

North Carolina DOT

1. Briefly summarize your current pavement smoothness requirements.

Asphalt Pavements:

The Hearne 10' Mobile Straightedge is utilized on specified final surfaces as called for and for all other asphalt pavements utilize the 10 Non Mobile Straightedge.

When using the Hearne 10' Mobile Straightedge the following applies:

Upon completion of each day's testing, evaluate the graph, calculate the Cumulative Straightedge Index (CSI), and determine which lots, if any, require corrective action. Document the evaluation of each lot on a QA/QC-7 form. Submit the graphs along with the completed QA/QC-7 forms to the Engineer, within 24 hours after profiles are completed, for verification of the results. The Engineer will furnish results of their acceptance evaluation to the Contractor within 48 hours of receiving the graphs. In the event of discrepancies, the Engineer's evaluation of the graphs will prevail for acceptance purposes. The Engineer will retain all graphs and forms.

Use blanking bands of 0.2 inches, 0.3 inches, and 0.4 inches (5 mm, 7.5 mm, and 10 mm) to evaluate the graph for acceptance. The 0.2 inch and 0.3 inch (5 mm and 7.5 mm) blanking bands are used to determine the Straightedge Index (SEI), which is a number that indicates the deviations that exceed each of the 0.2 inch and 0.3 inch (5 mm and 7.5 mm) bands within a 100 ft (30 m) test section. The Cumulative Straightedge Index (CSI) is a number representing the total of the SEIs for one lot, which consist of not more than 25 consecutive test sections. In addition, the 0.4 inch (10 mm) blanking band is used to further evaluate deviations on an individual basis. The Cumulative Straightedge Index (CSI) will be determined by the Engineer in accordance with the current procedure titled "North Carolina Hearne Straightedge - Calibration and Determination of Cumulative Straightedge Index".

The pavement will be accepted for surface smoothness on a lot by lot basis. A test section represents pavement one travel lane wide not more than 100 ft (30 m) in length. A lot will consist of 25 consecutive test sections, except that separate lots will be established for each travel lane, unless otherwise approved by the Engineer. In addition, full width acceleration or deceleration lanes, ramps, turn lanes, and collector lanes, will be evaluated as separate lots.

The pay adjustment schedule for the Cumulative Straightedge Index test results per lot is as follows:

Pay Adjustment Schedule for Cumulative Straightedge Index (CSI) (Obtained by adding SE Index of up to 25 consecutive 100 foot test sections)				
*CSI	ACCEPTANCE CATEGORY	CORRECTIVE ACTION	PAY ADJUSTMENT	
			Before Corrective	After Corrective Action
0-0	Acceptable	None	\$300 incentive	None
1-0 or 2-0	Acceptable	None	\$100 incentive	None
3-0 or 4-0	Acceptable	None	No Adjustment	No Adjustment
1-1, 2-1, 5-0 or 6-0	Acceptable	Allowed	\$300 disincentive	\$300 disincentive
3-1, 4-1, 5-1 or 6-1	Acceptable	Allowed	\$600 disincentive	\$600 disincentive
Any other Number	Unacceptable	Required	Per CSI after Correction(s) (not to exceed 100% Pay)	

***Either Before or After Corrective Actions**

When Using a Non-Mobile straightedge the following applies:

Article 610-12 of the Specifications requires that any location on the pavement selected by the Department and all joints be checked using a 10 foot non-mobile straightedge and that the variation of the surface from the straightedge shall not exceed 1/8 inch between any two contact points. This requirement applies to all layers of mix not just the final surface. The 10-foot straightedge is furnished by the Contractor and must be used by both the Contractor and the DOT technician to assure that the surface at joints and all other pavement surfaces meet this requirement. The paving operation should not begin until this 10 foot straightedge is on hand at the paving site.

Portland Cement Concrete Pavements:

Perform acceptance testing of the longitudinal profile of the finished pavement surface in the presence of the Engineer. Furnish and operate a Rainhart Profilograph (Model No. 860) to determine and record the longitudinal profile on a continuous graph (profilogram) for acceptance testing of the pavement.

Construct the concrete so that the completed concrete pavement surface has a profile index (PI) along any line tested not exceeding 25 inch per mile, as determined with a 0.00 inch blanking band, over any 600 foot section of pavement. Individual deviations shall not exceed 0.3" over any 25 foot length of the line tested. Correct areas found to exceed this tolerance by grinding and texturing or by using other approved corrective measures that produce smooth and skid resistant surfaces. Verify corrective measures have obtained the smoothness requirements.

2. Do the requirements apply to both PCC and HMA?

As you can tell from question 1 there are different requirements for both types of pavements.

3. Are you considering changes in the future? (Next 2 to 3 years)

We have been experimenting with Inertial Profilers and if all experimentation does well we will be changing to testing which is faster and safer in the next few years.

4. If yes, what indices are you considering using?

We are examining IRI as a possible ride specification prospect for both kinds of pavements.