



## (TE-10) Traffic Signal Operations: Coordination for Corridors

### COURSE OUTLINE

#### DAY 1:

7:30 – 8:00 a.m. Sign In

8:00 – 8:10 a.m. Introductions

8:10 – 8:30 a.m. Presentation of Course Goals and Outline (Bhattacharya)

#### SESSION 1: INTRODUCTION TO TRAFFIC SIGNAL OPERATIONS: COORDINATION FOR CORRIDORS

(Both)

8:30 – 10:00 a.m.

Principles of traffic signal coordination

- Objectives of coordination
- Types of coordination
- When to coordinate, and when not to;

What to expect in improved system performance, and limits on what you can do.

Types of systems to achieve your coordination requirements

- Generalized cost of system types—when are the additional costs for advanced systems justified?
- What you need to know before deciding how to coordinate

#### SESSION 2: ANALYSIS OF SYSTEM AND VOLUME CHARACTERISTICS (Mahama)

10:00 – 11:30 a.m.

Field Observations Lecture

System Layout and Type

Analysis of Volumes for use in Coordination Planning

Time-Space Diagrams

Measures of Effectiveness

#### SESSION 3: TIME OF DAY/TIME-BASED COORDINATION (Both)

11:30 – Noon

Description of teaching methods of course

Developing Coordination Plans: Class Problem

- Suburban Arterial at Freeway Interchange (Davis Street in San Leandro)
  - Orientation to Synchro network



- Brief review of field notes/Synchro input (from Session 2)
- Optimization strategy (Synchro, then manipulation of software for improved timing plans)
- Can you improve on instructor's results?
- Signal timing sheets overview and timing parameter input into signal timing sheets

Noon – 1:00 p.m. LUNCH (on your own)

SESSION 3, continues

1:00 – 2:00 p.m.

Class develops timing for 140% volume levels

Two class members present results Comparison with instructor's plan

Discussion and comments

2:00 – 3:00 p.m.

Class develop coordination plans for Old Redwood Highway Traffic Signals in Petaluma (ideal corridor)

SESSION 4: TRAFFIC RESPONSIVE COORDINATION (Bhattacharya)

3:00 – 4:00 p.m.

How to determine need for response coordination

Volume patterns

Critical intersections

Find system detectors (map of Davis Street)

Statistical validity/Thresholds for plan changes

4:00 – 4:30 p.m.

Use Average (100%) and 140% volumes as example

Specific system loop ranges

Damping

Input patterns into timing sheets for field master

4:30 – 5:00 p.m.

Questions and Answers

Recap

Discuss next day's plan



**DAY 2:**

**SESSION 5: HOW TO SOLVE DIFFICULT OPERATIONS PROBLEMS (Bhattacharya)**

8:00 – 10:30 a.m.

- General approach—look for the weak links
- Diamond interchanges
- Closely-spaced intersections
- Special phase sequences
- Use of advanced signal controllers (more than 8 phases)
- Queue detection for protected-permissive left turn phasing
- Transit Signal Priority
- Signal Preemption

10:30 – Noon Advanced class problem: 11th/Lakeshore (Both)

Noon – 1:00 p.m. LUNCH

1:00 – 3:45 p.m.

- Two safety-related problems for class participation (Mahama)
- Class develop coordination plans for Golf Course Drive Traffic Signals in Rohnert Park (challenging corridor)

**SESSION 6: AUTOMATED TRAFFIC SIGNAL PERFORMANCE MEASURES - ATSPM (Bhattacharya)**

3:45 – 4:15 p.m.

- Background Information
- Why the Need for ATSPM?
- System Requirements for ATSPM Deployments
- Case Study
- How to Effectively Use ATSPM

4:15 – 5:00 p.m.

- Course evaluation and certificates
- Questions and Clarifications

**ADJOURN**