

AN ITE RECOMMENDED PRACTICE

**GUIDELINES FOR DETERMINING  
TRAFFIC SIGNAL CHANGE AND  
CLEARANCE INTERVALS**

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Note that this report is specifically focused on the timing of traffic signal change intervals. This report does not discuss or intend to discuss pedestrian signal change intervals nor methods of enforcement. ITE strongly supports appropriate application of engineering methods to time traffic signals.

## 1.2 Purpose and Intended Use

ITE's intent is, for the recommended practice developed by this effort, to reflect a thoughtful balance between sound engineering theory and practical application. The underlying assumptions should yield reasonable times for the yellow change and red clearance intervals for traffic signals that allow the profession to balance those durations while enhancing intersection safety, maintaining reasonable traffic flow, and providing for the legal movement of vehicles and pedestrians. The goal of the recommended practice is to create a consensus methodology for calculating and evaluating traffic signal change intervals that can be uniformly and consistently implemented by transportation agencies.

*The engineer must coordinate with designers who determine signal head treatments, and technicians who work with field assets to ensure calculated intervals are translated correctly into the actual yellow and red intervals displayed to road users on a signal face.*

This recommended practice was written primarily for an audience of engineers engaged in the activity of determining yellow change and red clearance intervals. The user of this recommended practice is strongly encouraged to read the contents in their entirety. It is recognized that proper application of these intervals is dependent upon correct use of field equipment and engineering design applications. The engineer should necessarily coordinate with designers who determine signal head treatments, and technicians who work with field assets to ensure calculated intervals are translated correctly into the actual yellow and red intervals displayed to road users on a signal face.

Standards and recommended practices are used by consumers, manufacturers, public agencies, and suppliers to define their mutual obligations. They are essential for the orderly and efficient conduct of commerce and for the protection of the economic, social, environmental, and safety interests of all parties. Standards and recommended practices can favorably or unfavorably affect costs, availability, and performance of products and systems.

An important aspect of the development work of ITE is that all its standards and recommended practices are advisory only. ITE has no regulatory authority in which to enforce the use of these recommended practices. All standards and recommended practices are used and/or applied on substantially public facilities and only have status when officially sanctioned by the governing agency. Their use by public agencies is usually in the interest of safeguarding the welfare and safety of the private users of the products or facilities themselves. Public agencies are encouraged to use adopted ITE recommended practices and standards to support their local policies for the planning, design, management, maintenance, and operations of their traffic signal system. Significant benefit is derived by road users through the consistent design and application of traffic signal practices.

## 1.3 Sources of Information

### Survey of Practice

For the purpose of this recommended practice, and in connection with the National Cooperative Highway Research Program (NCHRP) project that led to *NCHRP Report 731: Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections*,<sup>4</sup> a survey questionnaire was developed and distributed to a sample of national and international agencies. The survey was intended to identify differences and similarities in methods and factors used in traffic signal change interval practices. The survey was distributed in June 2009 to the following groups:

- Public agency members of the Traffic Engineering, Management and Operations/TIS, and Public Agency Councils of ITE;
- American Association of State Highway and Transportation Officials (AASHTO) Subcommittee on Traffic Engineering (state traffic engineers);
- A list of international organizations developed by the NCHRP research team; and
- A list of agency traffic engineers generated by ITE through the National Transportation Operations Coalition.

Ultimately, the questionnaire was disseminated to approximately 2,000 recipients. A copy of the questionnaire is included in Appendix A.