separate. All other systems use the “blended approach” in which trains use a combination of high-speed and conventional tracks in a single journey. It is similar to cars and buses using both Interstate Highways and local roads in a single trip. Most of today’s high-speed rail systems were not built end-to-end as “pure,” stand-alone, high-speed rail alignments that stood empty until the last mile of line was completed.

In fact, of the nine nations that have built high-speed rail lines, only two have built stand-alone systems that were not incorporated into the existing national railroad network. All of the others were constructed as “blended systems” in which the new high-speed segments were constructed as segments, or “building blocks.” These are connected to one or more parts of the existing track alignment so as to get service started sooner and give the traveling public a taste of high-speed-rail travel over a part of the route before the full route was completed.

This segmental approach mirrors what happened when the U.S. began constructing the Interstate highway system in 1956. Because the entire 42,500-mile superhighway network was scheduled for completion over a 20-year period, the Interstates were opened in segments, with the earliest (and easiest) of them built in rural areas, and the difficult and more expensive urban stretches coming only at the end of the project. As each 5-, 7- or 10-mile rural segment was completed, state highway departments erected signs diverting motorists off the older federal and state highways so they could access the new Interstate, incorporate the latest segment it into their trip and test the new concept of safe, high-speed driving on a grade-separated, limited-access superhighway with no stop lights. On reaching the end of the completed segment, motorists were directed back onto the old highway.

The result was that even the most skeptical taxpayers found they really enjoyed and appreciated the new Interstates and began pressing Congress for funding to finish the entire network as soon as possible. The Midwest High Speed Rail Association believes that a similar “building-block” approach should be used in promoting and constructing an Upper Midwestern high-speed rail network with its hub at Chicago (Midwest High Speed Rail Association, 2016).

In some cases, existing railroad alignments have spare right of way on which high-speed track can be constructed now alongside existing conventional track used by freight and Amtrak trains.
Related Content

Seismic Performance of a Mixed Masonry-Reinforced Concrete Building
Vincenzo Gattulli, Francesco Potenza and Filippo Valvona (2015). Handbook of Research on Seismic Assessment and Rehabilitation of Historic Structures (pp. 293-312).
www.igi-global.com/chapter/seismic-performance-of-a-mixed-masonry-reinforced-concrete-building/133351?camid=4v1a

Applying the Safety and Environmental Risk and Reliability Model (SERM) for Malaysian Langat River Collision Aversion
Safety of Domestic High Speed Passenger Rail Operations: Safety Is Good Business
Stephen C. Laffey (2016). Emerging Challenges and Opportunities of High Speed Rail Development on Business and Society (pp. 124-143).
www.igi-global.com/chapter/safety-of-domestic-high-speed-passenger-rail-operations/152053?camid=4v1a

Risk Analysis in the Process of Hydraulic Fracturing
www.igi-global.com/chapter/risk-analysis-in-the-process-of-hydraulic-fracturing/128716?camid=4v1a