



Safety Spotlight FAQs

Traffic Signals



Traffic signals improve safety and efficiency for all users by reducing conflicts, providing predictable movement, supporting pedestrian crossings, and managing traffic volumes that exceed stop-controlled intersections.

Q: How is it determined that a traffic signal is needed?

A: The jurisdiction (FDOT, county, or city) typically requires a formal engineering study conducted following the Manual of Uniformed Traffic Controlled Devices (MUTCD) warrants. A warrant is a measurable criteria threshold that indicates when a signal may be appropriate. Examples include:

- Minimum traffic volume warrants
- Pedestrian volume warrants
- School crossing warrants
- Crash experience warrants

A signal is considered only when one or more warrants are met. Meeting or satisfying a warrant does not guarantee installation. Engineers must ensure that implementing a signal improves both operations and safety. In Florida, the FDOT Intersection Control Evaluation (ICE) is required at state roadway intersections to determine the most appropriate traffic control strategy to be implemented, which may not necessarily be a traffic signal.

Q: Why does installation take so long?

A: Installing a new traffic signal is a multi-step process that takes time because each phase must be completed in order. After approval, design and engineering reviews are conducted to ensure the signal layout, equipment, and roadway features meet required standards. Funding must then be identified and scheduled, which may involve placement in a future work program. Utility coordination is often needed to resolve conflicts with existing overhead or underground infrastructure. Signal equipment, including poles, mast arms, signal heads, and controllers, must be ordered and manufactured, a process that can take several months. After delivery, construction, inspection, and testing are performed to confirm safe and reliable operation. As a result, the full process often takes a year or more to complete.

Q: What does a traffic signal cost?

A: A standard 4-leg traffic signal installation with 4 mast arms ranges between \$1.5 million and \$2.5 million which includes traffic signal components, fiber connectivity, and necessary road work.

Q: How do traffic signals work?

A: Modern signals use electronic controllers, detection systems, and planned timing sequences to allocate green time to the various movements at an intersection. Sensors detect approaching vehicles or pedestrians and adjust timing within preset limits. Signal timing is built around:

- Cycle length: time to serve all movements (left turns, through, and right turns) per approach
- Splits: how green time is divided per movement
- Offsets: how green lights line up along a corridor for progression or coordination
- Timing changes by time-of-day to address rush hours, school periods, pedestrian needs, and off-peak travel.

Q: Does a traffic signal control speed?

A: No. Speed is controlled by posted limits, roadway design, and enforcement. Signals assign right-of-way. Some corridors are timed to support travel at the posted speed, but signals are not speed-control devices.

Q: Does a traffic signal reduce crashes?

A: No. Signals can reduce certain severe crash types, such as right-angle collisions. However, they often increase the number of rear-end crashes. Only when the net safety outcome is positive will a signal be recommended.

Q: Who maintains the installed signal?

A: Maintenance responsibility depends on jurisdiction (FDOT, county, or city). Agencies perform regular inspections, timing reviews, and repairs to ensure proper operation.