



# Measuring the Effectiveness of a Stormwater Public Education Campaign: Survey of Practice

*Requested by*  
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## Table of Contents

<b>Executive Summary</b> .....	<b>2</b>
Background.....	2
Summary of Findings.....	2
Gaps in Findings.....	8
Next Steps .....	8
<b>Detailed Findings</b> .....	<b>9</b>
Background.....	9
Survey of Practice .....	9
Related Research and Resources .....	35
<b>Contacts</b> .....	<b>40</b>
<b>Appendix A: Survey Questions</b> .....	<b>41</b>

# Executive Summary

## **Background**

*Protect Every Drop* is a stormwater education and outreach campaign conducted by the California Department of Transportation (Caltrans) to encourage the public to adopt positive behaviors toward helping improve state water quality. The three-year campaign, which began in 2016, aims to educate Californians about sources of common pollutants and ways to reduce stormwater runoff pollution in and around highways.

To obtain compliance credits for this campaign from the State Water Resources Control Board, as required in the Caltrans National Pollutant Discharge Elimination System (NPDES) permit, Caltrans needs to:

- Determine how to quantify the impact the campaign had on influencing people's behaviors and how to correlate it to trash reduction.
- Measure the effectiveness of the stormwater education campaign.

To assist Caltrans in obtaining this information, CTC & Associates conducted an online survey of state departments of transportation (DOTs) about their experience implementing similar campaigns that successfully reduced littering and pollution. The survey also examined how the state transportation agencies measured the success of those campaigns and whether the state DOTs implemented other outreach practices to control litter. In addition to the survey, a limited literature search was conducted to identify publicly available sources of relevant national and state research, best practices related to successful public education campaigns for litter and stormwater pollution reduction, and methods used to measure the campaigns' success. Findings from these efforts are summarized in two areas:

- Survey of practice.
- Related research and resources.

## **Summary of Findings**

### **Survey of Practice**

An online survey was distributed to members of the American Association of State Highway and Transportation Officials (AASHTO) Committee on Environment and Sustainability who were expected to have experience with public education and outreach campaigns about litter and stormwater pollution reduction. Eleven state transportation agencies responded to the survey.

Eight of the 11 agencies had experience conducting a public education campaign about litter or stormwater runoff pollution reduction: Alabama, Arkansas, Louisiana, New York, Oklahoma, Tennessee, Texas and Washington. The remaining three states—Indiana, Kansas and Ohio—had not had experience conducting this type of public education campaign, however, Indiana and Ohio conducted other types of outreach to control litter, trash and/or illegal dumping. Indiana DOT uses posters at rest areas to educate the public about reducing litter and stormwater runoff pollution, and Ohio DOT has placed “Dump No Waste—Drains to Waterway” stamps on storm drain grates.

## Stormwater Public Education Campaigns

The eight state transportation agencies that conducted stormwater public education campaigns provided the following information about their campaigns:

- Type of campaign.
- Laws or permits that mandated the outreach or education campaign.
- Target audience.
- Study area or market reach.
- Length of the campaign.
- Cost of the campaign.
- Type of media used to promote the campaign.

### *Type of Campaign*

Table ES1 summarizes the three general categories of campaigns reported by state agencies: state-specific, Adopt-A-Highway or Adopt-A-Road, and general litter prevention. Two ongoing, state-specific campaigns were described: Nobody Trashes Tennessee and Don't Mess With Texas. Four states—Louisiana, Oklahoma, Texas and Washington—implement Adopt-A-Highway or Adopt-A-Road campaigns. General litter prevention efforts were reported in Alabama, Arkansas, Louisiana, New York and Oklahoma.

**Table ES1. Type of Public Education Campaigns**

Type of Campaign	State
<b>State-Specific</b>	Tennessee (Nobody Trashes Tennessee), Texas (Don't Mess With Texas)
<b>Adopt-A-Highway/Adopt-A-Road</b>	Louisiana, Oklahoma, Texas, Washington
<b>General Litter Prevention</b>	Alabama, Arkansas, Louisiana, New York, Oklahoma

### *Regulatory Mandates*

The public education campaign or outreach of five agencies is mandated by law or stormwater permit:

- *Alabama*: Municipal separate storm sewer system (MS4) NPDES Permit Individual Permit, Permit No. ALS000006. However, the survey respondent noted that most anti-litter campaigns are initiated without regulatory motivation.
- *Arkansas*: MS4 Permit Number ARR040000. The plan includes best management practices (BMPs) about distributing education materials and disseminating information about agency efforts on a public web site.
- *Louisiana*: MS4 annual report, which describes the activities and progress made in six public education and outreach minimum control measures.
- *New York*: State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from MS4s, which describes implementation and reporting requirements of the agency's stormwater management program.
- *Washington*: Revised Code of Washington Section 47.40.100 and Washington Administrative Code 468-72.

Public education campaigns or outreach are not mandated in Oklahoma, Tennessee and Texas.

### *Target Audience and Study Area of Campaign*

The primary target audience of these campaigns is the general public, although Texas DOT noted that the audience varies with each campaign. Other audiences reported included DOT employees, contractors and businesses. Table ES2 summarizes the audiences that agencies target.

**Table ES2. Public Education Campaign Target Audiences**

State	General/Traveling Public	DOT Staff	Contractors	Other	Description
Alabama	X				Emphasis on motorists.
Arkansas	X	X	X		N/A
Louisiana	X	X		X	Homeowners, schools and businesses.
New York	X	X		X	Visitors to web site.
Oklahoma	X				N/A
Tennessee	X				N/A
Texas				X	Varies with campaign.
Washington	X			X	Businesses and organizations.
<b>Total</b>	<b>7</b>	<b>3</b>	<b>1</b>	<b>4</b>	

The study area or market reach is generally statewide for campaigns and outreach. Some survey respondents provided additional details about the study area or market reach of their campaigns:

- *Arkansas*: Educational brochures are available at district headquarters and visitor welcome centers. The agency web site provides information to employees, contractors and the general public.
- *Louisiana*: Louisiana Public Broadcasting runs the DOT's public service campaign ad 20 to 99 times annually. The transportation agency also tracks maintenance efforts in a database (Agile).
- *New York*: Posters about illicit discharges are available in rest area display cases and in DOT maintenance facilities. A brochure that complements the poster is available on the DOT web site. DOT maintenance staff also receives annual pollution prevention training.
- *Texas*: For the MS4 permit, only costs and effort within the MS4 area are reported.
- *Washington*: Contractors working for business sponsors are not allowed to provide services statewide. Also, some sections of the state's highways are not available for adoption due to safety limitations.

### *Length of Campaign*

The campaigns and outreach efforts in seven of the eight agencies are ongoing. In Arkansas, these campaigns are conducted by Keep Arkansas Beautiful and not Arkansas DOT. (The transportation agency provides annual funding to Keep Arkansas Beautiful to support the

organization’s efforts.) Many of these campaigns have been underway for significant lengths of time—from five to more than 30 years:

- Various efforts in Alabama have been initiated at different times over approximately 15 years.
- In New York, posters and brochures have been in place since 2014.
- Texas DOT’s Don’t Mess With Texas campaign launched in 1985.
- The Adopt-A-Highway program in Washington began in 1990.

### Cost of Campaign

Total cost of public education campaigns and outreach varied considerably among survey respondents as did the amount of that cost expended on media buy. Cost information is summarized in Tables ES3 and ES4 (when provided).

**Table ES3. Comparison of Public Education Campaign Costs**

Campaign Cost	State	Description
Less than \$1,000	New York	<ul style="list-style-type: none"> <li>• In-house printing costs: Approx. \$250.</li> <li>• In-house design costs for poster, brochure and presentation: Not tallied separately from other permit compliance tasks.</li> </ul>
\$1,000 to \$15,000	Louisiana	<ul style="list-style-type: none"> <li>• Cost of television ad and magazine article: \$1,500/year.</li> <li>• Other coverage performed by in-house staff.</li> </ul>
\$100,000 to \$500,000	Alabama	Approx. \$400,000 to \$500,000/year.
\$1 million to \$4 million	Tennessee, Texas, Washington	<i>Tennessee:</i> Approx. \$2 million/year. <i>Texas:</i> More than \$1.5 million for 2017 costs in MS4 area. <i>Washington:</i> Approx. \$4 million/year.
Other	Arkansas	<ul style="list-style-type: none"> <li>• Cost–benefit analyses for Keep Arkansas Beautiful spring and fall cleanups.</li> <li>• Statewide marketing conducted throughout the year.</li> </ul>

**Table ES4. Comparison of Public Education Media Buy Costs**

State	Media Buy	Description
Alabama	Unknown	Specific cost information kept by other DOT offices.
Arkansas	\$25,000/year	Funding to Keep Arkansas Beautiful campaigns.
New York	Unknown	N/A
Louisiana	\$1,500	N/A
Tennessee	Approx. \$500,000/year	N/A
Texas	More than \$1.5 million (2017 costs in MS4 area)	N/A
Washington	Minimal	Funds spent typically include staff time for posting to the agency’s social media platforms.

### *Type of Media Used*

Twitter and Facebook were the most frequently used media for public education campaigns. Other social media used were Pinterest (Arkansas), YouTube (Arkansas) and Instagram (Tennessee). Television and radio advertising and highway billboards were also commonly used types of media.

Other general types of media used were signage on roadways and at rest areas (Alabama and Washington); agency web site (Washington); magazine advertisements (Louisiana); posters and brochures (New York); earned, or free, media events (Tennessee); video advertisements (Arkansas); and art contests (Washington). Table ES5 summarizes survey results.

**Table ES5. Types of Media Used in Stormwater Public Education Campaigns**

State	Radio Ads	TV Ads	Highway Billboards	Airport Billboards	Bus Billboards	Twitter	Facebook	Other Social Media	Other
Alabama	X	X				X			X
Arkansas	X	X	X		X	X	X	X	X
Louisiana		X							X
New York									X
Oklahoma			X			X	X	X	
Tennessee		X	X	X	X	X	X	X	X
Texas	X	X	X			X	X		
Washington						X	X		X
<b>Total</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>6</b>

### Efforts to Quantify Litter and Stormwater Pollution Reduction

Some survey respondents discussed their agencies' efforts to quantify litter and stormwater pollution reduction. Three states—Arkansas, Tennessee and Texas—measured the amount of litter before and after campaigns. Two states—Louisiana and Oklahoma—measured the amount of litter or pollution after the campaign only. Three states—Alabama, New York and Washington—did not measure the amount of litter before or after their campaigns.

Other practices these agencies use to quantify litter and stormwater pollution reduction are encouraging the state's youth to become involved in activities (Arkansas); conducting public opinion polling, focus groups and surveys to track visible litter (Tennessee); using contractors to identify and market to audiences that are most likely to litter (Texas); and recording volunteer hours and the amount of litter collected (Washington).

### Stormwater Public Education Campaign Assessment

Seven of the eight agencies reporting on litter and stormwater pollution reduction campaigns consider their campaigns to have been effective at reducing litter or pollution: Alabama, Arkansas, Louisiana, Oklahoma, Tennessee, Texas and Washington.

### *Litter Enforcement*

Four states included litter enforcement in their campaigns, all through partnerships with other agencies. In Arkansas, citizens report littering incidents through a hotline (866-811-1122) that is monitored by the highway police radio room and promoted by Keep Arkansas Beautiful. A notification is sent to the offender with the details of the littering complaint. Enforcement is the responsibility of the department of public safety in Texas and the state patrol in Washington. In Louisiana, enforcement actions are coordinated with the Louisiana Department of Environmental Quality. Although litter enforcement is not currently part of Tennessee's anti-litter efforts, the agency is developing partnerships for future enforcement.

### *Using Analytics to Quantify the Effectiveness of Media Types*

Two states—Arkansas and Texas—have used analytics to quantify the effectiveness of the media types employed in their stormwater public education campaigns. In Arkansas, social media platforms were most effective, based on data from Google Analytics. Texas DOT recently assessed the effectiveness of various media types; analysis of the results is currently underway.

Several states participating in the survey have used methods, tools or practices other than analytics to measure campaign effectiveness. Examples of these practices included resource expenditures (Tennessee), increased reporting to litter hotlines (Arkansas), and campaign awareness and overall changes in the general public's littering behavior (Tennessee). The respondent from New York State DOT noted that it is difficult to evaluate campaign effectiveness since behavioral changes may not occur immediately after viewing a poster or brochure. Alabama DOT is currently considering an assessment tool.

### *Successes of Public Education Campaigns*

Increases in partnerships, public awareness and public involvement were the successes cited by survey respondents. The Arkansas DOT survey respondent noted that the agency's partner, Keep Arkansas Beautiful, continues to grow, which allows the organization to increase its outreach and education efforts. Increased visibility of anti-littering efforts has made the public more aware of both Alabama DOT, which has seen a growth in Twitter followers, and Tennessee DOT, which has gained visibility through earned media events. Respondents from Arkansas, Tennessee and Washington State DOTs noted an increase in community involvement.

### *Challenges of Public Education Campaigns*

Respondents reported on a range of challenges with public education campaigns, including a lack of funding (Louisiana); a lack of adequately trained staff (Louisiana and Tennessee); gaining the traveling public's attention (New York); and safety concerns (Arkansas). The respondent from Washington State DOT noted issues with road signs that adequately recognize the efforts of volunteers and business sponsors without advertising corporate brands.

### *Best Management Practices for Changing Public Behavior*

The primary BMPs that state DOTs participating in the survey used to promote changes in public behavior were:

- Support from community leaders (Arkansas).
- Compelling campaign themes (Tennessee and Washington).
- Litter enforcement (Alabama).

- Employee training (Arkansas).
- Use of printed materials (New York).

## **Related Research and Resources**

### National Research and Practices

Publications and guidance from national resources included a 2019 NCHRP research report about measuring the effectiveness of public involvement in transportation planning and project development. Research from this report was used to develop a toolkit to collect feedback from the public that was used to compare the effectiveness of different public involvement strategies over time. Stormwater program effectiveness assessment strategies and tools are discussed in a 2012 AASHTO report, and a 2012 webinar presents various public involvement performance measurements and metrics.

Two Environmental Protection Agency (EPA) reports address stormwater pollution prevention efforts and outreach. A 2016 EPA resource provides examples of public sector policies and programs that work to reduce and prevent the amount of trash entering waterways in the Gulf region. A 2010 EPA guide explains how stakeholders can enhance the effectiveness of these campaigns.

### State and Local Research and Practices

A 2014 publication from Vermont Department of Environmental Conservation analyzes and evaluates the successes and failures of various stormwater programs and projects from across the country, and a 2015 Iowa DOT publication identifies best practices and approaches to MS4 program planning. Measures of success and public education program effectiveness are the topics of a 2015 Wake County, North Carolina, report and a 2013 Washington State Department of Ecology document.

## **Gaps in Findings**

Only eight state transportation agencies responding to the survey had experience conducting a public education campaign about litter, trash or stormwater runoff pollution reduction. Two other agencies had very limited experience conducting outreach activities within their states to control litter, trash and/or illegal dumping. In addition, the use of analytics or other practices to measure program effectiveness was limited. Contacting other state DOTs that did not participate in this survey could provide relevant information about public education campaigns and outreach and also provide tools and strategies to measure the effectiveness of these strategies.

## **Next Steps**

Moving forward, Caltrans could consider

- Reviewing the details of the campaigns described by survey respondents, specifically the Nobody Trashes Tennessee and Don't Mess With Texas campaigns, for insight into effective stormwater pollution prevention efforts and strategies.
- Following up with Texas DOT for the latest results of efforts to quantify the reduction in litter and stormwater pollution.
- Contacting the Washington State Department of Ecology for information about its former anti-litter efforts, including the successful "Litter and It Will Hurt" campaign.



## Detailed Findings

### Background

From 2016 to 2019, the California Department of Transportation (Caltrans) conducted *Protect Every Drop*, a stormwater education and outreach campaign designed to encourage the public to adopt positive behaviors toward helping improve water quality throughout the state. *Protect Every Drop* aims to improve water quality by educating Californians about pollution sources and ways to reduce stormwater runoff pollution (such as trash, metals, bacteria and pesticides) in and around highways so water that discharges into state watersheds will carry fewer pollutants.

To obtain compliance credits for this campaign from the State Water Resources Control Board, as required in the Caltrans National Pollutant Discharge Elimination System (NPDES) permit, Caltrans needs to:

- Determine how to quantify the impact the campaign had on influencing people's behaviors and how to correlate it to trash reduction.
- Measure the effectiveness of the stormwater education campaign.

To assist Caltrans in this effort, CTC & Associates conducted an online survey of state departments of transportation (DOTs) to gather information about agencies' experience implementing similar campaigns that successfully reduced littering and pollution, and measuring the success of those campaigns. Other state DOT efforts or outreach to control litter were also examined. In addition to the survey, a limited literature search was conducted to identify publicly available sources of national and state research and best practices related to successful public education campaigns for litter and stormwater pollution reduction, and how success was measured. Findings from these efforts are summarized in two areas:

- Survey of practice.
- Related research and resources.

### Survey of Practice

An online survey was distributed to members of the American Association of State Highway and Transportation Officials (AASHTO) Committee on Environment and Sustainability who were expected to have experience with education and outreach campaigns implemented by state DOTs that were designed to encourage the public to adopt positive behaviors toward litter and stormwater pollution reduction. Survey questions are provided in [Appendix A](#). The full text of survey responses is presented in a supplement to this report.

### Summary of Survey Results

Respondents from 11 state DOTs responded to the survey:

- Alabama.
- Arkansas.
- Indiana.
- Kansas.
- Louisiana.
- New York.
- Ohio.
- Oklahoma.
- Tennessee.
- Texas.
- Washington.

Eight state transportation agencies have had experience conducting a public education campaign about litter, trash or stormwater runoff pollution reduction: Alabama, Arkansas, Louisiana, New York, Oklahoma, Tennessee, Texas and Washington.

Three state DOTs have not had experience conducting this type of public education campaign: Indiana, Kansas and Ohio. Respondents from two of these agencies reported on other types of outreach that their agencies conducted to control litter, trash and/or illegal dumping:

- Indiana DOT uses posters at rest areas to educate the public about reducing litter and stormwater runoff pollution. The respondent reported that the agency has struggled with implementing many municipal separate storm sewer system (MS4) minimum control measures (MCMs), and that its program is “very basic” because of the limited number of staff assigned to these efforts (one team lead, three reviewers/inspectors at the central office and one erosion control specialist at each district). Only two of the central office staff focus on MS4 MCMs.
- Ohio DOT has placed “Dump No Waste—Drains to Waterway” stamps on all grates.

The remainder of this section presents the survey results from the eight agencies that have conducted public education campaigns focused on litter or stormwater runoff pollution reduction. Findings are summarized in the following topic areas:

- Stormwater public education campaigns.
- Efforts to quantify litter and stormwater pollution reduction.
- Stormwater public education campaign assessment.

## **Stormwater Public Education Campaigns**

The following case studies describe stormwater public education campaigns led or sponsored by the eight state transportation agencies. Each case study includes the following information (when provided):

- Type of campaign.
- Laws or permits that mandated the outreach or education campaign.
- Target audience.
- Study area or market reach.
- Length of the campaign.
- Cost of the campaign.
- Type of media used to promote the campaign.
- Contact information for more details about the campaign.

When provided, background information about the campaign or the agency’s involvement in the campaign precedes the case study. Also, a Supporting Documents section follows some of the case studies; this section includes guidance and other resources that were provided by the respondent or sourced through a limited literature search.

**Alabama Department of Transportation**

Topic Area	Description
<b>Type of Campaign</b>	<p>Various campaigns:</p> <ul style="list-style-type: none"> <li>• Anti-litter roadway and rest area signage.</li> <li>• Anti-litter public service announcements (PSAs).</li> <li>• Sponsorship of anti-litter education or outreach organizations.</li> <li>• Anti-litter campaigns through partnerships with municipalities.</li> </ul>
<b>Mandated by Law or Stormwater Permit</b>	<ul style="list-style-type: none"> <li>• Alabama DOT MS4 Permit (NPDES No. ALS000006) (see Supporting Documents below).</li> <li>• Most anti-litter campaigns initiated without regulatory motivation.</li> </ul>
<b>Target Audience</b>	Alabama citizens, with emphasis on motorists.
<b>Study Area/Market Reach</b>	Statewide.
<b>Length of Campaign</b>	<ul style="list-style-type: none"> <li>• Various efforts initiated at different times over approximately 15 years.</li> <li>• All efforts ongoing.</li> </ul>
<b>Cost of Campaign</b>	<p>Approximately \$400,000 to \$500,000/year sponsoring anti-litter organizations.</p> <p><i>Amount expended on media buy:</i> Unknown. Specific cost information kept by different Alabama DOT offices.</p>
<b>Type of Media Used</b>	<ul style="list-style-type: none"> <li>• Radio and television advertisements.</li> <li>• Twitter.</li> <li>• Signage on roadways and at rest areas.</li> </ul>
<b>Contact</b>	<p>Josh Phillips, Public Information Specialist, Media and Community Relations Bureau, 334-242-6730, <a href="mailto:phillipsjo@dot.state.al.us">phillipsjo@dot.state.al.us</a>.</p>

Supporting Documents

**National Pollutant Discharge Elimination System Permit Individual Permit**, Permit No. ALS000006, Alabama Department of Environmental Management, September 30, 2019. <https://www.dot.state.al.us/dsweb/divPed/EnvironmentalCoordination/pdf/MS4/MS4PERMIT2019.pdf>

*From Part I:*

This Permit applies to the municipal separate storm sewer system (MS4) which is owned, operated and/or maintained by the Alabama Department of Transportation that is located within the areas of the State covered by a MS4 Phase I or MS4 Phase II NPDES Permit.

Part II, Section B.2, of the document (beginning on page 5 of the document) addresses the public education and public involvement requirements of a stormwater management program plan (SWMPP). *From the document:*

- b. The Permittee shall include within the SWMPP the following information:
1. Plans to seek and consider public input in the revision and implementation of the SWMPP;
  2. Identify targeted pollutant sources the Permittee's public education program is intended to address;
  3. Inform and involve the public about the steps that can be taken to reduce storm water pollution to ALDOT [Alabama DOT] property to include specifically, the reduction of litter, floatables and debris from entering ALDOT's MS4;
  4. Inform and involve the public on ways to become involved in ALDOT's stormwater program.

Section B.2 identifies three target audiences—the general public, contractors and employees—and the subject areas that should be part of the education program for each audience. Reporting requirements are also addressed; each year in an annual report, the agency must describe:

- Progress toward measurable goals outlined in the SWMPP.
- Activities used to involve groups and/or individuals in developing the SWMPP.
- Individuals and groups targeted for each program element and the number that participated.
- Communication mediums used and the number of materials that were distributed, training sessions conducted or outreach events held.

*Related Resources:*

**The ALDOT MS4 Program**, Environmental Coordination, Alabama Department of Transportation, undated.

<https://www.dot.state.al.us/dsweb/divPed/EnvironmentalCoordination/index.html>

(Scroll to The ALDOT MS4 Program tab at the bottom of the web page)

This web page includes links to MS4 resources, including the 2017 revision to the SWMPP, annual reports since 2014 and the NPDES permit.

**MS4 Stormwater Management Program Plan**, Alabama Department of Transportation, September 2017.

<https://www.dot.state.al.us/dsweb/divPed/EnvironmentalCoordination/pdf/MS4/MS4SWMPP.pdf>

Section 3.3.1 of the plan (beginning on page 20 of the PDF) presents information related to litter reduction activities through public education and public involvement. Signage along roadways and at rest areas is a major strategy used by the agency to discourage motorists from littering. In fiscal year 2017, to meet MS4 requirements, Alabama DOT began tracking the number of signs posted and reporting these numbers in its annual report. Other anti-littering activities and partnerships are also discussed in this section. Appendix C includes examples of anti-littering signs and other educational materials (beginning on page 94 of the PDF).

## Arkansas Department of Transportation

Arkansas DOT does not have a stormwater public education campaign. Instead, the agency provides annual support to the anti-littering efforts of Keep Arkansas Beautiful.

Topic Area	Description
<b>Type of Campaign</b>	<ul style="list-style-type: none"> <li>• Litter reduction campaigns led by Keep Arkansas Beautiful. The Arkansas Highway Commission provides annual funding to these campaigns.</li> <li>• Additional education and outreach required by the agency's MS4 permit (see Statewide Storm Water Management Program in Supporting Documents below):               <ul style="list-style-type: none"> <li>○ <i>Employees</i>: Pollution prevention training for key maintenance and construction personnel. Arkansas DOT Environmental Division also provides storm drain decals at all locations.</li> <li>○ <i>Visitors to Arkansas DOT facilities</i>: Stormwater educational brochures available at all facilities open to the public.</li> </ul> </li> <li>• Stormwater runoff and littering prevention presentations to entities across the state.</li> </ul>
<b>Mandated by Law or Stormwater Permit</b>	<ul style="list-style-type: none"> <li>• Arkansas DOT MS4 Permit Number ARR040000. Considered a nontraditional MS4, the agency fulfills the permit in its statewide stormwater management program plan.</li> <li>• <i>Examples</i>: Best management practice (BMP) 1.1 requires the agency to develop and distribute handouts. BMP 1.2 requires that stormwater information be disseminated on the public web site.</li> </ul>
<b>Target Audience</b>	<ul style="list-style-type: none"> <li>• <b>BMP 1.1, Storm Water Educational Material</b>: District construction and maintenance staff, contractors and traveling public.</li> <li>• <b>BMP 1.2, Storm [Water] Information on Website</b>: DOT employees and general public.</li> </ul>
<b>Study Area/Market Reach</b>	<ul style="list-style-type: none"> <li>• Educational brochures available at district headquarters and visitor welcome centers.</li> <li>• Agency web site provides information to employees, contractors and general public.</li> <li>• Keep Arkansas Beautiful, with funding from Arkansas Highway Commission, uses multiple media venues.</li> </ul>
<b>Length of Campaign</b>	Campaigns conducted by Keep Arkansas Beautiful (not Arkansas DOT).

Topic Area	Description
<b>Cost of Campaign</b>	<ul style="list-style-type: none"> <li>• Cost–benefit analyses completed for Keep Arkansas Beautiful spring and fall cleanups.</li> <li>• Statewide marketing conducted throughout the year.</li> </ul> <p><i>Amount expended on media buy:</i> Keep Arkansas Beautiful receives \$25,000/year from Arkansas DOT for use in statewide campaigns.</p>
<b>Type of Media Used</b>	<ul style="list-style-type: none"> <li>• Radio and television advertisements (PSAs through Arkansas Broadcasters Association).</li> <li>• Billboards along highways and on buses.</li> <li>• Twitter.</li> <li>• Facebook.</li> <li>• Pinterest.</li> <li>• YouTube.</li> <li>• Advertisements on a gas station pump video and on pump toppers at fueling station.</li> </ul>
<b>Contacts</b>	<ul style="list-style-type: none"> <li>• Sarah DeVries, Water Quality Specialist, Environmental Division, 501-569-2553, <a href="mailto:sarah.devries@ardot.gov">sarah.devries@ardot.gov</a>.</li> <li>• Liz Philpott, Volunteer Program Manager, Keep Arkansas Beautiful, <a href="mailto:elizabeth.philpott@arkansas.gov">elizabeth.philpott@arkansas.gov</a>.</li> </ul>

Supporting Documents

**Statewide Storm Water Management Program**, Draft Report, Environmental Division, Arkansas Department of Transportation, August 2019.

[https://www.arkansashighways.com/stormwater/Final%20Draft%202019%20SWMP\\_website.pdf](https://www.arkansashighways.com/stormwater/Final%20Draft%202019%20SWMP_website.pdf)

Arkansas DOT’s stormwater management program outlines the plan for implementing its NPDES MS4 program and for complying with state and federal laws for water quality protection. Chapter 4 presents information about the agency’s public education and outreach requirements (beginning on page 33 of the PDF). Under the requirements of the MS4 permit, the agency must “implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities. These will include but are not limited to the impact of storm water discharges and pollution prevention steps the public can take to reduce polluted runoff. As a non-traditional MS4, the Department is required to provide educational materials and outreach to its employees, contractors, and individuals using the Department’s facilities.”

BMPs for this portion of the plan include BMP 1.1 Storm Water Educational Material (page 34 of the PDF) for the traveling public, district construction and maintenance employees, and contractors, and BMP 1.2, Storm [Water] Information on Website (page 35 of the PDF), for DOT employees and the general public. Both BMPs include a description of the practice, target pollution sources and measurable goals.

Chapter 5 of the plan addresses public involvement and participation. Strategies in this chapter include providing program materials, annual reports and associated material on the agency’s web site (BMP 2.3, page 41 of the PDF); sponsoring the Adopt-A-Highway program (BMP 2.4,

page 41 of the PDF); and providing a littering hotline and opportunities to report violations (BMP 2.5, page 42 of the PDF).

*Related Resources:*

**Municipal Separate Storm Sewer System (MS4) General Permit**, NPDES Permit No.: ARR040000, Arkansas Department of Environmental Quality, August 2019.

<https://www.adeq.state.ar.us/water/permits/npdes/stormwater/pdfs/ms4/arr040000-final-permit-20190801>

Section 3.2.1 (beginning on page 12 of the PDF) includes the provisions, performance standards and annual reporting requirements of a public education program in MS4 facilities.

**Storm Water Program**, Natural Resources Section, Environmental Division, Arkansas Department of Transportation, undated.

<http://www.ardot.gov/stormwater/stormwater.aspx>

This web page provides details about Arkansas DOT's stormwater management program along with links to current state and federal regulations, the agency's stormwater management program plan, the Adopt-A-Highway program, Report Littering hotline and other educational materials.

**Adopt A Highway**, Arkansas Department of Transportation, undated.

<https://site.idrivearkansas.com/index.php//contact/adopt-a-highway>

At this web page, organizations interested in participating in the Adopt-A-Highway program will find a brief synopsis of the program, a list of Arkansas DOT's responsibilities and links to more information. *From the web page:*

In 2012 alone, the Arkansas Department of Transportation spent more than \$4.8 million and 100,000 man-hours picking up 58,536 cubic yards of litter.

**Report Littering**, Arkansas Department of Transportation, undated.

<https://site.idrivearkansas.com/index.php/contact/report-littering/>

*From the web site:*

Whether it's on a major Interstate highway, a city street or a rural county road, you can help Keep Arkansas Beautiful by reporting people [who] throw trash from vehicles. A simple phone call to the Littering Hotline is all it takes to do your part. The line is open 24/7 and all reports are completely anonymous.

Callers are asked to provide the date, time and location the littering occurred; a description of the vehicle (make, model and color); the vehicle license plate number; the item littered; and which side of the vehicle it was discarded. An online reporting form is also available at this web site.

**Educational Material**, Arkansas Department of Transportation, undated.

[http://www.ardot.gov/stormwater/educational\\_materials.aspx](http://www.ardot.gov/stormwater/educational_materials.aspx)

Links to stormwater brochures, posters and guidelines (English and Spanish) are available at this site.

**Keep Arkansas Beautiful**, Keep Arkansas Beautiful Commission, undated.  
<http://www.KeepArkansasBeautiful.com/>

From the web site:

The Keep Arkansas Beautiful Commission inspires and educates individuals to improve their communities by preventing litter, promoting recycling and keeping Arkansas beautiful.

Community resources and opportunities for public involvement, including information about the Adopt-A-Highway program and spring and fall cleanup events, are available at this web site.

**Louisiana Department of Transportation and Development**

Topic Area	Description
<b>Type of Campaign</b>	<ul style="list-style-type: none"> <li>Reduction and elimination of floatables, herbicides and trash through the use of television advertising and messages posted along major highways.</li> <li>Implementation of Adopt-A-Road program.</li> <li>Posters, brochures and messages posted at various public facilities; messages posted along Interstates and other major highways statewide.</li> </ul>
<b>Mandated by Law or Stormwater Permit</b>	Louisiana Department of Transportation and Development MS4 annual report (see Supporting Documents below).
<b>Target Audience</b>	Traveling public, homeowners, schools, businesses and employees.
<b>Study Area/Market Reach</b>	<ul style="list-style-type: none"> <li>Television advertising (the department's public service campaign ad is run 20 to 99 times annually on Louisiana Public Broadcasting).</li> <li>Departmental maintenance tracking database (Agile).</li> </ul>
<b>Length of Campaign</b>	Ongoing (required by MS4 permit).
<b>Cost of Campaign</b>	<ul style="list-style-type: none"> <li>Cost of television ad and magazine article: \$1,500/year.</li> <li>Other coverage performed by in-house personnel; difficult to isolate these costs.</li> </ul> <p><i>Amount expended on media buy: \$1,500.</i></p>
<b>Type of Media Used</b>	<ul style="list-style-type: none"> <li>Television advertisements.</li> <li>Advertisements in <i>Visions</i> (Louisiana Public Broadcasting's monthly program guide).</li> </ul>
<b>Contact</b>	Dori Turner, Environmental Specialist, 225-248-4178, <a href="mailto:dori.turner@la.gov">dori.turner@la.gov</a> .



## Supporting Documents

**Annual Report for the Louisiana Pollution Discharge Elimination System (LPDES) General Permit for Discharges From Regulated Small Municipal Separate Storm Sewer Systems (MS4s)**, Louisiana Department of Transportation and Development, March 2018.  
[http://wwwsp.dotd.la.gov/Inside\\_LaDOTD/Divisions/Engineering/Materials\\_Lab/MS4/Documents/2017%20MS4%20Annual%20Report.pdf](http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Materials_Lab/MS4/Documents/2017%20MS4%20Annual%20Report.pdf)

This annual report describes the activities and progress made in six public education and outreach MCMs, including:

- Developing and distributing two brochures about stormwater pollution (page 6 of the report, page 13 of the PDF). Copies of the brochures are provided in Appendix B of the report (beginning on page 51 of the PDF).
- Designing a poster about limiting contaminants in stormwater discharge (page 6 of the report, page 13 of the PDF). The poster was displayed in three Louisiana transportation agency maintenance facilities in the Baton Rouge area. A copy of the poster is provided in Appendix C (beginning on page 54 of the PDF).
- Creating a web site dedicated to educating the public about the impact of stormwater runoff (page 7 of the report, page 14 of the PDF; see also *Related Resource* below).
- Developing and broadcasting a 30-second stormwater-related PSA for television (page 7 of the report, page 14 of the PDF). The PSA was broadcast on Louisiana Public Broadcasting; contracts and broadcast schedules are provided in Appendix D (beginning on page 56 of the PDF).

MCMs related to public involvement and participation begin on page 10 of the report (page 17 of the PDF). Among the four BMPs that correspond to this goal is the agency-sponsored Adopt-A-Road program (page 10 of the report, page 17 of the PDF). In 2017, 105 active groups adopted nearly 139 miles of highway and collected 82 cubic yards of litter. Tables in Appendix A (beginning on page 35 of the PDF) summarize the debris and litter collected by DOT staff and through Adopt-A-Road and other volunteer programs in designated regulated areas statewide.

### *Related Resource:*

**Municipal Separate Storm Sewer Systems (MS4)**, Louisiana Department of Transportation and Development, undated.  
[http://wwwsp.dotd.la.gov/Inside\\_LaDOTD/Divisions/Engineering/Materials\\_Lab/MS4/Pages/default.aspx](http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Materials_Lab/MS4/Pages/default.aspx)

*From the web site:*

The Louisiana Department of Transportation and Development's Municipal Separate Storm Sewer System (MS4) [web site] is published as a control measure to address the requirements of its statewide MS4 Phase II permit.

Links to annual reports from 2011 through 2017, examples of illicit discharges and other resources are provided on this web page.

**Adopt-A-Road**, Louisiana Department of Transportation and Development, undated.  
[http://wwwsp.dotd.la.gov/Inside\\_LaDOTD/Divisions/Operations/adopt-a-road/Pages/default.aspx](http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Operations/adopt-a-road/Pages/default.aspx)

Details about the agency's Adopt-A-Road program are provided and include areas that can be adopted, ways that organizations can participate and contact information by district.

## New York State Department of Transportation

Topic Area	Description
<b>Type of Campaign</b>	Limited, ongoing campaign on pollution prevention and illicit discharges.
<b>Mandated by Law or Stormwater Permit</b>	State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from MS4s (see Supporting Documents below).
<b>Target Audience</b>	<ul style="list-style-type: none"> <li>• Visitors to the agency web site.</li> <li>• Traveling public visiting rest areas along state highways.</li> <li>• Agency maintenance staff.</li> </ul>
<b>Study Area/Market Reach</b>	<ul style="list-style-type: none"> <li>• Poster about illicit discharges in rest area display cases and in DOT maintenance facilities statewide (see Supporting Documents below).</li> <li>• Brochure that complements poster available on the DOT web site (see Supporting Documents below).</li> <li>• Annual pollution prevention training for DOT maintenance staff.</li> </ul>
<b>Length of Campaign</b>	Posters and brochures have been in place since 2014.
<b>Cost of Campaign</b>	<ul style="list-style-type: none"> <li>• In-house printing costs: Approximately \$250.</li> <li>• In-house design costs for poster, brochure and presentation: Not tallied separately from other permit compliance tasks.</li> </ul> <p><i>Amount expended on media buy: N/A.</i></p>
<b>Type of Media Used</b>	<ul style="list-style-type: none"> <li>• Posters.</li> <li>• Brochures.</li> </ul>
<b>Contact</b>	Ellen Kubek, Environmental Specialist II, Office of Environment, 518-485-9161, <a href="mailto:ellen.kubek@dot.ny.gov">ellen.kubek@dot.ny.gov</a> .

N/A Not available.

### Supporting Documents

**SPDES General Permit for Stormwater Discharges From Municipal Separate Storm Sewer Systems (MS4s)**, Department of Environmental Conservation, New York State, January 2016. [https://www.dec.ny.gov/docs/water\\_pdf/ms4permit.pdf](https://www.dec.ny.gov/docs/water_pdf/ms4permit.pdf)

Part VIII, Section A.1, Public Education and Outreach on Stormwater Impacts SWMP Development/Implementation, describes implementation and reporting requirements of the stormwater management program (beginning on page 51 of the report). *From the plan:*

- a. Identify POCs [pollutants of concern], waterbodies of concern, geographic areas of concern, target audiences;
- b. Develop (for newly authorized MS4s) and implement an ongoing public education and outreach program designed to describe:
  - i. the impacts of stormwater discharges on waterbodies;

- ii. POCs and their sources;
  - iii. steps that contributors of these pollutants can take to reduce pollutants in stormwater runoff; and
  - iv. steps that contributors of non-stormwater discharges can take to reduce pollutants (non-stormwater discharges are listed in Part I.A.2);
- c. Educational materials may be made available at locations including, but not limited to:
- i. at service areas, lobbies, or other locations where information is made available;
  - ii. at staff training;
  - iii. on covered entity's website;
  - iv. with pay checks; and
  - v. in employee break rooms;

The agency is also required to “select and implement appropriate education and outreach activities and measurable goals to ensure the reduction of all POCs in stormwater discharges.”

**Stormwater Management**, Office of Environment, Engineering Division, New York State Department of Transportation, undated.

<https://www.dot.ny.gov/divisions/engineering/environmental-analysis/water-ecology/stormwater-management>

In addition to general compliance information, this web page includes links to annual reports from 2004 to the present, educational materials (including the illicit stormwater discharges poster and brochure) and other resources.

*Related Resources:*

**Illicit Stormwater Discharges**, New York State Department of Transportation, undated.

[https://www.dot.ny.gov/divisions/engineering/environmental-analysis/repository/Rest\\_Area\\_Poster.pdf](https://www.dot.ny.gov/divisions/engineering/environmental-analysis/repository/Rest_Area_Poster.pdf)

This poster provides examples of illicit discharges, additional ways to protect water quality, and resources for reporting a suspected stormwater discharge violation or for obtaining stormwater information. The poster has been placed in display cases at rest areas and in agency maintenance facilities throughout the state.

**Illicit Stormwater Discharges**, New York State Department of Transportation, undated.

[https://www.dot.ny.gov/divisions/engineering/environmental-analysis/repository/Illicit%20Discharge%20brochure\\_0.pdf.pdf](https://www.dot.ny.gov/divisions/engineering/environmental-analysis/repository/Illicit%20Discharge%20brochure_0.pdf.pdf)

This brochure complements the illicit stormwater discharge poster, providing more details about illicit discharges and stormwater pollution.

**Stormwater**, Department of Environmental Conservation, New York State, undated.

<https://www.dec.ny.gov/chemical/8468.html>

This web page provides general information about stormwater pollution and regulatory requirements, and links to MS4 resources.

## Oklahoma Department of Transportation

Topic Area	Description
<b>Type of Campaign</b>	<ul style="list-style-type: none"> <li>• Adopt-A-Highway.</li> <li>• Trash-Off.</li> <li>• Litter Poster Contest (for youth).</li> <li>• Keep Our Land Grand.</li> </ul>
<b>Mandated by Law or Stormwater Permit</b>	No.
<b>Target Audience</b>	<ul style="list-style-type: none"> <li>• Traveling public.</li> <li>• State citizens.</li> </ul>
<b>Study Area/Market Reach</b>	N/R
<b>Length of Campaign</b>	Ongoing.
<b>Cost of Campaign</b>	N/R <i>Amount expended on media buy: N/R.</i>
<b>Type of Media Used</b>	<ul style="list-style-type: none"> <li>• Billboards along highways.</li> <li>• Twitter.</li> <li>• Facebook.</li> <li>• Other social media.</li> </ul>
<b>Contact</b>	N/R

N/R No response.

### Supporting Documents

**Operations—Storm Water**, Environmental Programs, Oklahoma Department of Transportation, undated.

<http://www.okladot.state.ok.us/env-programs/stormwater/index.htm>

This web page provides links for the general public, contractors and DOT employees to find more information about stormwater management practices in Oklahoma. The citizens page includes links to the agency's three anti-littering campaigns: Adopt-A-Highway program, the annual Trash-Off event and the Litter Poster Contest.

**Adopt-A-Highway Program**, Beautification Office, Oklahoma Department of Transportation, undated.

<http://www.okladot.state.ok.us/beauty/adopt/index.htm>

*From the web site:* For over a decade, volunteer groups have been cleaning up Oklahoma's "front yard" as part of the Adopt-A-Highway (AAH) Program. The program, which began as part of an anti-litter campaign in the summer of 1987, is aimed at improving the appearance of Oklahoma roadsides and reducing our \$5 million annual cost of picking up litter on the highway system.

**Annual Trash-Off**, Beautification Office, Oklahoma Department of Transportation, undated.  
<http://www.okladot.state.ok.us/beauty/trashoff/index.htm>

*From the web site:* TRASH-OFF is the Department of Transportation’s statewide cleanup day when Adopt-A-Highway (AAH) groups, cities and communities, counties, state parks, Corps of Engineers Lakes and other organizations and individuals volunteer to clean Oklahoma highways, roads and community areas. The event began as a coordinated pickup day for AAH groups, but has grown to include a wide variety of organizations. Many groups have expanded TRASH-OFF Day into TRASH-OFF week, or even TRASH-OFF month! Cities often participate by arranging free dump days or curbside pickups. Many groups combine cleanups with other fun events such as picnics, contests or trash parades to encourage participation. All events are coordinated statewide efforts to “Keep Our Land Grand”!

**Trash Poster Contest**, Beautification Office, Oklahoma Department of Transportation, undated.  
<http://www.okladot.state.ok.us/beauty/poster/index.html>

Contest information and rules, entry forms and prior year winners are provided on this web page.

**Litter Hotline and Car Litter Bags**, Beautification Office, Oklahoma Department of Transportation, undated.

<http://www.okladot.state.ok.us/beauty/litter/index.htm>

*From the web site:* In July 1997, the Oklahoma Department of Transportation, Beautification Office began the Litter Hotline program. They established a toll-free number for Oklahomans to call and report highway littering incidents. Based on the information given by the callers, the owner of the car is sent a notice explaining that someone was seen littering from their car and asking them to join our effort to keep our state roadsides attractive. The notice is NOT a citation or a ticket, but simply a reminder that highway littering is illegal and costs our state over \$4 million each year. ODOT [Oklahoma DOT] does not keep a record of notices sent and the information submitted by hotline callers is not released to individuals, organizations or agencies. The notice is the only result of a litter hotline call. The hotline has become very popular statewide, with the number of calls increasing during the spring and summer months.

### Tennessee Department of Transportation

Tennessee DOT has a lengthy history in managing litter prevention campaigns, including the Nobody Trashes Tennessee campaign, which launched in 2017. All campaign materials and events are targeted at a broad public audience.

Topic Area	Description
<b>Type of Campaign</b>	Nobody Trashes Tennessee, a statewide campaign to create litter awareness and correct litter behavior (see Supporting Documents below).
<b>Mandated by Law or Stormwater Permit</b>	No.
<b>Target Audience</b>	General public. <ul style="list-style-type: none"> <li>In 2016, Tennessee DOT-sponsored research found that millennial women are slightly more likely to litter.</li> </ul>
<b>Study Area/Market Reach</b>	Statewide—across the Memphis, Nashville, Knoxville, Chattanooga and Tri-Cities media markets.

Topic Area	Description
<b>Length of Campaign</b>	Ongoing.
<b>Cost of Campaign</b>	Approximately \$2 million/year. <i>Amount expended on media buy: Approximately \$500,000/year.</i>
<b>Type of Media Used</b>	<ul style="list-style-type: none"> <li>• Television advertisement.</li> <li>• Billboards along highways, at airports and on buses.</li> <li>• Twitter.</li> <li>• Facebook.</li> <li>• Instagram.</li> <li>• Annual earned media events. (<i>Note: Earned media refers to promotional activities other than paid media.</i>)</li> </ul>
<b>Contact</b>	Michael McClanahan, Scenic Byways and Litter Grant Program Manager, Highway Beautification Office, Environmental Division, 615-741-0803, <a href="mailto:michael.mcclanahan@tn.gov">michael.mcclanahan@tn.gov</a> .

Supporting Documents

**2018 Annual Litter Grant Report**, Tennessee Department of Transportation, March 2019.  
[https://www.tn.gov/content/dam/tn/tdot/environmental/2019%20Litter%20Grant%20Report\\_P08\(email\).pdf](https://www.tn.gov/content/dam/tn/tdot/environmental/2019%20Litter%20Grant%20Report_P08(email).pdf)

Litter prevention efforts and campaigns discussed in the annual report include Nobody Trashes Tennessee; Adopt-A-Highway; Litter Grant Program (one-time, community-based special litter projects); a litter reporting hotline; and Keep Tennessee Beautiful. Highlights from the report:

- Tennessee DOT spends approximately \$15 million annually on its anti-littering programs and right of way litter pickup contracts.
- Approximately 11,700 tons of litter is removed annually as a result of the Litter Grant Program. During the program’s 35-year history (1983 to 2018), more than 333,000 tons of litter has been removed from state roadways.
- Since fiscal year 2014, approximately 23 million pounds of litter has been collected from 529,736 miles of Tennessee roadways, and 9.2 million pounds of that roadside debris was recycled. (See page 7 of the report for a comparison of pounds of litter removed by fiscal year.)
- During fiscal year 2017-2018, 2,367 bags of litter were collected and 47,340 pounds of litter were removed from roadways through the Adopt-A-Highway program (page 18 of the report).
- An extensive review of county litter prevention campaigns begins on page 9 of the report.

**Nobody Trashes Tennessee**, Tennessee Department of Transportation, undated.  
<https://nobodytrashestennessee.com/>

The goals of Tennessee DOT’s anti-littering campaign are to “raise awareness about Tennessee’s litter problem, stop littering and rebuild state pride.” This web site includes links to the Adopt-A-Highway program; the litter hotline; and Trashesquatch, the litter prevention outreach program for youth.

*Related Resource:*

**Highway Beautification Office**, Tennessee Department of Transportation, undated.  
<https://www.tn.gov/tdot/environmental-home/environmental-highway-beautification-office.html>

Links to the agency's litter prevention programs, including Nobody Trashes Tennessee, Adopt-A-Highway, Litter Grant Program and the Report Litter hotline, are available on this web page.

**Adopt-A-Highway Program**, Tennessee Department of Transportation, undated.  
<https://www.tn.gov/tdot/environmental-home/environmental-highway-beautification-office/adopt-a-highway.html>

Resources for volunteers are available at this web site. *From the web site:*

Since the [Adopt-A-Highway] program's inception in 1989, our volunteers have collected more than 12 million pounds of litter from Tennessee's roadsides.

**Litter Grant Program**, Tennessee Department of Transportation, undated.  
<https://www.tn.gov/tdot/environmental-home/environmental-highway-beautification-office/beautification-litter-grant.html>

*From the web site:* Litter Grant Program results through FY 2018:

- Over 23 million pounds of litter collected.
- 9.2 million pounds of litter debris recycled.

**Online Litter Hotline**, Tennessee Department of Transportation, undated.  
<https://www.tn.gov/tdot/environmental-home/environmental-highway-beautification-office/litter.html>

A toll-free telephone number and online web page are available for reporting littering.

**Keep Tennessee Beautiful**, Keep Tennessee Beautiful, undated.  
<http://www.keeptnbeautiful.org/>

*From the Tennessee DOT web site:* Keep Tennessee Beautiful (KTnB) is the cornerstone of TDOT's [Tennessee DOT's] litter prevention education and outreach program. KTnB provides expertise in litter prevention education, litter law enforcement, community enhancement through beautification, and volunteer recruitment and management.

## Texas Department of Transportation

Topic Area	Description
Type of Campaign	<ul style="list-style-type: none"><li>• Don't Mess With Texas.</li><li>• Adopt-A-Highway.</li><li>• Trash-Off.</li><li>• Storm drain marking.</li></ul>
Mandated by Law or Stormwater Permit	No.
Target Audience	Varies with each campaign.

Topic Area	Description
<b>Study Area/Market Reach</b>	Statewide. However, for the MS4 permit, only costs and effort within the MS4 area are reported.
<b>Length of Campaign</b>	Decades (Don't Mess With Texas launched in 1985).
<b>Cost of Campaign</b>	Fiscal year 2017 costs in MS4 area: More than \$1.5 million. <i>Amount expended on media buy:</i> Amount includes cost for media buy exclusively.
<b>Type of Media Used</b>	<ul style="list-style-type: none"> <li>• Radio and television advertisements.</li> <li>• Billboards along highways.</li> <li>• Twitter.</li> <li>• Facebook.</li> </ul>
<b>Contact</b>	Adrienne Boer, Environmental Program Manager, Environmental Affairs, 512-416-2605, <a href="mailto:adrienne.boer@txdot.gov">adrienne.boer@txdot.gov</a> .

### Supporting Documents

**Stormwater Management Program: Municipal Separate Storm Sewer System (MS4) Permit Number WQ0005011000**, Environmental Affairs, Texas Department of Transportation, February 2018.

<http://ftp.dot.state.tx.us/pub/txdot-info/env/toolkit/515-01-pmt.pdf>

Chapter 1 (beginning on page 4 of the document, page 13 of the PDF) provides information about the public education, outreach and involvement MCM BMPs and the three target audiences: Texas DOT employees, the general traveling public and construction site personnel. BMP activities and materials used to achieve progress toward the MCM are recorded in annual reports that “describe the message of the educational campaign, the program’s success summary (e.g., reduction of trash, miles of “Adopt-A-Highway” program), and the events or methods used to provide the information to the target audience.”

BMPs included in the MCM are:

- *BMP 1.3.1: Don't Mess With Texas Program* (report advertisements and outreach efforts, such as the number and cost of permit year advertisements aired on radio and television, and outreach efforts through social media, banner ads and outdoor billboards).
- *BMP 1.3.2: Adopt-A-Highway Program* (report number of permit year volunteer groups and highway miles adopted, and provide an estimate of the volume of trash and debris collected and disposed of).
- *BMP 1.3.3: Texas Trash-Off Program* (report statewide number of volunteers participating, the roadway miles cleared of litter and debris, and the pounds of trash collected).
- *BMP 1.3.5: Texas DOT web pages* (report number of permit year views on selected Environmental Affairs web pages).



*Related Resources:*

**Storm Water Management Program**, Environmental Affairs, Texas Department of Transportation, undated.

<https://www.txdot.gov/inside-tdot/division/environmental/swmp.html>

*From the web site:*

The Storm Water Management Program (SWMP) is a comprehensive program to manage the quality of discharges from the municipal separate storm sewer system (MS4). TxDOT uses a statewide SWMP to maintain compliance with TCEQ [Texas Commission on Environmental Quality] permit WQ0005011000.

Required MCMs and applicable BMPs, including the Don't Mess With Texas campaign, are presented at this web site. Implementation is achieved through the campaign, the Adopt-A-Highway program and the Texas Trash-Off. A link to the DOT's MS4 permit is also available.

**Public Storm Water Program**, Storm Water Management Program, Environmental Affairs, Texas Department of Transportation, undated.

<https://www.txdot.gov/inside-tdot/division/environmental/stormwater.html>

This web page summarizes Texas DOT's stormwater management program, including links to the Don't Mess With Texas campaign and Adopt-A-Highway program.

**Don't Mess With Texas**, Texas Department of Transportation, undated.

History of the campaign: <http://www.dontmesswithtexas.org/about/history>

About the campaign: <http://www.dontmesswithtexas.org/the-campaign/>

This nationally recognized, award-winning public education and outreach program educates the public about keeping pollutants out of water sources. The web pages include a timeline of the campaign; links to related anti-littering efforts, including the litter hotline, Adopt-A-Highway program and the annual Trash-Off event; advertising; and partnerships.

**Adopt-A-Highway**, Texas Department of Transportation, undated.

<https://www.txdot.gov/inside-tdot/get-involved/volunteer/adopt-a-highway.html>

Information is available for organizations and volunteers interested in participating in this litter prevention effort.

**Trash-Off**, Don't Mess With Texas, Texas Department of Transportation, undated.

<http://www.dontmesswithtexas.org/get-involved/trash-off/>

*From the web site:* The Don't Mess With Texas Trash-Off encourages Texans to volunteer and clear Texas roadsides of trash. ... The Trash-Off is the single largest one-day cleanup event in the state and serves as the signature event for the Great American Cleanup, the nation's largest community improvement program. The Don't Mess With Texas Trash-Off is part of TxDOT's [Texas DOT's] litter prevention program, which includes Don't Mess With Texas, Adopt-A-Highway, and a grassroots partnership with Keep Texas Beautiful.

*Related Resource:*

**Don't Mess With Texas Trash-Off**, Keep Texas Beautiful, undated.

<https://www.ktb.org/don-t-mess-with-texas-trash-off>

An infographic at the bottom of this web page details the impact of the 2019 Trash-Off. Among the statistics:

- Pounds of trash collected: 1 million.

- Pounds of recycling collected: 200,000.
- Number of miles covered: 2,864.
- Texas DOT right of way miles: 1,924.

### Washington State Department of Transportation

The agency is primarily a responder in the Adopt-A-Highway campaign, collecting and disposing of litter. It has occasionally conducted more traditional outreach campaigns, such as distributing litter bags that promote the Adopt-A-Highway or Give 'em a Brake programs, but these efforts have been minimal. To promote voluntary behavior changes among the general public, the agency relies on the Washington State Department of Ecology (see the “Litter and It Will Hurt” campaign in Supporting Documents\_below) or local programs.

Topic Area	Description
<b>Type of Campaign</b>	Adopt-A-Highway program.
<b>Mandated by Law or Stormwater Permit</b>	<ul style="list-style-type: none"> <li>• Revised Code of Washington (RCW) Section 47.40.100 (see Supporting Documents below).<sup>1</sup></li> <li>• Washington Administrative Code (WAC) 468-72 (see Supporting Documents below).<sup>1</sup></li> </ul>
<b>Target Audience</b>	<ul style="list-style-type: none"> <li>• General public.</li> <li>• Businesses.</li> <li>• Organizations.</li> </ul> <p><i>Note:</i> The Adopt-A-Highway program acts as a permitting process that allows volunteers and contractors to work along state highways.</p>
<b>Study Area/Market Reach</b>	<p>Statewide. <i>Exceptions:</i></p> <ul style="list-style-type: none"> <li>• Contractors working for business sponsors currently not allowed to provide services statewide.</li> <li>• Some sections of highway are not available for adoption due to safety limitations.</li> </ul>
<b>Length of Campaign</b>	Ongoing (launched in 1990).
<b>Cost of Campaign</b>	<p>Approximately \$4 million/year for litter collection and disposal (includes maintenance staff collecting and disposing of trash and litter; Adopt-A-Highway program management; and disposal of litter from other groups that clean up state highway roadsides, such as the Department of Corrections and Department of Ecology Youth Corps litter cleanup crews).</p> <p><i>Amount expended on media buy:</i> Minimal; any funds spent typically include staff time for posting to the agency’s social media platforms.</p>
<b>Type of Media Used</b>	<ul style="list-style-type: none"> <li>• Twitter.</li> <li>• Facebook.</li> <li>• Agency web site.</li> </ul>

Topic Area	Description
	<ul style="list-style-type: none"> <li>• Acknowledgment and recognition signs installed by DOT to recognize participating organizations/businesses.</li> <li>• Other: <ul style="list-style-type: none"> <li>○ Informs public about Adopt-A-Highway program in response to complaints about roadside litter.</li> <li>○ Occasionally sponsors an art contest; winner's art is printed on litter bags.</li> </ul> </li> </ul>
<b>Contact</b>	Sheena Pietzold, Stormwater Permit Program Manager, Environmental Services, 360-570-6644, <a href="mailto:sheena.pietzold@wsdot.wa.gov">sheena.pietzold@wsdot.wa.gov</a> .

1 These regulations require the agency to establish an Adopt-A-Highway program to provide volunteers and businesses “an opportunity to contribute to a cleaner environment, enhanced roadsides, and protection of wildlife habitats.” Before the 2019 reissuance of the NPDES Municipal Stormwater permit, the agency was required to support efforts like Adopt-A-Highway and Commute Trip Reduction to reduce pollutants entering stormwater.

Supporting Documents

**Washington State Department of Transportation National Pollutant Discharge Elimination System and State Waste Discharge Municipal Stormwater General Permit**, Department of Ecology, State of Washington, March 2019.

<https://fortress.wa.gov/ecy/ezshare/wq/permits/WSDOT2019FinalPermit.pdf>

The education, training and public involvement components of the stormwater management plan begin on page 14 of the report (page 18 of the PDF). *From the report:*

The SWMP shall include a program designed to educate and involve the public, consultants, contractors, and WSDOT [Washington State DOT] staff to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.

- a. To involve the public, WSDOT shall:
  - i. Provide public involvement opportunities for stewardship activities.
  - ii. Provide opportunities for the public to participate in stormwater management planning and implementation including updates to WSDOT’s SWMP.
  - iii. Post on their website their SWMP and the most recent annual report. WSDOT shall also make newly published stormwater-related research reports available for downloading for a 2-year period on WSDOT’s website. All other submittals shall be available to the public upon request.

**Section 47.40.100: State Adopt-A-Highway Program**, Title 47 RCW: Public Highways and Transportation, Revised Code of Washington, 2019.

<https://apps.leg.wa.gov/RCW/default.aspx?cite=47.40.100>

*From the code:* The department of transportation shall establish a statewide adopt-a-highway program. The purpose of the program is to provide volunteers and businesses an opportunity to contribute to a cleaner environment, enhanced roadsides, and protection of wildlife habitats. Participating volunteers and businesses shall adopt department-designated sections of state highways, rest areas, park and ride lots, intermodal facilities, and any other facilities the department deems appropriate, in accordance with rules adopted by the department. ... The adopt-a-highway program shall include, at a minimum, litter control for the adopted section.

**Section 468-72: Adopt-A-Highway Litter Control Program**, Title 468: Department of Transportation, Washington Administrative Code, 1998.

<https://apps.leg.wa.gov/wac/default.aspx?cite=468-72>

*From the code:* The purpose of these regulations is to assist in the administration of the adopt-a-highway program pursuant to chapter 47.40 RCW. Organizations, businesses, and individuals are eligible to participate in the adopt-a-highway program, either as volunteers or through sponsorship of private contracts, provided there is a section of highway available, in the opinion of the department of transportation, that the section can be safely assigned.

**Adopt-A-Highway**, Operations, Washington State Department of Transportation, undated.

<https://www.wsdot.wa.gov/operations/adoptahwy>

Information for volunteers and business sponsors is available at this web site.

**WSDOT Roadside Litter Fact Sheet**, Washington State Department of Transportation, April 14, 2017.

See [Attachment A](#).

This one-page fact sheet summarizes various components of Washington State DOT's roadside litter management, including the agency's primary litter-related activities and annual expenditures from fiscal year 2013 through fiscal year 2016. Also noted are the priorities of the agency's maintenance program; litter management is among the lowest priorities, according to the fact sheet, with "considerations of safety, reliability and system preservation [taking] precedence over the negative aesthetics of roadside litter." Partners in roadside litter management include the Washington State Department of Ecology and the Washington State Patrol. The Department of Ecology oversees the Ecology Youth Corps program and is responsible for public education, outreach and awareness about litter throughout the state. The State Patrol enforces litter laws on highways, which is a lower priority than other law enforcement activities. Recent recruitment and retention issues within the state patrol have exacerbated the lack of litter enforcement.

**Preventing and Picking Up Litter**, Department of Ecology, State of Washington, undated.

<https://ecology.wa.gov/Waste-Toxics/Solid-waste-litter/Litter>

Links to the Ecology Youth Corps, Community Litter Cleanup Program grants and the state Adopt-A-Highway program are available at this site.

#### *Related Resources:*

**Ecology Youth Corps**, Department of Ecology, State of Washington, undated.

<https://ecology.wa.gov/Waste-Toxics/Solid-waste-litter/Litter/Ecology-Youth-Corps>

*From the web site:* For over 40 years, the Ecology Youth Corps has hired Washington teens and young adults to pick up litter on our state's roads and highways. ... [In 2018, Ecology Youth Corps] crews worked 70,479 hours (totals include spring and fall median crews):

- Picking up 1,150,217 pounds of litter.
- Recycling 99,020 pounds of litter collected.
- Cleaning 4,460 miles of road.

**Community Litter Cleanup Grants**, Department of Ecology, State of Washington, undated. <https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Community-litter-cleanup-grants>

*From the web site:* The Community Litter Cleanup Program (CLCP) provides local governments with funding for litter pickup, illegal-dump cleanup, and litter-prevention education.

**Litter and It Will Hurt**, Department of Ecology, State of Washington, undated. <https://ecology.wa.gov/Waste-Toxics/Solid-waste-litter/Litter/Past-litter-prevention-programs>

*From the web site:* This successful education and outreach campaign included television and radio ads, a hotline to report littering, posters and billboards, and brochures. The program messaging was direct and effective: statistics show littering was reduced by 25 percent during the campaign. In 2009, the Litter and It Will Hurt campaign was suspended as funding from the litter tax was diverted to support other state priorities.

**Litter Statistics: Ecology Funded Litter Pick-Up**, Department of Ecology, State of Washington, undated.

<https://ecology.wa.gov/Waste-Toxics/Solid-waste-litter/Litter/Litter-statistics>

Links to statistics are provided for litter collected statewide and in each of four regions of the state in 2018. Totals represent the collection efforts of the Ecology Youth Corps (EYC), Community Litter Cleanup Program (CLCP), Department of Corrections (DOC), Department of Natural Resources (DNR) and Department of Fish and Wildlife (DFW).

## Efforts to Quantify Litter and Stormwater Pollution Reduction

In addition to describing their public education campaigns, some survey respondents provided details about their agencies' efforts to quantify the reduction in litter and stormwater pollution.

Three states—Arkansas, Tennessee and Texas—reported measuring the amount of litter before and after campaigns:

### Arkansas

- *Before the campaign:* The agency records and reports the amount of litter removed by contractors, Arkansas DOT employees and Adopt-A-Highway groups annually in its MS4 report.
- *After the campaign:* The statewide reduction in litter and stormwater pollution is difficult to quantify after the campaign, according to the respondent. Cities and towns that participated in these campaigns as local Keep Arkansas Beautiful affiliates could provide more detailed information for their areas.

### Tennessee

- *Before the campaign:* Research conducted in the state in 2016 showed that 100 million pieces of litter exist on state roadsides at any given time. Tennessee DOT spends \$15 million on litter pickup and prevention education.
- *After the campaign:* The Nobody Trashes Tennessee campaign is ongoing. A remeasurement of litter collected is being planned for 2021, the fourth full year of the campaign.

## Texas

- *Before the campaign:* Texas DOT conducted studies to estimate the amount, type and location of visible litter.
- *After the campaign:* Another round of studies was completed recently; data from these studies will be available soon.

Respondents from two states—Louisiana and Oklahoma—reported that the amount of litter or pollution was not measured before the campaign, but was measured after the campaign. In Louisiana, litter reduction is measured each year and documented in the agency’s MS4 report. The respondent from Oklahoma DOT reported that details about the amount of litter after the campaign were unavailable.

Three states—Alabama, New York and Washington—did not measure the amount of litter before or after their campaigns.

### Other Practices Used to Quantify Litter and Stormwater Pollution Reduction

Several respondents shared other methods, tools or practices that their agencies used to quantify the reduction in litter and stormwater pollution.

- **Activities that increase awareness among younger residents.** The Keep Arkansas Beautiful youth poster contest has increased participation and involvement in litter prevention campaigns throughout Arkansas, creating greater awareness among youth in the state.
- **Contractor support.** Contractors help Texas DOT target and market to audiences that are most likely to litter.
- **Surveys, public opinion polls and focus groups.** Tennessee DOT conducts public opinion polling, focus groups and surveys that track litter that is visible along roadsides.
- **Tracking volunteer hours and litter collected.** In addition to tracking volunteer hours, Washington State DOT records the number of bags of trash collected by Adopt-A-Highway volunteer groups, contractors (on behalf of business sponsors) and DOT maintenance staff. The agency also records the number of cubic yards of litter that maintenance staff or other groups collect, such as Adopt-A-Highway volunteer groups and Department of Corrections and Department of Ecology Youth Corps litter pickup crews, but not business sponsors who pay contractors for litter disposal.

The respondent from Alabama DOT noted that the agency performs litter pickup activities but cannot determine the effectiveness of anti-litter campaigns by analyzing the outcomes of litter pickup on agency property only, which is a small percentage of the watershed area.

### **Stormwater Public Education Campaign Assessment**

Seven of the eight agencies reporting on litter and stormwater pollution reduction campaigns consider their campaigns to have been effective at reducing litter or pollution: Alabama, Arkansas, Louisiana, Oklahoma, Tennessee, Texas and Washington. The respondent from New York State DOT did not provide feedback to this survey question.

## Litter Enforcement

Litter enforcement was included in the campaigns of four states:

- *Arkansas*. Citizens report littering through a hotline (866-811-1122) that is monitored by the highway police radio room and promoted by Keep Arkansas Beautiful in its yearly campaigns. The reports contain a valid license plate number that is run through the state Division of Motor Vehicles to identify the offender's place of residence. A littering letter is then sent to the offender with the details of the littering complaint. The survey respondent noted that fewer littering calls were received in 2018 than in 2017 even though the hotline number was printed on educational materials; this decrease in calls could be attributed to "more educated and aware individuals."
- *Louisiana*. The agency coordinated enforcement actions with the Louisiana Department of Environmental Quality.
- *Texas*. Enforcement is the responsibility of the state Department of Public Safety.
- *Washington*. The state patrol enforces unsecured load and other anti-litter laws along state highways. Additionally, Washington State DOT ensures that organizations involved with the litter reduction program comply with administrative requirements. For example, organizations are required to submit all necessary forms and activity reports, and to complete safety training. Organizations that do not fulfill these requirements are removed from the program and from any acknowledgment or recognition signs.

In Tennessee, litter enforcement is not currently supported because partnerships are still under development.

## Using Analytics to Quantify the Effectiveness of Media Types

Two states—Arkansas and Texas—have used analytics to quantify the effectiveness of the media types employed in their stormwater public education campaigns:

- In Arkansas, Twitter, Facebook and other social media were the most effective media types based on Google Analytics, which is used to track visits to web pages, including the Arkansas DOT web site, Keep Arkansas Beautiful web site and social media postings. Details of the analytical data are available from the Keep Arkansas Beautiful volunteer program manager (Liz Philpott, [elizabeth.philpott@arkansas.gov](mailto:elizabeth.philpott@arkansas.gov)).
- Texas DOT recently completed studies that included an assessment of the effectiveness of various media types. Data from these studies will be available at a later date.

## *Other Practices Used to Measure Campaign Effectiveness*

Several respondents shared methods, tools or practices other than analytics that their agencies used to measure campaigns' effectiveness. These practices included resource expenditures (Tennessee), increased calls to litter hotlines (Arkansas) and overall changes in the general public's litter behavior (Tennessee).

The respondent from New York State DOT commented on the difficulty of evaluating the effectiveness since "a change in [the general public's] actions after seeing a poster or brochure may take place long after viewing the message." Results from survey respondents providing information are summarized in Table 1.

**Table 1. Practices Other Than Analytics Used to Measure Campaign Effectiveness**

State	Practice
<b>Alabama</b>	Assessment instrument under consideration.
<b>Arkansas</b>	Increases in: <ul style="list-style-type: none"> <li>• Letters or calls to the litter hotline.</li> <li>• Requests for materials or presentations from individuals and/or organizations.</li> <li>• Participation in Keep Arkansas Beautiful activities across the state.</li> </ul>
<b>Louisiana</b>	Visual observations.
<b>Tennessee</b>	<ul style="list-style-type: none"> <li>• DOT’s cost of litter pickup and prevention education.</li> <li>• Campaign awareness.</li> <li>• Change in litter behavior.</li> </ul>
<b>Washington</b>	Results from Adopt-A-Highway groups (which gather about 40 percent of the litter collected along state highways).

Campaign Successes

Increases in both public awareness and involvement in litter reduction campaigns and a rise in agency partnerships were the successes reported by survey respondents. The Alabama DOT respondent noted that the agency’s following on Twitter continues to increase, resulting in more visibility for its anti-litter efforts among the general public. Public involvement in Keep Arkansas Beautiful is also increasing as additional cities, towns and counties participate in fall and spring cleanups. Growth in this organization has allowed it to provide outreach and education to people of all ages.

Successes in Tennessee have been the result of earned media events and Trashesquatch, the youth outreach arm of the Nobody Trashes Tennessee campaign. The Washington State DOT respondent noted the value of partnerships developed with other public agencies and businesses through the Adopt-A-Highway program, as well as increased opportunities for the general public to contribute to a cleaner environment and enhanced roadsides. Table 2 summarizes survey results.

**Table 2. Successes of Public Education Campaigns**

Success	State/Agency	Description
<b>Partnerships</b>	Arkansas, Washington	<i>Arkansas:</i> Continued growth of Keep Arkansas Beautiful.
<b>Public Awareness</b>	Alabama, Tennessee	<i>Alabama:</i> Increased visibility due, in part, to more followers on Twitter. <i>Tennessee:</i> Increased visibility through earned media events.



Success	State/Agency	Description
<b>Public Involvement</b>	Arkansas, Tennessee, Washington	<i>Arkansas:</i> More city/town/county involvement in fall and spring cleanups. <i>Tennessee:</i> Increased youth involvement through Trashsquatch events.

### Campaign Challenges

Five agencies reported on the challenges experienced with their public education campaigns. The Alabama DOT respondent reiterated the difficulty assessing the effectiveness of state campaigns given the limited area relative to the watershed of the agency’s transportation facilities. In Arkansas, safety concerns lead more residents to sign up for Keep Arkansas Beautiful cleanups that impact parks and city streets than register for Adopt-A-Highway groups.

Lack of funding and adequately trained personnel inhibit anti-litter efforts in Louisiana. One of the main challenges that Washington State DOT experiences is negative feedback about the road signs acknowledging business sponsors and volunteer groups in the Adopt-A-Highway program. While there are defined rules to ensure the signs recognize the efforts of these sponsors without advertising their brands, it can be a challenging line for the agency to navigate.

Unforeseen incidents and getting the traveling public’s attention may also hamper litter reduction efforts. The New York State DOT respondent noted that rest area visitors are “often in a hurry and don’t have time to read a poster.” Tennessee DOT’s media consultant ended its operations in September 2018; the agency has not been able to identify a new consultant. Table 3 summarizes survey results.

**Table 3. Challenges of Public Education Campaigns**

Challenge	State/Agency	Description
<b>Effectiveness Assessment</b>	Alabama	Limited area of campaign relative to the watershed of agency transportation facilities.
<b>Lack of Resources</b>	Louisiana, Tennessee	<i>Louisiana:</i> Lack of funding and adequately trained personnel. <i>Tennessee:</i> Lack of media consulting support.
<b>Safety</b>	Arkansas	More public interest in city events than Adopt-A-Highway groups.
<b>Volunteer/Sponsor Recognition</b>	Washington	Signs that recognize efforts of volunteers and business sponsors without advertising brands.
<b>Other</b>	New York, Tennessee	<i>New York:</i> Travelers don’t take the time to read posters at rest areas. <i>Tennessee:</i> Lack of media consultant.

## Best Practices for Changing Public Behavior

Among the best practices suggested by survey respondents for changing public behavior were support from local community leaders, education and training, and compelling litter reduction campaign themes. The respondent from Alabama DOT noted that linking littering offenses to motorist fines would likely capture more public attention (with enforcement handled by a different state agency). In Arkansas, mayors and local political officials encourage their cities and towns to participate in Keep Arkansas Beautiful cleanup events. In addition, litter reduction education within Arkansas DOT has led maintenance and construction staff to implement improved housekeeping measures at agency facilities and construction sites across the state. Employees are also exhibiting better diligence in addressing solid waste and recycling in daily operations. The respondent from New York State DOT emphasized the importance of educational materials that clearly defined illicit dumping and ways to protect water quality.

Campaign themes are also key to effective litter reduction campaigns. One Tennessee DOT campaign PSA used a “litter karma” theme. The PSA highlighted the ugliness of litter and the natural scenic beauty of the state, both of which were mentioned frequently during the research phase of the campaign. A campaign theme from Washington, “Litter and It Will Hurt,” led to a 25 percent reduction in littering during the campaign (see Supporting Documents, page 29). The successful campaign, which was sponsored by the Washington State Department of Ecology, was discontinued in 2009 as a result of budget cuts.

The respondent from the Louisiana state transportation agency noted that all BMPs are equally effective. Table 4 summarizes survey responses.

**Table 4. Best Practices for Promoting Changes in Littering Behavior**

<b>Practice</b>	<b>State/Agency</b>	<b>Description</b>
<b>Community Leadership</b>	Arkansas	Local leaders support community involvement in Keep Arkansas Beautiful cleanup events.
<b>Compelling Campaign Theme</b>	Tennessee, Washington	<i>Tennessee:</i> “Litter karma” theme, highlighting the ugliness of litter and the scenic beauty of the state. <i>Washington:</i> Department of Ecology’s “Litter and It Will Hurt” campaign, which resulted in a 25 percent reduction in littering during the campaign.
<b>Litter Enforcement</b>	Alabama	Littering tied to motorist fines (enforcement is handled by a different state agency).
<b>Training</b>	Arkansas	<ul style="list-style-type: none"> <li>• DOT maintenance and construction staff implements improved housekeeping measures at agency facilities and construction sites.</li> <li>• Employees mindful of solid waste and recycling in daily operations.</li> </ul>
<b>Use of Printed Materials</b>	New York	Posters and brochures describe: <ul style="list-style-type: none"> <li>• Types of dumping considered illicit discharges.</li> <li>• Ways to protect water quality, such as proper disposal of chemicals, pet waste, automotive fluids, litter and debris.</li> </ul>

## **Related Research and Resources**

A literature search of recent publicly available resources identified publications that are organized into the following topic areas:

- National research and practices.
- State and local research and practices.

### **National Research and Practices**

**NCHRP Research Report 905: Measuring the Effectiveness of Public Involvement in Transportation Planning and Project Development**, Bruce Brown, Kate Gunby, Jamie Strausz-Clark, Anne Fruge, Shaun Glaze, Mackenzie Findlay, Jordan Tuia and Ian Hajnosz, 2019.

Report available at <http://www.trb.org/Publications/Blurbs/179069.aspx>

*From the abstract:* NCHRP Research Report 905 provides a field-validated and practitioner-ready toolkit to measure the effectiveness of a transportation agency's public involvement activities. The toolkit is designed to collect feedback from the public on several indicators of effectiveness and to compare that feedback with the agency's own perceptions. The combined responses can then be used to calculate scores for each indicator and an overall effectiveness index. This allows for systematic comparison of the effectiveness of different public involvement strategies over time.

....

The toolkit includes a series of online resources, including a survey instrument for use with the public (suitable for distribution in printed form or online), an electronic survey for transportation agency staff to enable the agency to score itself, a spreadsheet-based scoring tool for converting survey response data into an effectiveness index, and guidelines for using and scoring the survey. A set of presentation slides with speaker notes describing the project are also available (see *Related Resource* below).

*Related Resource:*

**Toolkit for Measuring Public Involvement Effectiveness in Transportation**, Transportation Research Board, 2019.

Webinar available at <http://www.trb.org/main/blurbs/179246.aspx>

*From the abstract:* This webinar illustrated how transportation agencies can use a rigorously tested, user-friendly tool to measure the effectiveness of their public involvement. The Public Involvement Effectiveness Measurement Toolkit enables agency professionals to track performance throughout the project life cycle, identify strengths and weaknesses of public involvement activities, and support their decisions about how to allocate resources. The Public Involvement Effectiveness Measurement Toolkit may be used with various types of projects, including building new facilities, changes to existing facilities, and planning efforts. The presenters provided ways to deploy this toolkit.

**NCHRP Synthesis 538: Practices for Online Public Involvement: A Synthesis of Highway Practice**, Miriam Salerno, Trish Sanchez, Sarah Tomasello and Ted Metz, 2019.

Project description available at

<https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4395>

*From the foreword:* The objective of NCHRP Synthesis 538 is to summarize current practices regarding online public participation strategies being used by state departments of transportation (DOTs), as well as to summarize the effectiveness of using these strategies and

tools. Online public participation methods offer agencies the potential for expanded participation and also present new challenges and demand new thinking about the appropriate mix of techniques in a public participation program, communication protocols, staffing and skill requirements, and how best to integrate emerging online engagement tools with traditional face-to-face methods such as public meetings. This synthesis may serve as a resource for public participation practitioners in state DOTs seeking guidance on the variety of tools available.

**Atlas of Gulf States: Litter Control Policy and Programs: A Trash-Free Waters Program Resource**, U.S. Environmental Protection Agency, December 2016.

[https://www.epa.gov/sites/production/files/2017-02/documents/atlas\\_of\\_gulf\\_states-litter\\_control\\_policy\\_and\\_programs.pdf](https://www.epa.gov/sites/production/files/2017-02/documents/atlas_of_gulf_states-litter_control_policy_and_programs.pdf)

*From the introduction:* This resource was developed to address a strong stakeholder need for examples of public sector policies and programs that work to reduce and prevent the amount of trash entering waterways in the Gulf region. Stakeholders noted the great value of having basic information on actions that other public organizations are taking to reduce and prevent aquatic trash. Such information can help state and municipal governments and other interest groups learn about successful actions being taken elsewhere. An [a]tlas of these programs also can facilitate collaboration and information-sharing among organizations and programs.

**Stormwater Program Effectiveness Assessment**, State-of-the-Practice Report, Center for Environmental Excellence, American Association of State Highway and Transportation Officials, July 2012.

[http://environment.transportation.org/pdf/communities\\_of\\_practice/final\\_pea\\_stormwatercop\\_05-july-2012.pdf](http://environment.transportation.org/pdf/communities_of_practice/final_pea_stormwatercop_05-july-2012.pdf)

*From the introduction:* This [s]tate-of-the-[p]ractice discusses [p]rogram [e]ffectiveness [a]ssessment strategies and tools DOTs will need to evaluate and identify deficiencies in their stormwater management programs, overcome these deficiencies and other obstacles, and improve their stormwater management programs. This report also discusses DOT stormwater program audits lessons learned.

*Related Resources:*

**“Stormwater Management Community of Practice,”** Products and Programs, Center for Environmental Excellence, American Association of State Highway and Transportation Officials, undated.

[https://environment.transportation.org/center/products\\_programs/communities\\_of\\_practice.aspx#](https://environment.transportation.org/center/products_programs/communities_of_practice.aspx#)

[Scroll to Stormwater Management Community of Practice]

*From the web page:* The Stormwater Management CoP [Community of Practice] is a forum where state department of transportation (DOT) practitioners can engage in facilitated discussions on emerging issues, research data needs, and innovative stormwater quality compliance solutions. Practitioners share experiences and learn from each other, helping to further the state of the knowledge of the community.

**“Rhode Island DOT Targets Stormwater Pollution Through Public Education, Outreach,”** Case Studies, Sustainability, Center for Environmental Excellence, American Association of State Highway and Transportation Officials, undated.

[https://environment.transportation.org/environmental\\_topics/sustainability/case\\_studies.aspx](https://environment.transportation.org/environmental_topics/sustainability/case_studies.aspx)

[Scroll to Rhode Island]

*From the case study:*

Stormwater Solutions is working to reduce impacts to stormwater at the source by conducting community outreach to educate the public and municipal officials on the importance of pollution prevention and applying environmentally sustainable and cost saving LID [low-impact development] techniques.

The brief summary includes a discussion of lessons learned.

**Performance Measures for Public Involvement**, Transportation Research Board, October 2012.

Webinar available at <http://www.trb.org/main/blurbs/167789.aspx>

*From the abstract:* This webinar will describe various public involvement performance measurements and metrics. Presenters will also demonstrate a software tool currently being tested and used by the Florida Department of Transportation to capture public sentiment about their involvement. These performance measures and the software tool may be models for others to consider or emulate.

**Defining and Measuring Outcomes**, Keep America Beautiful, undated.

[https://kab.org/wp-content/uploads/2019/05/Measuring-Outcomes-Tip-Sheet\\_0.pdf](https://kab.org/wp-content/uploads/2019/05/Measuring-Outcomes-Tip-Sheet_0.pdf)

This three-page brief describes outcomes evaluation and assessment.

*Related Resources:*

**End Littering**, Keep America Beautiful, undated.

<https://www.kab.org/resources/end-littering>

This web page includes links to resources, fact sheets and anti-litter campaigns to end littering developed for various stakeholders.

**Litter Abatement Curriculum**, Keep America Beautiful, 2017.

[https://kazb.org/wp-content/uploads/2017/11/Litter-Curriculum-Final\\_0.pdf](https://kazb.org/wp-content/uploads/2017/11/Litter-Curriculum-Final_0.pdf)

*From the abstract:*

This document has been developed to provide an array of stakeholders—KAB [Keep America Beautiful] affiliates, law and code enforcement officers, concerned citizens, and others interested in stopping litter—with knowledge and tools to become informed about litter-related crime and ways in which it can be combatted.

Chapter 9 (page 55 of the document, page 56 of the PDF) addresses assessing litter program success.

**Getting In Step: A Guide for Conducting Watershed Outreach Campaigns**, Third Edition, U.S. Environmental Protection Agency, November 2010.

<https://cfpub.epa.gov/npstbx/files/getnstepguide.pdf>

*From the foreword:*

This guide offers advice on how watershed groups, local governments, and others can maximize the effectiveness of public outreach campaigns to reduce nonpoint source pollution and protect the lakes, rivers, streams, and coasts that we treasure. It is the 3rd edition of a 1998 publication originally published by the Council of State Governments titled *Getting in Step: A Guide to Effective Outreach in Your Watershed*. This edition includes more information on effective social marketing techniques and new information about using Web 2.0 technologies such as social networks to achieve outreach goals and objectives. Additionally, this edition makes ample reference to EPA's Nonpoint Source Outreach

Toolbox, which was released since the previous edition. The Toolbox is an online compendium of resources—including TV, radio, and print ads—to help organizations develop an effective and targeted outreach campaign. This guide is intended as a reference that pulls together principles, techniques, and information for effective watershed outreach into a single, user-friendly source. This guide was developed with input from federal, state and local watershed practitioners and outreach experts.

Step 6 (beginning on page 117 of the guide, page 127 of the PDF) and Appendix D (beginning on page 161 of the PDF) address evaluating the outreach campaign.

**Improving Public Outreach for Transportation Projects by Use of Citizen Coalitions**, NCHRP Project 25-25, Task 62, August 2010.

[http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25\(62\)\\_FR.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25(62)_FR.pdf)

*From the executive summary:* This project was conceived to help transportation agencies identify coalitions that can provide valuable insight and input into the transportation decisionmaking process as well as help them more effectively and efficiently engage their stakeholders through the use of citizen coalition groups. The products of this research include an inventory of 85 coalitions that are involved in transportation policies, programs, and projects while representing national, statewide, regional, local, corridor level or project interests. The coalitions inventoried also cover a range of topic areas including social equity, environmental protection, sustainable strategies, public health, air quality impacts, and historic and cultural preservation.

## **State and Local Research and Practices**

### **Multiple States**

**An Analysis of Stormwater Education and Outreach Efforts Locally and Throughout the Nation**, Vermont Department of Environmental Conservation, August 2014.

[https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/sw\\_gi\\_educationandoutreachanalysis.pdf](https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/sw_gi_educationandoutreachanalysis.pdf)

*From the introduction:* After analyzing, evaluating, and contacting multiple stormwater-focused organizations around the country, the successes and failures of various programs and projects were recorded. Each organization has their own initiatives, programs and educational tools to encourage local residents to learn about stormwater. The organizations ranged in size from the Environmental Protection Agency (EPA) to small organizations with limited staff.

### **Iowa**

**Establishing Strategies for a Transportation MS4**, Rebecca Kauten, Iowa Department of Transportation and Federal Highway Administration, May 2015.

[http://publications.iowa.gov/20130/1/IADOT\\_UI\\_RB36\\_013\\_Kauten\\_Establishing\\_Strategies\\_Transportation\\_MS4\\_Final\\_2015.pdf](http://publications.iowa.gov/20130/1/IADOT_UI_RB36_013_Kauten_Establishing_Strategies_Transportation_MS4_Final_2015.pdf)

*From the abstract:* The objective of this project has been to identify best practices and approaches to MS4 program planning for the Iowa Department of Transportation. Information is primarily based on existing state MS4 programs as examples and references for use as an agency-based MS4 program is developed.

## North Carolina

**86it Anti-Litter Campaign**, Wake County Solid Waste Management Division, 2015 SWANA Awareness Campaign Excellence Award Submission, Solid Waste Association of North America, 2015.

[http://swana.org/Portals/ExcellenceAwards/excellenceupload16813518/uploadsfor2015awards/MeghanBaldwin\\_1\\_AwarenessCampaign.pdf.pdf](http://swana.org/Portals/ExcellenceAwards/excellenceupload16813518/uploadsfor2015awards/MeghanBaldwin_1_AwarenessCampaign.pdf.pdf)

*From the executive summary:*

Wake County's 86it Anti-Litter Campaign is applying for a SWANA's [Solid Waste Association of North America] Awareness Campaign Excellence Award to seek recognition for its innovative approach to addressing the issue of litter. Many other anti-littering campaigns primarily shame littering behavior by focusing on the negative action and using images of accumulated trash in their marketing materials for shock value. Research has shown that when it comes to changing behavior, especially in regards to the environment, positive reinforcement works better than the above mentioned "shaming" campaigns. The 86it Anti-Litter Campaign stands apart by engaging citizens to be part of the solution, while emphasizing the importance of personal responsibility in the reduction of litter in our community. Stopping old litter habits is about starting new positive behaviors, so 86it focuses on celebrating positive behavior and the act of "86ing" litter.

A discussion of program effectiveness and measures of success begins on page 10 of the report (page 11 of the PDF).

## Washington

**Effectiveness of Public Education and Outreach Programs for Reducing Impacts of Stormwater on Rivers and Streams**, Leska Fore, Stormwater Work Group, Puget Sound Ecosystem Monitoring Program, Washington State Department of Ecology and The Association of Washington Cities, April 2013.

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.394.3680&rep=rep1&type=pdf>

A discussion of testing for effectiveness of public behavior change begins on page 4.

## Contacts

CTC contacted the individuals below to gather information for this investigation.

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## **Appendix A: Survey Questions**

The following survey was distributed to members of the AASHTO Committee on Environment and Sustainability to gather information from transportation agencies about their experience conducting education and outreach campaigns designed to encourage the public to adopt positive behaviors toward litter and stormwater pollution reduction.

### **Measuring the Effectiveness of a Stormwater Public Education Campaign**

(Required) Has your agency had experience conducting a public education campaign to educate the public about reducing litter/trash or stormwater runoff pollution (such as trash, metals, bacteria or pesticides)?

- No (directs the respondent to **Agencies Not Conducting Stormwater Public Education Campaigns**)
- Yes (directs the respondent to **Stormwater Public Education Campaign Description**)

### **Agencies Not Conducting Stormwater Public Education Campaigns**

Has your agency conducted other types of outreach to control litter, trash and/or illegal dumping?

- No
- Yes (please describe these outreach efforts)

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*Note:* After responding to the question above, the respondent was directed to the **Wrap-Up** section of the survey.

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### **Stormwater Public Education Campaign Description**

1. Please briefly describe the type of litter or stormwater runoff pollution reduction campaign that your agency conducted.
2. Was the conducted outreach or education campaign mandated by law or any stormwater permit?
  - No
  - Yes (please describe the law and/or permit that required your agency to conduct such public outreach and/or education campaign)
3. Who was the target audience?
4. Please briefly describe the study area or media reach for the campaign.
5. How long did the campaign run?
6. What was the cost of the campaign?
  - 6A. Of that cost, how much was expended on media buy?
7. Please identify the type of media used. Select all that apply.
  - Radio advertisements
  - Television advertisements
  - Billboards along highways

- Billboards at airports
  - Billboards on buses
  - Twitter
  - Facebook
  - Other social media
  - Other (please describe)
8. If available, please provide links to documentation related to your agency's litter or stormwater runoff pollution reduction campaign. Send any files not available online to [carol.rolland@ctcandassociates.com](mailto:carol.rolland@ctcandassociates.com).
  9. Please provide contact information for the staff member(s) we can contact to obtain more information about your agency's litter or stormwater runoff pollution reduction campaign.

### **Quantifying the Reduction in Litter/Stormwater Pollution**

1. Was the amount of litter or pollution measured **before** the campaign?
  - No
  - Yes (please describe)
2. Was the amount of litter or pollution measured **after** the campaign?
  - No
  - Yes (please describe)
3. What other methods, tools or practices were used to quantify the reduction in litter/stormwater pollution?

### **Stormwater Public Education Campaign Assessment**

1. Does your agency consider the campaign to have been effective at reducing litter or pollution?
  - No
  - Yes
  - 1A. Did the campaign include litter enforcement?
    - No
    - Yes (please describe this enforcement)
2. Has your agency attempted to quantify the effectiveness of the media types employed in the stormwater public education campaign using analytics (such as Google Analytics)?
  - No (please skip to **Question 3**)
  - Yes (please respond to **Questions 2A and 2B** below)
  - 2A. Which of the media types below were the most effective as quantified by analytics or final campaign report? Select all that apply.
    - Radio advertisements
    - Television advertisements
    - Billboards along highways
    - Billboards at airports

- Billboards on buses
- Twitter
- Facebook
- Other social media
- Other (please describe)

2B. Please provide further details of the analytical data your agency has gathered in connection with the effectiveness of its stormwater public education campaign.

3. What methods, tools or practices **other than analytics** were used to measure the campaign's effectiveness?
4. Please describe other successes your agency experienced with this campaign.
5. Please describe the challenges your agency experienced with this campaign.
6. Please describe best practices used in the campaign to promote changes in public behavior.

### **Wrap-Up**

Please use this space to provide any comments or additional information about your previous responses.