

## Traffic Signal Synchronization

Traffic Signal Synchronization is a traffic engineering technique of matching the green light times for a series of intersections to enable the maximum number of vehicles to pass through, thereby reducing stops and delays experienced by motorists. Synchronizing traffic signals ensures a better flow of traffic and minimizes gas consumption and pollutant emissions.

### Why signal synchronization is needed

Drivers often get frustrated when they have to stop at successive traffic lights, or when they have to wait a long time for a green light, especially when there appears to be no traffic in the other directions. Traffic signals are designed to distribute the green time to conflicting traffic streams, generally based on the traffic volumes. If the traffic on a main street is considerably higher than the side street, more green time may be given to the main street which could result in a longer wait for drivers on the side street. However, synchronizing signals along a main street can benefit all motorists because once a vehicle enters the main street, it may continue with minimal stopping. Hence, it is beneficial for both the main street and side street traffic. The goal of synchronization is to get the greatest number of vehicles through the intersections with the fewest stops.

### How traffic signal synchronization works

The way traffic signal synchronization works is by calculating the arrival time for a group of vehicles at each intersection traveling at a specified speed, and then the traffic signals are strategically timed to turn green just as the group of vehicles arrive at each intersection. In order for the traffic signals to be synchronized, a group of signals must all be set to run on the same cycle length (the amount of time it takes for the signal to go from green to yellow to red; and back to green again - after the cross street has been serviced).

