**Project Title:** Methodology for Salt Brine Use in a Winter Services Strategic Plan

**PennDOT Technical Advisor:** William Davenport  
**Project Duration:** Dec 2012 – Dec 2014

**Project Purposes:**

Project purposes are to:
- Develop a methodology for the manufacture and storage of quality salt brine.
- Develop a methodology for the application of salt brine in anti-icing and pre-wetting operations.
- Improve winter services by raising standards for level of service, reducing operating costs, and mitigating deicer impact such as corrosion of equipment, facilities, bridges, pavements, etc., and the potential stress to the environment created by salt-based products.

In support of PennDOT’s Strategic Goals:
- Leverage resources to maximize effectiveness
- Continually increase efficiency
- Promote continuous improvement and innovation
- Provide timely, quality service for our customers

**Anticipated Outcomes:**

Anticipated project outcomes include:
- Written guidelines for salt brine handling regarding manufacturing, storing, and applying.
- Recommendations on materials currently in use, as well as proposed alternatives, including but not limited to calcium chloride, organic solids, and agricultural-based products.

**Implementation Plan:**

*Presentation:* The research team will prepare and present a PowerPoint presentation that summarizes the results of this project.

*Update Publication 23, Chapter 4:* PennDOT will update the Winter Services chapter (Chapter 4) of Publication 23: *Maintenance Manual,* via the clearance transmittal process.

*Anti-icing Pre-wetting Guidebook:* This will include: identification of the additives/materials that should be mixed, including the percent/ratio of the mix into the salt brine for optimum performance for anti-icing and pre-wetting applications.

**Research Partner:** Pennoni Associates, Inc.  
**Principal Investigator:** Cory Greene  
**Project Cost:** $199,340.77