

Bituminous Roadways, Inc. (BRI)

- Asphalt paving contractor
- Founded in 1946
- Three permanent asphalt plants
- Serve the Minneapolis/St. Paul metro area

History of BRI's shingle recycling

1996

- MNDOT specs allow 5% ground shingles (manufacturer's scrap) in some asphalt mixes with project engineer's approval
- Contract with CertainTeed Corp. of Shakopee
- Maxigrind and Finlay screen used for processing
- Utilization of ground shingles in hot mix

1997

- OEA market development grant
- Maxigrind burns up
- Shredder, hammermill, and Powerscreen used for processing



1998

- Two Maxigrinds and Finlay screen used for processing





2000

- Two Maxigrinds and trommel screen used for processing
- In addition to utilization in hot-mix, constructed sections of roadways of straight ground shingles, ground shingles/crushed concrete mix, and ground shingles/RAP mix.



2001

- OEA market development grant
- ‘The Beast’ grinder made by Bandit Industries and trommel screen used for processing
- Constructed section of roadway at landfill to test performance as dust control (ground shingle/RAP mix, ground shingle/crushed concrete mix)







2002

- Consider grinding tear-offs but must answer asbestos question first
- Testing performed to evaluate potential risk of asbestos
- Lots of press coverage for projects in Hennepin and Scott counties



2003

- MNDOT changes the wording in their scrap shingle specification to be less restrictive

MNDOT Specification

- Shingles used must be scrap from a shingle manufacturing facility. No tear-offs.
- Gradation of ground shingle scrap: 100% passing the 3/4" sieve, and at least 95% passing the #4 sieve.
- Maximum of 5% allowed.

Processing and Handling

- Hard to grind shingles. Very high wear and low production.
- Production is not much more than 20 tons per hour.
- Cannot store ground shingles very long due to agglomeration
- Grind during the paving season as needed.

Processing and Handling

- Shingle scrap must be free from other debris to protect grinder
- We grind to ½”- gradation
- Water helps with cooling and controlling dust
- Shrouding equipment further helps with controlling dust
- Feed ground shingles into our asphalt plants through standard recycle bins



Experience With Use of Ground Shingles

- Perception of putting garbage in our mix and the health hazard of fumes and airborne fibers
- The requirement of getting job specific approval made it difficult to plan for the use of ground shingles. With this material being an unknown to customers they were hesitant to approve its use.

Experience With Use of Ground Shingles

- Our goal has always been to have the cost of processing the shingles covered by the disposal fee that we charge CertainTeed. That way we can offer a savings to our mix production by not charging anything for the ground shingles. There must be an economic incentive.

Experience With Use of Ground Shingles

- Less than 50% of the asphalt in the shingles is effective in the mix
- Cannot conclude that ground shingles offers improved quality to our mix, but it has not proven to be detrimental to quality

Specific Projects

- France Avenue – Hennepin County
- County Road 42/83 – Scott County
- 19th Avenue No. – South St. Paul
- Highway 13 – MNDOT
- Various city street reconstruction projects –
St. Paul

Hennepin County Mill & Overlay Project: France Avenue: Between 80th & 90th Streets

- Surface cracking on old bituminous pavement required mill & overlay repair



Hennepin County Crews

- Operations and Maintenance Division of Public Works conducted milling and are currently installing bituminous overlay
- Hot-mix asphalt containing recycled shingles supplied by Bituminous Roadways, Inc., Shakopee plant



2nd Day of Shingles Derived Hotmix

- 5% shingles in hot-mix on northbound lanes
- Installation on northbound lanes began Thursday, June 27
- 2nd Day of installation today
- 3rd and final day scheduled for Monday July 8



Subjective evaluation is positive so far

- County crews report the mix is hard enough to allow traffic onto hot surface with only one or two passes of the vibratory compactor
- “Traffic can use surface more quickly than normal mixes”



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The Future

- Consider blending ground shingles with sand or RAP for storage
- New wording in state specifications should allow for more use
- Tear-offs
- Other applications (dust control, additive to aggregate base)