



PURPOSE

The purpose of this activity is to extend your understanding of the topics already encountered in this chapter.

LEARNING OBJECTIVE

• Appreciate how theoretical information about phasing, rings, and barriers is used and applied by professionals

REQUIRED RESOURCE

• Traffic Signal Timing Manual

DELIVERABLES

Prepare a document that includes

- Answers to the Critical Thinking Questions
- Completed Concept Map

LINK TO PRACTICE

Read the section of the Traffic Signal Timing Manual assigned by your instructor.

CRITICAL THINKING QUESTIONS

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

1. What is the logic for the sequence of phases that are included in a ring?

2. What impact did your field experience have on your understanding of phasing, rings, and barriers?

IN MY PRACTICE ...

by Peter Koonce

The standard ring barrier configuration has been helpful to standardize design, operations, and maintenance functions of signalized intersections. Yet, there are some cases where the strength of the ring barrier diagram may limit our willingness to think outside the box. The intersection of NE 82nd & Airport Way in Portland, Oregon is a heavily travelled intersection with light rail in close proximity. Medians separating the movements provided an opportunity to allow pedestrians to cross in three stages during non-conflicting vehicle phases. This was done to insure safe operation of the light rail preemption.

The sketch of the intersection on the left shows the vehicle phases numbered 2, 4, 5, and 6. The pedestrian phases, numbered P4 and P6, operate at the same time as the vehicle phases 4 and 6, respectively. A pedestrian crossing Airport Way would be served by three sequential pedestrian phases: P4, P6, and P4. The sketch on the right shows a design that used overlaps to cross the barriers for pedestrians allowing the signal timing to permit crossings over the entire length of a cycle, reducing the pedestrian crossing time by up to 75 seconds. It also improved crossings for people on bicycles, addressing a complaint from a cyclist who correctly noted that the ring barrier structure prioritized vehicle movements with little concern for efficient pedestrian operations. A simple modification to the allowable phases and the order of the movements allowed a person on a bicycle to cross on the pedestrian movement more efficiently by assigning multiple phases to the various overlaps at the intersection.



Concept Map	Terms and variables that should appear in your map are listed below.				
concurrency group	NEMA phase numbering	phase	ring barrier diagram		
movement	overlap	ring			

Student Notes: