Memorandum

U.S. Department
Of Transportation

**Federal Highway
Administration**

6300 Georgetown Pike
McLean, Virginia 22101

Subject: **ACTION**: LTPP Directive IMS-116
IMS Software Release Version 2004.06

Date: June 23, 2004

From: Eric Weaver
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 IMS-116: IMS Software Release Version 2004.06. This pertains to implementation of the IMS software upgrade from version 2004.04 to 2004.06. IMS upgrade instructions are provided in attachment 1. The software change notice for this release is contained in attachment 2. Please ensure that all personnel involved with the IMS 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 202-493-3153.

Attachments (2)

LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE

For the Technical Direction of the LTPP Program

Program Area: IMS

Directive Number: I-116

Date: June 23, 2004

Supersedes: I-115

Subject: IMS Software Release Version 2004.06

This directive authorizes implementation of the IMS software upgrade from version 2004.04 to 2004.06. Upgrade instructions are provided in attachment 1. Please notify the FHWA and TSSC when the upgrade has been installed.
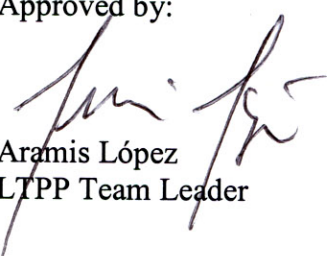
Software Change Notice (SCN) 88, included as attachment 2 (SCN_88.pdf), lists all of the changes made to the IMS software since the last software release. This notice shall be filed in the Operator's Log. This release includes all tables and programs necessary to load and QC transverse profile cross-slope data and to reload transverse profile. Three new RHB Superpave tables, entry forms, and QC are included, along with fixes for many miscellaneous SPRs.

Version 2004.06 of the IMS software will be available at "Operations Center" section of the TSSC website as a password protected file named PASSWORD_20040621.zip. This file contains the following Zip files:

- VR2004_06.ZIP – A zip file with the batch file (VR2004_06.BAT) and scripts needed to make miscellaneous updates to the database and to run other related administrative commands. Refer to table 1 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 2004.06 Release

1. Shutdown ORACLE in normal mode and backup Server.

2. Bring ORACLE up.

3. Create the subdirectory RELEASES\VR2004_06 (the directory RELEASES should already exist).

4. After downloading and unzipping the ReleaseVR2004_06.zip file, copy and unzip the VR2004_06.ZIP file to the RELEASES\VR2004_06 subdirectory created in step 4.

5. From a DOS prompt in the RELEASES\VR2004_06 directory, type

   ```
   VR2004_06 dbausername/dbapassword@instance
   ```

   to begin the software update. This batch file will export several tables being modified. If the exports are successful, the batch file will recreate and import an updated data dictionary table (LTPPDD) and will then run the remainder of the scripts listed in Table 1, below.

6. The scripts make some table changes. Check that the scripts completed successfully by reviewing the *.lis files (refer to list, below). Also check the LTPPDD_NEW.LOG file that will be created when the LTPPDD.dmp file is imported. 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\VR200406 subdirectory.

Table 1. Scripts run from the VR2004_06.bat file.

Script filename	Description	Output file
SPR3078	Updates comments (table descriptions) for 4 AWS tables and 2 SMP tables.	SPR3078.lis
SPR3225WindSPD	Removes AWS_HOURLY_DATA. MAX_HR_WIND_SPD_TIME and AWS_DAILY_DATA.MAX_DAY_WIND_SPD_TIME columns.	SPR3225WindSPD.lis
SPR3377	Renames current TPROF tables to preserve existing data. Creates new TPROF tables for data processed with ProQual 2004. Creates new CrossSlope table, all related database objects and new entries in LTPPDD.	SPR3377.lis

Script filename	Description	Output file
SPR3414	Creates pre-update trigger on TST_L05B to change the LAYER_NO in TST_LINK_LAYER and TST_LINK_SAMPLE.	SPR3414.lis
SPR3427	Changes ON-DELETE triggers on the PGBinder tables to ensure that records can be deleted.	SPR3427.lis
SPR3437	Creates the new Superpave RHB tables (RHB_ACO_SP_*) and adds new fields to the RHB_ACO_LAB_MIX table.	SPR3437.lis
SPR3454_ppdb	Adds weight_bin_size field to the TRF_MONITOR_AXLE_DISTRIB table.	SPR3454_ppdb.lis
SPR3470DiffVol	Increases size for TRF_CALIBRATION_AVC. DIFF_VOL_FHWA_* fields.	SPR3470FiffVol.lis
SPR3472	Drops and recreates the LTPPDD table. Add additional codes required by LTPPDD cleanup.	SPR3472.lis

Software Change Notice 88

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp

Administrative

3-3078	**3078**	**IMS Table Description**	**Travis Thompson**	**2/2/2002**	**5/8/2004**

Description

Resolution

Revise table description for the following tables:
The last 4 AWS tables, SMP_ATEMP_RAIN_DAY,
SMP_MRCTEMP_AUTO_DAY_STATS. See attached email for additional
information.

Created SPR3078.sql to redefine table comments on 4 AWS tables and 2 SMP tables.

M-3472	**3472**	**LTPPDD**		**5/18/2004**	**6/17/2004**

Description

Resolution

The attached password protected zip file contains a MS ACCESS table that we
have modified to reflect changes to be made to the LTPPDD table. Please modify
the LTPPDD table to remove fields and add the new information. We used the
January release as our starting point. The tables added since then should be ok.
Also enter the new information into the CODESTYPE and CODES tables. Also
peruse the changes to look for oversights, mistakes, and errors. We are pretty sure
that we didn't make any blunders, but you never know.   We would like to
include these changes in the next software release to the regions and next data
release.Travis is the primary contact for this effort since he did most of the work.

Created SPR3472 to create new LTPPDD table and create new codes required by the
LTPPDD cleanup.

Automated Weather Station

4-422 **3225** **AWS DATA** **MACTEC** **1/2/2003** **6/9/2004**

Description

There is a problem with the time format of the MAX_DAY_WIND_SPD_TIME field within the AWS_DAILY_DATA table. The records in this field do not always conform to the standard four digit military format that is used in other tables. Rather, the appropriate leading zeroes (for time between 0000 and 0959) are not appended to the records as they are filtered.

Resolution

This problem is also present in AWS_HOURLY_DATA. After investigating this issue and the issue raised in 4-3468, it has been determined that the best solution is to delete the wind speed time fields from each table. AWSCheck will not be modified. SPR3225WindSPD.sql was created and AWSLOAD.pc and AWS.pc were updated. Refer to SPRs 4-3468 and S-3450.

4-467 **3450** **AWS_HOURLY_DATA** **4/14/2004** **6/9/2004**

Description

In looking at data in the AWS_HOURLY_DATA table, versions of AWSCheck prior to version 1.3 (September 1998) did not update the MAX_HR_WIND_SPD_TIME field when time adjustments were applied to the raw data file during processing. While newer versions of AWSCheck do apply the time adjustment, there are approximately 70,080 records (for the Western Region) that are in the database with incorrect values for the MAX_HR_WIND_SPD_TIME field. Data in the MAX_HR_WIND_SPD_TIME field should be within the hour prior to the AWS_HOUR. For example, when AWS_HOUR=2 the MAX_HR_WIND_SPD_TIME field should be between 0100 and 0200. This is not the case for the records in question as the AWS_HOUR field was updated but the MAX_HR_WIND_SPD_TIME was not. This resulted in either the MAX_HR_WIND_SPD_TIME being between 0000 and 0100 (if a +1 hour time shift was applied) or between 0200 and 0300 (if a -1 hour time shift was applied) for AWS_HR=2. See examples and list of affected data attached.

Resolution

SPRs 3225, 3450 and 3468 are all related.
SPR3225WindSPD.* to dump AWS_HOURLY_DATA and AWS_DAILY_DATA, remove fields MAX_HR_WIND_SPD_TIME and MAX_DAY_WIND_SPD_TIME, remove entries from LTPPDD, and AWS.pc (QC) changed to remove fields. AWSLOAD.pc (Loader) changed to not insert these fields into the PPDB.

4-3468 **3468** **AWS Data** **MACTEC** **3/15/2004** **6/9/2004**

Description

In the AWS_HOURLY_DATA table, maximum wind speeds occurring at 12:00 a.m. are inconsistently recorded in the MAX_HR_WIND_SPD_TIME field. For the Western Region, approximately 1,050 of these occurrences are recorded as "0" while the other 130 are recorded as "2400". A comparison of the time of maximum wind speed in the raw data to the corresponding upload files was

Resolution

This problem is also present in AWS_HOURLY_DATA. After investigating this issue and the issue raised in 4-3468, it has been determined that the best solution is to delete the wind speed time fields from each table. AWSCheck will not be modified.

SPRs 3225, 3450 and 3468 are all related. SPR3225WindSPD.* to dump

performed. As a result, AWSCheck is reporting "2400" in the upload file when a +1 hour time shift is applied to "2300" from the raw data file. However, when a -1 hour time shift is applied to "100" from the raw data file, the upload file contains "0". These time adjustments are made as a result of Daylight Savings Time. In regions where Daylight Savings Time is not observed, a time shift is not applied and "0" is recorded in both the raw and upload files. Examples of each case are attached.It is recommended that AWSCheck be modified to report "0" (instead of "2400") in the upload file when a +1 hour time shift is applied to "2300" in the raw data file. Additionally, all records of "2400" currently in the database should be investigated and changed to "0".

Reference AWSPR # W-07.

AWS_HOURLY_DATA and AWS_DAILY_DATA, remove fields MAX_HR_WIND_SPD_TIME and MAX_DAY_WIND_SPD_TIME, remove entries from LTPPDD, and AWS.pc (QC) changed to remove fields. AWSLOAD.pc (Loader) changed to not insert these fields into the PPDB.

Database Administration

3-834 **3414** **LAYMANT.exe** **1/29/2004** **5/11/2004**

Description

Integrity constraint violation occurs when updating section with rows in TST_LINK_LAYER (see attached).

Resolution

Created SPR3414.sql to add a Before Update Trigger on TST_L05B which updates the LAYER_NO in TST_LINK_SAMPLE and TST_LINK_LAYER.

Drainage

3-843 **3445** **MON.DRAIN.01** **4/7/2004** **4/15/2004**

Description

Unable to enter pipe diameter for 480100. At 203.2, it is outside allowed range of 0-180 (see attached screenshot).

Resolution

Removed restriction on entry form for mainline pipe diameter field.

3-844 **3447** **MonDrainQC.exe - All levels** **4/14/2004** **4/19/2004**

Description

Listing for MON_DRAIN_MASTER, MON_DRAIN_CONDITION and MON_DRAIN_INSPECT would be easier to use if the data could be shown in order by section AND lateral ID (see attached report excerpt). Also, "X" to signify missing data seems off-standard.

Resolution

Added LATERAL_ID to all cursors in level C, D, and E. Recompiled with updated COMMON routines and the X went to R in the output.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-845	3448	MON.DRAIN.02	MACTEC	4/14/2004	4/23/2004

Description

1) Error on this form when first opened (see first attached screenshot). Does not occur for subsequent calls to the form in the same session.2) "Surveyor" appears to be required data for MON_DRAIN_CONDITION per MonDrainQC, Level C, but there's no provision on the data entry form to enter the data. The data collection form does not actually include a "Surveyor" data item, but it's possible we should assume that "Completed By" is the "Surveyor." We will need guidance on this when the data entry form has been corrected. See attached report excerpt and screenshots3) [Page Down] in first window causes "Lateral ID" to be cleared along with the other relatively insignificant data in the first and second blocks (see last screenshot).

Resolution

1. Removed reference to global.lateral_id if variable is not set.
2. Dropped "Surveyor" field from the MON_DRAIN_CONDITION table and QC.
3. Set environmental variables upon entering form.

M-3485	3485	MonDrainQC		6/8/2004	6/9/2004

Description

Drop the level C check and implement level E check as follows:

If MON_DRAIN_MASTER. MAINLINE_TYPE is not equal to six, then MON_DRAIN_MASTER.
MAINLINE_DIAMETER can not be NULL.

Error Message:MON_DRAIN_MASTER-E-6 MON_DRAIN_MASTER.
MAINLINE_DIAMETER can not be NULL when MON_DRAIN_MASTER.
MAINLINE_TYPE is not equal to six.

Also change level D check on MON_DRAIN_CONDITION.
SURVEY_AIR_TEMP to -15.0 - 45.0.

Resolution

Removed level C check on MON_DRAIN_MASTER.MAINLINE_DIAMETER.
Added level E check MON_DRAIN_MASTER-E-6 on MON_DRAIN_MASTER.MAINLINE_DIAMETER. Changed the valid range on MON_DRAIN_CONDITION.SURVEY_AIR_TEMP to -15.0 - 45.0.

Experiment Section

1-133   **3469**   **EXP_QC.exe, Level D**   **MACTEC**   **5/12/2004**   **5/26/2004**

Description

There is a check in the 'D' level that checks to ensure that the SEASONAL_ID value falls between "A" and "H". Our New Jersey sections reach the letter "Q". Since seasonal sections are no longer recruited and the SMP program is ending I suggest that this check be removed. As manual upgrades are not allowed on this table the records are failing the level "D" check.

Resolution

Modified the range check on SEAS_ID to allow values from A-Q, per Eric Weaver and Travis Thompson.

M-3471   **3471**   **ES, MNT_IMP, RHB_IMP QC**   **5/4/2004**   **6/11/2004**

Description

For each RHB_IMP.IMP_TYPE, there must be a matching record in EXPERIMENT_SECTION.CN_CHANGE_REASON for the matching CN. This is just like the one already in MNT_IMP.For each STATE_CODE, SHRP_ID, CONSTRUCTION_NO, and individual entry in CN_CHANGE_REASON in EXPERIMENT_SECTION, there must be a matching value in either RHB_IMP or MNT_IMP with matching STATE_CODE, SHRP_ID, CONSTRUCTION_NO and IMP_TYPE = CN_CHANGE_REASON. This check is just the inverse of the other RHB and MNT checks.When the checks are done it should identify entries in EX_S without entries in RHB_IMP or MNT_IMP, and entries in RHB_IMP or MNT_IMP without entries in EX_S.

Resolution

Modified EXP_QC.pc and RHB_QC.pc to add new checks. See SPR 2986, for changes to MNT_QC.

Maintenance

3-687 **2986** **MNT_QC.exe** **LAW PCS** **8/20/2001** **6/11/2004**

Description

MNT QC does not indicate the absence of a record in MNT_IMP corresponding to an entry in a table for a specific type of maintenance. This would be similar to checking for the presence of an entry in MON_DEFL_TEMP_{DEPTHS,VALUES} for every entry in MON_DEFL_MASTER. I only discovered the omission because a recent entry in one of the MNT tables had a level D QC problem. Obviously, there should have been a new entry in EXPERIMENT_SECTION, etc., but there wasn't. In addition, if I understand correctly, no entry in MNT should now have CN = 1.

Resolution

Added 8 new error messages to code to check for existence in MNT_IMP for matching STATE_CODE, SHRP_ID, DATE_COMPLETE(IMP_DATE) and IMP_TYPE based on table provided in resolution. See related SPR 3471.

3-841 **3444** **MNT.SCREEN.03** **4/7/2004** **4/15/2004**

Description

Unable to enter or retrieve existing data with this form. Entry of valid SHRP_ID raises error: "SHRP ID must be entered." See attached screen shot.

Resolution

Removed blank spaces from IF (shrp_id is null) statement and recompiled. Forms works fine now. This may be an Oracle bug.

Manual Distress

2-65 **3208** **MDS SHET 1 & 6** **MACTEC** **12/13/2002** **4/26/2004**

Description

These sheets have not been updated to reflect current LTPP operating procedures. This is a request for the following updates:
JPCC faulting - Crack lengths are no longer recorded and form defaults to 0. Please remove this from the form and put a null in the database when a new record is entered.
AC Distress- Reflective cracks are no longer recorded, but the entry is on the RIMS screen causing data entry errors. Please remove the spaces for reflective cracking.

Resolution

JPCC faulting sheet 6 should be updated such that there is no default for crack length.

Reflective cracking will be removed from the database as prescribed in directive I-113. This will result in the removal of the fields from the existing tables and the associated entry screens.

Status:
Part 1 - done on 4/26/2004.
Part 2 - done with work to comply with Directive D-34 (VR2004.04).

2-68 **3266** **MDS Data Entry** **MACTEC** **2/18/2003** **4/26/2004**

Description

Resolution

Discussions with FHWA and TSSC staff determined that changes should be made to the MDS data entry screens to prevent the inadvertent entry of data into the reflective cracking fields, as these fields are no longer valid.

Also discussed was the question of whether the LENGTH field for cracks in MON_DIS_JPCC_FAULT should be populated with null or zero values. Recommendation was that the entry screen should default to either zero or null depending on the value that is more appropriate. Some changes may also be necessary to MDS Sheet 6 and the accompanying text section in the DIM (pp 97-98).

The default entry for Length of Joint Spalling included in MON_DIS_JPCC_FAULT table should also be evaluated for an appropriate value of zero or null.

As described in the resolution to SPR 2-NT-65, reflective cracking will be removed from the database, and the default zero for the length of crack field in the faulting entry screen will be removed.

For length of joint spalling, the default entry should be null. The current default is zero, and should be changed.

Materials Testing

3-846   **3449**   **EXP.SHEET.L05A**   **4/14/2004**   **4/14/2004**

Description

Resolution

<Ctrl><q> exit from form EXP.SHEET.L05A causes exit from session instead of from form and back to menu – very annoying.

Source was recompiled and form works fine now.

PG Binder

1-132　　**3460**　　**PGBinder Forms**　　　　　　　　　　**MACTEC**　　　　　**4/30/2004**　　**5/3/2004**

Description

A delete form similar to the Filter deletion forms needs to be developed to delete incorrectly entered values in SAMPLE_NO from the various PG binder forms. The following message from the TSSC requires that we delete these TST_ID before the upcoming upload. The embedded triggers do not allow us to delete these values from the form.We just noticed that there are 14 entries in the TST_LINK_SAMPLE.SAMPL_NO filed for test sections in the North Atlantic region with a TST_ID valued entered. This field should only be populated with valid SAMPLE_NO values. We understand that these are new tables and populating them correctly might be tricky. For the next upload we would like to have these entries removed. Please coordinate with Peter Schmalzer on issues related to populating the values in this table.

Resolution

Region can delete with existing entry forms. No additional form needed.

3-817　　**3374**　　**PGBinder.exe, Level D**　　　　　　　**MACTEC**　　　　　**9/26/2003**　　**4/19/2004**

Description

Lab 0631 (Reed & Graham) reported "Gauge Length" of 26.7mm. All test data from this lab in TST_AE09_MASTER fails level C QC as allowed range is 30 – 35 (see attached). Recommend range be widened to accept the reported data.

Resolution

The level D QC range was set around the gauge length specified in AASHTO protocol TP-03, which is 33.8mm. Apparently, a separate protocol calls for a gauge length of 27 mm. Because there was no LTPP protocol for this testing, the appropriate thing to do is to widen the allowable QC range to include both gauge lengths.

3-842　　**3427**　　**DB Triggers: TST_XXXX_MASTER_DELETE**　　　　　　　　　**2/11/2004**　　**5/4/2004**

Description

Occasionally unable to delete from TST_AE07_MASTER, TST_AE08_MASTER, TST_AE09_MASTER, TST_SP01_MASTER and TST_SP02 using associated forms. Delete triggers (see example below) are checking all of the OTHER tables for the TST_ID, but not within the same table. So, in the case of multiple tests for the same sample (e.g. at temperatures -12 and -18) where two master records have the same TST_ID, this example trigger will cause a violation of FK_AE09_MASTER_SAMP_TST_ID.BEGIN　DELETE FROM　tst_link_layer　WHERE NOT EXISTS (SELECT 1 FROM tst_ae07_master WHERE tst_id = :old.tst_id)　AND　NOT EXISTS (SELECT 1 FROM tst_ae08_master WHERE tst_id = :old.tst_id)　AND　NOT EXISTS

Resolution

Revised SPR3427.sql to check all tables before deleting from the link tables. Due to mutating tables, this required submitting a job.

(SELECT 1 FROM tst_sp01_master WHERE tst_id = :old.tst_id)   AND   NOT EXISTS (SELECT 1 FROM tst_sp02   WHERE tst_id = :old.tst_id)   AND tst_id = :old.tst_id;   DELETE   FROM tst_link_sample   WHERE NOT EXISTS (SELECT 1 FROM tst_ae07_master WHERE tst_id = :old.tst_id) AND   NOT EXISTS (SELECT 1 FROM tst_ae08_master WHERE tst_id = :old.tst_id)   AND   NOT EXISTS (SELECT 1 FROM tst_sp01_master WHERE tst_id = :old.tst_id)   AND   NOT EXISTS (SELECT 1 FROM tst_sp02 WHERE tst_id = :old.tst_id)   AND   tst_id = :old.tst_id;END tst_ae09_master_delete;

3-3436	3436	PGBinder Forms		2/11/2004	5/4/2004

Description

I think I may have spoken too soon about TST.AE08. I just now found that we seem to be unable to fully delete data with the form.   We had duplicate data -- one set entered with Test Run 1 and another with Test Run 2. The TST_AE08_DATA rows can be deleted, but I can't figure out how to delete the master row.   See the attached screenshot.

Resolution

This is related to SPR3427. Closed with SPR3427. Region should make sure the delete process works correctly now.

Rehabilitation

M-3437	3437	RHB Superpave Tables		3/18/2004	6/16/2004

Description

Original specs.

Resolution

Created Tables, Entry Forms and QC programs. See SPR3437.sql, RHB_ACO_SP*.fmx, CN_RHB.sql, and existing RHB QC programs.

Traffic

4-462	3439	TRF_MONITOR_BASIC_INFO Table		4/5/2004	4/19/2004

Description

After reviewing the information in the table TRF_MONITOR_BASIC_INFO for IMS QC Level C check, it was observed that 30 records are failing for the years 1990 through 1996. No record was failing with this check previously. We have attached the IMS QC check result for this table.

Resolution

These records are all supplementals and only recently have been QC'd. Missing required fields will be corrected by region.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
4-465	**3442**	**TRF_BASIC_INFO Table**	**MACTEC**	**4/5/2004**	**4/19/2004**

Description

After reviewing the information in the table TRF_BASIC_INFO for IMS QC Level E check, it was observed that 24 records are failing due to Error 110 and 116 even if direction of travel in the tables TRF_BASIC_INFO, INV_ID, and SPS_ID are matching to each other.E-110: Travel direction is not same for traffic location (TRF_BASIC_INFO.DIR_TRAV_LTPP) and basic section (INV_ID.DIRECTION_OF_TRAVEL)E-116: Travel direction is not the same for traffic location (TRF_BASIC_INFO.DIR_TRAV_LTPP) and basic section (SPS_ID.DIRECTION_OF_TRAVEL)We have attached the database query result for your review.

Resolution

TRF_BASIC_INFO.DIR_TRAV_LTPP should be entered as a letter (N,S,E,W). Those records failing this check are those where DIR_TRAV_LTPP is either a number or of the form EB, WB etc. In the future, we will consider adding a level D check on DIR_TRAV_LTPP to ensure that the entries are of the correct form, but for now the resolution to this SPR is to have the regions modify the entries in TRF_BASIC_INFO, which can be done via traffic entry screen 1.

No TSSC action required.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
4-468	**3451**	**TRFQC.exe, Level E**	**MACTEC**	**4/14/2004**	**4/18/2004**

Description

After reviewing the information in the table TRF_MONITOR_BASIC_INFO for IMS QC Level E check, it was observed that 35 records are failing due to Error Code 23.TRF_MONITOR_BASIC_INFO_E_23, for GPS_SPS='S' and PAVEMENT_TYPE='F', EXPERIMENT_NO must be 1, 3, 5, 9 or 6 with MATL_CODE=341 for DESCRIPTION=3 in TST_L05B or 8 with MATL_CODE= 1-3, 9, 10-16, 219, 320, 322-330, 700 for DESCRIPTION=3 in the TST_L05B.All of the sections with this error are from the supplemental sections. Site 300560 is failing due to Error Code 23. When reviewing the table TST_L05B for the sites 300560 (supplemental section) and 300502 (core section), MATERIAL_CODE=1 was observed for DESCRIPTION =3 for both 300560 and 300502. However, site 300502 is not failing due to Error code 23.This check is based on core section expectations for material type of the original surface. Since there is data from supplemental sections in this table, this check should be modified for supplemental sections or instructions on conditions for manual upgrades provided. The 0560 section has gone from a SPS experiment_no = 5 to a GPS experiment_no = 6S. The 0502 section has as well. However, it may have been QC'd to Level E prior to the change in experiment and the addition of supplementals to the QC.

Resolution

Modified code to perform check correctly.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
M-3454	**3454**	**LTAS**		**4/21/2004**	**6/17/2004**

Description

The binning of quad axles for the current LTPP Traffic Analysis software is

Resolution

Added new field to TRF_MONITOR_AXLE_DISTRIB table in both TRFDB and

inconsistent with that of the original version. The original version used 3,000 lb increments to bin quadruple (and larger) axle groups. The current version has been coded for 4,000 lb increments. Thus the weight data loaded prior to October 24, 2002 is inconsistent with that loaded after. This error affects three-quarters of the site-years of data loaded and 2.9% of the axle records. The solution to this problem is two-fold and discussed on the following pages.

PPDB (SPR3454_ppdb.sql). New field will indicate how the data in the record was binned.

M-3464   **3464**   **TRFAnalysisQC.exe**   **5/4/2004**   **5/6/2004**

Description

Tables: TRF_MONITOR_AXLE_DISTRIB, TRAFFIC_ANALYSIS_TRACKER

If TRF_MONITOR_AXLE_DISTRIB.AXLE_GROUP = 1 then TRF_MONITOR_AXLE_DISTRIB.WEIGHT_BIN_SIZE must equal 1000.
If TRF_MONITOR_AXLE_DISTRIB.AXLE_GROUP = 2 then TRF_MONITOR_AXLE_DISTRIB.WEIGHT_BIN_SIZE must equal 2000.
If TRF_MONITOR_AXLE_DISTRIB.AXLE_GROUP = 3 then TRF_MONITOR_AXLE_DISTRIB.WEIGHT_BIN_SIZE must equal 3000.
If TRF_MONITOR_AXLE_DISTRIB.AXLE_GROUP = 4 then for matching STATE_CODE, SHRP_ID, and YEAR in TRAFFIC_ANALYSIS_TRACKER, if TRAFFIC_ANALYSIS_TRACKER.DD_WT_DATE is greater than or equal to 24-Oct-2002 and TRAFFIC_ANALYSIS_TRACKER.DD_WT_DATE is less than 12-May-2004 then
TRF_MONITOR_AXLE_DISTRIB.WEIGHT_BIN_SIZE must equal 4000.
Otherwise, TRF_MONITOR_AXLE_DISTRIB.WEIGHT_BIN_SIZE must equal 3000 for TRF_MONITOR_AXLE_DISTRIB.AXLE_GROUP = 4.
Error Message: TRF_MONITOR_AXLE_DISTRIB E-104: {STATE_CODE, SHRP_ID, YEAR, VEHICLE_CLASS, AXLE_GROUP} The WEIGHT_BIN_SIZE must be {REQUIRED_WEIGHT_BIN_SIZE} for this axle group in stead of {WEIGHT_BIN_SIZE}.

Resolution

Added TRF_MONITOR_AXLE_DISTRIB-E-101.

M-3470   **3470**   **PPDB Traffic Data Sheets**   **3/31/2004**   **6/16/2004**

Description

In reviewing Sheet 16s as they are developed for the SPS WIM project I have come across cases where the computed answers may not fit in one or more of the DIFF_VOL fields in TRF_CALIBRATION_AVC. All such fields should be increased from Number(3) to Number(4) to facilitate data entry.

Resolution

Created script SPR3470DiffVol.sql to export TRF_CALIBRATION_AVC and update DIFF_VOL_FHWA_* field sizes from NUMBER(3,0) to NUMBER(4,0). Script also updates DATA_TYPE in LTPPDD. No change required in QC program. Form updated to allow larger numbers.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
S-3434	3434	Shared Traffic QC	MACTEC	3/16/2004	5/5/2004

Description

Several Questions as follows:

If total_trucks_weighed is NULL the E-106 check should not be done based on this e-mail. For the Level E QC checks on TRF_MONITOR_AADT and TRF_MONITOR_LTPP_LN if these fields are NULL should the checks not be done?
   TRF_MONITOR_AADT: TOTAL_TRUCKS_COUNTED & TOTAL_TRUCKS_WEIGHED
   TRF_MONITOR_LTPP_LN: TRUCKS_COUNTED & TRUCKS_WEIGHED

Will you update Vol 3, Appendix C to reflect excluding these fields from Level E checks if NULL?

Also will you be making the following changes In Vol 3, Appendix C?
Tables: TRF_MONITOR_AXLE_DISTRIB, TRF_MONITOR_LTPP_LN

For matching STATE_CODE, SHRP_ID, YEAR and VEHICLE_CLASS a record must exist in TRF_MONITOR_LTPP_LN with RECORD_STATUS = E

Error message TRF_MONITOR_AXLE_DISTRIB E-101: {STATE_CODE, SHRP_ID, YEAR, VEHICLE_CLASS, AXLE_GROUP} No matching record in TRF_MONITOR_LTPP_LN

Resolution

Added VEHICLE_CLASS as a key in TRF_MONITOR_AXLE_DISTRIB-E-101. Added null value checks in Level E checks involving TOTAL_TRUCKS_WEIGHED, TOTAL_TRUCKS_COUNTED, TRUCKS_WEIGHED, and TRUCKS_COUNTED.

Transverse Profile

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-853	3475	TPRFLOAD.exe		5/19/2004	6/3/2004

Description

Data fails to load per: "ORA-01438: value larger than specified precision allows for this colum" The error is caused by an attempt to insert 1243716.0 into POINT_LOC. (See attached log file excerpt and example data files.) We have been unable to successfully load this data and are unable to determine the cause or the source of the errant value.

Resolution

The old version of tprfload.exe will NOT process the new ProQual output files. The new version of TPRFLOAD will be distributed with the next software release along with instructions for processing the new files and the CROSS SLOPE data files.

M-3452   3452   **tprfload.exe**   **4/8/2004**   **6/10/2004**

Description

Modifiy error message sent to log file when input file in an old format is encountered. New message should include device code, but otherwise be generic.

Resolution

Changed wording on error message to be generic. Message displayed on screen and in log file. Message: Device Code = D, point_loc is in old style format cannot load.

S-3486   3486   **TPRFLOAD.exe**   **6/16/2004**   **6/16/2004**

Description

Latent error found in TPROF Loader program code. Error found during test of SPR 3452.

Resolution

On old format files with the DATE not in the DD/MON/YYYY format, garbage was printed. Changed to reject these files.

Transverse Profile Cross Slope

M-3377   3377   **TPROF Cross Slope**   **10/3/2003**   **6/17/2004**

Description

Original Specifications

Resolution

Created CrossSlopeLoad.exe, CrossSlope.QC, SPR3377.sql, and updated CN_TPROF.sql