

401xxx - Hot Mix Asphalt Wearing Surface Rideability

Description

This specification describes the equipment, procedures, standards, and reporting requirements set forth for longitudinal pavement surface rideability measurements. The International Roughness Index (IRI) shall be used to determine roadway profile in conjunction with other evaluators to determine the final quality of the Hot Mix Asphalt surface characteristics. This specification contains details as to which test type (A or B) is applicable for each project and the applicable pay factors for various classes of projects.

Equipment Requirements:

Ten-Foot Straightedge. Shall be approved by the Engineer.

Inertial Profiling System: Either a high speed or lightweight profiling system meeting the requirements of AASHTO MP 11-03, certified by an accredited testing agency, and approved by the Engineer to provide accurate, repeatable test results. Equipment must meet the standards set forth for an ASTM E950 Class 2 profiler.

Test Descriptions:

Surface Test Type A – measurement of surface profile deviations using a 10' straightedge

Surface Test Type B – measurement of the surface profile index (IRI) using an inertial profiling system.

Project Class Description

Class 1 - A project is considered a Class 1 project if the Hot Mix Asphalt surface placed is the final lift of a full depth construction project. Full depth construction is considered to be a Hot Mix Asphalt wearing surface placed on an asphalt treated base / binder course on an aggregate base structure.

Class 2 – A project is considered to be a Class 2 project if the Hot Mix Asphalt surface placed is the final lift of material placed on a rehabilitation project containing 3 separate operations. An action that is considered a separate operation includes roadway milling, roadway patching, and placement of a lift of Hot Mix Asphalt. A lift of HMA may be either a full depth lift of material or a wedge/levelling course placed. The final wearing surface lift of asphalt placed is included as one of the 3 operations.

Class 3 – A project is considered to be a Class 3 project if the Hot Mix Asphalt surface placed is the final lift of material placed on a rehabilitation project containing 2 separate operations. An action that is considered a separate operation includes roadway milling, roadway patching, and placement of a lift of Hot Mix Asphalt. A lift of HMA may be either a full depth lift of material or a wedge/levelling course placed. The final wearing surface lift of asphalt placed is included as one of the 2 operations.

Class 4 – A project is considered to be a Class 4 project if the Hot Mix Asphalt surface placed is the only operation performed on a rehabilitation project.

Construction / Test Methods

Testing procedures and data reporting shall follow DeIDOT Test Method XX. Testing shall be performed within 24 hours of the completion of the paving. Methods used to perform Quality Control during construction are at the Contractor's discretion but final acceptance and payment will be based on testing performed in accordance to DeIDOT Test Method XX. Final payments and acceptance are dependent upon the Project Class.

An IRI number in inches per mile shall be established for each 0.1-mile (528 foot) section for each travel lane of the surface course. Areas not subject to IRI testing include:

1. 50 feet before the first bridge deck expansion joint to 50 feet after the last expansion joint if the bridge deck is excluded from the HMA overlay.
2. 50 feet from the newly placed transverse joint
3. 20 feet longitudinally from the center of an existing obstruction located and visible in the pavement surface such as a manhole or water main.
4. Shoulders

All areas, whether subject to IRI testing or not, must meet testing requirements as established for Test Method A (ten foot straight edge). Variations of newly paved surfaces shall not exceed 1/8" within ten feet. Humps and depressions found to exceed these tolerances shall be corrected at no expense to the Department or have a penalty of \$500 per deviation assessed at the direction of the Engineer.

Initial project testing.

The original surface for Class 3 and Class 4 projects shall be tested at no cost to the Department prior to performance of any pavement operation. Testing shall follow procedures outlined in DeIDOT Test Method XX, and results shall be provided to the Engineer within 24 hours of test completion. Class 1 and Class 2 projects do not require initial testing.

Acceptance

An IRI number in inches per mile will be used for each 0.1 mile (528 foot) as the basis for acceptance and payment of the surface courses designated by each contract. Payment adjustments will be based on pavement unit price for tested areas in that location prior to bonus / penalty calculations resulting from other specifications.

Table 1

IRI per 0.1 mile Section (inches Per Mile)	Payment Adjustments	
	Class 1	Class 2
40.0 and under		
40.1 – 55.0		
55.1 – 70.0		
70.1 – 80.0		

80.1 – 90.0		
> 90.1		

Class 4 projects will be paid based on the percent improvement from the initial profile traces taken prior to any work action.

Table 2

Percent Improvement from Initial test	Payment Adjustments	
	Class 3	Class 4
75 – 100%		
50 – 74.9%		
40 – 49.9%		
30 – 39.9%		
20 – 29.9%		
0 – 19.9%		

Method of Measurement

Basis of Payment