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Innovation and System Information

Research

Notes

Transportation
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Project Title:
California Traffic Management
Laboratories (CTMLabs) Testbed Program

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Traffic Management Center (TMC) Training Simulator Upgrade and Support

Upgrade the Transportation Management Center (TMC) Training Simulator and install it at Cal Poly University. Maintain equipment and add necessary features.

WHAT IS THE NEED?

The current facility and equipment that comprise Caltrans' Traffic Management Center (TMC) training simulator are obsolescent and no longer functional. The training simulator has been used by The Caltrans TMC Academy to train operators to work in district TMCs; however, the TMC Academy has been unable to offer any training sessions for the past couple of years due to the lack of a functioning facility. More trained operators will be required to staff district TMCs, if they are to continue to operate in the future.

The growing problem of traffic congestion in California has highlighted the need for continued efforts by the California Department of Transportation (Caltrans) and the Department of California Highway Patrol (CHP) to manage the statewide transportation system in order to minimize congestion and provide the safe and efficient movement of people, goods, services and information. With diminishing space, building new highways is costly, and in many places, no longer feasible. The need for more sophisticated transportation management of the existing infrastructure is essential. The TMC is the backbone of the Traffic Management Systems, which is designed to efficiently manage existing infrastructure, mobilized assets and field personnel.

WHAT ARE WE DOING?

The work of this project consists of upgrading the TMC Training Simulator equipment and installing it at Cal Poly University at San Luis Obispo, where the training sessions will take place. Key elements are updating and maintaining the TMC Simulator, ensuring that all systems are operational, and adding necessary features such as an incident board on the TMC floor, additional video and audio monitoring capabilities to allow instructors in the control room to comprehensively monitor trainees on the simulation floor, and equipping a conference room to support training, simulation debriefing, and breaks.



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The newly developed simulated CHP VisiCAD will be tested by traffic management personnel for realism and operational accuracy. Required improvements will be documented and changes will be made. The automated script builder tool will be designed and implemented, allowing TMC simulation scripts to be implemented in an automated fashion. Traffic Management California (TMCAL) will be integrated into the TMC simulator, providing incident logging capability to TMC simulation trainees. Integration will include population of the simulation TMCAL system with incident script data. Three TMC academy courses will be delivered at Cal Poly using the newly installed and refurbished TMC simulator.

The work plan for this project includes the following principal activities:

1. Maintain and Update TMC Simulator Facility and Equipment - The TMC Simulator will be maintained and updated at its new installation in the Advanced Technology Laboratory at Cal Poly San Luis Obispo. This work will include maintaining existing software and equipment and installation of new equipment and accoutrements.
2. Update replacement CHP CAD Simulator - Required changes to the CHP VisiCAD simulator will be designed, implemented, tested and documented.
3. Develop automated script-builder tool - Required changes to the Script-Builder software will be designed, implemented, tested and documented.
4. Integrate TM-CAL into TMC Simulator – TM-CAL will be installed in the TMC Simulator, tested and documented.
5. Support TMC Academy Training - Cal Poly will support a total of three four-day TMC Academy courses during the course of this project. TMC Academies will either run from Monday through Thursday or Tuesday through Friday of a given week. Cal Poly's support for TMC Academies includes printing training materials, organizing the classrooms and amenities at the TMC simulator, being present to support student needs, and running TMC simulations during the last two days of each academy.

WHAT IS OUR GOAL?

The goal of this project is to create an up to date functional Traffic Management Center (TMC) Training Simulation system at Cal Poly University equipped with the tools necessary to teach prospective operators the requisite skills to perform effectively and efficiently. This centralized training facility will serve the broader goal to standardize systems, operations, and facilities to ensure cost effectiveness, uniform statewide functionality and economics of scale. This will in turn support the even broader goal to actively manage the statewide transportation system to minimize congestion and provide for the safe and efficient movement of people, goods, services and information.

WHAT IS THE BENEFIT?

The TMC is the hub, or nerve center, of the state's regional transportation management system. It is where information about the transportation network is collected, processed, and fused with other operational and control data to produce information used by operators to monitor the system and initiate control strategies to effect changes in operation. It is where agencies can coordinate their responses to transportation situations and conditions. It is the focal point for communicating transportation related information to the media and the motoring public.

When operated properly, TMCs are capable of actively managing the transportation system to reduce congestion and provide for the safe and efficient movement of people, goods, services and information on order to promote economic vitality and enhance the quality of life for the people of California. TMCs can contribute to conserving energy and improving air quality. By enhancing the movement of goods, they give California businesses a competitive edge by adding value to their products and services.

WHAT IS THE PROGRESS TO DATE?

This project is to transfer the TMC simulator technology to the Division of Traffic Operations, which will then continue the operator training for Caltrans' Transportation Management Centers (TMCs) that has been conducted in the past. The next step is to execute the contract with Cal Poly University in order to upgrade and install the TMC Training Simulator equipment and subsequently support TMC operator training sessions.



Existing Traffic Management Center (TMC) Training Simulator facility in its former functional state.