

FY 2009 RESEARCH PROBLEM STATEMENT

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TITLE

Increasing the Integrity and Performance of Culverts and Storm Drains by Rehabilitation and Retrofitting

PROBLEM (Description of need)

Highway infrastructure across Oregon is characterized by a considerable inventory of damaged and decaying culverts. In fact several culverts and storm drains have reached or exceeded their anticipated service life. A great deal of information has been developed on the durability of culverts and culvert inspection procedures nationwide. Despite the lot of work done by the private industry in this field, there is currently little or no generally available technical information in the highway research community that identifies the best recommended rehabilitation procedures for culverts at various conditions.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY

This research aims at developing recommended rehabilitation and retrofitting of pipes and culverts procedures and processes to utilize on distressed pipes or culverts. It is intended to perform a survey literature on the repair techniques, and materials and prepare an analysis of the associated problems identified and the state of the art processes and procedures currently in use for rehabilitation. A design criteria for the distress and failure mechanisms, including corrosion, abrasion, joint separation, and the side wall stress cracks and also buckling, is developed that justifies as the reasons for replacing or rehabilitating pipe/culvert.

BENEFITS

The current culvert infrastructure may be in worse shape than our bridges and roadways. Many of them are reaching the end of their initial projected service life. Therefore, it is urgent and imperative that the culverts/pipes be rehabilitated to continue to perform satisfactory. Otherwise the design flow capacity, the fish passage capability and embankment geotechnical integrity will be compromised.

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