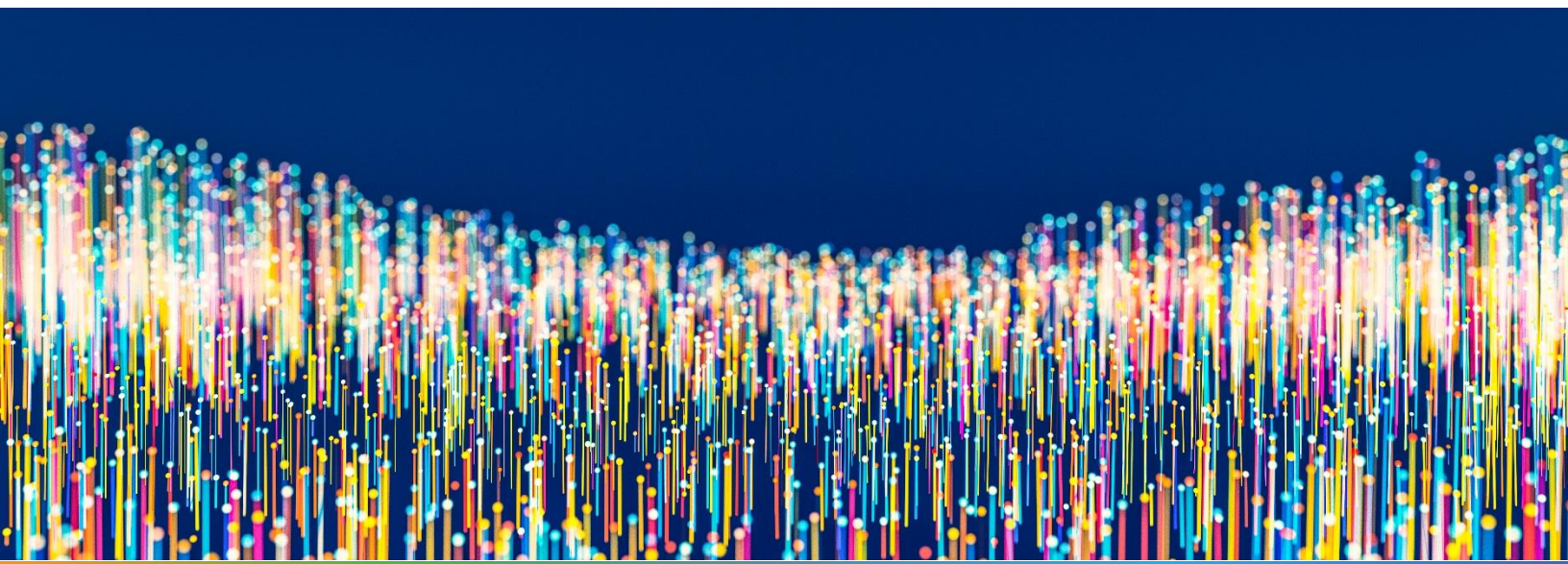


iteris[®]

CLEARGUIDE
Performance Measure Calculations



ClearGuide[™]

Updated Dec, 2025

PERFORMANCE MEASURE DEFINITIONS

A number of different quantities can be selected in ClearGuide Reports. The metrics in different categories are:

Speed

- **Average Speed:** The average speed (miles per hour) over the route during the time period of the user-selected granularity (5 minute, 15 minute, 30 minute, hour, day).
- **Minimum Speed:** The minimum speed (miles per hour) over the route during the time period of the user-selected granularity (5 minute, 15 minute, 30 minute, hour, day).
- **Maximum Speed:** The maximum speed (miles per hour) over the route during the time period of the user-selected granularity (5 minute, 15 minute, 30 minute, hour, day).
- **Median Speed:** The median speed (miles per hour) over the route during the time period of the user-selected granularity (5 minute, 15 minute, 30 minute, hour, day).
- **Free Flow Speed:** The expected speed of drivers in low volume conditions and in the absence of traffic control devices and adverse weather conditions, as reported by the data vendor.
- **Average Percent of Free Flow:** Average of the ratio of speed observations to the free flow speed within the selected granularity time period.
- **Median Percent of Free Flow:** Median of the ratio of speed observations to free flow speed within the selected granularity time period.

Travel Time

- **Average Travel Time:** The average of travel time observations over the selected aggregation time period, in minutes it takes to travel across the route.
- **Median Travel Time:** The median of travel time observations over the selected aggregation time period, in minutes it takes to travel across the route.
- **Delay in Minutes (FF):** The amount of extra time spent by a vehicle over and above the time it takes to traverse a route at Free Flow speed.
- **Delay in Minutes (SL):** The amount of extra time spent by a vehicle over and above the time it takes to traverse a route at Speed Limit.

Reliability

- **Travel Time Index (FF):** The ratio of the average travel time to the free-flow travel time.
- **Travel Time Index (SL):** The ratio of the average travel time to the speed limit travel time.
- **Planning Time Index:** The ratio of 95th percentile travel time to the free-flow travel time.
- **Buffer Time Index:** The 95th percentile travel time minus the average travel time (this is the buffer time) divided by the average travel time.

Data Quality

- **Average Confidence:** Average value of the confidence scores of the records within the specified time interval, as provided by the data vendor.

- **Minimum Confidence:** Minimum value of the confidence scores of the records within the specified time interval
- **Maximum Confidence:** Maximum value of the confidence scores of the records within the specified time interval
- **# Samples:** Number of speed observations reported in the data feed within the specified time interval. Note that this is not the number of vehicles, but rather the number of speed values received from the data provider, typically one per minute.

Signal Trends Metrics

- **Turning Movement Percentage:** The percentage of vehicles go straight, turn left, or turn right through each leg of the intersection
- **Control Delay:** The average extra time a vehicle spends at the intersection compared to free-flow travel
- **Arrival on Green:** The average percentage of vehicles that pass through the intersection without stopping
- **Split Failure:** The average percentage of vehicles that stop more than once before clearing the intersection
- **Queue Length:** The maximum distance between the first stopped vehicle and the last vehicle in line at the intersection

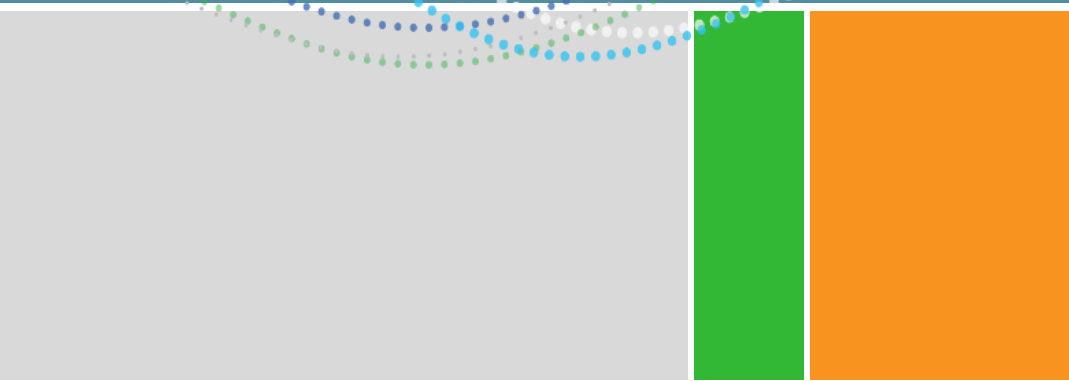
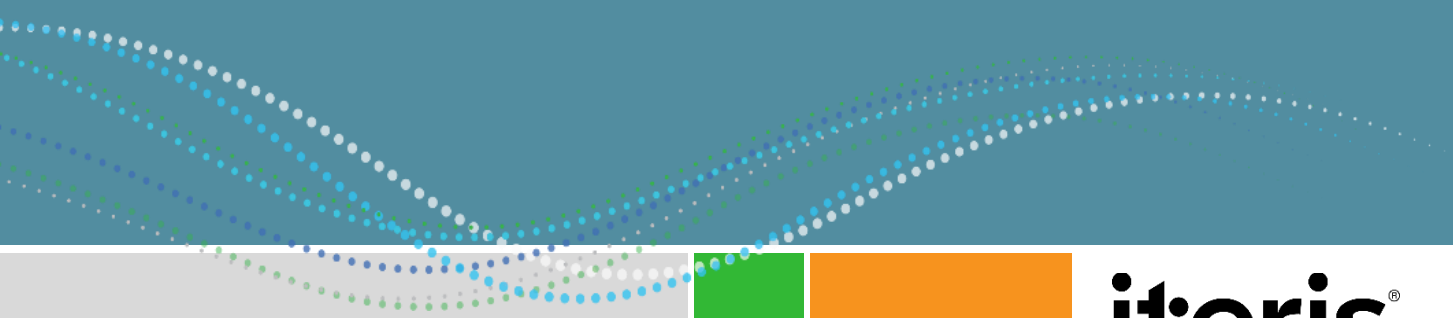
Volume Based Metrics (available with volume data integration)

- **Vehicle-Miles Traveled:** The total miles driven by the vehicles on the route during that time period
- **Vehicle-Hours Traveled:** The total hours driven by the vehicles on the route during that time period
- **Vehicle-Hours of Delay:** The amount of extra time spent by all the vehicles over and above the time it takes to traverse a route at the selected threshold speed (% of either free flow speed or speed limit)
- **Person-Miles Traveled:** The total miles driven by the vehicles on the route during that time period multiplied by average vehicle occupancy
- **Person-Hours Traveled:** The total hours driven by the vehicles on the route during that time period multiplied by average vehicle occupancy
- **Person-Hours of Delay:** The amount of extra time spent by all the vehicles over and above the time it takes to traverse a route at the selected threshold speed (% of either free flow speed or speed limit), multiplied by average vehicle occupancy
- **User Delay Cost:** Cost of delay due to congestion for passenger vehicles and trucks at the selected threshold speed (% of either free flow speed or speed limit), multiplied by average hourly cost of delay per person in dollars, and multiplied by average vehicle occupancy.
- **Wasted Fuel Cost:** Cost of extra fuel used due to congestion for passenger vehicles and trucks at the selected threshold speed (% of either free-flow speed or speed limit), multiplied by average fuel cost in dollars. The EPA MOVES model is applied to calculate fuel efficiency of passenger vehicles and trucks at different speed levels.

Regional Dashboard Metrics (available as an add-on feature)

- **Daily Vehicle Hours of Delay:** Sum of the total vehicle hours of delay due to speeds below 70% of the free-flow speed. Delay is calculated on all roadway links that have traffic volume estimates, and summed up over the region. Traffic volume estimates are averages by time of day and day of week that are provided by ClearGuide.

- **Congestion Percent:** % of roadway miles with speeds less than 70% of the free-flow speed in the region
- **Average Speed:** Distance-weighted average speed calculated over all roadway links in the region
- **Average TTI:** Distance-weighted Travel Time Index (TTI) calculated over all roadway links in the region.
- **Average PTI:** Distance-weighted Planning Time Index (PTI) calculated over all roadway links in the region.



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