



## Traffic Signal Timing

Coordinate traffic signals and/or optimize signal timing so as to minimize car idling at intersections yet maintain safe and publicly acceptable vehicle speeds.

### WHAT IS IT?

Traffic signal optimization generally describes methods that minimize the amount of stopped time for vehicles on streets. With the advancement of municipal technology, traffic engineers can utilize data to improve on-street congestion and reduce idling.

One type of traffic signal optimization is retiming. Engineers collect data on traffic volumes and variations at each intersection in order to understand how patterns change throughout the day and week. The data is then entered into a software program that models existing traffic and signal conditions. The program then analyzes improvements that can be made to make the system of traffic signals more efficient.

However, new smart systems utilize information technology to optimize traffic flows in real-time. Smart traffic control systems utilize three main technologies: a central control station, smart traffic lights, and cameras or sensors. The cameras or sensors collect real-time information about traffic flows and congestion to send to the central control system. Using this data, the control system analyzes the information to make timing adjustments to the smart traffic lights. The traffic lights can adjust timing and coordinate with one another to optimize vehicle flows down congested streets. Smart traffic control systems can also prioritize public transit, emergency vehicles, and bicyclists, depending on the types of cameras or sensors used.

### WHY IS IT IMPORTANT?

- Traffic congestion can increase greenhouse gas emissions and air pollution in urban areas, so coordinated traffic signals is an effective greenhouse gas mitigation strategy.
- Optimized traffic flows can also reduce the number of traffic accidents.

### BENEFITS



Reduce on-street  
traffic congestion



Reduce time  
spent idling at  
intersections



Reduce fossil fuel  
consumption and  
greenhouse gas  
emissions



Decrease air  
pollution



Improved quality  
of life

### HOW CAN COMMUNITIES IMPLEMENT THIS POLICY?

Cities can invest in expertise and traffic signal system upgrades to improve congestion, air pollution, and greenhouse gas emissions from surface traffic.

- **Hire city personnel to oversee transportation data programs.** Data collected through any traffic optimization programs can be utilized for other city projects, such as smart parking.
- **Invest in traffic signal optimization services.** With consultants or technology providers, cities can retime traffic signals across the system or implement smart traffic control systems.
- **Pursue innovative funding opportunities to improve the system.** Cities can pursue grants from federal and state governments or foundations to finance these infrastructure improvements.