

## (TE-04) Traffic Signal Operations: Isolated Intersections

### COURSE OUTLINE

#### DAY ONE

7:30 – 8:00 Check-in and Registration

8:00 – 8:15 Introductions

8:15 – 8:45 Overview of Course

- 1) Discuss purpose and need for signal timing
- 2) Course Objectives (signal timing policy, process, principles, and theories)
- 3) Organization of Course

8:45 – 9:10 Discussion on Field Conditions to Observe

9:10 - 9:15 Break

9:15 – 10:10 **MODULE A:** *Definitions and Capacity Concepts* (presentation and class discussion)

- 1) Introduction
- 2) Basic Definitions
- 2) Characteristics affecting signal timing
- 3) Capacity and critical volume analysis
- 4) Define basic signal timing variables of cycle length, split, and offset
- 5) Understand manner in which they are calculated based on traffic characteristics

10:10 – 10:15 Break

10:15 – 11:10 **MODULE A:** *Capacity Concepts* (continued)

- 6) Capacity and critical movement analysis (spreadsheet examples)
- 7) Traffic volume analysis (spreadsheet example)

11:10 – 11:15 Break

11:15 – 11:40 **MODULE B:** *Traffic Signal Design* (signal timing consideration), Part 1

- 1) Physical component of a traffic signal system
- 2) Identify three types of controllers including their functional capabilities,



applications, and limitations

3) Phasing overview: ring-and-barrier diagrams/designs

4) Class exercise: ring-and-barrier design

11:40 – 12:10 **MODULE C:** *Basic Signal Controller Parameters, Part 1*

1) Settings that define the duration of a vehicle phase

12:10 – 1:10 Lunch

1:10 – 1:40 **MODULE C:** *Basic Signal Controller Parameters, Part 1 (continued)*

2) Pedestrian timing

3) Clearance intervals (yellow and all-red)

1:40 – 2:10 Hands-On Class Problems

PlanSig examples (you work 'em)

1) Applying critical movement analysis, pedestrian timing, and clearance timing

2:10-2:15 Break

2:15-3:10 Hands-On Class Problems (continued)

2) Converting PlanSig results to cycle sequence

3:10 – 3:15 Break

3:15 – 4:05 Hands-On Class Problems

4:05 – 4:10 Break

4:10 – 4:55 Complete Hands-On Problem

Compare PlanSig results to Synchro

4:55 – 5:00 Wrap-up of Day One Course

## DAY TWO

8:00 – 8:55 Review what we learned on Day One

8:55 - 9:00 Break

9:00 – 10:00 **MODULE D:** *Traffic Signal Design* (signal timing consideration), Part 2

- 1) Detector logic and extension setting
- 2) Traffic signal controllers

10:00 – 10:05 Break

10:05 – 10:55 **MODULE E:** *Basic Signal Controller Parameters*, Part 2

- 1) Introduction to signal timing sheets (e.g. Caltrans, BiTran and Naztec)
- 2) Recall and other controller features
- 3) Density timing

10:55 – 11:00 Break

11:00 – 12:00 More Hands-On Class Problems

12:00 – 1:00 Lunch

1:00 – 2:00 More Hands-On Class Problems

2:00 – 2:05 Break

2:05 – 3:05 Final Overall Timing Problem (requires all that you have learned)

3:05 – 3:10 Break

3:10 – 3:45 Filling-in various timing sheets

3:45 – 4:15 Summary – What Have You Learned?

4:15 – 4:30 Evaluations and Dismissal