



STRATEGIC RECYCLING PROGRAM FACT SHEET

Original Date: FY 2012
Updated: FY 2020

Introduction

PennDOT approved the use of Carsonite® sound barrier walls as an alternative to traditional concrete, metal, and wood sound barrier technologies. The Carsonite® barrier technology utilizes modular fiber-glass-reinforced polymer composite planks that are filled with recycled shredded tires. The filled planks can be stacked to various heights. The filled panel sections are lightweight (approx. 7.5 lbs/SF) and do not require heavy equipment for installation. A typical post and foundation modular design features 6 inch high by 15 feet wide by 2 inch deep panels that are vertically stacked, using approximately 20,800 waste tires per mile of barrier. Carsonite® sound barrier walls are rated by the American Association of State Highway and Transportation Officials and the US Department of Transportation sound-wall guidelines as effective as conventional concrete, metal, or wood walls in reducing highway noise.



Carsonite® panel filled with scrap tires

Summary of Projects

PROJECT 1: PennDOT District 5-0 installed a Carsonite® sound barrier system on the I-78 Bridge, over Veracruz Road in Lehigh County. An approximately 215 linear feet system was installed, with an average height of 11 feet. Approximately 500 waste tires were utilized in this wall barrier system. Successful installation of the noise system did not require additional reinforcement to the bridge structure. The construction of the sound walls was completed within one month.



Construction of the Carsonite sound wall system on I-78 bridge over Veracruz Road



PROJECT 2: PennDOT District 8-0 installed a Carsonite® sound barrier system on a half-mile stretch of I-81 (southbound) between Colonial Road and Mountain Road. The system was constructed using 9 inch high panels. Approximately 14,000 waste tires were utilized in this wall barrier system.



Construction of the Carsonite® sound wall system on I-81

Project Update

In 2020, the SRP performed a follow-up on the performance of these project. Both District 5-0 and 8-0 reported that the sound wall systems have performed as expected since erected in 2000 and 2001, respectively. However, since execution of this project Carsonite® removed these sound wall systems from production.

One Sound Wall system (Whisper Wall) is approved for use and listed in Bulletin 15, this system is constructed using recycled material. For more information on the Whisper Wall sound wall system see Bulletin 15.

Project:
Noise Barrier Wall
Carsonite® Sound Wall System

Site Location:
Project 1: PennDOT District 5-0, I-78;
Project 2: PennDOT District 8-0, I-81

Date of Project:
Project 1: 2000
Project 2: 2001

Recycled Material:
Waste Tires

Estimated Quantities:
14,500 shredded passenger tires used for panel fill

Partnerships:
The Pennsylvania Department of Environmental Protection provided funding and assistance for this project.

Did you Know?
A better solution to the abandonment of worn tires is to have them properly recycled. Some uses of recycled tire include:

- Gravel Substitute
- Crumb Rubber
- Landfill Medium
- Water Treatment Filters
- Garden Mulch

Project Information:

Carsonite International
Valmont Composite Structures
19845 U.S. Highway 76,
Newberry, SC 29108 USA
803.321.1185

Project Contacts:

District 5-0 – Chris Kufro, Assistant District Executive
District 8-0 – John Bachman, Senior Project Manager

For Additional Information:

Go to the Strategic Recycling Program page on the PennDOT website at:
<https://www.penndot.gov/ProjectAndPrograms/RoadDesignEnvironment/Environment/PollutionPrevention/Pages/default.aspx>. or send a request to PennDOTSRP@pa.gov.