

Information Series 138

Annual Asphalt Pavement Industry Survey on

Recycled Materials
and Warm-Mix Asphalt Usage:
2009–2012



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16. Abstract <p>One of the shared goals of the Federal Highway Administration (FHWA) and the National Asphalt Pavement Association (NAPA) is to support and promote sustainable practices such as pavement recycling and warm-mix asphalt (WMA). The use of recycled materials, primarily reclaimed asphalt pavement (RAP) and reclaimed asphalt shingles (RAS), in asphalt pavements reduces the amount of new materials required to produce asphalt mixes and material going to landfills. This is vital to the mission of environmental stewardship and extending the service life of the nation's infrastructure while lowering overall costs.</p> <p>WMA technologies have been introduced to reduce the mixing and compacting temperatures for asphalt mixtures as a means of reducing emissions. Additional benefits include improved compaction of asphalt mixtures leading to improved pavement performance. As part of FHWA's Every Day Counts initiative, WMA was chosen for accelerated deployment in federal-aid highway, state department of transportation (DOT), and local road projects.</p> <p>It is important for the industry to track the deployment of these technologies, which reduce costs, energy, waste, emissions, and the amount of new materials required for road construction. FHWA has established two survey mechanisms for tracking the use of recycled materials and WMA in asphalt pavements. The first survey tracks state DOT usage and the other tracks industry usage. These have established a baseline of RAP, RAS, and WMA usage and tracked the growth of the use of these sustainable practices in the highway industry since 2009.</p> <p>The objective of this survey is to quantify the use of recycled materials, and WMA produced by the asphalt pavement industry. Survey results show significant growth in the use of RAP, RAS, and WMA technologies from 2009 through 2012. The asphalt industry remains the country's number-one recycler by recycling asphalt pavements at a rate of over 99 percent and almost all (98 percent) contractors/branches report using RAP in 2012. The amount of RAP used in asphalt mixtures has increased by 22 percent, from 56 million tons in 2009 to 68.3 million tons in 2012. Assuming 5 percent liquid asphalt in RAP, this represents over 3.4 million tons (19 million barrels) of asphalt binder conserved during 2012. The estimated savings at \$600 per ton for asphalt binder is \$2.04 billion.</p> <p>Use of both manufacturers' scrap and post-consumer asphalt shingles used in asphalt mixes increased 165 percent from 2009 to nearly 1.9 million tons 2012. Assuming a conservative asphalt content of 20 percent for the RAS, this represents about 380,000 tons (2.1 million barrels) of asphalt binder conserved. The estimated savings at \$600 per ton for asphalt binder is \$228 million.</p> <p>For 2012 contractors were asked about their use of other recycled materials in asphalt mixtures. Contractors in 13 states reported using steel and blast furnace slag in asphalt mixtures. Ground tire rubber (GTR) was reported as being used in asphalt mixtures in nine states. Other recycled materials used to a lesser degree include fly ash, bottom ash, foundry slag, cellulose fiber, and glass. Due to the low response rate on other recycled materials no attempt was made to estimate the total quantities of other recycled materials used.</p> <p>In 2012, WMA was over 24 percent of the total asphalt mixture market. WMA use increased by nearly 26 percent from 2011 to 2012, and about 416 percent since 2009. Plant foaming is used most often in producing WMA, with over 88 percent of the market. WMA additives accounted for about 12 percent of the market.</p>			
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Annual Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage: 2009–2012

Executive Summary

The 2012 survey results show that the asphalt pavement industry continues to improve its outstanding record of sustainable practices by further increasing the use of recycled materials and warm-mix asphalt (WMA). The use of recycled materials such as reclaimed asphalt pavement (RAP) and reclaimed asphalt shingles (RAS) conserve raw materials and reduce overall asphalt mixture costs while WMA technologies improve conditions for achieving performance and long life, conserve energy, reduce emissions from production and paving operations, and improve conditions for workers.

The objective of this survey was to quantify the use of recycled materials, including RAP and RAS, and WMA produced by the asphalt pavement industry. The National Asphalt Pavement Association (NAPA) conducted a voluntary survey of asphalt mixture producers in the United States and state asphalt pavement associations (SAPAs). The survey was broken into five sections: general information, RAP, RAS, WMA, and other recycled materials. Asphalt mix producers from 48 states and Puerto Rico completed the 2012 survey. No survey information was available for the District of Columbia, North Dakota, or New Mexico. A total of 213 companies/branches with 1,141 plants are represented in the 2012 survey.

The following are highlights of the 2012 survey:

- The asphalt industry remains the country's number-one recycler by recycling asphalt pavements at a rate of over 99 percent. About 98 percent of the contractors/branches reported using RAP in 2012, the same as in 2011. The amount of RAP used in asphalt mixtures was 68.3 million tons in 2012, a 22.0 percent increase over the tons used in 2009 (56 million tons) and over a 2 percent increase over the tons used in 2011 (66.7 million tons). However total asphalt tonnage was down from 2011 to 2012, so in term of percent of total tonnage there was a 4 percent increase in the use of RAP from 2011 to 2012. Assuming 5 percent liquid asphalt in RAP, this represents over 3.4 million tons (19 million barrels) of asphalt binder conserved. Similar to 2010 and 2011, less than a 0.3 percent of RAP was sent to landfills.
- For the first time in the survey history more RAP was used than was collected. This is primarily due to less RAP being collected than in the prior two years. For 2010 and 2011 an estimated 73.5 and 79.1 million tons of RAP were accepted, respectively. For 2012, 71.3 million tons of RAP were accepted for a 10 percent drop from 2011 to 2012.
- Use of both manufacturers' scrap and post-consumer shingles increased from nearly 1.2 million tons in 2011 to nearly 1.9 million tons in 2012, a 56 percent increase. Assuming a conservative asphalt content of 20 percent for the RAS, this represents 380,000 tons (2.2 million barrels) of asphalt binder conserved. As with RAP, this is the first time the amount of scrap shingles collected was less than the amount used for all purposes. This is due to fewer scrap shingles being collected by asphalt mix producers in 2012 than the prior two years, producers buying from shingle processors, and an increase in the amount of RAS used in asphalt mixtures.
- Information on other recycled materials was obtained for the first time in this year's survey. The most commonly used materials in asphalt mixtures were blast furnace slag, steel slag, and ground tire rubber. Less commonly used recycled materials included; fly ash, bottom ash, foundry sand, cellulose fiber, and glass.
- Total tonnage of WMA is estimated at 86.7 million tons in 2012. This was over a 26 percent increase over 2011 WMA tonnage (68.7 million tons). In 2012, WMA was about 24 percent of the total asphalt mixture market. Plant foaming is used most often in producing WMA, with more than 88 percent of the market; additives accounted for about 12 percent of the market.

Background

One of the shared goals of the Federal Highway Administration (FHWA) and the National Asphalt Pavement Association (NAPA) is to support and promote sustainable practices such as incorporating recycled materials in pavements and the use of warm-mix asphalt (WMA). Reclaimed asphalt pavement (RAP) ranks as the single-most-recycled material in the United States and is vital to the mission of extending the service life of the nation's infrastructure while lowering overall costs. Another recycled material increasingly used in asphalt mixtures is reclaimed asphalt shingles (RAS) from both manufacturers' waste and post-consumer shingles. The use of RAP and RAS in asphalt pavements reduces the amount of material going to landfills and can reduce the amount of new asphalt binder required in mixes, which helps to stabilize the price of asphalt mixtures. Other recycled materials incorporated into asphalt pavements include: ground tire rubber (GTR), steel slag, and blast furnace slag, among others. These materials reduce the amount of material going to landfills, improving the sustainability of asphalt mixtures.

WMA technologies reduce the mixing and compacting temperatures for asphalt mixtures. Environmental benefits include reductions in both fuel consumption and air emissions. Construction benefits include the ability to extend the paving season into the cooler months, haul the material longer distances, improve compaction, and use higher percentages of RAP (Prowell, et al., 2012). As part of FHWA's Every Day Counts initiative, WMA was chosen for accelerated deployment in federal-aid highway, state department of transportation (DOT), and local road projects. In 2013, WMA was honored with the Construction Innovation Forum's NOVA Award for its engineering, economic, and environmental benefits (CIF, 2013).

FHWA works closely with the pavement industry through associations and other stakeholders to promote pavement recycling technologies and WMA. As part of this effort, FHWA has established two survey mechanisms for tracking the use of recycled materials and WMA in asphalt pavements. The first survey tracks state DOT usage and the other tracks industry usage. Since 2007, FHWA has partnered with the American Association of State Highway and Transportation Officials (AASHTO) to conduct a biennial survey of state DOTs' use of recycled materials (Copeland, 2011; Copeland, et al., 2010; Pappas, 2011). The results of the FHWA/AASHTO survey are typically presented at FHWA Expert Task Group meetings. For the second survey, FHWA partners with NAPA to survey asphalt producers to determine industry use of RAP, RAS, other recycled materials, as well as WMA technologies. These surveys have established a baseline of RAP, RAS, and WMA usage and tracked the growth of the use of these sustainable practices in the highway industry.

The FHWA/NAPA industry survey first began in 2010 and was repeated in 2011. The survey results showed significant growth in the use of RAP, RAS, and WMA technologies from 2009 to 2011 (Hansen & Newcomb, 2011) (Hansen, 2013). In order to continue to track the use of these technologies, FHWA again partnered with NAPA to conduct a similar survey of RAP, RAS, and WMA use for 2012. This report documents the results of the 2012 industry survey, including the survey methodology, results, trends, and changes from 2009 through 2012. For 2012, the survey also asked about the use of other recycled materials used in asphalt mixtures. The survey questions and data by state are included in the appendices.

Objective and Scope

The objective of this effort is to quantify the use of recycled materials and WMA produced by the asphalt pavement industry. NAPA conducted a voluntary survey of asphalt mixture producers in the United States and of state asphalt pavement associations (SAPAs). While keeping specific producer data confidential, NAPA staff compiled the amount of asphalt mixtures being produced; the amount of RAP, RAS, and other recycled material used; and the amount of WMA being produced in the United States. The data are broken out on a state-by-state basis in Appendix B. The data are analyzed and summarized in this report. In order to accomplish this work, the following tasks were conducted:

1. Develop an online survey similar to the 2009–2011 surveys that enables an analysis of the quantities of RAP and RAS being used in asphalt mixtures, as well as the total amount of WMA produced nationally. For 2012 information on other recycled materials used in asphalt mixtures was gathered, too.

2. Conduct a voluntary survey of asphalt mix producers throughout the United States and follow up with verbal requests for information in locations where responses were low.
3. Estimate the total asphalt mixture market in each state or territory by using data from responding SAPAs and the U.S. Department of Transportation Federal 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 by state and prepare a final report.

Survey Methodology

The survey was conducted using a web survey service, SurveyMonkey®. Sections 1 through 4 of the survey for 2012 were identical to the surveys used for 2009 through 2011 (Hansen & Newcomb, 2011; Hansen, 2013). Section 5 was added for 2012 to collect information on the use of other recycled material in asphalt mixtures. A copy of the 2012 survey is included as Appendix A.

Producers were notified of the survey through several forums and electronic media. A notice was posted in NAPA's e-newsletter, *ActionNews*, informing members of the survey and asking for their participation. SAPAs participated by placing notices on their websites and in their newsletters. Announcements were made at NAPA meetings, as well as at several state asphalt conferences. A press release was sent to construction industry trade media and republished in print and to their websites. Notices of the survey and links were shared through social media channels, including Twitter, Facebook, and LinkedIn. Asphalt mixture producers then went to the website and completed the survey form. After the initial data was gathered and analyzed, anomalies in individual producer records were identified and reconciled.

The survey was broken into five sections. These sections were general information, RAP, RAS, WMA, and other recycled materials. Table 1 summarizes the questions asked in each section.

Table 1: Survey Questions Summary

Section 1: General Information	Sections 2 and 3: RAP & RAS	Section 4: WMA	Section 5: Other Recycled Materials
Number of Plants	Tons Accepted	Average % Produced for DOT Tons	Other Recycled Materials Used
DOT Tons	Tons Used in HMA/WMA	Average % Produced for Other Agency Tons	Tons of HMA/WMA Produced Using Each Recycled Material
Other Agency Tons	Tons Used in Aggregate	Average % Produced for Commercial & Residential Tons	Tons of Other Recycled Product Used
Commercial & Residential Tons	Tons Used in Cold Mix	Chemical Additive %	
	Tons Used in Other	Additive Foaming %	
	Tons Landfilled	Plant Foaming %	
	Average % for DOT Mixes	Organic Additive %	
	Average % for Other Agency Mixes		
	Average % for Commercial & Residential Mixes		

Most surveys were completed online with one multistate contractor collecting data from its different operations and submitting them in spreadsheet form. Data from the online survey was imported into a spreadsheet and checked for accuracy and missing data. When anomalies in the data were noted, the person submitting the data was contacted to resolve the anomaly.

To determine the total amount of RAP, and RAS used and WMA produced in each state and in the nation, the total amount of asphalt mix produced in each state needed to be determined. Total tonnage of asphalt mix produced represents commercial (i.e., private) and government (i.e., DOTs and local agencies) tonnages. Estimated tonnages were

provided by SAPAs in 36 states/territories which totaled about 299 million tons. This included one SAPA that supplied DOT-estimated tonnages. For this state, the total tonnage was estimated by dividing the DOT tonnage by the percent of DOT tons provided by asphalt mix producers in that state who completed the survey. To estimate the total tons in states where a SAPA estimate of total tonnage was not available, the total asphalt mixture tonnage was estimated through a relationship developed for those states where SAPA estimated tons were available and their federal highway apportionment. This is the same methodology used to estimate tonnage in the 2009–2011 surveys; for more details see Hansen & Newcomb (2011). This resulted in the following power curve relationship:

$$\text{Total Estimated Tons} = 0.6934 \times (\text{State Federal Apportionment})^{0.8009}$$

This formula was then used to estimate the tonnage for states with no SAPA estimate based on the state's federal apportionment.

Survey Results

Asphalt mix producers from 48 states and Puerto Rico completed the survey. There is no 2012 survey information available for the District of Columbia, New Mexico or North Dakota. In 2009–2010 and 2011, 48 and 49 jurisdictions completed the survey, respectively. A total of 213 companies/branches with 1,141 plants are represented in the 2012 survey. In the 2009–2010, and 2011 surveys, 1,027, and 1,091 plants were represented, respectively. Table 2 summarizes the number of companies/branches and the number of plants reporting for each state.

Table 2: No. of Companies/Branches Completing Survey in State

State	2009–2010		2011		2012		State	2009–2010		2011		2012	
	Cos.	Plants	Cos.	Plants	Cos.	Plants		Cos.	Plants	Cos.	Plants	Cos.	Plants
Alabama	3	17	5	38	4	31	Montana	2	4	4	8	4	8
Alaska	3	20	2	2	2	4	Nebraska	—	—	1	3	1	3
Arizona	2	4	4	6	4	7	Nevada	2	3	2	3	3	14
Arkansas	3	9	2	9	5	17	New Hampshire	1	11	1	11	3	14
California	6	49	4	48	4	36	New Jersey	2	21	3	21	2	19
Colorado	8	26	7	24	5	16	New Mexico	—	—	1	3	—	—
Connecticut	2	18	3	23	1	16	New York	13	68	11	64	11	68
Delaware	1	3	—	—	3	6	North Carolina	6	52	5	29	6	35
District of Columbia	—	—	—	—	—	—	North Dakota	—	—	3	8	—	—
Florida	6	61	4	22	5	34	Ohio	5	50	5	87	6	102
Georgia	2	16	6	66	6	67	Oklahoma	4	20	3	18	3	14
Hawaii	1	4	1	7	1	1	Oregon	6	10	6	16	6	15
Idaho	5	17	3	8	3	8	Pennsylvania	17	63	7	34	15	66
Illinois	16	44	7	24	5	10	Puerto Rico	1	16	1	14	1	13
Indiana	3	19	4	29	5	28	Rhode Island	2	2	2	2	1	1
Iowa	7	16	6	14	10	28	South Carolina	4	16	3	6	4	15
Kansas	6	25	4	21	3	20	South Dakota	1	3	3	9	3	8
Kentucky	3	24	4	19	5	38	Tennessee	2	10	7	72	5	32
Louisiana	2	5	2	5	2	7	Texas	7	38	9	41	10	51
Maine	2	19	2	17	2	18	Utah	5	30	6	17	6	16
Maryland	4	10	4	10	7	23	Vermont	1	9	1	7	1	7
Massachusetts	2	8	2	6	3	14	Virginia	5	38	7	26	8	46
Michigan	4	40	6	39	4	28	Washington	6	39	4	30	4	29
Minnesota	2	4	6	26	4	20	West Virginia	1	14	3	15	3	14
Mississippi	1	12	4	26	3	16	Wisconsin	1	3	3	13	3	16
Missouri	6	35	7	38	5	35	Wyoming	2	2	3	7	3	7

The average tons produced per plant was 121,000, 117,000, 121,000, and 122,000 for 2009, 2010, 2011, and 2012, respectively.

Table 3: Summary of Estimated and Reported Plant Mix Asphalt Tons by State

State	Tons (Millions)							
	2009		2010		2011		2012	
	Estimated	Reported	Estimated	Reported	Estimated	Reported	Estimated	Reported
Alabama	7.50	1.75	8.00	1.09	8.00	4.24	8.00	3.37
Alaska	3.67	0.82	4.41	1.15	5.98	0.20	5.46	0.35
Arizona	7.50	0.42	7.14	0.71	8.00	0.91	7.55	1.04
Arkansas	3.05	0.71	4.15	0.78	5.56	0.53	4.20	1.41
California	19.97	8.44	13.79	7.68	23.00	9.38	22.50	4.06
Colorado	7.72	3.00	10.52	2.62	6.50	2.50	6.50	1.48
Connecticut	4.96	2.20	5.01	1.79	4.34	2.95	4.00	1.84
Delaware	0.79	0.35	0.65	0.25	2.08	—	2.20	0.71
District of Columbia	1.62	—	1.81	—	1.71	—	1.85	—
Florida	14.70	6.91	13.00	5.81	13.57	3.01	12.38	3.82
Georgia	13.00	1.39	11.70	1.34	9.50	7.29	8.00	7.78
Hawaii	1.73	0.40	1.91	0.33	1.81	0.54	1.20	0.23
Idaho	3.00	1.13	3.09	1.14	3.45	0.56	3.49	0.79
Illinois	19.25	7.81	17.60	7.17	13.94	2.12	13.50	1.16
Indiana	9.60	3.28	7.90	3.06	9.50	4.07	10.00	4.44
Iowa	4.74	3.54	3.45	1.99	3.30	1.31	4.26	2.80
Kansas	4.17	2.08	7.12	1.85	4.00	1.67	4.50	1.55
Kentucky	7.00	1.72	7.00	1.74	7.00	1.86	9.00	2.90
Louisiana	6.00	1.30	6.00	1.30	6.00	0.58	5.50	0.59
Maine	1.80	1.61	2.03	1.60	1.91	1.56	2.36	1.82
Maryland	7.20	1.07	6.50	1.06	6.50	1.73	6.50	4.01
Massachusetts	6.00	1.54	6.00	1.34	6.00	1.17	6.00	1.64
Michigan	11.50	7.49	10.80	7.03	10.00	6.54	10.00	5.16
Minnesota	12.50	0.42	13.10	0.29	13.00	4.94	13.00	4.73
Mississippi	4.62	1.45	4.79	1.41	6.00	2.67	4.00	1.98
Missouri	7.13	3.02	4.70	3.19	8.00	4.06	6.24	3.23
Montana	3.78	0.19	3.99	0.17	4.89	0.59	4.80	0.51
Nebraska	2.96	—	3.09	—	3.37	0.11	3.43	0.40
Nevada	3.11	0.43	3.57	0.43	4.24	0.43	4.18	1.58
New Hampshire	1.86	1.25	1.94	1.18	1.92	0.90	2.05	1.09
New Jersey	9.33	3.28	9.09	2.87	8.73	3.24	8.09	3.08
New Mexico	3.78	—	3.84	—	4.48	0.52	4.44	—
New York	16.00	5.65	16.00	5.54	16.50	5.88	14.50	6.00
North Carolina	9.37	4.95	12.11	5.66	11.00	2.90	13.00	3.93
North Dakota	2.55	—	2.70	—	3.89	1.05	3.03	—
Ohio	14.50	5.69	15.10	6.23	14.30	10.81	16.30	12.68
Oklahoma	5.74	2.47	5.99	2.16	5.20	1.91	6.50	1.09
Oregon	5.22	1.27	4.81	1.16	4.91	1.95	5.14	1.71
Pennsylvania	17.40	10.97	18.30	11.66	16.83	4.17	15.86	9.03
Puerto Rico	2.49	0.97	1.44	0.75	1.19	0.74	2.06	1.34
Rhode Island	2.07	0.22	2.34	0.19	1.73	0.21	1.87	0.06
South Carolina	6.23	1.77	6.14	1.98	6.00	0.85	5.15	1.62
South Dakota	2.73	0.16	2.96	0.22	2.17	0.93	3.51	0.56
Tennessee	7.95	1.07	7.87	0.73	9.04	7.05	8.00	2.79
Texas	14.77	4.23	16.54	5.73	13.67	6.36	15.85	8.79
Utah	3.14	3.71	3.35	3.23	4.00	2.77	3.99	3.19
Vermont	1.74	0.51	2.12	0.80	1.96	0.71	2.13	0.74
Virginia	9.10	4.64	10.90	4.51	13.10	4.06	12.00	6.78
Washington	5.70	4.65	5.70	4.46	4.20	3.26	4.20	2.99
West Virginia	2.90	1.40	3.00	1.79	3.75	2.10	3.50	1.65
Wisconsin	10.52	0.50	11.96	0.50	13.00	1.53	11.20	4.22
Wyoming	2.77	0.15	2.83	0.20	3.25	0.32	3.32	0.30
Total	358.43	123.98	359.85	119.87	365.97	130.54	360.29	139.03

Note: Shaded cells indicate states and years where the SAPA provided data used to compute total estimated value. Where no data was available on total tons, a relationship between tonnage and federal apportionment was used to estimate the total tons for states.

Table 3 includes the estimated tonnage for each state as given by the SAPA or estimated from the federal apportionment and includes the reported tonnage for each state from the survey results. Figures 1–4 illustrate the Table 3 data and provide another perspective on the survey responses that represent the ratio of the tons reported in each state to the total estimated tons for each year, 2009–2012. The closer a state’s number is to 100 indicates that the reported tonnage from the survey matches the estimated tonnage provided by the SAPA or estimated from the federal apportionment. The data reported in the survey represent about 39 percent of the estimated total U.S. tonnage for 2012.

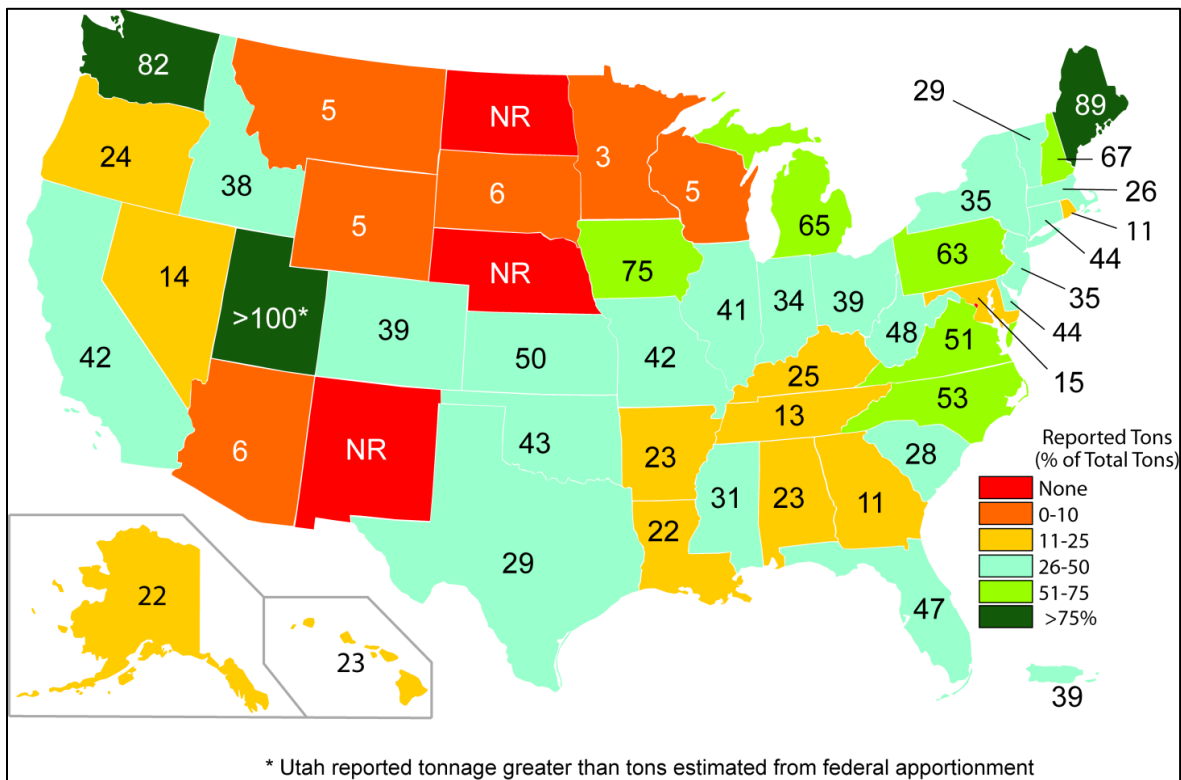


Figure 1: 2009 Reported Tons as a Percent of Estimated Total Tons

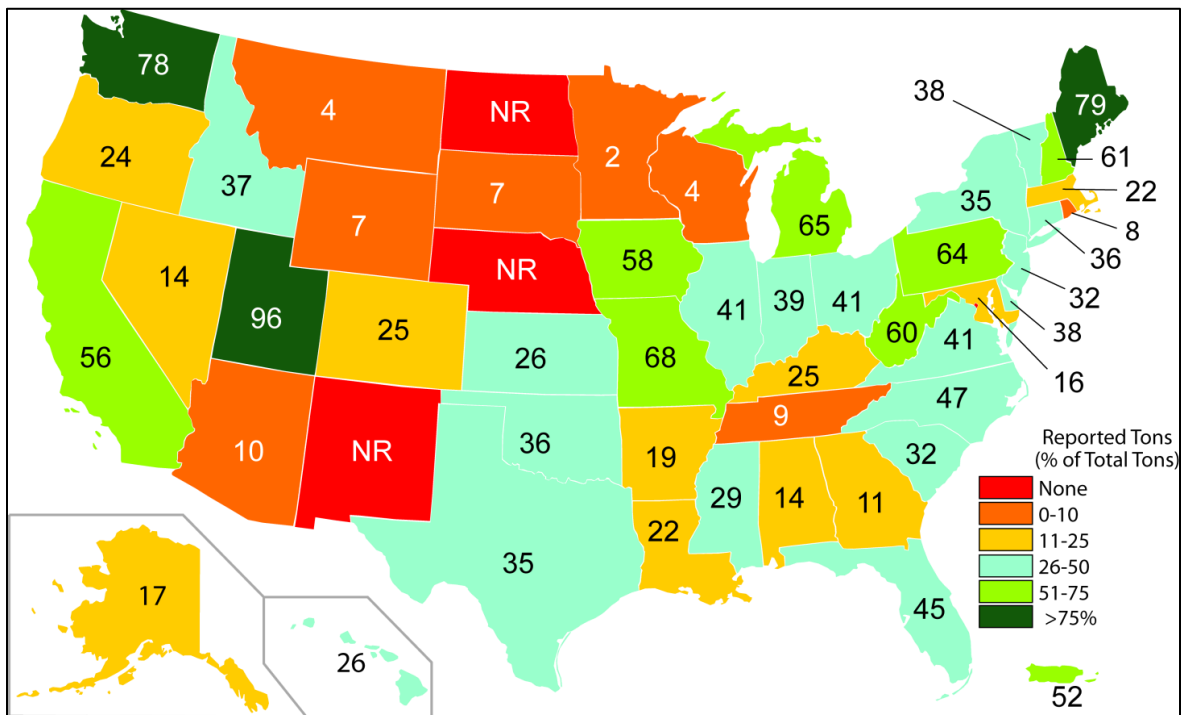


Figure 2: 2010 Reported Tons as a Percent of Estimated Total Tons

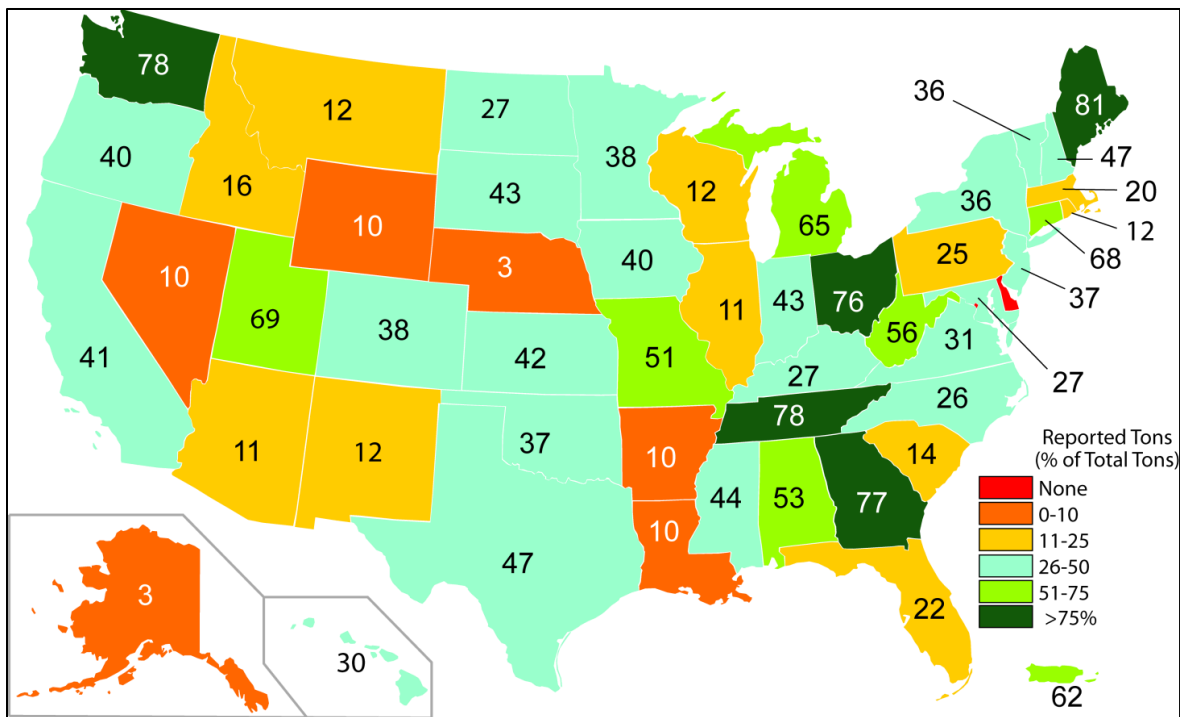


Figure 3: 2011 Reported Tons as a Percent of Estimated Total Tons

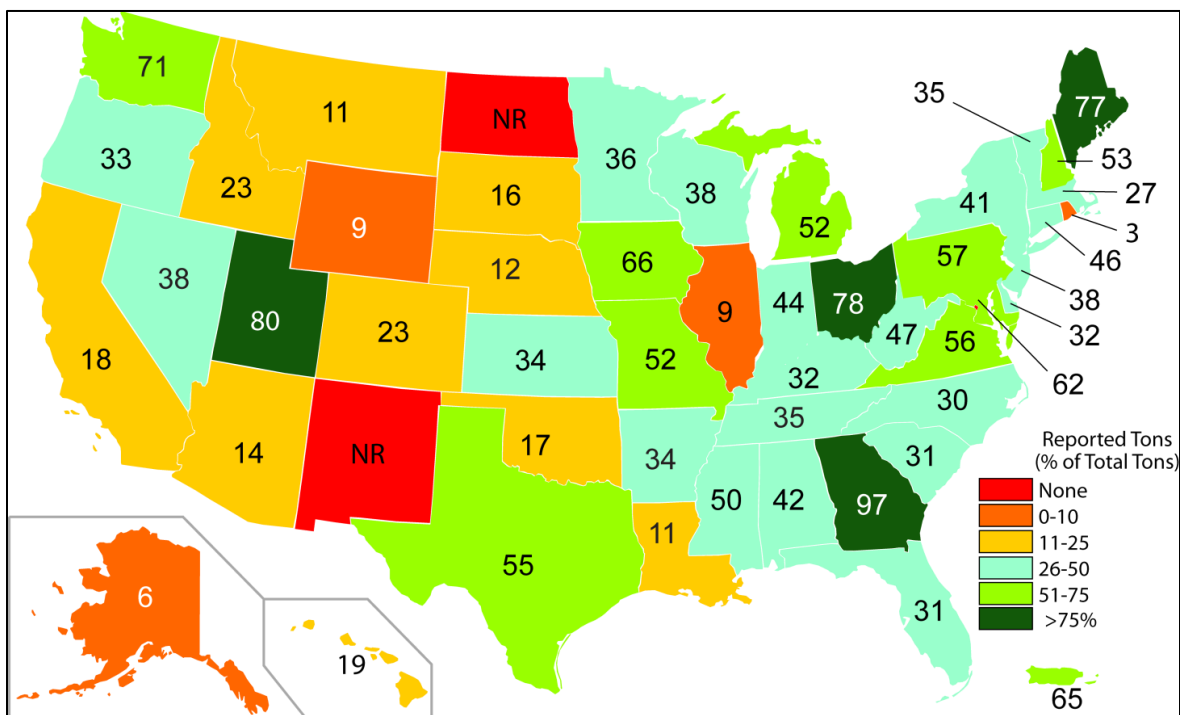


Figure 4: 2012 Reported Tons as a Percent of Estimated Total Tons

Figure 5 shows the number of plants as well as the average tons produced per plant separated by different user/producer group regions. The tons/plant for the Northeast Asphalt User/Producer Group (NEAUPG), North Central Asphalt User/Producer Group (NCAUPG), and Southeast Asphalt User/Producer Group (SEAUPG) increased slightly from 2011 to 2012. The tons/plant for Rocky Mountain Asphalt User/Producer Group (RMAUPG) and Pacific Coast Conference on Asphalt Specification (PCCAS) dropped significantly from 2011 to 2012, but is closer to the values reported in 2010. The number of plants represented in the 2012 survey increased for both NEAUPG and SEAUPG. Both NCAUPG and RMAUPG/PCCAS saw a drop in the number of plants represented in the survey. For RMAUPG/PCCAS, this is the third consecutive drop in the number of plants reporting.

Number of Plants Responding to Survey by User/Producer Group

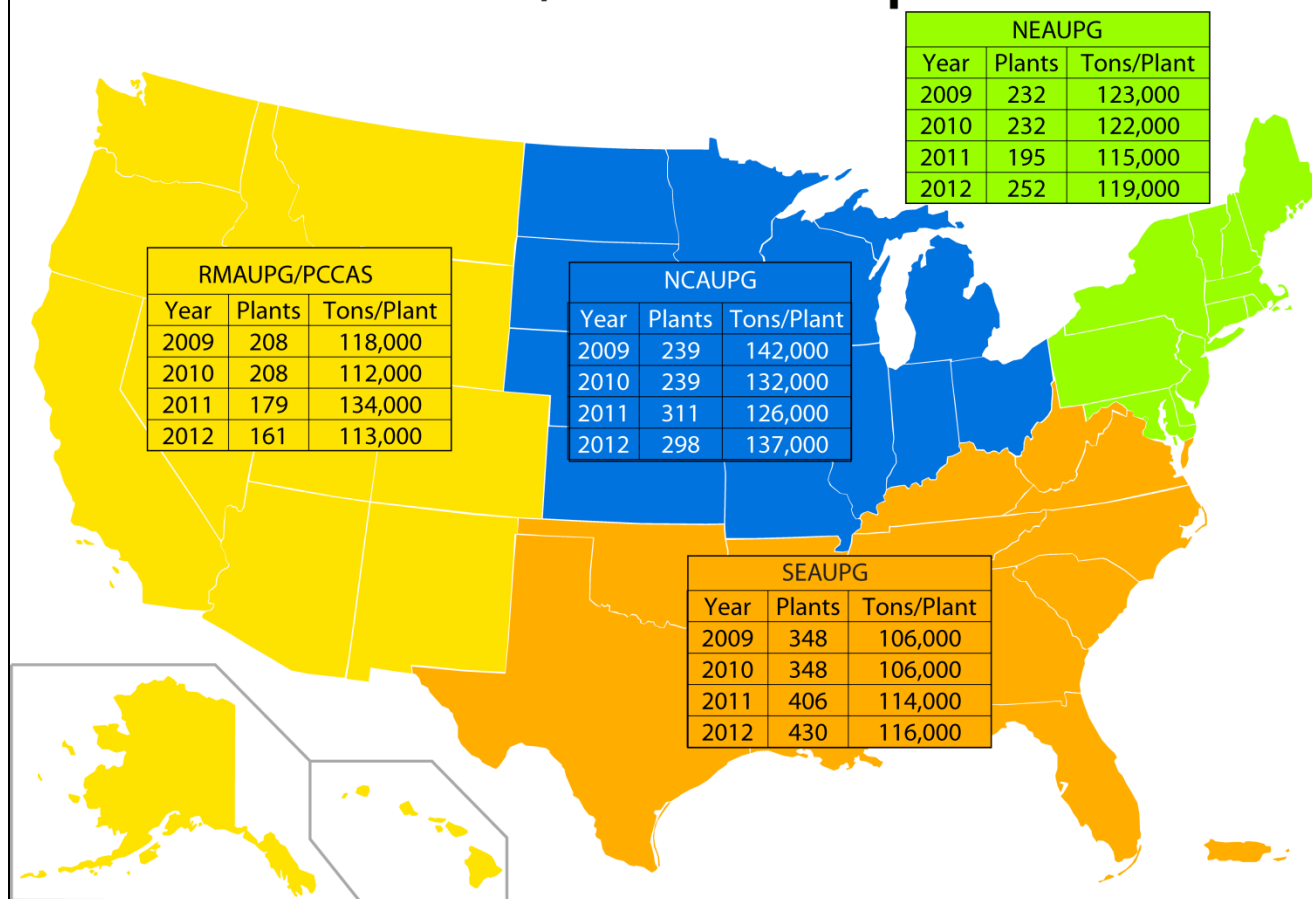


Figure 5: Number of Plants Responding to Survey by User/Producer Group Regions and Estimated Tonnage for Each Year

Reclaimed Asphalt Pavement

Table 4 summarizes the RAP, RAS, and WMA data from the surveys. The information asked for in the survey is shown in Appendix A and summarized in Table 1. Producers were not asked about allowable RAP or binder replacement requirements. Based on the total estimated tons of RAP received for a given survey year and the amount used for all purposes, including landfilling, there was an estimated 2.3 million, 1.7 million, and 6.3 million tons of RAP stockpiled for future use in 2009, 2010, and 2011, respectively, out of a total of 67.2 million, 73.5 million, and 72.8 million tons received, respectively. In 2012, however, total RAP usage exceeded the amount of RAP accepted by 1.2 million tons.

Figure 5 is a visual representation of the estimated total tons of RAP used in asphalt mixes, aggregate, cold mix, other uses, and landfilled. The overwhelming majority of RAP is used in hot-mix asphalt (HMA) or warm-mix asphalt, which is the most optimal use of RAP. It is estimated that less than 0.1 percent was sent to landfills in 2009 and 2010; less than 0.4 percent in 2011; and less than 0.3 percent in 2012.

Table 4: Summary of RAP, RAS, WMA Data

		Reported Values				Total Estimated Value			
		2009	2010	2011	2012	2009	2010	2011	2012
Tons of HMA/WMA Produced		Tons (Millions)				Tons (Millions)			
	Total	124.0	119.8	131.7	139.0	358.4	359.8	366.0	360.3
	DOT	56.9	55.6	63.1	69.1	169.2	172.5	175.3	179.1
	Other Agency	28.1	27.8	36.4	32.8	83.5	86.2	101.2	84.9
	Commercial and Residential	35.6	32.6	32.2	37.1	105.8	101.2	89.5	96.2
	Companies/Branches Reporting	196		203	213				
RAP		Tons (Millions)				Tons (Millions)			
	Accepted	23.2	24.0	29.8	29.1	67.2	73.5	79.1	71.3
	Used in HMA/WMA	20.1	21.6	25.1	27.2	56.0	62.1	66.7	68.3
	Used in Aggregate	1.4	1.6	1.2	1.2	6.2	7.3	4.9	3.6
	Used in Cold Mix	0.4	0.4	0.1	0.1	1.5	1.6	0.2	0.2
	Used in Other	0.1	0.1	0.2	0.1	0.7	0.8	0.7	0.2
	Landfilled	0.1	0.0	0.1	0.1	0.1	0.0	0.3	0.2
		Average % Used in Mixes							
	Average % for DOT Mixes ¹	12.5%	13.2%	15.8%	18.1%				
	Average % for Other Agency Mixes ¹	14.0%	15.2%	16.7%	18.2%				
	Average % for Commercial & Residential ¹	17.5%	18.0%	19.7%	20.5%				
	National Average All Mixes, Based on % Reported for Different Sectors ¹	15.6%	17.2%	18.2%	18.9%				
	National Average All Mixes, Based on RAP Tons Used in HMA/WMA ²	16.2%	18.0%	19.1%	19.6%				
	Companies/Branches Reporting Using RAP	189	189	198	208				
RAS		Tons (Thousands)				Tons (Thousands)			
	Accepted	332	559	769	693	957	1,851	2,500	1,724
	Used in HMA/WMA	246	393	430	783	702	1,100	1,192	1,863
	Used in Aggregate	5	3	14	20	6	3	74	73
	Used in Cold Mix	—	—	—	—	—	—	—	—
	Used in Other	39	35	—	4	123	125	—	12
	Landfilled	—	0.5	0.1	—	—	7	0.2	—
		Average % Used in Mixes							
	Average % for DOT Mixes ¹	0.33%	0.78%	0.66%	0.83%				
	Average % for Other Agency Mixes ¹	0.37%	0.47%	0.93%	0.90%				
	Average % for Commercial & Residential ¹	0.63%	0.81%	1.04%	1.25%				
	National Average All Mixes, Based on RAS Tons Used in HMA/WMA ²	0.20%	0.33%	0.33%	0.56%				
	Companies/Branches Reporting Using RAP	44	61	81	87				
WMA		% Total Production				Tons (Millions)			
	DOT	6.3%	15.0%	23.5%	30.8%	8.6	20.0	34.6	46.4
	Other Agency	4.4%	11.7%	18.2%	24.5%	3.6	9.8	16.3	18.9
	Commercial and Residential	4.5%	11.6%	19.9%	22.8%	4.6	11.3	17.8	21.4
	Total					16.8	41.1	68.7	86.7
		% of Market							
	Chemical Additive %	15.0%	6%	4.1%	9.6%				
	Additive Foaming %	2.0%	1%	0.2%	2.1%				
	Plant Foaming %	83.0%	92%	95.4%	88.1%				
	Organic Additive %	0.3%	1%	0.3%	0.2%				
	Companies/Branches Reporting Using WMA	85	121	150	161				

¹ Average percent based on contractor's reported percentage for each sector.² Average percent based on total reported tons of RAP used in HMA/WMA divided by reported total tons HMA/WMA produced.

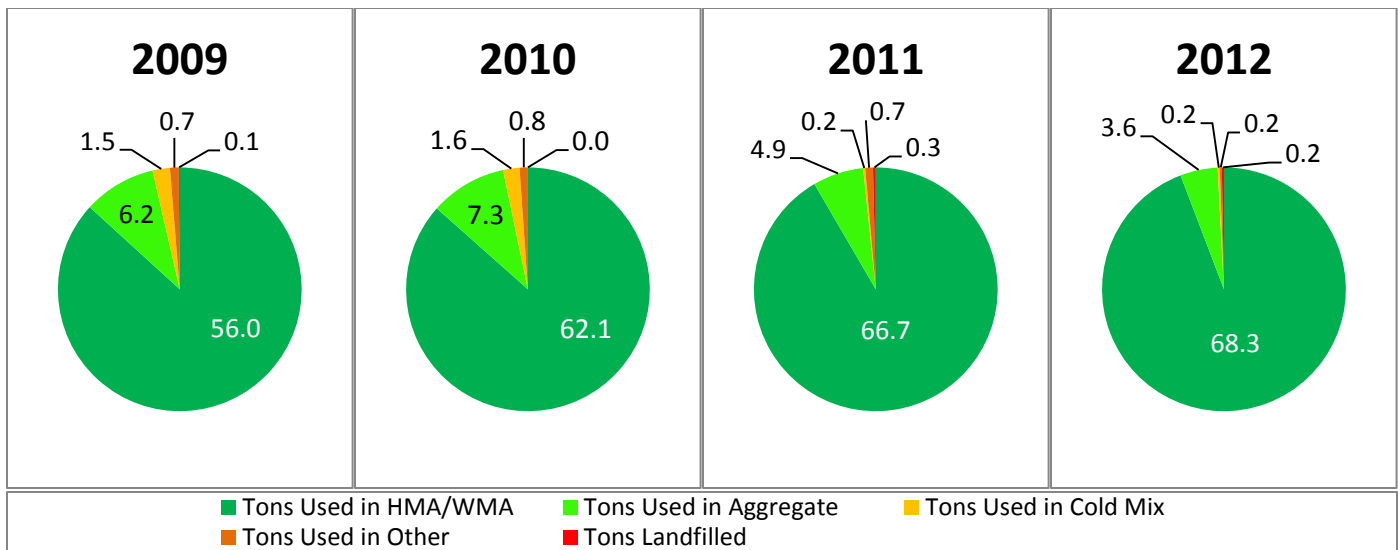


Figure 6: RAP Tons by Final Use (Million Tons)

Figure 6 shows the total estimated amount of RAP used in the different industry sectors. These values were calculated using the average percentages of RAP reported for the different sectors and adjusted to account for the difference between reported RAP tons and tons calculated from the percentage by sector.

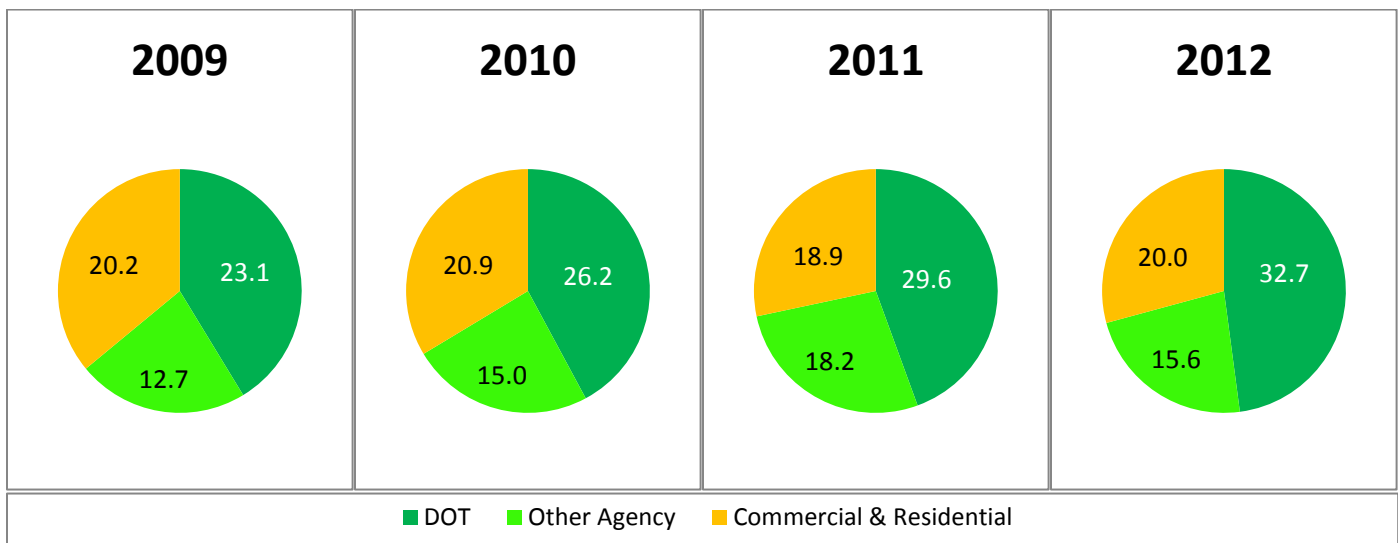


Figure 7: RAP Use by Sector (Million Tons)

Figures 8–11 and Table 5 show the average percent of RAP used in the different states based on reported RAP and total tons. It should be noted that the accuracy of data for individual states will vary depending on the number of responses received from each state and the total number of tons represented by the responses. Comparing Figures 8–11, the number of states averaging more than 20 percent RAP in HMA/WMA (colored lime and dark green in the charts) increased steadily from nine states in 2009 to 20 states in 2012. The use of increased amounts of RAP has quickly spread in the Midwest and West. For example Idaho average percent RAP increased steadily from 6 percent in 2009 to 28 percent in 2012.

For 2011 and 2012, 98 percent of the contractors/branches reported using RAP, and more than 89 percent of these contractors reported excess RAP in 2012. From 2011 to 2012, the amount of RAP used in HMA/WMA increased from 66.7 million to 68.3 million tons, a modest 2 percent increase despite a decrease in total tonnage for the industry. The average percent RAP used in mixes has increased from about 19 percent in 2011 to about 20 percent in 2012.

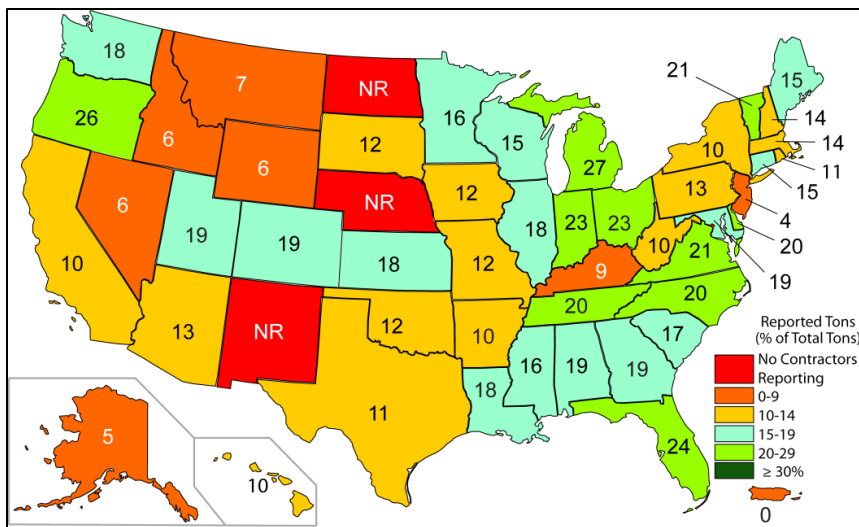


Figure 8: Estimated Average Percent of RAP by State for 2009

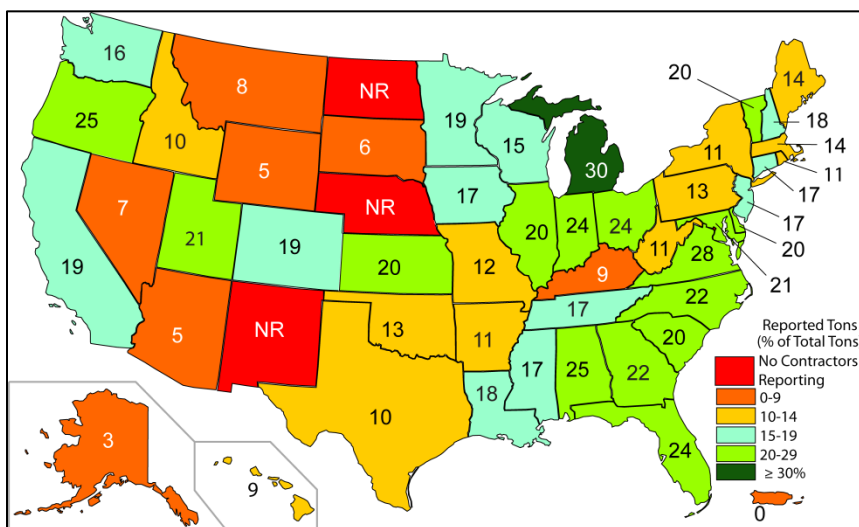


Figure 9: Estimated Average Percent of RAP by State for 2010

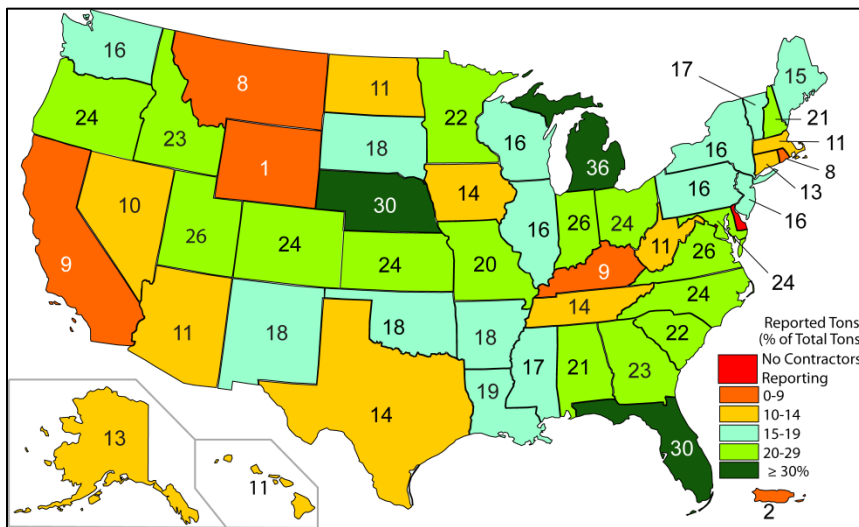


Figure 10: Estimated Average Percent of RAP by State for 2011

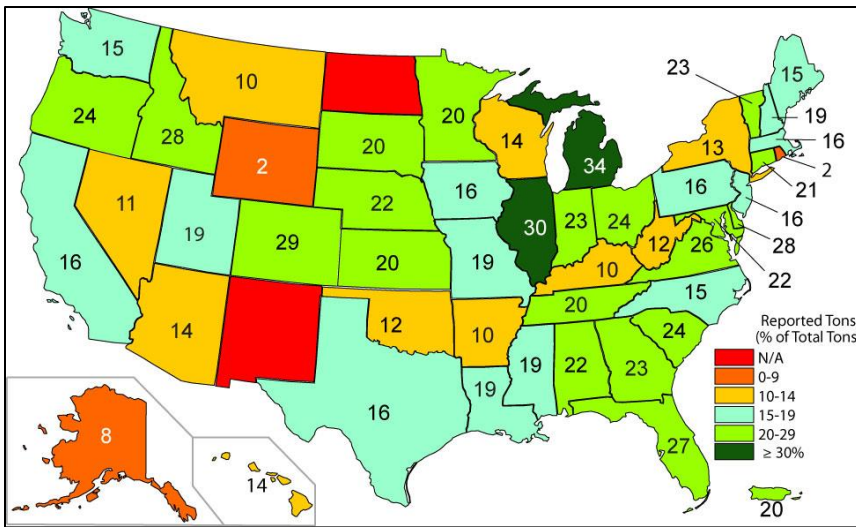


Figure 11: Estimated Average Percent of RAP by State for 2012

Table 5: Estimated Average Percent of RAP by State

State	Average RAP Percent				State	Average RAP Percent			
	2009	2010	2011	2012		2009	2010	2011	2012
Alabama	19%	25%	21%	22%	Montana	7%	8%	8%	10%
Alaska	5%	3%	13%	8%	Nebraska	NR	NR	30%	22%
Arizona	13%	5%	11%	14%	Nevada	6%	7%	10%	11%
Arkansas	10%	11%	10%	10%	New Hampshire	15%	18%	21%	19%
California	10%	19%	9%	16%	New Jersey	4%	17%	16%	16%
Colorado	19%	19%	24%	29%	New Mexico	NR	NR	18%	NR
Connecticut	15%	17%	13%	21%	New York	10%	11%	16%	13%
Delaware	20%	20%	NR	28%	North Carolina	20%	22%	24%	15%
Dist. of Columbia	NR	NR	NR	NR	North Dakota	NR	NR	11%	NR
Florida	24%	24%	30%	27%	Ohio	23%	24%	23%	24%
Georgia	19%	22%	23%	23%	Oklahoma	12%	13%	18%	12%
Hawaii	10%	9%	11%	14%	Oregon	26%	25%	24%	24%
Idaho	6%	10%	23%	28%	Pennsylvania	13%	13%	16%	16%
Illinois	18%	20%	16%	30%	Puerto Rico	0%	0%	2%	20%
Indiana	23%	24%	26%	23%	Rhode Island	11%	11%	8%	2%
Iowa	12%	17%	14%	15%	South Carolina	17%	20%	22%	24%
Kansas	18%	20%	20%	20%	South Dakota	12%	6%	18%	20%
Kentucky	9%	9%	9%	10%	Tennessee	20%	17%	14%	20%
Louisiana	18%	18%	18%	19%	Texas	11%	10%	13%	16%
Maine	13%	14%	15%	15%	Utah	19%	21%	25%	19%
Maryland	19%	21%	24%	22%	Vermont	21%	20%	17%	23%
Massachusetts	14%	14%	11%	16%	Virginia	21%	28%	26%	26%
Michigan	27%	30%	36%	34%	Washington	18%	16%	16%	15%
Minnesota	16%	19%	22%	20%	West Virginia	10%	11%	11%	12%
Mississippi	16%	17%	18%	19%	Wisconsin	15%	15%	16%	14%
Missouri	12%	12%	19%	19%	Wyoming	6%	5%	1%	2%

NR = No Contractors Reporting

% = 0-9%

% = 10-14%

% = 15-19%

% = 20-29%

% ≥ 30%

Reclaimed Asphalt Shingles

Table 4 includes the summary of RAS data from the surveys. The information asked for in the survey is shown in Appendix A and summarized in Table 1. Producers were not asked about allowable RAS or binder replacement requirements. In previous surveys, more unprocessed shingles were received than were used for all purposes including landfilling. In 2012 this changed with more than 200,000 tons of RAS used for all purposes than was received. Contractors reporting the use of more RAS than they received indicated that they either had RAS stockpiled or were purchasing it from shingle processors. From 2011 to 2012, the amount of RAS accepted by producers decreased by 31 percent. No RAS was reported as landfilled in 2012; in 2011, the amount landfilled was about 0.008 percent. In 2011, no RAS was reported as being used for other purposes; in 2012 less than 0.7 percent of RAS accepted was used for other purposes.

Figure 12 shows the total estimated amount of RAS used. From 2011 to 2012 there was a large increase, 56 percent, in the amount of RAS used in asphalt mixtures. This is due to a steady increase in a number of states, including Alabama, where the average RAS percentage for all mixes is slightly greater than 3 percent. RAS use in asphalt mixtures saw a similarly large increase, 57 percent, from 2009 to 2010 but a more modest increase, 8 percent, from 2010 to 2011. Similar to RAP, RAS is primarily used in HMA/WMA. Figure 13 summarizes how RAS was used in the different sectors of the paving market. These values were calculated using the average percentages of RAS reported for the different sectors and were adjusted to account for the difference in reported RAS tons and the tons calculated from the percentage by sector. There was a large increase in the use of RAS by DOTs and the commercial/residential sector, and a modest increase in public agencies other than DOTs. The number of companies/branches using RAS increased from 81 to 87 from 2011 to 2012, a 7.4 percent increase.

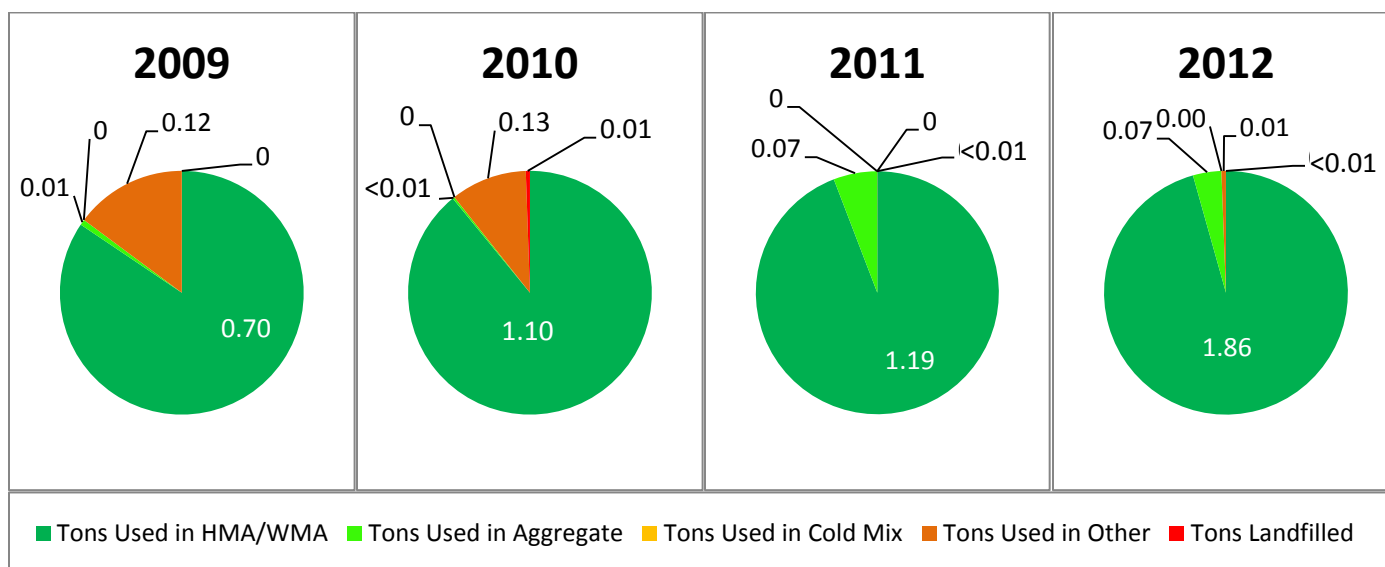


Figure 12: Summary of RAS Use (Million Tons)

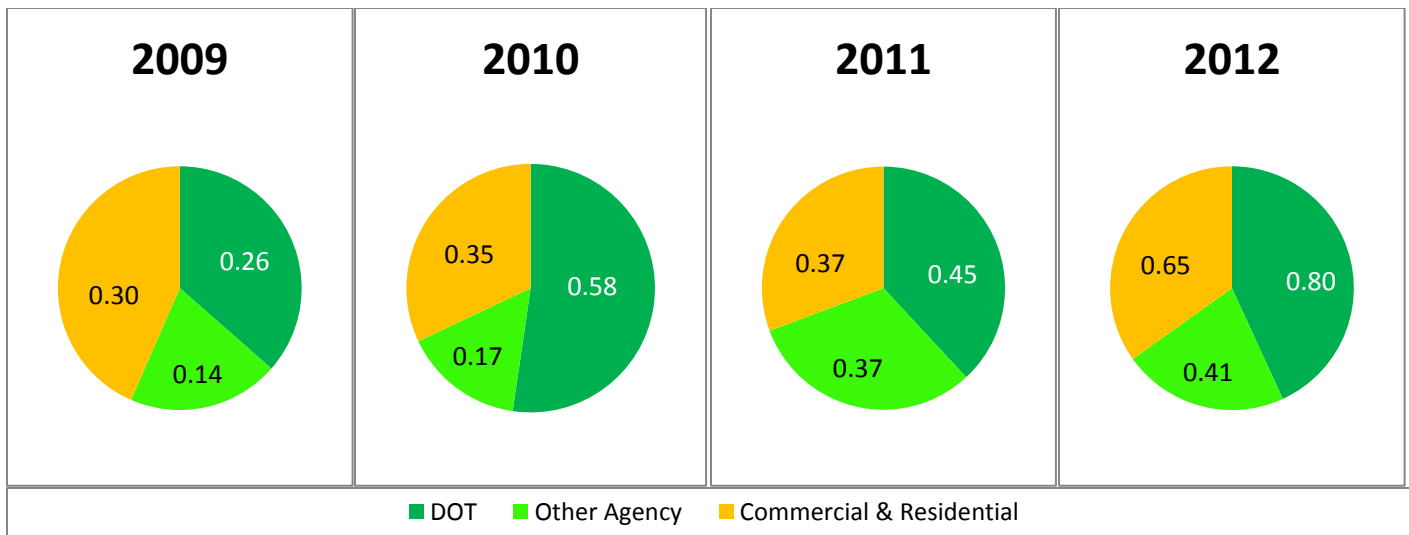


Figure 13: Summary of Estimated RAS Use by Sector (Million Tons)

Figure 14 shows states where plant-mix producers reported using RAS in 2009 through 2012. Red indicates states where RAS use was not reported for these years. The number of states where plant-mix producers reported using RAS increased each year from 22 to 32 from 2010 to 2012. Two states — Vermont and Nebraska — reported their first use of RAS in 2012. Five states — Florida, Massachusetts, Nevada, South Carolina, and West Virginia — reported using RAS in previous years, but did not report its use in 2012. Table 6 shows the states where producers reported using RAS for 2009–2011.

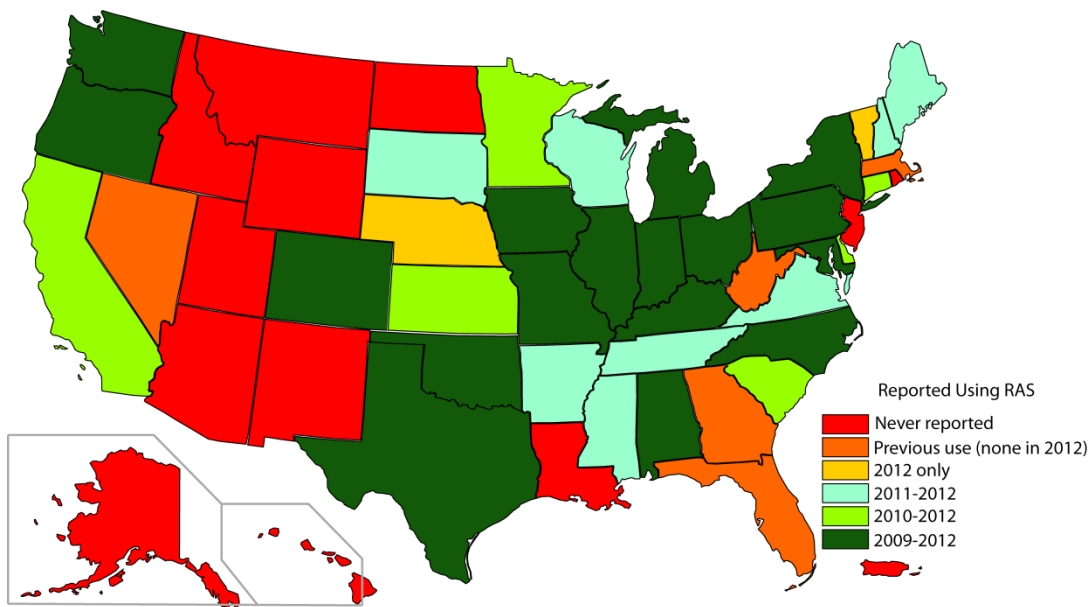


Figure 14: States with Companies/Branches Reporting Using RAS

Table 6: State Reporting RAS Use

State	RAS Used?				State	RAS Used?			
	2009	2010	2011	2012		2009	2010	2011	2012
Alabama	Yes	Yes	Yes	Yes	Montana	No	No	No	No
Alaska	No	No	No	No	Nebraska	NR	NR	No	Yes
Arizona	No	No	No	No	Nevada	No	Yes	No	No
Arkansas	No	No	Yes	Yes	New Hampshire	No	No	Yes	Yes
California	No	Yes	Yes	Yes	New Jersey	No	No	No	No
Colorado	Yes	Yes	Yes	Yes	New Mexico	NR	NR	No	NR
Connecticut	No	No	No	No	New York	Yes	Yes	Yes	Yes
Delaware	Yes	Yes	NR	Yes	North Carolina	Yes	Yes	Yes	Yes
Dist. of Columbia	NR	NR	NR	NR	North Dakota	NR	NR	No	NR
Florida	Yes	Yes	No	No	Ohio	Yes	Yes	Yes	Yes
Georgia	No	No	Yes	Yes	Oklahoma	Yes	Yes	Yes	Yes
Hawaii	No	No	No	No	Oregon	Yes	Yes	Yes	Yes
Idaho	No	No	No	No	Pennsylvania	Yes	Yes	Yes	Yes
Illinois	Yes	Yes	Yes	Yes	Puerto Rico	No	No	No	No
Indiana	Yes	Yes	Yes	Yes	Rhode Island	No	No	No	No
Iowa	Yes	Yes	Yes	Yes	South Carolina	No	No	Yes	No
Kansas	No	Yes	Yes	Yes	South Dakota	No	No	Yes	Yes
Kentucky	Yes	Yes	Yes	Yes	Tennessee	No	No	Yes	Yes
Louisiana	No	No	No	No	Texas	Yes	Yes	Yes	Yes
Maine	No	No	Yes	Yes	Utah	No	No	No	No
Maryland	Yes	Yes	Yes	Yes	Vermont	No	No	No	Yes
Massachusetts	Yes	Yes	Yes	No	Virginia	Yes	No	Yes	Yes
Michigan	Yes	Yes	Yes	Yes	Washington	Yes	Yes	Yes	Yes
Minnesota	No	Yes	Yes	Yes	West Virginia	Yes	Yes	No	No
Mississippi	No	No	Yes	Yes	Wisconsin	No	No	Yes	Yes
Missouri	Yes	Yes	Yes	Yes	Wyoming	No	No	No	No
NR	= No Contractors Reporting								
Yes	= RAS Use Reported								
No	= No RAS Use Reported								

Warm-Mix Asphalt

Table 4 includes the summary WMA data from the survey. The survey asked producers their estimated percentages of tons produced for the different sectors and the percent of which technologies were used.

WMA saw modest increase from 2011 to 2012. Figure 15 shows a slowing increase in the percent of companies/branches using WMA from 2009 to 2012. Figure 16 shows a steady increase in the number of tons of WMA. This is probably attributable to increased acceptance of WMA by all industry sectors.

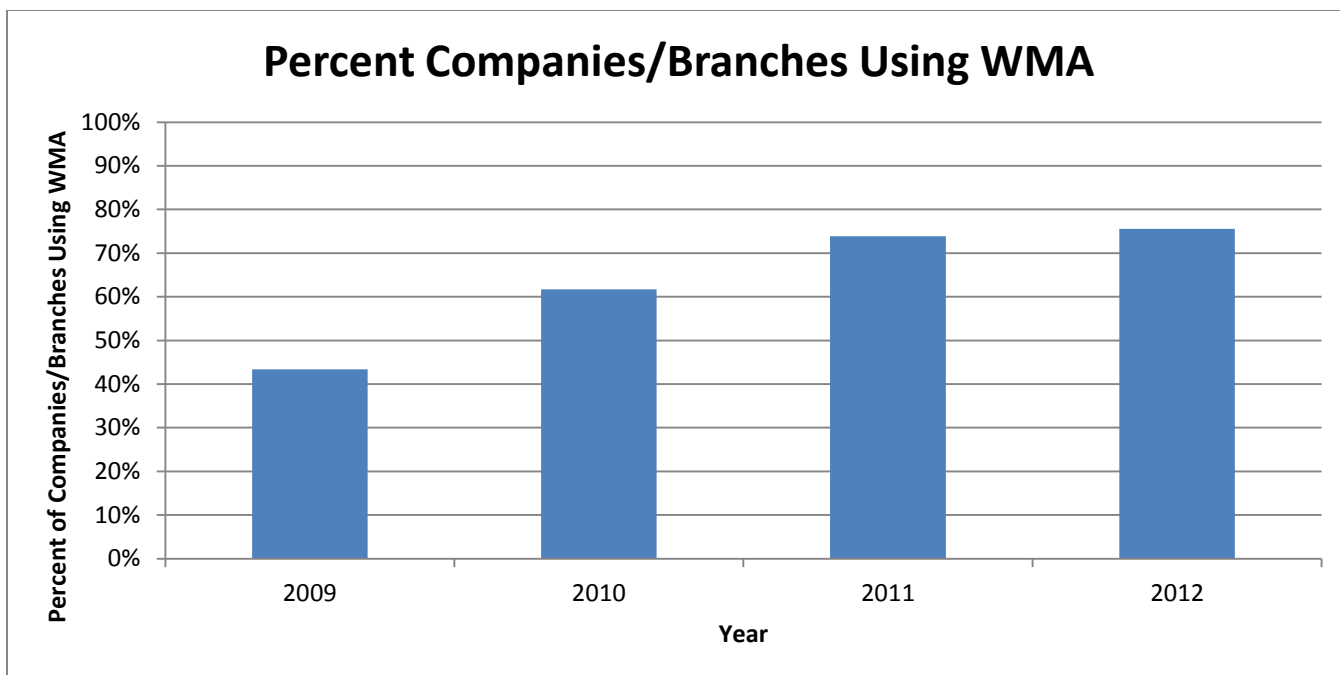


Figure 15: Number of Companies/Branches Using WMA

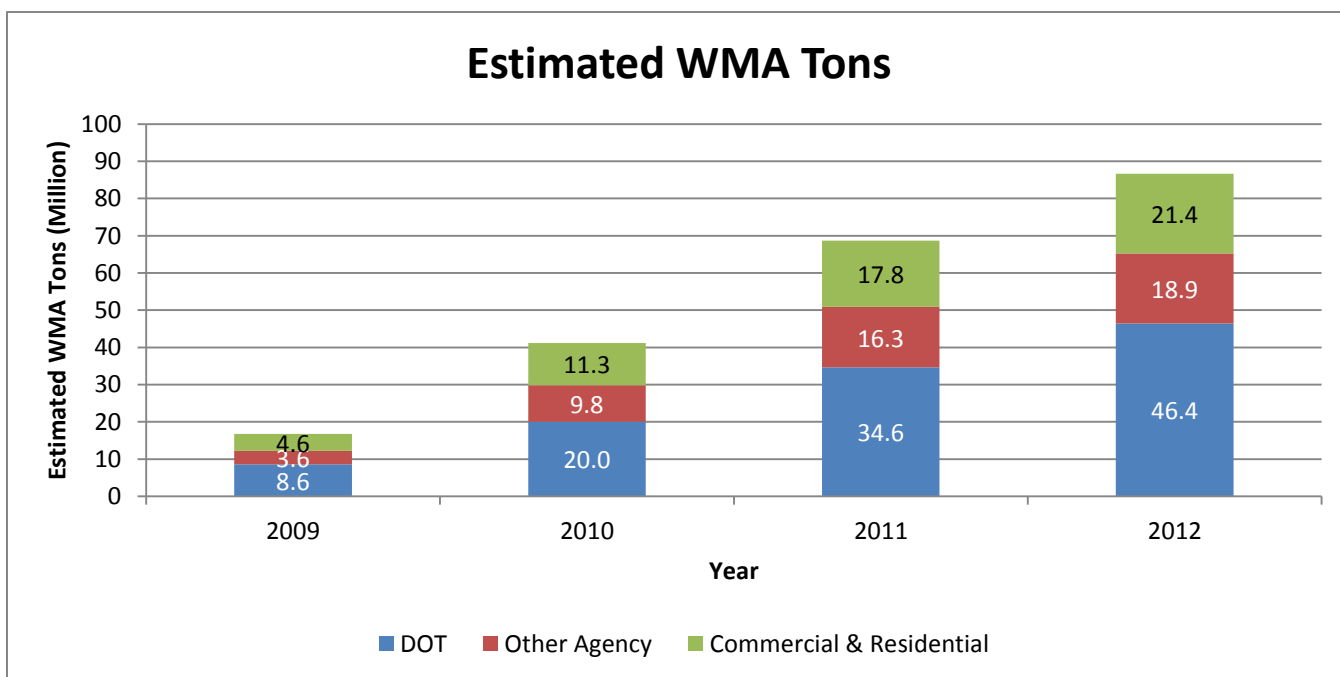


Figure 16: Estimated Tons (in millions) WMA by Industry Sector

Figures 17–20 show the estimated total tons of WMA produced in each state grouped by region. Figure 21 shows WMA production as a percentage of the total asphalt mix production for 2011. It should be noted that the accuracy of data for individual states will vary depending on the number of responses received from each state and the total number of tons represented by the responses.

From 2011 to 2012, 21 states had an increase of 5 percent or greater in WMA production, while eight states had a decrease of 5 percent or greater in WMA production. Six states — Alabama, Tennessee, Alaska, Maryland, Kansas, and Illinois — had an increase of 20 percent or greater in WMA production. Three states — Oklahoma, Louisiana, and Washington — had a decrease of 20 percent or greater in WMA production. The reasons for these fluctuations are uncertain.

Nationally, the total tons of WMA increased from 68.7million tons in 2011 to 86.7 million tons in 2012, a 26 percent increase. Plant foaming is used most often to produce WMA. Use of WMA additives increased from about 5 percent in 2011 to about 12 percent in 2012. This is still below the 17 percent market share noted in 2009, but given that WMA production has increased by more than 416% since 2009 the volume of additives uses, along with plant foaming, has increased significantly.

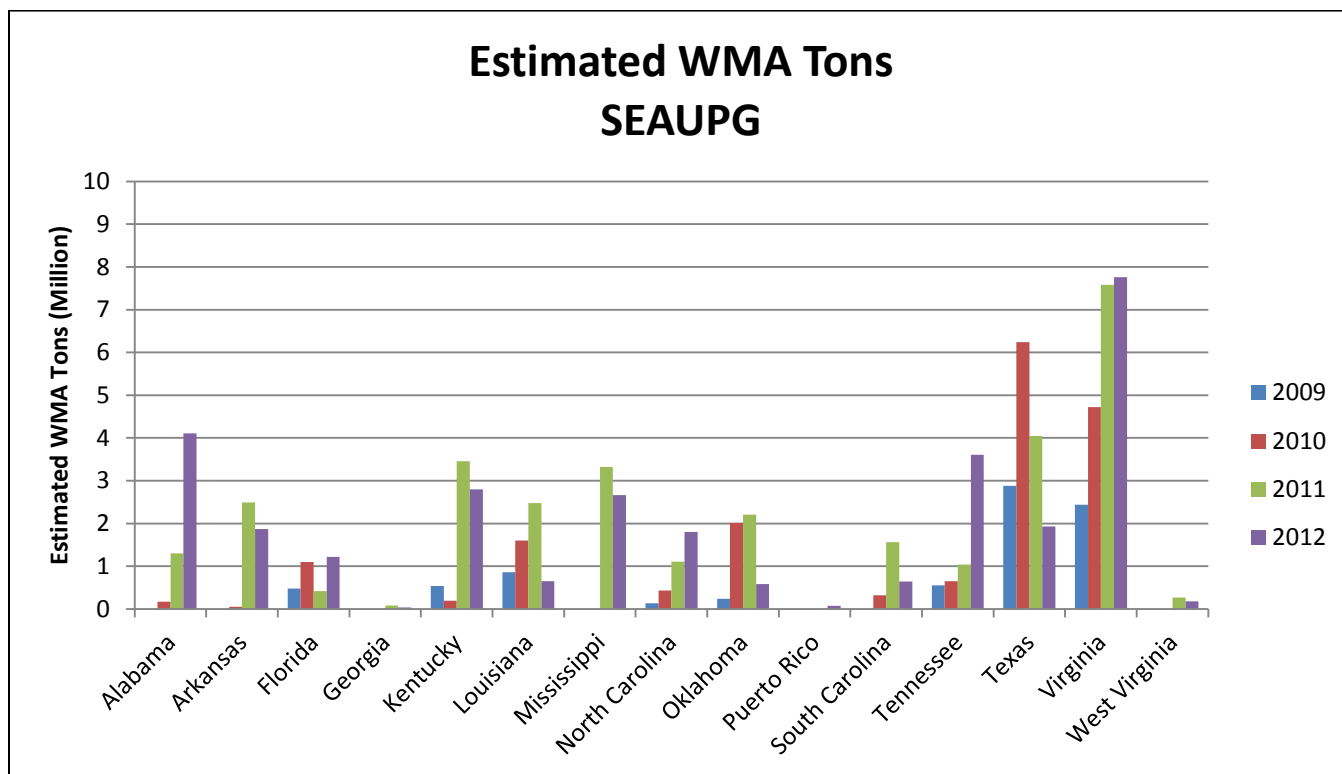


Figure 17: Estimated Total WMA Tons for Southeastern Asphalt User/Producer Group States

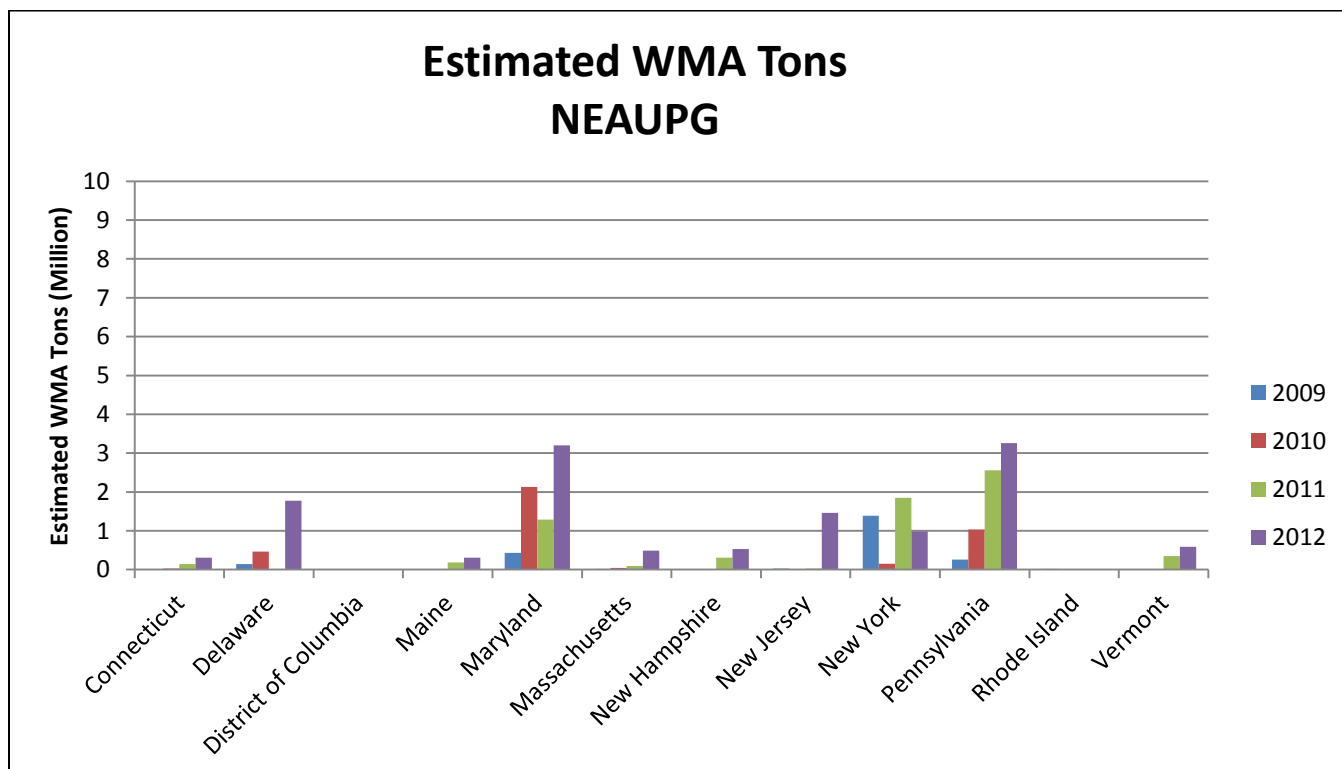


Figure 18: Estimated Total WMA Tons for North East Asphalt User/Producer Group States

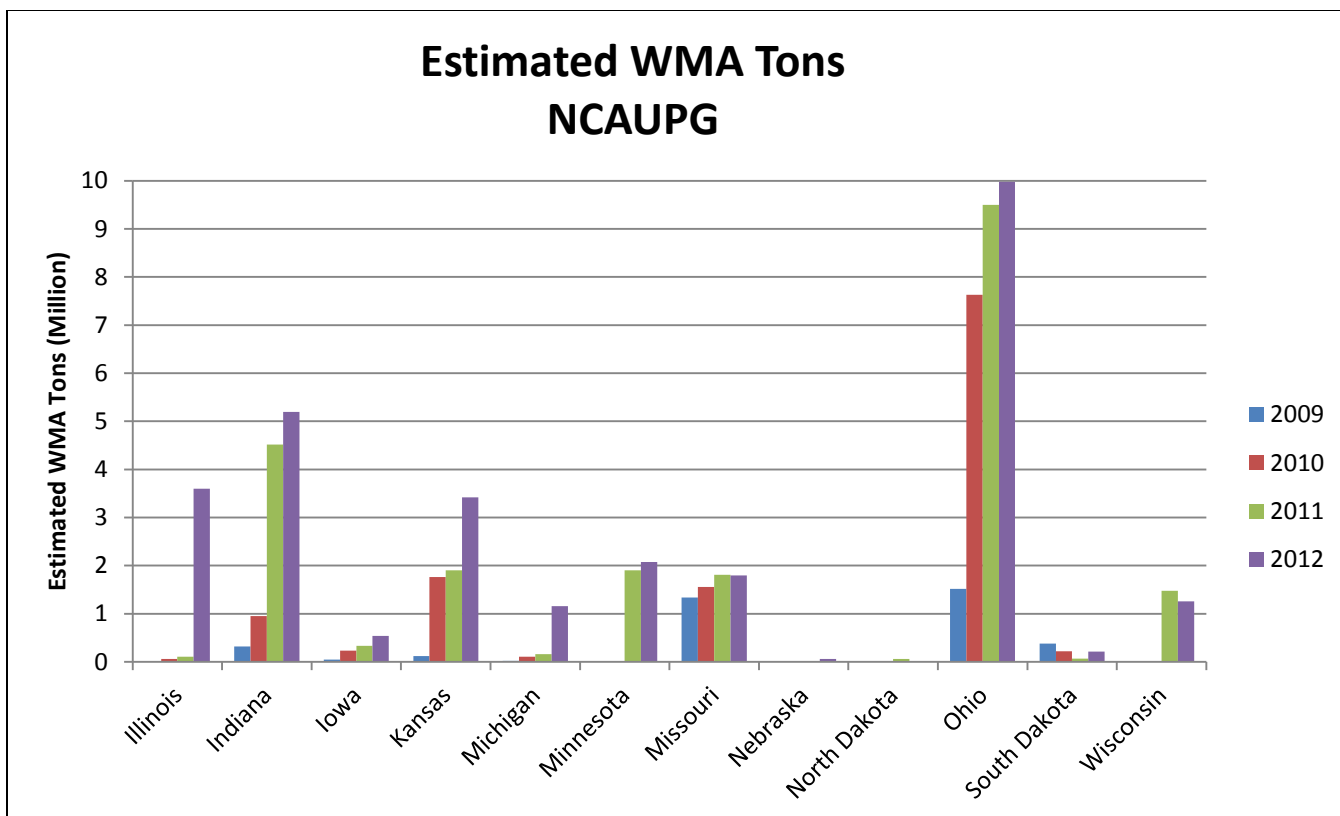


Figure 19: Estimated Total WMA Tons for North Central Asphalt User/Producer Group States

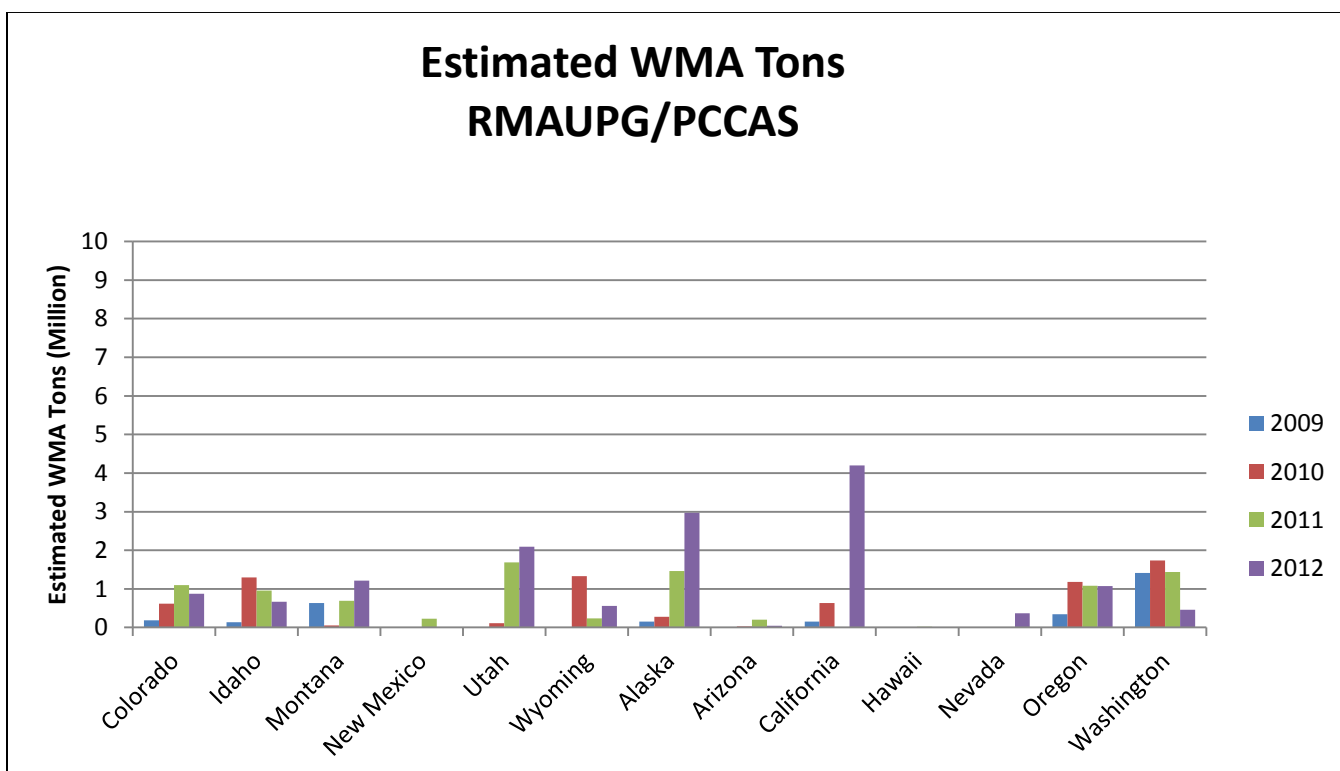


Figure 20: Estimated Total WMA Tons for Rocky Mountain Asphalt User/Producer Group and Pacific Coast Conference on Asphalt Specification States

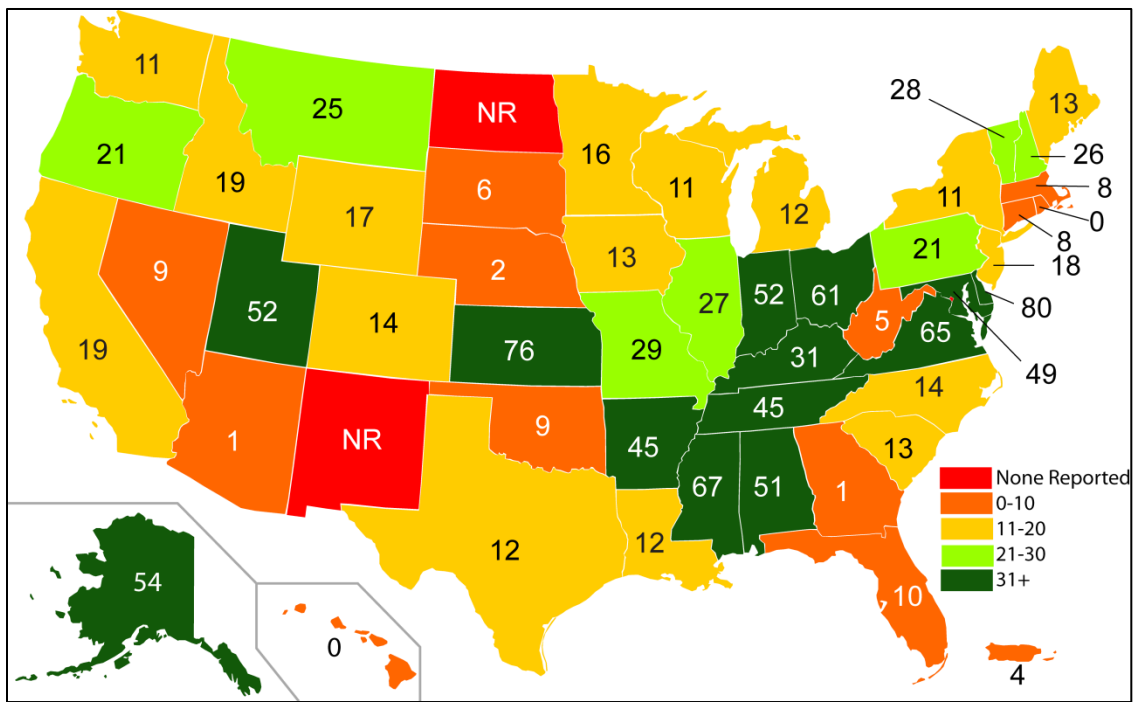


Figure 21: 2012 WMA Production as a Percentage of Total Asphalt Mix Production.

Other Recycled Materials

For the 2012 survey a series of questions was asked about the use of other recycled materials used in asphalt mixtures. Table 1 summarizes the questions in this section. The full questionnaire is included as Appendix A.

Producers were asked how many tons of mix were produced that incorporated recycled materials, as well as how many tons of the product were used in mix production during 2012. Three recycled materials — ground tire rubber (GTR), steel slag, and blast furnace slag — were specifically mentioned in the survey. The respondents were able to specify up to two additional recycled materials used in mixes. Because it was expected that responses to these other recycled materials would be low and that producers may not be tracking these materials, it was agreed to not attempt estimating the total quantities for these materials. **Therefore, all values in this section are reported values and do not represent estimates of the total quantity of these materials by state or nationally. A total of 40 contractors from 23 states reported using other recycled materials in asphalt mixtures.**

Table 7 summarizes information on the use of ground tire rubber. Producers from nine states reported the use of GTR in some mixes. It must be noted that states such as Arizona and California, which are known to use large quantities of GTR in mixes, had a relatively low participation rate in the survey, while Georgia had a very high participation rate. This likely explains why Georgia's reported quantity of GTR is higher than Arizona and California. Also, one California contractor that is known to produce mixes with GTR did not include rubber in its response. Follow ups with this contractor were unsuccessful.

Table 7: Reported Tons Ground Tire Rubber

State	Reported Tons of Mix Using GTR	Reported Tons of GTR Used
Arizona	33,590	532
California	101,000	7,983
Florida	86,441	195
Georgia	281,958	13,628
Louisiana	25,000	—
Michigan	2,400	20
Missouri	100,000	300
Ohio	36,200	1,170
Texas	25,000	2,500
Total	691,589	26,328

Table 8 summarizes the reported use of steel slag and blast furnace slag in asphalt mixes. 13 states reported using these recycled materials.

Table 8: Reported Tons for Steel and Blast Furnace Slag

State	Reported Tons of Mix Using Steel Slag	Reported Tons of Steel Slag Used	Reported Tons of Mix Using Blast Furnace Slag	Reported Tons of Blast Furnace Slag Use
Alabama	625,000	133,441	100,000	10,100
Arkansas	120,000	12,000	—	—
Illinois	23,000	8,000	—	—
Indiana	70,000	44,000	1,487,000	304,000
Iowa	20,000	—	—	—
Kentucky	5,714	800	—	—
Michigan	—	—	500,000	50,000
Minnesota	145,500	21,800	—	—
Ohio	150,000	42,030	208,028	72,400
Tennessee	30,000	6,000	—	—
Virginia	—	—	54,520	16,356
Washington	450,000	80,000	—	—
West Virginia	—	—	588,120	180,308
Total	1,639,214	348,071	2,937,668	633,164

Table 9 summarizes other recycled materials used in asphalt mixtures. These other recycled materials include fly ash, cellulose fiber, casting sand, bottom ash, and recycled glass. Two states — Mississippi and Texas — reported using fly ash. Cellulose fiber use was reported only by Mississippi, but it is expected that use of this material is much more widespread as it is commonly used in stone-matrix asphalt (SMA) and open-graded friction courses (OGFC), which are used in many states.

Table 9: Other Recycled Materials

State & Description Other Recycled Material	Reported Tons of Mix Produced Using Other Recycled Material	Reported Tons Other Recycled Material Used
Mississippi		
Fly Ash	50,000	2,400
Cellulose Fiber	76,000	250
Missouri		
Casting Sand From a Local Fabrication Facility	5,000	500
South Dakota		
Bottom Ash	52,000	4,280
Texas		
Fly Ash	18,000	1,200
Virginia		
Recycled Glass	173	34

Summary and Conclusions

The objective of this survey was to quantify the use of recycled materials and WMA produced by the asphalt pavement industry. Asphalt mix producers from 48 states and Puerto Rico completed the 2012 survey. A total of 213 companies/branches with 1,141 plants were represented in the 2012 survey.

The estimated total asphalt mix production saw a slight decrease from 366 million to 360 million tons from 2011 to 2012.

The use of recycled material continues to increase. The survey shows:

- The percent of producers reporting using RAP increased from 96 percent in 2009 and 2010 to 98 percent in 2012.
- The estimated amount of RAP used in asphalt mixtures has increased steadily from 2009 to 2011. The estimated tons of RAP used in asphalt mixes for 2009, 2010, 2011, and 2012 are 56.1 million, 62.1 million, 66.7, and 68.3 million tons, respectively. This represents about a 22 percent increase in the amount of tons used from 2009 to 2012 and a greater than 2 percent increase in the amount of tons used between 2011 and 2012.
- The estimated average percent of RAP used has increased from 16.2 percent to 18.0 percent to 19.1 to 19.6 percent for 2009, 2010, 2011, and 2012, respectively.
- 89 percent of the contractors/branches reported having excess RAP in 2011. For the first time in this survey's history, the estimated amount of RAP used for all purposes in 2012, including landfilling, exceeded the amount accepted by 1.2 million tons.
- Use of both manufacturers' scrap and post-consumer recycled asphalt shingles increased from 1.2 million tons used in 2011 to 1.9 million tons used in 2012, an 58 percent increase.
- The amount of RAS accepted by asphalt mix producers decreased by more than 31 percent from 2011 to 2012, and 73 percent of the contractors/branches reported having excess RAS for 2012. In 2012, more than 224,000 tons of RAS was used for all purposes than was received.
- Of the RAS used in 2012, over 95 percent was used in asphalt mixes. The remainder was primarily combined with aggregates. No RAS was landfilled.
- The number of states with reported RAS use increased slightly from 31 to 32 in 2012.
- Nine states reported using ground tire rubber (GTR) in asphalt mixtures.
- 13 states reported using steel or blast furnace slags.
- Two states reported using fly ash in asphalt mixtures.
- Less commonly reported recycled materials included glass, foundry sand, bottom ash, and cellulose fiber.

The use of WMA continues to increase steadily. The survey shows:

- The estimated total production of WMA for 2011 was 86.7 million tons. This was a greater than a 26 percent increase over 2011 WMA (68.7 million tons) and more than 416 percent increase over 2009.
- WMA was about 24 percent of the total asphalt mixture market in 2012.
- Plant foaming, representing more than 88 percent of the market, is the most commonly used technology; additives accounted for less than 12 percent of the market.

The 2012 survey results show that the asphalt pavement industry continues to improve its outstanding record of sustainable practices by further increasing the use of recycled materials and WMA. RAP use continues to increase, albeit at a slower rate. For the first time in the survey, more RAP was used than accepted. This is primarily due to a decrease in the amount of RAP collected. The reason for this decrease is uncertain, but it may be partially be due to reduced construction as indicated by the reduction in total production volume. With more than 89 percent of producers indicating they have excess RAP, there are still opportunities to increase the amount of RAP used in asphalt mixes through permissive specifications and through improved RAP processing, production equipment and procedures, and education.

RAS use saw a large increase in 2012 to nearly 1.9 million tons used in asphalt mixes. This represents nearly 17 percent of the estimated 11 million ton waste shingle market (manufacturer and post-consumer waste). This indicates that there are still opportunities for increasing the use of RAS in asphalt mixtures, especially in the 17 states and territories where no RAS use was reported for 2012. As with RAP, permissive specifications, improved processing, production equipment and procedures, and education will help.

The asphalt pavement industry recycles many products from other industries. The survey shows that steel and blast furnace slag is used in 13 states, GTR is used in 9 states, and fly ash in two states. Other less common materials include glass, foundry sand, bottom ash, and cellulose fiber. Cellulose fiber is probably underrepresented in the survey results as it is a common material used in SMA and OGFC.

WMA again saw an increase of about 26 percent from 2011 to 2012. All reporting states, with the exception of Hawaii, reported using WMA in 2011. WMA production now represents about 24 percent of total estimated asphalt mix production in the United States, and it is expected to grow as contractors and agencies gain experience and more states implement permissive specifications.

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**3rd Annual Asphalt Pavement Industry Survey
IS-138**



Annual Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage: 2009–2012

Appendix A Survey Forms

RAP, RAS, WMA Survey 2012

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), reclaimed asphalt pavement (RAP) and reclaimed asphalt shingles (RAS) being produced and used in each state. This survey will be used to collect this data.

It is important to the industry that you complete this survey so that we have accurate information regarding the use of RAP, RAS and Warm-Mix Asphalt 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. NO COMPANY-SPECIFIC INFORMATION WILL BE DISCLOSED OR USED IN ANY WAY.

Survey results will be shared with industry and government agencies and officials to help in the implementation of recycling and warm-mix technologies.

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

Your participation is greatly appreciated.

Contact Information

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 Kent Hansen, khansen@asphaltpavement.org, or Audrey Copeland, acopeland@asphaltpavement.org, or by phone at 888-468-6499 at NAPA if you have any questions.

*1. Company/Branch Name:

*2. Contact Person's Name & Address

*3. Contact Person's Email

*4. Contact Person's Phone Number

State

RAP, RAS, WMA Survey 2012

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.

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

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

Number of plants

Total Asphalt Tonnage for 2012

Please complete the following information for the total tonnage of all asphalt production in 2012.

RAP, RAS, WMA Survey 2012

***7. What was your total tonnage of asphalt mixes in 2012 for the following sectors? (Use best estimate if data is not available.)**

State DOT

Other Agency (City, County, FAA, Military)

Commercial & Residential

RAP Supply and Use 2012

Please complete the following information on the amount of RAP received and used for 2012.

***8. Did you accept, process, or use RAP in the state during 2012?**

☐ Yes

☐ No

RAP Supply and Use 2012

Please complete the following information regarding the amount of RAP received and used for 2012.

***9. How many tons of removed asphalt pavement and asphalt millings were accepted/delivered to your facilities in the state in 2012?**

Tons:

***10. How many tons of RAP were used in 2012 for the following purposes? (Use best estimate if data not available.)**

Recycled Back into HMA/WMA Mixes:

Aggregate Base:

Cold Mix:

Other:

Landfilled:

***11. What was the average RAP percentage used in asphalt mixes during 2012 for the following sectors? (Use best estimate if data not available.)**

State DOT

Other Agency (City, County, FAA, Military)

Commercial & Residential

RAP, RAS, WMA Survey 2012

***12. At the end of the year 2012 did you have excess RAP (processed or unprocessed) in inventory?**

☐ Yes

☐ No

Reclaimed Asphalt Shingles (RAS) Supply and Use for 2012

Please complete the following information on the amount of waste shingles received (processed and unprocessed) and used for 2012.

***13. Did you accept waste shingles and/or process or use reclaimed asphalt shingles (RAS) in 2012?**

☐ Yes

☐ No

Reclaimed Asphalt Shingles (RAS) Supply and Use for 2012

Please complete the following information regarding the amount of waste shingles received (processed and unprocessed) and used during 2012.

***14. How many tons of unprocessed shingles (manufacturers waste and tear-offs) were accepted/delivered to your facilities in the state in 2012?**

Tons:

***15. How many tons of reclaimed asphalt shingles (RAS) were used for the following purposes in 2012? (Use best estimate if data not available.)**

Recycled into HMA/WMA Mixes:

Aggregate Base:

Cold Mix:

Other:

Landfilled:

***16. What was average RAS percentage used in asphalt mixes in 2012 for the following sectors? (Use best estimate if data not available.)**

State DOT

Other Agency (City, County, FAA, Military)

Commercial & Residential

RAP, RAS, WMA Survey 2012

***17. At the end of the year 2012 did you have any excess RAS? (Include processed and unprocessed shingles.)**

☐ Yes

☐ No

Warm-Mix Asphalt Production for 2012

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 10 to 100 degrees F.

***18. Did any of your plants in this state use Warm-Mix Asphalt technologies in 2012?**

☐ Yes

☐ No

Warm-Mix Asphalt Production for 2012

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 10 to 100 degrees F.

***19. What was average percent of mixes produced using warm-mix asphalt technologies in 2012 for the different sectors? (Use best estimate if data not available.)**

State DOT

Other Agency (City, County, FAA, Military)

Commercial & Residential

***20. What percentage of the total warm-mix asphalt (WMA) for 2012 was produced using the following technologies? (Use best estimate if data not available.)**

Chemical Admixture

Additive (Zeolite) Foaming

Plant Foaming

Organic (Wax) Additive

Other Recycled Materials

Please let us know if you used any other recycled in HMA/WMA mixes in 2012.

RAP, RAS, WMA Survey 2012

***21. Did you use any other recycled materials (excluding RAP and RAS) in HMA/WMA mixes in 2012?**

☐ Yes

☐ No

Other Recycled Material

***22. What other recycled material (excluding RAP and RAS) did you use in your mixes in 2012?**

	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"/>
Other 1*	<input type="radio"/>	<input type="radio"/>
Other 2*	<input type="radio"/>	<input type="radio"/>
Other 3*	<input type="radio"/>	<input type="radio"/>

* Please describe the other recycled materials used.

***23. 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"/>
Other 1	<input type="text"/>
Other 2	<input type="text"/>
Other 3	<input type="text"/>

24. How many tons of the recycled product was used in 2012? (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"/>
Other 1	<input type="text"/>
Other 2	<input type="text"/>
Other 3	<input type="text"/>

Thank You

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

- ☐ Yes
- ☐ No

Annual Asphalt Pavement Industry Survey on Recycled Materials and Warm-Mix Asphalt Usage: 2009–2012

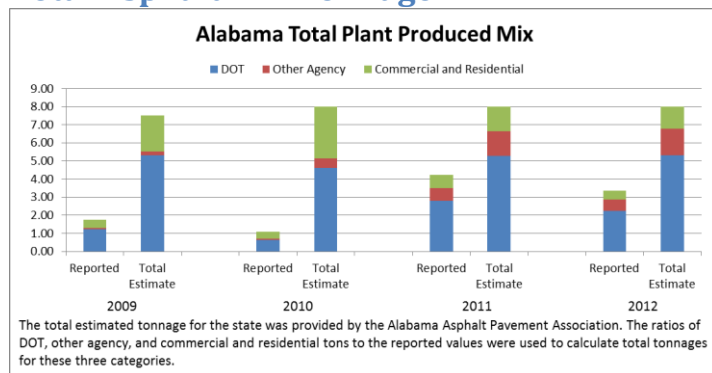
Appendix B State-by-State Use of Recycled Materials, WMA and HMA

Alabama

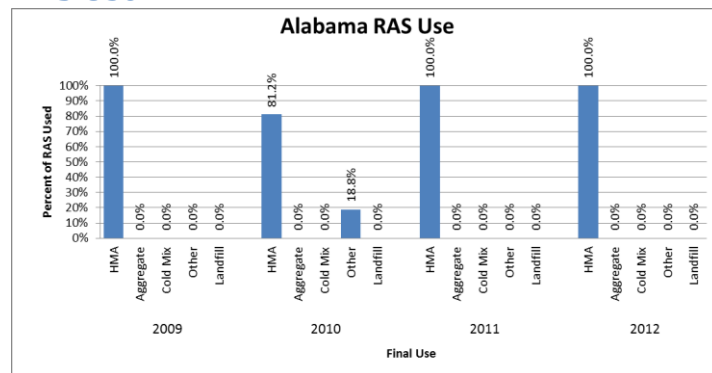
Table B1 summarizes the results received from asphalt mix producers in Alabama. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 3 for 2009 & 2010, 5 for 2011, 4 for 2012

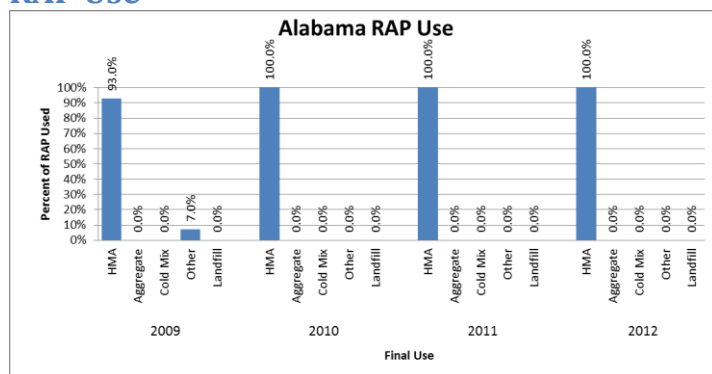
Total Asphalt Mix Tonnage



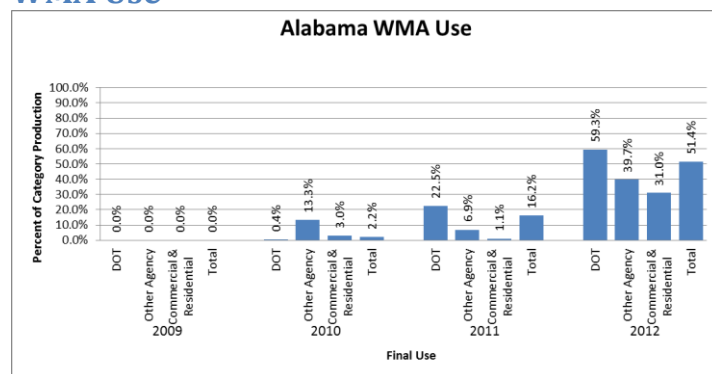
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	3	625,000	133,441
Blast Furnace Slag	2	100,000	10,100

Table B1 Summary of Alabama Data for 2012

No. Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	2,245,000	5,323,267
Total Other Agency Tonnage	607,000	1,439,298
Total Commercial & Residential Tonnage	521,868	1,237,435
Total Tonnage	3,373,868	8,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	715,000	1,695,383
RAP Tons used in HMA/WMA	748,722	1,775,344
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	23%	
Average % RAP in Other Agency Mixes	22%	
Average % RAP in Commercial & Residential Mixes	32%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	100%	
RAS Tons Received	111,500	264,385
RAS Tons used in HMA/WMA	107,936	255,934
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	3.4%	
Average % RAS in Other Agency Mixes	1.2%	
Average % RAS in Commercial & Residential Mixes	3.7%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	1,331,000	3,156,022
WMA Other Agency Tonnage	241,000	571,451
WMA Commercial & Residential Tonnage	161,910	383,916
Total WMA Tonnage	1,733,910	4,111,389
Percent WMA Tons using Chemical Additives	33.2%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	66.8%	
Percent WMA Tons using Organic Additive	0.0%	

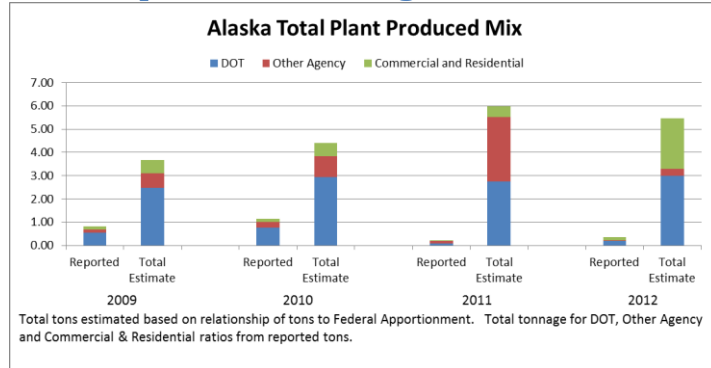
1. Total tonnage provided by Alabama Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Alaska

Table B2 summarizes the results received from asphalt mix producers in Alaska. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 3 for 2009 & 2010, 2 for 2011 & 2012

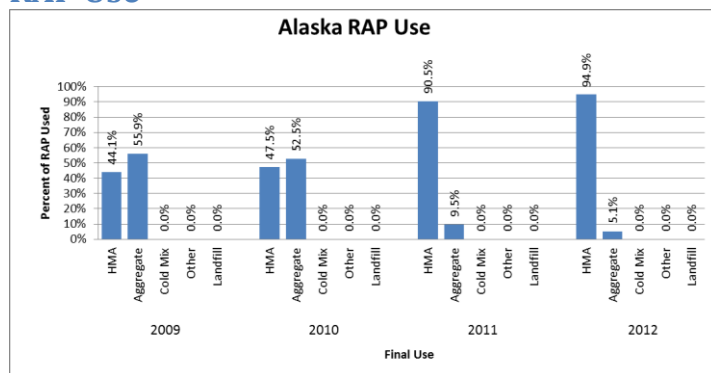
Total Asphalt Mix Tonnage



RAS Use

No companies reported using RAS in 2009, 2010, 2011, or 2012.

RAP Use



WMA Use

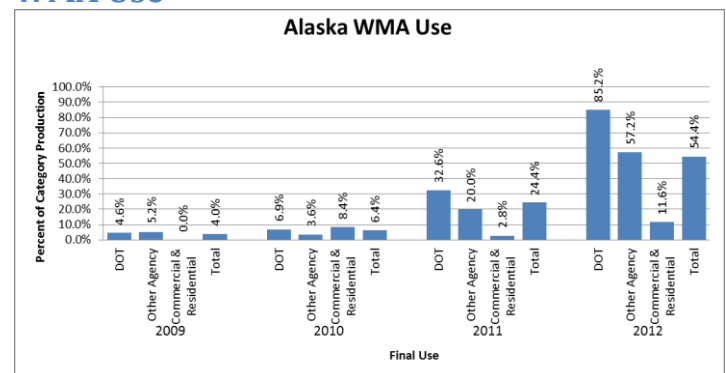


Table B2: Summary of Alaska Data for 2012

No. Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	193,000	2,987,399
Total Other Agency Tonnage	20,000	309,575
Total Commercial & Residential Tonnage	140,000	2,167,025
Total Tonnage	353,000	5,464,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	10,105	156,413
RAP Tons used in HMA/WMA	27,528	426,099
RAP Tons used as Aggregate	1,500	23,218
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	20%	
Average % RAP in Other Agency Mixes	29%	
Average % RAP in Commercial & Residential Mixes	21%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	164,410	2,544,862
WMA Other Agency Tonnage	11,440	177,077
WMA Commercial & Residential Tonnage	16,170	250,291
Total WMA Tonnage	192,020	2,972,230
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

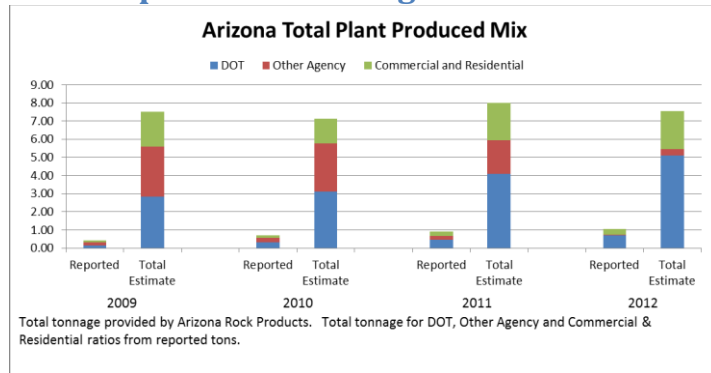
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Arizona

Table B3 summarizes the results received from asphalt mix producers in Arizona. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009 & 2010, 4 for 2011 & 2012

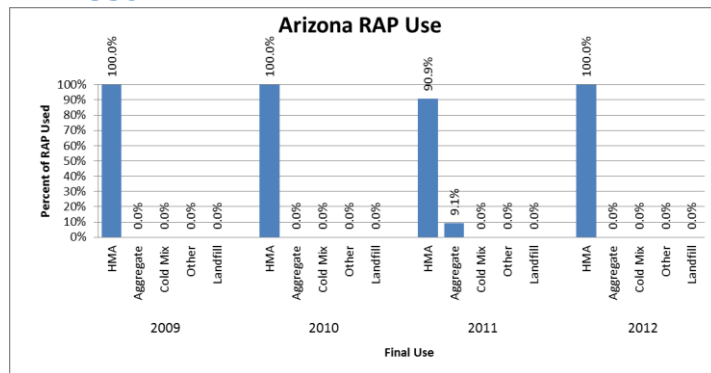
Total Asphalt Mix Tonnage



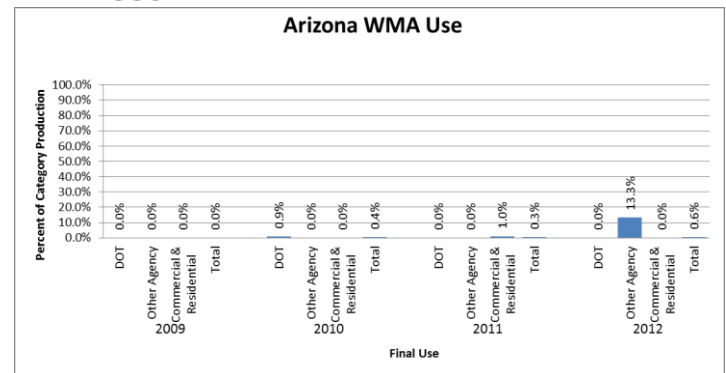
RAS Use

No companies reported using RAS in 2009, 2010 or 2011.

RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	2	33,590	532

Table B3: Summary of Arizona Data for 2012

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	703,230	5,117,713
Total Other Agency Tonnage	46,688	339,769
Total Commercial & Residential Tonnage	287,535	2,092,518
Total Tonnage	1,037,453	7,550,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	128,070	932,021
RAP Tons used in HMA/WMA	147,635	1,074,406
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	17%	
Average % RAP in Other Agency Mixes	13%	
Average % RAP in Commercial & Residential Mixes	15%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	25%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	6,209	45,186
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	6,209	45,186
Percent WMA Tons using Chemical Additives	100.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	0.0%	
Percent WMA Tons using Organic Additive	0.0%	

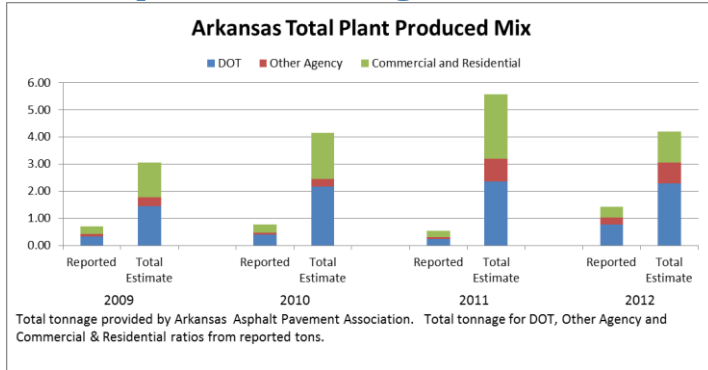
1. Total tonnage provided by Arizona Rock Products. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Arkansas

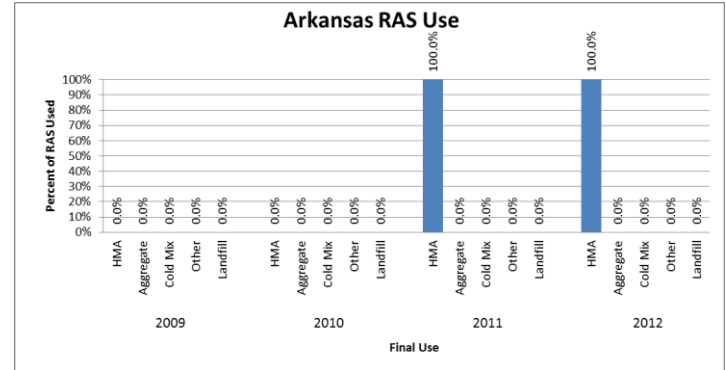
Table B4 summarizes the results received from asphalt mix producers in Arkansas.

Companies responding: 3 for 2009 & 2010, 2 for 2011, 5 for 2012

Total Asphalt Mix Tonnage

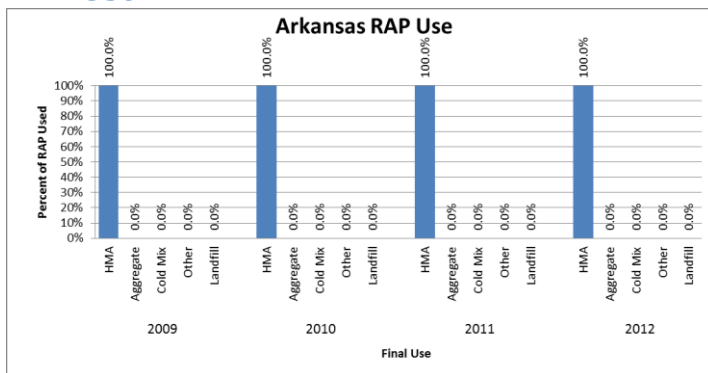


RAS Use

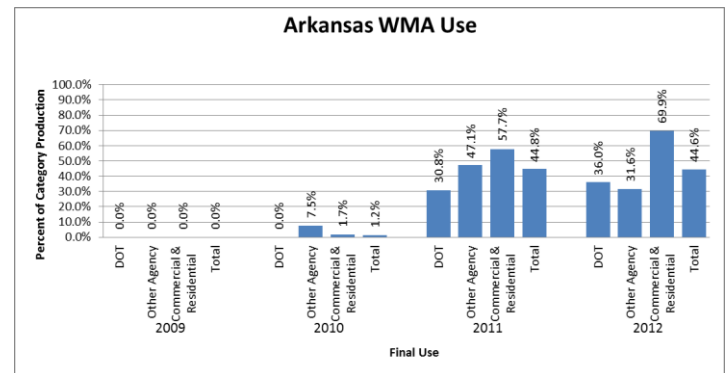


One company reported receiving RAS in 2010; however, no RAS was used in any mixes in 2009 & 2010.

RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	1	120,000	12,000

Table B4: Arkansas Summary for 2012

Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	772,170	2,294,595
Total Other Agency Tonnage	251,475	747,288
Total Commercial & Residential Tonnage	389,726	1,158,117
Total Tonnage	1,413,371	4,200,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	80%	
RAP Tons Received	83,755	248,888
RAP Tons used in HMA/WMA	143,121	425,301
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	11%	
Average % RAP in Other Agency Mixes	26%	
Average % RAP in Commercial & Residential Mixes	21%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	60%	
RAS Tons Received	14,202	42,203
RAS Tons used in HMA/WMA	7,722	22,947
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	1%	
Average % RAS in Commercial & Residential Mixes	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	80%	
WMA DOT Tonnage	278,248	826,847
WMA Other Agency Tonnage	79,440	236,065
WMA Commercial & Residential Tonnage	272,242	809,001
Total WMA Tonnage	629,930	1,871,913
Percent WMA Tons using Chemical Additives	16.5%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	83.5%	
Percent WMA Tons using Organic Additive	0.0%	

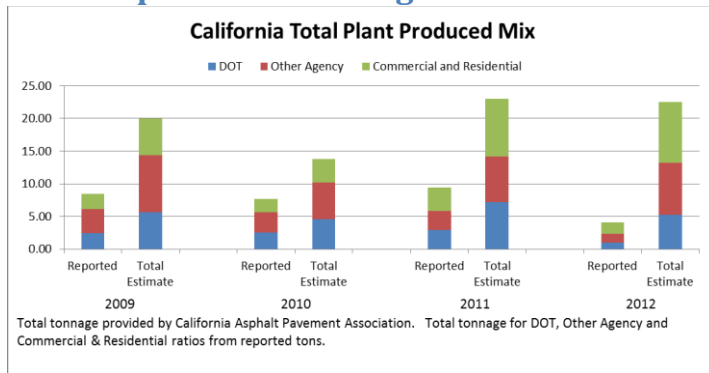
1. Total tonnage provided by Arkansas Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

California

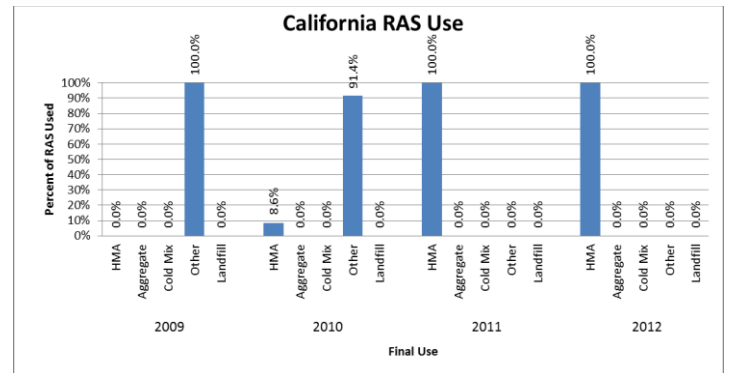
Table B5 summarizes the results received from asphalt mix producers in California. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 6 for 2009 & 2010, 4 for 2011 and 2012

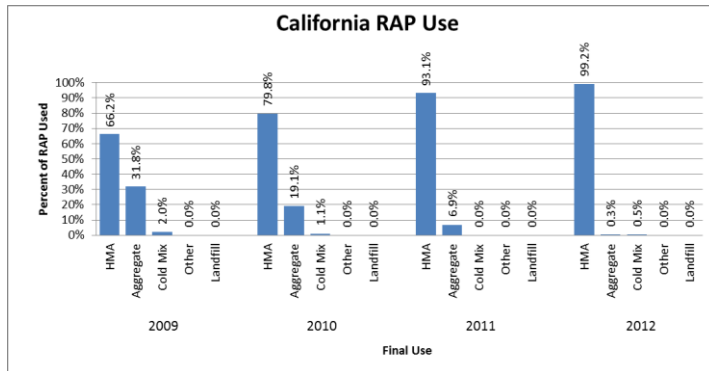
Total Asphalt Mix Tonnage



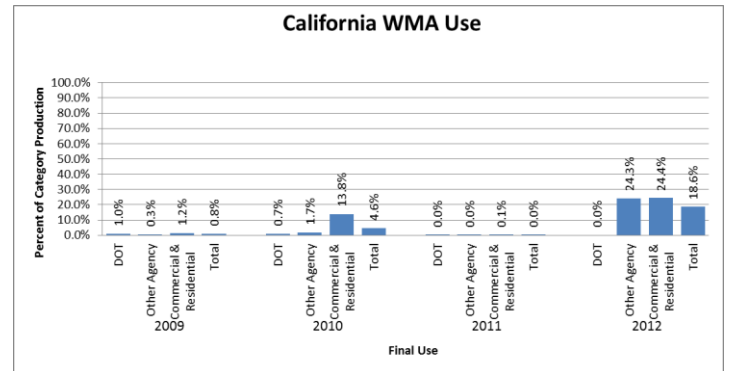
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	2	101,000	7,983

Table B5: Summary of California Data for 2012

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	950,000	5,260,412
Total Other Agency Tonnage	1,430,000	7,918,304
Total Commercial & Residential Tonnage	1,683,370	9,321,284
Total Tonnage	4,063,370	22,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	75%	
RAP Tons Received	366,000	2,026,643
RAP Tons used in HMA/WMA	648,000	3,588,155
RAP Tons used as Aggregate	2,000	11,075
RAP Tons used in Cold Mix	3,400	18,827
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	13%	
Average % RAP in Other Agency Mixes	14%	
Average % RAP in Commercial & Residential Mixes	19%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	25%	
RAS Tons Received	178	986
RAS Tons used in HMA/WMA	2,008	11,119
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	2%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	75%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	347,480	1,924,093
WMA Commercial & Residential Tonnage	410,364	2,272,297
Total WMA Tonnage	757,844	4,196,390
Percent WMA Tons using Chemical Additives	0.3%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	99.7%	
Percent WMA Tons using Organic Additive	0.0%	

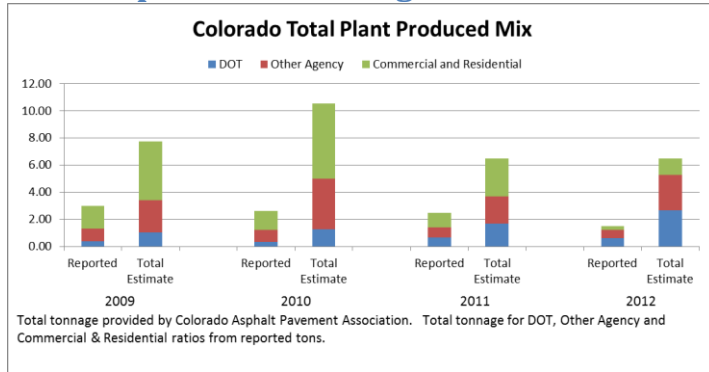
1. Total tonnage provided by California Asphalt Pavement Association. Total tonnage for Other Agency and Commercial & Residential ratios from reported tons.

Colorado

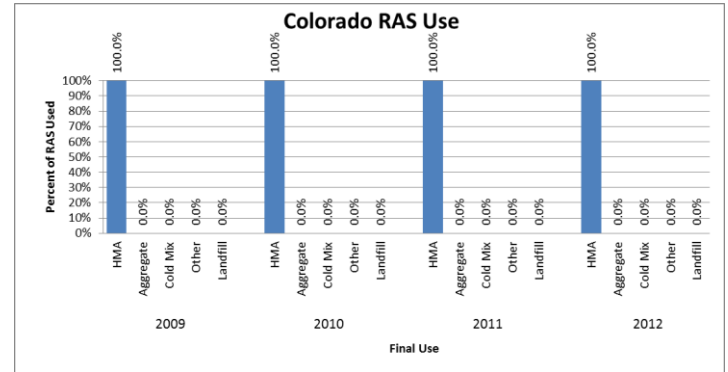
Table B6 summarizes the results received from asphalt mix producers in Colorado. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 8 for 2009 & 2010, 7 for 2011, 5 for 2012

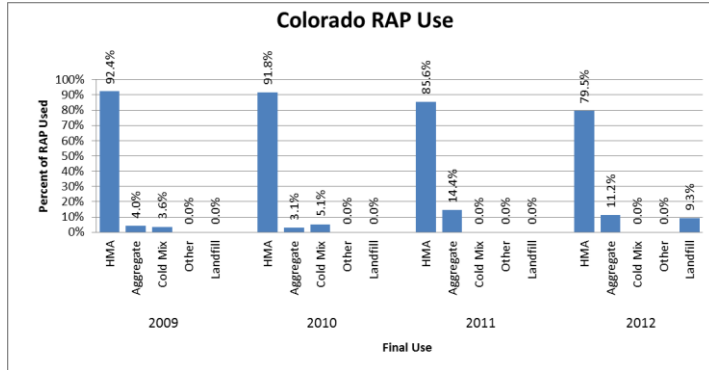
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

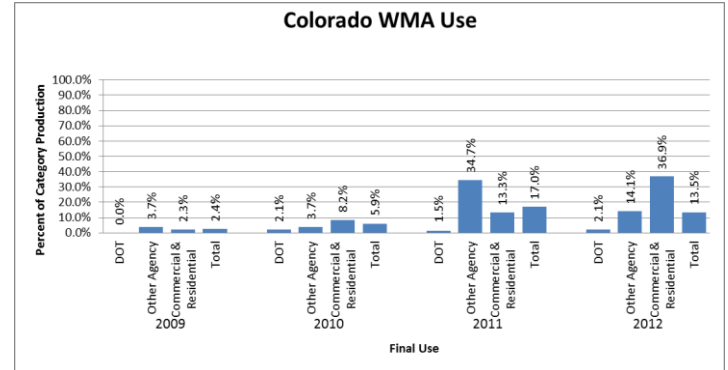


Table B6: Summary of Colorado Data for 2012

Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	608,221	2,675,409
Total Other Agency Tonnage	591,460	2,601,682
Total Commercial & Residential Tonnage	278,013	1,222,908
Total Tonnage	1,477,694	6,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	495,000	2,177,379
RAP Tons used in HMA/WMA	427,925	1,882,333
RAP Tons used as Aggregate	60,000	263,925
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	50,000	219,937
Average % RAP in DOT Mixes	18%	
Average % RAP in Other Agency Mixes	20%	
Average % RAP in Commercial & Residential Mixes	21%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	40%	
RAS Tons Received	329	1,447
RAS Tons used in HMA/WMA	10,329	45,435
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	12,653	55,655
WMA Other Agency Tonnage	83,663	368,014
WMA Commercial & Residential Tonnage	102,711	451,800
Total WMA Tonnage	199,027	875,469
Percent WMA Tons using Chemical Additives	4.6%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	95.4%	
Percent WMA Tons using Organic Additive	0.0%	

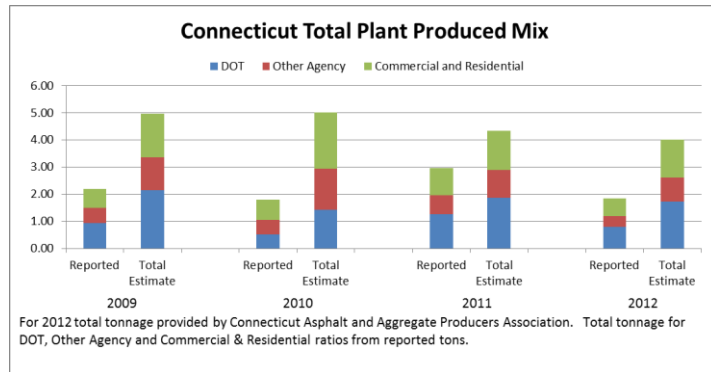
1. Total tonnage provided by Colorado Asphalt Pavement Association. Total tonnage for Other Agency and Commercial & Residential ratios from reported tons.

Connecticut

Table B7 summarizes the results received from asphalt mix producers in Connecticut. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

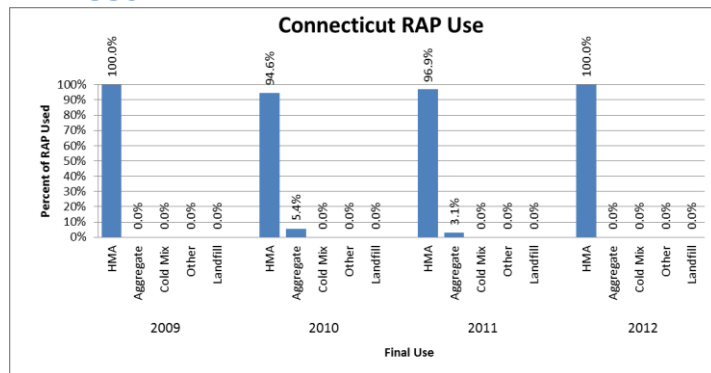
Companies responding: 2 for 2009 & 2010, 3 for 2011, 1 for 2012



RAS Use

No contractors reported using RAS in 2009, 2010, 2011, or 2012.

RAP Use



WMA Use

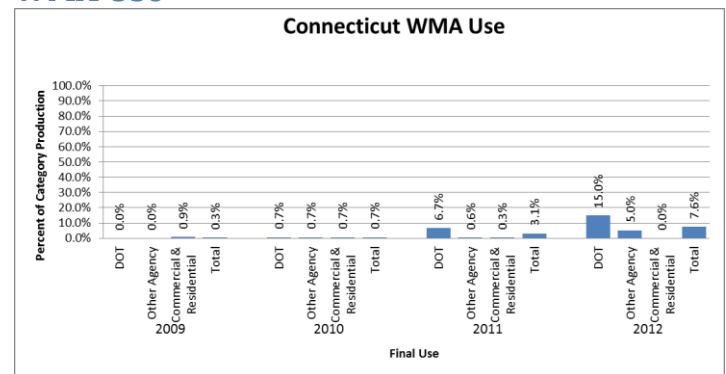


Table B7: Summary of Connecticut Data for 2012

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	800,000	1,737,242
Total Other Agency Tonnage	400,000	868,621
Total Commercial & Residential Tonnage	642,000	1,394,137
Total Tonnage	1,842,000	4,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	400,000	868,621
RAP Tons used in HMA/WMA	393,585	854,691
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	18%	
Average % RAP in Other Agency Mixes	22%	
Average % RAP in Commercial & Residential Mixes	25%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	120,000	260,586
WMA Other Agency Tonnage	20,000	43,431
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	140,000	304,017
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

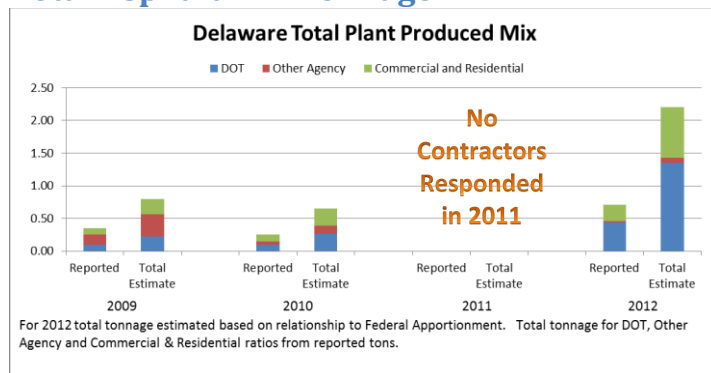
1. Total tonnage provided by Connecticut Asphalt and Aggregate Producers Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Delaware

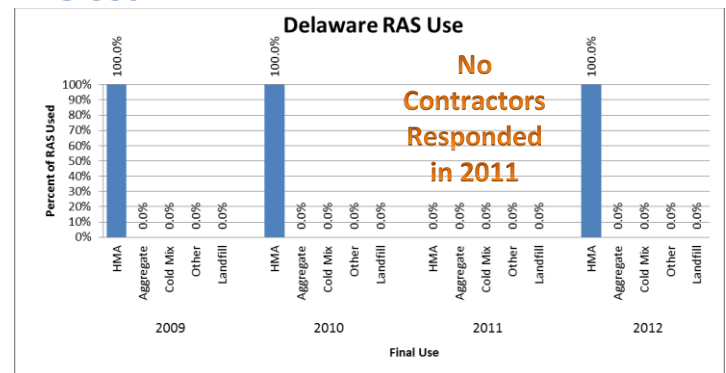
Table B8 summarizes the results received from asphalt mix producers in Delaware. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 1 for 2009 and 2010. No data reported for 2011, 3 for 2012

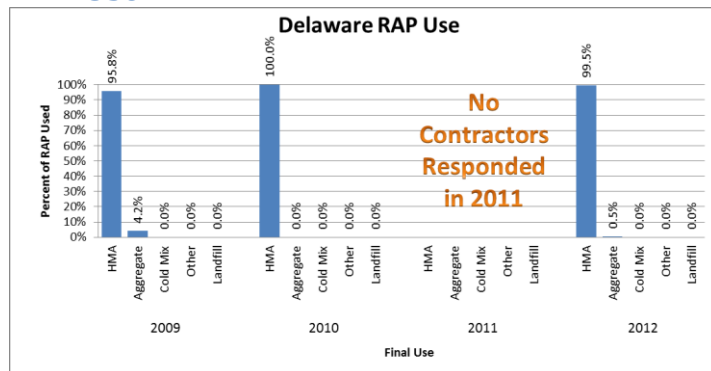
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

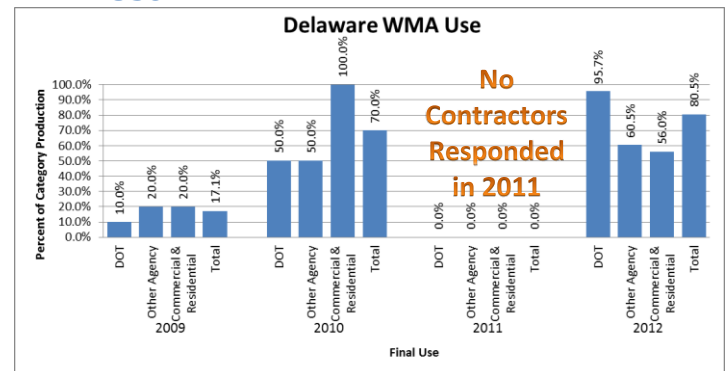


Table B8: Summary of Delaware Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	433,835	1,348,559
Total Other Agency Tonnage	25,000	77,712
Total Commercial & Residential Tonnage	249,876	776,730
Total Tonnage	708,711	2,203,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	186,340	579,230
RAP Tons used in HMA/WMA	200,073	621,919
RAP Tons used as Aggregate	1,000	3,108
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	30%	
Average % RAP in Other Agency Mixes	35%	
Average % RAP in Commercial & Residential Mixes	34%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	67%	
RAS Tons Received	20,000	62,169
RAS Tons used in HMA/WMA	10,500	32,639
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	3%	
Average % RAS in Other Agency Mixes	4%	
Average % RAS in Commercial & Residential Mixes	4%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	415,393	1,291,233
WMA Other Agency Tonnage	15,125	47,015
WMA Commercial & Residential Tonnage	139,872	434,786
Total WMA Tonnage	570,390	1,773,035
Percent WMA Tons using Chemical Additives	8.3%	
Percent WMA Tons using Additive Foaming	25.6%	
Percent WMA Tons using Plant Foaming	66.1%	
Percent WMA Tons using Organic Additive	0.0%	

1. Total tonnage estimated based on relationship to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

District of Columbia

No contractors submitted data for the District of Columbia for 2009, 2010, 2011, or 2012. Total tons were estimated based on a relationship of tons to federal apportionment. Because RAP use is prevalent in all areas of the US it was estimated that RAP use in the District followed a national average. Table B9 summarizes this data.

Table B9: Summary of District of Columbia Data for 2012

Companies Reporting			0
HMA/WMA			
	Reported	Total Estimated ¹	
	2011	2011	
Total DOT Tonnage			
Total Other Agency Tonnage			
Total Commercial & Residential Tonnage			
Total Tonnage		1,850,000	
Reclaimed Asphalt Pavement (RAP)			
	Reported	Total Estimated	
	2011	2011	
Percent Companies using RAP			
RAP Tons Received		365,286	
RAP Tons used in HMA/WMA		350,252	
RAP Tons used as Aggregate		18,751	
RAP Tons used in Cold Mix		1,084	
RAP Tons used as Other		1,259	
RAP Tons Landfilled		1,253	
Average % RAP in DOT Mixes			
Average % RAP in Other Agency Mixes			
Average % RAP in Commercial & Residential Mixes			

1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

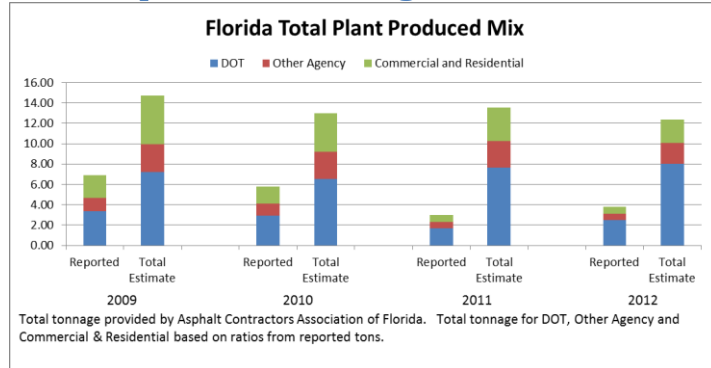
2. Total estimated RAP tonnages based on national average for RAP since no tons reported for Washington, DC.

Florida

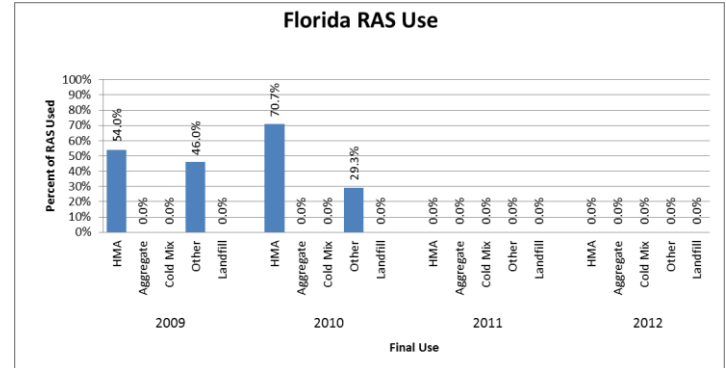
Table B10 summarizes the results received from asphalt mix producers in Florida. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 6 for 2009 & 2010, 4 for 2011, 5 for 2012

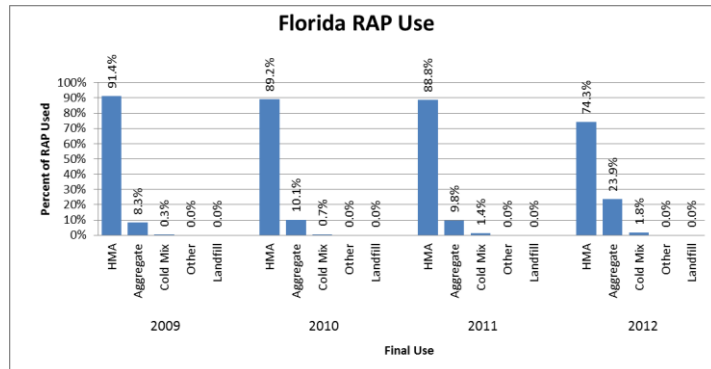
Total Asphalt Mix Tonnage



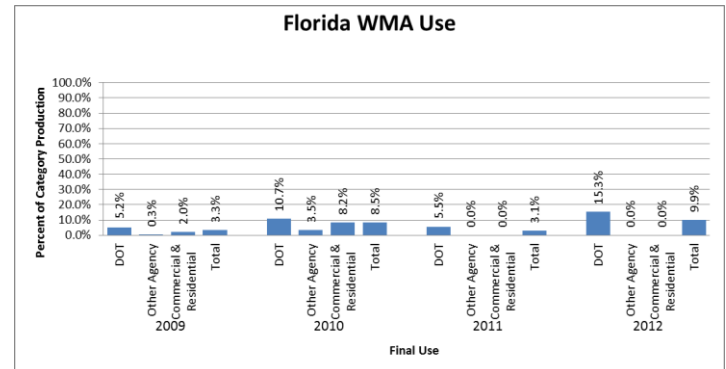
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	1	86,441	195

Table B10: Summary Florida Data for 2012

Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	2,470,087	8,011,519
Total Other Agency Tonnage	642,949	2,085,351
Total Commercial & Residential Tonnage	703,311	2,281,130
Total Tonnage	3,816,347	12,378,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	1,369,900	4,443,155
RAP Tons used in HMA/WMA	1,027,990	3,334,199
RAP Tons used as Aggregate	330,182	1,070,918
RAP Tons used in Cold Mix	25,398	82,376
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	25%	
Average % RAP in Other Agency Mixes	30%	
Average % RAP in Commercial & Residential Mixes	38%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	60%	
WMA DOT Tonnage	376,715	1,221,844
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	376,715	1,221,844
Percent WMA Tons using Chemical Additives	2.2%	
Percent WMA Tons using Additive Foaming	80.9%	
Percent WMA Tons using Plant Foaming	16.9%	
Percent WMA Tons using Organic Additive	0.0%	

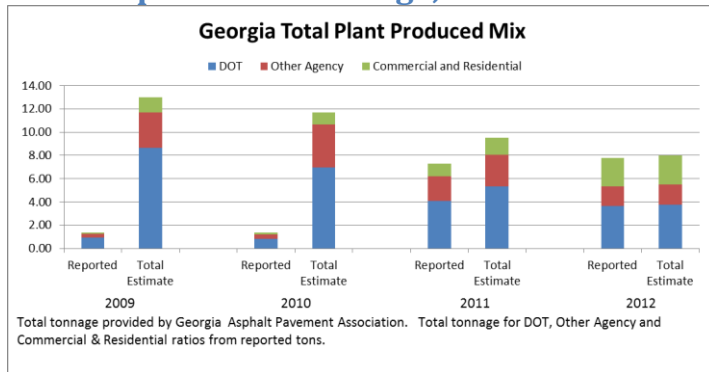
1. Total tonnage provided by Florida Asphalt Pavement Association. Total tonnage for DOT, Other Agency and

Commercial & Residential ratios from reported tons.

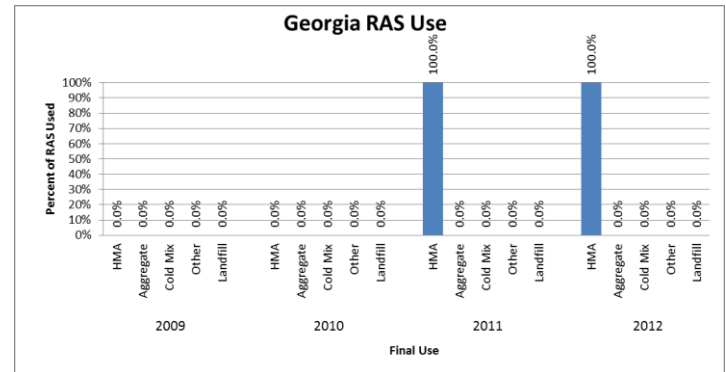
Georgia

Table B11 summarizes the results received from asphalt mix producers in Georgia. The charts are used to summarize statistics calculated from information provided by the survey respondents. Companies responding: 2 for 2009 & 2010, 6 for 2011 and 2012

Total Asphalt Mix Tonnage,

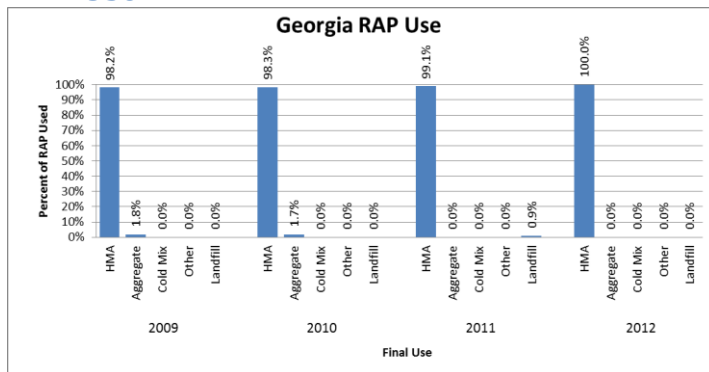


RAS Use

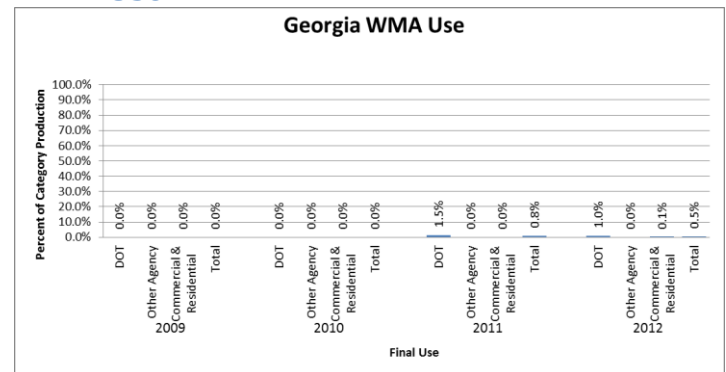


No contractor reported using RAS in Georgia in 2009 and 2010.

RAP Use



WMA Use



No contractors reported using WMA in Georgia in 2009 and 2010.

Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	2	281,958	195

Table B11: Summary of Georgia Data for 2012

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	3,663,768	3,767,643
Total Other Agency Tonnage	1,678,514	1,726,103
Total Commercial & Residential Tonnage	2,437,156	2,506,254
Total Tonnage	7,779,438	8,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	1,957,798	2,013,305
RAP Tons used in HMA/WMA	1,820,749	1,872,371
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	22%	
Average % RAP in Other Agency Mixes	23%	
Average % RAP in Commercial & Residential Mixes	24%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	17%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	369	379
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	33%	
WMA DOT Tonnage	36,395	37,427
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	2,401	2,469
Total WMA Tonnage	38,796	39,896
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

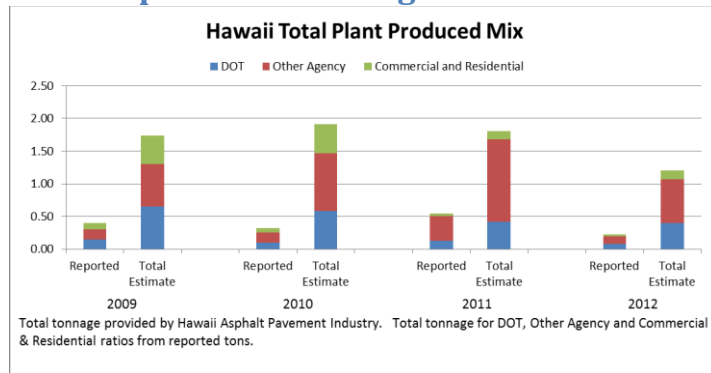
1. Total tonnage provided by Georgia Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Hawaii

Table B12 summarizes the results received from asphalt mix producers in Hawaii. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 1 for 2009, 2010, 2011, and 2012

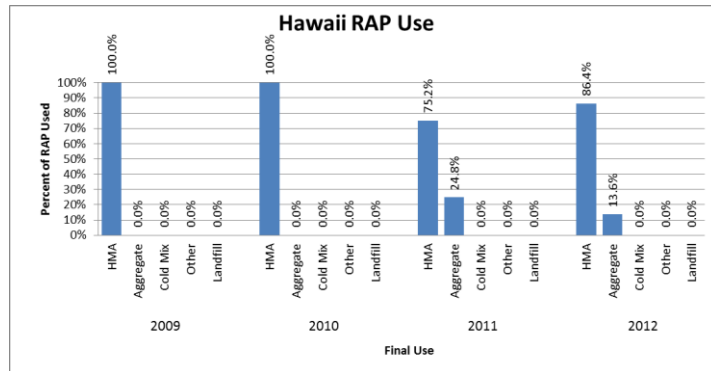
Total Asphalt Mix Tonnage



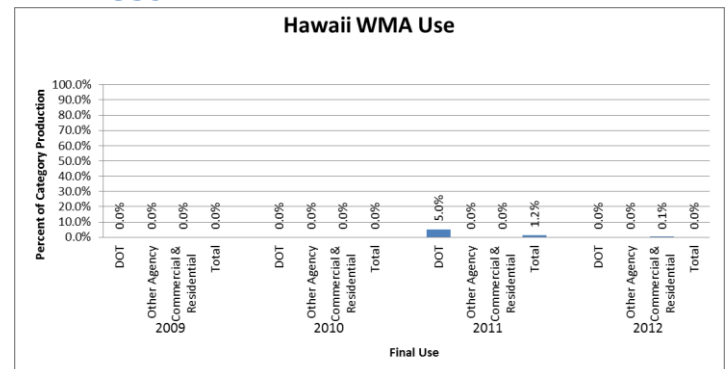
RAS Use

No contractor reported accepting or using RAS in 2009 through 2012.

RAP Use



WMA Use



The contractor did not report using WMA in 2009 and 2010.

Table B 12: Summary of Hawaii Data for 2012

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	75,000	400,000
Total Other Agency Tonnage	125,000	666,667
Total Commercial & Residential Tonnage	25,000	133,333
Total Tonnage	225,000	1,200,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	38,000	202,667
RAP Tons used in HMA/WMA	32,250	172,000
RAP Tons used as Aggregate	5,000	26,667
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	20%	
Average % RAP in Other Agency Mixes	10%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	25	133
Total WMA Tonnage	25	133
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

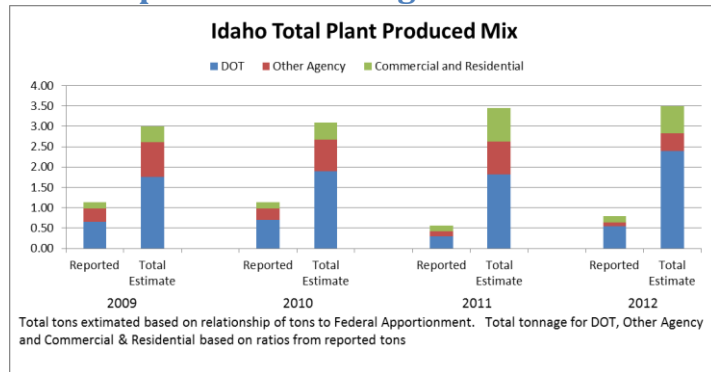
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Idaho

Table B13 summarizes the results received from asphalt mix producers in Idaho. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 5 for 2009 & 2010, 3 for 2011 and 2012

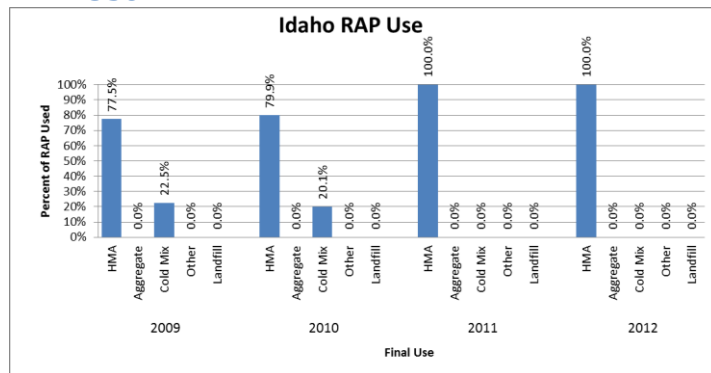
Total Asphalt Mix Tonnage



RAS Use

No contractors reported using RAS in 2009, 2010, 2011, and 2012.

RAP Use



WMA Use

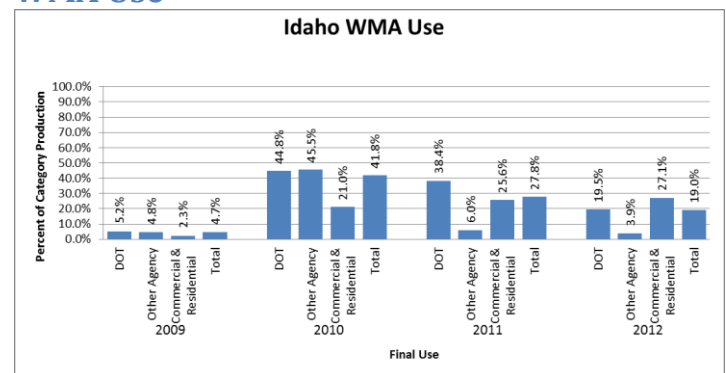


Table B 13: Summary of Idaho Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	541,301	2,396,604
Total Other Agency Tonnage	96,297	426,354
Total Commercial & Residential Tonnage	151,111	669,042
Total Tonnage	788,709	3,492,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	250,000	1,106,872
RAP Tons used in HMA/WMA	222,417	984,749
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	30%	
Average % RAP in Other Agency Mixes	23%	
Average % RAP in Commercial & Residential Mixes	24%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	67%	
WMA DOT Tonnage	105,376	466,550
WMA Other Agency Tonnage	3,754	16,622
WMA Commercial & Residential Tonnage	40,986	181,466
Total WMA Tonnage	150,116	664,638
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

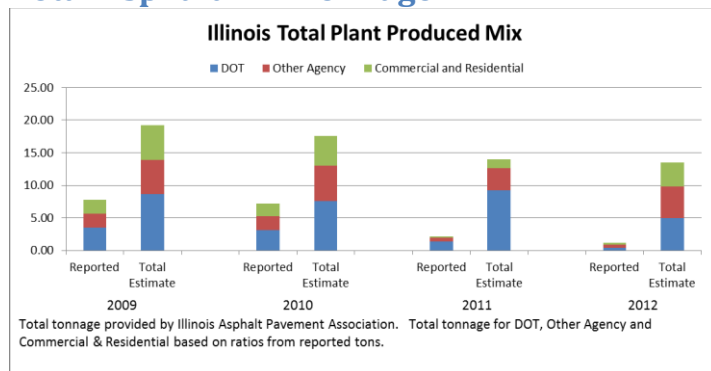
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Illinois

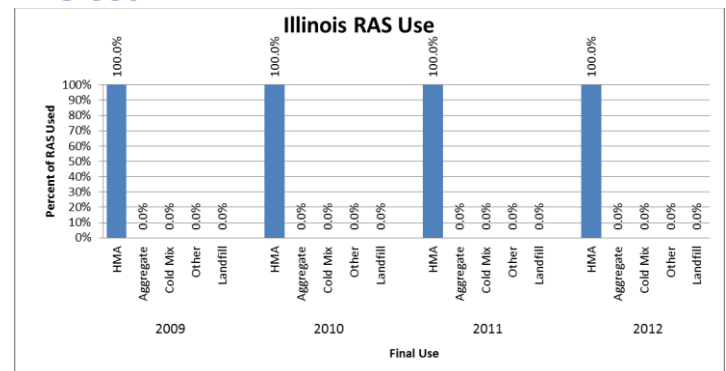
Table B14 summarizes the results received from asphalt mix producers in Illinois. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 16 for 2009 & 2010, 7 for 2011, 5 for 2012

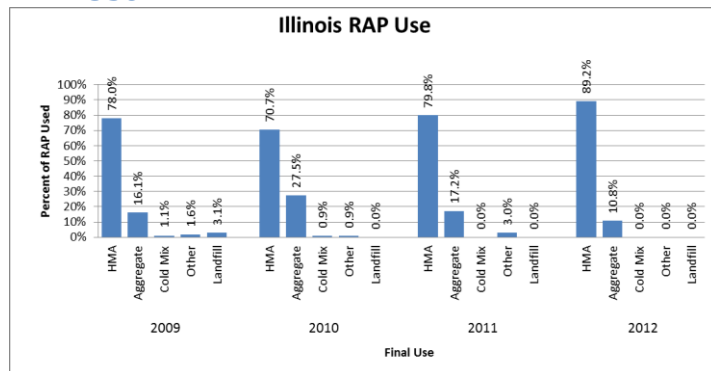
Total Asphalt Mix Tonnage



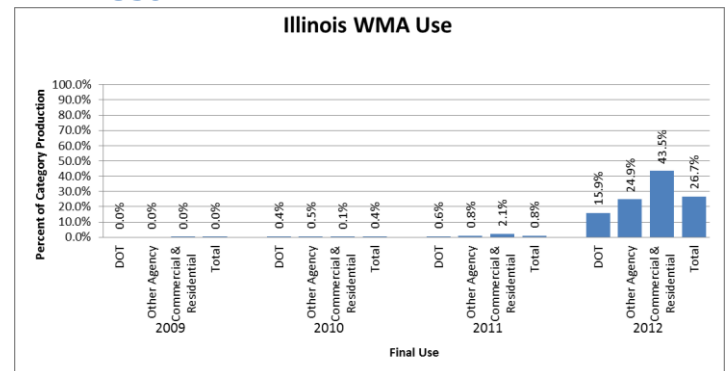
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	1	23,000	8,000

Table B 14: Summary of Illinois Data for 2012

Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	427,982	4,969,665
Total Other Agency Tonnage	418,773	4,862,731
Total Commercial & Residential Tonnage	315,850	3,667,604
Total Tonnage	1,162,605	13,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	307,200	3,567,162
RAP Tons used in HMA/WMA	347,632	4,036,652
RAP Tons used as Aggregate	42,000	487,698
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	28%	
Average % RAP in Other Agency Mixes	28%	
Average % RAP in Commercial & Residential Mixes	36%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	60%	
RAS Tons Received	7,000	81,283
RAS Tons used in HMA/WMA	9,875	114,667
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	3%	
Average % RAS in Other Agency Mixes	1%	
Average % RAS in Commercial & Residential Mixes	4%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	80%	
WMA DOT Tonnage	68,192	791,837
WMA Other Agency Tonnage	104,468	1,213,067
WMA Commercial & Residential Tonnage	137,515	1,596,804
Total WMA Tonnage	310,175	3,601,708
Percent WMA Tons using Chemical Additives	2.3%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	97.7%	
Percent WMA Tons using Organic Additive	0.0%	

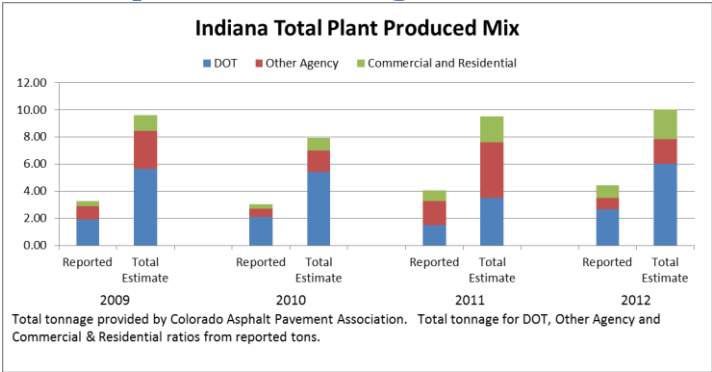
1. Total tonnage provided by Illinois Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Indiana

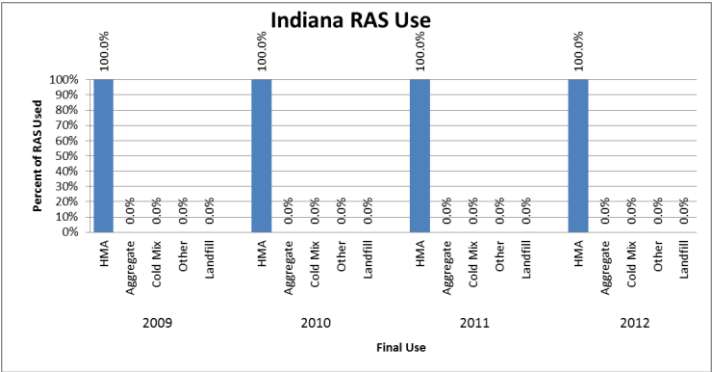
Table B15 summarizes the results received from asphalt mix producers in Indiana. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 3 for 2009 & 2010, 4 for 2011, 5 for 2012

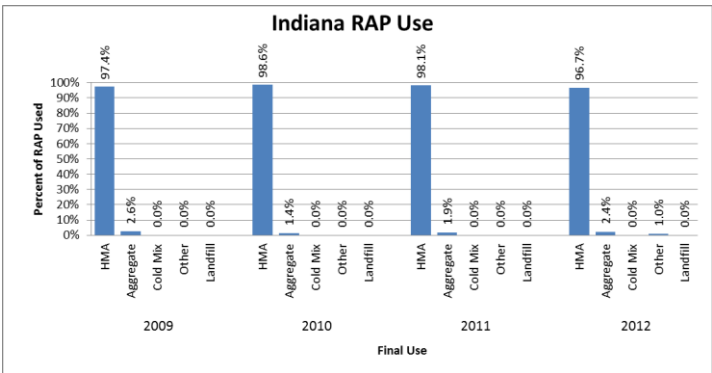
Total Asphalt Mix Tonnage



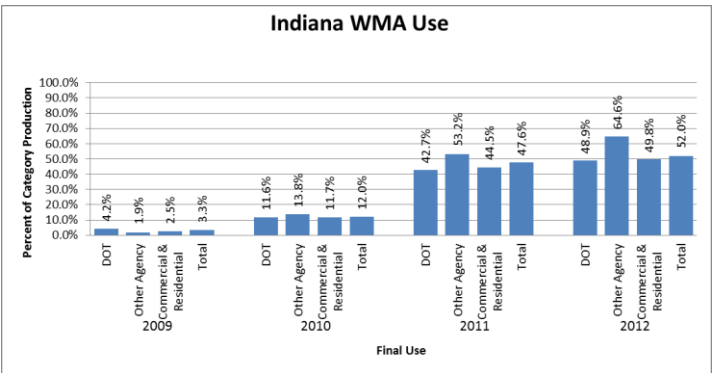
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	2	70,000	44,000
Blast Furnace Slag	3	1,487,000	304,000

Table B14: Summary of Indiana Data for 2012

Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	2,669,515	6,010,125
Total Other Agency Tonnage	813,754	1,832,079
Total Commercial & Residential Tonnage	958,427	2,157,795
Total Tonnage	4,441,696	10,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	1,100,000	2,476,531
RAP Tons used in HMA/WMA	1,013,352	2,281,453
RAP Tons used as Aggregate	25,000	56,285
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	10,000	22,514
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	23%	
Average % RAP in Other Agency Mixes	30%	
Average % RAP in Commercial & Residential Mixes	31%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	80%	
RAS Tons Received	29,500	66,416
RAS Tons used in HMA/WMA	35,000	78,799
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	3%	
Average % RAS in Other Agency Mixes	3%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	80%	
WMA DOT Tonnage	1,305,000	2,938,067
WMA Other Agency Tonnage	526,000	1,184,232
WMA Commercial & Residential Tonnage	477,000	1,073,914
Total WMA Tonnage	2,308,000	5,196,213
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

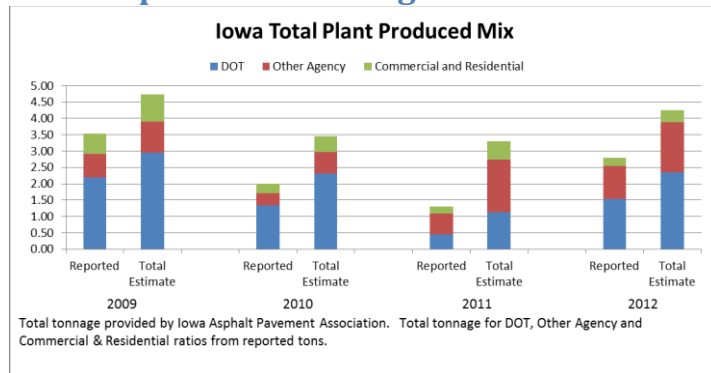
1. Total tonnage provided by Indiana Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Iowa

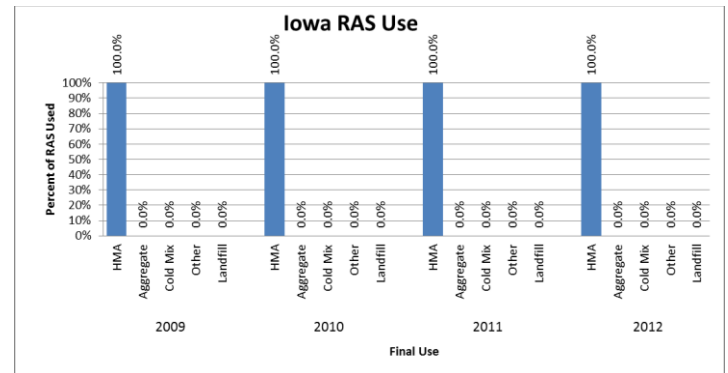
Table B16 summarizes the results received from asphalt mix producers in Iowa. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 7 for 2009 & 2010, 6 for 2011, 10 for 2012

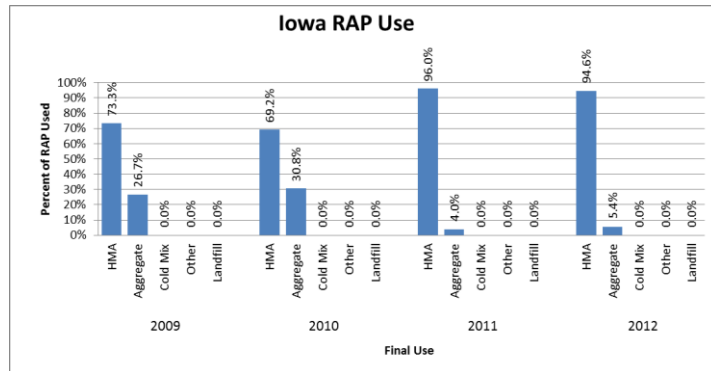
Total Asphalt Mix Tonnage



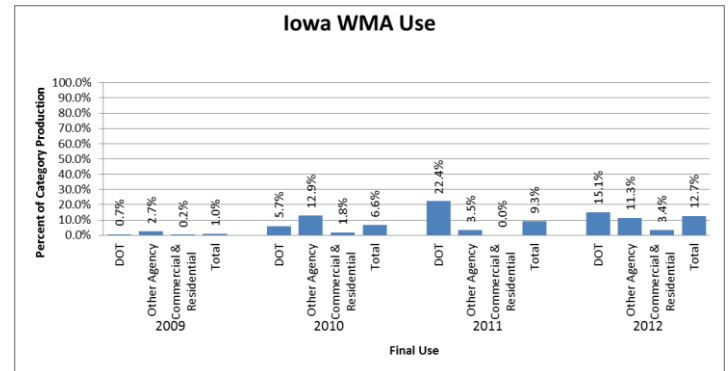
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	1	20,000	Not Reported

Table B15: Summary of Iowa Data for 2012

10

Companies Reporting

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,541,000	2,347,036
Total Other Agency Tonnage	1,002,000	1,526,107
Total Commercial & Residential Tonnage	254,000	386,857
Total Tonnage	2,797,000	4,260,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	422,920	644,133
RAP Tons used in HMA/WMA	433,259	659,880
RAP Tons used as Aggregate	25,000	38,077
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	17%	
Average % RAP in Other Agency Mixes	18%	
Average % RAP in Commercial & Residential Mixes	19%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	70%	
RAS Tons Received	10,200	15,535
RAS Tons used in HMA/WMA	13,303	20,261
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	1%	
Average % RAS in Other Agency Mixes	2%	
Average % RAS in Commercial & Residential Mixes	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	40%	
WMA DOT Tonnage	232,750	354,492
WMA Other Agency Tonnage	113,660	173,111
WMA Commercial & Residential Tonnage	8,630	13,144
Total WMA Tonnage	355,040	540,747
Percent WMA Tons using Chemical Additives	0.4%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	99.6%	
Percent WMA Tons using Organic Additive	0.0%	

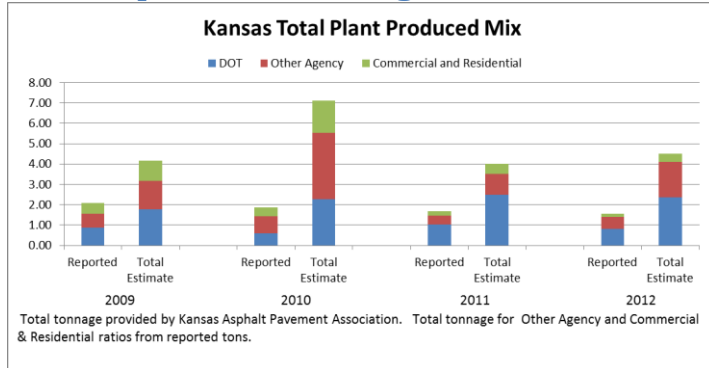
1. Total tonnage provided by Iowa Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Kansas

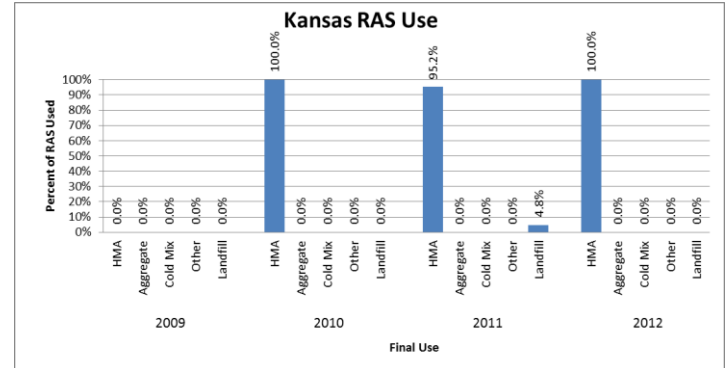
Table B17 summarizes the results received from asphalt mix producers in Kansas. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 6 for 2009 & 2010, 4 for 2011, 3 for 2012

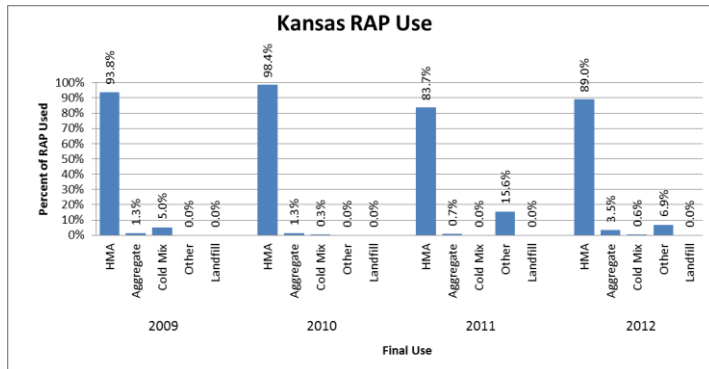
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

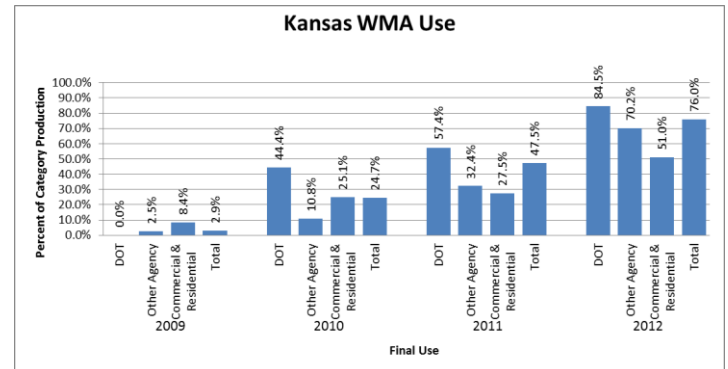


Table B16: Summary of Kansas Data for 2012

Companies Reporting

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	815,668	2,367,613
Total Other Agency Tonnage	593,000	1,721,282
Total Commercial & Residential Tonnage	141,630	411,105
Total Tonnage	1,550,298	4,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	370,000	1,073,987
RAP Tons used in HMA/WMA	310,579	901,508
RAP Tons used as Aggregate	12,000	34,832
RAP Tons used in Cold Mix	2,000	5,805
RAP Tons used as Other	24,000	69,664
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	25%	
Average % RAP in Other Agency Mixes	29%	
Average % RAP in Commercial & Residential Mixes	25%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	67%	
RAS Tons Received	10,000	29,027
RAS Tons used in HMA/WMA	3,252	9,439
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	3%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	689,518	2,001,442
WMA Other Agency Tonnage	416,250	1,208,235
WMA Commercial & Residential Tonnage	72,250	209,718
Total WMA Tonnage	1,178,018	3,419,395
Percent WMA Tons using Chemical Additives	23.9%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	76.1%	
Percent WMA Tons using Organic Additive	0.0%	

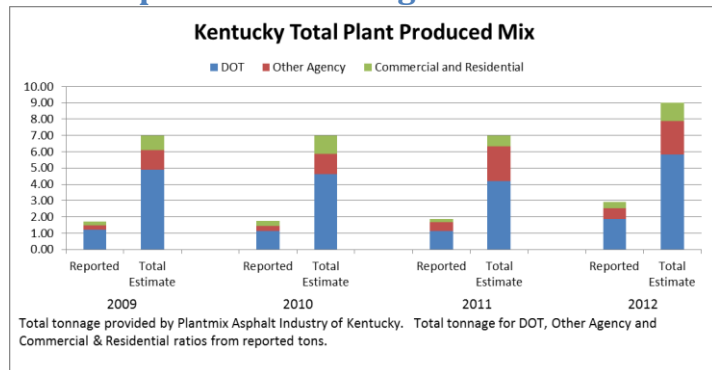
1. Total tonnage provided by Kansas Asphalt Pavement Association. Total tonnage for Other Agency and Commercial & Residential ratios from reported tons.

Kentucky

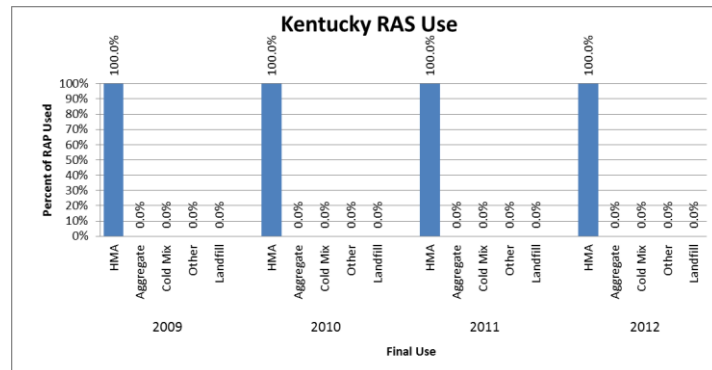
Table B18 summarizes the results received from asphalt mix producers in Kentucky. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 3 for 2009 & 2010, 4 for 2011, 5 for 2012

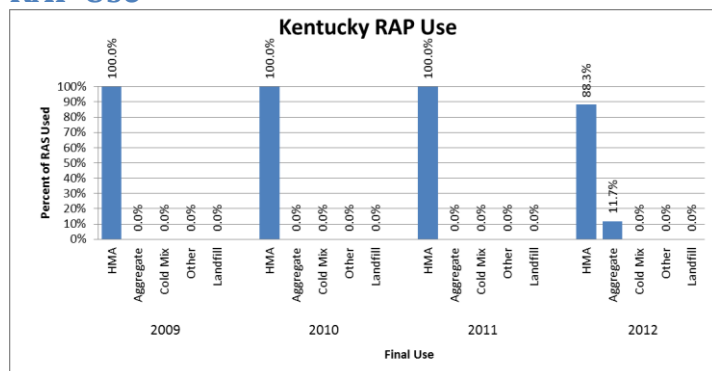
Total Asphalt Mix Tonnage



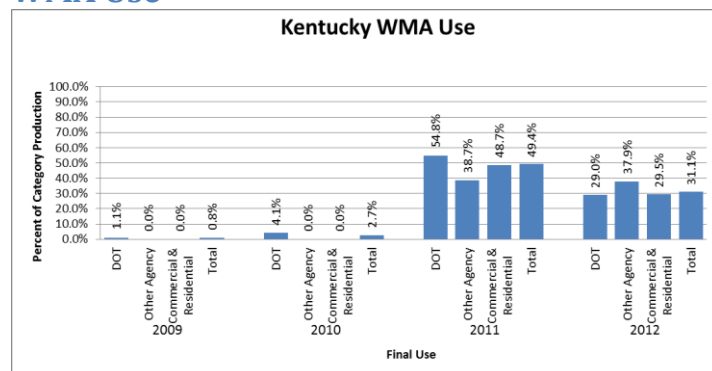
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	1	5,714	800

Table B17: Summary of Kentucky Data for 2012

5

Companies Reporting

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,878,387	5,835,433
Total Other Agency Tonnage	662,032	2,056,681
Total Commercial & Residential Tonnage	356,621	1,107,886
Total Tonnage	2,897,040	9,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	281,480	874,451
RAP Tons used in HMA/WMA	300,724	934,235
RAP Tons used as Aggregate	39,803	123,653
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	34%	
Average % RAP in Other Agency Mixes	11%	
Average % RAP in Commercial & Residential Mixes	8%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	60%	
RAS Tons Received	46,164	143,414
RAS Tons used in HMA/WMA	46,164	143,414
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	2%	
Average % RAS in Other Agency Mixes	1%	
Average % RAS in Commercial & Residential Mixes	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	80%	
WMA DOT Tonnage	544,077	1,690,241
WMA Other Agency Tonnage	250,970	779,669
WMA Commercial & Residential Tonnage	105,046	326,339
Total WMA Tonnage	900,094	2,796,249
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

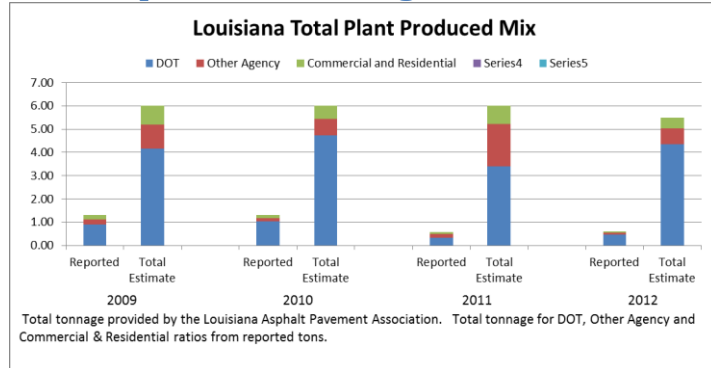
1. Total tonnage provided by Plantmix Asphalt Industry of Kentucky. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Louisiana

Table B19 summarizes the results received from asphalt mix producers in Louisiana. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009, 2010, 2011 and 2012

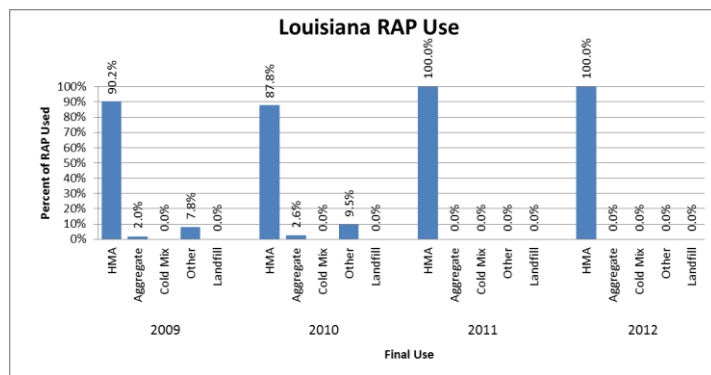
Total Asphalt Mix Tonnage



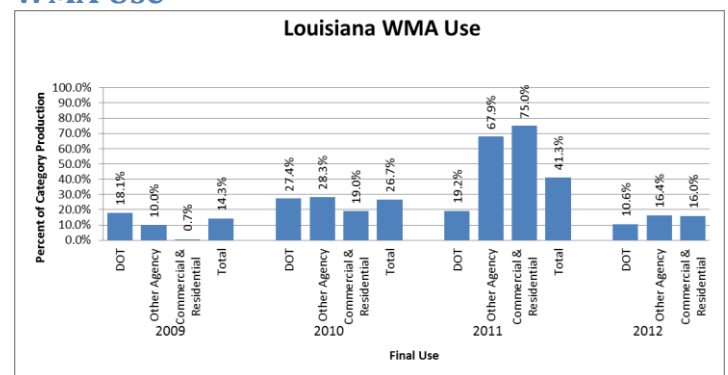
RAS Use

No contractors reported using RAS in 2009, 2010, 2011 or 2012.

RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	1	25,000	Not Reported

Table B18: Summary of Louisiana Data for 2012

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	470,000	4,359,191
Total Other Agency Tonnage	73,000	677,066
Total Commercial & Residential Tonnage	50,000	463,744
Total Tonnage	593,000	5,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	125,000	1,159,359
RAP Tons used in HMA/WMA	110,000	1,020,236
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	18%	
Average % RAP in Other Agency Mixes	20%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	50%	
WMA DOT Tonnage	50,000	463,744
WMA Other Agency Tonnage	12,000	111,298
WMA Commercial & Residential Tonnage	8,000	74,199
Total WMA Tonnage	70,000	649,241
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

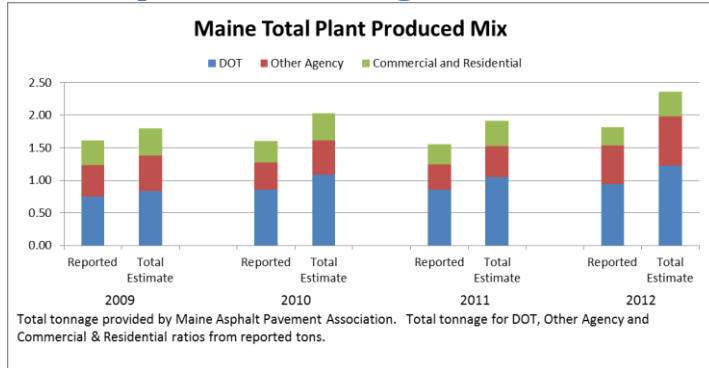
1. Total tonnage provided by the Louisiana Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Maine

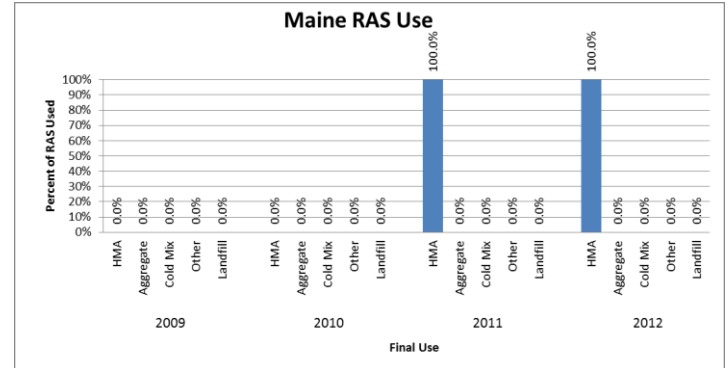
Table B20 summarizes the results received from asphalt mix producers in Maine. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009, 2010, 2011 and 2012

Total Asphalt Mix Tonnage

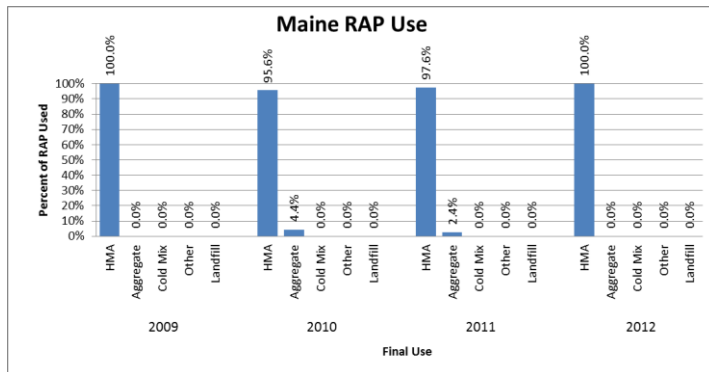


RAS Use



No contractors reported using RAS in 2009 and 2010.

RAP Use



WMA Use

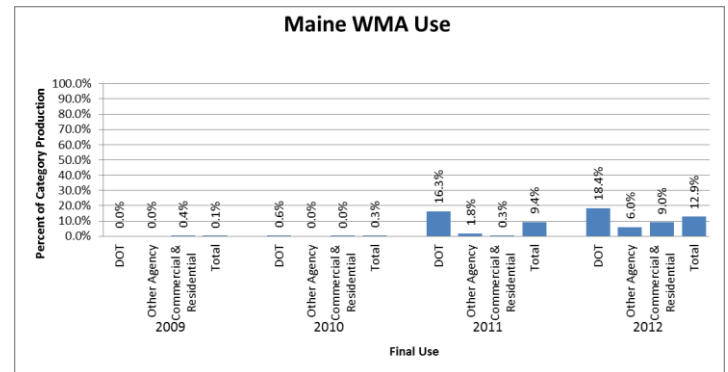


Table B19: Summary of Maine Data for 2012

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	941,955	1,221,909
Total Other Agency Tonnage	587,969	762,717
Total Commercial & Residential Tonnage	289,371	375,374
Total Tonnage	1,819,295	2,360,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	243,094	315,343
RAP Tons used in HMA/WMA	267,032	346,395
RAP Tons used as Aggregate	370	480
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	15%	
Average % RAP in Other Agency Mixes	15%	
Average % RAP in Commercial & Residential Mixes	17%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	100%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	23,399	30,353
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	5%	
Average % RAS in Other Agency Mixes	4%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	173,756	225,397
WMA Other Agency Tonnage	35,506	46,059
WMA Commercial & Residential Tonnage	26,123	33,887
Total WMA Tonnage	235,385	305,343
Percent WMA Tons using Chemical Additives	37.2%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	62.8%	
Percent WMA Tons using Organic Additive	0.0%	

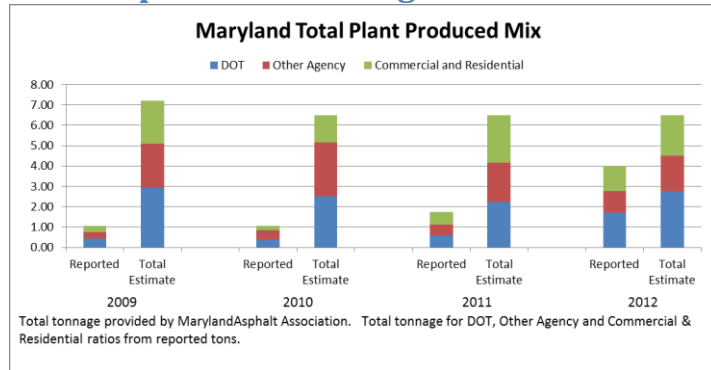
1. Total tonnage provided by Maine Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Maryland

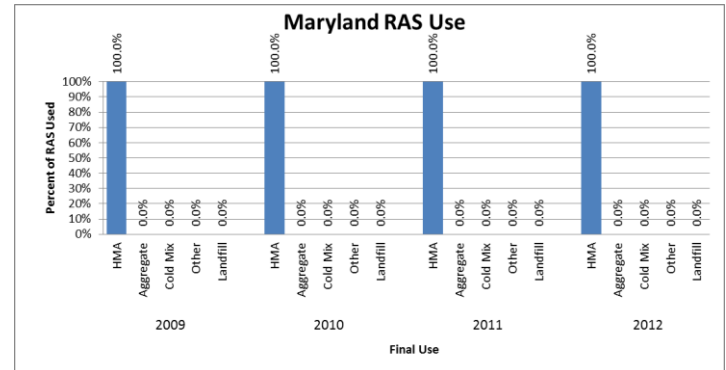
Table B21 summarizes the results received from asphalt mix producers in Maryland. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 4 for 2009, 2010 & 2011, 7 for 2012

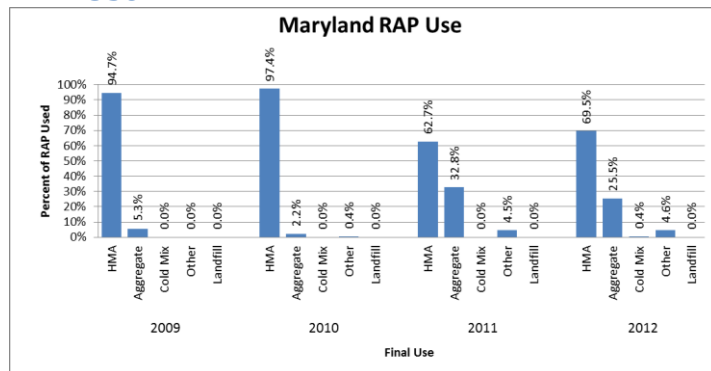
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

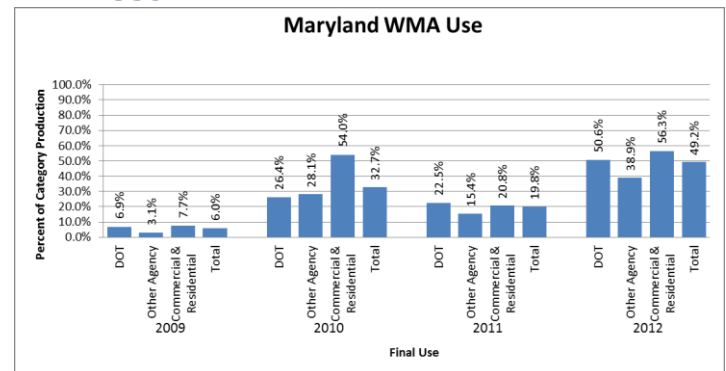


Table B20: Summary of Maryland Data for 2012

Companies Reporting

7

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,702,450	2,762,923
Total Other Agency Tonnage	1,071,750	1,739,354
Total Commercial & Residential Tonnage	1,232,800	2,000,723
Total Tonnage	4,007,000	6,503,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	1,710,000	2,775,176
RAP Tons used in HMA/WMA	872,000	1,415,177
RAP Tons used as Aggregate	320,000	519,331
RAP Tons used in Cold Mix	5,000	8,115
RAP Tons used as Other	57,000	92,506
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	21%	
Average % RAP in Other Agency Mixes	23%	
Average % RAP in Commercial & Residential Mixes	27%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	29%	
RAS Tons Received	20,000	32,458
RAS Tons used in HMA/WMA	16,000	25,967
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	1%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	861,035	1,397,382
WMA Other Agency Tonnage	417,025	676,794
WMA Commercial & Residential Tonnage	694,340	1,126,851
Total WMA Tonnage	1,972,400	3,201,028
Percent WMA Tons using Chemical Additives	8.5%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	91.5%	
Percent WMA Tons using Organic Additive	0.0%	

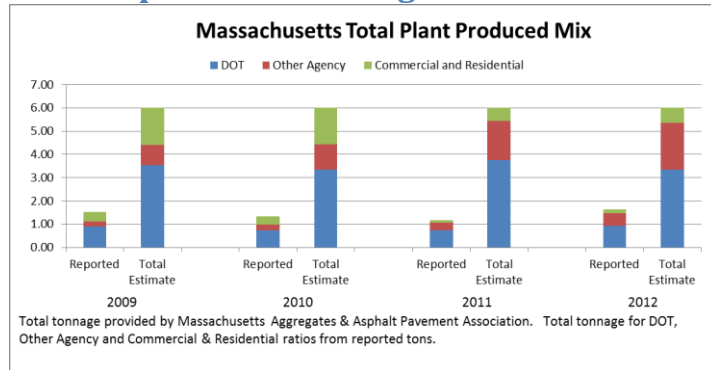
1. Total tonnage provided by the Maryland Asphalt Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Massachusetts

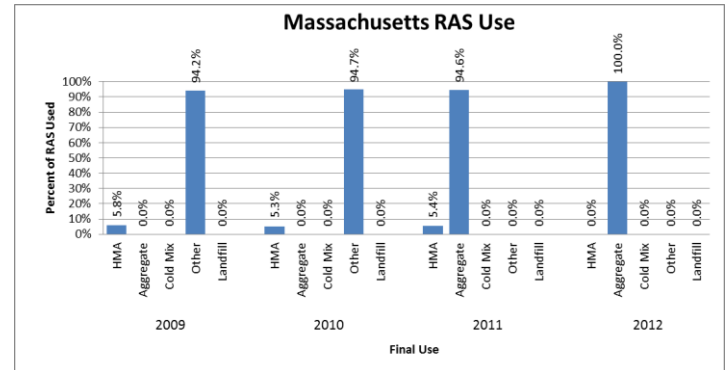
Table B22 summarizes the results received from asphalt mix producers in Massachusetts. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009, 2010 & 2011, 3 for 2012

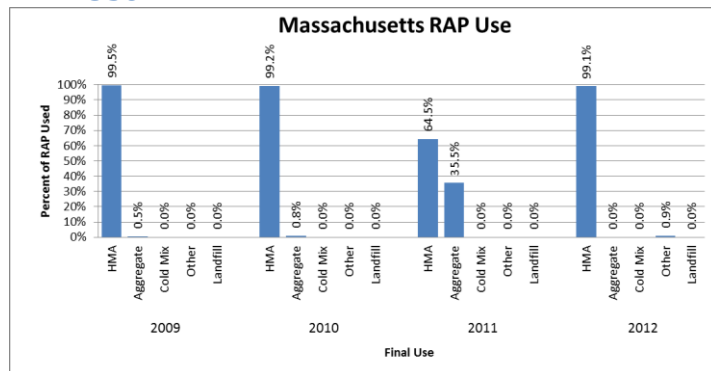
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

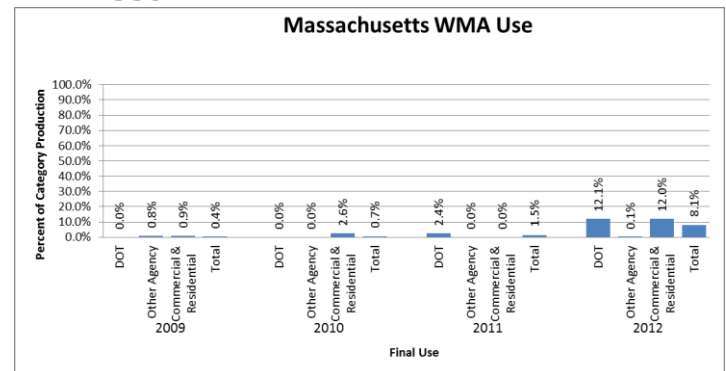


Table B21: Summary of Massachusetts Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	914,427	3,352,302
Total Other Agency Tonnage	542,689	1,989,505
Total Commercial & Residential Tonnage	179,539	658,192
Total Tonnage	1,636,655	6,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	233,000	854,181
RAP Tons used in HMA/WMA	257,663	944,596
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	2,400	8,798
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	16%	
Average % RAP in Other Agency Mixes	13%	
Average % RAP in Commercial & Residential Mixes	14%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	20,000	73,320
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	110,592	405,432
WMA Other Agency Tonnage	570	2,090
WMA Commercial & Residential Tonnage	21,631	79,300
Total WMA Tonnage	132,793	486,821
Percent WMA Tons using Chemical Additives	55.6%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	33.0%	
Percent WMA Tons using Organic Additive	11.4%	

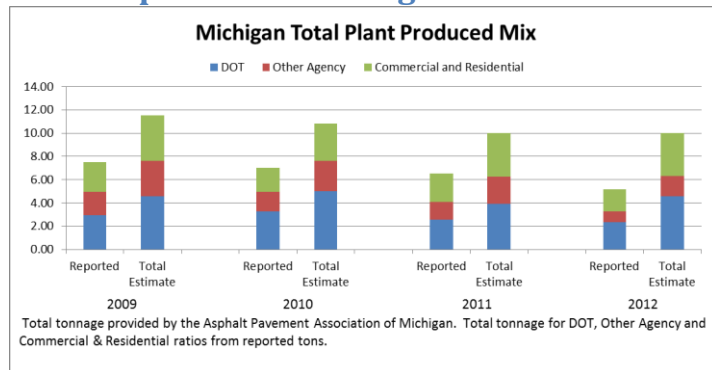
1. Total tonnage provided by the Massachusetts Aggregate & Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Michigan

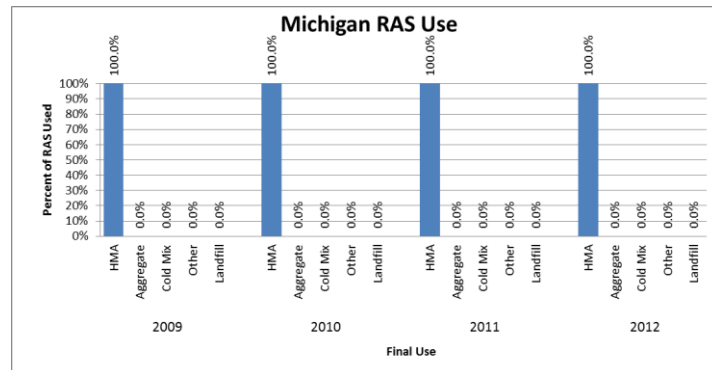
Table B23 summarizes the results received from asphalt mix producers in Michigan. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 8 for 2009 & 2010, 6 for 2011, 4 for 2012

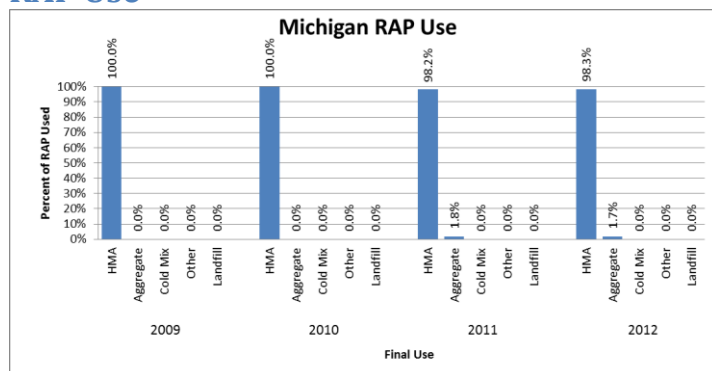
Total Asphalt Mix Tonnage



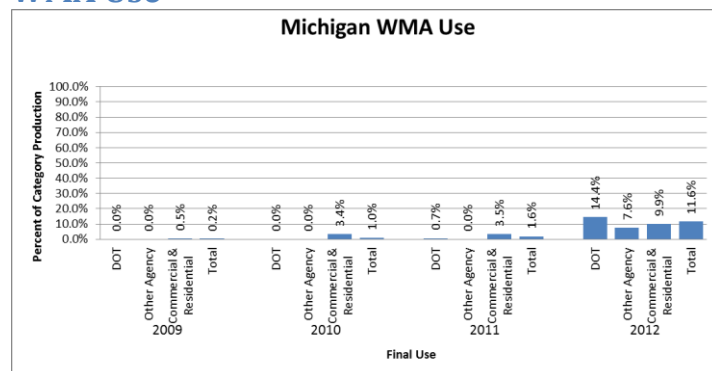
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	1	2,400	20
Blast Furnace Slag	3	500,000	50,000

Table B22: Summary of Michigan Data for 2012

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	2,358,516	4,568,296
Total Other Agency Tonnage	909,530	1,761,702
Total Commercial & Residential Tonnage	1,894,746	3,670,003
Total Tonnage	5,162,792	10,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	1,938,068	3,753,915
RAP Tons used in HMA/WMA	1,731,009	3,352,854
RAP Tons used as Aggregate	30,000	58,108
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	23%	
Average % RAP in Other Agency Mixes	28%	
Average % RAP in Commercial & Residential Mixes	38%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	25%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	16,311	31,593
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	1%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	340,011	658,580
WMA Other Agency Tonnage	69,113	133,867
WMA Commercial & Residential Tonnage	188,473	365,060
Total WMA Tonnage	597,597	1,157,507
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

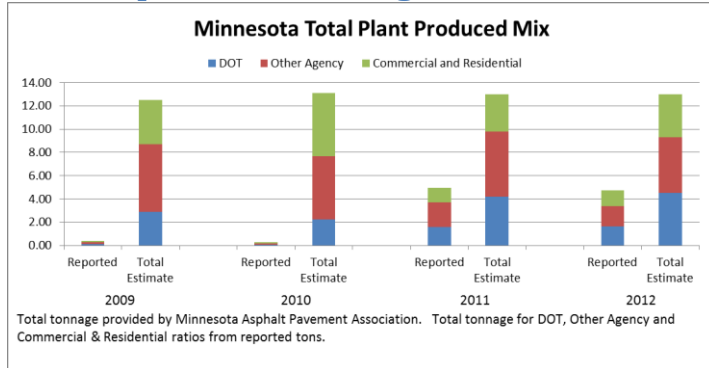
1. Total tonnage provided by the Asphalt Pavement Association of Michigan. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Minnesota

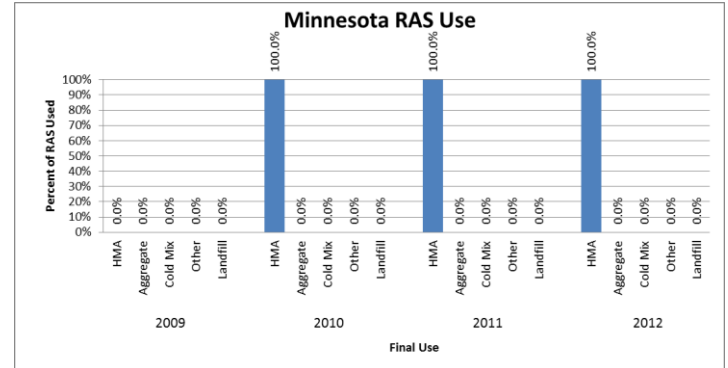
Table B23 summarizes the results received from asphalt mix producers in Minnesota. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009 & 2010, 6 for 2011, 4 for 2012

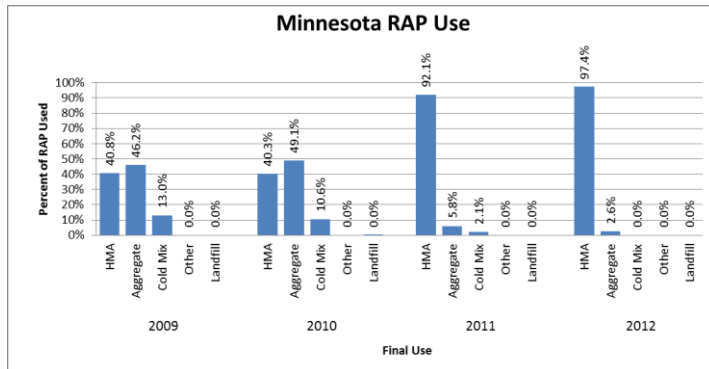
Total Asphalt Mix Tonnage



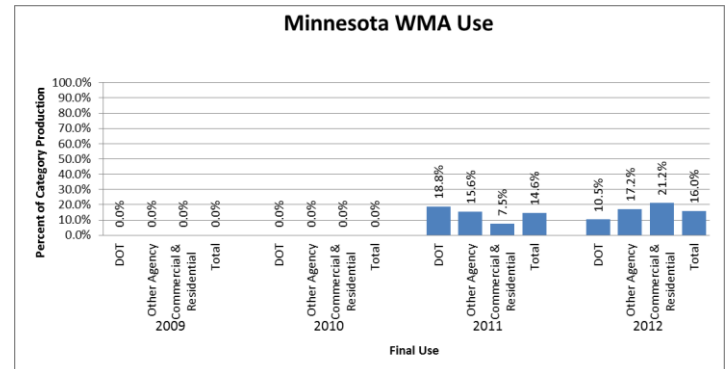
RAS Use



RAP Use



WMA Use



No contractors reported using WMA in 2009 or 2010.

Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	1	145,500	21,8000

Table B23: Summary of Minnesota Data for 2012

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,650,000	4,532,967
Total Other Agency Tonnage	1,740,000	4,780,220
Total Commercial & Residential Tonnage	1,342,000	3,686,813
Total Tonnage	4,732,000	13,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	915,000	2,513,736
RAP Tons used in HMA/WMA	943,678	2,592,522
RAP Tons used as Aggregate	25,000	68,681
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	20%	
Average % RAP in Other Agency Mixes	21%	
Average % RAP in Commercial & Residential Mixes	22%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	100%	
RAS Tons Received	22,500	61,813
RAS Tons used in HMA/WMA	34,304	94,242
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	4%	
Average % RAS in Other Agency Mixes	5%	
Average % RAS in Commercial & Residential Mixes	5%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	75%	
WMA DOT Tonnage	172,500	473,901
WMA Other Agency Tonnage	299,000	821,429
WMA Commercial & Residential Tonnage	285,000	782,967
Total WMA Tonnage	756,500	2,078,297
Percent WMA Tons using Chemical Additives	13.5%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	86.5%	
Percent WMA Tons using Organic Additive	0.0%	

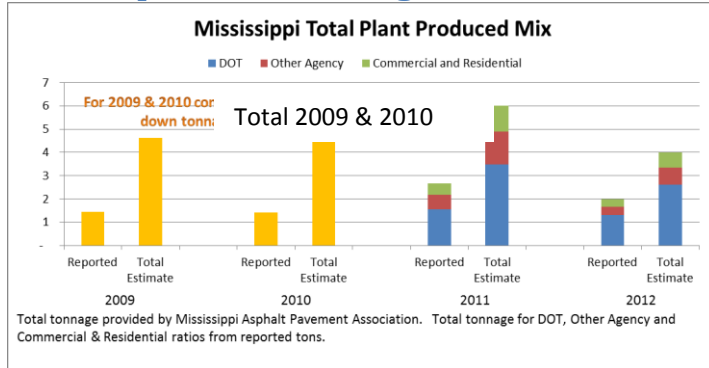
1. Total tonnage provided by the Minnesota Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Mississippi

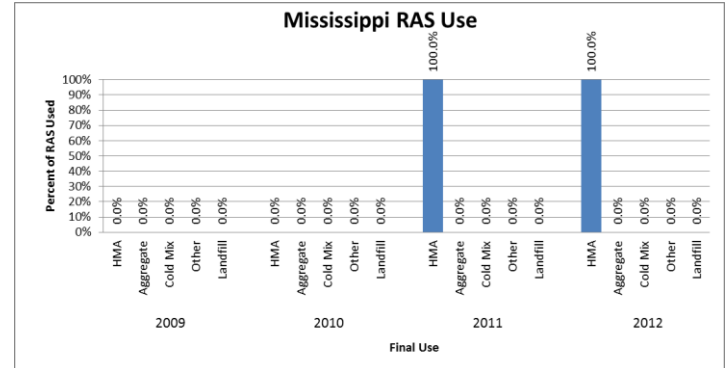
Table B25 summarizes the results received from asphalt mix producers in Mississippi. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 1 for 2009 & 2010, 4 for 2011, 3 for 2012

Total Asphalt Mix Tonnage

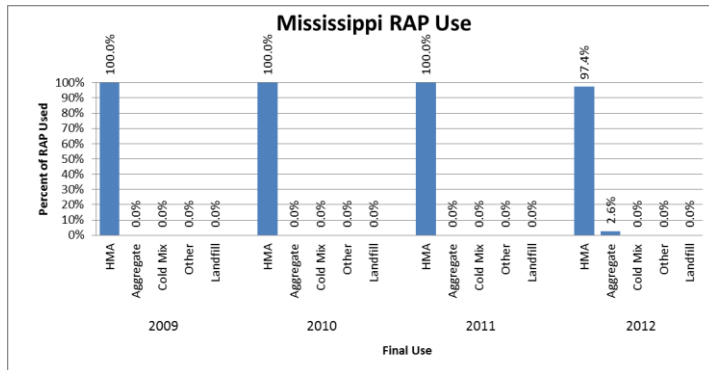


RAS Use

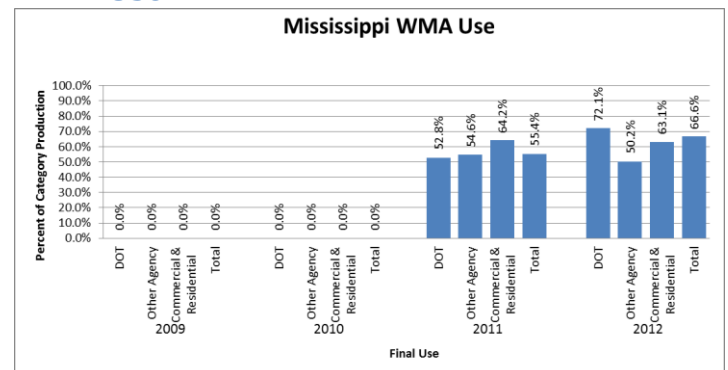


The contractor did not report any RAS use in 2009 or 2010.

RAP Use



WMA Use



The contractor did not report an WMA use in 2009 or 2010.

Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Fly Ash	1	50,000	2,400
Cellulose Fiber	1	76,000	250

Table B24: Summary of Mississippi Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,296,360	2,613,082
Total Other Agency Tonnage	367,150	740,067
Total Commercial & Residential Tonnage	320,905	646,851
Total Tonnage	1,984,415	4,000,000
Reclaimed Asphalt Pavement (RAP)		
	2012	2012
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	370,499	746,818
RAP Tons used in HMA/WMA	372,549	750,950
RAP Tons used as Aggregate	10,000	20,157
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	18%	
Average % RAP in Other Agency Mixes	15%	
Average % RAP in Commercial & Residential Mixes	22%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	33%	
RAS Tons Received	1,600	3,225
RAS Tons used in HMA/WMA	1,455	2,933
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	4%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	934,654	1,883,990
WMA Other Agency Tonnage	184,450	371,797
WMA Commercial & Residential Tonnage	202,405	407,989
Total WMA Tonnage	1,321,509	2,663,776
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

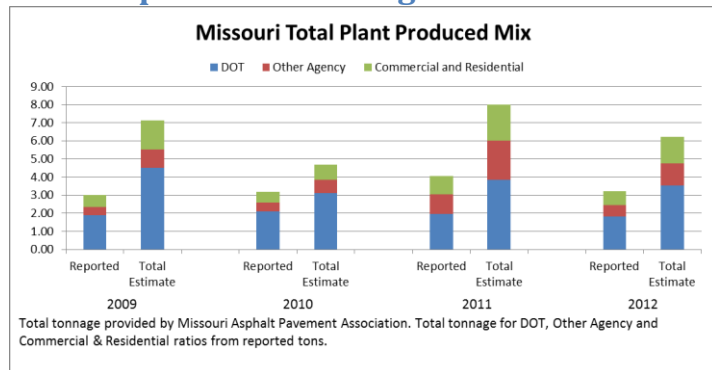
1. Total tonnage provided by Mississippi Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Missouri

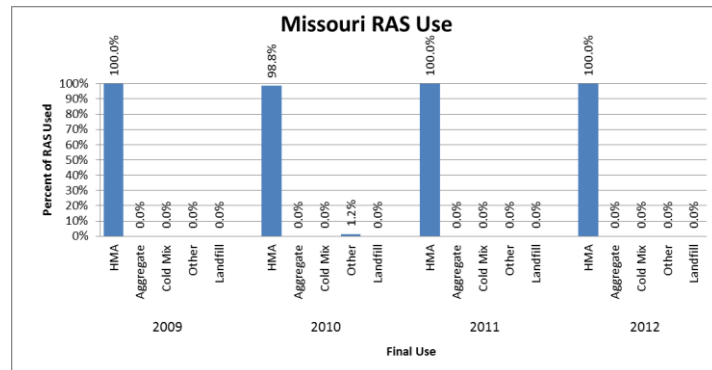
Table B25 summarizes the results received from asphalt mix producers in Missouri. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 6 for 2009 & 2010, 7 for 2011, 5 for 2012

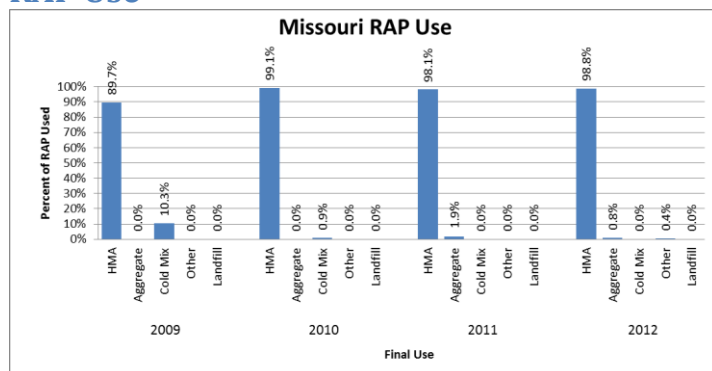
Total Asphalt Mix Tonnage



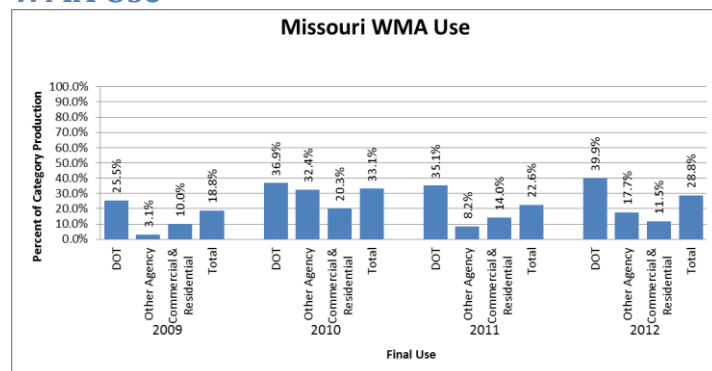
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	1	100,000	300
Foundry Sand	1	5,000	500

Table B25: Summary of Missouri Data for 2012

Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,826,855	3,530,545
Total Other Agency Tonnage	629,962	1,217,452
Total Commercial & Residential Tonnage	769,439	1,487,003
Total Tonnage	3,226,256	6,235,000
Reclaimed Asphalt Pavement (RAP)		
	2012	2012
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	530,965	1,026,133
RAP Tons used in HMA/WMA	627,334	1,212,374
RAP Tons used as Aggregate	5,000	9,663
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	2,500	4,831
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	18%	
Average % RAP in Other Agency Mixes	26%	
Average % RAP in Commercial & Residential Mixes	22%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	100%	
RAS Tons Received	66,911	129,311
RAS Tons used in HMA/WMA	82,336	159,121
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	3%	
Average % RAS in Other Agency Mixes	3%	
Average % RAS in Commercial & Residential Mixes	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	729,191	1,409,221
WMA Other Agency Tonnage	111,472	215,428
WMA Commercial & Residential Tonnage	88,415	170,869
Total WMA Tonnage	929,078	1,795,518
Percent WMA Tons using Chemical Additives	7.7%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	92.3%	
Percent WMA Tons using Organic Additive	0.0%	

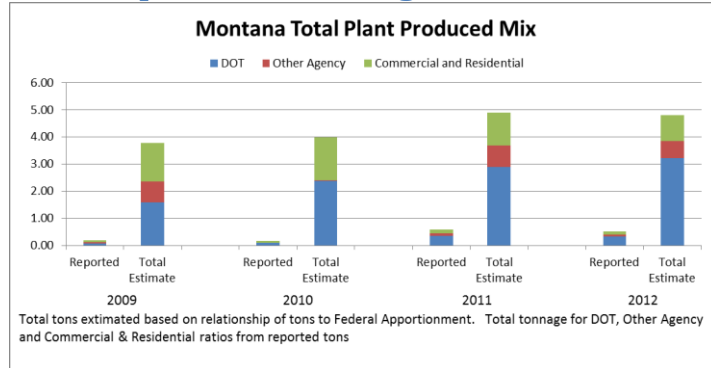
1. Total tonnage provided by Missouri Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Montana

Table B27 summarizes the results received from asphalt mix producers in Montana. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009 and 2010, 4 for 2011 and 2012

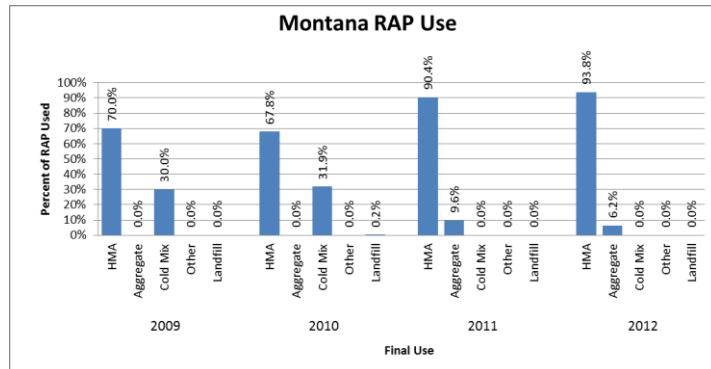
Total Asphalt Mix Tonnage



RAS Use

No contractors reported using RAS in 2009, 2010, 2011 or 2012.

RAP Use



WMA Use

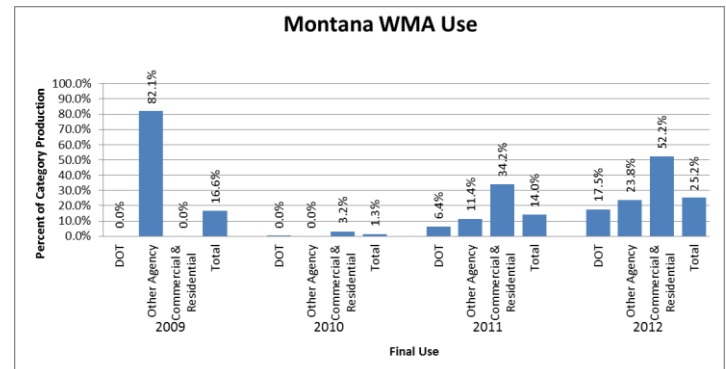


Table B26: Summary of Montana Data for 2012

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	340,098	3,225,351
Total Other Agency Tonnage	65,520	621,365
Total Commercial & Residential Tonnage	100,941	957,283
Total Tonnage	506,559	4,804,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	75%	
RAP Tons Received	43,000	407,795
RAP Tons used in HMA/WMA	48,221	457,308
RAP Tons used as Aggregate	3,184	30,196
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	14%	
Average % RAP in Other Agency Mixes	16%	
Average % RAP in Commercial & Residential Mixes	18%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	25%	
RAS Tons Received	85	806
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	50%	
WMA DOT Tonnage	59,600	565,222
WMA Other Agency Tonnage	15,568	147,643
WMA Commercial & Residential Tonnage	52,688	499,667
Total WMA Tonnage	127,856	1,212,532
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

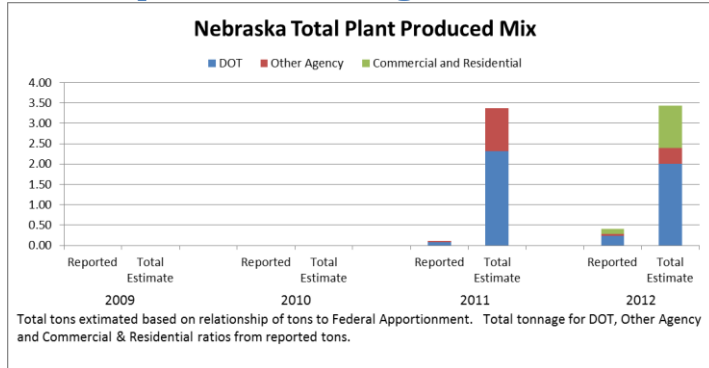
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Nebraska

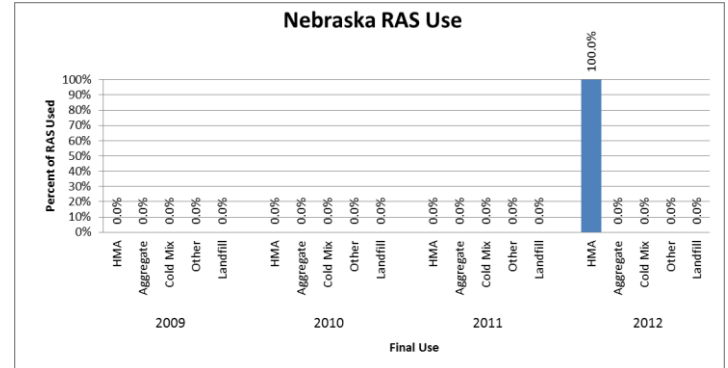
No contractors submitted data for the Nebraska for 2009 and 2010. One contractor submitted data for 2011 and 2012. Total tons were estimated based on a relationship tons to federal apportionment. Table B28 summarizes this data.

No contractors responded in 2009 or 2010, 1 contractor responded in 2011 & 2012

Total Asphalt Mix Tonnage

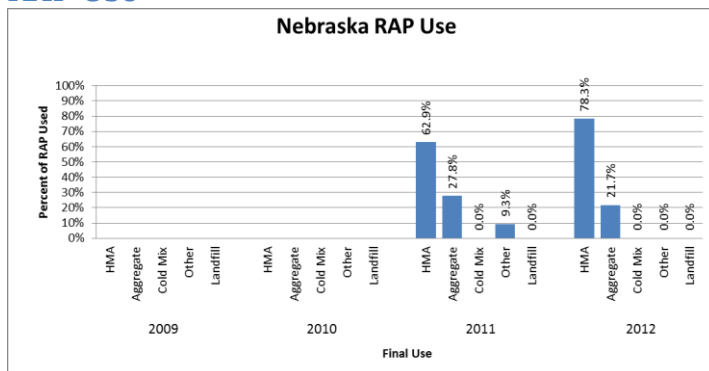


RAS Use

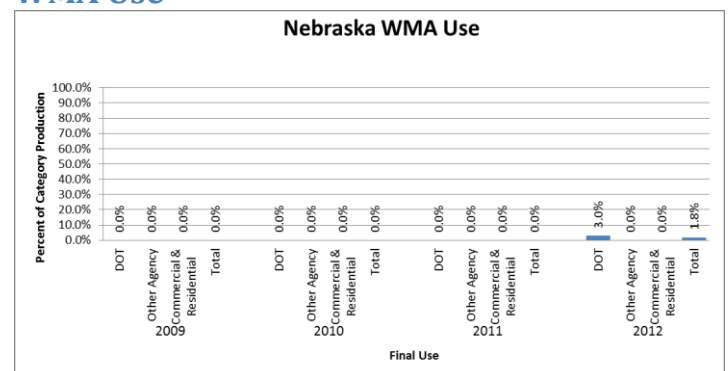


No companies in Nebraska responded to the 2009 and 2010 survey. No RAS use was reported in 2011

RAP Use



WMA Use



No companies in Nebraska responded to the 2009 and 2010 survey. No WMA use was reported in 2011

Table B27: Summary of Nebraska Data for 2012

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	235,000	2,008,918
Total Other Agency Tonnage	45,000	384,686
Total Commercial & Residential Tonnage	120,768	1,032,396
Total Tonnage	400,768	3,426,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	113,000	965,990
RAP Tons used in HMA/WMA	90,136	770,535
RAP Tons used as Aggregate	25,000	213,715
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	30%	
Average % RAP in Other Agency Mixes	25%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	100%	
RAS Tons Received	4,000	34,194
RAS Tons used in HMA/WMA	945	8,078
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	3%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	7,050	60,268
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	7,050	60,268
Percent WMA Tons using Chemical Additives	100.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	0.0%	
Percent WMA Tons using Organic Additive	0.0%	

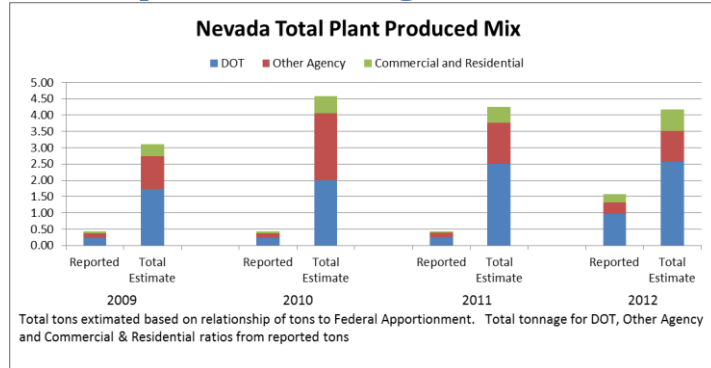
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Nevada

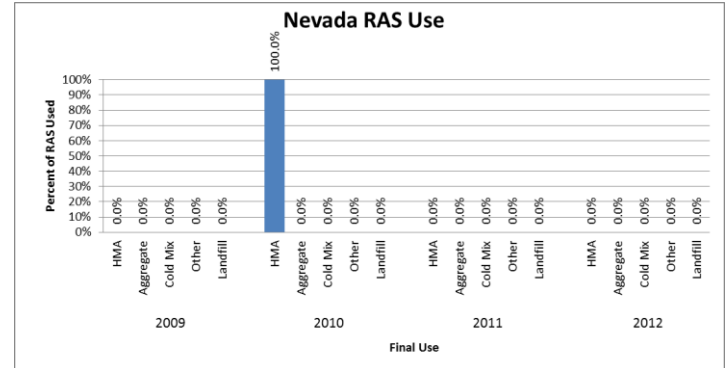
Table B29 summarizes the results received from asphalt mix producers in Nevada. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009, 2010 & 2011, 3 for 2012

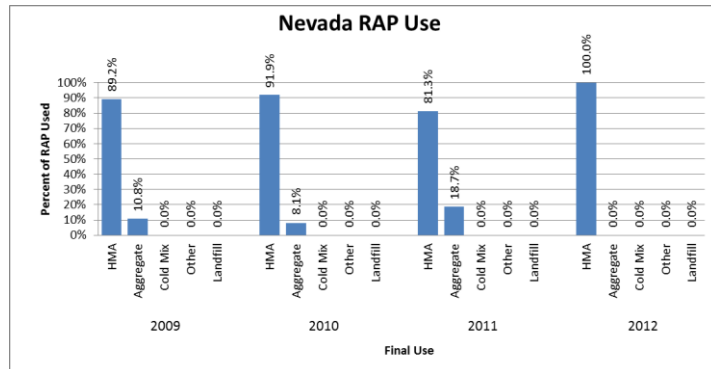
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

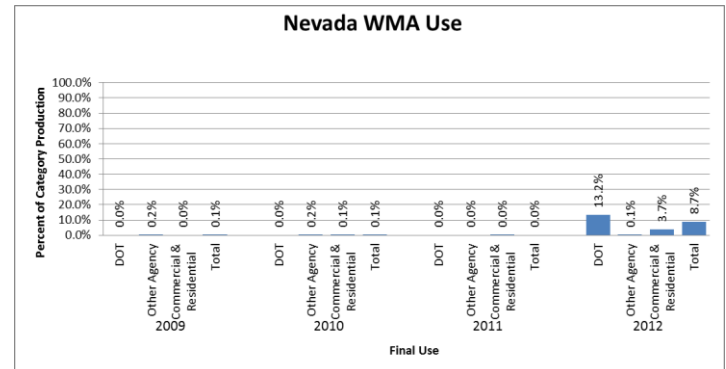


Table B28: Summary of Nevada Data for 2012

3

Companies Reporting

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	967,482	2,564,420
Total Other Agency Tonnage	355,322	941,821
Total Commercial & Residential Tonnage	255,322	676,760
Total Tonnage	1,578,126	4,183,000
Reclaimed Asphalt Pavement (RAP)		
	2012	2012
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	186,728	494,944
RAP Tons used in HMA/WMA	178,565	473,307
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	14%	
Average % RAP in Other Agency Mixes	15%	
Average % RAP in Commercial & Residential Mixes	15%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	67%	
WMA DOT Tonnage	127,872	338,940
WMA Other Agency Tonnage	520	1,378
WMA Commercial & Residential Tonnage	9,466	25,091
Total WMA Tonnage	137,858	365,409
Percent WMA Tons using Chemical Additives	9.6%	
Percent WMA Tons using Additive Foaming	9.6%	
Percent WMA Tons using Plant Foaming	80.8%	
Percent WMA Tons using Organic Additive	0.0%	

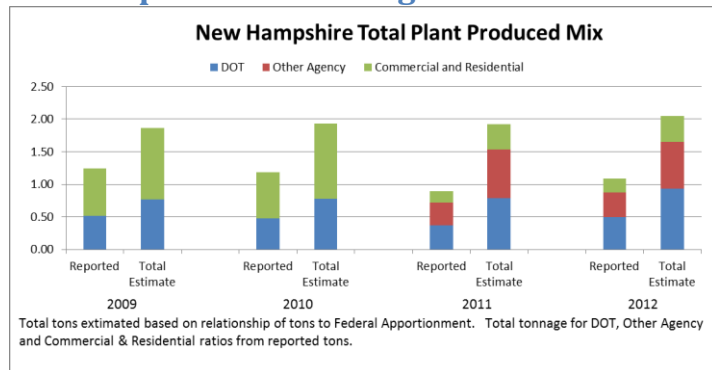
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

New Hampshire

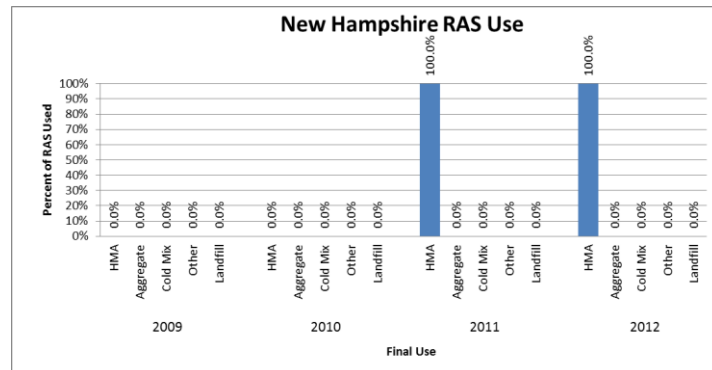
Table B30 summarizes the results received from asphalt mix producers in New Hampshire. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 1 for 2009, 2010 & 2011, 3 for 2012

Total Asphalt Mix Tonnage

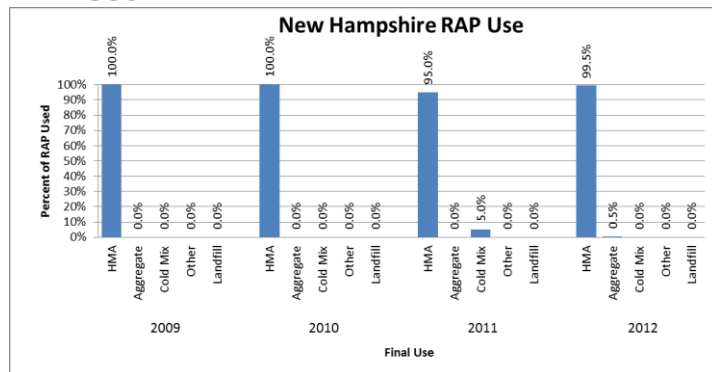


RAS Use



No contractors reported using RAS in 2009 or 2010.

RAP Use



WMA Use

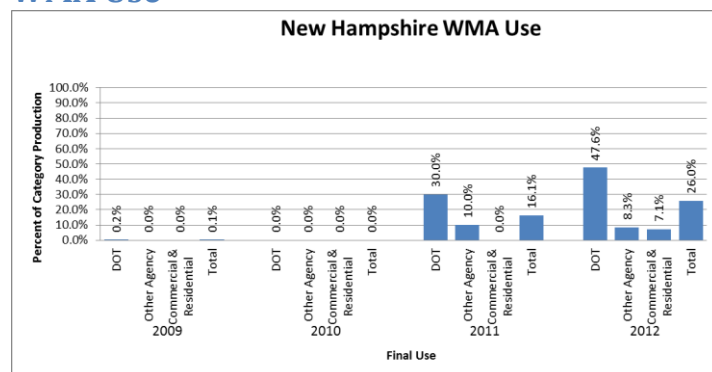


Table B29: Summary of New Hampshire Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	494,215	932,062
Total Other Agency Tonnage	382,792	721,925
Total Commercial & Residential Tonnage	209,451	395,013
Total Tonnage	1,086,458	2,049,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2102
Percent Companies using RAP	100%	
RAP Tons Received	288,884	544,819
RAP Tons used in HMA/WMA	209,584	395,264
RAP Tons used as Aggregate	1,000	1,886
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	21%	
Average % RAP in Other Agency Mixes	19%	
Average % RAP in Commercial & Residential Mixes	19%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	33%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	4,300	8,110
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	3%	
Average % RAS in Commercial & Residential Mixes	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	67%	
WMA DOT Tonnage	235,477	444,096
WMA Other Agency Tonnage	31,953	60,261
WMA Commercial & Residential Tonnage	14,922	28,142
Total WMA Tonnage	282,351	532,499
Percent WMA Tons using Chemical Additives	0.1%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	99.9%	
Percent WMA Tons using Organic Additive	0.0%	

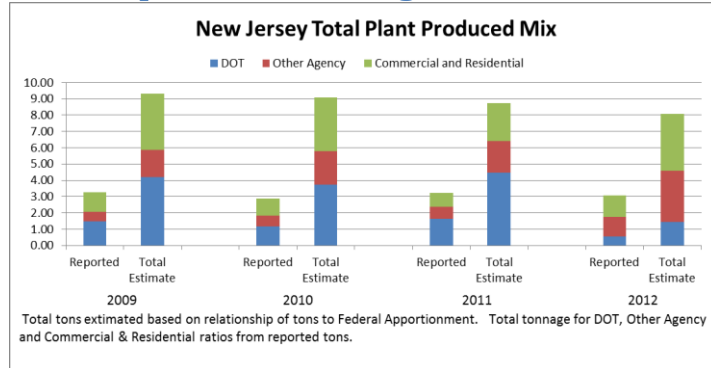
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

New Jersey

Table B31 summarizes the results received from asphalt mix producers in New Jersey. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009 & 2010, 3 for 2011, 2 for 2012

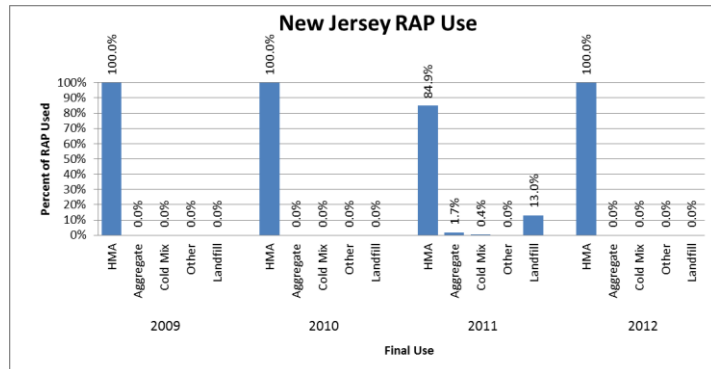
Total Asphalt Mix Tonnage



RAS Use

No contractors reported using RAS in 2009, 2010, 2011, or 2012.

RAP Use



WMA Use

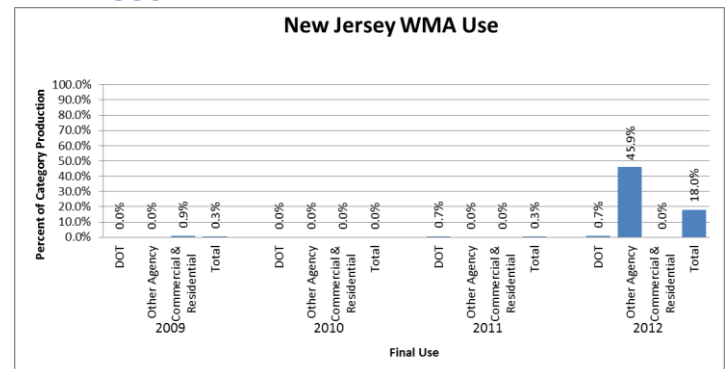


Table B30: Summary of New Jersey Data for 2012

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	551,802	1,447,602
Total Other Agency Tonnage	1,202,847	3,155,559
Total Commercial & Residential Tonnage	1,328,744	3,485,839
Total Tonnage	3,083,393	8,089,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	991,747	2,601,758
RAP Tons used in HMA/WMA	481,475	1,263,106
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	15%	
Average % RAP in Other Agency Mixes	13%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	4,011	10,522
WMA Other Agency Tonnage	552,612	1,449,727
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	556,623	1,460,249
Percent WMA Tons using Chemical Additives	99.3%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	0.7%	
Percent WMA Tons using Organic Additive	0.0%	

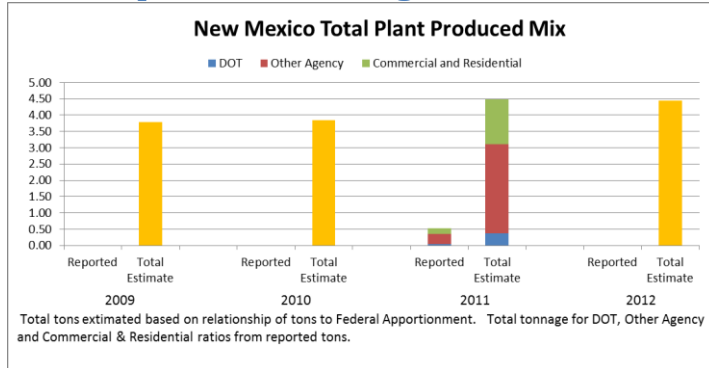
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

New Mexico

No contractors submitted data for the New Mexico for 2009, 2010, and 2012. One contractor submitted data for 2011. Total tons were estimated based on a relationship tons to federal apportionment. Table B28 summarizes this data.

Companies responding: 0 for 2009 & 2010, 1 for 2011, 0 for 2012

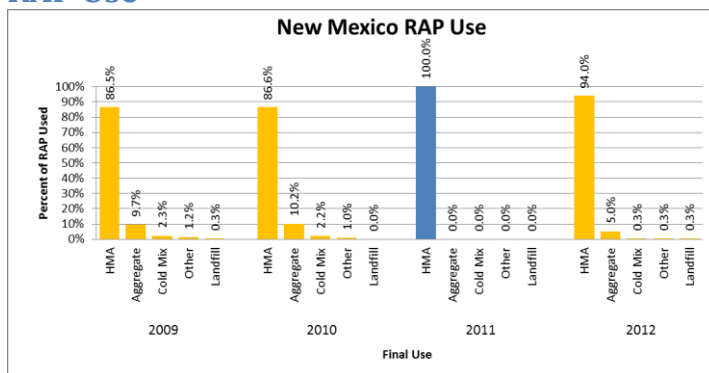
Total Asphalt Mix Tonnage



RAS Use

No companies in New Mexico responded to the 2009, 2010 and 2012 survey. No RAS use was reported in 2011.

RAP Use



WMA Use

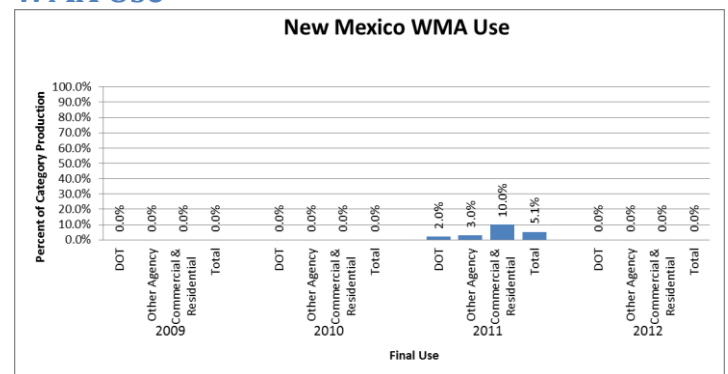


Table B31: Summary New Mexico Data for 2012

Companies Reporting

0

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage		
Total Other Agency Tonnage		
Total Commercial & Residential Tonnage		
Total Tonnage		4,444,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP		
RAP Tons Received		877,477
RAP Tons used in HMA/WMA		841,363
RAP Tons used as Aggregate		45,042
RAP Tons used in Cold Mix		2,605
RAP Tons used as Other		3,025
RAP Tons Landfilled		3,009
Average % RAP in DOT Mixes		
Average % RAP in Other Agency Mixes		
Average % RAP in Commercial & Residential Mixes		

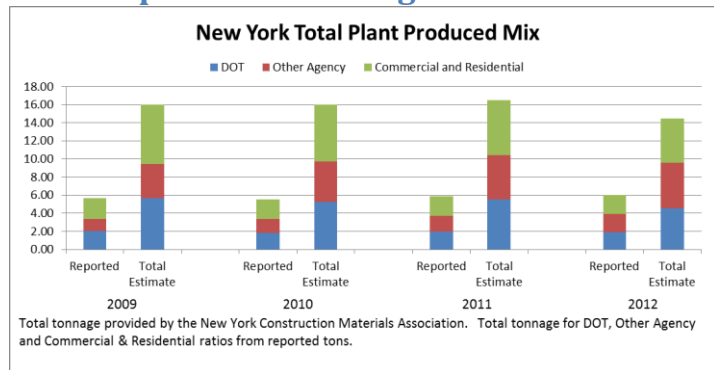
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

New York

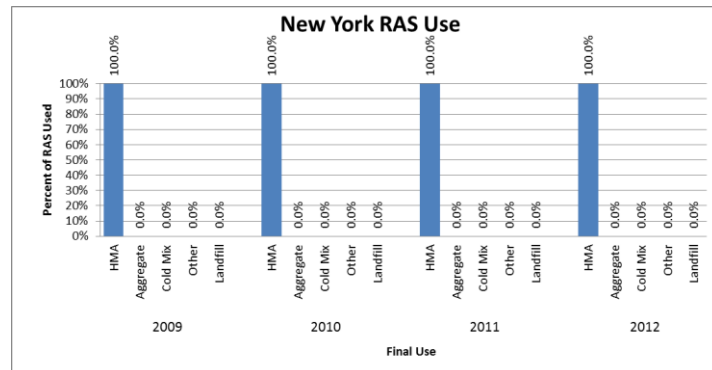
Table B33 summarizes the results received from asphalt mix producers in New York. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 13 for 2009 & 2010, 11 for 2011 and 2012

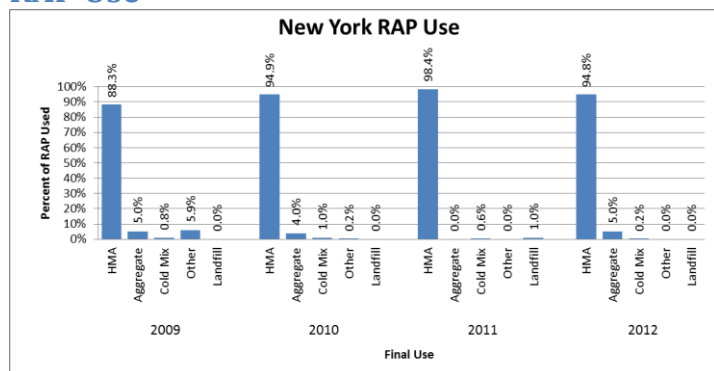
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

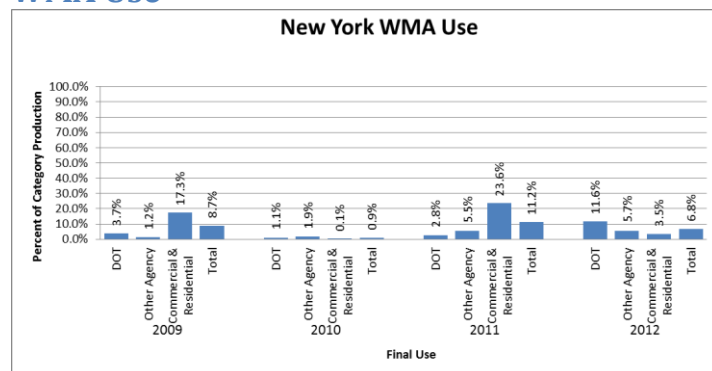


Table B32: Summary of New York Data for 2012

11

Companies Reporting

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,871,928	4,521,204
Total Other Agency Tonnage	2,080,332	5,024,555
Total Commercial & Residential Tonnage	2,051,220	4,954,242
Total Tonnage	6,003,480	14,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	91%	
RAP Tons Received	729,000	1,760,729
RAP Tons used in HMA/WMA	797,437	1,926,022
RAP Tons used as Aggregate	41,728	100,784
RAP Tons used in Cold Mix	1,500	3,623
RAP Tons used as Other	5	12
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	16%	
Average % RAP in Other Agency Mixes	15%	
Average % RAP in Commercial & Residential Mixes	18%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	18%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	3,175	7,668
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	73%	
WMA DOT Tonnage	217,137	524,444
WMA Other Agency Tonnage	117,732	284,355
WMA Commercial & Residential Tonnage	72,406	174,879
Total WMA Tonnage	407,275	983,678
Percent WMA Tons using Chemical Additives	13.1%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	86.9%	
Percent WMA Tons using Organic Additive	0.0%	

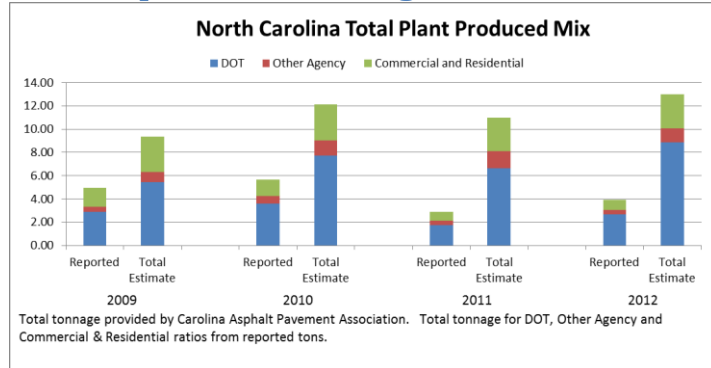
1. Total tonnage provided by the New York Construction Materials Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

North Carolina

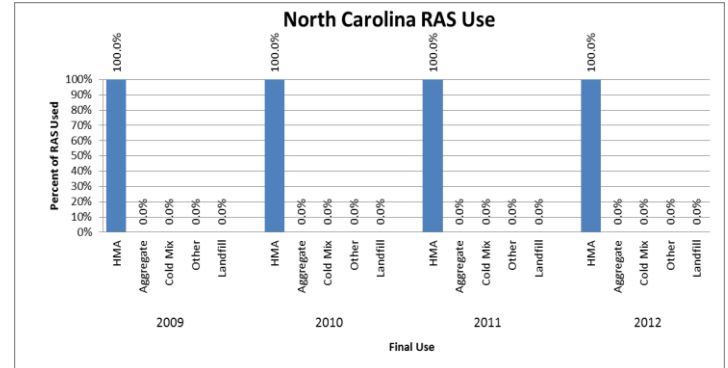
Table B34 summarizes the results received from asphalt mix producers in North Carolina. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 6 for 2009 & 2010, 5 for 2011, 6 for 2012

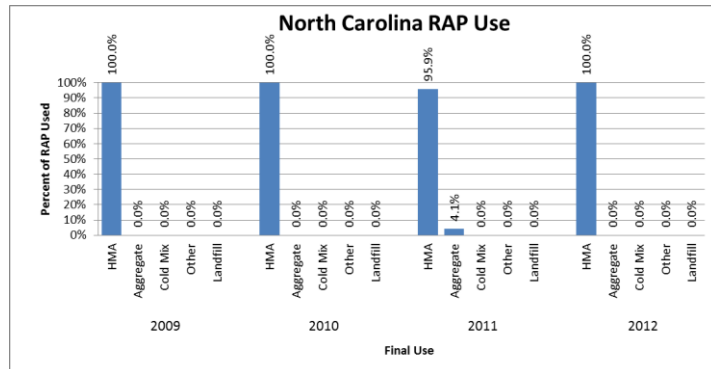
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

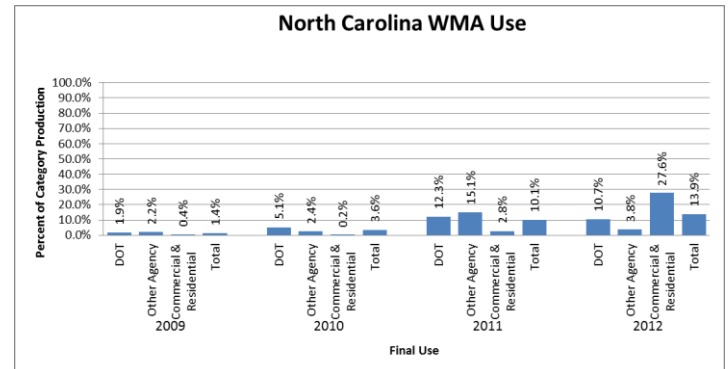


Table B33: Summary of North Carolina Data for 2012

Companies Reporting

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	2,671,493	8,847,629
Total Other Agency Tonnage	366,141	1,212,611
Total Commercial & Residential Tonnage	887,644	2,939,760
Total Tonnage	3,925,278	13,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	495,935	1,642,471
RAP Tons used in HMA/WMA	582,515	1,929,212
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	23%	
Average % RAP in Other Agency Mixes	24%	
Average % RAP in Commercial & Residential Mixes	24%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	33%	
RAS Tons Received	7,436	24,627
RAS Tons used in HMA/WMA	5,294	17,533
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	3%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	83%	
WMA DOT Tonnage	284,560	942,425
WMA Other Agency Tonnage	13,807	45,726
WMA Commercial & Residential Tonnage	245,365	812,617
Total WMA Tonnage	543,732	1,800,768
Percent WMA Tons using Chemical Additives	32.6%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	67.4%	
Percent WMA Tons using Organic Additive	0.0%	

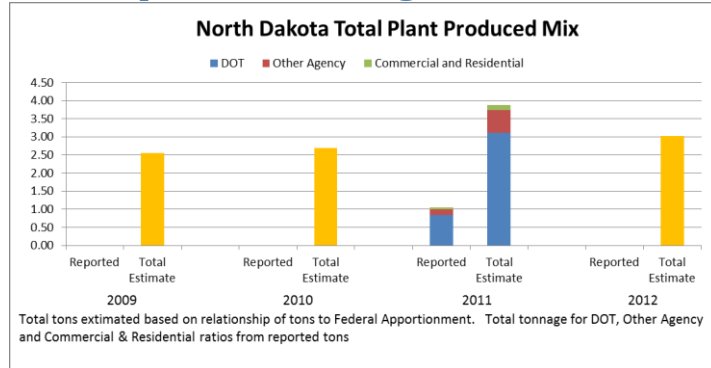
1. Total tonnage provided by Carolina Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

North Dakota

No contractors submitted data for the North Dakota for 2009, 2010 and 2012. Three contractors submitted data for 2011. Table B28 summarizes data for 2012.

Companies responding: 0 for 2009 & 2010, 3 for 2011, 0 for 2012

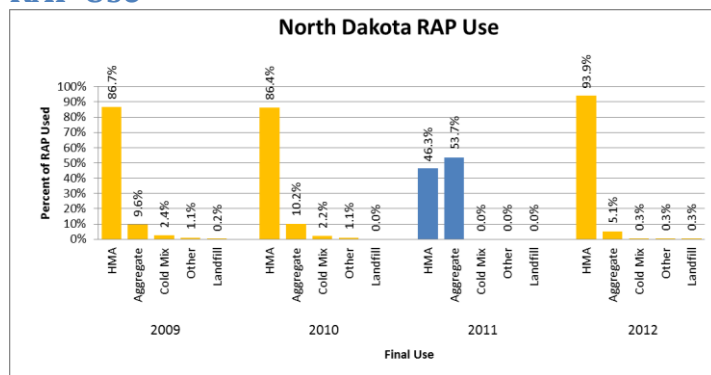
Total Asphalt Mix Tonnage



RAS Use

No companies in North Dakota responded to the 2009, 2010, and 2011 surveys. No RAS use was reported in 2012.

RAP Use



WMA Use

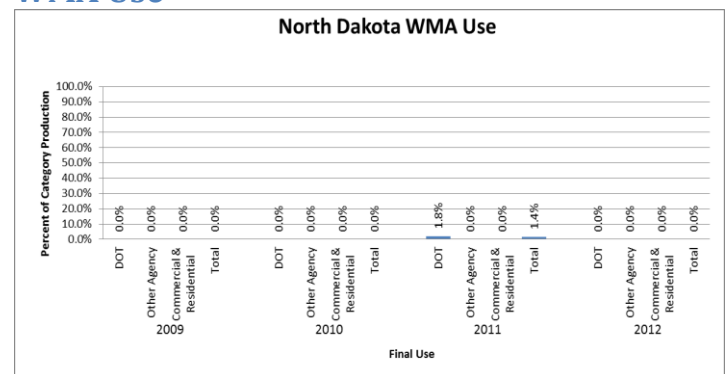


Table B34: Summary of North Dakota Data for 2012

Companies Reporting

0

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	-	-
Total Other Agency Tonnage	-	-
Total Commercial & Residential Tonnage	-	NA)
Total Tonnage	-	3,029,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	NA	
RAP Tons Received	-	598,082
RAP Tons used in HMA/WMA)	573,467
RAP Tons used as Aggregate	-	30,700
RAP Tons used in Cold Mix	-	1,775
RAP Tons used as Other	-	2,062
RAP Tons Landfilled	-	2,051
Average % RAP in DOT Mixes	0%	
Average % RAP in Other Agency Mixes	0%	
Average % RAP in Commercial & Residential Mixes	0%	

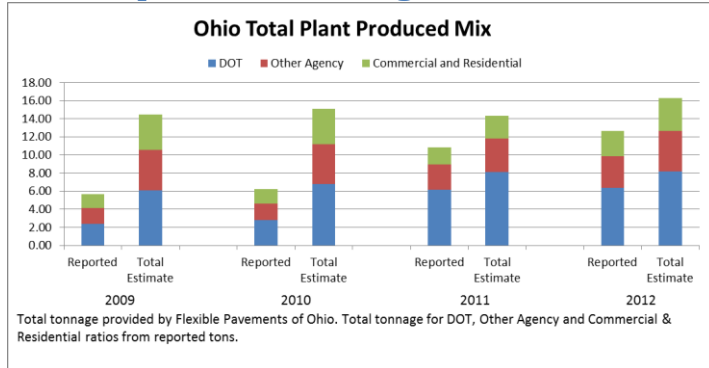
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Ohio

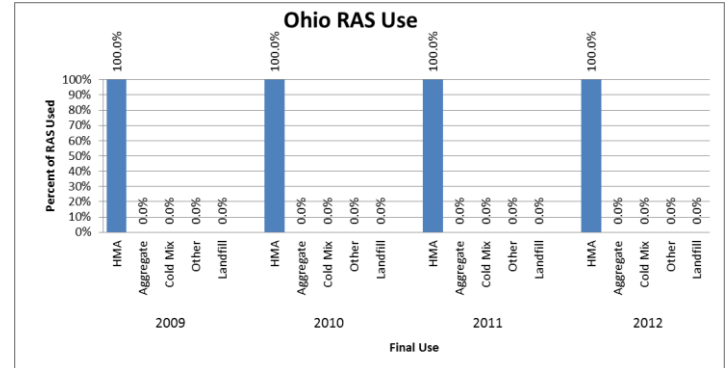
Table B36 summarizes the results received from asphalt mix producers in Ohio. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 5 for 2009, 2010 & 2011, 6 for 2012

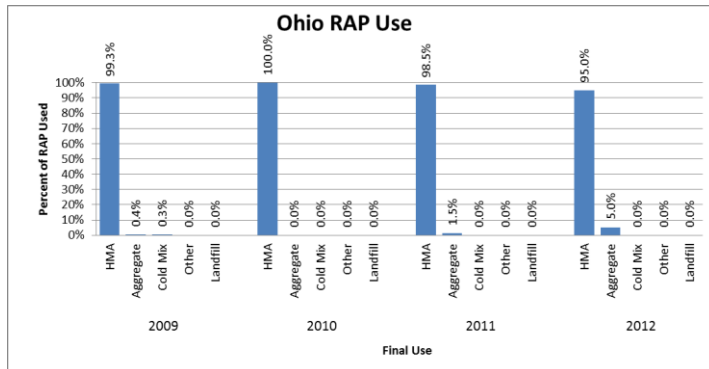
Total Asphalt Mix Tonnage



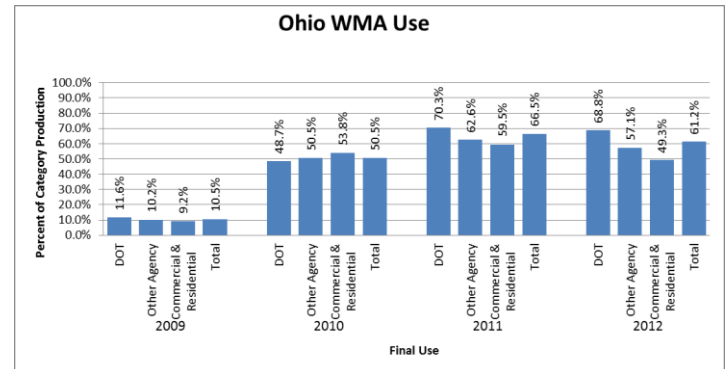
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	2	36,200	1,170
Steel Slag	2	150,000	42,030
Blast Furnace Slag	3	208,028	72,400

Table B35: Summary of Ohio Data for 2012

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	6,355,695	8,170,499
Total Other Agency Tonnage	3,488,579	4,484,707
Total Commercial & Residential Tonnage	2,835,225	3,644,794
Total Tonnage	12,679,499	16,300,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	3,011,495	3,871,397
RAP Tons used in HMA/WMA	3,020,942	3,883,541
RAP Tons used as Aggregate	158,226	203,406
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	23%	
Average % RAP in Other Agency Mixes	21%	
Average % RAP in Commercial & Residential Mixes	25%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	50%	
RAS Tons Received	5,000	6,428
RAS Tons used in HMA/WMA	28,512	36,653
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	2%	
Average % RAS in Other Agency Mixes	2%	
Average % RAS in Commercial & Residential Mixes	4%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	4,372,239	5,620,687
WMA Other Agency Tonnage	1,993,274	2,562,434
WMA Commercial & Residential Tonnage	1,397,441	1,796,466
Total WMA Tonnage	7,762,954	9,979,586
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

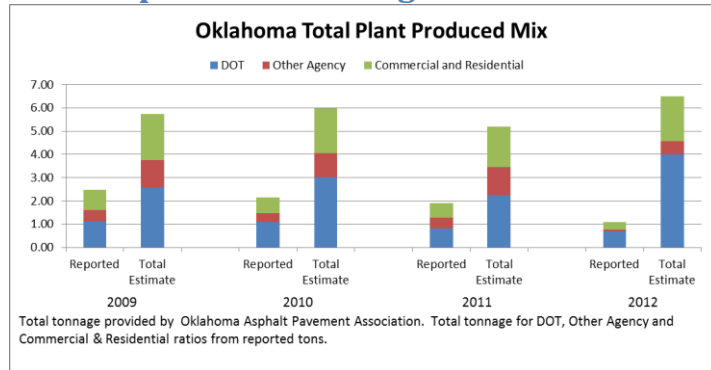
1. Total tonnage provided by Flexible Pavements of Ohio. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Oklahoma

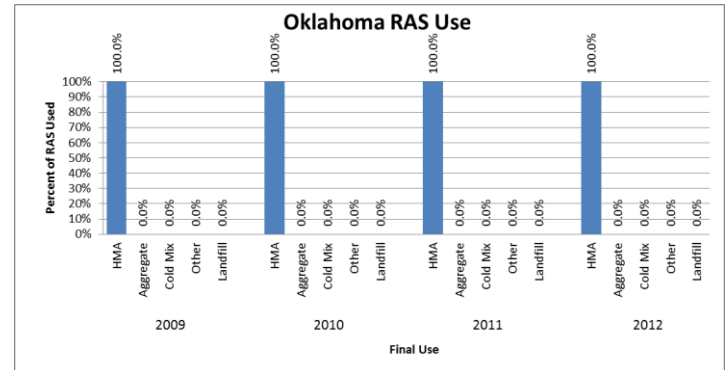
Table B37 summarizes the results received from asphalt mix producers in Oklahoma. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 4 for 2009 & 2010, 3 for 2011 and 2012

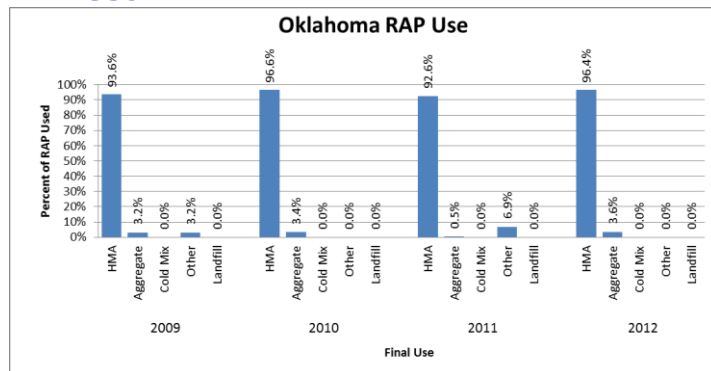
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

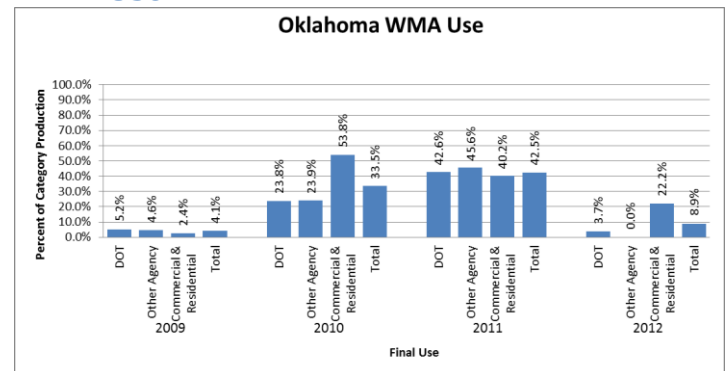


Table B36: Summary of Oklahoma Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	670,000	3,991,751
Total Other Agency Tonnage	95,000	565,995
Total Commercial & Residential Tonnage	326,000	1,942,255
Total Tonnage	1,091,000	6,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	75,000	446,838
RAP Tons used in HMA/WMA	134,588	801,853
RAP Tons used as Aggregate	5,000	29,789
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	15%	
Average % RAP in Other Agency Mixes	14%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	67%	
RAS Tons Received	17,000	101,283
RAS Tons used in HMA/WMA	16,268	96,922
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	2%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	33%	
WMA DOT Tonnage	25,000	148,946
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	72,500	431,943
Total WMA Tonnage	97,500	580,889
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

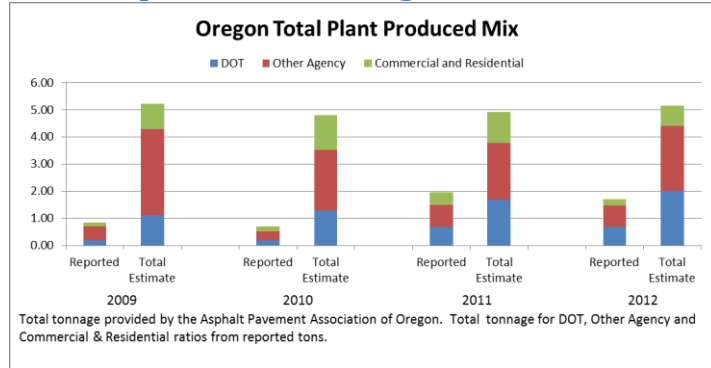
1. Total tonnage provided by Oklahoma Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Oregon

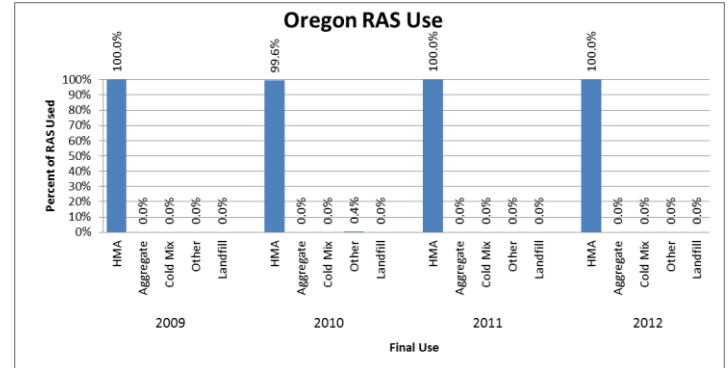
Table B38 summarizes the results received from asphalt mix producers in Oregon. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 6 for 2009, 2010, 2011, and 2012

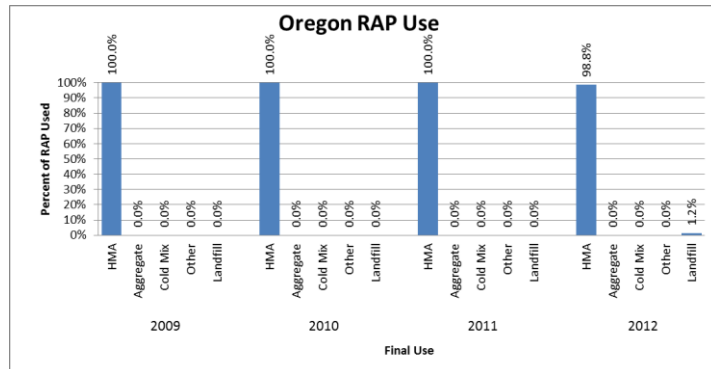
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

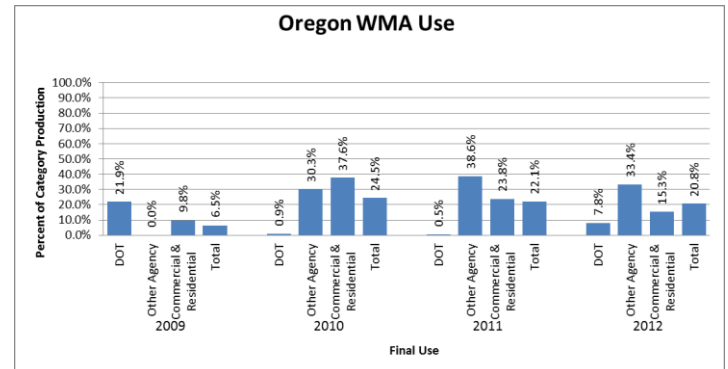


Table B37: Summary of Oregon Data for 2012

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	669,238	2,014,395
Total Other Agency Tonnage	795,000	2,392,936
Total Commercial & Residential Tonnage	243,413	732,669
Total Tonnage	1,707,651	5,140,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	470,000	1,414,692
RAP Tons used in HMA/WMA	417,660	1,257,149
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	5,000	15,050
Average % RAP in DOT Mixes	24%	
Average % RAP in Other Agency Mixes	25%	
Average % RAP in Commercial & Residential Mixes	26%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	50%	
RAS Tons Received	3,000	9,030
RAS Tons used in HMA/WMA	6,943	20,898
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	1%	
Average % RAS in Other Agency Mixes	2%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	83%	
WMA DOT Tonnage	52,490	157,994
WMA Other Agency Tonnage	265,300	798,548
WMA Commercial & Residential Tonnage	37,261	112,154
Total WMA Tonnage	355,051	1,068,696
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

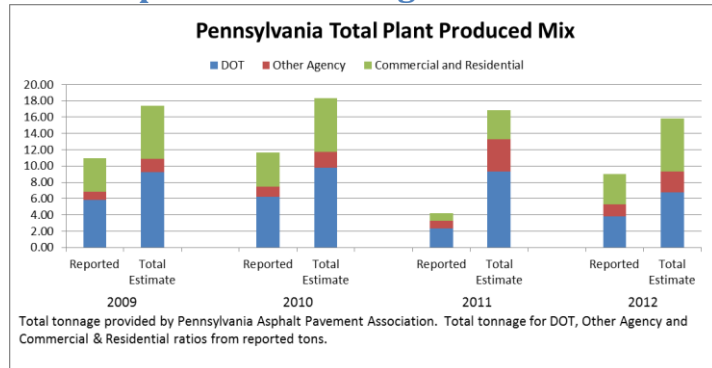
1. Total tonnage provided by the Asphalt Pavement Association of Oregon. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Pennsylvania

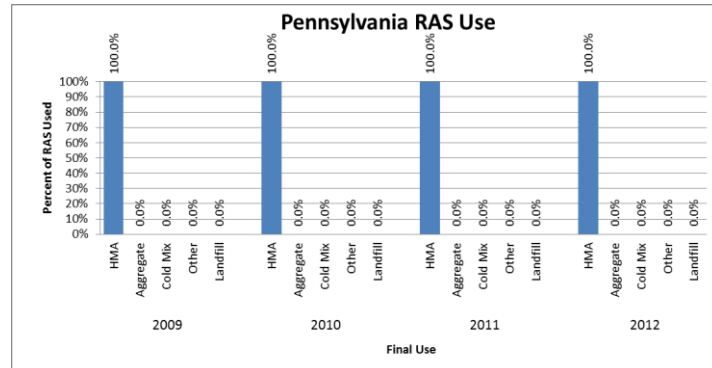
Table B38 summarizes the results received from asphalt mix producers in Pennsylvania. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 17 for 2009 & 2010, 7 for 2011, 15 for 2012

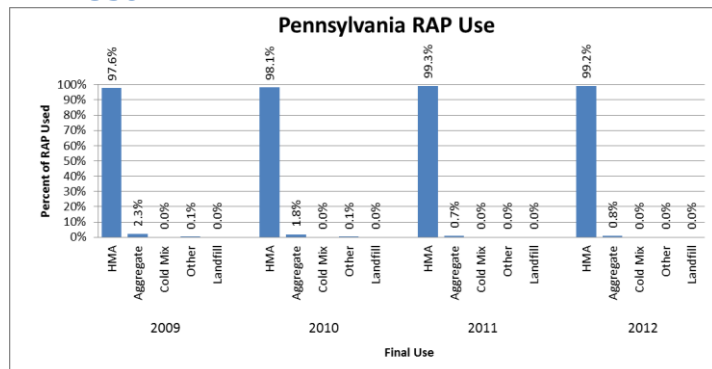
Total Asphalt Mix Tonnage



RAS Use



RAP Use



WMA Use

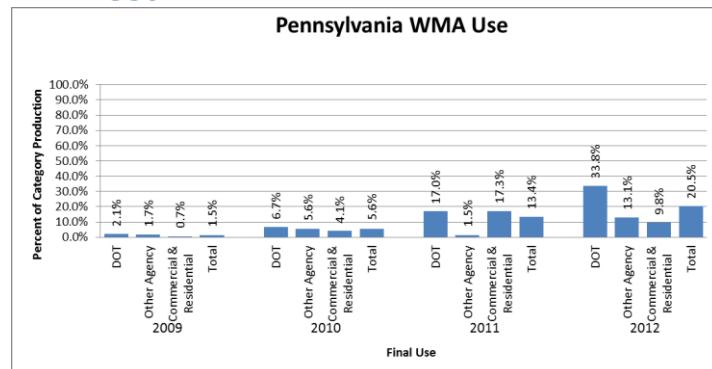


Table B38: Summary of Pennsylvania Data for 2012

Companies Reporting

15

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	3,851,772	6,765,507
Total Other Agency Tonnage	1,441,312	2,531,616
Total Commercial & Residential Tonnage	3,738,118	6,565,877
Total Tonnage	9,031,202	15,863,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	1,134,743	1,993,138
RAP Tons used in HMA/WMA	1,404,717	2,467,338
RAP Tons used as Aggregate	11,396	20,017
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	16%	
Average % RAP in Other Agency Mixes	15%	
Average % RAP in Commercial & Residential Mixes	19%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	27%	
RAS Tons Received	43,042	75,602
RAS Tons used in HMA/WMA	55,800	98,011
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	1%	
Average % RAS in Other Agency Mixes	1%	
Average % RAS in Commercial & Residential Mixes	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	93%	
WMA DOT Tonnage	1,300,918	2,285,018
WMA Other Agency Tonnage	188,913	331,820
WMA Commercial & Residential Tonnage	364,468	640,175
Total WMA Tonnage	1,854,299	3,257,012
Percent WMA Tons using Chemical Additives	18.3%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	81.7%	
Percent WMA Tons using Organic Additive	0.0%	

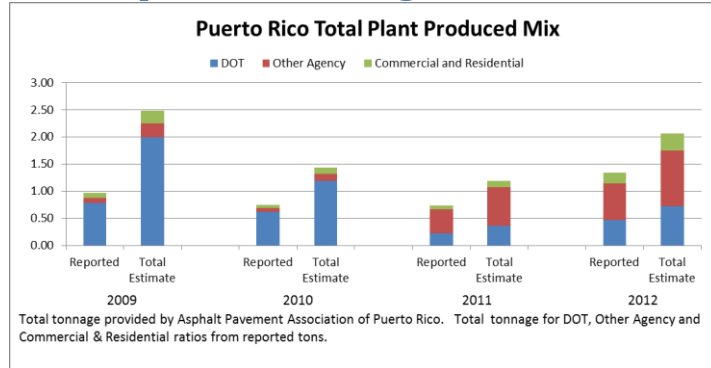
1. Total tonnage provided by the Pennsylvania Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Puerto Rico

Table B40 summarizes the results received from asphalt mix producers in Puerto Rico. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 1 for 2009, 2010, 2011, and 2012

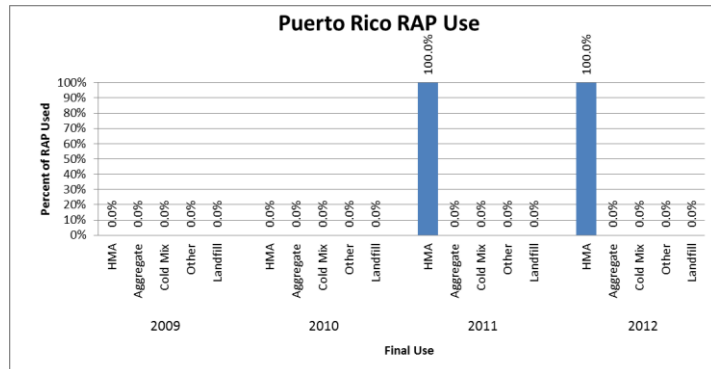
Total Asphalt Mix Tonnage



RAS Use

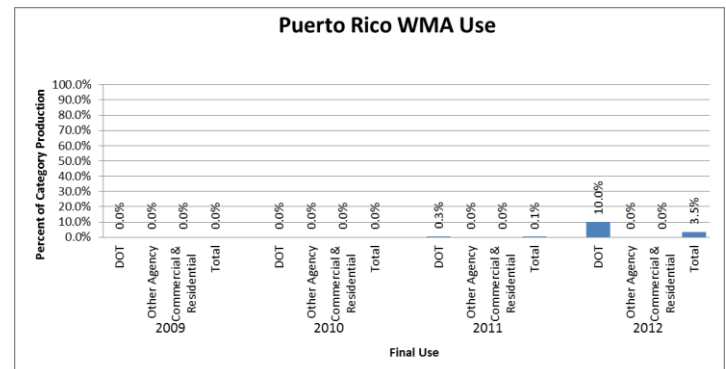
No contractors reported using RAS in Puerto Rico for 2009, 2010, 2011 or 2012.

RAP Use



No contractors reported using RAP in Puerto Rico for 2009 and 2010.

WMA Use



No contractors reported using WMA in Puerto Rico for 2009 and 2010.

Table B39: Summary of Puerto Rico Data for 2012

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	468,890	720,986
Total Other Agency Tonnage	669,856	1,030,000
Total Commercial & Residential Tonnage	200,966	309,014
Total Tonnage	1,339,712	2,060,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	13,350	20,528
RAP Tons used in HMA/WMA	267,000	410,551
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	5%	
Average % RAP in Other Agency Mixes	5%	
Average % RAP in Commercial & Residential Mixes	5%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	46,889	72,099
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	46,889	72,099
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	0.0%	
Percent WMA Tons using Organic Additive	100.0%	

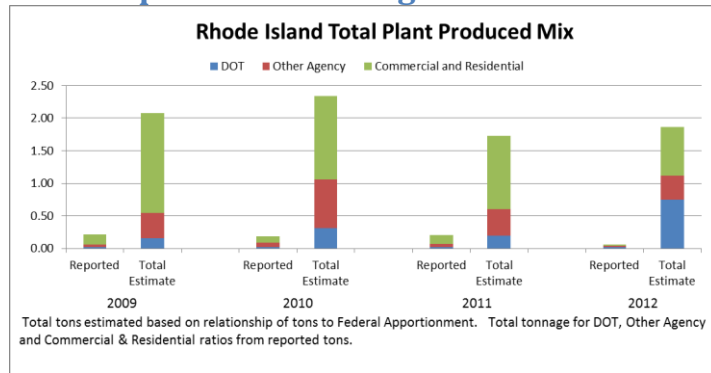
1. Total tonnage provided by Asphalt Pavement Association of Puerto Rico. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Rhode Island

Table B41 summarizes the results received from asphalt mix producers in Rhode Island. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009, 2010 & 2011, 1 for 2012

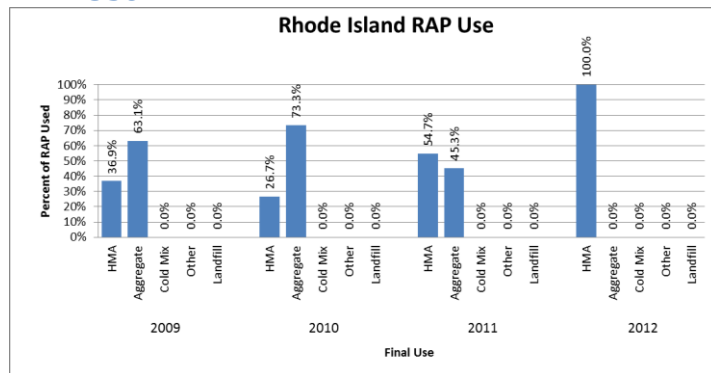
Total Asphalt Mix Tonnage



RAS Use

No contractors reported using RAS in Rhode Island for 2009, 2010, 2011, or 2012.

RAP Use



WMA Use

No contractors reported using WMA in Rhode Island for 2009, 2010, 2011, or 2012.

Table B40: Summary of Rhode Island Data for 2012

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	25,000	746,400
Total Other Agency Tonnage	12,500	373,200
Total Commercial & Residential Tonnage	25,000	746,400
Total Tonnage	62,500	1,866,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	3,974	118,648
RAP Tons used in HMA/WMA	1,050	31,349
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	0%	
Average % RAP in Other Agency Mixes	0%	
Average % RAP in Commercial & Residential Mixes	4%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	0%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	-	-
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	0.0%	
Percent WMA Tons using Organic Additive	0.0%	

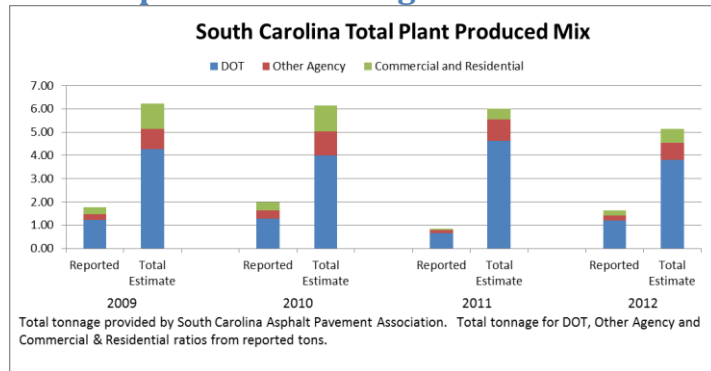
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

South Carolina

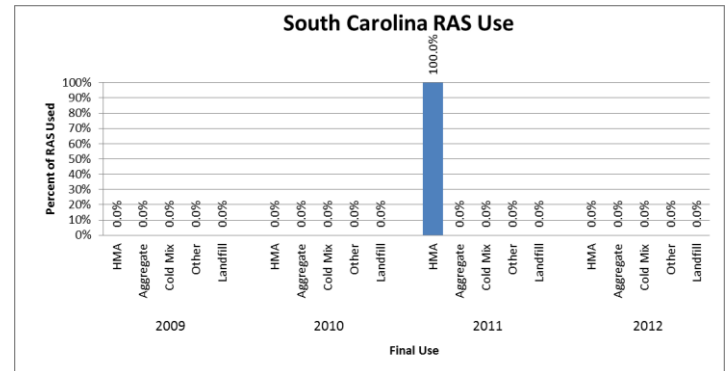
Table B42 summarizes the results received from asphalt mix producers in South Carolina. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 4 for 2009 & 2010, 3 for 2011, 4 for 2012

Total Asphalt Mix Tonnage

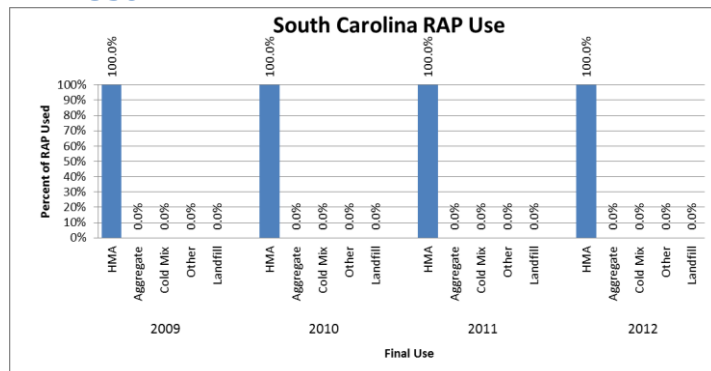


RAS Use



No contracts reported using RAS in South Carolina for 2009 or 2010.

RAP Use



WMA Use

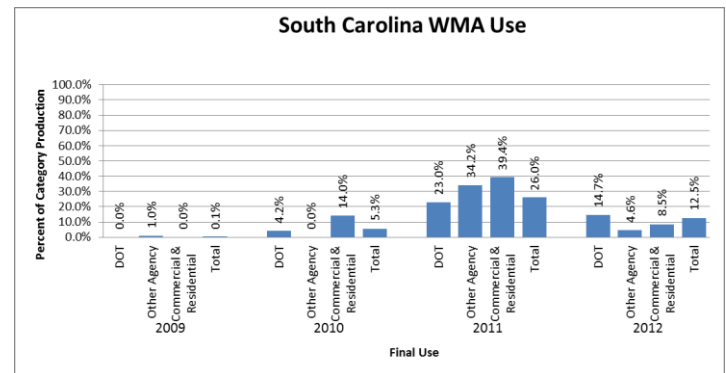


Table B41: Summary of South Carolina Data for 2012

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,201,842	3,816,564
Total Other Agency Tonnage	226,313	718,679
Total Commercial & Residential Tonnage	193,588	614,757
Total Tonnage	1,621,743	5,150,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	434,120	1,378,590
RAP Tons used in HMA/WMA	384,496	1,221,004
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	24%	
Average % RAP in Other Agency Mixes	24%	
Average % RAP in Commercial & Residential Mixes	24%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	25%	
WMA DOT Tonnage	176,357	560,039
WMA Other Agency Tonnage	10,451	33,188
WMA Commercial & Residential Tonnage	16,485	52,350
Total WMA Tonnage	203,293	645,577
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

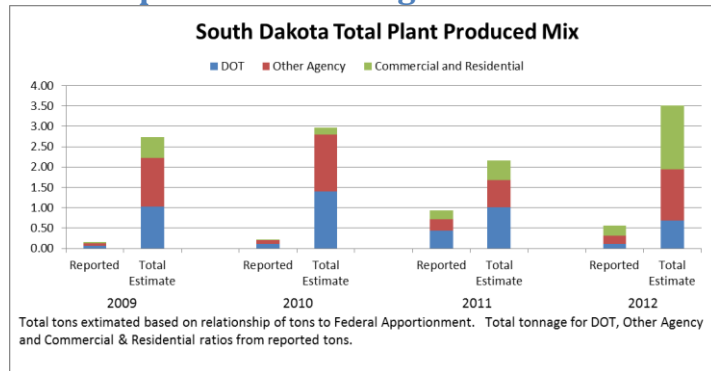
1. Total tonnage provided by South Carolina Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

South Dakota

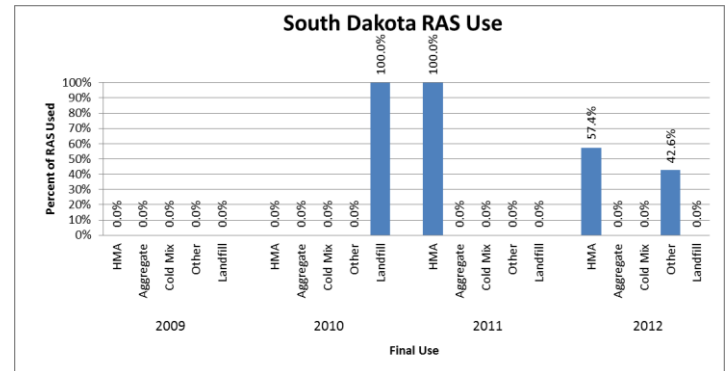
Table B43 summarizes the results received from asphalt mix producers in South Dakota. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 1 for 2009 & 2010, 3 for 2011 and 2012

Total Asphalt Mix Tonnage

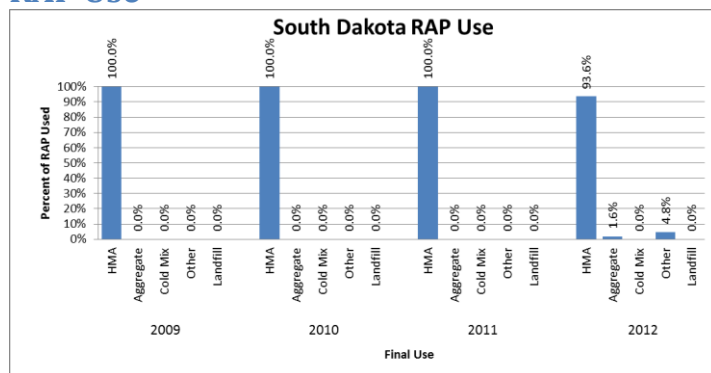


RAS Use

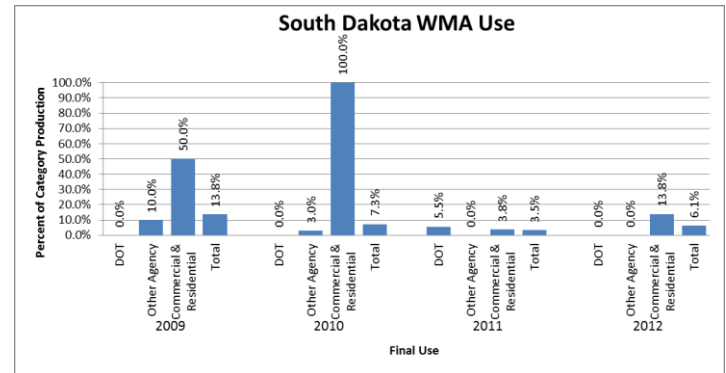


No contractors reported using RAS in South Dakota in 2009 or 2010.

RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Bottom Ash	1	52,000	4,280

Table B42: Summary of South Dakota Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	110,625	690,680
Total Other Agency Tonnage	201,635	1,258,895
Total Commercial & Residential Tonnage	249,450	1,557,425
Total Tonnage	561,710	3,507,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	123,000	767,943
RAP Tons used in HMA/WMA	115,064	718,395
RAP Tons used as Aggregate	2,000	12,487
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	6,000	37,461
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	14%	
Average % RAP in Other Agency Mixes	18%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	67%	
RAS Tons Received	4,400	27,471
RAS Tons used in HMA/WMA	1,349	8,422
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	1,000	6,243
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	1%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	33%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	34,450	215,086
Total WMA Tonnage	34,450	215,086
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

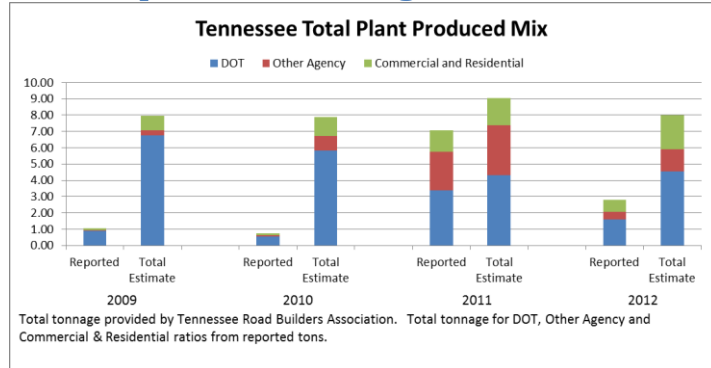
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Tennessee

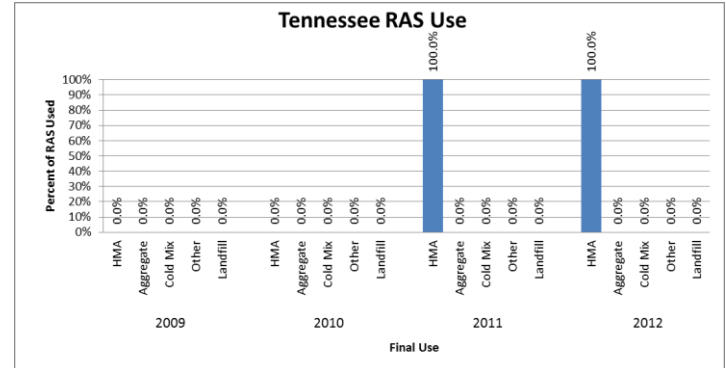
Table B44 summarizes the results received from asphalt mix producers in Tennessee. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009 & 2010, 7 for 2011, 5 for 2012

Total Asphalt Mix Tonnage

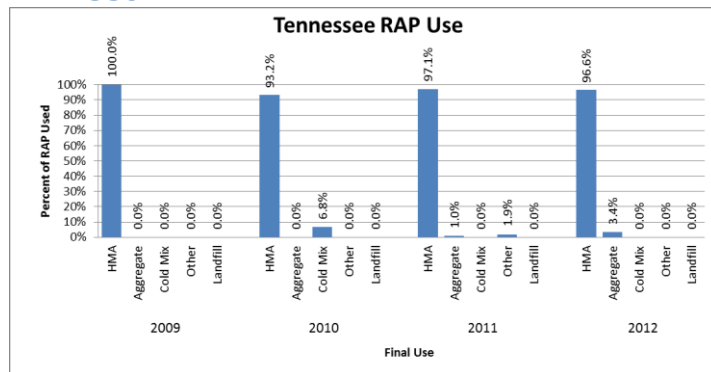


RAS Use

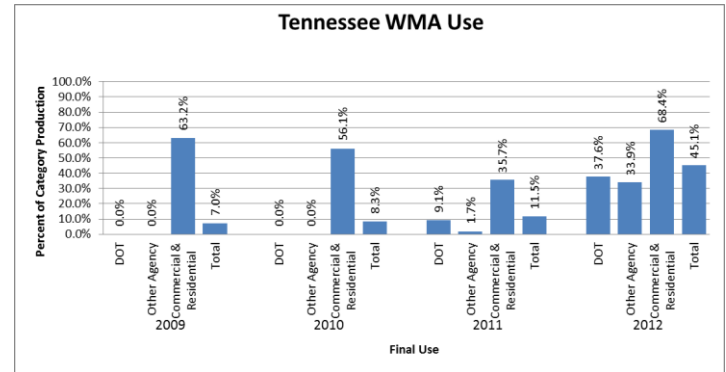


No contractors reported using RAS in 2009 or 2010.

RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	1	30,000	6,000

Table B43: Summary of Tennessee Data for 2012

Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,585,046	4,541,129
Total Other Agency Tonnage	471,962	1,352,163
Total Commercial & Residential Tonnage	735,330	2,106,708
Total Tonnage	2,792,338	8,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	672,500	1,926,701
RAP Tons used in HMA/WMA	560,606	1,606,126
RAP Tons used as Aggregate	20,000	57,300
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	20%	
Average % RAP in Other Agency Mixes	23%	
Average % RAP in Commercial & Residential Mixes	22%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	40%	
RAS Tons Received	1,500	4,297
RAS Tons used in HMA/WMA	1,534	4,395
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	1%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	80%	
WMA DOT Tonnage	596,523	1,709,028
WMA Other Agency Tonnage	160,000	458,397
WMA Commercial & Residential Tonnage	502,780	1,440,456
Total WMA Tonnage	1,259,303	3,607,881
Percent WMA Tons using Chemical Additives	1.1%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	98.9%	
Percent WMA Tons using Organic Additive	0.0%	

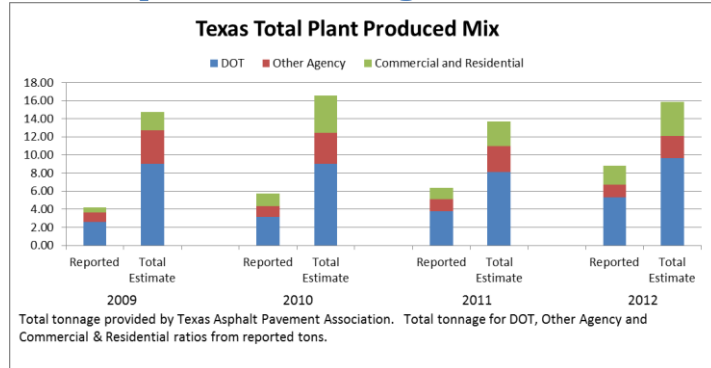
1. Total tonnage provided by Tennessee Road Builders Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons..

Texas

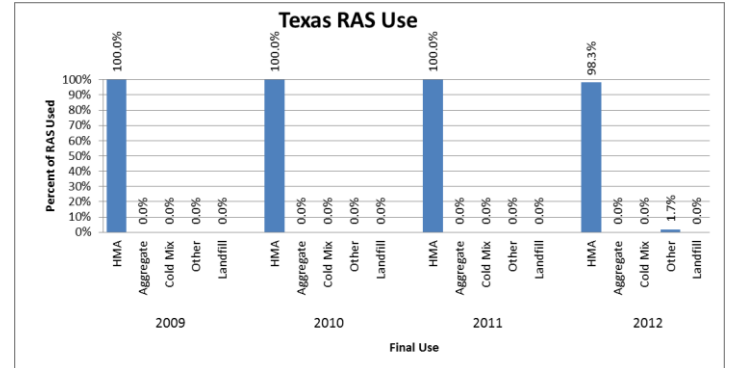
Table B45 summarizes the results received from asphalt mix producers in Texas. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 7 for 2009 & 2010, 9 for 2011, 10 for 2012

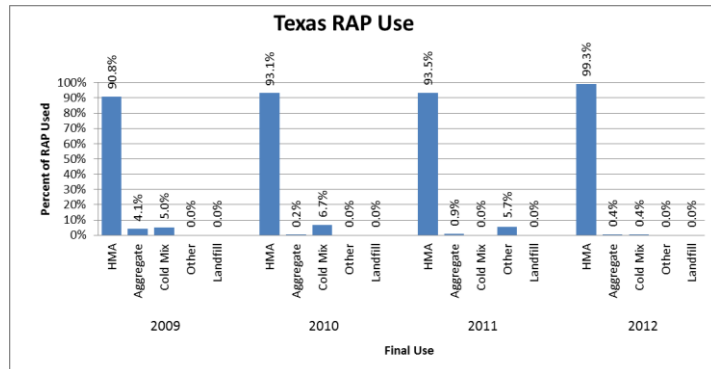
Total Asphalt Mix Tonnage



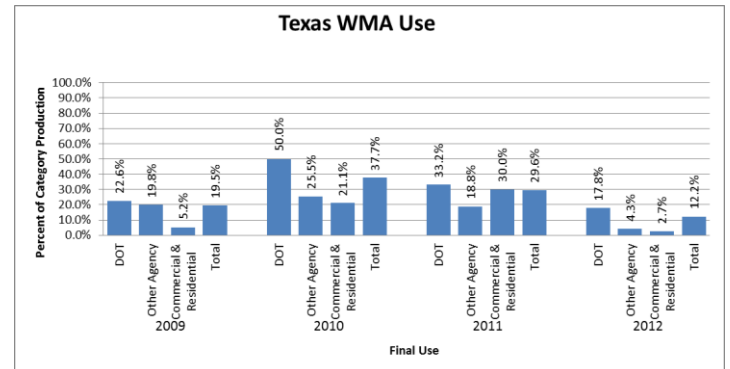
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Ground Tire Rubber	1	25,000	2,500
Fly Ash	1	18,000	1,200

Table B44: Summary of Texas Data for 2012

10

Companies Reporting

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	5,346,326	9,635,333
Total Other Agency Tonnage	1,374,735	2,477,595
Total Commercial & Residential Tonnage	2,073,577	3,737,072
Total Tonnage	8,794,638	15,850,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	1,196,220	2,155,869
RAP Tons used in HMA/WMA	1,368,511	2,466,378
RAP Tons used as Aggregate	5,000	9,011
RAP Tons used in Cold Mix	5,000	9,011
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	20%	
Average % RAP in Other Agency Mixes	17%	
Average % RAP in Commercial & Residential Mixes	23%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	70%	
RAS Tons Received	189,418	341,376
RAS Tons used in HMA/WMA	168,888	304,376
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	3,000	5,407
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	3%	
Average % RAS in Other Agency Mixes	2%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	60%	
WMA DOT Tonnage	954,262	1,719,804
WMA Other Agency Tonnage	59,400	107,053
WMA Commercial & Residential Tonnage	55,523	100,065
Total WMA Tonnage	1,069,185	1,926,922
Percent WMA Tons using Chemical Additives	10.3%	
Percent WMA Tons using Additive Foaming	12.1%	
Percent WMA Tons using Plant Foaming	77.7%	
Percent WMA Tons using Organic Additive	0.0%	

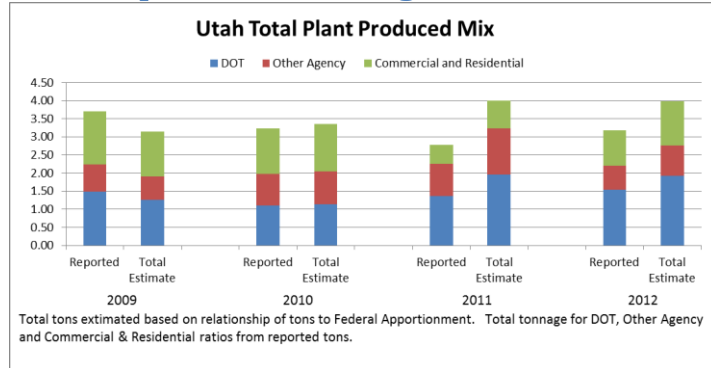
1. Total tonnage provided by Texas Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Utah

Table B46 summarizes the results received from asphalt mix producers in Utah. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 5 for 2009 & 2010, 6 for 2011 and 2012

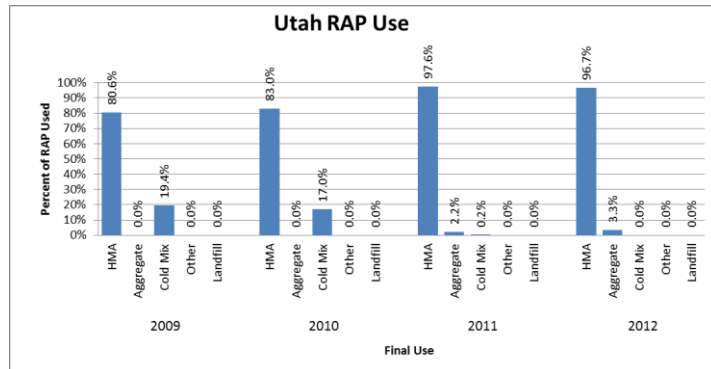
Total Asphalt Mix Tonnage



RAS Use

No contractors reported using RAS in 2009, 2010, 2011 or 2012.

RAP Use



WMA Use

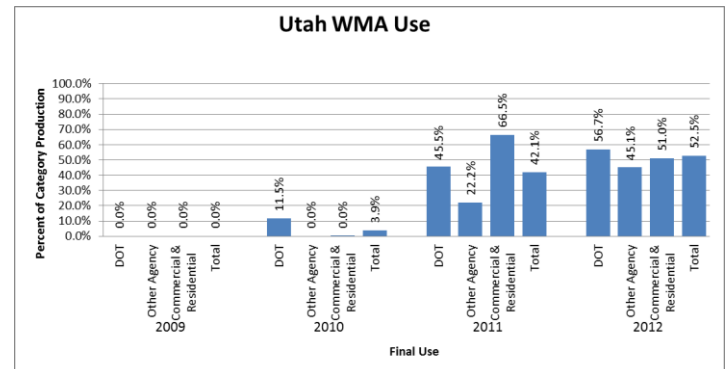


Table B45: Summary of Utah Data for 2012

Companies Reporting

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,536,364	1,922,530
Total Other Agency Tonnage	671,469	840,243
Total Commercial & Residential Tonnage	978,325	1,224,227
Total Tonnage	3,186,158	3,987,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	662,375	828,863
RAP Tons used in HMA/WMA	590,784	739,278
RAP Tons used as Aggregate	20,000	25,027
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	23%	
Average % RAP in Other Agency Mixes	24%	
Average % RAP in Commercial & Residential Mixes	31%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	67%	
WMA DOT Tonnage	871,859	1,091,001
WMA Other Agency Tonnage	302,795	378,903
WMA Commercial & Residential Tonnage	498,737	624,094
Total WMA Tonnage	1,673,391	2,093,998
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

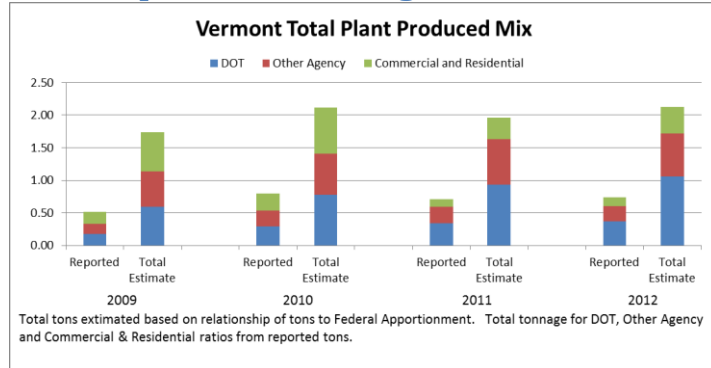
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Vermont

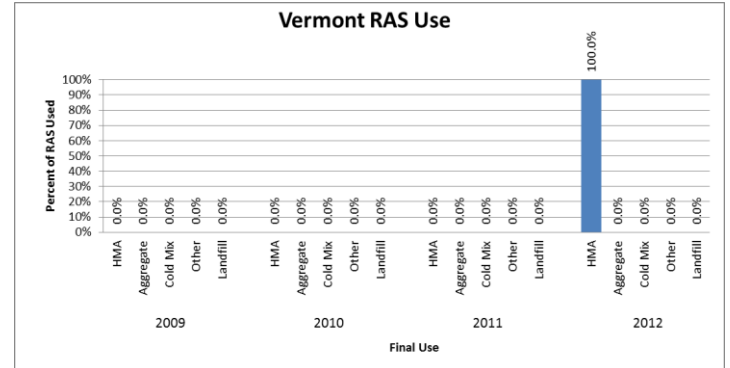
Table B47 summarizes the results received from asphalt mix producers in Vermont. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 1 for 2009, 2010, 2011, and 2012

Total Asphalt Mix Tonnage

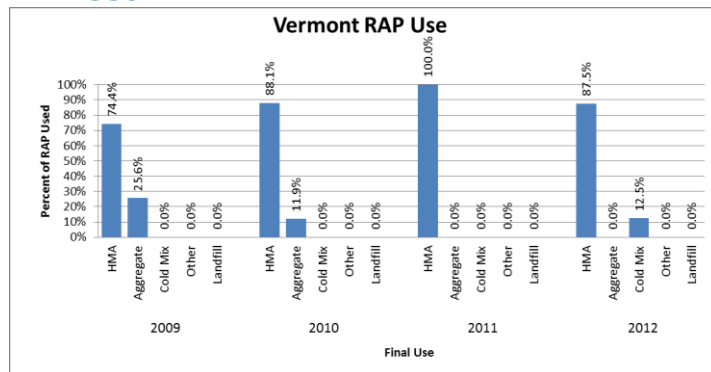


RAS Use



No contractor reported using RAS in 2009, 2010 or 2011.

RAP Use



WMA Use

No contractor reported using WMA in 2009 or 2010.

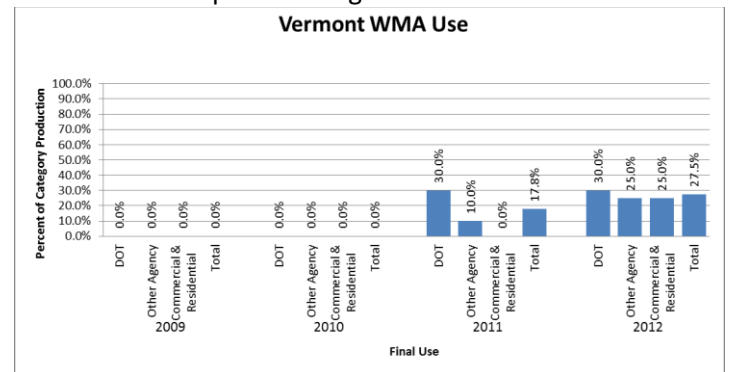


Table B46: Summary of Vermont Data for 2012

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	370,620	1,059,373
Total Other Agency Tonnage	230,143	657,836
Total Commercial & Residential Tonnage	142,665	407,791
Total Tonnage	743,428	2,125,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	231,791	662,547
RAP Tons used in HMA/WMA	174,274	498,141
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	25,000	71,460
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	22%	
Average % RAP in Other Agency Mixes	22%	
Average % RAP in Commercial & Residential Mixes	24%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	100%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	300	858
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	5%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	111,186	317,812
WMA Other Agency Tonnage	57,536	164,459
WMA Commercial & Residential Tonnage	35,666	101,948
Total WMA Tonnage	204,388	584,219
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

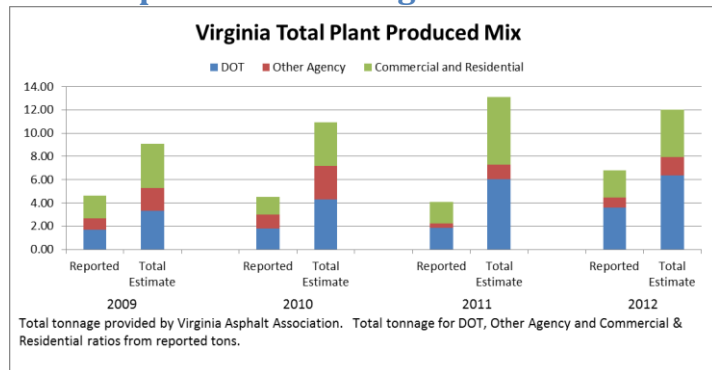
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Virginia

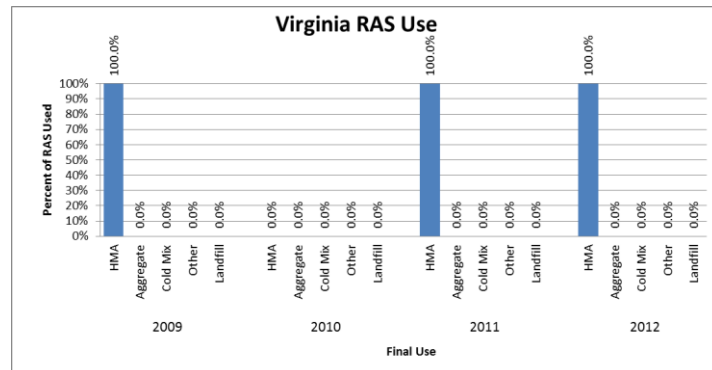
Table B48 summarizes the results received from asphalt mix producers in Virginia. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 5 for 2009 & 2010, 7 for 2011, 8 for 2012

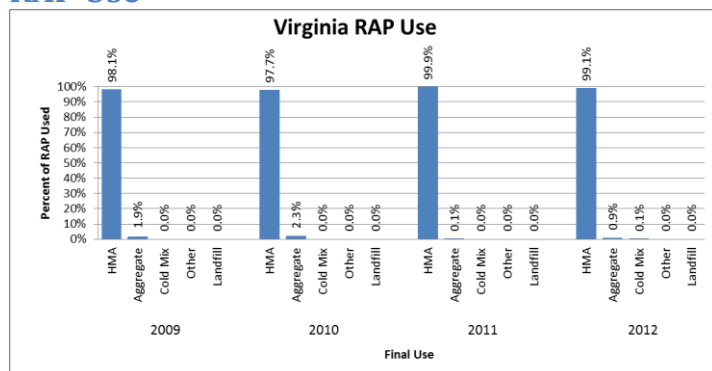
Total Asphalt Mix Tonnage



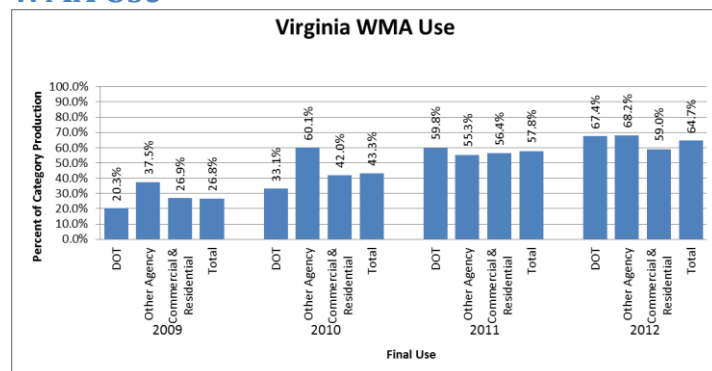
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Blast Furnace Slag	1	54,521	16,358
Recycled Glass	1	173	34

Table B47: Summary of Virginia Data for 2012

Companies Reporting

8

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	3,583,712	6,343,880
Total Other Agency Tonnage	890,807	1,576,905
Total Commercial & Residential Tonnage	2,304,383	4,079,215
Total Tonnage	6,778,902	12,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	2,202,149	3,898,240
RAP Tons used in HMA/WMA	1,745,016	3,089,024
RAP Tons used as Aggregate	15,000	26,553
RAP Tons used in Cold Mix	864	1,529
RAP Tons used as Other	7	12
RAP Tons Landfilled	75	133
Average % RAP in DOT Mixes	27%	
Average % RAP in Other Agency Mixes	27%	
Average % RAP in Commercial & Residential Mixes	31%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	38%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	12,665	22,420
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	88%	
WMA DOT Tonnage	2,417,024	4,278,611
WMA Other Agency Tonnage	607,305	1,075,050
WMA Commercial & Residential Tonnage	1,359,614	2,406,787
Total WMA Tonnage	4,383,943	7,760,448
Percent WMA Tons using Chemical Additives	2.7%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	97.0%	
Percent WMA Tons using Organic Additive	0.3%	

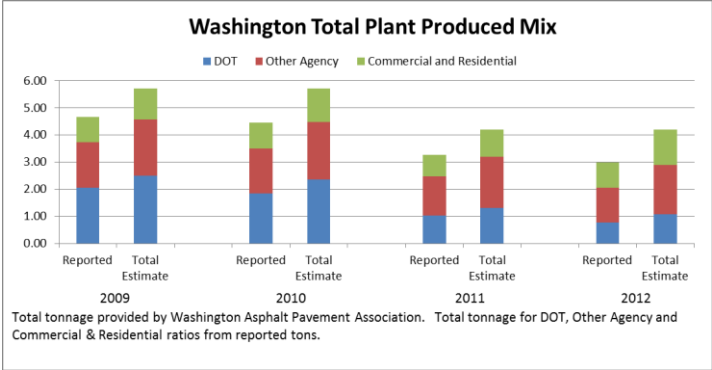
1. Total tonnage provided by the Virginia Asphalt Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Washington

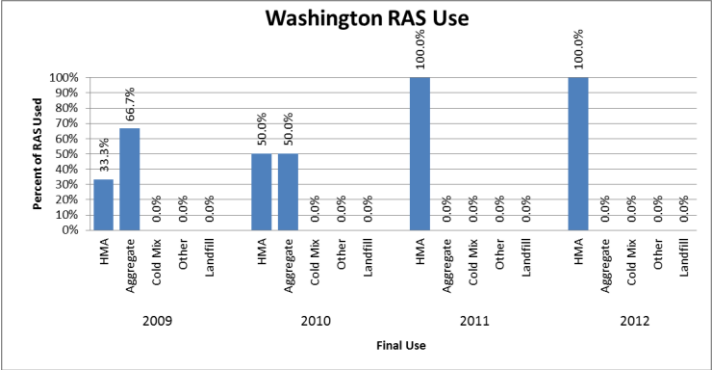
Table B49 summarizes the results received from asphalt mix producers in Washington. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 6 for 2009 & 2010, 4 for 2011 & 2012

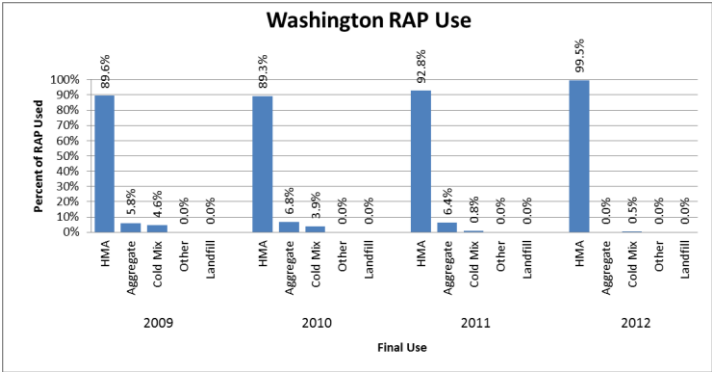
Total Asphalt Mix Tonnage



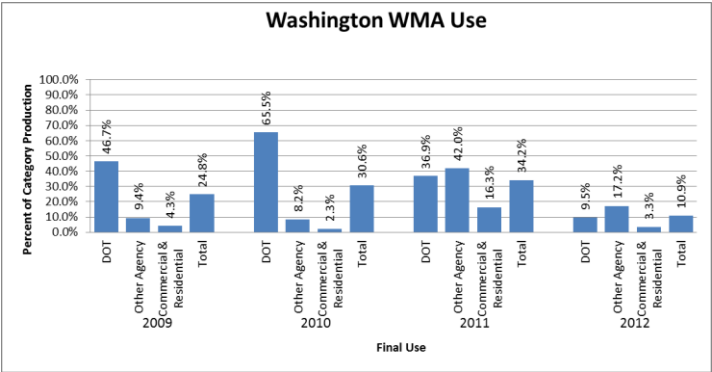
RAS Use



RAP Use



WMA Use



Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Steel Slag	1	450,000	80,000

Table B48: Summary of Washington data for 2012

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	767,991	1,080,415
Total Other Agency Tonnage	1,279,614	1,800,170
Total Commercial & Residential Tonnage	937,879	1,319,415
Total Tonnage	2,985,485	4,200,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	515,276	724,893
RAP Tons used in HMA/WMA	434,498	611,255
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	2,000	2,814
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	21%	
Average % RAP in Other Agency Mixes	19%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	50%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	1,998	2,811
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	73,341	103,177
WMA Other Agency Tonnage	220,264	309,869
WMA Commercial & Residential Tonnage	31,380	44,146
Total WMA Tonnage	324,986	457,192
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

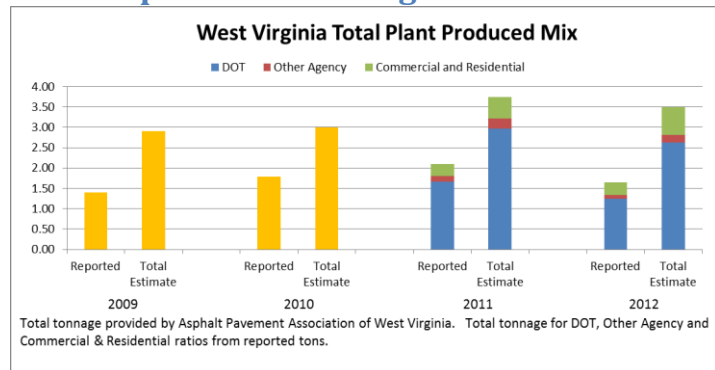
1. Total tonnage provided by the Washington Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

West Virginia

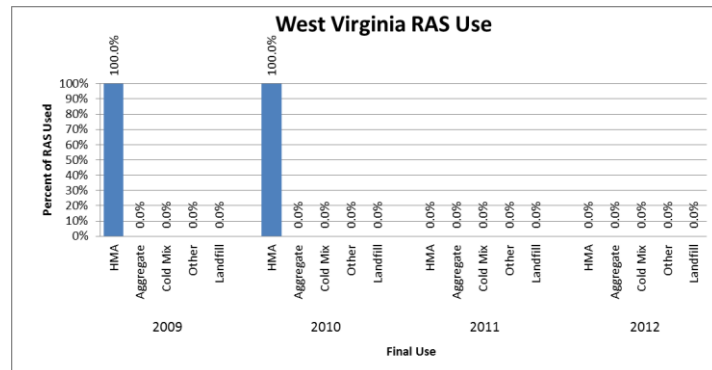
Table B50 summarizes the results received from asphalt mix producers in West Virginia. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 8 for 2009 & 2010, 3 for 2011 & 2012

Total Asphalt Mix Tonnage

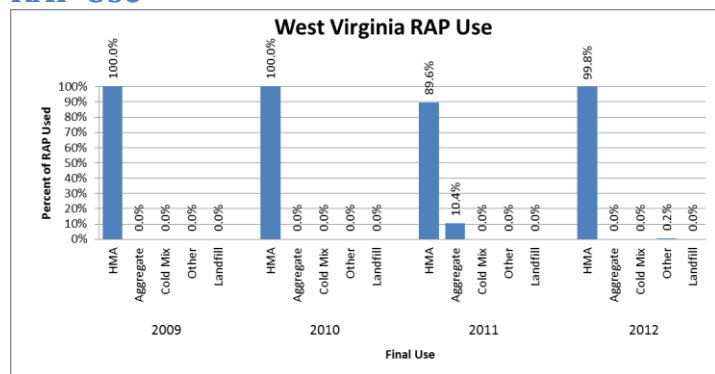


RAS Use

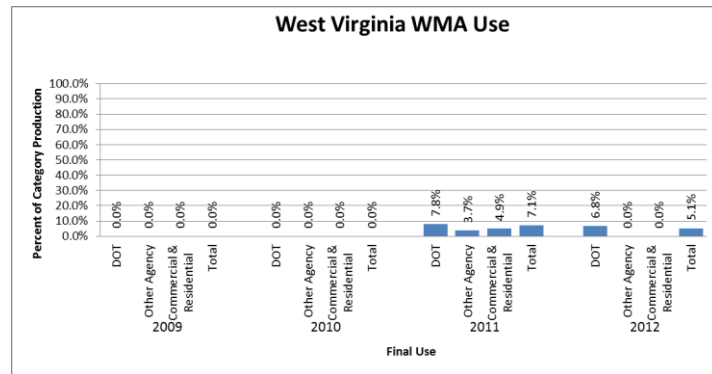


No companies reported using RAS in 2011

RAP Use



WMA Use



No contractor reported using WMA in 2009 or 2010.

Other Recycled Material

(Tons are reported values and do not represent estimates of the total quantity of these materials by state)

Material	No. Contractors Reporting	Tons of Mix Produced Using Material	Tons of Material Used
Blast Furnace Slag	3	588,120	180,308

Table B49: Summary of West Virginia Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	1,240,462	2,625,732
Total Other Agency Tonnage	90,271	191,080
Total Commercial & Residential Tonnage	322,755	683,188
Total Tonnage	1,653,488	3,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	254,506	538,722
RAP Tons used in HMA/WMA	190,679	403,617
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	273	578
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	13%	
Average % RAP in Other Agency Mixes	3%	
Average % RAP in Commercial & Residential Mixes	7%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	67%	
WMA DOT Tonnage	83,918	177,631
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	83,918	177,631
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

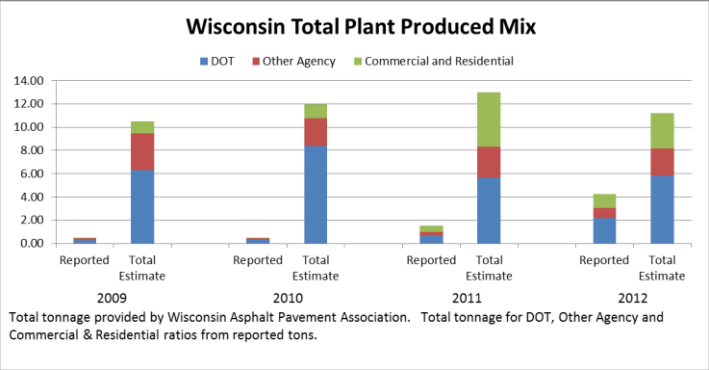
1. Total tonnage provided by the Asphalt Pavement Association of West Virginia. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Wisconsin

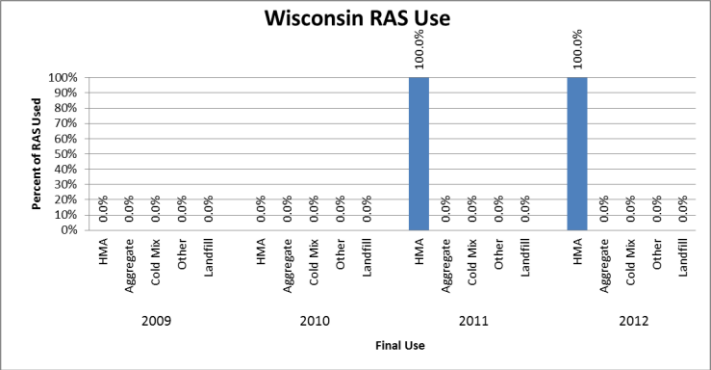
Table B51 summarizes the results received from asphalt mix producers in Wisconsin. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 1 for 2009 & 2010, 3 for 2011 & 2012

Total Asphalt Mix Tonnage

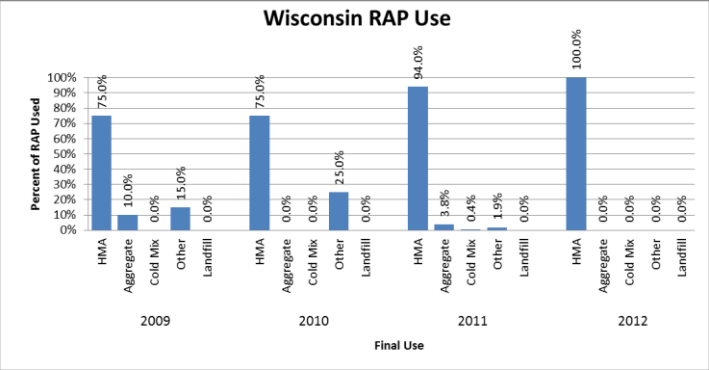


RAS Use

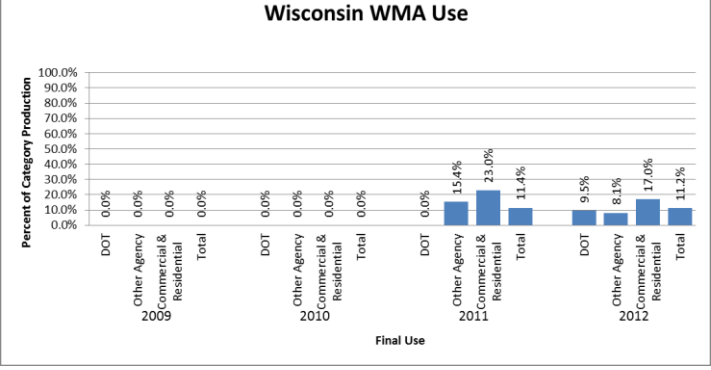


The contractor did not report any RAS use in 2009 or 2010.

RAP Use



WMA Use



The contractor did not report any WMA use in 2009 or 2010.

Table B50: Summary of Wisconsin Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	2,189,934	5,808,780
Total Other Agency Tonnage	880,173	2,334,651
Total Commercial & Residential Tonnage	1,151,585	3,054,569
Total Tonnage	4,221,692	11,198,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	100%	
RAP Tons Received	694,000	1,840,829
RAP Tons used in HMA/WMA	585,242	1,552,349
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	18%	
Average % RAP in Other Agency Mixes	19%	
Average % RAP in Commercial & Residential Mixes	25%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	100%	
RAS Tons Received	56,200	149,070
RAS Tons used in HMA/WMA	55,200	146,418
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	2%	
Average % RAS in Other Agency Mixes	2%	
Average % RAS in Commercial & Residential Mixes	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	33%	
WMA DOT Tonnage	207,000	549,066
WMA Other Agency Tonnage	71,600	189,918
WMA Commercial & Residential Tonnage	196,200	520,419
Total WMA Tonnage	474,800	1,259,403
Percent WMA Tons using Chemical Additives	75.0%	
Percent WMA Tons using Additive Foaming	4.0%	
Percent WMA Tons using Plant Foaming	20.0%	
Percent WMA Tons using Organic Additive	1.0%	

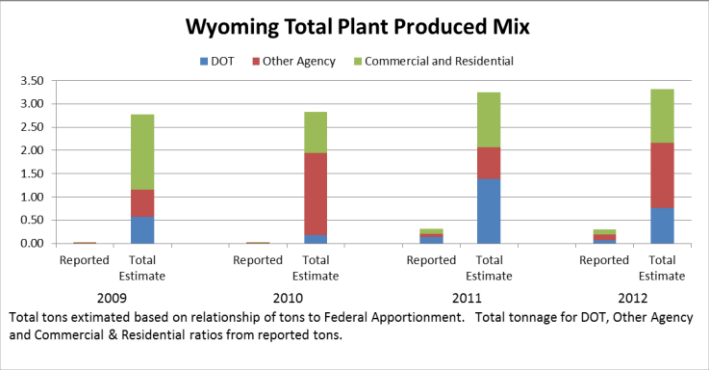
1. Total tonnage provided by the Wisconsin Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Wyoming

Table B52 summarizes the results received from asphalt mix producers in Wyoming. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Companies responding: 2 for 2009 & 2010, 3 for 2011 & 2012

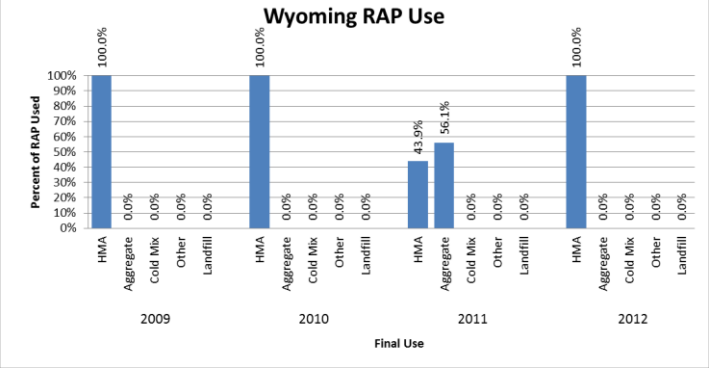
Total Asphalt Mix Tonnage



RAS Use

No contractor reported using RAS in 2009. 2010, 2011 or 2012. One company reported receiving RAS in 2011 but did not report its use.

RAP Use



WMA Use

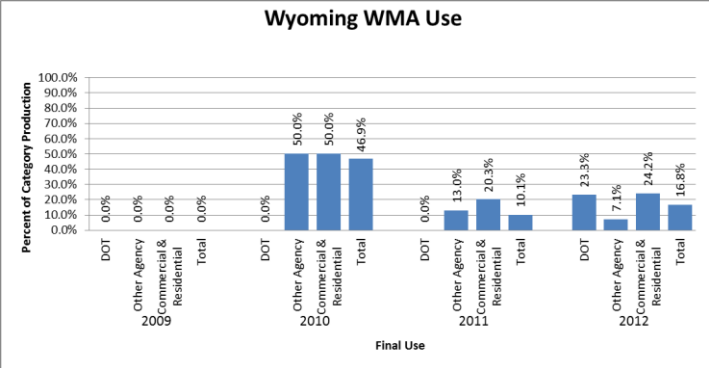


Table B51: Summary of Wyoming Data for 2012

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2012	2012
Total DOT Tonnage	69,723	762,119
Total Other Agency Tonnage	127,593	1,394,677
Total Commercial & Residential Tonnage	106,325	1,162,204
Total Tonnage	303,641	3,319,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAP	67%	
RAP Tons Received	20,053	219,193
RAP Tons used in HMA/WMA	5,076	55,484
RAP Tons used as Aggregate	16	175
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	0%	
Average % RAP in Other Agency Mixes	0%	
Average % RAP in Commercial & Residential Mixes	14%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2012	2012
Percent Companies using RAS	33%	
RAS Tons Received	1,500	16,396
RAS Tons used in HMA/WMA	-	-
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	-	-
Average % RAS in DOT Mixes	0%	
Average % RAS in Other Agency Mixes	0%	
Average % RAS in Commercial & Residential Mixes	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2012	2012
Percent Companies using WMA	100%	
WMA DOT Tonnage	16,255	177,673
WMA Other Agency Tonnage	9,000	98,376
WMA Commercial & Residential Tonnage	25,694	280,850
Total WMA Tonnage	50,948	556,899
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	100.0%	
Percent WMA Tons using Organic Additive	0.0%	

1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.