# Wirtgen Recycler 3800 CR:

# 100 miles – day and night

**In San José/USA, in-situ cold recycling with a Wirtgen 3800 CR recycler proves to be the most economical solution.**

Time is money, especially in road construction. When it comes to cost efficiency, being able to put all equipment to maximum use is a critical factor. Consequently, it is a major advantage when a machine can be used flexibly, like the 3800 CR recycler from Wirtgen, which can use the up-cut and down-cut cold recycling processes or operate as a high-output milling machine. Thanks to its diverse application options, the recycler fulfills unique construction specifications as required by an application or invitation to tender.

In California, the Golden State, the 950-hp powerhouse is resurfacing 100 miles of San José’s main traffic arteries in situ (on the spot), together with a Vögele VISION 5200-2i tracked paver in a rear-load process. With this method, the 3800 CR travels in reverse, removing the damaged asphalt layers in a down-cut process and transferring the recycled material to the paver.

**Down-cut method increases paving quality**

The contractor, MCK Services Inc., elected to use the process for this job to achieve a particularly high level of paving quality. In the down-cut process developed by Wirtgen, the milling drum rotates in the direction of travel, not against it as in the up-cut process. As a result, particle size can be precisely controlled when processing the material, especially on very brittle, thin, old asphalt roads.

**New load-bearing capacity for the streets of San José**

One illustrative example is W. Campbell Avenue, a main road in San José in the heart of Silicon Valley. The Wirtgen cold recycler, with its usual reliability, first milled off a 4-in. layer of damaged asphalt across a width of 12 ft. 6 in., granulated it, and mixed in the 1% pre-spread cement.

Two tank trucks supplied the recycler with hot bitumen and water via connected hose lines. Added pressurized air generates foamed bitumen. Microprocessor-controlled injection bars ensure precision injection of the foamed bitumen – in this case 2.5% – into the mixing chamber, where it is optimally processed with the granulated material. Ejectors positioned on the rotor then transfer the mix to the 3800 CR’s conveyor belt.

Meanwhile, traffic in front of the Starbright Theater, at the corner of Fulton Street, continued to flow by the recycling train apparently undisturbed, thanks to the fact that pavement rehabilitation is completed in a single pass, without the trucks having to weave in and out of the lane. This increases safety and is a tremendous relief to the traffic system.

The Wirtgen 3800 CR machine concept is geared to maximum output so that rehabilitation projects can be completed quickly. With this in mind, the conveyor system also has an extremely high conveying capacity. The slewing and height-adjustable conveyor rapidly transfers material to the material hopper on the tracked paver, which then places a 4-in. layer and pre-compacts the surface. The HD+ 110 VVHF tandem roller and GRW 280i pneumatic tire roller from Hamm perform final compaction, giving the road a closed, smooth surface texture.

**Cost-efficient and eco-friendly**

After 100 miles and – thanks to in-situ cold recycling – a short construction time, Bob Garrigan, Superintendent at MCK Services, is pleased: “Thanks to the Wirtgen 3800 CR, we were able to fully comply with the traffic and budget requirements stipulated by the City of San José.”

In the end, the results speak for themselves: Some 9,600 fewer truck hours significantly reduced CO2 emissions, fuel consumption and construction traffic on streets that receive between 12,000 and 35,000 vehicles daily. In total, the city saved some US$1.5 million.

Frank Farshidi, Project Manager for the City of San José, also arrives at a positive conclusion: “Cold recycling in-situ fulfills exacting quality requirements, is extremely economical, environmentally-friendly, and has the least impact on the public.”

**Job site details**

Rehabilitation of main and secondary downtown roads in San José, California

Costs: US$ 13.7 million

Length of section: 100 mi.

Area of section: 2.4 million sq ft.

**Working parameters**

Width of section: 12.5–16 ft.

Layer thickness: 4 in.

**Material**

Quantity of mix: 55,599.5 US t asphalt

Percentage of foamed bitumen: 2.5%

Percentage of cement: 1%

Optimum moisture content: 5–7%

**Equipment**

Wirtgen 3800 CR cold recycling machine

Vögele VISION 5200-2i paver

Hamm HD+ 110 VV HF tandem roller

Hamm GRW 280i-20 pneumatic tire roller

Fotos:

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|  | 3800CR\_00230 One special challenge was that the job sites were spread over the entire downtown area of this highly-populated city. No problem: the Wirtgen Cold Recycler 3800 CR can easily be transported by flat bed trailer. |

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|  | 3800CR\_00196 The milling and mixing rotor of the Wirtgen 3800 CR granulates the damaged asphalt layers to a depth of 18 cm. At the same time, cement is mixed in and water and bitumen emulsion or foamed bitumen are injected into the mixing chamber via injection bars. The final mix is transferred via the discharge conveyor directly to the material hopper of the Vögele paver which then paves true to line and level. Afterwards, Hamm asphalt rollers compact the pavement |

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|  | Upcut: W\_G\_3800CR\_00035\_HI Wirtgen up-cut process: The milling and mixing rotor runs against the direction of travel, ensuring high productivity. |

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|  | Downcut: W\_G\_3800CR\_00034\_HI Wirtgen down-cut process: The milling and mixing rotor rotates in the direction of travel. This prevents large chunks of pavement from breaking off. |

*Note: These photographs are only intended as a preview. For printing in publications, please use the photographs in 300 dpi resolution that are available for download from the Wirtgen GmbH / Wirtgen Group websites.*

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