



PURPOSE

The purpose of this activity is to give you the opportunity to learn how the yellow and red clearance intervals are set in practice.

LEARNING OBJECTIVE

- Describe the factors considered when the yellow and red clearance intervals are set by practicing traffic engineers

REQUIRED RESOURCE

- *Traffic Signal Timing Manual*

DELIVERABLES

Prepare a document that includes

- Answers to the Critical Thinking Question
- Completed Concept Map

LINK TO PRACTICE

Read the section of the *Traffic Signal Timing Manual* relating to Vehicular Change and Clearance Intervals as assigned by your instructor.

The *Traffic Signal Timing Manual* notes that:

“The intent of the vehicle phase change and clearance intervals is to provide a safe transition between two conflicting phases. It consists of a yellow change interval and, optionally, a red clearance interval. The intent of the yellow change interval is to warn drivers of the impending change in right-of-way assignment. The red clearance interval is used when there is some benefit to providing additional time before conflicting movements receive a green indication.”

The yellow display warns the drivers that the right-of-way is about to change, while the red clearance display allows drivers to safely clear the intersection.

CRITICAL THINKING QUESTIONS

When you have completed the reading, prepare answers to the following questions:

1. Consider the method that you used in Activity #56 to set the yellow and red clearance intervals, as well as your results. How do they compare and contrast with the methods and recommendations described in the *Traffic Signal Timing Manual*?

2. How does your own driving experience compare with the material from the *Traffic Signal Timing Manual* relating to the yellow and red clearance intervals?

IN MY PRACTICE...

by Tom Urbanik

Clearance interval practice differs significantly among agencies. The result produced by the model that you read about in Activity #52, while being based on the laws of physics, is considered to be larger than necessary by some practitioners, resulting in a wide variability of clearance interval times used in practice. One issue is the interpretation of the meaning of yellow which is defined differently based on state laws. The intent is that yellow is notice to stop unless it is not possible. However, some drivers, due to many reasons, have over the years tended to use more and more of the yellow to avoid stopping. Adding to this the practical definition of violating the red as red light running, results in changed behavior of some to see the yellow as the amount of time to enter the intersection. Furthermore, the introduction of photo enforcement further complicates the issues by also defining red light running as entering on red. The end result has been longer clearance times and widespread use of red clearance time to account for drivers trying to maximize the use of the yellow to enter the intersection.

So, in practice, local clearance interval timings are often driven by historical local practices. As a signal timing engineer you need to resolve local practice against other agency practices in your area. Desirably, signal timing should be consistent in a local area as drivers in one jurisdiction may develop habits based on their agency's practice. This could become an issue if another local jurisdiction has different practices. Finally, the addition of red light running cameras may put pressure on adjusting local practices.

CONCEPT MAP

Terms and variables that should appear in your map are listed below.

change interval	perception-reaction time (δ)	v	w
clearance interval	stopping distance (x_s)	a	L



