



NATIONAL ASPHALT
PAVEMENT ASSOCIATION

Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage 2018

IS-138 Appendix A:
Methodology & Survey Forms



9th Annual Survey

Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage: 2018

Appendix A

Appendix A to the ninth edition of *Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage* (Williams et al., 2019) provides details on the methodology used to collect and analyze the 2018 construction season survey data and reproduces the primary survey instruments used to collect data from asphalt pavement mixture producers and State Asphalt Pavement Associations (SAPA). Producers were asked primarily to provide company-/plant-level data, while SAPAs were asked to provide industry-level data for their state.

Survey Methodology

To collect and analyze the data summarized in the main *Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage* report for the 2018 construction season survey, the following tasks were conducted:

1. Develop a survey instrument that enables an analysis of the quantities of recycled materials being used in asphalt mixtures, as well as the total amount of WMA produced nationally.
2. Conduct a voluntary survey of asphalt mix producers throughout the United States and follow up via telephone, email, and in-person requests for information in locations where responses were low.
3. Estimate the total asphalt mixture market in each state or territory by using data provided by SAPAs through the survey instrument and the U.S. Department of Transportation federal-aid highway apportionment to determine a weighting factor for each state and reconciling the total U.S. asphalt mix tonnage with national estimates.
4. Analyze and summarize the information nationally and in each state and to prepare a final report.

The survey was conducted using an online survey platform, SurveyMonkey®. Table A1 summarizes the questions asked in each section of the survey instrument. Sections 1 through 4 of the survey instrument remained consistent from the 2009 to 2014 construction seasons. Questions were added to or modified in Sections 2 through 4 for the 2015 to 2018 construction seasons to gather additional information about RAP and RAS stockpiling, fractionation, the use of softer binders and recycling agents, the acceptance of processed RAS, and the use of WMA technologies at HMA temperatures. In 2017, the Section 3 question about tons of unprocessed shingles accepted was modified to ask about the type of unprocessed shingles accepted. In 2018, the Section 4 questions about the use of WMA additives at HMA temperatures were modified to gather additional information. Section 5 was added in the 2012 construction season survey to collect information on the use of other recycled material in asphalt mixtures. Starting in 2015, the Section 5 question asking about specific recycled materials was modified to replace one user-provided response with cellulose fiber. A copy of the survey used to gather information for the 2018 construction season is provided in the Survey Instrument section of Appendix A.

Producers were notified of the survey through several forums and electronic media. Notice were placed in NAPA's e-newsletter, *ActionNews*, informing members of the survey and asking for their participation. SAPAs solicited participation by placing notices on their websites and in their newsletters. Announcements were made at NAPA meetings, as well as at several State Asphalt Pavement Association conferences. A press release was sent to construction industry trade media and was published in print and online. Notices of the survey and links were also shared through social media channels, primarily Twitter, Facebook, and LinkedIn. Follow up with producers and SAPAs was conducted via email, social media, and telephone.

Table A1: Survey Instrument Summary: Producer Questions, 2018

Section 1: General Information	Section 2: RAP	Section 3: RAS	Section 4: WMA	Section 5: Other Recycled Materials
Type of Survey Respondent	Tons RAP Accepted	Tons Unprocessed Tear-Off Shingles Accepted	Average % Produced for DOT Tons With $\geq 10^{\circ}\text{F}$ Reduction	Other Recycled Materials Used (Y/N)
Contact Information	Tons Used in HMA/WMA Mixes	Tons Unprocessed Manufacturers' Waste Shingles Accepted	Average % Produced for Other Agency Tons With $\geq 10^{\circ}\text{F}$ Reduction	Type of Other Recycled Materials Used (GTR, Steel Slag, Blast Furnace Slag, Cellulose Fiber, Up to Two User-Provided Responses)
State Information Is Provided for	Tons Used in Aggregate Base	Tons Processed Shingles Accepted	Average % Produced for Commercial & Residential Tons With $\geq 10^{\circ}\text{F}$ reduction	Tons of HMA/WMA Produced Using Each Other Recycled Material
Number of Production Plants	Tons Used in Cold-Mix Asphalt	Tons Used in HMA/WMA Mixes	Chemical Admixture % With $\geq 10^{\circ}\text{F}$ Reduction	Tons of Each Other Recycled Product Used
DOT Tons	Tons Used in Other	Tons Used in Aggregate Base	Additive Foaming % With $\geq 10^{\circ}\text{F}$ Reduction	
Other Agency Tons	Tons Landfilled	Tons Used in Cold-Mix Asphalt	Production Plant Foaming % With $\geq 10^{\circ}\text{F}$ Reduction	
Commercial & Residential Tons	Average % for DOT Mixtures	Tons Used in Other	Organic Additive % With $\geq 10^{\circ}\text{F}$ Reduction	
	Average % for Other Agency Mixtures	Tons Landfilled	Average % Produced for DOT Tons at HMA Temperatures	
	Average % for Commercial & Residential Mixtures	Average % for DOT Mixtures	Average % Produced for Other Agency Tons at HMA Temperatures	
	Excess RAP (Y/N)	Average % for Other Agency Mixtures	Average % Produced for Commercial & Residential Tons at HMA Temperatures	
	Tons of RAP Stockpiled	Average % for Commercial & Residential Mixtures	Chemical Admixture % at HMA temperatures	
	Percentage of RAP Fractionated	Excess RAS (Y/N)	Additive Foaming % at HMA temperatures	
	Percentage of RAP Mixtures Using Softer Asphalt Binder	Tons of RAS Stockpiled	Plant Foaming % at HMA temperatures	
	Percentage of RAP Mixtures Using Recycling Agents	What Sectors Allow What Level of RAS	Organic Additive % at HMA temperatures	
		Percentage of RAP Mixtures Using Softer Asphalt Binder		
		Percentage of RAP Mixtures Using Recycling Agents		
Yellow indicates a new question for 2018		Red indicates a question removed for 2018		Cyan indicates a question modified for 2018

Asphalt mixture producers then went to the SurveyMonkey website to complete the survey form. Because data was collected on a state-by-state basis, producers could complete the survey multiple times, providing information for operations in different states on each visit. Some producers submitted data through PDF versions of the survey instrument or through a Microsoft Excel spreadsheet developed by NAPA. After the initial data was gathered and analyzed, anomalies in individual producer records were identified and reconciled.

To collect industry-wide data from the SAPAs, the survey instrument included 10 questions focused on state-level information, as opposed to specific producer information. Table A2 summarizes these questions. In a handful of states without SAPAs, industry-wide data was provided by an Associated General Contractors (AGC) chapter or a similar knowledgeable source. In previous years, this data was collected via a separate survey; for 2018, a single survey instrument was used with the first question (“Are you an Asphalt Producer, State Asphalt Pavement Association, or Other”) determining whether the respondent should answer the producer or SAPA survey questions. Respondents indicating “Other” were not surveyed.

Table A2: Survey Instrument Summary: SAPA Questions, 2018

Section 1: General Information	Section 2: Tonnage	Section 3: RAP	Section 4: RAS	Section 5: Other Requirements
Type of Survey Respondent	Estimate of Total Tons Produced in State (All Sectors)	Do Producers in State Fractionate RAP (Y/N)	What Sectors Allow What Level of RAS (DOT, Other Agency, Commercial & Residential)	Require, Allow, or Prohibit Use of Recycling Agents With RAP, RAS, RAP+RAS
Contact Information				What Limits the Use of RAP in Your State?
State Information Is Provided for				What Limits the Use of RAS in Your State?
				Do You Believe Increasing Utilization of Recycled Materials in Your State Is Possible? (Y/N)
				(If Yes) Two Ideas How to Increase Utilization.
Yellow indicates a new question for 2018		Red indicates a question removed for 2018		Cyan indicates a question modified for 2018

Appendix B and certain tables in this report provide survey responses and estimated values at the state/territory level. To keep specific producer data confidential, no state-specific information is provided in the tables or appendixes if fewer than three producers from the state/territory responded to the survey. Information from states/territories with fewer than three responding companies is included in the estimated national values, however.

Data Estimation Method

To determine the estimated total amount of RAP and RAS used and WMA produced nationwide and in each state/territory, the total amount of asphalt mix produced in each state/territory needed to be determined. Total tonnage of asphalt mix produced represents both commercial (i.e., private sector) and governmental (i.e., DOT and Other Agency) tonnages. Estimated tonnages for each sector were provided by SAPAs for 32 states, totaling more than 294 million tons.

To estimate the total tons in states where a SAPA estimate of total tonnage was not available, a power curve relationship based on an examination of the relationship between SAPA-estimated tons and FY2018 federal-aid highway apportionment (FHWA, 2019) for those states was determined, resulting in Equation A1. This is the same methodology used to estimate tonnage in previous versions of this survey, as detailed in Hansen & Newcomb (2011), with the formula updated annually as SAPA-reported estimates and federal apportionments for the states change.

$$\text{Total Estimated Tons} = 0.0035 \times (\text{State Federal Apportionment})^{1.0608} \quad [A1]$$

As shown in Figure A1, 40 states and territories, along with multiple counties and municipalities across the nation, have acted to raise and/or otherwise dedicate additional local funds to transportation since 2012 (T4America, n.d.; Davis, 2019; NCSL, 2019). These additional and/or dedicated funds are not accounted for in Equation A1, which can lead to underestimation of total tonnage in some states. Similarly, because federal funding for the U.S. territories is through the Territorial and Puerto Rico Highway Program instead of state apportionment, estimates for these jurisdictions were calculated using Equation A1 and Territorial and Puerto Rico Highway Program FY2018 funding levels (FHWA, 2017).

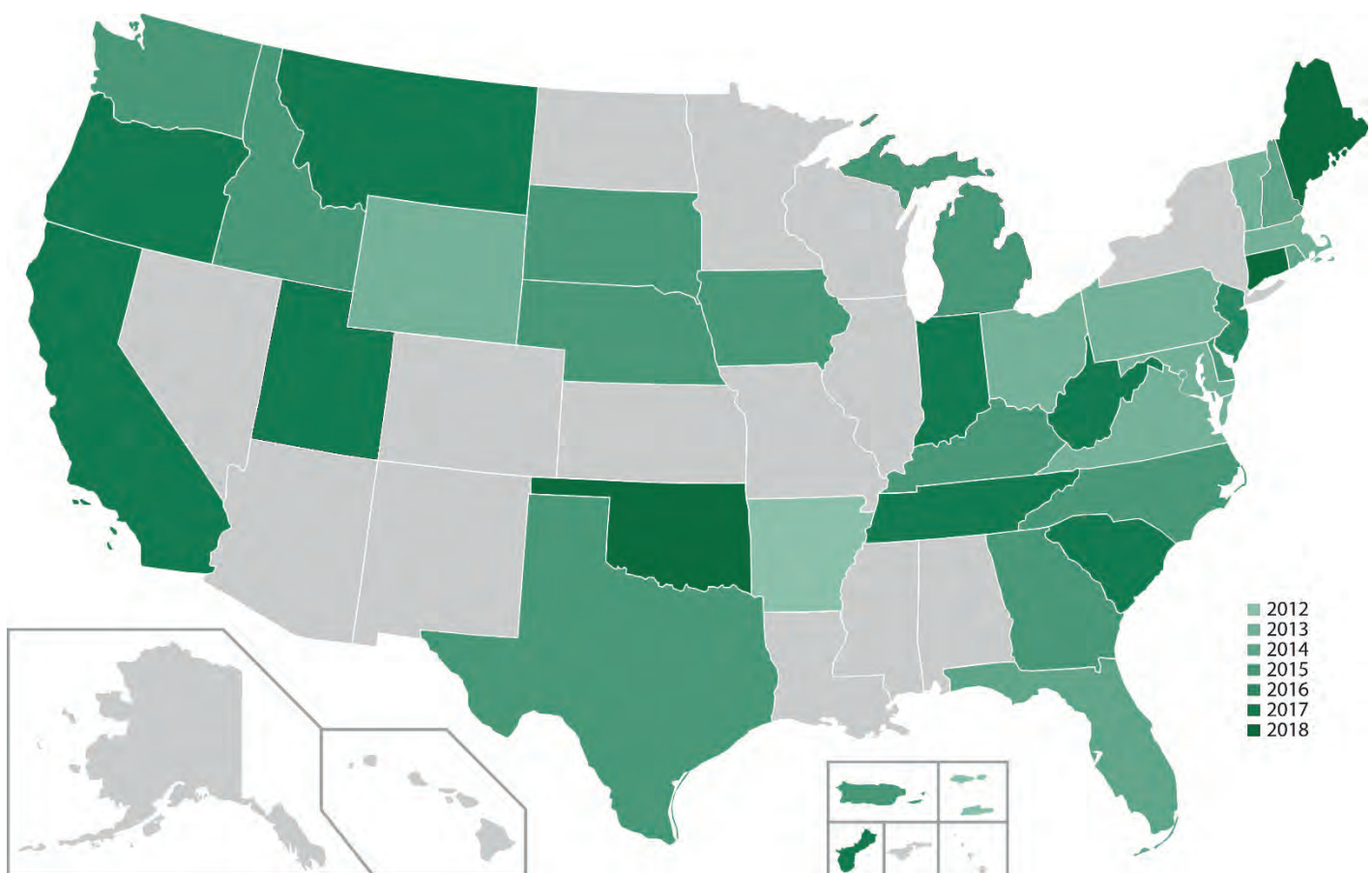


Figure A1: States Approving Measures to Increase and/or Dedicate Transportation Funding, 2012–2018

In addition, in some markets, asphalt pavement mixture may be produced in one state and placed in a neighboring state. Although producers are asked to report tonnage based upon the location where it is placed, it is possible that data about mixtures reported for one state may include data from mixtures placed in two or more states. This can lead to overreporting in one state and underreporting in another. For example, a producer in Washington, D.C., may have produced mixtures used in Virginia and Maryland too, but may have reported all tons produced as Washington, D.C., tons.

These caveats apply to the data reported in Appendix B and other state-level data included in this report; however, they have only minimal impact on the national values in the main report.

Survey Instrument

As outlined earlier, this appendix includes a copy of the survey instrument used to collect responses from participants. The majority of asphalt mixture producers participating in the survey used the online survey platform SurveyMonkey® to provide their responses. Some producers submitted their data through PDF forms or a Microsoft Excel spreadsheet developed by NAPA to collect the same information. The producer section of the survey instrument begins on page 7; the SAPA section begins on page 25.

References

- Davis, C. (2019). Most States Have Raised Gas Taxes in Recent Years. *JustTaxes Blog*. Institute on Taxation and Economic Policy, Washington, D.C. <https://itep.org/most-states-have-raised-gas-taxes-in-recent-years-0419/> [Retrieved July 19, 2019]
- FHWA (2017). FAST Act Fact Sheet: Territorial and Puerto Rico Program [web page]. Federal Highway Administration, Washington, D.C. <https://www.fhwa.dot.gov/fastact/factsheets/territorialprhighwaysfs.cfm> [Accessed 31 May 2019]
- FHWA (2019). FAST ACT Funding Tables: Table 11, Part 4: Summary of Apportionments Authorized for Fiscal Year (FY) 2018 [web page]. Federal Highway Administration, Washington, D.C. <https://www.fhwa.dot.gov/fastact/comptables2018/table11p1.cfm> [Accessed 31 May 2019]
- Hansen, K.R., & D.E. Newcomb (2011). *Asphalt Pavement Mix Production Survey: Reclaimed Asphalt Pavement, Reclaimed Asphalt Shingles, Warm-Mix Asphalt Usage: 2009–2010* (IS 138). National Asphalt Pavement Association, Lanham, Maryland.
- NCSL (2019). Recent Legislative Actions Likely to Change Gas Taxes [web page]. National Conference of State Legislatures, Washington, D.C. <http://www.ncsl.org/research/transportation/2013-and-2014-legislative-actions-likely-to-change-gas-taxes.aspx> [Accessed 31 May 2019]
- T4America (n.d.). State Transportation Funding [web page]. Transportation for America, Washington, D.C. <http://t4america.org/maps-tools/state-transportation-funding/> [Accessed 31 May 2019]
- Williams, B.A., J.R. Willis, & T.C. Ross (2019). *Annual Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage: 2018, 9th Annual Survey* (IS 138). National Asphalt Pavement Association, Greenbelt, Maryland. doi:10.13140/RG.2.2.22077.61920

2018 Construction Season Survey Instrument — Producer Section



Recycled Materials and WMA Survey 2018

Purpose

The National Asphalt Pavement Association is working with the Federal Highway Administration to determine the amount of hot-mix asphalt (HMA), warm-mix asphalt (WMA), and recycled materials being produced and used in each state. This survey will be used to collect this data.

It is important for the industry that you complete this survey so that we have accurate information regarding the use of recycled materials and WMA and to identify areas needing assistance in implementation.

DATA FROM THIS SURVEY WILL BE CONFIDENTIAL AND WILL BE USED ONLY FOR THE PURPOSES OF DETERMINING THESE QUANTITIES. IT WILL NOT BE USED FOR ANY OTHER PURPOSE. DATA WILL BE REPORTED BY STATE ONLY, AND NO STATE-SPECIFIC DATA WILL BE REPORTED WHEN FEWER THAN THREE COMPANIES/BRANCHES RESPOND WITHIN A STATE, NO COMPANY-SPECIFIC INFORMATION WILL BE DISCLOSED IN ANY WAY.

Survey results will be shared with industry, government agencies, and officials to help in the implementation of recycling and warm-mix technologies. The data collected from this survey provides insight into trends, current practice, and is utilized to highlight the sustainability of asphalt mixtures. These results are also used by FHWA, Energy Information Administration, Environmental Protection Agency, and other federal, state, and local agencies to determine the impact of recycled materials and WMA.

By completing this survey you will be eligible to receive a complimentary copy of the full report.

Your participation is greatly appreciated.

* 1. Are you a...

- Asphalt Producer
- State Asphalt Pavement Association
- Other



Recycled Materials and WMA Survey 2018

Industry Contact Information

It is recommended that you print a copy of the full survey —[download a PDF](#)— to make sure you have the necessary data at hand before beginning the online survey.

Companies with multi-state operations are encouraged to [download a spreadsheet](#) to report their data. Please return the completed spreadsheet to Brett Williams, NAPA Director of Engineering & Technical Support, at bwilliams@asphaltpavement.org.

The following information will be used only to confirm that we do not get duplicate information from a company and to contact you if we have any questions regarding your answers. Contact Brett Williams at bwilliams@asphaltpavement.org or NAPA by phone at 888-468-6499 if you have any questions.

* 2. Company/Branch Name:

* 3. Contact Person's Name & Address

* 4. Contact Person's Email

* 5. Contact Person's Phone Number



State

Please select the state for which you are providing the information.

If your branch operates in more than one state, please complete a separate questionnaire for each state. If a plant provides mix for more than one state, please divide the tonnage accordingly, using your best estimate if specific data is not available.

* 6. Which state is the information provided for?

- | | | |
|--|--|---|
| <input type="radio"/> Alabama | <input type="radio"/> Kentucky | <input type="radio"/> Ohio |
| <input type="radio"/> Alaska | <input type="radio"/> Louisiana | <input type="radio"/> Oklahoma |
| <input type="radio"/> American Samoa | <input type="radio"/> Maine | <input type="radio"/> Oregon |
| <input type="radio"/> Arizona | <input type="radio"/> Maryland | <input type="radio"/> Pennsylvania |
| <input type="radio"/> Arkansas | <input type="radio"/> Massachusetts | <input type="radio"/> Puerto Rico |
| <input type="radio"/> California | <input type="radio"/> Michigan | <input type="radio"/> Rhode Island |
| <input type="radio"/> Colorado | <input type="radio"/> Minnesota | <input type="radio"/> South Carolina |
| <input type="radio"/> Connecticut | <input type="radio"/> Mississippi | <input type="radio"/> South Dakota |
| <input type="radio"/> Delaware | <input type="radio"/> Missouri | <input type="radio"/> Tennessee |
| <input type="radio"/> District of Columbia | <input type="radio"/> Montana | <input type="radio"/> Texas |
| <input type="radio"/> Florida | <input type="radio"/> Nebraska | <input type="radio"/> US Virgin Islands |
| <input type="radio"/> Georgia | <input type="radio"/> Nevada | <input type="radio"/> Utah |
| <input type="radio"/> Guam | <input type="radio"/> New Hampshire | <input type="radio"/> Vermont |
| <input type="radio"/> Hawaii | <input type="radio"/> New Jersey | <input type="radio"/> Virginia |
| <input type="radio"/> Idaho | <input type="radio"/> New Mexico | <input type="radio"/> Washington |
| <input type="radio"/> Illinois | <input type="radio"/> New York | <input type="radio"/> West Virginia |
| <input type="radio"/> Indiana | <input type="radio"/> North Carolina | <input type="radio"/> Wisconsin |
| <input type="radio"/> Iowa | <input type="radio"/> North Dakota | <input type="radio"/> Wyoming |
| <input type="radio"/> Kansas | <input type="radio"/> Northern Mariana Islands | |

* 7. How many plants does this survey response cover?

Number of plants-



Total Asphalt Tonnage for 2018

Please complete the following information for the total tonnage of all asphalt production in 2018.

* 8. What was your total tonnage of asphalt mixes in 2018 for the following sectors? (Use best estimate if data is not available.)

State DOT

Other Agency (City, County, FAA, Military, Toll Authorities)

Commercial & Residential



RAP Supply and Use 2018

Please complete the following information on the amount of RAP received and used for 2018.

* 9. Did you accept, process, or use RAP in the state during 2018?

Yes

No



RAP Supply and Use 2018

Please complete the following information regarding the amount of RAP received and used for 2018.

* 10. How many tons of reclaimed asphalt pavement and asphalt millings were accepted/delivered to your facilities in the state in 2018?

Tons:

* 11. How many tons of RAP were used in 2018 for the following purposes? (Use best estimate if data not available.)

Recycled Back into HMA/WMA Mixes:

Aggregate Base:

Cold Mix:

Other:

Landfilled:

* 12. What was the average RAP percentage used in asphalt mixes during 2018 for the following sectors? (Use best estimate if data not available.)

State DOT

Other Agency (City, County, FAA, Military, Toll Authorities)

Commercial & Residential

* 13. At the end of the year 2018 did you have excess RAP (processed or unprocessed) in inventory?

Yes

No

* 14. Please estimate how many tons of RAP you had stockpiled at the end of 2018. (Use best estimate if data not available.)

15. What percentage of the RAP processed is fractionated into two or more sizes? (Use best estimate if data not available.)

16. What percent of mixes using RAP were produced using a softer grade of asphalt binder? (Use best estimate if data not available.)

17. What percent of mixes using RAP were produced using recycling agents? (Use best estimate if data not available.)



Reclaimed Asphalt Shingles (RAS) Supply and Use for 2018

Please complete the following information on the amount of waste shingles received (processed and unprocessed) and used for 2018.

* 18. Did you accept waste shingles and/or process or use reclaimed asphalt shingles (RAS) in 2018?

- Yes
- No



Reclaimed Asphalt Shingles (RAS) Supply and Use for 2018

Please complete the following information regarding the amount of waste shingles received (processed and unprocessed) and used during 2018.

* 19. How many tons of shingles were accepted/delivered to your facilities in the state in 2018?

Unprocessed

Tear-off

Shingles:

Unprocessed

Manufacture

rs'

Waste Shingl

es:

Processed

Shingles:

* 20. How many tons of reclaimed asphalt shingles (RAS) were used for the following purposes in 2018? (Use best estimate if data not available.)

Recycled into HMA/WMA Mixes:

Aggregate Base:

Cold Mix:

Other:

Landfilled:

* 21. What was average RAS percentage used in asphalt mixes in 2018 for the following sectors? (Use best estimate if data not available.)

State DOT

Other Agency (City, County, FAA, Military, Toll Authorities)

Commercial & Residential

* 22. At the end of the year 2018 did you have any surplus RAS stockpiled? (Include processed and unprocessed shingles.)

Yes

No

* 23. Please estimate how many tons of RAS you had stockpiled at the end of 2018. (Use best estimate if data not available.)

24. Is RAS allowed in

	ALL	SOME	NONE
DOT mixes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Agency mixes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial and Residential mixes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. What percent of mixes using RAS were produced using a softer grade of asphalt binder? (Use best estimate if data not available.)

26. What percent of mixes using RAS were produced using recycling agents? (Use best estimate if data not available.)



Warm-Mix Asphalt Production for 2018

Warm-mix asphalt is the generic term for a variety of technologies that allow the producers of asphalt pavement material to lower the temperatures at which the material is mixed and placed on the road by at least 10°F. The survey will collect data for warm-mix technologies used at reduced temperature and at hot mix temperatures separately.

* 27. Did any of your plants in this state use warm-mix asphalt technologies in 2018?

Yes

No



Warm-Mix Asphalt Production for 2018

Warm-mix asphalt is the generic term for a variety of technologies that allow the producers of asphalt pavement material to lower the temperatures at which the material is mixed and placed on the road by at least 10°F.

* 28. What was average percent of mix tons produced using warm-mix asphalt technologies in 2018 for the different sectors? (Use best estimate if data not available.)

State DOT

Other Agency (City, County, FAA, Military, Toll Authorities)

Commercial & Residential

* 29. What percentage of the total warm-mix asphalt (WMA) for 2018 was produced using the following technologies? (Use best estimate if data not available, entries should total 100%)

Chemical Admixture

Additive (Zeolite) Foaming

Plant Foaming

Organic (Wax) Additive

Blend

*Please specify the Blend:

30. What was average percent of mix tons using warm-mix technologies for mixes produced at hot-mix temperatures (i.e., without lowering temperatures by at least 10°F.)

State DOT

Other Agency (City, County, FAA, Military, Toll Authorities)

Commercial & Residential

* 31. What percentage of the total warm-mix asphalt (WMA) produced at hot mix temperatures (i.e., without lowering temperatures by at least 10°F.) for 2018 was produced using the following technologies? (Use best estimate if data not available, entries should total 100%)

Chemical Admixture	<input type="text"/>
Additive (Zeolite) Foaming	<input type="text"/>
Plant Foaming	<input type="text"/>
Organic (Wax) Additive	<input type="text"/>
Blend	<input type="text"/>
*Please specify the Blend:	<input type="text"/>



Other Recycled Material for 2018

Please let us know if you used any other recycled materials in HMA/WMA mixes in 2018.

* 32. Did you use other recycled materials (excluding RAP and RAS) in your mixes in 2018?
(This includes materials added to the mix such as: ground tire rubber, blast furnace slag, steel slag, boiler slag, fly ash, bottom ash, foundry sand, other coal combustion products, glass, cellulose fibers, etc.)

Yes

No



Other Recycled Material for 2018

* 33. What other recycled material (excluding RAP and RAS) did you use in your mixes in 2018?

	Yes	No
Ground Tire Rubber	<input type="radio"/>	<input type="radio"/>
Steel Slag	<input type="radio"/>	<input type="radio"/>
Blast Furnace Slag	<input type="radio"/>	<input type="radio"/>
Recycled Cellulose Fibers	<input type="radio"/>	<input type="radio"/>
Other 1*	<input type="radio"/>	<input type="radio"/>
Other 2*	<input type="radio"/>	<input type="radio"/>

* Please describe the other recycled materials used.

* 34. How many tons of HMA/WMA was produced using this product. (Use best estimate if data not available.)

Ground Tire Rubber	<input type="text"/>
Steel Slag	<input type="text"/>
Blast Furnace Slag	<input type="text"/>
Recycled Cellulose Fibers	<input type="text"/>
Other 1	<input type="text"/>
Other 2	<input type="text"/>

35. How many tons of the recycled product was used in 2018? (Enter 0 if you do not have a reasonable estimate of this quantity)

Ground Tire Rubber	<input type="text"/>
Steel Slag	<input type="text"/>
Blast Furnace Slag	<input type="text"/>
Recycled Cellulose Fibers	<input type="text"/>
Other 1	<input type="text"/>
Other 2	<input type="text"/>



Thank You

36. Would you like a complimentary copy of the final report?

Yes

No

2018 Construction Season Survey Instrument — SAPA Section



Recycled Materials and WMA Survey 2018

SAPA Contact Information

This survey is intended to collect information from State Asphalt Pavement Associations or similar associations. Please answer the following questions by April 1, 2019, to assist NAPA in preparing the 2018 Recycled Materials and WMA Survey. The additional information you provide us on RAP and RAS will enhance the information we provide in the survey report. Contact Brett Williams at bwilliams@asphaltpavement.org or NAPA by phone at 888-468-6499 if you have any questions.

* 38. Association Name:

Contact

* 39. Name

* 40. Email

* 41. Phone Number

* 42. Which state is the information provided for?

- | | | |
|--|--|---|
| <input type="radio"/> Alabama | <input type="radio"/> Kentucky | <input type="radio"/> Ohio |
| <input type="radio"/> Alaska | <input type="radio"/> Louisiana | <input type="radio"/> Oklahoma |
| <input type="radio"/> American Samoa | <input type="radio"/> Maine | <input type="radio"/> Oregon |
| <input type="radio"/> Arizona | <input type="radio"/> Maryland | <input type="radio"/> Pennsylvania |
| <input type="radio"/> Arkansas | <input type="radio"/> Massachusetts | <input type="radio"/> Puerto Rico |
| <input type="radio"/> California | <input type="radio"/> Michigan | <input type="radio"/> Rhode Island |
| <input type="radio"/> Colorado | <input type="radio"/> Minnesota | <input type="radio"/> South Carolina |
| <input type="radio"/> Connecticut | <input type="radio"/> Mississippi | <input type="radio"/> South Dakota |
| <input type="radio"/> Delaware | <input type="radio"/> Missouri | <input type="radio"/> Tennessee |
| <input type="radio"/> District of Columbia | <input type="radio"/> Montana | <input type="radio"/> Texas |
| <input type="radio"/> Florida | <input type="radio"/> Nebraska | <input type="radio"/> US Virgin Islands |
| <input type="radio"/> Georgia | <input type="radio"/> Nevada | <input type="radio"/> Utah |
| <input type="radio"/> Guam | <input type="radio"/> New Hampshire | <input type="radio"/> Vermont |
| <input type="radio"/> Hawaii | <input type="radio"/> New Jersey | <input type="radio"/> Virginia |
| <input type="radio"/> Idaho | <input type="radio"/> New Mexico | <input type="radio"/> Washington |
| <input type="radio"/> Illinois | <input type="radio"/> New York | <input type="radio"/> West Virginia |
| <input type="radio"/> Indiana | <input type="radio"/> North Carolina | <input type="radio"/> Wisconsin |
| <input type="radio"/> Iowa | <input type="radio"/> North Dakota | <input type="radio"/> Wyoming |
| <input type="radio"/> Kansas | <input type="radio"/> Northern Mariana Islands | |

* 43. What is your best estimate of the total tons of asphalt mixture placed in your state in 2018? (This includes asphalt mixture tonnage for all sectors, ex. DOT, Other Agencies, Commercial & Residential) [2017 Estimates are provided below for your reference.]

2017 Estimated Tons by State

State	Tons, Millions		Reported % of Estimated	State	Tons, Millions		Reported % of Estimated
	Estimated	Reported			Estimated	Reported	
Alabama	7.0	4.9	70%	Montana	4.2	*	*
Alaska	5.1	*	*	Nebraska	2.8	0.5	18%
American Samoa	0.03	*	*	Nevada	3.4	1.3	38%
Arizona	6.5	1.2	18%	New Hampshire	3.0	2.5	83%
Arkansas	6.0	1.9	32%	New Jersey	10.2	4.0	39%
California	26.0	5.9	23%	New Mexico	3.0	0.9	30%
Colorado	5.3	2.0	38%	New York	16.5	7.3	44%
Connecticut	4.9	2.8	57%	North Carolina	16.0	6.4	40%
Delaware	1.5	*	*	North Dakota	2.7	1.2	44%
District of Columbia	1.4	*	*	Ohio	14.8	11.6	78%
Florida	16.5	4.6	28%	Oklahoma	4.8	2.4	50%
Georgia	14.6	2.2	15%	Oregon	5.4	1.4	26%
Hawaii	1.1	0.8	73%	Pennsylvania	19.8	7.7	39%
Idaho	2.8	1.7	61%	Puerto Rico	1.6	NCR	NCR
Illinois	13.0	2.1	16%	Rhode Island	2.0	*	*
Indiana	11.8	6.6	56%	South Carolina	7.6	3.9	51%
Iowa	3.9	1.6	41%	South Dakota	2.0	*	*
Kansas	2.0	1.1	55%	Tennessee	9.2	2.5	27%
Kentucky	4.4	4.4	100%	Texas	20.0	7.9	40%
Louisiana	7.8	1.2	15%	Utah	4.0	3.5	88%
Maine	1.7	2.0	118%	Vermont	1.9	*	*
Maryland	7.8	2.4	31%	Virginia	12.0	4.9	41%
Massachusetts	6.5	5.0	77%	Washington	6.0	4.5	75%
Michigan	13.7	9.0	66%	West Virginia	2.6	1.5	58%
Minnesota	6.9	6.0	87%	Wisconsin	12.0	8.7	73%
Mississippi	4.8	2.8	58%	Wyoming	2.5	0.1	4%
Missouri	6.5	3.9	60%	Total	379.4	163.0 [†]	43%

NCR No Companies Responding

* Fewer than 3 Companies Reporting

† Total Reported Tons includes values from state with fewer than 3 Companies Reporting

■ SAPA Estimated Tons

Numbers do not add up exactly due to rounding

44. Tonnage Estimate Comments

* 45. Do producers in your state fractionate RAP?

Yes

No

* 46. Is RAS allowed in

	ALL	SOME	NONE
DOT mixes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Agency mixes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commercial and Residential mixes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

* 47. Does your state require, allow, or prohibit the use of recycling agents or softer binders in high Asphalt Binder Replacement mixtures? (RAP, RAS, RAP & RAS)

	Require	Allow	Prohibit
Recycling Agent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Softer Binders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

48. Do you believe that increasing the utilization of recycled materials in your state is possible? (e.g. increasing the RAP percent from 15% to 25% in lower lifts)

Yes

No

If Yes please provide 2 ideas for increasing the utilization of recycled materials:



National Asphalt Pavement Association

6406 Ivy Lane, Suite 350
Greenbelt, Maryland 20770-1441
www.AsphaltPavement.org
napa@AsphaltPavement.org
Toll Free: 888-468-6499
Tel: 301-731-4748
Fax: 301-731-4621

Publication Sales:

<http://store.AsphaltPavement.org>
napa-orders@abdintl.com
Toll Free: 888-600-4474
Tel: 412-741-6314
Fax: 412-741-0609

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