

Virginia Center for Transportation Innovation & Research
Contract/Grant Progress Report

Project No: TPF-5(339)

Starting Date: <u>3/2/2016</u>	Target Completion Date: <u>3/31/2019</u>
Project Title: Contaminant Release from Storm Water Culvert Rehabilitation Technologies: Understanding Implications to the Environment and Long-Term Material Integrity	
Performing Agency: <u>Purdue University</u>	
Principal Investigator(s): <u>Andrew Whelton</u>	
Date of This Report: <u>January 29, 2018</u>	Next Report Due Date: <u>April 31, 2018</u>

Project Description:

Studies by a subset of DOTs have discovered that the installation of advanced polymeric materials such as spray-on coatings and cured-in-place lining (CIPP) processes can release toxic chemicals into the water conveyed by the culverts. Numerous additional anecdotal accounts from the U.S and other countries have been reported regarding adverse effects to the environment and wastewater facilities. DOTs lack information on the degree that chemical leaching affects polymeric material long-term structural performance. Recent studies have shown some of the chemicals released into the environment by culvert rehabilitation polymeric materials are product ingredients intended to promote material strength and durability.

Objectives:

The primary project objectives are to determine the following:

- (1) The scope of the problem across DOTs (i.e., the extent of use of these technologies and the scale of their impacts to water quality);
- (2) The effectiveness of existing construction specifications at minimizing contaminant release from rehabilitated culverts; and
- (3) The degree to which the structural integrity and longevity of rehabilitated culverts are compromised by chemical leaching.

Results of this project will enable DOTs to make informed decisions with regard to culvert rehabilitation selection and specification development.

The PI met with representatives from several of the partner states at TRB Conference in Washington, DC January 2018.

Task 1: The problem scope across DOTs (i.e., the extent of use of these technologies and the scale of their impacts to water quality)

- Task complete
- Results were presented to the six partner states
- Results were presented at the TRB conference in Washington, D.C. at a session and committee meeting
- Results are being finalized as part of a larger report

Task 2: The effectiveness of existing construction specifications at minimizing contaminant release from rehabilitated culverts

- Field work complete, analyses ongoing.
- Preliminary results were presented to the six partner states

Task 3: The degree to which the structural integrity and longevity of rehabilitated culverts are compromised by chemical leaching

- Field work complete, analysis ongoing
- Developing methods for characterizing CIPPs removed from the field

Problems Encountered:

None

Anticipated work:

Task 1: The problem scope across DOTs (i.e., the extent of use of these technologies and the scale of their impacts to water quality)

- None, task complete

Task 2: The effectiveness of existing construction specifications at minimizing contaminant release from rehabilitated culverts

- Interpret results for sites monitored, prepare report
- Conduct bench-scale experiments

Task 3: The degree to which the structural integrity and longevity of rehabilitated culverts are compromised by chemical leaching

- Interpret results for sites investigated, prepare report
- Conduct bench-scale experiments

Project Budget Status:

Current FY Project Budget: \$242,000

Project Budget Lifetime: \$630,000

Current FY Expenditures: \$19,501.92 as of 12/5/17

Expenditures LTD: \$177,220.60

Percent Expended this FY: 6.2% as of 12/5/17

Percent Expended LTD: 28%

Timetable: Project is (check):

- On Schedule
- Behind Schedule, Will Meet Target Date
- Behind Schedule, Target Date Extension Needed (Attach Justification and Revised Timetable)
- Ahead of Schedule

Preparer's Name : Andrew Whelton

Date: January 29, 2018

Signature: 

VCTIR Staff Technical Monitor Name: _____

Date: _____

Signature: _____

VCTIR Associate Director Review & Approval: _____

Date: _____

Signature: _____

VCTIR Director Comments: