LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE

For the Technical Direction of the LTPP Program

Program Area: IMS **Directive Number**: I-137

Date: June 15, 2007 **Supersedes**: I-132

Subject: IMS Software Release Version 2007.06

This directive authorizes implementation of the IMS software upgrade from version 2007.02 to 2007.06. Upgrade instructions are provided in Attachment 1. Please notify the FHWA and TSSC when the upgrade has been installed.

Software Change Notice 99, contained in the file, SCN_99.pdf, lists all of the changes made to the IMS software since the last software release. This notice shall be filed in the Operator's Log.

This software update includes several new and updated database tables: MON_DIS_LINK, SECTION_COORDINATES, and AWS_LOCATION. New data entry forms are provided for these tables, as follows:

Table	Entry Form
SECTION_COORDINATES	INV sheet 24
AWS_LOCATION	AWS sheet 2
MON_DIS_LINK	Monitoring/Surface Distress sheet 20

Two Oracle .dmp files containing data for these tables have been generated for each region (i.e., Region#.dmp, AWS_R#.dmp, where # is the number of the region). These .dmp files are imported by the software update batch file. Brief instructions for editing this data via the new data entry forms are provided in Attachments 2 and 3.

Several QC programs were updated to incorporate new QC on the MON_DIS_LINK and AWS_LOCATION tables. A new program, **AdminQC**, was created for the SECTION_COORDINATES table, since it did not logically fit with any existing module. **You must run the AdminQC program to QC the records in the SECTION_COORDINATES table.** You may want to create a batch program to run QC levels B through E.

The Software Change Notice lists these and other miscellaneous changes.

The software for Version 2007.06 is distributed in a password protected master zip file. The following files are contained in this master file:

- VR2007_06.ZIP – A zip file with the batch file (VR2007_06.BAT) and scripts needed to make miscellaneous updates to the database and to run other related administrative commands. Refer to the table included in Attachment 1 for an alphabetic list and descriptions of the scripts called by this batch file.
- LTPP.ZIP - A zip file with all files to go in the LTPP area (and subdirectories) on the server.
- OracleVersions.ZIP – A zip file with listings of all Oracle files and versions loaded on the server at the central site. These are included for reference only.

Prepared by: TSSC

Approved by:

Aramis López
LTPP Team Leader

Attachment 1

Instructions to Apply VR 2007.06 Release

1. Create the subdirectory RELEASES\VR2007_06 (the directory RELEASES should already exist).

2. Copy and unzip the VR2007_06.zip file into the subdirectory created in step 1. **Verify that a subdirectory, \exports, is created with Oracle .dmp files in it.**

3. Shutdown ORACLE in normal mode and backup Server.

4. Bring ORACLE up.

5. From a DOS prompt in the RELEASES\VR2007_06 directory, type

   `VR2007_06 dbausername/dbapassword@instance R#`

   where R# is the number of your region, to begin the software update. This batch file will export several tables that are updated by the release scripts. Keep the export file, VR2007_06AlteredTables.dmp, until you are satisfied that all changes were successful. If the export is successful, the batch file will run the scripts listed alphabetically in Table 1, below.

6. The scripts create new tables and codes, update tables and import data. **Check carefully that all scripts completed successfully by reviewing the *.lis files (refer to list, below).** Ignore errors about dropping non-existent objects.

7. Copy the LTPP.ZIP file into the LTPP subdirectory. Right-click on the filename and choose "Extract to Here" to unzip the file into the LTPP subdirectory. Answer "Yes to all" to overwrite existing files. Delete the LTPP.ZIP file.

8. The OracleVersions.zip file is included for reference only. Extract these files into the OracleVersions directory. It will create an OracleVersions\VR200706 subdirectory.

Table 1. Scripts run from the VR2007_06.bat file

Script and Output Filenames (.sql & .lis)	Description
CNUtilities	Replaces the current CNUtilites procedure with an updated procedure that updates the CN for the SPS4_CRACK_SEAL_SH_MEAS table.
ResetRecordStatus_0706	Reset RECORD_STATUS for records in distress and transverse profile tables associated with MON_DIS_LINK. Also, reset TST_HOLE_LOG and AWS_LOCATION.
SPR3729CreateMonDisLink	Creates new MON_DIS_LINK table, grants, synonyms, data dictionary entries, etc.
SPR3744CreateSectionCoordinates	Creates new SECTION_COORDINATES table, grants, synonyms, data dictionary entries, etc.
SPR3745CreateAWSConstraints	Creates foreign key constraints on AWS tables after data is loaded into the updated AWS_LOCATION table.
SPR3745CreateAWSLocation	Renames AWS_LOCATION to AWS_LOCATION_OLD and creates a new AWS_LOCATION table, grants, data dictionary entries, new codes, etc.
SPR3747LabCodes	Added new lab code for MASS Highway R&M in South Boston, MA.

Attachment 2

Instructions for Populating MON_DIS_LINK

Background

The new **MON_DIS_LINK** table contains information necessary for the user to be able to link various distress information collected as part of a single survey. This table should prove especially useful when the dates are not identical between tables.

Every record in **MON_DIS_AC_REV, MON_DIS_CRCP_REV, MON_DIS_JPCC_FAULT, MON_DIS_JPCC_REV, MON_DIS_PADIAS_AC, MON_DIS_PADIAS_CRCP, MON_DIS_PADIAS_JPCC, MON_DIS_PADIAS42_AC, MON_DIS_PADIAS42_CRCP, MON_DIS_PADIAS42_JPCC, MON_DROP_SEP, MON_RUT_DEPTH_POINT,** and **MON_T_PROF_MASTER** must have a record in the new **MON_DIS_LINK** table. The SURVEY_ID field in **MON_DIS_LINK** is used as a key to link distress information in these tables that were performed as part a survey event.

The QC checks to see that every record in the distress tables has a matching record in **MON_DIS_LINK,** and every record in **MON_DIS_LINK** has a match in one of the distress tables. The QC program resets RECORD_STATUS every time the QC is executed so that it can detect changes.

The table provided in this software release is initially populated using release 21 data.

These instructions provide information on how to enter new data in **MON_DIS_LINK** and how to edit the existing data to make corrections for changes to survey dates or record deletions.

Data Entry

Every time a record is added to one of the tables listed above, a new record in **MON_DIS_LINK** must be created. Likewise, when an existing record is deleted, or has key information changed (SURVEY_DATE), the record in **MON_DIS_LINK** will have to be either deleted or changed to be consistent.

The entry screen for **MON_DIS_LINK** is very straightforward. The user enters the form, and upon entering the identifying information, is presented with a list of all the entries for that site. The user is free to change any of the information shown, as well as add new records.

When adding a new record, the user is provided a new SURVEY_ID that is simply a number one larger than the largest SURVEY_ID previously used on that site. The user must determine whether this SURVEY_ID is appropriate or not. If the distress record being entered is not being linked with an existing entry, the default SURVEY_ID should be used. However, if the record should be linked to an existing entry, the SURVEY_ID should be changed to match that of the linked entry.

The TABLENAME is the name of the distress data table which contains the record being linked. It can be select4ed from a list.

Only entries with a matching record in the appropriate distress table can be entered.

Data Correction

After installing software release VR2007.06, you will have a **MON_DIS_LINK** table that is populated with release 21 data. In order to ensure that the data is made as up to date as possible, the RSC should first run the new MON_DIS_LINK QC. This will identify what records must be added and removed from **MON_DIS_LINK** to be consistent with the current RSC database (many of the differences will be due to the changes made in response to various monitoring DAOFRs, so scripts developed to change dates and delete records in response to those DAOFR may provide useful for cleaning up **MON_DIS_LINK** as well).

Any distress survey that has been entered into the database since release 21 will have to have a new record created for it in **MON_DIS_LINK**. The record entry process described earlier should be used for this purpose.

After ensuring that each distress record is represented in **MON_DIS_LINK**, the RSC will need to make sure that the different tables are linked together properly. There is no easy automated way to do this, but several general guidelines should make the process easier. The following rules are part of the QC, and records violating them will be flagged:

- Each distress survey (**MON_DIS_AC_REV**, etc.) cannot be linked to another distress survey.
- Each SURVEY_ID can only have one CN associated with it, regardless of dates.

Other general guidelines that will help in the linking process:

- Distress information from the same type (manual/photographic) of survey with dates within a few days should probably be linked.
- Distress information from the same type (manual/photographic) of survey with dates more than three months apart should NOT be linked, regardless of supporting information or intent during data collection. These records should be entered in the link table as separate events.
- Information from different types (manual/photographic) of surveys should NOT be linked regardless of the dates.
- Each entry for **MON_DIS_JPCC_FAULT** should be associated with a record in **MON_DIS_JPCC_REV**.
- Any SURVEY_ID that represents a single record in a table other than **MON_DIS_***, should be considered suspect, and reviewed to ensure that it truly should not be linked to another **MON_DIS_*** record.

The RSC should be able to use SQL scripts to identify most of these problems. Past data collection schedules and other records should be consulted where possible to ensure the most accurate linking.

Attachment 3

Instructions for Populating AWS_LOCATION and SECTION_COORDINATES

AWS_LOCATION and **SECTION_COORDINATES** are both pre-populated using information previously available in the database. Both of these tables should be updated using information collected as prescribed in directive GO-34. To entry new measurement data into these tables, simple edit the corresponding existing information in the table.

The new location measurements following GO-34 should be more accurate than the previous measurement and also contain an associated measurement location error. However, since it is not possible to measure the location of all locations with the new devices, some of the existing coordinates must be used.

When the new coordinates are significantly different than the existing coordinates, the RSC should use mapping software or similar to ensure that the new coordinates are appropriate.