242 Traffic Pacing Design

242.1 General

See ***FDM 240.2.1.7*** for traffic pacing requirements and criteria.

242.2 Traffic Pacing Excel Program

An Excel file is available to assist in the preparation of the Traffic Pacing Report. The program can be found at the Department's temporary traffic control resources web page: ***TTC Resource Download Library***. The Excel worksheet is based on the methods presented in this chapter; Districts may require alternate methods.

The Excel file also illustrates an example of a bridge beam replacement.

242.3 Traffic Pacing Symbols and Definitions

The following symbols and definitions provide details and guidance on the variables to be entered into the Input Data Sheets.

AADT Annual Average Daily Traffic. In lieu of actual traffic counts, use AADT provided by the Office of Planning. Adjust the AADT to peak season hourly traffic by applying the model correction factor and the hourly distribution factors.

ATC Actual Traffic Counts. Traffic counts can be obtained from the Office of Planning or collected on the project site. The designer needs hourly traffic volumes for a 24-hour period.

C Capacity. The capacity of the roadway under free-flow conditions in passenger cars per hour per lane

C = 2,400 pc/h/ln for 70 mph regulatory speed

C = 2,300 pc/h/ln for 65 mph regulatory speed

C = 2,250 pc/h/ln for 60 mph regulatory speed

C = 2,220 pc/h/ln for 55 mph regulatory speed

C = 2,150 pc/h/ln for 50 mph regulatory speed

FHV Heavy-vehicle adjustment factor. This factor is used to convert hourly traffic to equivalent passenger cars. Heavy vehicles include trucks, buses and recreational vehicles.

HDF Hourly Distribution Factors. Multiply the AADT by the HTD to obtain the traffic volume for a particular hour. The Office of Planning publishes hourly distribution factors for regions of the state.

HTD Hourly Traffic Demand in vehicles per hour. Hourly traffic volumes will be required for each hour in the analysis period. Hourly traffic volumes may be obtained from the Project Traffic Report, the Office of Planning or from field data collection. Use the most recent values available.

MOCF Model Correction Factor. The MOCF converts AADT to peak season traffic.

N Number of Lanes

Pc/h/ln Passenger cars per hour per lane. Pc/h/ln represents the traffic volume or capacity of one lane adjusted for heavy vehicles.

PSCF Peak Season Conversion Factor. The Office of Planning publishes tables with the PSCF for each county in Florida. Each county table has a PSCF for the week that the traffic counts were collected. The factor converts the ATC to Peak Season Traffic, representing the highest daily traffic for the year.

P_t Percent Trucks (%).

242.4 Traffic Pacing Calculations Example

STEP 1: Calculate the hourly percentage of peak season traffic for each hour of the day (in pcphpl) and plot the 24-hour traffic percentages.

A. Calculate the Heavy Vehicle Adjustment Factor,

$$F_{HV} = 1 + \left(\frac{P_t}{100}\right)0.5 = 1 + \left(\frac{6.71}{100}\right)0.5 = 1.034$$

B. Using actual traffic counts, calculate the hourly traffic demand (*Hour 1 shown*)

$$HTD_i = \frac{(ATC_i)(PSCF)(F_{HV})}{N}$$

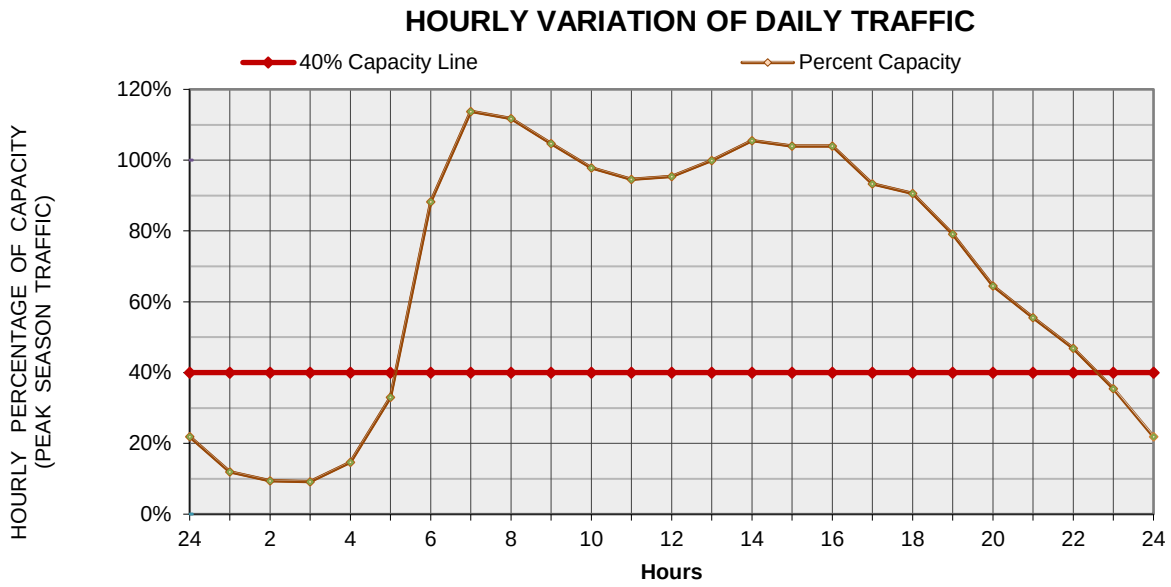
$$HTD_1 = \frac{(1406)(1.04)(1.034)}{3} = 504\ pcphpl$$

C. Calculate the percent capacity, $\%C = \frac{HTD_1}{C} \times 100$ where:

C = 2,300 pc/h/ln for 65 mph regulatory speed (*Hour 1 shown*)

$$\%C = \frac{HTD_1}{C} \times 100 = \frac{504}{2300} \times 100 = 21.9\%$$

Hour	AM Hourly Traffic Demand	Percent Capacity	Hour	PM Hourly Traffic Demand	Percent Capacity
24 - 1	504	21.90%	12-13	2193	95.40%
1 - 2	277	12.00%	13-14	2290	99.90%
2 - 3	215	9.40%	14-15	2427	105.50%
3 - 4	212	9.20%	15-16	2393	104.00%
4 - 5	338	14.70%	16-17	2368	104.00%
5 - 6	758	33.00%	17-18	2147	93.30%
6 - 7	2031	88.30%	18-19	2083	90.60%
7 - 8	2617	113.80%	19-20	1820	79.10%
8 - 9	2571	111.80%	20-21	1484	64.50%
9 -10	2408	104.70%	21-22	1277	55.50%
10-11	2249	97.80%	22-23	1078	46.90%
11-12	2174	94.60%	23-24	816	35.50%



STEP 2: Identify the traffic pacing restrictions. Leave a buffer period of one hour between the end of traffic pacing operations and the beginning of 40% capacity.

