
620 TRAFFIC SIGNAL OPERATIONS

Initial timing of traffic signals is the responsibility of the Traffic Operations Section. Maintaining the timing is the responsibility of Regional Traffic Engineering. In addition, Regional Traffic Engineering is responsible for maintaining traffic signal timing cards for their Region. Furthermore, Regional Traffic Engineering is responsible for providing signal timing information to attorneys, insurance companies, and the general public as directed by Risk Management for all signals maintained by the respective region.

All State highway traffic signals which are operated and maintained by ADOT should be periodically reviewed for proper operation. Signals at freeway interchanges should receive special consideration as to phasing and timing to minimize backup of traffic onto freeway travel lanes.

It is through the phasing and timing of the intersection that the principal goals for the signal installation are implemented. The phasing and timing of a traffic signal affect both the safety with which the intersection operates and the efficiency of movement provided to motorists and pedestrians.

There are several principles of traffic signal phasing which the traffic signal designer should remember:

- In general, the fewer the phases a traffic signal has, the better overall traffic service it will provide.
- More phases require longer cycles in coordinated systems.
- In general, more phases result in an overall reduction in intersection capacity, especially if the added phases provide fully-protected left turns.
- While protected turn phases may be required to reduce the incidence of certain types of crashes, their use may result in an increase in other types of crashes.
- Where protected left-turn phases may not be required, the use of protected/permissive left-turn phasing should be considered.
- Design the signal controller for future requirements, but only implement those phasing requirements needed to accommodate current traffic needs.

Once the signal phasing for an intersection has been determined, the timing of the various intervals of the signal and of the relationship of the signal to those at other intersections should be developed. It is this timing that will determine whether the intersection will function to the advantage or disadvantage of roadway users. Therefore, it is best to clearly understand the objectives to be achieved for each different type of operation so that the public will be well served.