



Project Number

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Best Practices for Construction and Repair of Bridge Approaches and Departures

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Current Situation

Bridge approaches and departures are those areas where the end of a concrete bridge surface meets an asphalt pavement. Because of differences in the material properties and foundation types that support these two driving surfaces, the asphalt near the bridge is more susceptible to various kinds of distress, such as fatigue cracking and/or rutting, that can make the road rougher and less safe, requiring repeated maintenance and repair.

Research Objectives

University of South Florida researchers examined the underlying causes of distress on asphalt pavement at bridge approaches and departures to develop strategies and guidelines for rehabilitation.

Project Activities

The researchers divided the project into three tasks. First, they investigated the extent of the problem in Florida. Second, they looked for causes of the problem and the criteria that determine when rehabilitation is needed. Third, they developed guidelines for rehabilitation. Each task included a review of journal articles, technical reports, and manuals from various state DOTs.



The areas where an asphalt pavement approaches or departs a concrete bridge are susceptible to specific kinds of distress.

For the first task, the literature review was supplemented by interviews with Florida Department of Transportation (FDOT) personnel about current FDOT practices. Also, a questionnaire about bridge approach/departure pavement was sent to relevant personnel in all state DOTs. Responses were received from 33 DOTs. An analysis of Florida interstate highway bridge approach/departure pavement data for over 1,100 bridges was conducted using video log images and 2014 to 2015 pavement condition data. About 27% of bridge approaches on Florida interstate highways showed signs of cracking, and about 20% had noticeable rutting in their approach or departure pavements.

For the second task, a survey of the literature was supplemented by follow-up on the questionnaire from the first task. Common rehabilitation methods reported were crack sealing, patching, milling and overlay, and reconstruction. Few states had specific maintenance and rehabilitation strategies and guidelines for bridge approach/departure areas. The researchers drafted tentative criteria for rehabilitation of bridge approach/departure pavements.

In the third task, based on feedback received from the first two tasks, researchers proposed a procedure for identifying and comparing rehabilitation strategies for bridge approach/departure asphalt pavements. The procedure includes pavement condition survey and evaluation, identification of pavement distress causes, selection of rehabilitation techniques, formation of rehabilitation strategies, life-cycle cost analysis, and selection of rehabilitation strategy.

Project Benefits

A better understanding of asphalt pavement performance adjacent to concrete bridges, along with a procedure for selecting rehabilitation techniques and strategies, can help minimize the maintenance and repair frequency of bridge approaches and departures.

For more information, please see www.fdot.gov/research/.