

# Title: Evaluation of Concrete Bridge Mix Designs for Control of Cracking

SPR No: RSCH012-710

**Project Description:** The focus of this project is to examine a series of differing concrete mix designs in order to begin the process of selecting an optimum design for VTrans bare concrete bridge deck projects as well as other bridge projects. The desire is to lower the amount of cracking that is present on the bridge decks, possibly by using shrinkage control agents and/or by reducing the amount of cementitious material which would result in a reduction of needed mix water, based on the current water/cementitious ratios. Laboratory testing of this type is needed in order to provide a basis for support for using shrinkage reducing admixtures and/or adjusting current mix designs.

Mixes will fall within three groups. The first group will be the control group, consisting of batches of normal high performance concrete (HPC), classes A and B. The second group will make use of two different methods of shrinkage control within the control mixes, a shrinkage reducing admixture and a shrinkage compensating cementitious admixture. The third group will make use of an optimized gradation of aggregate and other various alterations.

Since January 2009, seven of the nine original mix design test batches have been produced, along with some additional mix design test batches that have been determined to be a valuable addition and comparison for the study. Associated shrinkage, compression strength, and modulus of rupture testing are progressing as necessary under the prescribed regimen.

**Start date:** January 2009

**End date:** January 2010

**Status:**  Active  Inactive  Completed

**Total Dollars:** \$20,000

**Index Terms:**  Administration  Bridges  Construction  Environment  
 Geotechnical  Maintenance  Materials  Pavements  Safety  Traffic  Transit

## Sponsor Organization

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**Subjects:** Bridges, high performance concrete, mix designs, shrinkage admixtures, cracking.

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