



## PURPOSE

The purpose of this activity is to help you build your base of understanding of the change and clearance intervals.

## LEARNING OBJECTIVE

- Describe the purpose and method of calculation of the vehicle change and clearance intervals

## DELIVERABLE

- Prepare a completed spreadsheet that includes the following:

**Tab 1:** Title page with activity number and title, authors, and date completed

**Tab 2:** Calculations and results for Tasks 1 and 2

**Tab 3:** Answers to the Critical Thinking Questions

## CRITICAL THINKING QUESTIONS

- In addition to the values assumed in the example in the reading ( $v = 35$  miles per hour,  $L = 20$  feet,  $a = 10$  feet per second per second) for passenger cars, what are the implications in setting the yellow and red clearance times if the traffic stream also includes trucks with  $L = 58$  feet and  $a = 6.4$  feet per second per second? What values for these two timing intervals would you recommend and why?

2. Experience should tell you that there is likely to be a variation in the speeds of vehicles and the perception-reaction times of their drivers arriving at an intersection. Describe and complete a sensitivity analysis that you would perform to test the implications of the variation in perception/reaction times and in actual approach speeds. What impact does this analysis have on your conclusions about the duration of the yellow and red clearance times?

### TASK 1

How long does it take a vehicle to stop, given the following information? Prepare a time distance plot showing your results.

- Vehicle length = 15 feet
- Approach speed = 25 miles per hour
- Perception-reaction time = 1 second
- Deceleration rate = 10 feet per second per second

### TASK 2

What is your recommendation for the yellow and red clearance times given the conditions in Task 1?