

## PURPOSE

The purpose of this activity is to test your understanding of the material covered in the Reading on ring barrier diagrams. This includes gaining a basic level of understanding of the concept of rings and barriers, and how they are used to safely separate the operation of conflicting movements at a signaled intersection.

## LEARNING OBJECTIVES

- Describe NEMA phasing and the concept of rings and barriers
- List the phase numbers at a standard intersection with eight movements
- Draw and describe a ring barrier diagram in which there are two rings and eight phases

## REQUIRED RESOURCES

- Activity #13: “Phasing, Rings, and Barriers”

## DELIVERABLES

- Prepare a one page document that includes your results from Tasks 1 through 5

### TASK 1

Sketch a four leg intersection, showing an exclusive left turn lane and one through lane on each approach. Number each movement and list the phase number corresponding to the standard NEMA numbering scheme that would control each movement.

### TASK 2

Prepare a sketch of a ring barrier diagram that represents the condition described in Task 1.

### TASK 3

Prepare a brief description of the timing process for this eight phase operation by describing the order and manner in which each phase is served. Consider the various sequences that may occur depending on traffic flow volumes.

### TASK 4

Suppose the traffic demand for the east-west movements at a signalized intersection requires the following times for each movement to be served. Draw a partial ring barrier diagram showing the sequence and the timing of the phases controlling these movements. (See Table 7, following page.)

Table 7. Phases and required time to serve movements

Movement	Phase controlling movement	Required time (sec)
EBLT	5	5
EBTH	2	25
WBLT	1	10
WBTH	6	15

**TASK 5**

Figure 72 shows an intersection with five approaches. The movement are shown and numbered. Prepare a conflict matrix and a ring barrier diagram that would provide safe operation for this intersection.

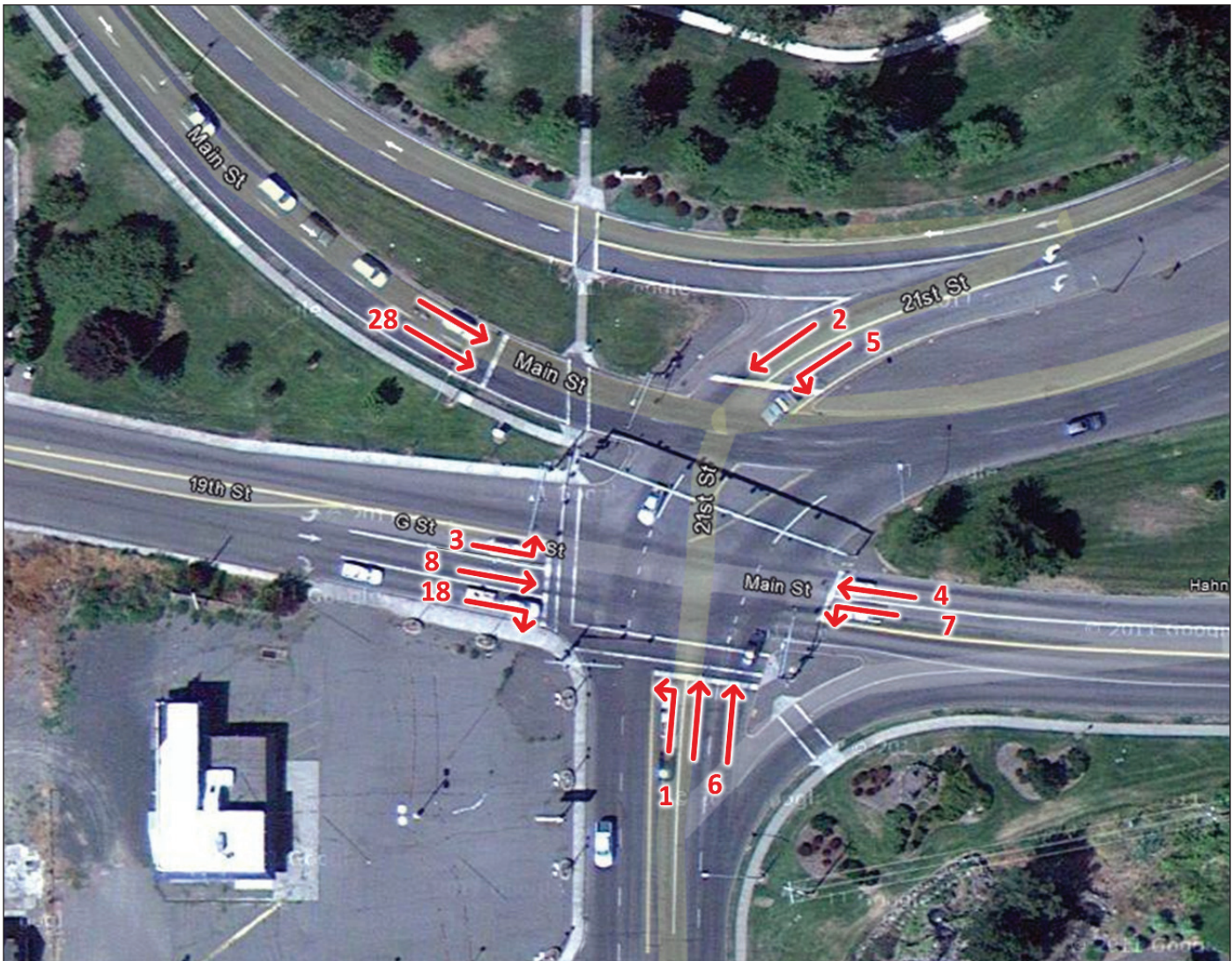


Figure 72. Intersection with five approaches, Lewiston, Idaho