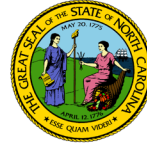




North Carolina Department of Transportation Materials and Tests Unit Resource Conservation Program



INTRODUCTION

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 (NCDOT) for State Fiscal Year (FY) 2023 (July 1, 2022 - June 30, 2023) as required by NC General Statute (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 if not reused/recycled, compounding the problem of declining space in landfills, and resources.

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, where possible. 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.

In addition to recycled/recyclable materials from Department construction and maintenance activities, this report also contains information regarding common recyclable items such as glass, plastics, aluminum cans, office paper, etc. that were previously reported separately. Requirements for the submission of this office and rest area data are required by G.S. 130A-309.07 through 309.14, G.S. 143-58.2(f), and Executive Order 156.

BID PROCEDURE REVIEW

The Department continues to review bidding procedures and processes yearly to encourage the purchase and use of recycled and reusable products and practices in construction and maintenance projects. Section 104-13 of the NCDOT Standard Specifications for Roads and Structures encourages Contractors to not only use recycled or solid waste materials in their projects, but also allows them the opportunity to initiate and develop the use of recycled products and construction methods that promotes sustainability. Furthermore, the contractor is required to report the use of recycled materials by July 1st each year.

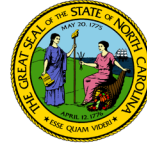
DATA COLLECTION

All offices submitted data for this report via an online webform. The online [webform](#) is separated into two sections, one for the "construction and maintenance" data, and one for "DOT/DMV Offices and Rest Areas" data (formerly the "3R Report").

The totality of data included in this report comes from three separate sources:



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1. HiCAMS (Highway Construction and Materials System) database,
2. Various NCDOT Offices (entered in a SharePoint form), and
3. NCDOT Roadside Environmental Unit's Litter Cleanup Programs

The data reported in Table 1 from HiCAMS is denoted by an asterisk (*). HiCAMS is NCDOT's main repository of project and material level information. The HiCAMS information, however, is not conclusive, as many county maintenance project materials are not included. NCDOT Standard Specification Section 104-13 states that contractors are to report the quantities of reused or recycled materials for each contract and any practice that minimized the environmental impacts by July 1st each year, but the reporting response rate remains low.

The data reported in Table 1 are all rounded down to the nearest whole number for each item. Several important points regarding data collection need to be made for clarification and consistency purposes:

1. Reclaimed Asphalt Pavement (RAP) quantities and Reclaimed Asphalt Shingles (RAS) quantities are being reported as one item. This is necessary since changes were made to NCDOT's HiCAMS database that now require the combined reporting of these two constituents.
2. The glass beads (Section 5) contained in pavement markings can come from recycled sources, however the exact percentage and quantity is not completely known. Therefore, the entire quantity of glass beads is currently listed as a recycled/recyclable product.
3. The Plastics section (Section 6) includes products that contain recycled components and products that could be recycled in the future. The plastic pipe component is composed of all dimensions and compositions of plastic pipe. The exact amount of recycled plastic and recyclable plastic cannot be determined given the limited amount of data present. Therefore, all plastic pipe types and sizes were combined in a single category.
4. The Metals section (Section 8) is presumed to be composed of steel. However, various grades and types of steels are included, and our office cannot verify that this section does not include other metals such as Aluminum. Furthermore, the materials listed do not specify a recycled content amount. The materials are included as a product that will be, or could be recycled in the future, and one that contains an unknown quantity of recycled metals presently. It is therefore included as both a recyclable product and a recycled product.
5. Scrap metal is listed as one line item in Section 8; some of the scraps are presumed to be recycled guardrail, sheet piles, and pipes, but their individual quantities cannot be determined at this time.



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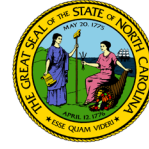


Table 1: NCDOT Recycled Products & Solid Waste Utilization in Construction & Maintenance Projects

Product Category / Description	Quantity	Unit of Measure
1-Asphalt:		
Reclaimed Asphalt Pavement (RAP)	1,918,144*	Tons
Reclaimed Asphalt Shingles (RAS)		
2-Organics:		
Mulch (wood)	5,648	Cubic Yards
Mulch (hydromulch)	5,200	Bales
Earth/Soil Fill (not for compost)	72,971	Tons
Vegetative Debris (not for compost)	298	Tons
Silt Fence Posts	11,994	Each
Scrap Wood/Lumber/Piles/Posts	298	Tons
Wood Pallets	115	Each
Sign Posts	570	Each
3-Coal Combustion Products:		
Fly Ash	33,169*	Tons
4-Concrete:		
Recycled Concrete	6,663	Tons
5-Glass:		
Glass Beads	10,062^	Tons
6-Plastics:		
Plastic Guardrail Offset Blocks	253,829*	Each
Plastic Pipe (All Types and Sizes)	386,087*	Linear Feet
Type III Barricades	77,610*	Linear Feet
7-Rubber:		
Tire Sidewalls	103,669^	Each
Miscellaneous Rubber	0	Tons
8-Metals:		
Steel Beams	45	Each
Signal Heads	37	Each
Scrap Metal	771	Tons
Cable Guiderail	238,062^	Linear Feet
Guardrail	470,367^	Linear Feet
Signposts	55,037	Each
Signs	34	Tons
Sheet Piles	0.3	Tons
9-Other:		
Comingled Items	1,502	Ton

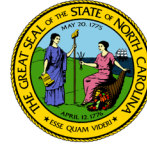
(*) Data pulled from HiCAMS as of 9/6/2023

(^) Data pulled from HiCAMS and combined with data reported by NCDOT field offices on 9/6/2023

The data reported in Table 2 are all rounded down to the nearest whole number for each item. Several offices and rest areas report their recycling report data as comingled recycling. As such, it is not possible to determine the quantities of each constituent material, and therefore a “comingled” product line is listed in Table 2.



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**Table 2: NCDOT Recycled Materials from NCDOT Offices and Rest Areas
(formerly the “3R Report” data)**

Product Category	Quantity	Unit of Measure
Office Paper	80,405	Pounds
Aluminum Cans	21,103	Pounds
Plastic - Soda/Drink Bottles	14,960	Pounds
Plastic - Other than Bottles	27,874	Pounds
Glass Bottles	20,648	Pounds
Cardboard	201,852	Pounds
Fluorescent Light Bulbs	397	Each
Appliances (Various)	114	Each
Toner Cartridges	1,009	Each
Petroleum Products	7,462	Gallons
Pesticide Containers	1,423	Each
Batteries	69,985	Pounds
Comingled Recycling	68,795	Pounds

The total weight of office and rest area recycling is 505,622 pounds. This total does not include items for which the unit of measure for a recycled item was listed as each or gallon. Table 3 contains the reported recycling data from the NCDOT Roadside Environmental Unit’s various litter cleanup programs.

**Table 3: Comingled Recycling from NCDOT Roadside Environmental Unit’s Litter
Cleanup Programs**

REU Program	Quantity (lbs.)
Adopt-A-Highway	90,495
Contracted Removal	306,570
NCDOT Personnel	39,435
Sponsor-A-Highway	217,410
Other	1,710
Total	655,620