

Course Title:	Basic Traffic Signal Cabinet and Field Equipment
Duration:	One Day (6 hours of contact time)
Format:	Traffic Signal Lab To Be Video Recorded for Future Playback
Objectives:	To familiarize participants with the key components and functions of field located traffic signal equipment – including the controller, cabinet, detectors, preemption and priority devices, and other ancillary equipment. The focus will be on equipment currently in use within District Five.
Outline:	<ol style="list-style-type: none"> 1. Introduction and Housekeeping – 15 Minutes 2. Overview – Signalized Intersection Components – 35 Minutes <ol style="list-style-type: none"> a. Control Equipment and Cabinet b. Signal Displays c. Detection d. Communications e. Preemption and Priority f. Cabling g. Service Equipment h. Grounding BREAK – 10 Minutes 3. Traffic Signal Controllers – 60 Minutes <ol style="list-style-type: none"> a. Standards Overview <ol style="list-style-type: none"> i. NEMA ii. Caltrans (2070) iii. Advanced Traffic Controller (ATC) b. User Interface <ol style="list-style-type: none"> i. Front Panel ii. Upload / Download iii. Data Keys c. Models in use in District Five <ol style="list-style-type: none"> i. Intelight ii. Trafficware <ol style="list-style-type: none"> 1. Naztec 980 ATC 2. Commander ATC iii. Econolite <ol style="list-style-type: none"> 1. ASC-3 2. Cobalt BREAK – 10 Minutes

	<p>4. Hands-on Exercise – Controller Data Entry – 50 Minutes</p> <p>LUNCH – 60 Minutes</p> <p>5. Cabinets – 10 Minutes</p> <ul style="list-style-type: none"> a. Cabinet Functions <ul style="list-style-type: none"> i. Secure Facility ii. Environmental Resistance b. NEMA Style (Types V, VI) c. Caltrans Style (332) <p>6. Output Devices – 10 Minutes</p> <ul style="list-style-type: none"> a. Load Switches <ul style="list-style-type: none"> i. Vehicle ii. Pedestrian iii. Overlaps b. Flash Transfer Relays c. Flasher d. Mercury Contactor <p>7. Malfunction Management Unit (MMU) – 30 Minutes</p> <ul style="list-style-type: none"> a. Functions b. Equipment in District Five <ul style="list-style-type: none"> i. EDI ii. Reno iii. Trafficware c. Testing and Record Keeping <p>BREAK – 10 Minutes</p> <p>8. Input Devices – 30 Minutes</p> <ul style="list-style-type: none"> a. Card Racks <ul style="list-style-type: none"> i. Bus Interface Unit (BIU) ii. Detector slots iii. Opticom slots iv. Detector Cards b. Cabinet BIU <ul style="list-style-type: none"> i. Terminal and Facilities c. Pedestrian Detector Isolation Board d. Emergency Vehicle Preemption Equipment <ul style="list-style-type: none"> i. Infrared Opticom (IR) ii. GPS Opticom iii. Firehouse Pushbutton e. Railroad Preemption Equipment
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	<p>9. Field Terminations / Backpanel and Auxiliary Panels – 20 Minutes</p> <ul style="list-style-type: none"> a. Traffic Signals <ul style="list-style-type: none"> i. 3 – Section (Phase) ii. 4 – Section (Protected / Permitted Left Turn using Flashing Yellow Arrow) iii. 5 – Section (Protected / Permitted Left Turn “Doghouse”) iv. Pedestrian Indications b. Vehicle Detection <ul style="list-style-type: none"> i. Loop Detection ii. Video Detection iii. Microwave Detection iv. Wavetronix c. Pedestrian Detection <ul style="list-style-type: none"> i. Push Button ii. Passive Pedestrian Detection d. Preemption Terminations <p>BREAK – 10 Minutes</p> <p>10. Additional Equipment – 30 Minutes</p> <ul style="list-style-type: none"> a. Uninterruptable Power Supply (UPS) b. Fiber Optic Cable Terminations Panel c. Ethernet Switch d. Electrical Service / Disconnect e. Grounding and Surge Protection f. Service Tech and Police Panels <p>11. Quiz – 30 Minutes</p>
Resources:	<p>Traffic Signal Timing Manual - https://www.nap.edu/login.php?action=guest&record_id=22097</p> <p>FDOT Traffic Engineering Manual – https://www.fdot.gov/traffic/trafficservices/studies/tem/tem.shtm</p>
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