

OVERVIEW

The Los Angeles County Metropolitan Transportation Authority (Metro) has developed a comprehensive program in the areas of signal operation and maintenance to upgrade the skills of local traffic engineers and signal maintenance personnel.

To date, Metro has invested in Traffic System Management (TSM) programs throughout the region using Call-For-Projects funding. The training is supported by the Signal Support Group, and is considered as part of Metro's congestion relief program.

INSTRUCTORS

Fred Minagar, M.S., R.C.E., P.E.



President of Minagar & Associates, Inc., is a recognized national authority in the areas of Intelligent Transportation Systems (ITS), traffic engineering and transportation planning. Minagar has 27 years of real world practice and teaching experience. He has engineered, managed, and administered over 100 ITS and 250 traffic engineering projects in 16 states across the United States; and served as a City Traffic Engineer for 4 cities in Southern California. His recent ITS project won the 2007 ASCE Metropolitan Los Angeles' Outstanding Public/Private Sector Civil Engineering Project Award. His Traffic Signal Synchronization projects 121 Caltrans locations won The PTI's 2003 Award of the Best Transportation Technology Solutions in the United States and The ITS-CA's 2002 Award of Excellence for Best California Return on Investment Project. Minagar has conducted over 120 ITS and traffic engineering workshops for FHWA, ITE National, Caltrans, Metro, numerous DOTs, cities and Governments of China & South Korea. He has been a frequent guest speaker at the George Washington University, University of California-Irvine and University of California-Davis, California State University-Los Angeles, and Caltrans Field Academy. For over 14 years, he has been re-appointed/re-elected as Traffic & Transportation and Planning Commissioner/Chairman for the City of Laguna Niguel. He won the 2002 National Leadership Award and was awarded the United States Congressional Order of Merit in 2003 & 2006.

Joe Provenza



As President of PRO VEN Inc., and former Associate Electrical Transportation Engineer with Caltrans, Provenza has 43 years of Traffic Signal field operations experience. During his 29 years with Caltrans, Provenza was responsible for operation and maintenance of the District 7 Traffic Signal Master Surveillance System. He also was involved with the development of the Type 170 Traffic Signal hardware and software. Provenza has a State of California Teaching Credential and has provided workshops for design, construction, operation and maintenance personnel for Caltrans and various other agencies from Hawaii to Washington, D.C.

Kang Hu, P.E.



A Senior Transportation Engineer in charge of the Advanced Transportation Management Systems (ATMS) Division of the Los Angeles Department of Transportation (LADOT). Hu has more than 20 years of experience in advanced traffic management systems including extensive hands-on knowledge in the adaptive traffic signal control and transit priority systems. He also assisted the World Bank in the implementation and evaluation of adaptive traffic signal control systems in Asia.

Bill J. Shao, P.E., T.E.



Shao is a Senior Transportation Engineer with the Los Angeles Department of Transportation (LADOT). Shao was formerly the Section Engineer of LADOT Signal Systems and Research Section, and the Automated Traffic Surveillance and Control (ATSAC) Center, and had oversight for daily operations of more than 4,300 traffic signals citywide. He is experienced in complex signal phasing and signal timing designs for Types 2070 and 170 controllers, and has previously served as the city's expert witness in signal operations.

REGISTRATION

To expedite your request, please complete the enclosed registration form included in this brochure. Fax the completed form to Attn: Signal Systems Coordinator at (213) 922-5259. Registration will be confirmed on a first-come-first-served basis and a confirmation notice will be faxed back to you once registration is processed. There will be a registration fee for the textbooks due on the first day of class, only checks and money orders are accepted. Please make payable to Metropolitan Transportation Authority (Metro).

If you have any questions or for more information, please contact Simrit Sandhu at (213) 922-7112 or SignalSystems@Metro.net.

COURSES

ADVANCED TRAFFIC SIGNAL OPERATIONS (2-DAYS)

This two-day course focuses on Advanced Signal Operations topics. It will discuss the principles of Traffic Signal Phasing Design for complex intersections, Signal Controller Capabilities and Hardware Configuration, Advanced Volume-Density Operations, and Railroad/Emergency Vehicle Preemptions. This course will also introduce two types of Signal System Coordination- Traffic Responsive Operations and Advanced Traffic Adaptive Systems. The course will enable participants to learn advanced functions at both the Local Controller Level and the System Level.

BI-TRANS 200 CA, LACO 1 R & CALTRANS C-8 (2-DAYS)

This workshop focuses on the presentation of 3 popular Traffic Signal programs used in Type 170 applications: Bi-Trans 200CA, LACO 1 R and Caltrans C8. The basic timing functions and intervals are also presented, as well as the coordination features and the special features available in each program.

BI-TRANS 2033 PROGRAM FOR 2070 SIGNAL CONTROLLER (2-DAYS)

This workshop presents the features available in the Bi-Trans 2033 Program designed to work with the 2070 Controller Unit. It will include configuration, basic functions, timing intervals and options, as well as Coordination Techniques, Input and Output manipulation, and special functions. *Background with or Introduction to the 2070 Traffic Signal Controller workshop is highly suggested.*

BI-TRANS 233 (1.5-DAYS)

In this workshop, the Bi-Trans 233 Version 2.F software program for the Type 170 controller is presented, including: Configuration technique, Basic Timing Intervals and options, Coordination techniques, Input and Output manipulation, and Specific functions. *Background or Prior training in Traffic Signal Basic Timing and Intervals is highly suggested.*

BUS SIGNAL PRIORITY, QUICNET & CTNET (2-DAYS)

The workshop starts with the concepts and operations of bus/transit priority as well as emergency pre-emption systems; followed with a focus on the latest QuicNet signal controller system and the latest State of California Caltrans CtNet traffic signal controller system on the second day.

COMPUTERIZED TRAFFIC SIGNAL CONTROL SYSTEM (2-DAYS)

This workshop presents current technologies and control strategies available for computerized traffic signal control systems. It covers the subjects of system architecture, concept of operations, functional requirements, TMC layout, vehicle detection, signal interconnect and system integration of advanced traffic control systems; and applications of electronic reversible lanes and corridor management. This workshop will also provide an overview of popular systems including KITS, QuickNet 4, I2TMS, MIST, TranSuite and LADOT's ATCS.

INTRODUCTION TO THE 2070 TRAFFIC CONTROL SYSTEMS (2-DAYS)

This Workshop introduces the advanced signal timing parameters and features available in the L.A. City and Caltrans software programs for the Type 2070 Signal Controller in a 332 cabinet, as well as an introduction of ITS cabinet. Caltrans specifications and cabinet configurations will be presented.

NEMA CONTROLLERS AND VIDEO DETECTION (1.5-DAYS)

There will be an overview of NEMA TS2 with emphasis on Cabinet Layout, Load Switches, Detectors, BIU, MMU, and Cabinet Troubleshooting. Considerations for proper design, installation and maintenance of Video Detection for Traffic Signal Systems will be presented.

SIGNAL SYSTEMS AND HOMELAND SECURITY (1-DAY)

This introductory workshop provides an overview of the role of traffic & transportation professionals as effective homeland security specialists. It focuses on: Emergency Response & Recovery, Continuity of Operation as well as Disaster Planning, Prevention and Preparedness with emphasis on traffic signal systems. Application, legal and technology aspects of available video security camera systems will be covered.

SYSTEMS COMMUNICATIONS & TMC REGIONAL CENTER VISIT (3-DAYS)

This 3-day workshop consists of a two-day in-class training on systems communications and a one-day visit to four technologically advanced TMCs in Los Angeles County. The class focuses on ITS, audio/video/data systems communications, Communications Media Systems (Wire Line including FO, coaxial, copper, HDSL, T1/T2 and Wireless including microwave, spread spectrum & Satellite), Highway Communications and a focus on Fiber Optic communication medium including video presentation. The 3rd day of class will cover TMC system concepts of operations, design elements, operations and maintenance functions. The tours include Caltrans new RTMC, Metro's BOC, the Los Angeles Department of Transportation, and ATCSAC's new TMC. Transportation for the tour will be provided on the third day.

(TMC) TRAFFIC MANAGEMENT CENTER TOUR OF REGIONAL CENTERS (1-DAY)

This tour offers a first-hand look at the four most technologically advanced Transportation Management Centers (TMC) in Los Angeles County. The tour will include visiting four (4) TMCs and will focus on key ITS applications for traffic, TMC layout and design elements, and operations and maintenance functions. The tours include Caltrans' new RTMC, Metro's BOC, LADOT's ATCSAC and LA County's new TMC. Transportation will be provided.

TRAFFIC SIGNAL OPERATIONS AND HIGHWAY CAPACITY ANALYSIS (2 DAYS)

This two-day workshop will discuss signal operational theory, analyses, and applications of Highway Capacity Manual (HCM 2000) for signalized intersections. Topics include signal phasing, signal controller parameters, background traffic flow theory, and fundamental principles of highway capacity analysis. Release 5 of the Highway Capacity Software (HCS+) from the University of Florida's McTrans Center will be utilized to analyze real-world signalized intersections.

TRAFFIC SIGNAL TIMING PARTS I & II (TWO SEPARATE 2-DAY SESSIONS/4-DAYS TOTAL)

These workshops provide beginning, intermediate to advanced level training covering the principles and applications of Synchro 6.0 & Synchro Studio 7.0 computer software. Participants will utilize Synchro program at the workshop to perform capacity analysis for signalized intersections and to develop optimum signal timing plans that reduce delays and stops for isolated and networked intersections during the workshop. *Prior experience with Synchro is not required for Part I; however, prior general knowledge of traffic engineering @ Synchro is preferred for Part II.*

TYPE 170 HARDWARE & TROUBLESHOOTING (2-DAYS)

In this workshop, the Model 332 Cabinet and its available components are presented along with Cabinet Configurations, Cabinet Layout, Cabinet Writing, Type 170 History, Cabinet Troubleshooting, Monitor Unit Programming, Cabinet Specifications, Detector Theory and application, and Model 170 Specifications and configurations.

VIDEO DETECTION AND SURVEILLANCE (2-DAYS)

This workshop covers the principles and applications of the state-of-the-art freeway/arterial/intersection surveillance/detection/monitoring and control systems. Special attention will be devoted to Closed Circuit Television technologies. An overview of red light camera system will also be covered. Three Case Studies from Northern California, Southern California and Washington, D.C. will be explored in great length, and nationwide lessons from the FHWA will be presented.