

Status of Research for MASH-approved Prefabricated Concrete Bridge Barrier Rail Systems

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Research Projects:

- Transportation Pooled-Fund Program project (*TPF-5(367), Evaluation and Full-Scale Testing of Concrete Prefabricated Bridge Rails*, <https://www.pooledfund.org/Details/Study/619>) – ongoing:

The objective of this research is to develop an approved prefabricated barrier rail system for use on accelerated bridge construction (ABC) projects. It uses preliminary work completed by the ABC-UTC project (identification of structurally feasible system - *Precast Concrete Bridge Barriers for Accelerated Bridge Construction*, ABC-UTC/ISU Final Report, October 2018, <https://abc-utc.fiu.edu/wp-content/uploads/sites/52/2018/12/final-report.pdf>) and completes the evaluation protocol, including crash testing to insure compliance with current AASHTO LRFD Specifications and AASHTO MASH.

- Proposed NCHRP research project (*FY2021 NCHRP Problem Statement: Development of Prefabricated Concrete Barrier Systems for Accelerated Bridge Construction*) – pending approval:

The objective of this research is to identify and MASH crash-test three non-proprietary prefabricated concrete barriers that can be used on ABC projects. The barriers need to be crash worthy, easy to install, practical, durable, and be able to accommodate variations in geometry.

Status of Research:

- Work on developing a MASH-approved prefabricated barrier rail started a few years ago as an ABC-UTC research project (*Precast Concrete Bridge Barriers for Accelerated Bridge Construction*, ABC-UTC/ISU Final Report, October 2018, <https://abc-utc.fiu.edu/wp-content/uploads/sites/52/2018/12/final-report.pdf>). Researchers identified the shape and connection details, performed structural testing in the lab to confirm adequacy, and recommended that a pooled-fund project be created to do full crash testing.
- Several state DOTs and FHWA formed the ongoing Transportation Pooled-Fund Program project that is being led by Iowa DOT (*TPF-5(367), Evaluation and Full-Scale Testing of Concrete Prefabricated Bridge Rails*, <https://www.pooledfund.org/Details/Study/619>). It is anticipated that crash testing of the TL-4 single-slope barrier rail will be completed in Fall 2021 at the University of Nebraska in Lincoln, with the pooled-fund project anticipated to be completed by the end of 2021 or early in 2022.
- It is expected that additional shapes will be identified and tested as a part of an NCHRP project (*FY2021 NCHRP Problem Statement: Development of Prefabricated Concrete Barrier Systems for Accelerated Bridge Construction*). Pending final funding approval, work on this NCHRP project could start in 2022 and would take about two years to complete.