



U.S. Department
Of Transportation

Federal Highway
Administration

Memorandum

6300 Georgetown Pike
McLean, Virginia 22101

Subject: **ACTION:** LTPP Directive GO-41
Submission of AIMS Electronic Data for
Customer Support and AIMS

Date: March 20, 2008

From: Jane Jiang 
Long Term Pavement Performance Team

Reply to
Attn of: HRDI-13

To: Dr. Frank Meyer, PM - LTPP North Atlantic Regional Contract
Dr. Frank Meyer, PM - LTPP North Central Regional Contract
Mr. Mark Gardner, PM - LTPP Southern Regional Contract
Mr. Kevin Senn, PM - LTPP Western Regional Contract

Attached is the Long-Term Pavement Performance (LTPP) Program Directive GO-41: Submission of AIMS Electronic Data for Customer Support and AIMS. This directive supersedes Directive GO-39 and provides instructions on the electronic format, file naming conventions, and directory structure for the submission of files included in the Ancillary Information Management System (AIMS) to the Long-Term Pavement Performance (LTPP) Customer Support Center. Please ensure that all personnel are aware of this new directive.

Should you have any questions or would like to discuss this directive, please do not hesitate to contact me at 202-493-3149.

Attachments (1)

FHWA:HRDI-13:JJiang:mdeeney:493-3149:3/20/08

File: c:/mdeeney/directive/go/GO-41dir.doc

cc:

Dr. Gonzalo Rada

Directive Binder

LTPP Team

Official file

Chron

LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE



For the Technical Direction of the LTPP Program



Program Area: General Operations

Directive Number: GO-41

Date: March 20, 2008

Supersedes: GO-39

Subject: Submission of AIMS Electronic Data for Customer Support and AIMS

This directive provides instructions on the electronic format, file naming conventions, and directory structure for the submission of files included in the Ancillary Information Management System (AIMS) to the Long-Term Pavement Performance (LTPP) Customer Support Center. The objective is to provide a central source of data and information that is not available in the Pavement Performance Database (PPDB), is frequently requested by LTPP data users, or provides a historical record of data reported on paper data forms to the LTPP program.

Data types covered in this directive and their completion dates are listed below.

The following data types are to be completed by the September 1, 2009 upload:

- Falling weight deflectometer (FWD) data containing deflection-time history measurements
- Longitudinal profile data at 25mm intervals
- Profile measurements at Weigh-In-Motion (WIM) sites in 25mm intervals
- Transverse Profile measurements
- ProQual archive files
- Digitally scanned hand-drawn distress maps from manual distress surveys
- Digital images from manual distress surveys
- Digital distress maps generated from photographic film

The following data types are to be completed to the extent possible by the September 1, 2009 upload:

- Digital images scanned from 35mm photographic film
- Digitally scanned data collection forms from Inventory, FWD manual temperature measurements, Specific Pavement Study (SPS) construction, Seasonal Monitoring Program (SMP), Rehabilitation, Maintenance, Monitoring, Material Sampling and Tests, and Traffic modules

- Digitized videos from initial test section walking inspections, walking inspections performed during manual distress surveys, and through the windshield during profiler measurements
- Digitally scanned SPS nomination forms accepted by LTPP, inspection notes and logs
- Deflection calibration records

AIMS Upload Dates

The dates for upload of these files are ***June 30, 2008*** and ***September 1, 2009***. Submittals shall include files previously submitted plus new files acquired or created since the last submittal.

AIMS Quarterly Progress Report

AIMS quarterly progress reports shall be incorporated into the RSC's quarterly progress report, and submitted via email to the LTPP team leader, the LTPP RSC COTR, and the LTPP database manager. The AIMS related work completed during the quarter, as well as the estimated cumulative work in progress for each data item should be summarized.

Notes on the Effects of Data Changes

When changes are made to the distress maps or distress forms that were already scanned, the changes need to be reflected in the corresponding scanned-in distress maps or distress forms.

When changes are made to data in the database contained on scanned paper data forms, the preferred practice is to annotate the changes on the paper data form and update the electronic scanned records contained in the AIMS submittals, to the extent possible.

Disk Format Submittals

Two copies of each submittal should be submitted, one to the LTPP Customer Support Center and one to the LTPP database manager.

Submittals shall be made using external hard disk-based media using a format specified by FHWA. The current standard is USB drives. Multiple drives may be submitted depending on the amount of storage space required. Data groups should not be divided across different data storage media. Data will be grouped into the categories defined in this directive.

The following naming convention shall be used when submitting a USB drive. This name should appear when viewing the drive through the MS Windows operating system. The name electronically burned into the disk media on each disk shall include

Region_SubmittalDate, where:

Region: A two-letter abbreviation used to specify the regional contractor; North Atlantic Region (NA), North Central Region (NC), Southern Region (SR), and Western Region (WR).

Submittal Date: Use "Month-Year" format; e.g. 06-2008.

Example: NA_06-2008

The following information, at a minimum, shall be included on the physical label of the USB drive:

- FHWA/LTPP
- Descriptive Title. (e.g. 2008 RSC AIMS Data Submittal);
- Data type(s) – (e.g. PRF, DIS, DEF);
- Region – 2-letter (e.g. SR);
- Submittal date, in text using “Month Year” format; e.g. June 2008.

Handling and organizational procedures for each data category and subcategory are described below.

Deflection (DEF) - Falling Weight Deflectometer (FWD) Peak and Time History Files

The following FWD file types will be included:

- Version 10 “*.FWD” files, containing both peak deflection data and time history data
- Version 20 “*.FWD” files, containing both peak deflection data and time history data
- Version 25 “*.F25” files, containing peak deflection data only
- Version 25 “*.HXT” files, ASCII files containing converted binary encoded time history data
- FWDWin “*.DDX” files, ASCII files converted from MS Access files containing peak and time-history data
- Highway agency data collected on LTPP sections, regardless of format

The following directory/subdirectory structure shall be used:

DEF\STATE_CODE\STATE_CODE+SHRP_ID\SURVEY_DATE (YYYYMMDD)

e.g.: \DEF\48\480102\20040905.

Deflection Calibration (DEFCAL) – Falling Weight Deflectometer Calibration Files

The following data files are included under those heading:

- Raw electronic data files generated during a relative calibration test on a FWD used to collect data for the LTPP program. The raw data files should be submitted in the native data collection format with file names in accordance with applicable directives existing at the time of the test.
- Electronic data files produced RelCal software containing the results of the relative calibration test results
- Scanned output showing gain factors from results of a reference calibration test, as well as the scanned the TSC (Temperature Sensor Checks) forms on a FWD used to collected data for the LTPP program. The files should be named: REFCAL_TEST_DATE (YYYYMMDD). PDF

The following directory structure shall be used:
DEFCAL\DEFL_UNIT_ID\4-digit Year\REF or REL.

Where DEFL_UNIT_ID is the FWD measurement unit identifier used in the MON_DEFL_MASTER table.

e.g.

DEFCAL \ 8002-131 \ 1994 \ REL \ DATA Files (e.g. 13020394.RC1 & 13020394.CS1)

Note that this is an example of file names used during relative calibration. Other file names were used because of the number of attempts made to pass calibration.

DEFCAL \ 8002-131 \ 1994 \ REF \ DATA Files (SDX1926.GO1 & Load188.LO1 & Dyna131A.GO1)

Note that these are example of file names used during reference calibration. Other file names were used as well.

Profile (PRF) – Longitudinal, Transverse, Weigh In Motion (WIM) Site

There will be a folder for each profile subcategory; longitudinal profile (LPF), transverse profile (TPF) and WIM site profile (WSP). Where applicable, data files created during the archival process using the ProQual software shall be placed in the corresponding directories in accordance with Directive P-37 or its successor. Specific directions and subdirectory structures for each subcategory follow.

Longitudinal Profile (LPF)

Longitudinal profile that has been collected with both laser profilers and Dipsticks® shall be submitted for the AIMS upload. Longitudinal profile data collected with DNC-690 should not be submitted. The following directory structures and subfolders shall be used.

LPF\STATE_CODE\STATE_CODE+SHRP_ID\SURVEY_DATE (YYYYMMDD),
e.g.: \LPF\01\012106\19921222

LPF\STATE_CODE\STATE_CODE+SHRP_ID\SURVEY_DATE (YYYYMMDD)\ERD. RSCs shall convert raw profiles to the *.ERD format and place these files in the ERD directory subfolder.
e.g.: \LPF\01\012106\19921222\ERD

Transverse Profile (TPF)

For the transverse profile (TPF) subcategory, the following directory structure shall be used:
TPF\STATE_CODE\STATE_CODE+SHRP_ID\SURVEY_DATE (YYYYMMDD)
e.g.: \TPF\01\012106\19921222

WIM Site Profile (WSP)

For the WIM site profile (WSP) subcategory, the following directory structures and subfolders shall be used:

WSP\STATE_CODE\SSEELW\SURVEY_DATE (YYYYMMDD)\ERD

Where

SS - State Code

EE - Experiment #

L - Lane designation, 'O' is outer, and 'I' is inner.

W - wheelpath, 'L', 'R', 'C' for left, right and center respectively.

e.g.: \WSP\01\3608OL \20051222\ERD

Distress (DIS)

This data type includes two subcategories; Manual Distress Surveys/maps (MDM) and Automated/photographic Distress Surveys (ADS). For each subcategory, there are two types of files; surveys (or maps) and photographs (or images). Collectively, these are as follows:

- 1) Manual distress maps/surveys (MDM)
- 2) Manual distress survey photos/images (MDP)
- 3) Automated/photographic distress maps/surveys (ADS)
- 4) 35- mm photographic distress film/photographs (ADP)

The directory structure for each subcategory is as follows. The file names should be in accordance with the relevant LTPP distress directives (e.g. D-17, D-31, D-44 or their successors).

Manual distress surveys/maps (MDM) – includes MDM and MDP files

MDM\STATE_CODE\STATE_CODE+SHRP_ID\SURVEY_DATE (YYYYMMDD)

e.g.: \MDM\24\241006\20010229

Automated distress surveys/maps (ADS) – includes ADS and ADP files

ADS\STATE_CODE\STATE_CODE+SHRP_ID\SURVEY_DATE (YYYYMMDD)

e.g.: \ADS\24\241006\20010229

The Distress Review MS Access file from the DiVA output and the Distress Photo Survey MS Access metadata database table shall be stored in the DIS root directory.

Scanned Paper Data Forms

This data type includes images from digitally scanned paper data forms for non-rejected LTPP test sections. All of the scanned images of forms for a particular data type (DT) of a section or project shall be combined into PDF files, following the specifications in this directive, and stored using the following directory structure and file naming convention.

DT\STATE_CODE\STATE_CODE+SHRP_ID\File_name.PDF

Where

DT = INV for inventory data
MAT\TST for material test data
MAT\SAMP for material sampling data
RHB for rehabilitation data
MNT for maintenance data
TRF for traffic data
FRIC for friction monitoring data
SPS for general SPS construction data, SHRP_ID=PROJECT_ID
DEF for FWD manual temperature measurements, field forms

PRF – longitudinal dipstick forms
TPRF – transverse dipstick data forms
FAULT- PCC faulting data forms
DROP – Mon_Drop_Sep forms

File_name = *DT*+STATE_CODE+SHRP_ID+(DATE for monitoring data)

For Mat\TST and Mat\SAMP,

File_name = *DT*+STATE_CODE+SHRP_ID+”_” + Field Set

Examples:

INV\10\101450\INV101450.PDF – Inventory data for section 10_1450
SPS1\10\100100\SPS1100102.PDF – SPS1 construction data for section 10_0102
FRIC\48\483855\FRIC483855_19951207.PDF – All friction data for section 48_3855 from 12/7/1995
PRF\10\101450\PRF101450_20000308A.PDF – longitudinal dipstick data for section 101450 from 03/08/2000
MAT\TST\10\101450\TST101450_1.PDF – a set of testing data for section 101450, field set No.1.

For images of data sheets scanned from the Seasonal Monitoring Program data, the following directory structure shall be used:

SMP\STATE_CODE\STATE_CODE+SHRP_ID\SURVEY_DATE (YYYYMMDD)\
File_name.PDF

Where

File_name = SMP+STATE_CODE+SHRP_ID+”_”+SURVEY_DATE

e.g. SMP\04\041024\19950914\SMP041024_19950914.PDF

Digitized Test Section Videos (DSV)

This data type includes digitized video of test sections. All digitized video shall conform to the guidelines contained in this document. The digitized video shall be stored in the following directory structure.

DSV\STATE_CODE\STATE_CODE+SHRP_ID\VT\VIDEO_DATE (YYYYMMDD)*file_name*

Where

VT = GEN for initial video of test section or other at other dates not included below
DIS for video taken during a manual distress survey
PROF for video taken through the windshield of a profiler

e.g. DSV\48\481077\GEN\19891202\

File_Name = VT+STATE_CODE_SHRP_ID+"_" +VIDEO_DATE.*fe*

Where

VT = Video type defined above
Fe = File extension type appropriate to the type of file

e.g. GEN481077_19891202.mpg

Specifications for Scanned Paper Data Forms

Scanned paper data forms shall conform to the US National Archive (NARA) Standards for Expanding "Acceptable Transfer Requirements: Transfer Instructions for Permanent Electronic Records" at <http://www.archives.gov/records-mgmt/initiatives/pdf-records.html>. References to this standard can be found at <http://www.archives.gov/records-mgmt/initiatives/scanned-textual.html>.

For LTPP purposes, the following minimum specifications shall be used:

- Data forms shall be scanned at a minimum resolution of 300 pixels per inch.
- All data forms in a defined category shall be combined into PDF files.
- Bitonal (Black and white) scanning is preferred provided a relatively small electronic file is produced.
- Image compression shall use lossless compression methods. (JBIG2 Lossless)

Specifications for Digitized Video

At this time, NARA has not developed national standards for digitized video due to the rapidly evolving nature of digital video formats and the lack of any open, national or international consensus standards for the creation and preservation of digital video. Due to business requirements for smaller file sizes, the following file types and minimum standards shall be used.

MPEG1 – This is appropriate for older video obtained from Super-VHS video recorders. Minimum frame size is 320x240.

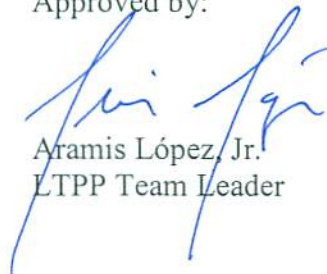
MPEG2 – This is the preferred video compression standard since it is compatible with modern DVD players and is recommended for video collected using digital cameras. Minimum frame size is 320x240.

Other digitized video formats can be use if approved by FHWA.

Questions concerning this directive should be addressed to the FHWA LTPP Team member responsible for IMS operations, with a copy to the LTPP TSSC.

Prepared by: TSSC/FHWA

Approved by:



Aramis López, Jr.
LTPP Team Leader