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Alameda Project



Alameda Street is part of a highway system connecting the ports of Los Angeles and Long Beach with the Intermodal Railway Yard in downtown Los Angeles.

The Superpave portion of the Alameda project is performing very well. There is no rutting or deformation.



Exceeds Expectations



The Alameda Corridor is a 26-mile super-cargo highway connecting the ports of Los Angeles and Long Beach and the Intermodal Railway Yard in downtown Los Angeles. It accommodates 50 to 75 percent heavy trucks. When it was completed five years ago, it handled 26,000 vehicles per day, but 49,000 are expected by 2010.

Highway engineers designed a portion of Alameda Street using Superpave to withstand Supertrucks, large container carriers with heavy cargo loads, along with the relentless Los Angeles sun and huge ESAL loadings. The roadway was designed to address three potential asphalt problems—rutting, fatigue cracking and low temperature cracking. Caltrans (California Department of Transportation) and Los Angeles County design engineers chose Superpave mix for the pavement within their portion of the project because they believed it would meet the performance challenge.

Hot Sun and Heavy Trucks

Caltrans and L.A. County design engineers considered climate and traffic conditions. The hot Los Angeles sun plus the heavy trucks could cause severe rutting if the pavement mix was not right. Caltrans wanted a roadway that would be easy to construct and easy to maintain. L.A. County required that Superpave meet its

Type A mix specifications, which address traffic loading, subgrade requirements and highly crushed aggregate particles.

The Los Angeles County portion of the project spanned a 6.3-mile section of Alameda Street and was divided into three sections, two of which were approved for Superpave mix. “We had to satisfy both Caltrans’ and L.A. County’s mix requirements,” said K. Brian Rickey, P.E., Los Angeles County Materials Engineer and former Resident Engineer for the Alameda project.

“The Alameda project was the first major use of Superpave in L.A. County, and maybe in the state,” said Rickey. “Because it was part of the ports access demonstration projects, we were able to use Superpave on the project. We did our homework before deciding Superpave was the right choice to withstand the extreme temperatures and the heavy traffic.”

According to Rickey, the county used a Caltrans 3/4-inch mix on one-third of the project and Superpave on the other two-thirds. "That ultimately provided us a good comparison between a traditional mix and a Superpave mix."

Superpave Mix Design

Project design engineers specified 20 inches of Superpave mix on four inches of aggregate for the Superpave section. The four inches of aggregate acted as a platform for the asphalt. The 20 inches of Superpave was placed from the aggregate base to the top of the roadway.

"We used one Superpave mix all the way to the top," said Rickey. "Because the material was so coarse, we asked the hot mix producer to put more fines in the surface course mix, but within the Superpave gradation specifications."

Superpave Construction

Rickey explained that constructing the Superpave section did not require special procedures. "It was pretty normal. Out here in California, we don't have the big temperature swings that other states have, so we didn't have to accommodate the cold weather. We didn't have a project that mandated the use of tarps over the hot mix, so we used windrows and that made placing the mix easier."

Rickey said that the construction portion of the project was easy compared to the administration, coordination and inspection challenges. "Heavy truck traffic, along with big asphalt tonnage, and coordinating the requirements of numerous agencies was a constant challenge." L.A. County administered several contracts totaling nearly \$100 million over a six year period. "Our team worked with

the City of Carson, the City of Los Angeles, Caltrans, the Alameda Corridor Transportation Authority, the Union Pacific Railroad and others. I was the single point of contact for all of them. I wasn't able to be the main guy on the roadway, but I did pull plenty of evenings myself inspecting the asphalt."

Compaction

On some projects around the United States compaction of Superpave mixes has been a significant problem. But on the Alameda project, compaction of the Superpave mix was a fairly standard operation. "In general the compaction was pretty consistent with traditional mixes," said Rickey. "One difference is that we used a rubber-tire roller."

Rickey said the initial placement of the Superpave test strips gave the paving

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crews an opportunity to understand what the mix was doing. “The crews were able to determine the actual time necessary to let the mix cool before beginning the breakdown rolling. Once the paving crews understood how to compact the material, it took less rolling effort than it would have for a traditional mix. Doing the test strips helped us a lot.”

Night Work Only

All the paving operations on the Alameda projects were done at night, which posed some challenging logistical problems for the construction team. “Placing a 24-inch thick structural roadway in a commercial zone with heavy traffic where you have big trucks coming in and out of driveways plus accommodating nighttime traffic from a big refinery, took a lot of traffic management,” said Rickey.

“We had to make arrangements for access for those businesses to get in and out every night. We provided temporary access ramps, then, when we were ready to pave, we ripped out the ramps and began paving.”

Maintenance

Rickey noted that maintenance so far on the Alameda Street project has been very limited. The Superpave portion of the roadway is performing without rutting or deformation of any kind. “I took a drive through the project not long ago and I was amazed that even at the stop bars where the heavy trucks stop and then accelerate, I didn’t see ripples in the striping.

“L. A. County has a five-year slurry program, but there has been no discussion to my knowledge of including the Superpave section in that program. The

only maintenance so far is picking up trash, watering the trees and such—no pavement maintenance.”

Performance

The connector road from the Del Amo Grade Separation to the Superpave section of the Alameda was paved with a traditional AR4000 mix and that connector road has noticeable rutting in it. But as the connector enters the Superpave portion, Rickey says the road is beautiful. “It has absolutely no rutting or deformation.” He is thoroughly impressed with the performance of the Superpave portion of Alameda Street and is happy to say “Based upon a side-by-side comparison, it is performing very well.”

“From an overall performance standpoint, I think everybody involved is happy with it.” ▲

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