



American Railway Engineering and  
Maintenance-of-Way Association

## **AREMA Position Paper**

### **Standards for the design, construction and maintenance of High Speed Rail (HSR) systems**

At the March 16, 2010 American Railway Engineering & Maintenance-of-Way Association (AREMA) Board of Governors meeting it was unanimously agreed that AREMA should lead, develop and maintain the recommended practice on which standards for High Speed Rail (HSR) design, construction and maintenance may be based.

Time may be of the essence for many of these publicly funded HSR initiatives. The professional railway engineering, construction and maintenance experience and expertise of the AREMA membership make it well suited to lead and engage in the development of recommended practice for HSR fixed plant infrastructure.

The Board of Governors noted that a Memorandum of Understanding (MOU) between AREMA and the American Public Transportation Association (APTA) already exists regarding the development of standards and recommended practices by AREMA concerning transit rail infrastructure.

This policy statement by the Board of Governors was made consequent to discussions involving the following issues:

- *There are many organizations involved in the promotion and advancement of HSR systems in North America. The genesis of many of these organizations can be traced to the recent US Transportation Department's \$8B HSR stimulus package.*
- *The HSR initiatives are welcomed by many and some are developing at rapid pace. However, the technical challenges are considerable; involving the engineering, interoperability technical specifications, regulatory compliance, construction, maintenance and operation, of a complex railroad infrastructure (track, structures, stations, signals, electrification, facilities, rolling stock, yards & terminals). Comprehensive technical standards for the design, construction and maintenance of the HSR infrastructure are required.*

- Some HSR initiatives are proposed to occur combined with existing freight rail operations. These HSR operations would typically operate at passenger train speeds not exceeding 90 mph (FRA Class 5 track) or 110 mph (FRA Class 6 track). (note that the NEC supports combined Passenger and Freight operations at speeds of 150 and 50 MPH respectively – the frequency and volume of traffic affect maintainability/reliability of the infrastructure. Ownership, control and commercial issues like indemnification, liability, and risk, as well as technical issues like alignment, grade, at grade crossings, signal systems, are the driving factors for maximum speeds) The ultimate responsibility and authority for infrastructure design, construction and maintenance on an existing railway line rests with the owner’s chief operating and engineering officers of the affected railroad company. These railroad companies often have technical standards for fixed plant design, construction and maintenance that are generally based on the recommended practices of the AREMA Manual for Railway Engineering (MRE). The MRE also contains recommendations pertaining to maintenance of some aspects of the railway fixed plant; although, maintenance practices are generally considered the prerogative of the individual railroad company.*
- Other HSR projects might occur on dedicated rights of way with greater train speeds of up to 160 mph (FRA Class 8 track) and 200 mph (FRA Class 9 track). Dedicated HSR lines will require criteria, standards for design, construction and maintenance of the HSR infrastructure. In consideration that criteria and standards for operating speeds in excess of 150 mph are authorized by FRA only in conjunction with a rule of particular applicability and that entities such as California High Speed Rail Authority are presently in the process of requesting approval, it is recommended that Committee 17 concentrate their efforts on their current assignment of the development of recommended practices for HSR for speeds up to 150 mph. Subsequent to FRA approval to operate at speeds above 150 mph, Committee 17 then would have some criteria to commence development of recommended practices for HSR systems above 150 mph.*
- Development of recommended practices for HSR infrastructure design, construction and maintenance will require further investigation and research and the technical experience and expertise of the AREMA Board of Directors and Technical Committees. This would include approaching APTA to discuss expanding our current MOU and explore the possibility of funding this effort for the purpose of expediting the process.*
- The development of minimum recommended practices for HSR will encourage standardization and promote cost reduction, reduce disputes during design and construction, and enhance the long term safety and reliability of the infrastructure. It is appropriate for AREMA to lead the development of recommended practices for HSR infrastructure design, construction and maintenance. It would be advisable for AREMA to approach California High Speed Rail Authority to determine if AREMA could provide a support role and be*

*privy to the information being provided FRA upon FRA approval of their submittal of the rule of particular applicability.*

- *Future development will require that the Board of Directors accept assignment requests from the various Functional Groups and Committee 17 – High Speed Rail Systems to shepherd the development of recommended practice for HSR operations. Chapter 17 of the MRE outlines recommended practice for the design, construction and maintenance of corridors, track & roadway, facilities and structures, vehicles, and signals, communications and propulsion systems for HSR. These recommended practices often refer to other Chapters in the MRE with further detail on the subject matter under consideration. Therefore, many AREMA Committees would likely become involved with HSR recommended practice development.*

| Adopted By AREMA Board of Governors, March 2010; [Updated November 2010](#)