Research Notes

Program Steering Committee (PSC): Pavement

June, 2014

Title: "Hauling the Caltrans' Heavy Vehicle Simulators (HVS)"

Task Number: 2261
Start Date: June 15, 2012
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Product Category: Other

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TITLE:
"Hauling the Caltrans' Heavy Vehicle Simulators"

It has not been necessary to move the Heavy Vehicle Simulator during the term of contract number 65A0476 to perform pavement Accelerated Pavement Testing (APT)

WHAT IS THE NEED?

This task is part of a multi-task project. Research conducted by University of California' Pavement Research Center under the Partnered Pavement Research Center (PPRC) Program include Accelerated Pavement Testing (APT) as an essential part of their studies and hauling of the HVS to new or in-service pavement structures located statewide support this effort. If HVS is not moved to the proposed test sites, APT would not be performed and consequently the study would be cancelled affecting the program and the evaluation of these pavements.

Prior to HVS, researchers had to wait fifteen (15) to twenty (20) years to see if new laboratory test methods would indeed provide reliable results for pavements under actual truck traffic. The HVS is capable of simulating up to twenty (20) years of heavy, inter-urban freeway truck traffic in approximately two (2) to three (3) months of operation. It accomplishes this by trafficking the test pavement twenty four (24) hours per day, seven (7) days per week. For this reason, APT is essential on pavement research and hauling HVS to test sites is fundamental to PPRC.

WHAT ARE WE DOING?

When a research study includes APT as part of its test plan and HVS is required to move to a testing location, the Caltrans' Project Manager would schedule the HVS move in coordination with the UC Davis (responsible for pavement testing) and the HVS moving contractor. The pavement testing group would provide the proposed testing schedule

(start and end dates) and exact testing location (to unload the HVS). The HVS moving contractor would develop the trip plan including dates of the haul, drawings of towing configurations, all permit applications to appropriate local and state agencies, description of route to be taken, and a description of traffic control arrangements if needed. Once the trip plan is approved by Caltrans and the moving contractor collects the approved permit applications, the moving contractor would move the HVS as requested. The HVS moving contractor is responsible for all equipment and personnel required to conduct the move.

WHAT IS OUR GOAL?

The main goal of this task is to support pavement studies that require APT by moving the HVS to the appropriate testing location on time and safely. To move the HVS, specialized equipment and experienced personnel are required. A 120 ton hydraulic crane is used to the loading and unloading of the HVS and special 7 – 10 axle double dolly assembly tractors are used to move the equipment.

WHAT IS THE BENEFIT?

California is one of the few states owning HVS worldwide. Pavements testing using HVS began in California in 1994 with results improving technology, specifications, and business practice extending the service life of pavements.

WHAT IS THE PROGRESS TO DATE?

Due to changes on the original pavement schedule, it has not been necessary to move the HVS from the UC Davis Advanced Transportation Infrastructure Research Center (ATIRC) during the term of the current contract. Many test sections were constructed at this facility to conduct APT on approved studies and it was not necessary to move the HVS to other sites.

Contract number 65A0476 with American Crane Rental, Inc. expired on June 14, 2014 and it is expected that in the future HVS will be moved to testing locations by Caltrans equipment given that the new HVS Mark VI can be transported by a 3-axle tractor.

HVS Mark III loading to hauling trailers

HVS Mark III loaded on trailers

Moving HVS Mark VI end tow

Moving HVS Mark VI front tow