



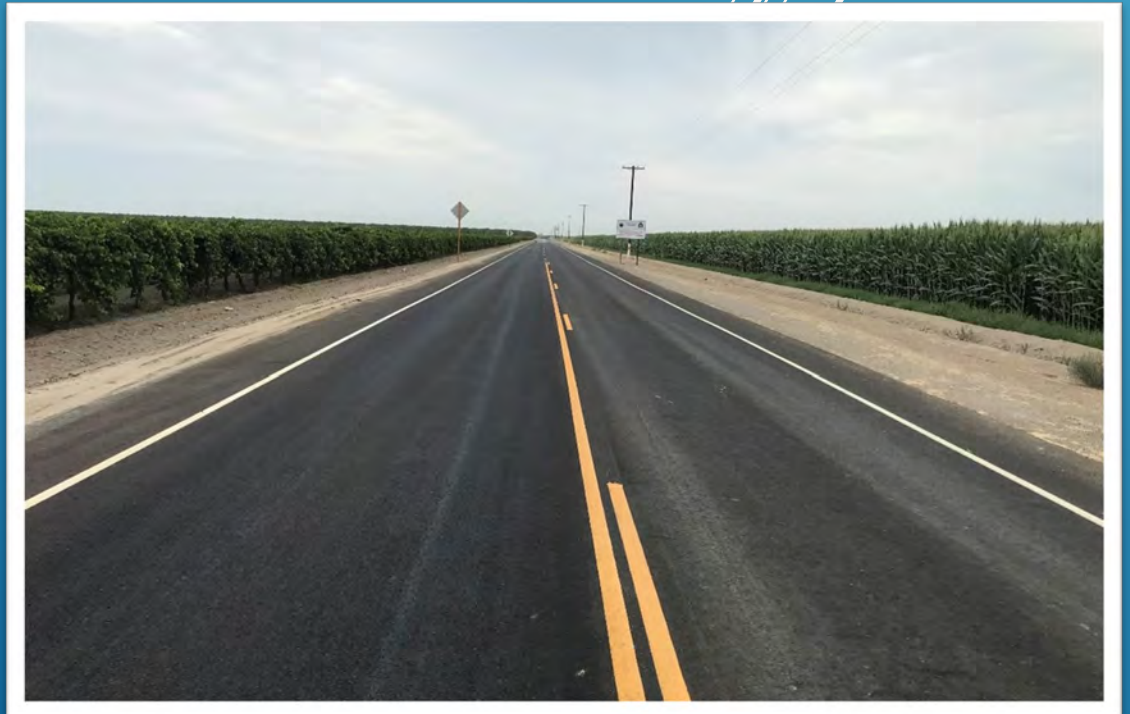
COUNTY OF FRESNO

2023 LS&R ANNUAL AWARDS

*ROADS: EFFICIENT AND SUSTAINABLE ROAD MAINTENANCE,
CONSTRUCTION AND RECONSTRUCTION PROJECTS*

LINCOLN AVENUE

COLD CENTRAL PLANT RECYCLING



PROJECT DESCRIPTION

The Lincoln Avenue project consists of approximately 14.5 miles of rural County road, servicing primarily farming traffic between SR 145 and Fig Avenue. The existing pavement was heavily oxidized and distressed due to many years of heavy traffic, and during the project the County elected to widen the roadway as well, adding an additional 4-ft of shoulder width to each lane.

Although it had never been tried before on a County road, County engineers determined that Cold Central Plant Recycling (CCPR) would be the most effective and cost-efficient method of rehabilitation. CCPR would allow the County to utilize the Reclaimed Asphalt Pavement (RAP) generated from the existing pavement to create a new pavement section, while simultaneously providing the opportunity to adjust grades, widen shoulders, and perform any necessary dig outs or base repairs. In total, of the 14.5 mile stretch of roadway, approximately 8.5 miles was designed for rehabilitation using CCPR of varying depths. The remaining 6 miles was rehabilitated using lesser depths of removal and replacement, as the pavement distress was not significant in those areas to warrant the full CCPR treatment. By utilizing varying depths of CCPR throughout the project, the County was able to capture most pavement distresses and rehabilitate the pavement while minimizing waste generated, minimizing excess cost, and utilizing a



sustainable and environmentally friendly pavement rehabilitation process. The CCPR process used 44,000 less tons of asphalt than a traditional road rehabilitation, resulting in a reduction of 3,200 truck trips (54,000 trucking miles) on surrounding roads and elimination of 27,000 CY of landfill disposal.

The project was developed in collaboration with the County's consultants Provost & Pritchard, and Graniterock, who developed the CCPR specifications. During construction of the project, the County also had an effective partnership with the prime contractor, Yarbs Paving and Grading, and their subcontractor Pavement Recycling Systems, whose experience in CCPR construction helped identify opportunities for cost-savings and overcome logistical obstacles discovered during construction. These included the RAP uncovering paving fabric in the existing pavement section and locating a construction staging yard large enough to host the CCPR plant.

Upon sampling of the roadway to perform the CCPR mix design, it was noted that throughout portions of the project paving fabric was present within the pavement section. This can be a concern during CCPR operations because paving fabric must be removed during the crushing and screening operation of CCPR, which slows production speeds and increases labor resulting in additional costs. However, because there was a surplus of RAP being generated on this project, and the concern was communicated early on in the project, the RAP containing paving fabric could be separated from the "clean" RAP and stored in another location,



to be used only in the event that the “clean” RAP was all used first. In this case, there was enough “clean” RAP to supply the entire CCPR operation and the RAP containing fabric was not needed, therefore avoiding unnecessary costs and production delays.

The road grindings from the overlay portion were used as shoulder backing for the shoulder paving in the first segment instead of importing new material. Typically they are thrown away; however, the RE and the contractor devised the reuse of the grindings as shoulder backing during construction as a way of reducing unnecessary waste.

County staff held an informative workshop in November of 2022, which detailed the project’s innovative use of CCPR methods. Ninety people attended the workshop, many of whom were engineers representing various local agencies and consulting firms.

The stretch of road had long been classified as a rural minor collector ineligible for federal funding. County staff were able to work with Caltrans to reclassify the road to a major collector and then to combine Surface Transportation Block Grant, Congestion Mitigation and Air Quality, and Road Maintenance and Rehabilitation funds to fully fund the project.

The project was delivered on-time and under budget. The final construction costs of \$8,235,682 were \$1.4 M, or 15%, under the original bid amount of \$9,723,640.



Another portion of Lincoln Ave. before and after CCPR.



Additional before and after photos on Lincoln Ave.





Photos taken during construction.





The County of Fresno wishes to thank all of the agencies which helped make this a successful project.



2022 ASCE Outstanding Sustainability Project for the Fresno Branch and San Francisco Section Awards.



2022 APWA Public Works Project of the Year \$5-25 million (Sustainability)

PROJECT CONSTRUCTION



PROJECT DESIGN



PROJECT FUNDING



U.S. Department of Transportation

Federal Highway Administration