

VI. IMPLEMENTATION PLAN

The Iowa DOT's objective for this project was to develop a practical and sustainable approach to increasing pavement performance by ensuring that pavement design inputs are achieved during project construction. This is a significant undertaking and not only impacts pavement design procedures but involves modernizing construction practices and specifications on all grading and paving projects on a statewide basis. Field results from the AID project confirmed that current construction specifications and pavement design procedures do not reliably achieve the intended results and are a leading cause of ongoing pavement performance problems. A detailed work plan was developed as part of the project to chart a path to full implementation of Pavement Foundation Design Modulus Verification and Construction Quality Monitoring. The intent of this plan is to achieve the DOT's objective of significantly improving pavement performance by implementing new workflow processes for the design and construction of pavement foundation layers, modernizing construction specifications, and providing as-constructed engineering data in an E-construction platform that efficiently and effectively supports engineering decisions.

Summary of Implementation Plan Objectives

- Engage stakeholders to obtain collaborative feedback and oversight of successful implementation.
- Keep Iowa DOT leadership at the district and central offices fully apprised of implementation progress and obtain policy direction.
- Develop new workflow processes for pavement design and project construction that will ensure that design objectives are achieved.
- Develop training and educational products to support agency and contractor personnel.
- Minimize risk to contractors and agency by developing an implementation schedule that will build incrementally each year and enable broad agency and contractor experience over the implementation period.
- Initially begin with project specific special provisions so timely refinement can be made as needed over the implementation period with the final outcome of standard specifications at the end of the implementation period.
- Identify other DOTs that would have interest in being technology partners to share best practices and provide synergy for advancing national practice for pavement foundation construction.

Detailed Implementation Plan

Guided by the implementation plan objectives, a 5-year plan was developed. Planned accomplishments are detailed by year.

2021 (Year 1)

- Build two pilot projects identified during the AID project, utilizing the contract special provisions for modulus mapping.
 - Boone County: STP-017-2(23)—2C-08
 - January 20, 2021 letting (Awarded to Moyna Construction Company)
 - SP-150719 “Modulus Verification Using Roller Mapping of Pavement Foundation Layers”.
 - Provide instrumentation package and installation for contractor’s roller.
 - Blackhawk County: NHSX-20-6(72)—3H-07
 - February 16, 2021 letting
 - SP-150728 “Modulus Verification Using Roller Mapping of Pavement Foundation Layers”
 - Provide instrumentation package and installation for contractor’s roller.
- Develop Operator and Engineer training programs for the pilot projects and incorporate the training into current web-based training classes.
- Host open houses on the pilot projects for DOT and Iowa local agencies interested in learning about the technologies and E-construction platform.
- Obtain modulus maps of selected 2021 grading projects to support the pavement and foundation designs. Incorporate planned foundation treatments into the projects prior to 2022 letting.
- Develop workflow processes to support project design and construction using modulus mapping results.
- Begin collaboration opportunities with other DOTs by joining FHWA Solicitation 1542 “Demonstration to Advance New Pavement Technologies“ (Planned for the July 1, 2021 [FY 2022] SPR Program)
- Develop a similar deployment plan to address county needs.
- Develop the Special Provisions needed to support future projects.
- Continue to engage with the technical working group (TWG) on a twice a year frequency.
- Develop LCCA models reflecting improved pavement foundation layers.
- Develop technical materials on how implementation of modulus-based requirements supports national performance measure goals.
- Provide executive DOT leadership with briefing on implementation activities.
- Contract for the needed supplemental engineering support to accomplish year 1 objectives and position the DOT for following year activities.

2022 (Year 2)

- Implement modulus-based requirement on 4 additional DOT projects and 3-4 County projects.

- Evaluate the performance of the foundation treatments built at the Boone County Expo site in 2012 for understanding the relative stability, cost, and performance of various subgrade treatment options.
- Pilot modulus mapping technology using a padfoot compactor and evaluate moisture monitoring technology.
- Continued engagement with the TWG.

2023 (Year 3)

- Implement modulus-based requirement on ~10 additional DOT projects and 6-8 County projects.
- Continued engagement with the TWG.

2024 (Year 4)

- Implement modulus-based requirement on 20 additional DOT projects and 12-16 County projects.
- Continued engagement with the TWG.

2025 (Year 5)

- Full implementation as a standard specification.