

# STRATEGIC RECYCLING PROGRAM FACT SHEET

Original Date: FY 2005  
Updated: FY 2020



*Project:*  
**Plasphalt™**

*Site Locations:*  
**PennDOT District 5-0  
Wilson Borough**

*Date of Projects:*  
**2002-2003**

*Recycled Material:*  
**Waste Plastic**

*Estimated Quantities:*  
**Approximately 515 tons  
of Plasphalt™ was used**

*Partnerships:*  
**The Pennsylvania  
Department of  
Environmental  
Protection provided  
funding and assistance  
for these Projects.**

*Did you Know?*  
**Municipalities can  
request the use of liquid  
fuel monies to support  
projects that utilize  
recycled materials.**

## Introduction

Plasphalt™ is a product that is produced by substituting a portion of conventional aggregate with treated, recycled plastics in hot mix asphalt (HMA) pavements. The plastics are acquired through the recycling process. Treated Recycled Plastic Aggregate (TRPA) is shredded and treated ground plastic material. TRPA material has a typical gradation of minus 3/8" – No. 40 sieve. Earlier research showed potential increase in rut resistance as a benefit to using Plasphalt™.

PennDOT allowed the experimental use of Plasphalt™; specifically, a Provisional Specifications permitted the use of up to 5% of TRPA material in design mixes as a substitute for conventional aggregate.



Example of TRPA Materials

## Summary of Projects

### **PROJECT 1: HAY TERRACE,** **between 18<sup>th</sup> to 20<sup>th</sup> Street (Residential)**

This Project involved the reconstruction of approximately 1,200 linear feet of Hay Terrace.

**Paving Quantity:** Approximately 70 lbs of TRPA and 400 tons of Plasphalt™

#### **Specifications:**

- ◆ 6" of 2A modified aggregate;
- ◆ 2.5" of ID-2 binder;
- ◆ 1.5" of Superpave Plasphalt™ wearing course

Due to limited pavement mixture quantities a control section was not completed at this Project location. Additionally, during material placement proper compaction was difficult to obtain, this was believed to have been a result of high temperatures of the delivered pavement materials. The annual performance evaluations were conducted yearly for 5 years after the completion of the Project.

In 2008, the final performance evaluation was completed for this Project, the results yielded satisfactory performance.

### **PROJECT 2: JEFFERSON STREET** **(Residential)**

This Project involved the resurfacing and select repair of Jefferson Street, including placement of control wearing course on the northern traffic lane and Superpave Plasphalt™ wearing course on the southern lane and intersection.

## Overview of Projects

Between 2004 and 2005, three Plasphalt™ paving Projects were performed in Wilson Borough, Northampton County. Each Project location was carefully chosen based on traffic load and use.

### **PROJECT 2 Continued**

**Paving Quantity:** Approximately 97 tons of Plasphalt™

#### **Specifications:**

- ◆ 5" of a 19.5 mm conventional base repair
- ◆ 1.5" Superpave Plasphalt™ wearing course

During the first-year evaluation, six random core samples were taken along Jefferson Street. Three samples were collected in the Superpave Plasphalt™ wearing section and three in the control paving section. Of the six samples only one sample from the control section passed the minimum 92% theoretical density requirement.

### **PROJECT 3: 21<sup>ST</sup> STREET**(Residential/Commercial)

This Project involved the reconstruction of an approximately 50 foot by 32 foot wide fairly steep section of South 21<sup>st</sup> Street to the Northampton Street intersection.

**Paving Quantity:** Approximately 15 tons of Plasphalt™

#### **Specifications:**

- ◆ 5" of a 19.5 mm conventional base repair
- ◆ 1.5" Superpave Plasphalt™ wearing course

This Project location is characterized with a very steep grade and significant non-standard rutting. Due to limited length, control sections were not installed for this Project.

In 2008, the final performance evaluation was completed for this Project, the results yielded minimal rutting and a circular rut formation in the southbound traffic. The five-year evaluation at this location of steep grade and higher observed truck traffic was considered encouraging in terms of potential rut-resistance performance.



TRPA Material being  
added to the Hot Mix  
Asphalt



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## Project Updates

In 2003 and immediately following the completion of these Projects, the supply of TRPA material to Pennsylvania was terminated by the manufacturer.

In 2019, the SRP performed a follow-up on the performance of these Projects. Upon inspection of the roadways, the material appeared to be performing fair with evidence of longitudinal cracking.

Since the material is no longer available for use, Plasphalt™ is no longer actively used in Pennsylvania roadway projects. However, the SRP continues to actively seek new opportunities that will allow PennDOT to implement the use of waste plastics into transportation projects.

## Project Pictures During Construction:



Post-construction view of the Jefferson Street Project, from the eastern boundary facing west



View of the 21<sup>st</sup> Street Project during construction

## 2019 Project Site Inspection Pictures:



View of longitudinal cracking observed at the Hay Terrace Project



View of both the control and experimental sections of the western boundary of the Jefferson Street Project



View of cracking and potholes observed along the northern boundary of the 21<sup>st</sup> Street Project

### Project Information:

Lehigh Valley Site Contractors Inc. was the paving contractor for the Projects.

### Project Contacts:

Mr. John Davis, District 5-0, Municipal Services Supervisor

### 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](mailto:PennDOTSRP@pa.gov).