**STRATEGIC RECYCLING PROGRAM FACT SHEET**

FY 2006

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**Project:**
Post-Consumer Shingles in Hot-Mix Asphalt (HMA)

**Site Locations:**
PENNDOT District 6-0, Bucks County, SR 4033

**Dates of Projects:**
Aug—Nov 2003

**Recycled Material:**
Post-Consumer Shingles (Used Shingles)

**Estimated Quantities:**
1,827 tons 9.5 mm Superpave mix with 5% post consumer shingles

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**PennDOT Dist. 6-0 Post-Consumer Shingles (RCAS) Paving Project**

**INTRODUCTION:**

Since the late 1990's PennDOT has been experimenting with the addition of shingles, both manufactured tabs (RAS or cut-offs) and post-consumer shingles (RCAS or used shingles obtained through the demolition process) in hot mix asphalt pavements. By composition, shingles typically contain asphalt cement, granulates, felt and other miscellaneous materials. Shredded shingle have been allowed as a replacement for a percentage of virgin asphalt cement in HMA. Early studies focused on the uses of shingle tabs (RAS) because this shingle waste material was more homogenous and less contaminated with other debris. In 1999, PennDOT issued Provisional Specifications for RAS in Bituminous Concrete Courses. The use of RCAS (post-consumer shingles) was a bigger challenge, but without a doubt a much larger source. Post-consumer shingles are the third-largest category of construction waste disposed in landfills. Issues and obstacles identified with the use of post-consumer shingles include: potential asbestos content, higher cross-contamination with other construction debris, variability in content due to mixed sources and mixed age and condition of post-consumer shingles. Use Guidelines and Provisional Special Provision for RCAS in Bituminous Concrete Courses are undergoing finalization at PennDOT for experimental/demonstration use in projects.

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Due to the excessive stiffness of the recovered asphalt from the post-consumer shingles, an elevated melting temperature was used to mold the pulverized shingles. As a result, the HMA post-consumer shingle mix had to be placed at a higher temperature than normal paving conditions would require. Extra precaution had to be taken to ensure the drum rollers remain wet to prevent the mix from sticking to the drum.

The Department saw varied results of the completed paving project and will continue to monitor the road for 5 years, with an annual distress analysis, as well as core strength analyses on the 3rd and 5th years. Allowable contribution of asphalt content from the post-consumer shingles is still under review.

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**Project Contacts:**
Mr. John Hughes, PE ETID
Mr. Mike Scarpato, D-6, Project District Materials Engineer.

The Primary Contractor was Blooming Glen, an affiliate of Haines and Kibblehouse, Inc. Mr. Joseph Devine is the primary contact. The Pollution Prevention Section Program Office can be contacted for further information at (717) 783-3616.

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Go to the PennDOT website at: [http://www.dot.state.pa.us](http://www.dot.state.pa.us)

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