RRS

2025 New Mexico Litter Study

FINAL REPORT

PREPARED BY RRS FOR NEW MEXICO DEPARTMENT OF TRANSPORTATION
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Executive Summary

In 2025, the New Mexico Department of Transportation (NMDOT) commissioned Resource Recycling Systems (RRS) to conduct a statewide litter study to gather data on the quantity and composition of litter in New Mexico. This study provides a comprehensive assessment of the current litter conditions, identifying the types, amounts, and geographic distribution of litter throughout the state. By quantifying the scale and impact of litter, this study aims to inform effective policies and programs for reducing littering, improving environmental quality, and lowering cleanup costs. The findings highlight key challenges and opportunities for collaborative action among government agencies, community groups, and residents to create a cleaner and healthier New Mexico.

A visible litter survey was conducted at 96 sites across the state, with workers at each location surveying macro litter (items larger than 4 inches) within a 300 x 15 feet transect and micro litter (items between 1 and 4 inches, including cigarette butts) within a 15 x 15 feet transect. In total, 12,078 pieces of litter were tallied and categorized into 10 categories and 59 sub-categories. Table 1 presents the key findings from this study.

Table 1: Summary of Findings

CATEGORY	FINDING
Total Number of Sites	96
Total Pieces of Litter Tallied	12,078
Estimated Pieces of Litter Along New Mexico Roadways*	1,273,663,723
Top Material Categories	Plastic – 38.9% Metal – 17.3% Paper – 15.2%
Top Material Sub-Categories	Plastic Bottles & Containers – 12.5% Metal Bottles, Cans, & Containers – 12.1% Other Plastic – 7.6%
Average Roadway Litter Tallies	Arterial – 138 pieces of litter per site Interstate – 133 pieces of litter per site Collector & Local – 108 pieces of litter per site

*Roadways include interstate, arterial, collector, and local roads. Definitions and characteristics can be found under the Roadways section of this report.

Several factors and potential limitations should be considered when interpreting this study's findings. During site selection, it was unknown whether sites had been recently cleaned of litter or had never

been addressed. Additionally, weather may have influenced litter distribution, as storms and strong winds observed during fieldwork demonstrated firsthand how litter can be displaced. Additional information on the maintenance of DOT roads is recommended for future studies to understand accumulation over time and ensure a consistent baseline across all sampling sites.

Plastic was the dominant material category in both macro and micro litter tallies. Additionally, plastic, metal, and glass bottles and containers collectively accounted for over one-third of all macro litter identified. These problematic items provide key starting points for NMDOT to develop tailored strategies to address, as addressed in the Recommendations section of this study.

When comparing litter counts by NMDOT district, District 2 had the highest average per site, with roughly 180 items, whereas District 3 had the lowest, with 58 items per site. Several factors should be considered when interpreting this analysis, including existing district-level litter mitigation efforts, site-specific influencing factors, and other local characteristics.

Proximity indicators were noted before site tallying to identify conditions influencing litter at each location. Sites with public trash bins and anti-litter signage on average had fewer pieces of litter, highlighting their important role in litter prevention. No significant differences were observed between residential and urban settings, industrial and non-industrial areas, or urban and rural classifications. Arterial and interstate roads showed similar average litter counts, whereas combined collector and local roads had a noticeably lower average, possibly due to lower vehicle miles traveled (VMT) per road mile.

To identify trends and key differences in New Mexico's litter counts, the project team reviewed and compared litter studies conducted for Washington, Texas, and the U.S. The New Mexico study shows a significantly higher proportion of plastic bags and beverage containers than all other litter studies, suggesting a greater need to address these materials.

Several recommendations are provided, including considerations to implement a bottle redemption system, a plastic bag ban, and an expanded polystyrene (i.e. Styrofoam) ban. Education and outreach are critical for discouraging littering, and campaigns such as Breaking Bad Habits should continue to be supported. Additional litter studies should be conducted to track year-over-year changes in litter quantity and distribution at sites and to evaluate the effectiveness of implemented mitigation strategies on the state's overall litter counts.

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Thank you to NMDOT for providing data and supporting the development of this statewide litter study. Additionally, thank you to the New Mexico Tourism Department for the development of the Breaking Bad Habits campaign and the New Mexico Clean and Beautiful grant program that supports efforts to mitigate litter in the state. Finally, thank you to WSP, a professional services firm that conducted a litter study focusing on highways leading to and from national recreation areas for NMDOT at a similar time, for their collaboration in developing the methodology and site selection.

Background & Purpose

Located in the Southwestern region of the United States, New Mexico is the fifth-largest state by land area, covering approximately 121,312 square miles, and is home to a population of approximately 2.1 million people. The state is comprised of 33 counties and 105 incorporated cities, towns, villages, and tribal governments. Its diverse terrain includes vast deserts, rugged mountain ranges, and expansive plains, contributing to a wide range of environmental conditions across the state.

Geographically, New Mexico is a predominantly rural state. Of its 33 counties, seven are classified as Metropolitan Statistical Areas by the U.S. Census Bureau. The state borders Arizona, Utah, Colorado, Oklahoma, Texas, and Mexico, and serves as a major travel corridor. In 2023, its roadways recorded 28.2 billion vehicle miles traveled, accounting for 1.7% of all national travel despite the state representing only 0.6% of the U.S. population, according to the U.S. Department of Transportation. Furthermore, according to the National Highway Freight Network, New Mexico contains 1,242 miles within the Primary Highway Freight System, or 2.41% of the nation's total mileage, ranking 14th highest among all states.

Litter and dumping of waste are significant issues in the United States, with the Keep America Beautiful 2020 National Litter Study estimating nearly 23.7 billion pieces of litter along U.S. roadways, or 72 pieces of litter for every U.S. resident.

Addressing litter is critical to protect the environment, reduce economic spending, and promote community well-being. Litter pollutes and contaminates waterways and soils, harms wildlife through entanglement and ingestion, and disrupts ecosystems. Additionally, litter abatement and cleanups can cost taxpayers millions of dollars annually and negatively affect property values and tourism. Litter diminishes community pride and contributes to a cycle that perpetuates itself.

New Mexico has addressed litter through numerous grant programs and campaigns, as discussed in the “Anti-Litter Efforts in New Mexico” section below, but has not developed a uniform classification study. The purpose of the litter study is to collect data on the composition, quantity, and influential factors of litter in the state. This information can then serve as a baseline for developing customized and data-driven initiatives and actions to address litter and be used to track the effectiveness of strategies through additional litter studies.

This litter study was developed in conjunction with one conducted by WSP for New Mexico. WSP conducted a visible litter survey along highways leading to and from national recreation areas in New Mexico. To prevent overlapping and streamline the collection of data for NMDOT, RRS worked with WSP to develop similar litter categories and sampling methodology and ensure unique sample sites for both studies.

Environmental Considerations

New Mexico’s climate ranges from arid to semi-arid, with average daytime temperatures ranging from 64°F in the southeast to 40°F in the northern mountains and valleys, according to New Mexico State University. The state occasionally experiences summer thunderstorms that can drop several inches of rain in a short period, along with strong winds in late spring and before storm events. These conditions can contribute to increased wildfire risk, landslides, drainage concerns, and litter accumulation.

Litter displaced by rainfall can create drainage blockages, further contributing to flash flooding risks. With New Mexico being composed of deserts, forests, and plains, cigarette butts pose a considerable wildfire risk. With high winds in areas, litter, specifically light materials such as foam and plastic bags, may be displaced and aggregate in inaccessible areas to litter observation and removal

efforts. Litter left uncollected alongside roads can be further displaced and redistributed by these natural weather patterns, contributing to negative environmental impacts.

Sampling took place in June and July of 2025, which fall within New Mexico's monsoon season. Notably, on July 8, 2025, heavy monsoon rains in south-central New Mexico triggered flash flooding that damaged homes in Ruidoso. Fieldwork staff reported encountering storms, heavy rainfall, and strong winds during travel and sampling, leading to litter accumulation along fences and vegetation as well as in downstream areas.

Anti-Litter Efforts in New Mexico

New Mexico has taken a proactive approach to addressing litter through legislation and campaigns. Littering is addressed under Section 30-8-4 of the New Mexico Statutes. It is classified as a petty misdemeanor, with a minimum fine of $250 as of 2025, but enforcement of this statute is difficult. Municipalities may also establish their own littering fines and regulations. Signs to deter against littering and dumping with fines are seen alongside the state's roads.

NMDOT spends approximately $10 million annually and employs over 68 full-time employees for litter abatement. This includes managing Right of Way (ROW) maintenance efforts and contracts and roadside litter removal efforts by state forces, New Mexico Corrections Department inmate labor, and contracted NMDOT crews. Funds supporting litter abatement are distributed evenly across all six districts. The Adopt-a-Highway program establishes a volunteer-led program to maintain and conduct litter removal alongside designated roadsides.

In October of 2024, the New Mexico Tourism Department (NMTD) launched Breaking Bad Habits, a statewide beautification campaign to reduce intentional littering. The campaign includes education and outreach in the form of city bus advertisements, billboards, and social media ads, a statewide fall cleanup challenge, a website for reporting illegal dumping and signing up for a cleanup event, and partner toolkits for communities to develop their own litter cleanups and outreach strategies.

NMTD, NMDOT, and the New Mexico Environment Department (NMED) oversee several beautification programs, as referenced in the graphic to the right. The state's Adopt-a-Highway program, administered by NMDOT, has participating groups responsible for collecting litter along at least one mile of roadway at a minimum twice per year. NMDOT supplies trash bags and safety vests, collects and disposes of filled bags, and installs two highway signs to recognize the adopted section and the group maintaining it.

Beautification Programs

- The New Mexico Clean and Beautiful grant program provides funding and technical assistance to municipalities, counties, and Tribal Governments on litter eradication, waste reduction, and community beautification initiatives.
- The Que Linda Statewide Beautification Grant program supports 15-20 local governments with up to $200,000 to fund the development and implementation of local beautification programs.
- The Recycling and Illegal Dumping (RAID) grant provides approximately $800,000 annually for the prevention and abatement of illegal dumpsites and promoting environmentally sound methods for reuse and recycling.

Methodology

The RRS project team cross-compared regional state studies and the Environmental Protection Agency's (EPA) Escaped Trash Assessment Protocol (ETAP) to develop a methodology that embodies national best practices. Additionally, an assessment of the state, including demographics and distinguishable characteristics relevant to this study, was conducted to tailor the approach to New Mexico's unique landscape. Meetings with NMDOT staff were held to confirm strategies.

Sampling Site Selection

A total of 96 sites were selected based on a set of criteria to capture a diverse and robust representation of New Mexico:

- **Urban or Rural**: Using the Federal Highway Administration's (FHWA) Highway Performance Monitoring System (HPMS) 2024 calendar year data, site coordinates were characterized by urban or rural qualification. Given that seven of the 33 counties, or approximately 21%, are classified as metropolitan statistical areas, site representation aimed to meet a similar balance. Therefore, 76% of sampling sites were rural and 24% were urban.
- **Highway or Community**: Sites were identified as either highway sites, meaning directly adjacent to roadways outside of cities or towns, or community sites, meaning along community corridors such as parks, rest stops, and picnic areas. Of the sites sampled, 71% were classified as highway sites and 29% classified as community sites.
- **Roadway Type**: Classifications by NMDOT, including interstate, arterial, collector, and local roads, were included during site selection. Of the sites sampled, 55% were adjacent to arterials, 39% collectors, 5% interstates, and 1% local. It should be noted that only 1 local road was sampled; while its data was included in the overall analysis, no individual conclusions on local roads were drawn from it.
- **Road**: Several US interstates, including I-10, I-25, and I-40, pass through New Mexico, and NMDOT also maintains over 200 New Mexico state roads. Site selection ensured that all US interstates and a large representation of New Mexico state roads were represented.
- **County**: Site identification ensured total representation of each of New Mexico's 33 counties, with at minimum one sampling site within each.
- **NMDOT District**: All six of NMDOT's districts were sampled from. Figure 21 in the appendix shows a map of the six districts in New Mexico.

Sampling Sites and Routes

Fieldwork was conducted between June 9th and July 18th, 2025, by five teams. Fieldwork teams traveled throughout designated regions of New Mexico to the pre-determined sampling sites. The state was

divided into five regions for sampling: Southeast, East, Northeast, Northwest, and Southwest. Each fieldwork team covered sampling a region of the state. The sampling sites are presented in Figure 1.

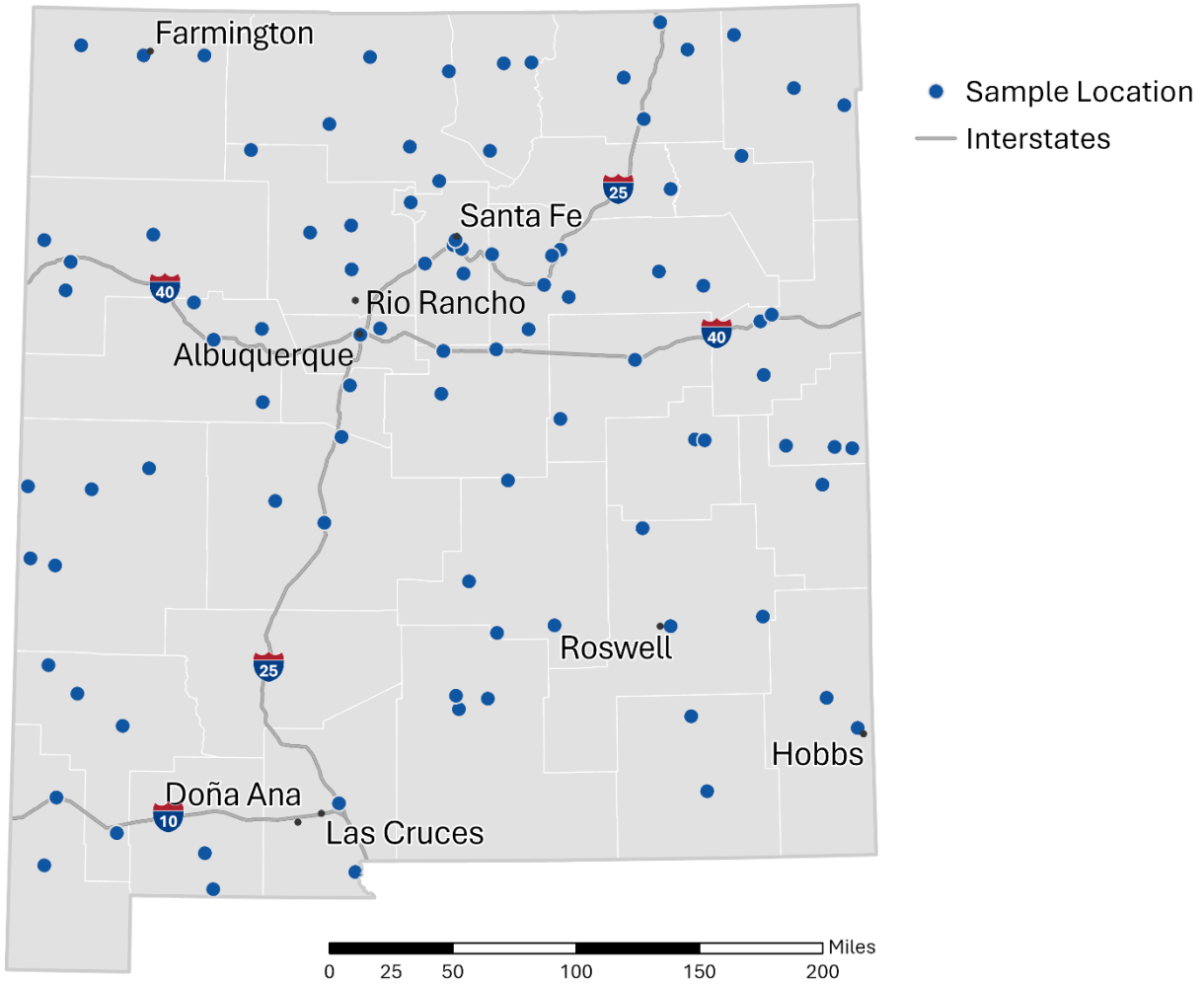

Figure 1: Sampling Sites Locations

Sampling Methodology

Fieldwork staff conducted litter sampling at designated sites using a standardized protocol to capture data for both macro litter (items larger than 4 inches) and micro litter (items between 1 and 4 inches, including cigarette butts). Sites assessing macro litter were 300 x 15 feet, while micro litter sampling sites were 15 x 15 feet. At each site, staff documented conditions and collected data during a single visit. The sampling process followed these steps:

1. **Site Preparation:** Before fieldwork was conducted, all required supplies were assembled, and sampling teams navigated to pre-determined coordinates using Google Earth maps.

2. **Site Verification and Safety:** Upon arrival, staff assessed the site for safety, accessibility, and the presence of litter. If the designated location was inaccessible or unsuitable (such as due to fences, construction, litter displaced further down by weather, or safety concerns), the team relocated up to a quarter mile from the original point to find a viable sampling area. Vehicles were parked safely, and appropriate personal protective equipment (PPE) was worn.
3. **Area Layout:** Sampling areas were measured using a measuring wheel and marked using flag stakes:
    a. **Macro litter** was collected from a 300 x 15-foot transect.
    b. **Micro litter** was collected from a nested 15 x 15-foot subsampling square within that transect.
4. **Site Overview**: Staff prepared a brief overview form to identify litter conditions from initial observations and identify the presence of influencing factors in the immediate area.
5. **Litter Collection:** For macro litter, staff performed a meandering walk across the entire 300 x 15-foot area, visually scanning and recording items greater than 4 inches on a Field Data Card. For micro litter, staff conducted a thorough cross-sectional sweep of the 15 x 15-foot subsample, recording all items between 1 and 4 inches, including cigarette butts, on a separate Field Data Card.
6. **Photo Documentation:** Photographs were taken to document both directions of the site (start to end and end to start), examples of typical or notable litter types, presence of trash receptacles or signage (e.g., anti-litter or no-smoking), and any unique site features potentially influencing litter levels.
7. **Post-Sampling Tasks:** Upon completion of sampling, all equipment was collected, and survey forms were reviewed for completeness. Photos were uploaded to the appropriate data folders, and data from Field Data Cards was entered into a standardized Excel tracking sheet at the end of each day.

Site Overview

Before sampling, fieldwork staff completed Survey Site Overview Forms for each macro and micro litter site. They assessed the site's litter conditions on a scale from A (Not Littered) to D (Very Littered) based on their initial observations of the site.

Fieldwork staff recorded any influencing factors in the immediate and surrounding area that could impact the presence and quantity of litter. These proximity indicators were provided in the Survey Site Overview Form and are presented in Table 2. By marking these variables as yes or no, data analysis could identify potential sources of litter and contributing factors to high litter accumulation.

Table 2: Influencing Factors in Survey Site Overview Form

INFLUENCING FACTOR	INFLUENCING FACTOR DEFINITION
Mowing	Recent mowing of the survey site.
Bike Path Proximity	Presence of nearby bike paths.
Landscaping	Landscaping in the surrounding area of the survey site.
Residential Areas	Proximity to residential neighborhoods.
Waterways	Nearby water bodies, such as rivers, streams, or lakes.
Recent Public Events	Recent public events held in the area.
Trash Accumulation Near Buildings	Presence of general trash around nearby buildings.
High-Density Residential	Areas with approximately 5 or more dwellings per acre.
Low-Density Residential	Areas with 2 to 4 dwellings per acre.
Retail and Wholesale Presence	Presence of retail outlets like stores, restaurants, and post offices.
Commercial & Service Facilities	Nearby commercial or service institutions such as offices, schools, or hospitals.
Light Industrial	Proximity to light industrial zones, warehouses, or food processing centers.
Heavy Industrial	Areas near heavy industrial operations, including raw materials processing.
Recreational Areas	Nearby recreational spaces like parks, golf courses, or bike trails.
Anti-Litter Signage	Presence of anti-litter messaging or campaigns.
Public Trash Bins	Availability of public trash receptacles.
Cigarette Disposal Bins	Availability of designated cigarette disposal bins.
Recycling Bins	Availability of public recycling receptacles.
Stormwater Infrastructure	Presence of storm drains or water runoff systems.
Public Transit Accessibility	Availability of public transportation stops, like bus or train stations.
Fast Food Locations	Presence of fast-food establishments.
Convenience Stores	Presence of convenience stores in the vicinity.
Construction Zones	Active or recent construction sites.
Loading Docks	Areas with commercial loading docks or delivery zones.
Vacant Lots	Presence of vacant lots or unused paved areas, including parking lots.
Parking Lots	Availability of public or private parking lots.
Tourist Attractions	Nearby tourist attractions or sightseeing locations.
High Foot Traffic Areas	Areas with high pedestrian activity, such as shopping districts or plazas.
Other	Nearby rest stations, landmarks, attractions, or other features that were not mentioned.

Material Categories and Sub-Categories

Litter was characterized into 10 categories and further divided into 59 material sub-categories, encompassing various plastic, foam, paper, glass, metal, organic, auto, smoking, and other materials. These material categories were selected to be comparable to peer states' litter studies and inclusive of materials of interest specific to New Mexico. The U.S. Environmental Protection Agency's (EPA) Escaped Trash Assessment Protocol (ETAP) was referenced and used to provide a standard method and tool for collecting and assessing litter. The categories were refined based on input from NMDOT, as well as through comparison with WSP's work to ensure easy correspondence and comparison. It should be noted that foam (polystyrene foamed plastic) and plastic bags, which are generally considered plastic, were placed into their own categories following the practices of ETAP and requests from NMDOT. The full list is presented in Table 3, with descriptions provided in Table 8 in the Appendix.

Table 3: Material Categories and Sub-Categories

CATEGORY	SUB-CATEGORY
Plastic	Bottles & Containers
	Straws & Stirrers
	Bottle Caps & Tabs
	Beverage Rings
	Food Wrappers & Snack Bags
	Food & Drink Pouches
	Cups
	Lids
	Utensils
	Plates & Bowls
	Clamshells
	Toiletries & Drug Bottles
	Sandwich Bag
	Toys
	Small Fragments
	Other Plastic
Plastic Bags	Grocery & Retail Bags
Foam	Cups
	Plates & Bowls
	Clamshells
	Other Foam
Paper	Cardboard
	Bags
	Newspaper, Junk Mail, Receipts, & Office Paper
	Cups
	Beverage & Food Cartons
	Receipts
	Fast Food Wrappers
	Gum Wrappers
	Other Paper
Glass	Bottles, Jars, & Containers
	Small Fragments & Other Glass

CATEGORY	SUB-CATEGORY
Metal	Bottles, Cans, & Containers
	Bottle Caps & Tabs
	Foil
	Other Metal
Organics	Food Items (Apple core, banana peel)
	Wood & Yard Debris
	Pet Waste
	Human Waste
	Animal Carcass
	Other Organics
Auto	Tires (Whole & Shredded)
	Other
Smoking	Cigarettes & Cannabis
	E-Cigarettes & Vaping
	Lighters & Matches
Other	Chemical, Paint, & Other Hazardous Material
	Batteries & Electronics
	Building Materials (C&D)
	Furniture & Carpet
	Appliances
	Medical Waste, Sharps, & Biohazardous
	Textiles, Clothing, & Shoes
	Toiletries/Personal Hygiene
	Balloons
	Toys, Sports, & Rec Equipment
	Whole Bags of Mixed Trash
	Trucker Bottles (Urine Bottles)

Litter Survey Results

Macro and micro litter data were combined and analyzed to develop a comprehensive state litter profile and identify litter hotspots across New Mexico. Additional comparisons by proximity indicators and NMDOT districts, as well as route extrapolations and a comparison to vehicle miles traveled, were conducted to identify key trends and formulate strategies to mitigate litter. Detailed individual analyses of macro litter and micro litter are provided after this section to pinpoint problematic materials within each.

The litter study surveyed 96 sites statewide, with a 300 x 15 transect for macro litter and a 15 x 15 transect for micro litter surveyed within each site. A total of 12,078 pieces of litter were recorded, including 9,813 macro litter pieces and 2,265 micro litter pieces tallied. Figure 2 presents the overall litter composition by material category, combining both macro and micro litter. As shown, plastic (38.9%), metal (17.3%), and paper (15.2%) were the most prevalent material categories.

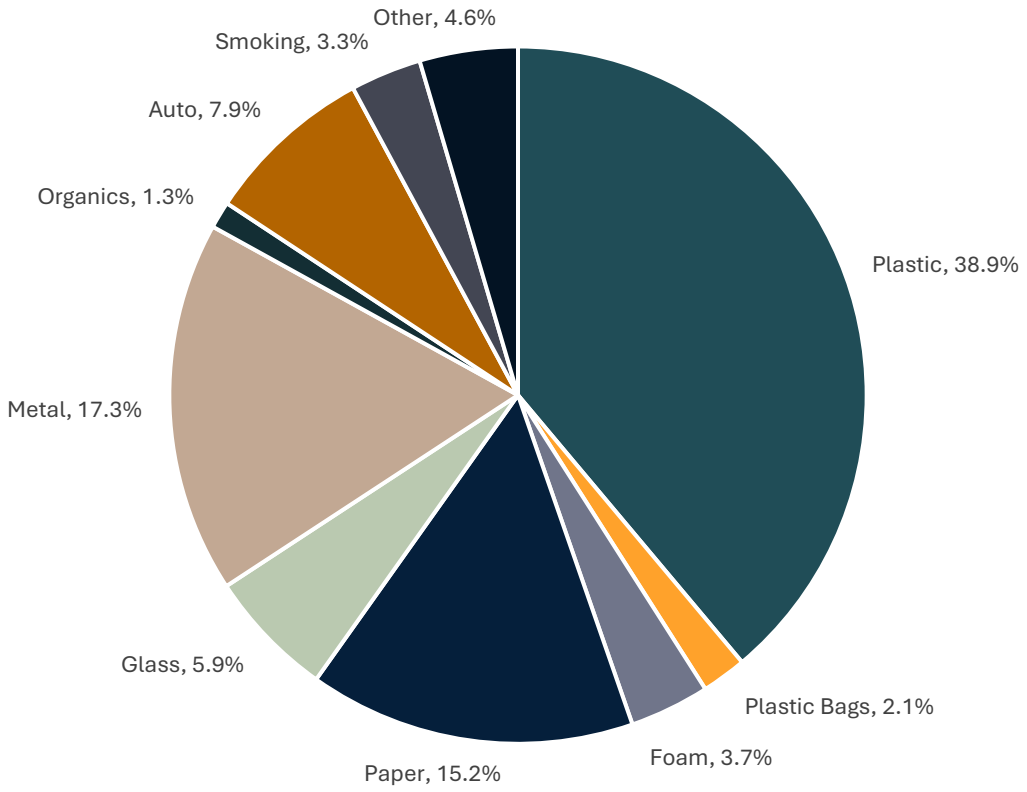

Figure 2: Total Litter Composition

The largest subcategories of total litter were plastic bottles & containers (12.5%), metal bottles, cans, & containers (12.1%), and other plastic (7.6%), as shown in Figure 3.

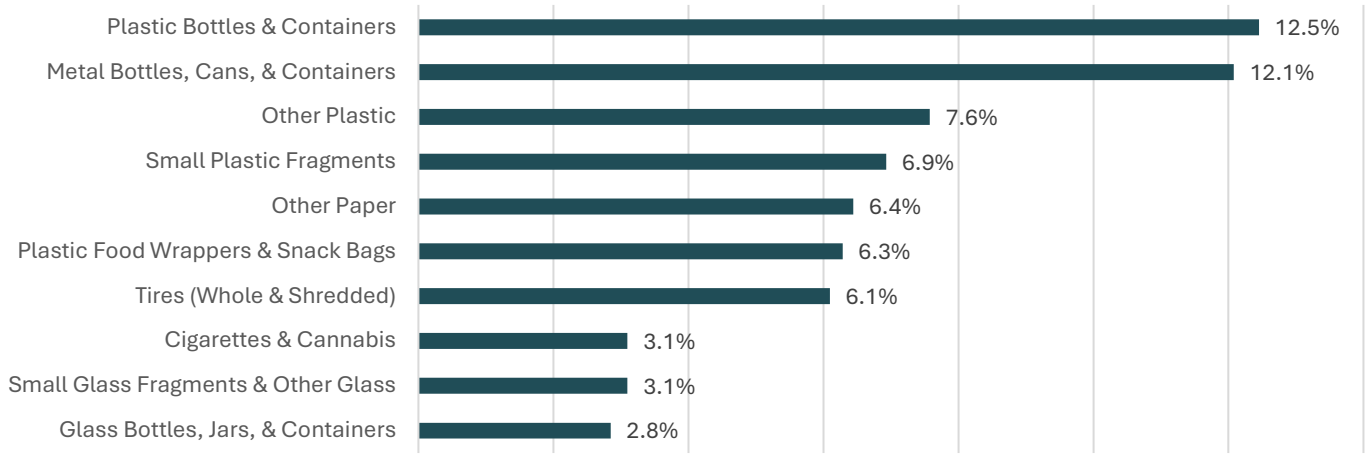

Figure 3: Top 10 Litter Sub-Categories

A dot heat map was developed to visualize trends in total litter quantities recorded at sampling sites across New Mexico. As illustrated in Figure 4, larger dots represent sampling sites with higher amounts of recorded litter. While definitive conclusions cannot be made, the map allows for a visual comparison of hot spots for litter across different counties and areas of the state.

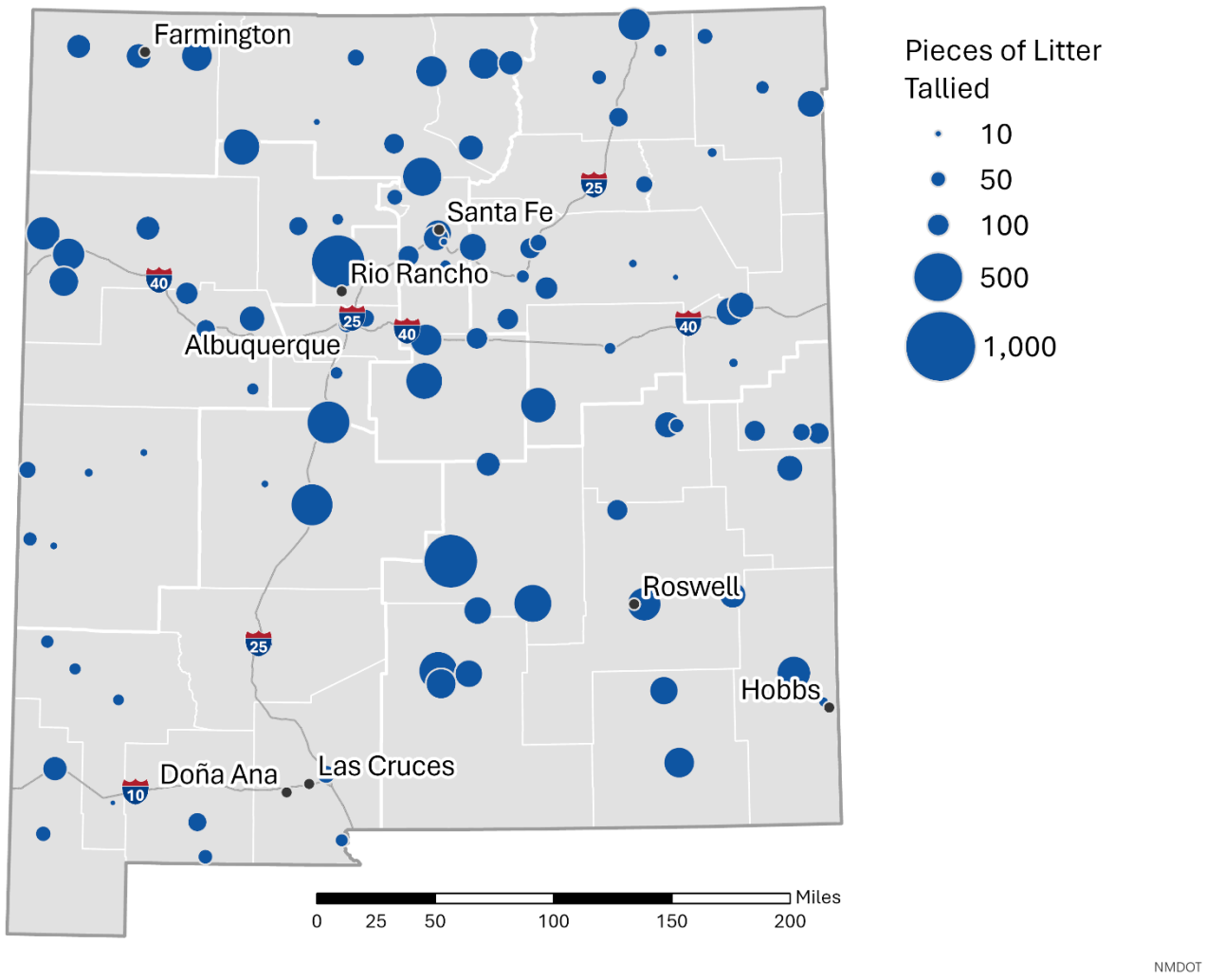

Figure 4: Litter Heat Map

Extrapolations

The study team extrapolated litter counts from sampled routes to estimate the total litter across the state. It is estimated that approximately 1,273,663,723 pieces of macro and micro litter are present alongside interstate, arterial, collector, and local roadways in New Mexico. All values are calculated based on extrapolating litter tallies on both sides of the road. This breakdown is presented in Table 4.

Table 4: Extrapolations

	INTERSTATE	ARTERIAL	COLLECTOR + LOCAL	TOTAL
Average Pieces of Macro Litter per Road Mile	3,682	3,942	3,108	3,598
Average Pieces of Micro Litter per Road Mile	19,712	18,158	14,043	16,610

	INTERSTATE	ARTERIAL	COLLECTOR + LOCAL	TOTAL
Average Pieces of Total Litter per Road Mile	23,394	22,100	17,151	20,208
Total Miles Road Length in New Mexico*	999	5,629	65,647	72,275
Extrapolated Total Pieces of Litter in New Mexico	23,370,526	124,398,776	1,125,894,421	1,273,663,723

*Sourced by U.S. Department of Transportation Federal Highway Administration Highway Statistics Series

Vehicle Miles Traveled

A comparative analysis was conducted to identify the relationship between vehicle miles traveled (VMT) and average litter tallies by roadway. The goal was to determine whether roadways with higher traffic per mile also saw greater amounts of litter per mile. According to the U.S. Department of Transportation Federal Highway Administration Highway Statistics Series, combined collector and local roads have the lowest VMT per mile in the state at 131,004, followed by arterial roadways at 2,058,270, and interstate roadways at 7,880,881. Figure 5 presents a regression analysis of VMT per mile against average pieces of litter per mile, showing that litter tends to increase as VMT per mile rises. The R-squared coefficient for the model is 0.67, suggesting a moderate correlation between traffic volume and litter. This indicates that higher traffic levels may be a contributing factor to litter quantities.

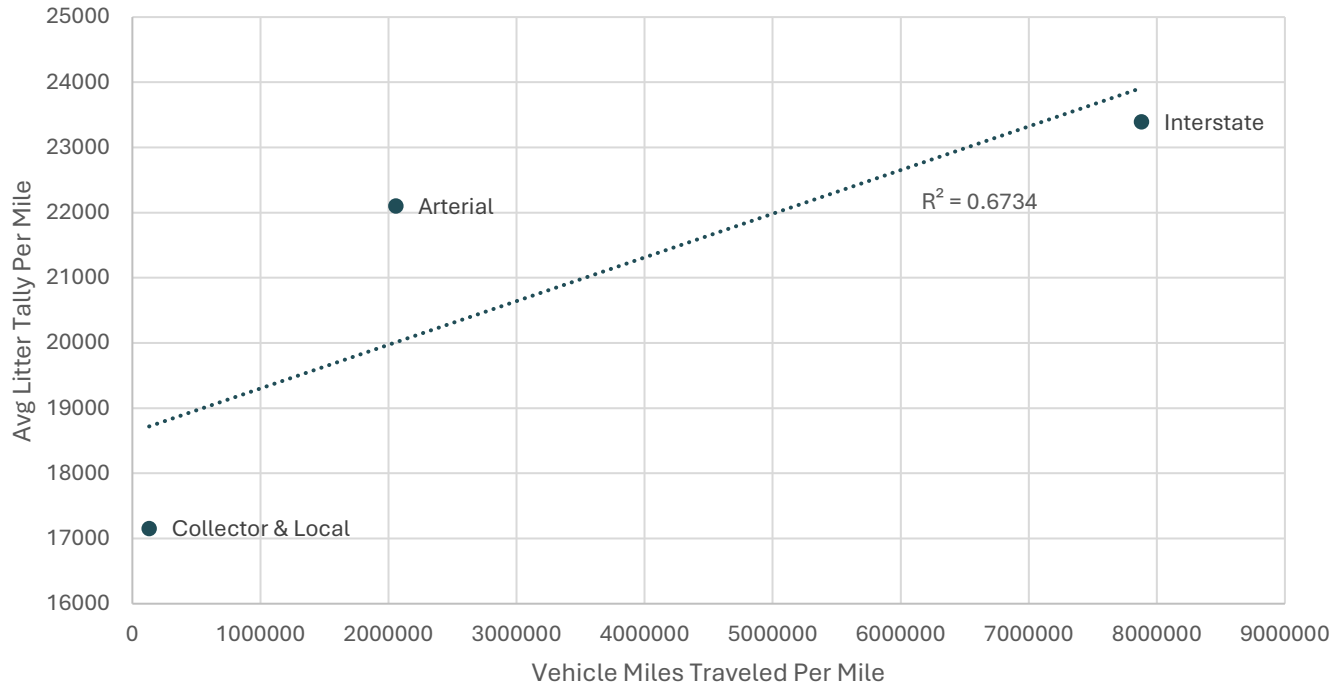

Figure 5: Comparison of VMT Per Mile to Average Litter Tally Per Mile by Roadways

Analysis of Macro Litter

An individual macro litter analysis allows for the identification and quantification of frequently large, visible items that create immediate environmental and social impacts. These items are often easily identifiable and categorized and can highlight a larger picture of potential brands and industries that contribute to litter. Such litter can also threaten wildlife and human safety, and its presence can have negative economic and social implications for businesses, residents, and the state.

For this study, macro litter is defined as items larger than 4 inches and was recorded within the 300 x 15 feet site transects surveyed alongside roadways. A total of 9,813 items were tallied in the 96 sampling sites. The most prominent categories identified are plastic (40.5%), metal (18.9%), and paper (16.5%), as presented in Figure 6. Collectively, these categories comprise 75.9% of the total macro litter recorded.

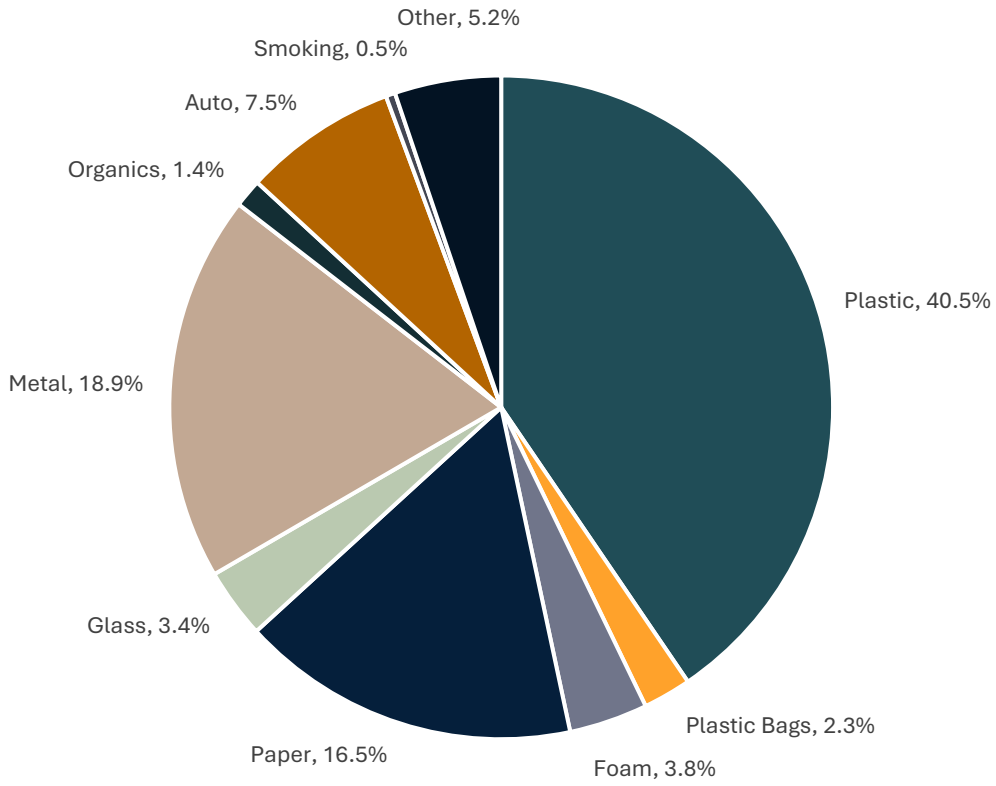

Figure 6: Macro Litter Composition

Of the total macro litter identified, plastic bottles and containers were the most prominent material sub-categories, representing 15.1% of the total macro litter composition. This is followed by metal bottles, cans, & containers at 14.4% and other plastic at 8.1%. Figure 7 presents the top 10 material sub-categories in macro litter.

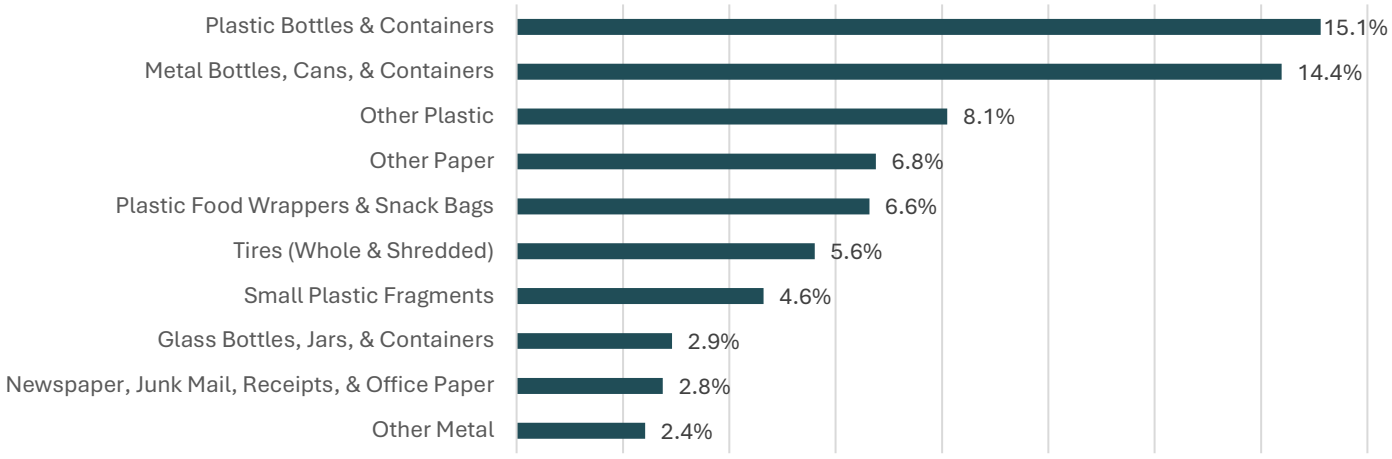

Figure 7: Top 10 Macro Litter Sub-Categories

PRIORITY MATERIALS TO TARGET

Given the size and visibility of macro litter, priority materials to target for focused diversion strategies can be interpreted from the data. With the support of accessible disposal infrastructure and targeted programs, these items can be effectively reduced along roadways over time.

Bottles and containers, including plastic, metal, and glass, comprise nearly one-third of all macro litter in New Mexico at 32.4%. Furthermore, plastic bottles and containers are the most prominent material sub-category found in macro litter at 15.1% of the composition. This is a top material to target for diversion from littering and landfills, as these have strong end markets and can be recycled. Other materials that could be addressed include cardboard, glass bottles, metal (bottles, cans, and containers), plastic bags, tires, textiles, and paper material categories. These materials, aside from plastic bags, tires, and textiles, are often widely recyclable with known domestic end markets and material recovery facility (MRF) processing ability. However, recycling options for tires, textiles, and plastic bags are available and can be utilized. These materials and their percent composition are described further in Table 5 below.

Table 5: Priority Materials to Target in Macro Litter

CATEGORY	PERCENT COMPOSITION OF MACRO LITTER
Bottles & Containers • Plastic Bottles & Containers • Glass Bottles, Jars, & Containers • Metal Bottles, Cans, & Containers	32.4% • 15.1% • 14.4% • 2.9%
Plastic Food Wrappers & Snack Bags	6.6%
Tires	5.6%
Cardboard	2.4%
Plastic Grocery & Retail Bags	2.3%
Textiles, Clothing, & Shoes	2.2%

These priority materials collectively make up over half of all identified macro sub-categories and addressing them will have a significant impact on mitigating roadside litter in the state. Figure 8 presents the composition of priority materials in comparison to all macro litter recorded.

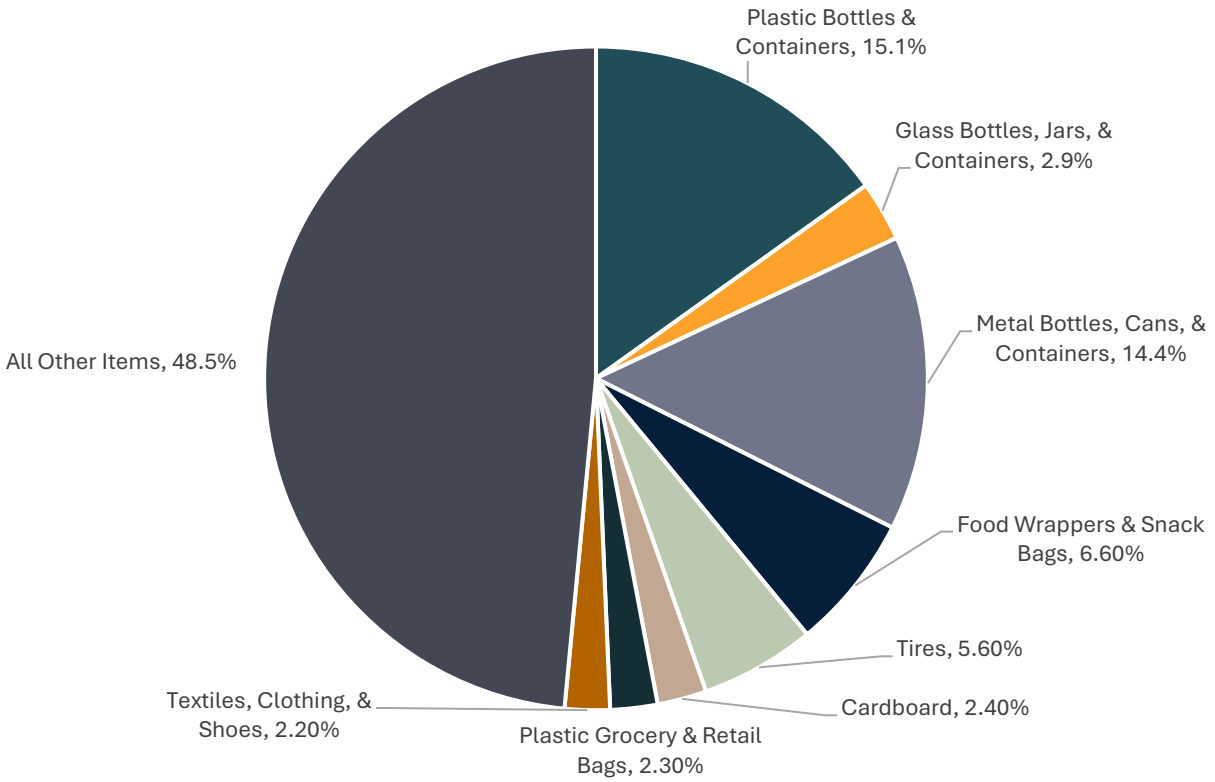

Figure 8: Priority Sub-Category Materials in Comparison to Other Macro Litter

PLASTIC BAGS

Plastic bags are commonly provided in grocery and retails stores in New Mexico, which may contribute to their prevalence in roadside litter. The litter survey observed 230 grocery and retail plastic bags, making up approximately 2.34% of all macro litter identified.

Several New Mexico municipalities have adopted single-use plastic bag bans, including the City of Santa Fe in 2015 and Santa Fe County in 2024. The City of Carlsbad launched a two-year pilot trial in 2025. The City of Albuquerque implemented a similar ban in 2020, but it was repealed in 2022.

Washington has demonstrated a successful policy approach by implementing a ban on single-use plastic carryout bags that went into effect in 2021. The ban contributed to a significant decrease in their composition by weight of plastic bags, as reported in comparing their litter studies conducted in

2004 and most recently in 2022. Washington's composition by weight of plastic bags decreased from 2.9% in 2004 to 0.33% in 2022.

Analysis of Micro Litter

Identifying micro litter, or items between 1 and 4 inches, including cigarette butts, is an important component of a visible litter study to provide a complete picture of pollution in an area. Over time, litter degrades in the natural environment, breaking into smaller fragments that are easily carried by wind, water, and other natural processes. Micro litter poses additional environmental concerns to macro litter, including contaminating water and soil and creating health threats to wildlife and potentially humans who may ingest materials containing microplastics and other micro litter. Analyzing micro litter additionally helps highlight cigarette butts, which are typically less than 4 inches in length, and are a common form of litter in the country.

Micro litter was identified and tallied in a 15 x 15 feet transect nested within each survey site. Across all 96 sampling sites, 2,265 pieces of micro litter were identified. The most prominent categories identified are plastic (32.0%), glass (17.0%), and smoking (15.6%), as presented in Figure 9.

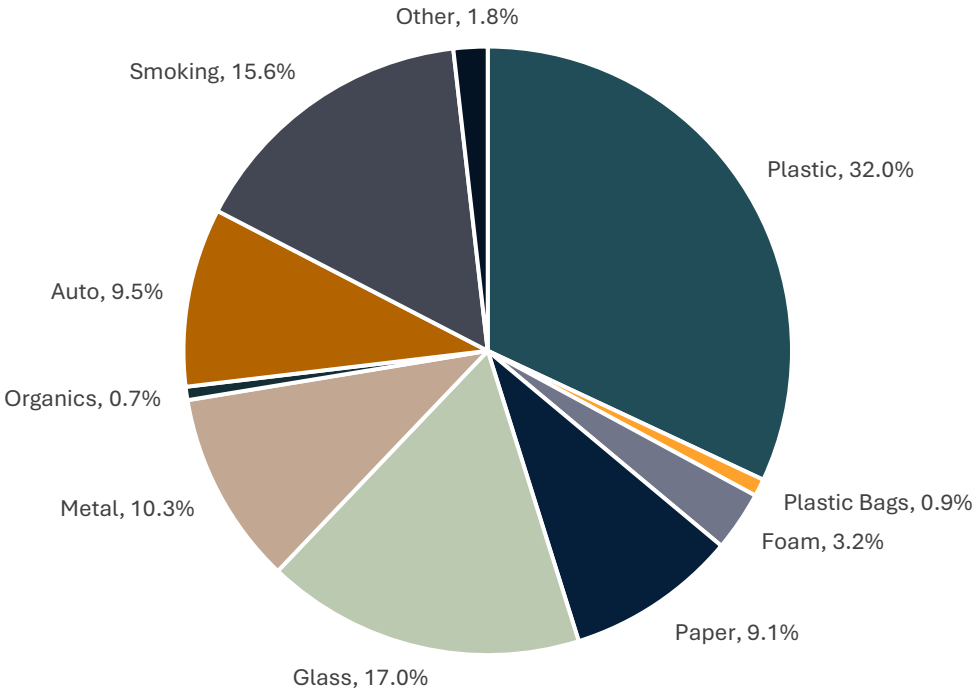

Figure 9: Micro Litter Composition

Of the total micro litter identified, small plastic fragments comprised 16.8% of the sub-category composition, followed by cigarettes and cannabis (consisting solely of butts of the products and no packaging) at 15.5%, and small glass fragments and other glass at 14.4%. Oftentimes, small plastic fragments appeared to be broken or degraded macro plastic. Figure 10 presents the top 10 material categories identified in micro litter.

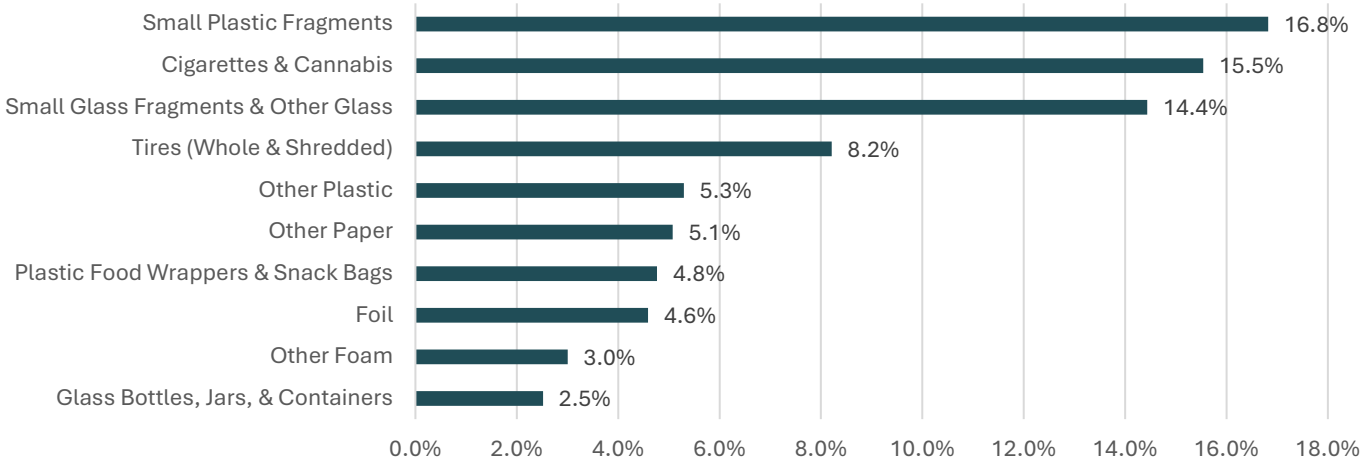

Figure 10: Top 10 Micro Litter Sub-Categories

PRIORITY MATERIALS TO TARGET

Micro litter materials are generally more difficult to target for diversion but are important to address in any litter mitigation strategy. Macro litter will degrade into smaller micro pieces over time if not collected and disposed of properly. This degraded macro litter is estimated to comprise a significant portion of 'fragments' sub-categories as a result. By identifying these materials, it is possible to infer their original macro litter sources and develop strategies to reduce their improper disposal.

As shown in Table 6, plastic and glass continue to represent a substantial portion of the total litter recorded, with some of these fragments likely originating from containers. Tires and food wrappers & snack bags also comprise a notable share of micro litter, similar to priority materials identified in macro litter. Cigarettes and cannabis account for 15.5% of all micro litter, highlighting the need for targeted programs toward smokers.

Table 6: Priority Materials to Target in Micro Litter

CATEGORY	PERCENT COMPOSITION OF MICRO LITTER
Small Plastic Fragments + Plastic Bottles & Containers	17.7%
Small Glass Fragments & Other Glass + Glass Bottles, Jars, & Containers	16.9%
Cigarettes & Cannabis	15.5%
Tires	8.2%
Food Wrappers & Snack Bags	4.8%

These priority materials collectively make up over three-quarters of all identified micro sub-categories. Figure 11 presents the composition of priority materials in comparison to all micro litter recorded.

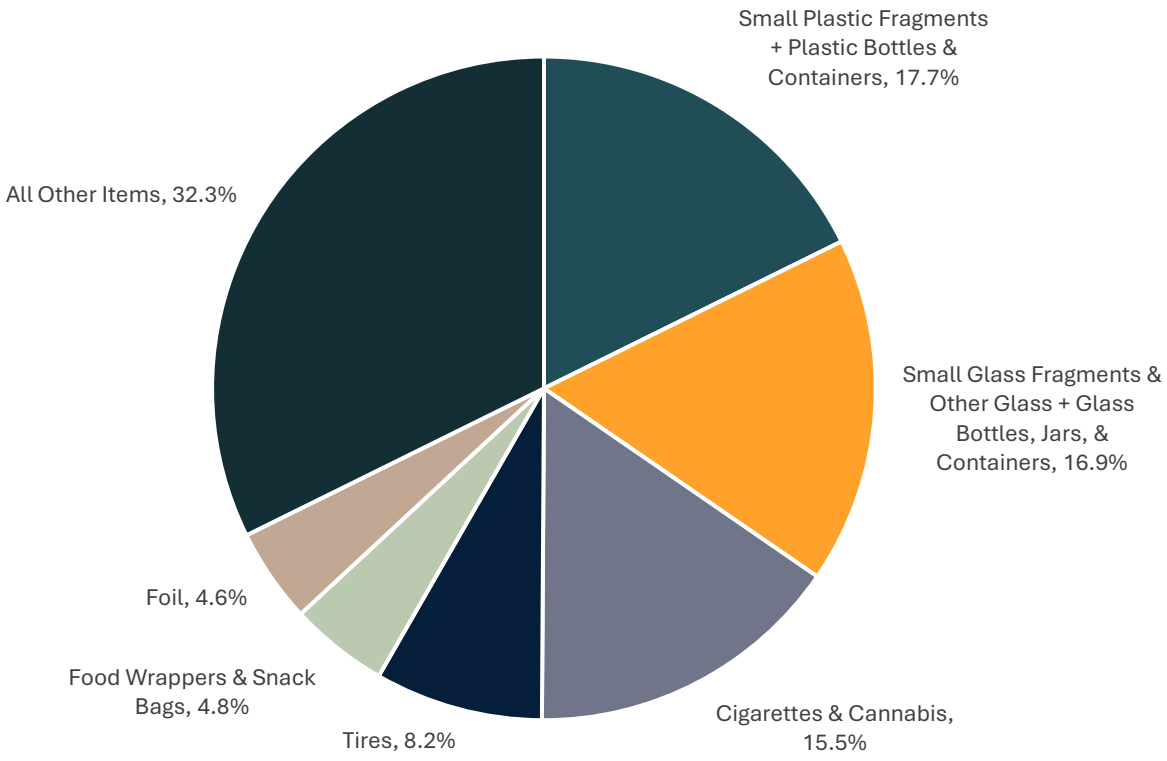

Figure 11: Priority Sub-Category Materials in Comparison to Other Micro Litter

Analysis of NMDOT Districts

NMDOT organizes New Mexico into six transportation districts, which vary in size and do not align with county boundaries. Sample sites were selected to ensure representation across all counties, therefore representing all NMDOT districts. The total number of sites sampled in each district is shown in Table 7. It is important to note that District 3 has the fewest sampled sites, due to it being the smallest district. This district encompasses two full counties and a portion of a third, all of which were included in the study. A map of the NMDOT districts is in Figure in the Appendix.

Table 7: Total Sites by NMDOT District

NMDOT DISTRICT NUMBER	TOTAL SITES SAMPLED
1	14
2	20
3	3
4	22
5	20
6	17
Total	96

An analysis of total litter compositions by NMDOT district was conducted to compare litter tallies across different portions of the state. Since the total sampling sites by NMDOT district varied, an average category tally of sites by district was developed, as shown in Table 8. In total, District 2, representing the Southeast region of New Mexico, saw the greatest average litter count at 179.6 items, followed by District 5 with 136 items and District 6 with 131.6 items.

Table 8: Average Site Litter Tally by NMDOT Districts

CATEGORIES	D1	D2	D3	D4	D5	D6
Plastic	35.0	67.6	22.7	32.3	56.8	56.3
Plastic Bags	1.3	5.4	0.7	1.4	3.9	0.9
Foam	1.7	7.8	1.7	2.2	7.6	3.6
Paper	11.8	34.4	2.3	9.0	28.6	11.5
Glass	8.7	8.8	9.7	6.2	5.0	8.1
Metal	19.0	29.3	6.0	23.4	14.6	23.5
Organics	1.5	2.0	0.0	1.4	2.9	0.2
Auto	12.8	7.5	1.7	6.8	4.7	20.8
Smoking	2.2	9.1	4.7	1.7	5.2	2.1
Other	3.1	7.9	8.3	4.8	7.0	4.6
Total	97.1	179.6	57.7	89.3	136.0	131.6

The average percentage of litter categories varied by NMDOT district; however, across all districts, plastic encompassed the most significant litter category, as shown in Table 9. Across all districts, with the exception of District 3, the top material categories were plastic, paper, glass, metal, and auto. District 3's lower total sampling sites, as well as their location in the urban Albuquerque metro area, which may see greater clean-ups, may have contributed to their different composition.

Table 9: Average Litter Composition by NMDOT Districts

CATEGORIES	D1	D2	D3	D4	D5	D6
Plastic	36.0%	37.6%	39.3%	36.2%	41.7%	42.8%
Plastic Bags	1.3%	3.0%	1.2%	1.5%	2.8%	0.7%
Foam	1.8%	4.3%	2.9%	2.5%	5.6%	2.8%
Paper	12.1%	19.1%	4.0%	10.1%	21.0%	8.7%
Glass	9.0%	4.9%	16.8%	7.0%	3.6%	6.2%
Metal	19.6%	16.3%	10.4%	26.2%	10.7%	17.9%
Organics	1.5%	1.1%	0.0%	1.6%	2.1%	0.1%
Auto	13.2%	4.1%	2.9%	7.6%	3.5%	15.8%
Smoking	2.3%	5.1%	8.1%	1.9%	3.8%	1.6%
Other	3.2%	4.4%	14.5%	5.3%	5.1%	3.5%

Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Maps with sampling locations broken down by NMDOT district were created to provide a visual representation of the site sampling allocation within each. These maps are presented in the following figures.

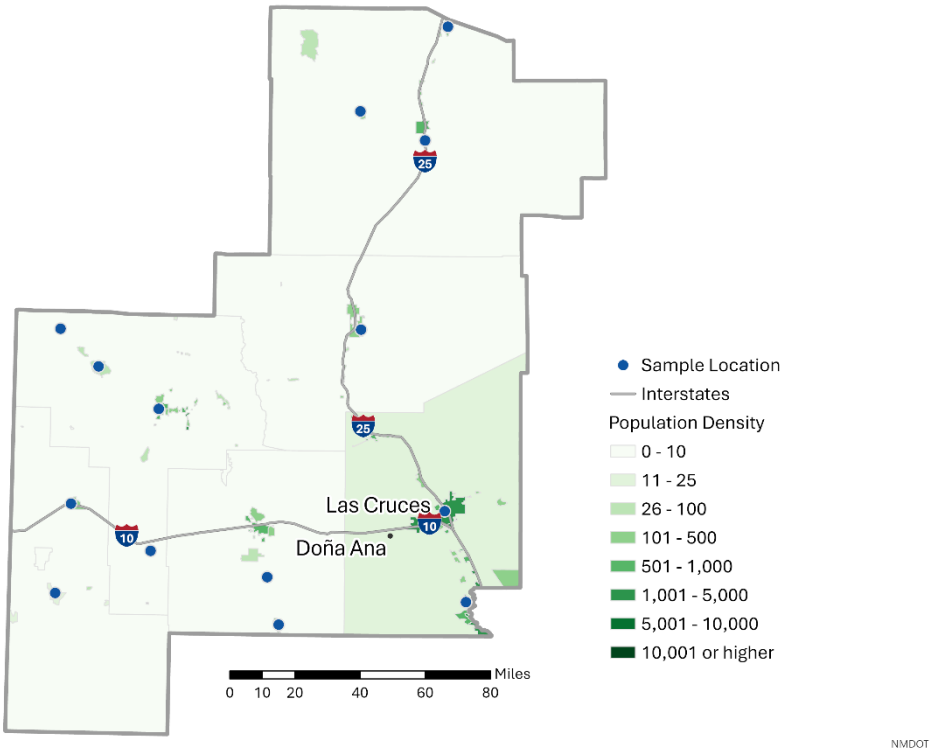

Figure 12: NMDOT District 1 Site Map

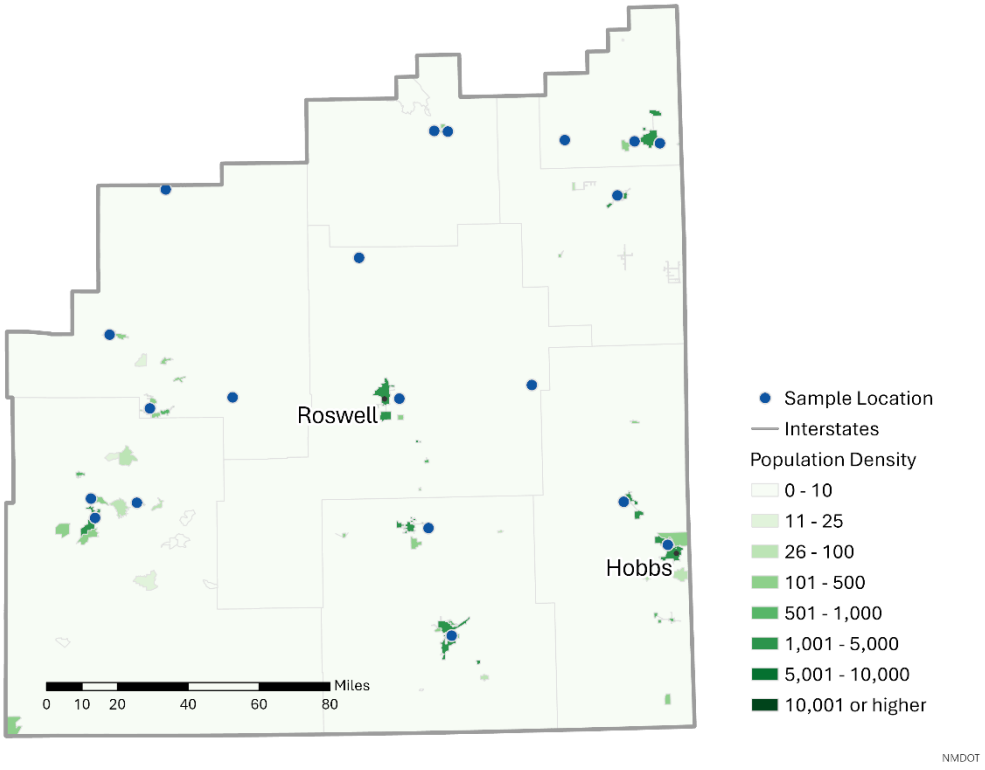

Figure 13: NMDOT District 2 Site Map

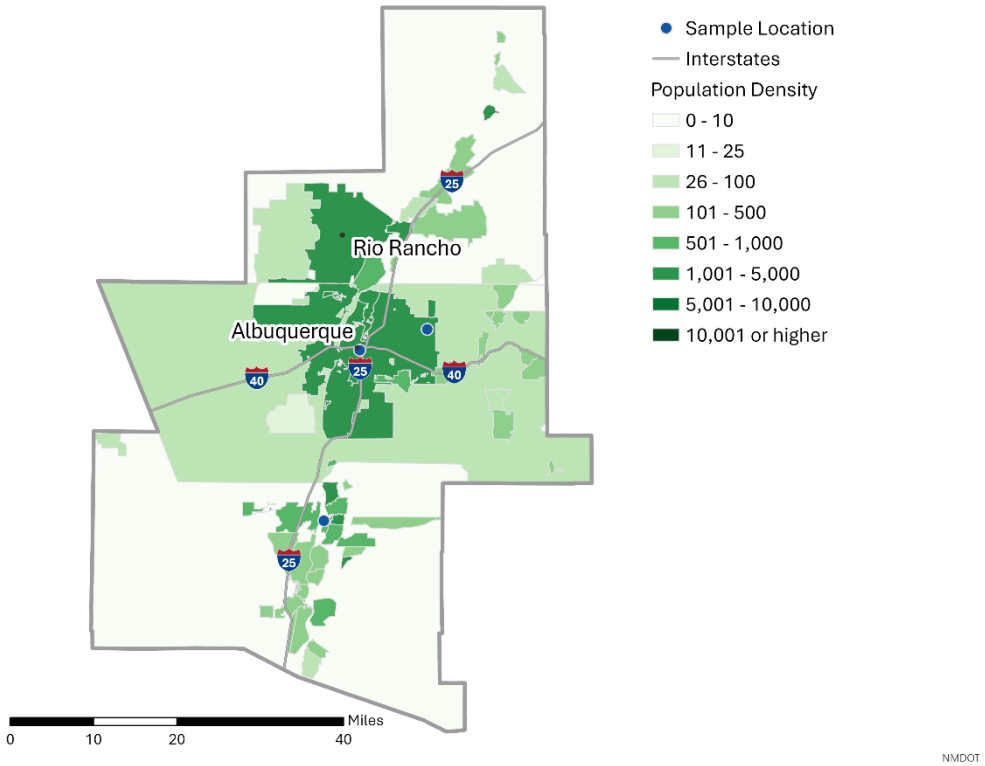

Figure 14: NMDOT District 3 Site Map

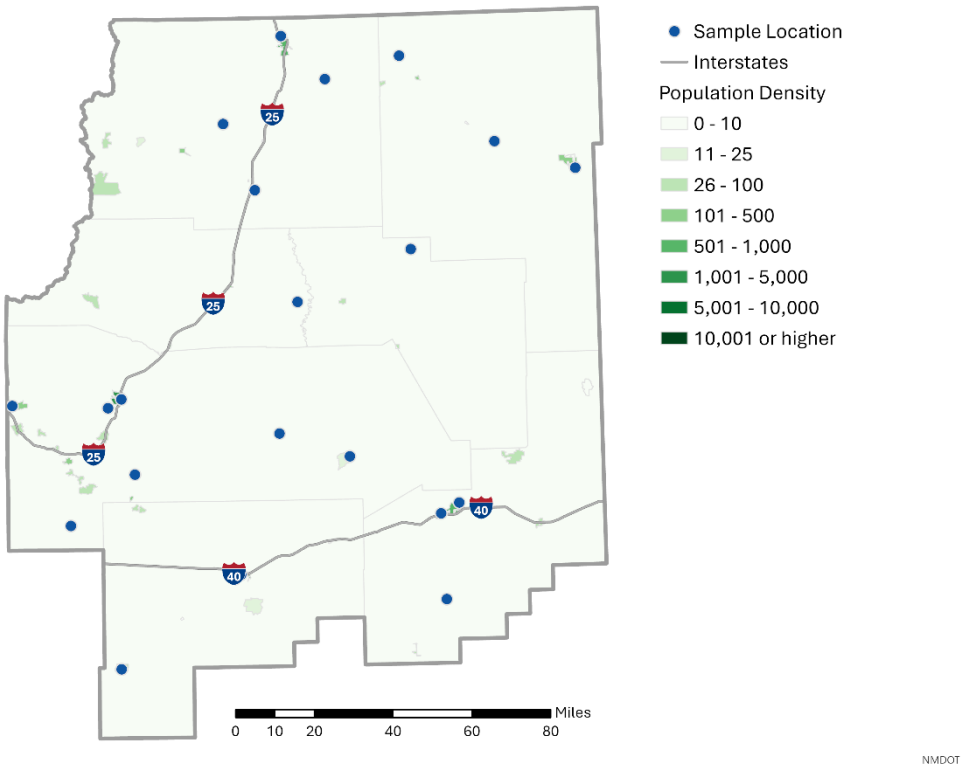

Figure 15: NMDOT District 4 Site Map

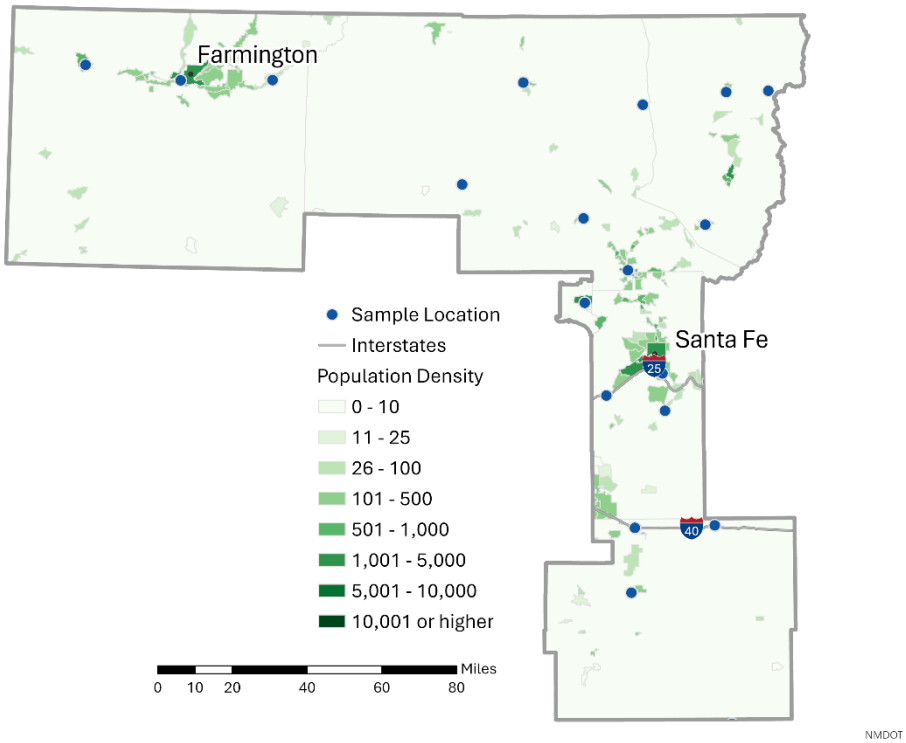

Figure 16: NMDOT District 5 Site Map

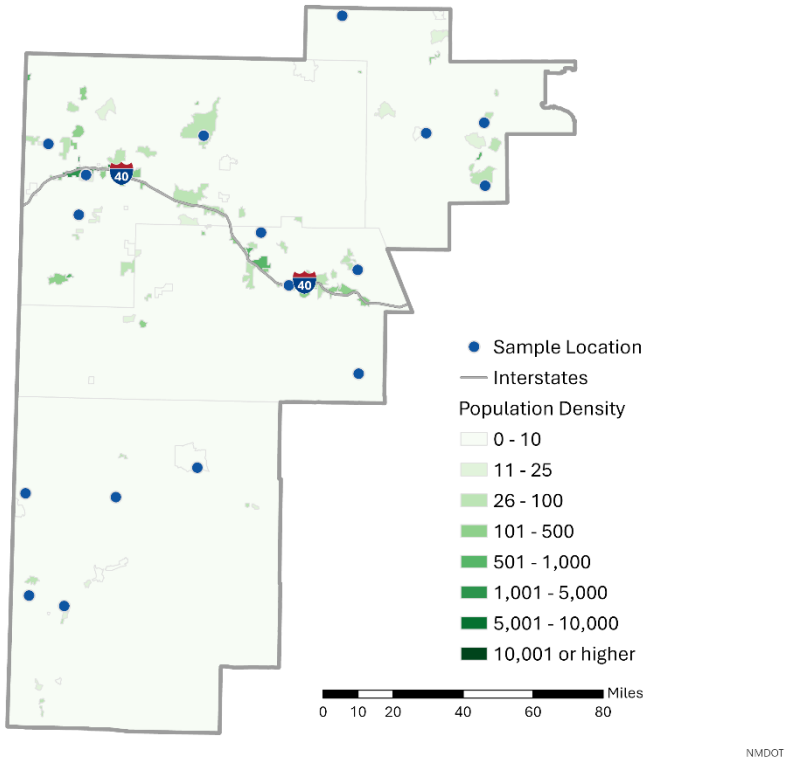

Figure 17: NMDOT District 6 Site Map

Proximity Indicators

Proximity indicators are important criteria in this litter study to understand why litter accumulates in certain areas and identify potential strategies to reduce litter. These potential factors were identified in each site by fieldwork staff before sampling. An analysis was done to compare the impacts of public trash bins, anti-litter signage, residential settings, industrial settings, and urban and rural settings. The findings from this section support planning effective actions and deciding where cleanup efforts should be focused.

Public Trash Bins Presence

An initial assumption is that public trash bins help deter littering, as individuals without access to disposal options may be more likely to litter or dump items. To examine this, an assessment was made to compare sites with and without public trash bins. Of the 96 sites surveyed, 16 were found to have at least one public trash bin within or in close proximity to the sample site.

In comparing average total tallies, a site with identified public trash bins saw 16.2% fewer pieces of litter than sites without public trash bins. Figure presents a comparison of average category tallies by sites with and without public trash bins present. All categories, with the exception of plastic bags, organics, smoking, and other, saw fewer pieces of litter in the presence of public trash bins. This suggests that well-placed and maintained public trash bins may help in deterring litter.

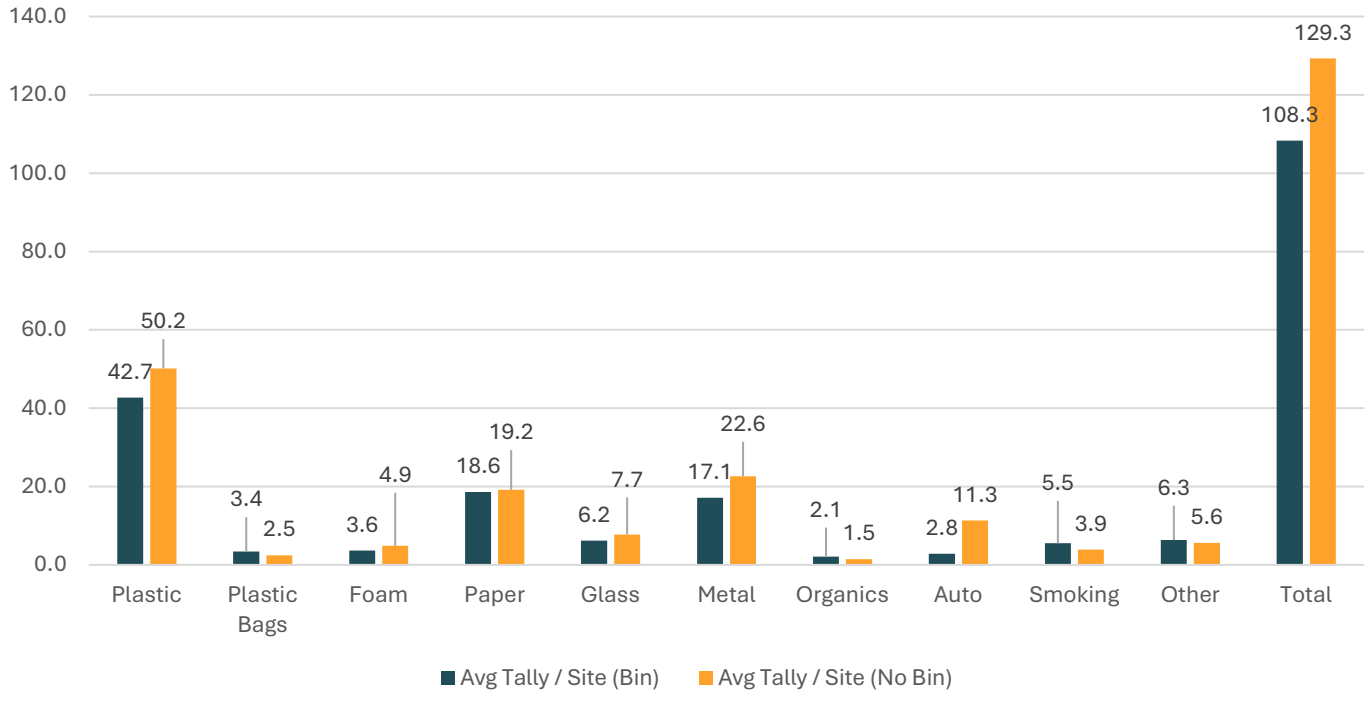

Figure 18: Average Tally Per Site Comparison when Public Trash Bins are Present

Anti-Litter Signage

A common strategy for mitigating litter is the use of signage to discourage individuals from improper disposal. Fieldwork staff observed a variety of anti-litter signage, with some discouraging dumping and others citing New Mexico statutes with specified fines for littering. An assessment was conducted to compare the average litter counts at sites with anti-litter signage to those without. Of the 96 sites sampled, 15 were identified in the site parameters as having at least one anti-litter sign within or in close proximity to the sample site.

In comparing average total tallies, a site with anti-litter signage saw 29% fewer pieces of litter than sites without anti-litter signage. Figure 19 presents a comparison of average category tallies by sites with and without anti-litter signage. All categories, with the exception of organics, smoking, and other, saw fewer pieces of litter with the presence of anti-litter signage. This suggests that anti-litter signage may play a significant role in helping deter litter from the data collected.

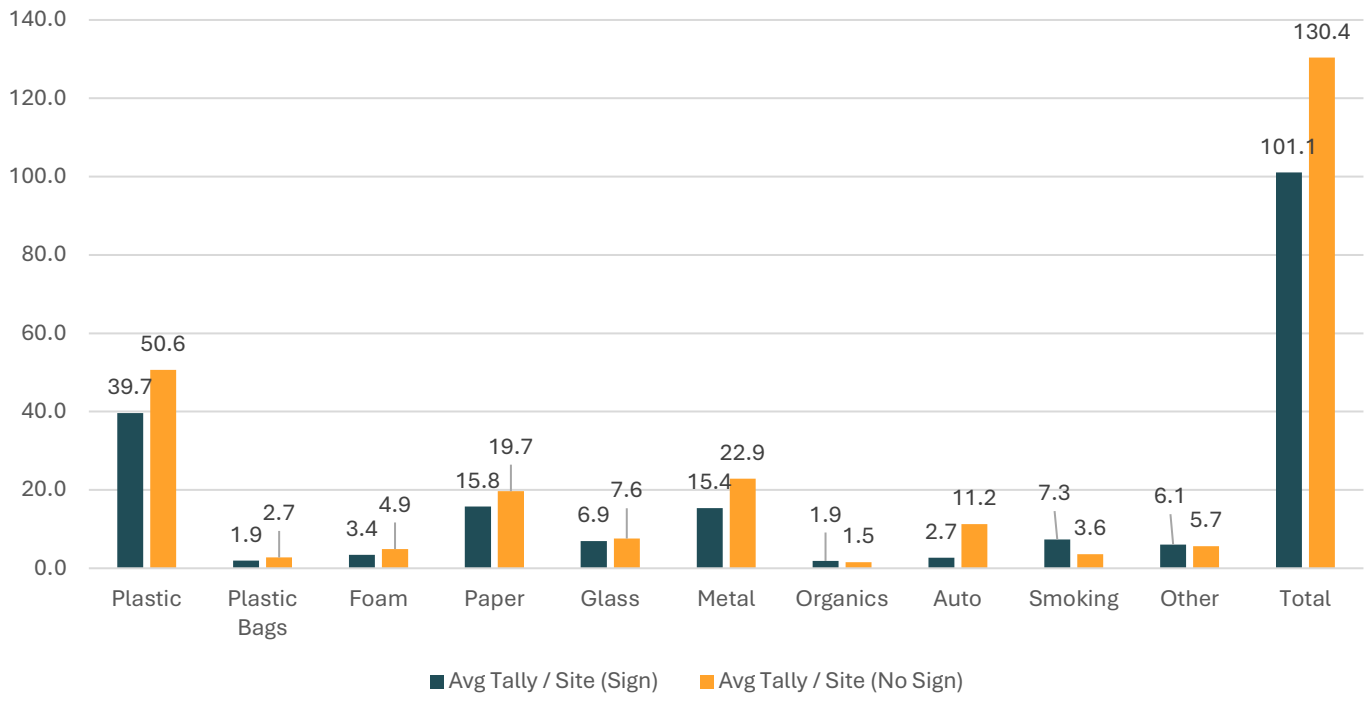

Figure 19: Average Tally Per Site Comparison when Anti-Litter Signage is Present

Residential

In sampling across New Mexico, certain sites were classified as residential. This was defined in the Site Overview Form as areas in close proximity to residential neighborhoods and includes both high-density and low-density areas. This analysis aims to determine whether non-residential areas, such as

industrial or rural sites, tend to have higher litter counts. Of the 96 sites sampled, 55 were identified in the site parameters as being either high-density residential, low-density residential, or general residential.

In comparing average total tallies, a residential site saw 9% fewer pieces of litter than non-residential sites. Figure 20 presents a comparison of average category tallies by residential and non-residential classification. This suggests that residential areas may not have a significant influence on litter quantity.

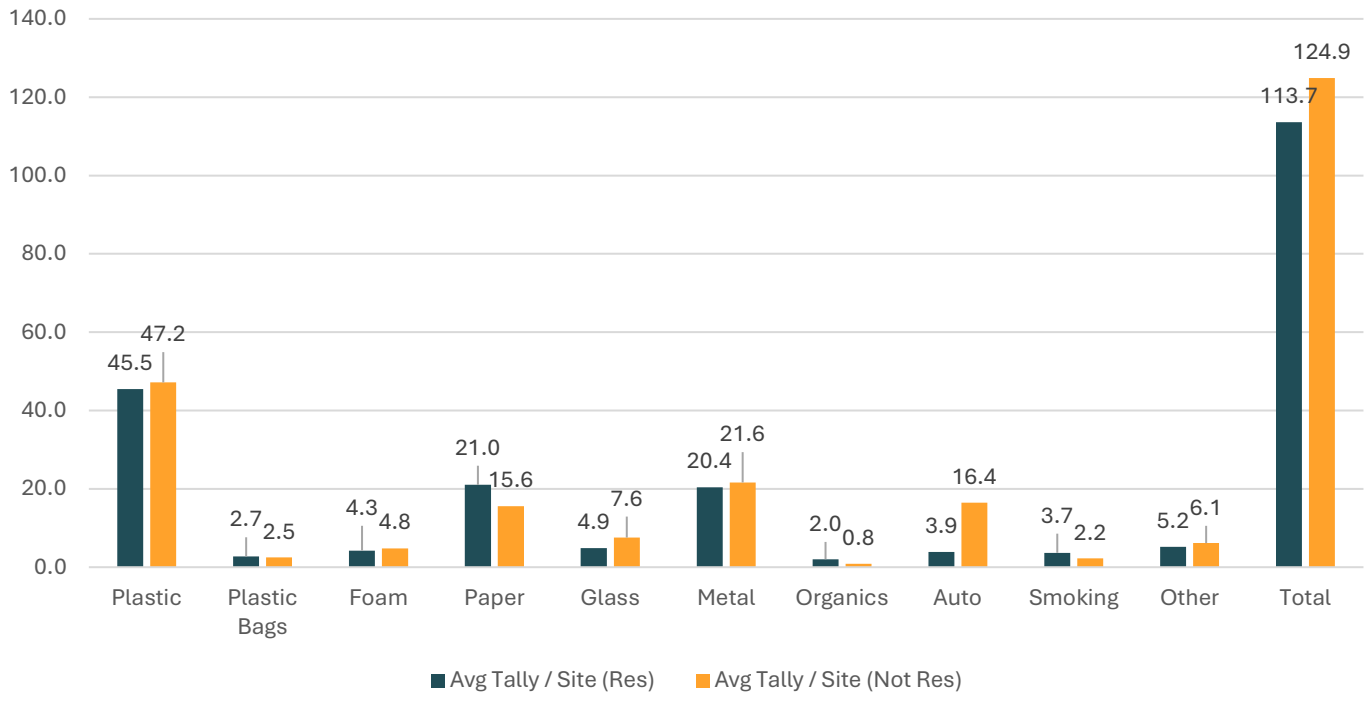

Figure 20: Average Tally Per Site Comparison when Residential

Industrial

Similar to residential sites, industrial sites were identified and analyzed to determine whether they contribute to higher litter accumulation. Of the 96 sites sampled, 20 were identified in the site parameters as being either heavy industrial or light industrial.

In comparing average total tallies, an industrial site saw 3.7% fewer pieces of litter than non-industrial sites. Figure 21 presents a comparison of average category tallies by industrial and non-industrial classification. This suggests that industrial areas may not have a significant influence on litter quantity.

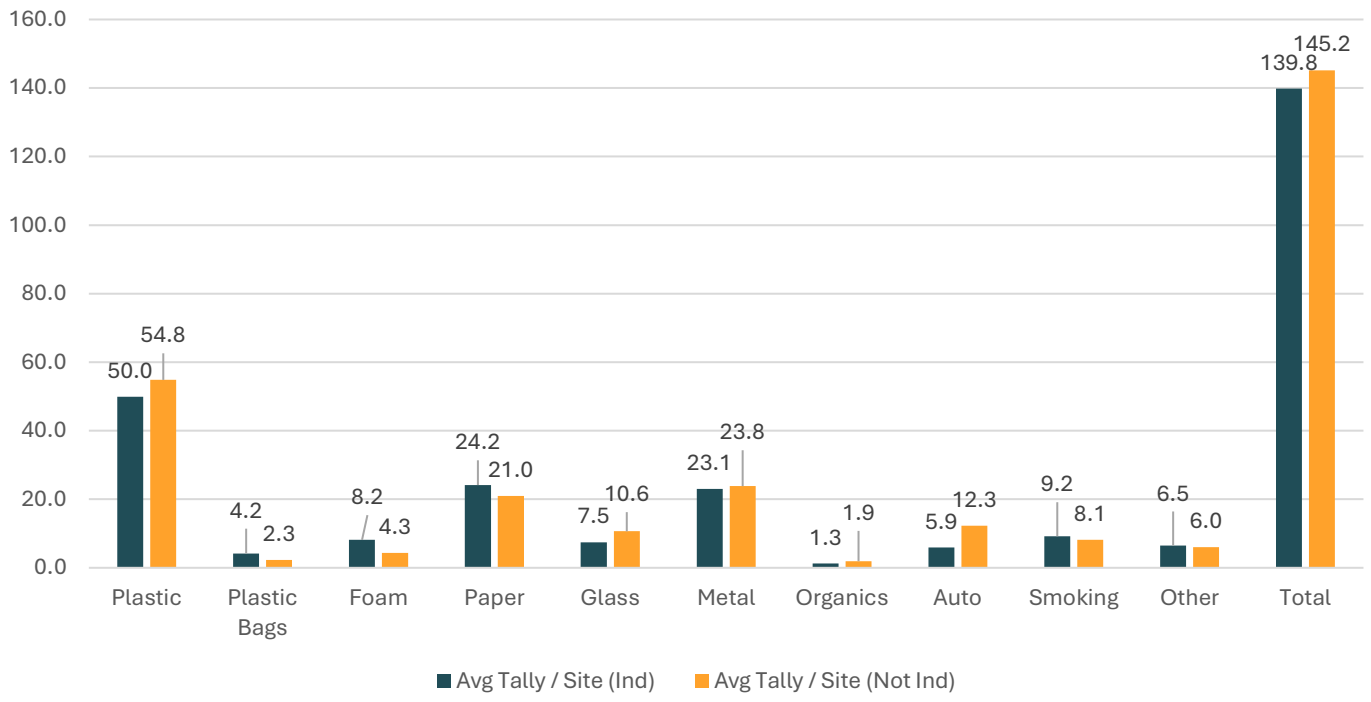

Figure 21: Average Tally Per Site Comparison when Industrial

Roadways

NMDOT classifies the state's roadways into four main categories: interstate, arterial, collector, and local. This is a common classification amongst all state Department of Transportation departments. They are defined by certain characteristics by NMDOT as follows.

- **Interstate**: The highest class of arterials, these roadways generally have higher speed limits, higher vehicle miles traveled (VMT), more travel lanes, and less mobility for non-motorists. They are used for statewide travel and typically represent the lowest percentage of centerline-maintained roads within a state's roadway network. In New Mexico, they include I-10, I-25, and I-40.
- **Arterial**: Very similar to Interstates, these roadways generally have travel lanes separated by physical barriers, and have high speed limits, high VMT, and more travel lanes than collectors. These include New Mexico State Roads, such as NM-528.
- **Collector**: These roads connect larger traffic generators to arterials. Characteristics include having more connecting driveways, lower VMT, fewer travel lanes, and being spaced at closer intervals.

- **Local**: These roads account for the highest proportion of all roadways. They are used to provide access to adjacent land and carry minimal through traffic movement. Examples include community roads within a neighborhood.

Sample sites were selected to ensure a strong representation of arterial and collector roads, as these are primarily managed by NMDOT. Figure shows total sites by roadway type. As noted previously, 1 local site was sampled and included in the aggregate analysis, but no individual recommendations and extrapolations were made on it.

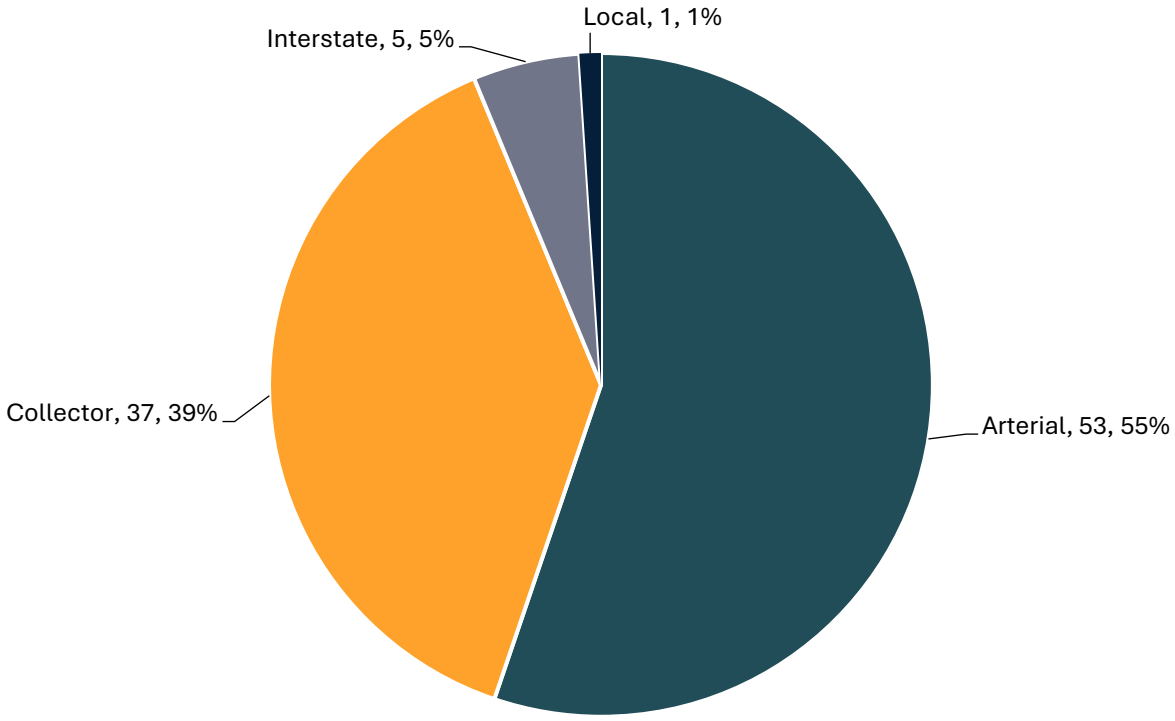

Figure 22: Total Sites by Roadway Type

An analysis was conducted to compare average litter counts by roadway type. Arterial roads were found to have the most litter, with an average of 138 items per site. Interstate roads followed with an average of 133 items per site, while collector and local roads had a combined average of 108 items per site, as presented in Figure 23. The lower average tally for collector and local roadways could be due to their lower traffic or possibly greater clean-up efforts. However, as noted previously, the project team could not access data on potential maintenance practices, and therefore, it is not known if sites were recently cleaned before sampling.

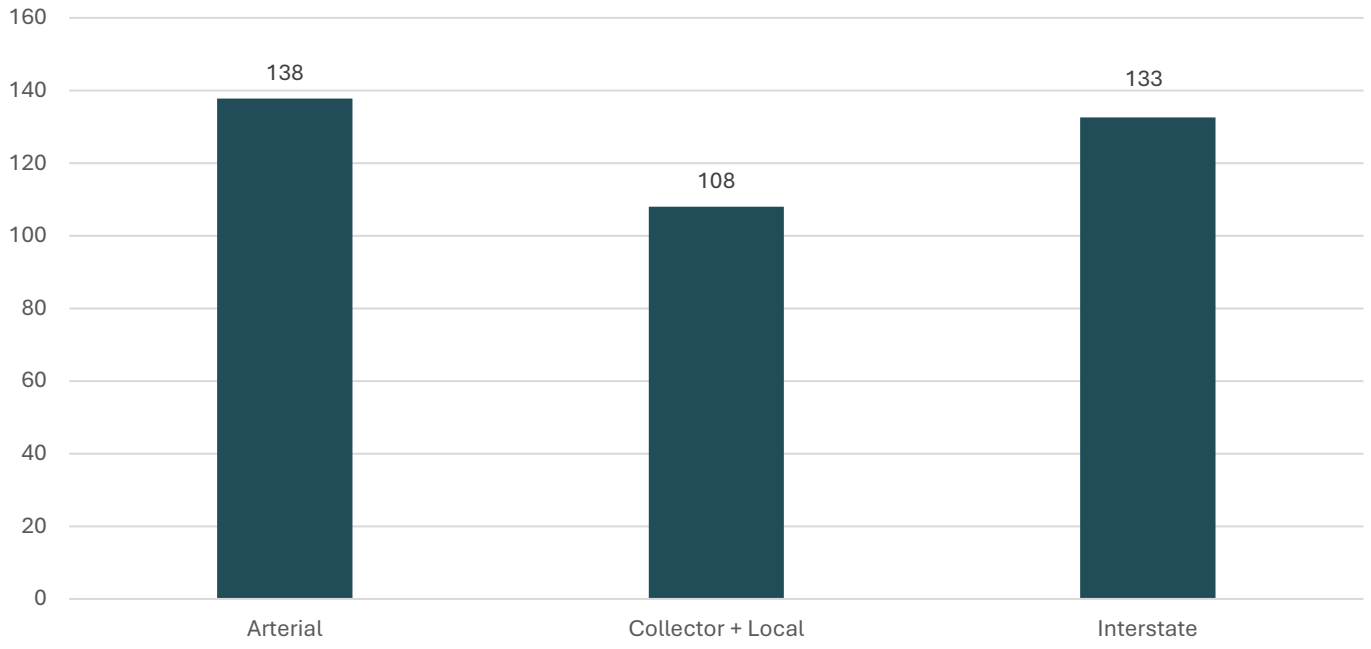

Figure 23: Average Site Litter Tally by Roadway

Further analysis examined the leading subcategories by roadway type. Plastic bottles and containers ranked among the top three sub-category materials for all roadway types and was the most prominent litter category for Arterial roadways. Figure 24 shows the top three sub-categories by site.

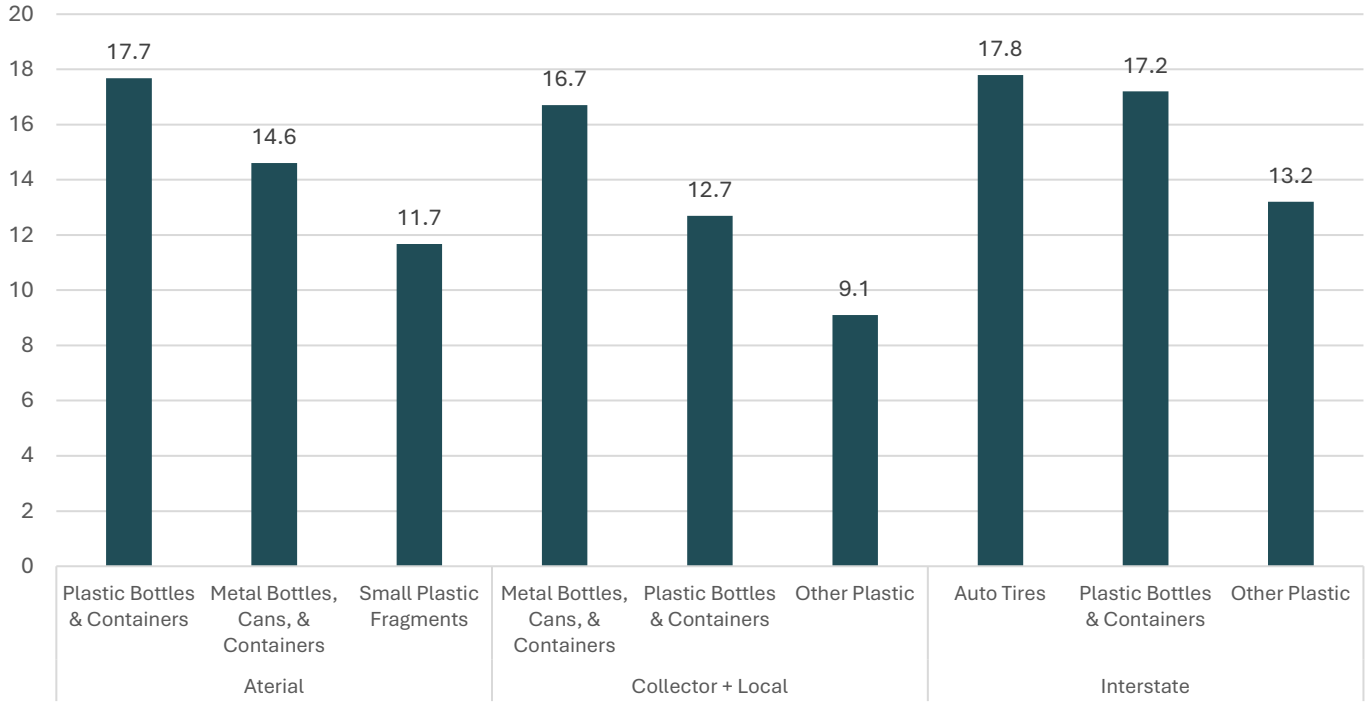

Figure 24: Top 3 Average Categories by Roadway Type

Urban and Rural

One of the proximity indicators considered during the initial site selection process was urban and rural classification. This data was provided by the Federal Highway Administration's (FHWA) Highway Performance Monitoring System (HPMS) 2024 calendar year data. As noted earlier in this report, most of New Mexico is classified as rural, and site selection aimed to reflect a similar balance. A total of 73 sites sampled, or 76% of total sites, were located in rural areas, and 20 sites were located in urban areas.

In comparing average total tallies, a rural site saw 5.1% fewer pieces of litter than urban sites. Figure 25 presents a comparison of average category tallies by urban and residential classification. This suggests that urban roads may have slightly more littered items than rural roads, but that the classification between urban and rural is not a significant indicator of overall litter prevalence.

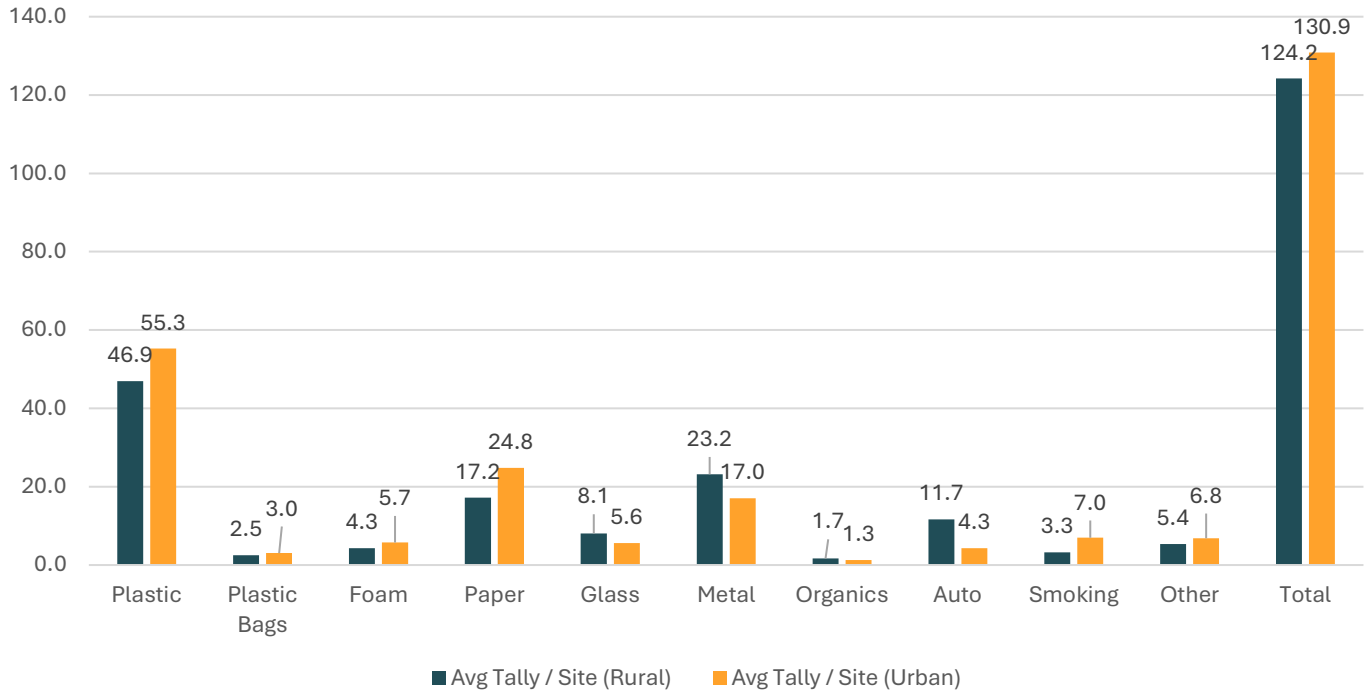

Figure 25: Average Tally by Urban and Rural Classification

Comparison of Results vs Other Studies

The results of the New Mexico Statewide Litter Study were compared against the 2023 Texas Litter Survey, 2022 Washington Statewide Litter Study, 2020 Pennsylvania Litter Research Study, and the Keep America Beautiful 2020 National Litter Study. A comparison was made to Texas due to its proximity to New Mexico; a comparison was made to Washington due to its robust anti-litter and policy efforts; a comparison was made to Pennsylvania due to its similar methodology, and a comparison was made to the National Litter Study due to its representation of litter composition across the United States. This analysis can provide insight into the impacts of efforts other states are taking to mitigate and remove litter and the composition and quantity of litter.

Texas

Texas conducted litter studies in 2013, 2019, and most recently in 2023. The same 253 sites, consisting of interstates, state roads, U.S. highways, and farm-to-market roads, were sampled each study. Between 2013 and 2023, Texas saw a 63.2% reduction in large litter and a 2% decrease in the composition of recyclables found in large litter. The report concludes this improvement may be due to the state's Don't Mess with Texas program and beautification through significant foliage growth, which may have deterred littering or limited litter from moving.

Texas characterized its litter into 10 categories and 251 "components" (material sub-categories). This encompassed 185 components for large litter (greater than 2 inches) and 66 for micro litter (less than 2 inches). Of large litter, Texas saw over 50% composition of beverage containers and vehicle debris. By roadway type, interstates were the most littered, with state roads, U.S. highways, and Farm-to-Market (FM) roads following, respectively.

COST

The Texas Department of Transportation, or TxDOT, estimates that the annual cost to manage and remediate roadside litter is $50 million. Research through the state's 2023 Texas Litter Study suggests that cities, counties, educational institutions, non-profits, businesses and other entities likely expend additional resources and funds to address litter, suggesting the $50 million to be conservative.

Washington

The State of Washington conducted their most recent litter study in 2022, which entailed sorting and measuring litter samples along roadways, on-off ramps, and in public areas, across 182 sampling

sites. Previous litter studies had been conducted in Washington in 1999 and 2004. The study estimates that a total of 7.1 billion items are littered each year.

Washington is being considered in comparison to New Mexico due to their similarly diverse landscape, and Washington has a plastic bag ban implemented as of 2021. Due to limited resources, Washington could not separate and quantify plastic bag composition but estimates that the single-use plastic bag composition by pieces of litter is 0.26%. This can be compared to New Mexico's composition of plastic bags at 2.3%. In the 2022 Washington study, it is cited that the plastic bag ban is likely to have significantly contributed to the low plastic bag composition when compared to their studies conducted in 1999 and 2004.

COST

Washington spends an estimated $12 million annually on litter clean-up efforts. Washington has a litter tax that was established in 1971 to fund the costs of litter cleanup. Manufacturers, wholesalers, and retailers pay a 0.015% tax on 13 types of items typically found in roadside litter. It generates approximately $14-$15 million annually, and 40% is spent on waste reduction and recycling, 40% on litter cleanup and prevention programs through the Washington Department of Ecology and state agency agreements, and 20% towards local government litter cleanup and prevention efforts.

Pennsylvania

Pennsylvania Department of Transportation (DOT) and Department of Environmental Protection (DEP) partnered with Keep Pennsylvania Beautiful to conduct a visible litter study, published in 2020. This study also included a public attitude survey and researched sources of litter in Pennsylvania. The study found that environmental justice is a significant factor, disproportionately impacting areas historically overburdened by pollution. While the state of Pennsylvania has not enacted policies banning plastic bags or other single-use plastics, 40 municipalities have enacted local bans and laws.

As a result of the litter study conducted, Pennsylvania launched its Statewide Litter Action Plan in 2021, a collaborative initiative led by PennDOT and the Department of Environmental Protection (DEP), which emphasizes education, infrastructure improvements, enforcement of litter laws, and partnerships with businesses and communities. The action plan identifies four workgroups and four specific behavior change strategies. The four workgroups include: litter education and outreach, infrastructure, litter laws and enforcement, and partnerships.

COST

PennDOT allocates approximately $14 million each year for litter cleanup across the state. In addition to state-level efforts, nine major cities including Philadelphia, Pittsburgh, and Harrisburg collectively spend over $68.5 million annually on litter and illegal dumping through prevention, education, enforcement, and abatement programs.

National

The Keep America Beautiful 2020 National Litter Study consisted of a visible litter study of over 600 sites that include roadways, waterways, and non-roadway sites. The report estimates nearly 24 billion pieces of litter along U.S. roadways but estimates litter on America's roads was down 54% since 2009.

The Keep America Beautiful 2020 National Litter Study found an average of 2,857 litter items per mile along roadways. Cigarette butts were the most frequently identified item, accounting for 19.6% of all litter. The largest categories of litter found included plastic (34.7%), cigarette butts (24.1%), paper (18.3%), metal (7.7%), other materials (7.2%), and glass (4.9%).

Beverage containers represented a significant portion of roadway and waterway litter. The study estimated nearly 2.8 billion pieces of beverage container litter, or 5.6% of all litter. A comparison between states with and without bottle deposit programs showed notable differences: states with bottle bills had about half as much soda and beer beverage container litter per capita as non-bottle bill states (2.5 items compared to 5.3 items). Bottle bill states also had 30 percent fewer pieces of other types of litter overall (112.8 pieces per capita compared to 161 pieces per capita).

Plastic bags, while often a focus of concern, made up a small share of the litter stream for the National Litter Study. Plastic bags are more easily transported by wind and rain into waterways, potentially contributing to their limited observation. Additionally, twelve states have enacted some form of a plastic bag ban, decreasing the overall composition. Nearly 350 million plastic bags were found along roadways and waterways, but they represented less than 0.7% of all litter counted. This can be compared to New Mexico's composition of plastic bags at 2.6%.

The study also highlighted differences between urban and rural areas. Urban roadways contained the highest density of litter, with 4,207 items per mile, compared to 2,298 items per mile on rural roadways. Despite these differences, the top three categories of litter were the same for both urban and rural areas: plastic, cigarette butts, and paper.

Table 10 compares key factors across all studies identified. However, it should be noted that differences in methodology and analyses among the studies limit the ability to standardize results and draw definitive conclusions.

Table 10: Comparison to Other Litter Studies

	NEW MEXICO	WASHINGTON	TEXAS	PENNSYLVANIA	NATIONAL
Year of Most Recent Study	2025	2022	2023	2020	2020
Annual Spend on Litter Efforts	$10 million	$12 million	$50 million	$14 million	N/A
State Littering Fines	$250	Range from $103 to $5,000, depending on size and amount, risk, and roadway	Up to $500 based on weight, but increases up to $2,000 for repeated offenses	Range from $100-$1,000 depending on offense and injury to people, vehicles, or property	N/A
Plastic Bag Composition	2.34%	0.26%	0.10%	0.7%	0.60%
Urban/Rural Comparison (Pieces per Mile)	4,611/4,365	48,903/11,672	N/A	2,585/1,635	4,207/2,298
Bottles & Containers Composition	32.4%	10.2%	29.0%	23.8%	5.6%
Most Prominent Litter Sub-Categories	Plastic bottles & containers; metal bottles, cans, & containers; other plastic	Cigarette butts; C&D debris; food wrappers & snack bags	Beverage containers; vehicle debris; construction/industrial	Cigarette butts, plastic film, beverage containers	Plastic; cigarette butts

Recommendations

The project team has developed the following conclusions and recommendations from the visible litter study analysis.

CONSIDER THE IMPLEMENTATION OF A BOTTLE BILL

Bottle bills, also called a beverage container deposit law, require a minimum refundable deposit on beverage containers to incentivize recycling and reuse. The Bottle Bill Resource Guide reports that beverage containers compose 40-60% of litter. Seven states with bottle bills have reported a reduction in beverage container litter of 70-83%; bottle bills have reduced total litter by 30-47%. In New Mexico, plastic, metal, and glass bottles and containers made up 32.44% of all macro litter identified.

The Keep America Beautiful 2020 National Litter Study conducted a comparison of litter in states with and without a bottle bill. For deposit-material litter, the study found that there were four litter items per capita in states with a bottle bill and eight litter items per capita in states without a bottle bill. The impact of a bottle bill was also found to have an impact on non-deposit items; states without a bottle bill had 42% more non-deposit litter items than states with a bottle bill.

CONSIDER INCREASING WASTE INFRASTRUCTURE

New Mexico should ensure waste infrastructure is sufficient for the environment and accessible across the state to reduce overall litter generation. Adequate infrastructure for litter generation reduction includes both public facing components and broader waste systems. Locked carts and covered bays at facilities can mitigate wind-blown litter. Carts and dumpsters should be serviced when full to prevent illegal dumping and overflow, resulting in wind-blown litter. Animal-resistant designs may also prevent scattering of litter. Similarly, broader waste management infrastructure must be accessible and convenient to discourage illegal dumping and improper management of waste, which can account for an increase in litter. Convenient and widespread access to curbside trash and recycling collection, in addition to drop-off centers, can reduce illegal dumping and improper management of waste. Without reliable and sufficient infrastructure to capture, collect, and divert materials, litter is more likely to increase and undermine the effectiveness of litter reduction efforts statewide.

CONSIDER A PLASTIC BAG BAN

A plastic bag ban can prohibit the use of single-use plastic bags, encouraging the use of reusable, paper, or compostable bags instead. The "Plastic Bag Bans Work" study found that, when comparing several studies of plastic bag bans, plastic bag litter had been reduced by at least one-third after plastic bag bans had been put into effect. There are twelve states that have implemented statewide plastic bag bans.

Washington implemented a plastic bag ban in 2021, prohibiting the use of single-use plastic bags and charging a fee for acceptable bags including paper bags, reusable plastic bags, and compostable bags. As referenced in the report, Washington estimates that their implementation of the plastic bag ban contributed to a decrease in their prevalence of plastic bags in their litter.

CONSIDER A BAN ON EXPANDED POLYSTYRENE (STYROFOAM)

Ten states have implemented a ban on all uses of polystyrene. A ban on expanded polystyrene (EPS) products should be considered due to the product's negative impacts on the environment, associated health risks, and difficulty recycling. Polystyrene is also a light product that may be wind-blown if littered and broken down to create micro litter. In New Mexico, foam products account for 3.8% of total macro litter and 3.2% of micro litter.

CONTINUE EDUCATION AND OUTREACH

District 2 had the highest average litter count, indicating that it may benefit from additional resources and education and outreach. Education and outreach around the impacts of litter to the environment, human health, and wildlife, and the pathways to reducing and removing litter has significant outcomes on litter reduction. Oftentimes, community members are unaware of the impacts or alternatives to littering. Litter removal efforts are costly, and often taxpayer funded, which many community members may not be aware of. These efforts can also be unifying for communities to take pride in litter removal and shared ownership over litter mitigation.

The Breaking Bad Habits campaign, as mentioned earlier in the report, has had successful outcomes. This includes collecting 1,988 tons of trash, improving 949 miles of walking paths, and clearing 5,103 illegal dumping sites. Local municipalities, schools, and volunteer organizations have completed litter cleanups, highlighted by the Breaking Bad Habits campaign.

CONTINUE IMPLEMENTING ANTI-LITTER SIGNAGE

Anti-litter signage has the power to reduce litter through awareness, strengthening social norms around not littering, and awareness of fines. Anti-litter signage must be accompanied with education, outreach, and enforcement of fines and penalties. In New Mexico, there was a 29% decrease in litter tallies found in areas with anti-litter signage present.

CONDUCT A STATEWIDE STUDY ANNUALLY AT THE SAME SITES

When conducting a subsequent litter study, it is best practice to utilize as similar a methodology as possible to garner results as comparable as possible to the previous study conducted. This includes utilizing the same sampling sites, if possible, to measure the difference in litter composition and quantity over time. Ideally, a study would also be conducted over two different seasons of the year to account for the impact of environmental and seasonal conditions. It is recommended that a state conducts a litter study as often as every five years, and at a minimum of every ten years.

CONSIDER A LITTER TAX

Litter taxes are used to generate funds for litter mitigation and removal efforts. States may impose a tax upon manufacturers, wholesalers, and retailers to support this fund. Washington has a litter tax that was established in 1971 to fund the costs of litter cleanup, and generates approximately $14-15 million annually. Washington's litter tax is described further above in the Comparison section.

Appendix

Table 11: Material Categories and Descriptions

CATEGORY	SUB-CATEGORY	MATERIAL EXAMPLES
Plastic	Bottles & Containers	Plastic bottles and jugs of any size or resin.
	Straws & Stirrers	Plastic straws and stirrers.
	Bottle Caps & Tabs	Loose plastic caps, pull tabs, lids, and seals from beverage containers.
	Beverage Rings	Packaging rings for cans or bottles (e.g., 6-pack).
	Food Wrappers & Snack Bags	Wrappers for candy, snack bags, zipper bags, condiment packets.
	Food & Drink Pouches	Thicker, stand-up pouches for juice, soup, etc.
	Cups	Plastic cups (not foam).
	Lids	Plastic lids from containers like yogurt or butter.
	Utensils	Plastic forks, knives, spoons.
	Plates & Bowls	Plastic plates and bowls (not foam).
	Clamshells	Hinged plastic take-out containers.
	Toiletries & Drug Bottles	Bottles and containers for personal care or medication (e.g., shampoo, lotion, pill bottles).
	Sandwich Bag	Thin, flexible plastic bags used to store sandwiches or snacks.
	Toys	Plastic or mixed-material play items such as action figures, dolls, and building blocks.
	Small Fragments	Plastic pieces.
	Other Plastic	Plastic items not elsewhere classified, including film and household items.
Plastic Bags	Grocery & Retail Bags	Plastic shopping and dry-cleaning bags.
Foam	Cups	Foam (polystyrene) cups.
	Plates & Bowls	Foam plates and bowls.
	Clamshells	Hinged foam take-out containers.
	Other Foam	Other foam items like trays, packing peanuts.
Paper	Cardboard	Corrugated cardboard containers and sheets.
	Bags	Paper grocery and retail bags.
	Newspaper, Junk Mail, Receipts & Office Paper	Paper used for newspapers, junk mail, office paper.
	Cups	Paper cups, often lined with plastic or wax.
	Beverage & Food Cartons	Gable-top and aseptic cartons (e.g., milk, soup).
	Receipts	Printed transaction records.

CATEGORY	SUB-CATEGORY	MATERIAL EXAMPLES
	Fast Food Wrappers	Paper or foil-lined wrappers used for burgers, burritos, and similar items.
	Gum Wrappers	Small paper or foil-lined wrappers used for package chewing gum.
	Other Paper	Tissue boxes, paperboard boxes, books, sticky notes, paper towels.
Glass	Bottles, Jars & Containers	Glass containers for beverages or food.
	Small Fragments & Other Glass	Undistinguished glass items or fragments.
Metal	Bottles, Cans & Containers	Metal beverage or food containers.
	Bottle Caps & Tabs	Metal pull tabs, caps, lids, and seals.
	Foil	Aluminum foil sheets used for cooking, wrapping, or food storage.
	Other Metal	Predominantly metal items not in other categories (e.g., hangers, foil, appliances).
Organics	Food Items (i.e. apple core, banana peel)	Edible organic waste such as fruit and vegetable scraps, leftovers, or peels.
	Wood & Yard Debris	Natural yard materials like twigs, branches, leaves, and untreated wood.
	Pet Waste	Feces or other organic waste from domestic animals.
	Human Waste	Feces, toilet paper, or hygiene items clearly associated with human excretion.
	Animal Carcass	Deceased animals or animal remains.
	Other Organics	Organic materials that don't fit into the above categories.
Auto	Tires (Whole & Shredded)	Tires of all sizes.
	Other	Hubcaps, vehicle batteries, mirrors, fluids, and other automobile parts.
Smoking	Cigarettes & Cannabis	Cigarette butts, cigars, cannabis waste, packaging.
	E-Cigarettes & Vaping	All vaping-related waste.
	Lighters & Matches	Lighters of all sizes.
Other	Chemical, Paint & Other Hazardous	Paints, solvents, pesticides, bulbs, etc.
	Batteries & Electronics	Electronics and all battery types.
	Building Materials (C&D)	Construction materials (e.g., concrete, wood, tiles).
	Furniture & Carpet	Furniture, mattresses, rugs.
	Appliances	Large appliances (e.g., fridge, stove, dishwasher).
	Medical Waste, Sharps, & Biohazardous	Needles, meds, supplements, medical packaging.
	Textiles, Clothing & Shoes	Clothing, fabric items, belts, shoes.

CATEGORY	SUB-CATEGORY	MATERIAL EXAMPLES
	Toiletries/Personal Hygiene	Health and hygiene products (e.g., shampoo, diapers).
	Balloons	Balloons of all types.
	Toys, Sports, & Rec Equipment	Toys, sports gear, scooters.
	Whole Bags of Mixed Trash	Whole closed bags of trash.
	Trucker Bottles (Urine bottles)	Bottles filled with human urine or feces.

Table 12: Total Macro Litter Tally and Composition Percentage

MATERIAL		TALLY	PERCENTAGE
Plastic	Bottles & Containers	1484	15.1%
	Straws & Stirrers	106	1.1%
	Bottle Caps & Tabs	7	0.1%
	Beverage Rings	9	0.1%
	Food Wrappers & Snack Bags	651	6.6%
	Food & Drink Pouches	63	0.6%
	Cups	171	1.7%
	Lids	136	1.4%
	Utensils	17	0.2%
	Plates & Bowls	18	0.2%
	Clamshells	19	0.2%
	Toiletries & Drug Bottles	5	0.1%
	Sandwich Bag	27	0.3%
	Toys	9	0.1%
	Small Fragments	456	4.6%
	Other Plastic	795	8.1%
Plastic Bags	Grocery & Retail Bags	230	2.3%
Foam	Cups	147	1.5%
	Plates & Bowls	28	0.3%
	Clamshells	10	0.1%
	Other Foam	191	1.9%
Paper	Cardboard	236	2.4%
	Bags	38	0.4%
	Newspaper, Junk Mail, Receipts & Office Paper	270	2.8%
	Cups	103	1.0%
	Beverage & Food Cartons	51	0.5%
	Receipts	95	1.0%

MATERIAL		TALLY	PERCENTAGE
	Fast Food Wrapper	162	1.7%
	Gum Wrapper	6	0.1%
	Other Paper	663	6.8%
Glass	Bottles, Jars & Containers	287	2.9%
	Small Fragments & Other Glass	47	0.5%
Metal	Bottles, Cans & Containers	1412	14.4%
	Bottle Caps & Tabs	17	0.2%
	Foil	185	1.9%
	Other Metal	237	2.4%
Organics	Food Items (Apple core, banana peel)	22	0.2%
	Wood & Yard Debris	39	0.4%
	Pet Waste	14	0.1%
	Human Waste	1	0.0%
	Animal carcass	12	0.1%
	Other Organics	47	0.5%
Auto	Tires (Whole and Shredded)	550	5.6%
	Other	186	1.9%
Smoking	Cigarettes & Cannabis	22	0.2%
	E-Cigarettes & Vaping	19	0.2%
	Lighters & Matches	4	0.0%
Other	Chemical, Paint & Other Hazardous	13	0.1%
	Batteries & Electronics	18	0.2%
	Building Materials (C&D)	169	1.7%
	Furniture & Carpet	5	0.1%
	Appliances	0	0.0%
	Medical Waste, Sharps, & Biohazardous	28	0.3%
	Textiles, Clothing & Shoes	212	2.2%
	Toiletries/Personal Hygiene	44	0.4%
	Balloons	2	0.0%
	Toys, Sports, & Rec Equipment	7	0.1%
	Whole Bags of Mixed Trash	2	0.0%
	Trucker Bottles (Urine bottles)	9	0.1%
Total		9813	100.0%

Table 13: Total Micro Litter Tally and Composition Percentage

MATERIAL		TALLY	PERCENTAGE
Plastic	Bottles & Containers	20	0.9%
	Straws & Stirrers	9	0.4%
	Bottle Caps & Tabs	55	2.4%
	Beverage Rings	3	0.1%
	Food Wrappers & Snack Bags	108	4.8%
	Food & Drink Pouches	3	0.1%
	Cups	5	0.2%
	Lids	3	0.1%
	Utensils	3	0.1%
	Plates & Bowls	0	0.0%
	Clamshells	0	0.0%
	Toiletries & Drug Bottles	2	0.1%
	Sandwich Bag	0	0.0%
	Toys	12	0.5%
	Small Fragments	381	16.8%
	Other Plastic	120	5.3%
Plastic Bags	Grocery & Retail Bags	21	0.9%
Foam	Cups	4	0.2%
	Plates & Bowls	0	0.0%
	Clamshells	0	0.0%
	Other Foam	68	3.0%
Paper	Cardboard	11	0.5%
	Bags	1	0.0%
	Newspaper, Junk Mail, Receipts & Office Paper	22	1.0%
	Cups	1	0.0%
	Beverage & Food Cartons	1	0.0%
	Receipts	13	0.6%
	Fast Food Wrapper	12	0.5%
	Gum Wrapper	30	1.3%
	Other Paper	115	5.1%
Glass	Bottles, Jars & Containers	57	2.5%
	Small Fragments & Other Glass	327	14.4%
Metal	Bottles, Cans & Containers	47	2.1%
	Bottle Caps & Tabs	31	1.4%
	Foil	104	4.6%
	Other Metal	51	2.3%
Organics	Food Items (Apple core, banana peel)	5	0.2%

MATERIAL		TALLY	PERCENTAGE
	Wood & Yard Debris	3	0.1%
	Pet Waste	0	0.0%
	Human Waste	1	0.0%
	Animal carcass	0	0.0%
	Other Organics	7	0.3%
Auto	Tires (Whole and Shredded)	186	8.2%
	Other	29	1.3%
Smoking	Cigarettes & Cannabis	352	15.5%
	E-Cigarettes & Vaping	0	0.0%
	Lighters & Matches	1	0.0%
Other	Chemical, Paint & Other Hazardous	1	0.0%
	Batteries & Electronics	1	0.0%
	Building Materials (C&D)	16	0.7%
	Furniture & Carpet	0	0.0%
	Appliances	0	0.0%
	Medical Waste, Sharps, & Biohazardous	2	0.1%
	Textiles, Clothing & Shoes	13	0.6%
	Toiletries/Personal Hygiene	3	0.1%
	Balloons	2	0.1%
	Toys, Sports, & Rec Equipment	3	0.1%
	Whole Bags of Mixed Trash	0	0.0%
	Trucker Bottles (Urine bottles)	0	0.0%
Total		2265	100.0%

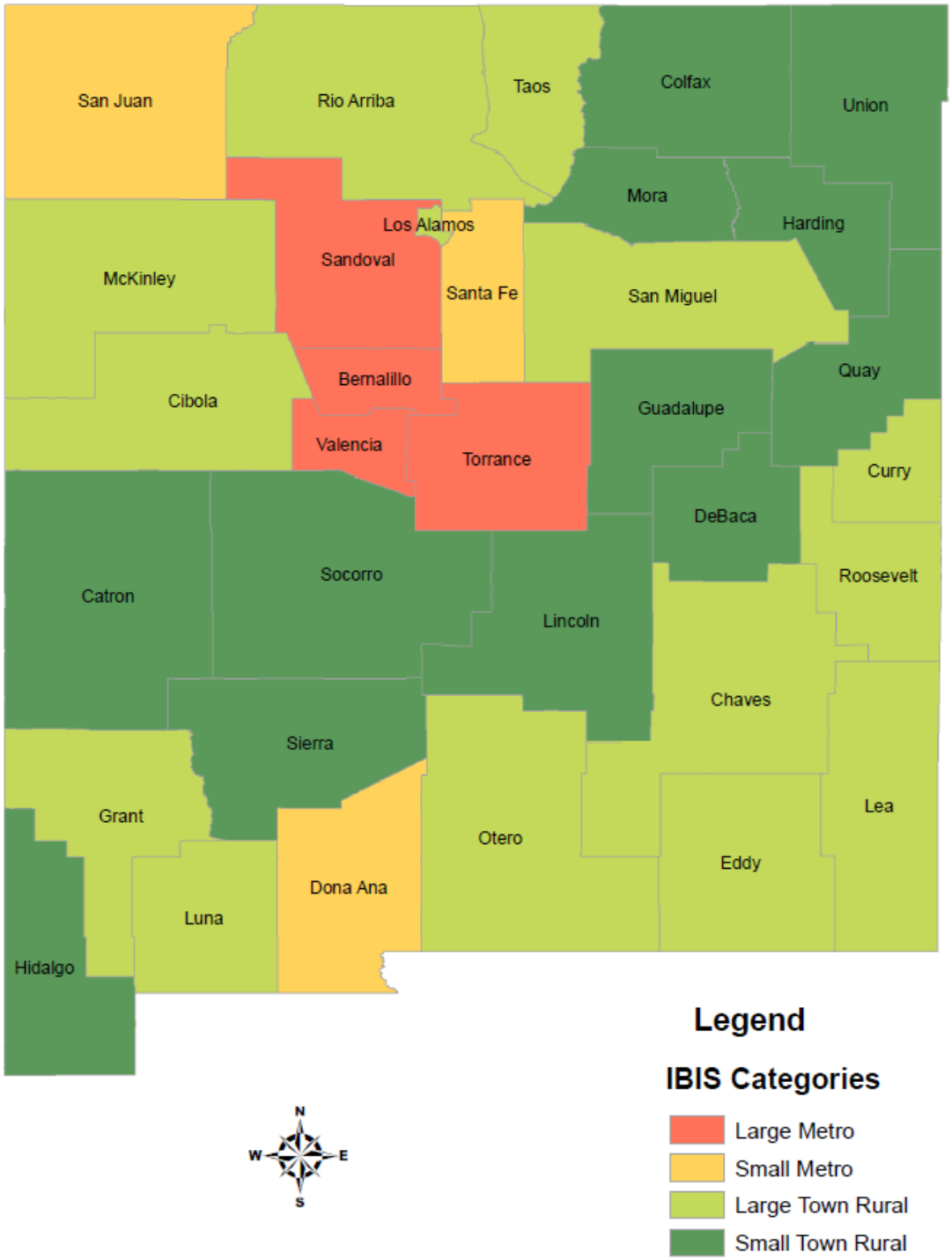

Figure 26: Rural and Urban Characteristics of Each New Mexico County

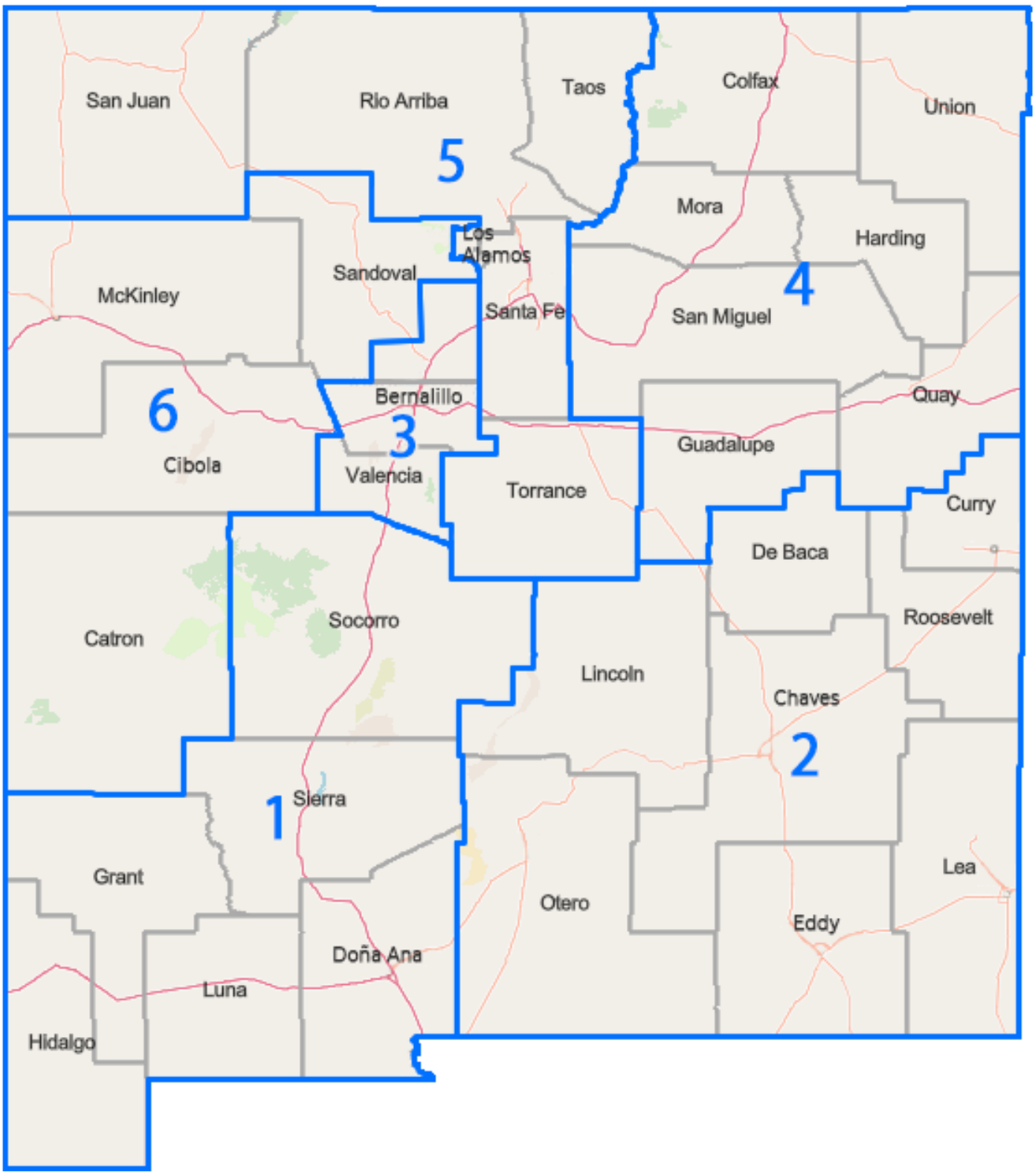

Figure 27: Map of NMDOT Districts in New Mexico