



PURPOSE

The purpose of this activity is to give you the opportunity to learn about protected plus permitted left turn phasing.

LEARNING OBJECTIVE

- Describe the trade-offs and relative efficiencies between protected plus permitted and protected left turn phasing

REQUIRED RESOURCE

- Movie file: A49.wmv

DELIVERABLE

- Prepare a document that includes your answer to the Critical Thinking Question

CRITICAL THINKING QUESTION

As you begin this activity, consider the following question. You will come back to this question when you have completed the experiment.

1. Why do the eastbound left turn and westbound left turn movements have lower delay when they are operating as protected/permitted phasing as compared to the protected left turn case?

INFORMATION

In the previous activity, you considered permitted and protected left turn phasing. Protected left turn phasing offers some benefits over permitted left turn operations, such as reduced left turn delay when opposing through volumes are high, but at the expense of increasing delay for other movements. In this activity you will consider another type of left turn treatment, protected plus permitted phasing. In this type of treatment, left turn movements have two separate green intervals, protected operations followed by permitted operations.

Protected plus permitted phasing is shown in the ring barrier diagram in Figure 168.

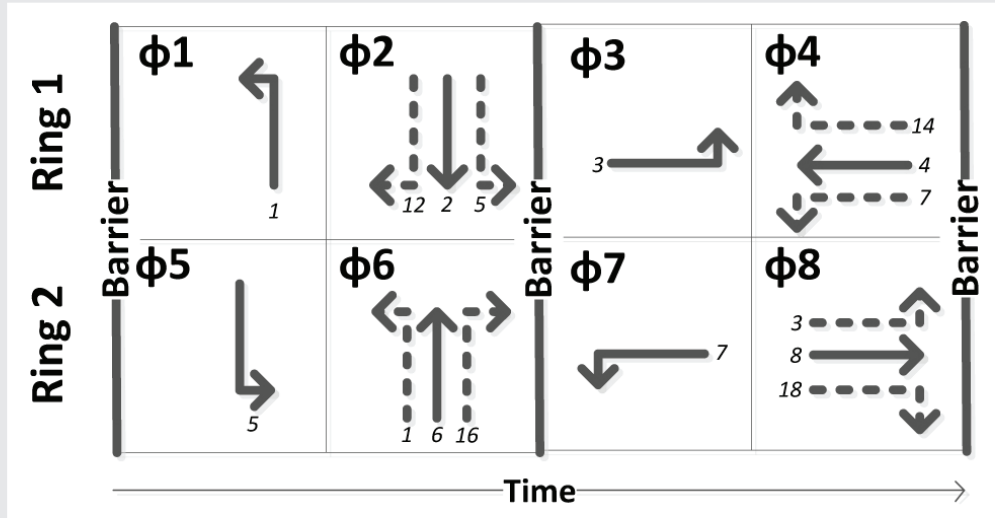


Figure 168. Ring barrier diagram for protected plus permitted left turn phasing

In this activity, you will perform tasks similar to what you did in Activity #48. You will observe the same intersection, State Highway 8 and Line Street, this time with protected and protected plus permitted left turn phasing.

Traffic volumes for all movements are the same as for the previous experiment except for eastbound left turn and westbound left turn.

- Eastbound through and westbound through: 1450 vph
- Eastbound left turn and westbound left turn: 200 vph

TASK 1

Open the file: “A49.wmv.”

TASK 2

Observe the operation of both simulations.

- Observe the left turn vehicles on the eastbound and westbound approaches for case 1 (protected left turn) and case 2 (protected plus permitted left turn) (See Figure 169.)
- Observe vehicles that are served during the permitted phase in case 2 but are still waiting for the protected phase in case 1
- Observe the queue length that resulted for both cases
- Summarize your observations

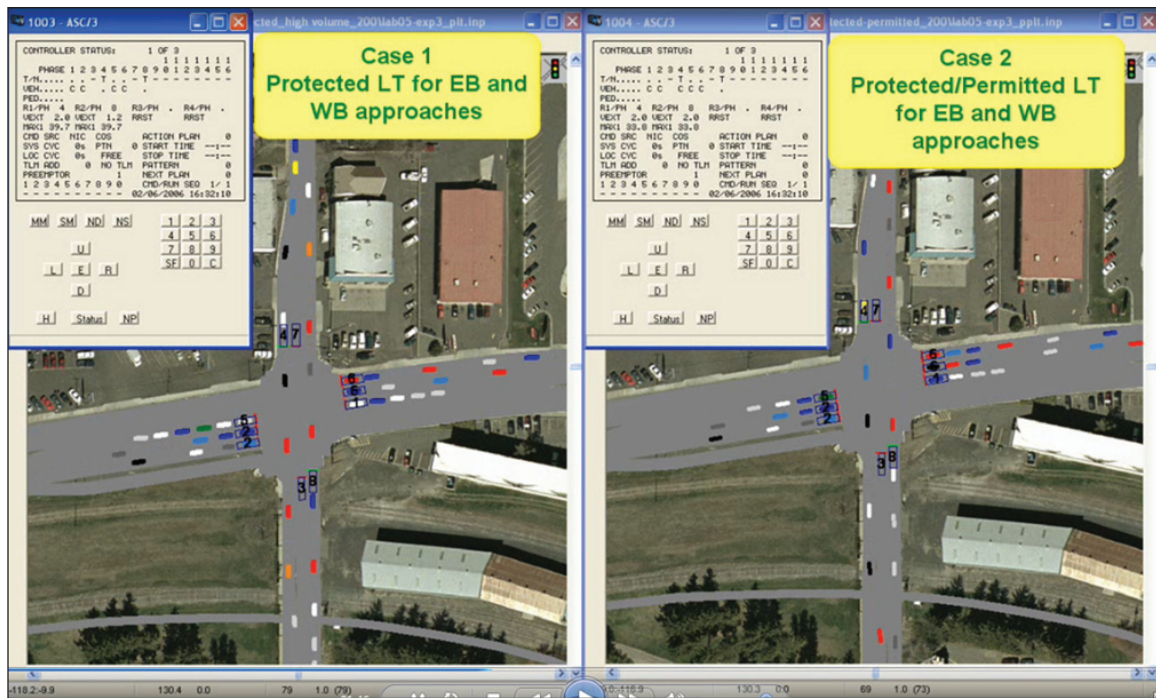


Figure 169. Animation comparing protected and protected plus permitted left turn phasing

