



North Carolina Department of Transportation Value Management Office Resource Conservation Program



EXECUTIVE SUMMARY

This report is a summary of the recycling and solid waste management efforts on highway construction and maintenance projects within the North Carolina Department of Transportation for state fiscal year 2017 (July 1, 2016 - June 30, 2017) as required by G.S. 136-28.8(g) and G.S.130A-309.14(3). These statutes mandate that the Department prepare an annual report on the amounts and types of recycled materials specified or used in construction and maintenance projects during the previous state fiscal year and review of bid procedures, respectively. The types of recycled materials incorporated into this report would routinely contribute to the consumer and industrial waste streams, compounding the problem of declining space in landfills.

Efforts to utilize recycled and solid waste materials are in response to the requirements of G.S 136-28.8(b) which mandates the Department use recycled materials in highway projects. All applications of recycled materials are to be consistent with economic feasibility, applicable engineering, and environmental quality standards. In addition, the Department continues to comply with Chapter 136 of the General Statutes to encourage the purchase or use of reusable, refillable, repairable, more durable and less toxic supplies and products.

HIGHWAY CONSTRUCTION AND MAINTENANCE PROJECTS

NCDOT is continuously looking for new and innovative ways to reuse materials, reduce waste and recycle used products in our efforts to be sustainable. The Value Management Office (VMO) personnel met with NCDOT employees and contractors across the state in an effort to learn about and share innovative ideas that one Division uses and to evaluate the potential use of these ideas in another Division. The VMO personnel are also attending conferences on sustainability and conservation to gather information on the use of recycled products and materials in new ways throughout NCDOT projects. The VMO personnel is also doing outreach to NCDOT employees and contractors to educate on procedures and reporting of recycled materials.

NCDOT continues to encourage the increased use of recycled products in highway construction projects and maintenance activities. The Product Evaluation Program, responsible for maintaining NCDOT's Approved Products List (APL), has partnered with the Resource Conservation Program by providing an area on the vendor's product application for percentage of recycled materials, and any other type of sustainable advantage offered by the product including if it is biodegradable. Currently, there are 435 products on the APL that contain recycled content.



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PROCEDURE REVIEW

In years past, the recycling data for the annual report was collected once a year from NCDOT offices throughout the state using email and Microsoft Excel. An excel form was sent out to a liaison in each of the fourteen Divisions across the state. That person then emailed the form out to appropriate engineers within their Division. Once that engineer entered their data for the year, they saved the sheet and emailed it back to the liaison. The liaison then compiled the data into one form of combined data for the entire Division and sent it back to VMO personnel. The data was then compiled with the other Divisions and the totals from the contractors thus becoming the total quantity for each category indicated on the annual report. The procedure for contractors had fewer steps, but still needed refreshing. They reported recycle information through a fillable form that they then emailed to the VMO.

Within this past year, the VMO personnel met with employees from across the state in an effort to develop a new reporting system. The new system was launched in July 2017. It allows Division personnel and contractors to report any recycled data online from a computer, tablet or smartphone. Data can now easily be submitted throughout the year and the reporting system automatically compiles the data. This should increase efficiency in submitting data.

Additional changes were made to the information collected to provide consistency not only from NCDOT employees throughout the state but also among contractors. The unit of measurements are now standardized for each material submitted. In addition, categories have also been modified for ease of reporting.

The Department continues to review bidding procedures and processes to continuously encourage the purchase and use of recycled and reusable products in construction and maintenance projects. The NCDOT Standard Specifications for Roads and Structures Specification 104-13 includes a website which provides Contractors locations to recycle construction waste. This is also where contractors have access to the new reporting database. The form has changed, but the location and procedure has remained the same for the contractors.

NCDOT is continuously evaluating the reporting procedures to ensure that all of the recycled data can be tracked accurately, efficiently and completely.



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DATA REPORTED

**North Carolina Department of Transportation
Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects
Fiscal Year July 1, 2016 – June 30, 2017**

Product Category and Description	Usage	Quantity	Unit of Measure
1-Asphalt:			
Reclaimed Asphalt Pavement (RAP)	Asphalt Mix Additive	1,850,773*	Tons
Reclaimed Asphalt Shingles (RAS)	Asphalt Mix Additive	234,950*	Tons
2-Organics:			
Mulch	Wood	2,326	Cubic Yards
Mulch	Hydromulch	4,350	Bale
Compost Material	Soil Amendment	6,993	Cubic Yards
3-Coal Combustion Products:			
Fly Ash	Concrete Mix Additive/Fill	335,283*	Cubic Yards
4-Concrete:			
Recycled Concrete	ABC/Fill Material/Base Material	37,886	Tons
5-Glass:			
Glass Beads	Pavement Markings	30,852*	Tons
Crushed Glass	Sub-drain Backfill	6,398	Linear Feet
6-Plastic:			
Recycled Plastic Offset Blocks	Guardrail Offset Blocks	62,052	Each
Recycled Plastic Pipe (All Types and Sizes)	Pipe	124,459	Linear Feet
Plastic Flexible Delineators	Flexible Delineators	266	Each
Type III Barricades		786	Linear Feet
7-Scrap Tires:			
Tire Sidewalls	Traffic Drum Ballast	4,883	Each
8-Reused Materials:			
Guardrail		49,677	Linear Feet
Portable Concrete Barrier		107,446	Linear Feet
Signs		70,345	Square Feet
Steel Beams		249	Each
Signal Heads		75	Each
Silt Fence Posts		26,930	Each
Sheet Pile		23,070	Square Feet
Cable Guiderail		7,060	Linear Feet

**Estimate based on calculations and percentage of design.*