The design of pavements and bridges on the Interstate System largely followed the results of the American Association of State Highway Officials (AASHO) Road Test.

The test site in Ottawa, Illinois, was financed by the State highway agencies, the U.S. Bureau of Public Roads (BPR), the Department of Defense, the Automobile Manufacturers Association, the American Petroleum Institute, the American Institute of Steel Construction, foreign countries, and American materials and transportation associations. The Highway Research Board administered the project. Illinois was used Federal-aid highway funds to the extent of the normal cost of a four-lane divided highway, for the tangent (straight) portion of the track (which became part of I-80).

Construction began in August 1956 of 7 miles of two-lane pavements in the form of six loops and a tangent, half concrete, half asphalt. The 836 test sections employed a wide range of surface, base, and subbase thicknesses, and included 16 short-span bridges. Test traffic was inaugurated on October 15, 1958, with the DOD providing heavy vehicles and drivers. The AASHO Road Test ended November 30, 1960.

The test data established the relationships for pavement structural designs based on expected loadings over the life of a pavement. Although the bridge findings were consistent with predictions, the AASHO Road Test provided the foundation for analytical evaluation of stresses and deflections from moving vehicles.

The AASHO Road Test is a landmark in highway and bridge design that has never been equaled.