CE 474 - Class 21

12 October 2015

8	**Class 21 (10.12)** Discuss: A43 results Mini-lecture/CTQ: A45	**Class 22 (10.14)** Do/Discuss: A47, A48, A49 Homework (due 10.15): • Prepare: A50	**Class 23 (10.15)** Do/Discuss: A50 (due 10.19) Do: A50-Revised Homework (due 10.19): • Read: Chapter 9 overview • Read: A52 • Do A52 CTQ • Read chapter 4, K&T
9	**Class 24 (10.19)** Mini-lecture/CTQ: A52 Field prep: A55	**Class 25 (10.21)** [Field work; no class meeting] Do: A55 (field) (due 10.22) Homework (due 10.22): • Prepare: A54, A56	**Class 26 (11.22)** Preview: A62 Preview: Exam #1 Discuss: A55 Do/Discuss: A54, A56 (due 10.26) Homework (due 10.26): • Read: Chapter 10 overview • Read: A58 • Preview: A59
10	**Class 27 (10.26)** Mini-lecture: A58 Do: A59 Do: A62 Homework (due 10.29): • Complete: A62	**Class 28 (10.28)** Exam #1	**Class 29 (10.29)** Do: Report, presentation, oral examination

- **Questions:**
  - What is the objective of your design?
  - Based on what you know now about your intersection, how it operates, and how it performs, what should be included in a report and presentation about the design you are doing?

What is the objective of your design?

- Minimize delay and queue length for the intersection as a whole
- Minimize delay and queue length for the major street movements
- Minimize unutilized green time
- Other?

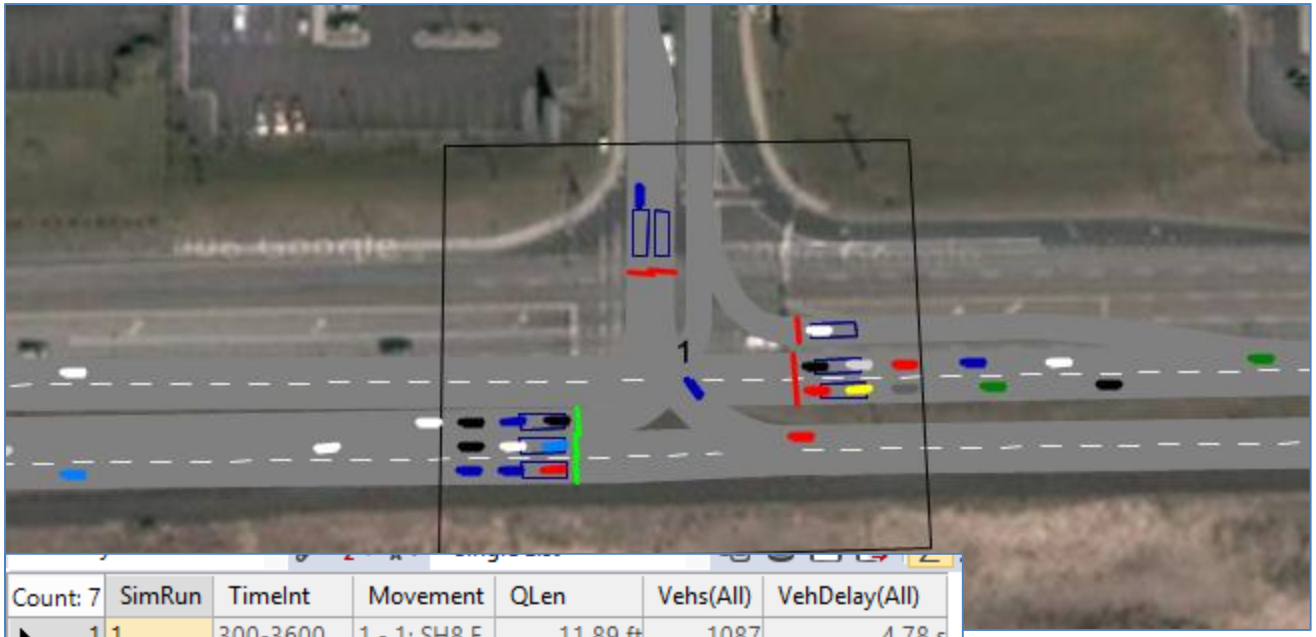
Based on what you know now about your intersection, how it operates, and how it performs, what should be included in a report and presentation about the design you are doing?

- What is the base performance with initial conditions? (delay, queue length, green time utilization) [A28]
- What is the performance each time you make a change? (passage time, minimum green time, maximum green time, left turn phasing, yellow and red clearance times) [A36, A37, A43, A50, A56]
- What is the linkage between your performance measures, at each stage of your design, with your observations of the animation (and what it shows about the operations and performance)?
- What did you learn about the performance as measured at the intersection level compared to the movement level?

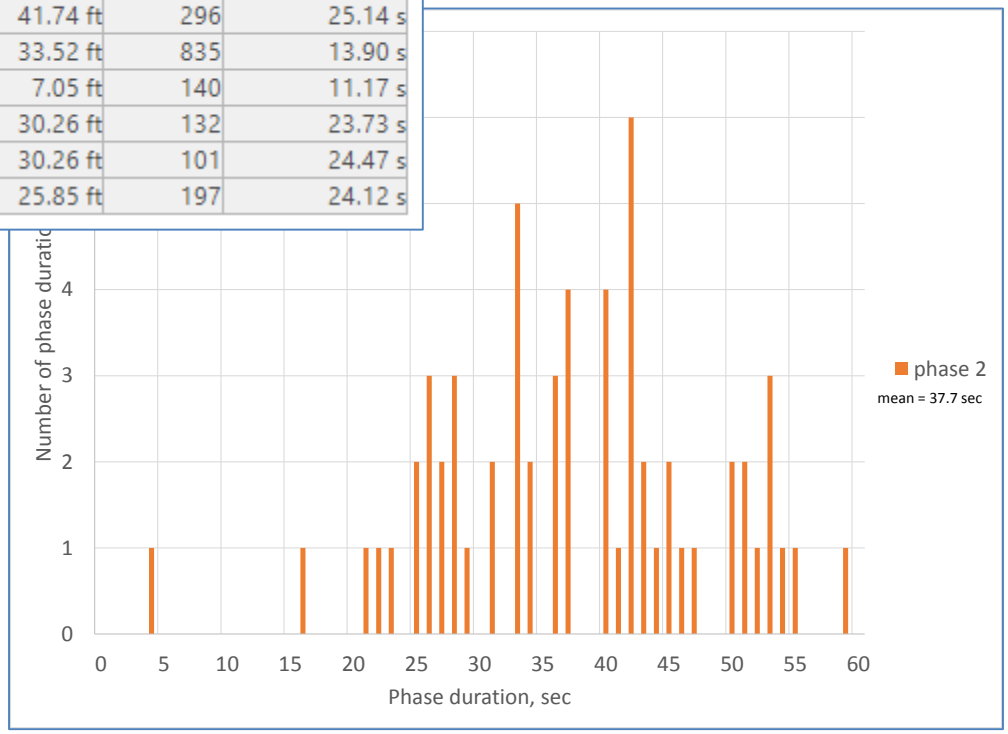
Deliverables

- Written report
- Oral presentation and exam

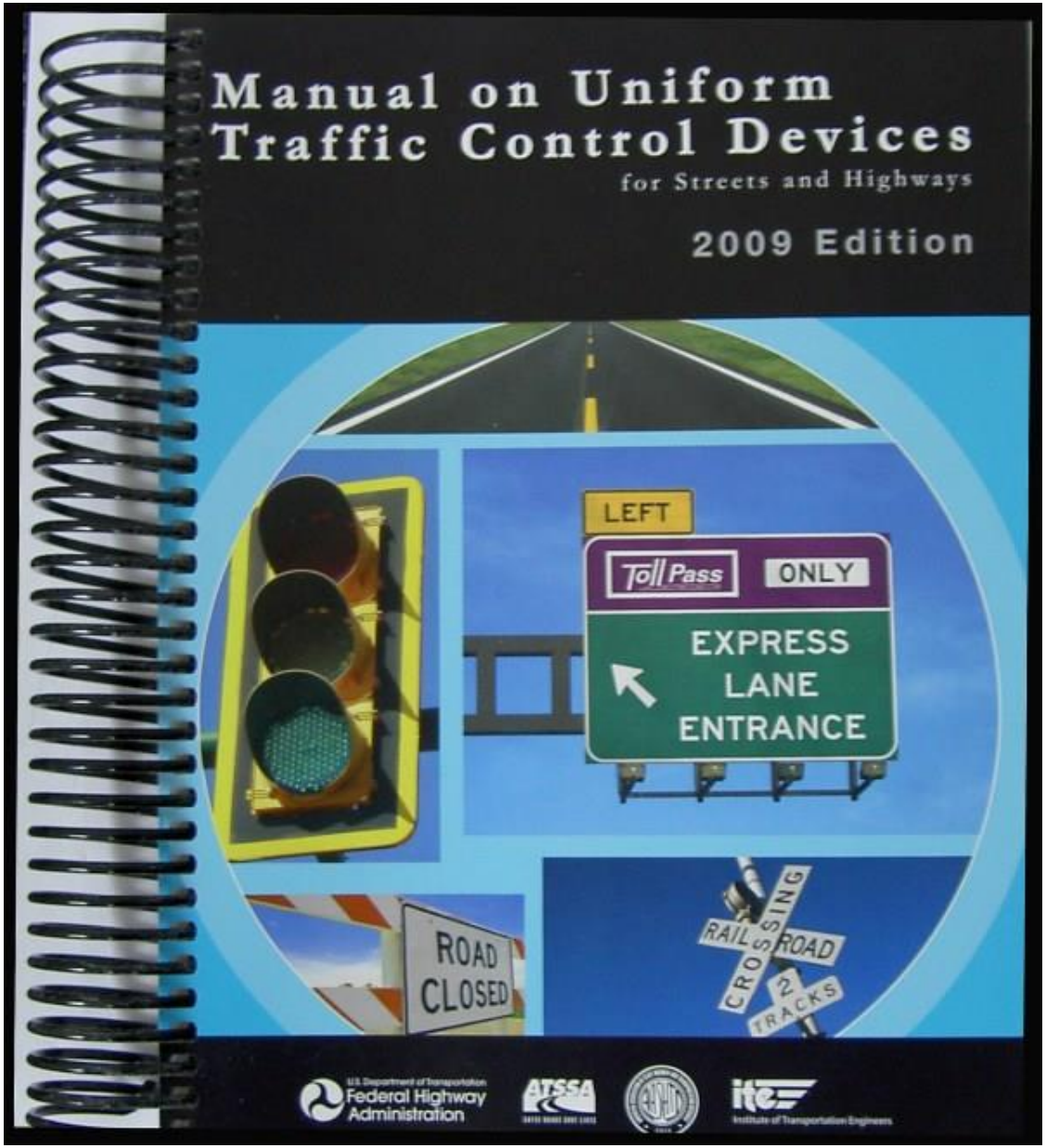
A43 Results



Count: 7	SimRun	TimeInt	Movement	QLen	Vehs(All)	VehDelay(All)
1	1	300-3600	1 - 1: SH8 E	11.89 ft	1087	4.78 s
2	1	300-3600	1 - 2: SH8 E	41.74 ft	296	25.14 s
3	1	300-3600	1 - 4: SH8	33.52 ft	835	13.90 s
4	1	300-3600	1 - 5: SH8	7.05 ft	140	11.17 s
5	1	300-3600	1 - 6: Warb	30.26 ft	132	23.73 s
6	1	300-3600	1 - 6: Warb	30.26 ft	101	24.47 s
7	1	300-3600	1 - 7: Warb	25.85 ft	197	24.12 s



1. Describe the process that you used to select the Max Green setting. [process, not results]
2. Describe the changes in delay for the individual movements and the intersection (and how you used both levels of aggregation in your work) for the values of Max Green that you considered.
3. How did the proportion of max outs change as you changed the Max Green time?
4. Describe how you selected your setting for Max Green.
5. How does performance after selecting Max Green compare with the results from A28 and A36?
6. How did you integrate your visual observations and the numeric performance data?
7. How did you used the relative proportion of gap outs and max outs for each Max Green test in your decision making process?


Manual on Uniform
Traffic Control Devices
for Streets and Highways
2009 Edition
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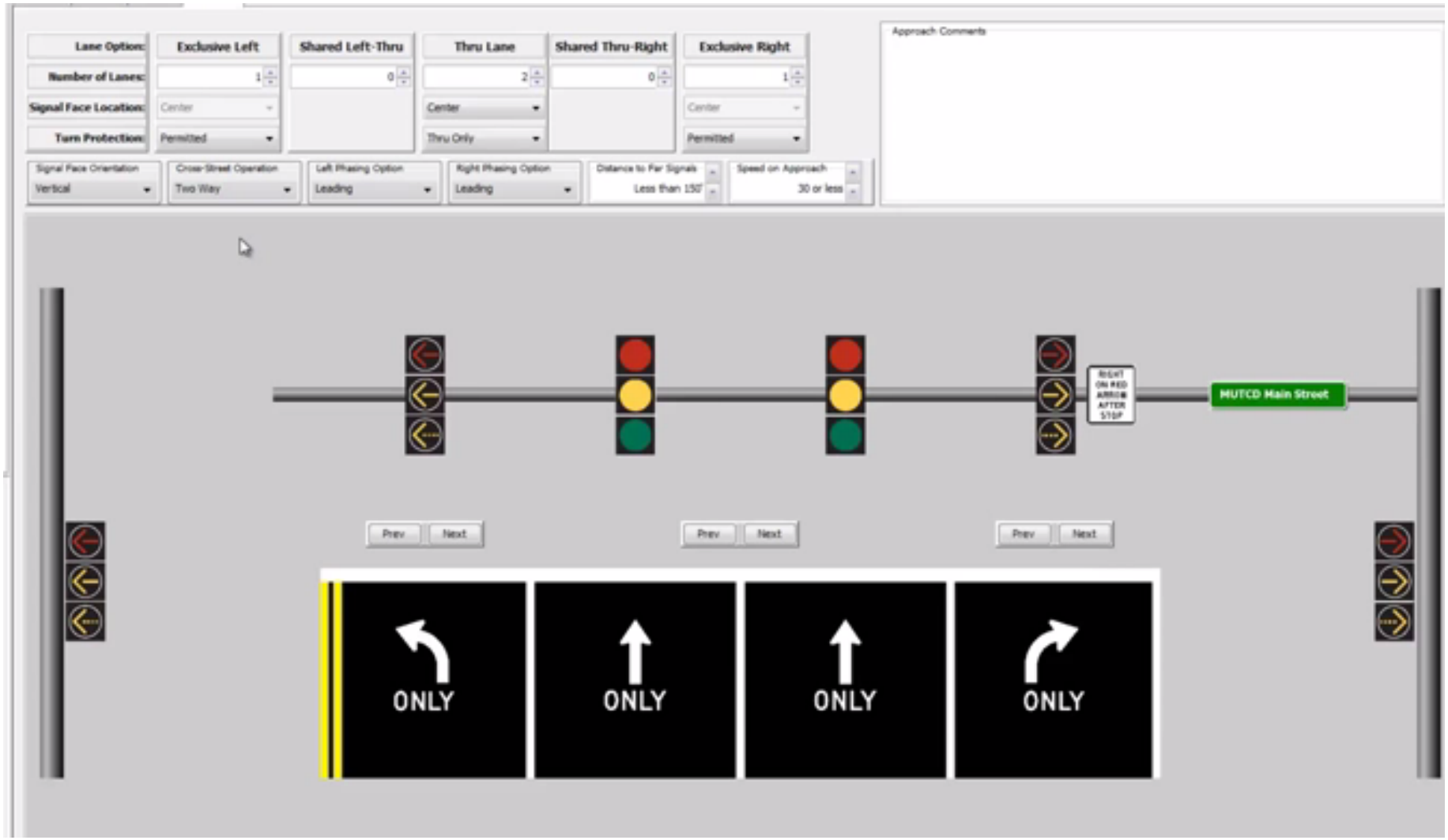
Lane Option:
Exclusive Left
Shared Left-Thru
Thru Lane
Shared Thru-Right
Exclusive Right
Number of Lanes:
Signal Face Location:
Turn Protection:
Permitted
Thru Only
Approach Comments
Signal Face Orientation
Vertical
Cross-Street Operation
Two Way
Left Phasing Option
Leading
Right Phasing Option
Distance to Far Signals
Less than 150'
Speed on Approach
30 or less
MUTCD Main Street
Prev
Next
ONLY
ONLY
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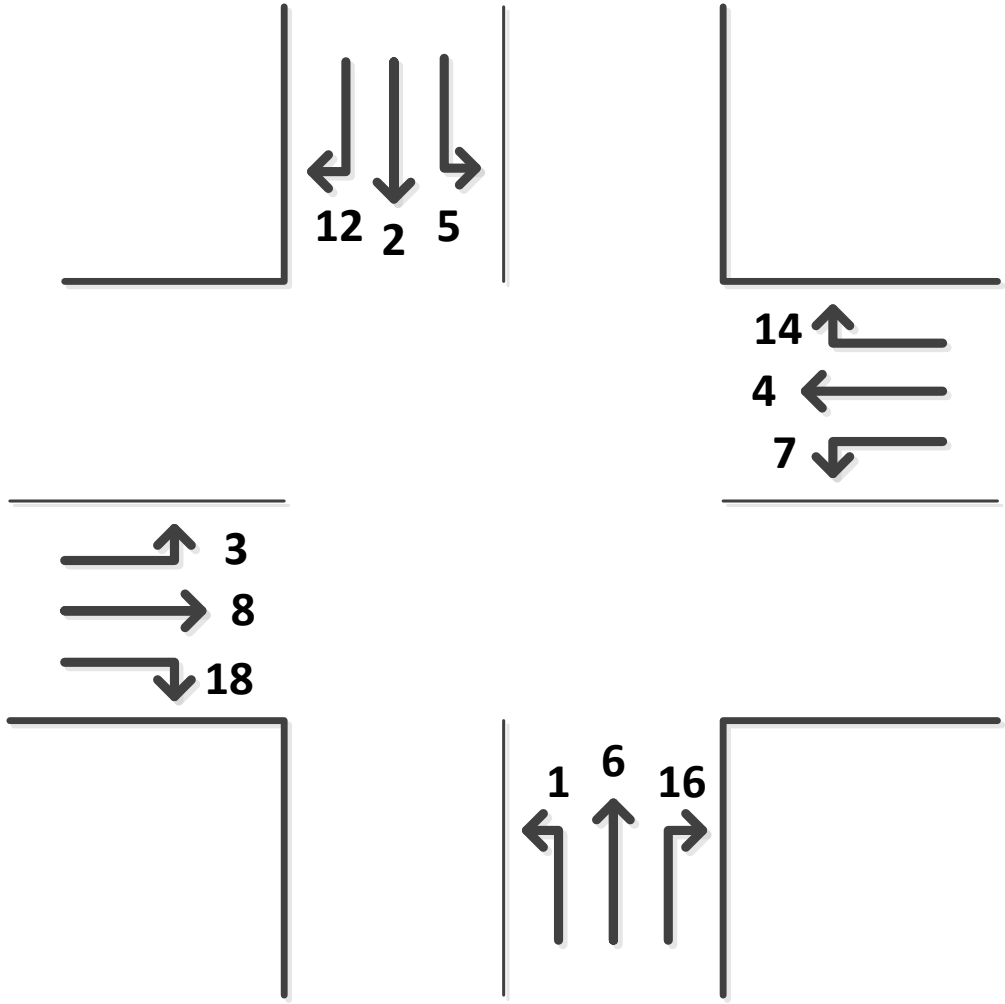
ONLY

Quiz…

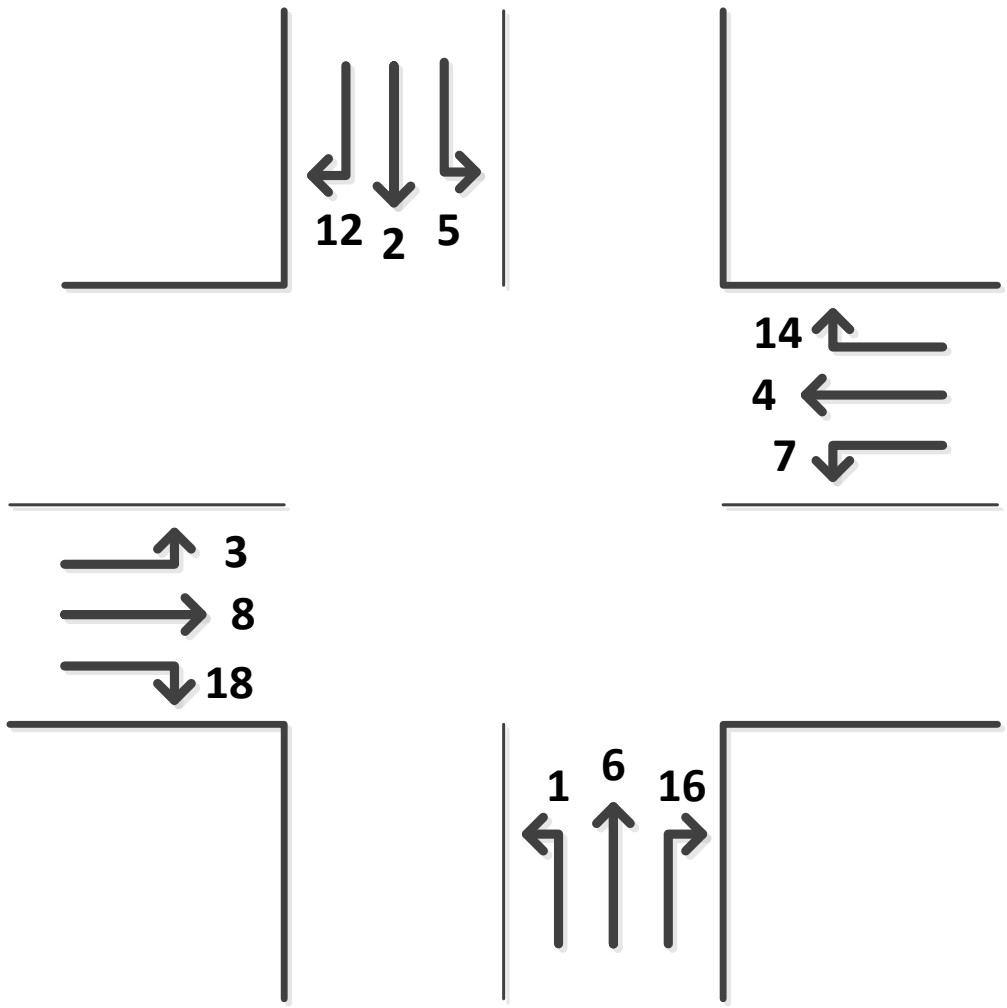
1. For the following phasing options, sketch the flow profile diagram and the cumulative vehicle diagram. Assume that the queue clears just before the end of green. Assume uniform arrivals and demand is less than capacity.

- Protected leading LT
- Protected lagging LT
- Permitted LT
- Protected plus permitted LT



2. Sketch the ring barrier diagram for a full four-leg intersection for the following phasing plans:

- Protected leading LT
- Protected lagging LT
- Permitted LT
- Protected plus permitted LT



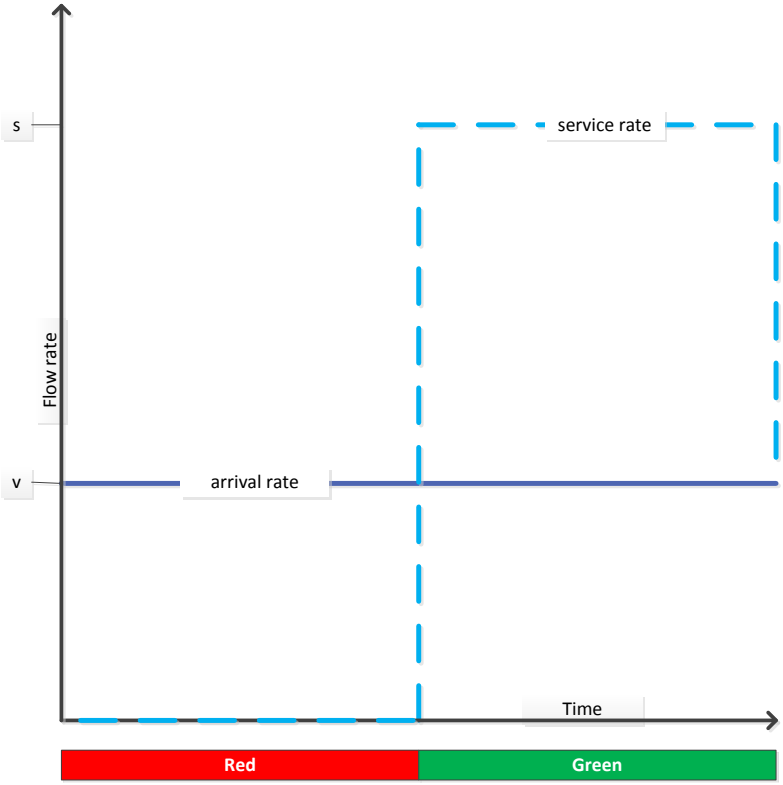
3. Based on your observations of your VISSIM animations thus far, what LT phasing plan do you think will be most efficient, protected LTs or permitted LTs? Why?

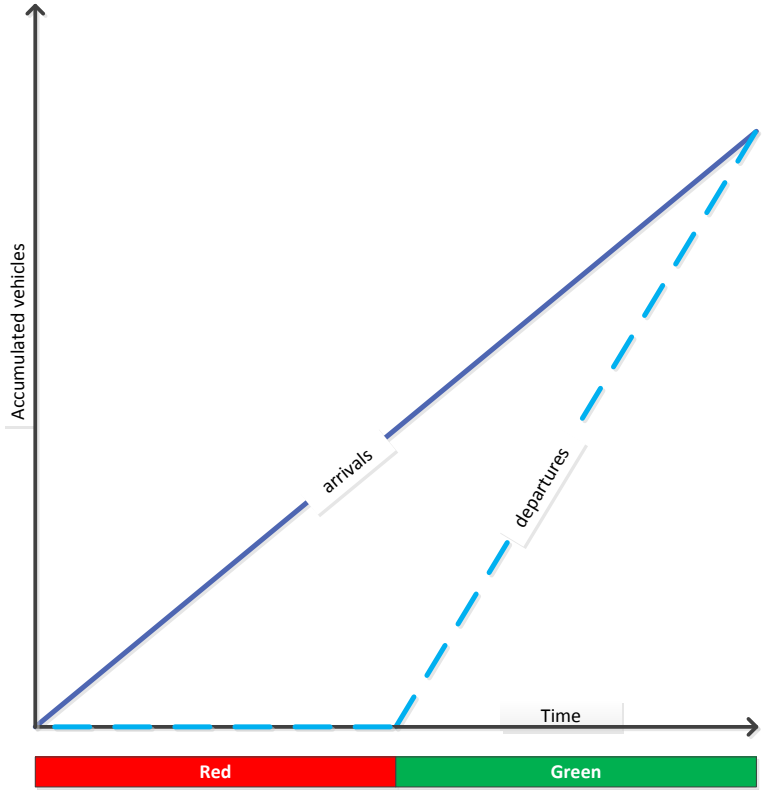
1. Sketch the flow profile diagram and the cumulative vehicle diagram. Assume that the queue clears just before the end of green. Assume uniform arrivals and demand is less than capacity.

- Protected leading LT
- Protected lagging LT
- Permitted LT
- Protected plus permitted LT

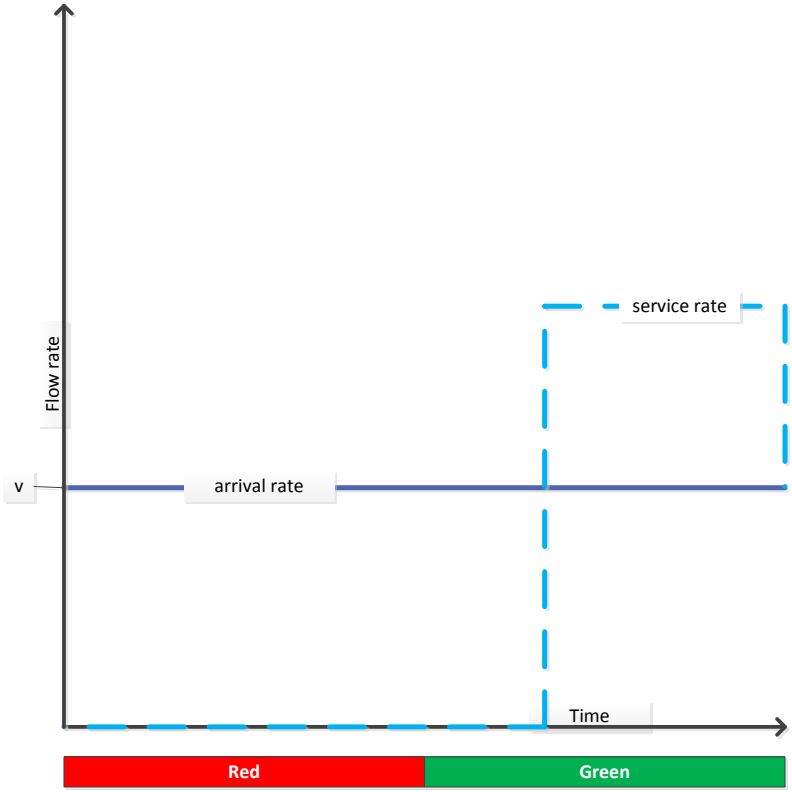
2. Sketch the ring barrier diagram for a full four-leg intersection for the following phasing plans:

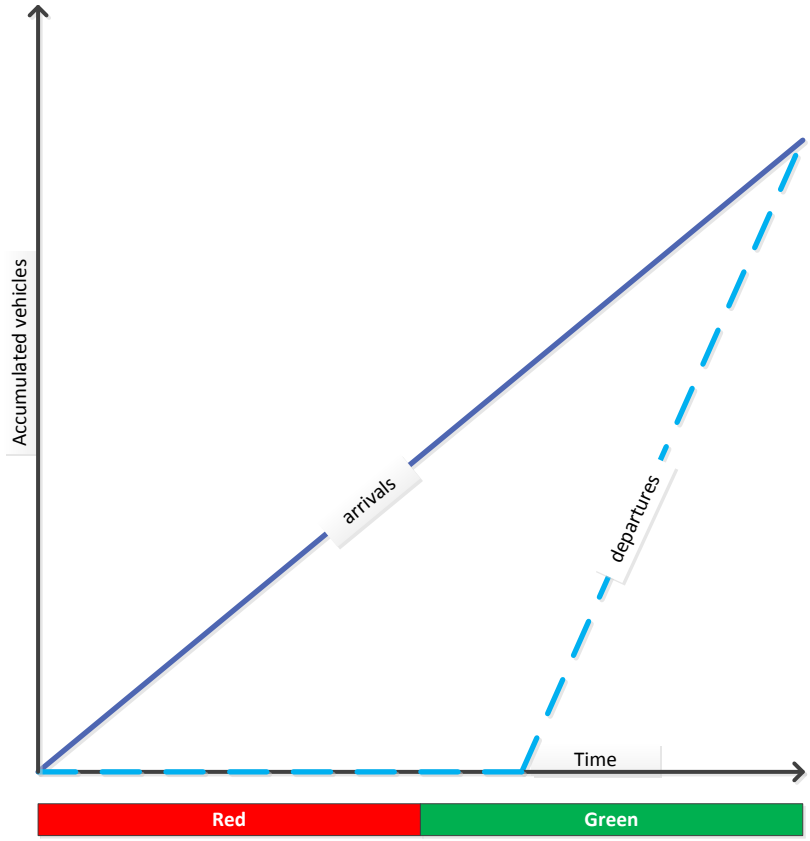
- Protected leading LT
- Protected lagging LT
- Permitted LT
- Protected plus permitted LT



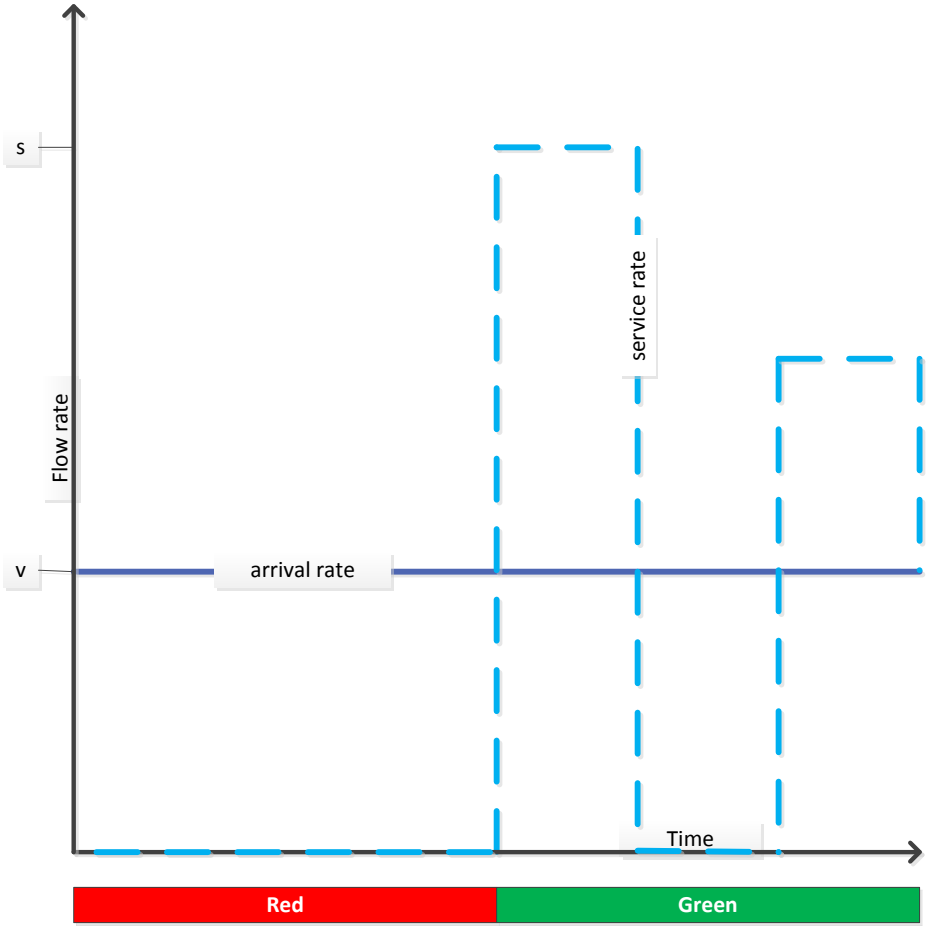


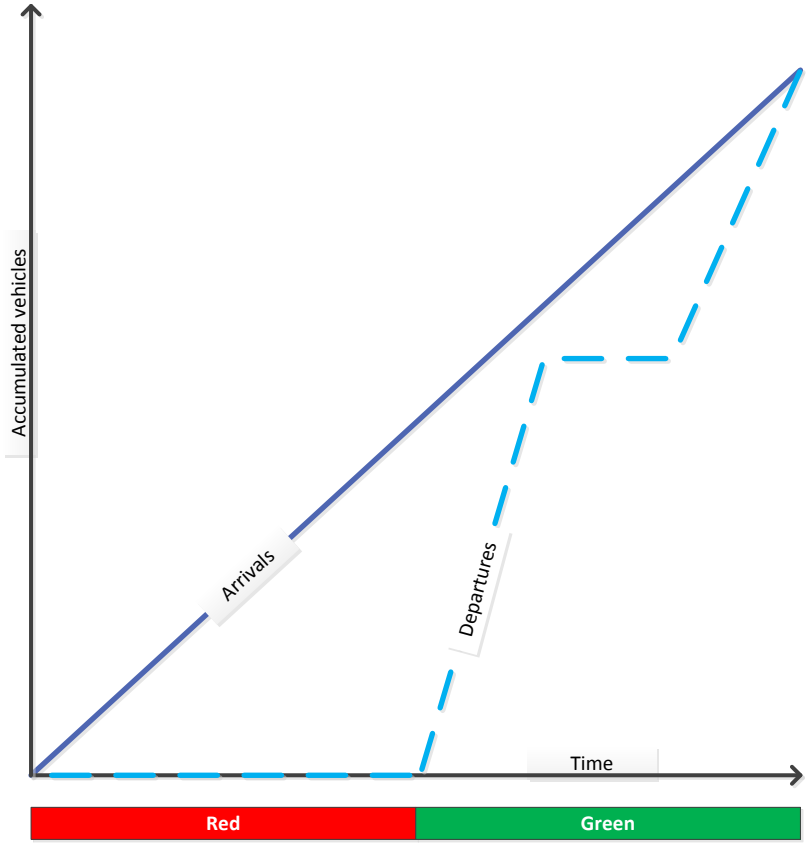
Protected leading LT
Protected lagging LT



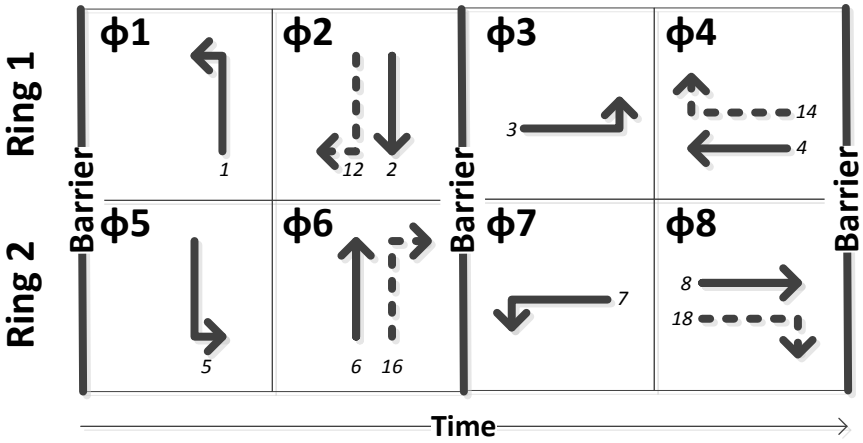


Permitted LT



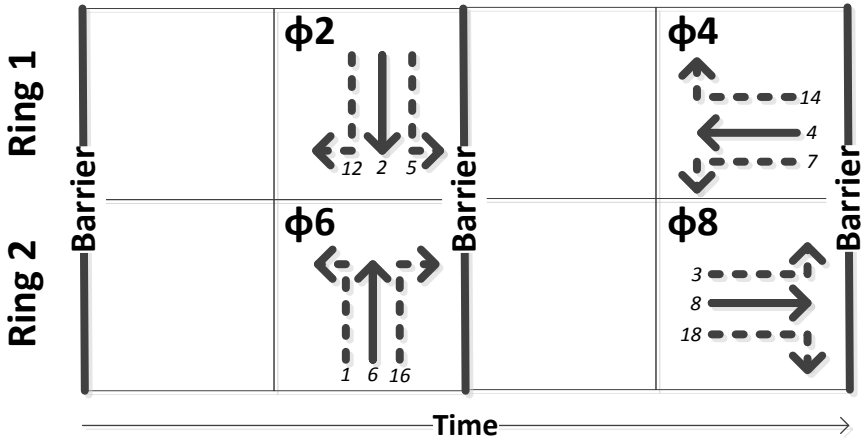


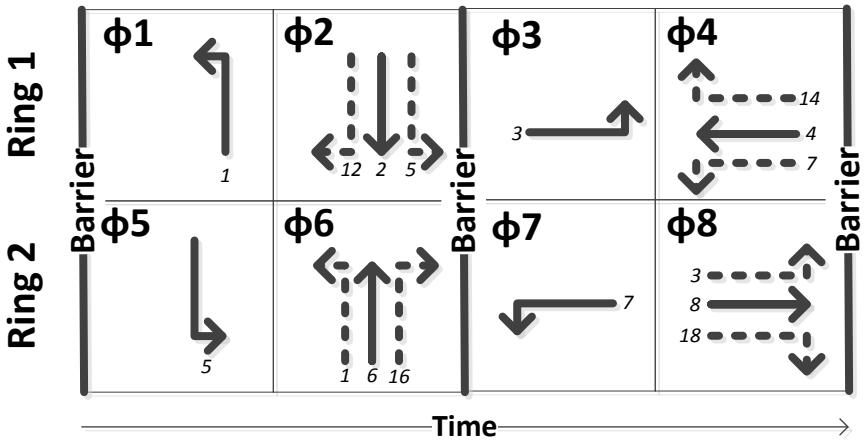
Protected plus permitted LT



Protected leading LT

Permitted LT





Protected plus permitted LT

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