CITY OF CHICAGO
DEPARTMENT OF TRANSPORTATION
QUALITY ASSURANCE

POLICY MEMORANDUM

Effective Date: **April 1, 2009**	Policy Memorandum Number: **09-01.0**
This Policy Memorandum does not supersede any other policy memorandums	

TO: CONSTRUCTION RESIDENT ENGINEERS, CONSULTANT CONSTRUCTION ENGINEERS, HOT MIX ASPHALT SUPPLIERS, AND CONTRACTORS

SUBJECT: GROWTH CURVE METHOD FOR DETERMINING FIELD DENSITY ON HOT MIX ASPHALT IL-4.75 MIXTURES

1.0 SCOPE

1.1 To provide an alternate method of determining field density that does not require the use of a correlated thin lift nuclear gauge or the cutting and processing of pavement cores.

2.0 GENERAL

2.1 This policy memorandum is written in the context of a QC/QA project. If a project is Non-QC/QA all references made to QC shall be interpreted as CDOT QA. References to CDOT QA will continue to mean CDOT QA where applicable. Whether the contract is QC/QA or Non-QC/QA the Contractor shall maintain the right to request the use of this procedure. On Non-QC/QA projects CDOT QA maintains the final authority in deciding whether or not this procedure will be used in which case the Contractor's concurrence is not necessary.

3.0 PURPOSE

3.1 The current version of the special provision developed by the Illinois Department of Transportation, Hot-Mix Asphalt Mixture IL-4.75, details two methods for determining the in-place field density values. The two methods for determining field density include pavement coring or the use of a correlated thin lift nuclear gauge. This policy will allow the Contractor to choose an alternative method that will utilize a standard uncorrelated nuclear gauge to generate results based on a peak value from an approved growth curve.

4.0 PROCEDURE

4.1 This procedure requires the use of a standard nuclear gauge that has been calibrated within the last year using a five block standard calibration process.

4.2 The standard reference counts for the nuclear gauge shall be performed daily and determined to be within the acceptable limits per the requirements set forth by the Illinois Department of Transportation in the current version of the Manual

of Test Procedures for Materials. All density tests performed shall be at least one minute in length.

4.3 Within the first 100 tons of mixture placement, but not prior to at least 50 tons of mixture being placed, an acceptable growth curve shall be conducted resulting in a clearly defined peak density value. The location of the growth curve and the gauge test site within that location shall be approved by CDOT QA. The growth curve results shall be reviewed and approved by CDOT QA prior to continuing. If the growth curve is not approved a second growth curve shall be conducted. If a second growth curve is conducted and not approved, mixture production and placement shall cease until proper corrective actions that meet the satisfaction of CDOT QA can be implemented.

4.4 Once a growth curve has been approved the peak value shall become the target density for the mixture throughout the entire day unless a mixture or paving equipment change occurs. If a mixture or paving equipment change occurs the location at which the change becomes effective shall be the start of determining a new growth curve according to the procedure detailed in Section 4.3.

4.5 A rolling pattern based on the approved growth curve shall be determined by the Contractor and accepted by CDOT QA.

4.6 The frequency of testing and test site locations shall be determined according to the project documents and referenced specifications.

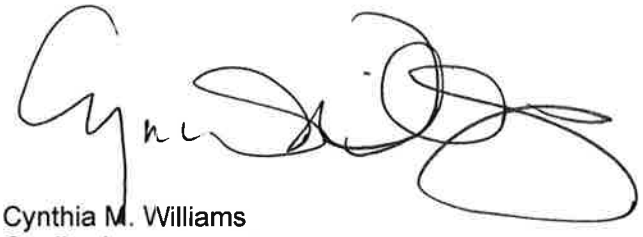
5.0 APPROVAL

5.1 Using the peak value from the approved growth curve each test within a test location shall achieve an uncorrelated test result of 97% to 103% of the approved growth curve peak value. The average density of each test location shall be 97.0% to 103.0% of the approved growth curve peak value.

5.2 Failure to meet the required density may result in reduced payments or require removal and replacement by the Contractor at their own cost. Any corrective actions or payment penalties will be determined by the Commissioner.

5.3 If any test location fails to meet the required density through the application of this procedure the Contractor has the option to cut, at those failed locations, pavement cores for standard laboratory testing. Each failed location will require three cores spaced evenly across the mat. If this option is utilized the Contractor shall also be responsible for cutting QA split cores as determined by CDOT QA.

5.4 Each core tested shall achieve a density of 93.0% to 97.4%. If either the QC or QA cores fail additional corrective actions or payment penalties shall be determined by the Commissioner.



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