



Job Report Cold Recycling

WR 2500: Foam bitumen recycling project, Albert Trail, Edmonton / Canada





Wirtgen Cold Recycling:

WR 2500: Foam bitumen recycling project Albert Trail, City of Edmonton

Mike Marshall, June 2002

156th St & Albert Trail, Edmonton

Approaches to heavily truck trafficked intersection, 33 ft wide x 4000 ft x 10" recycling depth.



156th St, original construction 5" asphalt over a crushed rock base course, subsequent overlay with 2" asphalt, total asphalt thickness 7".

Longitudinal cracking in the wheel paths, the cracks were determined to be full depth, therefore another overlay would have a short useful life.

5" asphalt, J.R. Paine & Associates in conjunction with the City of Edmonton decided on a recycling / stabilization process using foamed bitumen as the binding agent.

By pulverizing the full thickness of asphalt during the stabilization process the full depth cracks in the asphalt could be eliminated, thus preventing future reflective cracking through the asphalt overlay.

J.R. Paine & Associated adopted the Wirtgen method of pavement investigation and mix design, using a Wirtgen WLB 10 foam laboratory unit.

The optimum mix design was determined to be:

- ▶ Prepare the existing pavement by spreading with 1 % cement by mass
- ▶ Pulverize / stabilize to a depth of 10" in one pass
- ▶ Simultaneously adding 2.0 % foamed bitumen by mass
- ▶ Simultaneously adding required percentage of moisture for compaction
- ▶ Final overlay 2" asphalt



Cement, 1 % by mass, is spread on the lane to be recycled.



Using a Wirtgen WR 2500 the pulverization & stabilization was carried out in a single pass operation, injecting 2.0 % foamed bitumen by mass.

The tanker with oil 160 – 180 Pen at a temperature of 350 deg F is pushed by the WR 2500.

The water required for compaction is provided by a water cart pulled by the WR 2500.

Both the oil and water for compaction are added to the pulverized material simultaneously.



Immediately behind the WR 2500 the foam treated material is compacted using padfoot rollers.



Following the padfoot rollers, a grader shapes the recycled material to correct levels.



Once the recycled material has been finished graded, final surface compaction is completed using steel drum rollers.



Once full compaction is achieved the surface of the recycled material is lightly sprayed with water.

A pneumatic tyred roller is then used to create a smooth running surface for traffic.

After this stage the recycled lane can be opened to traffic.



The recycled lane is opened to traffic, thereby minimizing disruption.

The traffic will run on the recycled material until a 2" asphalt overlay is applied



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