

# LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE



*For the Technical Direction of the LTPP Program*



Program Area:	Monitoring	Directive Number:	D-17
Date:	May 2, 2000	Supersedes:	N/A
Subject:	Digital Conversion of LTPP Manual Distress Maps		

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LTPP manual distress surveys generate paper records that are not readily available to data analysts and other interested parties. For example, distress maps generated during these surveys do not form part of the LTPP IMS, yet are an essential part of understanding what was captured at the time the survey was conducted. These maps can explain many things, thus making the data invaluable to researchers and data analysts. Accordingly, this directive provides for the definition of procedures to be followed for digital conversion of manual distress survey maps.

## Manual Distress Surveys

LTPP manual distress surveys (MDS) are conducted by trained LTPP regional personnel who have successfully completed the LTPP distress workshop. They are conducted following the procedures outlined under the most current LTPP distress directive(s). The surveys include distress maps, data sheets summarizing distress measurements, section photographs and videos, transverse profile measurements, and joint faulting measurements.

MDS maps shall be converted to digital format as follows:

- Scan individual manual distress map sheets to create a tagged image file (TIF) format file for each map sheet.

Note: There are typically five manual distress map sheets (8.5" x 11") per survey, each covering 30.48 m (100 ft) of test section, thus yielding five TIF files per survey.

- Resulting TIF files must be saved in a CCITT4 (common scanner output) format.
- Maps shall be scanned at their full size, using black and white line art setting.
- Scanning resolution must be set to a minimum of 150 dots per inch (dpi) or maximum of 300 dpi, keeping in mind that a higher resolution will require more time per survey to scan.

- The following file naming convention shall be used for storage of the resulting map files:

MDMaannnnsyyyy##.tif

where:

MDM = fixed characters that indicate file contains **Manual Distress Map** (MDM).  
 aa = LTPP state/agency code (STATE\_CODE).  
 nnnn = SHRP ID number (SHRP\_ID).  
 s = annual survey sequence letter (visit identifier or code).  
 yyyy = year of survey.  
 ## = map sequence number on survey day.  
 tif = TIF file format extension.

For example, MDM483739B200003.TIF represents TIF file containing the third map sheet (##=03), from Stations 91.44 m to 121.92 m (Stations 300 ft to 400 ft), taken during second visit (s=B) of year 2000 (year of survey=2000) on test section 3739 (nnnn=3739) located in the State of Texas (aa=48).

## Implementation

Each regional contracting office should purchase one document scanner to scan manual distress maps. The scanner should have a scanning resolution of at least 150 dpi and at most 1200 dpi to meet the criteria listed above for converting the maps to digital files. In addition, the scanner should either be a sheet-fed type scanner or include an automatic document feeder to allow scanning of multiple consecutive documents for efficiency.

MDS maps generated after issuance of this directive must be converted to electronic format within 60 days of the survey date. In addition, the conversion effort should be incorporated into each region's quality control operations for data collection and database entry.

MDS maps generated prior to issuance of this directive shall be done on the following schedule.

Experiment	SPS 1,2,5,6	SPS 8, 9 GPS 6x, 7x, 9 <sup>1</sup>	SPS 3 GPS 1, 2	SPS 4, 7 GPS 3, 4, 5
Complete by last working day of	September 2000	January 2001	April 2001	July 2001

<sup>1</sup> Including pre-overlay conditions as GPS 1-5, and 9 as applicable.

Questions concerning this directive should be addressed to the FHWA LTPP Team staff member responsible for distress operations, with a copy to the LTPP Technical Support Services Contractor.

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