### RESEARCH PROBLEM STATEMENT

<table>
<thead>
<tr>
<th>DATE:</th>
<th>PROJECT AREA: Materials</th>
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<td><strong>TITLE:</strong> Conducting Water Quality Testing for Highway Construction Specifications</td>
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**PROBLEM STATEMENT:**
Water is an important component of highway materials for pavement mix designs, pavement deicing and snow removal, and watering for vegetation. AHTD currently utilizes a suspended AASHTO specification for water testing (T 26), nor clearly states testing requirements for physical properties of water. According to the Portland Concrete Association, a typical water analyses will show chloride ppm’s in the range of 1-300. AHTD specification allows up to 1000 ppm of chlorides where other neighboring DOT’s, utilizing ASTM D 512, allows a maximum 250 ppm of Chloride Ions and a maximum of 1000 ppm of Total Solids Content (Residue). Other DOT’s address Sulfate Ion content (ASTM D516), where AHTD does not address this at all. Another water concern is highway storm water runoff onto surface and ground water. Conducted research by FHWA, EPA, DOT’s, and other state agencies have determined that untreated storm water runoff from highways is a major contributor of pollution to storm water and can adversely affect a receiving water body.

**OBJECTIVES:**
1. Complete a literature review of other DOT’s testing acceptance and procedures for water properties.
2. Collect and analyze water samples from batch plant sights utilizing ASTM specifications D 512 and D 516.
3. Collect and analyze water samples from several storm events to quantify pollutants contained in highway storm water runoff.
4. Collect and analyze soil samples to determine if the Chloride Ion content could be impacting the environment, utilizing Colorado DOT Laboratory Procedure (2104-13) as guidance.

**FORM OF RESEARCH IMPLEMENTATION:**
Provide a draft revision of the current AHTD water specification as a material property component. Review and revise current practices concerning water specifications, water runoff diversion, and water testing. Develop new practices concerning water specifications, water runoff diversion, and water testing.

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Standing Subcommittee Ranking: 2/5  
Advisory Council Ranking: 19  
Statement Combined with Statement Number(s):  

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