Madonna – Los Osos Valley Road REHABILITATION PROJECT

PROJECT OBJECTIVE

Pavement maintenance and rehabilitation of Madonna Road and Los Osos Valley Road using microsurfacing and full depth reclamation

PROJECT LIMITS

- Los Osos Valley Road from the northern city limit to Calle Joaquin
- Madonna Road from Los Osos Valley Road to HWY 101 ramps

PROJECT AREA

Total project area of 1.17 million square feet, of which:

- 150,000 square feet of Madonna Road was reconstructed through Full Depth Reclamation
- 1,020,000 square feet of microsurfacing maintenance treatment was applied
- 50,000 square feet of base repairs prior to microsurfacing

PROJECT OVERVIEW

- Total project cost of $2.6 million, largest pavement rehabilitation project in City's history. Majority of project funded through ½-cent sales tax measure approved by voters.
- Multimodal improvements included ADA compliant curb ramps, green bike lanes, and buffered bike lanes.
- Microsurfacing maintenance treatments used 100% recycled aggregate material.
- ½-mile of Madonna Road was reconstructed using the Full Depth Reclamation (FDR) Process, resulting in estimated cost savings of $800,000 compared to traditional reconstruction methods.
- FDR process recycled 8,300 cubic yards of in-place material, reducing material import/export and associated trucking costs.
- FDR process reduced greenhouse gas emissions by 75% compared to traditional reconstruction methods.

WHAT IS FULL DEPTH RECLAMATION?

Full Depth Reclamation recycles the material from deteriorated asphalt pavement, and, with the addition of stabilizing agents, creates a new stabilized roadway base. The recycled base will be stronger, more uniform, and more moisture resistant than the original base, resulting in a long, low maintenance life. And most important, recycling costs are normally 25% to 50% less than removal and replacement of the old pavement. A new surface of hot mix asphalt completes the roadway rebuild.

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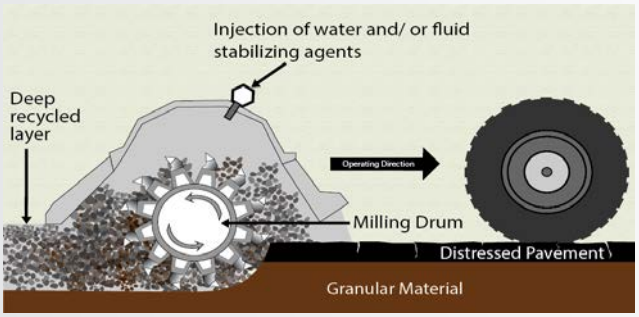
Wirtgen Pavement Soil Stabilizer/Reclamation Machine



Above: Reclamation Milling drum utilized for mixing and injecting stabilizing agents into existing soils. The Madonna FDR project recycled 18 inches of existing material.

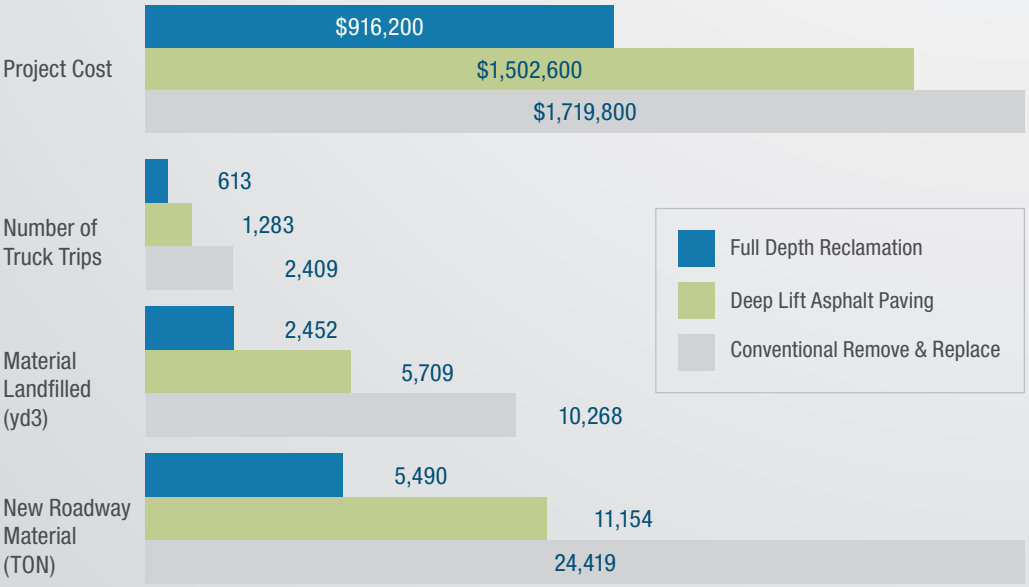
EXISTING PAVEMENT SECTION

- 5–7 inches of asphalt over 5–7 inches of base. Existing roadway was found to be structurally deficient.

NEW ROADWAY SECTION (TRAFFIC INDEX OF 8.5)

5 inches asphalt over 18-inches of 1% Lime and 3% cement stabilized soil

MADONNA ROAD FDR BENEFIT ANALYSIS



Note: Analysis completed for full roadway section. New Roadway Material for FDR includes new Asphalt overlay and chemical stabilizers used during the reclamation process. The only landfilled material is the existing 5-inches of asphalt removed prior to FDR. Much of these asphalt grindings can be recycled for other uses, which is not accounted for here.

GREENHOUSE GAS EMISSIONS

52%
Less Emissions than Deep Lift Asphalt Paving

75%
Less Emissions than Conventional Remove & Replace Reconstruction

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PROJECT PHOTOS

Microsurfacing and green bike lane

Microsurfacing and green bike lane at vehicle crossing zone

Microsurfacing and buffered bike lane

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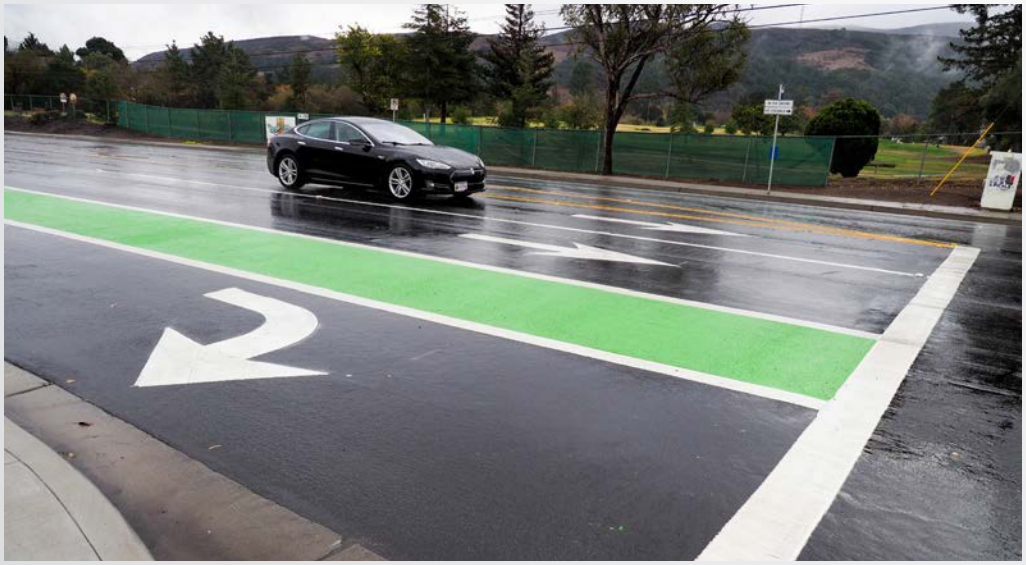
PROJECT PHOTOS

Microsurfacing and buffered bike lane



Microsurfacing and green bike lane

Microsurfacing and green bike lane

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PROJECT PHOTOS

Microsurfacing and green bike lane at vehicle crossing zone

Microsurfacing and green bike lane at vehicle crossing zone

Lime treatment of existing material during full depth reclamation process

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Pulverization and mixing of in-place material during full depth reclamation process

Paving over the FDR treated subgrade

Pavement compaction of new asphalt

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PROJECT PHOTOS

Finished asphalt pavement and fresh striping of FDR treated area

Finished asphalt pavement and fresh striping of FDR treated area