



CP² CENTER NEWS

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City of Stockton paves using terminal blend rubber with warm mix additives

By Lerose Lane, CP2 Center

The City of Stockton, California, has implemented a major maintenance project to give the City streets new HMA surfacing in the major industrial areas. The Contractor, Knife River Construction, was very positive about using the terminal blend rubber with warm mix additives. The City's Maintenance Engineer/Resident Engineer, Vijay Sinha, was instrumental in approving the PG76-22TR terminal blend rubber, supplied and produced locally by Kent's Oil new terminal blending plant. Mr. Sinha was also instrumental in administering the construction of several test strips within the project incorporating warm mix technology. Center staff observed the construction of the project on August 27-September 1, 2010.

Altogether, the construction included a total of four different asphalt concrete mixes for five locations for this project. The five different test strips all used ¾ inch dense graded aggregate with PG76-22TR terminal blend rubber binder (see Table 1). The mixes included PG76-22TR with Sasobit, PG76-22TR with no warm mix additive (with and without liquid anti-strip), and PG76-22TR with Rediset. The different mixes appeared to behave the same during placement, with the exception that both warm mixes appeared to compact with less rolling effort. The PG76-22TR HMA mixes were not as sticky as polymer modified or asphalt rubber mixes. The PG76-22TR binder furnished by Kent's Oil for this project was developed by Ram Technologies Group. This particular binder product is said to have a solubility of 99.2% with 10% crumb rubber. The higher solubility level allows this product to be used interchangeably with the PG-polymer modified asphalt binder products.

Table 1 Summary of projects constructed

Date	Street	HMA Mix constructed with 3-inch lift thickness
August 27, 2010	Airport Way (Southbound)	PG76-22TR with Sasobit& Anti-strip (warm mix)
August 30, 2010	Airport Way (Northbound)	PG76-22TR with Anti-strip
August 31, 2010	Airport Way (Northbound)	PG76-22TR without Anti-strip
September 1, 2010	Sperry Road (Eastbound and Westbound)	PG76-22TR with Rediset (warm mix)
September 1, 2010	Manthey Road (Northbound and Southbound)	PG76-22TR with Rediset (warm mix)

The projects were placed during daylight hours and all mixes proved to provide a HMA surfacing with a uniform mat

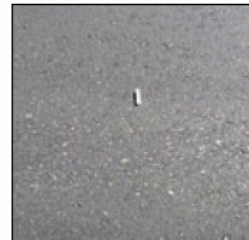


Paving with PG76-22TR

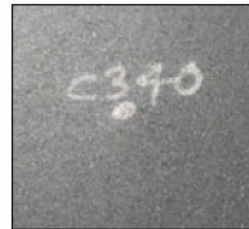
as shown in the illustrations below. The project was



Finished mat with no warm mix additive



Finished mat with Sasobit



Finished mat with Rediset

constructed without any significant problems. Airport Way, Sperry Road, and Manthey Road had not received major maintenance in many years. All of the mixes were placed at normal paving temperatures and had minimal emissions with the PG76-22TR HMA. The high compaction that the contractor achieved with the PG76-22TR HMA made this a desirable major maintenance project for the City. The costs for this HMA were comparable to other polymer asphalt concrete mixes.

This HMA overlay maintenance project is expected to last a minimum of 10 years. As a secondary objective, this project allows the CP2 Center to study the effect that the warm mix additives have on the product and to monitor the project throughout its life. The Center plans to monitor the performance of these various test strips as a part of a CalRecycle funded project for the life of the study. This will include monitoring for raveling, flushing, rutting, reflective cracking, and stripping.

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Manthey Road:
Paving with Rediset
warm mix additive.



We appreciate the support of CalRecycle for providing the funding for this important and meaningful project. We would like to extend our gratitude to Bob Fujii and Nate Gauff of CalRecycle, who provided continuous support to this project. We also would like to extend our gratitude to the City of Stockton for their support, especially Maintenance Engineer/Resident Engineer Vijay Sinha and his staff. Neil O. Anderson and Associates, the consultant QC testing staff, were also very cooperative in furnishing the QC data, and Knife River Construction's staff furnished additional QC data to make sure that this study was a success. We also appreciate Laurence M. Sylvester, Chief Technical Officer, RAM Technologies Group, and Kent's Oil terminal blending plant staff for furnishing technical information regarding the terminal blend binder. We also want to give appreciation to Prem Naidoo with Asphalt and Wax



Airport Way: Paving
with Sasobit warm
mix additive

Innovations for his technical input on the warm mix technology.

it was going to take \$1.3 million per year just to keep our PCI from falling even lower. At that time, our available funding for pavement maintenance was a measly \$250,000 per year. At that rate, our PCI would drop to 44 in five years with the backlog growing to \$25.5 million.

This was a truly dismal picture. We took this update to the City Council in July 2006. This wasn't something that could be ignored or minimized; it would factor into all of our capital improvement programming for the foreseeable future. On the day of our Council meeting, there was an article in the local paper about the sharp rise in asphalt costs. That just added salt to the wound. Although we received no direction from Council at that meeting, staff was already planning to do some public opinion surveys to determine how the community felt about the condition of the streets when compared to other major capital improvement needs such as a new police station, library or senior center — all equally dismal situations. As a public works professional, I felt the street condition crisis was most important. But as a department head I also knew that the Police Chief and Recreation Director felt just as strongly about their facilities' importance to the community.

In February 2007, staff presented the results of our statistically-valid public opinion poll to the Council. It was at that meeting that we revealed that the poor condition of our streets was, indeed, rated as the highest need by our citizens. We also presented some options about how to fund a major street improvement program while keeping in mind that the other needs would soon be considered for funding, too. The City Council directed staff to develop a funding program based on a local sales tax that would require a two-thirds voter approval.

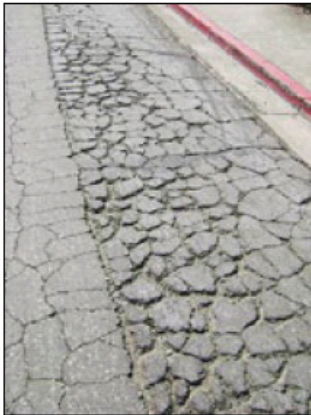
Our mission would be accomplished in two phases: Develop a ballot measure with a realistic improvement plan; and, if approved, implement the plan in quick fashion. Phase 1 had already been drafted, but we had until November 2007 to fully develop a new ordinance, a complete work plan, and ballot language. We also launched a public information campaign with two goals in mind: letting the community know what our intentions were, and hearing back from the community about what they would want to see in a successful ballot measure and work plan. I spent my summer making presentations to various community groups including PTAs, the Chamber of Commerce, our local Rotary Club, and anyone else who would listen. We included ourselves in every community event such as the July 4th celebration and National Night Out parties.

By November, we were ready for the Council to place this measure on the February 2008 primary election ballot. Both political parties were in full swing for the presidential primary, and we expected a large turnout. We were not disappointed. All

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El Cerrito street condition – a success story

*By Jerry Bradshaw, Public Works
Director*



When I came to work with the City of El Cerrito as the Public Works Director in 2004, I learned that the condition of our streets was a concern of my predecessor. The City had just invested about \$3 million in paving projects, but the funding source for this capital work was no longer available. El Cerrito is a small city with about 68 miles of street centerline, so a \$3 million investment was significant.

By early 2006 we were finishing our Pavement Management Program (PMP) update. The results were astonishing. Our system Pavement

Condition Index (PCI) was 53 out of 100 (down from 63 two years earlier); and our backlog was now \$21.2 million (up from \$7 million). In addition,

