



LONG TERM PAVEMENT PERFORMANCE
PROGRAM DIRECTIVE



For the Technical Direction of the LTPP Program

Program Area: IMS **Directive Number:** I-47
Date: August 5, 1997 **Supersedes:** n/a
Subject: Development of Linked Section Traffic Estimates
for SPS Sections

This directive addresses the development of traffic information for all SPS sections, both core and supplemental which were not identified as “first” sections in IMS directive I-46, “First” Section for SPS Linked Site Traffic Processing. A “first” section is either the GPS section associated with a SPS project or a SPS section on the project for which all traffic processing must be done. A linked section for traffic purposes is one which uses the results of the “first” section to generate annual estimates but does not require any other processing other than IMS QC.

Reference materials to support this directive include:

- SPS Traffic Processing software [version of 7/8/97]
- SPS Traffic Processing software users guide [version of July 1997]
- Specifications for TRF_SPS_DAT [revision of 8/5/97]
- SPS.Dat files (sample extraction by region)
- INPUTS34.xls [dated 7/17/97]
- Long-Term Pavement Performance Data Collection Guide (LTPP DCG) [October 23, 1993]

SPS EXPERIMENT CORE SECTIONS:

For each SPS project, a section has been designated the “first” or principal section for which all traffic processing steps are completed. This section of this directive addresses all SPS experiment core sections which are not “first” sections but are sections which are part of the same project and therefore ‘linked’ for the purposes of traffic data processing. The discussion of available data means data for a specific year for the “first” section. Years both before and after monitoring was initiated for the Long-Term Pavement Performance Program are addressed. A region will not do any interpolation or extrapolation of data from traffic information already in their possession to fill in data for missing years. Unless otherwise indicated by a state, the same truck and vehicle volumes are assumed to apply to all sections of a project. If sufficient information has been provided by a state on the structural values underlying an ESAL estimate for a section in an SPS project, the region may calculate loadings for the other sections on the project using data obtained from materials testing.

If monitored weight and vehicle classification data are available for the “first” section, the SPS.DAT software will be run to provide annual estimates of overall and by vehicle class truck counts and loadings for each linked section.

If only monitored vehicle classification data is available for the “first” section, the SPS.DAT software will be run to provide annual estimates of overall and by class truck counts for each linked section. A section specific equivalent single axle (ESAL) estimate will be obtained from the state using the current Traffic Sheet 10, Traffic Volume and Load Estimate Update - No Site Count (10/23/93) or derived by the region as appropriate.

If only monitored volume data is available for the “first” section, the SPS.DAT software will be run to provide annual estimates of total vehicles for each linked section. Section specific equivalent single axle (ESAL) and truck estimates will be obtained from the state using the current Traffic Sheet 10 or derived by the region as appropriate.

If no monitored data is available for the “first” section for a year in the period 1990 to date, a section specific estimate using Traffic Sheet 10 will be requested from the state for each linked section. If the estimate is provided without specifying which section or at the project level, the region will create Sheet 10s for each core section transferring only the vehicle count information for all sections. If the ESAL estimate cannot be associated with a specific section, it will not be included in an electronic traffic data base.

If no Sheet 10 estimate is obtainable for a specific linked section for a given year, a record of that determination must be maintained by the region. Identifying unavailable traffic information will be addressed in the redesign of the traffic data process.

For sections with construction dates prior to 1990, the process for obtaining historical estimates described in the LTPP DCG should be followed. Completion of Sheets 1 and 2 are the minimum required information to complete the IMS tables. If a section specific ESAL estimate is not available, no loading estimate should be provided. If estimates for 1989 and earlier are available for the “first” section, all relevant data but ESALs may be used to create Sheet 1 and Sheet 2 entries. Work on historical estimates should not begin until after regions assume full responsibility for traffic in the IMS.

SPS EXPERIMENT SUPPLEMENTAL SECTIONS:

For each SPS project, a section has been designated the “first” or principal section for which all traffic processing steps are completed. This section of this directive addresses all SPS experiment supplemental sections which are not “first” sections but are sections which are part of the same project and therefore ‘linked’ for the purposes of traffic data processing. The discussion of available data means data for a specific year for the “first” section. Years both before and after monitoring was initiated for the Long-Term Pavement Performance Program are addressed. A region will not do any interpolation or extrapolation of data from traffic information already in their possession to fill in data for missing years. Unless otherwise indicated by a state, the same truck and vehicle volumes are assumed to apply to all sections of a project. If sufficient

information has been provided by a state on the structural values underlying an ESAL estimate for a section in an SPS project, the region may calculate loadings for the other sections on the project using data obtained from materials testing. Loading of traffic data for supplemental sections is considered a courtesy to the states. The IMS QC does not review this traffic information.

If monitored weight and vehicle classification data are available for the “first” section, the SPS.DAT software will be run to provide annual estimates of overall and by vehicle class truck counts for linked supplemental sections. Loading information will only be generated when the state has provided the necessary structural information to load a value of SN or D into TRF_SPS_DAT. The region is not responsible for developing these values.

If only monitored vehicle classification data is available for the “first” section, the SPS.DAT software will be run to provide annual estimates of overall and by class truck counts. A section specific equivalent single axle (ESAL) estimate may be requested from the state using the current Traffic Sheet 10, Traffic Volume and Load Estimate Update - No Site Count (10/23/93).

If only monitored volume data is available for the “first” section, the SPS.DAT software may be run to provide annual estimates of total vehicles. A section specific equivalent single axle (ESAL) estimate and volume estimate may be requested from the state using the current traffic sheet 10.

If no monitored data is available for the “first” section, a section specific estimate may be requested from the state using the Traffic Sheet 10. If the estimate is provided without specifying the section or at the project level, the region will create Sheet 10s for each supplemental section transferring only the vehicle count information for all sections. If the ESAL estimate cannot be associated with a specific section, it will not be included in an electronic traffic data base.

The tracking of missing traffic values on supplemental SPS sections is not a regional record keeping requirement.

If a state wishes to provide traffic data for supplemental sections for years between construction and 1990, they should do so using the procedures for GPS sections for data for 1989 and earlier in the LTPP DCG. ESAL estimates must be section specific to be loaded into an electronic traffic database.

REFERENCE MATERIALS:

The SPS Processing software has been distributed and the implementation instructions contained in LTPP Traffic Directive 6 dated July 22, 1997.

The user’s guide for the SPS traffic processing software is on Chaparral Systems Corporation’s web site (www.chapsys.com). The applicable version is dated July 1997. Regions are responsible for downloading the necessary copies for reference and use prior to September 12, 1997.

The specifications for TRF_SPS_DAT, last revised August 5, 1997, reflect the instructions for development of IMS tables and programs to support SPS linked section traffic processing.

The SPS.DAT file provided for each region reflects these instructions. The tables include values of SN and D taken from the CTDB for SPS 3 and 4 sections. If a value of SN or D did not exist in the CTDB for a specific SPS section, the value assigned to another section in the project was used. If no value had been assigned to an SPS section, the value for the linked GPS section was used. If a value had been assigned for an SPS section and the linked GPS section, the SPS section value was used. Unless other information appeared in the CTDB, the same value of SN (D) was applied for all years. Where a value changed over time, it was applied in the first year it appeared and for all succeeding years until a new value was found.

Inputs34.xls is an Excel 5.0 spreadsheet used to create the comma, separated, value files with SN and D values for SPS 3 and 4 experiments. The values of SN and D were assigned as indicated in the previous paragraph. The value for construction month and day were assigned with a random number generator since they are not currently used in processing. The construction year was defined as the earliest year the section should have had monitored traffic data. The spreadsheet is provided to document the initial loaded values for TRF_SPS_DAT for pavement structure. It is an example of a method by which the information needed for TRF_SPS_DAT as indicated by the specifications may be organized and stored.

Until responsibility for loading into the IMS is transferred to the regions, the central database administrator (CDBA) will be responsible for the loading of data into the TRF_SPS_DAT table. The TRF_SPS_DAT table will be included when all other traffic tables are provided for inclusion on the regional servers. In the interim, the regions will supply the comma separated value files as specified by the TRF_SPS_DAT specifications on an as needed basis. When needed, they must be sent to the CDBA no less than fifteen working days prior to a scheduled CTDB upload. An extraction of TRF_SPS_DAT will be provided to the regions on request, but no later than ten working days prior to the CTDB upload. The TRF_SPS_DAT table is to be updated after uploads of SPS?_PROJECT_STATIONS tables and annually otherwise to insure records exist for the most recently ended year.

Since this TRF_SPS_DAT table is subject to revision over time, an exact copy of the SPS.DAT file used for any upload of SPS traffic data to the CTDB will be provided by the region with that upload.

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