

The Cost of Litter in North Carolina

Litter is imposing a significant financial cost on taxpayers and community members across North Carolina.

We can change this.

Durham, NC



ENVIRONMENTAL
LAW and POLICY CLINIC

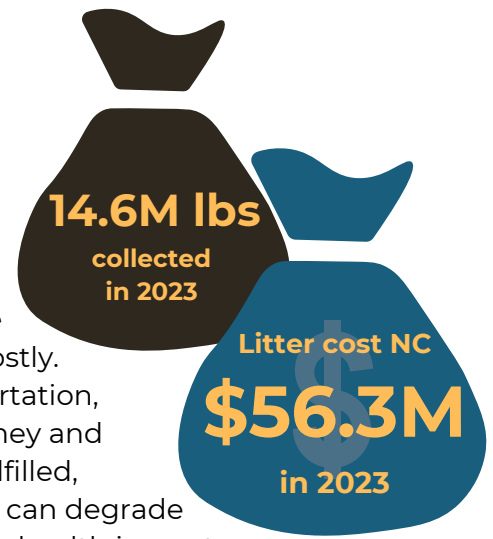


North Carolina
Conservation
Network

Executive Summary

The Problems with Litter in North Carolina

Litter can be found everywhere in North Carolina: on roadsides, on the landscape, and in our waterways. Not only is litter unsightly, it's also costly. Every year, entities such as the North Carolina Department of Transportation, local governments, and nonprofit organizations spend significant money and time on litter cleanup activities. Litter that is cleaned up is usually landfilled, bypassing the opportunity to be recycled. Litter that is not cleaned up can degrade into microplastics, which damage water quality and can have negative health impacts.



Key Findings

In 2023, North Carolinians spent \$56.3M cleaning up 14.6M lbs of litter.

In 2023, the cost for state government agencies, local governments, and nonprofits to clean up litter amounted to at least \$56.3M. This includes \$32.0M and 12.2M lbs contributed by NCDOT, \$22.4M and 1.5M lbs contributed by local governments, and \$1.9M and 900k lbs contributed by nonprofits. The total cost is roughly equivalent to the operating budget of the state's Department of Insurance and nearly double the budget of the NC Land and Water Fund.

Litter is mostly plastic.

We found that the majority of litter is made of plastic, including about 60% of roadway litter and 80-90% of litter in water sources. The ubiquity of plastic litter is due to the nature of plastic products - they are lightweight and durable, and many are designed to be used one time and on the go, such as drink bottles, retail bags, utensils, and takeout containers.

Waste managers and volunteers want solutions beyond cleanups.

We surveyed those on the front lines of waste management and litter cleanup across the state and heard two key takeaways: cleanups alone won't solve the litter problem, and taxpayer dollars spent on cleanup could be better used for other critical public priorities.



Recommendations

No single policy will eliminate all litter. However, a set of targeted, common-sense policies would allow for the reduction of certain types of waste that tend to be the most commonly littered. Those include:

- Implementing a bottle deposit program
- Reinstating local government action on plastic waste
- Examining state and local government procurement practices
- Leveraging existing water quality policies to abate litter
- "Skipping the Stuff" to reduce single-use plastic consumption
- Requiring extended producer responsibility

Policymakers should consider these options to decide what could be successful in North Carolina.



Wilmington, NC

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Introduction and Background

Encountering litter is a universal experience. One need only drive on a highway, bike on a greenway, walk on a sidewalk, or visit a creek to come across some improperly discarded item marring the landscape. But while it is easy to dismiss a stray piece of litter as the result of individual carelessness, like always, there is more to the story.

Litter is not just unsightly; it also presents environmental problems depending on the type of material. Commonly littered materials such as plastic and Styrofoam do not break down quickly, or at all, and degrade water quality when introduced to waterways. This litter can release microplastics and other chemicals into drinking water supplies and can have negative health effects when ingested by humans and animals. Also, importantly, litter is expensive. Every year, large sums of money are spent by any number of entities to clean up litter.

But how much litter is out there? How much does it cost North Carolina? And are there effective interventions that can reduce litter and its negative impacts? To better understand the problem of litter in North Carolina and its overall cost to the state, we decided research these questions and compile this report.

Data for this report came from a variety of entities responsible for cleaning up litter, including the North Carolina Department of Transportation (NCDOT), local governments, and nonprofit organizations. Data from NCDOT came in response to an informal request, although much of it already publicly available. Data from local governments came from public records requests and city budgets, and non-profit data came from outreach to individual groups and supplied through an online form. In total, 19 cities and 44 nonprofits provided data for this report.

Of course, this method does not allow for a completely comprehensive acquisition of data on litter cleanups. This means that the results and analysis in this report are likely to underestimate the true impact and cost of litter. However, even this incomplete picture of the cost of litter is valuable in understanding the problem and identifying solutions.



“Litter costs taxpayers money that could be used in other areas that would be beneficial for the citizens.”

– Employee, NCDOT

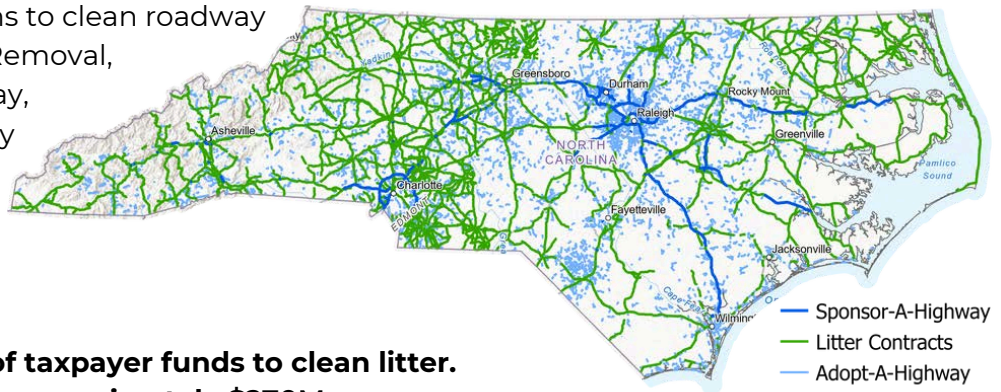
State Government

State agencies use taxpayer dollars to clean litter from public roads and lands.

The North Carolina Department of Transportation (NCDOT), Department of Natural & Cultural Resources (NCDNCR), Department of Environmental Quality (NCDEQ), Department of Public Safety (NCDPS), and Wildlife Resources Commission (NCWRC) all clean up litter across our state. Among these agencies, the greatest burden for litter cleanup, by far, falls on NCDOT.

NCDOT maintains 80,000 miles of roads across the state and hosts various programs to clean roadway litter, including Contract Litter Removal, NCDOT Forces, Adopt-A-Highway, Sponsor-A-Highway, Community Service Work Program, and Road Squads through the Division of Adult Corrections.

Roadways Cleaned by NCDOT



Cost of Litter

In 2023, NCDOT spent \$25.3M of taxpayer funds to clean litter. Over the past 15 years, it spent approximately \$270M.

This number increases when including the contributions from volunteers and businesses; when these contributions are added, the value of all NCDOT litter programs was approximately \$32.0M in 2023. Under the Adopt-A-Highway and Community Service Work Programs, volunteers contributed 149,955 hours of labor with an estimated value of \$5.0M (volunteer time is valued at \$33.49/hour nationally). Businesses contribute to NCDOT through the Sponsor-A-Highway program, where they pay an undisclosed fee to a third party to clean a roadway in exchange for a sponsored road sign. The value of this program is estimated at \$1.7M, or the typical cost/lb for contract litter removal (\$2.48/lb) multiplied by the amount of litter collected (683,250 lbs).

This is likely a significant underestimate of the total cost of litter to the State of North Carolina, as it excludes work completed by NCDNCR, NCDEQ, NCDPS, and NCWRC. The estimate above excludes cleanups and educational programs hosted by DNCR, waste management education and support from DEQ, litter cleanup crews and law enforcement from DPS, and litter cleanup and littering violation enforcement from WRC.

Amount of Litter Collected

In 2023, NCDOT programs collected 12.2 million pounds of litter. In the past 15 years, these programs have collected 139.9 million pounds. Contract forces collected the majority in 2023 at 62%, volunteers collected 15%, NCDOT forces collected 15%, and Sponsor-A-Highway crews collected 8%.



Local Government

City governments use taxpayer dollars to clean up litter from roads, storm drains, parks, and sidewalks.

City governments provide services vital to residents' health and well-being, including maintenance of roads, stormwater pipes, and parks. Litter interferes with these important services by, for example, causing road hazards and clogging storm drains, which leads to flooding. It also lowers residents' quality of life by reducing property values, attracting pests, and deterring tourism. For these reasons, litter cleanup and prevention has become the responsibility of many local government departments. Local governments use budget funds for manual litter cleanup of roadsides, parks, and public spaces; street sweeping; illegal dumping; education and outreach; and to compensate non-profits for their litter cleanup efforts.

We submitted requests to 37 cities with populations over 30,000 people asking for the costs they incurred for programs related to litter cleanup and prevention. We received responses from 19 cities representing 1.9M people, or 19% of the state's population.

Cost of Litter

In FY 2023-2024, NC cities spent at least \$22.4M of taxpayer funds on litter cleanup and prevention.

The 19 responding cities reported an average of \$5.07 per capita spent on litter cleanup and prevention in fiscal year 2023-2024. Using this per capita average, we estimate that cities with populations greater than 30,000 people (home to 4.4 million North Carolinians) spent \$22.4M on litter cleanup and prevention. This number is an underestimate as, in many cases, cities could not provide cost numbers for certain categories if the activity was lumped in with an employee's other duties. This number also ignores the costs incurred by counties or small city governments, which provide services to another six million North Carolinians.

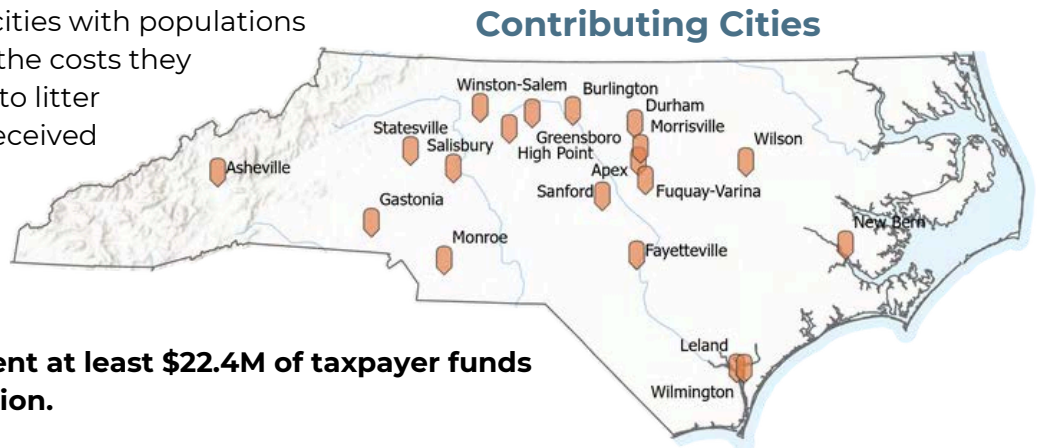
Top 3 Cities for Per Capita Litter Spending:

- Monroe, NC: \$17.68 per person
- Asheville, NC: \$13.18 per person
- Wilmington, NC: \$8.52 per person

Amount of Litter Collected

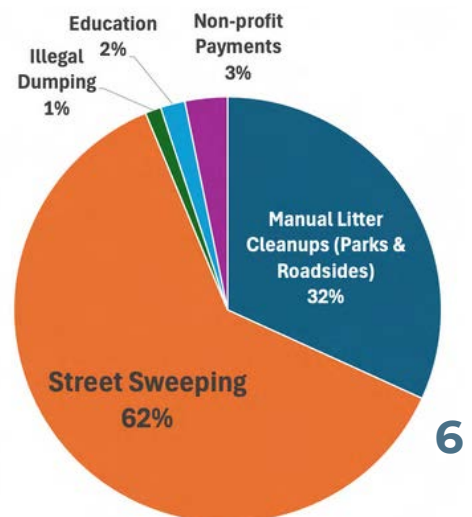
In FY 2023-2024, 12 cities collected 1.5 million pounds of litter from roadsides, parks, and illegal dumpsites. This number is a severe underestimate, as seven of the responding cities were not able to provide any amounts. Of the 12 cities that did, they often could only provide amounts for certain programs. For example, amounts for street sweeping could not be accurately quantified due to the sediment and organic debris mixed in with the litter.

"Costs currently allocated to litter collection could be better spent on waste diversion programming or improvements to core solid waste collection services."
-Employee, City of Asheville



City Spending on Litter

Based on 19 Cities



Non-Profits



Non-profits and community groups take matters into their own hands by organizing countless volunteer litter cleanups.

Due to frustrations surrounding the ubiquitous nature of litter, cleanups have become a priority for several non-profit organizations as a way to improve the health and beauty of the communities in which they work. Non-profits are typically funded by donations or grants and use their funding, staff time, and countless volunteers to carry out litter cleanup programs.

To better understand the extent of this work, we obtained data from 44 non-profit organizations across North Carolina, including Keep America Beautiful affiliates, Waterkeepers Carolina affiliates, Surfrider chapters, and individual organizations such as Asheville Greenworks, NC Wildlife Federation, NC Coastal Federation, The Great Raleigh Cleanup, Plastic Ocean Project, and Clean Jordan Lake. These organizations host a variety of volunteer-based programs including annual Big Sweeps, adopt-a-street programs, river cleanups, trash trap programs, school field trips, and more. While these organizations represent a large portion of non-profits working across the state, they are not all-encompassing. Many more groups and individuals volunteer their time to clean up litter.



Pittsboro, NC

Cost of Litter

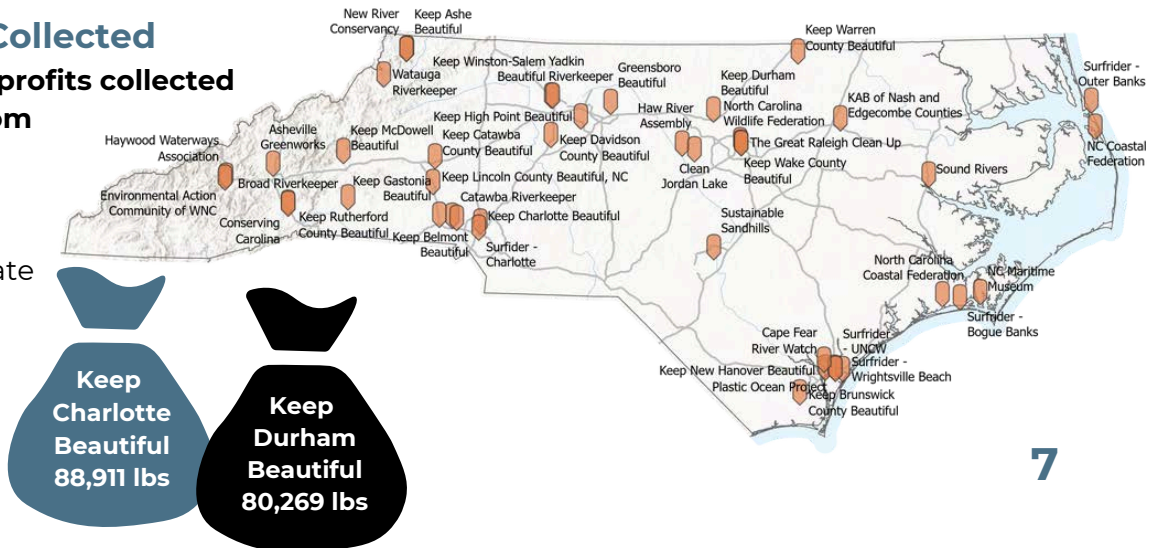
In 2023, these 44 non-profits contributed \$1.9M worth of unpaid labor to the litter problem.

These non-profits organized 28,626 volunteers who contributed 56,400 hours of labor during cleanups. Using the nationally accepted value of volunteer time of \$33.49/hour, the value of this labor is \$1.9M. Notably, many non-profits stated that these values are an underestimate of volunteer contributions due to challenges in reporting. This total cost also excludes nonprofits' expenditures to organize cleanups (i.e., equipment and staff time), which vary from \$500/year to \$250,000/year.

Amount of Litter Collected

In 2023, these 44 non-profits collected 898,642 lbs of litter from waterways, roadways, beaches, and lands.

We expect that this is a significant underestimate of litter collected.



What is Litter Made of?

To fix the problem, we have to understand it.

It is clear that litter is abundant and the cost to clean it up is high. However, to tackle the problem we need to know more about it. Specifically, what items are being littered? And how do we prevent them from being improperly discarded?

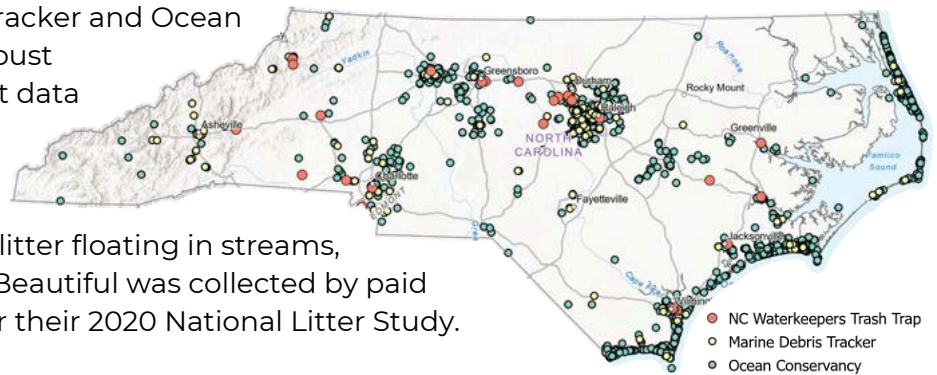
Data Sources

While not all cleanup programs go the extra step to categorize the items collected, several do. We looked at four unique datasets: riverine trash trap data from Waterkeepers Carolina (WKC), Marine Debris Tracker App data, the Ocean Conservancy's International Coastal Cleanup data, and the Keep America Beautiful 2020 National Litter Study data.

Two of these datasets, Marine Debris Tracker and Ocean Conservancy data, are the results of robust community science programs and host data from over a million pieces of litter across North Carolina. Data from WKC were collected from trash traps across the state that primarily capture litter floating in streams, and national data from Keep America Beautiful was collected by paid consultants throughout the country for their 2020 National Litter Study.



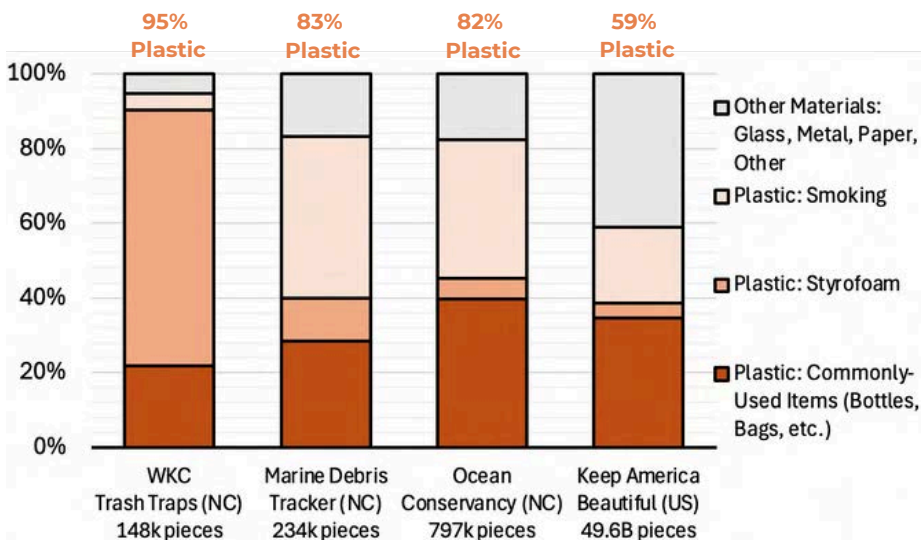
Litter Data Collection Locations



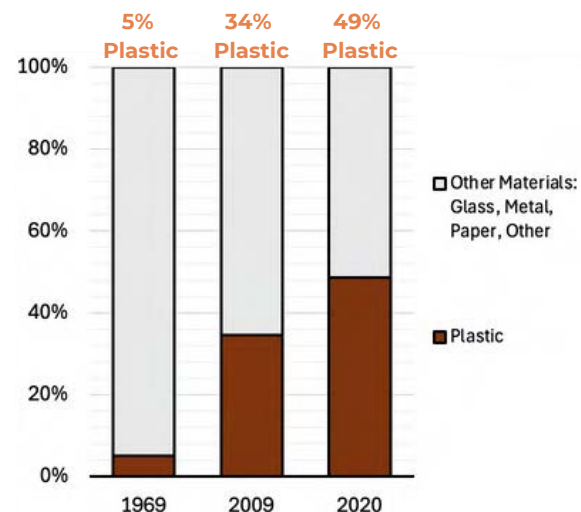
Findings

Across all datasets, the majority of litter by number is plastic, including cigarette butts, Styrofoam, and other plastics like bottles, bags, and food wrappers. Litter in NC streams, as demonstrated by the WKC dataset, is almost entirely (95%) plastic. Over time, the percentage of litter that is composed of plastic has been increasing.

Litter Types by Dataset



Litter Types Over Time*



*Data from Keep America Beautiful National Studies (excludes Smoking category)

What do waste managers think?

We surveyed government employees responsible for managing waste to get their perspectives on litter. Here's what they told us:

Constituents are complaining.

"We receive calls all the time about people carelessly throwing trash and cigarette butts out of their vehicles.

The biggest complaint we receive concerns uncovered/unsecured loads. Trash is flying out of the back of the trucks while they are driving on busy highways."

-Employee, NCDOT

"[We receive] complaints about the amount of litter in medians and along roadways" - Employee, New Hanover County



Litter cleanups are expensive, and resources are limited.

"Litter costs taxpayers money that could be used in other areas that would be beneficial for the citizens. Litter can lead to soil, water, and air pollution which affects our health and the health of our wildlife" - Employee, NCDOT

"Roadside litter is common and is currently being addressed through a contract that is only temporarily funded via ARPA grant funds. Our jurisdiction lacks resources to implement prevention programs or campaigns and enforcement activities. ARPA grant funds will expire in FY25 and **it is unclear how we will continue roadside litter collection activities.**" - Employee, City of Asheville

"Illegal dumping forces resources to be spent cleaning up that otherwise could be utilized in other areas." - Employee, City of Jacksonville



The state should be doing more to prevent litter.

"[The state's efforts] seem to be the bare minimum... I would like to see more proactive efforts at all levels." - Employee, City of Durham

"Current efforts seem geared towards addressing the symptom (litter collection) as opposed to the cause (litter prevention). I am unaware of state efforts to prevent litter in our jurisdiction. The only efforts I am aware of are bi-annual volunteer clean-ups sponsored by NCDOT and NCDOT roadside litter collection activities." - Employee, City of Asheville

What do volunteers think?

We surveyed volunteers about their experiences cleaning up litter. Here's what they told us:

Litter is a problem in North Carolina.

"When I first moved to southeastern North Carolina nearly 20 years ago, I was surprised by the amount of litter compared to other urban and suburban areas where I had lived. Even now, when I travel to other parts of the country, the amount of litter in southeastern North Carolina is still more than I see elsewhere." - Joe F., Volunteer

"There is a saddening amount of litter in my community.

Many of the streets, drainage ditches, and waterways are full of food/drink containers, cigarette butts, and plastic bags." - Jaden C., Volunteer

"Selfishly, I want my town to look clean for myself and my family, but also because consciously or subconsciously, everyone notices whether a place appears clean or not when they visit. **Nobody wants to be somewhere that doesn't look clean or like the people there don't care about it."**

- George C., Volunteer

Litter cleanups are not enough.

"Cleanups are simply a band aid. We will never clean up ourselves out of the pollution problem. We have to prevent the litter to begin with. I feel like for every one item I clean up, dozens more replace it." - Jan F., Volunteer

"I don't think the cleanups are able to adequately address the amount of pollution in our community. **The cleanup sites are constantly accumulating litter and they're usually full of trash again when another cleanup is hosted.** It's better than nothing, but the cleanups aren't enough by themselves to keep the pollution levels down." - Cameron B., Volunteer

The government should be doing more to prevent litter.

"Regulations such as recycling incentives, **encouraging companies and retailers to move away from foam, single-use plastics**, and making it easier for people to properly dispose of items that cannot go to landfills such as electronics, batteries, or hazardous waste. Without free or low-cost alternatives, people will just leave the unwanted items in the woods, parks, or roadsides." - Curtis D., Volunteer

"Bottle deposit bills, minimum recycled content requirements, bans on certain packaging, mandatory litter pick-up could all be supported by state legislation." - Lauren H., Volunteer

"Enact laws for mandatory elimination of plastic bags and bottles...provide more public recycling bins." - Sue W., Volunteer

"Penalties, signage, and public education through traditional and social media." - George C., Volunteer



Recommendations

Litter cleanups target the symptoms, not the causes of litter. Like any persistent and pervasive issue, addressing litter will require a comprehensive approach, and even then, it is unlikely that litter will ever be entirely eradicated. However, that is not a reason for inaction and instead should motivate decision-makers to implement a range of strategies to drive meaningful, lasting change.

Continue Funding NCDOT Cleanup Efforts

Due to the large amount of litter that ends up on roadsides, it is clear that continued dedicated funding to the department is necessary to clean up litter. Supplemental efforts by local governments and nonprofits are valuable but will inherently lack the reach and effectiveness of a state department that is tasked with litter cleanup.

Implement a Bottle Deposit Program

One of the most ubiquitous types of litter found along North Carolina's landscape is beverage containers. One way to reduce the discarding of plastic would be to increase its value to consumers with policies like a bottle deposit program. A bottle deposit law places a 5 or 10 cent refundable deposit on bottles and cans, giving consumers financial incentive to return them. Since 1971, these types of laws have been passed in 10 states and have reduced beverage container litter by at least 70%, more than doubled recycling rates, and have made state governments millions in economic gains from valuable material recovery.

H.B. 978, Litter Reduction Act of 2024, from the 2023-2024 legislative session is a possible blueprint for a bottle deposit program in North Carolina.

Reinstate Local Government's Authority to Regulate "Auxiliary Containers"

In recent years, policy interventions on plastic waste have been driven by local governments. Prohibitions or fees on plastic bags and Styrofoam foodware containers have been passed in countless jurisdictions across the U.S. and have a track record of success.

However, North Carolina law prohibits local governments from regulating plastic waste, thereby limiting one of the most straightforward policy mechanisms to reduce litter. **North Carolina state legislators should restore local authority to combat frequently littered items such as plastic bottles, plastic bags, and styrofoam food containers. S.B. 166 from the 2025-2026 session would make this legislative change.**



Trash Trap in Hendersonville, NC

Examine Procurement Practices

Policies to reduce litter, and specifically plastic waste, can go beyond fees and prohibitions. Proactive procurement policies can also keep problem items out of the waste stream. State and local governments should examine their procurement policies and determine where reduction of plastic items and Styrofoam is feasible. Procurement decisions are typically driven by price, and while this is an important factor, governments should consider more than just the initial price of an item and look at its entire lifespan. While a plastic utensil may be cheaper upfront, the cost of cleaning up that same utensil as litter and landfilling it in a facility with limited space also weighs on a local government.

The North Carolina General Assembly could look to bills like H.B. 8, NC Managing Environmental Waste Act of 2025, from the 2025-2026 session to encourage examination of state government procurement and pilot programs that eliminate single-use plastic foodware. Additionally, the Governor's office could issue an executive order that directs state agencies to reconsider their procurement methods for state facilities.

Leverage Water Quality Policies

Under the federal Clean Water Act, North Carolina develops and implements water quality standards for its surface waters. In addition to specific numeric criteria for certain contaminants, the state also has narrative standards for water quality. These narrative standards can be used to set regulatory standards for trash and combat litter in waterways by creating implementation mechanisms for cleanup. For example, in 1996, the Los Angeles River watershed was found to be an impaired waterbody due to trash and in 2001, a total maximum daily load (TMDL) was established for trash in the river. This intervention set a regulatory standard for how much trash was allowed to be in the river (none) and tasked stakeholder local governments with achieving that goal through whatever strategies were necessary.



Skip the Stuff

In addition to procurement at the government level, there are straightforward policies that can reduce the amount of single-use plastic consumed in the private sector. These "Skip the Stuff" bills require food service establishments to give out items like utensils and individual condiments packages only if requested by the customer. They also require that utensils and individual condiment packages not be bundled together, allowing the customer to take only the items they need. Skip the Stuff policies are a win-win: businesses save money and create less waste.

A "Skip the Stuff" bill was introduced in North Carolina during the 2023-2024 session: H.B. 679, Customer Opt-In for Single-Use Foodware. This bill aimed to reduce the amount of unwanted and unused single-use plastic items in circulation.



Require Extended Producer Responsibility

The cost of litter is being borne by everyday citizens.

The state and local tax dollars of North Carolinians are paying for the decisions of corporations. There are policy solutions to correct this unfairness and force companies to take responsibility for the waste they create.

Extended producer responsibility (EPR) brings the fundamental principle of “polluter pays” to the realm of litter. EPR can have several components, depending on how the policy is drafted, but usually includes product standards for producers of plastic waste along with reduction goals. Additionally, an EPR program can set up a compliance organization that all producers belong to and pay into in order to facilitate progress on waste reduction. If North Carolina policymakers want to ease their constituents’ financial burden with respect to litter, they can explore an EPR-style program that puts the responsibility for waste with the producers.

Conclusion

The Possibility for a Cleaner NC

Any problem as consistent and ubiquitous as litter can seem so overwhelming as to invite inertia, or worse, inaction. This does not have to be the case in North Carolina. Policymakers can use the data compiled in this report as a way to grasp the magnitude of the problem litter poses to the state, give it increased attention, and then act with some of the straight-forward, well-tested policy solutions recommended.

Under the refuse that dots the landscape and waterways of our state is a beautiful, bountiful North Carolina. Now is the time for it to be uncovered.



Acknowledgements

This report is meant to highlight the enormous amount of work North Carolinians undertake to keep our state beautiful. We would like to acknowledge all the non-profits, governments, and volunteers that contributed data and information to this report, including:

Non-Profit Organizations

- Ashville GreenWorks
- Broad Riverkeeper, MountainTrue
- Cape Fear River Watch
- Catawba Riverkeeper
- Clean Jordan Lake
- Conserving Carolina
- Env. Action Community of WNC
- Haw River Assembly
- Haywood Waterways Association
- KAB of Nash and Edgecombe Co.
- Keep Ashe Beautiful
- Keep Belmont Beautiful
- Keep Brunswick County Beautiful
- Keep Catawba County Beautiful
- Keep Charlotte Beautiful
- Keep Davidson County Beautiful
- Keep Durham Beautiful
- Keep Gastonia Beautiful
- Keep Greensboro Beautiful, Inc.
- Keep High Point Beautiful
- Keep Lincoln County Beautiful
- Keep McDowell Beautiful
- Keep New Hanover Beautiful
- Keep Rutherford County Beautiful
- Keep Wake County Beautiful
- Keep Warren County Beautiful
- Keep Winston-Salem Beautiful
- Maritime Museum
- NC Wildlife Federation
- New River Conservancy
- North Carolina Coastal Federation
- Plastic Ocean Project
- Sound Rivers
- Surfrider - Bogue Banks
- Surfrider - Cape Fear
- Surfrider - Charlotte
- Surfrider - Outer Banks
- Surfrider - UNC Wilmington
- Sustainable Sandhills
- The Great Raleigh Clean Up
- Watauga Riverkeeper, MountainTrue
- Winyah Rivers Alliance
- Yadkin Riverkeeper

Municipalities

- Apex
- Asheville
- Burlington
- Durham
- Fayetteville
- Fuquay-Varina
- Gastonia
- Greensboro
- High Point
- Leland
- Monroe
- Morrisville
- New Bern
- Salisbury
- Sanford
- Statesville
- Wilmington
- Wilson
- Winston-Salem

Please note that the results and recommendations provided in this report belong to the authors, and do not necessarily reflect the opinions of the organizations and people that contributed data.

Appendix

**Non-Profit Organization
Cleanup Data Survey ([link](#))**



**Cleanup Volunteer
Perspective Survey ([link](#))**



**Government Employee
Perspective Survey ([link](#))**



**Municipal Public
Information Request ([link](#))**



Do you have thoughts about litter in NC?
Do you want to stay engaged with our work?

We would love to hear from you,
please fill out [our survey!](#)

