Travel Time Runs

Travel time runs are performed when using microsimulation software (e.g., Vissim) and some before and after signalization studies. They are conducted to calibrate models, assess the performance of a corridor, observe travel trends, and obtain average travel times during peak hours, which demonstrate the highest daily demand. The results of these runs are used to confirm analyses of conditions, ensure models are calibrated to match field conditions and as performance measures when changes are made. Results obtained here shall be used to calibrate applicable software and used as a Measure of Effectiveness for changes recommended in alternatives. The field travel time runs should be coordinated with the same simulation travel time runs.

For travel time runs, the "Average Car Method" will be utilized. The number of runs for each peak hour shall be determined with a confidence level of 95%. The date, time of run, weather, direction of travel, starting location, ending location, trip length, trip time, travel speed, running time and stopped time shall be noted for each run.

The number of vehicle runs required to establish a mean travel time within a 95% confidence level depends on the variability of travel times measured in the field. There shall be a minimum of 5 travel time runs for each direction in the AM and PM peak hours. Congested conditions may require more runs. The equation below can then be used to determine if additional travel time runs ($\overline{R}$) are required to reach the 95% confidence level between 2 - 4 mph. Please see the calibration section in the *Existing and No Build Analysis – Vissim Option* for further documentation.

$$\overline{R} = \max_{i=1}^{m} v_i - \min_{i=1}^{m} v_i$$

where:
m = sample size of the initial study
vi= speed associated with travel run i

Minimum Sample Size Requirements

$\overline{R}$	Confidence level: 95%				
(mph)	1 mph	2 mph	3 mph	4 mph	5 mph
1	4	3	3	3	3
2	6	4	3	3	3
3	8	5	4	4	3
4	10	6	5	4	4
5	12	7	5	4	4
6	15	8	6	5	4
7	18	9	6	5	5
8	21	10	7	6	5
9	24	11	8	6	5
10	27	12	8	7	6
11	31	13	9	7	6
12	34	15	10	8	6
13	38	16	11	8	7
14	43	18	11	9	7
15	47	19	12	9	8
20	71	27	17	12	10
25	99	36	22	15	12
30	-	47	27	19	15

SOURCE: Manual of Transportation Engineering Studies, 2nd Edition, Section 2.2.3, pg 162.