Memorandum

U.S. Department
of Transportation

**Federal Highway
Administration**

6300 Georgetown Pike
McLean, Virginia 22101

Subject: **ACTION**: LTPP Directive M-25
Transmittal of LTPP Protocol P72

Date: May 3, 2016

From: Jack Springer
Long Term Pavement Performance Team

Reply to
Attn of: HRDI-30

To: Mr. Gabe Cimini, PM - LTPP North Atlantic Regional Contract
Mr. Gabe Cimini, PM - LTPP North Central Regional Contract
Mr. James Sassin, PM - LTPP Southern Regional Contract
Mr. Kevin Senn, PM - LTPP Western Regional Contract

Attached is Long Term Pavement Performance (LTPP) Program Directive M-25: Transmittal of LTPP Protocol P72. Please ensure that all personnel involved with the process are aware of this new directive.

Should you have any questions concerning this directive, please do not hesitate to contact me on (202) 493-3144 or jack.springer@fhwa.dot.gov.

Attachment

FHWA:HRDI-30:JSpringer:jharris:493-3144:05/03/16
File: M:\LTPP Directives\M-25.docx
cc:
Jonathon Groeger (TSSC)
Jane Jiang
Directive Binder
Official File

LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE

For the Technical Direction of the LTPP Program

Program Area:	Materials	Directive Number:	M-25
Date:	June 16, 2006	Supersedes:	
Subject:	Transmittal of LTPP Protocol P72		

This directive issues protocol P-72, Standard Test Method for Use of the Dynamic Cone Penetrometer in Shallow Pavement Applications. The procedures and data forms included in this protocol shall be used for performing these tests on LTPP test sections.

Prepared by: TSSC

Approved by:

Aramis López, Jr.
Team Leader, LTPP Operations

LTPP PROTOCOL: P72
For LTPP Test Designation: UG14, SS14
Standard Test Method for Use of the Dynamic Cone Penetrometer in Shallow Pavement Applications

This LTPP Protocol covers the procedures to assess *in situ* strength of undisturbed soil and/or compacted material using the Dynamic Cone Penetrometer with an 8 kg hammer. The test shall be carried out in accordance with ASTM D6951-03 as modified by the following. The sections of the reference standard included in this protocol without modifications shall be strictly followed. All other sections of this protocol shall be followed as herein written.

8. Report

8.1 LTPP Region, State, State Code, Test Section Number (SHRP_ID), Field set number, Sample/Test Location (LOC_NO), Operator, Hammer Weight, Test Date, Location Station, Depth of Zero Point Below Surface, Lateral Location, and Initial Scale Reading at Zero blows.

8.2 Results:

8.2.1 Number of hammer blows between test reading number.

8.2.2 Scale reading after each set of hammer blows, in millimeters.

8.2.3 Difference in penetration between readings, in millimeters.

8.2.4 Penetration per blow, in millimeters. It is calculated by dividing the difference in penetration between readings by the number of hammer blows.

8.2.5 Hammer factor. For 8-Kg hammer, enter 1. For 4.6-Kg hammer, enter 2.

8.2.6 DCP index, in millimeters per blow. This index is the result of multiplying the penetration per blow by the hammer factor.

8.2.7 CBR, in percent. It is taken from CBR versus DCP index correlation table.

8.2.8 Moisture content for the material layer, in percent, when available.

8.4 Comments shall include LTPP standard comment code (s) as shown on page E.2-3 of SHRP Operational Guide No. SHRP-LTPP-OG-004, "SHRP-LTPP Interim Guide for Laboratory Material Testing, November 1989", and any other note as needed.

**********SPS LABORATORY TESTING DATA SHEET**********

SHEET NO ____ OF _____

LTPP LABORATORY MATERIAL HANDLING AND TESTING
LABORATORY MATERIAL TEST DATA
PENETRATION RATE OF THE DYNAMIC CONE PENETROMETER
LAB DATA SHEET T72

BASE/SUBGRADE SOILS
LTPP TEST DESIGNATION: UG14, SS14/LTPP PROTOCOL P72

LTPP REGION: _____ *STATE CODE*: __ __
STATE: _____ *SHRP ID*: __ __ __ __
OPERATOR: _____ *FIELD SET NO.*: __
TEST DATE: __ __-__ __-20__ __ *LOC NO.*: __ __ __ __ __ __
HAMMER WEIGHT: ☐ 8-Kg ☐ 4.6-Kg
LOCATION STATION: _____ DEPTH OF ZERO POINT BELOW SURFACE: _____ mm
LATERAL LOCATION (Distance from outside lane marker): __ __.__ m
Initial Scale reading at zero blows _____ mm

III - SUMMARY OF RESULTS

Read No	Number of blows	Scale Reading (mm)	Penetration between readings (mm)	Penetration per blow (mm)	Hammer Factor	DCP Index (mm/blow)	CBR (%)	Moisture (%)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								

Note: If additional rows needed, please use continuation data sheet.

IV - COMMENTS

(A) CODE __ __ __ __ __ __ __ __ __ __ __ __

(B) NOTE _____

CERTIFIED VERIFIED AND APPROVED DATE

___-___-20___

AFFILIATION: _____ *AFFILIATION:* _____

Form T72, July 2006

**********SPS LABORATORY TESTING DATA SHEET**********

SHEET NO ____ OF _____

LTPP LABORATORY MATERIAL HANDLING AND TESTING
LABORATORY MATERIAL TEST DATA
PENETRATION RATE OF THE DYNAMIC CONE PENETROMETER
LAB DATA SHEET T72
Continuation
BASE/SUBGRADE SOILS
LTPP TEST DESIGNATION: UG14, SS14/LTPP PROTOCOL P72

LTPP REGION:_____
STATE:_____
OPERATOR:_____
TEST DATE:__ __-__ __-20__ __

STATE CODE: __ __
SHRP ID: __ __ __ __
FIELD SET NO.: __
LOC NO.: __ __ __ __ __ __

III - SUMMARY OF RESULTS

Read No	Number of blows	Scale Reading (mm)	Penetration between readings (mm)	Penetration per blow (mm)	Hammer Factor	DCP Index (mm/blow)	CBR (%)	Moisture (%)

Note: If additional rows needed, please use another continuation data sheet.

IV - COMMENTS

(A) CODE __ __ __ __ __ __ __ __ __ __ __ __

(B) NOTE _____

CERTIFIED _____ *AFFILIATION:* _____

VERIFIED AND APPROVED _____ *AFFILIATION:* _____

DATE ___-___-20___

**********SPS LABORATORY TESTING DATA SHEET**********

SHEET NO _____ OF _____

LTPP LABORATORY MATERIAL HANDLING AND TESTING
LABORATORY MATERIAL TEST DATA
MOISTURE CONTENT ASSOCIATED WITH DYNAMIC CONE PENETROMETER TESTING
LAB DATA SHEET T72A

BASE/SUBGRADE SOILS
LTPP TEST DESIGNATION: UG14, SS14/LTPP PROTOCOL P72

LTPP REGION:_____ *STATE CODE:* __ __
STATE:_____ *SHRP ID:* __ __ __ __
OPERATOR:_____ *FIELD SET NO.:* __
TEST DATE:__ __-__ __-20__ __ *LOC NO.:*__ __ __ __ __ __
LAYER NO.: __ __

III - SUMMARY OF RESULTS

1.	**Mass of Container, grams**	__ __ __ __
2.	**Mass of Container and Moist Specimen, grams**	__ __ __ __
3.	**Mass of Container and Dry Specimen, grams**	__ __ __ __
4.	**Mass of Water, grams (2 - 3)**	__ __ __
5.	**Mass of solid particles, grams (3 - 1)**	__ __ __ __
6.	**Water Content, % (4 / 5 * 100)**	__ __

IV - COMMENTS

(A) CODE __ __ __ __ __ __ __ __ __ __ __ __

(B) NOTE _____

CERTIFIED VERIFIED AND APPROVED DATE

_____ _____ ___-___-20___

LABORATORY CHIEF *LTPP REPRESENTATIVE*

*AFFILIATION:*_____ *AFFILIATION:*_____