LOUISIANA
LITTER RESEARCH

AUGUST 2023

CONDUCTED BY

Keep LOUISIANA Beautiful
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STATE OF LOUISIANA
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LIEUTENANT GOVERNOR
BILLY NUNGESSER

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RESEARCH EXECUTIVE SUMMARY

OVERVIEW

Louisiana is known as the "sportsman's paradise" for its natural beauty. Yet, litter blights our roadways, bayous, rural towns, and urban centers, impacting the state's natural environment, quality of life, and economic development. Reducing litter is critical to a healthier, more prosperous Louisiana. This requires a comprehensive understanding of the litter issue and the identification of the best strategies, initiatives, and methods to address littering behavior.

In June 2022, the Governor's Task Force on Litter Abatement and Beautification published a report outlining recommendations and key priorities to address the state's litter challenge. One of the recommendations was to conduct comprehensive litter research in order to understand and address the problem. Thanks to funding from the Louisiana State Legislature and the Office of the Lieutenant Governor, Keep Louisiana Beautiful (KLB) oversaw the state's first litter research in over a decade. The research consists of three parts — the **Roadway Litter Survey**, the **Public Attitudes Survey**, **and the Litter Cost Study** — and was conducted by a Project Team led by Carson Consulting. That team consisted of Tetra Tech BAS, Steve Stein, and numerous individuals with an extensive history of conducting national, state, and local research studies. This document includes results of the Roadway Litter Survey to estimate the composition of littered items along roadways; the Public Attitude Survey to gauge Louisiana residents' attitudes about litter, litter abatement, enforcement, and awareness; and the Litter Cost Study to estimate the overall costs associated with litter and illegal dumping removal, disposal, enforcement, and education. The results also establish a baseline for measuring the litter problem and will aid in developing policies, awareness campaigns, and prevention programs for litter abatement.

RESEARCH KEY FINDINGS

Below are the key findings specific to each study. When applicable, the results from the studies may be compared to offer insight or provide documentation as to where another study supports differs from a finding.

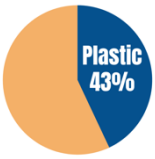
ROADWAY LITTER SURVEY KEY FINDINGS

- There are approximately 143.8 million pieces of litter on Louisiana roadways.

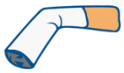
- Interstates are the most littered type of roadway, with an average of 10,178 pieces of litter per mile.

- The most common Aggregate Litter (Visible + Micro) categories are tobacco products (24.5%), beverage containers (13.7%), and construction debris (10.8%).

- The highest percentage of Aggregate Litter by packaging material is plastic (43.1%), followed by tobacco-related other (24.5%) and metal (10%).



- The most common Aggregate Litter items are cigarette butts (21%), plastic beverage containers and cup pieces (13.8%), and plastic fast-food pieces (7.2%).



PUBLIC ATTITUDE SURVEY KEY FINDINGS

- Most Louisiana citizens, 92 percent, believe that litter is a problem.

- Litter negatively impacts communities. 88 percent of respondents strongly agreed or agreed that litter harms humans and animals, affects environmental quality, contributes to flooding, reduces property values, negatively impacts tourism, and decreases business revenues.

- Littering is frequently observed. 38 percent of respondents reported that they witness littering behavior weekly, and 44 percent reported seeing it several times a month.

- The top reasons people litter are convenience and laziness. 29 percent of respondents believe most people litter because it is more convenient to litter than to dispose of trash properly.

- More enforcement of litter laws and illegal dumping is supported. 67.6 percent support more enforcement.

- 68 percent support an additional fee to fund local litter cleanup and prevention.

LITTER COST STUDY KEY FINDINGS

- An estimated $91,409,573 was spent in 2022 by local governments and state agencies on cleanup, prevention, and remediation efforts related to litter and illegal dumping across Louisiana, which is a cost increase of 65 percent since 2010 after adjustment for inflation.

- Municipalities, cities, and towns bear the highest percentage of litter costs (36.4%).

- The LADOTD pays $13 million a year for litter abatement costs, more than any other state agency.

- Determining the costs of litter is challenging, since few entities monitor the costs through direct budget line items and rely on estimations, especially for determining labor costs.

- Expenditures overwhelmingly focus on remediation or cleanup versus prevention. Local jurisdictions spend seven times more to remove litter and trash from public spaces than they spend on preventing it from being generated.

LOUISIANA
LITTER RESEARCH

AUGUST 2023

ROADWAY LITTER STUDY

METHODOLOGY

In statistical studies, a representative sample is taken, studied, and analyzed to draw inferences or make conclusions. Surveying every roadside in Louisiana would be prohibitive. Thus, for the Roadway Litter Study, the Project Team studied representative sample sites, where information was collected to estimate the quantity of litter found on all Louisiana roadways. Working with the Louisiana Department of Transportation and Development (LADOTD) and KLB, the Project Team selected sites within every parish and in all nine LADOTD districts.

Figure 2-1: LADOTD District Map

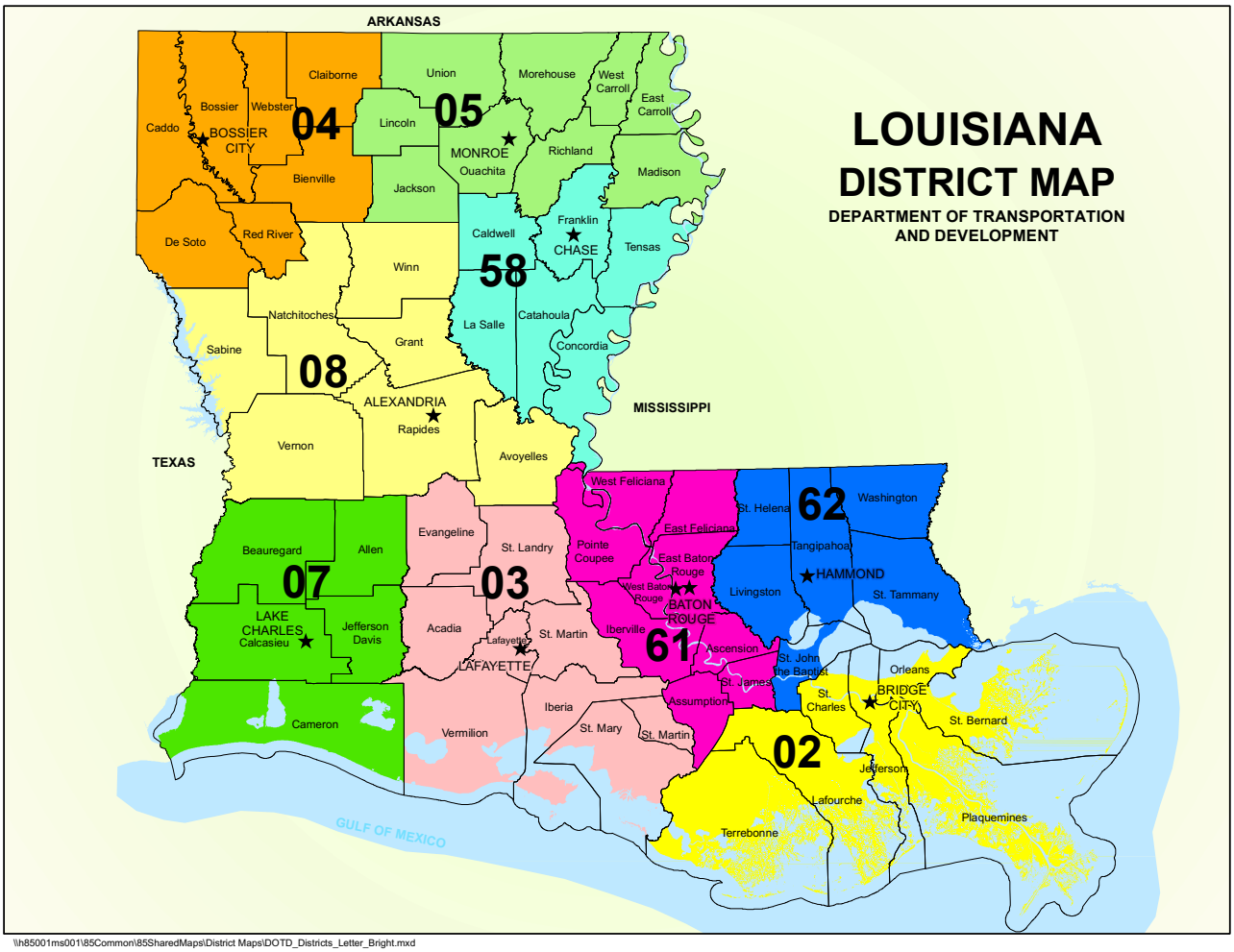
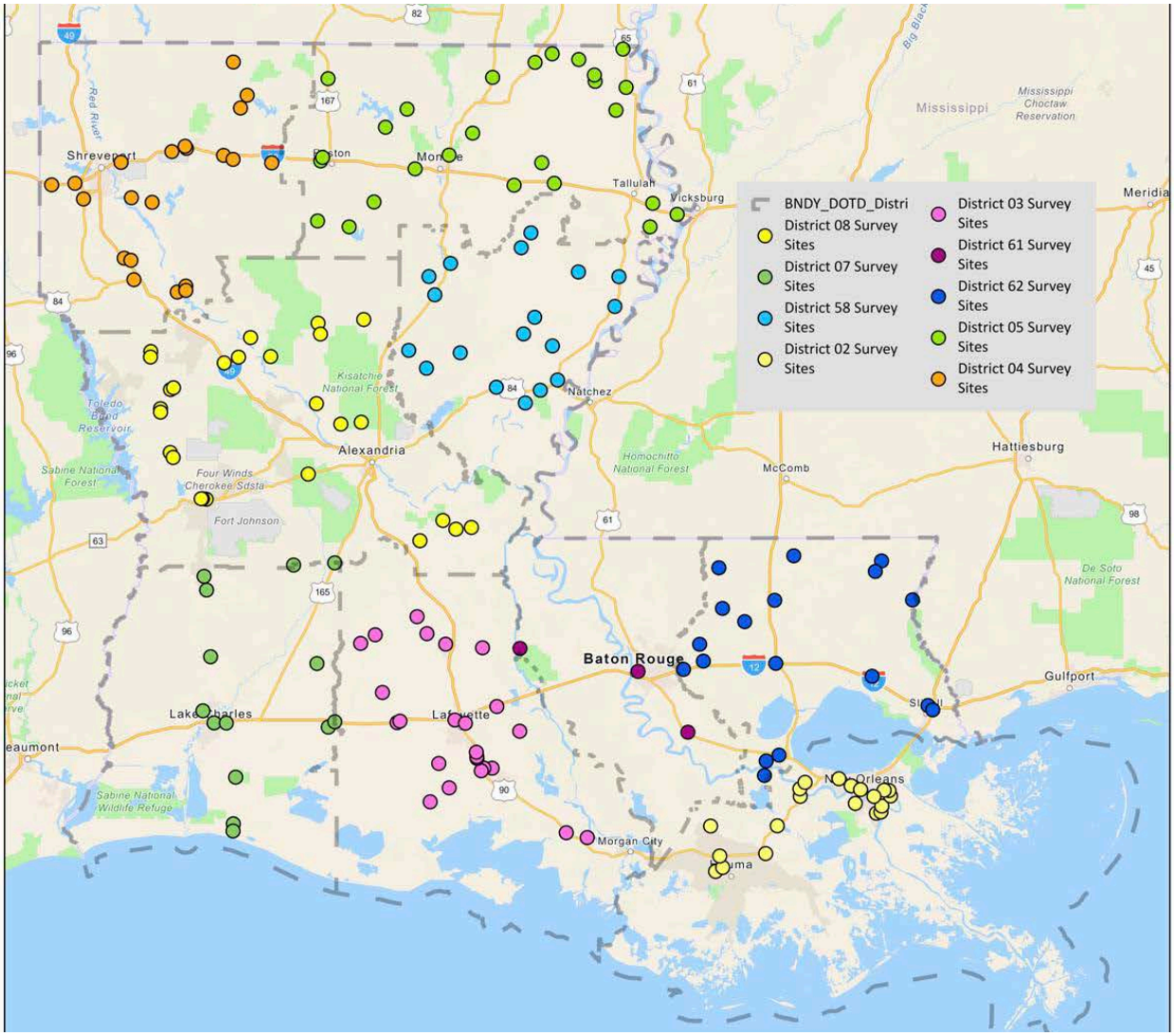


Figure 2-2: Map of Survey Sites



Note: Dots showing GPS coordinates at approximate locations and some bubbles may appear to overlap due to the scale of the graphic and proximity in more populated areas of the state.

Site Selection

In selecting the Roadway Litter Survey sites, the Project Team requested input from LADOTD to identify sites representative of three roadway types: interstates, US highways, and state routes. The Project Team then refined a list of 201 sites, provided by LADOTD, to ensure appropriate representation of rural, suburban, and urban locales. Land-use was also considered in site identification to ensure inclusion of agricultural and developed areas, such as commercial, industrial, and residential zones. 137 sites, all of which met the survey criteria for road type, locale, land use, and statewide distribution, were selected for study.

Data Collections

The survey, conducted between December 9, 2022 and January 9, 2023, collected data on litter category, item, and packaging material at each site. The survey teams adhered to a prescribed protocol, detailed in Appendix A. The survey team sampled litter in an area 300 feet in length by 15 feet in depth. Litter was assessed in the entire survey site by a team member walking the length and width using a “meandering count” — or walking side-to-side for the length of the site. The three transects were 3 feet by 15 feet areas at the start, middle, and end of the larger survey area. Litter items were then classified as either Visible Litter (over four inches in length) or Micro Litter (under four inches). Micro Litter was sampled at three transects within each site and then extrapolated to the size of the entire site.

Categories, Items, and Packaging Material

The field crew members identified the litter category, specific item, and the packaging materials. Details for each category, the corresponding items, and the packaging material are shown in Table 2-1. Visible Litter was grouped into 10 categories, and Micro Litter was grouped into 11, including tobacco. Crews identified 93 distinct Visible Litter items and 68 distinct Micro Litter items. Crew members also identified packaging materials, such as metal, plastic, polystyrene, paper, glass, composite, and others, as well as brand names when visible. Finally, the crew members noted conditions that may contribute to the presence of litter, such as land use, traffic signs, and drainage features. Upon completing the data collection, the Project Team conducted tabulations and statistical analyses to quantify and characterize roadway litter.

Table 2-1: Summary Categories, Items, and Packaging Material

Category	Item	Material
Bags	Fast-food, retail, trash, and leaves	paper, plastic, cloth
Beverage Containers	Beer, soda, sports, energy, water, wine/liquor, juice, tea	metal, plastic, glass, composite
Construction Debris	Shingles, lumber/wood, electrical, drywall, foam insulation, industrial rags, tarps	metal, plastic, polystyrene foam, composite, wood
Cups and Lids	Cups for hot or cold drinks, lids straws, wrappers	paper, plastic, polystyrene foam
Fast-Food	Boxes, clamshells, trays, plates, utensils, napkins, utensils, napkins	composite, paper, foil, plastic, polystyrene
Home Food Containers	Food jars, cans, bottles, and lids	composite, glass, metal, plastic, polystyrene foam
Household Items	Clothing, hygiene items, appliances and packaging of items used at home	composite, cloth, metal, plastic, polystyrene foam,
Paper	Non-food/beverage paper, e.g., newspapers, magazines, flyers, lottery tickets, business, school, receipts, packaging, paperboard, corrugated boxes	paper
Snack Wrappers	Sweet snacks (candy, cakes), salty snacks (chips, crackers), gum	paper, plastic, composite
Tobacco	Cigarette or cigar butts, lighters, matches, boxes, wrapping, pouches and other packaging. Each was separately classified	tobacco, plastic, metal, composite
Vehicle Debris	Automobile parts from accidents, car maintenance debris, tires and tire debris	tire, rubber, metal

AGGREGATE LITTER

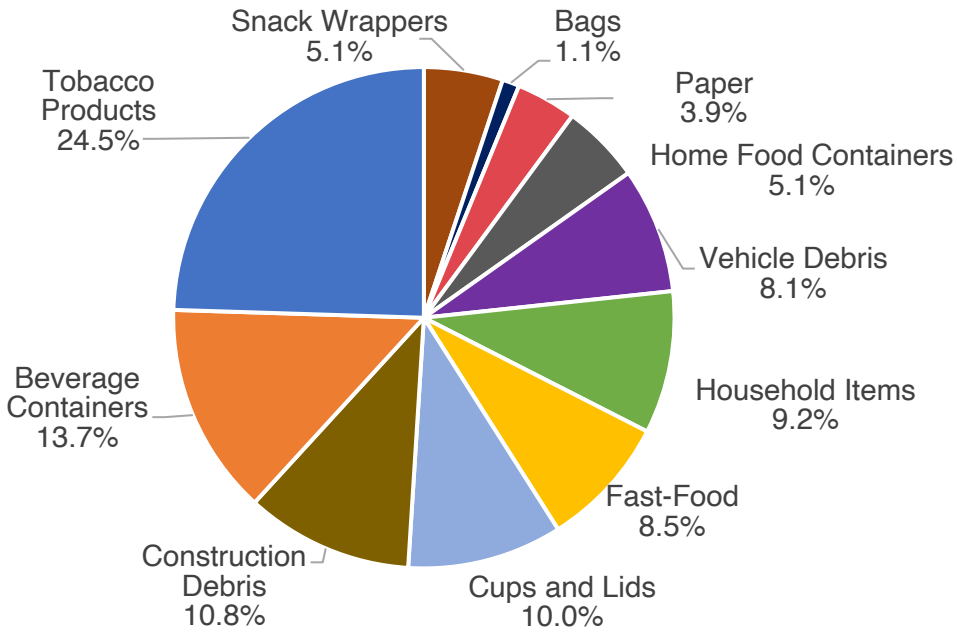
There are approximately 143.8 million pieces of litter on Louisiana roadways including visible and micro litter combined. This section contains details about aggregate litter by category, item, and packaging material. Figures and tables provide additional details on aggregate litter. The next section will share information specific to visible and micro litter separately.

143.8 MILLION PIECES OF LITTER

Aggregate Litter By Category

Tobacco products was the most prevalent type of Aggregate Litter (24.5%), followed by beverage containers (13.7%) and construction debris (10.8%). Figure 2-3 shows the Aggregate Litter by category.

Figure 2-3: Aggregate Litter by Category



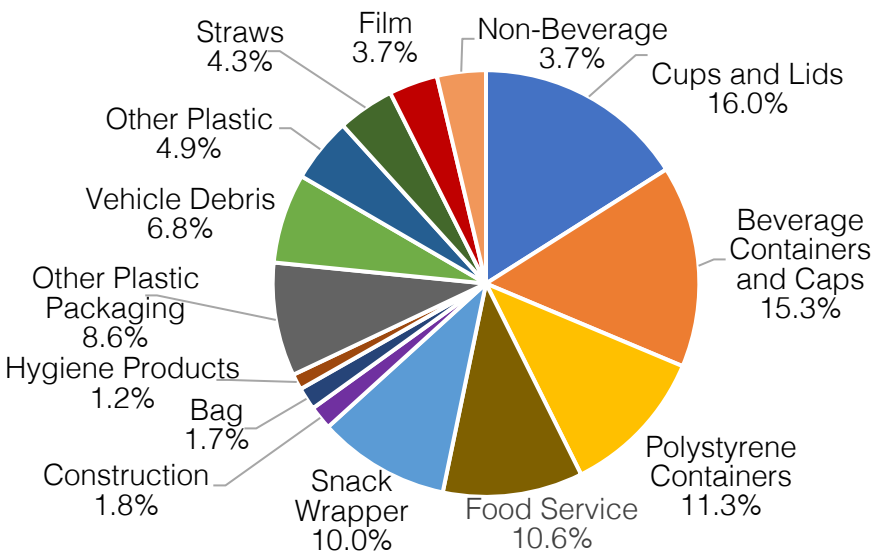
The top three Aggregate Litter items were cigarette butts, plastic beverage containers and cup pieces, and plastic fast-food pieces. Cigarette butts (21%) were the most common item of litter. Plastic beverage containers and cups account for 13.8 percent, followed by plastic fast food items at 7.2 percent. Table 2-2 shows the top aggregate litter items found during the field research.

Table 2-2: Aggregate Litter by Item

Aggregate Litter
Tobacco Products – Cigarette Butts
Plastic Beverage Containers and Cups
Plastic Fast Food
Plastic Home Items
Plastic Other – Includes Construction and Vehicles
Plastic Packaging
Metal Other – Includes Construction and Vehicles
Paper Fast Food
Plastic Snack Wrappers
Metal Beverage Containers

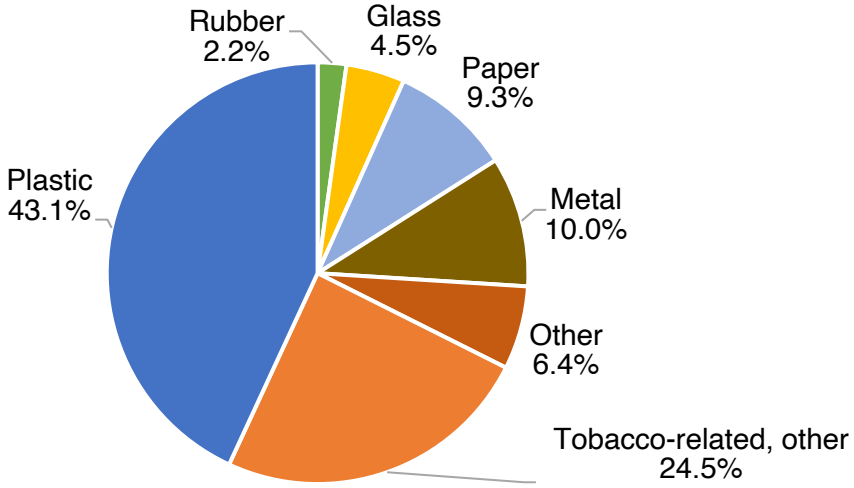
A significant amount and variety of plastic items are littered. Over 61.9 million plastic items were found on Louisiana roadways. Plastic water bottles were the most common Visible Litter, found at 80 percent of all surveyed sites. Figure 2-5 shares details on the top 14 plastic items.

Figure 2-5: Aggregate Litter Plastic Items



The top three Aggregate Litter packaging materials are plastic (43.1%), tobacco products (24.5%), and metal (10%). Figure 2-4 displays Aggregate Litter by packaging materials.

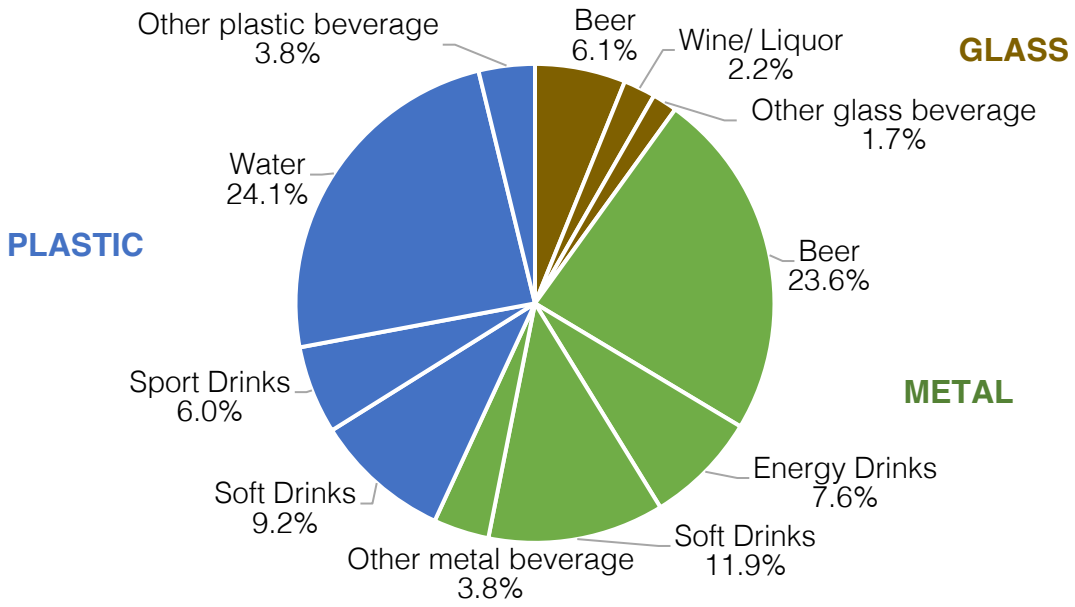
Figure 2-4: Aggregate Litter by Packaging Material



Note: For purposes of this figure, items were grouped, such as water, soft drink, milk, tea, liquor, coffee, and sports drinks. The "Other plastic packaging" represents items previously identified as other packaging and peanuts composing less than 1.5%.

Figure 2-6 shows the composition of beverage containers by packaging material, with plastic water representing the largest percentage (24.1%) of beverage containers. Aluminum beer cans (23.6%) were the second most prevalent.

Figure 2-6: Aggregate Composition of Beverage Containers in Visible Litter



Note: The "Other" for each packaging material consists of any items accounting for under 3l.

DIFFERENCES AND SIMILARITIES IN VISIBLE LITTER AND MICRO LITTER OBSERVATIONS

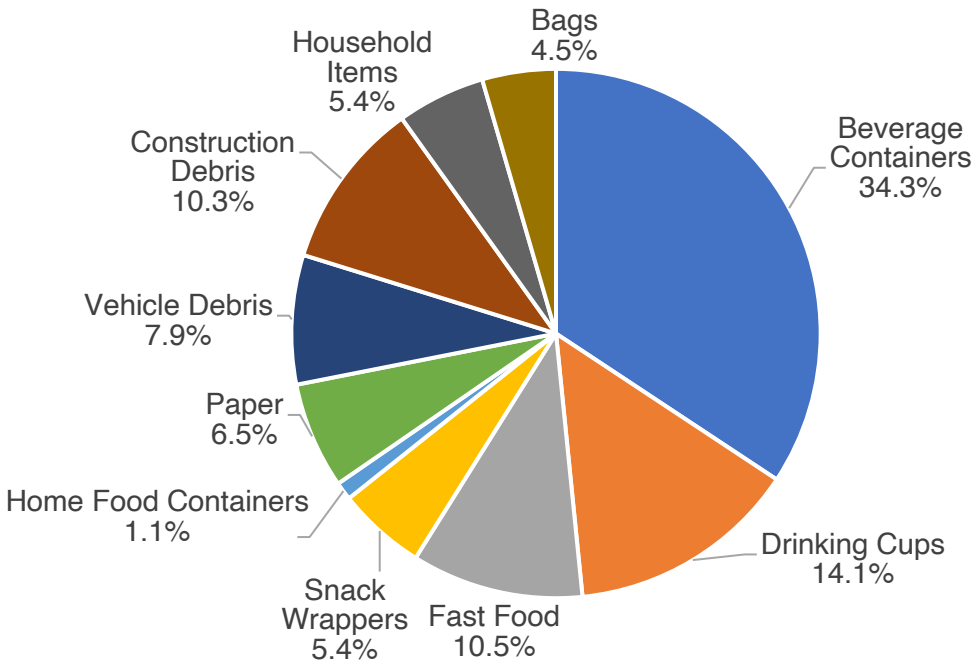
This section summarizes the character and details of the Visible Litter and Micro Litter found at the survey sites and provides details on the Visible Litter, as identified using a "meandering count" at three tri-sections within each site. Additional information on litter categories, litter items, and packaging materials provide a comprehensive view of litter found along the roadways in the state.

Categories of Visible Litter

The Visible Litter was grouped into 10 categories, as shown in Table 2-1. The most commonly found category of Visible Litter was beverage containers (34.3%), including beer, soda, sports, energy, water, wine and liquor, juice, and tea containers. The second highest Visible Litter category was drinking cups

(14.1%), including cups for hot or cold drinks, lids, straws, and wrappers. The third most common Visible Litter category was fast food packaging (10.5%), including boxes, clamshells, trays, plates, utensils, and napkins. Figure 2-7 shows Visible Litter percentages by categories.

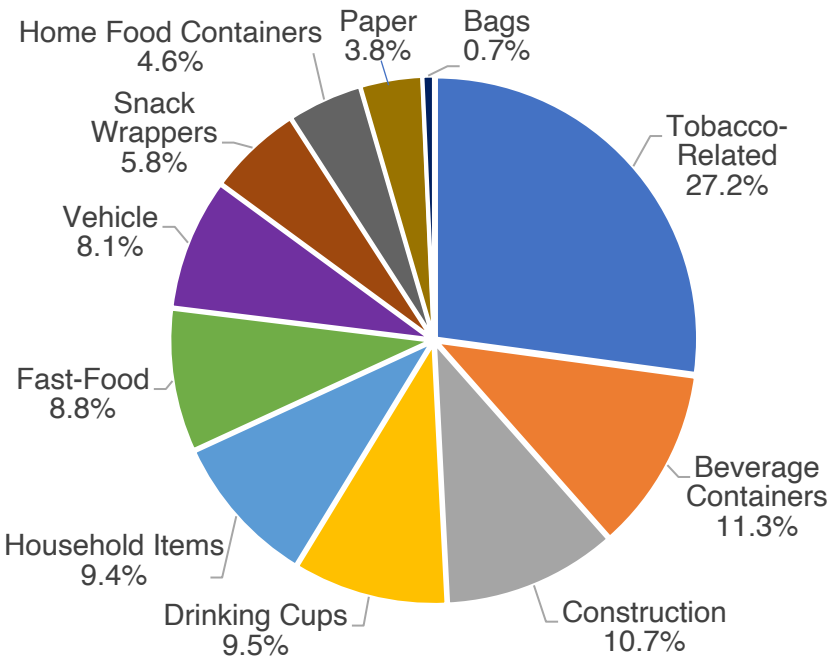
Figure 2-7: Visible Litter by Category



Categories of Micro Litter

Micro Litter was grouped into 11 categories, as shown in Table 2-1. The most prevalent Micro Litter category was tobacco products (27.1%), primarily cigarette butts. The second most common was beverage containers (11.3%), mainly broken glass or shredded pieces of metal, followed by construction debris (10.7%). Figure 2-8 presents Micro Litter percentages by categories.

Figure 2-8: Micro Litter by Category



Visible Litter Items

The Project Team identified 93 types of Visible Litter items. The top 10 Visible Litter items comprised 45.2% of all Visible Litter. Plastic water bottles, identified at 8.2% of the survey sites, were the most frequently found Visible Litter item. The second most commonly identified item was beer cans (8.0%), followed by tire debris (4.6%) and soft drink cans (4%). The top ten Visible Litter items are shown in Figure 2-9. Appendix 5 lists all Visible Litter items.

Micro Litter Items

The Project Team identified 68 types of Micro Litter items. The most prevalent item was cigarette butts (21%). Statistical tests showed a mild correlation (0.26) between the number of cigarette butts littered at a given site and the amount of Visible Litter at the same location. Forty-one percent of all sites with higher-than-average Visible Litter also had a higher-than-average number of cigarette butts. The second most prevalent Micro Litter item was polystyrene container pieces (4.9%), which were usually broken ice chest pieces and polystyrene cup pieces (4.9%). Polystyrene foam ice chests, in varying sizes, were widely found across the state. The top ten Micro Litter items are shown in Figure 2-10.

Figure 2-9: Top 10 Visible Litter Items

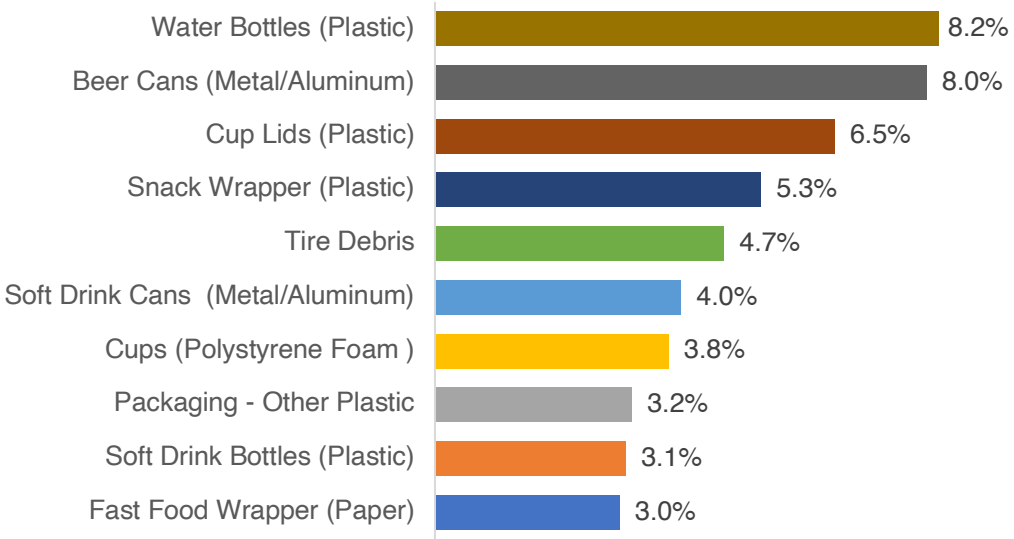
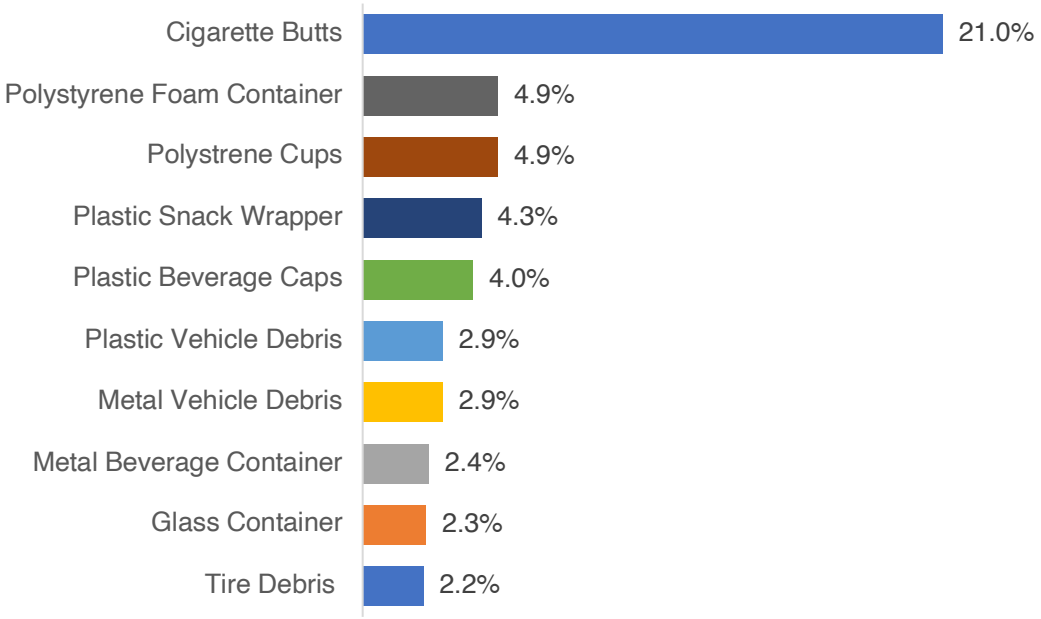


Figure 2-10: Top 10 Micro Litter Items



Packaging Materials for Visible Litter

Plastic (49.3%) was the most significant and pervasive Visible Litter packaging material. Metal (20.7%), predominantly aluminum beverage cans, was the second most common packaging material found at the survey sites, followed by paper (15.8%). Figure 2-11 shows the breakdown of Visible Litter by packaging material type.

Packaging Materials for Micro Litter

Tobacco products — including several different materials, such as plastic, paper, and organics — was the most prevalent Micro Litter packaging material (30%). The second most prevalent was plastic (28%), followed by paper (16%) and rubber (15%). Figure 2-12 shows the breakdown of Micro Litter by Packaging material type.

Figure 2-11: Visible Litter by Packaging Material

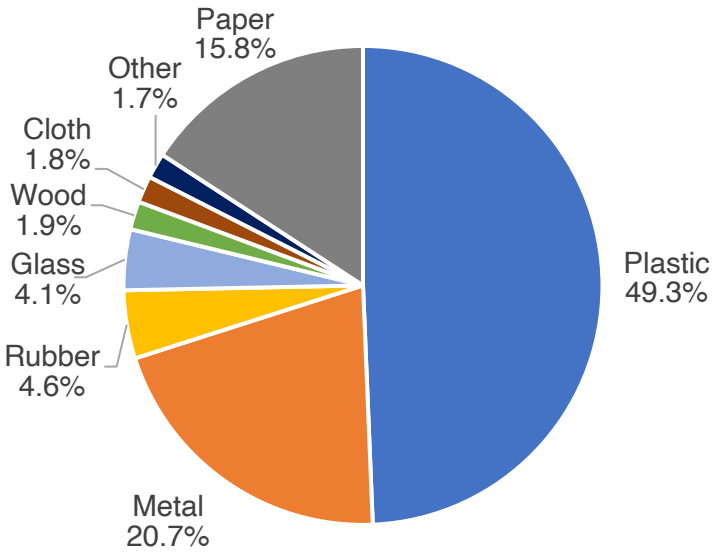
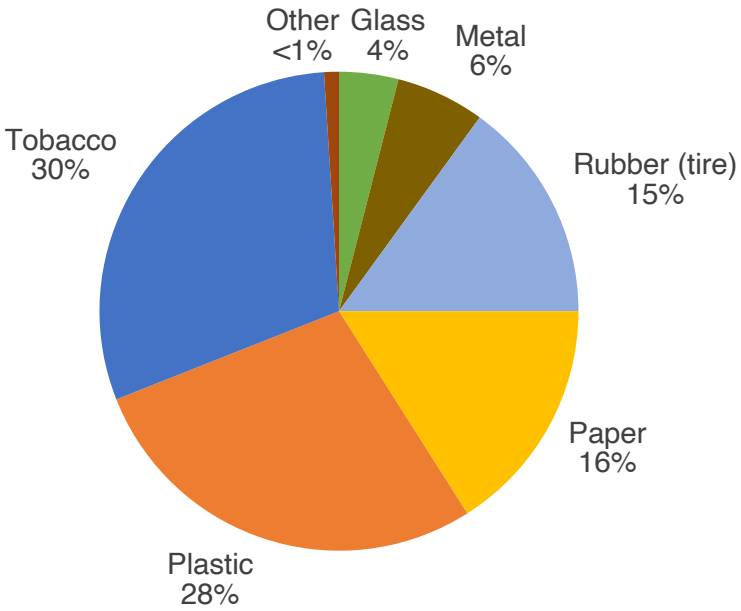


Figure 2-12: Micro Litter by Packaging Material



HIGHLIGHTS SPECIFIC LOCATION AND INDICATORS

This section highlights an analysis of specific locations and indicators that may be useful in addressing litter issues and challenges. The first subsection is an analysis of litter per LADOTD districts and three different roadway types. This section also shares information on litter sources and details a brand analysis of the items found during the study. The last part of the section focuses on waste management issues, such as the presence of recyclable packaging materials among litter, which may assist in identifying strategies to reduce litter. A subsection on proximity indicators provides insight into connections between land uses, facilities, and other factors that may impact the presence of litter. Finally, this section provides details relevant to making recommendations on litter prevention.

Roadway Type

Based on statistical analysis, littering patterns were similar on all three roadway types included in this study, as shown in Table 2-3. Interstates were the most littered type of roadway, with an average of 10,178 pieces of litter per mile. While interstates represent only 5.7 percent of all road types in Louisiana, they tend to experience heavier traffic volume than others, which may result in higher litter rates.

Table 2-3: Total Aggregate Litter by Mile and Roadway Type

Roadway Type	Average # Items Per Mile	Road Miles within State	% of Total Litter Items Per Mile	Total # Litter Items
Interstates	10,178	944	38%	9,604,551
US Highways	7,697	2,285	29%	17,585,224
State Routes	8,811	13,244	33%	116,683,356
Total	-	16,472	100%	143,873,132

Table 2-4 provides Aggregate Litter averages by category across the three roadway types Interstates (IH), US Highways (US), and State Routes (SR). The correlation data suggest differences in littering tendencies, depending on the litter category and roadway type. A t-test conducted about correlations is provided in Appendix 7. For Aggregate Litter across all roadway types, the tobacco category was the most prevalent type of litter. The next highest category was litter associated with beverage cups, with a pattern similar across all roadway types. Household items and beverage cups were third and fourth highest and were both significantly less common on US highways. The fifth most prevalent type of litter was construction debris, which was substantially more common on interstates than on highways and state routes.

Table 2-4: Aggregate Litter Averages by Road Type and Category

	Aggregate Litter Averages per Site		
Category/Road Type	**IH**	**US**	**SR**
Bags	58.7	39.7	40.4
Beverage Containers	63.6	71.0	65.1
Beverage Cups	57.6	39.5	54.1
Construction Debris	78.0	29.5	33.0
Fast Food	46.6	38.5	48.7
Home Food Container	2.7	5.8	2.6
Household Items	57.9	26.2	69.0
Paper	14.7	31.8	20.6
Snack Wrappers	29.9	24.6	31.1
Tobacco	140.5	110.0	119.7
Vehicle Debris	28.1	11.1	26.2

Table 2-5 shows the average for Visible and Micro Litter across roadway types. The correlation data suggest differences in littering tendencies. For Visible Litter, beverage containers were the most littered item. Home food containers were the least littered. For Micro Litter, a littering pattern is less apparent, although there were similarities in Micro Litter prevalence across all road types. Beverage containers were the most prevalent type of Micro Litter across all road types. Bags and construction debris were significantly more common along interstates.

Table 2-5: Visible and Micro Litter Averages by Road Type and Category

	Visible Litter Averages			Micro Litter Averages		
Category/Road Type	**IH**	**US**	**SR**	**IH**	**US**	**SR**
Bags	2.2	2.2	2.3	56.5	37.5	38.1
Beverage Containers	15.2	19.9	15.4	48.4	51.1	49.7
Beverage Cups	5.8	8	6.7	51.8	31.5	47.4
Construction Debris	6.2	4.1	5.5	71.8	25.4	27.5
Fast Food	6.9	4.3	5.3	39.7	34.2	43.4
Home Food Container	0.6	0.5	0.5	2.1	5.3	2.1
Household Items	3.0	2.3	2.9	54.9	23.9	66.1
Paper	4.8	2.7	2.9	9.9	29.1	17.7
Snack Wrappers	2.5	2.4	3.2	27.4	22.2	27.9
Tobacco	*	*	*	140.5	110.0	119.7
Vehicle Debris	8.5	1.7	3.6	19.6	9.4	22.6

Note: Tobacco is Micro Litter and not included under Visible Litter.

District Analysis

LADOTD Districts were used as one of the criteria in determining survey site location. The average Visible Litter was comparable across all LADOTD districts. As shown in Figure 2-13, the average amount of Visible Litter was lowest in District 58, the Chase area, and highest in District 4, the Shreveport-Bossier City metropolitan area.

Figure 2-13: Average Visible Litter Pieces Per Site by District

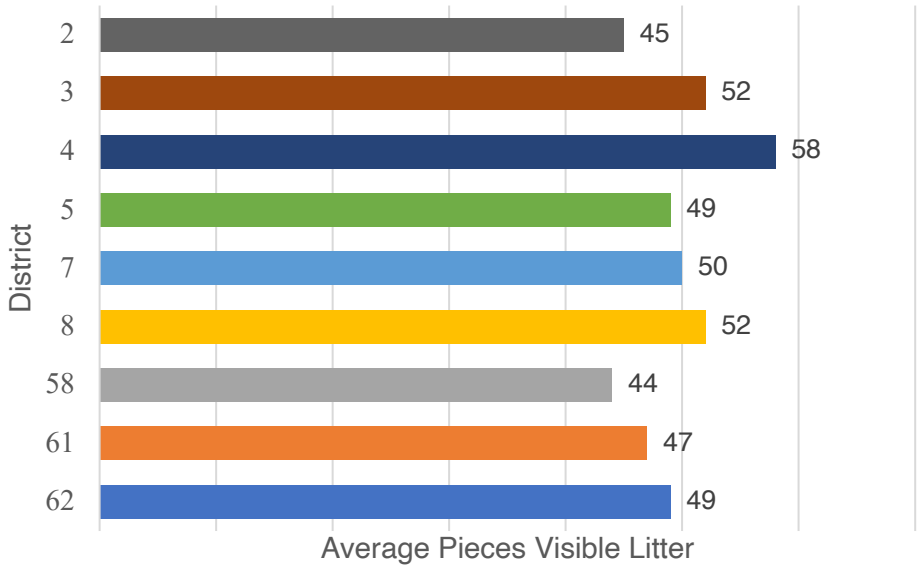


Table 2-6 shows the top ten most littered sites based on Aggregate Litter counts. These sites had substantial amounts of Micro Litter; however, several sites had higher amounts of Visible Litter than Micro Litter. The three highest Aggregate Litter sites were located in District 62, the Hammond Area. These sites had substantial amounts of polystyrene pieces and mowed litter conditions. But District 62 also had one of the cleanest sites on I-59. Table 2-7 shows the top ten least littered sites for comparison.

Table 2-6: Top Ten Most Littered Sites Based on Aggregate Litter

Most Littered	Parish	District	Roadway
1	Livingston	62	US 190
2	Washington	62	LA 21
3	E. Baton Rouge	61	US 61
4	Orleans	2	I-10
5	Livingston	62	I-12
6	Avoyelles	8	LA 115
7	Bossier	4	I-20
8	Union	5	US 167
9	Livingston	62	LA 1024
10	Concordia	58	US 84

Table 2-7: Top Ten Least Littered Sites Based on Aggregate Litter

Least Littered	Parish	District	Roadway
1	St. Bernard	2	LA 46
2	St. Mary	3	LA 70
3	Vermilion	3	LA 14
4	Vernon	8	LA 117
5	Desoto	4	I-49
6	St. Mary	3	US 90
7	Tangipahoa	62	I-55
8	West Feliciana	61	US 61
9	Terrebonne	2	LA 24
10	Rapides	8	LA 28 West

District 4 had two sites in the top ten for Visible Litter (Table 2-8) and one in the top ten for Micro Litter (Table 2-9). At the site identified with the highest amount of Visible Litter, the survey team commented on both the extreme litter condition within and also noted litter in an adjacent drainage area outside the survey site. Most of the highest littered sites were either along roadways with high traffic volume or larger populated areas, although a couple of sites in more rural areas had high litter counts and visible signs of dumping.

Table 2-8: Sites with the Highest Amount of Visible Litter

Litter Rank	Parish	District	Roadway
1	Bossier	4	I-20
2	Lincoln	5	US 80
3	Avoyelles	8	LA 115
4	Allen	7	US 165
5	Jefferson	2	LA 18
6	Bossier	4	US 71
7	Acadia	3	US 90
8	Washington	62	LA 21
9	Orleans	2	I-10
10	East Baton Rouge	61	LA 67

Table 2-9: Sites with the Highest Amount of Micro Litter

Micro Litter Rank	Parish	District	Roadway
1	Livingston	62	US 190
2	Washington	62	LA 21
3	East Baton Rouge	61	US 61
4	Orleans	2	I-10
5	Livingston	62	I-12
6	Avoyelles	8	LA 115
7	Union	5	US 167
8	Livingston	62	LA 1024
9	Bossier	4	I-20
10	Concordia	58	US 84

Litter Source Estimates

Without witnessing littering, determining the exact sources of litter can be difficult. However, based on site conditions and guidelines developed and refined over time, identifying the likely sources of litter is possible. The litter source may be determined based on context clues such as:

1) types, amounts, conditions, and locations of littered items

2) proximity to specific land uses, e.g., solid waste facilities, convenience stores, and fast-food establishments

3) roadway type, e.g., accessibility by pedestrians

At each site, the team documented surrounding land uses and indicators that might identify litter sources. In addition, mapping software was used to analyze the dynamics of each site further to determine any additional factors that could influence the types and amounts of littered items.

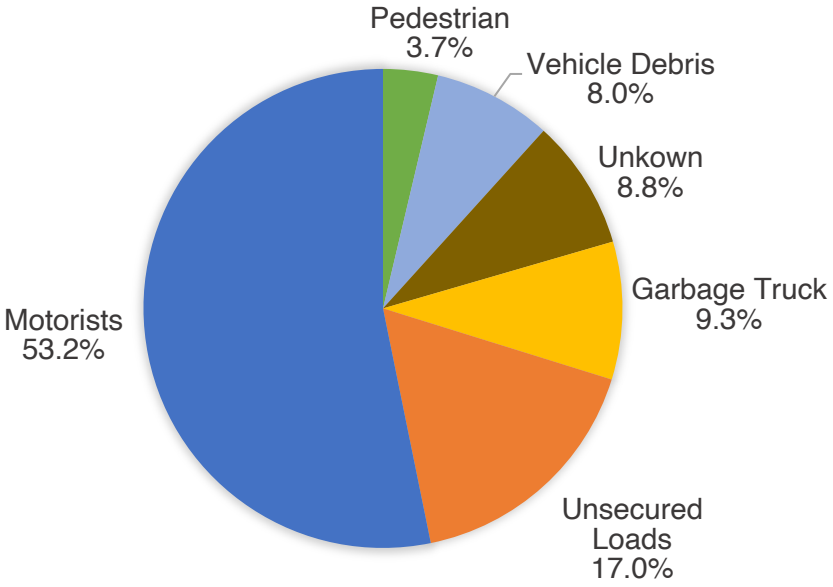
The Project Team categorized litter sources into the following groups:

- **Motorists:** drivers and passengers who discard trash improperly from vehicles
- **Pedestrians:** walking individuals who improperly discard trash
- **Improperly Secured Loads:** pickup trucks or construction vehicles with inadequately secured loads
- **Garbage Trucks:** vehicles designed to transport trash or vehicles carrying garbage to designated facilities
- **Vehicle Debris:** tire tread, auto parts, or vehicle accident debris
- **Unknown:** other items that cannot be reasonably determined.

The Project Team determined through litter analysis that the leading litter sources were motorists (53.2%), unsecured loads (17%), and garbage trucks (9.3%).

Figure 2-14 provides more detail. Although pedestrians typically account for one of the top three sources of littering in studies, only 3.7 percent of litter was attributed to pedestrians in this survey, likely due to minimal pedestrian accessibility along the surveyed roadways.

Figure 2-14: Top Sources of Litter



Brand Name Analysis

The survey members documented brand names when possible. During the field survey, 132 unique products were identified by brand name. Since the purpose of identifying brand names was just to identify trends, products within the same category were combined.

Figure 2-15 shows the most commonly identified brand names. The three most prevalent brand names were beer containers including Bud Light, Busch, and Miller. Coca-Cola and McDonald's were also in the top five. This brand data correlates with the survey findings of beverage containers and fast food being among the most prevalent categories of litter.

Figure 2-15: Most Common Brand Names of Roadway Litter

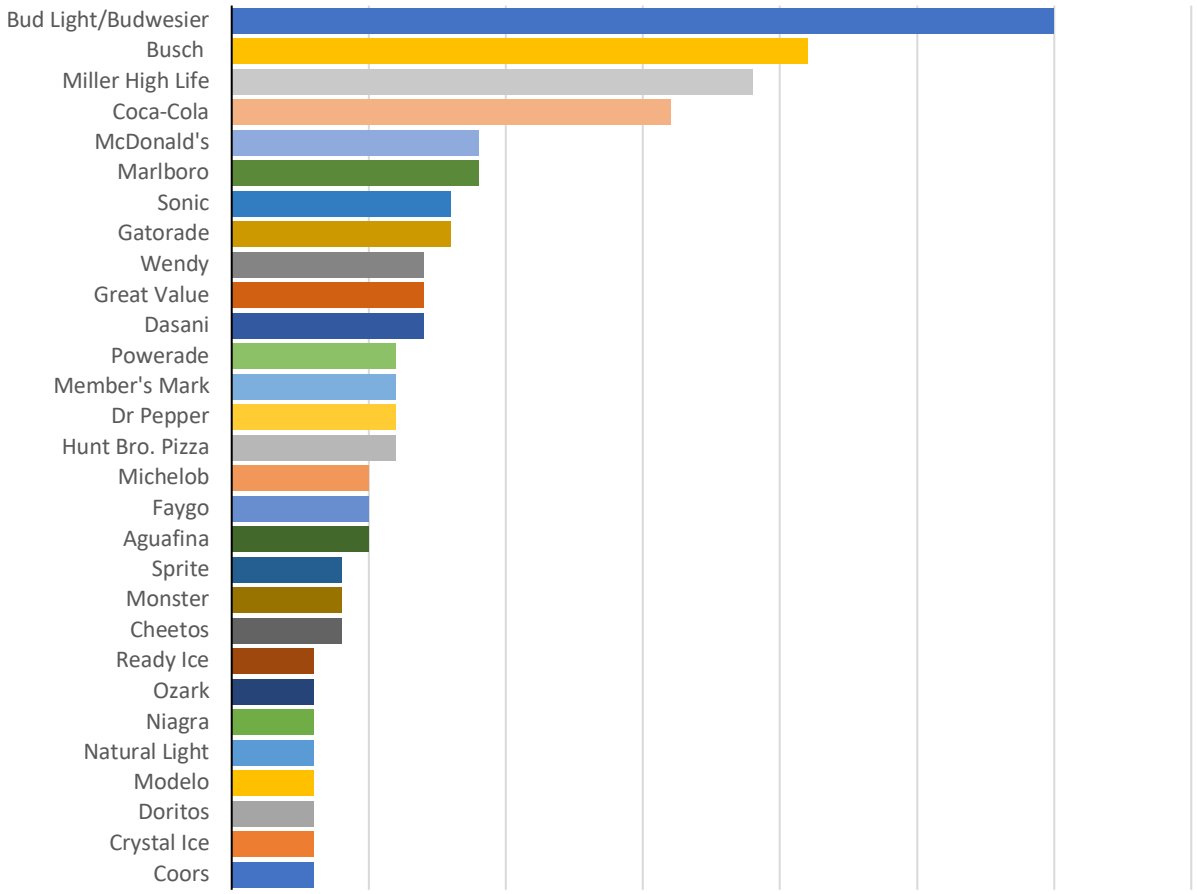


Table 2-9 lists the companies correlated with the brand names found on litter at the survey sites. The company and brand name relationship were confirmed on the company or brands' websites.

Table 2-9: Company and Brand Name Relationship

Company	Brand
AB InBev	Budweiser, Busch, Michelob, Modelo, Natural Light
Coca-Cola	Coca-Cola, Dasani, Monster, Powerade, Sprite
PepsiCo	Aquafina, Gatorade, Doritos, Cheetos
Niagara Bottling	Niagara, Member's Mark (Sam's), Great Value (Walmart)

Recyclables within Litter Items

Nearly 42 percent of all Visible Litter were composed of recyclable packaging materials like metal, plastic containers, and paper products. Determining which Micro Litter items could be recyclable was more complex. For example, cigarette butts may be recycled, but only under specific conditions.

Proximity Indicator Correlations to Litter Condition

At each survey site, team members recorded proximity indicator(s). The 14 proximity indicators that may influence littering behavior or the accumulation of litter include:

- Beautification
- Businesses/Commercial
- Churches
- Convenience Stores
- Drainage Ditches
- Fast Food Establishments
- Fields/Wooded
- Railroad
- Residential
- Solid Waste Facilities (Transfer Station and Landfills)
- Schools
- Traffic Signs/Signals
- Vacant Lot
- Utility Substations

Correlation analyses were conducted to determine whether an indicator and the quantity indicators were associated with the amount of litter found at survey sites. For each of the 14 indicators, correlation analyses were run in relation to Visible Litter, Micro Litter, and Aggregate Litter (Litter + Micro Litter).

In addition, the Project Team analyzed the ten litter categories, considering whether the pattern or extent of littered items — when proximity indicators are present — is comparable to the extent of the litter when such indicators are absent. A positive correlation might suggest that more litter exists in the presence of the given indicator. However, the statistical significance of that correlation must be considered in light of the number of cases under consideration and the chosen level of significance. Detailed proximity indicators charts are provided in Appendix 6.

Based on the statistical analysis, the following results are reported:

- Beautification efforts reduce litter. Less litter was found near sites with trees, shrubs, plantings, and similar enhancements. Sites without beautification efforts had approximately 38 percent more litter than beautified sites.
- Bags and all Micro Litter are likely to be located near convenience stores.
- Beverage containers are frequently found near drainage ditches and utilities.
- Beverage containers, beverage cups, fast food items, and bags are often found close to solid waste facilities.
- Beverage cups are likely to be located in proximity to fast food establishments.
- Fast food items are more likely near businesses and commercial enterprises.

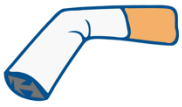
ROADWAY LITTER SURVEY KEY FINDINGS

- There are approximately 143.8 million pieces of litter on Louisiana roadways.

- Littering patterns, including the number of littered items and locations, are similar on interstates, highways, and state routes.

- Interstates are the most littered type of roadway, with an average of 10,178 pieces of litter per mile.

- The most prevalent Aggregate Litter (Visible + Micro) categories are tobacco products (24.5%), beverage containers (13.7%), and construction debris (10.8%). Appendix 2 provides detail on categories, items, and packaging materials, including Aggregate Litter counts for items.



- The top three Aggregate Litter packaging materials are plastic, tobacco, and metal. The highest percentage of Aggregate Litter by packaging material is plastic (43.1%), followed by tobacc0-products other (24.5%) and metal (10%).

- A significant amount and variety of plastic items are littered. Over 61.9 million plastic items were found on Louisiana roadways. The top three Aggregate Litter items are cigarette butts (21%), plastic beverage containers and cup pieces (13.8%), and plastic fast-food pieces (7.2%).

- Plastic water bottles are the most common Visible Litter item. Plastic water bottles were found at 80 percent of all surveyed sites. Plastic water bottles were also the most prevalent single item of Visible Litter and make up the largest share (24.1%) of the beverage container category.

- The leading litter sources are motorists, unsecured loads, and garbage trucks. Motorists (53.2%) and unsecured loads (17%) are the leading sources of litter. The third-highest source of litter is garbage trucks (9.3%).

- Many littered items could be recycled. Nearly 42 percent of Visible Litter contains recyclable packaging materials like metal, plastic containers, and paper products.

- Beautification efforts reduce litter. Sites without beautification efforts have approximately 38 percent more litter than beautified sites.

- Visible Litter is comparable across all LADOTD districts. The average number of Visible Litter items is highest in District 4, Bossier. District 58, the Chase area, has the lowest number of litter items.

- Brand name litter items are most often beverage containers and fast-food products. The most common brand names found at the 137 survey sites, in order of prevalence, were Bud Light, Busch, Miller High Life, Coca-Cola, and McDonald's.

RECOMMENDATIONS

- Develop improved litter removal systems including procedures and practices including frequency of litter collection depending on conditions along roadways, eliminating the accumulation of litter, which may lead to increased littering behavior and the accountability for the litter removal.

- Develop new systems to ensure litter removal prior to mowing roadsides to help reduce the creation Micro Litter from mowing.

- Encourage beautification. Sites that were not beautified had an average of 38 percent more Visible Litter than beautified sites.

- Create litter prevention messaging for fast-food and beverages at points of sale, including restaurants and convenience stores.

- Encourage the enforcement of litter laws, including for uncovered loads.

- Expand Adopt-a-Road or adoption programs to removal and raise awareness of litter issues.

- Expand youth litter education programs.

- Support expansion of KLB affiliation with new affiliate options, such as community and university affiliates, that can encourage litter prevention rather than litter remediation.

- Identify consistent funding for ongoing statewide litter programs

- Identify best practices and evaluate waste collection and hauling infrastructures, expand effective residential and commercial waste processing, and reduce escaping litter from vehicles.

- Promote the recycling of beverage containers.

- Continue the “Let it Shine” campaign to expand public awareness about impacts of litter.

- Conduct statewide research every 5 to 10 years to evaluate litter abatement strategies, and conduct periodic litter assessments with communities and businesses to determine if litter programs are decreasing litter or littering behavior.

LOUISIANA
LITTER RESEARCH

AUGUST 2023

PUBLIC ATTITUDE SURVEY

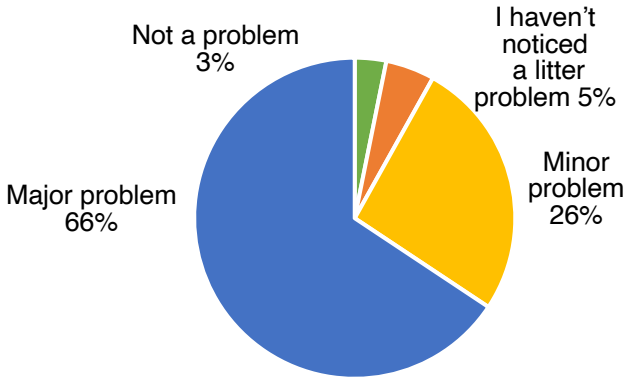
METHODOLOGY

The Public Attitude Survey offers insight into Louisiana residents' opinions on the effects, prevalence and consequences of littering, and litter prevention and abatement efforts. The Project Team, in collaboration with KLB, developed the survey and sought responses based on the US Census data and geographic representation within the Northern, Central, Acadiana, Greater New Orleans, and Florida Parishes/Baton Rouge regions. The survey's 43 questions derived, in part, from similar studies, but there were also Louisiana-specific questions. In March 2023, the Project Team, with assistance from Dr. Boyette, Momentive, and Mobius Intelligence Systems, administered the survey through a web-based questionnaire in English. The survey was completed by 537 Louisianans. The margin of error is +/- 4 percent. The data was then analyzed and cross-referenced to identify the attitudes and beliefs about litter and littering behavior.

PRESENCE OF LITTER

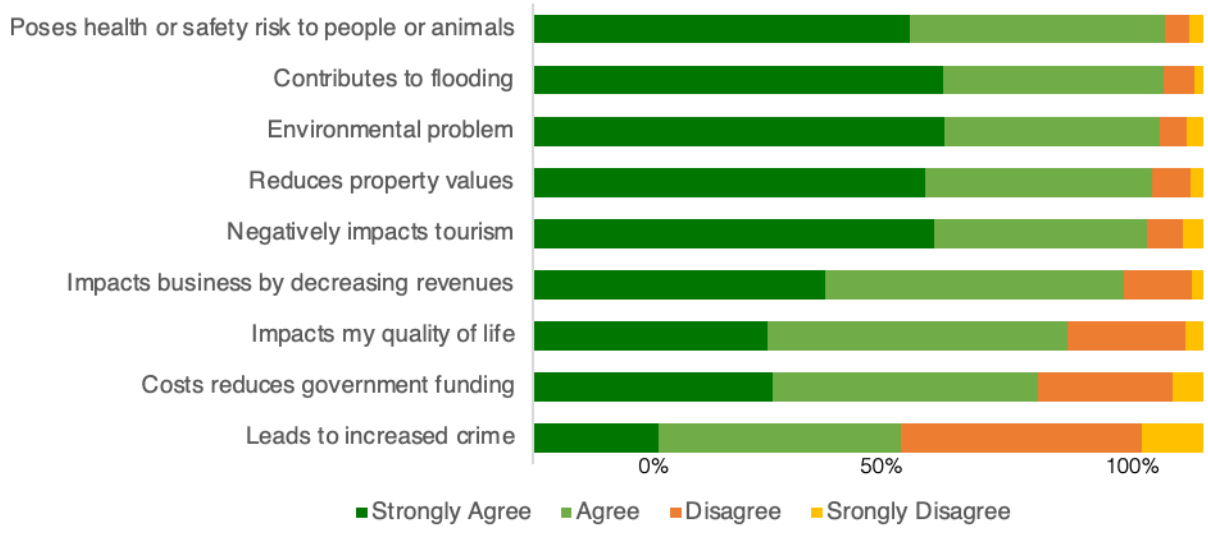
The first series of survey questions gathered opinions on the presence of litter and its effects on the community and environment. Over 92 percent of respondents said that litter is a problem. As shown below in Figure 3-1, only 3 percent of respondents indicated litter is not a problem. Nearly five percent responded that they had not noticed litter.

Figure 3-1: Public Attitude about Litter in Louisiana



Respondents reported that litter harms humans and animals, affects environmental quality, contributes to flooding, reduces property values, negatively impacts tourism, and decreases business revenues. The respondents' reactions to the statement, "litter leads to increased crime," was narrowly split: 54 percent agreed, and 45 percent disagreed. 88 percent strongly agreed or agreed that litter decreases business revenues. Figure 3-2 shows the summary of all responses to the survey statements. The statements "littering poses a health or safety risk to people or animals" and "contributes to flooding" had the overall combined highest agreed response, 94 percent.

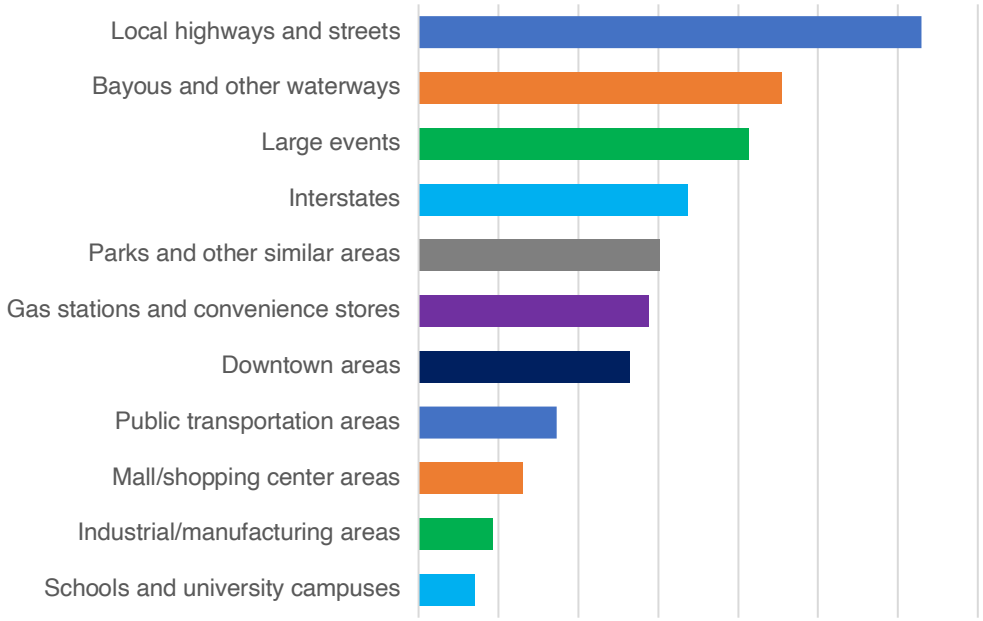
Figure 3-2: How Litter Affects the Community



PREVALENCE OF LITTERING

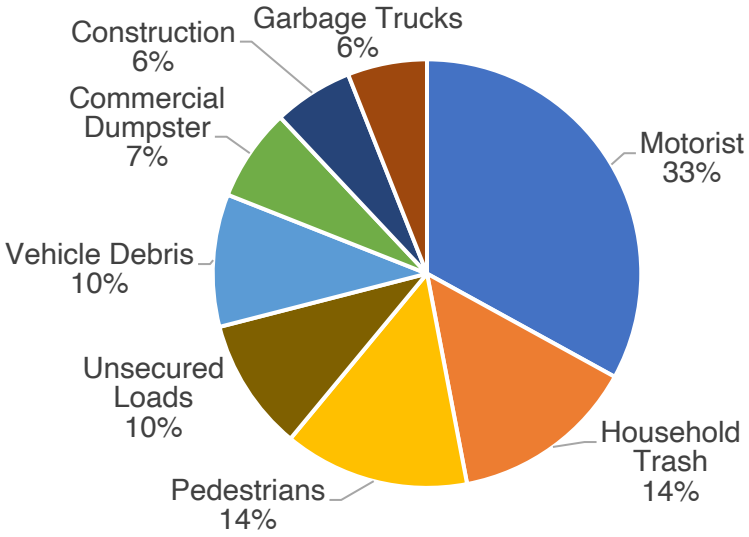
The following section focuses on respondents' opinions about the location and type of litter. Based on a list of locations, respondents selected top three locations greatest amounts of litter. The top responses were local highways and streets, followed by bayous, lakes, rivers, and other waterways. Respondents ranked large events, such as concerts, festivals, and parades, third, followed by interstates. Respondents also identified parks and gas stations, and convenience stores as highly littered locations. The weighted averages

Figure 3-3: Perception of the Greatest Amount of Litter



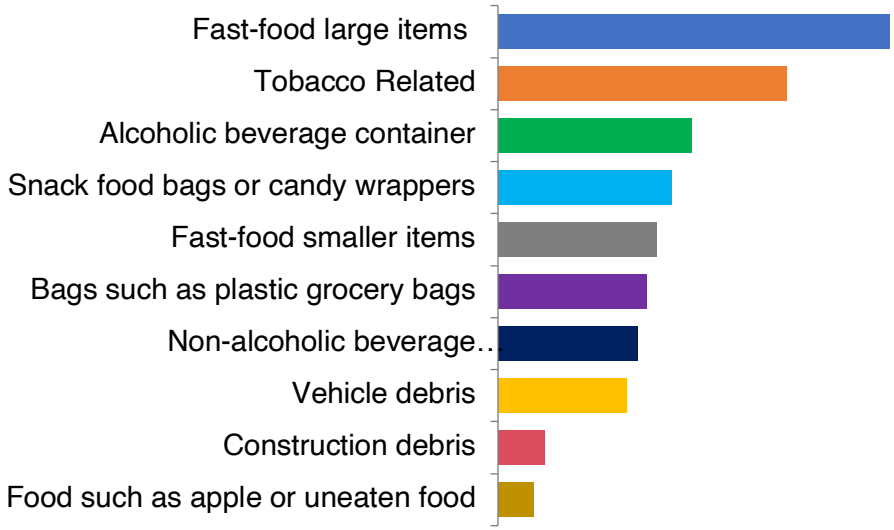
The survey also asked respondents to rank sources of litter in terms of prevalence on a scale of 1 to 8, with 1 representing the most common source and 8 being the least. The sources presented to respondents derived from Louisiana Roadway Survey results, suggestions by KLB, and other studies. The survey used randomization to reduce bias. The public's opinion aligns with the Roadway Litter Survey finding that motorists and unsecured loads are the top sources of litter. Figure 3-4 shows the public perception of sources of litter.

Figure 3-4: Perception of Top Litter Sources in Louisiana



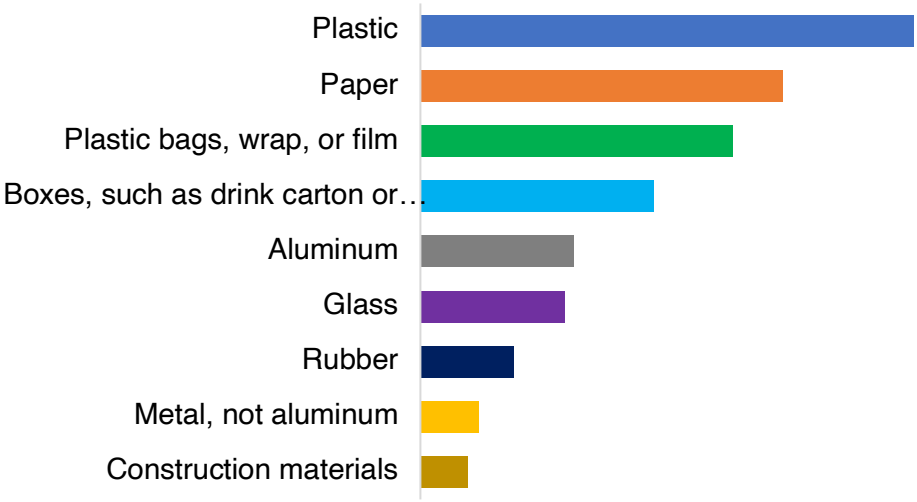
Respondents were asked to identify the three items they litter most often. Participants listed large fast-food packaging, cups, wrappers, and bags as their most commonly littered items. Tobacco products, such as cigarette butts, cigar tips, boxes, or wrappers, were ranked the next most common, followed by alcoholic beverage containers, snack food bags or candy wrappers, and fast-food small items like straws and sauce packaging. Figure 3-5 provides additional detail.

Figure 3-5: Most Common Litter Item Identified by Louisiana Respondents



The respondents were also asked to identify the packaging materials of their top three most frequently littered items. For the purpose of this question, plastic bags were separated from other plastic items, to measure the public's perception that plastic bags constitute a high percentage of Visible Litter. The top responses, as shown in Figure 3-6, were plastic packaging, followed by paper, and plastic bags, wrap, and film.

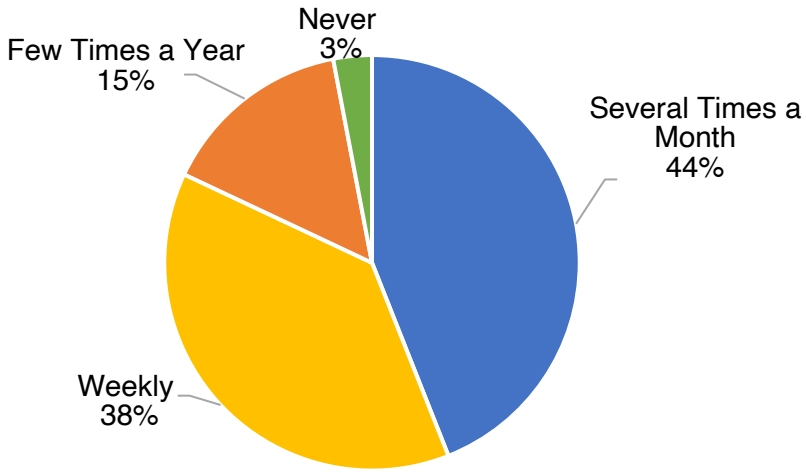
Figure 3-6: Most Common Types of Packaging Material Identified



LITTERING FREQUENCY AND REASONING

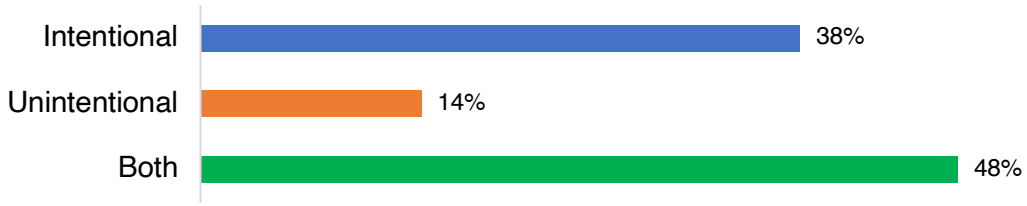
Nearly forty percent of survey respondents reported witnessing littering weekly, and 44 percent reported seeing it several times a month. Figure 3-7 displays the responses to the frequency of witnessing littering behavior. Forty percent of respondents said they think all age groups litter equally. Respondents who believed a specific age group littered more than others said younger people littered more. Thirty-six percent of respondents believed people under 24 years litter the most. Nearly 17 percent believed people aged 25 to 34 litter the most.

Figure 3-7: Frequency of Observed Littering in the Past Year



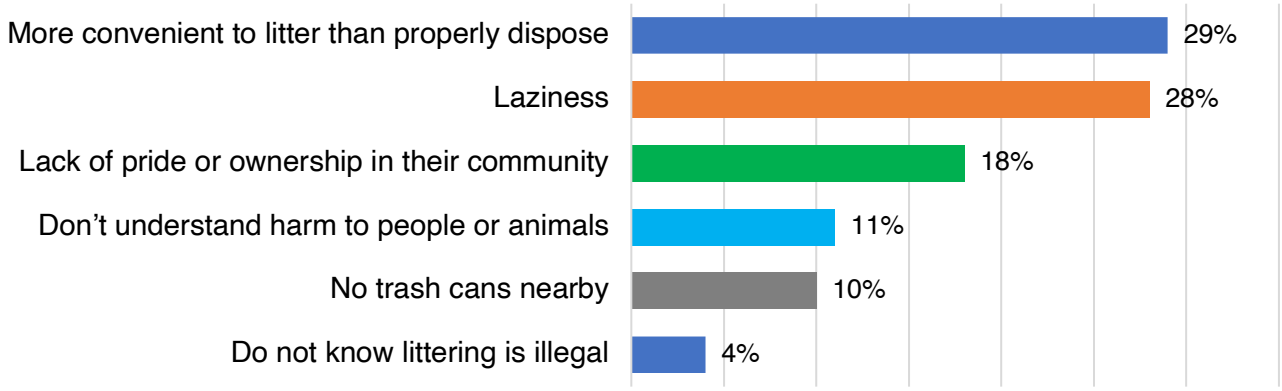
The survey asked whether people litter intentionally or unintentionally. Nearly half of respondents reported they believe people litter both intentionally and unintentionally. Figure 3-8 shows the response breakdown.

Figure 3-8: Littering Perception Intentional or Unintentional



Respondents reported the top reasons people litter are convenience and laziness. Nearly thirty percent of respondents said most people litter because it is more convenient to litter than to properly dispose of trash. Only a small percentage of respondents (4%) thought people littered because they did not know littering was illegal. Figure 3-9 provides additional detail.

Figure 3-9: Reasons Why People Litter



The survey also showed most people identify as litterers. Three-quarters of all respondents reported they intentionally (18%) or unintentionally (58%) litter. Approximately a third of participants claimed they never littered. The survey also asked respondents to identify reasons for intentional littering, unintentional littering, and littering connected to driving pickup trucks or similar vehicles. For intentional littering, the most frequently identified reason was "no available trash can," The second highest was the intentional placing an unsecured item in the bed of a truck. Table 3-2 shows the top reasons the participants shared for intentionally littering, based on the weighted average.

Table 3-2: Participant Reason for Intentionally Littering

Ranking	Reason for Intentionally Littering
1	No trash can was available
2	Item flew out of truck bed
3	Did not consider the item litter
4	Threw an item from a vehicle
5	Item was too messy to carry

Participants stated the most common reason for unintentional littering was accidentally dropping an item they were carrying or holding. Table 3-3 shows the top reasons the participants shared for unintentionally littering.

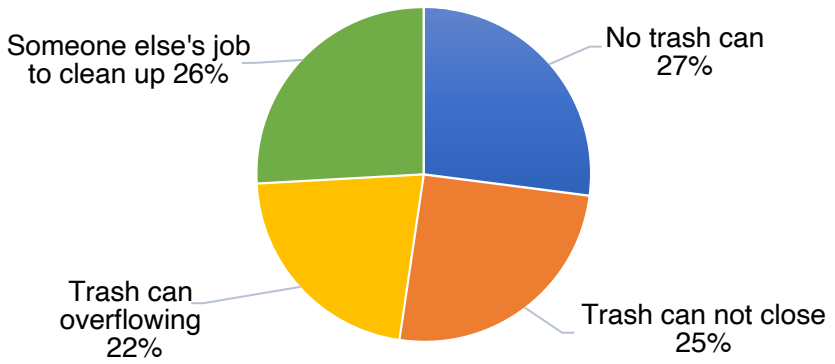
Table 3-3: Participant Reason for Unintentionally Littering

Ranking	Reason for Unintentionally Littering
1	Dropped or blew out of my hand accidentally
2	Blew out of the inside of vehicle
3	Flew out of a truck bed
4	Fell out of trash can or bag

Respondents who identified as pickup truck drivers indicated the main reason for unintentional littering is that they do not place loose items in the bed or they secure loose items. Drivers who said they do not secure their loads said that they did not think item(s) would fly out, they had difficulty securing items, and they did not know it was illegal to not secure loads.

The last question in this section of the survey focused on littering behavior at outdoor events. Figure 3-10 presents the circumstances that influence littering at outdoor events. Based on the responses, a comprehensive approach is needed to address littering at concerts, parades, festivals, and tailgating events, requiring a litter management plan that includes an adequate number and placement of trash cans and the monitoring of trash cans.

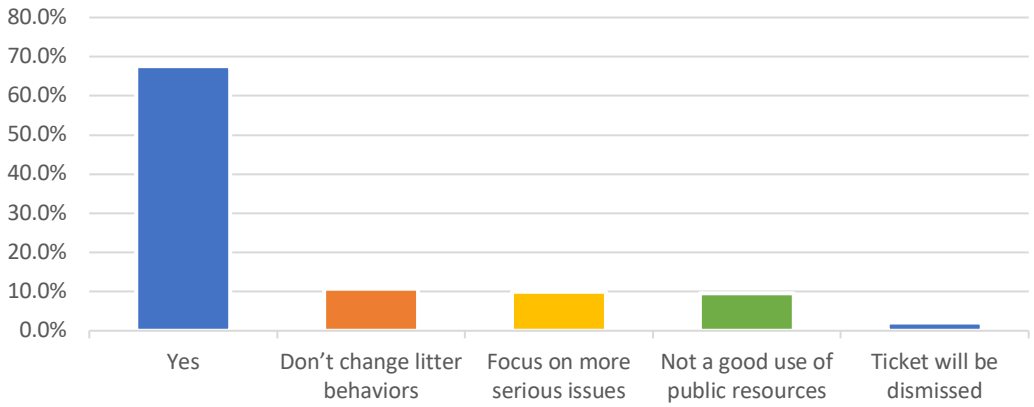
Figure 3-10: Circumstances When People Litter at Outdoor Events



ENFORCEMENT AND CONSEQUENCES OF LITTERING

This section of the survey helps to understand respondents' opinions on the consequences of littering behavior. Most respondents (67.6%) said they support more enforcement of litter laws and illegal dumping. However, one in ten respondents did not think enforcement would change littering behaviors. Figure 3-11 shares the response results.

Figure 3-11: Public Attitude On Increasing Litter Law Enforcement



According to the survey, the majority of respondents feel all law enforcement agencies should be involved in enforcing litter and illegal dumping laws. Fifteen percent of respondents said the local police and sheriff should be responsible for enforcement, followed by Louisiana Wildlife and Fisheries officers (7.7%), state police (6.1%), code enforcement (5.6%), and constables (2.9%). Figure 3-12 presents the survey question results.

Figure 3-12: Opinion on Entity that Should be Responsible for Enforcement

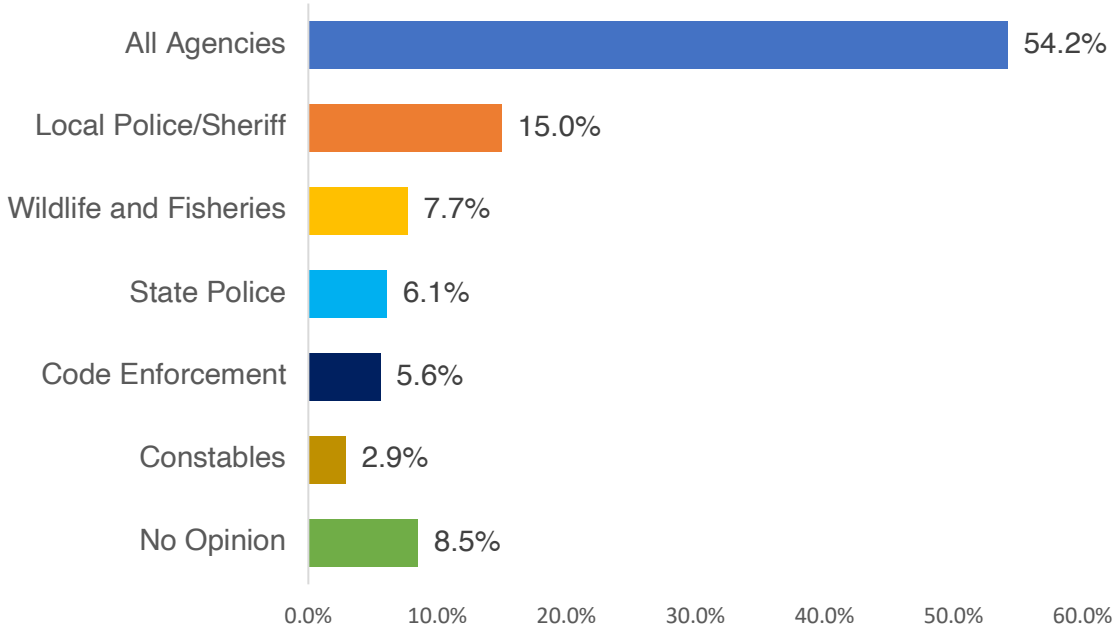
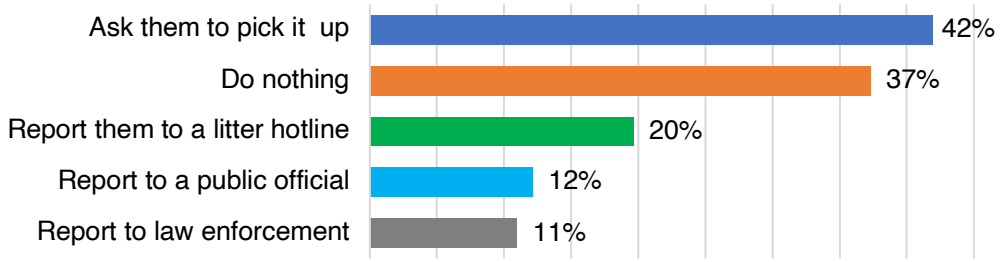


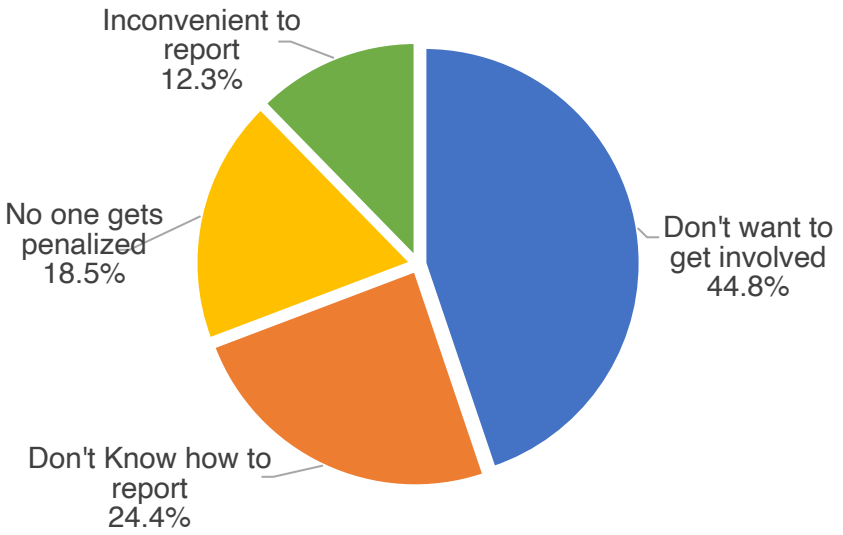
Figure 3-13 shows what respondents would do if they saw someone littering. Forty-two percent said they would ask the litterer to pick it up, but 37 percent said they would do nothing.

Figure 3-13: Responses to Witnessing Someone Litter



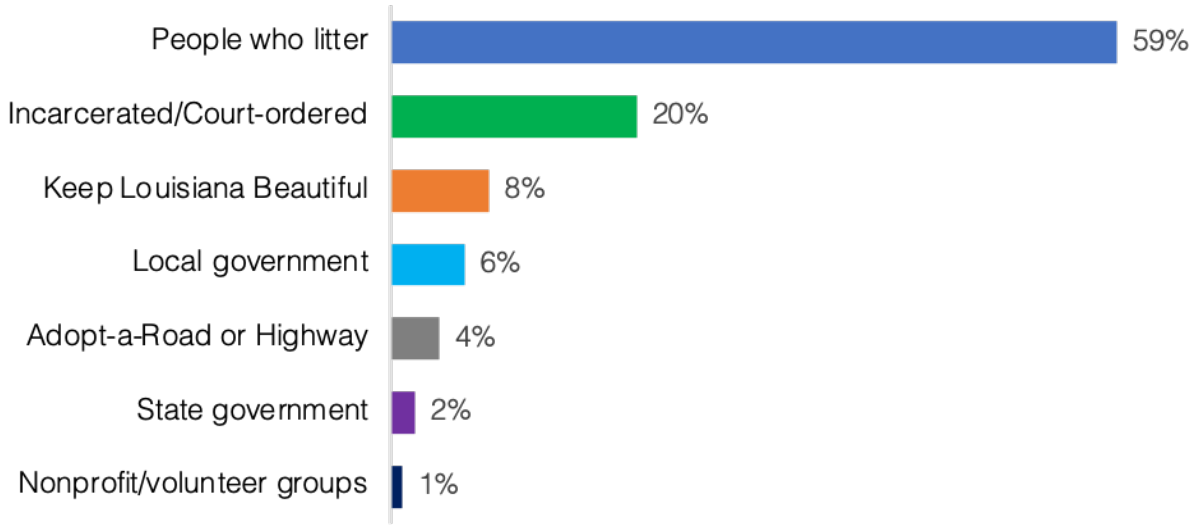
Nearly two-thirds of those surveyed responded that they do not know how to report littering. But many respondents (44.8%) claimed they simply don't want to get involved. And there are additional roadblocks to litter reporting; when asked why other people do not report, participants said other people might believe it is an inconvenience to report (12.3%) Figure 3-14 provides more detail.

Figure 3-14: Reasons Why People Do Not Report Littering



The final question in this section asked survey participants for their opinion on who should be responsible for cleaning up litter. Figure 3-15 presents their responses. Nearly sixty percent of respondents believe litterers should clean up litter. One in five said court-ordered individuals should be responsible.

Figure 3-15: Opinion on Who is Responsible for Litter Cleanup

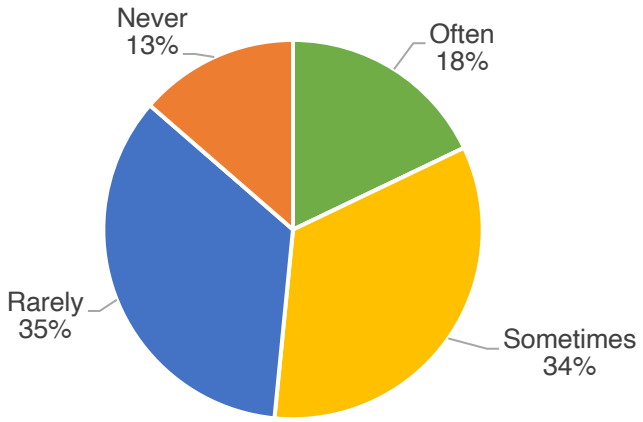


LITTER PREVENTION AWARENESS

Respondents reported some awareness of public outreach about litter. Approximately one-half of the survey respondents expressed that they had often or sometimes seen or heard a litter abatement message. Fourteen percent reported they had never seen litter abatement messages. In regards to specific litter abatement campaigns, nearly half had not heard or seen KLB's "Let Louisiana Shine - Stop Littering" message. Over a quarter of respondents had seen or heard that campaign on TV or streaming devices. Figure 3-16 highlights how often respondents recalled seeing or hearing litter prevention messaging.

Forty-one percent reported hearing or seeing KLB's "Love the Boot Week" campaign messaging. In response to a question asking if survey respondents were aware of KLB or their KLB local affiliate, 62 percent responded that they were aware. Since these messaging campaigns are relatively new, the survey responses show an understanding of the KLB network and a relatively high percentage for the two new campaigns.

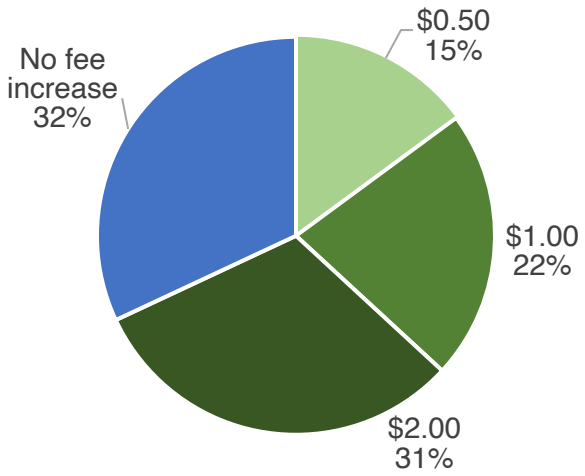
Figure 3-16: Litter Prevention Messages Seen or Heard by Survey Respondents



FUNDING

Respondents were asked if they you be willing to pay an additional fee on their motor vehicle license renewal once every 6 years funding was guaranteed to be designated to local litter cleanup and prevention. 68 percent support a fee with a range of $.50 to $2. Figure 3-17 shows the responses to a fee.

Figure 3-17: Public Attitude Supporting Fee for Litter Cleanup and Prevention



RESPONDENT'S REFLECTIONS ON LITTER ATTITUDES AND BEHAVIORS

The survey offered an optional open-ended question for respondents to briefly explain their attitudes or behavior about litter. Seventy-seven percent of the participants responded to this question. Many reinforced previous answers regarding littering. Some respondents claimed to be former litterers, but for various reasons — including growing older, having a family, connection with their community, learning about litter's impacts, and becoming responsible — they no longer litter. Another group of participants expressed concern about litter conditions and explained the need to maintain a clean environment. A sample of responses is included in Appendix 7.

PUBLIC ATTITUDE SURVEY KEY FINDINGS

- **Nearly all Louisiana citizens (92%) believe litter is a problem.**

- **Litter negatively impacts communities.** Most respondents (88%) strongly agreed or agreed that litter harms humans and animals, affects environmental quality, contributes to flooding, reduces property values, negatively impacts tourism, and decreases business revenues.

- **Littering is frequently observed.** Of those surveyed, 38 percent reported witnessing littering behavior weekly, and 44 percent reported seeing it several times a month.

- **The top reasons people litter are convenience and laziness.** Twenty-nine percent of respondents said most people litter because it is more convenient to litter than to properly dispose of trash. Only four percent of respondents thought people littered because they did not know littering was illegal.

- **Littering at events relates to placement and condition of receptacles.** Littering at outside events such as concerts, parades, festivals, and tailgating events requires a litter management plan that includes an adequate number and placement of trash cans and the monitoring of trash cans.

- **Unsecured loads are a significant source of litter.**

Drivers who reported they do not secure their loads said they did not think item(s) would fly out, they had difficulty securing items, and they did not know there was a law mandating loads be secured.

- **Most people support more enforcement of litter laws and illegal dumping.** Respondents overwhelmingly (68%) support more enforcement. However, one in ten respondents reported they did not think enforcement would change littering behaviors.

- **All enforcement agencies should have a role in litter and illegal dumping enforcement.** A majority (54.2%) of respondents said all law enforcement agencies should be involved in enforcing litter and illegal dumping laws.

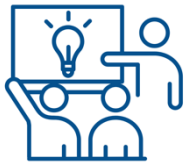
- **Most people, nearly two-thirds, do not know how to report a litterer.** Respondents (45%) reported they don't want to get involved. Some participants (12.3%) said people might believe it is an inconvenience to report, or people might not know how to report (24.4%).

- **Litterers should be responsible for cleanup.** Over half of respondents (59%) said people who litter should be responsible for cleaning it up. One in five said court-ordered individuals should clean up litter.

- **Most Louisianians support additional fee to fund local litter cleanup and prevention.** Respondents (68%) reported they would you be willing to pay an additional fee for $.50 to $2 on your motor vehicle license renewal once every 6 years.

RECOMMENDATIONS

- Increase awareness of litter's impacts through public awareness campaigns and education initiatives.



- Expand placement of trash, ash, and recycling receptacles. Continue support of grant programs and educational efforts to increase the number of receptacles in public spaces and at events.

- Conduct annual evaluations of municipal and parish programs and policies to ensure requirements for litter prevention.

- Encourage affiliates to conduct public attitude surveys to determine local needs and identify local litter and waste issues.

- Improve reporting of littering and illegal dumping via hotlines and other reporting technologies.

- Support litter law enforcement efforts. Expand training to all parishes for officers, prosecutors, and judges in enforcing litter laws.

- Establish ongoing funding source. Work with state legislature to implement new fee designed to support state and local litter prevention efforts.

LOUISIANA
LITTER RESEARCH

AUGUST 2023

LITTER COST STUDY RESULTS

The Litter Cost Study estimates what litter costs Louisiana taxpayers by measuring local government and state agency expenditures on litter cleanup, abatement, and enforcement. While efforts were made to obtain cost data from a statistically representative sample of local and state agencies, entities, and jurisdictions, the costs presented in this report should be viewed as estimates. The respondents in the study's sample locations, selected for population size and geographic diversity, provided data via survey forms and interviews conducted by the Project Team between January and May 2023. The Team employed data collection methods and formulas used in similar studies. A conservative cost estimate was then computed, based on the assumption that litter-related expenditures reported by respondents and interviewees were comparable to those made by other local government entities in Louisiana.

METHODOLOGY

In 2010, Keep Louisiana Beautiful (KLB) released its first report on the estimated amount of taxpayer funds spent on litter and illegal dumping remediation efforts statewide. The 2010 study collected data from 41 governmental entities via questionnaires and interviews. Based on the data, the researchers generated a per capita for all municipalities and a per capita for all parishes and sheriff's offices. They also added the Department of Transportation and Development's clean-up expenses.

The report calculated that municipal governments, parish governments, sheriff's departments, and state agencies in Louisiana spent an estimated $39,957,773 to collect and dispose of litter, enforce litter laws, adjudicate litter violations, and conduct anti-litter public information and education programs on an annual basis

In 2023, KLB embarked on a follow-up report duplicating the methodology relating to litter and illegal abatement, prevention, remediation, education, and enforce cement. A Project Team, consisting of Carson Consulting and Tetra Tech, BAS, worked with KLB to develop a representative sample based on jurisdiction type, population, and geographic diversity. The Project Team identified 42 local government entities (see Figure 4-1) based on government type, geographic location, and population to collect direct and indirect litter and illegal dump expenditures incurred over the past budget year or 12-

month period. Additionally, six state agencies with direct involvement or responsibilities related to litter and illegal dumping were identified. Municipalities, parishes, sheriff's offices, and state agencies were all asked to identify the expenditures incurred across various departments, such as public works, solid waste, transportation, police, code enforcement, or other departments that may incur litter and illegal dumping clean-up costs.

Like the 2010 study, municipalities were identified in three (3) distinct population categories, which included the following sizes: Large (>50k), Medium (10-50k), and Small (<10k). The study identified three (3) distinct population categories for parishes and sheriff's offices, based on the 2010 study, including the following sizes: Large (>200k), Medium (100-200k), and Small (<100k).

Figure 4-1: Jurisdictions Initially Surveyed

Note: C=Cities, P=Parishes, and S=Sheriff's Office

To initiate the 2023 data collection process, a letter from Lt. Governor William H. Nungesser's office was sent to the highest elected official in each jurisdiction requesting their participation. The Project Team sent a follow-up email to these officials in January 2023. Since it was unlikely that each jurisdiction and their departments have specific budget lines for litter and illegal dumping costs, the Project Team provided data collector forms to assist in gathering information. One form was a Word document similar to the 2010 study tool, and the second was an Excel spreadsheet designed to generate the cost estimate based on information entered by the jurisdiction. The data request included labor expenditures, equipment and maintenance expenses, supplies, disposal fees, social media expenditures, educational efforts, and volunteer recruitment for cleanups and related programs. State agencies, including the Office of the Lieutenant Governor - Department of Culture, Recreation and Tourism (DCRT), Departments of Transportation and Development (DOTD), Wildlife and Fisheries (LDWF), Environmental Quality (LDEQ), Public Safety and Corrections (DPS&C), and State Police (LSP) received a similar inquiry form to collect data. From January to May 2023, the Project Team followed up with contacts via email and telephone interviews to assist the entities in providing the requested expenditures, see Appendix 8 for participating entities.

Once the Project Team secured completed responses from a representative sample size, the expenditures were grouped by population size and scaled to determine the estimated total cost for all entities statewide. Three different methodologies were used in this study than those used in the 2010 study. First, the municipal and parish per capita were determined by each population range rather than one per capita by jurisdiction type. The researcher concluded that separating by population more accurately accounts for possible expenditures. Second, when applicable, populations were decreased, including for consolidated governments. Third, the researchers reported parish and sheriff costs but adjusted them to reduce possible duplication of efforts and to include expenses that represented the different roles of the two entities. Based on these methodologies, the local jurisdictions' estimates are considered conservative. The state agency estimates are reported as totals provided by each entity, except for state police, which provided more generalized information.

ESTIMATED LITTER COSTS

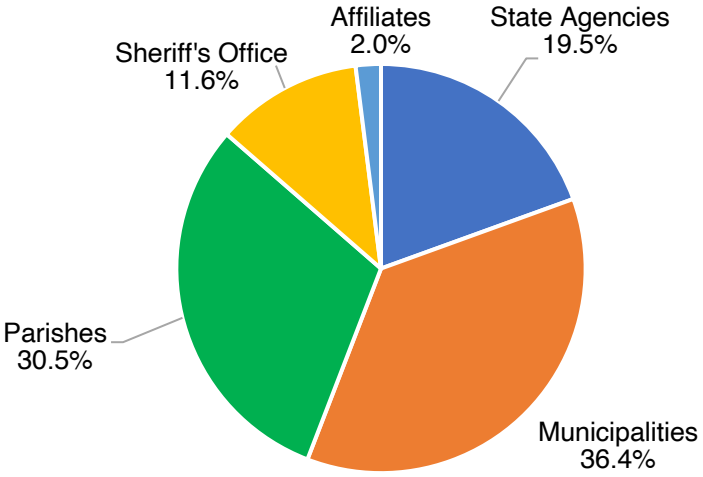
The total Louisiana litter cost for prevention, education and outreach, remediation, and enforcement on an annual basis was estimated to be $91,409,573. This amount does not include the expenditures of businesses, universities, or other entities; therefore, the actual cost is likely much higher. This estimate represents an expenditure increase of nearly 65 percent since the 2010 study, which projected total costs to be $40 million — or roughly $55.7 million when adjusted for the Consumer Price Index. Results for each category are shown in Table 4.1 and presented in the next section by descending numerical value, with the highest costs listed first.

Table 4-1: Litter Costs by Jurisdiction

Category	Estimated Costs	# of Entities	% of Total Costs
Municipal	$33,257,355	304	36.4%
Parishes	$27,921,413	64	30.5%
State Agencies	$17,800,010	6	19.5%
Sheriffs	$10,610,546	64	11.6%
Affiliates	$1,820,250	-	2.0%
TOTAL:	$91,409,573	-	100.0%

Local jurisdictions bear over 80 percent of the costs of addressing litter. Municipalities have the highest overall costs, followed by parish governments. Sheriff's office costs represent a smaller (11.6%), but significant, portion of overall expenditure. Affiliate costs, which accounts for two percent of total costs, include volunteer hours to conduct cleanups and public education efforts that would otherwise need to be undertaken by government entities. Therefore, the Project Team incorporated this cost into its estimates.

Figure 4-2: Litter Costs Expenditures by Jurisdictions



Municipalities

In Louisiana, there are 304 municipalities, such as cities, towns, and villages, ranging in population from approximately 12 to 384,000. This study categorized costs into three (3) distinct population groups, Large (>50k), Medium (10-50k), and Small (<10k). Table 4-2 shows that 15 municipalities provided estimated litter and illegal dumping expenditures. Municipalities spent an estimated $33,257,355 managing litter and illegal dumping.

Table 4-2: Responding Municipal Entities and Cost Estimates Based on Population

Type	Large (>50k)	Medium (10-50k)	Small (<10k)	Total
Municipalities Reporting	3	7	5	15
Average Per Capita	$17.89	$7.50	$13.83	$15.39
Municipal Costs	$22,424,021	$3,916,631	$6,916,702	$33,257,355

The reported costs were used to estimate a per capita amount within the three population categories. Before determining the overall municipal cost, the Project Team removed overlapping populations for jurisdictions within consolidated government or other situations where a duplication appeared possible. The per capita for each municipal population category was then applied to reach the municipal cost estimate.

Parishes

Louisiana is divided into 64 Parishes, ranging in population from approximately 4,000 to 453,000. For comparison, the Project Team used the same three distinct population categories as the 2010 study: Large (>200k), Medium (100-200k), and Small (<100k). In 2023, 16 parishes provided their estimated expenditures (see Table 4-3) including costs for removal by staff or litter crews. Parishes spent an estimated $27,921,413 managing litter and illegal dumping. The parish cost total was computed with a similar method used to compute the municipal costs, by adjusting to reduce duplication, as to avoid double counting any municipal population within specific government structures. Additionally, if a sheriff's office costs indicated a financial agreement with a parish regarding litter and illegal dumping costs, the populations were adjusted to reduce duplication. The Project Team subsequently calculated a per capita cost for each parish population category, then applied it to reach the parish cost estimate.

Table 4-3: Responding Parishes and Cost Estimates Based on Population

Type	Large (>200k)	Medium (100-200k)	Small (<100k)	Total
Parishes Reporting	6	3	7	16
Average Per Capita	$4.58	$6.42	$7.78	$6.20
Parish Costs	$10,462,471	$5,936,669	$11,522,273	$27,921,413

Sheriff's Office

There are 64 sheriff departments within Louisiana, with the same population as the parishes. Because many parishes utilize sheriff departments for their anti-litter and illegal dumping enforcement efforts and as their primary funding source, the 2010 study combined the sheriff and parish expenditures into one total. In 2023, it was determined that these sheriff's expenditures should be shown as its own category. In some parishes, sheriff departments are partially responsible for tackling litter including management of litter crews. Project Team made efforts to reduce duplication by verifying consolidated government operations and identifying partnerships between the parish and sheriff's office. Sheriff departments spent an estimated $10,610,546.

Table 4-4: Responding Sheriff's Offices and Cost Estimates Based on Population

Type	Large (>100k)	Medium (10-50k)	Small (<10k)	Total
Sheriff Reporting	5	7	3	15
Average Per Capita	$1.04	$4.72	$12.88	$2.29
Sheriff Totals	$3,364,602	$6,652,345	$351,330	$10,610,546

Affiliates

Over 40 KLB Community Affiliates are located throughout the state. This study includes data from 34 affiliates. These affiliates organize cleanups to inspire volunteers and partners to make a difference in their communities. Their reported costs included the donated volunteer time that would otherwise be reflected in government labor costs and disposal expenditures. Affiliates spent an estimated $1,820,250 in FY 21-22. The data only includes costs associated with activities not duplicated in data reported by other entities.

State Agencies

State agencies reported an estimated $17,800,010 in litter and dumping clean-up expenditures (see Table 4-5). The reported costs included direct and contracted costs for roadway litter removal, enforcement, training, and program management. The costs also included grants awarded to local government entities, which were removed from local jurisdictions to reduce duplications. Within Louisiana, six state agencies manage and remediate litter and illegal dumping throughout the state. These agencies were contacted by the Lt. Governor's Office and the Project Team to better understand their roles in litter and illegal dumping remediation and prevention efforts and to determine their most recent litter-related expenditures.

Table 4-5: Responding State Agencies and Cost Estimate

Agency Name	Cost Estimate
DOTD	$13,078,184
DCRT	$4,250,367
LDEQ	$129,749
LDWF	$248,391
DPS&C	$56,852
LSP*	$36,467
TOTAL	$17,800,010

Note: State police estimated based on salary scale provided by LSP.

A summary of each state agency and its estimated expenditures are provided below in descending numerical value:

- **Department of Transportation and Development (DOTD)** is responsible for cleaning litter along the state's rights-of-way, funding and overseeing the roadway litter removal and mowing contracts, funding for Project Cleanup under the Department of Corrections, the state Adopt-a-Road Program, street sweeping, municipal agreements, sheriff's office agreements, and in-house removal expenditures across the state.
- **Department of Culture, Recreation & Tourism (DCRT)** manages the contract with the state's anti-litter and beautification nonprofit, oversees the Governor's Task Force on Statewide Litter Abatement and Beautification, provides grants for government entities, and organizes litter enforcement initiatives and training. Keep Louisiana Beautiful (KLB), funded partially through state funds generated by a driver's license fee, provides tools and resources to prevent litter, reduce waste, increase recycling, and protect natural resources. KLB coordinates statewide projects, e.g., Love the Boot Week, the Let It Shine public awareness campaign, and youth education, and manages a community and university affiliates network.
- **Louisiana Department of Wildlife and Fisheries (LDWF)** conducts litter enforcement and operates the state's anti-litter hotline, 888.LITRBUG, which allows motorists and others to report litter and illegal dumping violations.
- **Louisiana Department of Environmental Quality (LDEQ)** staff are involved in education and enforcement efforts. Inspectors in the Surveillance and Emergency Response Divisions investigate, on average, 150 reports of illegal dumping per year. DEQ's Small Business Assistance Program and its Nonpoint Source Pollution staff regularly perform public education and outreach endeavors using an Enviroscape model to encourage litter prevention.
- **The Department of Public Safety and Corrections (DPS&C)** has an Interagency Cooperative Endeavor Agreement with the Department of Transportation and Development (DOTD) provide litter labor crews and security for the purpose of removing litter from highway.

- **Louisiana State Police (LSP)** enforces state litter laws and regulations for unsecured, spilling, or leaking loads.

ESTIMATED LITTER COSTS BY CATEGORY

The Study survey tool asked responders to identify litter and illegal dumping prevention, education and outreach, remediation, and enforcement expenses. The Project Team analyzed the responses and conducted follow-ups to clarify which category was appropriate. Table 4-6 describes each category which includes the related labor costs, supplies, landfill or disposal fees, and other resources to implement or manage each category.

Table 4-6: Litter and Illegal Dumping Cost Categories

Prevention	• maintaining public space litter containers • conducting collection events to encourage proper disposal of waste • distributing promotional items, such as litter bags
Education and Outreach	• engaging youth in K-12 education • creating and implementing public awareness campaigns • offering workshops or hands-on demonstrations
Remediation	• conducting daily cleanups with government staff and litter crews • supervising court-ordered worker litter and debris removal activities • managing contractors • organizing volunteer-based events
Enforcement	• issuing litter or illegal dumping tickets • investigating dump sites • managing or referring litter or illegal cases to other jurisdictions

Figure 4-3 shows the cost distribution by categories by local government entities. Based on the responses from local jurisdictions and state agencies the categories the results are likely applicable across all types of jurisdictions and population sizes. Local government expends 87%, including removing litter from roadways and public spaces. Prevention activities accounted for only 8 percent of the analyzed costs. Enforcement activities may deter littering and illegal dumping, but results showed these activities accounted for only 3 percent of expenditures. Education and outreach to inform the public or youth accounted for only 2 percent. Overall, local jurisdictions spend seven times more to remove litter and trash from public spaces than they spend on preventing it from being generated.

Figure 4-3: Local Government Cost by Category

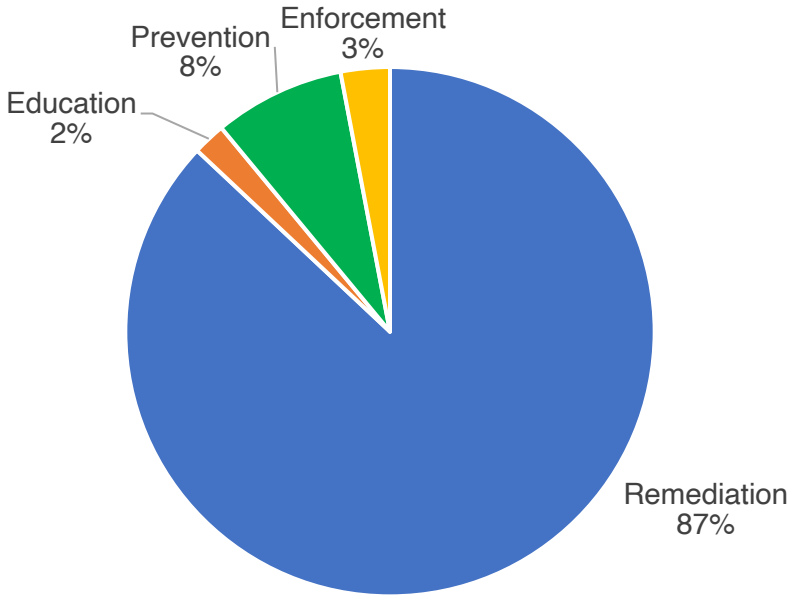
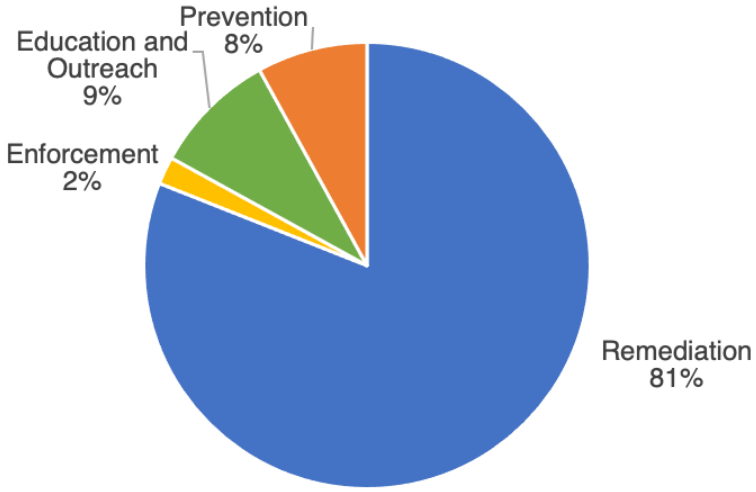


Figure 4-4 shows the cost distribution by categories by state agencies. State agencies expend 81 percent of their funding on remediation including removing litter from roadways and public spaces. Prevention activities made up 8 percent of total state spending, and enforcement made up 2 percent. The education category, 9 percent of total spending, included state-wide public awareness activities and youth programs. Even at the state-level, the expenses for litter remediation far exceed spending on litter prevention.

Figure 4-4: State Agency Cost by Category



Summation

The Litter Cost Study documented the approximate costs associated with litter and illegal dumping, which have a significant financial impact. Still, litter-related expenditures are not routinely budgeted as a line item, and are therefore difficult to determine. For example, litter-related activities are often considered part of an employee's daily job duties, but it is challenging determine the actual time each employee expended on such activities. In addition, although the Project Team requested each jurisdiction surveyed collect data from all departments, the responses were primarily from public works, solid waste, and parks which is a limitation of the study, and likely resulted in a lower estimate of the total costs and the distribution of the expenditures by category.

LITTER COST STUDY KEY FINDINGS

- **The annual cost of litter in Louisiana is over $91 million.** This is a conservative estimate, based on government expenditures.

- Most entities do not have a budget line item for litter and illegal dumping expenditures, making it challenging to account for all costs associated with all department(s).

- Local governments bear over 80 percent of the cost of dealing with litter and illegal dumping issues.

- Expenditures overwhelmingly focus on remediation or cleanup versus prevention. Local jurisdictions spend seven times more to remove litter and trash from public spaces than they spend on preventing it from being generated.

RECOMMENDATIONS

- Report litter expenditures to the Governor or Lieutenant Governor's Office annually.
- Create a consistent data collection system across all local government jurisdictions and state agencies, which could be part of existing state reporting or a requirement for state funding or grants related to litter prevention.
- Develop messaging on litter costs for local elected officials to better understand the hidden, but actual, costs associated with litter and illegal dumping remediation versus prevention and education.
- Conduct future litter cost studies and consider examining the following business costs, K-12 and higher education costs, and expenditures by nonprofits and organizations focused on litter and illegal dumping.
- Encourage increased funding for prevention activities, including the installation of infrastructure, youth education, general public outreach, enforcement, and other activities to change littering behavior and promote a culture of cleanliness.

LOUISIANA
LITTER RESEARCH

AUGUST 2023

APPENDICES

APPENDIX 1: VISIBLE LITTER SURVEY PROTOCOL

The methodology used for the 2023 Louisiana Litter Survey is based on the research method used in many statistically-based litter surveys.

Conducting the Litter Survey

Each survey team was composed of two people. Upon arriving at the site, the crew safely parked their vehicle away from traffic and barriers. They turned on emergency flashers and placed a traffic cone at the back of the car. Team members wore appropriate clothing for the weather and safety, such as safety boots and fluorescent traffic vests to increase visibility. Survey times were scheduled to avoid surveying at dusk, before sunrise, or in low-light conditions. Weather conditions were consistently monitored.

At each site, one team member measured the site with a measuring wheel, with the optimal site size of 300 feet long and 15 feet deep, or approximately 4,500 square feet. The first member used highway paint to mark each site's beginning, mid-point, and end. The width of each site was measured from 1 foot inside the curb or the start of the pavement, towards the outer edge of the site, up to a width of 15 feet, and marked to indicate the boundary. The second team member photographed the site, including the beginning, mid-point, and end, plus any other photos the team deemed beneficial to document conditions or specific litter items.

Litter Classification

For the Louisiana Litter Survey, litter was classified as Visible Litter (>= four inches) and Micro Litter (< four inches). This breakdown helps define and clarify the extent to which litter item size is a factor in evaluating resultant data. Visible Litter was characterized using 93 items for Visible Litter and 68 items for Micro Litter, which were subsequently rolled into 11 major categories. These categories will allow comparison to litter in other areas in future litter surveys in

Louisiana. One member used a “meandering count” of Visible Litter, recording item count, packaging material, and brand names. The second team member conducted the “cross-section sub-count” at the three marked locations. The data from these three transects were then extrapolated to each site's total area.

Proximity Indicator and Litter Sources Count

The ambient site information was recorded on the appropriate form at each site, describing the site number, size, and proximity. The team recorded conditions, such as traffic signals or signs, and land use type, such as fast food, convenience stores, and residential or commercial. The last step was agreeing on and recording a subjective visual rating of Clean to Extremely Littered using the Likert Scale.

APPENDIX 2: SITE LOCATIONS

Site	Parish	City	District	Road	GPS Coordinates
1	Acadia	Rayne	3	I-10	30.243329, -92.310874
2	Acadia	Rayne	3	US 90	30.2307599, -92.3258767
3	Acadia	Mowata	3	LA 13	30.363501, -92.397638
4	Allen	Oakdale	7	US 165	30.8982, -92.6235
5	Ascension	Sorrento	61	I-10	30.1699167, -90.8719132
6	Ascension	Gonzales	61	US 61	30.2190654, -90.8910235
7	Ascension	Gonzales	61	I-10	30.1775643, -90.8902926
8	Assumption	Napoleonville	61	LA 70	30.001488, -91.059032
9	Avoyelles	Moreauville	8	LA 1	31.043438, -91.968229
10	Avoyelles	Mansura	8	LA 115	31.0721944, -92.1025642
11	Avoyelles	Mansura	8	LA 107	31.0384929, -92.0433126
12	Beauregard	Ragley	7	US 190	30.5104, -93.2214
13	Beauregard	DeRidder	7	LA 394	30.7848469, -93.2408207
14	Beauregard	DeRidder	7	LA 112	30.8430, -93.2521
15	Bossier	Bossier City	4	I-20	32.53438, -93.65167
16	Bossier	Bossier City	4	US 71	32.3920166, -93.6033481
17	Bossier	Elm Grove	4	LA 157	32.37115, -93.50283
18	Caddo	Shreveport	4	I-20	32.45096, -93.86457
19	Caddo	Greenwood	4	US-80	32.443018, -93.985652
20	Caddo	Shreveport	4	LA 525	32.38868, -93.82586
21	Calcasieu	Lake Charles	7	I-10 EB ramp	30.2355, -93.2042

Site	Parish	City	District	Road	GPS Coordinates
22	Calcasieu	Lake Charles	7	US 90	30.2342, -93.1459
23	Calcasieu	Westlake	7	LA 378	30.2846976, -93.2501741
24	Caldwell	Grayson	58	LA 126	32.0707, -92.17079
25	Cameron	Cameron	7	LA 27	29.8100557, -93.1380386
26	Catahoula	Jonesville	58	US 84	31.61812, -91.84684
27	Claiborne	Haynesville	4	US 79	32.9393824, -93.1149777
28	Concordia	Ferriday	58	US 84	31.6082, -91.63814
29	Concordia	Ferriday	58	US 425	31.6483518, -91.5532369
30	Concordia	Jonesville	58	LA 129	31.55403, -91.70764
31	Desoto	Holly	4	I-49	32.14636, -93.63567
32	Desoto	Mansfield	4	US 84	32.05741, -93.59000
33	East Baton Rouge	Baton Rouge	61	I-12	30.4210985, -91.0816628
34	East Baton Rouge	Zachary	61	US 61	30.638845, -91.243800
35	East Baton Rouge	Baker	61	LA 67	30.611319, -91.116977
36	East Carroll	Lake Providence	5	LA 134	32.745670, -91.272426
37	East Feliciana	Ethel	61	LA 955	30.7959624, -91.1243875
38	East Feliciana	Jackson	61	US 61	30.6934481, -91.2690029
39	Evangeline	Elton	3	US 190	30.4813794, -92.7089297
40	Evangeline	Ville Platte	3	US 167	30.678246, -92.230630
41	Franklin	Winnsboro	58	LA 577	32.24698, -91.68072
42	Franklin	Winnsboro	58	US 425	32.18906, -91.72764
43	Franklin	Sicily Island	58	US 425	31.905, -91.66196

Site	Parish	City	District	Road	GPS Coordinates
44	Grant	Rock Hill	8	US 71	31.466281, -92.5932646
45	Iberia	New Iberia	3	US 90	30.035092, -91.921280
46	Iberia	New Iberia	3	LA 182	30.046863, -91.866855
47	Iberia	New Iberia	3	LA 88	30.048461, -91.9064291
48	Iberville	Grosse Tete	61	I-10	30.417128, -91.440246
49	Jackson	Quitman	5	US 167	32.297637, -92.707461
50	Jefferson	Metairie	2	I-10	30.000614, -90.199387
51	Jefferson	Metairie	2	US 61	29.973457, -90.142876
52	Jefferson	Marrero	2	LA 18	29.900696, -90.120123
53	Jefferson Davis	Jennings	7	I-10	30.2392124, -92.6192619
54	Jefferson Davis	Jennings	7	LA 102	30.2181974, -92.6549288
55	Jefferson Davis	Welsh	7	US 90	30.231596, -92.859845
56	Lafayette	Lafayette	3	I-10	30.2477189, -92.045879
57	Lafayette	Broussard	3	US 90	30.114358, -91.943214
58	Lafayette	Lafayette	3	LA 94	30.2337601, -91.9957626
59	Lafourche	Des Allemands	2	US 90	29.8065483, -90.4971954
60	Lasalle	Trout	58	US 84	31.69621, -92.18409
61	Lasalle	Olla	58	LA 459	31.76184, -92.02098
62	Lincoln	Ruston	5	I-20	32.540677, -92.691980
63	Lincoln	Ruston	5	US 80	32.507846, -92.692678
64	Lincoln	Ruston	5	LA 544	32.5552042, -92.6846009
65	Livingston	Denham Springs	62	I-12	30.4578065, -90.9457461

Site	Parish	City	District	Road	GPS Coordinates
66	Livingston	Walker	62	US 190	30.4919032, -90.8513853
67	Livingston	Walker	62	LA 1024	30.5613739, -90.869499
68	Madison	Tallulah	5	I-20	32.322950, -90.977706
69	Morehouse	Bastrop	5	US 425	32.8769411, -91.8655795
70	Morehouse	Bonita	5	US 165	32.9377773, -91.6610543
71	Natchitoches	Natchitoches	8	US 71	31.8213259, -93.030208
72	Natchitoches	Natchitoches	8	LA 6	31.7256234, -93.1621182
73	Natchitoches	Natchitoches	8	LA 1	31.7359635, -93.080261
74	Orleans	New Orleans	2	US 90	30.0054261, -90.0358825
75	Orleans	New Orleans	2	I-10	29.959394, -90.096707
76	Orleans	New Orleans	2	LA 428	29.929808, -90.032139
77	Ouachita	West Monroe	5	I-20	32.510277, -92.238156
78	Ouachita	Monroe	5	US 165	32.56512, -92.0746958
79	Ouachita	Collinston	5	LA 134	32.65495, -91.9375628
80	Plaquemines	Belle Chasse	2	LA 23	29.8649237, -89.9992974
81	Pointe Coupee	Livonia	61	US 190	30.55471, -91.55358
82	Rapides	Cheneyville	8	US 71	30.989504, -92.214927
83	Rapides	Lecompte	8	LA 3170	31.183315, -92.416323
84	Rapides	Boyce	8	LA 28 West	31.261871, -92.748984
85	Red River	Coushatta	4	US-71	32.0338895, -93.3395224
86	Richland	Delhi	5	I-20	32.449486, -91.568298
87	Richland	Rayville	5	US 425	32.441710, -91.760681
88	Sabine	Many	8	US 171	31.53145,

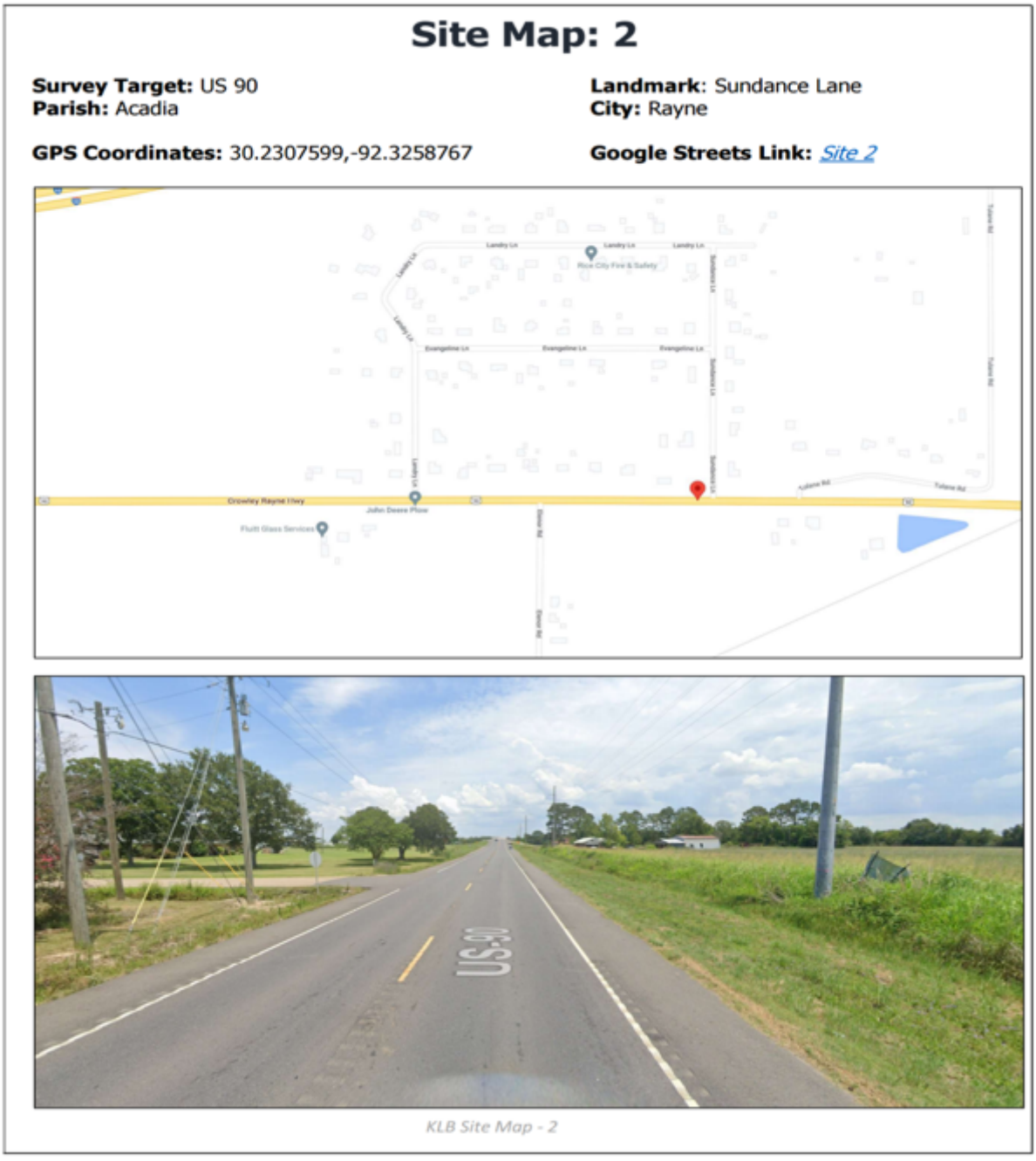
Site	Parish	City	District	Road	GPS Coordinates
					-93.46184
89	Sabine	Zwolle	8	US 171	31.6068263, -93.5679922
90	St. Bernard	Chalmette	2	LA 47	29.953846, -89.958277
91	St. Bernard	Chalmette	2	LA 46	29.930380, -89.952467
92	St. Charles	Luling	2	I-310	29.927702, -90.386117
93	St. Helena	Greensburg	62	LA 10	30.876546, -90.777399
94	St. James	Garyville	61	I-10	30.124022, -90.690197
95	St. James	Gramercy	61	US 61	30.0749348, -90.7033068
96	St. John the Baptist	Laplace	62	I-10	30.102551, -90.488438
97	St. John the Baptist	Reserve	62	US 61	30.077280, -90.549809
98	St. John the Baptist	Edgard	62	LA 3127	30.016019, -90.5588457
99	St. Landry	Opelousas	3	I-49	30.5878629, -92.0483239
100	St. Landry	Port Barre	3	US 190	30.547260, -91.913352
101	St. Landry	Opelousas	3	LA 749	30.565398, -92.089197
102	St. Martin	Breaux Bridge	3	I-10	30.2922425, -91.9249425
103	St. Martin	Breaux Bridge	3	LA 347	30.303528, -91.844692
104	St. Martin	Broussard	3	US 90	30.0862046, -91.9396484
105	St. Mary	Franklin	3	US 90	29.776614, -91.510701
106	St. Mary	Morgan City	3	LA 70	29.725022, -91.183410
107	St. Mary	Franklin	3	LA 182	29.7575215, -91.4088063
108	St. Tammany	Slidell	62	I-10	30.289500, -89.747845
109	St. Tammany	Slidell	62	US 11	30.307028, -89.771986
110	St. Tammany	Mandeville	62	LA 59	30.4188676,

Site	Parish	City	District	Road	GPS Coordinates
					-90.0406445
111	Tangipahoa	Hammond	62	I-12	30.4793685, -90.5039557
112	Tangipahoa	Amite City	62	I-55	30.468857, -90.481800
113	Tangipahoa	Kentwood	62	LA 38	30.9272443, -90.4122673
114	Tensas	St. Joseph	58	US 65	31.9451565, -91.279643
115	Terrebonne	Gray	2	US 90	29.680498, -90.774658
116	Terrebonne	Houma	2	LA 24	29.634895, -90.758608
117	Terrebonne	Houma	2	LA 311	29.6170693, -90.7920319
118	Union	Bernice	5	US 167	32.873186, -92.656099
119	Vermilion	Maurice	3	US 167	30.067733, -92.124165
120	Vermilion	Abbeville	3	LA 14	29.9643368, -92.0733966
121	Vermilion	Abbeville	3	LA 82	29.9076103, -92.1649071
122	Vernon	Florien	8	US 171	31.35193, -93.41528
123	Vernon	Leesville	8	LA 28	31.160032, -93.242342
124	Vernon	Leesville	8	LA 117	31.17475, -93.25402
125	Washington	Bogalusa	62	LA 21	30.7448305, -89.8460365
126	Washington	Franklinton	62	LA 10	30.866213, -90.0159593
127	Washington	Angie	62	LA 436	30.9060161, -89.9922597
128	Webster	Minden	4	I-20	32.5903065, -93.3364082
129	Webster	Minden	4	LA 528	32.5995275, -93.3429163
130	Webster	Minden	4	US 80	32.5774371, -93.4063015
131	West Baton Rouge	Port Allen	61	I-10	30.4463419, -91.2400742

Site	Parish	City	District	Road	GPS Coordinates
132	West Baton Rouge	Livonia	61	US 190	30.5547553, -91.5556321
133	West Carroll	Oak Grove	5	LA 585	32.9513152, -91.4500141
134	West Feliciana	St. Francisville	61	US 61	30.8355512, -91.3851125
135	Winn	Winnfield	8	US 84 East	31.894958, -92.484733
136	Tangipahoa	Hammond	62	I-55	30.49784, -90.50284
137	Bienville	Minden	4	I-20	32.562797, -93.158309

APPENDIX 3: SAMPLE SITE MAP

Comprehensive site maps were assembled for the survey sites to ensure that field crews had all the information needed to identify each site upon arrival at the particular location.



APPENDIX 4: SUMMARY LITTER DATA

Packaging Material	Items	Visible 4 Inches+	Micro < 4 Inches	Aggregate Count	Percent of Aggregate Count
Glass	Broken Glass Container	24,822	3,219,541	3,244,363	2.3%
	Glass Non-Beverage Jars	2,069	2,464,393	2,466,462	1.7%
	Industrial Glass	2,069	370,087	372,156	0.3%
	Beer Bottles	293,730	-	293,730	0.2%
	Wine/Liquor	103,426	-	103,426	0.1%
	Water	35,165	-	35,165	0.0%
	Coffee	8,274	-	8,274	0.0%
	Soft Drinks	8,274	-	8,274	0.0%
	Milk/Juice	4,137	-	4,137	0.0%
	Subtotal Glass	**481,966**	**6,054,021**	**6,535,987**	**4.5%**
Metal	Auto/Vehicle Debris	227,538	4,005,707	4,233,245	2.9%
	Metal Beverage Container	-	3,403,514	3,403,514	2.4%
	Foil Materials (Industrial)	26,891	1,351,993	1,378,884	1.0%
	Beer	1,133,548	-	1,133,548	0.8%
	Construction/Demolition Debris	133,936	974,419	1,108,355	0.8%
	Steel Cans	18,617	787,237	805,854	0.6%
	Aluminum Non-Beverage Cans	39,302	543,364	582,666	0.4%
	Soft Drinks	570,911	-	570,911	0.4%
	Fast Food and Food Wrapper/Container	210,989	400,036	611,025	0.4%
	Energy Drinks	366,128	-	366,128	0.3%
	Wine/ Liquor	78,604	-	78,604	0.1%
	Sport Drinks	59,987	-	59,987	0.0%
	Aerosol Cans (Paint, Oils, Etc.)	14,480	14,975	29,455	0.0%
	Container Lids	25,856	-	25,856	0.0%
	Milk/Juice	20,685	-	20,685	0.0%
	Tea	12,411	-	12,411	0.0%
	Coffee	6,206	-	6,206	0.0%

Packaging Material	Items	Visible 4 Inches+	Micro < 4 Inches	Aggregate Count	Percent of Aggregate Count
Metal Cont.	Water	2,069	-	2,069	0.0%
	Subtotal Metal	**2,948,158**	**11,481,245**	**14,429,403**	**10.0%**
Organic	Food Items (Apple Core, Banana Peel)	12,411	868,527	880,938	0.6%
	Subtotal Organics	**12,411**	**868,527**	**880,938**	**0.6%**
Paper	Corrugated Box	252,360	2,410,912	2,663,272	1.9%
	Fast Food Wrapper/Container	434,389	1,839,737	2274126	1.6%
	Straws/Wrappers (Paper)	57,919	1,123,096	1,181,015	0.8%
	Fast Food Towels/Napkins	326,827	1,031,109	1,357,936	0.9%
	Gum Wrappers		1,155,184	1,155,184	0.8%
	Stationary	248,223	804,350	1,052,573	0.7%
	Paper Bags/Packaging	244,086	727,338	971,424	0.7%
	Receipts	82,741	526,251	608,992	0.4%
	Cups	217,195	342,277	559,472	0.4%
	Bags	142,728	342,277	485,005	0.3%
	Condiment Package	-	308,049	308,049	0.2%
	Food Wrap (Meat Wrap)	53,782	183,974	237,756	0.2%
	Newspaper/Magazine	12,411	158,303	170,714	0.1%
	Paperboard	80,672	29,949	110,621	0.1%
	Lottery Tickets	4,137	70,595	74,732	0.1%
	Gable-top Container	8,274	57,759	66,033	0.0%
	Aseptic Drink Box	14,480	14,975	29,455	0.0%
	Subtotal Paper	**2,180,224**	**11,126,135**	**13,306,359**	**9.3%**
Plastic	Polystyrene Foam (Ice Chest)	279,250	6,715,042	6,994,292	4.9%
	Polystyrene Cup	531,609	6,458,335	6,989,944	4.9%
	Snack Wrapper	748,805	5,470,010	6,218,815	4.3%
	Beverage Caps	-	5,784,477	5,784,477	4.0%
	Auto/Vehicle Debris	227,537	4,005,708	4,233,245	2.9%
	Other Plastic Packaging	455,075	2,614,139	3,069,214	2.1%
	Industrial Plastic	215,126	2,802,391	3,017,517	2.1%

Packaging Material	Items	Visible 4 Inches+	Micro < 4 Inches	Aggregate Count	Percent of Aggregate Count
Plastic Cont.	Plastic Cup Lids	912,218	2,027,990	2,940,208	2.0%
	Condiment Package	-	2,772,442	2,772,442	1.9%
	Straws	264,771	2,415,190	2,679,961	1.9%
	Plastic Non-Beverage Jars	45,507	1,993,762	2,039,269	1.4%
	Plastic Beverage Containers	-	1,679,295	1,679,295	1.2%
	Polystyrene Clamshell	171,687	1,369,107	1,540,794	1.1%
	Utensil	33,096	1,429,005	1,462,101	1.0%
	Plastic Shrink Wrap	88,946	1,313,487	1,402,433	1.0%
	Water	1,158,370	-	1,158,370	0.8%
	Construction/Demolition Debris	133,938	974,419	1,108,357	0.8%
	Plastic Bags	430,253	631,073	1,061,326	0.7%
	Polystyrene Packing Peanuts	-	939,122	939,122	0.7%
	Polystyrene Fast-Food Plates/Trays	70,330	748,730	819,060	0.6%
	Hygiene Products	148,934	586,149	735,083	0.5%
	Other Plastic Shells/Box	105,495	556,200	661,695	0.5%
	Zipper/Sandwich Bag	57,919	402,175	460,094	0.3%
	Soft Drinks	442,664	-	442,664	0.3%
	Retail Wrap	18,617	404,314	422,931	0.3%
	Non-Polystyrene Packing Peanuts	-	327,302	327,302	0.2%
	Sport Drinks	285,456	-	285,456	0.2%
	Beverage Case	53,782	213,923	267,705	0.2%
	Container Lids	25,857	198,948	224,805	0.2%
	Milk/Juice	84,809	-	84,809	0.1%
	Six-Pack Plastic Ring	10,343	44,924	55,267	0.0%
	Tea	43,439	-	43,439	0.0%
	Wine/ Liquor	31,028	-	31,028	0.0%
	Energy Drinks	18,617	-	18,617	0.0%
	Coffee	4,137	-	4,137	0.0%

Packaging Material	Items	Visible 4 Inches+	Micro < 4 Inches	Aggregate Count	Percent of Aggregate Count
	Subtotal Plastic	**7,097,615**	**54,877,659**	**61,975,274**	**43.1%**
Rubber	Tire & Rubber Debris	655,721	2,552,101	3,207,822	2.2%
	Subtotal Tire/Rubber	**655,721**	**2,552,101**	**3,207,822**	**2.2%**
Tobacco	Cigarette Butts	-	30,220,897	30,220,897	21.0%
	Tobacco packaging	-	2,699,708	2,699,708	1.9%
	Cigars: Butts and Tips	-	1,617,258	1,617,258	1.1%
	Cigarette Lighters, Matches	-	402,175	402,175	0.3%
	E-Cigarettes/Vape Cartridges	-	284,518	284,518	0.2%
	Subtotal Tobacco	**-**	**35,224,556**	**35,224,556**	**24.5%**
Other	Home Articles (electronic, furniture, etc.)	192,372	2,229,077	2,421,449	1.7%
	Construction/Demolition Debris	267,873	1,948,838	2,216,711	1.5%
	Industrial Rags	119,974	1,523,132	1,643,106	1.1%
	Clothing or Clothing	132,385	1,300,652	1,433,037	1.0%
	Foil Drink Pouch	8,274	442,821	451,095	0.3%
	Composite Materials - Other	6,206	141,189	147,395	0.1%
	Subtotal Other	**727,084**	**7,585,709**	**8,312,793**	**5.8%**
Total		**14,103,179**	**129,769,953**	**143,873,132**	**100%**

APPENDIX 5: STATISTICAL TESTS

Sampling

In statistical studies, a sample is normally taken, studied, and analyzed to draw inferences or make conclusions about an entire population. For this study, surveying every roadside in Louisiana would be prohibitive. Thus, a representative sample of 137 survey sites was chosen, data were obtained and recorded, and tabulations and analyses were conducted to reach conclusions about the extent of litter found on Louisiana roadways overall.

Statistical Significance

When a statistical test is performed, one result is a value or number. It is often asked if the results are "statistically significant." The sample size is one factor in determining that answer. Another is the chosen "level of significance." Often, a level of .05 is the favored choice.

Suppose, hypothetically, we are wondering if roads with a "double" center line are littered to a different extent than roads with a "single" center line. We survey a sample of each kind, tally the results, compare the averages and run a statistical test. If we get a number "significant" at the .05 level, then the conclusion is reached that double-line roads are, on average, more heavily littered. The chosen significance level of 0.05 means that there is only a 5% risk (one chance in 20) that such a conclusion is incorrect and that no actual difference exists in littering on "double" center lined and "single" center lined roads.

Correlation Analyses

A correlation analysis is a statistical test that yields a correlation coefficient, a number (statistic) used to measure the strength of a relationship between two variables. The most common type of correlation is the Pearson Product Moment Correlation, which examines the linear relationship between two sets of data and is used in this analysis.

A correlation coefficient can be positive or negative but is never less than -1 and never greater than +1. A positive correlation means that high scores on one variable are associated with high scores on the other variable, while low scores on one are associated with low scores on the other. On the other hand, a negative correlation means that high scores on one variable are associated with low scores on the other. A correlation can only indicate the presence or absence of a relationship, not the exact nature of the relationship. A high correlation does not mean that one variable necessarily causes the other.

A correlation of zero, or close to it, either positive or negative, suggests that there is little or no relationship between the variables. Any result between -0.1 and 0.1 would typically be considered weak. The closer the correlation coefficient approaches +1 or -1, the stronger the relationship. However, the significance of any result would also depend largely on the size of the sample (that is, the number of measurements). Given the large number (137) of roadway sites surveyed in this study, it would only require a correlation coefficient of approximately 0.14 to be statistically significant at the .05 level.

T-tests

A t-test is a statistical procedure used to examine the average values of two sets of data obtained through sampling. The t-test directly compares the difference between the averages but also takes two other factors into account:

1) The standard deviation of each set of values, which measures how widely dispersed the values in each data set are; and

2) The number of values within each data set.

Based on these considerations, the t-test addresses the extent to which a true difference exists between the two sets of values and shows the significance that can be attributed to such differences. Therefore, a statistically significant value may be found where that result is, in itself, not necessarily meaningful. Nonetheless, it may suggest a closer look at the data is needed.

Proximity Indicators Measured:

- Beautification (Beauty)
- Businesses/Commercial (Comm)
- Church
- Convenience Stores (Conv.)
- Drainage Ditches (Ditch)
- Fast Food Establishments (F/F)
- Fields/Wooded Areas (Fld/Wlds)
- Railroad (RR)
- Residential area (Res.)
- Solid Waste Facilities (SWF)
- School
- Traffic Signs/Signals (Traffic)
- Vacant Lot (Vacant)
- Utility Substations (Utility)

Correlations: Proximity Indicators: Part 1

Litter Category	Beauty	Church	Conv.	F/F	SWF	School	Traffic
Large Litter	-0.13	0.02	-0.00	0.06	0.17	0.07	-0.09
Bev. Containers	-0.06	-0.08	-0.10	0.06	0.15	-0.04	-0.05
Cups	-0.08	-0.06	0.11	0.24	0.24	-0.07	-0.09
Fast Food	-0.12	0.18	0.07	-0.02	0.14	0.13	-0.00
Snack Wrappers	-0.05	0.07	0.07	0.08	0.05	0.10	0.05
Home Food	-0.01	0.02	0.06	0.02	0.06	0.08	-0.00
Paper	-0.09	-0.03	0.02	-0.12	0.01	-0.07	0.04
Vehicle Debris	-0.12	0.01	-0.13	-0.10	-0.07	0.03	-0.00
Construction Debris	-0.13	0.07	-0.02	0.00	0.04	0.15	-0.19
Home Items	0.02	0.14	0.09	-0.03	-0.04	0.28	-0.11
Bags	-0.10	0.05	0.18	0.13	0.32	0.15	-0.12
Micro Litter	-0.15	0.08	0.16	0.06	-0.06	-0.06	-0.08
All Litter	-0.16	0.08	0.16	0.06	-0.05	-0.05	-0.08

Note that the correlations for beautification sites are mostly negative. There was only one exception, which was very close to zero (.02). The coefficients for Micro Litter and All Litter are statistically significant.

Correlations: Proximity Indicators: Part 2

Litter Category	RR	Ditch	Res.	Vacant	Comm.	Utility	Fld/Wds
Large Litter	-0.01	0.11	-0.10	0.02	0.02	0.03	-0.08
Bev. Containers	0.04	0.21	-0.13	0.04	-0.12	0.18	0.06
Cups	0.05	0.14	-0.01	0.04	0.06	0.08	-0.21
Fast Food	-0.08	-0.00	-0.10	-0.08	0.15	-0.05	-0.12
Snack Wrappers	-0.12	-0.03	0.05	0.15	0.13	-0.02	-0.16
Home Food	0.08	-0.02	0.02	0.00	0.13	-0.06	-0.05
Paper	0.01	-0.06	-0.06	0.03	0.00	-0.13	-0.08
Vehicle Debris	-0.08	-0.07	-0.08	-0.07	-0.09	-0.09	0.13
Construction Debris	-0.01	0.07	-0.04	-0.07	0.04	-0.05	-0.08
Home Items	-0.01	0.00	0.02	0.00	0.11	-0.13	-0.07
Bags	-0.01	-0.10	-0.00	0.13	0.13	-0.03	-0.24
Small Litter	-0.00	0.08	-0.07	0.06	0.11	0.04	-0.03
All Litter	-0.00	0.08	-0.08	0.06	0.11	0.04	-0.04

To examine the pattern of littering by category more closely, a correlation analysis was calculated to compare the averages across litter categories for a given road type with those averages for each other road type. This was done for both Visible Litter and Micro Litter. Note that it calculates not the magnitude of the category averages, but the pattern of those averages between road types.

Correlations: Littering Patterns Among Road Types

Comparison	Visible	Micro
IH to US	0.852	0.559
IH to SR	0.914	0.700
US to SR	0.982	0.613

These coefficients are very high. The yellow highlighted coefficients are statistically significant, indicating values significant at the .01 level. Thus, the patterns of Visible Litter are remarkably similar among road types; the proportions of various types of litter do not vary greatly in relation to the road type.

The gray highlight is for a coefficient significant at the .05 level, indicating that the pattern of Micro Litter is quite similar for Interstates and State Routes. It will seem surprising that the other two coefficients (.559 and .613) for Micro Litter are not statistically significant. After all, much smaller values were significant in the analysis for Proximity Indicators; however, those results were based on the 137 sites, while the current study is based on ten litter categories, and the sample size, as noted earlier, is an important factor in determining statistical significance.

APPENDIX 6: PUBLIC ATTITUTDES SURVEY QUESTIONNAIRE AND RESULTS

Q1: Do you live in Louisiana, and are you at least 18 years of age?

ANSWER	RESPONSES
Yes	97.71%
No	2.29%

Q2: Is litter in Louisiana a problem?

ANSWER	RESPONSES
Major problem	65.67%
Minor problem	26.23%
Not a problem	3.17%
I haven't noticed	4.93%

Q3: How much do you agree or disagree with the following statements? One answer per line.

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
Litter is an environmental problem	61.38%	32.09%	3.92%	2.61%
Litter impacts my quality of life	34.97%	44.80%	17.58%	2.65%
Litter leads to increased crime	18.75%	36.17%	35.80%	9.28%
Litter poses a health or safety risk to people or animals	56.29%	37.90%	3.56%	2.25%
Litter negatively impacts tourism	59.85%	31.71%	5.25%	3.19%
Litter reduces property values	58.50%	33.83%	5.61%	2.06%
Litter impacts business by decreasing revenues	43.55%	44.49%	10.09%	1.87%
Litter cleanup costs reduces government funding available for other projects	35.70%	39.63%	20.0%	4.67%
Litter contributes to flooding by clogging storm drains and waterways	61.24%	32.77%	4.49%	1.50%

Q4: Where do you see the greatest amount of litter in Louisiana? Select up to 3.

ANSWER	RESPONSES
Interstates	33.71%
Local highways and streets	62.94%
Bayous, rivers, lakes, and other waterways	45.44%
Parks, recreational spaces, sports facilities, and other similar public areas	30.17%
Large events, concerts, festivals, and parades	41.34%
Downtown areas	26.44%
Public transportation area such as bus stop	17.32%
Mall and shopping center outdoor or parking areas	13.04%
Schools and university campuses	7.08%
Gas stations and convenience stores	28.86%
Industrial, warehouse, manufacturing areas	9.31%

Q5: What are Louisiana's main sources of litter? Rearrange using the arrows to move items up and down, with 1 =main source and 8 =lowest source.

	1	2	3	4	5	6	7	8	Weighted Average
Drivers or passengers in vehicles discarding trash from a car or truck	33%	15%	14%	9%	8%	8%	7%	7%	5.7
People walking or running discarding their trash	14%	13%	13%	12%	13%	10%	10%	14%	4.64
Household trash either unbagged or from open-top container	14%	16%	11%	12%	12%	12%	12%	10%	4.76
Pickup trucks with loose trash or unsecured items in the truck bed	10%	14%	17%	15%	13%	10%	12%	8%	4.72
Vehicle debris, such as tire tread or parts along roadways	10%	15%	15%	12%	15%	14%	10%	10%	4.64
Commercial or business dumpsters	7%	8%	9%	11%	12%	15%	18%	19%	3.74
Garbage trucks	6%	8%	9%	13%	13%	18%	15%	18%	3.78
Construction or work trucks with unsecured loads	6%	9%	12%	16%	13%	12%	16%	16%	4.01

Q6: What is the most commonly littered items in Louisiana? Select up to 3.

ANSWER	RESPONSES
Fast food large items such as cups, wrappers, and bags	75.38%
Fast food smaller items such as straws and sauce packages	30.45%
Snack food bags or candy wrappers	33.46%
Cigarette butts, cigar tips or tobacco boxes/wrappers	55.45%
Bags such as plastic grocery bags	28.57%
Non-alcoholic beverage bottles and cans for water, soda, tea, and coffee	26.88%
Alcoholic beverage container bottles and cans for beer, liquor, and wine	37.22%
Food such as apple or uneaten food	6.77%
Construction debris	9.02%
Vehicle debris (tire tread or vehicle parts)	24.81%

Q7: What are the most frequent types of packaging material littered in Louisiana? Select up to 3.

ANSWER	RESPONSES
Plastic	74.25%
Glass	21.80%
Aluminum	23.12%
Paper	54.51%
Boxes (drink carton or cardboard)	35.15%
Metal, not aluminum	8.83%
Plastic bags, wrap, or film	46.99%
Construction materials	7.14%
Rubber	14.10%

Q8: How frequently do you see people litter?

ANSWER	RESPONSES
Often (weekly)	37.78%
Sometimes (several times a month)	43.98%
Rarely (a few times a year)	15.41%
Never	2.82%

Q9: What age group is most likely to litter?

ANSWER	RESPONSES
14 years and under	4.51%
15 to 24 years	31.95%
25 to 34 years	16.54%
35 to 54 years	5.26%
55 years and over	1.32%
All age groups the same	40.41%

Q10: Do most people litter intentionally (toss or throw) or unintentionally (blows or escapes)?

ANSWER	RESPONSES
Intentional (toss or throw)	40.0%
Unintentional (blows or escapes)	14.91%
Both	50.38%

Q11: What is the top reason people litter?

ANSWER	RESPONSES
Littering is more convenient than properly disposing of trash	29.06%
No trash cans nearby	10.0%
People don't understand that litter is harmful to people or animals	11.13%
People lack pride or ownership in their community	18.11%
Laziness	27.92%
Do not know littering is illegal	3.77%

Q12: Have you littered?

ANSWER	RESPONSES
Intentional (toss or throw)	17.92%
Unintentional (blow or escape)	58.11%
Never littered	29.81%

Q13: If you intentionally littered, what was the situation? Mark all applicable.

ANSWER	RESPONSES
No trash can was available	17.99%
The trash can was too far away	8.12%
Item was too messy to carry	9.86%
Item flew out of truck bed	17.02%
Threw an item from a vehicle	10.25%
Someone else would pick up the item	5.80%
Did not consider the item litter such as a cigarette butt	12.96%
Item was uneaten food	7.54%
I haven't intentionally littered	53.77%

Q14: If you unintentionally littered, what was the situation? Mark all applicable.

ANSWER	RESPONSES
Fell out of trash can or bag	23.15%
Flew out of the truck bed	26.07%
Dropped or blew out of my hand accidentally	37.55%
Blew out of car	31.91%
I haven't unintentionally littered	24.32%

Q15: Why would an individual be more likely to litter at an outdoor event such as a concert, parade, festival, or tailgating?

ANSWER	RESPONSES
Litter when trash can is not available	27.04%
Litter when trash can is not close	25.29%
Litter when trash can is overflowing	21.79%
Someone's job to clean up after the event	25.88%

Q16: Which of the following may apply to pickup trucks? Mark all applicable.

ANSWER	RESPONSES
I do not drive a truck	53.11%
I secure items in the bed of the truck with tarp	19.84%
I don't think items will fly out	16.73%
I think it's too difficult to secure items	11.48%
I didn't know it was a law to secure items in a pickup bed	7.00%
I never place loose items in the bed	21.40%

Q17: Which enforcement entity should be mainly responsible for enforcing litter and illegal dumping laws?

ANSWER	RESPONSES
State police	6.15%
Local police and sheriff officers	15.00%
La. Wildlife and Fisheries officers	7.69%
Constables	2.88%
Code Enforcement	5.58%
All of the Above	54.23%
No opinion	8.46%

Q18: If you saw someone litter, what would you do? Mark all applicable.

ANSWER	RESPONSES
Ask them to pick it up	41.92%
Report them to a litter hotline	19.62%
Report to a public official	12.12%
Report to law enforcement	10.96%
Do nothing	37.31%

Q19: Why do people not report littering?

ANSWER	RESPONSES
Do not know how to report littering	24.42%
It is inconvenient to report littering	12.31%
No one gets convicted or penalized for littering	18.46%
Don't want to get involved	44.81%

Q20: Are you aware of how to report littering?

ANSWER	RESPONSES
Yes	32.62%
No	67.38%

Q21: Who should mainly be responsible for cleaning up litter?

ANSWER	RESPONSES
The people who litter	59.19%
Incarcerated people (Inmates)	10.25%
Court-ordered community service	9.86%
Adopt-a-Road or Adopt-a-Highway groups	4.06%
Nonprofit or volunteer groups	0.77%
Local government	6.19%
State government	2.13%
Keep Louisiana Beautiful	7.54%

Q22: How frequently have you seen or heard litter prevention messages?

ANSWER	RESPONSES
Often	17.90%
Sometimes	33.66%
Rarely	34.82%
Never	13.62%

Q23: Have you seen, read or heard of the litter preventive messaging Let Louisiana Shine - Stop Littering? Mark all applicable.

ANSWER	RESPONSES
TV or streaming	25.54%
Social media	18.32%
Radio	11.89%
Billboards	19.30%
Print	7.41%
Word of Mouth	10.14%
None of the above	48.54%

Q24: Have you seen, read, or heard of the litte1-preventive Love the Boot Week campaign message? Mark all applicable.

ANSWER	RESPONSES
TV or streaming	19.22%
Social media	16.47%
Radio	9.61%
Billboards	11.37%
Print	4.31%
Word of Mouth	7.84%
None of the above	58.63%

Q25: Are you aware of Keep Louisiana Beautiful or the local affiliate network?

ANSWER	RESPONSES
Yes	61.91%
No	38.09%

Q26: Do you think there needs to be more law enforcement for littering and illegal dumping?

ANSWER	RESPONSES
Yes	67.58%
No, not a good use of public resources	9.57%
No, it won't change litter behaviors	10.74%
No, the ticket/charge will be dismissed	2.15%
No, officers should be focused on more serious issues	9.96%

Q27: If funding was guaranteed to be designated to local litter cleanup and prevention, would you be willing to pay an additional fee on your motor vehicle license renewal once every 6 years?

ANSWER	RESPONSES
$0.50	14.90%
$1.00	21.96%
$2.00	31.18%
No fee increase	31.96%

Q28: Do you have weekly residential curbside trash service?

ANSWER	RESPONSES
Yes	81.05%
No	18.95%

Q29: When setting out your household trash for pickup or transport to a disposal site, which of the following apply?

ANSWER	RESPONSES
Use a trash bag	60.94%
Place trash loosely into open top receptacle	12.50%
Place trash loosely into closed top receptacle	26.56%

Q30: Do you have access to a public disposal site for large items (appliances, furniture, or mattress)?

ANSWER	RESPONSES
Yes	58.12%
No	41.88%

Q31: Which best describes your littering behavior?

ANSWER	RESPONSES
I have littered in past 12 months	14.54%
I used to litter	52.02%
I have never littered	33.44%

Q32: Briefly explain changes in your personal attitude or behavior about litter. (Select responses from 444 submitted) Angers me that it is constantly increasing

- Disappointed that Baton Rouge has such a low opinion of itself by littering.
- Even when I smoked, I never littered, we have to take care of the Earth. Littering is disgusting.
- I am extremely careful not to litter. I value my surroundings and this beautiful country and the wildlife.
- I appreciate my surroundings and want to be proud of my state, and I refuse to contribute to the littering
- I don't want my trash on the street - that's why I keep a trash bag in my car and at home. I secure my trash in a closed trash can for twice a week pick up
- I grew up and realized how ugly it is and that its wrong
- I have become more aware of the littering problem in Louisiana, and I make every effort to not litter.
- I have never been an intentional litterer ... growing up in Texas, the "Don't Mess With Texas" anti-littering campaign was a big deal.
- I have never intentionally littered, although I have unintentionally littered. I think littering is wrong because it harms the environment, local wildlife, and our communities. Littering is a reflection of laziness, convenience, and selfishness.
- I littered a couple times when I was about 5 or 6 years old. My father showed me how all the bottles and paper and plastics would all be pushed together along the bayous and rivers I loved to fish with him. He also taught me the harm that came to the fish in our waterways and even our crops. Mostly he taught me how beautiful Louisiana was and to respect our waterways and the land.
- I not going to lie I might've littered a few times when I was younger, but I never felt right doing it and especially now as an adult I could never think to litter I used to see my friends litter all the time and I would always just feel so ashamed of them because it was just disrespected environment and I actually would teach them to not litter or just put it somewhere else so I never really was much of a litter, my whole life, but have maybe a few times .
- I remember throwing a chip bag on the ground and my sister scold me for that.

- I think no one should ever litter in Louisiana or any other state for that matter.
- I understand now the harm it does
- I've accidentally littered, unintentional. I have more pride than to litter now
- It makes our cities ugly and dirty looking.
- Littering should not be allowed anywhere; it shows how lazy and disrespectful people are about their communities
- Once I became aware of trash and how it makes the neighborhood look dirty. I began keeping my neighborhood clean.
- Seeing the hard-working volunteers with Keep Tiger Town Beautiful and how much trash they are able to collect, saddens me about our community. I have never been one to litter, yet I've never called out someone who does when driving. I would DEFINITELY call a litter hotline if I knew the number.
- The older I became the more my behavior changed against littering
- When I was young, I never realized how big and bad a problem littering was. The older I get the worse it seems to be becoming a major problem. No pride left in this world.

Q33: What is your gender?

ANSWER	RESPONSES
Male	46.56%
Female	52.85%
Prefer Not to Answer	0.59%

Q34: Which age group applies to you?

ANSWER	RESPONSES
18 to 24 years	15.13%
25 to 34 years	14.15%
35 to 55 years	39.49%
55-65 years old	15.72%
Over 65 years old	15.52%

Q35: What is your race or ethnicity?

ANSWER	RESPONSES
American Indian or Alaska Native	0.98%
Asian	0.79%
Black or African American	31.04%
Hispanic or Latino	2.36%
White	61.69%
Bi-racial	1.77%
Prefer not to answer	1.38%

Q36: In what type of residence do you live?

ANSWER	RESPONSES
House, single-detached	69.35%
House, attached (duplex/quadplex)	4.32%
Apartment/Townhouse/Condominium	17.49%
Manufactured home	8.84%

Q37: Do you own or rent your place of residence?

ANSWER	RESPONSES
Own	60.12%
Rent	39.88%

Q38: What is the highest level of education that you have completed?

ANSWER	RESPONSES
Less than High School Diploma	6.09%
High School Diploma or GED	30.65%
Completed Some College	22.00%
A Two-Year Associate (Community College)	9.23%
Technical College	5.50%
Bachelor's Degree	15.72%
Master's Degree	8.25%
Doctoral Degree	2.55%

Q39: In what region do you reside?

ANSWER	RESPONSES
Northern Louisiana	22.59%
Central Louisiana	21.41%
Acadiana (Southern/Southwest)	21.61%
Greater New Orleans	19.84%
Florida Parishes (Baton Rouge and surrounding parishes)	14.54%

Q43: Household Income

ANSWER	RESPONSES
$0-$9,999	22.99%
$10,000-$24,999	16.70%
$25,000-$49,999	23.97%
$50,000-$74,999	14.34%
$75,000-$99,999	7.86%
$100,000-$124,999	4.52%
$125,000-$149,999	2.75%
$150,000-$174,999	2.16%
$175,000-$199,999	0.20%
$200,000+	0.98%
Prefer not to answer	3.54%

APPENDIX 7: LITTER COST LETTER

December 12, 2022

The Honorable Adrian Perkins
Mayor
City of Shreveport
P.O. Box 31109
Shreveport, LA 71130

Dear Mayor Perkins:

As part of efforts to address the litter problem in Louisiana, we need your help to estimate how much public money is spent each year. In 2010, a litter cost study conducted for Keep Louisiana Beautiful showed over $40 million annually is spent to address litter, defined as trash or recyclables that are abandoned or disposed of improperly. Your jurisdiction has been selected by the researchers for inclusion in the sampling process to determine the statewide cost.

We want to estimate the amount agencies like yours spend on litter-related activities, including litter collection and disposal, litter enforcement, anti-litter education and public information, and litter adjudication. Between December 2022 and March 2023, researchers will collect data via surveys and interviews to determine the estimated current actual costs to taxpayers. From our past experience, we realize that there is probably no such thing in any government agency as a budget line item for litter; however, we do know that, indeed, public funds are expended and personnel and equipment resources are assigned to litter collection, disposal, and enforcement. Data collection may include estimating:

- Annual personnel costs include but are not limited to, government personnel performing cleanup or enforcement or supervising workers and contract employees
- Hours provided by non-paid workers, including community volunteers, prisoners and inmates, and people performing mandatory community service
- Cost for operating equipment including but not limited to a vehicle to transport litter crews; vehicle and trailer to carry litter collected; litter barrels and trash receptacles; gloves, vests, garbage bags, pickup sticks, and other equipment
- Disposal cost at a landfill or disposal center for litter collected

We understand the information you provide will be your best estimates of such costs so we want to work with you to determine the applicable departments and personnel to include in the process. We request you confirm your participation by contacting Dr. Cecile Carson at carson@cdcarson.com or (940)230-6035 by December 22, 2022. If we don't hear back from you by that date, we will follow up with you directly to determine your participation.

Thank you for your participation in this important research project. If I can be of assistance to you in any way, please don't hesitate to call.

Sincerely,

Billy Nungesser
Lieutenant Governor

WHN/jt

APPENDIX 8: LITTER COST PARTICIPANTS

Local Government

Abbeville
Abita Springs
Alexandria
Ascension Parish
Ascension Sheriff's Office
Assumption Parish
Baton Rouge
Beauregard Sheriff's Office
Bossier Sheriff's Office
Caddo Parish
Calcasieu Parish
Cameron Sheriff's Office
Catahoula Parish
DeRidder
DeSoto Parish
Donaldsonville
East Baton Rouge Parish
Evangeline Sheriff's Office
Grant Sheriff's Office
Gretna
Iberville Sheriff's Office
Jefferson Parish
Jefferson Parish
Lafayette Parish
Lafayette Sheriff's Office
Lake Providence
Lincoln Parish
Monroe
Morehouse Sheriff's Office
Natchitoches
New Orleans
Orleans Parish
Ouachita Parish
Ouachita Sheriff's Office
Plaquemines Sheriff's Office
Shreveport
Slidell
St. John the Baptist Parish
St. Mary Parish
St. Tammany Parish
Tangipahoa Parish
Tensas Parish
Tensas Sheriff's Office
Terrebonne Parish
Terrebonne Sheriff Office
Walker
W. Baton Rouge Sheriff's Office
West Feliciana Parish

State Government

Office of the Lieutenant Governor - Department of Culture, Recreation and Tourism (DCRT)
Departments of Transportation and Development (DOTD)
Wildlife and Fisheries (LDWF)
Environmental Quality (LDEQ)
Public Safety and Corrections (DPS&C)
State Police (LSP)

FOR MORE INFORMATION

Susan Russell
Executive Director
985-778-0067
srussell@keeplouisianabeautiful.org
www.keeplouisianabeautiful.org

Dr. Cecile Carson
Chief Executive Officer
940.230.6035.
carson@cdcarson.com
www.cdcarson.com