

JOINT TRANSPORTATION RESEARCH PROGRAM

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Central HMA Acceptance Lab Process Improvement Project

Introduction

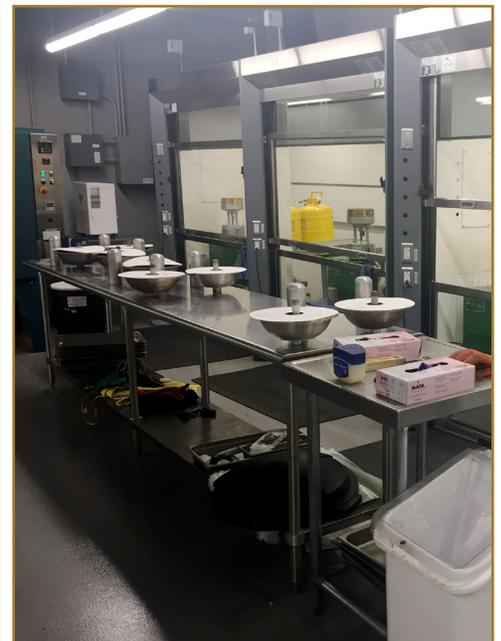
The Indiana Department of Transportation (INDOT) Central Hot Mix Asphalt (HMA) Acceptance Lab was opened on March 29, 2018, at the Office of Materials Management (OMM) facility in Indianapolis. This state-of-the-art lab conducts acceptance testing on HMA samples from INDOT's Crawfordsville and Greenfield districts, as well as testing of appeals samples from the other four INDOT districts. Each HMA sample undergoes multiple sequences acceptance testing processes. The goal of this project was to improve organization, flow of work, and efficiency in the central region HMA Acceptance Lab for all tests done, with implementation leading to reduction of turnaround time from 6 days to 4 days.

Findings

Four fundamental issues inhibit the performance of the HMA Acceptance Lab Turnaround Time.

1. Lack of structured sample scheduling system, based on capacity.
2. Lack of capacity to meet peak demand.
3. Lack of focus on maximizing throughput at the bottleneck Extraction operation.
4. Not reporting results on the day the testing is completed.

While numerous actions have been recommended, and some piloted, those with the highest impact will be those that address these four fundamental issues.



The Future State Value Stream Map developed in this project has a *designed* average turnaround time of 2.25 days (reduced from 3.25 days). Implementing all of the identified action plans for the Future State VSM should provide the controls to be able to consistently perform at the designed state.

Implementation

Continuous improvement concepts and tools were used as the fundamental methodology for this project. The overall approach was to identify a Current State of the HMA Lab process, analyze the Current State to identify opportunities for improvement, and then develop a desired Future State and associated recommendations for actions to move toward the Future State.

Working with INDOT employees who work in the HMA Lab, a Current State process flow diagram was developed using a process called Value Stream Mapping (VSM). Lean Manufacturing concepts were then used to identify opportunities for improvement. The HMA Lab's actual testing protocols are required to adhere to strict standards/guidelines, so the actual testing methodologies were not within the scope for improvement.

The focus was to identify improvements to the overall operational flow of the samples through the testing sequences, treating it as a manufacturing process flow.

The Current State VSM was analyzed extensively, yielding numerous opportunities for improvement, including those listed above. Recommended actions were developed, and select key actions were implemented on a pilot basis. Prototype Excel models were developed to enable the analysis and pilot implementation, thus simulating the desired outcomes in the Future State VSM.

Recommended Citation for Report

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