

Traffic Signals

A traffic signal's purpose is to assign right-of-way to vehicles or pedestrians entering or crossing a roadway at an intersection. Signals are not used as safety devices. Instead, signals facilitate an orderly shared use of the roadway space by separating conflicting vehicle and pedestrian movements.

When does NDOT decide to use traffic signals at intersections?

State and Federal law requires that a traffic engineering study be completed before a traffic control device, such as a traffic signal, is installed on any public roadway. When the Nebraska Department of Transportation (NDOT) conducts this study, a number of factors are evaluated, including:



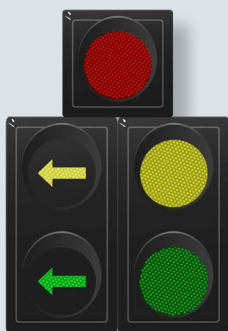
If an intersection does not meet conditions that warrant a traffic signal, they may actually cause more problems than they solve. This is why NDOT's process is driven by research and data, coupled with engineering judgment and nationally accepted safety principles to determine when a traffic signal is appropriate.

TRAFFIC SIGNAL TIMINGS

Traffic signals have timers so vehicles on all approaches to the intersection have the opportunity to proceed safely through the intersection. There are two types of traffic signal timings:

- **Fixed-time signals** follow a pre-determined timing and sequence of signal operation, regardless of current traffic flow.
- **Actuated signals** change the lights and timing of signals using sensors to detect the presence of traffic in each direction.

TRADITIONAL PROTECTED/ PERMISSIVE LEFT-TURN DISPLAY



NEW FLASHING YELLOW LEFT-TURN DISPLAY



While you may be used to seeing the traditional left-turn traffic signal displays, NDOT has been implementing the new flashing yellow left-turn traffic signal displays because studies have shown that using them reduces left-turn crashes at intersections.

Benefits

Traffic signals, when properly installed, can be a valuable tool to safely control vehicle and pedestrian movements. Benefits of traffic signals can include:

Safety. Traffic signals, when compared to unsignalized intersections, reduce the potential for right-angle (T-bone) crashes, because they organize the flow of traffic movement. Additionally, during heavy traffic, signals create needed gaps, providing opportunities for other vehicles and pedestrians to safely navigate the intersection.

Increased Capacity. Traffic signals help organize the flow of traffic, allowing more vehicles to move smoothly through the intersection with less delay.

Trade-Offs

When traffic signals are improperly installed or not necessary, conditions at an intersection can actually worsen and become less safe. Trade-offs of traffic signals include:

Increased Potential for Crashes. Although traffic

signals may reduce certain types of crashes, such as right-angle crashes, the installation of a traffic signal typically increases the frequency of other crashes, especially rear-end crashes. Additionally, traffic signals will not eliminate fatalities. A five-year review of fatalities reported by Nebraska Law Enforcement from 2014 to 2018 revealed that one out of every 15 fatalities in Nebraska occurred at a traffic signal.

Excessive Delay or Congestion. Vehicles idling at intersections increases fuel consumption and air pollution.

High Cost. Traffic signal equipment plus other costs, such as purchasing additional right-of-way or constructing turn lanes, means that the installation of traffic signals can be costly. That's why NDOT studies an intersection carefully before any improvements are made – there may be better and lower cost improvements that can be constructed to meet the needs of the intersection.

Disobedience or Disregard for Traffic Signals. If an improperly installed or unnecessary traffic signal causes excessive delay, drivers may not comply with the traffic signal.

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