

NCHRP 15-38 : Structural design requirements for culvert joints.

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Dates: May 2009 to December 2011.

Objectives: The objective of this research is to develop structural design requirements for joints in flexible and rigid culverts to withstand variations in construction, support, and loading conditions. These requirements shall be suitable for consideration for adoption by the AASHTO Highway Subcommittee on Bridges and Structures.

Progress to date:

- A literature survey was completed
- A survey of US DOTs was conducted to investigate culvert usage, joint types, and joint performance. Input was received from 23 States and 1 Province.
- Field-testing in Ohio measured culvert response under vehicle.
- Laboratory loading experiments in the test pit at Queen`s has been completed on a reinforced concrete test pipe, a corrugated steel pipe, and a large diameter HDPE pipe.
- Three dimensional finite element analysis has been developed
- A joint design procedure has been drafted (to be completed during the 2nd phase of the project)
- The interim report was completed and submitted in March 2010.

