

Country Line Road  
in Littleton, Colo.  
CREDIT: TODD GONSER

# REPAVING THE WAY

**Innovative hot in-place recycling breeds success** By Harlee Hewitt, Associate Editor

► **HOT IN-PLACE ASPHALT RECYCLING** isn't necessarily a new treatment method, but the added innovation of the project team for a 2-mile, multi-lane arterial commuter corridor in Littleton, Colo. marked a process that was never attempted in the state.

Littleton officials wanted to resurface the 2-mile portion of the roadway on County Line Road and opted for hot in-place recycling (HIR). Cutler Paving was tapped for the job, and their approach with an innovative recycling method won them the 2023 Asphalt Recycling and Reclaiming Association (ARRA) award for best HIR project.

County Line Road is a high-traffic volume commuter corridor with multiple intersections, businesses, and high-density residences. As a result, the road's top layer of pavement deteriorated over the years.



"The top layer of pavement was fully oxidized and needed to be milled and removed. Typically, this is not within the HIR scope," said Matthew Matuszewski, project manager in Littleton.

To address the full scope of the repairs, Littleton and Cutler Repaving worked together to combine full-width milling followed by HIR with a Stone Matrix Asphalt (SMA) paving material overlay.

"SMA has not been used with the HIR process here in Colorado. County Line Road is a heavily loaded roadway, so we felt that this pavement style would improve the longevity while also preventing against rutting and thermal cracking," said Matuszewski.

On top of the material being the right fit, the team identified a myriad of other needs in deciding to take up this innovative combination of milling and paving, including reducing environmental and community impacts.

"During the scoping and design process, the major goal was to find something that was quick, economical, environmentally sustainable, effective and practical," said Todd Gonser, western states manager at Cutler Repaving. "Heater repaving accomplishes the need for recycling in-place materials and applying the wearing course at the same time, as opposed to multiple stages.

"The heater repaving process has been used quite frequently for other local agencies and DOTs, so the team was comfortable in its track record. After finalizing assessments, the team decided that the heater repaving train was the only equipment that would accomplish all their goals for the project."

Although the HIR process in Littleton involved fewer steps and took just six weeks to complete, the process is no less robust than other methods.

The team started the HIR process by milling and removing the existing asphalt surface with half-lane and detail milling machines, and then heating and scarifying the now softened pavement utilizing carbide-tipped scarifying teeth.

Next, a rejuvenating emulsion, HFMS 2p, is applied and mixed into the scarified material using counter-flow



A paving train with pre-heater followed by repaver on County Line Road in Littleton, Colo. CREDIT: TODD GONSER

augers. To finish, the recycled material is re-laid with one screed, while the new SMA overlay material is laid with a secondary screed.

“All with one machine in a single lane closure,” said Gonser. “This process greatly decreases construction time versus conventional paving methods. It maximizes the benefit of in-place material, reduces the carbon-footprint, and decreases the cost and need of new material by about half.

“The resulting pavement section is a homogenous asphalt overlay, compacted all together at once with conventional equipment, with the bottom portion 100% recycled and the top portion a brand-new wearing surface.”

The result: over 65,000 square-yards of full-width milling, over 65,000 square-yards of heater repaving, approximately 4,500 tons of SMA, and approximately 5,000 gallons of HFMS-2p Emulsion rejuvenator.

“Littleton’s goals were all achieved by this process. The city was able to realize high quality, quiet, smooth riding, durable and good-looking pavement on this important arterial at a much lower project cost than typical construction methods. They would not have been able to achieve this resurfacing in a single project, given their budget for 2023. It would have been broken down into multiple project seasons,” said Gonser. “This job finished within budget, and on time. The city was able to use additional budget from the use of an in-place recycling treatment to utilize SMA for a robust and



A crew in Littleton, Colo. operates a paving train in front of an apartment building. CREDIT: TODD GONSER

long-lasting wearing surface. They took money saved by the HIR process and put it towards a “bullet-proof” overlay that should result in a longer service life and save from future costs.”

Littleton and Cutler cite exceptional communication and coordination as a primary facilitator of completing the project on time and on budget.

“I am most proud of the teamwork and communication employed by city staff and Cutler to achieve a safe and beautiful looking roadway that the public can enjoy. The increased durability and value provided, combined with minimal disruptions to the public, make this a memorable project,” said Matuszewski in a joint statement with Kimberly Dall, assistant city engineer.

Because County Line is such a high-volume, high-visibility, ultra important roadway for Littleton, coordination was organized before paving began. Coordination efforts were made with CDOT and Douglas County to account

for nearby adjoining projects. A public information campaign was delivered prior to the project through extra variable message boards and over 130 informative fliers to inform motorists and neighboring business of the upcoming project, with updates and very specific information each day.

To minimize traffic delays, Cutler was required to only mill what could be paved back daily. This meant that all operations would be confined to a single lane closure, and continuous communication between milling and paving teams was imperative.

“I am proud of the innovation and coordination on this project. But most of all, that the team was able to work outside of the box and do something that was unconventional, but practical. Against all odds, this project was a success and will give the city of Littleton a long-lasting roadway, and another option to put in their pavement management toolbox,” said Gonser. **R&B**



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