

VIII. ANNUAL DATA PROCESSING



Video 31 AADT Development

Between January 1 and March 15 each year, the Districts and the TRANSTAT Central Office work together to evaluate and finalize traffic count data that was loaded to the mainframe during the previous calendar year. This process includes factor development and assignments, and application of appropriate factors to traffic counts. AADT, K, D, and T are estimated for every section break of the State Highway System. Unless otherwise stated, K and D are for the 30th highest hour of the year based on data from continuous monitoring sites.

During this end-of-year Annual Statistics Development Process, TRANSTAT produces several reports to help the Districts analyze short-term data and update databases. TRANSTAT coordinates this process within strict deadlines. Review the QC Plans in Appendices F and G, and flow charts and QC plan deadlines.

CONTINUOUS COUNT DATA

The TRANSTAT Office processes the continuous count data to develop the Monthly Average Daily Traffic (MADT), Annual Average Daily Traffic (AADT), and monthly factors.

Monthly ADTs

Monthly ADTs are computed in the following manner:

- 1) Each direction of travel at each site is processed separately.
- 2) Only daily records with flags of N (normal), A (atypical), H (holiday) and S (special event) are used. Any records flagged B (bad) are not used in any calculation.
- 3) For each month, all the Mondays, Tuesdays, etc. are averaged.
- 4) The monthly ADT is computed by averaging the seven day-of-week averages. Note, if a Saturday or Sunday average is unavailable for a particular month, then that monthly ADT is not calculated. However, if both the Saturday and Sunday, and at least one weekday averages are available for a month, the monthly ADT will be computed based on the averages of available days.

AADT

Annual average daily traffic are computed in the following manner:

- 1) The monthly averages for each day-of-week are averaged to generate the annual day-of-week averages.
- 2) The seven annual average day-of-week values are averaged to generate the annual average daily traffic.
- 3) The directional annual average daily traffic volumes are summed to generate the annual average daily traffic for a station.

Seasonal Adjustment Factors

Seasonal (volume) adjustment factors are calculated in the following manner:

- 1) Each direction of travel at each site is processed separately.
- 2) Monthly ADT are estimated for those months where data is lacking. Missing monthly ADT will not be estimated for those stations missing more than 2 consecutive months of data.
- 3) Monthly factors are computed by dividing the AADT by the MADT.
- 4) For each station, the directional monthly factors are averaged together. For those stations that have only one good direction of data, those monthly factors are used for the station.

FACTOR CATEGORIES

Each year, changes in the number and type of counts result in the need to update the Assignment of Stations to Categories, and the Assignment of Categories to Counts. During the AADT DEVELOPMENT PROCESS, the Districts work closely with the Central Office to make certain the correct assignments are made, and the Inventory Database is updated. Seasonal and Axle Factors are applied to short-term counts to estimate AADT.

ASSIGNING STATIONS TO CATEGORIES

District staff assign up to eight stations to each factor category, so that reasonable factors can be calculated even if any stations are not counted that year, or if it is counted but has atypical traffic.

Assignments to categories can be made anytime throughout the count year cycle by using the Seasonal or Axle Factor Category Assignment screens available under the FCAT tab on the mainframe TCI application.

Seasonal Factor Categories

It is recommended that more than one count station be assigned to each factor category so that a fair representation of the traffic's seasonal flow and volume can be estimated.

Seasonal categories have been designed to be county specific with at least one Seasonal Category "Statewide" Category for each County and one Seasonal Factor Category for each Interstate Roadway within each County. Additional Seasonal Factor Categories can be developed to handle geographic differences within a single county (For example beach traffic has different characteristics than urban traffic).

Axle Factor Categories

Axle factor categories are handled similarly to seasonal factor categories, except both TTMS and PTMS classification stations can be assigned to axle factor categories. Axle factor categories are more highway-specific than seasonal factor categories---an Axle Factor Category must be developed for each Highway Section. This results in considerably more axle factor categories than seasonal factor categories.

Central Office derives axle factors from classification counts by dividing the total volume of vehicles by half the number of axles present on those same vehicles. This results in a factor that is always less than 1.00 (although it may round to 1.00 if there are few trucks in the traffic stream).

**COMPUTING
SEASONAL AND AXLE
FACTORS:**

- 1) All stations assigned to the factor category are averaged together to generate monthly average factors.
- 2) The monthly average factors are assigned to the week of the year that contains the midpoint of the month.
- 3) Weeks without factors are estimated by extrapolating from the mid-week of one month to the mid-week of the next month.

**ASSIGNING
CATEGORIES TO
COUNTS**

Seasonal and Axle Factors are assigned to each count by SPS when counts are processed---according to the information contained in the Station Inventory Database. These assignments must be reviewed and updated during the AADT Development Process---with special care given to stations with more than one type of count.

**UPDATE FACTOR
CATEGORIES**

- 1) Seasonal and Axle Factor Categories and assignments can be updated at any time throughout the year.
- 2) At least one continuous count station (TTMS) must be assigned to each Seasonal Factor Category.
- 3) At least one seasonal or continuous class station must be assigned to each Axle Factor Category.
- 4) A Seasonal Factor Category must be assigned to each short-term monitoring site.
- 5) An Axle Factor Category must be assigned to each short-term monitoring site.
- 6) Assign class stations to any axle factor category for which no axle factors can be calculated because of lack of data.

FINAL REVIEW

After updated factors are applied, reports are generated and a final review is done.

- 1) Review the factored counts to make sure that the correct seasonal and axle factor categories are applied to each count depending upon the type of count, the sensor type, and the Survey Program.
- 2) If multiple counts are taken throughout the year at the same count station, it is possible that different seasonal or axle factor categories have been assigned to each count, depending on whether or not changes have been made to the Seasonal or Axle Factor Category assigned to a count station in TCI. If this occurs, manually change the incorrect factor category assigned to the count by using the TCI Count Data update screen. All counts at the same station should use the same Seasonal Factor Category for the count year. If there are multiple axle counts loaded for a single station during the year, the same Axle Factor Category should be assigned to each.
- 3) Make sure all factors are applied as desired, and make adjustments to sites for which the resulting AADT's are not reasonable.
- 4) Make sure all desired count sites are activated in TCI and deactivate sites that won't be used.
- 5) Make sure all counts are correctly included in the current year database. Districts can manually add, delete, or change count summaries from the Count Data screen in TCI.
- 6) Compare the directional split to historic counts and to adjacent counts to make sure they are reasonable.
- 7) Verify that any AADT that is 20% lower or higher than the previous year AADT is in fact a legitimate value, and not an error.
- 8) All counts must either be directional or bi-directional at each site.
- 9) Review truck volumes and %T to make sure they are reasonable. If truck volumes weren't collected at a site, or aren't reasonable, the Districts can assign T% from another site (called a "cross-reference").
- 10) K, D, and T assignments not made at the District level will default to a Statewide Functional Classification Category.

ESTIMATES

Any active stations not counted during the year will have their AADT estimated by applying a growth factor (as obtained from the continuous counter data) to the previous year's AADT. Estimated AADT values will be computed for a maximum of two years in a row. Each station is to be counted a minimum of once every three years. When a site can't be counted for a third year, the site will be deactivated in the Station Inventory and a station from a break with similar traffic characteristics will be assigned to the break. If they wish, the Districts can manually estimate an AADT for the third year.

ANNUAL STATISTICS

An AADT, K, D and T factor must be assigned to each count station. T factors can be calculated for all vehicle class stations. K and D factors can only be calculated for continuous count stations with sufficient quantities of good data. For all other stations, the K30, D30 and T values are estimated, based on the following methodology:

Choice by Priority	Continuous Monitoring Sites		Short-Term Monitoring Sites	
	K and D	T	K and D	T
1st	Seasonal Factor Category	Cross Reference	Seasonal Factor Category	Axle Factor Category
2nd	Functional Classification Category	Axle Factor Category	Districtwide Functional classification Category	Districtwide Functional Classification Category
3 rd	Statewide Functional Classification Category	Districtwide Functional Classification	Statewide Functional Classification Category	Statewide Functional Classification Category
4 th	-	Statewide Functional Classification	-	-

SECTION BREAK STATISTICS

In order to assign an AADT, K30, D30 and T factor to all highways in the RCI database, the section breaks file is used. This file is used to assign data collected at a particular point of the road to a length of highway. Section breaks development is done after the AADT, K30, D30, and T values are finalized for each station. This involves review of the Breaks File on the Mainframe and the Breaks with no AADT Report for proper break points and station assignments. District personnel develop section breaks as previously described in [Chapter V](#). These section breaks can be entered or modified in the Section Breaks File (RCI Feature 330) at any time during the count year. One, and only one, count station must be assigned to each traffic section break.

The TRANSTAT Office will compare the updated traffic section

