



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

### COURSE OUTLINE

#### **DAY ONE**

#### **(GMT-8:00) Pacific Time (US and Canada)**

- 8:00 a.m. Introductions
- 8:15 a.m. 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 a.m. Discussion on Field Conditions to Observe
- 9:10 a.m. Break (5 minutes)
- 9:15 a.m. **MODULE A:** Definitions and Capacity Concepts (presentation and class discussion)
- 1) Introduction
  - 2) Basic Definitions
  - 3) Characteristics affecting signal timing
  - 4) Capacity and critical volume analysis
  - 5) Define basic signal timing variables of cycle length, split, and offset
  - 6) Understand manner in which they are calculated based on traffic characteristics
- 10:10 a.m. Break (5 minutes)
- 10:15 a.m. **MODULE A:** Capacity Concepts (continued)
- 7) Capacity and critical movement analysis (spreadsheet examples)
  - 8) Traffic volume analysis (spreadsheet example)
- 11:15 a.m. **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
- 11:55 a.m. Wrap-up Day One course



**DAY TWO**

**(GMT-8:00) Pacific Time (US and Canada)**

- 8:00 a.m. **MODULE C:** Basic Signal Controller Parameters, Part 1
- 1) Settings that define the duration of a vehicle phase
  - 2) Pedestrian timing
  - 3) Clearance intervals (yellow and all-red)
- 9:00 a.m. Hands-On Class Problems
- 10:00 a.m. \*PlanSig examples
- 1) Applying critical movement analysis, pedestrian timing, and clearance timing
- 11:00 a.m. Break ( 5 minutes)
- 11:05 a.m. **QUIZ 1**
- 11:15 a.m. Hands-On Class Problems (continued)
- 2) Converting PlanSig results to cycle sequence
- Hands-On Class Problems (continued)
- 11:55 a.m. Wrap-up Day Two course

**DAY THREE**

**(GMT-8:00) Pacific Time (US and Canada)**

- 8:00 a.m. **MODULE D:** Traffic Signal Design (signal timing consideration), Part 2
- 1) Detector logic and extension setting
  - 2) Traffic signal controllers
- 10:00 a.m. Break (5 minutes)
- 10:05 a.m. **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 a.m. Break (5 minutes)
- 11:00 a.m. Hands-On Class Problems
- 11:55 a.m. Wrap-up Day One course

**DAY FOUR**

**(GMT-8:00) Pacific Time (US and Canada)**

- 8:00 a.m. **QUIZ 2**
- 8:10 a.m. Final Overall Timing Problem (requires all that you have learned)
- 10:10 a.m. Break (5 minutes)
- 10:15 a.m. Filling-in various timing sheets
- Summary – What Have You Learned?
- 11:45 a.m. Evaluations and Dismissal