

# 2016 UDOT RESEARCH PROBLEM STATEMENT

\*\*\* Problem statement deadline is March 14, 2016. Submit statements to Tom Hales at [tahales@utah.gov](mailto:tahales@utah.gov). \*\*\*

**Title:** Cold In Place Recycle Emulsion Qualification with the Forced Cone Penetration Test **No. (office use):** 16.01.02

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**UDOT Champion (suggested):** Howard Anderson, Scott Andrus

**Select One Subject Area**

Materials/Pavements

Maintenance

Traffic Mgmt/Safety

Preconstruction

Planning

Public Transportation

## 1. Describe the problem to be addressed.

UDOT is working on refining a test to discriminate between engineered solventless emulsions suitable for use in cold asphalt recycling and emulsions not suitable for use. The force cone penetration test has been developed and ruggedized on a single emulsion and is now ready for testing multiple emulsions. Since beginning this process, UDOT has been operating on an approved products system under a sole source permission letter issued by FHWA. The permissions granted under this letter are expiring and an alternate system must be implemented. Much effort has gone into determining that the test provides the critical performance information in a repeatable manner.

## 2. Explain why this research is important.

Cold Asphalt Recycling has proven to be a cost effective method of rehabilitating pavements in both class one and class two roadways. Selecting the proper products to perform recycling has been challenging. The forced cone penetration test was developed to aid in this process. Final testing to demonstrate product sorting is necessary to implement the program.

## 3. List the research objective(s):

1. Demonstrate product sorting with the forced cone penetration test.
2. Set specification thresholds for the test.

## 4. List the major tasks:

1. Collect solventless emulsion samples from three asphalt emulsion suppliers including CSS, CQS, EE, CMS.
2. Test each of these emulsions using the forced cone penetration test protocol.
3. Graph and evaluate the test results.
4. Prepare a paper reporting the results with a recommendation.

## 5. List the expected results:

1. The test will discriminate between the setting and curing behavior of these emulsions.
2. It is expected that by measuring this characteristic, UDOT will be able to replace the approved products procedure.

## 6. Describe how this research will be implemented.

Information from this study will be used to help set minimum emulsion standards and to replace the approved products method.

**7. Requested from UDOT:** \$30,000  
(or UTA for Public Transportation)

**Other/Matching Funds:** \$

**Total Cost:** \$30,000

**8. Outline the proposed schedule, including start and major event dates.**

Project to begin when funding is available. Historically this is March 2017.

Samples are taken during the 2017 paving season beginning June 1, 2017 and ending August 30, 2017.

Testing of samples to begin July 1, 2017 and end September 30, 2017

Paper to begin October 1, 2017 and end December 30, 2017