

## Travel Time Calculation:

### *General Calculation:*

In general, travel time is calculated by dividing travel length by travel speed. That calculation will give you travel time in hours, multiply by 60 to get travel time in minutes or 3600 to get travel time in seconds.

Travel time in minutes =

$$((\text{length in miles})/(\text{speed in miles per hour}))*(60 \text{ minutes/hour})$$

Travel time in seconds =

$$((\text{length in miles})/(\text{speed in miles per hour}))*(3600 \text{ seconds/hour})$$

### *Travel time for a Single Reading:*

For a single reading (i.e. one row in the freeway\_loopdata file), travel time is length divided by speed, where length is the length of the station associated with the detector in that reading. (A reading contains detectorid, speed, volume and occupancy. You may ignore the dqflags column.)

$$\text{Travel time in seconds} = ((\text{length})/(\text{speed}))*3600$$

### *Travel time for a Single Station for a single time period:*

For a single time period for a single station, travel time is the length of the station divided by the average of the speeds for detectors at that station. You can find associations between detectors and stations in the detectors.csv file.

$$\text{Travel time in seconds} = ((\text{length})/(\text{avg}(\text{speed}))*3600$$

### *Travel time for a Multiple Stations for a single time period:*

To get travel times, for multiple stations (i.e. the I-205 NB Freeway), you calculate the station travel times and then sum the travel times. Note that the formula shows this travel time in minutes and that the multiplier is 60 not 3600.

$$\text{Travel time in minutes} = (\text{sum}(((\text{length})/\text{avg}(\text{speed}))))*60$$