CE 474 – Class 24

October 19, 2015

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

ACTIVITY 58 Integrating Information, Justifying Choices, and Communicating Results

READING

- The design process
- Integrating different kinds of information
- Measures of effectiveness
- Presenting data
- Experimental results
- How to communicate your data

- Which elements of the traffic control system did you affect in your analysis and design?
- How can you integrate the variety of information that you generated?
- What measures of effectiveness best show the performance of your system?
- How can you most effectively present your information?
- How have you used your experimental results to analyze the various design options that you considered and to select your final design?
- How can you make your written and oral reports as effective as possible?

Activity	Design Elements
28	Base network conditions
36	Maximum allowable headway
37	Passage time
43	Maximum green time
50	Left turn treatment
56	Yellow and red clearance times

- Performance data for each step in design process
  - Average delay
  - Queue length

ACTIVITY 62 Design Report (Written Report)

DESIGN

- Phasing plan in RBD format
- Timing parameters, detector location and type (justification for each selection
- Evaluation of your plan using data and visual observations; comparison with base conditions
- All options considered for various parts of design, including elements not part of final design
- Comparison of your results with recommended practice from Signal Timing Manual

- Title page
- Table of contents
- Executive summary
- Introduction
- Description of intersection
- Description and evaluation of phasing and timing plans with justifications
- Appendices including calculations and supporting data (Excel)

Design Report (Oral Presentation)

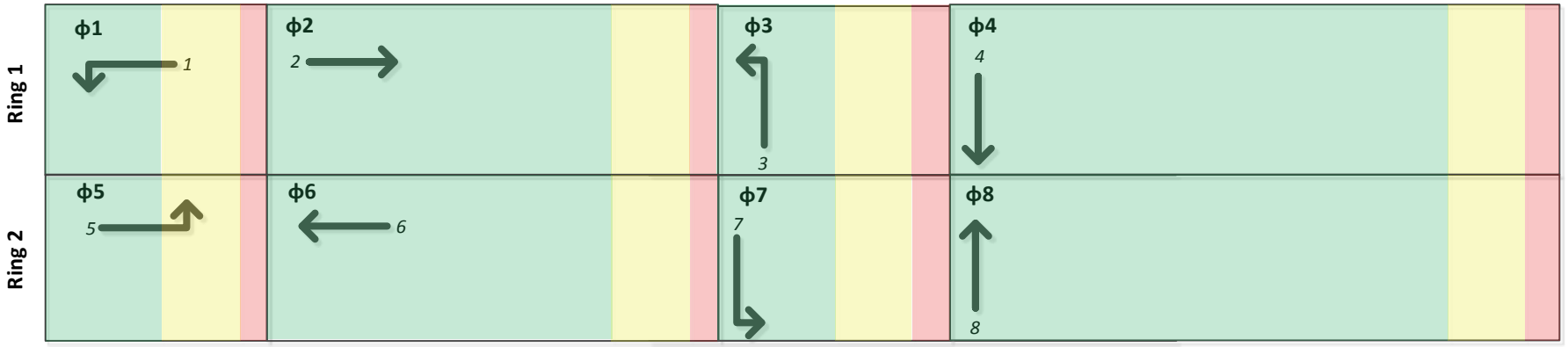
- Prepare set of tables that include data generated in A59
- Prepare summary of points that justify selection of each element of timing plan; construct exhibits that support your key points
- Prepare set of slides that address
  - Problem you were assigned
  - Analysis supporting design choices
  - Description of data analyzed and visual observations
  - Elements of final design
- Visualizations from VISSIM (static and/or dynamic) that demonstrate operation and performance of intersection
- How results compare with STM2

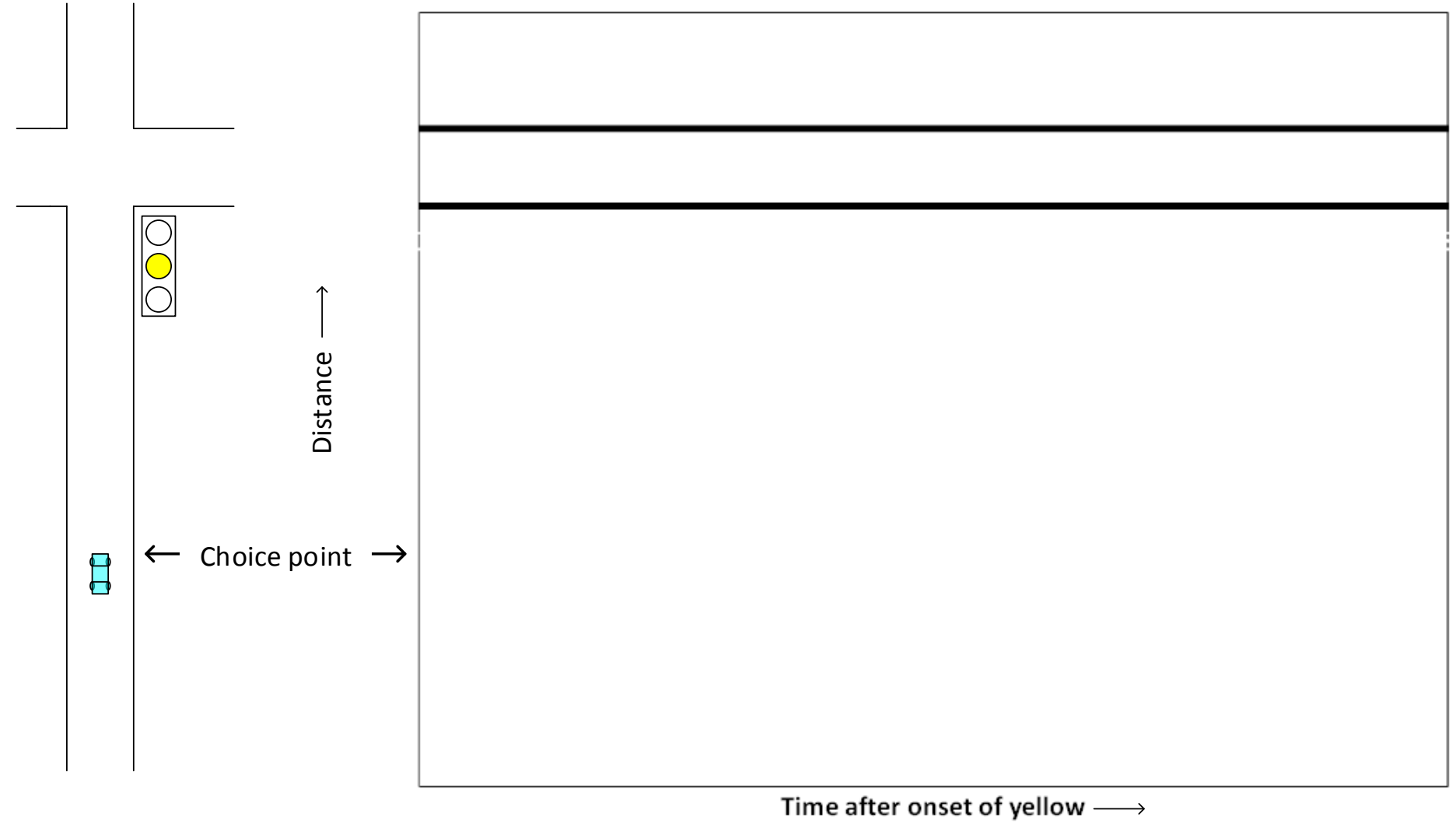
Table 36. Rubric for Evaluating Design Reports

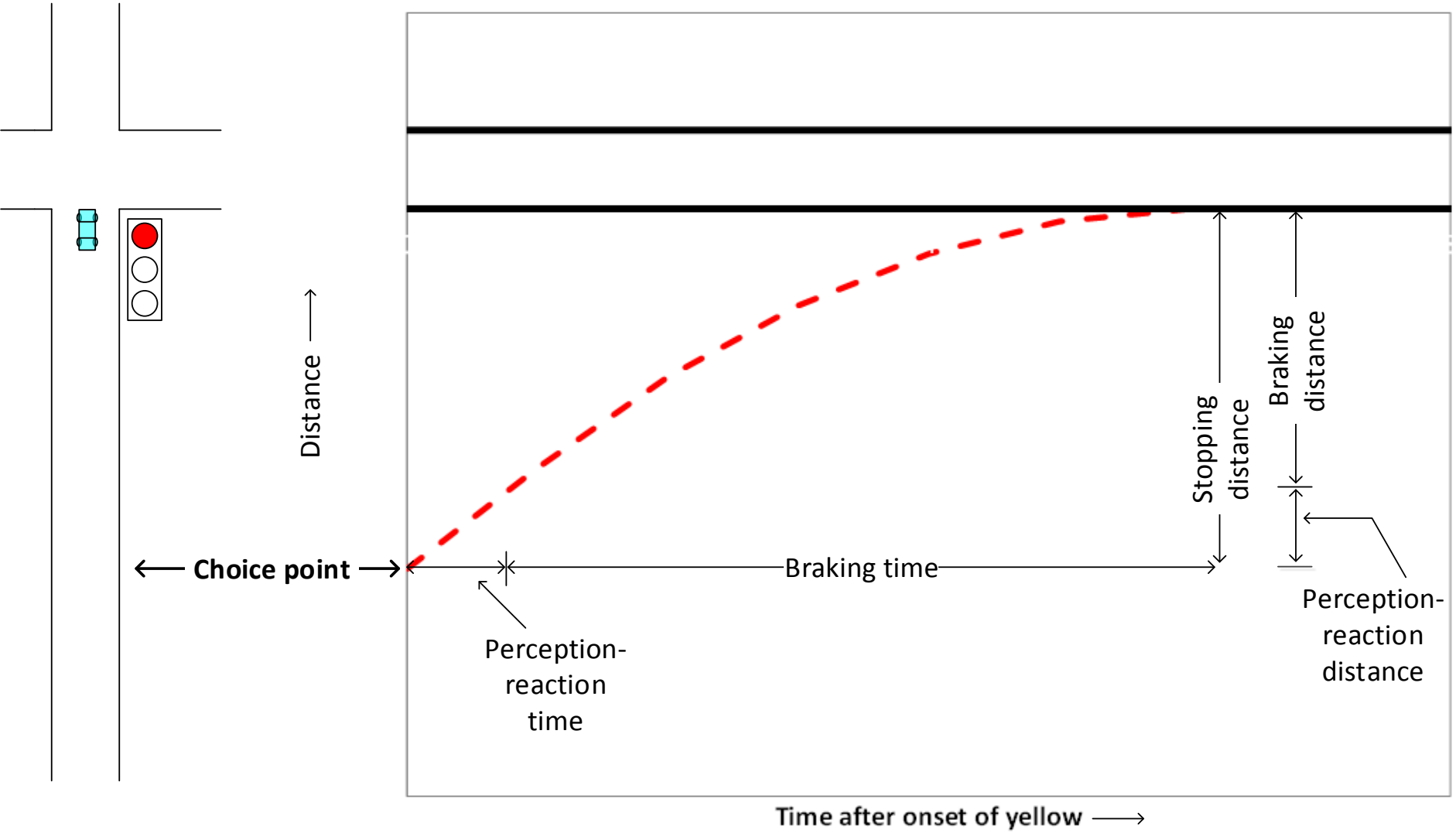
Criteria	High quality performance	Acceptable performance	Unacceptable performance
Report contents	The report includes all of the required sections and displays them clearly and logically.	The report includes all required sections.	One or more required sections are not included in the report.
Timing plan	The report includes all of the required timing plan elements and the phasing plans for each intersection in both tables and supporting text.	The report includes the required timing plans and phasing plans.	The report does not include all of the required timing and phasing elements.
Optimization process	The report includes a description of the optimization process, and the supporting charts and calculations. The data are presented in clearly designed charts and tables, with text that elaborates and explains the charts and tables. The analysis is clearly described and supported by data.	The report includes a description of the optimization process and the supporting charts and calculations.	The optimization process is not described clearly, the supporting data are not included, and the results of the process are not shown.
Selection of timing parameters	The report includes the process by which all of the timing parameters were selected, as well as the supporting calculations justifying these parameters. The supporting calculations show all assumptions, steps, equations, and data used to justify the selection of the parameters.	The report includes the process by which all of the timing parameters were selected, as well as the supporting calculations justifying these parameters.	The process for selecting the timing parameters is not clearly described and the supporting data are not included.
Organization	The report is organized in a manner that allows the reader to follow the sequence of topics and decisions. The sequence of topics supports the arguments and conclusions presented.	The report is organized in a logical manner.	The report is not easy to follow because the organizational structure is not clear to the reader.
Readability	The writing style in the report is crisp and clear, and uses high standards of grammar and readability.	The writing in the report is of acceptable quality; that is, the writing is not so poor that it distracts the reader from understanding and agreeing with the points made in the report.	The writing is poor and does not clearly communicate the results.
Executive summary	The executive summary provides a complete overview of the key points that appear in the report in a way that provides the information that the reader needs to understand the design and how it was developed.	The executive summary provides a clear overview of the points that appear in the report.	The executive summary does not provide a summary of the important points made in the report.

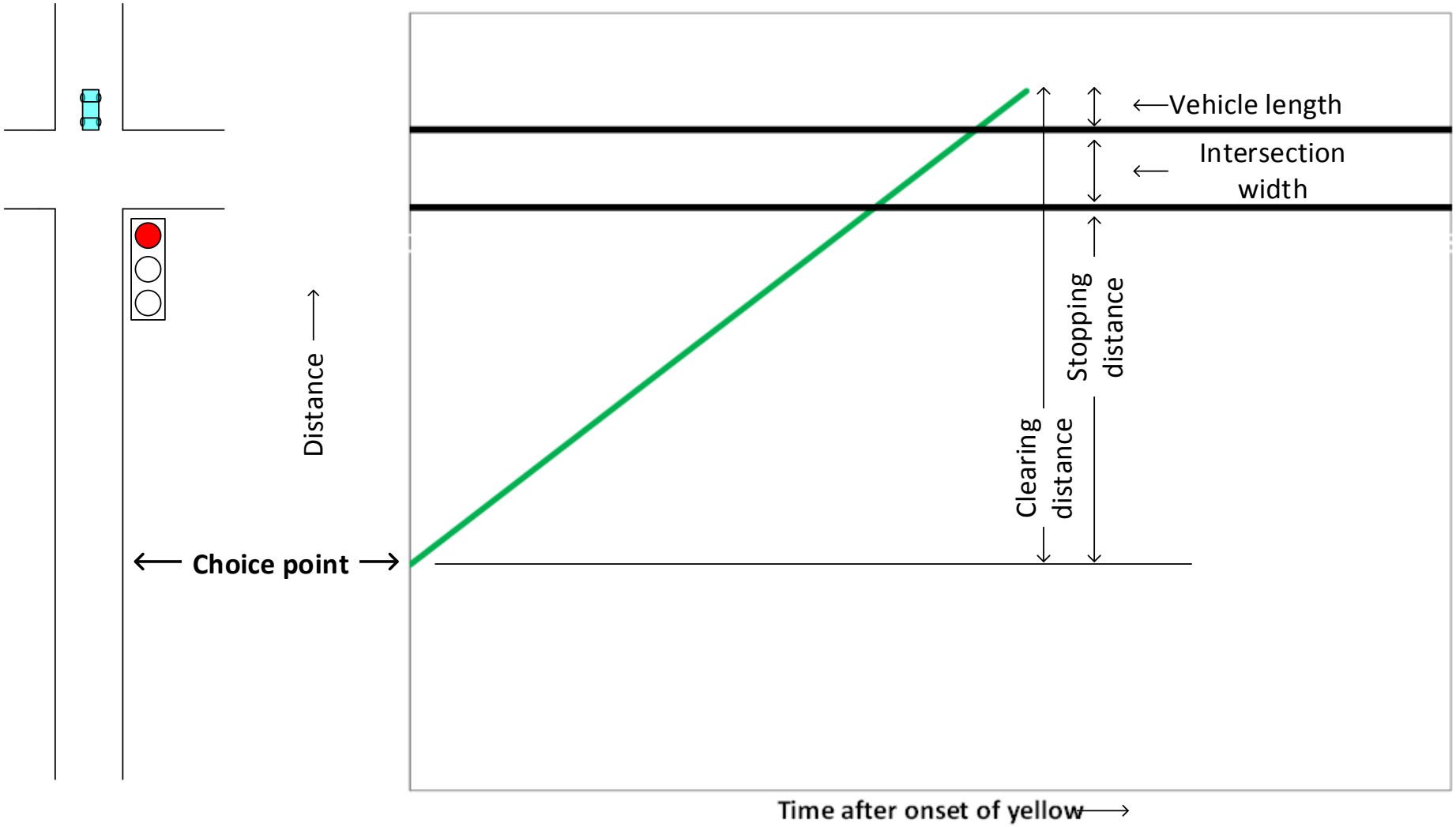
The Theoretical Basis of the Yellow and Red Clearance Intervals

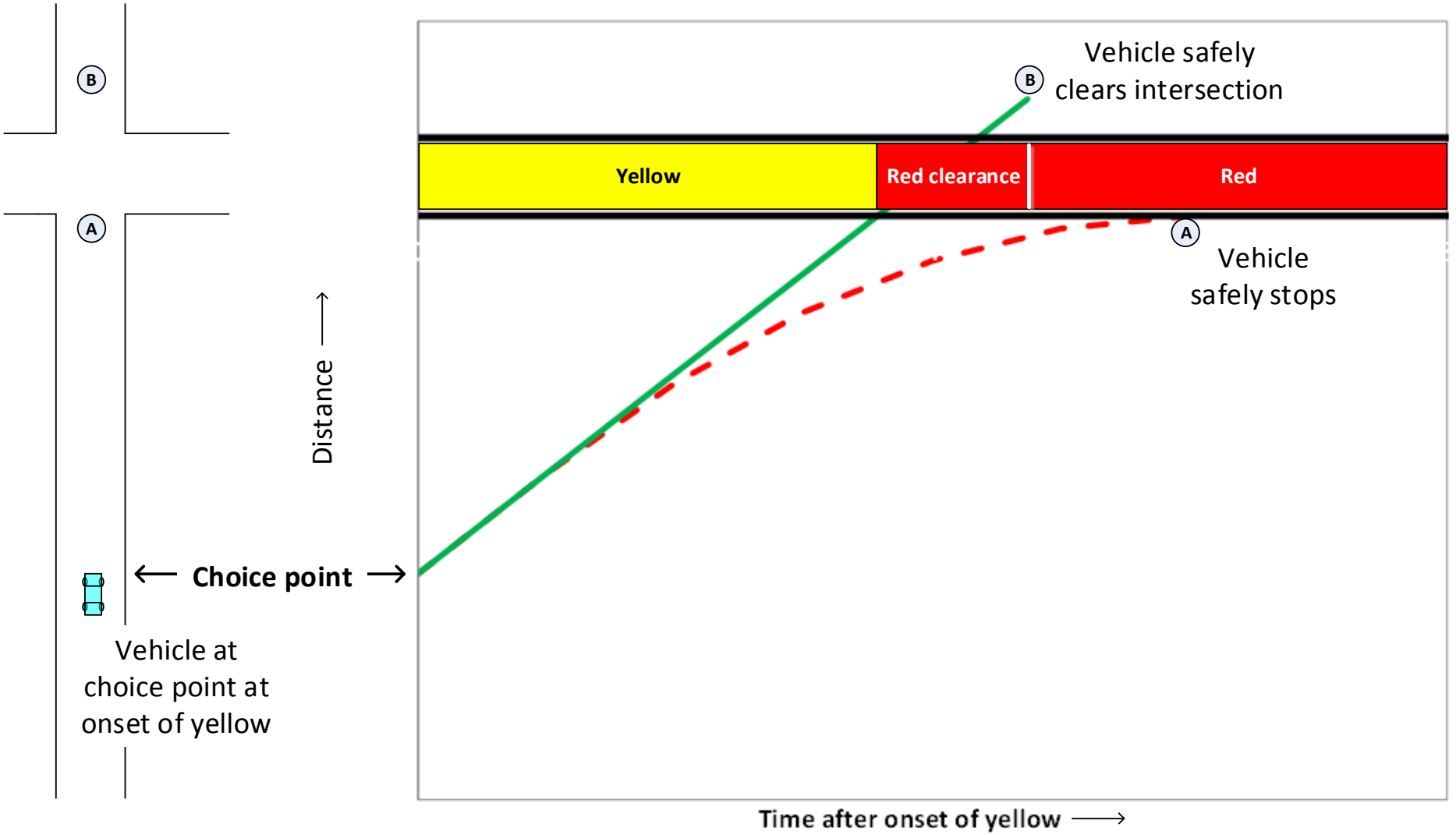
READING

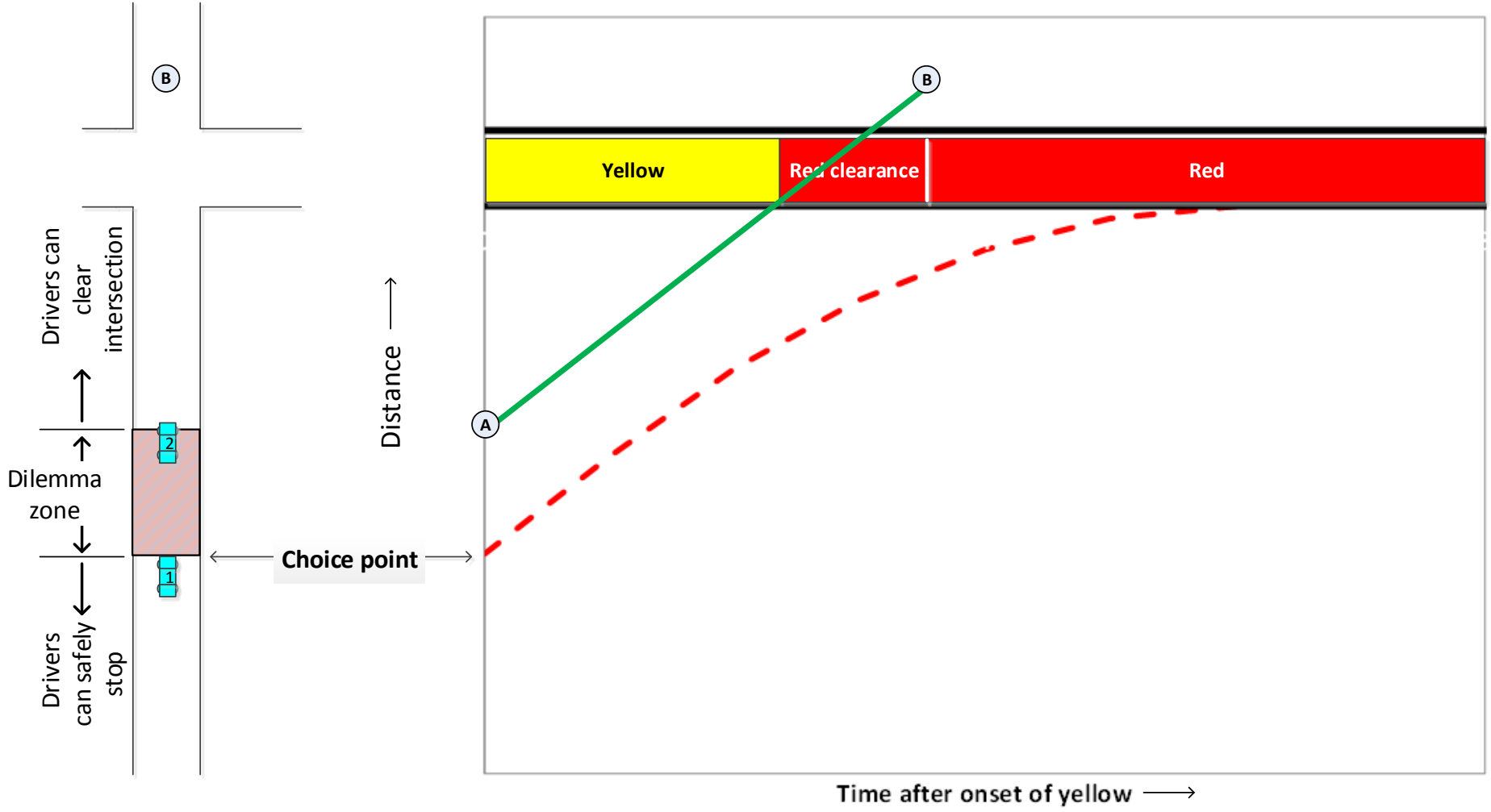


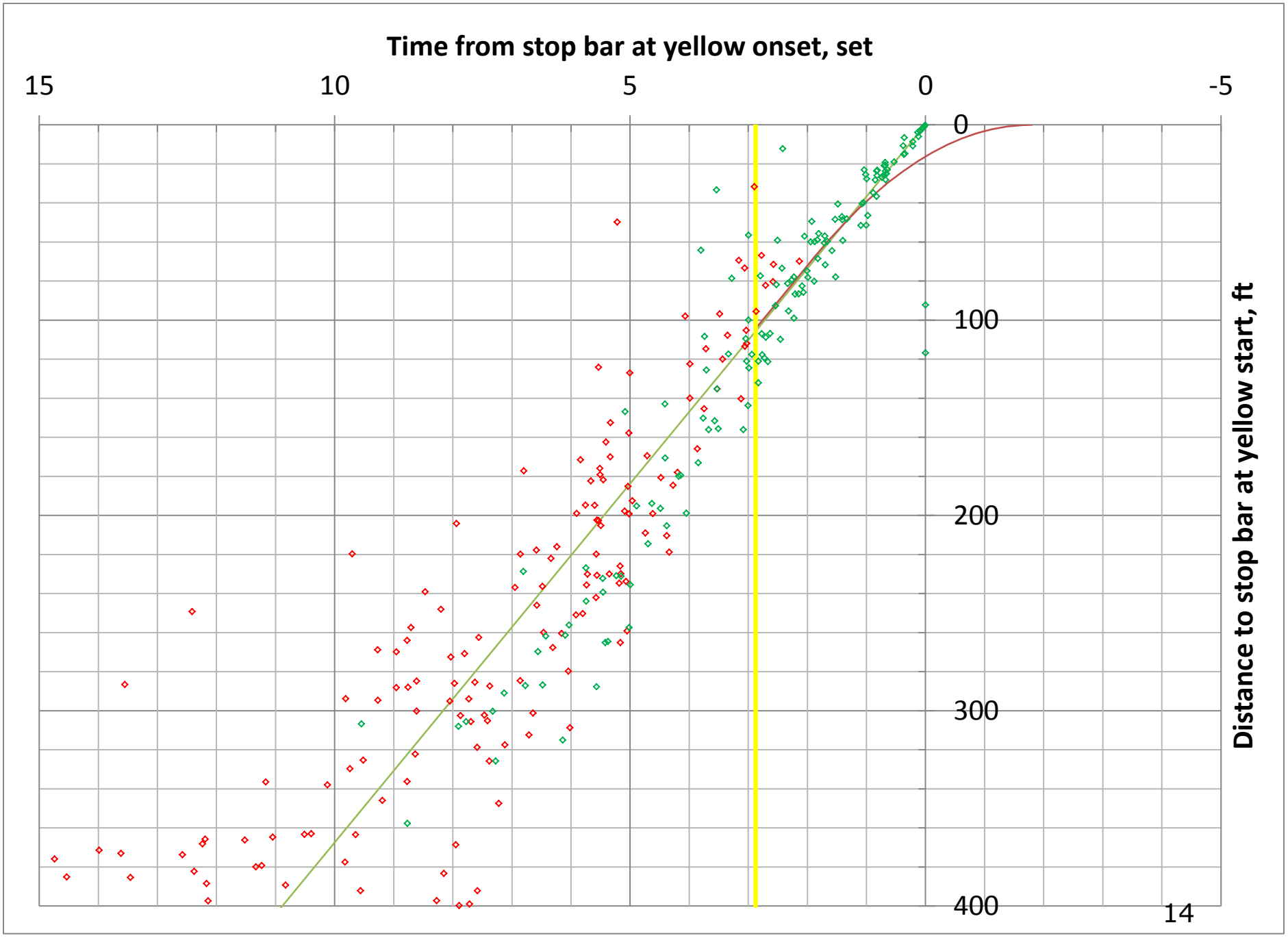

Distance
Choice point
Time after onset of yellow

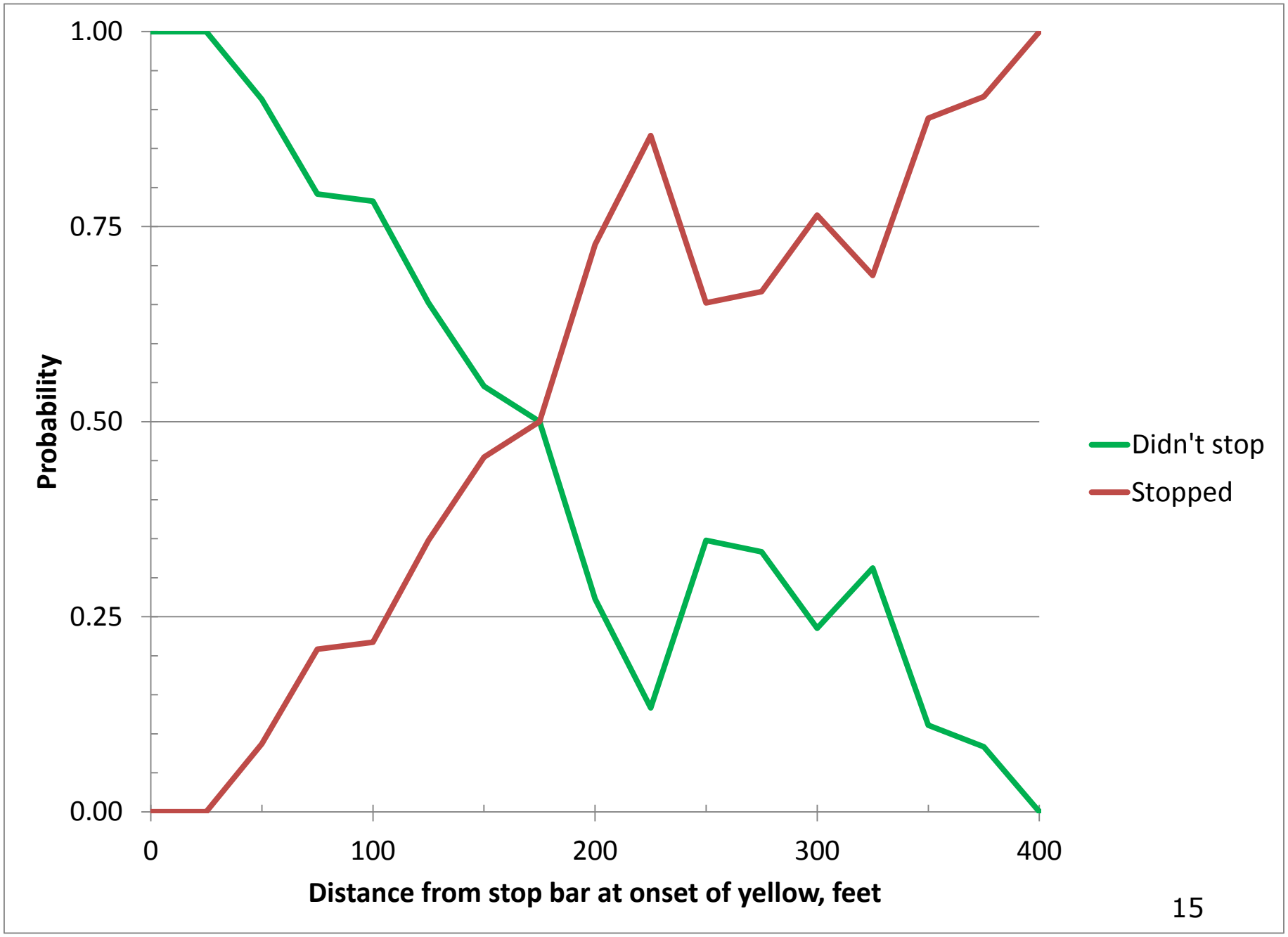

Distance
Choice point
Braking time
Stopping distance
Braking distance
Perception-reaction time
Perception-reaction distance
Time after onset of yellow

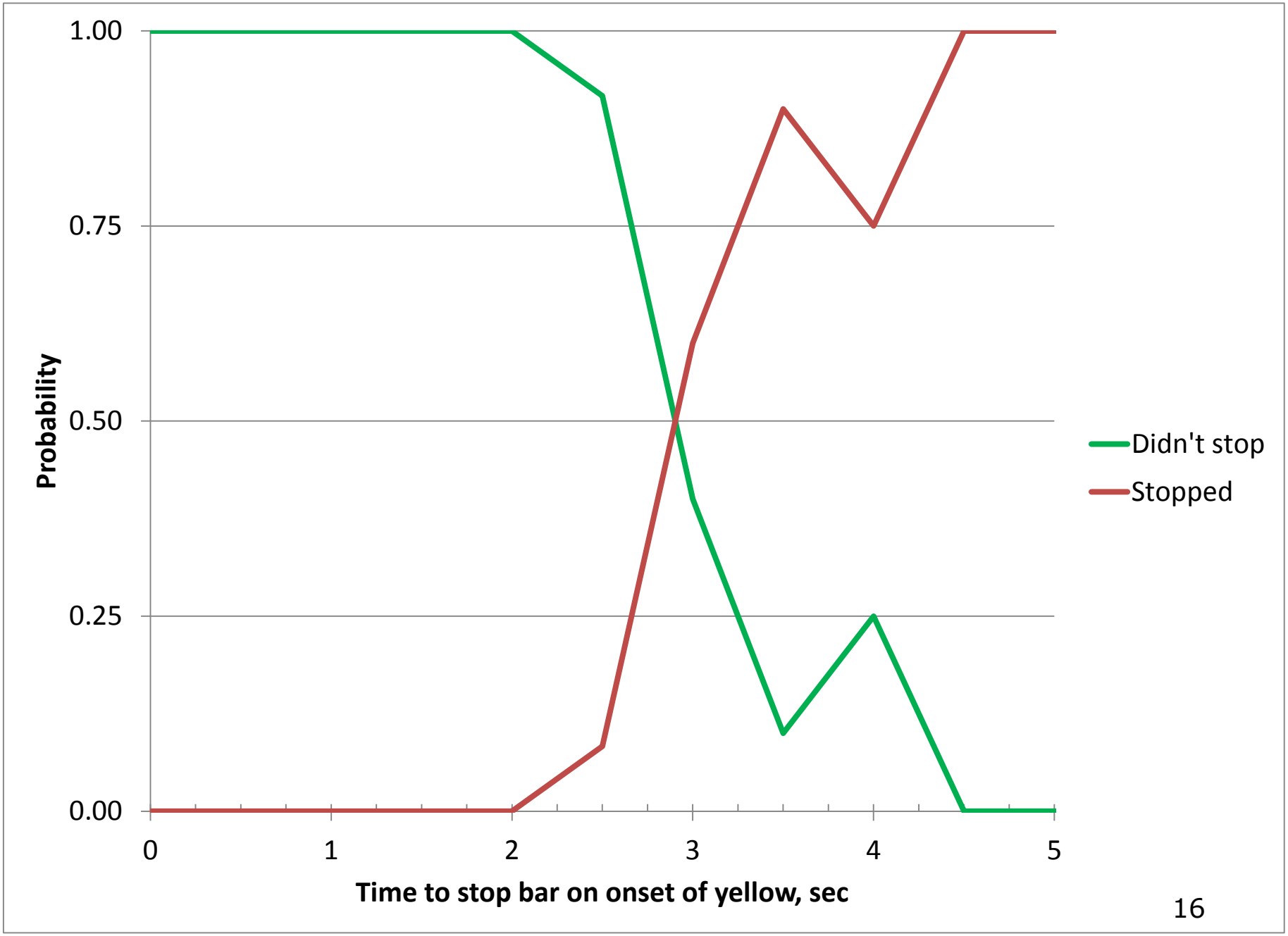

Vehicle length
Intersection width
Stopping distance
Clearing distance
Distance
Choice point
Time after onset of yellow


B
A
Vehicle safely
clears intersection
Yellow
Red clearance
Red
A
Vehicle
safely stops
Distance
Choice point
Vehicle at
choice point at
onset of yellow
Time after onset of yellow


B
Drivers can clear intersection
Dilemma zone
Drivers can safely stop
2
1
Choice point
Distance
A
B
Yellow
Red clearance
Red
Time after onset of yellow


Time from stop bar at yellow onset, set
15
10
5
0
-5
0
100
200
300
400
Distance to stop bar at yellow start, ft
14


1.00
0.75
0.50
0.25
0.00
Probability
0
100
200
300
400
Distance from stop bar at onset of yellow, feet
Didn't stop
Stopped


1.00
0.75
0.50
0.25
0.00
Probability
0
1
2
3
4
5
Time to stop bar on onset of yellow, sec
Didn't stop
Stopped

ACTIVITY 55

Vehicle Response to Onset of Yellow

FIELD

A	Morris, Cornwell, Keller	SH 8/Warbonnet
B	Hartzell, LeCates, Landa	US 95/Palouse River Dr
C	Cupps, Larrea, Saras, Skinner	SH 8/Line
D	Kury, Scheel, Geibel	US 95/Sweet
E	Bode, Hale, Dashti, Maffey	SH 8/Blaine
F	Almakrab, Crow, Elmore	SH 8/Warbonnet
G	Alrashdi, Ryu, Bernauer, Taylor-Stiffarm	SH 8/Line

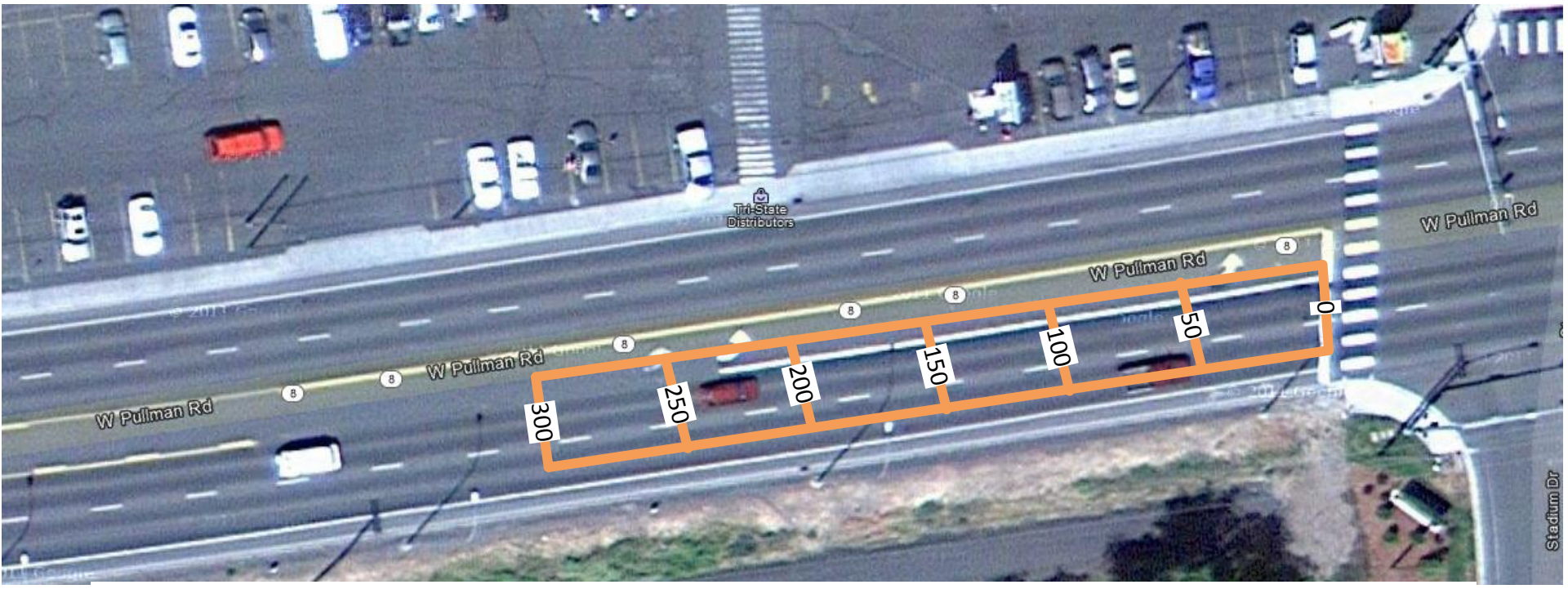
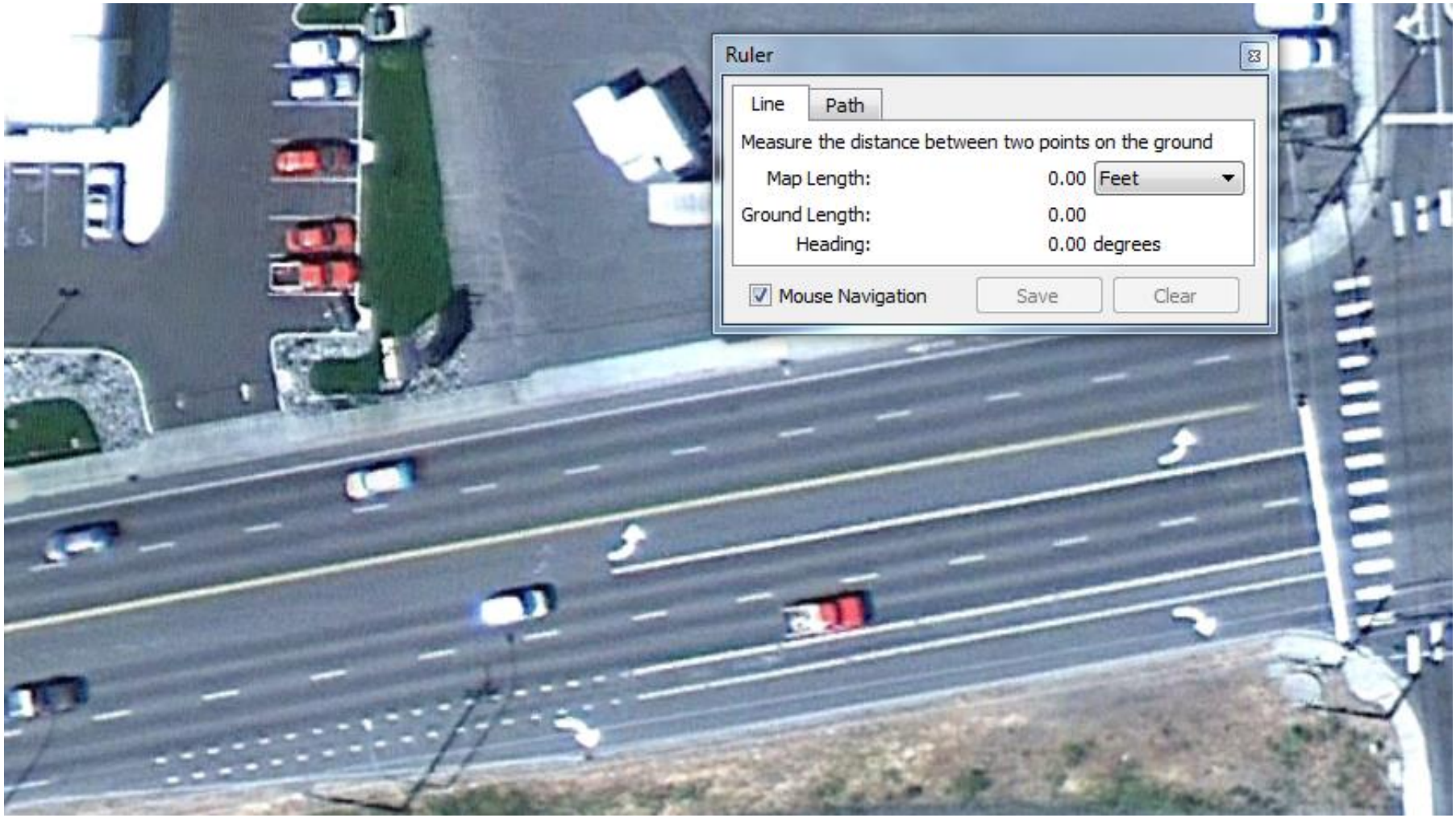
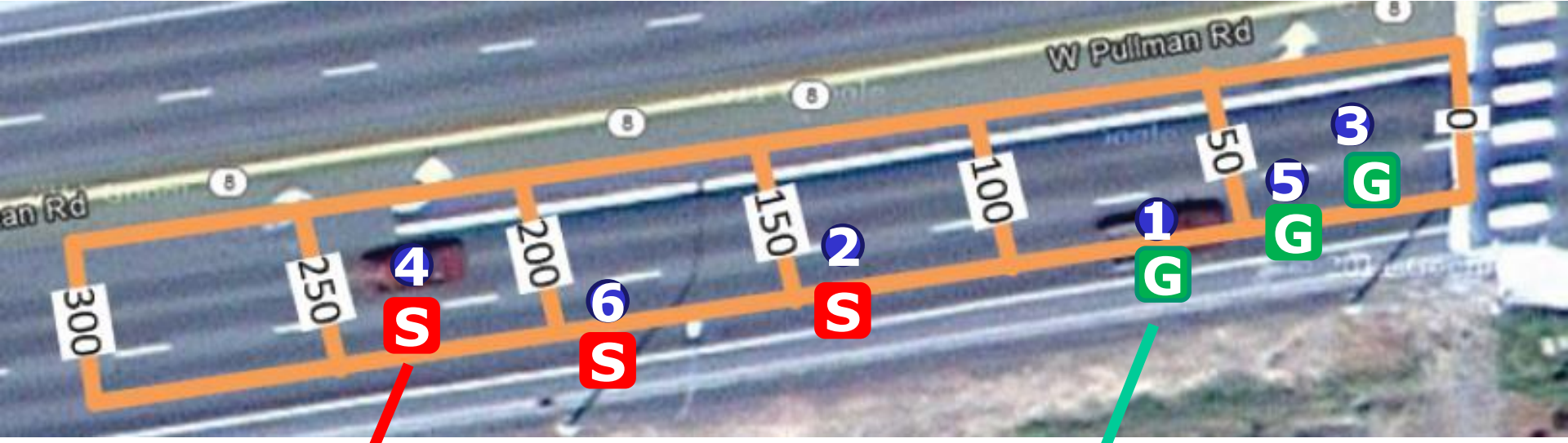


Table 25. Field observations and calculations

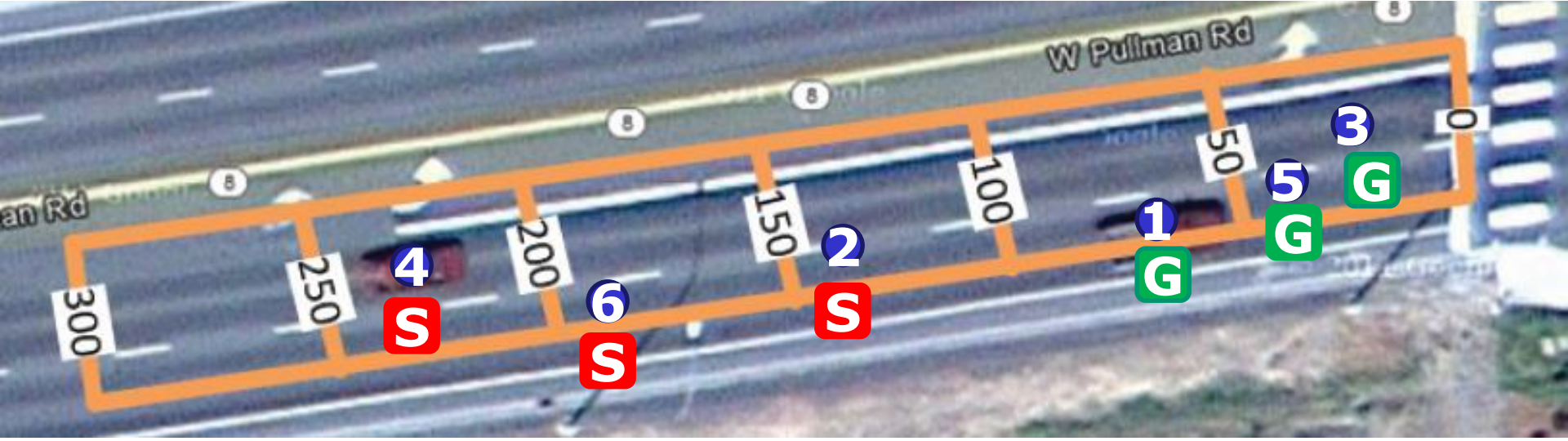
Vehicle number	Distance of vehicle from stop bar at onset of yellow	Response of driver to the yellow display (Go/Stop)	Estimated time for vehicle to travel to stop bar at onset of yellow
1			
2			
3			
4			
5			


Ruler
Line
Path
Measure the distance between two points on the ground
Map Length:
0.00
Feet
Ground Length:
0.00
Heading:
0.00 degrees
Mouse Navigation
Save
Clear



Vehicle #4 was 235 ft from the stop bar when yellow was displayed and eventually stopped

Vehicle #1 was 70 ft from the stop bar when yellow was displayed continued through the intersection



Vehicle number	Distance of vehicles from stop bar at onset of yellow	Response of driver to the yellow display (Go/Stop)	Estimated time for vehicle to travel to stop bar at onset of yellow
1	70	Go	1.9s
2	140	Stop	3.8s
3	20	Go	0.5s
4	235	Stop	6.4s
5	40	Go	1.1s
6	190	Stop	5.2s