Estimating Workforce Development Needs for High-Speed Rail in California

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It is critical to understand the emergent workforce characteristics for the California High-Speed Rail (HSR) network. Knowledge about the size and characteristics of this workforce, including its training and education needs, is required to guide the decision-making process toward suitable responses. This study first assesses the overall job creation associated with the California HSR network construction, scheduled to begin in September 2012. Then it provides a detailed forecast of its specific attributes, including the types of workers and their likely training and education needs. The report also identifies areas of training and education need associated with the advanced technologies required to build a HSR system, and it benchmarks the current capacity of the training and education system to meet this need.

> "Identifying, measuring, and quantifying the demands of the anticipated high-speed rail workforce, including its levels of training and education, will help decision makers respond appropriately to HSR-created need"

Study Methods

The most detailed and robust estimates of the necessary and available workforce for a HSR project are presented in this report, using a variation of a "bottom up" estimation technique. Rather than relying on gross, formulaic estimates of labor demand (i.e., "top down" measurement), this research essentially reverse-engineers labor estimates specific to the California HSR project. The report presents detailed estimates of direct personnel needed to complete the system, and it identifies specific levels of education and training that they are estimated to require.

Findings

Three major findings address the need to train and educate an emergent HSR workforce in California. First, California and the nation lag behind foreign competitors with respect to training and educating rail transportation professionals. An adequate system of rail education and training does not yet exist at either the state or the national level, especially in these areas that have been identified as HSR-related technologies. Second, there is an imminent need for many skilled and/or knowledgeable HSR personnel and professionals to help create HSR systems. Third, the report identifies detailed characteristics of the necessary quantity and likely levels of training and education for the California HSR workforce – as illustrated in Figure 1. The need for construction labor is urgent and preeminent, with lesser but significant needs for construction management and design engineering workforces throughout the life of the project. The need to train operations and maintenance workers is found to be less pressing, as the fully-operational cycle is not scheduled to begin until approximately 2021, and it requires a smaller continuous workforce.

Policy Recommendations

Findings from this report support the following recommendations:

- A response from labor organizations to help train a large workforce beginning as early as 2014.
- Creation of community college courses and programs to prepare to train and educate HSR workers.
- Creation of higher education courses and programs to address the education (and research) gaps identified in this report, focusing on engineering, business, and other advanced degree sectors.
- Further effort to identify the state's potential HSR-related education and training resources.

About the Authors

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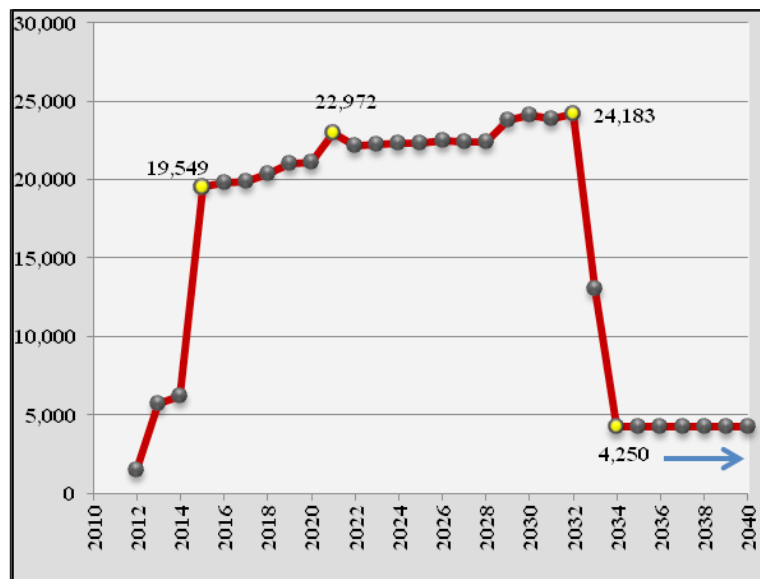

Figure 1: Estimated workforce size (in personnel years) of the California HSR system, 2012-2040.
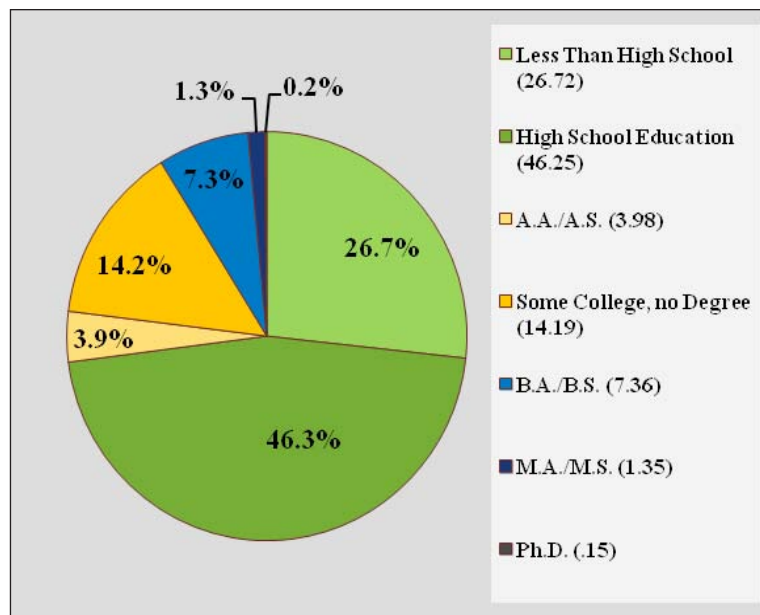

Figure 2: Likely education levels as a proportion of the entire HSR workforce 2012-2033

To Learn More

For more details about the study, download the full report at ***transweb.sjsu.edu/project/*1027*.html***