**EXPERIMENTAL FEATURE WORK PLAN**

**FOR**

**ILLINOIS FLEXIBILITY INDEX TEST**

|  |  |  |
| --- | --- | --- |
| CONTRACT: |  | |
| ROUTE: |  | |
| SECTION: |  | |
| PROJECT: |  | |
| COUNTY: |  | |
| LOCATION: |  | |
| DISTRICT/ LOCAL AGENCY CONTACT: | NAME: |  |
| TITLE: |  |
| PHONE: |  |
| CENTRAL BUREAU OF MATERIALS CONTACT: | NAME: | Joseph Vespa |
| TITLE: | Engineer of Technical and Product Studies |
| PHONE: | 217-782-3479 |

**DESCRIPTION:** The proposed experimental feature is evaluating hot-mix asphalt (HMA) mixtures for mix design and production using the Illinois Flexibility Index Test (I-FIT) and other performance tests. The project will be bid on the \_*(MONTH DD, YYYY)*\_\_ letting and constructed *\_\_(TIME OF YEAR)*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The plans and Special Provisions for Hot-Mix Asphalt - Mixture Design Verification and Production (Modified for Pilot Projects Only) and Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS) (Modified for Pilot Projects Only) are attached to this Work Plan.

**OBJECTIVES OF THE EXPERIMENT:** The objective of this experiment is to validate the I-FIT performance specification will ensure HMA mixtures are flexible enough to prevent premature cracking while still passing the Hamburg Wheel Test to ensure resistance to permanent deformation.

**REFERENCES TO SPECIFIC RESEARCH:**

1. R27-128, FHWA-ICT-15-017, Testing Protocols to Ensure Performance of High Ashpalt Binder Replacement Mixes Using RAP and RAS, December 11, 2015.
2. R27-161, interim report.

**PLAN OF THE STUDY:** The above named district/local agency contact person is responsible for furnishing the Central Bureau of Materials contact person with information required for construction monitoring and annual reporting purposes.

Mix Design Development – The contractor shall develop an approved HMA mix design for the contract. In addition to other required mixture design tests, gyratory compactor samples shall be prepared by the contractor and submitted to the District laboratory for testing and approval. The district/local agency contact shall coordinate delivery of the samples.

Pre-Construction Documentation – The Central Bureau of Materials will conduct a manual/automated Pavement Distress Survey (PDS) of the project to document the existing distresses in the pavement prior to construction. The district/local agency will gather cross-section information on the project including: original pavement design, construction history, maintenance history, and other necessary information.

Construction Documentation – The following items will be collected by the district/local agency during construction of the treatment and included in either an interim construction report or the final report prepared by the Central Bureau of Materials with assistance from the district/local agency: plant type, plant temperatures, stockpile moisture content, silo storage time, haul time, number/type of rollers, weather conditions at time of paving, and mix design summary sheet for each HMA mix included in the contract.

Initial Testing – The following sampling and testing will be conducted on the project.

* Production Sampling and Testing – The district/local agency will sample HMA mix during laydown according to the quantities listed in the special provision. In addition to other required mixture tests, production samples shall be obtained from the test strip area according to the special provision and submitted to the District laboratory for testing and approval. The district/local agency contact shall coordinate delivery of the samples. The compliance testing will include I-FIT and Hamburg Wheel.
* Cores 150 mm in diameter from lifts greater than or equal to 1 inch in thickness will be collected by the contractor, as directed by the department. These cores shall be taken from the test strip area adjacent to the mixture sampling area above for testing in I-FIT. For lifts less than 4 inches in thickness, two cores will be required; otherwise, one core will be required.

Long-Term Performance Monitoring

* The project will be monitored by the Central Bureau of Materials through CRS data collection or PDS to monitor cracking, raveling, and other distresses. The district/local agency will provide any additional performance information (i.e. performance issues noticed by maintenance yards) to the Central Bureau of Materials for inclusion in condition monitoring summaries.
* The district/local agency will take 150-mm diameter cores annually from the same locations (for lifts greater than or equal to 1 inch in thickness) where construction cores were taken and submit them to the Central Bureau of Materials or other department laboratory. These cores will be evaluated with the I-FIT to determine aging characteristics of the mix.

Evaluation – Evaluations will be based on initial construction experience and test results, annual comparison of pavement condition, and post construction testing. These results will be used to determine the performance of the HMA mixture with regard to permanent deformation and premature cracking.

**METHODS OR MEANS OF CONSTRUCTION:** The HMA mixture will be constructed according to the Standard Specifications for Road and Bridge Construction and attached special provisions.

**ESTIMATED ADDITIONAL COST:** The district/local agency will gather cost data from the contract to determine if any additional costs are encountered to meet the mix verification requirements.

**CONTROL SECTION:** There is no control section.

**ESTIMATED TIME OR DURATION OF THE STUDY:** The experimental feature will continue for five years. Ongoing evaluation of performance, maintenance, cost, and durability will guide IDOT’s interim decisions with respect to shortening or extending the length of study to evaluate the benefits of mixture verification using I-FIT.

**REPORTING:** The district/local agency will submit annual reports (Form 1461) to the Central Bureau of Materials for monitoring purposes. The Central Bureau of Materials will be responsible for determining the duration of the study based on annual reports, what reports (construction, interim, etc.) will require assistance from the district/local agency, and acceptance or rejection of using I-FIT for mixture verification, as well as preparing the final report.