



U.S. Department
of Transportation

Federal Highway
Administration

Memorandum

6300 Georgetown Pike
McLean, Virginia 22101-2296

Subject: **ACTION:** LTPP Directive TDP-41
Release of LTPP Traffic Analysis Software Version 1.6

Date: April 13, 2006

From: Deborah Walker 
Highway Research Engineer

Reply to
Attn of: HRDI-13

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

Attached is the LTPP Directive TDP-41. This directive addresses the executable and supporting table updates made to the LTPP Traffic Software since the release of version 1.5. Installation instructions are included in Attachment 1. Installation of the updated software shall be completed by Friday, May 12, 2006, and full implementation of version 1.6 shall begin on Monday, May 15, 2006. Please ensure that all personnel involved with the Traffic Program are aware of this new directive.

Questions concerning this directive should be addressed to Ms. Debbie Walker at (202) 493-3068.

Attachments (2)

FHWA:HRDI-13:DWalker:nmcpherson:493-3068:04/13/06

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Directive File

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LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE



For the Technical Direction of the LTPP Program

Program Area:	Traffic	Directive Number:	TDP-41
Date:	April 13, 2006	Supersedes:	TDP-39
Subject:	<i>Release of LTPP Traffic Analysis Software Version 1.6</i>		

Purpose

The purpose of this directive is to authorize the release of version 1.6 of the LTPP Traffic Analysis Software (LTAS) for the LTPP Regional Support Contractors (RSCs) to begin using. Installation of the updated software shall be completed by Friday, May 12, 2006 and full implementation of version 1.6 shall begin Monday, May 15, 2006. This directive discusses the executable and supporting table updates made to LTAS. It also includes a list of all changes made to the software since the release of version 1.5.

Changes

This release addresses software functionality, Software Performance Reports (SPRs), miscellaneous items, and database modifications (see Attachment 2—List of Changes). One significant change to this version of the software is the ability to load weight data. This new feature is detailed below.

In addition, all STAT_QC tables were altered to include RECORD_STATUS. The instructions for completing the transformation are part of the attachment. The necessary scripts are included with the software distribution on the Technical Support Services Contractor's (TSSC's) corporate FTP site in \Outgoing\LTPP_LTAS.

A user now has the ability to upgrade record status within the software. This function has been extensively tested for the COMP_* and TRF_* tables because they are the ones that will be affected the most by any record status upgrade.

Version 1.6 also offers the option to graph non-Level E data. As a result, the graph screens for tables with Record_Status fields were modified accordingly.

Ability to Load Weight Data

Version 1.6 allows the user to load weight data using either the Load Data or Daily Summaries function. Load Data is the preferred function to use for all site-years that have not been processed through the LTPP Traffic QC Software (LTQC). The Daily Summaries function requires that all data for a year be loaded at one time. The Daily Summaries function removes all existing data. In contrast, the Load Data function allows files to be loaded as they become available and it replaces only the reloaded days.

Site-years processed through LTQC may also be processed through the Load Data function. To do so, make the appropriate filename change and apply purges previously done in LTQC, in LTAS using the Purges option.

Software Functionality—Analysis.exe (continued)

- ◆ Initialized a class variable that was not being reset between the 7-card and w-card input files. This gave the appearance that the data had not been loaded (all records were in Veh_Class = 20). It also caused some problems with the reports.
- ◆ Updated how to handle the Upload to IMS and Load Method flags.
- ◆ Cleared temp table (stat_qc_a_ax_9_dd_temp) of data after processing data.
- ◆ Modified Traffic_Analysis_Tracker update statement to update dates in new record rather than source record.

SPRs Addressed

- ◆ *SPR 4-500*. Modified daily weight loading in Daily Summaries to count only one record per vehicle and not the number of records (continuation cards) that make up a vehicle for insertion into the ERR_WT table field, record_error_count. This field will now reflect a vehicle error count to match LTQC reporting.
- ◆ *SPR 2-92T*. Corrected problems with the Copy Utility and Agency Cover Sheet and Graph.

Miscellaneous Items

- ◆ Updated SPS Summary Report for multiple reporting of comp periods.
- ◆ Updated Graphs to correct problems with Next / Previous buttons.
- ◆ Updated Daily, Load Files, Purge and Report for change in TRF_ORA_ERR field size for new Purge codes.
- ◆ Modified Monthly Data Report output:
 - Replaced "-1.S" output with 0.0 in GVW Percents.
 - Corrected % Trucks to print only if cars are included.
 - Corrected output when Sunday is blank (totals were printing in the wrong column).
 - Added carriage returns and blank lines where necessary.
 - Added "Average Daily Volume" to the title.
 - Prints days rejected even if there are no days accepted.
 - Includes all months included in the selected date range.
 - Corrected total of percent of class 14 and greater.
- ◆ Monthly Statistics Report:
 - Corrected the number of days accepted and rejected and output formatting.
 - Modified percentages to calculate correctly and print tenths of a percent.
 - Only shows GVW data if there is data in the table
- ◆ Changed percentage over and under weight from numbers to percentages on the Annual Summary Sheet Weight by Lane.
- ◆ Modified Error Summary Report to reflect Purge process in LTAS not entering purge counts in ERR_WT.
- ◆ Modified SPS Comparison Graphs that show two data types to:
 - Handle different comparison dates.
 - Separately display number counted and number weighed.

Software Functionality—Analysis.exe (continued)

- ◆ Graphs
 - SPS – Weekly – 4-Card vs. 7-Card – Week By Date
 - SPS – Monthly – 4-Card vs. 7-Card – Month by Day of Week
 - Agency – Weekly – 4-Card vs. 7-Card – Week By Date
 - Agency – Yearly – 4-Card vs. 7-Card – Year By Date
- ◆ Added Update Record Status to handle manual upgrades of all tables with RECORD_STATUS fields.
- ◆ Added “record_status” field to the STAT_QC_* tables and updated LTAS Daily Processing and Load Files to populate this field.
- ◆ Added to Daily QC the QC of the STAT_QC_* tables and additional QC on the DD_AX and DD_GVW tables as follows:
 - For any records in DD_AX not at Level E, update the record_status to the minimum record_status found for the state, SHRP, lane_trf, dir_trf, year, month, day and veh_class - regardless of axle_group.
 - For any records not at E in DD_AX update the matching records in DD_GVW (state, SHRP, lane_trf, dir_trf, year, month, day and veh_class) to the record_status of the set in DD_AX if the record_status in DD_GVW is greater than the record_status of the set in DD_AX.
 - STAT_QC_A_AX set record_status equal to record_status of DD_AX for the matching state, SHRP, lane_trf, dir_trf, year, month, day, veh_class, axle_group
 - STAT_QC_A_AX_9_dd set record_status equal to minimum record_status of DD_AX for the matching state, SHRP, lane_trf, dir_trf, year, month, day
 - STAT_QC_BC_AX set record_status equal to minimum record_status of DD_AX for the matching state, SHRP, lane_trf, dir_trf, year, month, day, veh_class
 - STAT_QC_BC_SPACE set record_status equal to minimum record_status of DD_AX for the matching state, SHRP, lane_trf, dir_trf, year, month, day, veh_class
 - STAT_QC_GVW_9_DD set record_status equal to minimum record_status of DD_AX for the matching state, SHRP, lane_trf, dir_trf, year, month, day
- ◆ Added STAT_QC_* tables to QC reports.
- ◆ Added “Level E Records Only” option to the “Agency Graph Options,” “STAT QC Graph Options,” and “SPS Pooled Fund Graph Options” screens. This provides the ability to view all daily data and not just daily data at Level E. When the box is checked (default) only records with a record status of E will be included in the data selected. If the box is not checked, records with any record status will be included except for purged records (record_status = ‘P’). Once a record is purged, it is not available for viewing by any graph.
- ◆ Added ability to access the Logs screen from the Purge Detail screen.
- ◆ Added a message to the Remove Data functionality to advise the user that Remove Data does not clean up the TRAFFIC_PURGES or the TRAFFIC_RS_CHANGES tables. These tables require manual cleanup by the user or the DBA.
- ◆ Updated processing to remove comparison data when any day in the date_collected_from / date_collected_to interval for a lane and direction is reloaded (Load Files or Find Files/Daily Summaries), purged or removed from the database through Remove Data.
- ◆ Updated Load files processing to capture and report the number of continuation records per file and a total for the load. (Count is for 9 records only - not 2 continuation records.)
- ◆ Modified error checking on Class loading to occur only when total volume > 50.

ATTACHMENT 2 List of Changes

Software Functionality—Analysis.exe

- ◆ Added ability to directly load Weight data into LTAS. *Note: All files in a folder that are being loaded must be closed and not accessed by another tool/editor or the software will fail. Individual files must be closed (and not be in the process for editing) to load.*
- ◆ Modified SPS Comp Data creation to be data type specific. Data type was added to the SPS Comp Data screen and the user has the option to create a comparison data set for either class or weight.
- ◆ Added “Save” button to the Graph screen. This button provides the ability to save a graph to a file has an “Enhanced Metafile”. The filename will have the extension “.cmf”. Enhanced metafiles are not viewable in Paint or a text editor but the following method does allow the graphs to be viewed and saved in a readable format.
 - In MS Word select “Tools”, on the submenu select “Options”. The “Options” page will be displayed. Select the “View” tab. On this tab select the check box for “Picture Placeholder” and select “Apply” or “OK”. The result of this action is that a box will be displayed in the Word document where enhanced metafile is inserted.
 - To insert the picture into the MS Word document select “Insert”, on the submenu select “Picture”, on the sub-submenu select “From File”. The “Insert Picture” dialog box will be display, locate and insert the desired graph file that was saved from the LTAS software. The file should have been save with an “.cmf” extension.
 - To view the graph, select the box that indicates the picture placeholder for the graph that was inserted. Select “Edit”, on the submenu select “Edit Picture”. The chart will be displayed in the MS Word document. Click off the chart in the document to retain the chart in the document.

Under Tools, Options on the Edit tab there is a drop down box to indicate how the graph should be displayed with surrounding text – either fixed or floating. Set this option as desired.

- ◆ Updated Daily QC on the DD_AX table to apply an upper limit check on each AX_CT_* bin.

AX_CT_01, AX_CT_02	2000	
AX_CT_03	2500	
AX_CT_04, AX_CT_05	2000	
AX_CT_06, AX_CT_07, AX_CT_08, AX_CT_09	1500	
AX_CT_10, AX_CT_11, AX_CT_12		2000
AX_CT_13, AX_CT_14	1500	
AX_CT_15, AX_CT_16, AX_CT_17		1250
AX_CT_18	1000	
AX_CT_19, AX_CT_20	750	
AX_CT_21, AX_CT_22, AX_CT_23		325
AX_CT_24, AX_CT_25	250	
AX_CT_26, AX_CT_27	150	
AX_CT_28, AX_CT_29	125	
AX_CT_30, AX_CT_31, AX_CT_32, AX_CT_33	100	
AX_CT_34	75	
AX_CT_35, AX_CT_36	50	
AX_CT_37, AX_CT_38, AX_CT_39, AX_CT_40	25	

ATTACHMENT 1

The following table lists the steps for installing version 1.6 of the I.TPP Traffic Analysis Software (LTAS).

Installing LTAS Version 1.6

Step	Action
1	Modify the script Traffic_Tables_Update_1_6.sql to uncomment the sequence numbers for your region and save the revised script.
2	Execute the script (as the DBA for the traffic instance) to update the Traffic_Tables table. <i>sqlplus dbaname/dbapwd@trfprod @Traffic_Tables_Update_1_6.sql</i> NOTE: This step may take some time because Record_Status must be set for all STAT_QC tables.
3	Execute the script (as the DBA for the traffic instance) to update the codes in the TRAFFIC_CODES table. <i>sqlplus dbaname/dbapwd@trfprod @Traffic_Codes_Update_1_6.sql</i>
4	Replace the analysis.exe on the server using the updated analysis.exe located in the zip file Analysis_1_6.zip.
Note: Changes to the software are in the Analysis Software Version 1.6.doc file.	

Questions or Issues

Questions concerning this directive should be addressed to Ms. Debbie Walker at (202) 493-3068. If there are problems implementing this directive, please submit a Software Performance Report (SPR) according to the guidelines in TDP-40.

Prepared by: TSSC

Approved by:



Aramis López, Jr.
Team Leader, LTPP Operations

Distribution and Installation of Updated Software

The updated software is posted on the TSSC's corporate FTP site for download until Monday, April 24, 2006. The software, scripts, and updated documentation are in Outgoing\LTPP_LTAS. The installation of the analysis software and support table elements to permit processing with the traffic data analysis software shall be completed by Friday, May 12, 2006. Additional copies of the software needed after April 24, 2006 must be requested through the LTPP Customer Support Service Center.

The table in Attachment 1 "Installing LTAS Version 1.6" lists the steps for installing the new release of the traffic analysis software. The installation information is also included with the software distribution.

Manual Revisions

The major changes to the LTPP Traffic Analysis Software documentation are found in Volume 1—Users' Guide, Volume 1A—SQLs and Troubleshooting, Volume 2—Graphics, and Volume 3—ORACLE Table Specifications.

Volume 1 was restructured to match the sequence of buttons on the software screens. Volume 1A was updated to match the structure of Volume 1. It also includes the use of hyperlinks to SQL and PL/SQL scripts and error message information. In Volume 2 (formerly Volume 5), all the spreadsheet instructions were removed from the appendices. Also in this volume, changes were made to the following appendices:

- ◆ Appendix A – SPS Graphs. This section was updated to include the changes associated with version 1.6. Restructuring was done to provide more detail on data review. This includes purge instructions and codes.
- ◆ Appendix B – Agency Graphs. Additional graphs, initial review instructions, and purge codes were added.
- ◆ Appendix C – 13-bin Graphs. Additional graphs and initial review instructions were added.
- ◆ Appendix D – Classification Error Graphs. Additional examples, purge codes, and commentary were added.
- ◆ Appendix E – ESAL Graphs. Only the appendix letter and date were changed.
- ◆ Appendix F – STAT_QC Graphs. Restructuring was done to provide more detail on data review. This includes purge instructions and codes. Also, obsolete examples were removed.

All table, code, and QC changes that were incorporated in this new version of LTAS were added to Appendices A through C in Volume 3.

The current documentation for the LTPP Traffic Analysis software is posted on the TSSC's corporate FTP site for download until Monday, April 24, 2006. Additional copies of the updated manual needed after this date must be requested through the LTPP Customer Support Service Center.

Database Modifications

- ◆ Updated codes for Weight Loading process modules and error codes in TRAFFIC_CODES table.
- ◆ Updated codes for weekly graphs.
- ◆ Updated codes for additional error codes for purging data.
- ◆ Updated TRF_ORA_ERROR and TRF_ORA_ERR from NUMBER(2,0) to NUMBER(3,0) to allow for additional types of reasons to purge data (error codes).
- ◆ Updated STAT_QC_* tables to add the field "record_status" and set the initial value to 'E'. The following functionalities impacted by adding record_status to STAT_QC_* and the Level E option in Graphs include:
 - SHRP Information
 - Compute IMS
 - Graphs
 - Daily Processing
 - Load Files
 - QC
 - Reports
 - Purge
 - Remove Data
- ◆ Added Traffic_RS_Changes table.