



Red-Signal Enforcement Lights

Purpose

Red-Signal Enforcement Lights enhance safety at signalized intersections by improving red-light compliance, resulting in a reduction of red-light running violations. They are auxiliary lights connected to a traffic-control signal to help law enforcement officers more efficiently and safely issue citations for drivers who violate the red phase of the signal.

According to the US Department of Transportation's Fatality Analysis Reporting System (FARS), 869 people were killed in crashes that involved red-light running in 2006, and the National Campaign to Stop Red-Light Running estimates that another 143,000 were injured.

Alternative Names

Red light indicator lights, red light indicators, signal indicator lights, enforcement lights, white enforcement lights, rat lights or boxes, tattletale lights.

Operation

The Red-Signal Enforcement Light activates simultaneously with the red signal phase, providing an enforcement officer located downstream from an intersection with a visible indication of the upstream red phase so they can determine when a vehicle has violated the red phase. Relatively small, low-cost lights are mounted on the top, bottom, or rear of a traffic signal and are wired into the signal controller for accurate red-signal phase indication. Red-Signal Enforcement Lights should not be colored red, yellow, or green, in order to avoid confusion with traffic signal control indications.

Potential Benefits

Red-Signal Enforcement Lights can provide safety, efficiency and/or cost benefits, compared to other enforcement methods. These benefits include:

- Allowing red-light running monitoring from any leg of an intersection, particularly downstream from the intersection;
- Eliminating the need for unsafe pursuit by single upstream officer across the intersection during the red phase;
- Allowing one patrol officer instead of two (downstream) to enforce a traffic-control signal, thus increasing enforcement resource efficiency and versatility;
- Having lower installation and maintenance costs than automated enforcement systems, potentially allowing more numerous installations; and
- Do not use potentially controversial automated photography.



This summary is one in a series describing Innovative Intersection Safety Treatments. The summaries identify newer technologies and techniques to improve intersection safety developed since NCHRP Report 500, Volumes 5 and 12, were published in 2003 and 2004, respectively. These treatments show promise for improving safety but comprehensive effectiveness evaluations are not yet available.

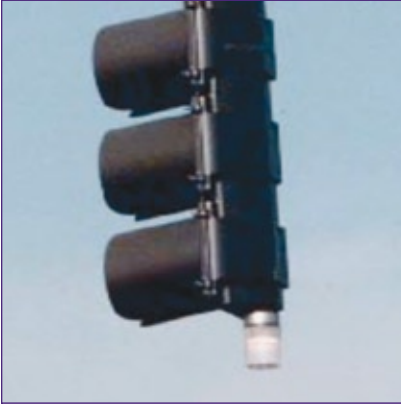


Figure 1: Bottom-mounted Red-Signal Enforcement Light on a signal head

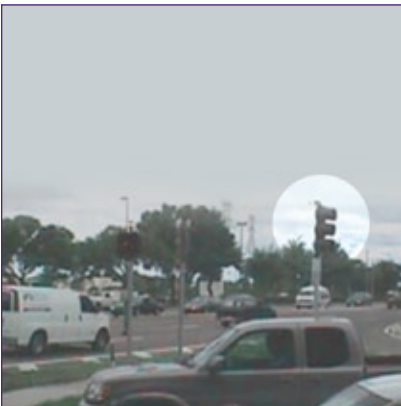


Figure 2: Red-Signal Enforcement Light mounted top-rear at a signal head

Learn More

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<http://www.dot.state.fl.us/Safety/CTST/downloaddocs.shtm>

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Agency Experience

- A Florida Department of Transportation study showed installation of Red-Signal Enforcement Lights, coupled with aggressive enforcement, reduced the annual number of red-light violations by 25 percent (“A Study of the Effectiveness of White Enforcement Lights,” Florida Department of Transportation, 2008). The lights are installed at more than 500 intersections across Florida.
- The city of Clearwater, FL also found a significant drop (as much as 50 percent) in red-light running at intersections where Red-Signal Enforcement Lights were used.
- Richardson, TX has installed Red-Signal Enforcement Lights at more than 40 intersections, and there have been more than 100 installed across Santa Clara County, CA.

Implementation Considerations

- There are no compliance issues with the Manual on Uniform Traffic Control Devices, as Red-Signal Enforcement Lights are not traffic-control devices.
- Red-Signal Enforcement Lights are only effective when combined with red-light running enforcement efforts by enforcement officers.
- Red-Signal Enforcement Lights should be positioned to be visible to downstream enforcement officers while minimizing distraction or confusion to drivers. Officers must simultaneously be able to see the intersection’s upstream stop bar from downstream—this can, if necessary, be facilitated by the use of traffic cones or flexible traffic posts.
- Red-Signal Enforcement Lights must be high enough to be seen over tall vehicles and out of reach of vandals.
- Wiring should be connected to the controller output for the red-signal phase to power the Red-Signal Enforcement Light simultaneously.
- Red-Signal Enforcement Lights are visible from a full 360 degrees but may be partially “taped,” or installed with alternative housing configurations, to control visibility and reduce potential driver distraction.
- Warning and regulatory signs supplementing Red-Signal Enforcement Lights can remind drivers of red-light running enforcement or fines.
- Attainment of judicial support for prior acceptance of the citations given based on the enforcement lights is critical for optimal effectiveness of the lights. Public awareness campaigns may also increase effectiveness.

Costs

- Red-Signal Enforcement Light sets (including housing) cost approximately \$50–\$150 for traditional (rather than LED) bulbs.
- Generally, 4 to 8 indicator sets are needed for a major intersection to cover all signal phases for a total intersection cost of \$200–\$1,200.
- Cost depends substantially on whether LED or traditional bulbs are used. LED bulbs cost approximately three times as much initially, but require much less power.