

Asphalt Pavement Mix Production Survey

Reclaimed Asphalt Pavement,
Reclaimed Asphalt Shingles,
Warm-mix Asphalt Usage:
2009-2010



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16. Abstract The asphalt pavement industry and its partners have maintained a focus on continuous product improvement, including versatility in application. The use of reclaimed asphalt pavement (RAP) in asphalt mixtures began in earnest in the 1970s in response to the oil embargo. Other improvements over the years include polymer-modified asphalt, Superpave PG binder specification and mix design procedures, stone-matrix asphalt (SMA), improvements in open-graded friction courses (OGFCs), and long-life asphalt pavement. Warm-mix asphalt (WMA), which was first used in the U.S. in 2004, has provided both enhancements in working conditions and numerous construction benefits. The recycling of asphalt shingles into plant-mix asphalt has grown rapidly in recent years. Such innovations have done much to improve performance, safety, and longevity. In many ways, they have also improved the economics of producing the material and/or the environmental aspects of material production. Over the last 10 years, the asphalt pavement industry has seen unprecedented challenges in both economic and regulatory issues that have called for technical responses in order to maintain a competitive position in the marketplace. These responses have focused on ways of continually reducing emissions from asphalt production, improving working conditions, and conserving the natural resources – both virgin asphalt binder and aggregates – being used in pavement mixes. In 2009 and 2010, the Federal Highway Administration contracted with the National Asphalt Pavement Association for a systematic survey of implementation/adoption of three key areas: reclaimed asphalt pavement (RAP), reclaimed asphalt shingles (RAS), and warm-mix asphalt (WMA). This document presents the results of that survey. The survey clearly shows that the asphalt pavement industry continues to improve its already outstanding record of environmental stewardship through its increasing use of RAP, RAS, and WMA. These technologies conserve raw materials; conserve energy; cut emissions from production and paving operations; and improve conditions for workers. <ul style="list-style-type: none"> • RAP: The asphalt industry remains the country's number one recycler. About 96 percent of the contractors/ branches reported using RAP. The amount of RAP used in HMA/WMA was 56.0 million tons in 2009 and 62.1 million tons in 2010. Assuming 5 percent liquid asphalt in RAP, this represents over 3 million tons (19 million barrels) of asphalt binder conserved. Less than 1 percent of RAP was sent to landfills. • RAS: Use of reclaimed asphalt shingles (both manufacturer's waste and tear-offs) increased from 702,000 to 1.10 million tons from 2009 to 2010, a 57 percent increase. Assuming a conservative asphalt content of 20 percent for the shingles, this represents 234,000 tons (1.5 million barrels) of asphalt binder conserved. • WMA: Total tonnage of WMA is estimated at 19.2 million tons in 2009 and 47.6 million tons in 2010. This was a 148 percent increase. Plant foaming is used most often in producing WMA. Additives accounted for about 17 percent of the total WMA production in 2009 and 8 percent in 2010. 					
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Asphalt Pavement Mix Production Survey on Reclaimed Asphalt Pavement, Reclaimed Asphalt Shingles, and Warm-mix Asphalt Usage: 2009-2010

Introduction

Background

The asphalt pavement industry and its partners have maintained a focus on continuous product improvement, including versatility in application. The use of reclaimed asphalt pavement (RAP) in asphalt mixtures began in earnest in the 1970s in response to the oil embargo. During the 1980s, use of polymer-modified asphalt binder increased, and its use was furthered by the advent of the Superpave PG binder specification in the 1990s. The Superpave volumetric mix design procedure also began to be adopted during the early 1990s and has undergone many improvements since. Stone-matrix asphalt (SMA) was presented to the U.S. as a premium asphalt surfacing during the 1990s. The mix design procedure for open-graded friction courses (OGFCs) was improved during that time and today these materials provide safe, quiet riding surfaces all over the country. Long-life asphalt pavement structures are possible through the application of Perpetual Pavement design practices. Warm-mix asphalt (WMA), which was first used in the U.S. in 2004, has provided both enhancements in working conditions and numerous construction benefits. The recycling of asphalt shingles (RAS) into plant-mix asphalt has grown rapidly in recent years. Such innovations have done much to improve performance, safety, and longevity. In many ways, they have also improved the economics of producing the material and/or the environmental aspects of material production.

Over the last 10 years, the asphalt pavement industry has seen unprecedented challenges in both economic and regulatory issues that have called for technical responses in order to maintain a competitive position in the marketplace. These responses have focused on ways of continually reducing emissions from asphalt production, improving working conditions, and conserving the natural resources – both virgin asphalt binder and aggregates – being used in pavement mixes.

In 2009 and 2010, the Federal Highway Administration contracted with the National Asphalt Pavement Association for a systematic survey of implementation/adoption of three key areas: reclaimed asphalt pavement (RAP), reclaimed asphalt shingles (RAS), and warm-mix asphalt. This document presents the results of that survey.

Highlights

The survey clearly shows that the asphalt pavement industry continues to improve its already outstanding record of environmental stewardship through its increasing use of RAP, RAS, and WMA. These technologies conserve raw materials; conserve energy; cut emissions from production and paving operations; and improve conditions for workers.

- RAP: The asphalt industry remains the country's number one recycler. About 96 percent of the contractors/branches reported using RAP. The amount of RAP used in HMA/WMA was 56.0 million tons in 2009 and 62.1 million tons in 2010. Assuming 5 percent liquid asphalt in RAP, this represents over 3 million tons (19 million barrels) of asphalt binder conserved. Less than 1 percent of RAP was sent to landfills.

- RAS: Use of reclaimed asphalt shingles (both manufacturer's waste and tear-offs) increased from 702,000 to 1.10 million tons from 2009 to 2010, a 57 percent increase. Assuming a conservative asphalt content of 20 percent for the shingles, this represents 234,000 tons (1.5 million barrels) of asphalt binder conserved.
- WMA: Total tonnage of WMA is estimated at 19.2 million tons in 2009 and 47.6 million tons in 2010. This was a 148 percent increase. Plant foaming is used most often in producing WMA. Additives accounted for about 17 percent of the total WMA production in 2009 and 8 percent in 2010.

Reclaimed Asphalt Pavement

Although the widespread use of reclaimed asphalt pavement (RAP) in asphalt pavements began in the 1970s, and by the 1980s there had been some field trials with very high RAP contents, it is estimated that the average amount of RAP actually being incorporated in mixtures leveled off at about 12 percent by 2008 (Copeland, Jones, & Bukowski, 2010). There were a number of reasons for this relatively low RAP content in mixtures. As recycling was starting, it was found that high RAP contents could result in increased “blue smoke” emissions from plants, because in certain types of plants the RAP was being fed directly into the path of the hot gasses and the RAP binder was being volatilized. Modern plant designs have evolved to effectively shield the RAP from direct contact with the flame. Also, in the 1980s, it was found that RAP could adversely affect the volumetric proportions of the resulting asphalt mixtures, especially the amount of fines in the mix. Recent practice has led to screening the RAP in order to size the material so that it can be more effectively proportioned into the mix. As the Superpave mix design procedure was initially developed, it did not include a method for incorporating RAP. As a result, agencies were reluctant to allow much, if any, RAP in Superpave mixes until a method could be identified to account for the recycled material. This was eventually accomplished in National Cooperative Highway Research Program (NCHRP) project 9-12, but the guidelines for RAP content were still relatively conservative. Recently, there has been a revival of interest in increasing RAP usage, and a new NCHRP project (9-46) is under way at the National Center for Asphalt Technology (NCAT) as well as efforts at the Federal Highway Administration.

The interest in increasing the amount of RAP used in mixtures occurred during the same time period that warm-mix asphalt was being introduced. There appears to be a synergism between the use of warm mix and increased RAP contents. In many cases, it appears that warm mix reduces the amount of initial oxidation in virgin liquid binder so that it interacts with the RAP binder more readily. With the rapid rise in petroleum prices in 2008 and the availability of improved technology to produce higher RAP content asphalt mixtures, the industry has recommitted itself to increasing the amount of RAP used.

Reclaimed Asphalt Shingles

The use of reclaimed asphalt shingles (RAS) in asphalt paving mixtures is not a new concept. Research into the use of shingle manufacturers’ waste dates back the mid-1980s and permissive specifications for the use of waste shingles in paving began to appear in the early 1990s. The combination of a high asphalt binder content, high-quality fine aggregate, mineral filler, and fibers makes roofing shingles very compatible with asphalt pavement mixtures. The fact that the asphalt cement in shingles is generally harder than that employed in paving mixtures, and that the other ingredients impact the volumetric properties of the final mix, generally limits its incorporation in asphalt mixtures to 5 percent or less. However, even at a relatively lower RAS content, there is somewhere on the order of 15 to 20 percent binder replacement in the final paving mixture. Currently, 12 states allow the use of manufacturers’ waste in asphalt mix and 10 states allow either manufacturers’ waste or roofing tear-offs in their mixtures. It is estimated that there are 10 million tons of tear-off waste and 1 million tons of manufacturer waste available on an annual basis. If all these could be incorporated into asphalt paving mixtures, it would amount to approximately 1.8 million tons of asphalt binder replacement. Thus, there is great interest in utilizing waste asphalt roofing shingles in asphalt paving mixtures.

Warm-Mix Asphalt

Asphalt mix production plants were delisted as major sources of hazardous air pollutants by the Environmental Protection Agency (EPA) in 2002. In a quest for continuous improvement, the industry began looking for technologies that allowed for lowering temperatures during asphalt mix production and placement. This effort began in Europe as contractors searched for technologies that would help their countries achieve emissions reductions goals set by the Kyoto Agreement. In the U.S., warm-mix asphalt was initially seen as part of the industry’s ongoing efforts to continually

reduce emissions and improve working conditions. Since then, numerous unanticipated construction benefits of warm mix have come to light, and many of these are as compelling as the environmental benefits.

After the first demonstration of warm mix in the U.S. in 2004, the number of technologies and the number of field trials grew at a very rapid rate. The National Asphalt Pavement Association (NAPA) and the Federal Highway Administration (FHWA) formed a technical working group to help facilitate the implementation of warm mix. In 2005, there were three technologies being marketed. This increased to over 20 by 2010. By 2010, over half of the states had specifications that permitted the use of warm-mix asphalt. FHWA predicts that this will increase to 47 states and all Federal Lands offices by the end of 2011. As will be shown in this report, the growth in warm-mix tonnage indicates that it will be the direction of the asphalt pavement industry in the future.

Great strides have been made in the implementation of warm-mix asphalt, the use of higher RAP contents in mixtures, and the use of roofing shingles in asphalt. A systematic approach to quantifying the progress of these technologies and the rate of their adoption was, however, lagging. Surveys of the industry needed to be conducted to capture progress on the implementation of RAP, RAS and WMA.

Objective

The objective of this survey was to estimate the quantities of reclaimed asphalt pavement and reclaimed asphalt shingles being used in asphalt mixtures, and to estimate the amount of warm-mix asphalt being produced in the U.S., by state and by market sector.

Scope

In order to accomplish this work, it was necessary to:

1. Design a survey that enabled an analysis of the quantities of RAP and RAS being used in asphalt mixtures as well as the total amount of warm-mix asphalt produced nationally.
2. Conduct a voluntary survey of asphalt mix producers throughout the U.S. This was done by posting a survey on a public Web site, notifying producers, and following up with verbal requests for information in locations where responses were low.
3. Estimate the total market in each state or territory by using data from responding State Asphalt Pavement Associations and the U.S. Census Bureau to determine a weighting factor for each state and reconciling the total U.S. asphalt mix tonnage with national estimates.
4. Summarize the information and prepare this report.

Survey Methods

The survey was conducted using a Web survey service called SurveyMonkey™. Once the draft survey was prepared and before it was posted, it was sent out for review by the NAPA Warm-Mix Asphalt Task Force and the NAPA Energy and Recycling Task Force. After the comments were received and revisions to the survey made, it was posted on SurveyMonkey. 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. State Asphalt Pavement Associations participated by placing notices on their Web sites and in their newsletters. Announcements were made at NAPA meetings as well as at several state asphalt conferences. Asphalt mix producers then went to the Web site and completed the survey form. After the initial data were gathered and analyzed, anomalies in individual producer records were identified and reconciled.

The survey was broken into four sections for 2009 and 2010. These sections were General Information, Reclaimed Asphalt Pavement (RAP), Reclaimed Asphalt Shingles (RAS) and Warm-Mix Asphalt (WMA). Table 1 summarizes the questions asked in each section.

Table 1: Survey Question Summary

General Information	RAP & RAS	WMA
Number of Plants	Tons Accepted	Avg. % for DOT Tons
DOT Tons	Tons Use in HMA/WMA	Avg. % for Other Agency Tons
Other Agency Tons	Tons Used in Aggregate	Avg. % for Commercial & Residential Tons
Commercial & Residential Tons	Tons Used in Cold Mix	Chemical Additive %
	Tons Used in Other	Additive Foaming %
	Tons Landfilled	Plant Foaming %
	Avg. % for DOT Mixes	Organic Additive %
	Avg. % for Other Agency Mixes	
	Avg. % for Commercial & Residential Mixes	

Most surveys were completed online. An exception was that one multi-state contractor collected data from their different operations and submitted them in spreadsheet form.

Asphalt mix producers from 47 states and Puerto Rico completed the survey. The District of Columbia, New Mexico, North Dakota, and Nebraska are the only states/territories with no survey information. A total of 196 companies/branches with 1,027 plants are represented in the survey. Table 2 summarizes the number of companies/branches completing the survey.

A copy of the survey is included in Appendix A.

Review of Data and Follow-Up

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 data.

Estimates of Missing Data

To determine the total amount of RAP, RAS, and WMA produced in each state and the nation, the total amount of asphalt mix produced in each state needed to be determined. Estimated tonnages were provided by state asphalt pavement associations in 28 states totaling about 265 million tons. This included seven state associations which supplied DOT tonnages and the total tonnage was estimated by dividing this by the percent of DOT tons provided by asphalt mix producers in that state who completed the survey. To estimate the total tons in the remaining states, relationships between the tonnages supplied by the associations and population, federal apportionment and miles paved were determined and compared. All relationships resulted in a power curve function with different factors each year. Figures 1 through 4 show the relationships between tons and population and federal apportionment since these resulted in less variation than miles paved. The relationship based on apportionment was selected since there was little difference from a population-based estimate and it was felt that tonnage would be more a function of available funds than of population. There is little difference in the total estimated tons between these predictors.

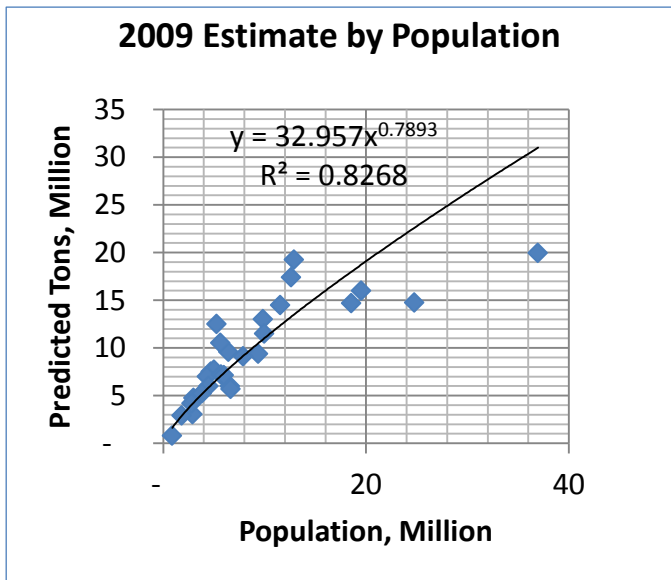


Figure 1: 2009 Asphalt Mix Tons by Population

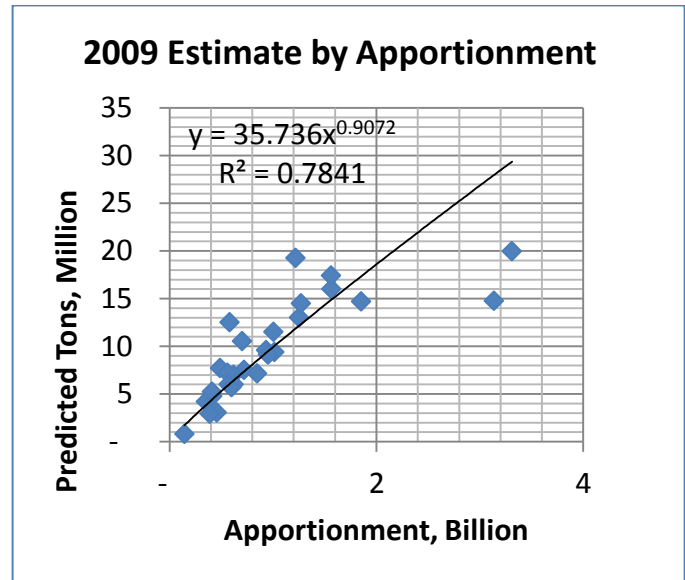


Figure 2: 2009 Asphalt Mix Tons by Federal Apportionment

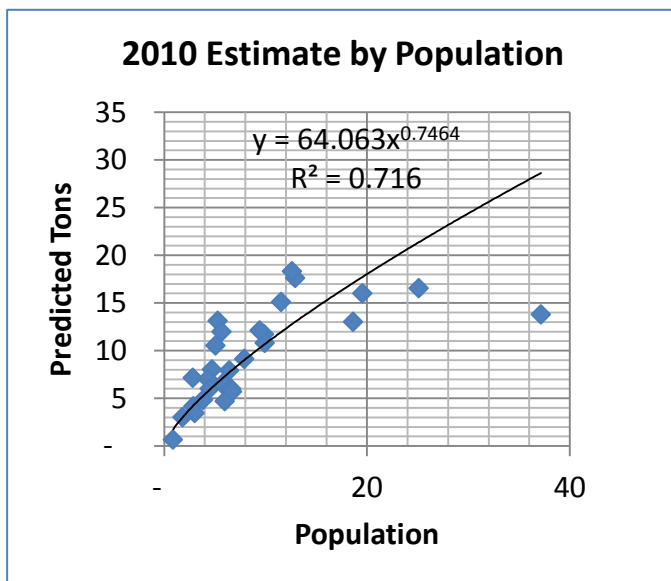


Figure 3: 2010 Asphalt Mix Tons by Population

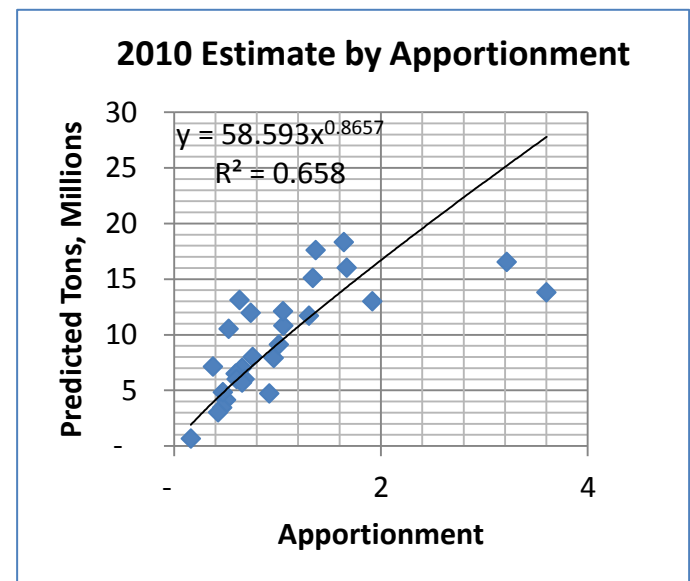


Figure 4: 2010 Asphalt Mix Tons by Apportionment

General Information

State Responses

Figure 5 summarizes the number of plants represented by the companies/branches responding to the survey. Asphalt mix producers from 47 states and Puerto Rico completed the survey. The District of Columbia, New Mexico, North Dakota, and Nebraska are the only states/territories with no survey information. A total of 196 companies/branches with 1,027 plants are represented in the survey. Table 2 summarizes the number of companies/branches completing the survey.

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

Number of Companies/Branches Completing Survey in State	Number of States
1	9
2	13
3	5
4	4
≥ 5	17
Total States Completing Survey	48

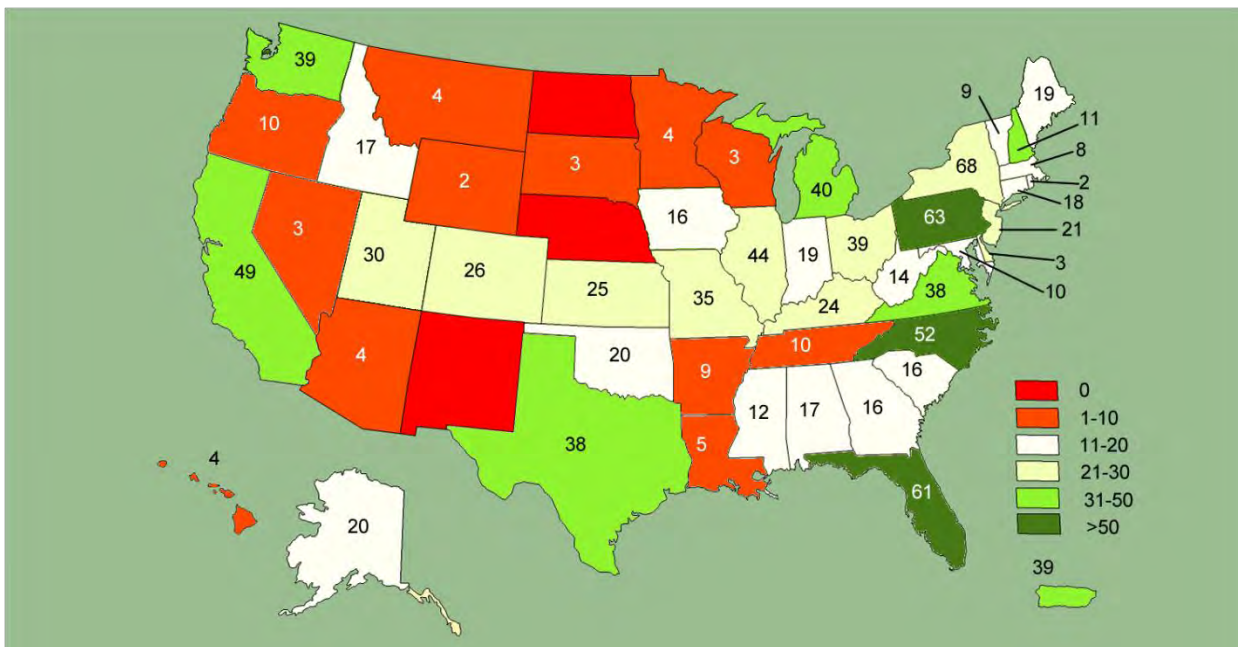


Figure 5: Number of Plants Represented by Companies/Branches Responding to Survey

Figures 6 and 7 provide another perspective of the response to the survey based on the percent of the tons reported in each state to the total estimated tons. The returned survey results represent about 34 percent of the total US tonnage. If we assume there are 4,000 plants in the US, the survey represents about 25 percent of the plants.

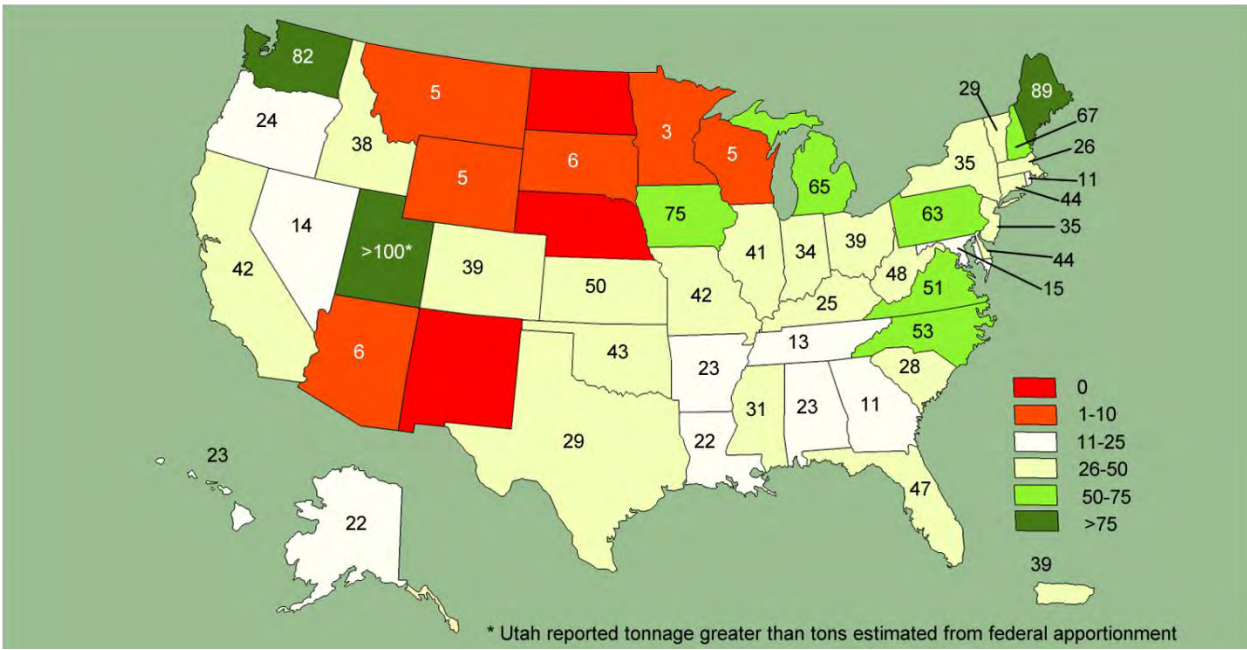


Figure 6: 2009 Reported tons as a percent of estimated total tons

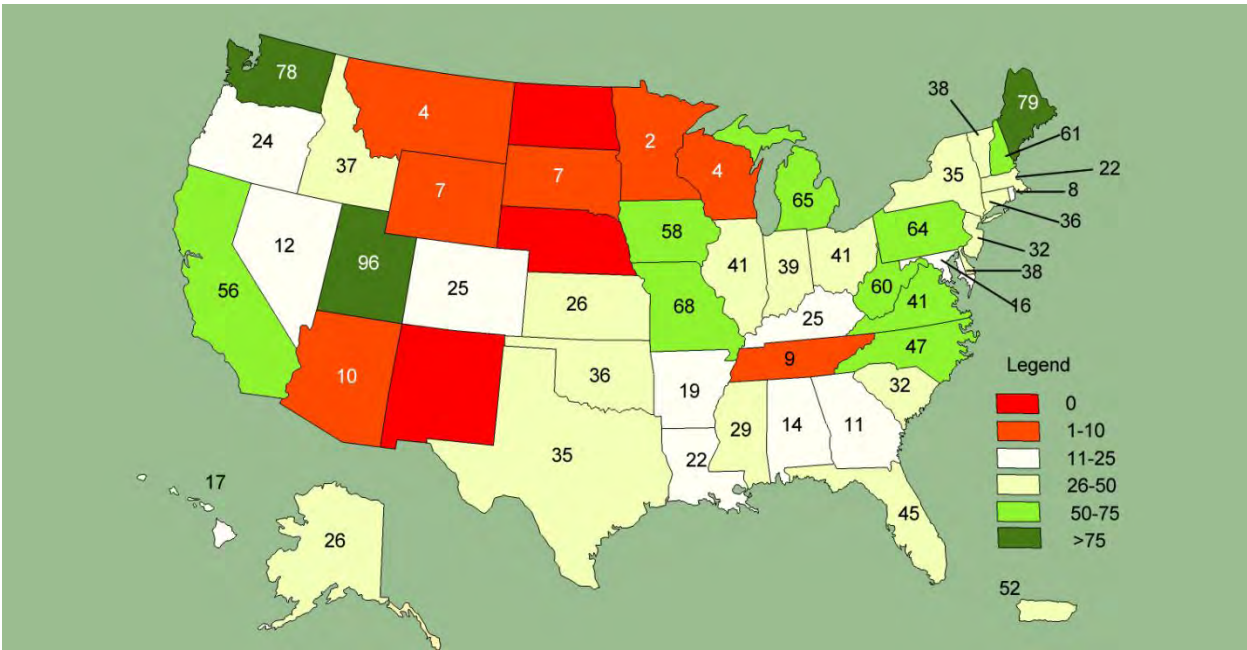


Figure 7: 2010 Reported tons as a percent of estimated total tons

Responder Profile

The survey represents 1,027 plants. The average tons per plant are 121,000 and 117,000 for 2009 and 2010, respectively. Figure 8 shows the number of plants separated by different user/producer group regions.

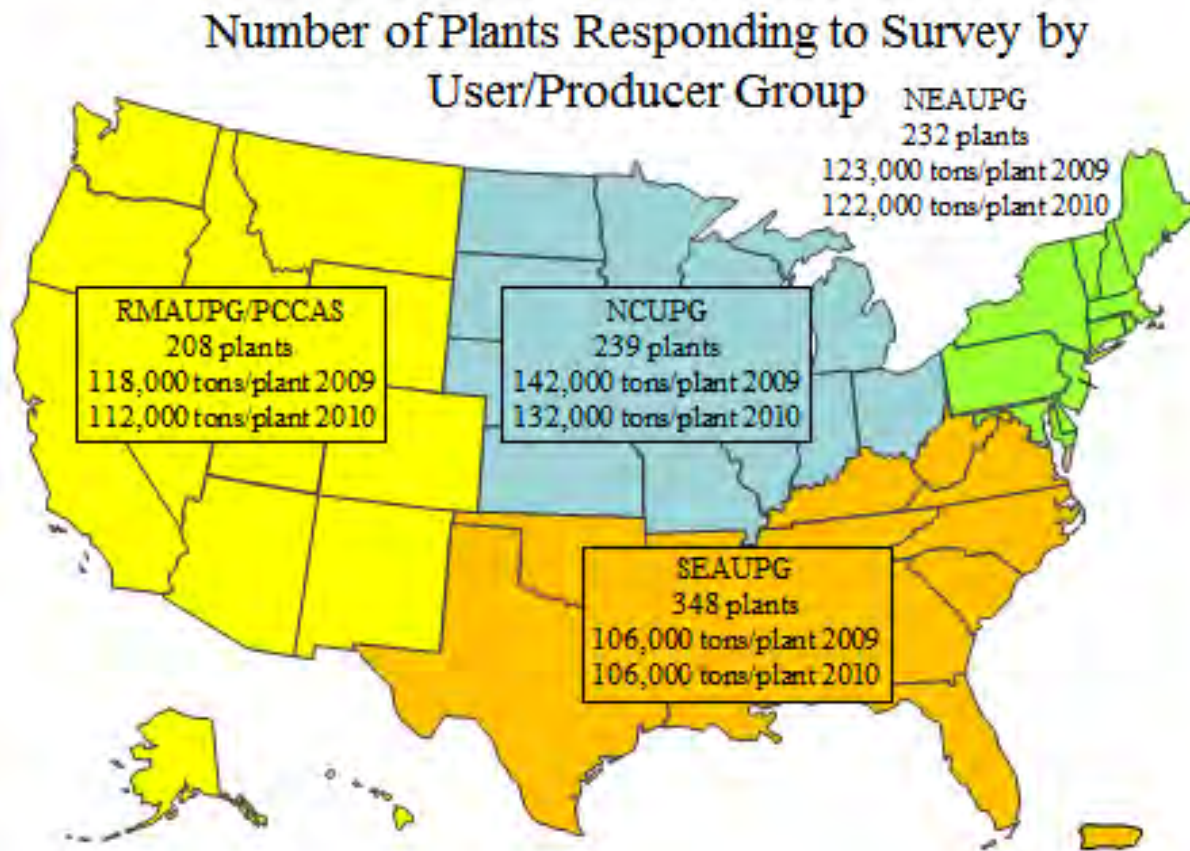


Figure 8: Number of plants responding to survey by User/Producer Group regions.

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

State	Tons, Millions			
	2009		2010	
	Estimated	Reported	Estimated	Reported
Alabama	7.50	1.75	8.00	1.09
Alaska	3.67	0.82	4.41	1.15
Arizona	7.50	0.42	7.14	0.71
Arkansas	3.05	0.71	4.15	0.78
California	19.97	8.44	13.79	7.68
Colorado	7.72	3.00	10.52	2.62
Connecticut	4.96	2.20	5.01	1.79
Delaware	0.79	0.35	0.65	0.25
District of Columbia	1.62	-	1.81	-
Florida	14.70	6.91	13.00	5.81
Georgia	13.00	1.39	11.70	1.34
Hawaii	1.73	0.40	1.91	0.33
Idaho	3.00	1.13	3.09	1.14
Illinois	19.25	7.81	17.60	7.17
Indiana	9.60	3.28	7.90	3.06
Iowa	4.74	3.54	3.45	1.99
Kansas	4.17	2.08	7.12	1.85
Kentucky	7.00	1.72	7.00	1.74
Louisiana	6.00	1.30	6.00	1.30
Maine	1.80	1.61	2.03	1.60
Maryland	7.20	1.07	6.50	1.06
Massachusetts	6.00	1.54	6.00	1.34
Michigan	11.50	7.49	10.80	7.03
Minnesota	12.50	0.42	13.10	0.29
Mississippi	4.62	1.45	4.79	1.41
Missouri	7.13	3.02	4.70	3.19
Montana	3.78	0.19	3.99	0.17
Nebraska	2.96	-	3.09	-
Nevada	3.11	0.43	3.57	0.43
New Hampshire	1.86	1.25	1.94	1.18
New Jersey	9.33	3.28	9.09	2.87
New Mexico	3.78	-	3.84	-
New York	16.00	5.65	16.00	5.54
North Carolina	9.37	4.95	12.11	5.66
North Dakota	2.55	-	2.70	-
Ohio	14.50	5.69	15.10	6.23
Oklahoma	5.74	2.47	5.99	2.16
Oregon	5.22	1.27	4.81	1.16
Pennsylvania	17.40	10.97	18.30	11.66
Puerto Rico	2.49	0.97	1.44	0.75
Rhode Island	2.07	0.22	2.34	0.19
South Carolina	6.23	1.77	6.14	1.98
South Dakota	2.73	0.16	2.96	0.22
Tennessee	7.95	1.07	7.87	0.73
Texas	14.77	4.23	16.54	5.73
Utah	3.14	3.71	3.35	3.23
Vermont	1.74	0.51	2.12	0.80
Virginia	9.10	4.64	10.90	4.51
Washington	5.70	4.65	5.70	4.46
West Virginia	2.90	1.40	3.00	1.79
Wisconsin	10.52	0.50	11.96	0.50
Wyoming	2.77	0.15	2.83	0.20
Total	358.43	123.98	359.85	119.87

Note: Shaded rows indicate states where the state asphalt pavement association provided data used to compute total estimated value. A relationship between tons and federal apportionment was used to estimate the total tons for states where no data was available on total tons.

Reclaimed Asphalt Pavement

Table 4 summarizes the RAP data from the survey. Based on the total estimated tons received and the amount used for all purposes, including landfilling, there was an excess of 2.5 and 1.8 million tons in 2009 and 2010, respectively, out of a total of 67.2 and 73.5 tons, respectively.

Table 4: Summary of RAP data

	Reported Tons Million		Total Estimated Tons Million	
	2009	2010	2009	2010
Companies/branches Reporting Using RAP	189	189		
Tons Accepted	23.2	24.0	67.2	73.5
Tons Used in HMA/WMA	20.1	21.6	56.1	62.1
Tons Used in Aggregate	1.5	1.6	6.2	7.3
Tons Used in Cold Mix	0.4	0.4	1.5	1.6
Tons Used in Other	0.1	0.07	0.7	0.8
Tons Landfilled	0.06	0.001	0.1	0.004
Avg. % for DOT mixes	12.5%	13.2%		
Avg. % for Other Agency mixes	14.0%	15.2%		
Avg. % for Commercial & Residential	17.5%	18.0%		
National Average All Mixes Based on % Reported For Different Sectors	15.6%	17.2%		
National Average All Mixes Based on RAP Tons Used In HMA/WMA	16.2%	18.0%		

Figure 9 shows the estimated total tons of RAP used in HMA/WMA, aggregate, cold mix, other, and landfilled. The majority of RAP is used in HMA/WMA followed by aggregate and cold mix. It is estimated that less than 0.1 percent was sent to landfills in both 2009 and 2010.

RAP Use Million Tons

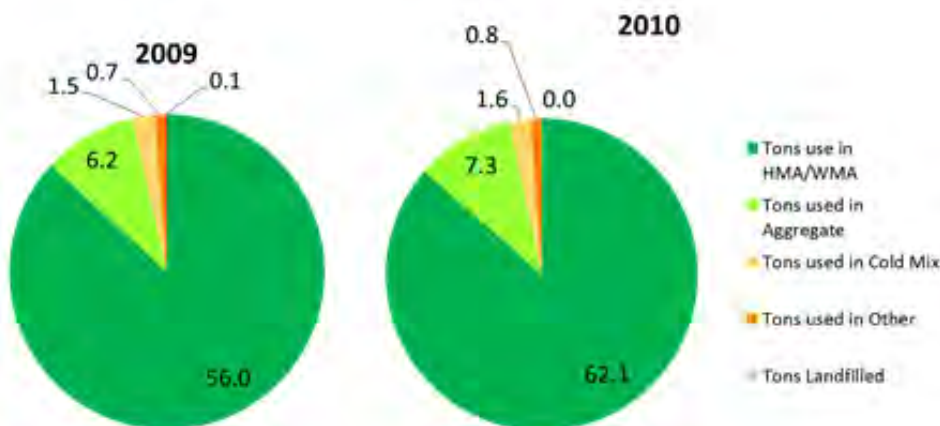


Figure 9: RAP tons by final use.

Figure 10 shows the total estimated amount of RAP used in the different sectors. These values were calculated using the average percentages of RAP reported for the different sectors and adjusted to account for the difference in reported RAP tons and the tons calculated from the percentage by sector.

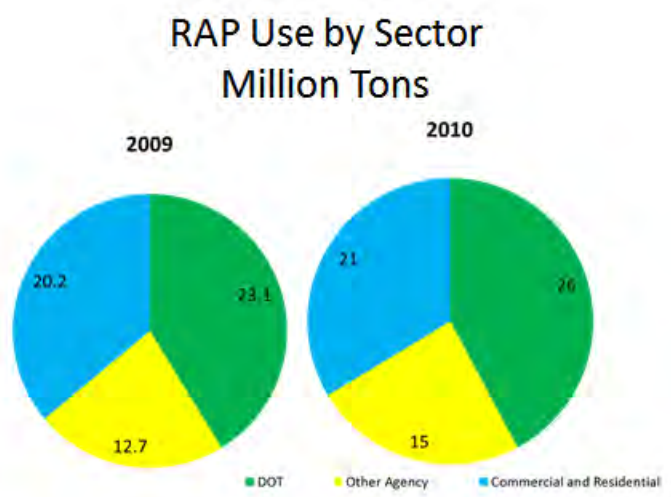


Figure 10: RAP Use by Sector

Figures 11 and 12 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.

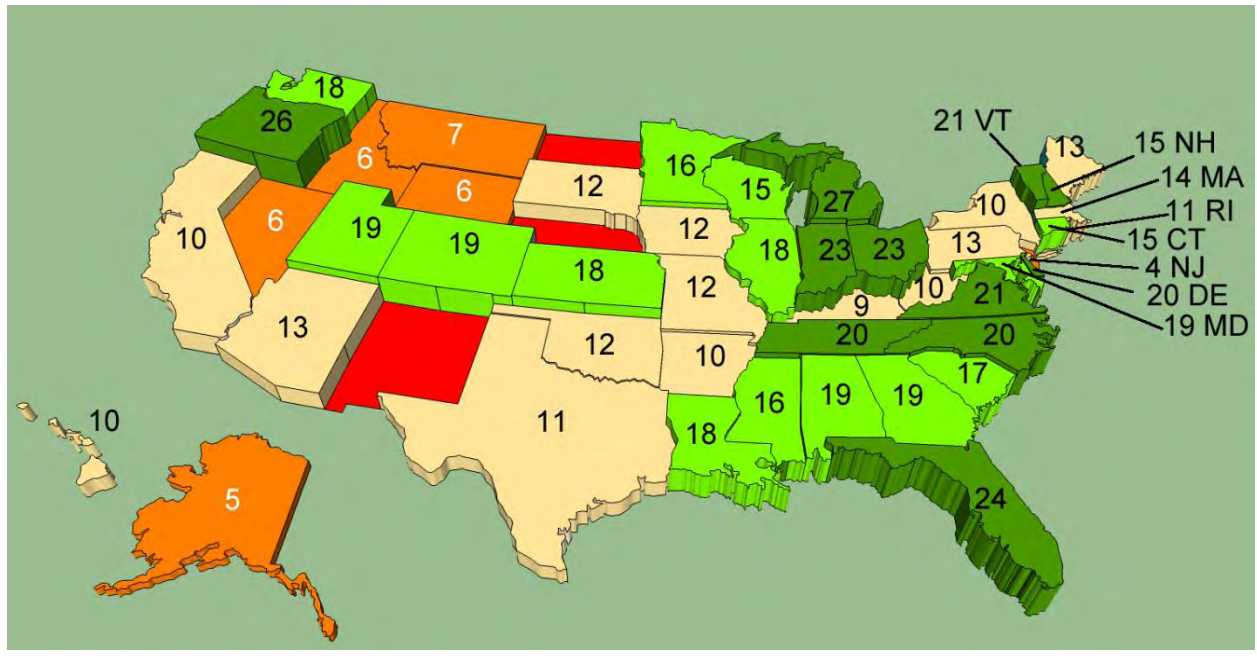


Figure 11: Estimated average percent of RAP by state for 2009

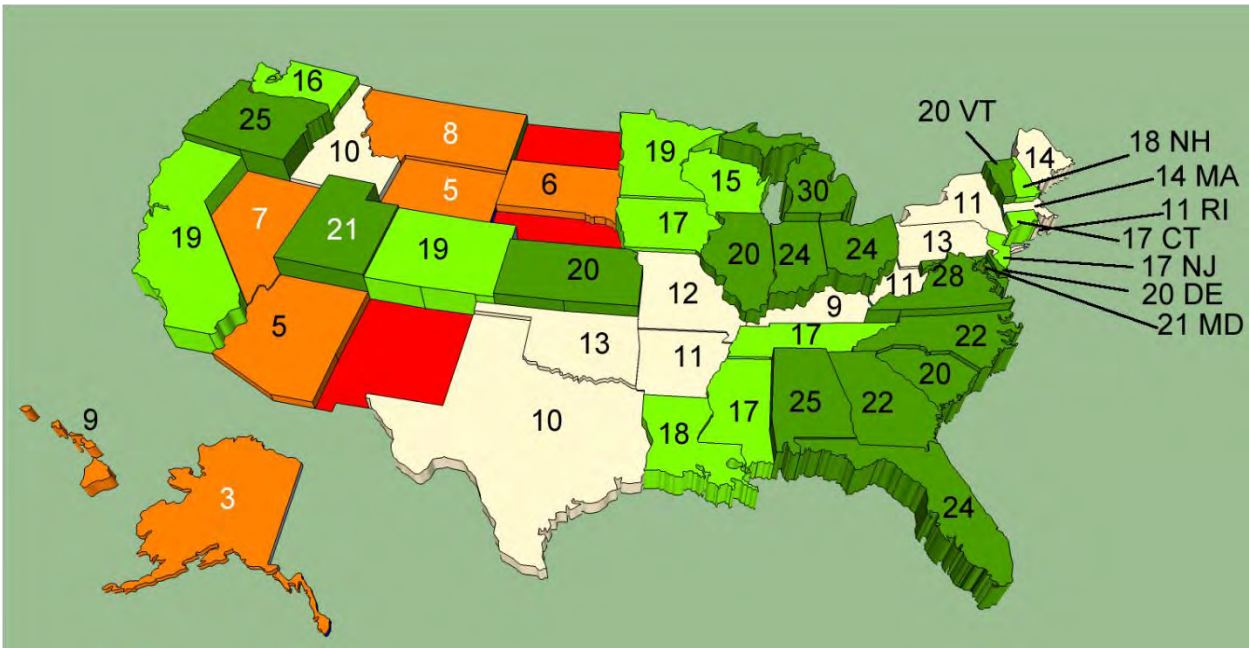


Figure 12: Estimated average percent of RAP by state for 2010

RAP use began in the 1970s. Today, most contractors are using RAP in mixes, with 96 percent of the contractors/branches reporting using RAP and over 86 percent of these contractors reporting excess RAP. From 2009 to 2010, the amount of RAP used in HMA/WMA increased from 56.0 to 62.1 million tons for a 10 percent increase. The average percent RAP used in mixes has increased about from about 16 to 18 percent between 2009 and 2010.

Reclaimed Asphalt Shingles

Table 5 summarizes the RAS data from the survey. Based on the total estimated tons received and the amount used for all purposes, including landfilling, there was an excess of 126,000 and 616,000 tons in 2009 and 2010, respectively.

Table 5: Summary of RAS Data

	Reported Tons Thousand		Total Estimated Tons Thousand	
	2009	2010	2009	2010
Companies/branches Reporting Using RAS	44	61		
Tons Accepted	332	558	957	1,851
Tons Used in HMA/WMA	245	392	701	1,099
Tons Used in Aggregate	5	2	6	3
Tons Used in Cold Mix	-	-	-	-
Tons Used in Other	39	34	123	124
Tons Landfilled	-	0.5	-	6
Avg. % for DOT Mixes	0.33%	0.78%		
Avg. % for Other Agency Mixes	0.37%	0.47%		
Avg. % for Commercial & Residential Mixes	0.63%	0.81%		
National Average All Mixes Based on RAS Tons Used in HMA/WMA	0.27%	0.33%		

RAS Use Thousand Tons

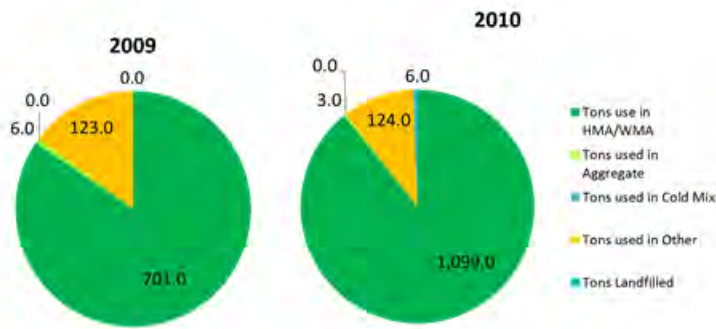


Figure 13: Summary of RAS use.

Figure 13 shows the total estimated amount of RAS used. Figure 14 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 adjusted to account for the difference in reported RAP tons and the tons calculated from the percentage by sector.

RAS Use by Sector Thousand Tons

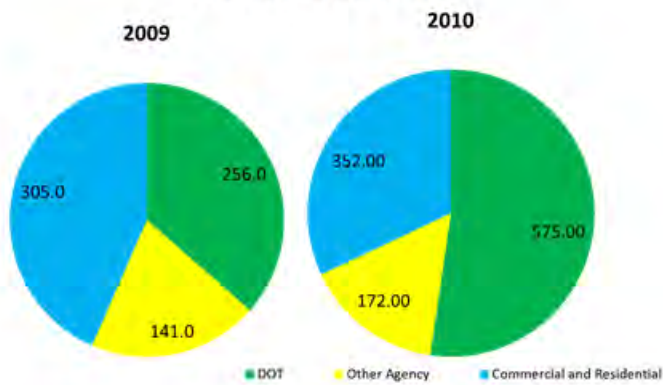


Figure 14: Summary of RAS use by sector.

Figure 15 shows states where plant-mix producers reported using RAS in 2009 and/or 2010.

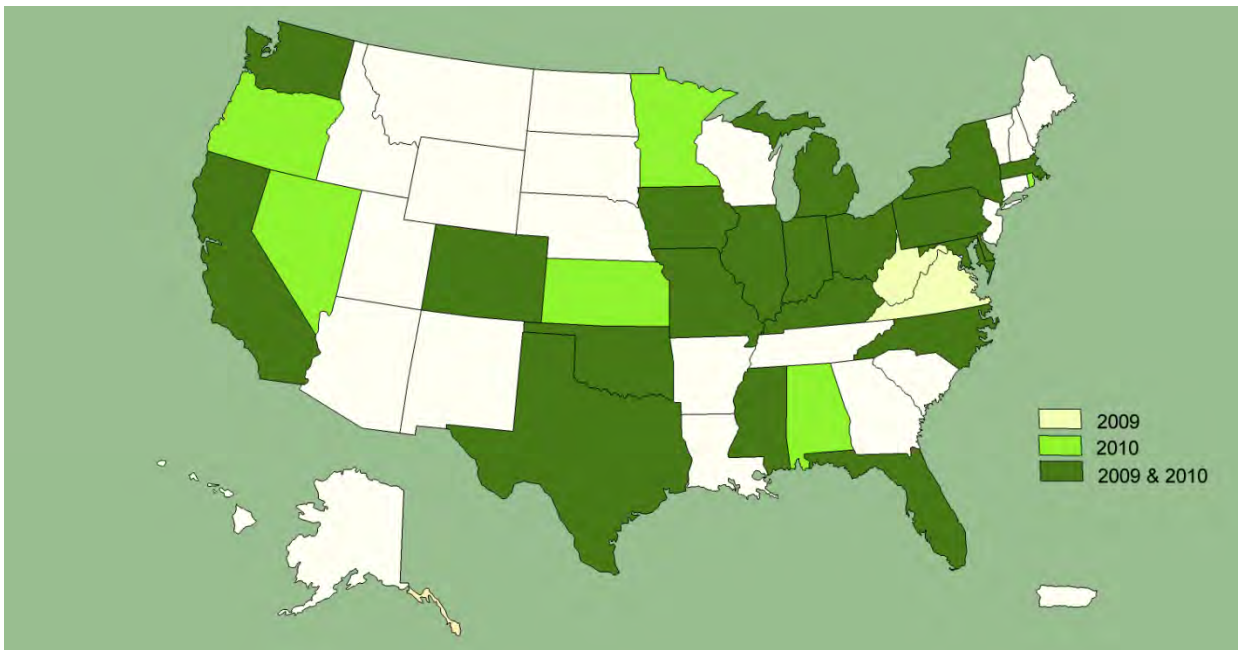


Figure 15: States with companies/branches reporting using RAS

RAS use increased from 702,000 to 1.10 million tons from 2009 to 2010, a 57 percent increase. The number of companies/branches using RAS increased from 44 to 61, a 39 percent increase. The number of states where plant mix producers reported using RAS increased from 23 to 26 from 2009 to 2010.

Warm-Mix Asphalt

Table 6 summarizes 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. It is not necessary to calculate estimated values since the percent will not change.

WMA saw a tremendous increase between 2009 and 2010. The number of companies/branches using WMA increased from 85 to 121. The percent of DOT, other agency, and commercial/residential mixes using WMA increased from 6.3 to 15.0, 4.4 to 11.7, and 4.5 to 11.6, respectively.

Table 6: Summary of WMA data.

	Reported % of Sector		Estimated Total Tons, million	
	2009	2010	2009	2010
Companies/Branches Reporting Using WMA	85	121		
DOT	6.3%	15.0%	10.7	25.8
Other Agency	4.4%	11.7%	3.7	10.1
Commercial & Residential	4.5%	11.6%	4.8	11.7
Chemical Additive %	15%	6%		
Additive Foaming %	2%	1%		
Plant Foaming %	83%	92%		
Organic Additive %	0.3	1%		

Figures 16 through 19 show the estimated total tons of WMA produced in each state. It should be noted that the accuracy of data for individual states varies depending on the number of responses received from each state and the total number of tons represented by the responses. Nationally, the total tons of WMA increased from 19.2 million tons to 47.6 million tons, a 148 percent increase. Plant foaming is used most often in producing WMA. Additives accounted for about 17 and 8 percent of the total WMA production in 2009 and 2010, respectively.

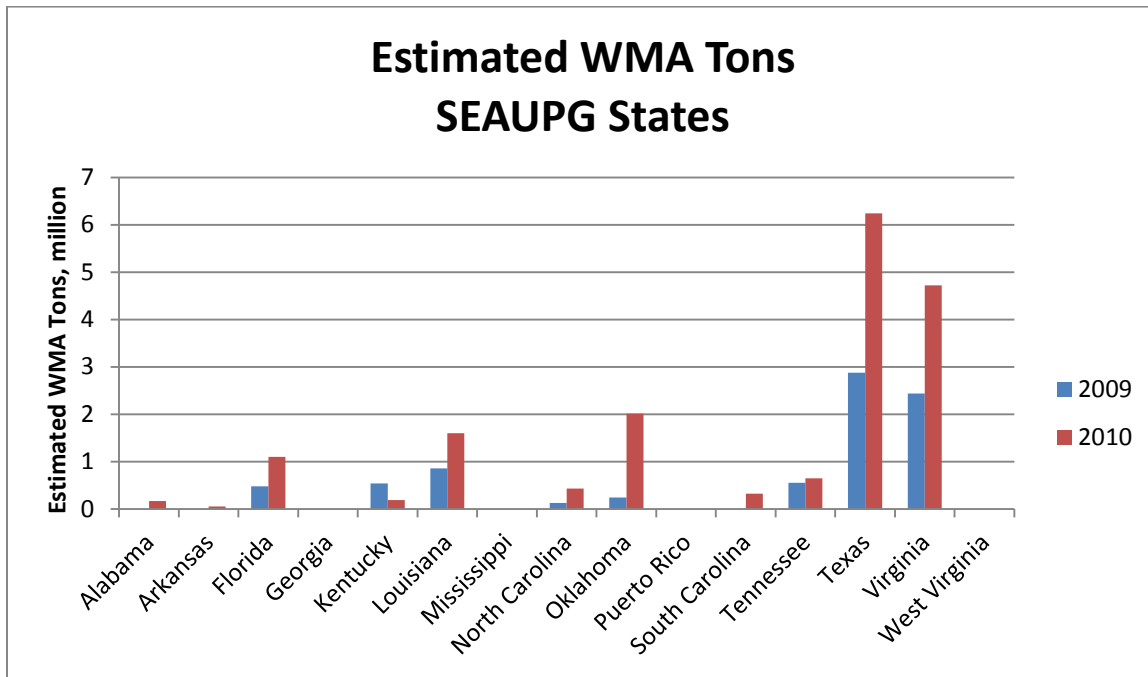


Figure 16: Estimated total WMA tons for Southeast Asphalt User Producer Group states/territories

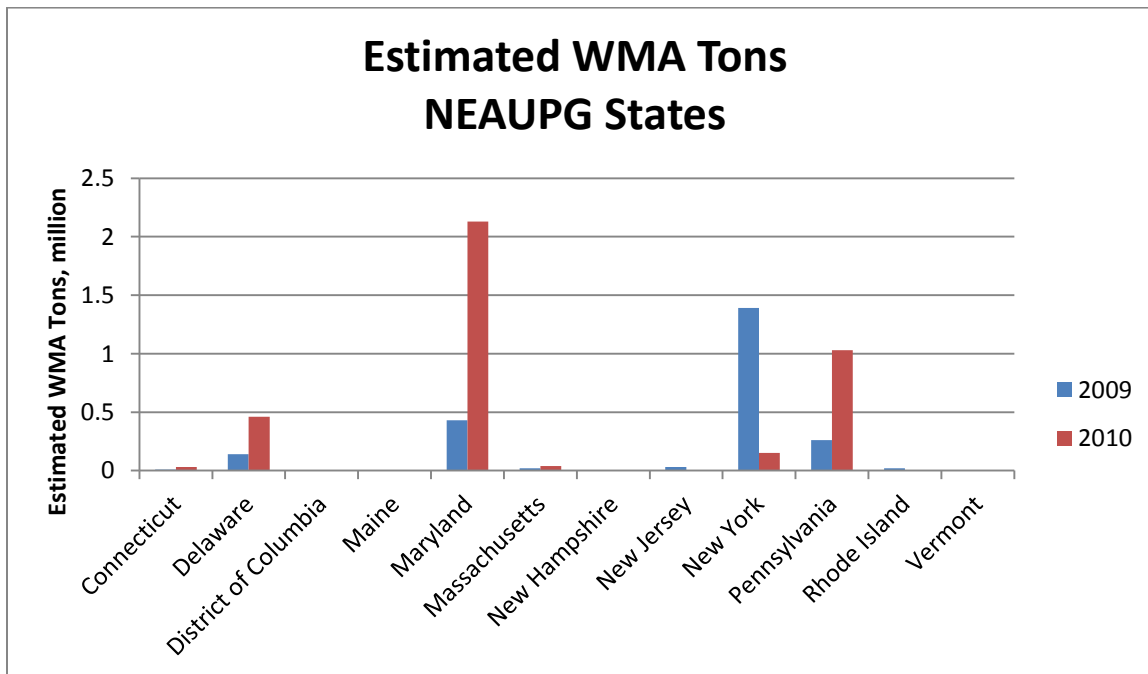


Figure 17: Estimated total WMA tons for Northeast User Producer Group states

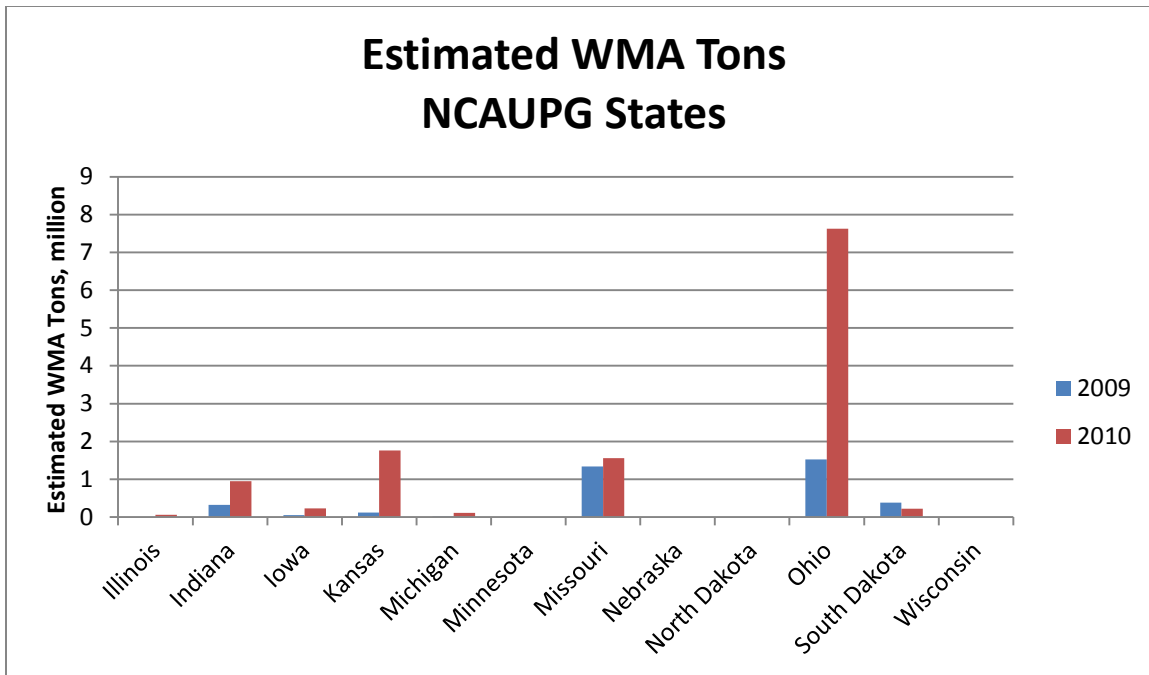


Figure 18: Estimated total WMA tons for North Central Asphalt User Producer Group states

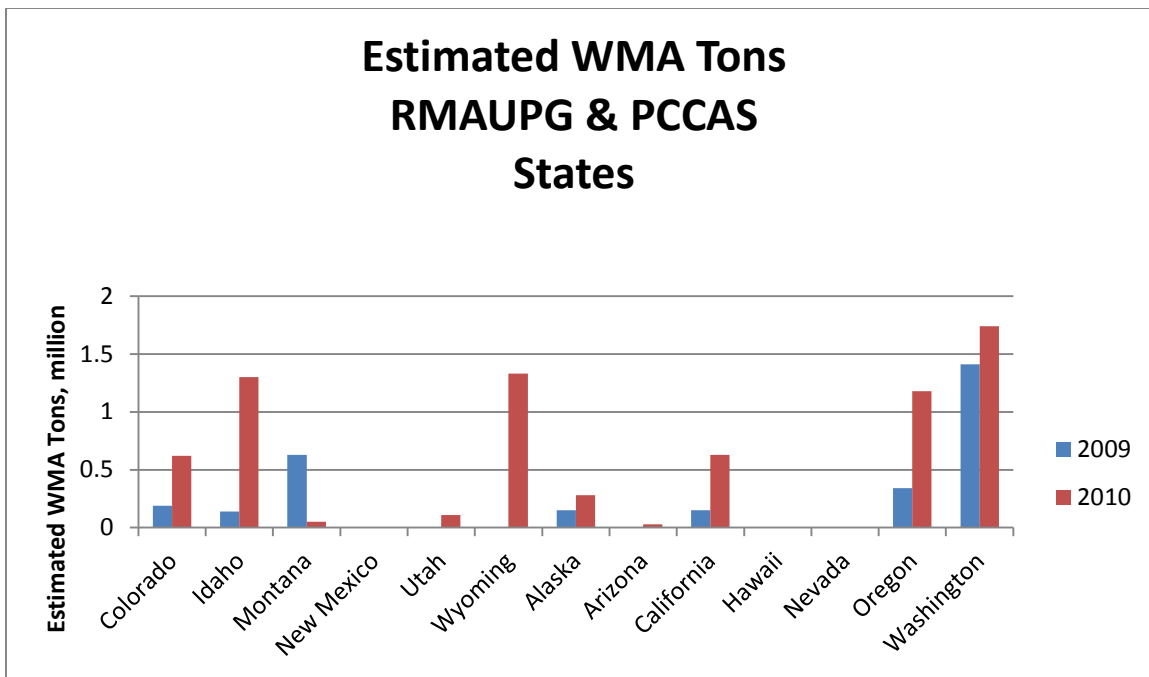


Figure 19: Estimated total WMA tons for Rocky Mountain Asphalt User Producer Group and Pacific Coast Conference on Asphalt Specification states

Summary and Conclusions

The survey clearly shows the asphalt pavement industry continues to improve its environmental stewardship through its increasing use of RAP, RAS, and WMA. These technologies reduce the need for new materials, especially asphalt binders, and energy use.

RAP use began in the 1970s and now most contractors are using RAP in mixes, with 96 percent of the contractors/branches reporting using RAP and over 86 percent of these contractors reporting excess RAP. From 2009 to 2010 the amount of RAP used in HMA/WMA increased from 56.0 to 62.1 million tons, for a 10 percent increase.

Assuming 5 percent liquid asphalt in RAP, this represents over 3 million tons (19 million barrels) of asphalt binder conserved.

RAS use increased from 702,000 to 1.10 million tons from 2009 to 2010, a 57 percent increase. Assuming a conservative asphalt content of 20 percent for the shingles, this represents 234,000 tons (1.5 million barrels) of asphalt binder.

WMA was first used in the U.S. in 2004, with the market growing tremendously since that time. In 2009 the total tonnage of WMA is estimated at 19.2 million tons. This grew to 47.6 million tons in 2010, for a 148 percent increase. Plant foaming is used most often in producing WMA. Additives accounted for about 17 and 8 percent of the total WMA production in 2009 and 2010, respectively.

Bibliography

Copeland, A., Jones, C., & Bukowski, J. (2010, March/April). *Public Roads*. Retrieved September 20, 2011, from Federal Highway Administration: <http://www.fhwa.dot.gov/publications/publicroads/10mar/06.cfm>



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**Asphalt Pavement Mix Production Survey
IS 138**



Asphalt Pavement Mix Production Survey
On Reclaimed Asphalt Pavement,
Reclaimed Asphalt Shingles,
And Warm-mix Asphalt Usage: 2009-2010

Appendix A

RAP, RAS & WMA Survey

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. The following survey will be used to collect this data.

It is important to the industry that you complete this survey so we have accurate information regarding the use of RAP, RAS and Warm-Mix-Asphalt in order 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 AND WILL NOT BE USED FOR ANY OTHER PURPOSE. DATA WILL BE REPORTED BY STATE ONLY. NO COMPANY SPECIFIC INFORMATION WILL BE DISCLOSED OR USED FOR ANY OTHER PURPOSE.

This information will be shared with industry and agencies 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 report.

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP, RAS & WMA Survey

Contact Information

The following contact 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 on the survey.

Contact Kent Hansen, khansen@hotmail.com or Dave Newcomb, dnewcomb@hotmail.com at NAPA if you have any questions. 888-468-6499

* **1. Company/Branch Name:**

* **2. Contact Person's Name & Address**

* **3. Contact Person's email**

* **4. Contact Person's Phone Number**

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP, RAS & WMA Survey

State

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

If your branch works 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 data is not available.

* 5. Which state is the information provided for?

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

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

Number of plants

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP, RAS & WMA Survey

Total Asphalt Tonnage for 2009

Please complete the following information for the total tonnage of all asphalt production in 2009.

* **7. What was your total tonnage of asphalt mixes in 2009 for the following categories?**

(Use best estimate if data is not available)

State DOT

Other Agencies (city, county, FAA, military)

Commercial & residential

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP Supply and Use 2009

Please complete the following information on the amount of RAP received and used for 2009.

* 8. Did you accept, process or use RAP in this state in 2009?

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP, RAS & WMA Survey

RAP Supply and Use 2009

Please complete the following information on the amount of RAP received and used for 2009.

- * **9. How many tons of removed asphalt pavement and asphalt millings were accepted/delivered to your facilities in the state in 2009?**

Tons:

- * **10. How many tons of RAP were used in 2009 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 average RAP percentage used in asphalt mixes in 2009 for the following categories? (Use best estimate if data not available)**

State DOT

Other Agencies (city, county, FAA, military)

Commercial & residential

- * **12. At the end of the year 2009 did you have excess RAP (processed or unprocessed) in inventory?**

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

Reclaimed Asphalt Shingles (RAS) Supply and Use for 2009

Please complete the following information on the amount of waste shingles received (processed and unprocessed) and used for 2009.

* **13. Did you accept waste shingles and/or process or use Reclaimed Asphalt Shingles (RAS) in 2009?**

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP, RAS & WMA Survey

Reclaimed Asphalt Shingles (RAS) Supply and Use for 2009

Please complete the following information on the amount of waste shingles received (processed and unprocessed) and used for 2009.

- * **14. How many tons of unprocessed shingles (manufacturers waste and tear-offs) were accepted/delivered to your facilities in the state in 2009?**

Tons:

- * **15. How many tons of reclaimed asphalt shingles (RAS) were used for the following purposes in 2009? (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 2009 for the following categories? (Use best estimate if data is not available)**

State DOT

Other Agencies (city, county, FAA, military)

Commercial & residential

- * **17. At the end of the year 2009 did you have excess RAS? (include processed and unprocessed shingles)**

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

Warm Mix Asphalt Production for 2009

Warm-mix asphalt is the generic term for a variety of technologies that allow the producers of hot-mix asphalt pavement material to lower the temperatures at which the material is mixed and placed on the road between 10 and 100 degrees F.

* **18. Did any of your plants in this state use Warm-Mix Asphalt technologies in 2009?**

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP, RAS & WMA Survey

Warm Mix Asphalt Production for 2009

Warm-mix asphalt is the generic term for a variety of technologies that allow the producers of hot-mix asphalt pavement material to lower the temperatures at which the material is mixed and placed on the road between 10 and 100 degrees F.

* **19. What was average percent of mix produced using Warm-Mix-Asphalt technologies in 2009 for the different categories? (Use best estimate if data not available)**

State DOT

Other Agencies (city, county, FAA, military)

Commercial & residential

* **20. What percentage of the total warm-mix asphalt (WMA) for 2009 was produced using the following technologies? (Use best estimate if data not available)**

Chemical admixture

Additive (zeolite) foaming

Plant foaming

Organic (wax) additive

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

2010 Tonnage

Please complete the following information for the total estimated tonnage of all asphalt production in 2010.

* **21. What is your total estimated tonnage of asphalt mixes in 2010 for the following categories?**

State DOT

Local agencies (city, county, FAA, military)

Commercial & residential

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP Supply and Use 2010

Please complete the following information on the estimated amount of RAP received and used for 2010.

* 22. Did you accept, process or use RAP in this state in 2010?

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP, RAS & WMA Survey

RAP Supply and Use 2010

Please complete the following information on the estimated amount of RAP received and used for 2010.

- * **23. How many tons of removed asphalt pavement and asphalt millings do you anticipate to be accepted/delivered to your facilities in the state in 2010?**

Tons:

- * **24. How many tons of RAP do you anticipate will be used in 2010 for the following purposes?**

Recycled back into HMA/WMA mixes:
Aggregate base:
Cold mix:
Other:
Landfilled:

- * **25. What do you anticipate the average RAP percentage in asphalt mixes in 2010 will be used for the following categories**

State DOT
Other Agencies (city, county, FAA, military)
Commercial & residential

- * **26. At the end of the year 2010 do you anticipate having excess RAP (processed or unprocessed) in inventory?**

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

Reclaimed Asphalt Shingles (RAS) Supply and Use for 2010

Please complete the following information on the estimated amount of waste shingles received (processed and unprocessed) and used for 2010.

* **27. Did you accept waste shingles and/or process or use Reclaimed Asphalt Shingles (RAS) in 2010?**

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

RAP, RAS & WMA Survey

Reclaimed Asphalt Shingles (RAS) Supply and Use for 2010

Please complete the following information on the estimated amount of waste shingles received (processed and unprocessed) and used for 2010.

- * **28. How many tons of unprocessed shingles (manufacturers waste and tear-offs) do you anticipate will be accepted/delivered to your facilities in the state in 2010?**

Tons:

- * **29. How many tons of reclaimed asphalt shingles (RAS) do you anticipate will be used for the following purposes in 2010?**

Recycled back into HMA/WMA mixes:

Aggregate base:

Cold mix:

Other:

Landfilled:

- * **30. What do you anticipate the average RAS percentage in asphalt mixes in 2010 will be used for the following categories?**

State DOT

Other Agencies (city, county, FAA, military)

Commercial & residential

- * **31. At the end of the year 2010 do you anticipate an excess of RAS?**

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

Warm Mix Asphalt Production for 2010

Warm-mix asphalt is the generic term for a variety of technologies that allow the producers of hot-mix asphalt pavement material to lower the temperatures at which the material is mixed and placed on the road between 10 and 100 degrees F.

* **32. Did any of your plants in this state use Warm-Mix Asphalt technologies in 2010?**

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

Warm Mix Asphalt Production for 2010

Warm-mix asphalt is the generic term for a variety of technologies that allow the producers of hot-mix asphalt pavement material to lower the temperatures at which the material is mixed and placed on the road between 10 and 100 degrees F.

★ **33. What do you anticipate the average percent of mix produced using Warm-Mix-Asphalt technologies will be in 2010 for the different categories?**

State DOT	<input type="text"/>
Other agencies (city, county, FAA, military)	<input type="text"/>
Commercial & residential	<input type="text"/>

★ **34. What percentage of the total Warm-Mix-Asphalt is anticipated for the following technologies in 2010?**

Chemical admixture	<input type="text"/>
Additive (zeolite) foaming	<input type="text"/>
Plant foaming	<input type="text"/>
Organic (wax) additive	<input type="text"/>

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

Thank You

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

Yes

No

FOR DATA COLLECTION ONLY!
Please fill out web survey at:
<http://www.surveymonkey.com/s/XZ9NG3S>

2nd Annual Asphalt Pavement
Industry Survey on
Reclaimed Asphalt Pavement,
Reclaimed Asphalt Shingles,
and Warm-mix Asphalt Usage:
2009–2011

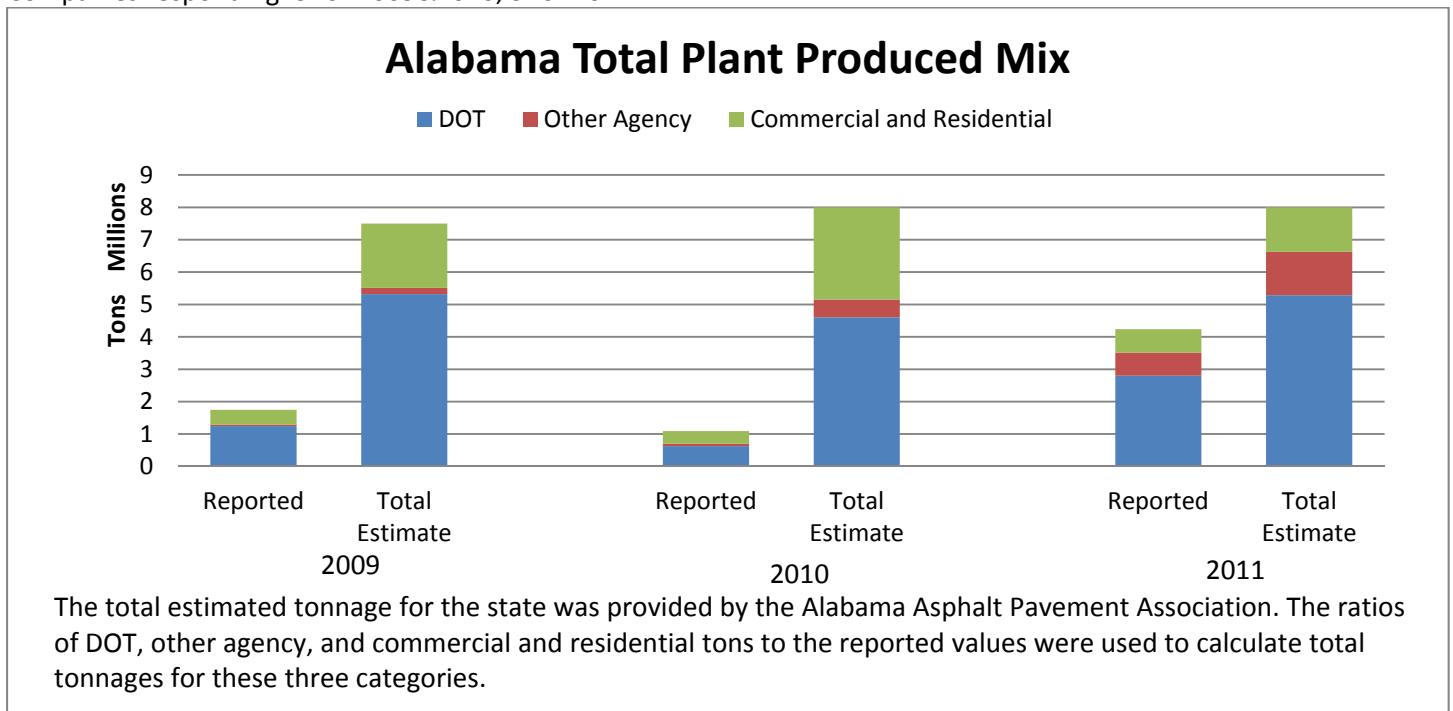
Appendix B
State-by-State Use of RAP, RAS, WMA and HMA

Alabama

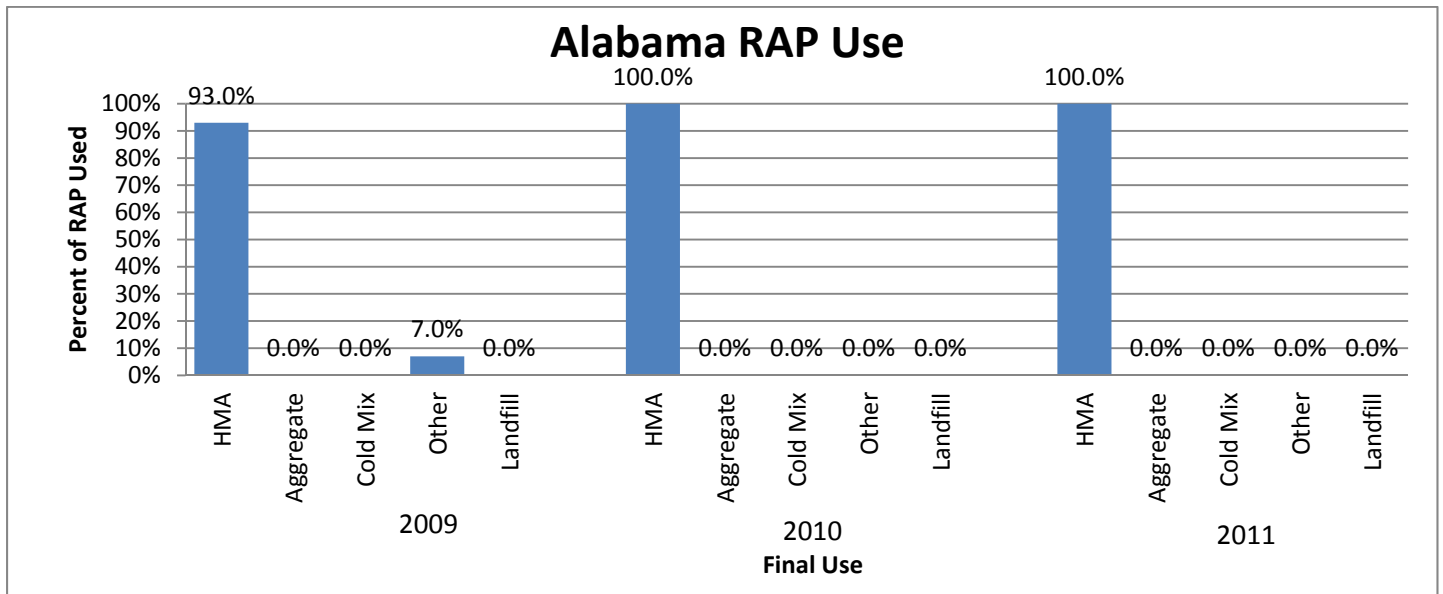
Table B1 summarizes the results received from asphalt mix producers in Alabama. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

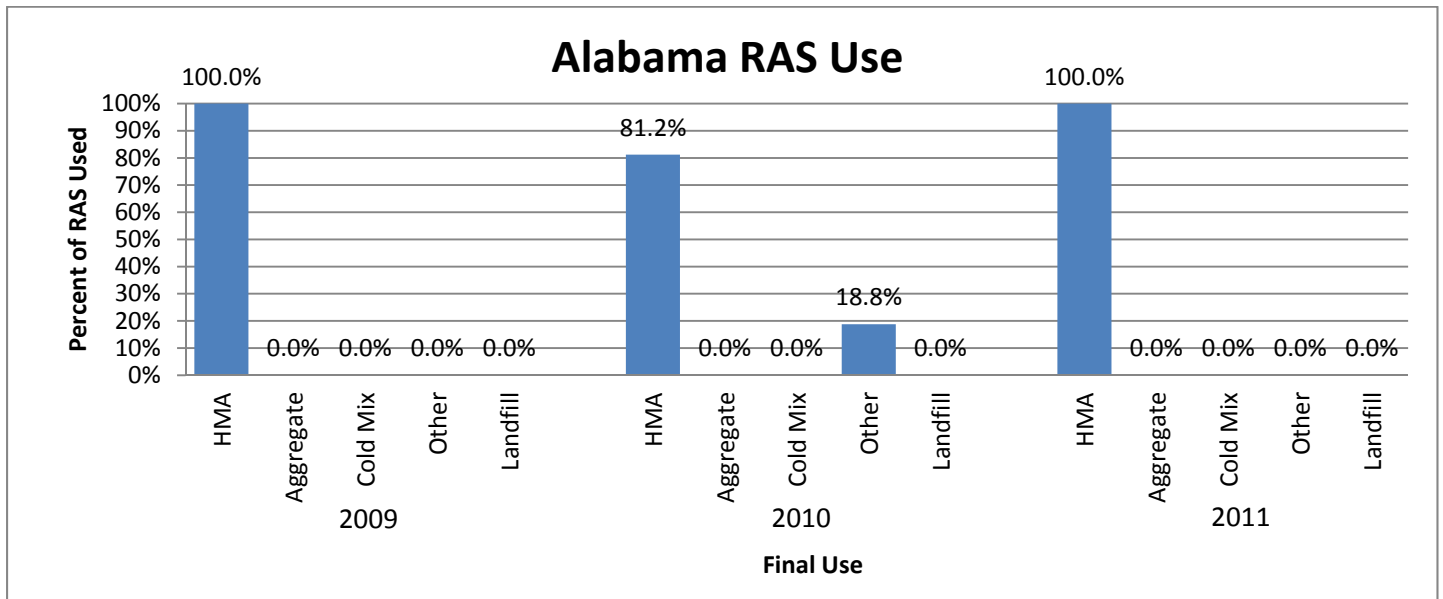
Companies responding: 3 for 2009&2010, 5 for 2011



RAP Use



RAS Use



WMA Use

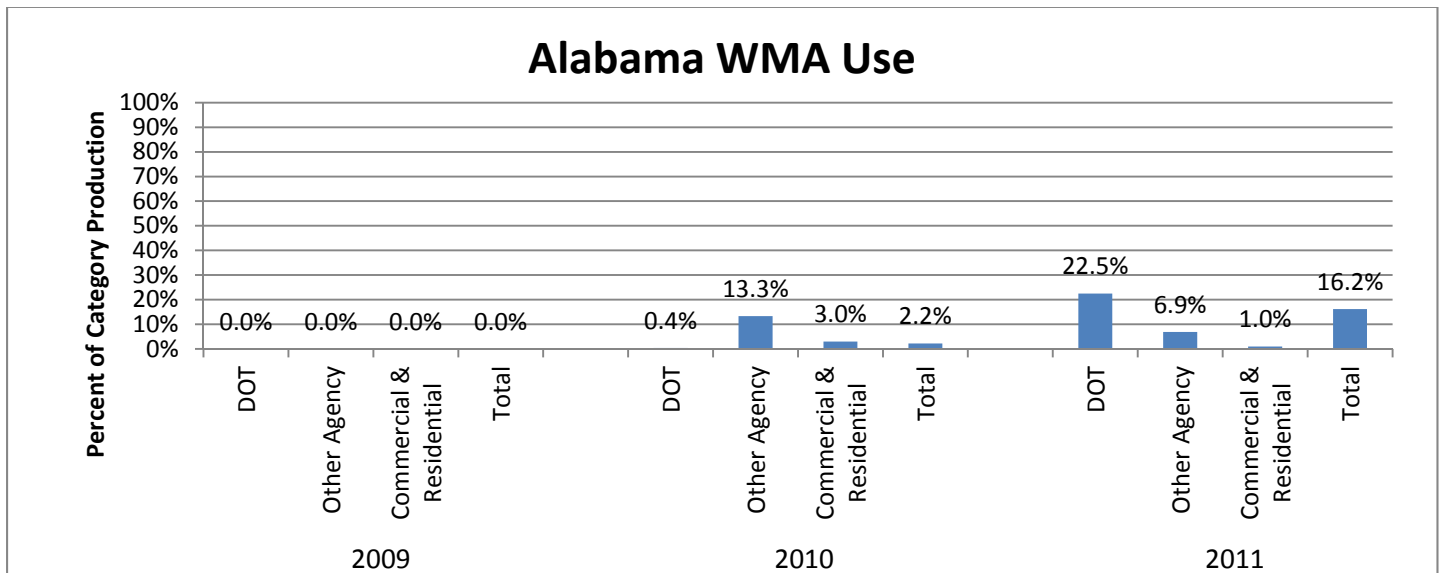


Table B 1 Summary of Alabama Data for 2011

No. Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	2,800,935	5,286,830
Total Other Agency Tonnage	709,356	1,338,926
Total Commercial & Residential Tonnage	728,068	1,374,245
Total Tonnage	4,238,359	8,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	1,191,308	2,248,621
RAP Tons used in HMA/WMA	897,861	1,694,733
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	19%	
Average % RAP in Other Agency Mixes	22%	
Average % RAP in Commercial & Residential Mixes	26%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	80%	
RAS Tons Received	71,740	135,411
RAS Tons used in HMA/WMA	61,991	117,009
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	629,930	1,189,007
WMA Other Agency Tonnage	48,964	92,421
WMA Commercial & Residential Tonnage	7,665	14,468
Total WMA Tonnage	686,559	1,295,896
Percent WMA Tons using Chemical Additives	26.1%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	73.9%	
Percent WMA Tons using Organic Additive	0.0%	

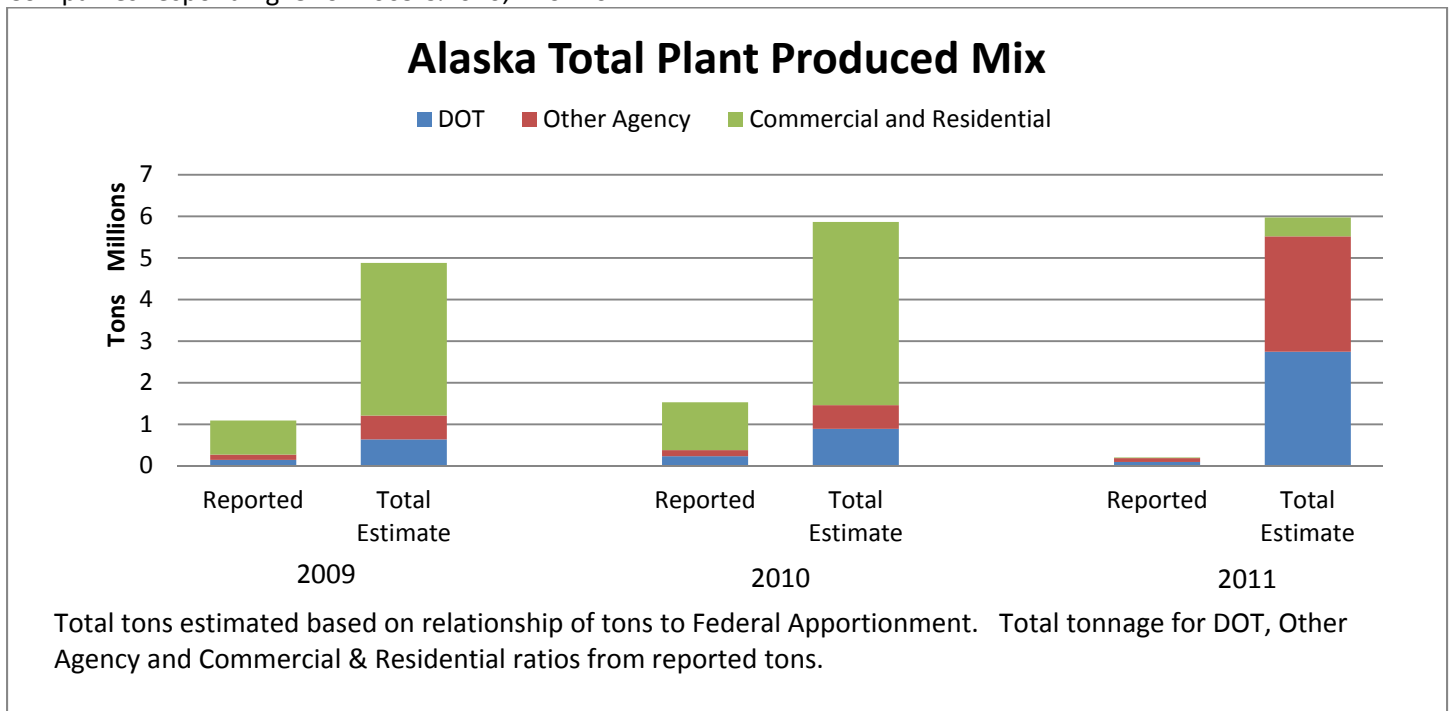
1. Total tonnage provided by Alabama Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Alaska

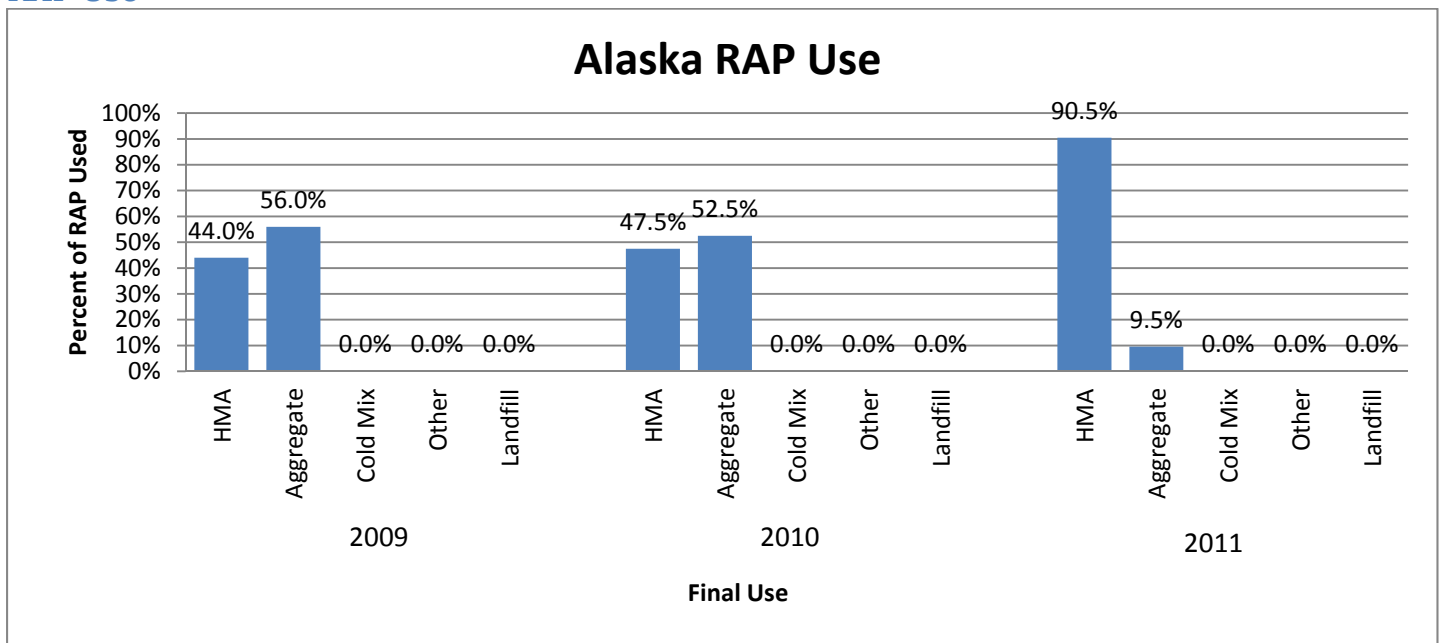
Table B2 summarizes the results received from asphalt mix producers in Alaska. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use

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

WMA Use

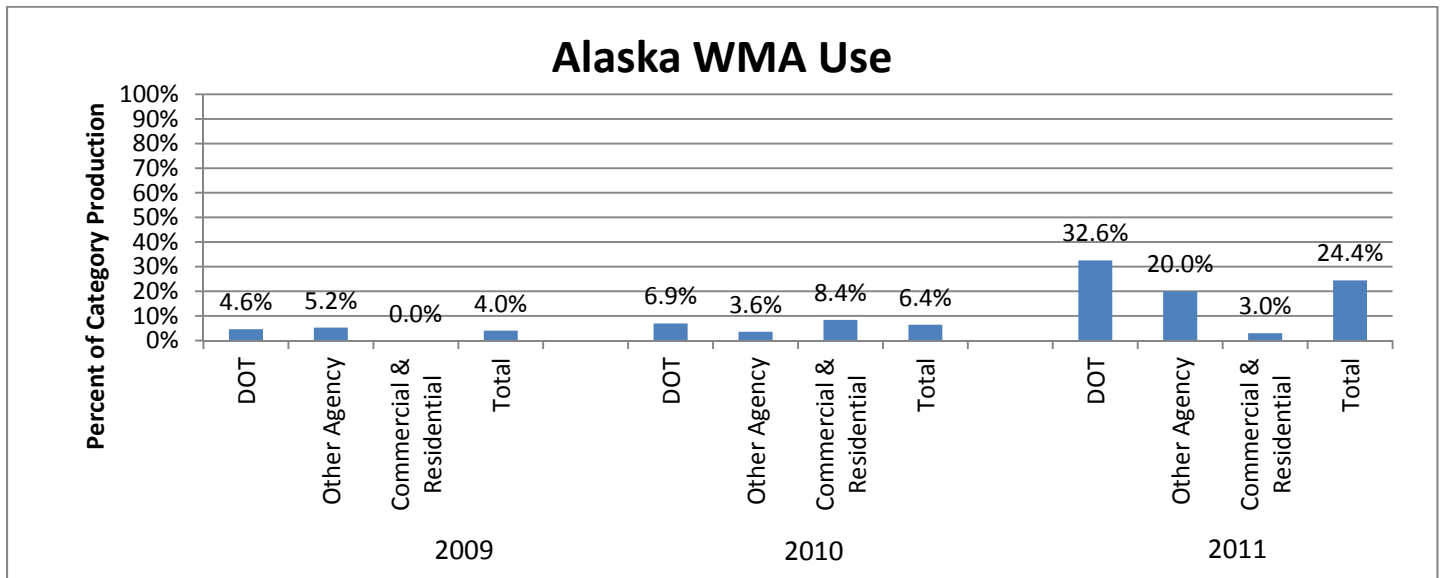


Table B 2: Summary of Alaska Data for 2011

No. Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	93,250	2,743,863
Total Other Agency Tonnage	94,280	2,774,170
Total Commercial & Residential Tonnage	15,530	456,967
Total Tonnage	203,060	5,975,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	42,500	1,250,554
RAP Tons used in HMA/WMA	27,050	795,941
RAP Tons used as Aggregate	2,850	83,861
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	10%	
Average % RAP in Other Agency Mixes	7%	
Average % RAP in Commercial & Residential Mixes	16%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	50%	
WMA DOT Tonnage	30,360	893,337
WMA Other Agency Tonnage	18,810	553,480
WMA Commercial & Residential Tonnage	430	12,653
Total WMA Tonnage	49,600	1,459,470
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%	

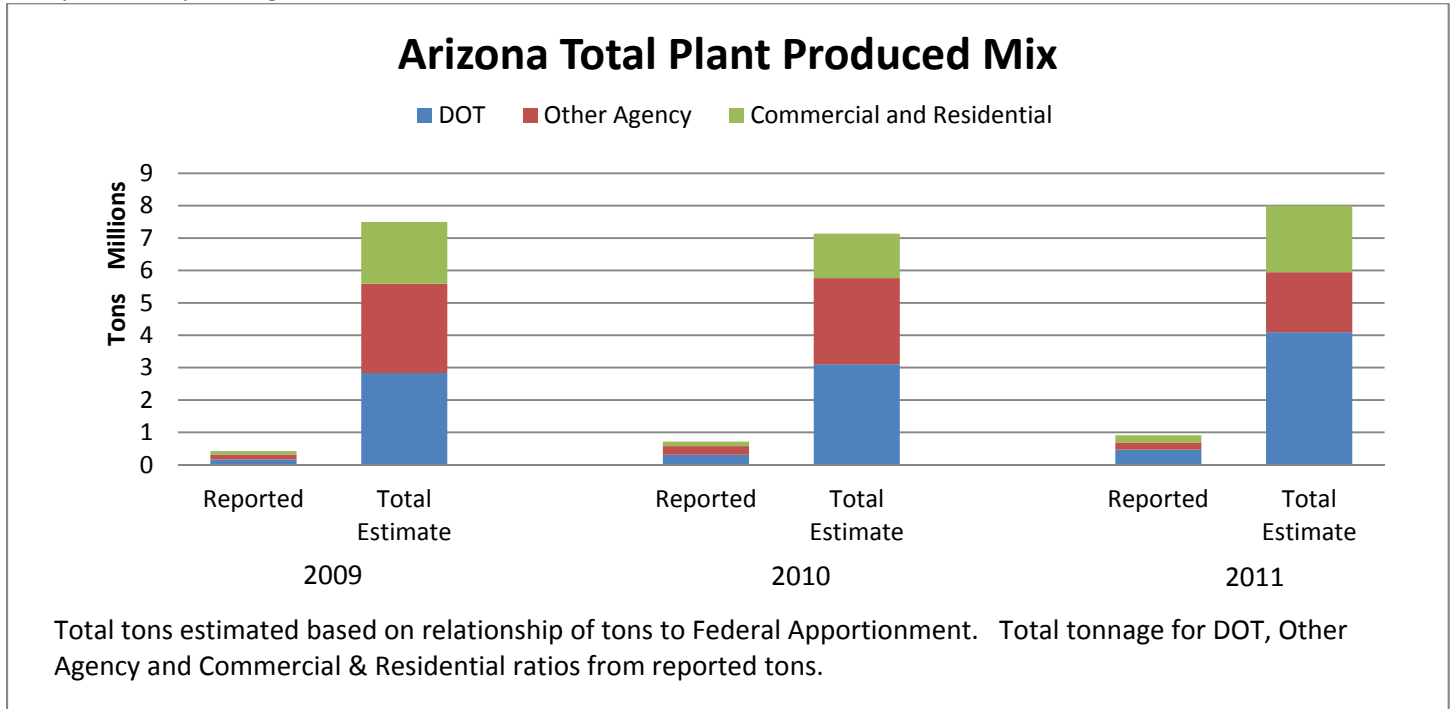
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Arizona

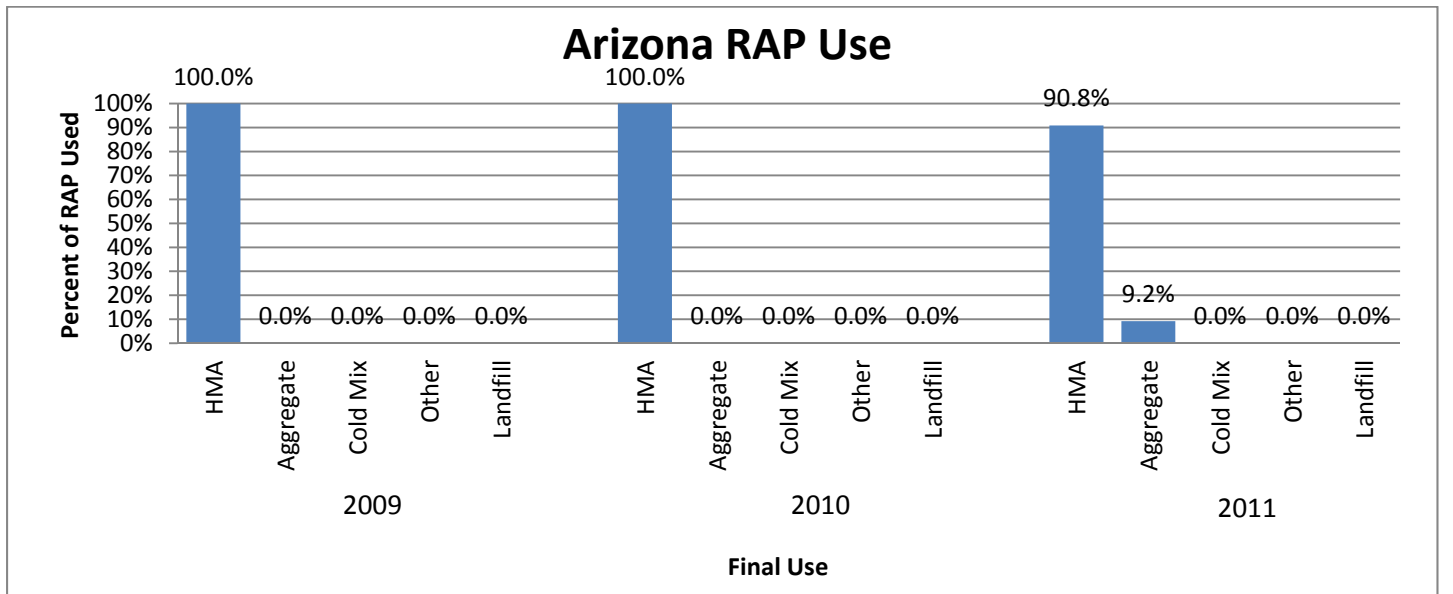
Table B3 summarizes the results received from asphalt mix producers in Arizona. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use

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

WMA Use

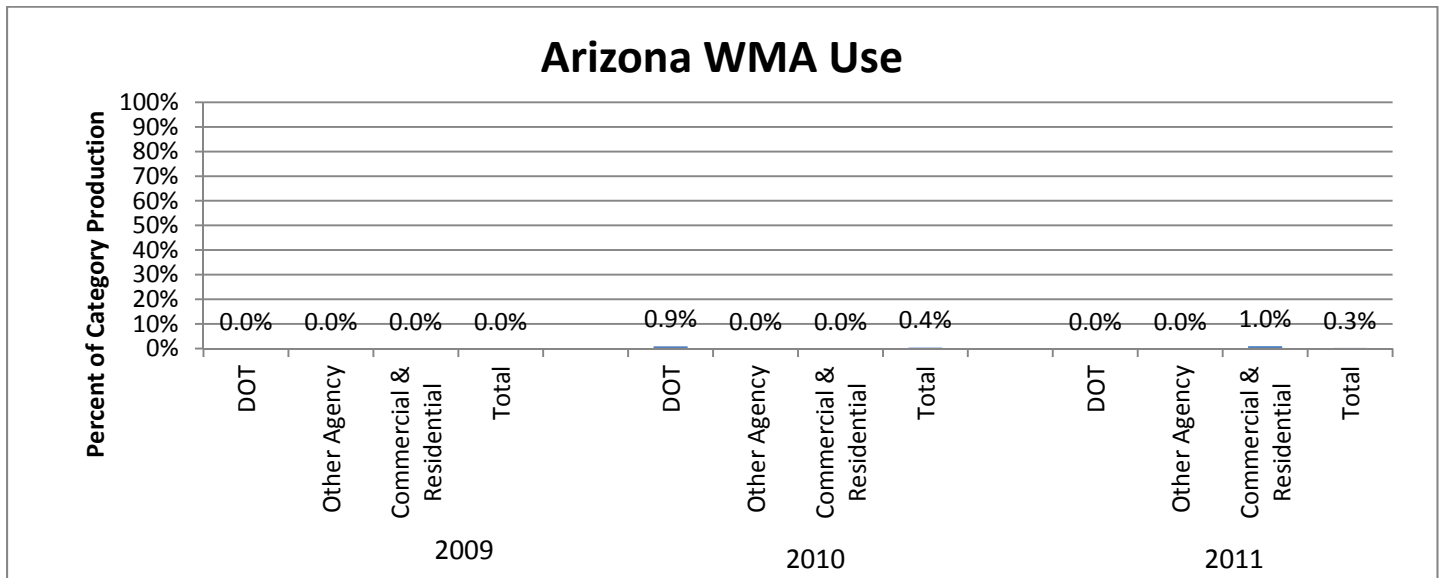


Table B 3: Summary of Arizona Data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	465,202	4,094,201
Total Other Agency Tonnage	210,634	1,853,771
Total Commercial & Residential Tonnage	233,161	2,052,029
Total Tonnage	908,997	8,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	134,200	1,181,082
RAP Tons used in HMA/WMA	98,545	867,286
RAP Tons used as Aggregate	9,940	87,481
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	10%	
Average % RAP in Other Agency Mixes	5%	
Average % RAP in Commercial & Residential Mixes	17%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	25%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	2,285	20,106
Total WMA Tonnage	2,285	20,106
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%	

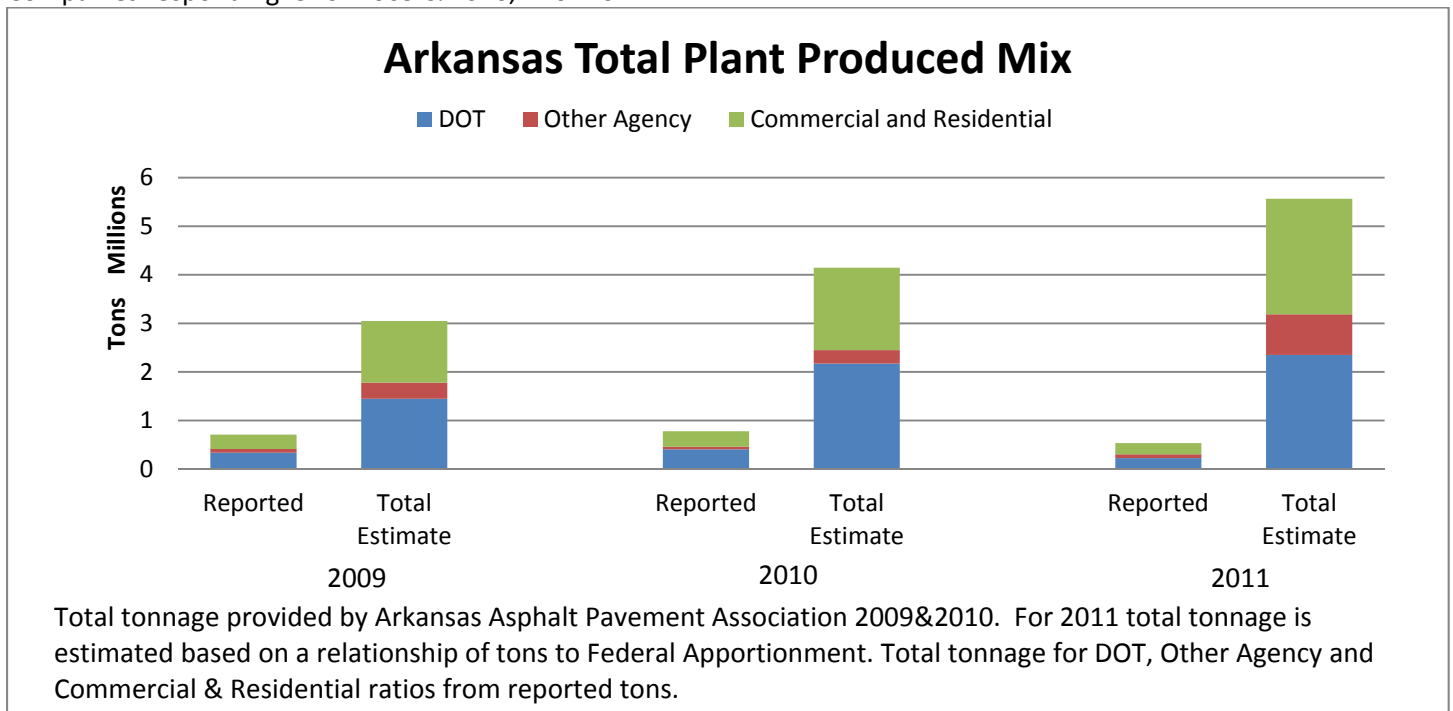
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Arkansas

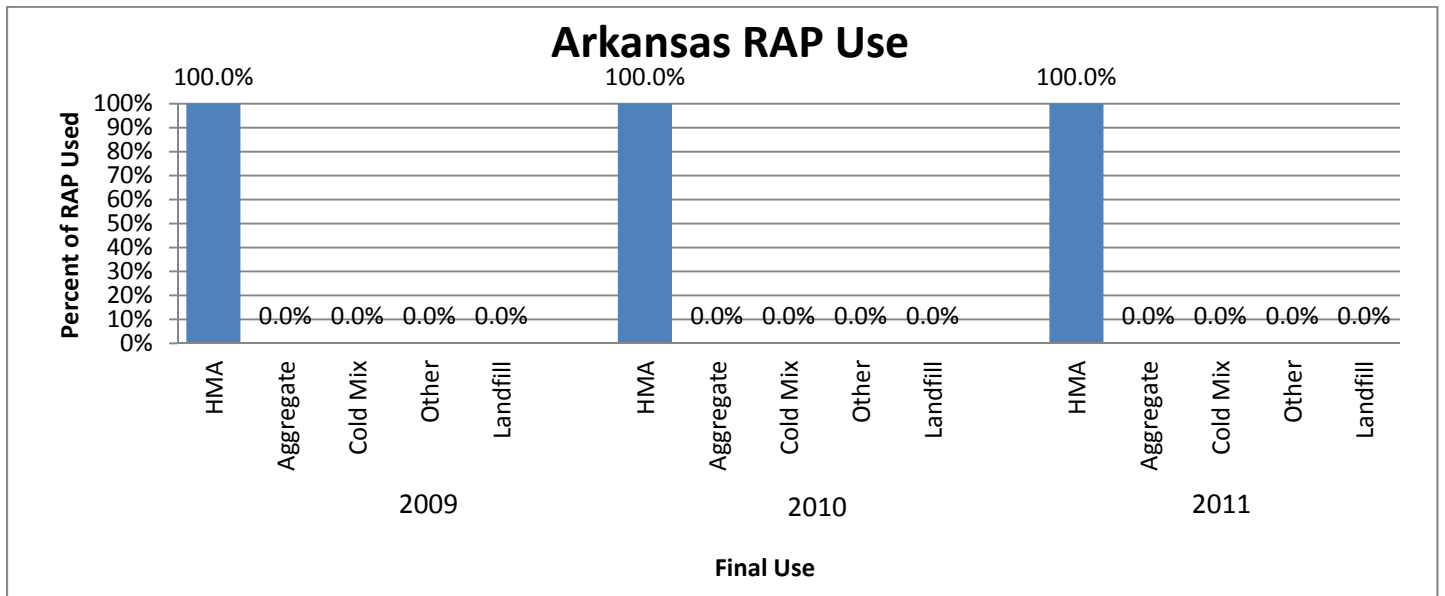
Table B4 summarizes the results received from asphalt mix producers in Arkansas.

Total Asphalt Mix Tonnage

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

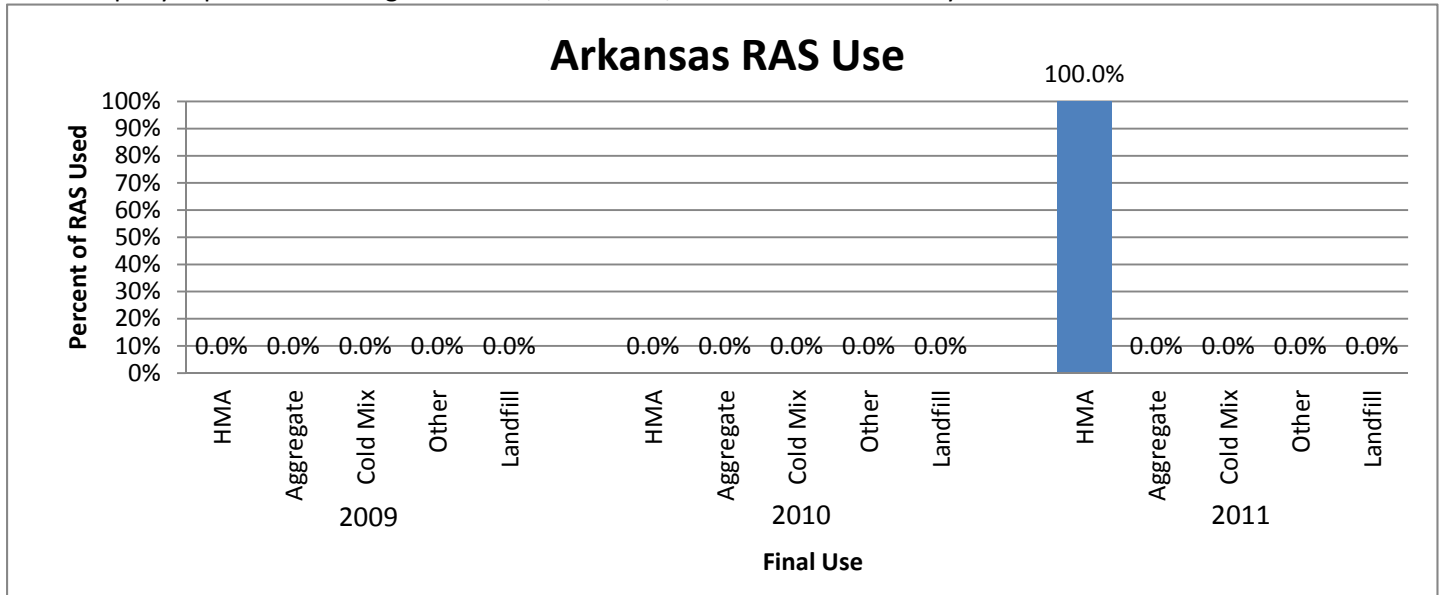


RAP Use



RAS Use

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



WMA Use

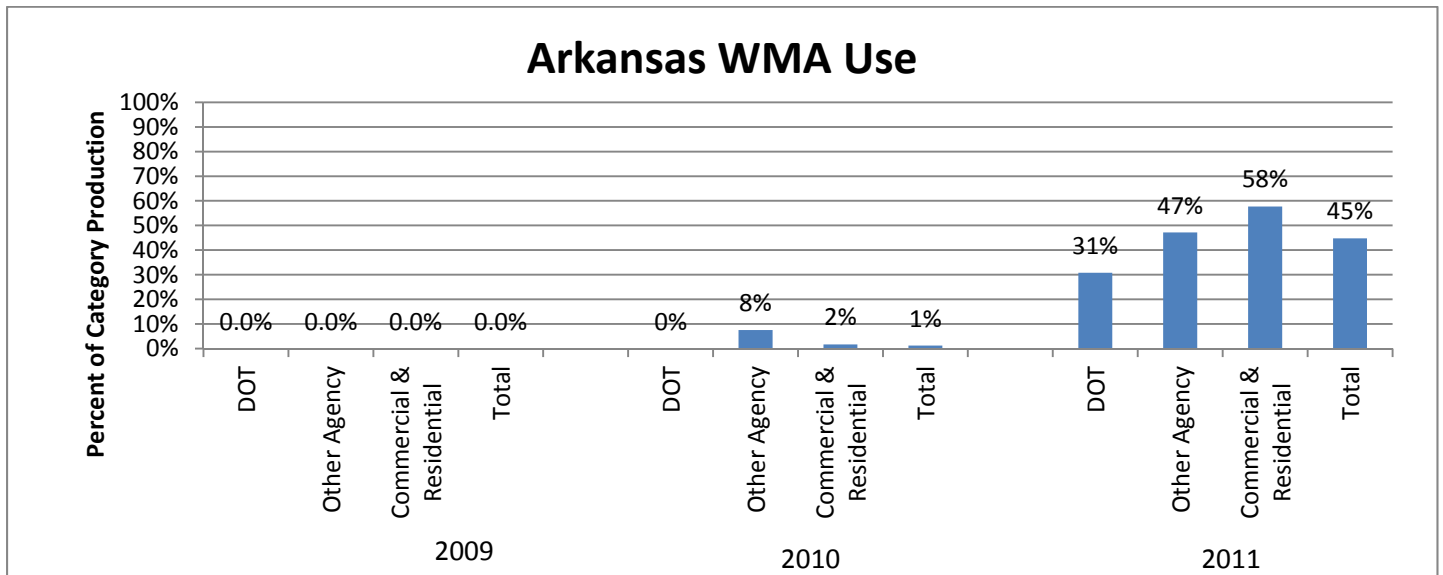


Table B 4: Arkansas Summary for 2011

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	225,663	2,350,700
Total Other Agency Tonnage	80,109	834,484
Total Commercial & Residential Tonnage	228,362	2,378,815
Total Tonnage	534,134	5,564,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	59,820	623,137
RAP Tons used in HMA/WMA	51,495	536,416
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	10%	
Average % RAP in Other Agency Mixes	11%	
Average % RAP in Commercial & Residential Mixes	12%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	100%	
RAS Tons Received	28,470	296,568
RAS Tons used in HMA/WMA	5,688	59,251
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	3%	
Average % RAS in Commercial & Residential Mixes	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	69,515	724,124
WMA Other Agency Tonnage	37,760	393,340
WMA Commercial & Residential Tonnage	131,719	1,372,101
Total WMA Tonnage	238,994	2,489,566
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%	

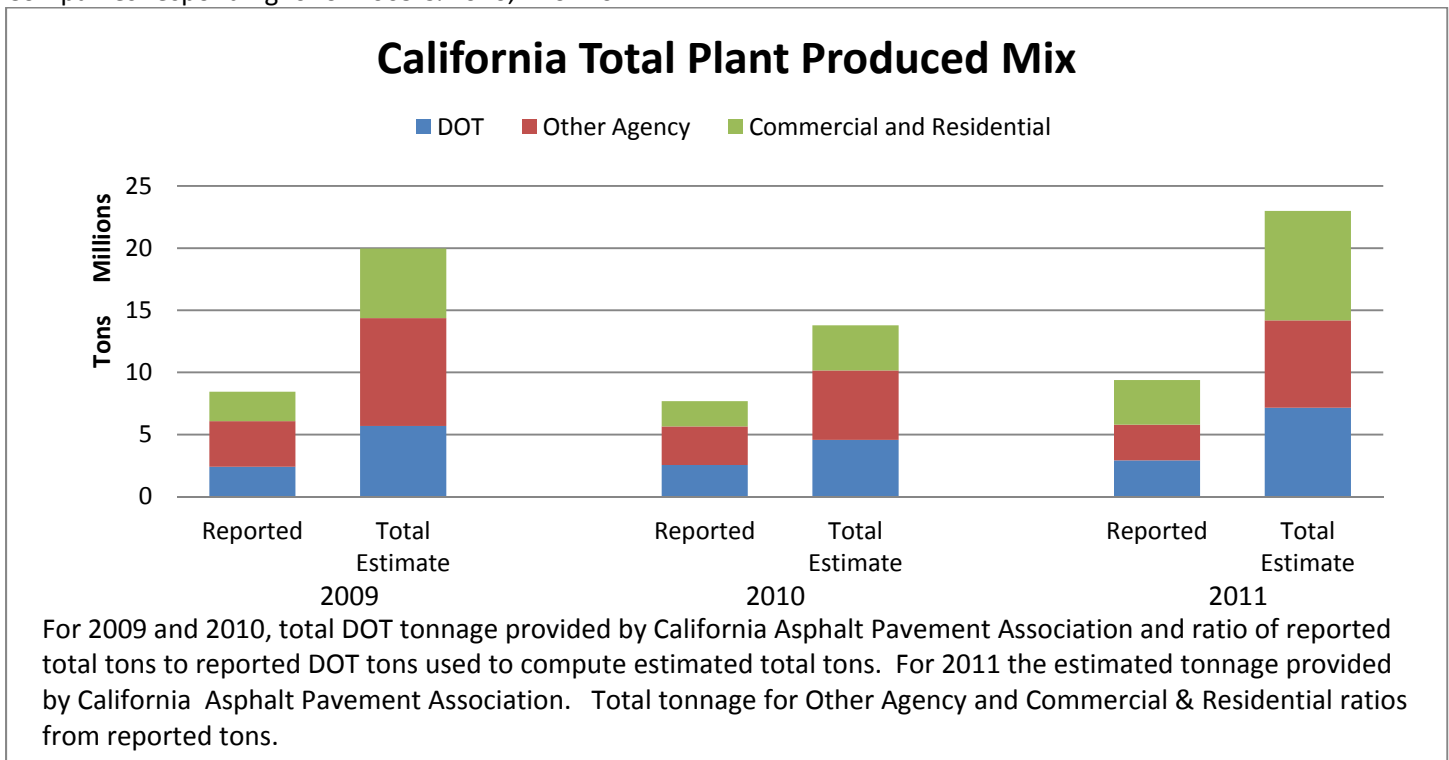
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

California

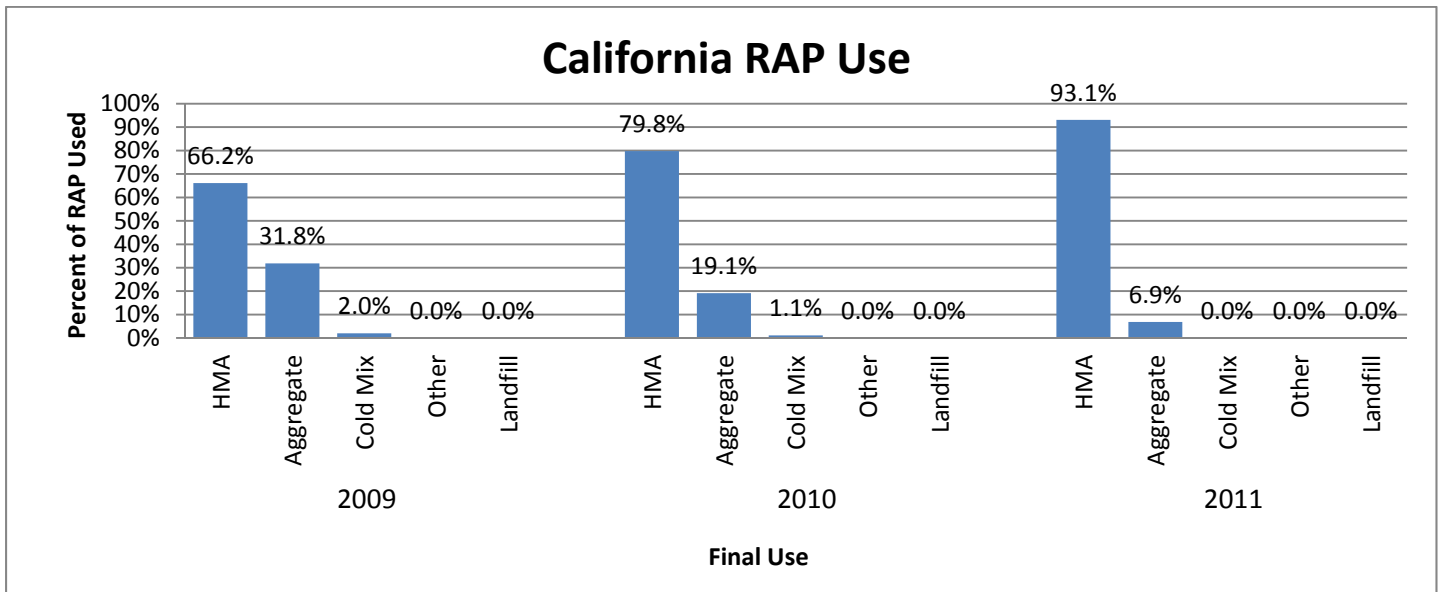
Table B5 summarizes the results received from asphalt mix producers in California. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use



WMA Use

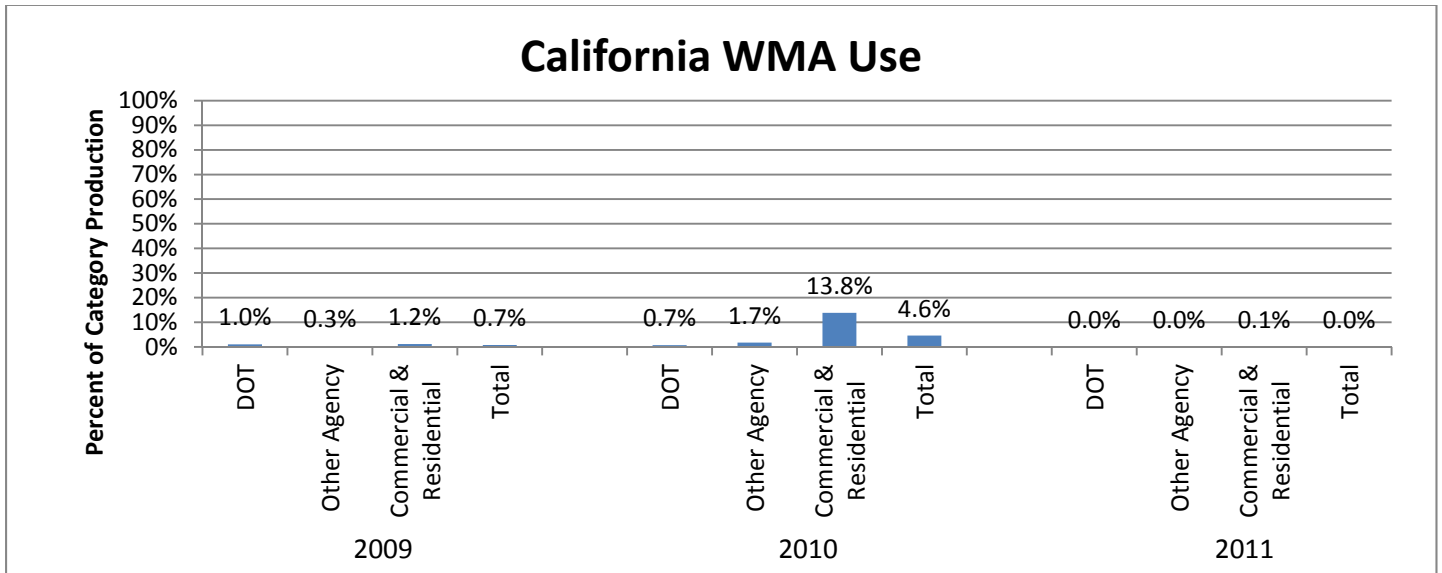


Table B 5: Summary of California Data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	2,919,550	7,157,209
Total Other Agency Tonnage	2,869,550	7,034,635
Total Commercial & Residential Tonnage	3,593,000	8,808,156
Total Tonnage	9,382,100	23,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	75%	
RAP Tons Received	1,200,000	2,941,772
RAP Tons used in HMA/WMA	879,365	2,155,743
RAP Tons used as Aggregate	65,000	159,346
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	10%	
Average % RAP in Other Agency Mixes	7%	
Average % RAP in Commercial & Residential Mixes	13%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	75%	
RAS Tons Received	25,125	61,593
RAS Tons used in HMA/WMA	2,925	7,171
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
	2011	2011
Percent Companies using WMA	75%	
WMA DOT Tonnage	2	4
WMA Other Agency Tonnage	1,352	3,313
WMA Commercial & Residential Tonnage	3,054	7,486
Total WMA Tonnage	4,407	10,803
Percent WMA Tons using Chemical Additives	30.6%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	69.4%	
Percent WMA Tons using Organic Additive	0.0%	

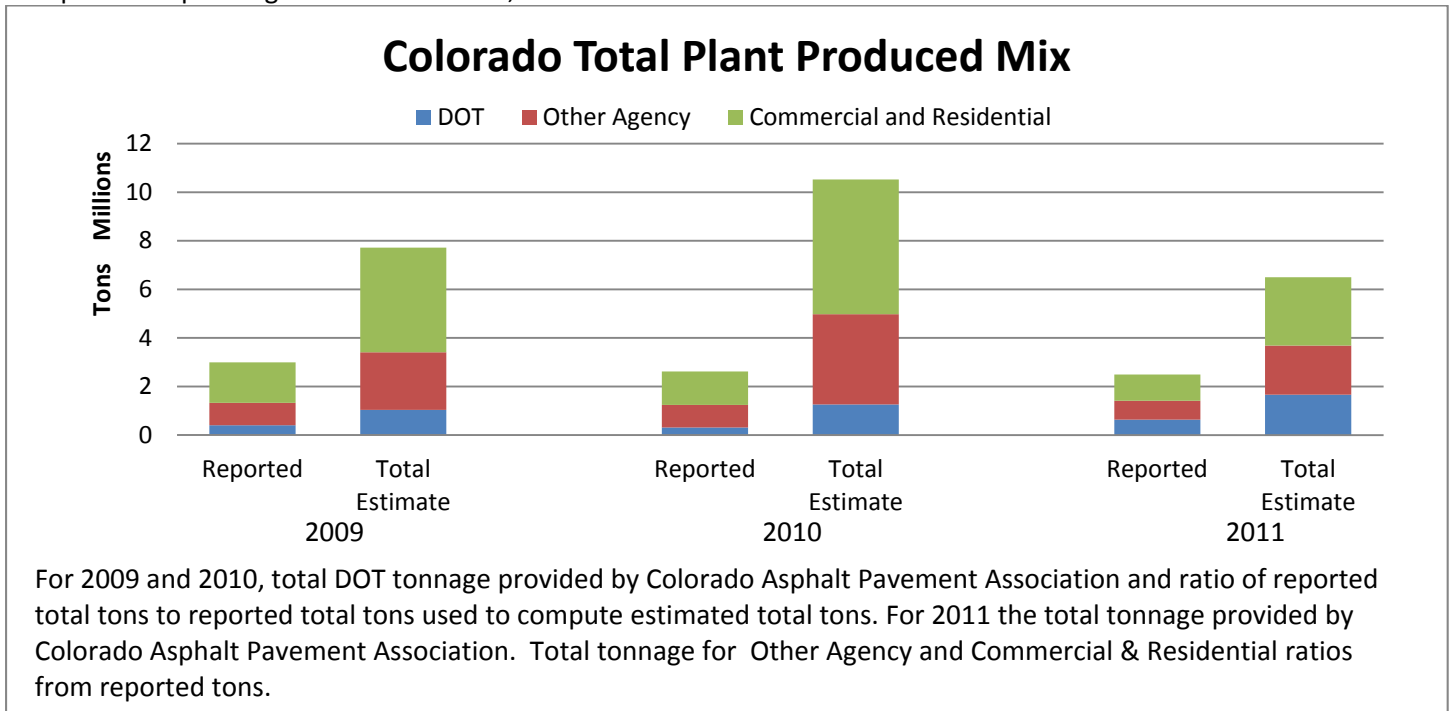
1. Total tonnage provided by California Asphalt Pavement Association. Total tonnage for Other Agency and Commercial & Residential ratios from reported tons.

Colorado

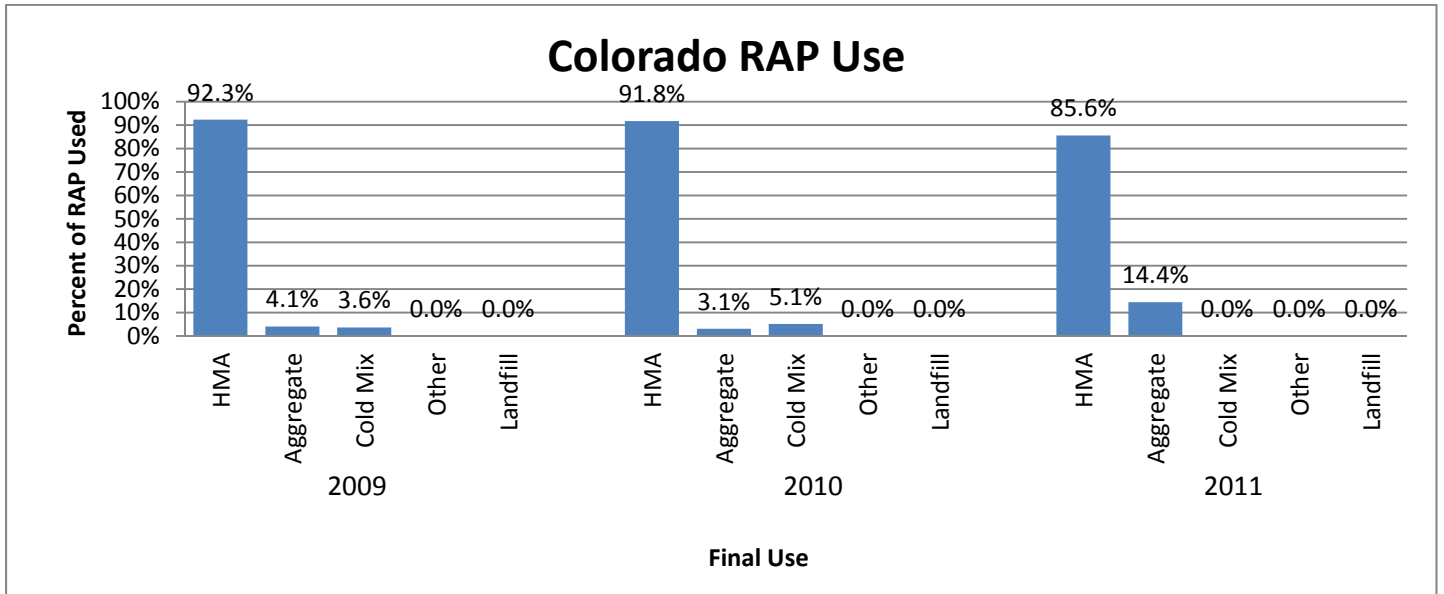
Table B6 summarizes the results received from asphalt mix producers in Colorado. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

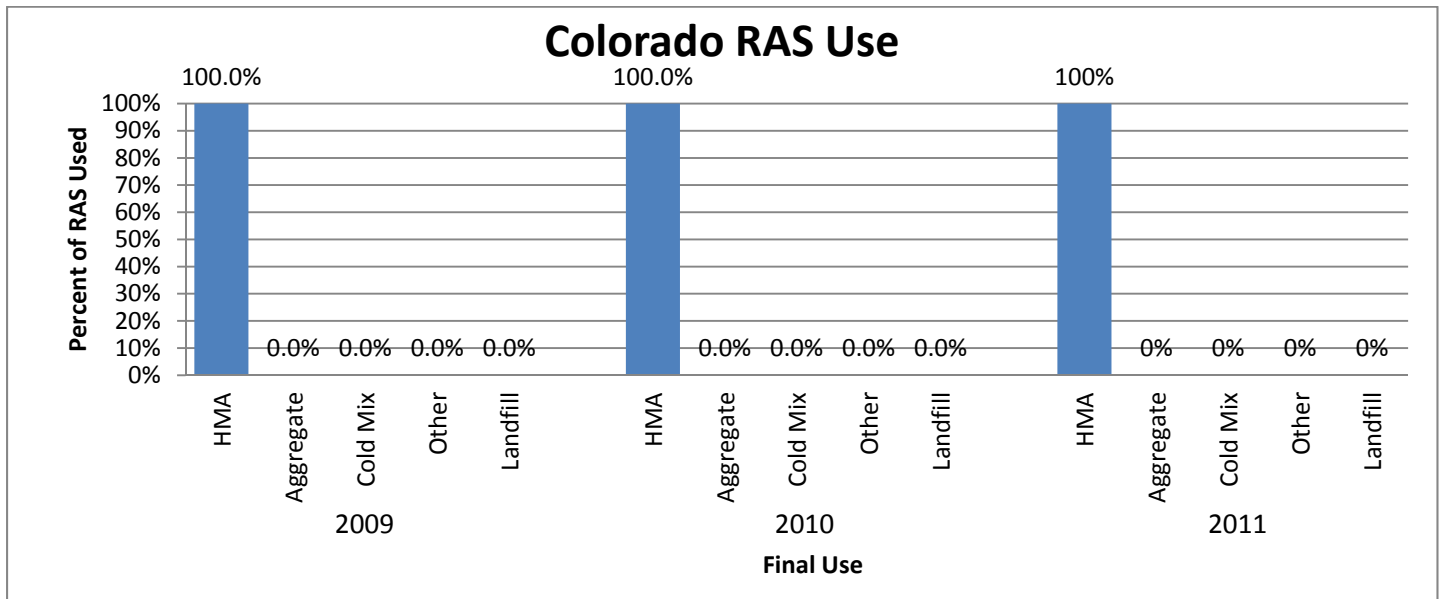
Companies responding: 8 for 2009 & 2010, 7 for 2011



RAP Use



RAS Use



WMA Use

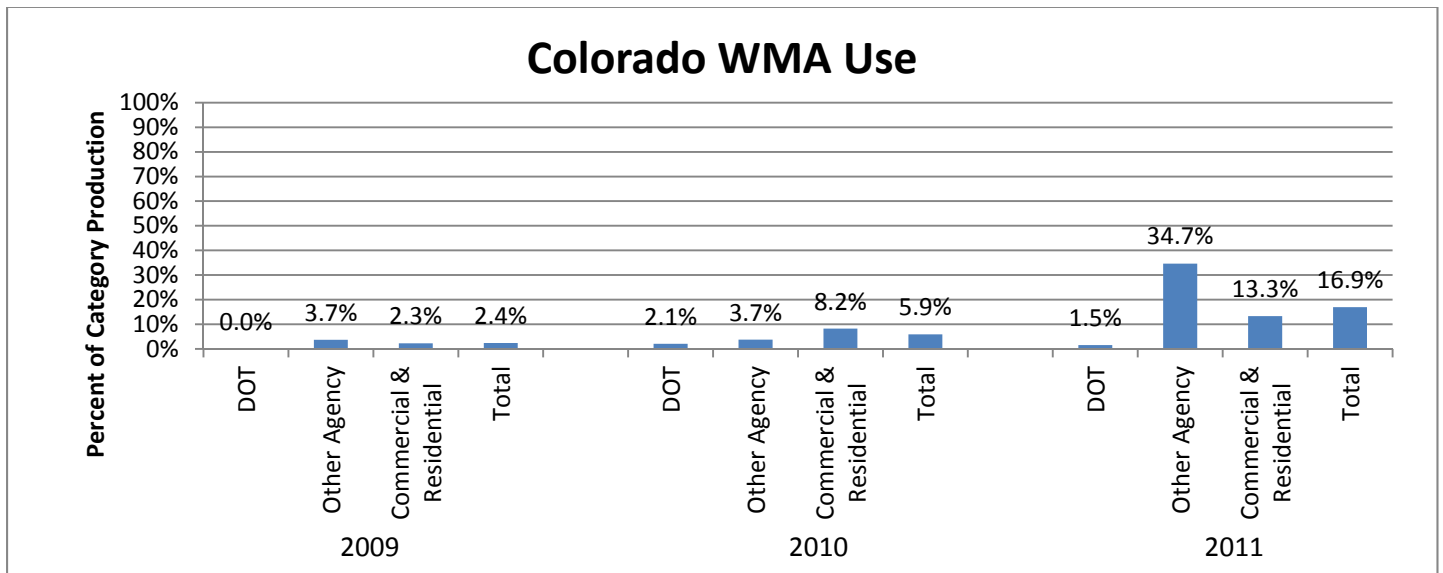


Table B 6: Summary of Colorado Data for 2011

Companies Reporting

7

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	638,781	1,663,935
Total Other Agency Tonnage	776,759	2,023,348
Total Commercial & Residential Tonnage	1,079,796	2,812,717
Total Tonnage	2,495,336	6,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	679,772	1,770,711
RAP Tons used in HMA/WMA	596,610	1,554,084
RAP Tons used as Aggregate	100,395	261,515
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	13%	
Average % RAP in Other Agency Mixes	21%	
Average % RAP in Commercial & Residential Mixes	31%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	14%	
RAS Tons Received	4,119	10,729
RAS Tons used in HMA/WMA	4,119	10,729
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
	2011	2011
Percent Companies using WMA	86%	
WMA DOT Tonnage	9,823	25,587
WMA Other Agency Tonnage	269,187	701,194
WMA Commercial & Residential Tonnage	143,921	374,895
Total WMA Tonnage	422,931	1,101,676
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%	

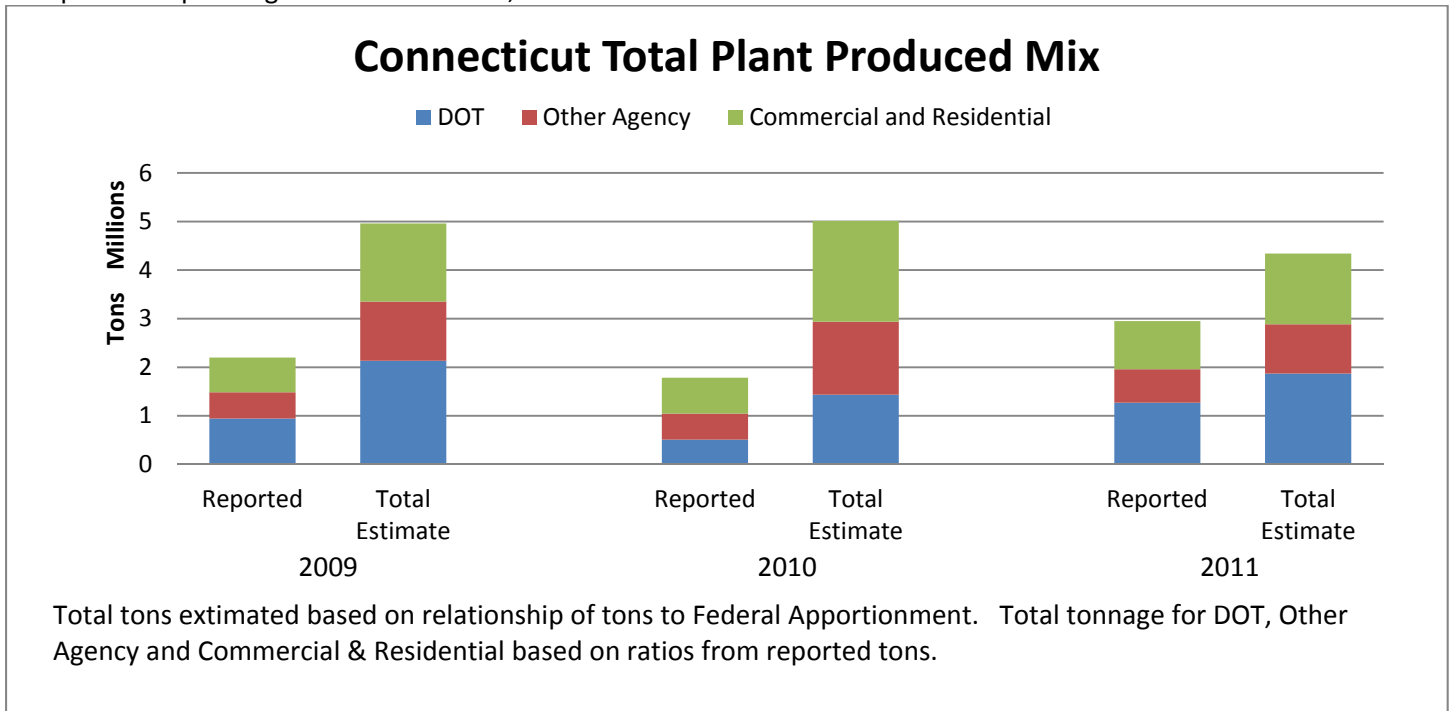
1. Total tonnage provided by Colorado Asphalt Pavement. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Connecticut

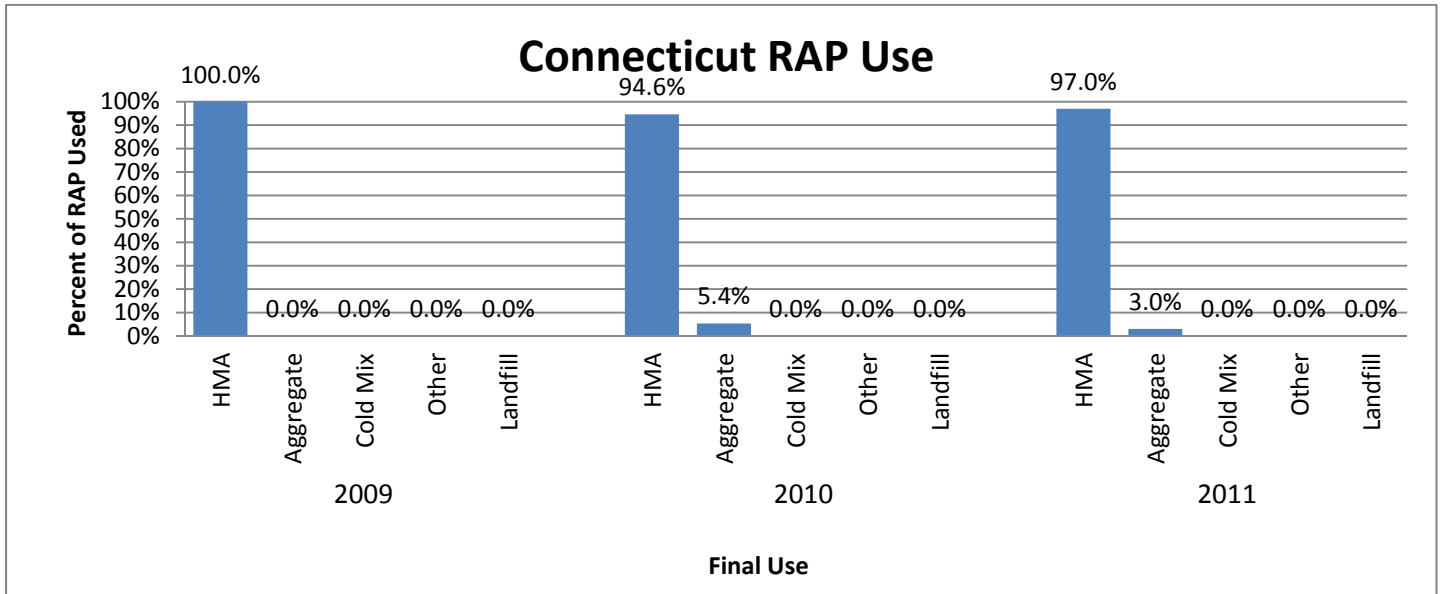
Table B7 summarizes the results received from asphalt mix producers in Connecticut. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use

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

WMA Use

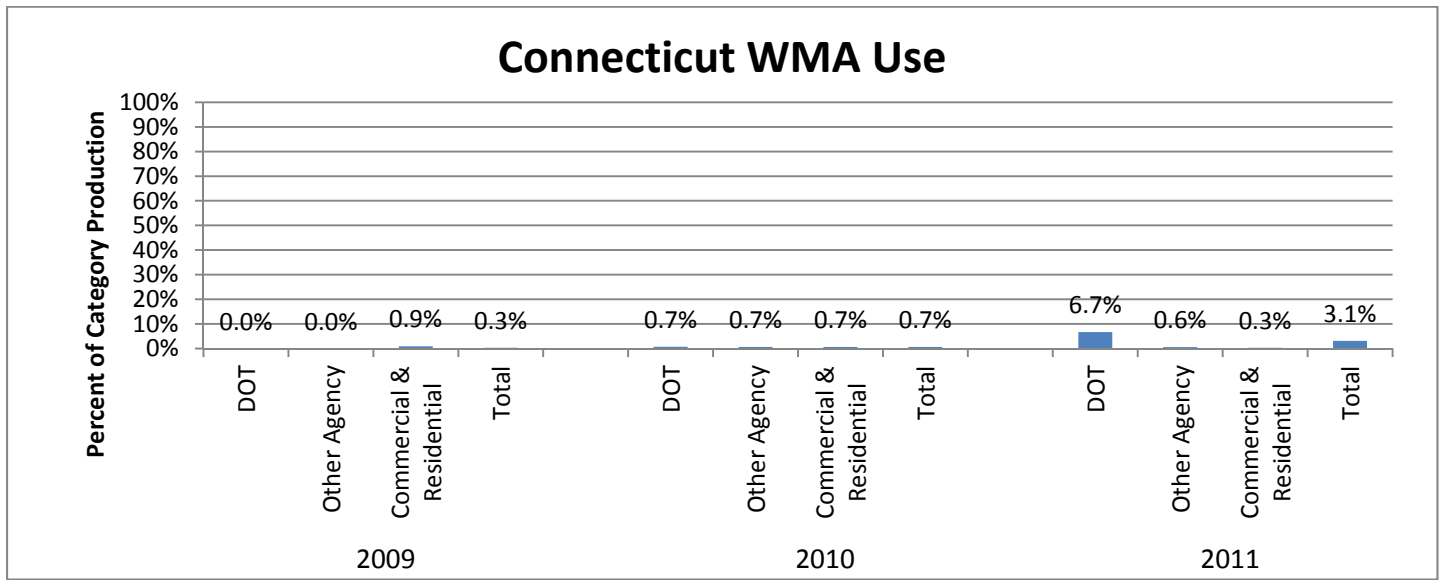


Table B 7: Summary of Connecticut Data for 2011

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,270,000	1,869,247
Total Other Agency Tonnage	690,000	1,015,575
Total Commercial & Residential Tonnage	989,353	1,456,177
Total Tonnage	2,949,353	4,341,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	435,000	640,254
RAP Tons used in HMA/WMA	387,533	570,390
RAP Tons used as Aggregate	12,000	17,662
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	13%	
Average % RAP in Other Agency Mixes	19%	
Average % RAP in Commercial & Residential Mixes	21%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	67%	
WMA DOT Tonnage	85,000	125,107
WMA Other Agency Tonnage	4,000	5,887
WMA Commercial & Residential Tonnage	3,297	4,852
Total WMA Tonnage	92,297	135,847
Percent WMA Tons using Chemical Additives	48.8%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	30.7%	
Percent WMA Tons using Organic Additive	20.5%	

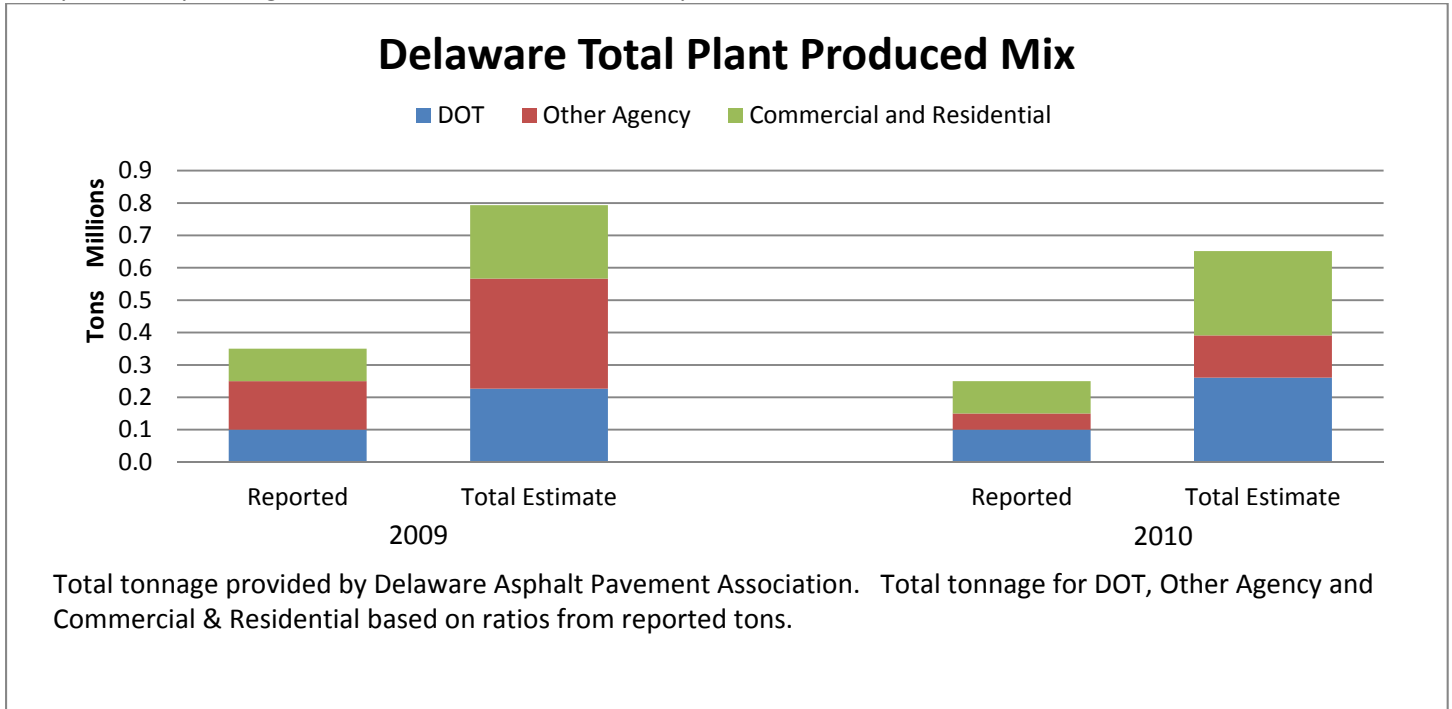
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Delaware

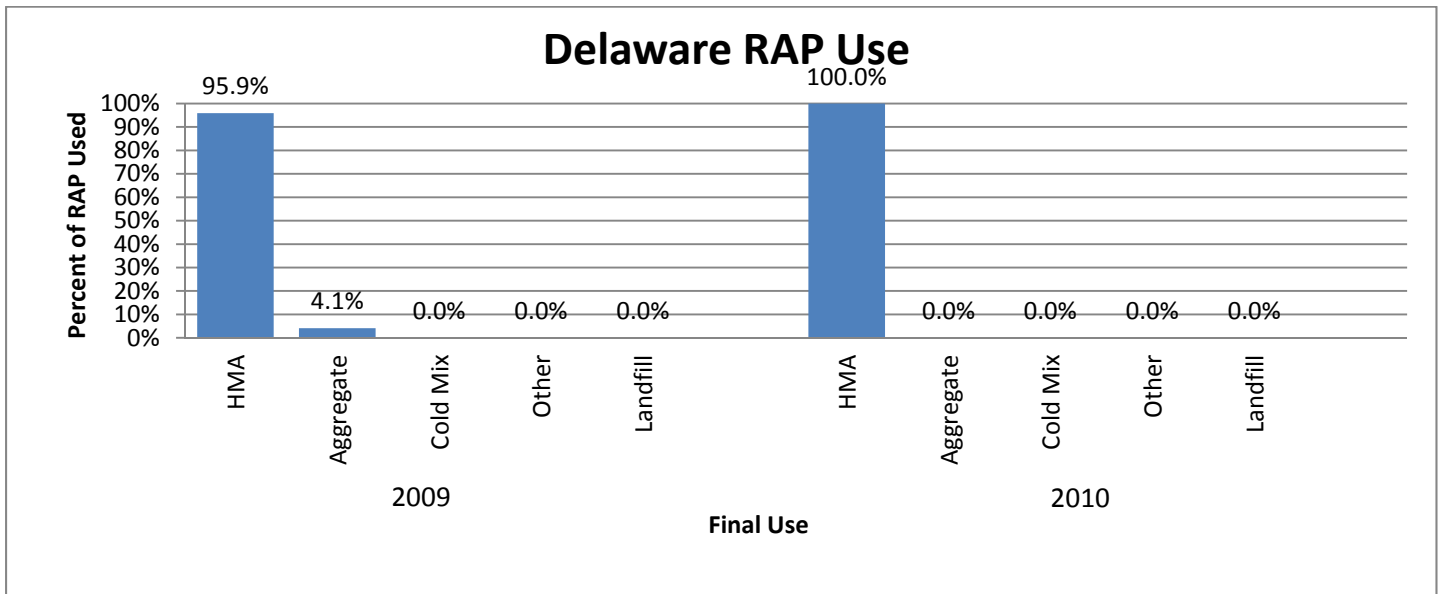
Table B8 summarizes estimated asphalt mix and RAP use in Delaware for 2011 because no data was received from Delaware for 2011. The charts are used to summarize statistics calculated from information provided by the 2009 – 2010 survey respondents.

Total Asphalt Mix Tonnage

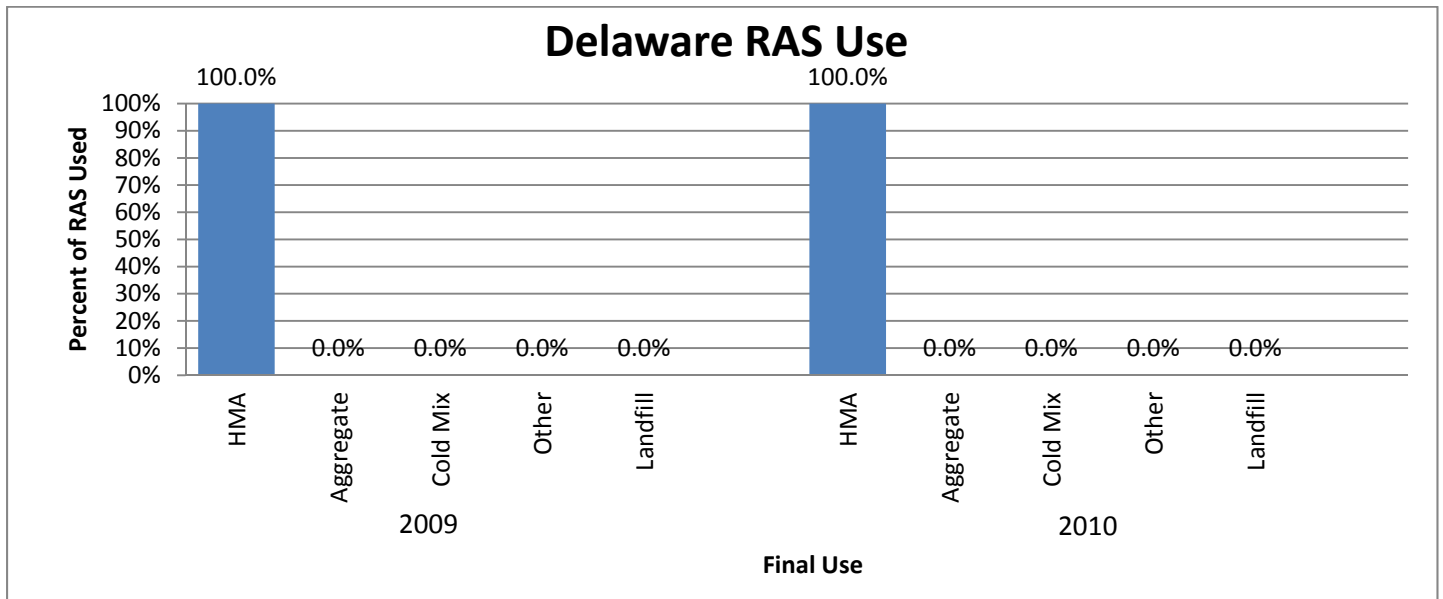
Companies responding: 1 for 2009 and 2010. No data reported for 2011



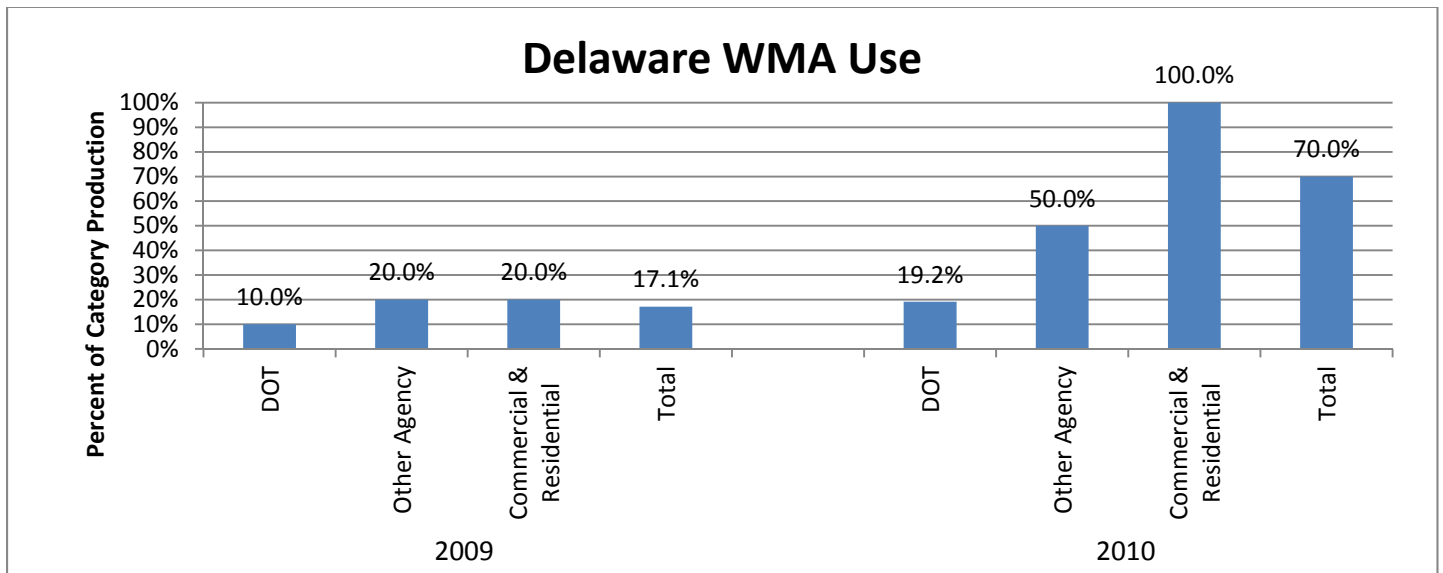
RAP Use



RAS Use



WMA Use



No contractors submitted data for Delaware for 2011. Total tons were estimated based on a relationship tons to federal apportionment. Because RAP use is prevalent in all areas of the US it was estimated that RAP use in Delaware followed a national average. Table B8 summarizes this data.

Table B 8: Summary of Delaware Data for 2011

Companies Reporting	0
HMA/WMA	
	Total Estimated ¹
	2011
Total DOT Tonnage	-
Total Other Agency Tonnage	-
Total Commercial & Residential Tonnage	-
Total Tonnage	2,084,000
Reclaimed Asphalt Pavement (RAP)	
	Total Estimated
	2011
Percent Companies using RAP	
RAP Tons Received	448,487
RAP Tons used in HMA/WMA	377,792
RAP Tons used as Aggregate	29,753
RAP Tons used in Cold Mix	1,280
RAP Tons used as Other	5,159
RAP Tons Landfilled	1,514
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.	

District of Columbia

No contractors submitted data for the District of Columbia for 2009, 2010 or 2011. Total tons were estimated based on a relationship 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 B 9: Summary of District of Columbia Data for 2011

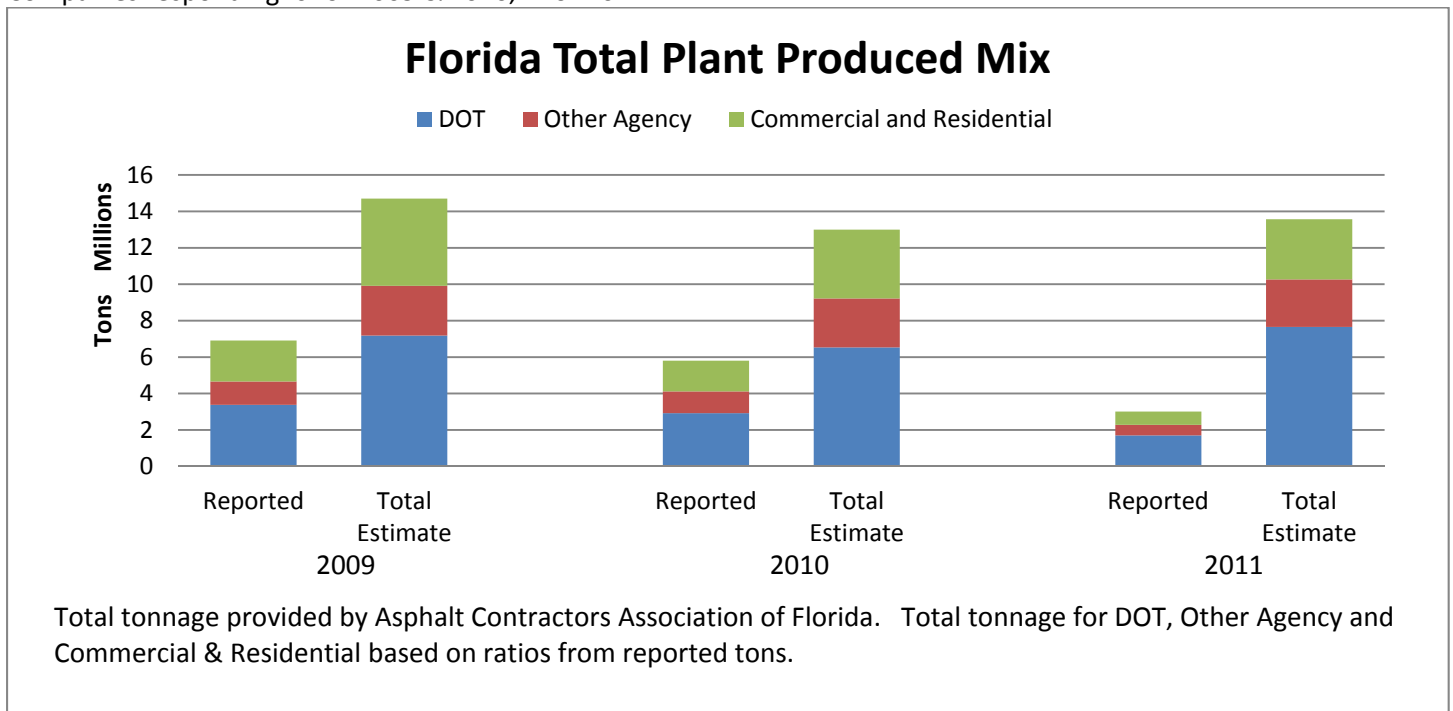
Companies Reporting	0
HMA/WMA	
	Total Estimated ¹
	2009
Total DOT Tonnage	-
Total Other Agency Tonnage	-
Total Commercial & Residential Tonnage	-
Total Tonnage	1,711,000
Reclaimed Asphalt Pavement (RAP)	
	Total Estimated
	2009
Percent Companies using RAP	
RAP Tons Received	369,799
RAP Tons used in HMA/WMA	311,693
RAP Tons used as Aggregate	22,947
RAP Tons used in Cold Mix	903
RAP Tons used as Other	3,495
RAP Tons Landfilled	1,243
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.	

Florida

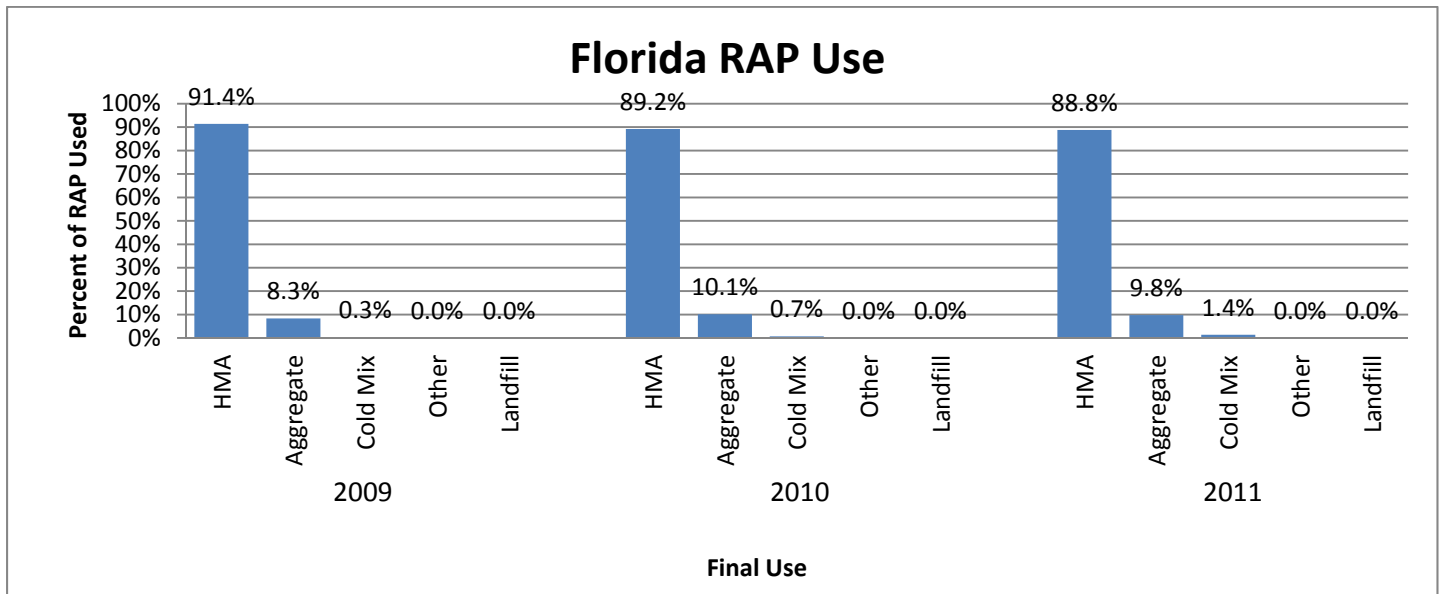
Table B10 summarizes the results received from asphalt mix producers in Florida. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

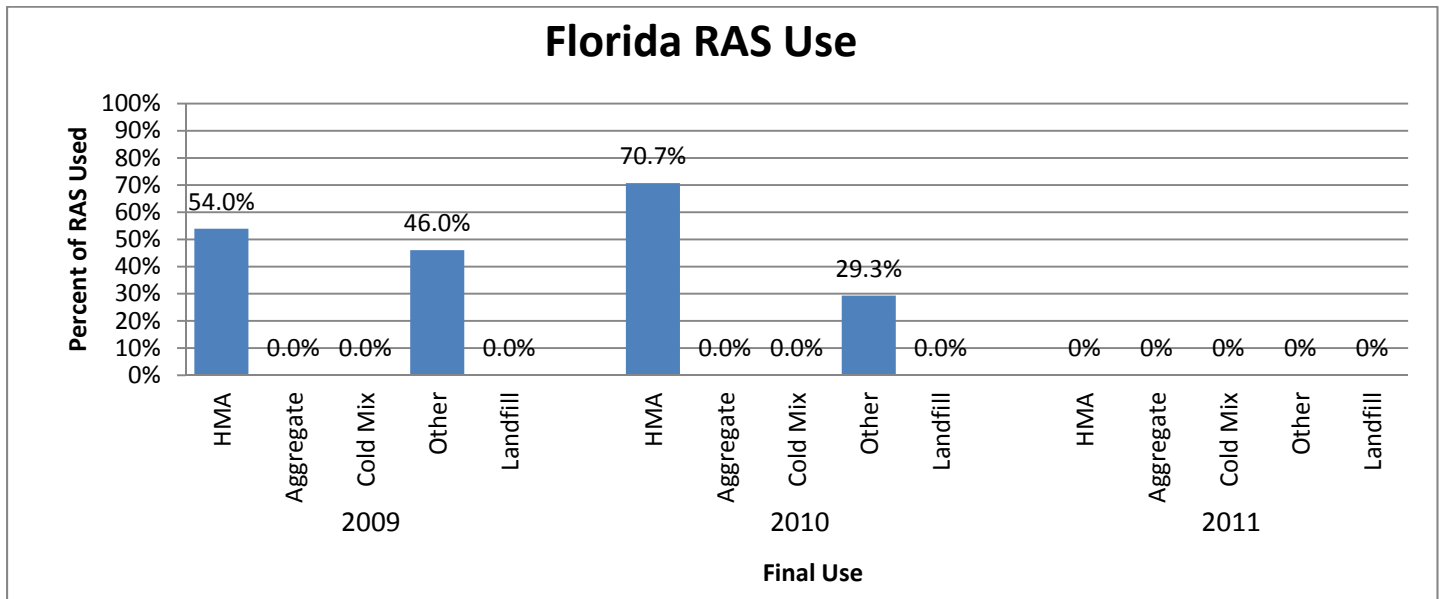
Companies responding: 6 for 2009 & 2010, 4 for 2011



RAP Use



RAS Use



WMA Use

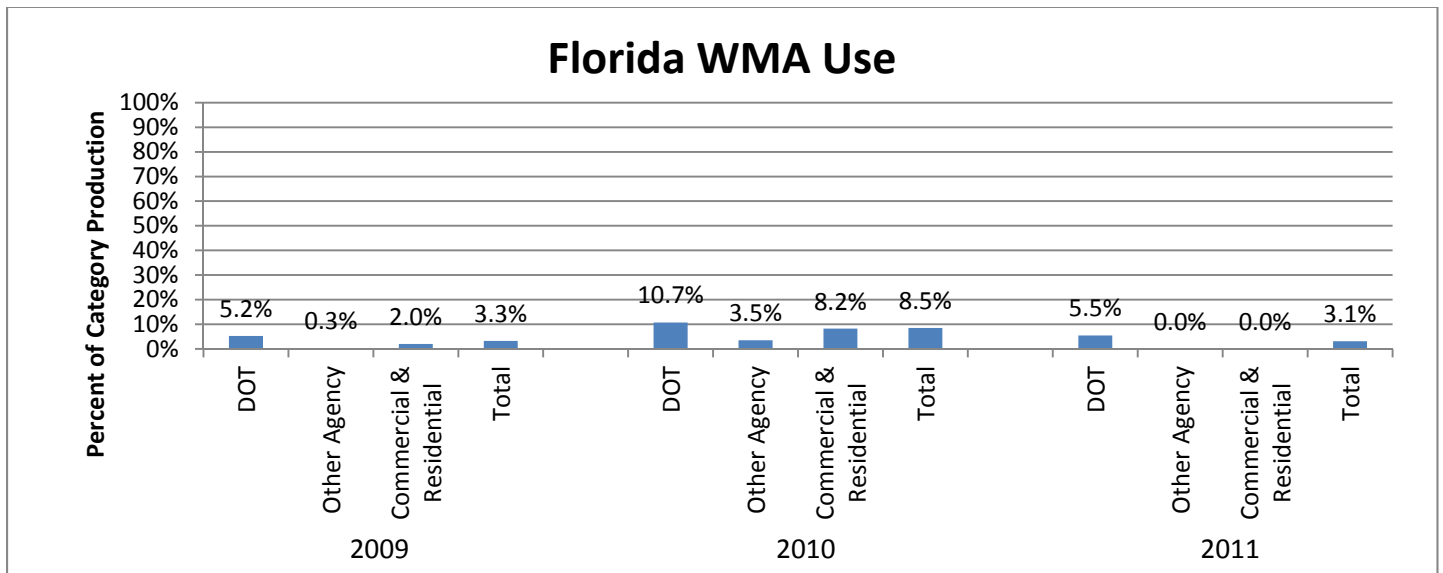


Table B 10: Summary Florida Data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,699,531	7,655,946
Total Other Agency Tonnage	579,786	2,611,786
Total Commercial & Residential Tonnage	732,843	3,301,268
Total Tonnage	3,012,160	13,569,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	1,005,135	4,527,871
RAP Tons used in HMA/WMA	906,685	4,084,379
RAP Tons used as Aggregate	100,000	450,474
RAP Tons used in Cold Mix	14,092	63,481
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	31%	
Average % RAP in Other Agency Mixes	26%	
Average % RAP in Commercial & Residential Mixes	37%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	50%	
WMA DOT Tonnage	93,153	419,631
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	93,153	419,631
Percent WMA Tons using Chemical Additives	12.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	88.0%	
Percent WMA Tons using Organic Additive	0.0%	

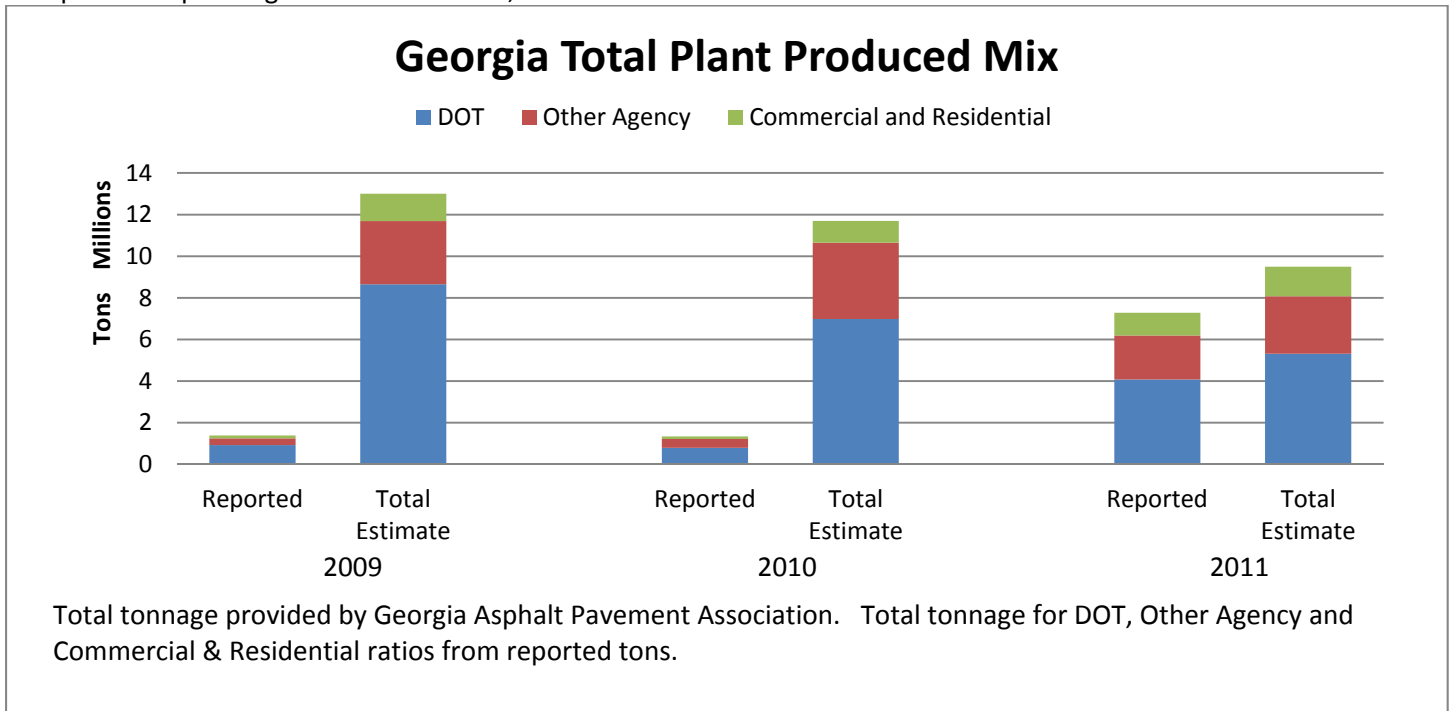
1. Total tonnage provided by Florida Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Georgia

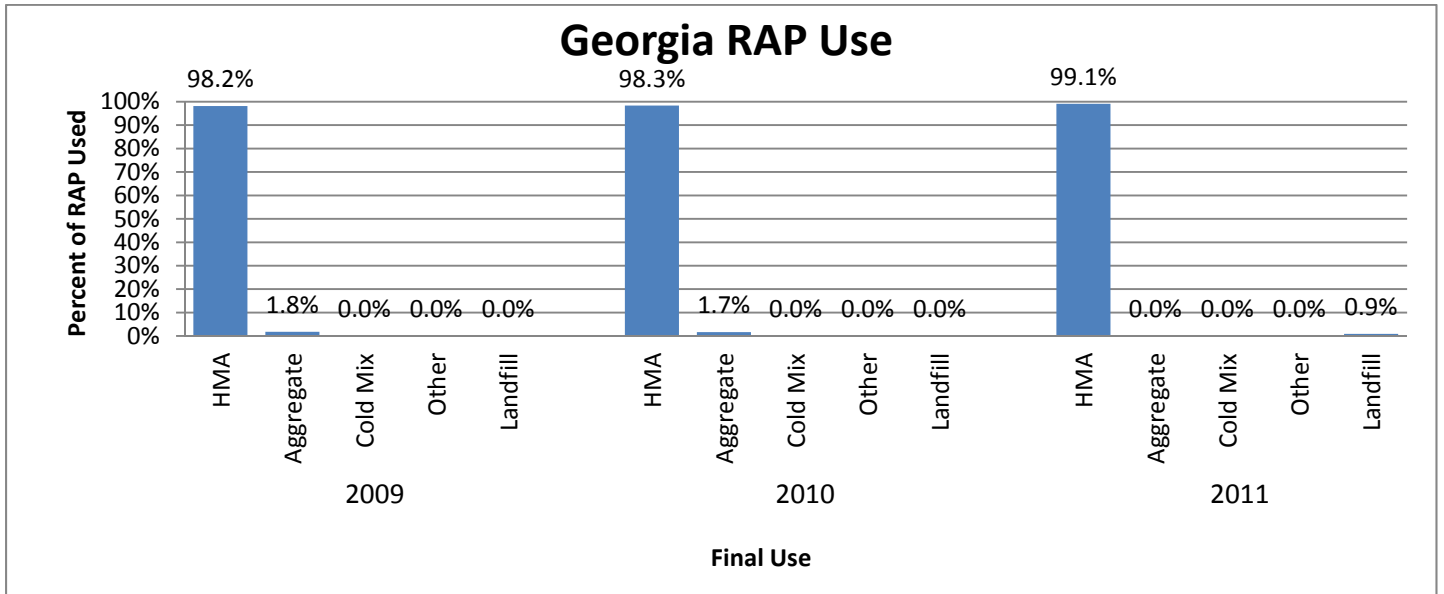
Table B11 summarizes the results received from asphalt mix producers in Georgia. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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

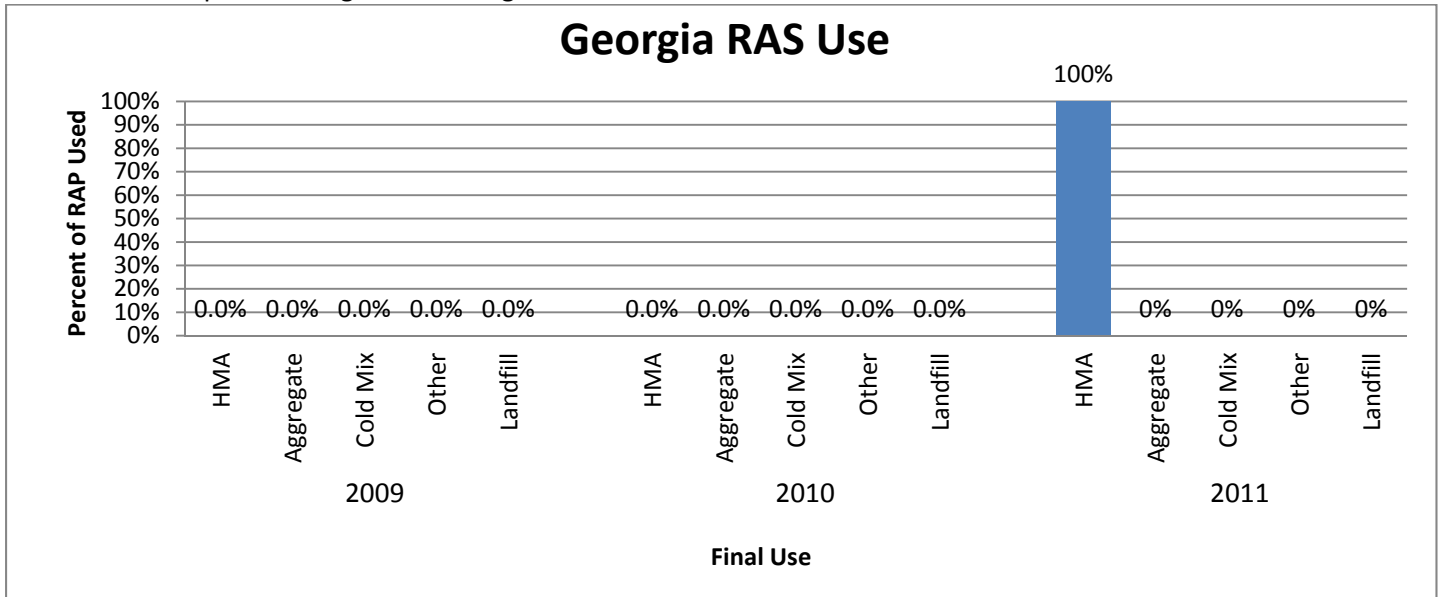


RAP Use



RAS Use

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



WMA Use

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

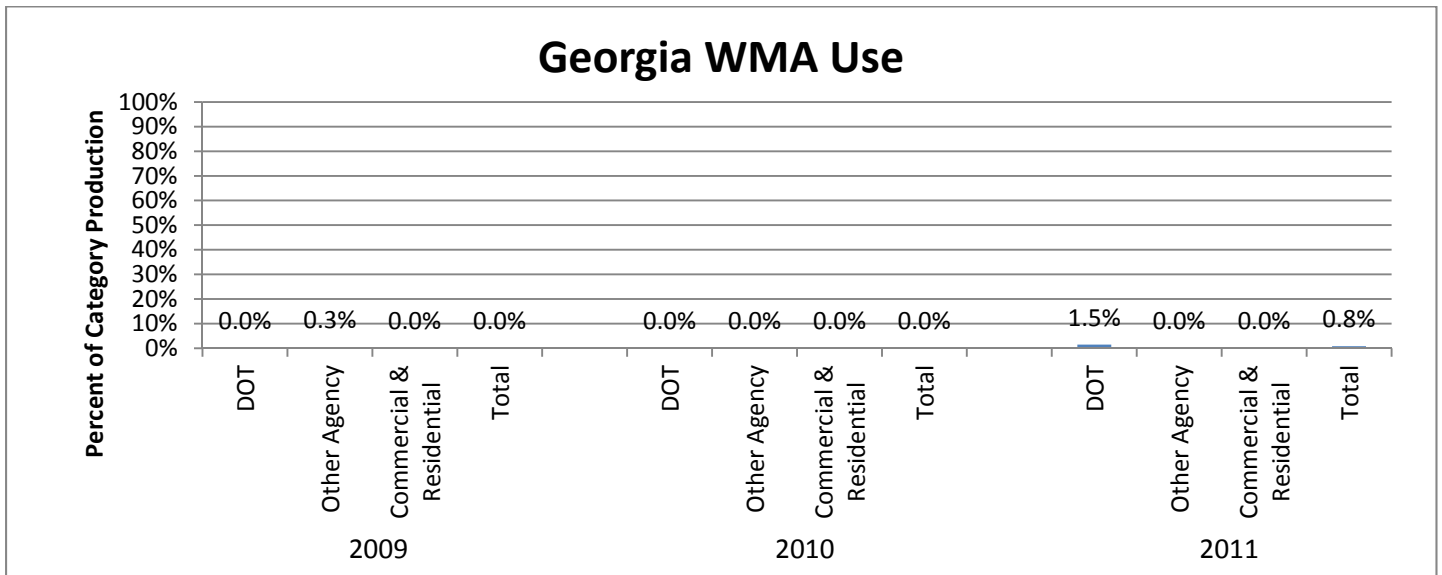


Table B 11: Summary of Georgia Data for 2011

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	4,078,310	5,315,848
Total Other Agency Tonnage	2,114,921	2,756,681
Total Commercial & Residential Tonnage	1,095,153	1,427,471
Total Tonnage	7,288,384	9,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	2,250,218	2,933,033
RAP Tons used in HMA/WMA	1,651,189	2,152,233
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	15,000	19,552
Average % RAP in DOT Mixes	23%	
Average % RAP in Other Agency Mixes	23%	
Average % RAP in Commercial & Residential Mixes	23%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	33%	
RAS Tons Received	305	398
RAS Tons used in HMA/WMA	2,226	2,902
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	3%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	33%	
WMA DOT Tonnage	59,425	77,457
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	59,425	77,457
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	1.0%	
Percent WMA Tons using Plant Foaming	99.0%	
Percent WMA Tons using Organic Additive	0.0%	

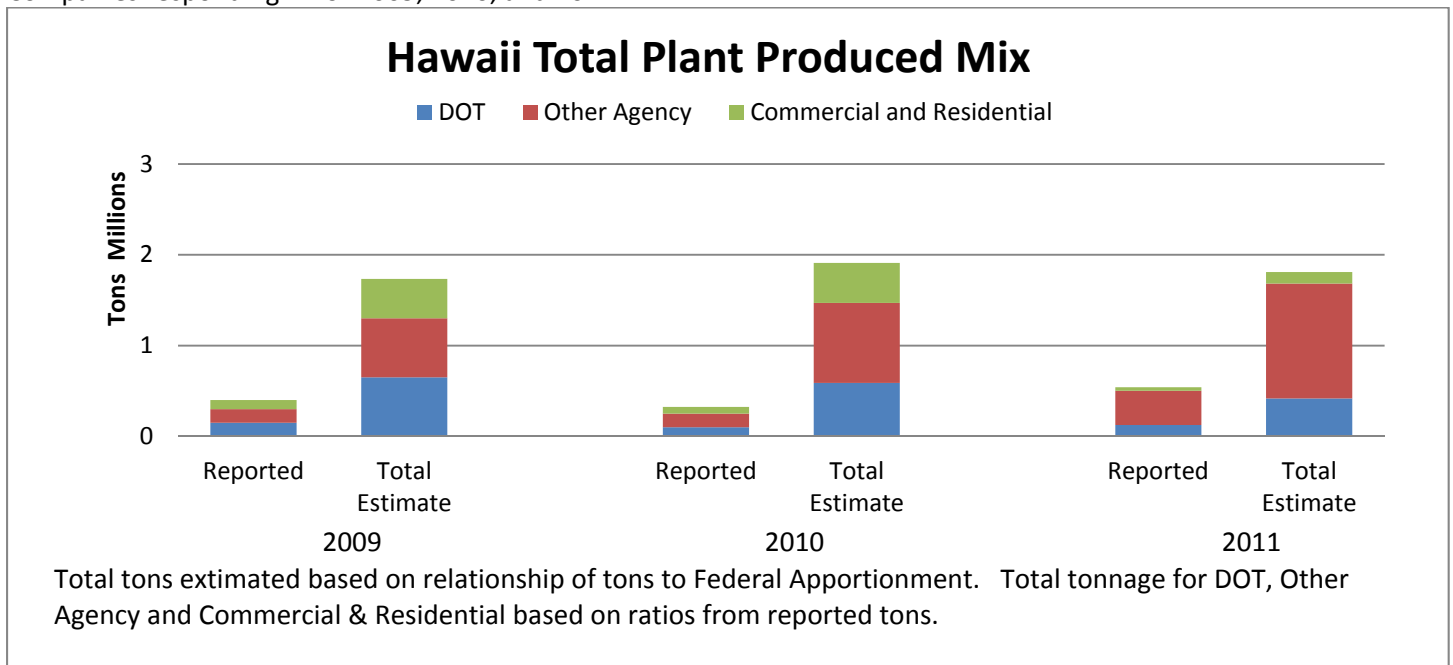
1. Total tonnage provided by Georgia Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Hawaii

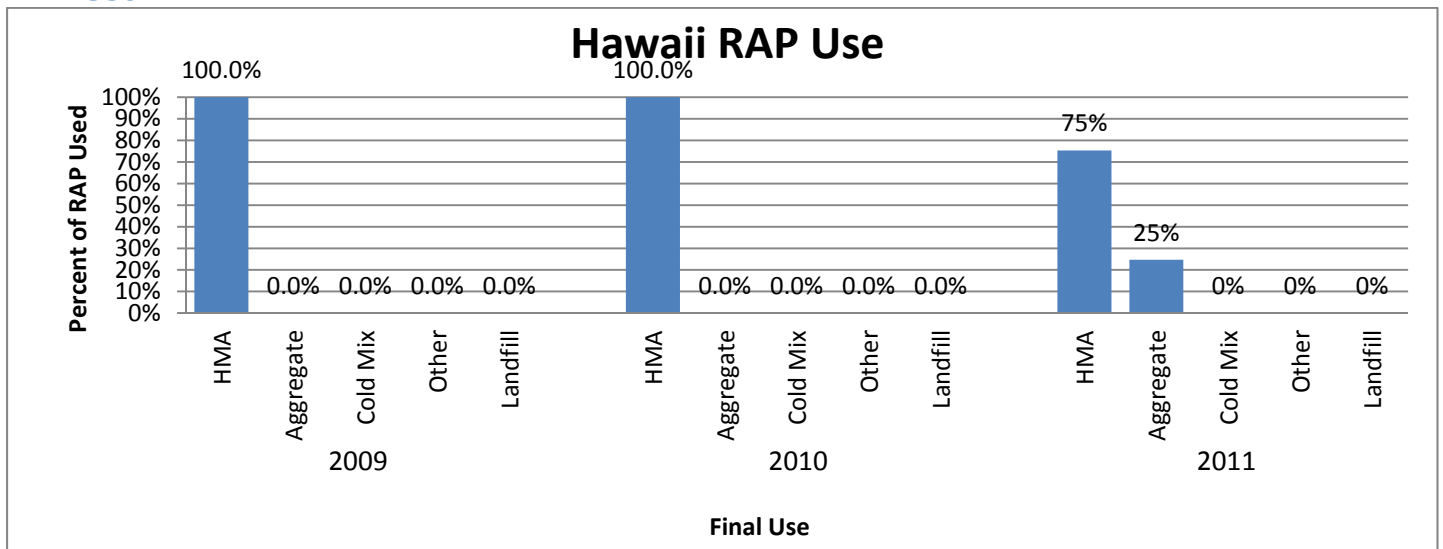
Table B12 summarizes the results received from asphalt mix producers in Hawaii. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

Companies responding: 1 for 2009, 2010, and 2011



RAP Use



RAS Use

The contractor did not report accepting or using RAS in 2009 and 2010.

WMA Use

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

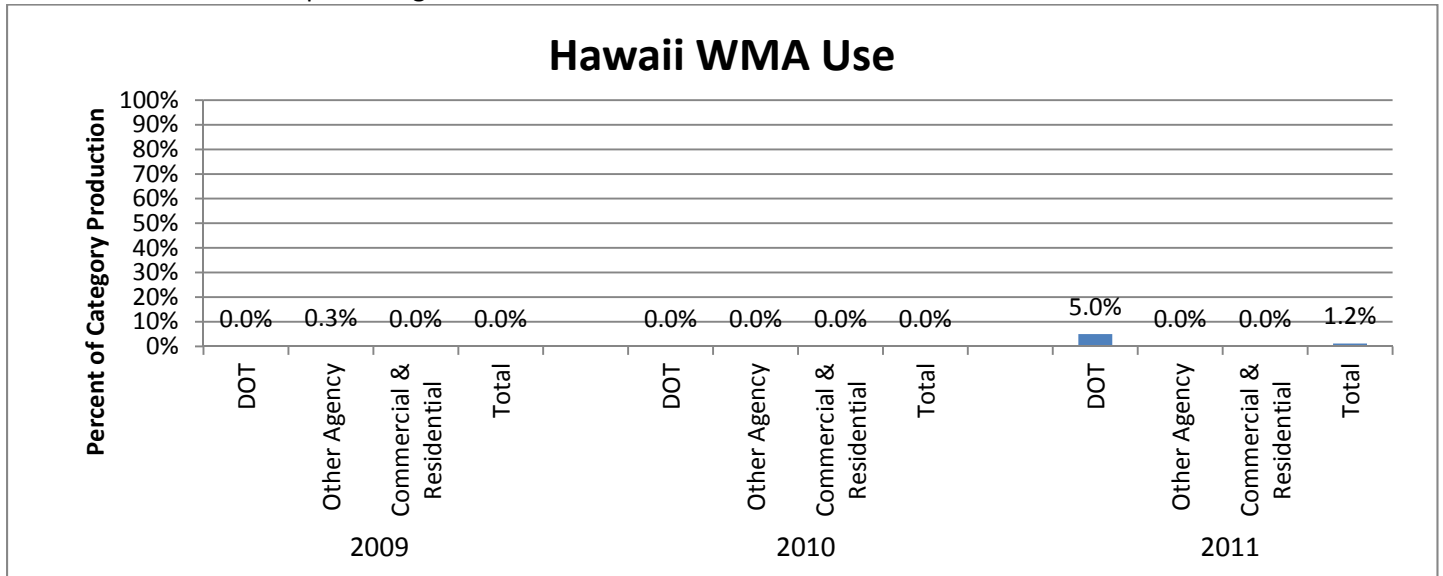


Table B 12: Summary of Hawaii Data for 2011

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	125,000	418,207
Total Other Agency Tonnage	378,000	1,264,658
Total Commercial & Residential Tonnage	38,000	127,135
Total Tonnage	541,000	1,810,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	129,000	431,590
RAP Tons used in HMA/WMA	58,000	194,048
RAP Tons used as Aggregate	19,000	63,567
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	15%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	6,250	20,910
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	6,250	20,910
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%	

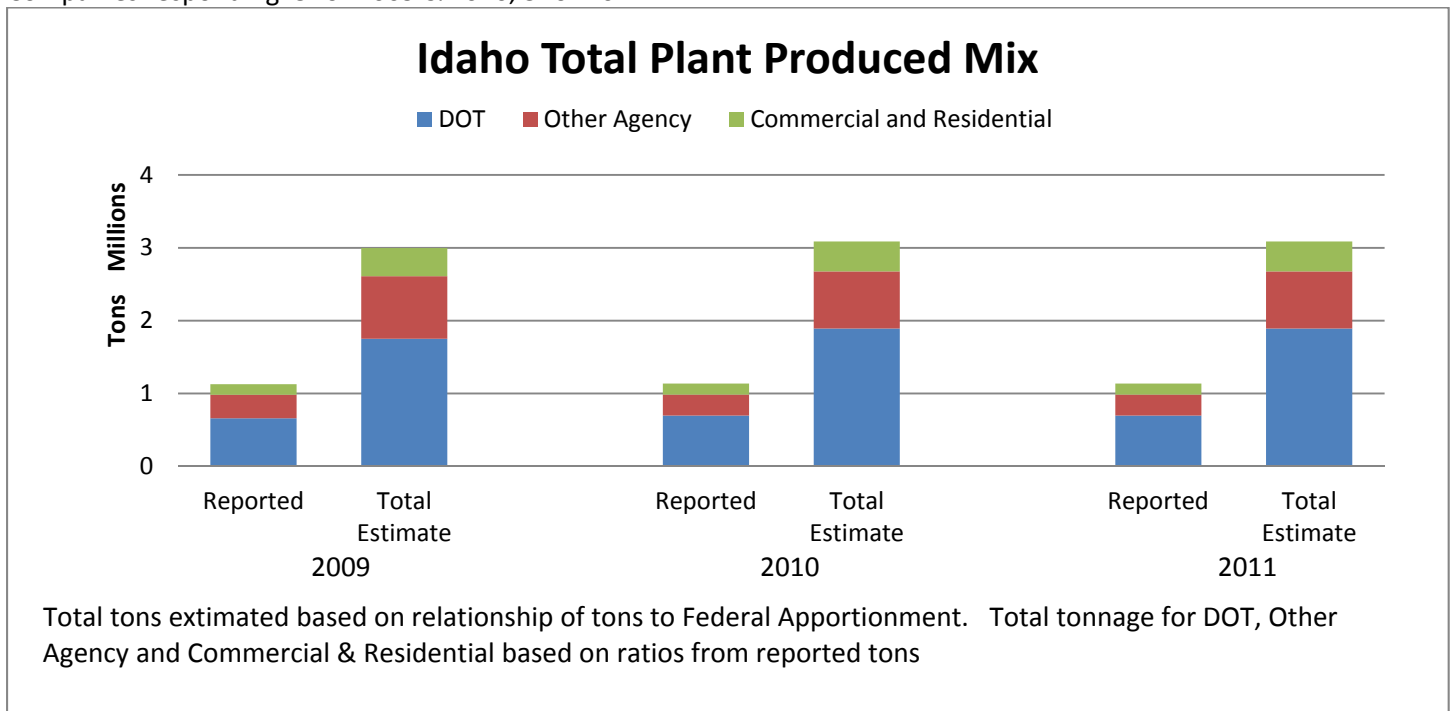
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Idaho

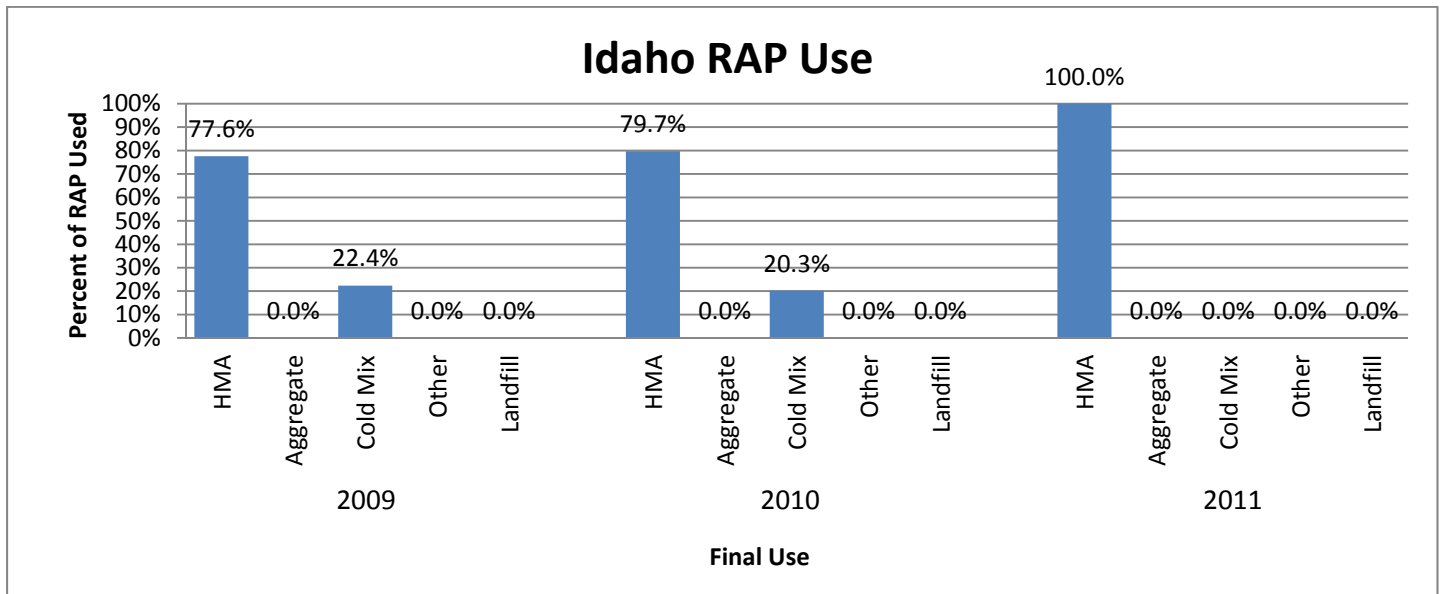
Table B13 summarizes the results received from asphalt mix producers in Idaho. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use

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

WMA Use

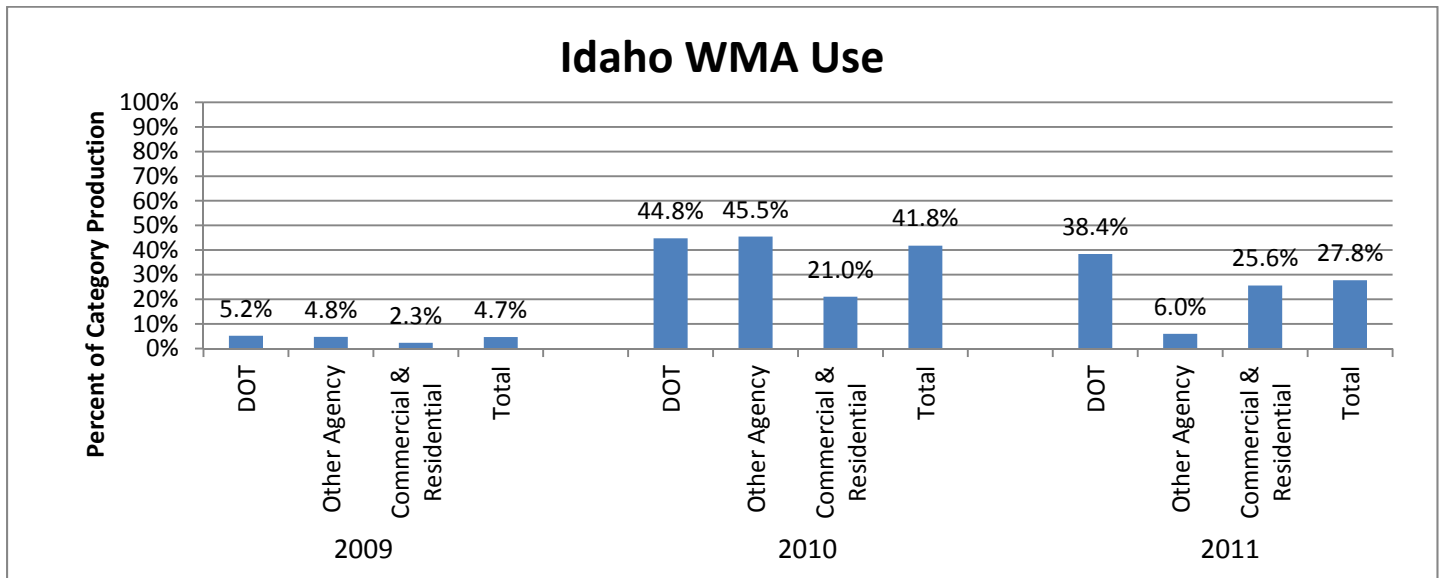


Table B 13: Summary of Idaho Data for 2011

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	293,200	1,819,031
Total Other Agency Tonnage	130,100	807,149
Total Commercial & Residential Tonnage	133,432	827,820
Total Tonnage	556,732	3,454,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	128,000	794,120
RAP Tons used in HMA/WMA	128,317	796,087
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	21%	
Average % RAP in Commercial & Residential Mixes	24%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	67%	
WMA DOT Tonnage	112,600	698,577
WMA Other Agency Tonnage	7,810	48,454
WMA Commercial & Residential Tonnage	34,124	211,706
Total WMA Tonnage	154,534	958,738
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%	

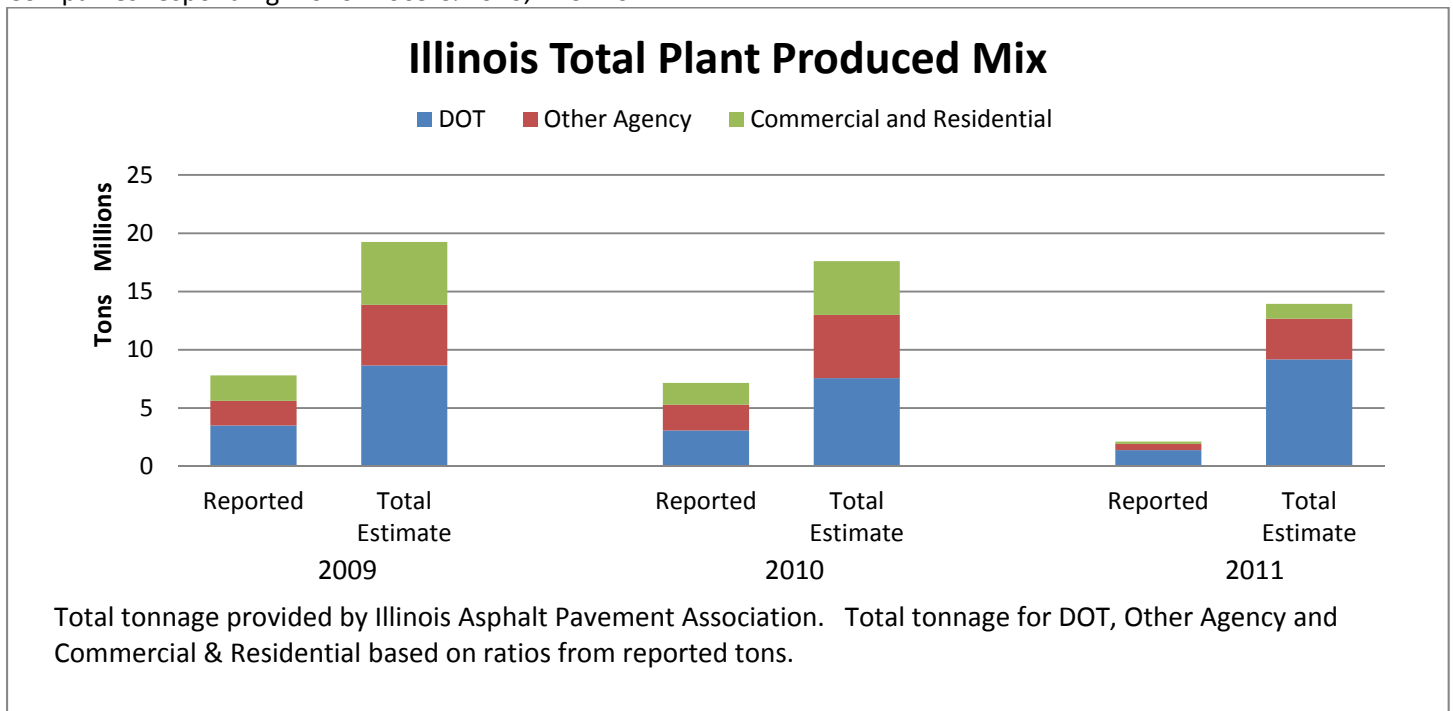
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Illinois

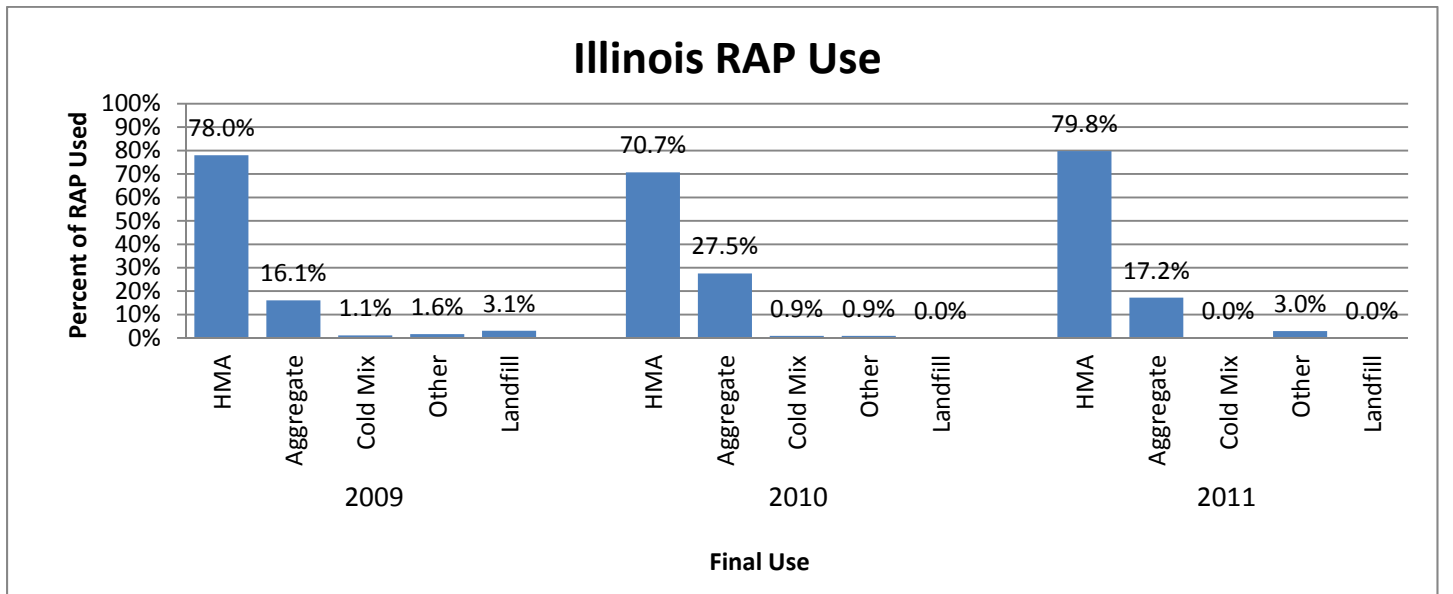
Table B14 summarizes the results received from asphalt mix producers in Illinois. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

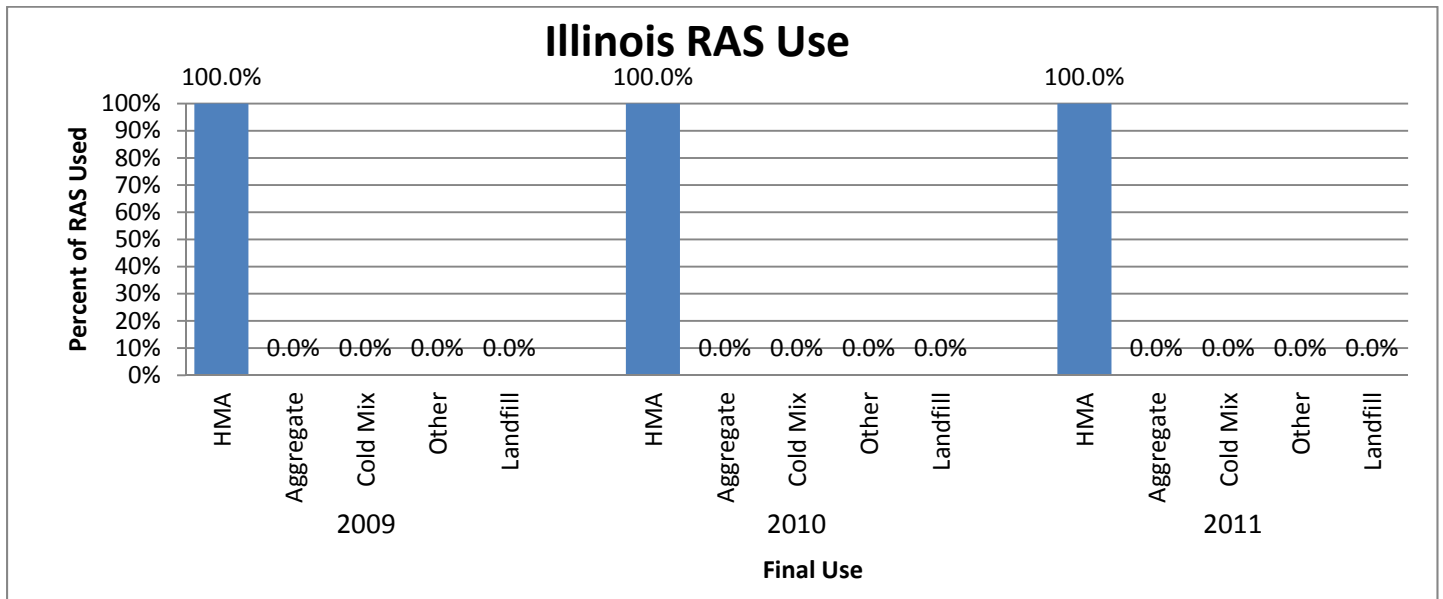
Companies responding: 16 for 2009 & 2010, 7 for 2011



RAP Use



RAS Use



WMA Use

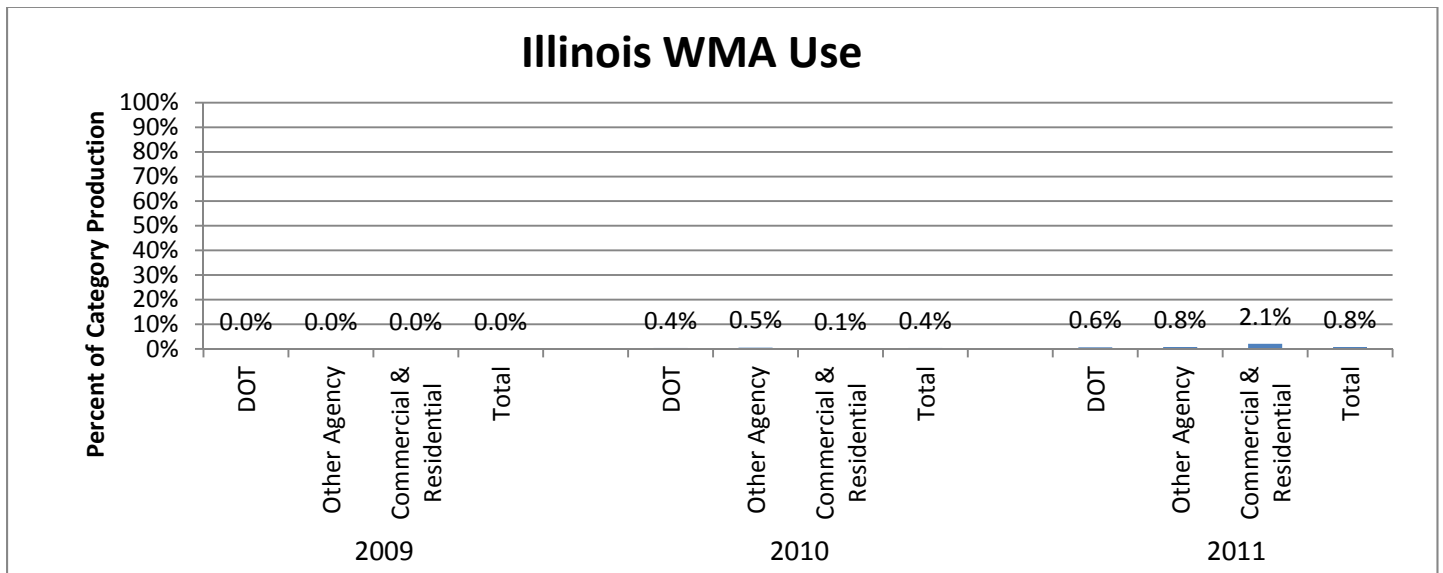


Table B 14: Summary of Illinois Data for 2011

Companies Reporting

7

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,398,000	9,184,004
Total Other Agency Tonnage	529,420	3,477,965
Total Commercial & Residential Tonnage	195,000	1,281,031
Total Tonnage	2,122,420	13,943,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	644,835	4,236,171
RAP Tons used in HMA/WMA	335,900	2,206,657
RAP Tons used as Aggregate	72,500	476,281
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	12,500	82,117
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	12%	
Average % RAP in Other Agency Mixes	22%	
Average % RAP in Commercial & Residential Mixes	26%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	29%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	2,700	17,737
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	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	57%	
WMA DOT Tonnage	8,750	57,482
WMA Other Agency Tonnage	4,020	26,409
WMA Commercial & Residential Tonnage	4,050	26,606
Total WMA Tonnage	16,820	110,497
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%	

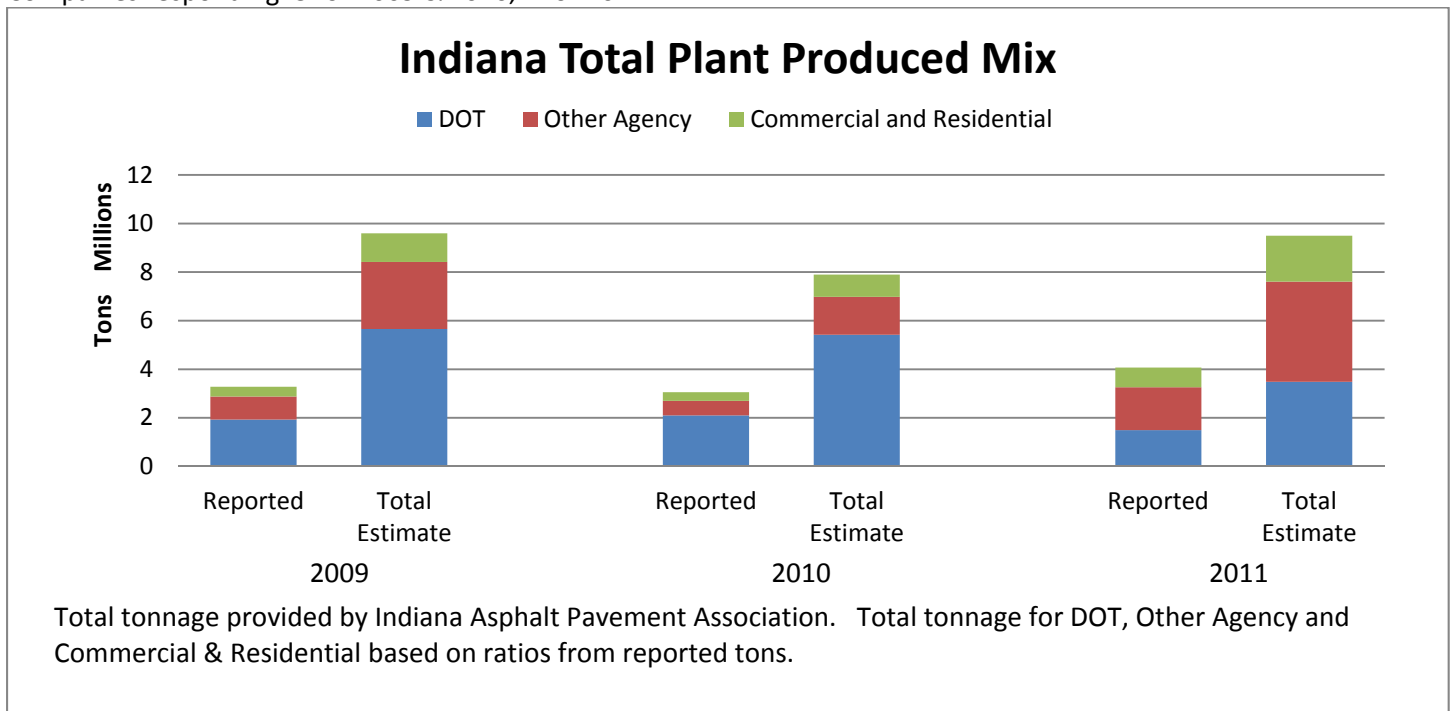
1. Total tonnage provided by Illinois Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Indiana

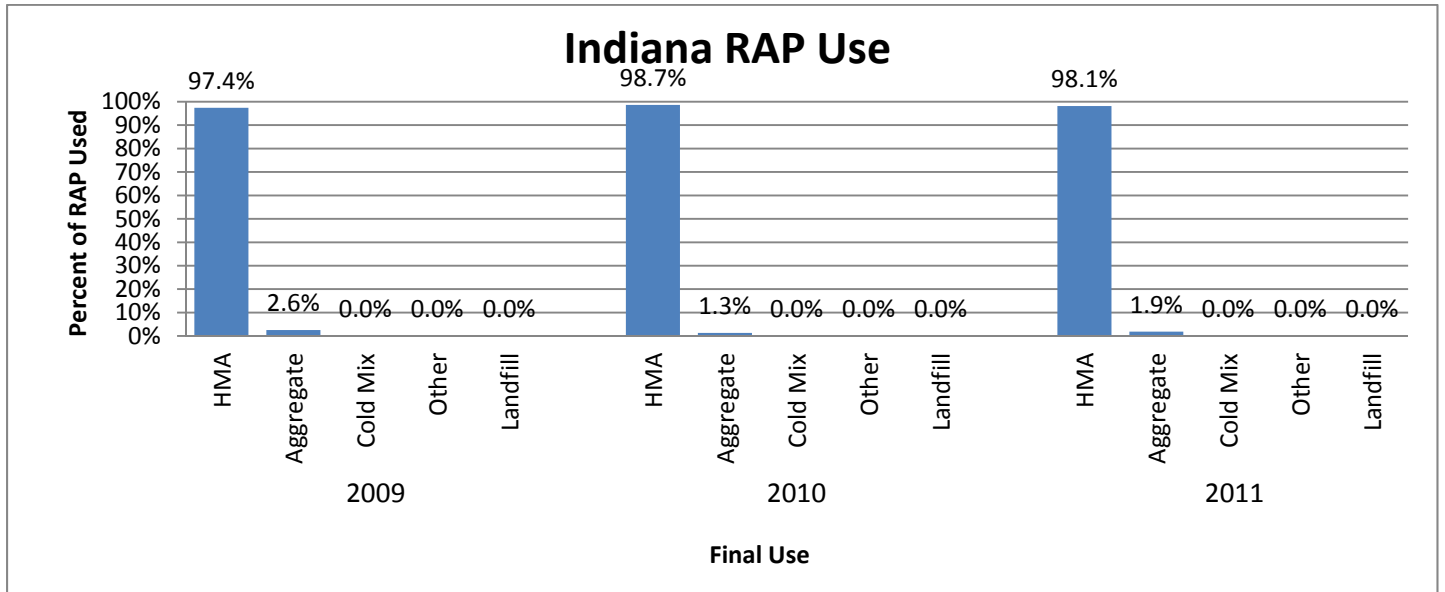
Table B15 summarizes the results received from asphalt mix producers in Indiana. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

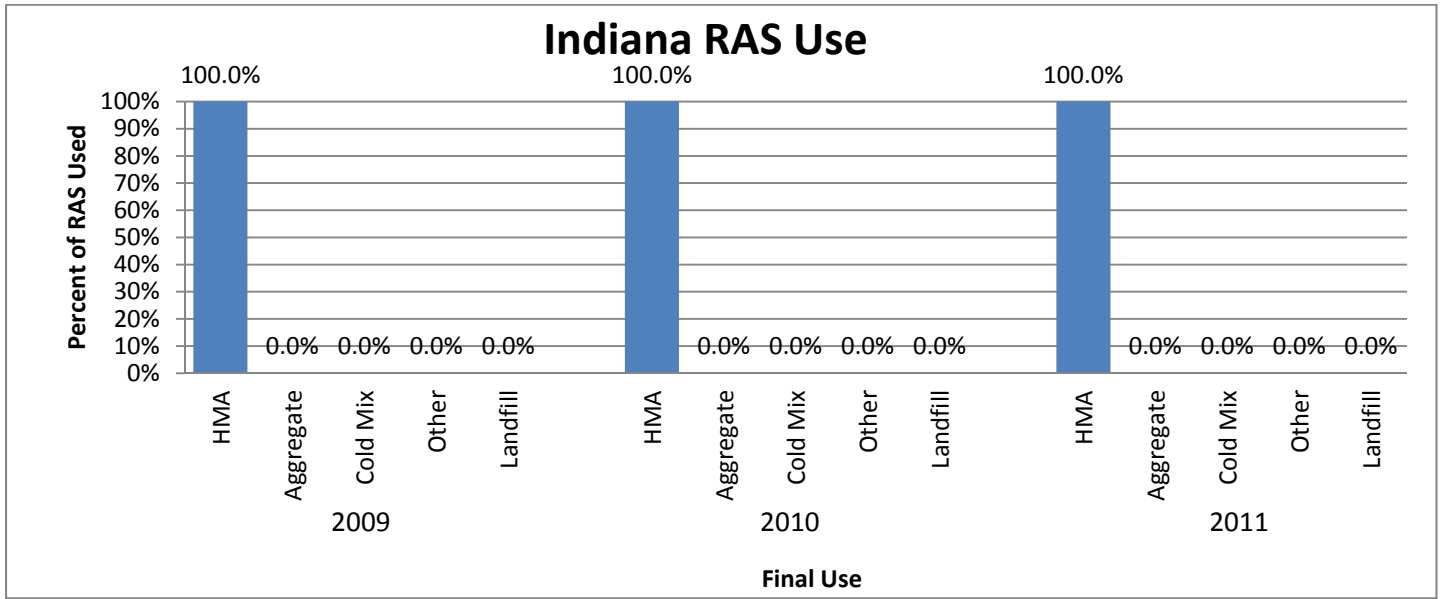
Companies responding: 3 for 2009 & 2010, 4 for 2011



RAP Use



RAS Use



WMA Use

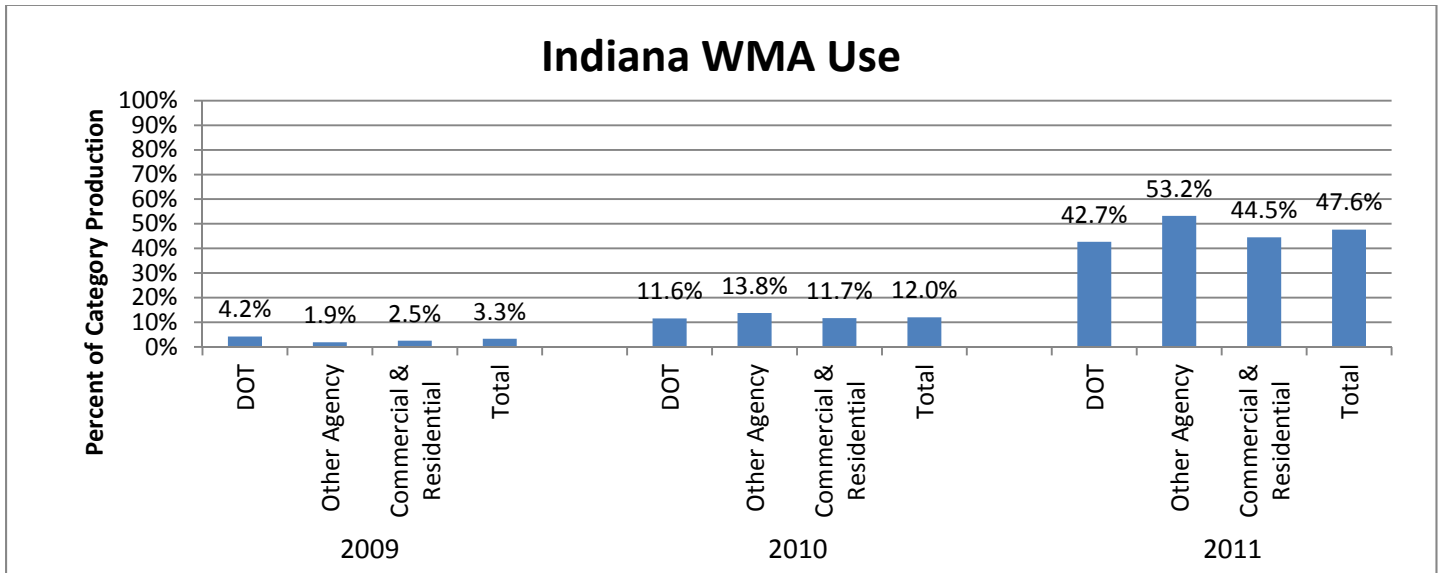


Table B 14: Summary of Indiana Data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,494,680	3,486,360
Total Other Agency Tonnage	1,766,269	4,119,845
Total Commercial & Residential Tonnage	811,912	1,893,795
Total Tonnage	4,072,861	9,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	1,022,840	2,385,787
RAP Tons used in HMA/WMA	1,050,895	2,451,226
RAP Tons used as Aggregate	20,000	46,650
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	26%	
Average % RAP in Other Agency Mixes	30%	
Average % RAP in Commercial & Residential Mixes	29%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	100%	
RAS Tons Received	18,900	44,084
RAS Tons used in HMA/WMA	23,000	53,648
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	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	637,738	1,487,532
WMA Other Agency Tonnage	939,615	2,191,664
WMA Commercial & Residential Tonnage	361,530	843,272
Total WMA Tonnage	1,938,883	4,522,469
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%	

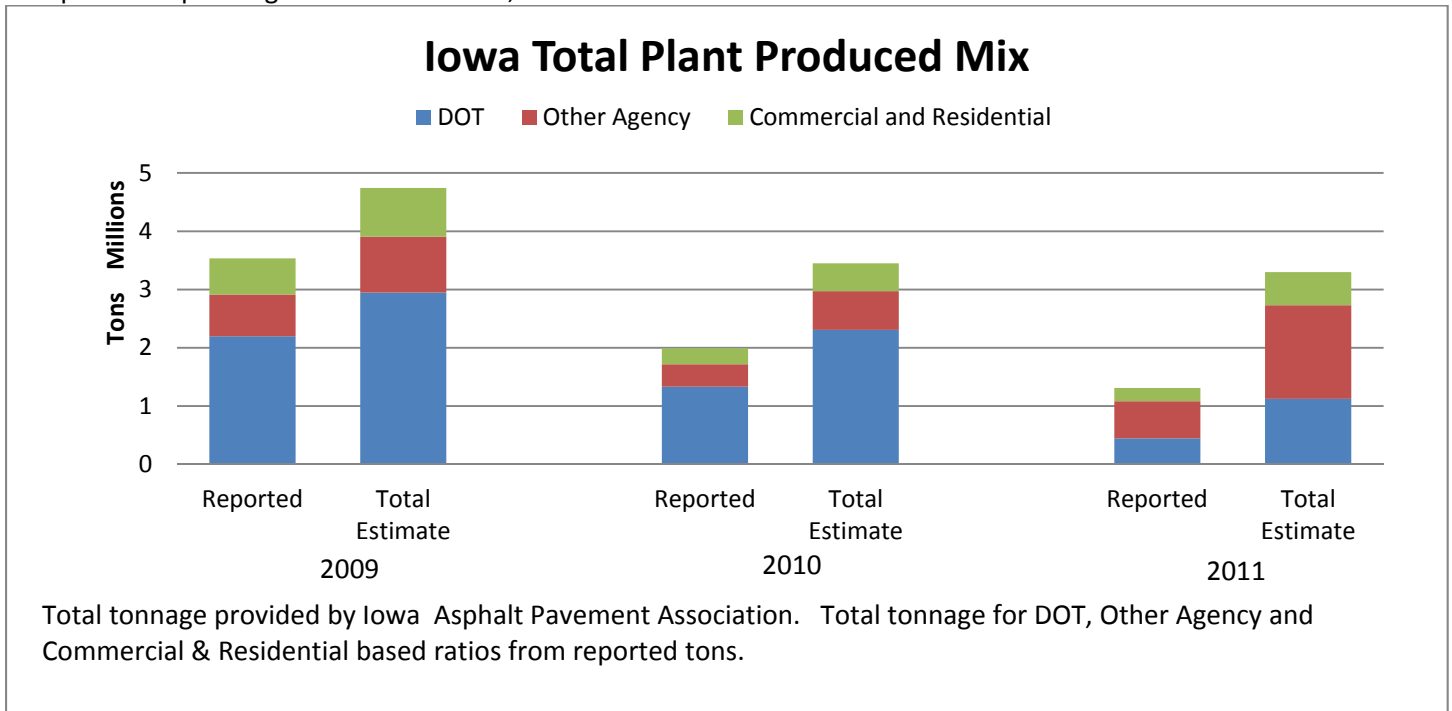
1. Total tonnage provided by Indiana Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Iowa

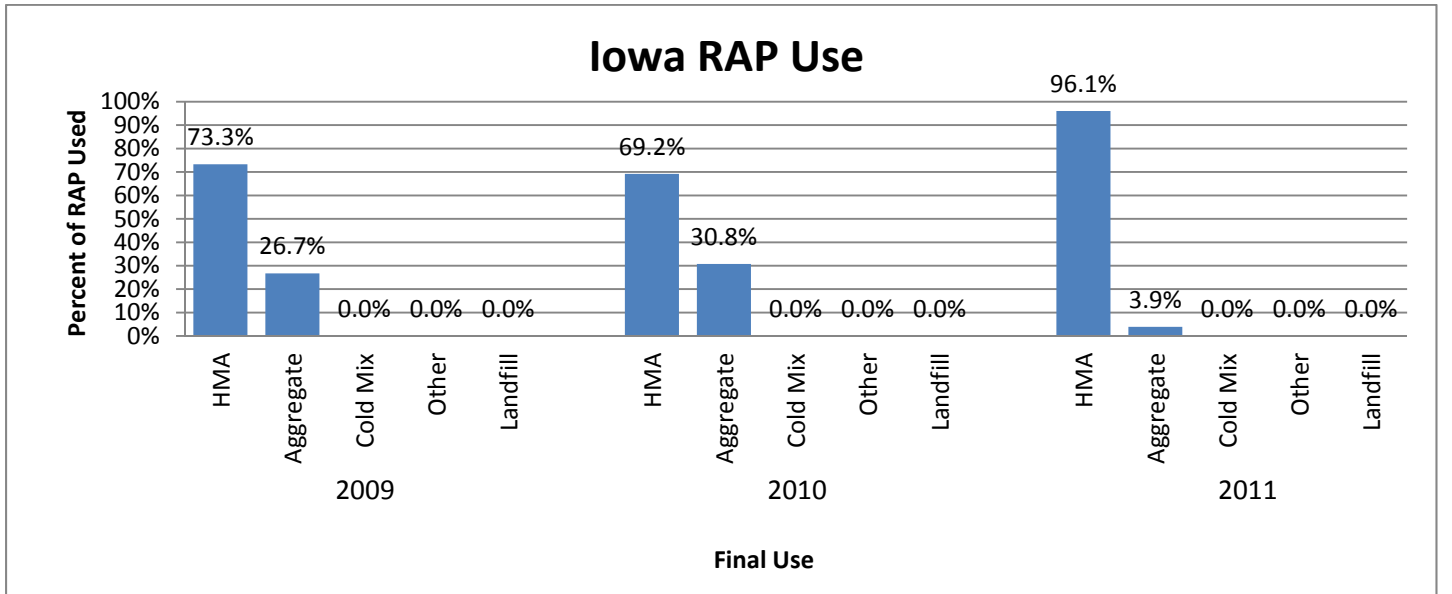
Table B16 summarizes the results received from asphalt mix producers in Iowa. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

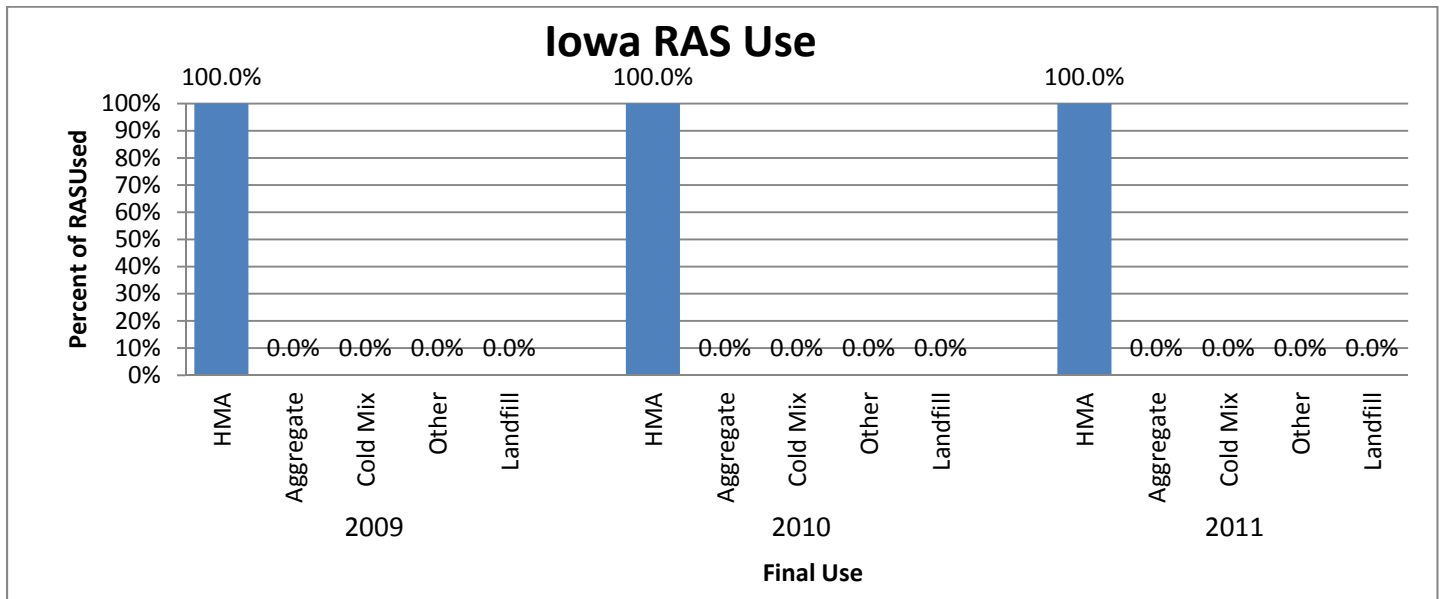
Companies responding: 7 for 2009 & 2010, 6 for 2011



RAP Use



RAS Use



WMA Use

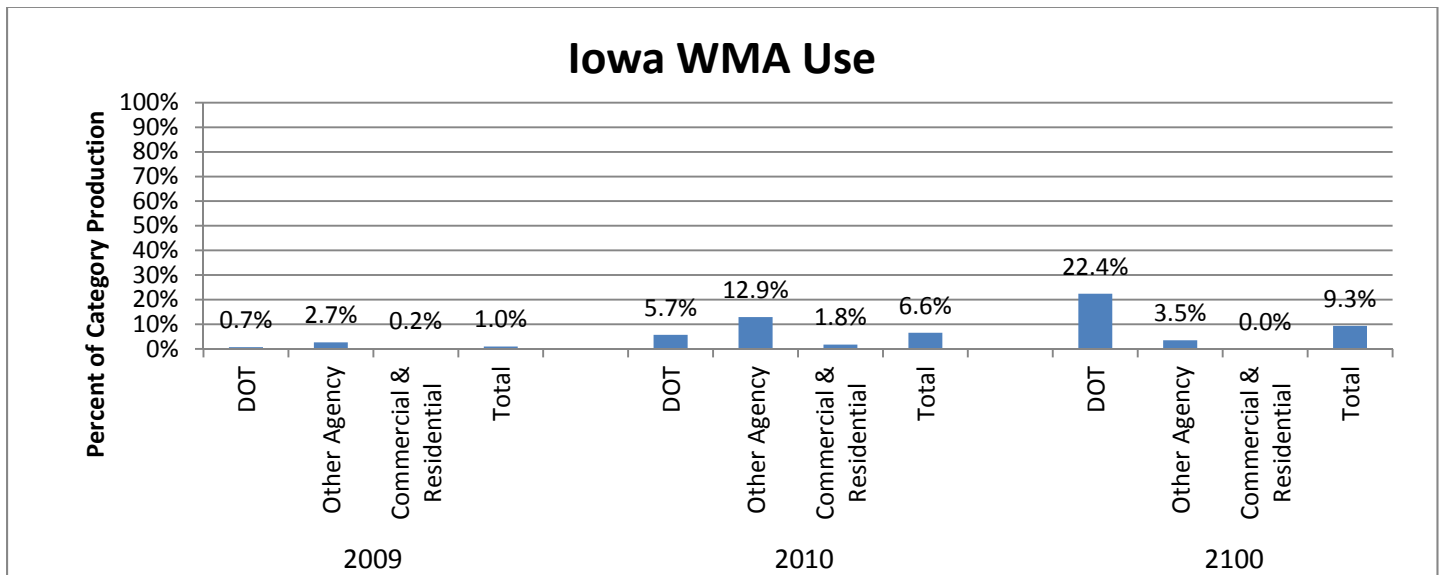


Table B 15: Summary of Iowa Data for 2011

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	446,903	1,124,969
Total Other Agency Tonnage	637,485	1,604,712
Total Commercial & Residential Tonnage	226,564	570,319
Total Tonnage	1,310,952	3,300,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	234,705	590,812
RAP Tons used in HMA/WMA	182,903	460,415
RAP Tons used as Aggregate	7,500	18,879
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	17%	
Average % RAP in Commercial & Residential Mixes	19%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	67%	
RAS Tons Received	8,753	22,034
RAS Tons used in HMA/WMA	6,538	16,457
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	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	33%	
WMA DOT Tonnage	100,000	251,725
WMA Other Agency Tonnage	22,264	56,044
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	122,264	307,770
Percent WMA Tons using Chemical Additives	81.8%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	18.2%	
Percent WMA Tons using Organic Additive	0.0%	

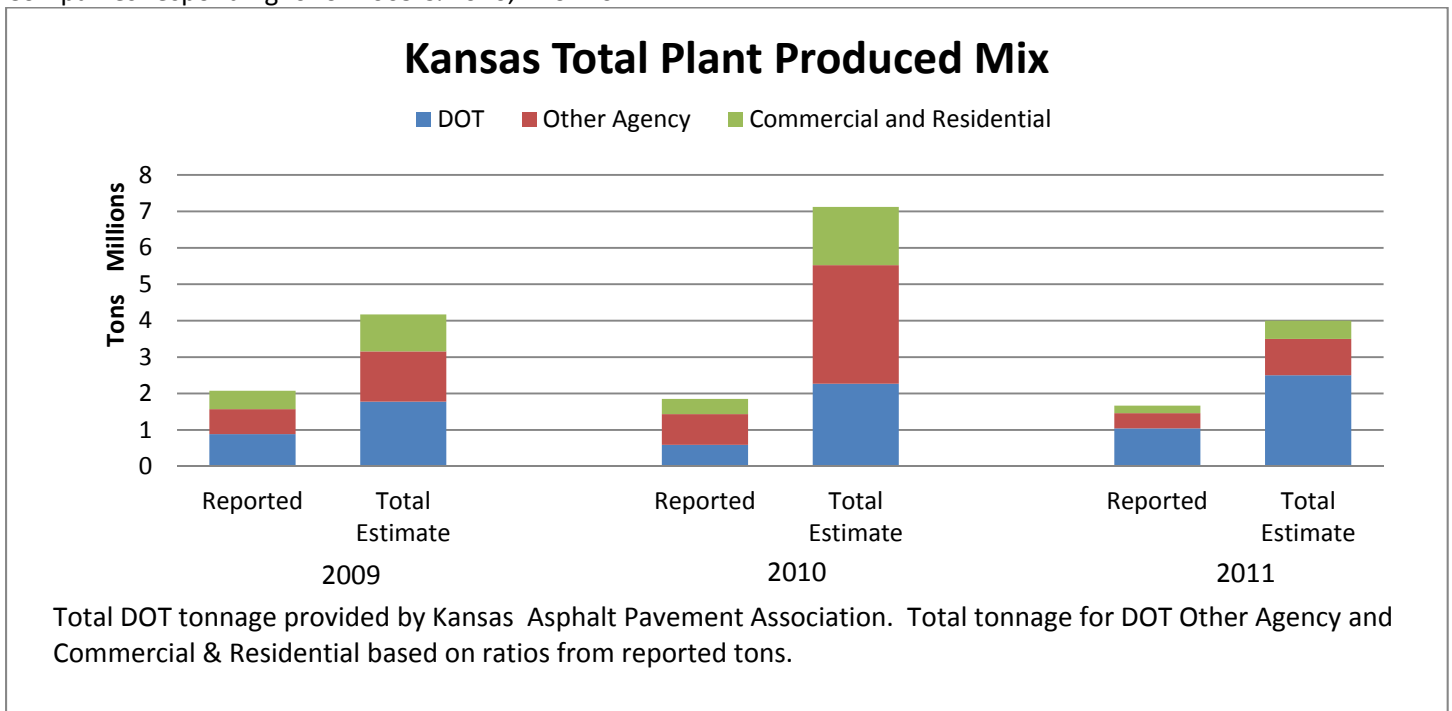
1. Total tonnage provided by Iowa Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Kansas

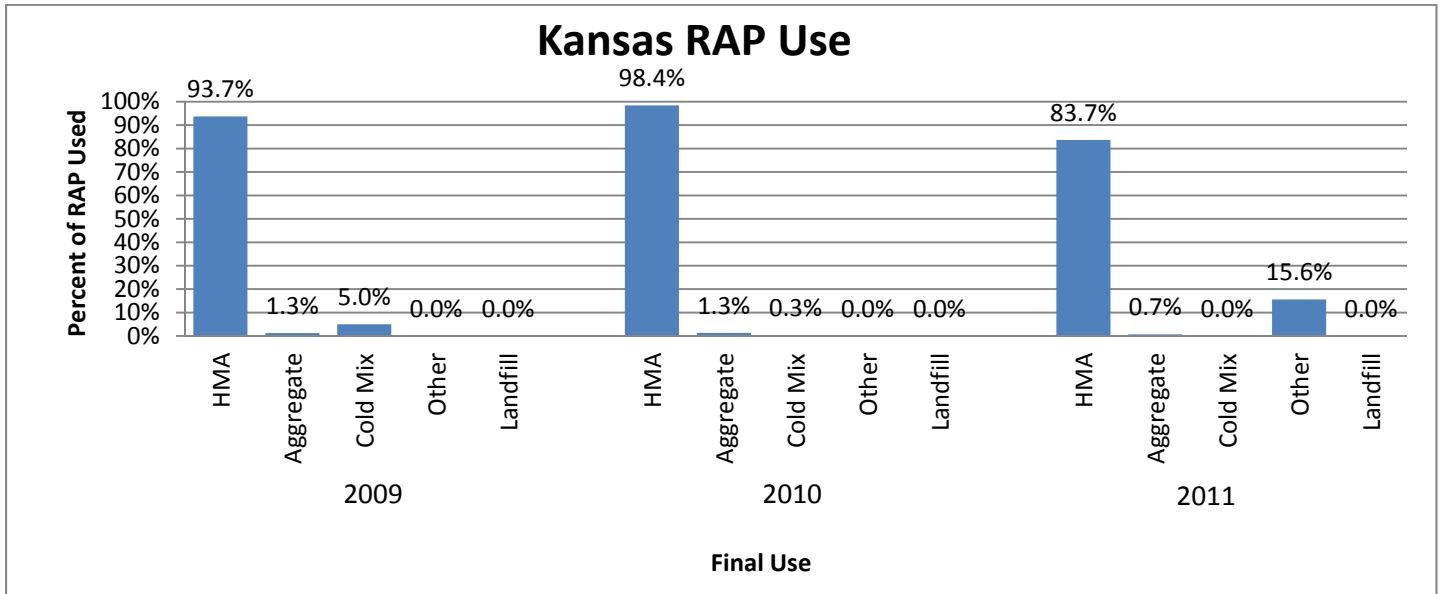
Table B17 summarizes the results received from asphalt mix producers in Kansas. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

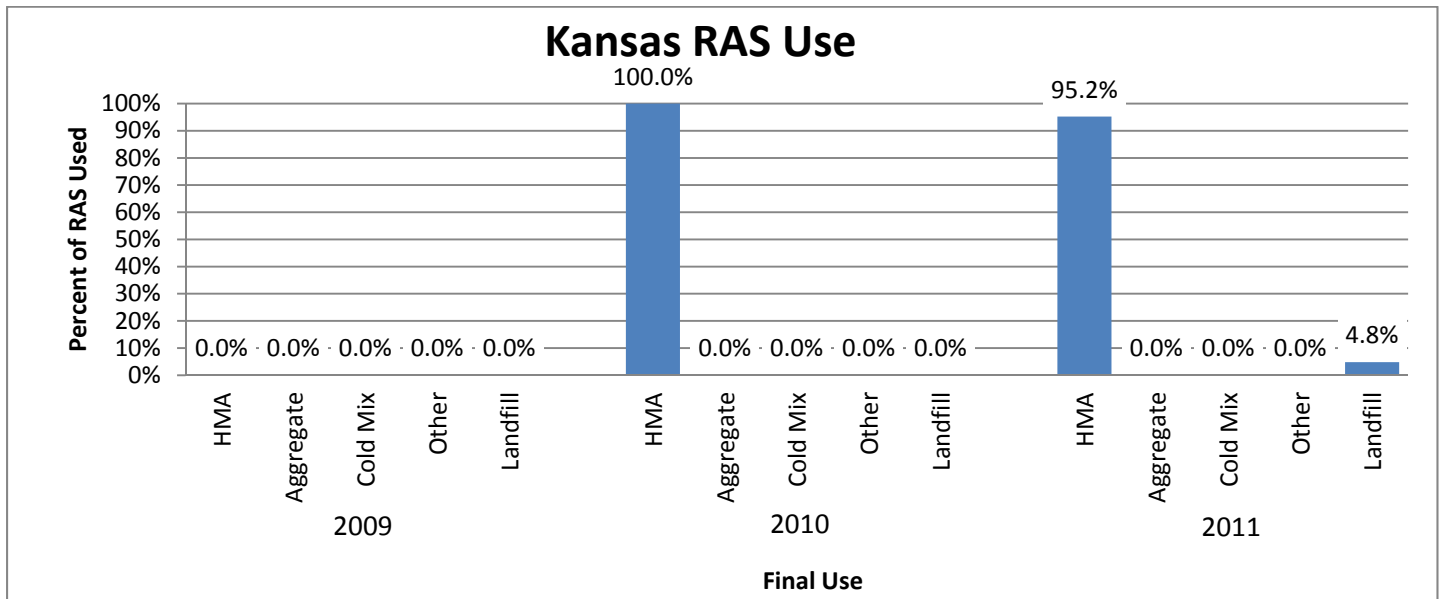
Companies responding: 6 for 2009 & 2010, 4 for 2011



RAP Use



RAS Use



WMA Use

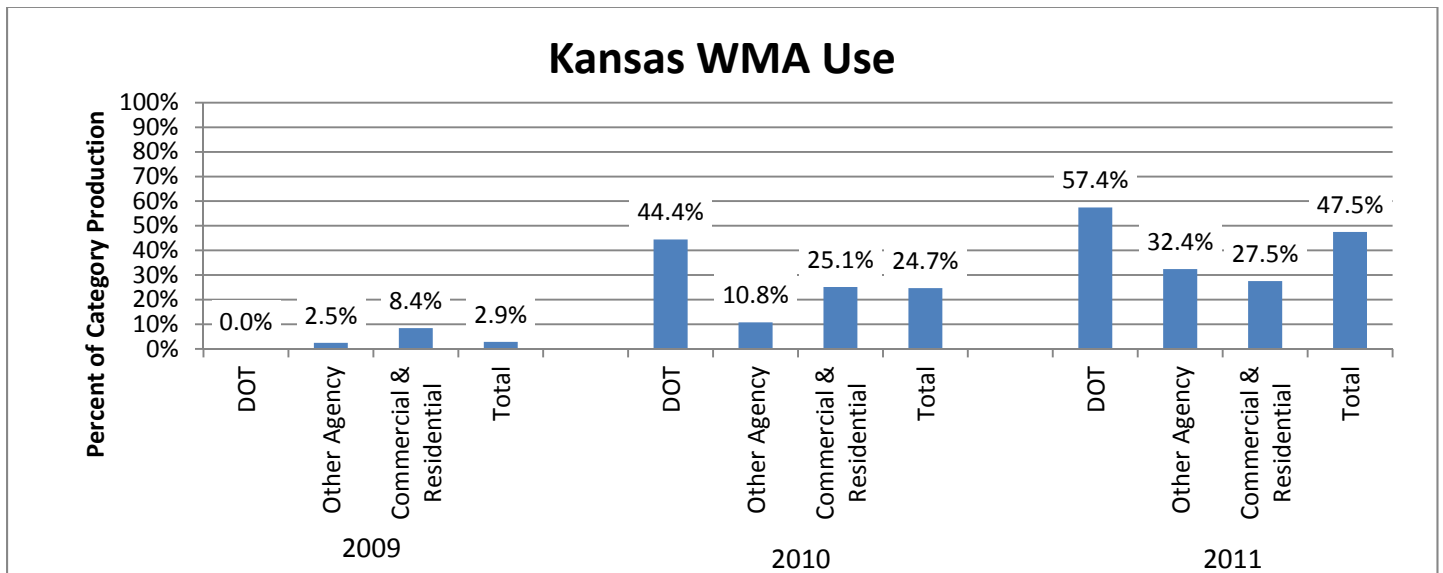


Table B 16: Summary of Kansas Data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,043,628	2,502,638
Total Other Agency Tonnage	416,291	998,273
Total Commercial & Residential Tonnage	208,126	499,090
Total Tonnage	1,668,045	4,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	401,089	961,818
RAP Tons used in HMA/WMA	326,905	783,924
RAP Tons used as Aggregate	2,757	6,611
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	61,039	146,373
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	19%	
Average % RAP in Other Agency Mixes	16%	
Average % RAP in Commercial & Residential Mixes	23%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	100%	
RAS Tons Received	21,284	51,039
RAS Tons used in HMA/WMA	1,805	4,329
RAS Tons used as Aggregate	-	-
RAS Tons used in Cold Mix	-	-
RAS Tons used as Other	-	-
RAS Tons Landfilled	91	218
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	599,550	1,437,731
WMA Other Agency Tonnage	134,838	323,343
WMA Commercial & Residential Tonnage	57,328	137,473
Total WMA Tonnage	791,716	1,898,547
Percent WMA Tons using Chemical Additives	7.9%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	92.1%	
Percent WMA Tons using Organic Additive	0.0%	

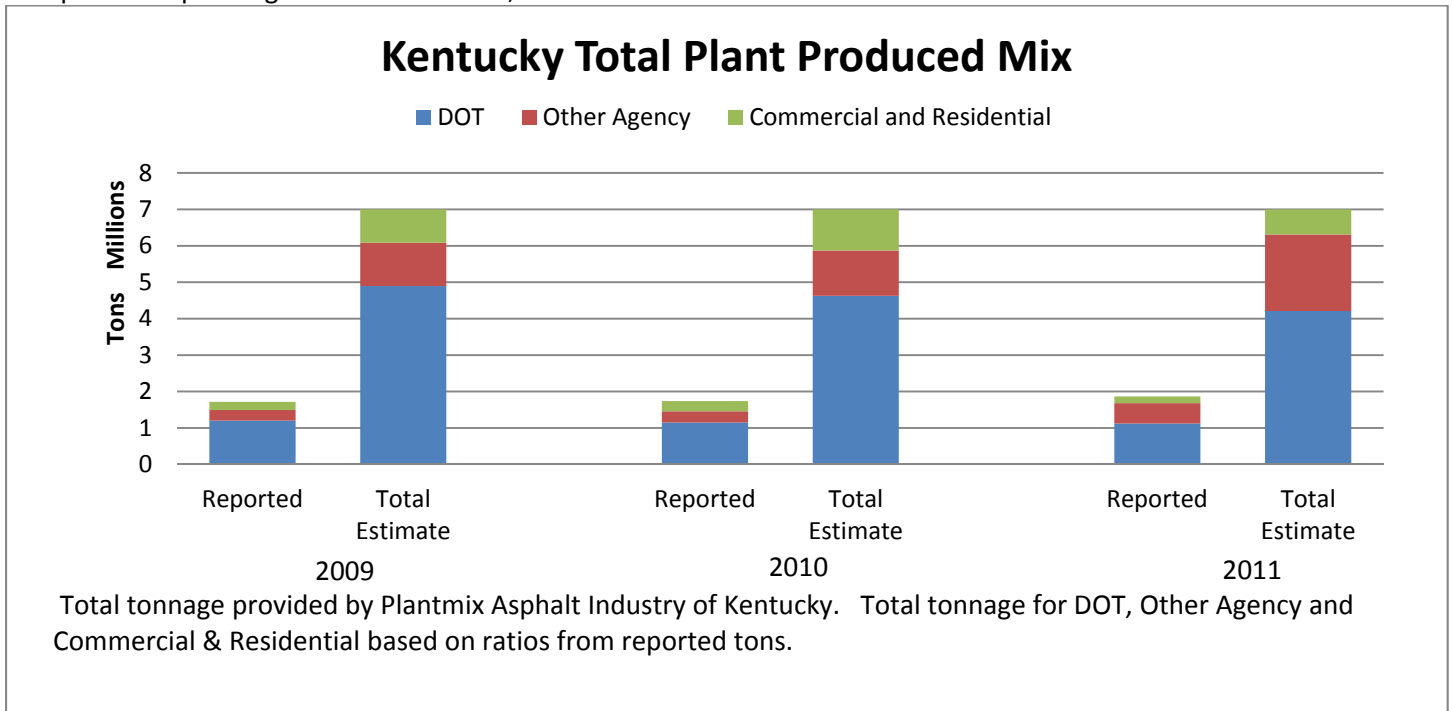
1. Total tonnage provided by Kansas Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Kentucky

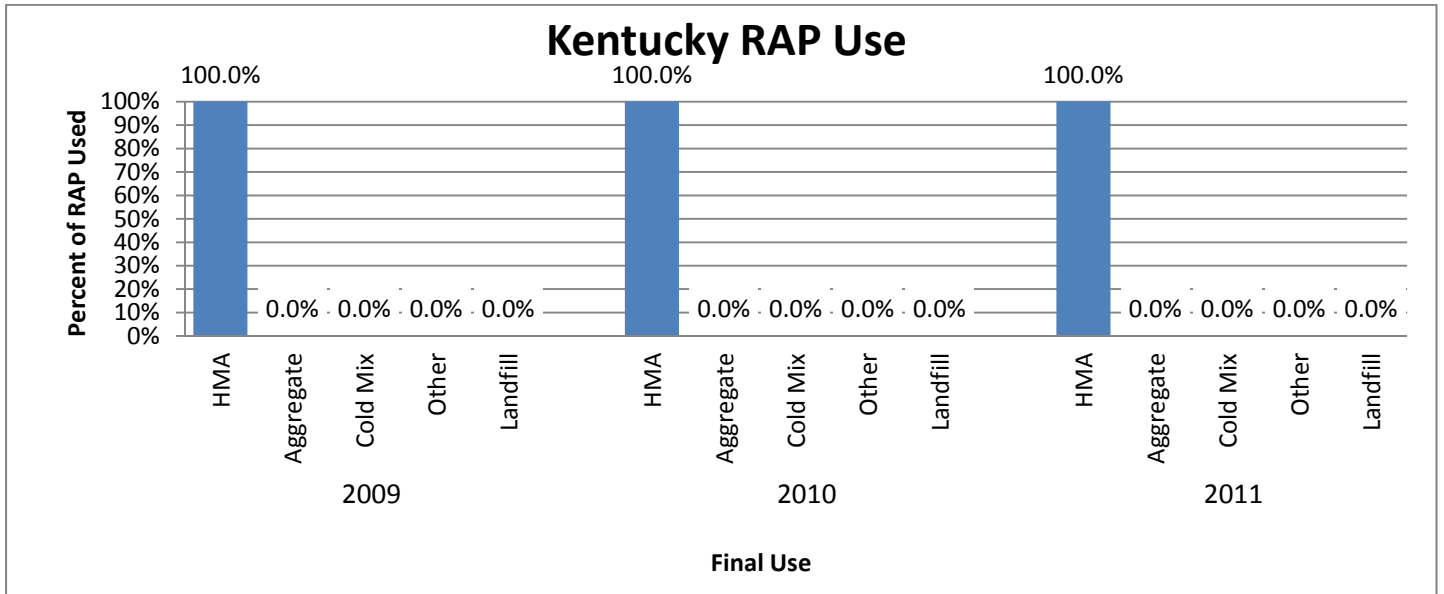
Table B18 summarizes the results received from asphalt mix producers in Kentucky. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

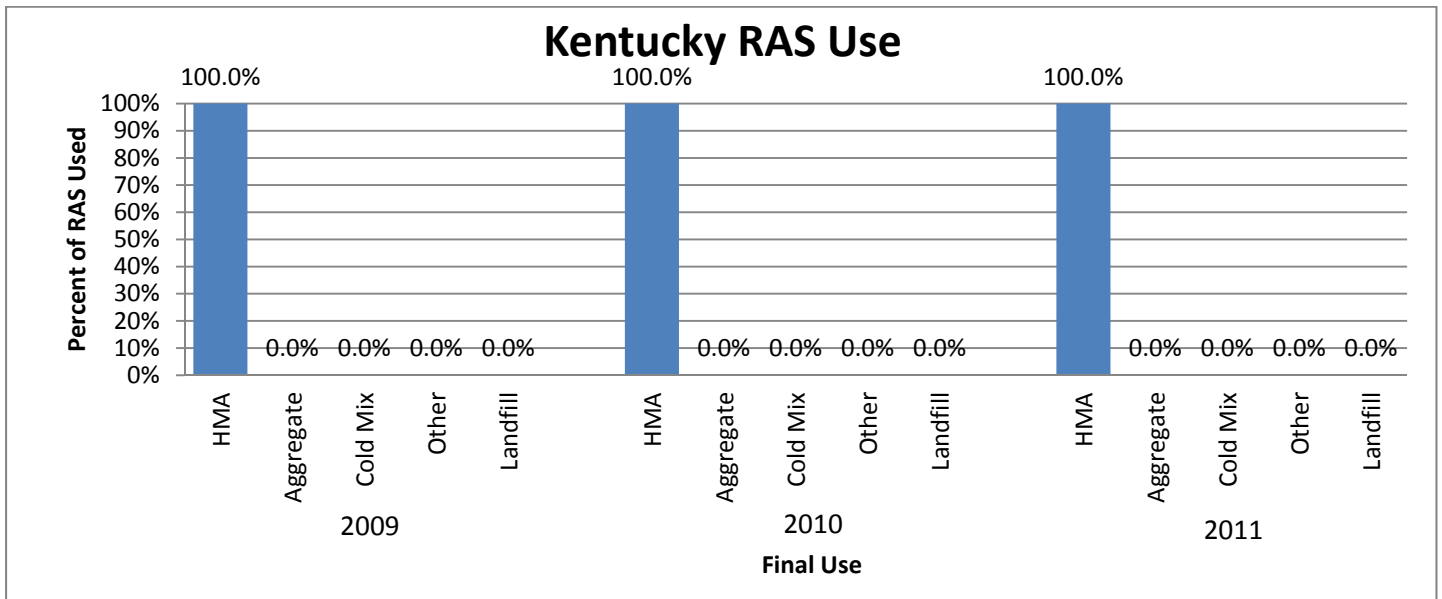
Companies responding: 3 for 2009 & 2010, 4 for 2011



RAP Use



RAS Use



WMA Use

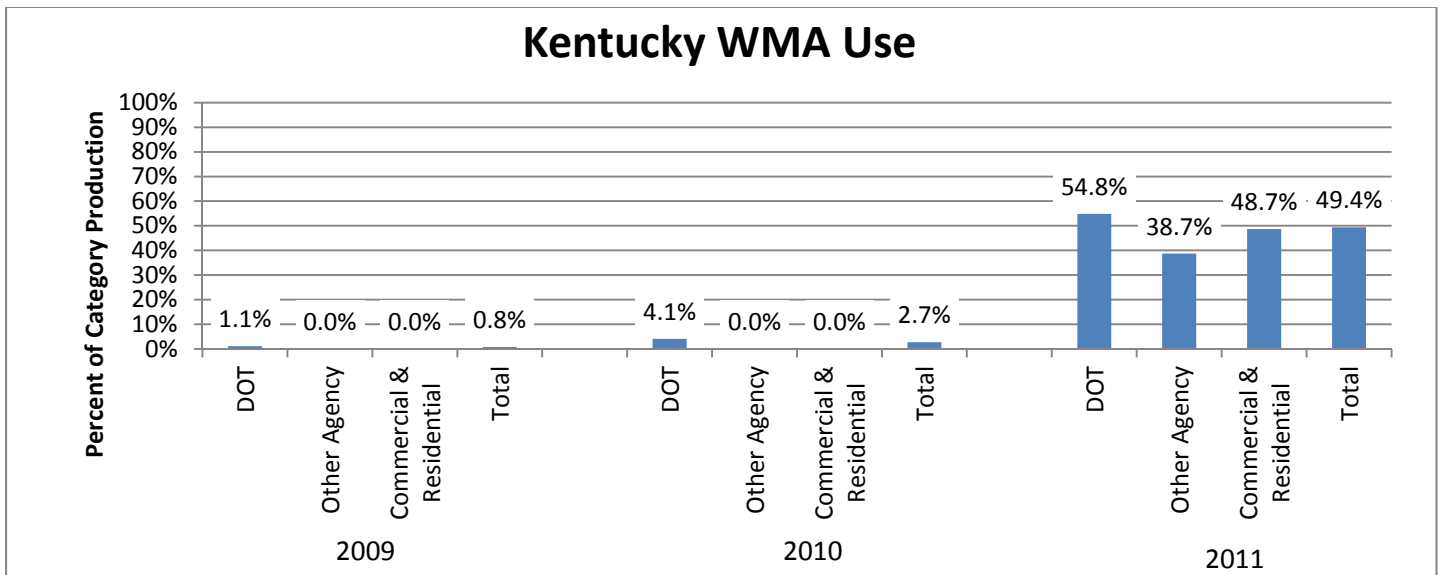


Table B 17: Summary of Kentucky Data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,121,786	4,212,092
Total Other Agency Tonnage	559,276	2,099,974
Total Commercial & Residential Tonnage	183,214	687,934
Total Tonnage	1,864,276	7,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	146,114	548,630
RAP Tons used in HMA/WMA	167,582	629,237
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	32%	
Average % RAP in Other Agency Mixes	12%	
Average % RAP in Commercial & Residential Mixes	11%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	25%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	10	38
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	615,168	2,309,836
WMA Other Agency Tonnage	216,442	812,699
WMA Commercial & Residential Tonnage	89,169	334,814
Total WMA Tonnage	920,779	3,457,349
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%	

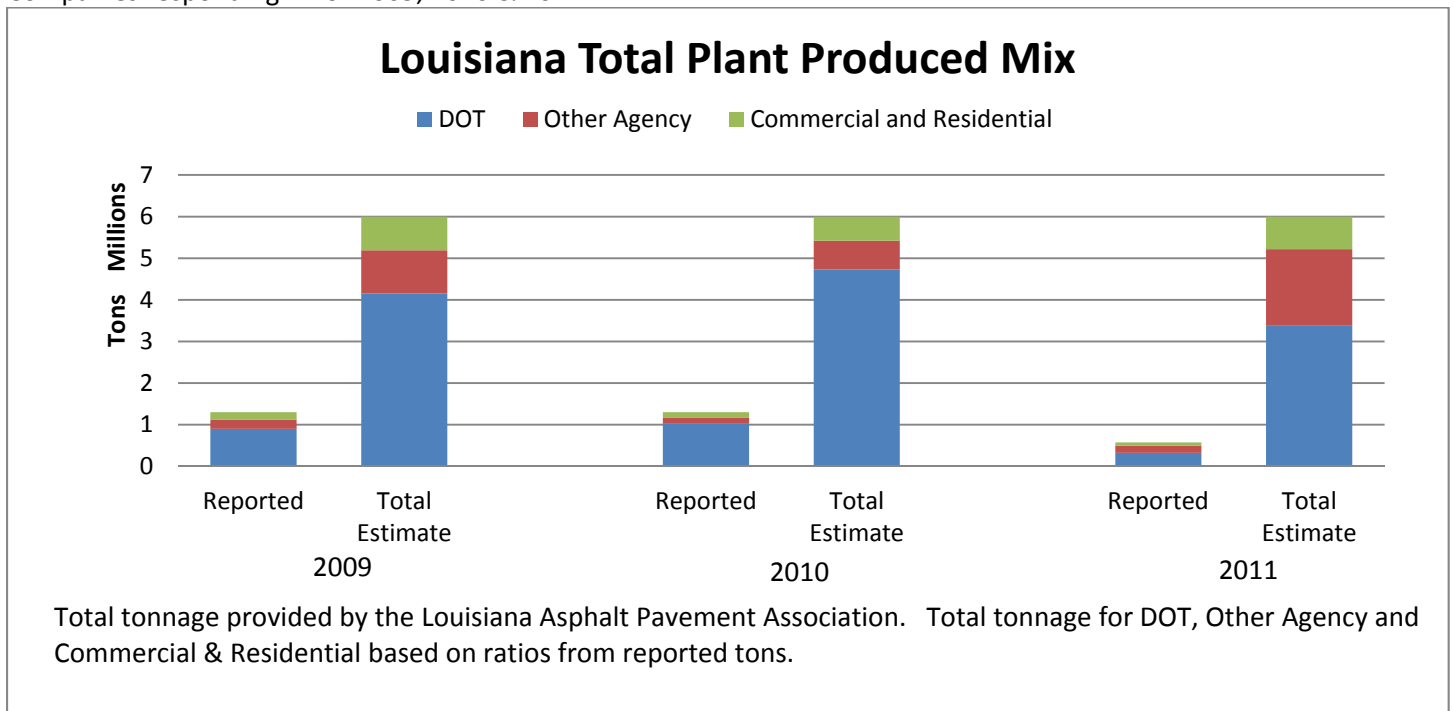
1. Total tonnage provided by Plantmix Asphalt Industry of Kentucky. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Louisiana

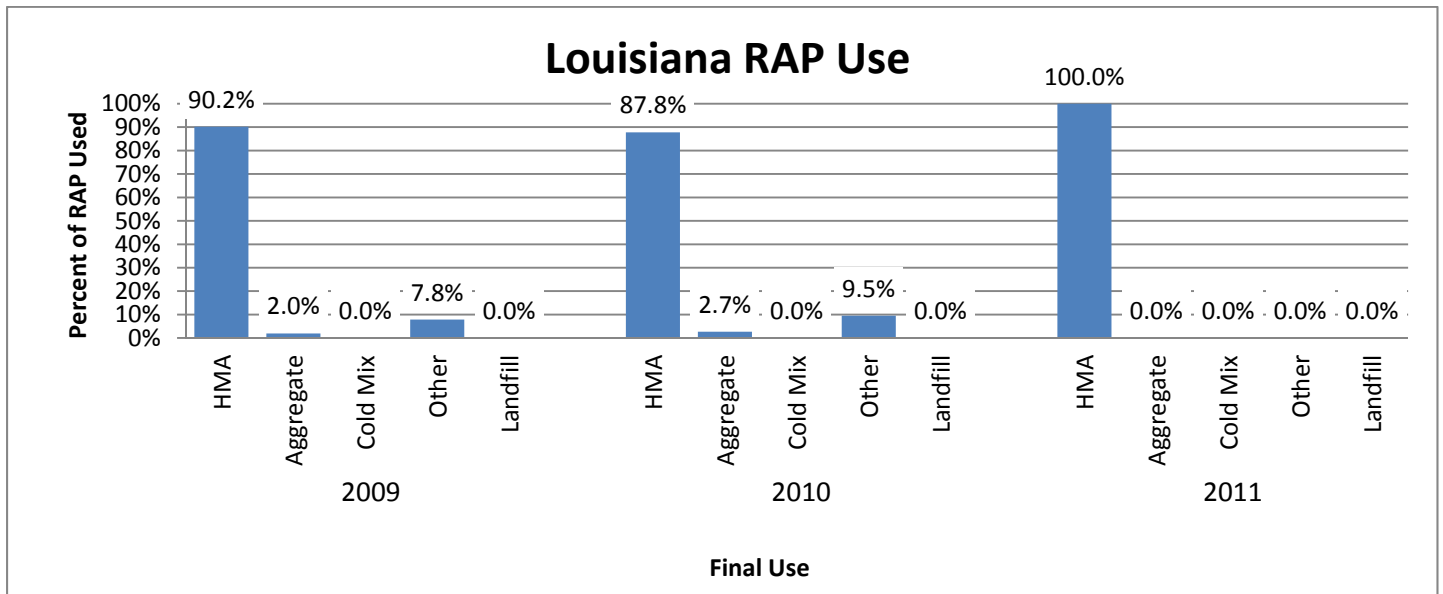
Table B19 summarizes the results received from asphalt mix producers in Louisiana. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

Companies responding: 2 for 2009, 2010 & 2011



RAP Use



RAS Use

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

WMA Use

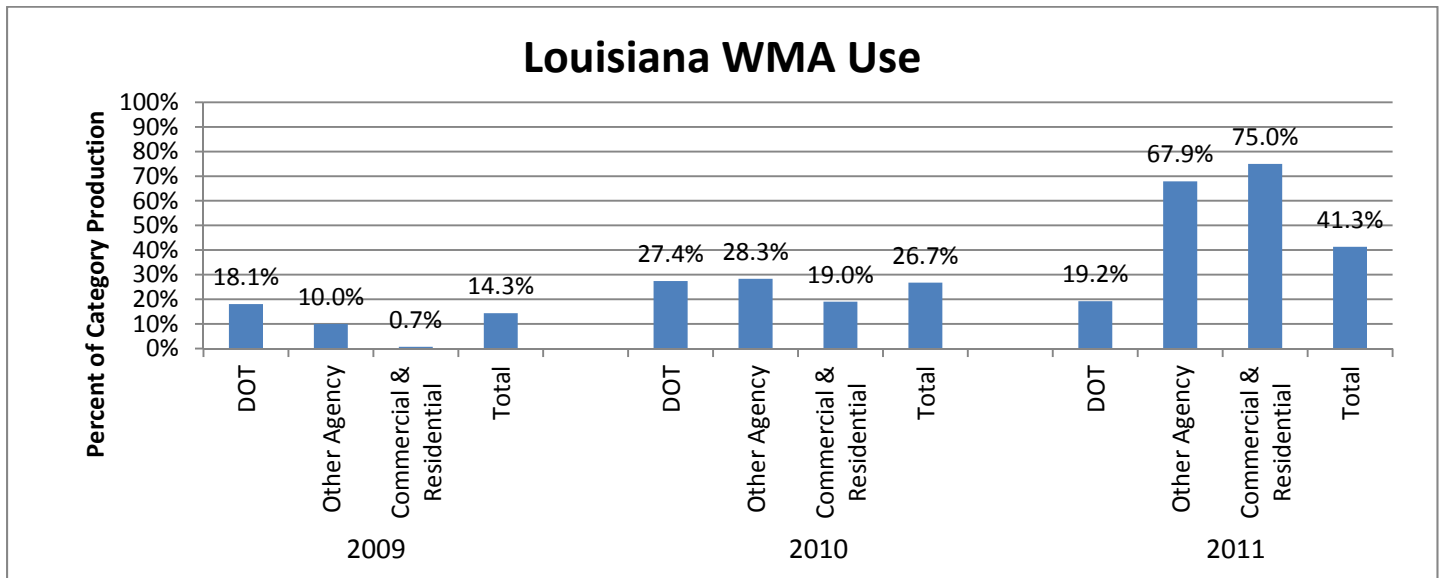


Table B 18: Summary of Louisiana Data for 2011

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	325,000	3,391,304
Total Other Agency Tonnage	175,000	1,826,087
Total Commercial & Residential Tonnage	75,000	782,609
Total Tonnage	575,000	6,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	110,000	1,147,826
RAP Tons used in HMA/WMA	106,250	1,108,696
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	22%	
Average % RAP in Commercial & Residential Mixes	13%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	62,500	652,174
WMA Other Agency Tonnage	118,750	1,239,130
WMA Commercial & Residential Tonnage	56,250	586,957
Total WMA Tonnage	237,500	2,478,261
Percent WMA Tons using Chemical Additives	3.7%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	96.3%	
Percent WMA Tons using Organic Additive	0.0%	

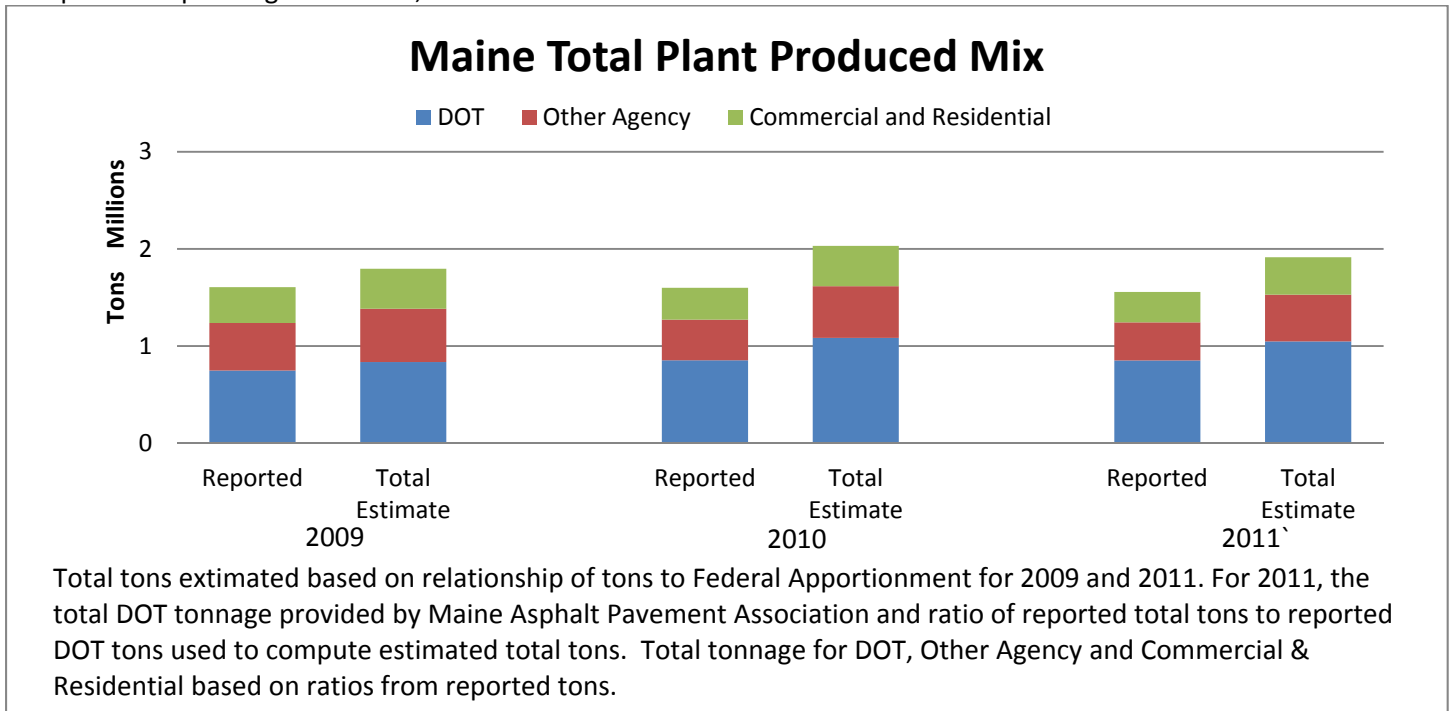
1. Total tonnage provided by the Louisiana Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Maine

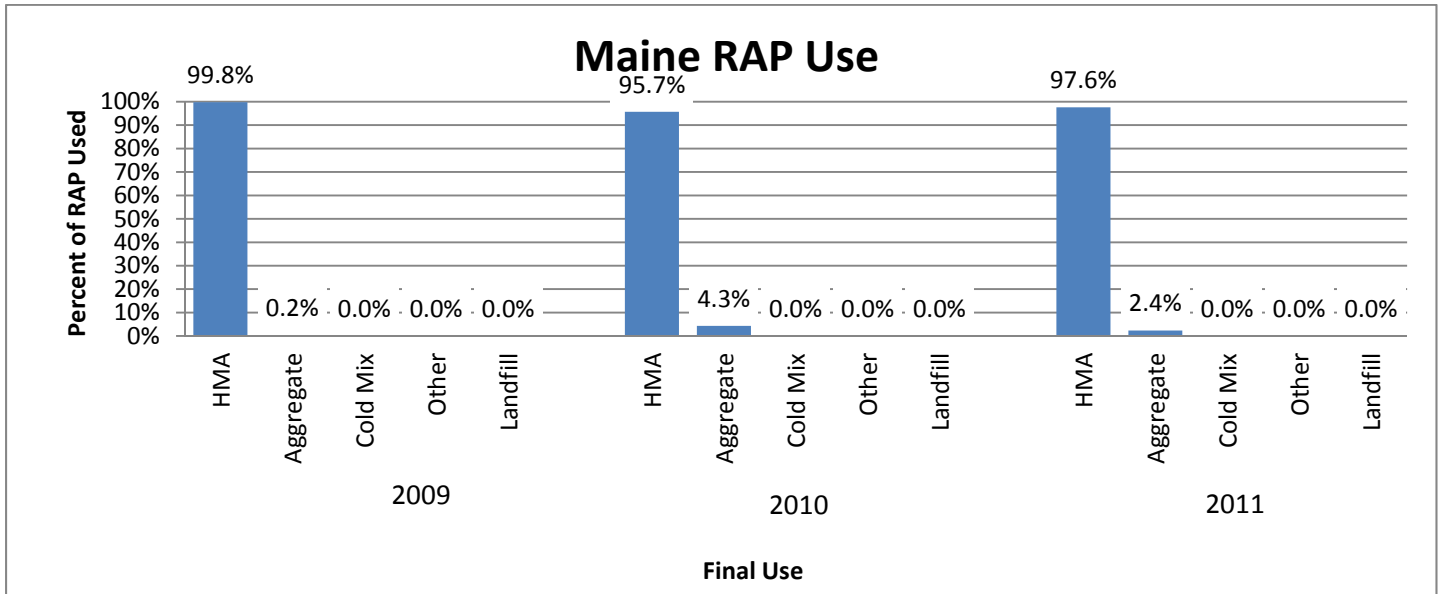
Table B20 summarizes the results received from asphalt mix producers in Maine. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

Companies responding: 2 for 2009, 2010 & 2011

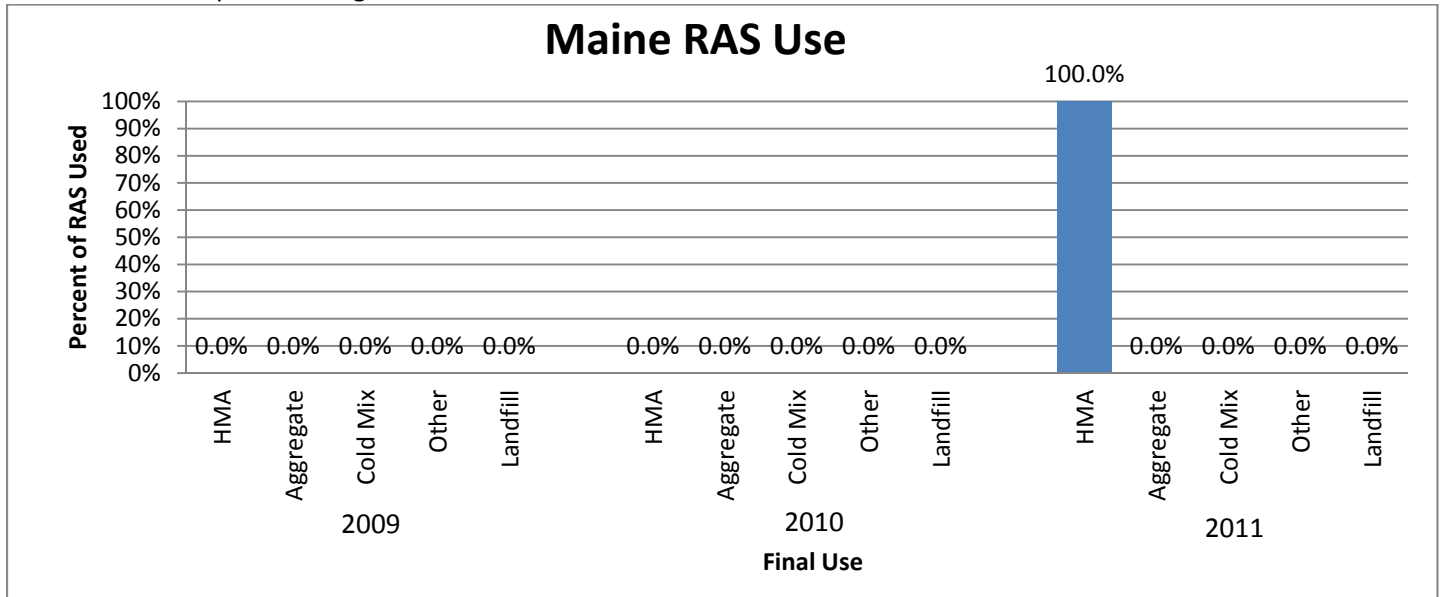


RAP Use



RAS Use

No contractors reported using RAS in 2009 and 2010.



WMA Use

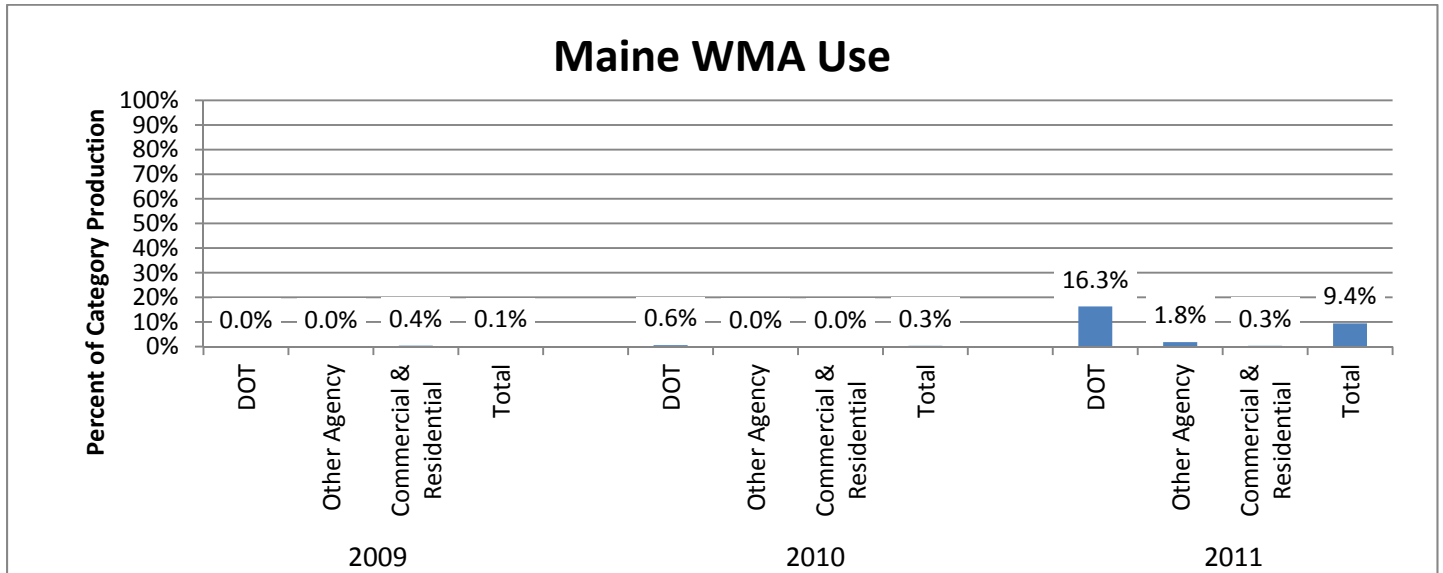


Table B 19: Summary of Maine Data for 2011

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	852,284	1,047,316
Total Other Agency Tonnage	391,883	481,559
Total Commercial & Residential Tonnage	313,407	385,125
Total Tonnage	1,557,574	1,914,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	182,854	224,697
RAP Tons used in HMA/WMA	230,297	282,997
RAP Tons used as Aggregate	5,580	6,857
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	18%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	100%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	3,990	4,903
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	138,657	170,386
WMA Other Agency Tonnage	7,008	8,612
WMA Commercial & Residential Tonnage	1,012	1,244
Total WMA Tonnage	146,677	180,242
Percent WMA Tons using Chemical Additives	20.8%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	77.3%	
Percent WMA Tons using Organic Additive	2.0%	

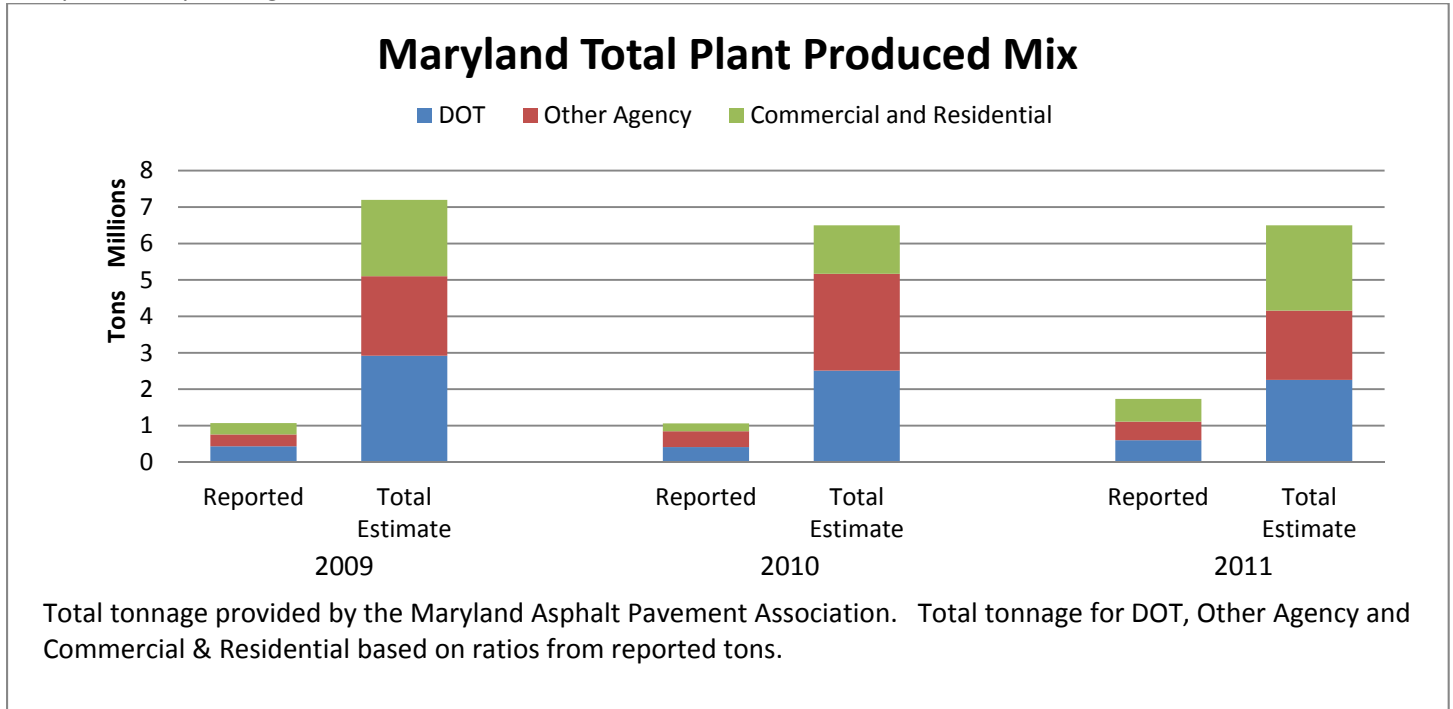
1. DOT tonnage provided by Maine Asphalt Pavement Association and ratio of reported total tons to reported DOT tons used to compute estimated total tons. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Maryland

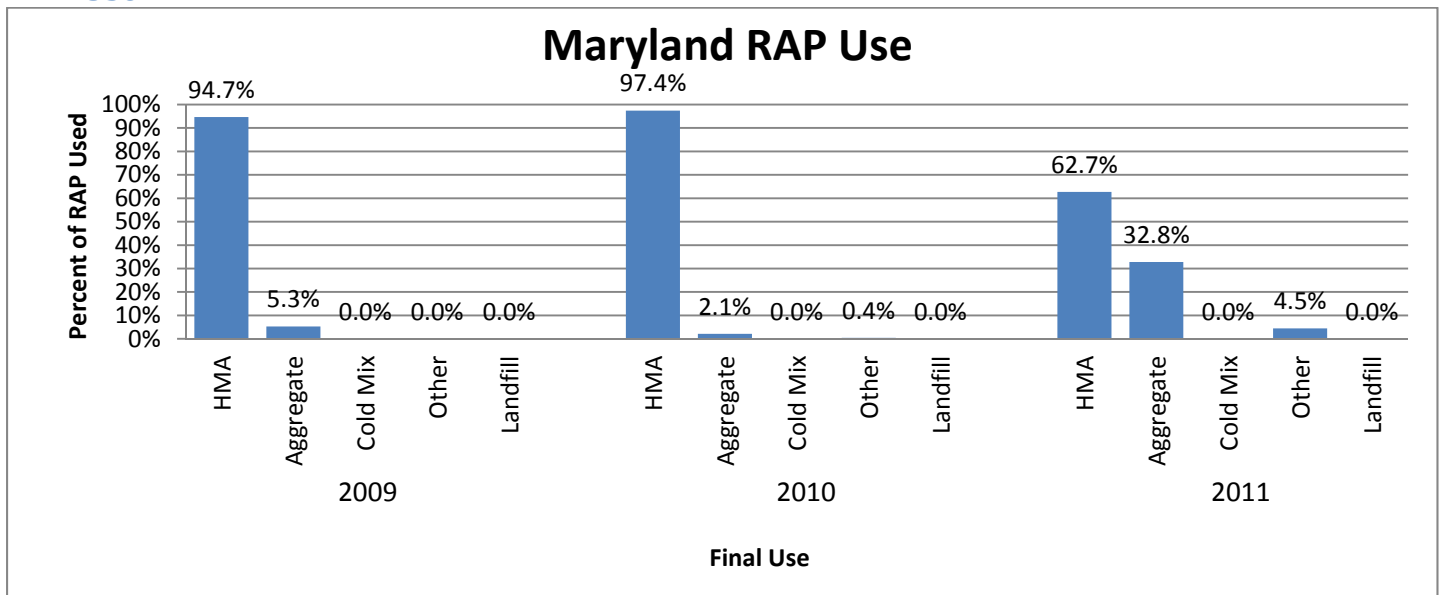
Table B21 summarizes the results received from asphalt mix producers in Maryland. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

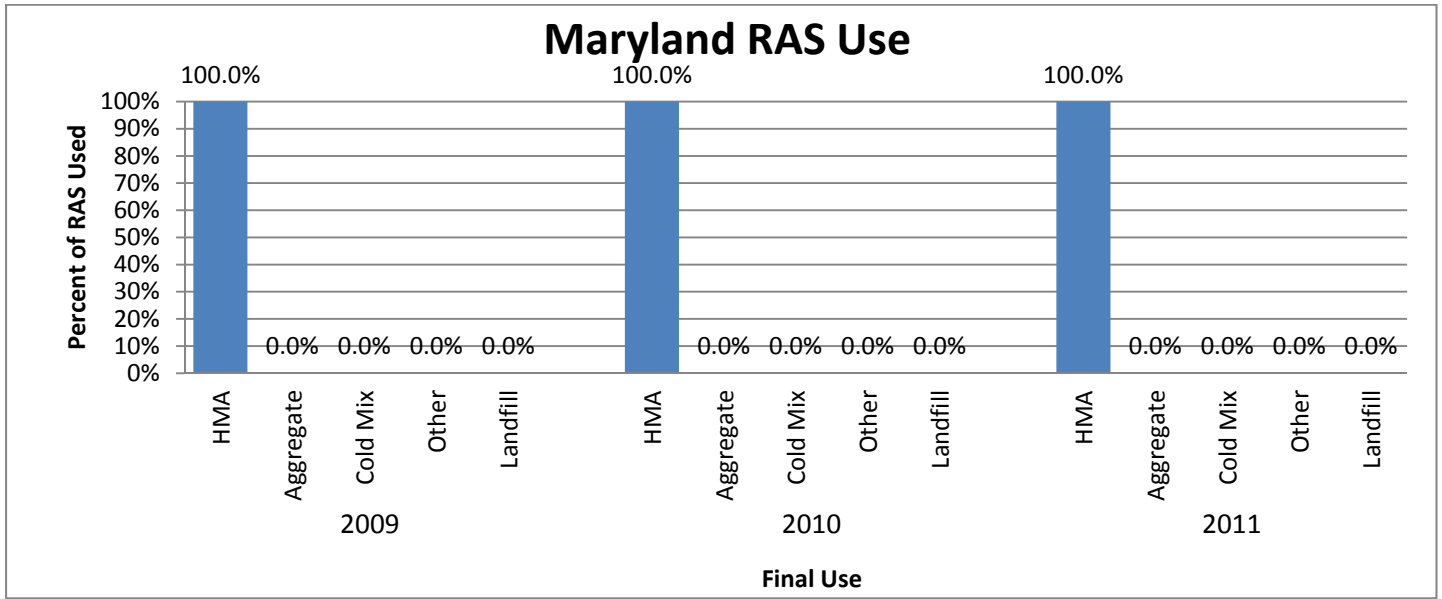
Companies responding: 4 for 2009, 2010 & 2011



RAP Use



RAS Use



WMA Use

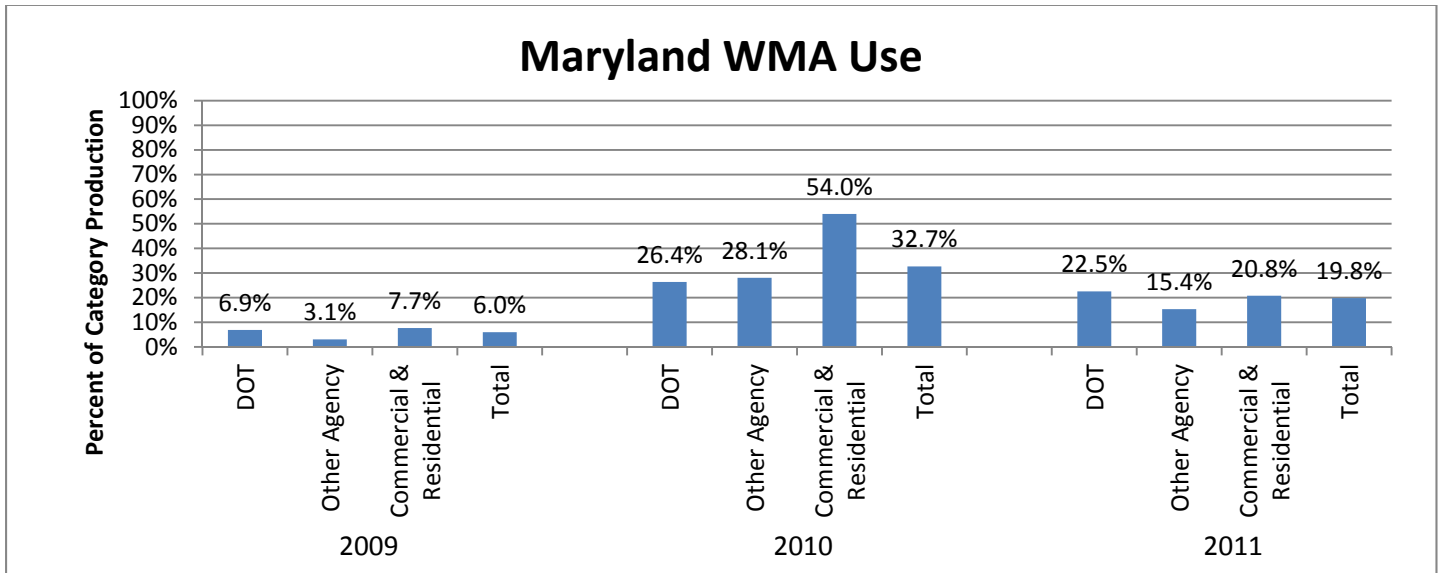


Table B 20: Summary of Maryland Data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	601,480	2,254,398
Total Other Agency Tonnage	507,683	1,902,839
Total Commercial & Residential Tonnage	625,056	2,342,763
Total Tonnage	1,734,219	6,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	635,756	2,382,867
RAP Tons used in HMA/WMA	420,765	1,577,063
RAP Tons used as Aggregate	220,000	824,579
RAP Tons used in Cold Mix	50	187
RAP Tons used as Other	30,000	112,443
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	21%	
Average % RAP in Other Agency Mixes	21%	
Average % RAP in Commercial & Residential Mixes	26%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	25%	
RAS Tons Received	20,000	74,962
RAS Tons used in HMA/WMA	10,000	37,481
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	135,474	507,767
WMA Other Agency Tonnage	77,959	292,195
WMA Commercial & Residential Tonnage	130,011	487,293
Total WMA Tonnage	343,443	1,287,255
Percent WMA Tons using Chemical Additives	2.8%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	97.2%	
Percent WMA Tons using Organic Additive	0.0%	

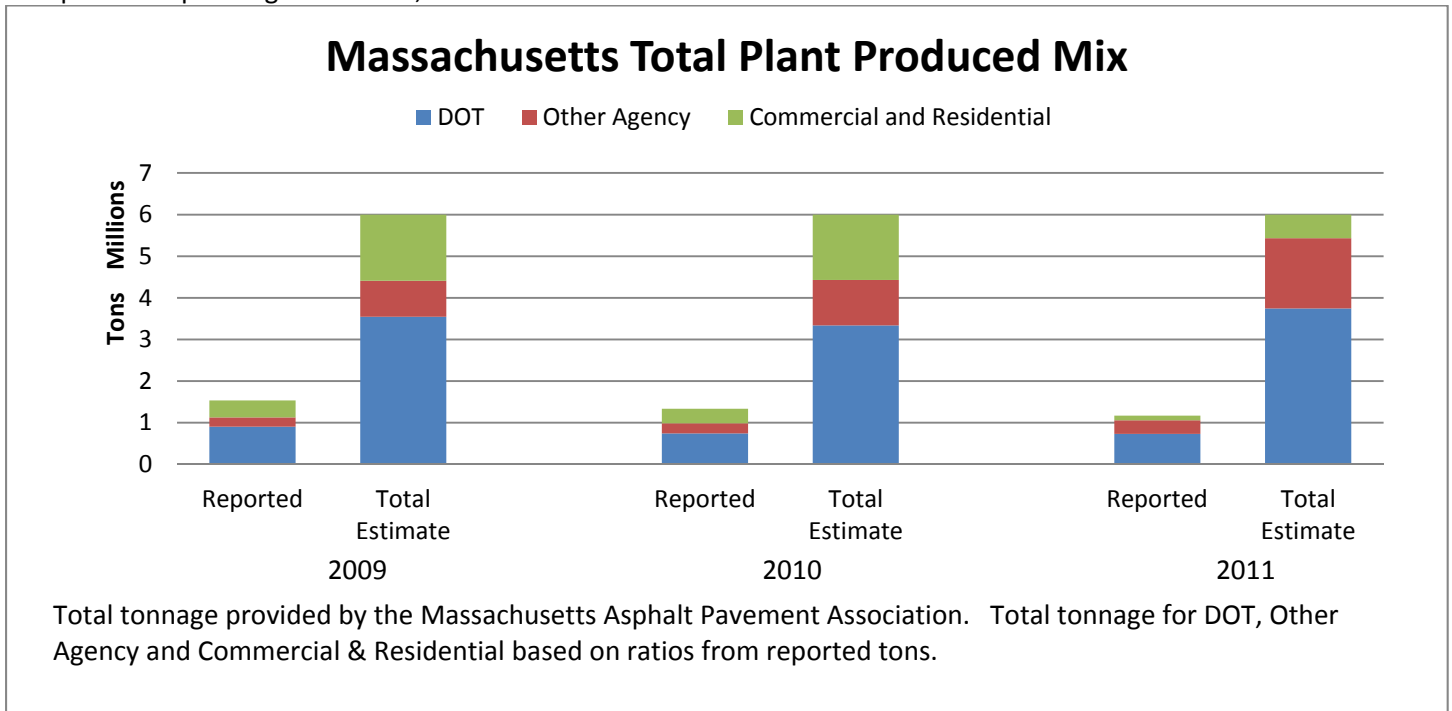
1. Total tonnage provided by the Maryland Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Massachusetts

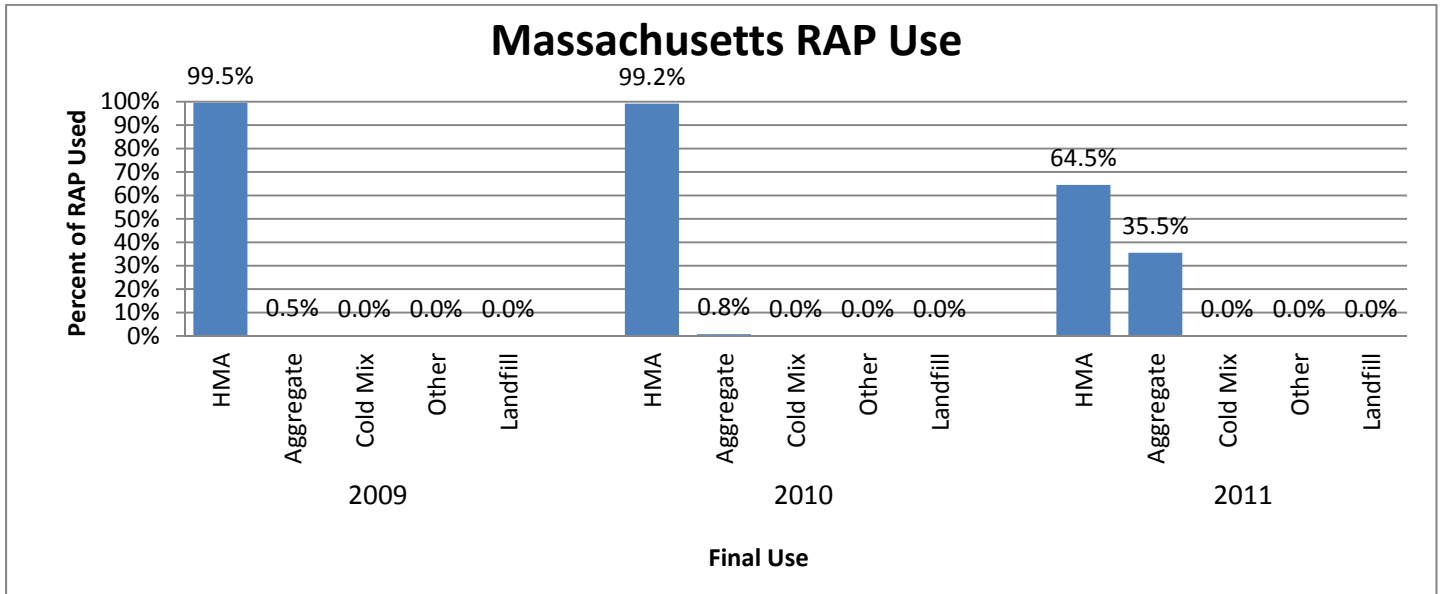
Table B22 summarizes the results received from asphalt mix producers in Massachusetts. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

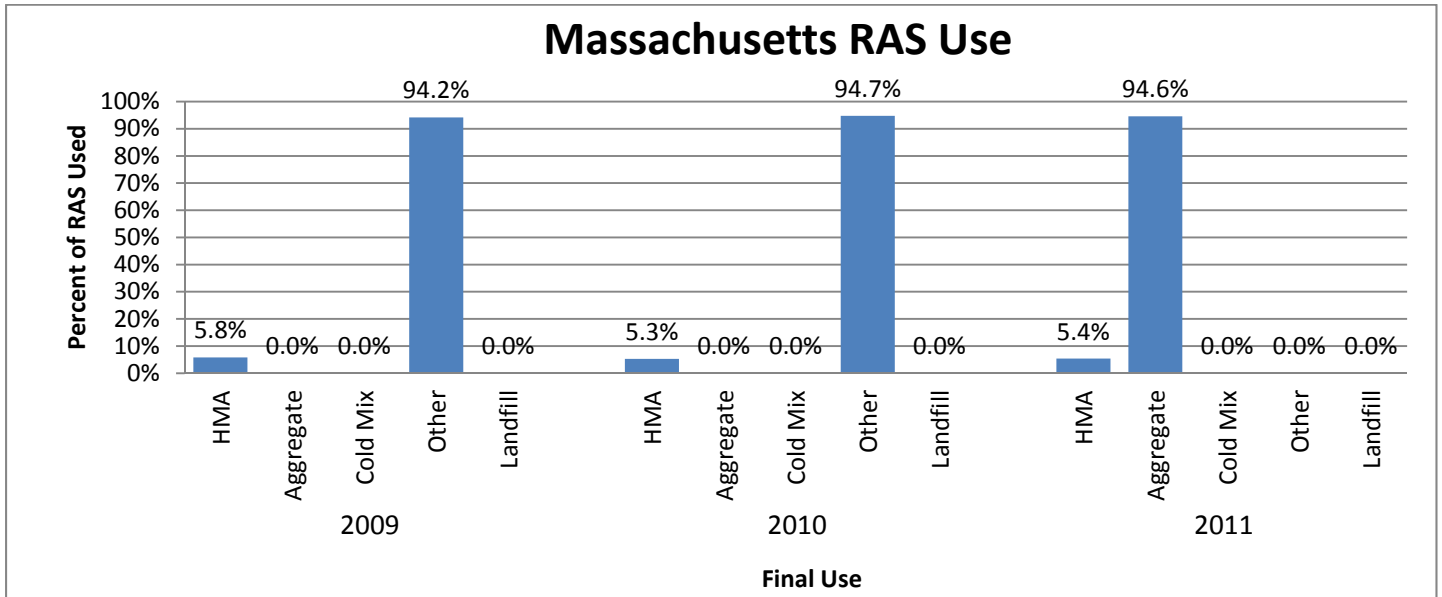
Companies responding: 2 for 2009, 2010 & 2011



RAP Use



RAS Use



WMA Use

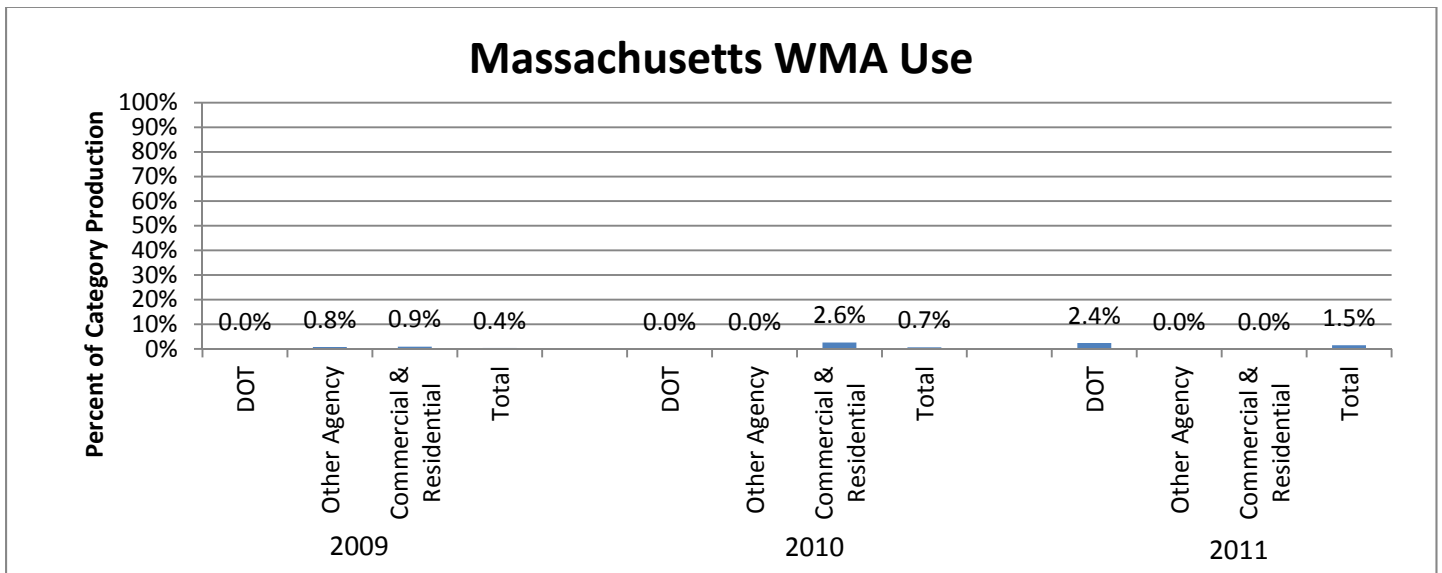


Table B 21: Summary of Massachusetts Data for 2011

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	731,782	3,747,643
Total Other Agency Tonnage	329,147	1,685,646
Total Commercial & Residential Tonnage	110,659	566,712
Total Tonnage	1,171,587	6,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	160,736	823,171
RAP Tons used in HMA/WMA	129,045	660,875
RAP Tons used as Aggregate	71,125	364,250
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	16%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	100%	
RAS Tons Received	36,396	186,393
RAS Tons used in HMA/WMA	820	4,197
RAS Tons used as Aggregate	14,368	73,582
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
	2011	2011
Percent Companies using WMA	50%	
WMA DOT Tonnage	17,500	89,622
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	17,500	89,622
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%	

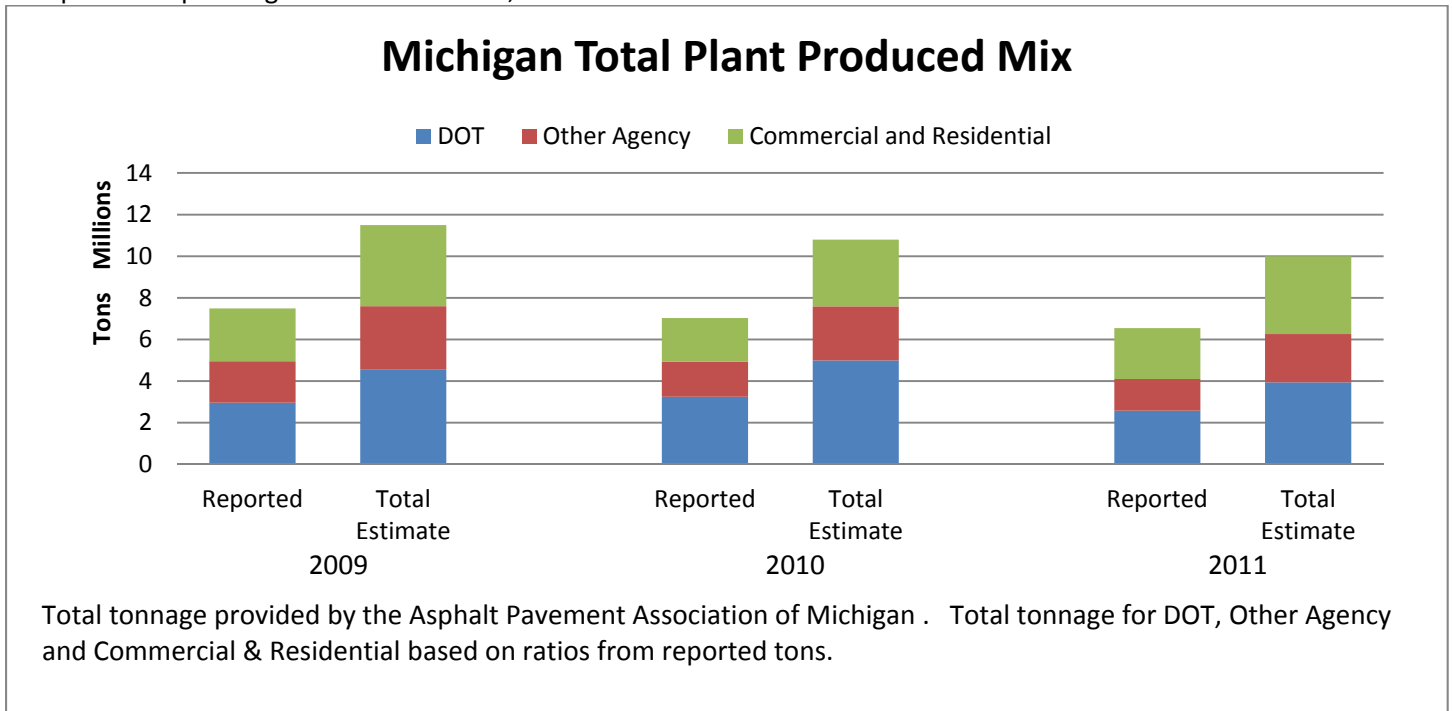
1. Total tonnage provided by the Massachusetts Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Michigan

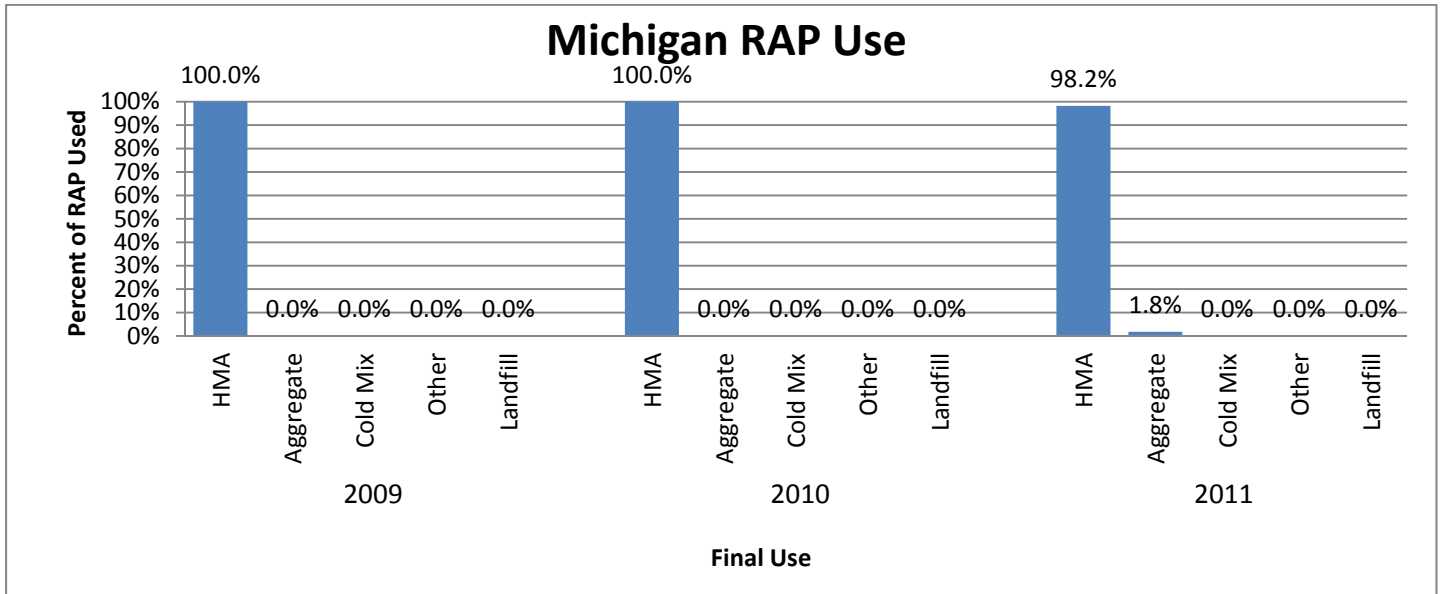
Table B23 summarizes the results received from asphalt mix producers in Michigan. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

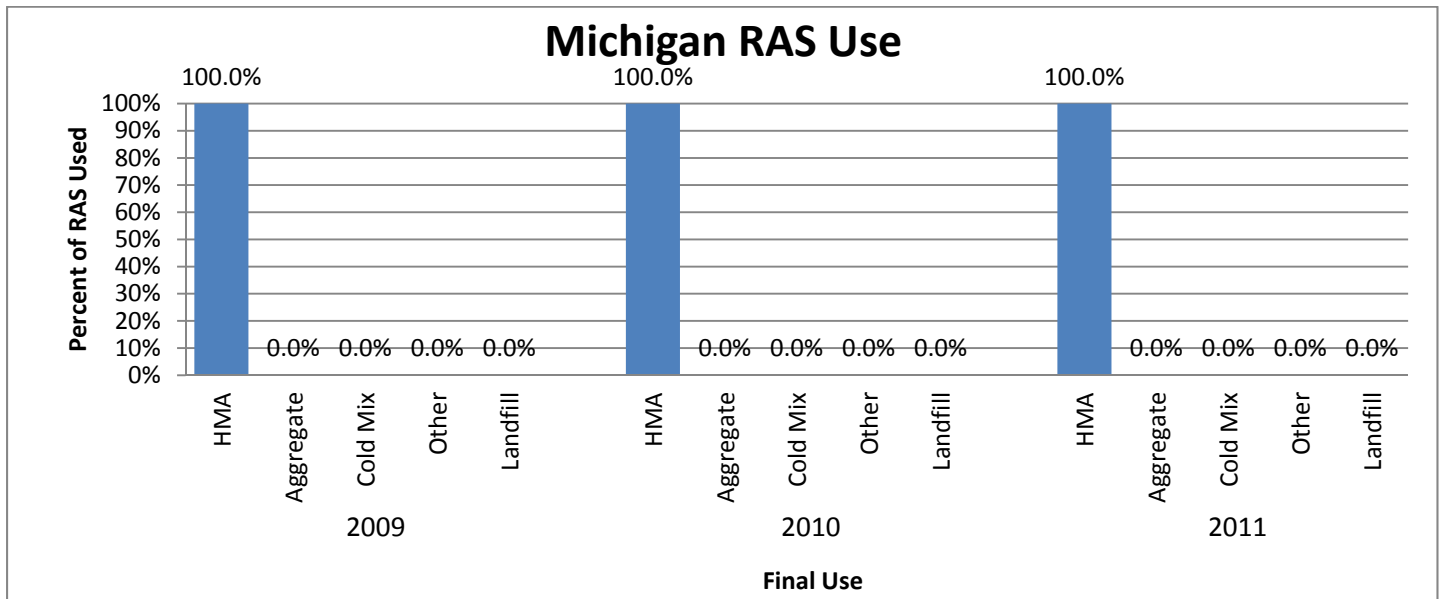
Companies responding: 8 for 2009 & 2010, 6 for 2011



RAP Use



RAS Use



WMA Use

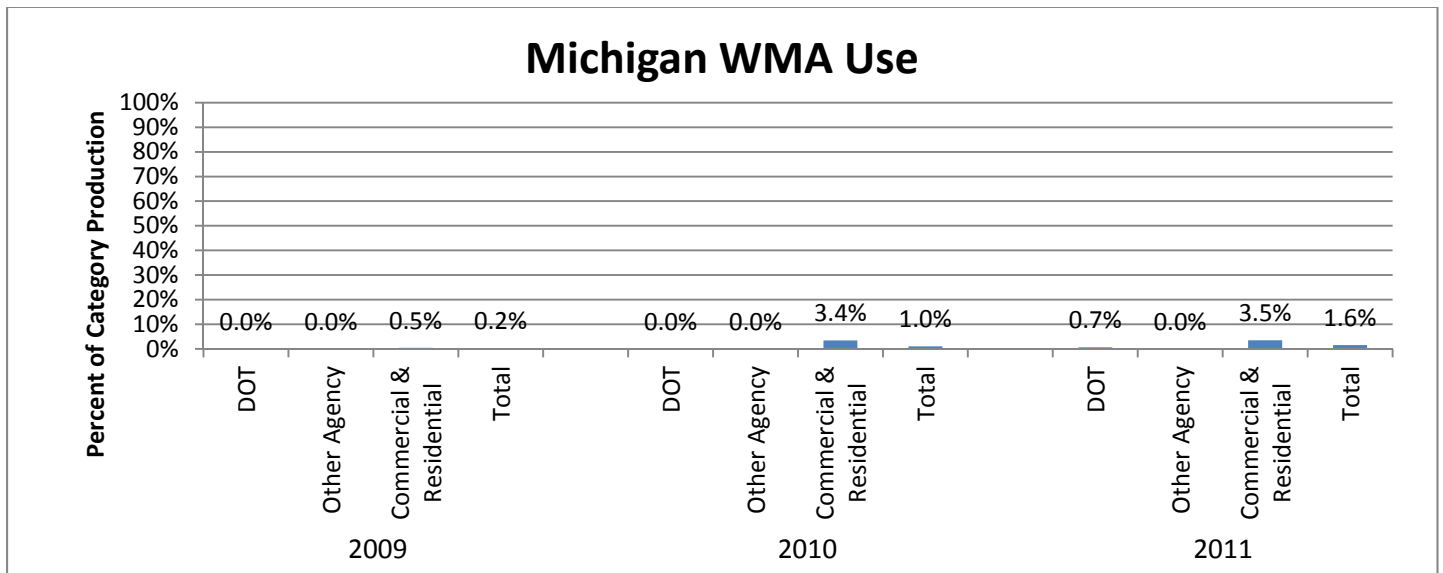


Table B 22: Summary of Michigan Data for 2011

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	2,576,665	3,937,420
Total Other Agency Tonnage	1,523,058	2,327,395
Total Commercial & Residential Tonnage	2,444,321	3,735,184
Total Tonnage	6,544,043	10,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	2,497,462	3,816,390
RAP Tons used in HMA/WMA	2,338,368	3,573,277
RAP Tons used as Aggregate	42,687	65,230
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	25%	
Average % RAP in Commercial & Residential Mixes	37%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	33%	
RAS Tons Received	28,200	43,093
RAS Tons used in HMA/WMA	19,100	29,187
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
	2011	2011
Percent Companies using WMA	50%	
WMA DOT Tonnage	16,835	25,726
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	85,095	130,035
Total WMA Tonnage	101,930	155,761
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%	

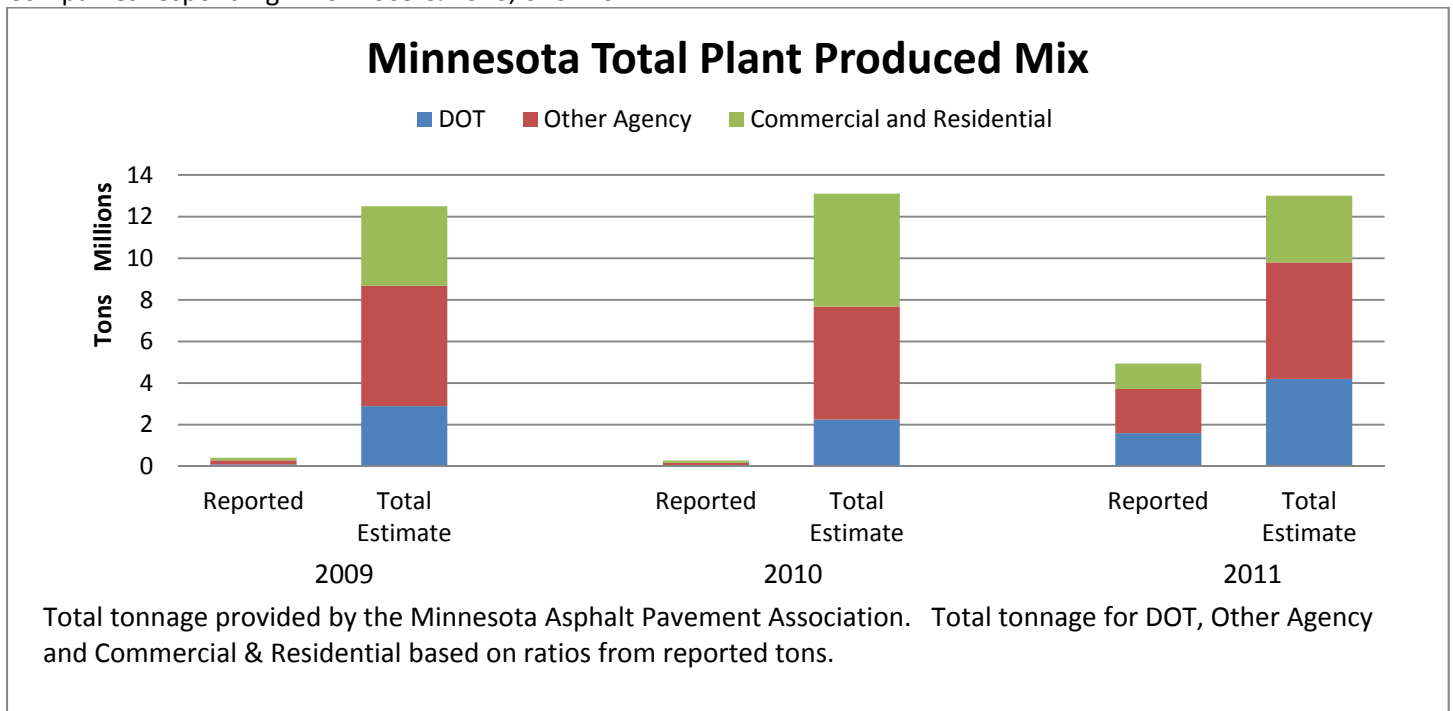
1. Total tonnage provided by the Asphalt Pavement Association of Michigan. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Minnesota

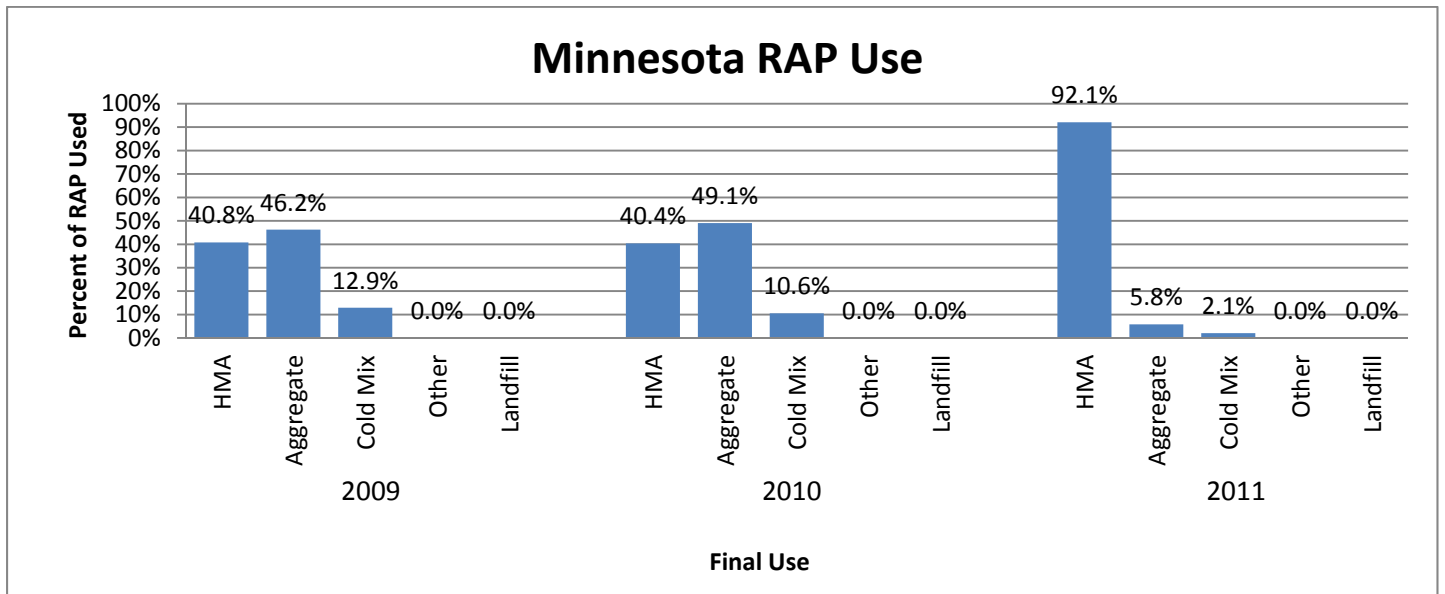
Table B6 summarizes the results received from asphalt mix producers in Minnesota. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

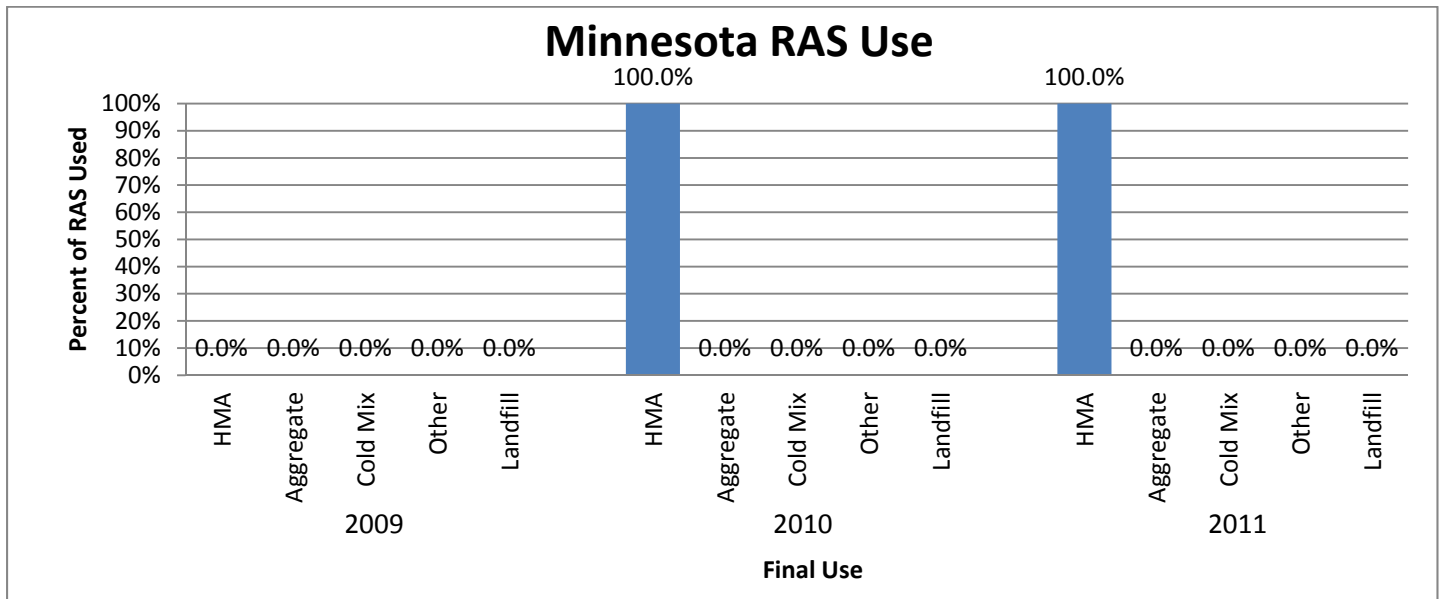
Companies responding: 2 for 2009 & 2010, 6 for 2011



RAP Use



RAS Use



WMA Use

No contractors reported using WMA in 2009 or 2010.

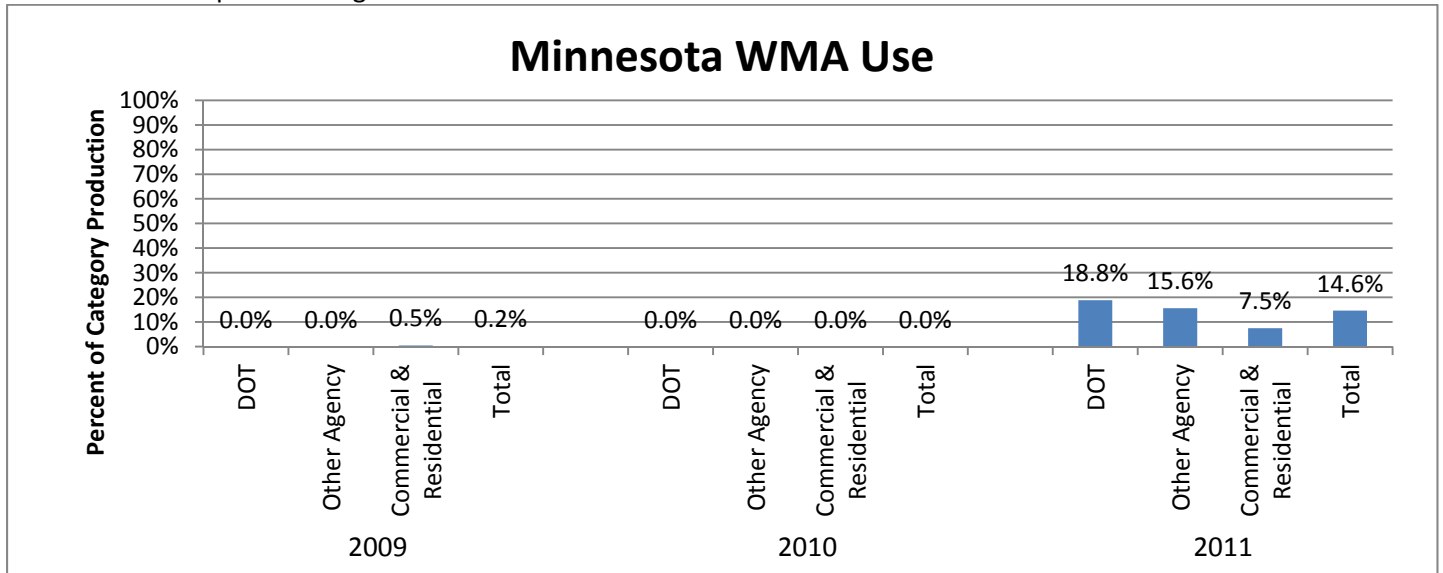


Table B 23: Summary of Minnesota Data for 2011

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,595,000	4,199,664
Total Other Agency Tonnage	2,126,000	5,597,796
Total Commercial & Residential Tonnage	1,216,300	3,202,540
Total Tonnage	4,937,300	13,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	1,242,000	3,270,208
RAP Tons used in HMA/WMA	1,107,784	2,916,815
RAP Tons used as Aggregate	70,000	184,311
RAP Tons used in Cold Mix	25,000	65,825
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	21%	
Average % RAP in Other Agency Mixes	23%	
Average % RAP in Commercial & Residential Mixes	23%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	67%	
RAS Tons Received	25,000	65,825
RAS Tons used in HMA/WMA	27,563	72,573
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	4%	
Average % RAS in Commercial & Residential Mixes	5%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	67%	
WMA DOT Tonnage	300,000	789,905
WMA Other Agency Tonnage	332,000	874,162
WMA Commercial & Residential Tonnage	91,000	239,605
Total WMA Tonnage	723,000	1,903,672
Percent WMA Tons using Chemical Additives	2.2%	
Percent WMA Tons using Additive Foaming	0.6%	
Percent WMA Tons using Plant Foaming	97.2%	
Percent WMA Tons using Organic Additive	0.0%	

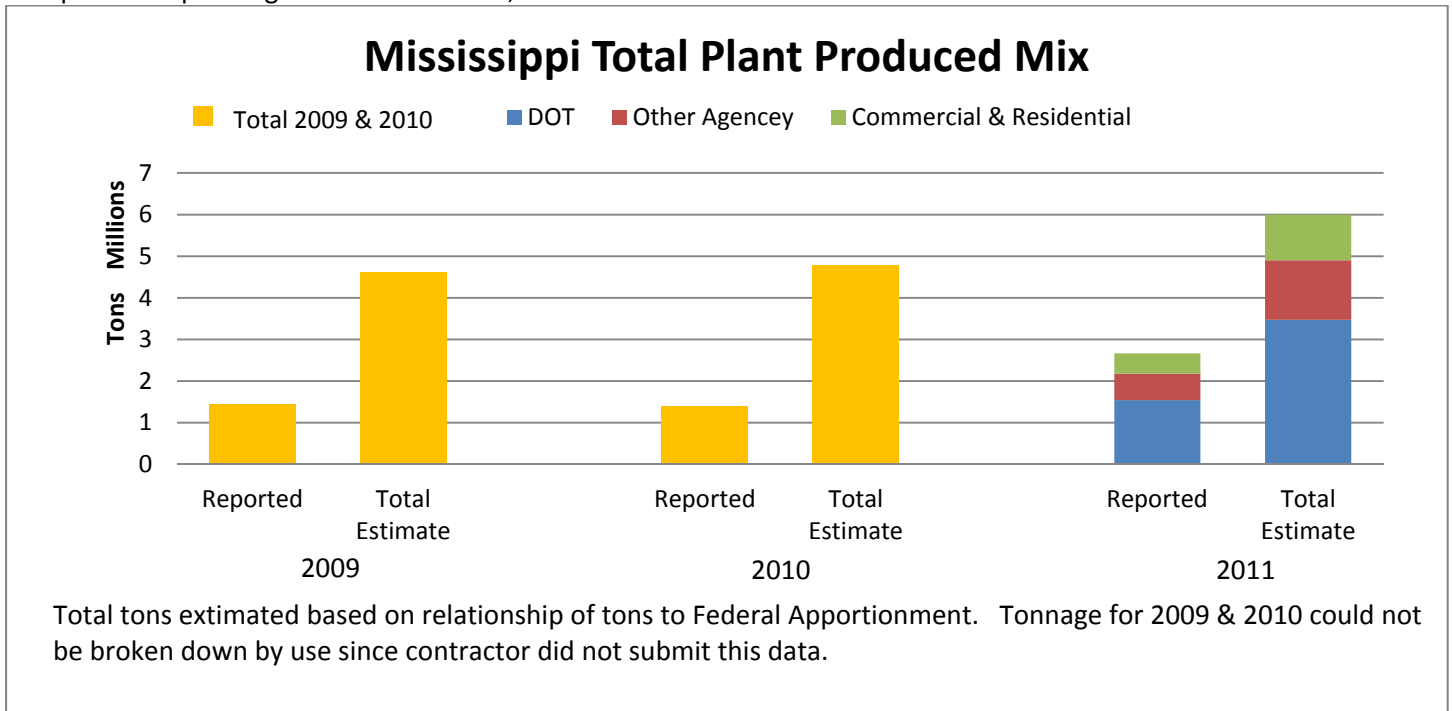
1. Total tonnage provided by the Minnesota Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Mississippi

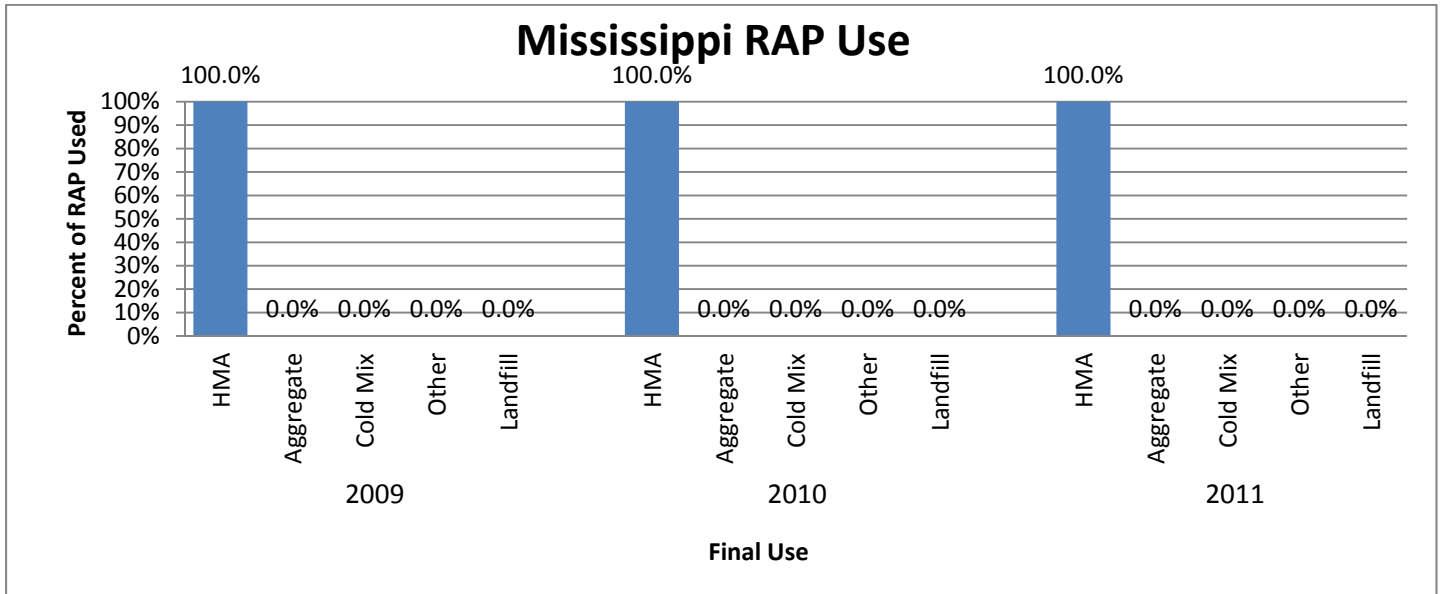
Table B25 summarizes the results received from asphalt mix producers in Mississippi. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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

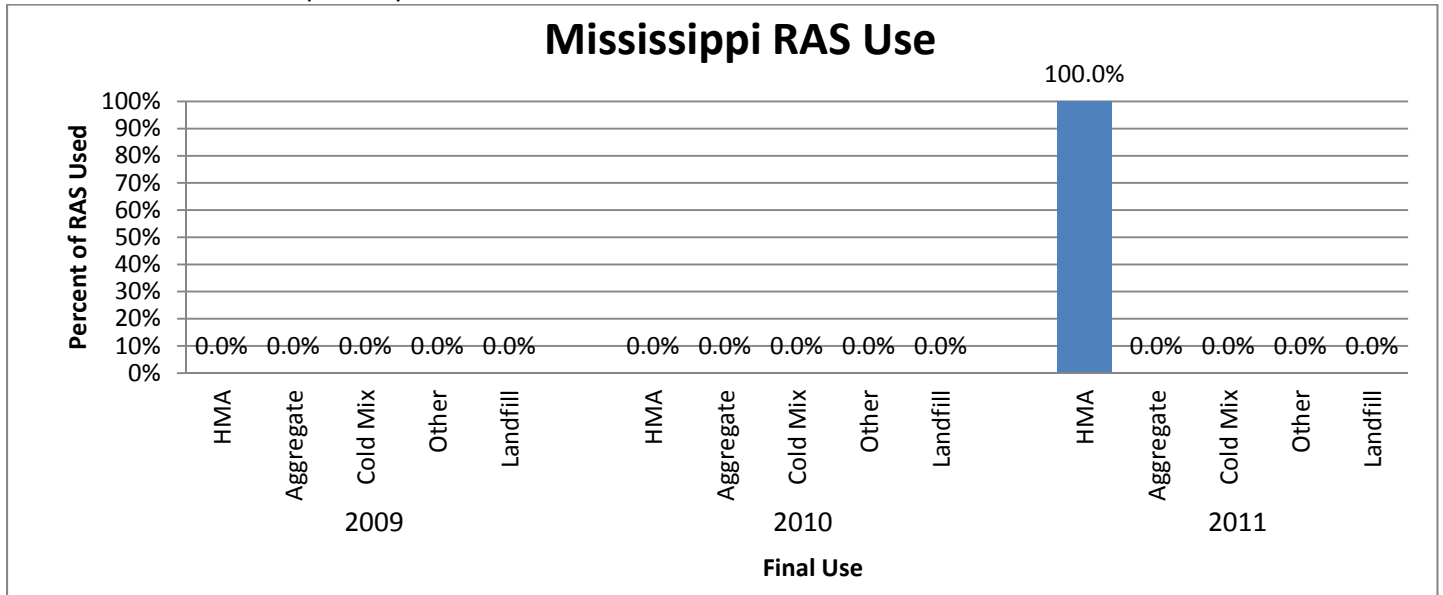


RAP Use



RAS Use

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



WMA Use

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

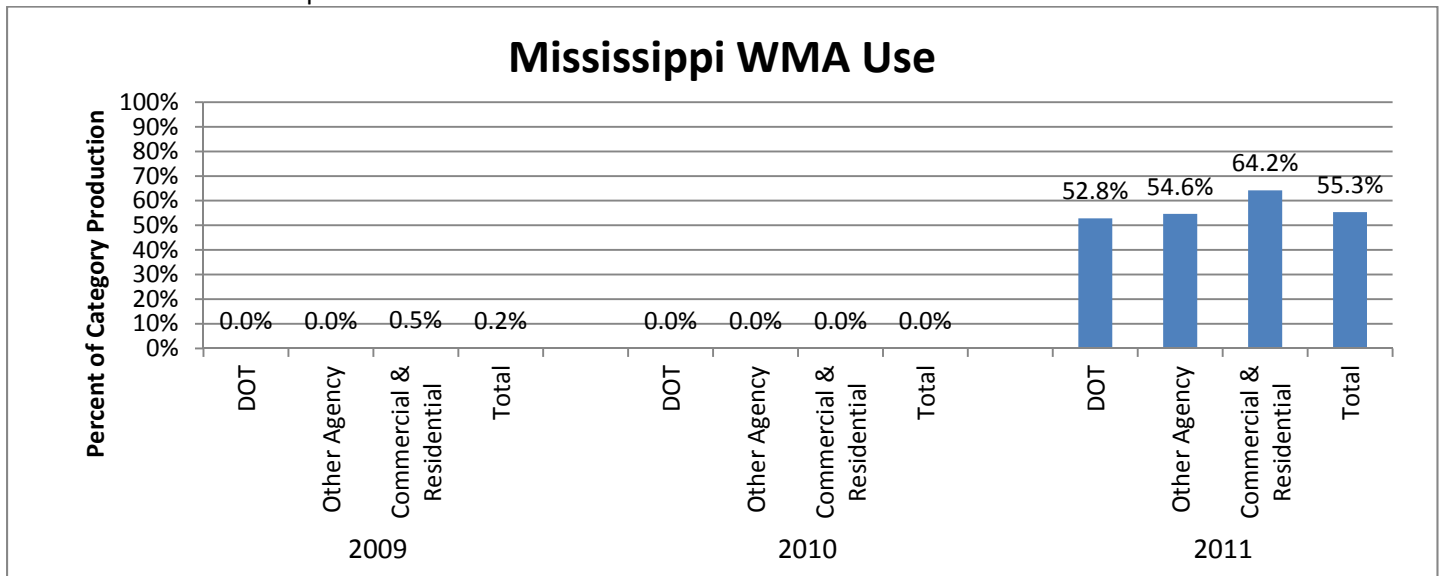


Table B 24: Summary of Mississippi Data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,543,164	3,471,548
Total Other Agency Tonnage	635,866	1,430,463
Total Commercial & Residential Tonnage	488,075	1,097,988
Total Tonnage	2,667,105	6,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	335,179	754,029
RAP Tons used in HMA/WMA	482,960	1,086,482
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	16%	
Average % RAP in Commercial & Residential Mixes	22%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	0%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	2,000	4,499
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	815,307	1,834,139
WMA Other Agency Tonnage	347,500	781,747
WMA Commercial & Residential Tonnage	313,268	704,736
Total WMA Tonnage	1,476,074	3,320,621
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%	

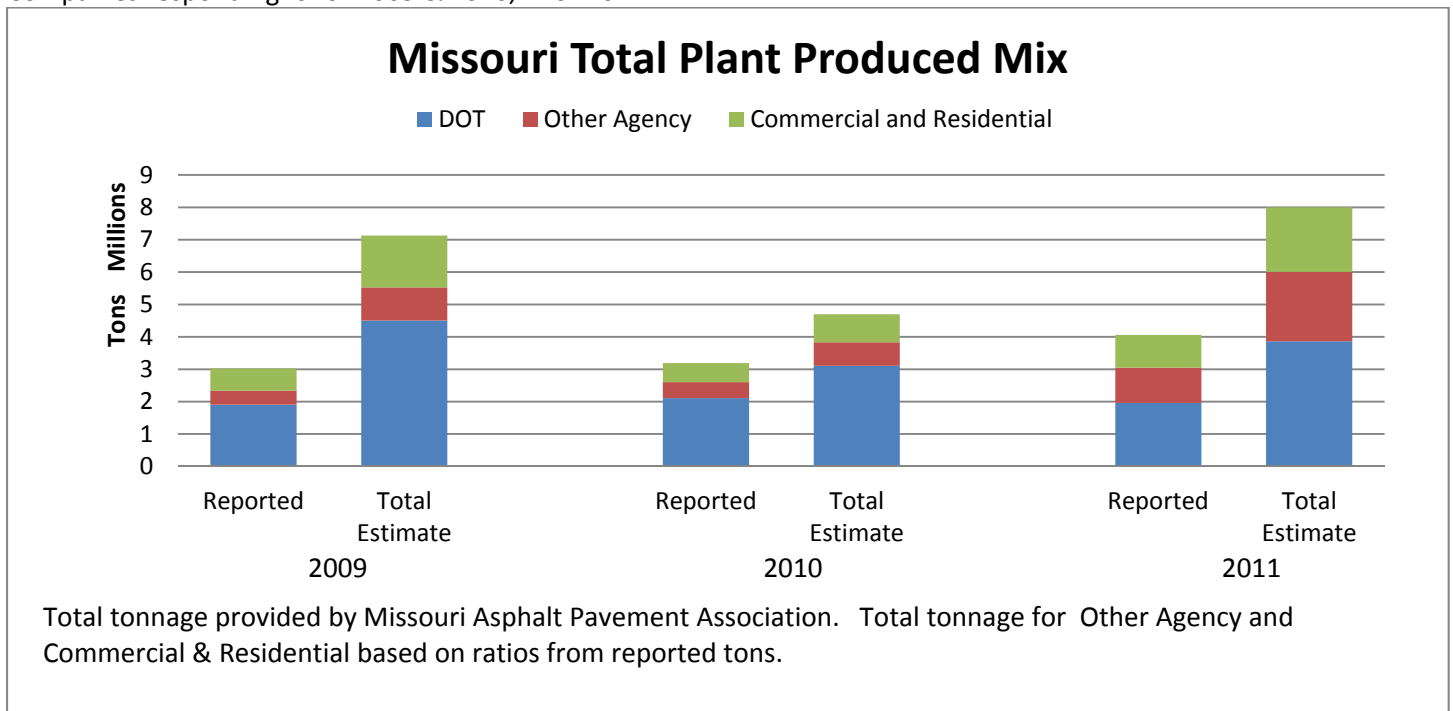
1. Total tonnage provided by the Mississippi Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Missouri

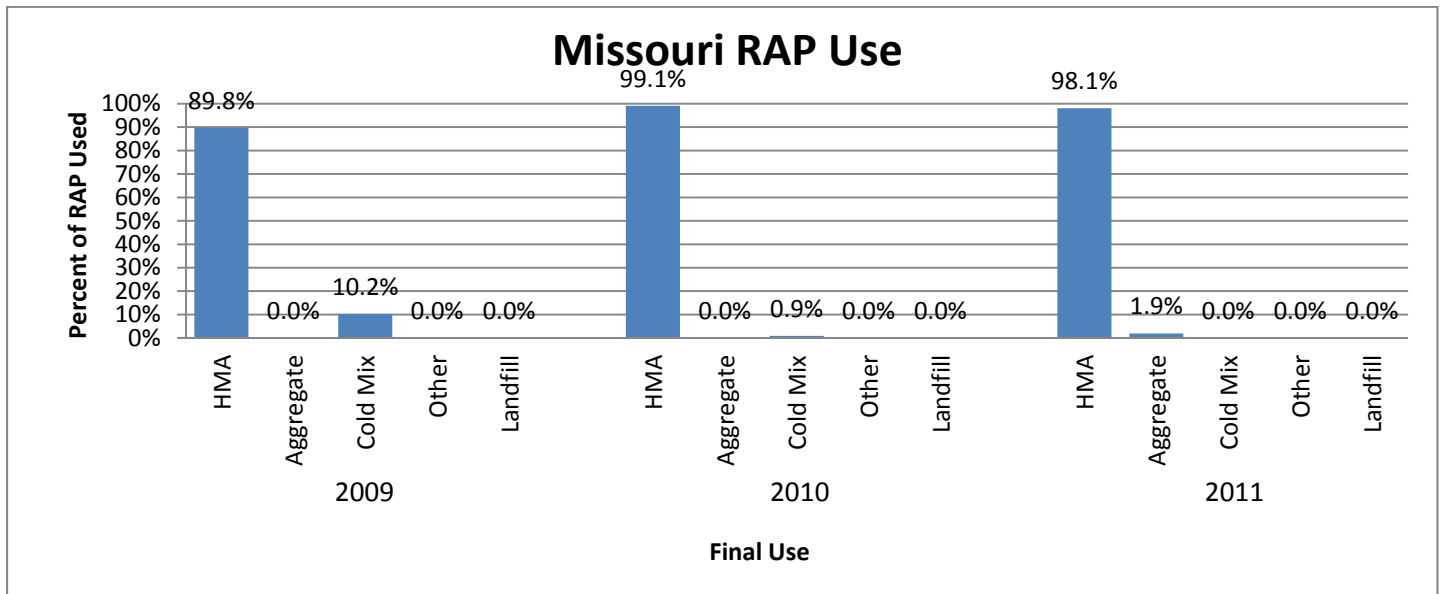
Table B26 summarizes the results received from asphalt mix producers in Missouri. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

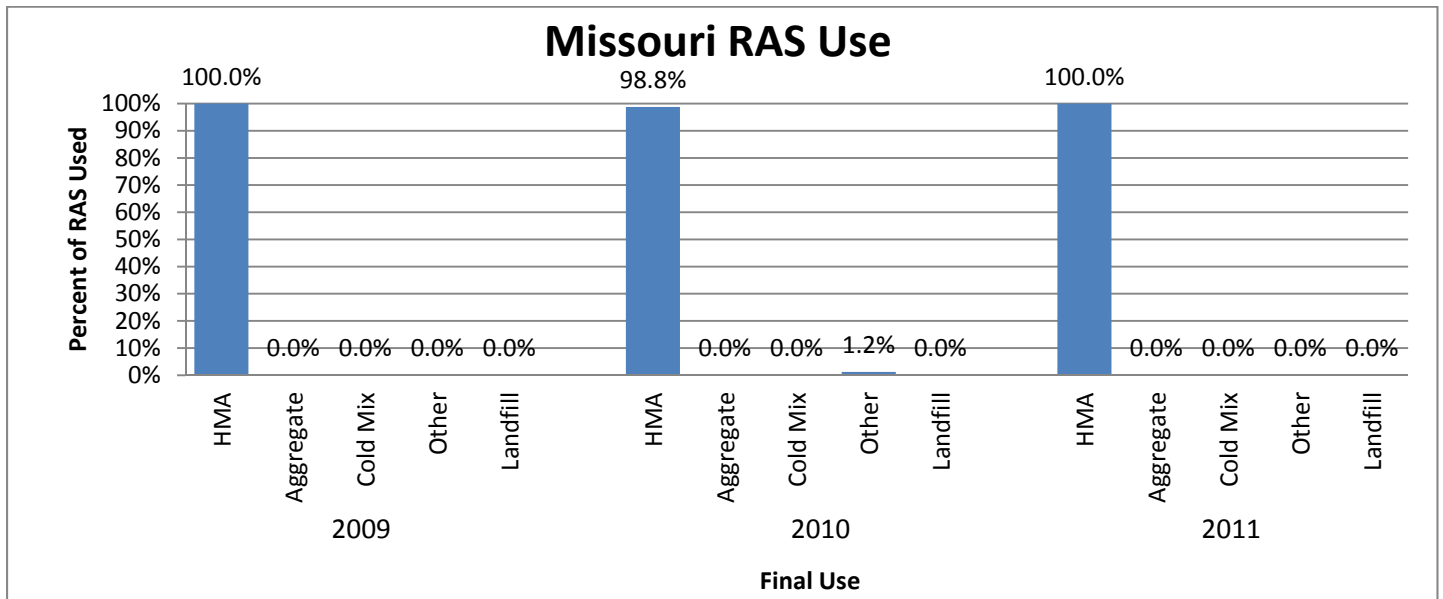
Companies responding: 6 for 2009 & 2010, 7 for 2011



RAP Use



RAS Use



WMA Use

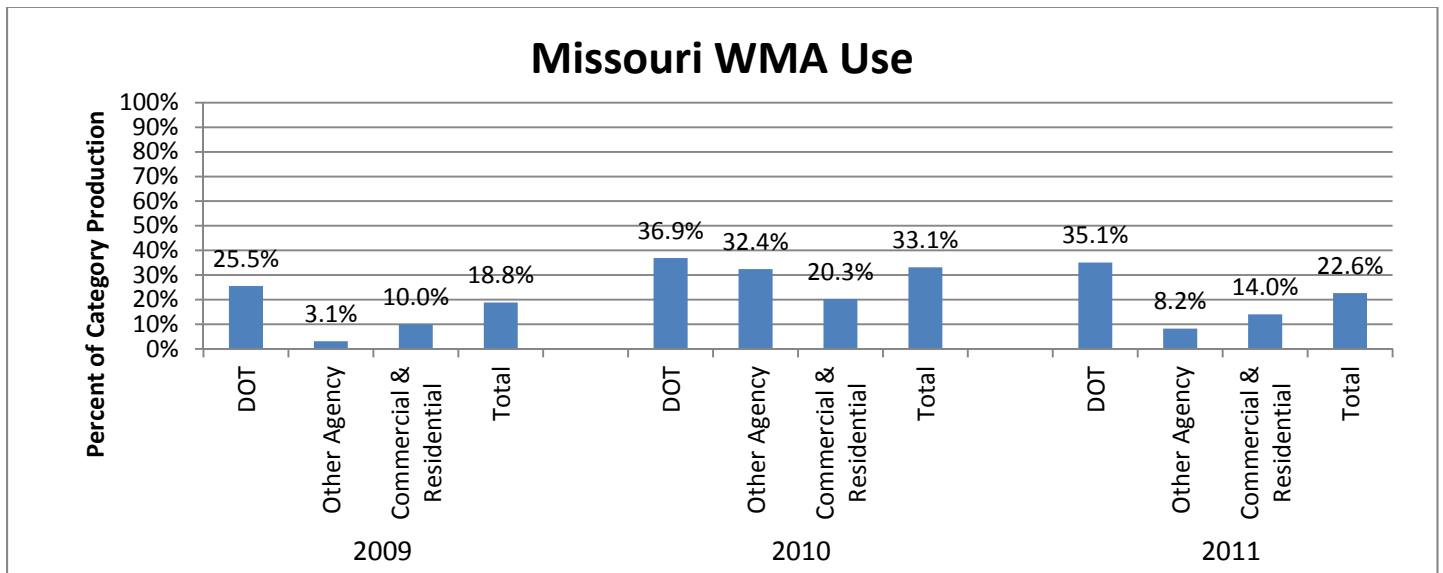


Table B 25: Summary of Missouri Data for 2011

Companies Reporting

7

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,958,331	3,860,441
Total Other Agency Tonnage	1,090,020	2,148,747
Total Commercial & Residential Tonnage	1,009,902	1,990,811
Total Tonnage	4,058,253	8,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	830,951	1,638,047
RAP Tons used in HMA/WMA	767,538	1,513,040
RAP Tons used as Aggregate	15,000	29,569
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	22%	
Average % RAP in Commercial & Residential Mixes	22%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	86%	
RAS Tons Received	100,569	198,251
RAS Tons used in HMA/WMA	93,441	184,199
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
	2011	2011
Percent Companies using WMA	57%	
WMA DOT Tonnage	687,500	1,355,263
WMA Other Agency Tonnage	89,800	177,022
WMA Commercial & Residential Tonnage	141,635	279,203
Total WMA Tonnage	918,935	1,811,488
Percent WMA Tons using Chemical Additives	13.8%	
Percent WMA Tons using Additive Foaming	0.2%	
Percent WMA Tons using Plant Foaming	83.9%	
Percent WMA Tons using Organic Additive	2.1%	

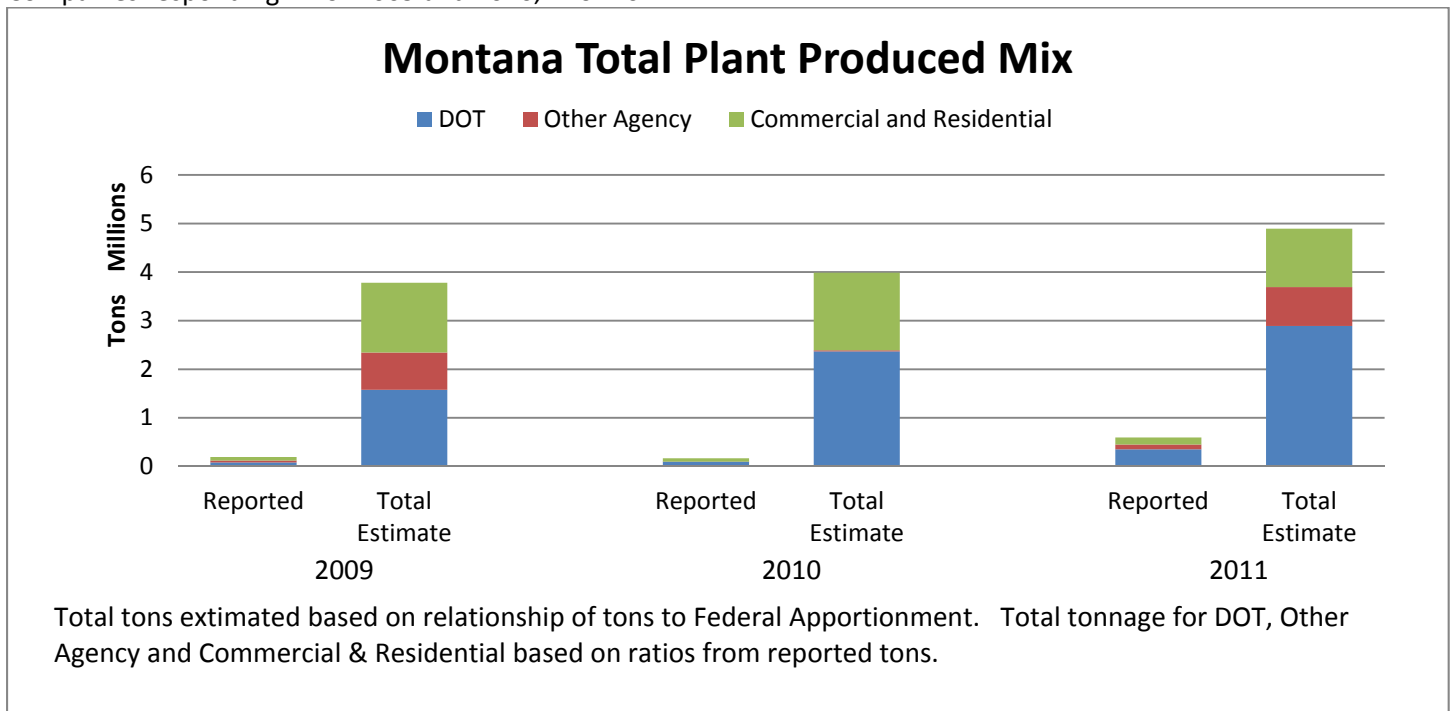
1. Total tonnage provided by Missouri Asphalt Pavement. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Montana

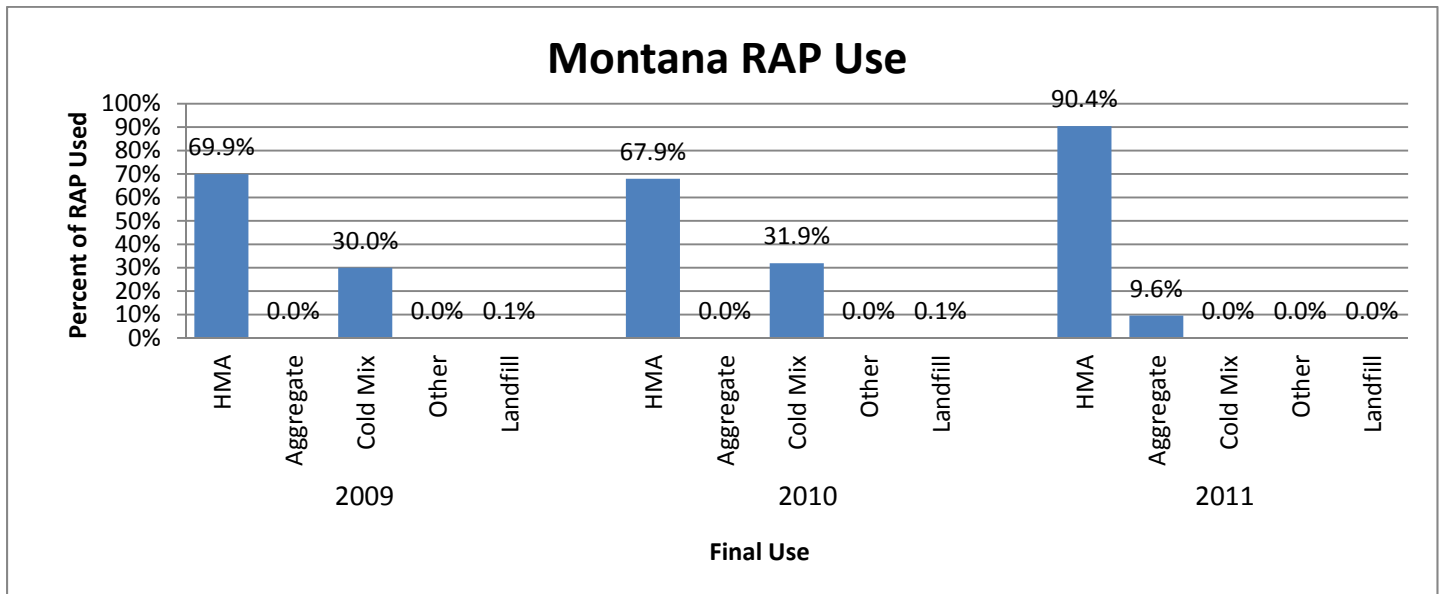
Table B27 summarizes the results received from asphalt mix producers in Montana. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use

No contractors reported use RAS in 2009, 2010 or 2011.

WMA Use

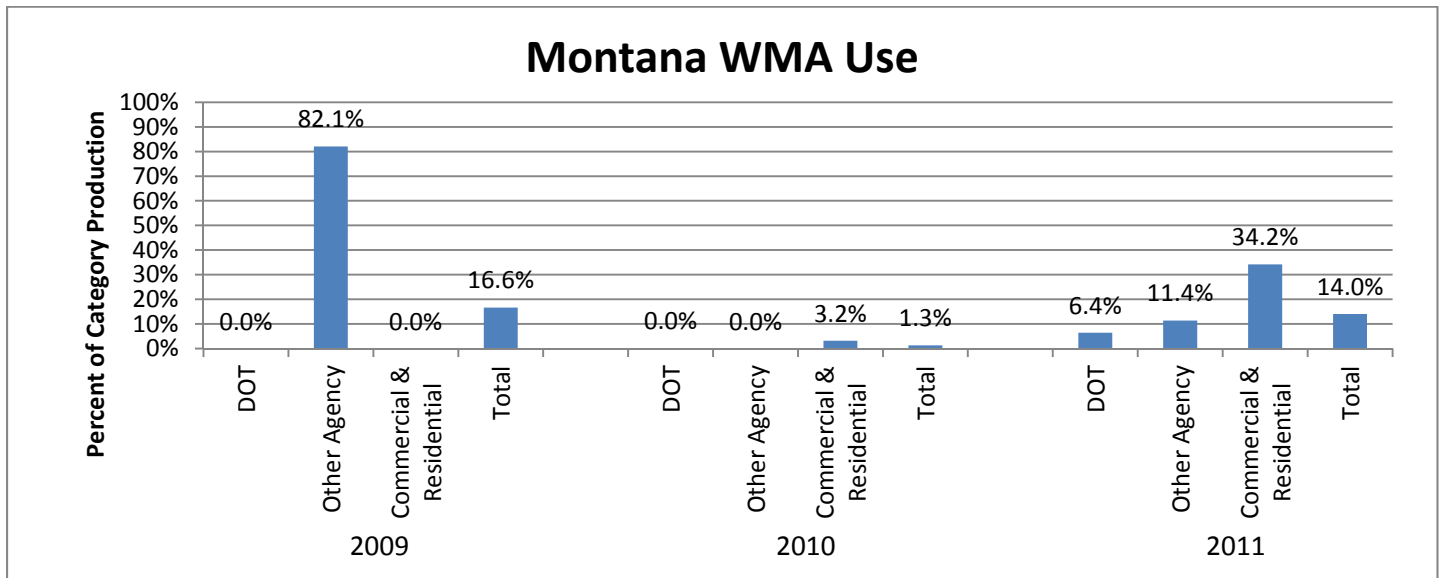


Table B 26: Summary of Montana Data for 2011

Companies Reporting

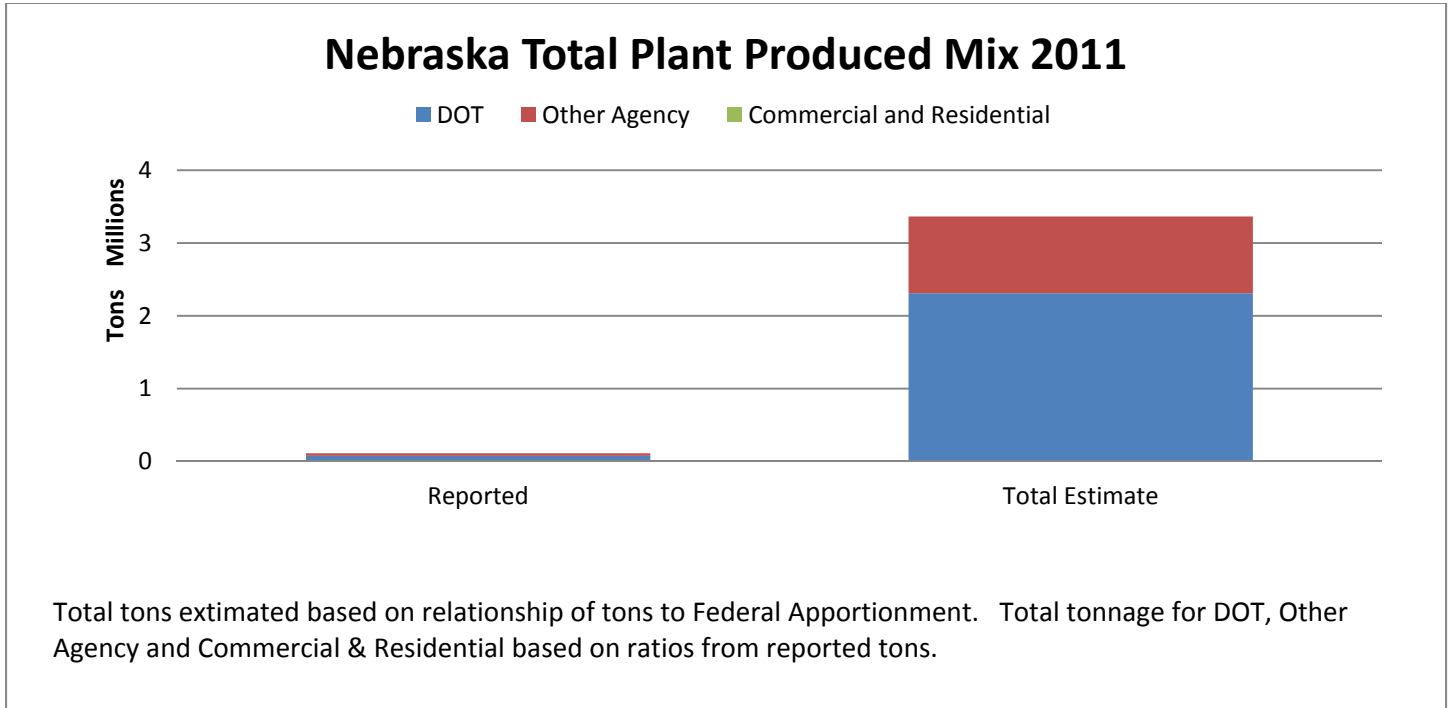
4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	351,394	2,890,082
Total Other Agency Tonnage	97,494	801,851
Total Commercial & Residential Tonnage	146,033	1,201,066
Total Tonnage	594,921	4,893,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	75%	
RAP Tons Received	59,751	491,429
RAP Tons used in HMA/WMA	49,293	405,415
RAP Tons used as Aggregate	5,221	42,941
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	6%	
Average % RAP in Other Agency Mixes	12%	
Average % RAP in Commercial & Residential Mixes	18%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	50%	
WMA DOT Tonnage	22,500	185,054
WMA Other Agency Tonnage	11,109	91,367
WMA Commercial & Residential Tonnage	49,933	410,681
Total WMA Tonnage	83,542	687,102
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%	

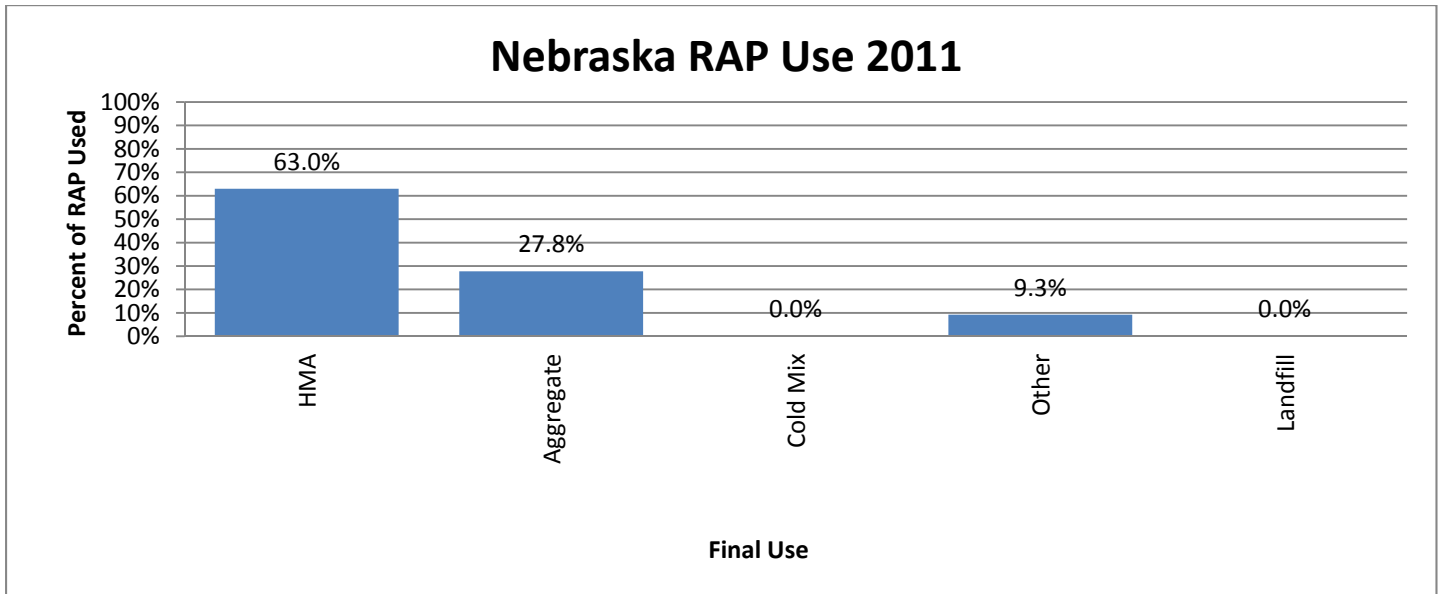
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Nebraska

No contractors submitted data for the Nebraska for 2009 and 2010. One contractor submitted data for 2011. Total tons were estimated based on a relationship tons to federal apportionment. Because RAP use is prevalent in all areas of the US it was estimated that RAP use in Nebraska followed a national average for 2009 and 2010. Table B28 summarizes this data.



RAP Use



RAS Use

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

WMA Use

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

Table B 27: Summary of Nebraska Data for 2011

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	76,545	2,309,834
Total Other Agency Tonnage	35,000	1,056,166
Total Commercial & Residential Tonnage	0	0
Total Tonnage	111,545	3,366,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	-	-
RAP Tons used in HMA/WMA	34,000	1,025,990
RAP Tons used as Aggregate	15,000	452,642
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	5,000	150,881
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	30%	
Average % RAP in Other Agency Mixes	20%	
Average % RAP in Commercial & Residential Mixes	0%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
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%	

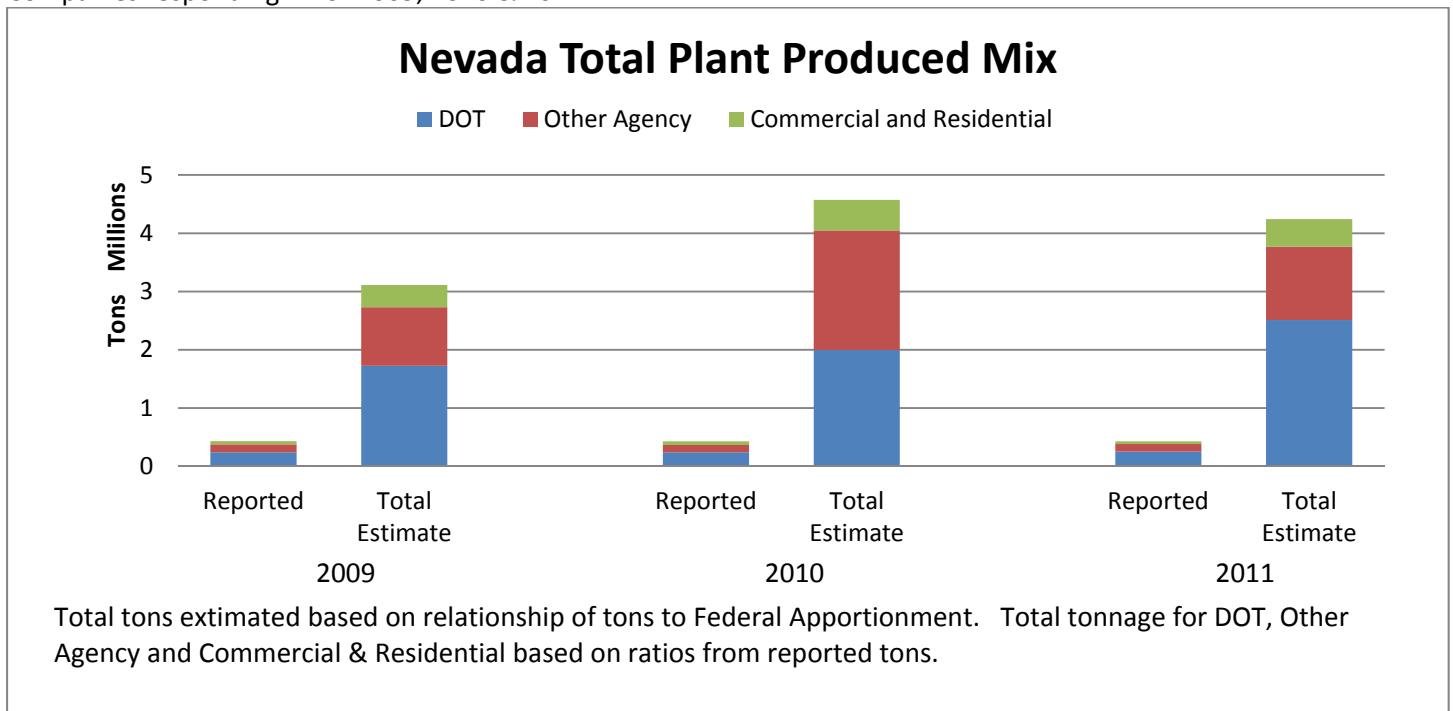
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Nevada

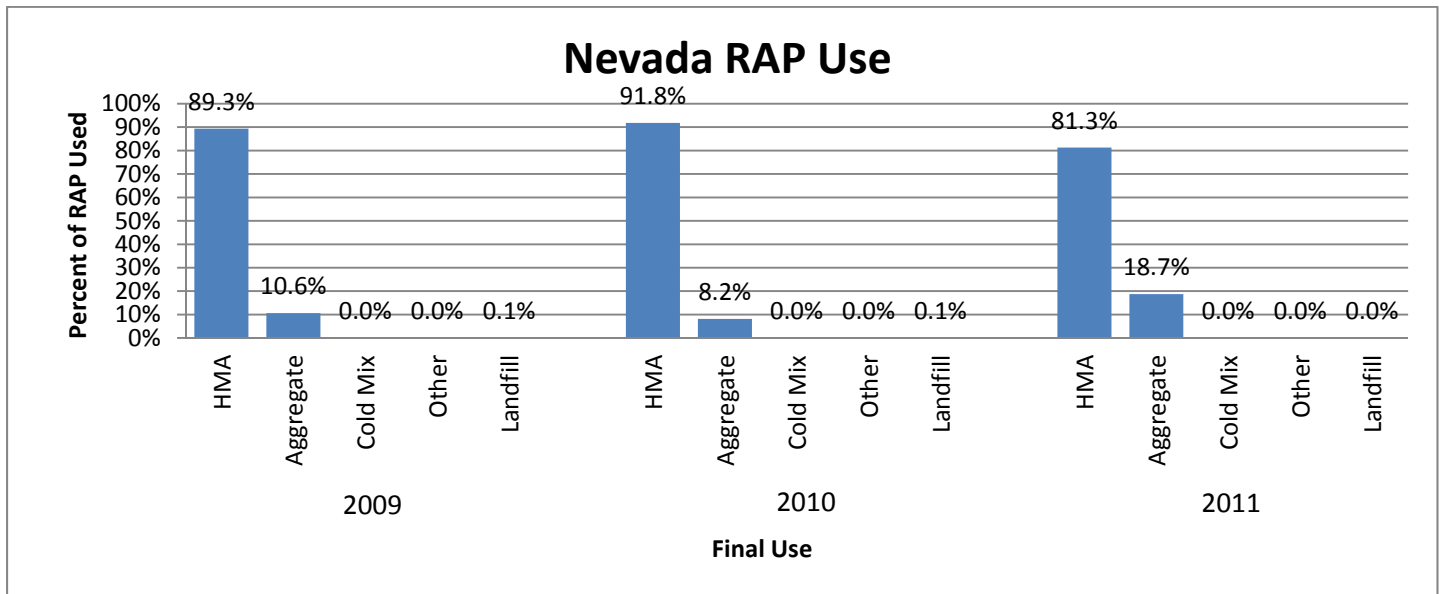
Table B29 summarizes the results received from asphalt mix producers in Nevada. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

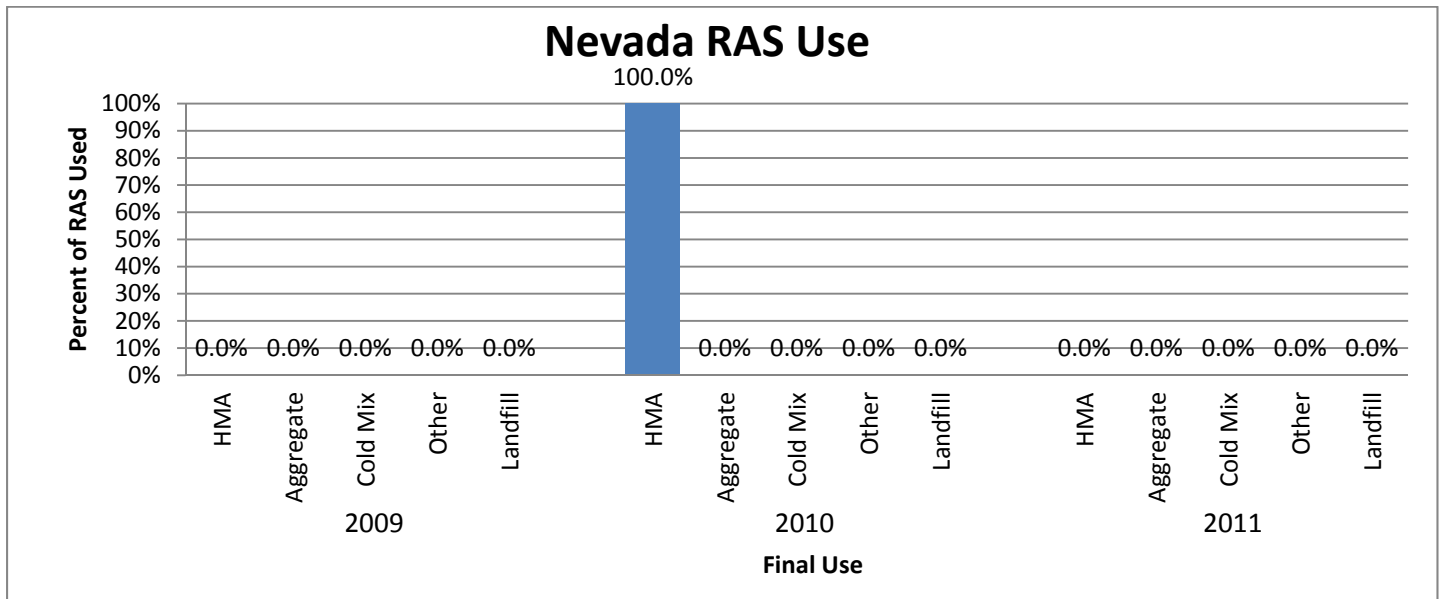
Companies responding: 2 for 2009, 2010 & 2011



RAP Use



RAS Use



WMA Use

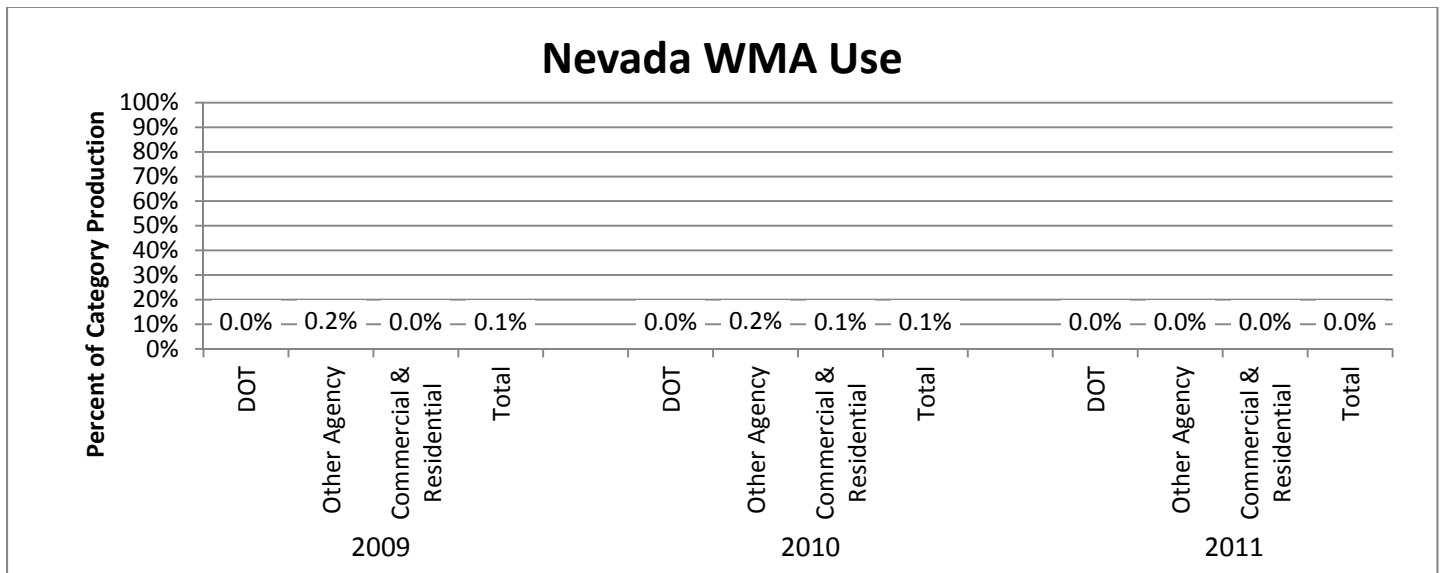


Table B 28: Summary of Nevada Data for 2011

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	255,000	2,510,010
Total Other Agency Tonnage	128,000	1,259,927
Total Commercial & Residential Tonnage	48,060	473,063
Total Tonnage	431,060	4,243,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	66,500	654,571
RAP Tons used in HMA/WMA	43,406	427,253
RAP Tons used as Aggregate	10,000	98,432
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	9%	
Average % RAP in Commercial & Residential Mixes	16%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	50%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	5	50
Total WMA Tonnage	5	50
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%	

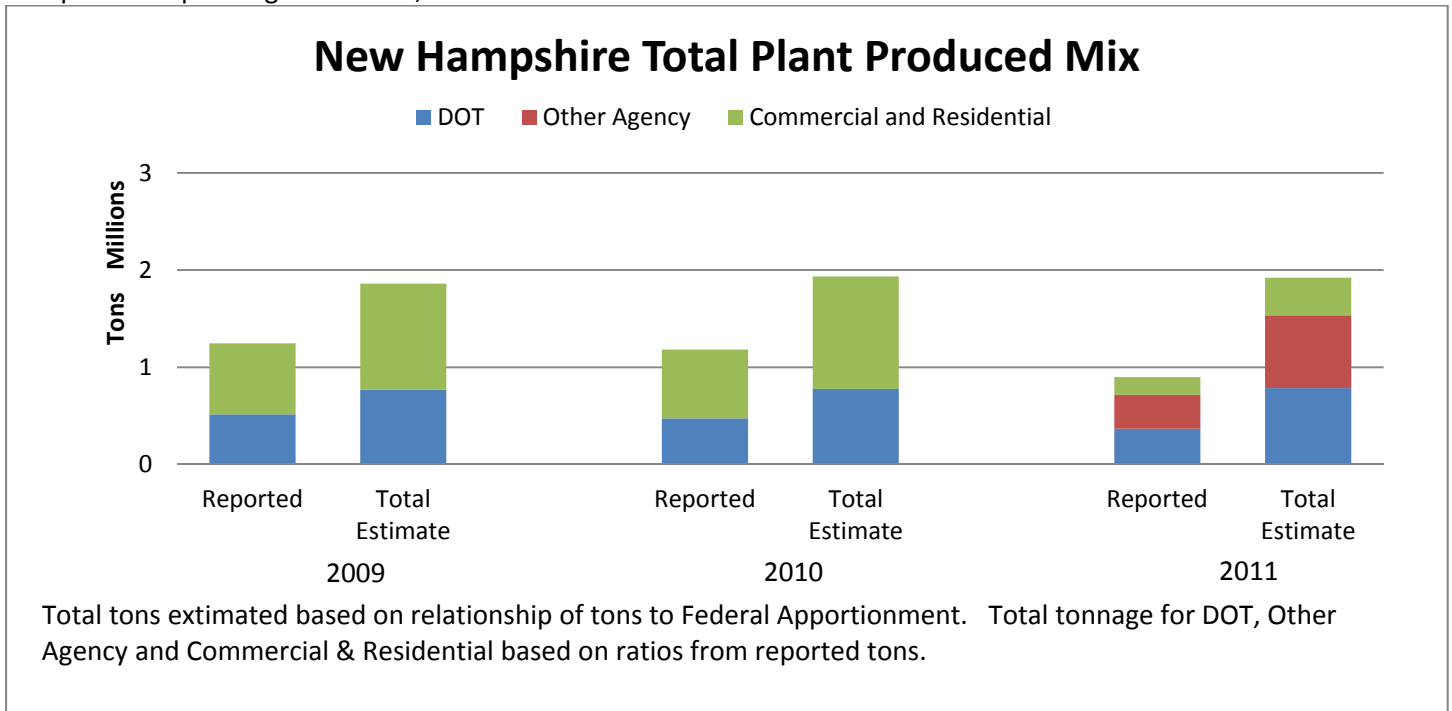
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

New Hampshire

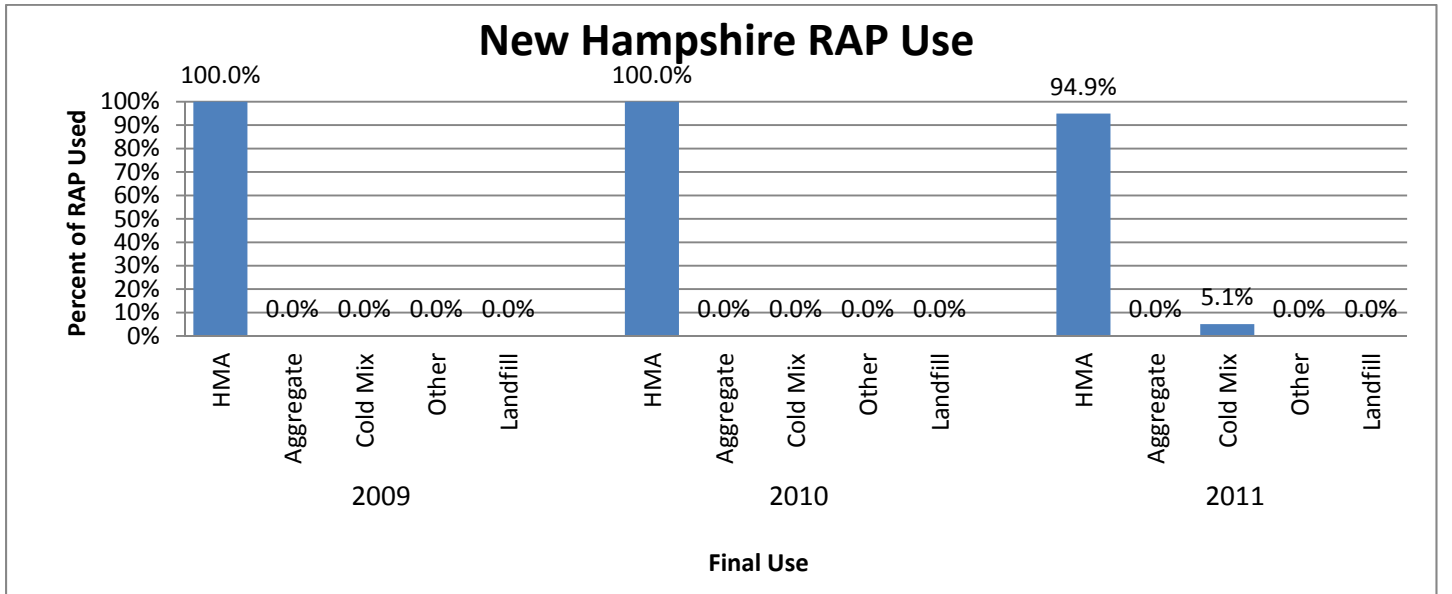
Table B30 summarizes the results received from asphalt mix producers in New Hampshire. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

Companies responding: 1 for 2009, 2010 & 2011

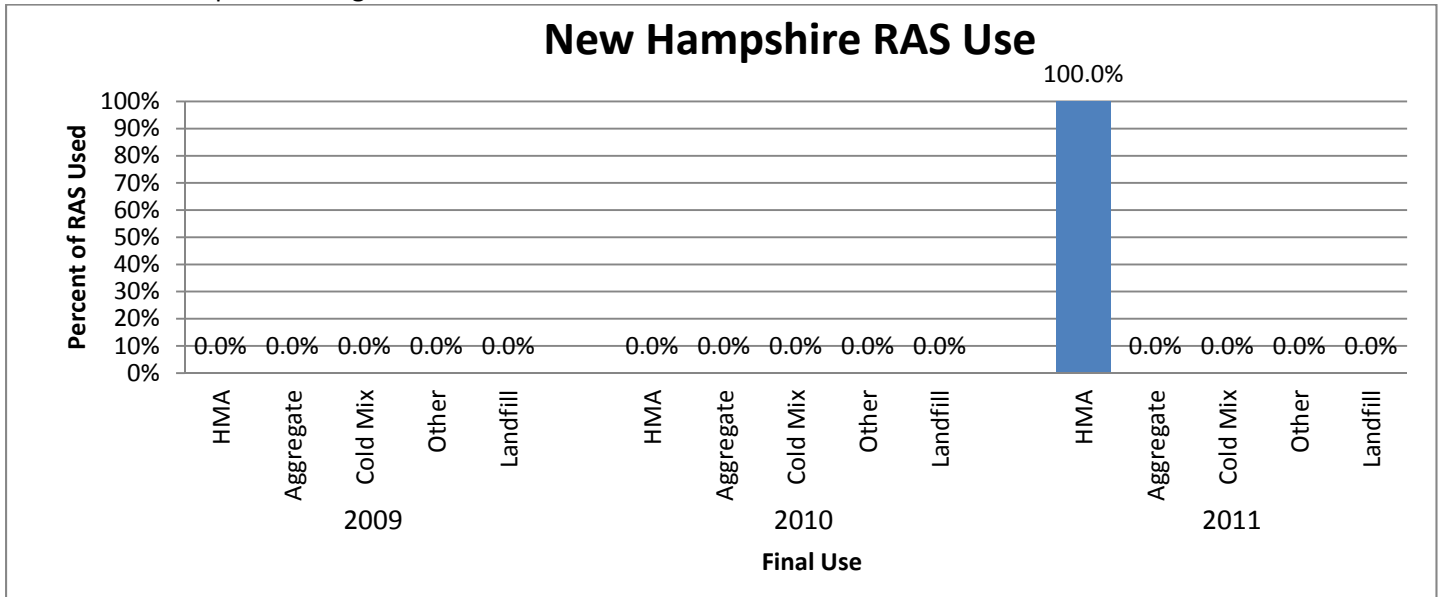


RAP Use



RAS Use

No contractors reported using RAS in 2009 or 2010.



WMA Use

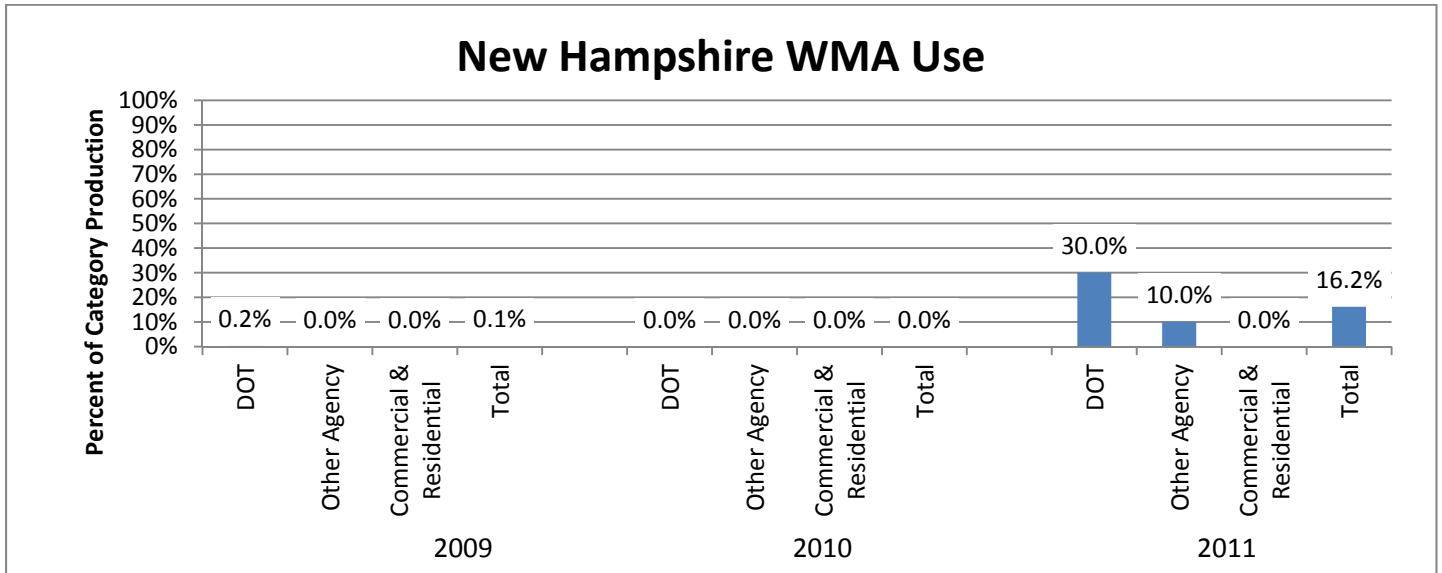


Table B 29: Summary of New Hampshire Data for 2011

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	366,923	784,843
Total Other Agency Tonnage	350,503	749,721
Total Commercial & Residential Tonnage	180,663	386,436
Total Tonnage	898,089	1,921,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	100,000	213,899
RAP Tons used in HMA/WMA	187,047	400,091
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	10,000	21,390
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	20%	
Average % RAP in Other Agency Mixes	22%	
Average % RAP in Commercial & Residential Mixes	22%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	100%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	250	535
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	110,077	235,453
WMA Other Agency Tonnage	35,050	74,972
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	145,127	310,425
Percent WMA Tons using Chemical Additives	20.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	80.0%	
Percent WMA Tons using Organic Additive	0.0%	

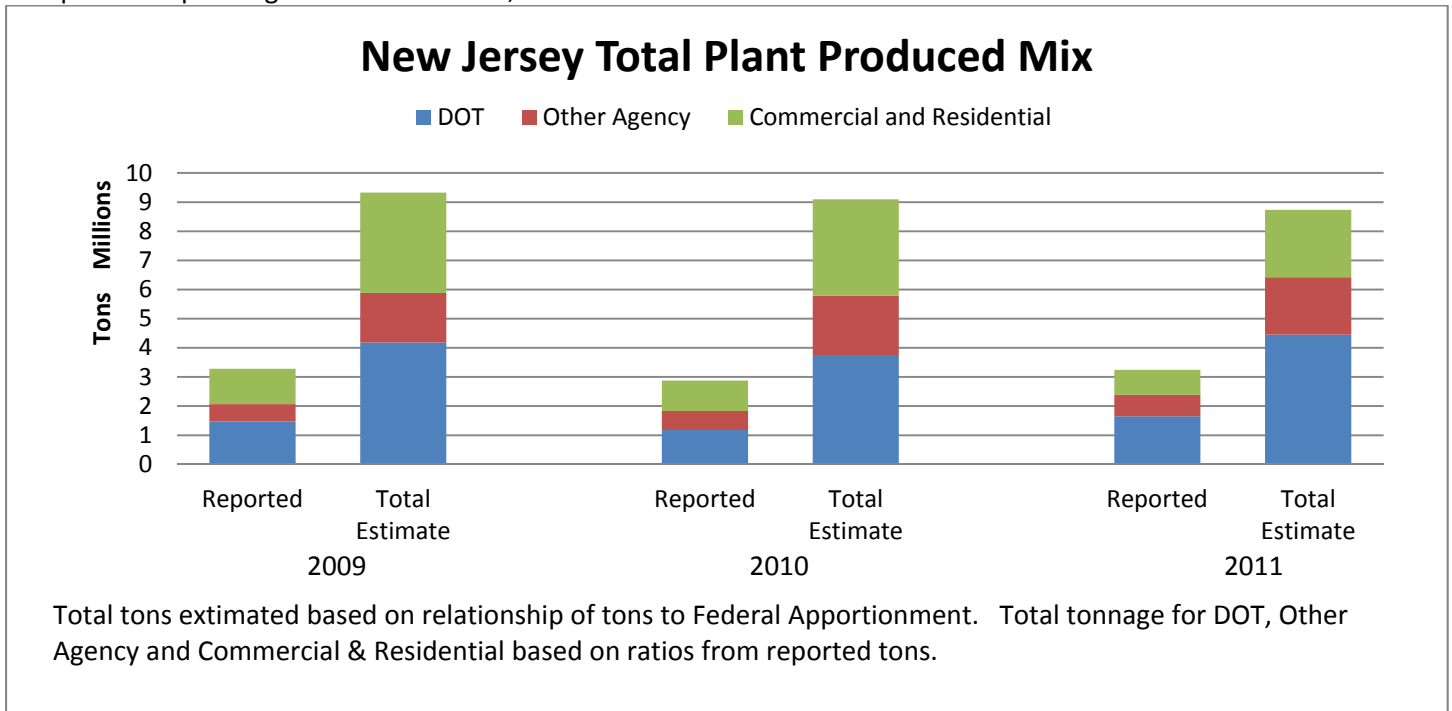
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

New Jersey

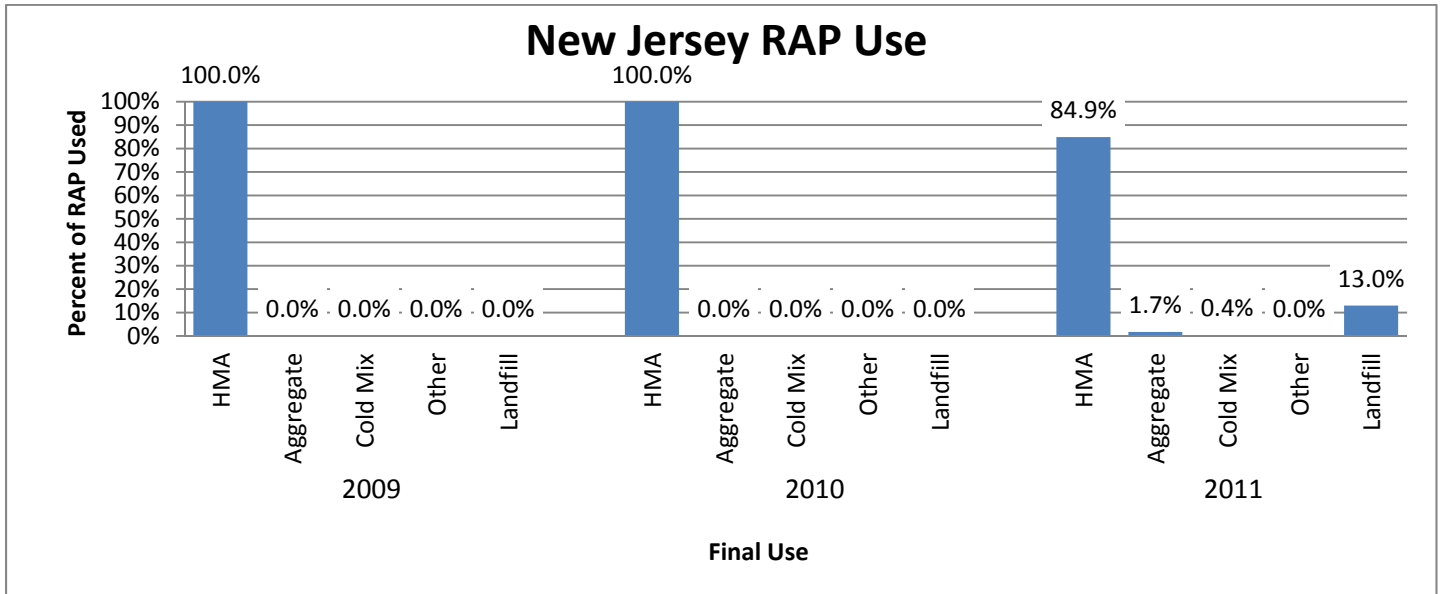
Table B31 summarizes the results received from asphalt mix producers in New Jersey. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use

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

WMA Use

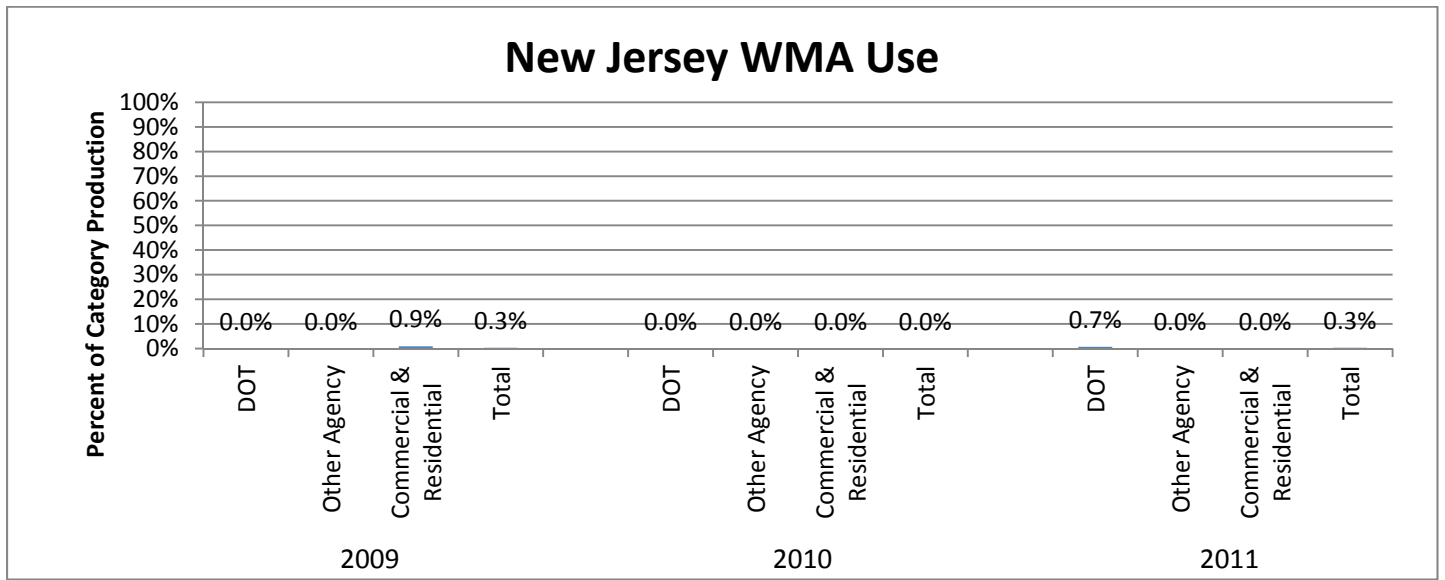


Table B 30: Summary of New Jersey Data for 2011

New Jersey

Companies Reporting

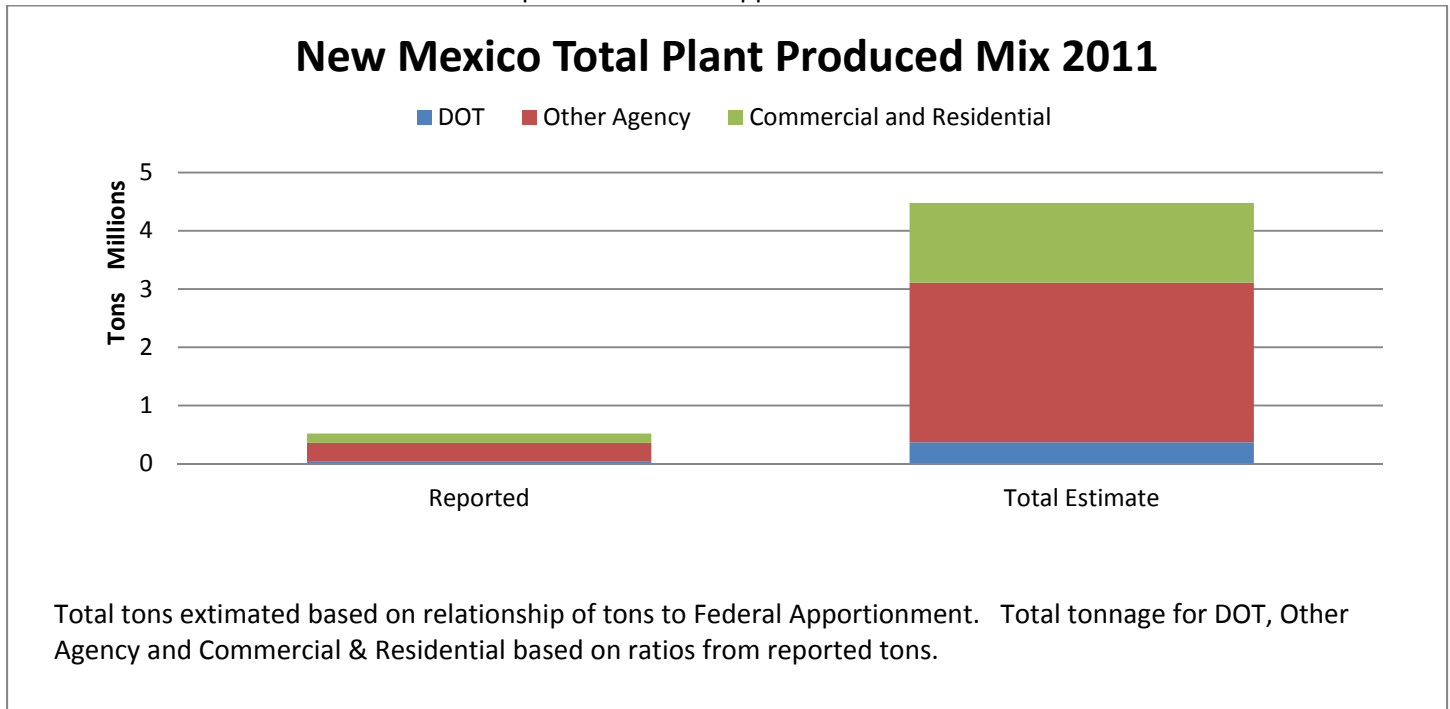
3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,653,138	4,453,378
Total Other Agency Tonnage	730,905	1,968,980
Total Commercial & Residential Tonnage	857,733	2,310,642
Total Tonnage	3,241,776	8,733,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	900,000	2,424,504
RAP Tons used in HMA/WMA	522,383	1,407,244
RAP Tons used as Aggregate	10,500	28,286
RAP Tons used in Cold Mix	2,500	6,735
RAP Tons used as Other	-	-
RAP Tons Landfilled	80,000	215,511
Average % RAP in DOT Mixes	14%	
Average % RAP in Other Agency Mixes	15%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	67%	
WMA DOT Tonnage	11,304	30,451
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	11,304	30,451
Percent WMA Tons using Chemical Additives	75.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	25.0%	
Percent WMA Tons using Organic Additive	0.0%	

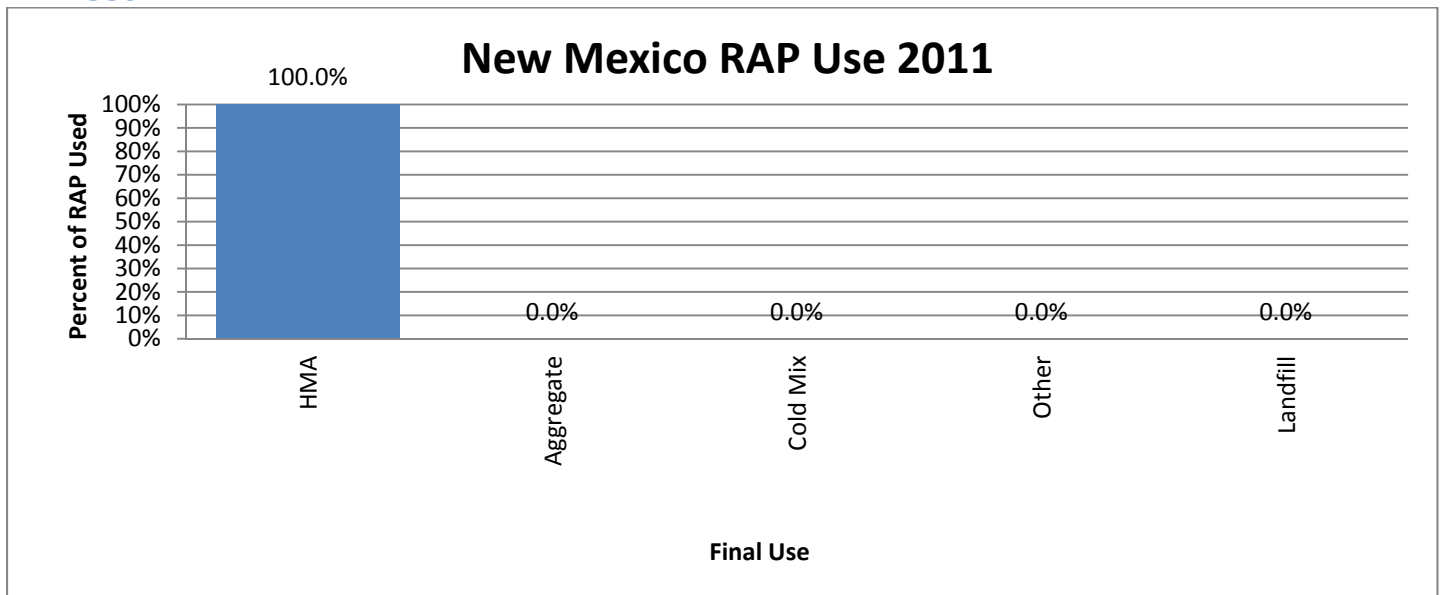
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

New Mexico

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



RAP Use



RAS Use

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

WMA Use

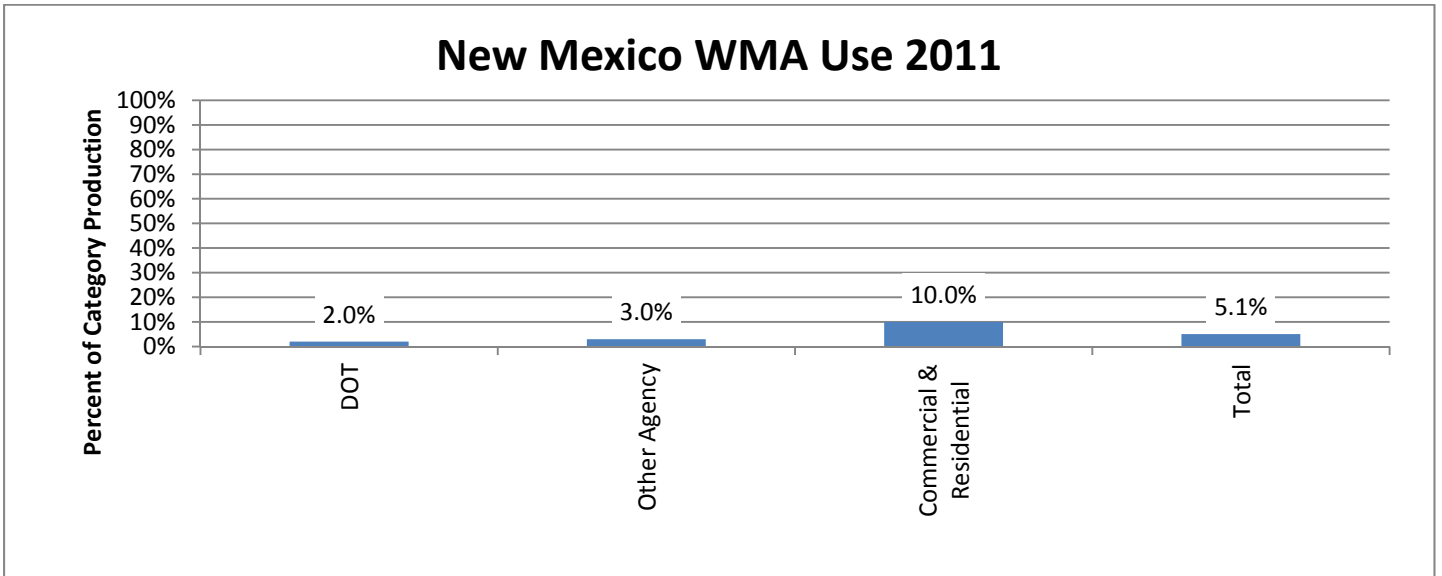


Table B 31: Summary New Mexico Data for 2011

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	42,424	367,350
Total Other Agency Tonnage	316,562	2,741,117
Total Commercial & Residential Tonnage	158,278	1,370,533
Total Tonnage	517,264	4,479,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	122,558	1,061,232
RAP Tons used in HMA/WMA	94,999	822,598
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	18%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	848	7,347
WMA Other Agency Tonnage	9,497	82,234
WMA Commercial & Residential Tonnage	15,828	137,053
Total WMA Tonnage	26,173	226,634
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%	

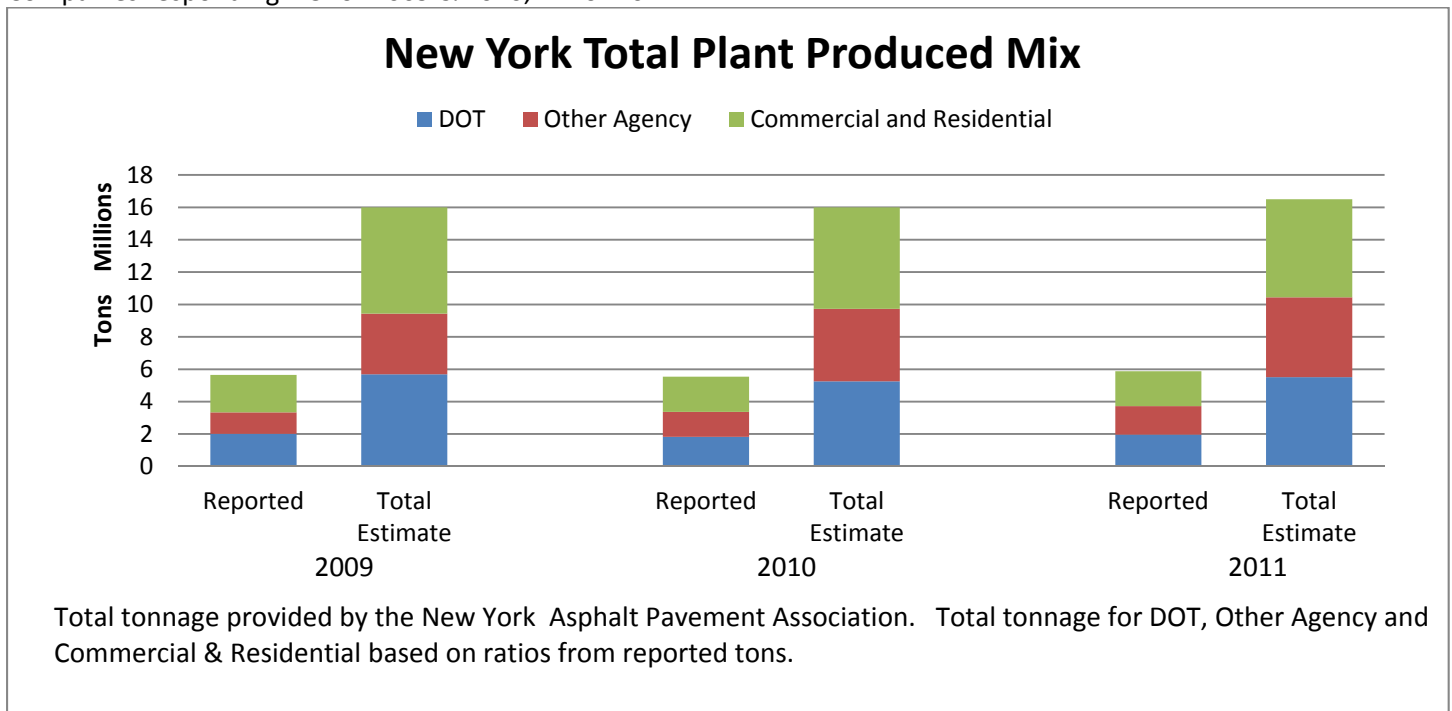
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

New York

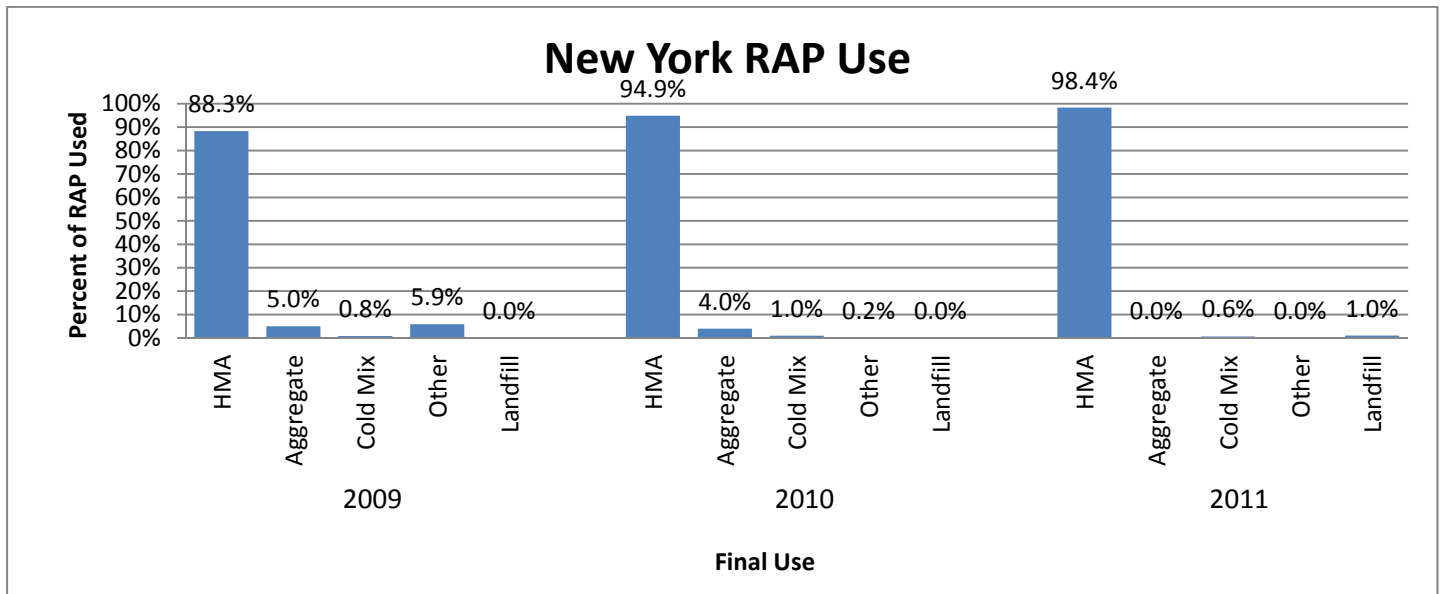
Table B33 summarizes the results received from asphalt mix producers in New York. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

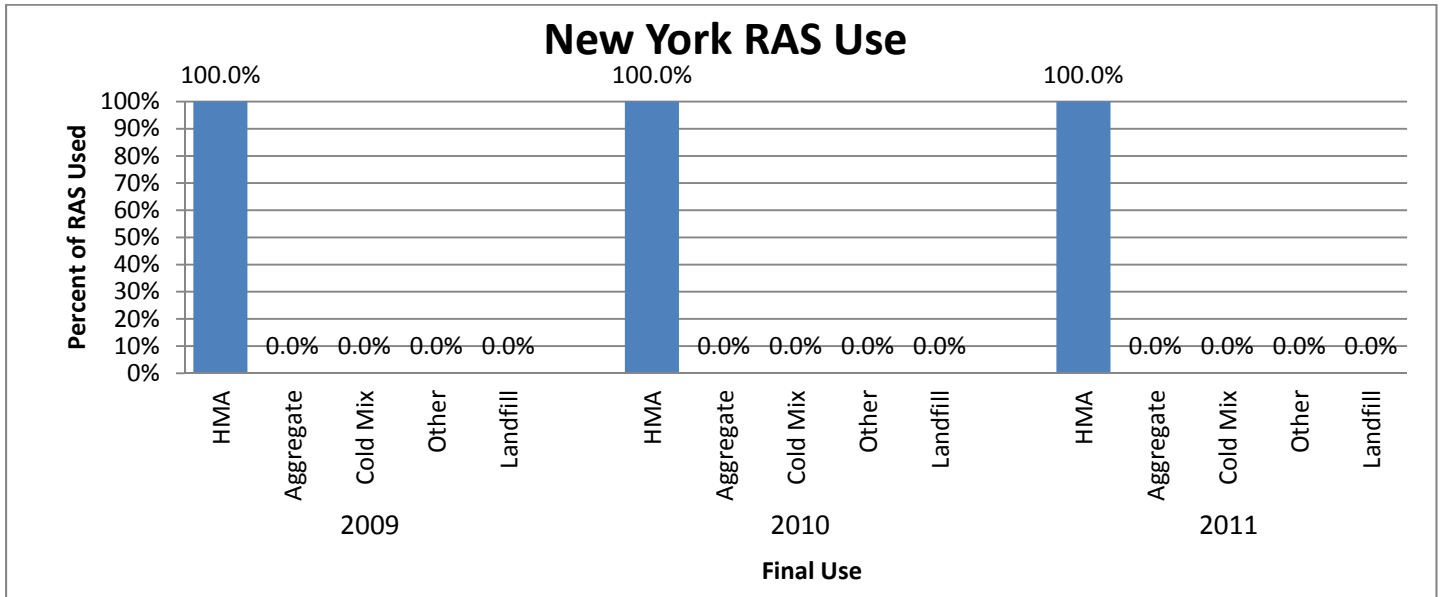
Companies responding: 13 for 2009 & 2010, 11 for 2011



RAP Use



RAS Use



WMA Use

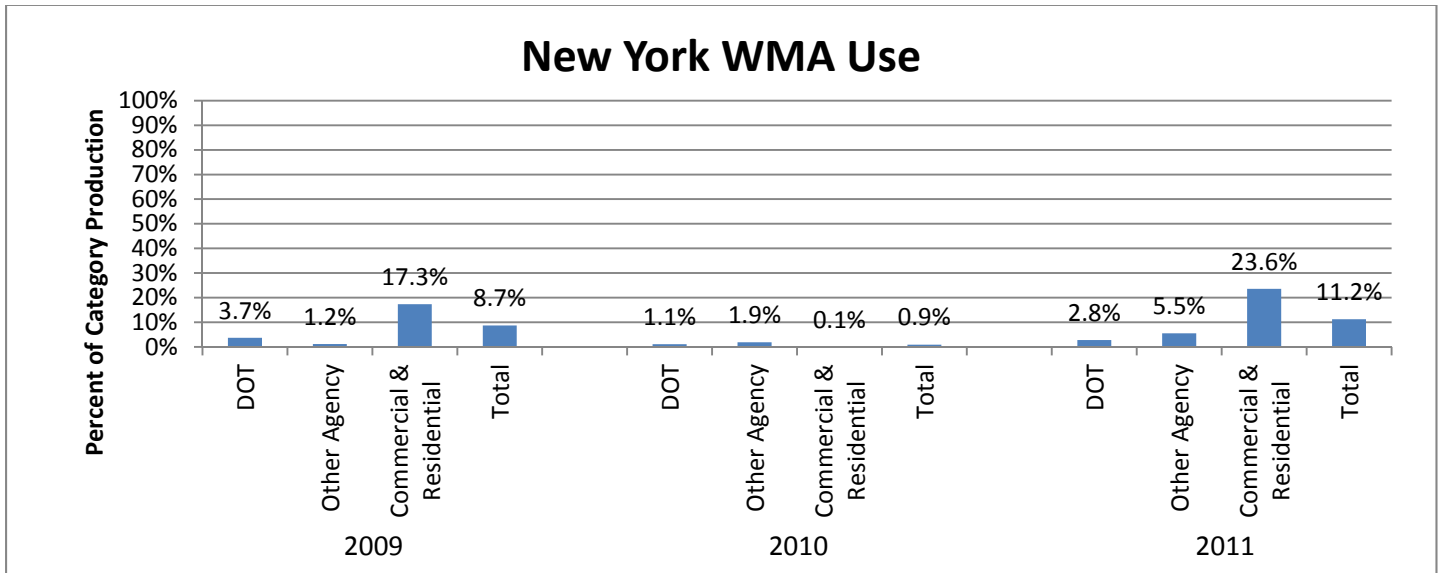


Table B 32: Summary of New York Data for 2011

Companies Reporting

11

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,964,351	5,515,549
Total Other Agency Tonnage	1,755,304	4,928,582
Total Commercial & Residential Tonnage	2,156,785	6,055,869
Total Tonnage	5,876,440	16,500,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	1,073,114	3,013,114
RAP Tons used in HMA/WMA	961,016	2,698,363
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	5,974	16,774
RAP Tons used as Other	-	-
RAP Tons Landfilled	10,000	28,078
Average % RAP in DOT Mixes	13%	
Average % RAP in Other Agency Mixes	20%	
Average % RAP in Commercial & Residential Mixes	18%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	9%	
RAS Tons Received	-	-
RAS Tons used in HMA/WMA	2,000	5,616
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
	2011	2011
Percent Companies using WMA	73%	
WMA DOT Tonnage	54,675	153,518
WMA Other Agency Tonnage	96,960	272,246
WMA Commercial & Residential Tonnage	508,552	1,427,923
Total WMA Tonnage	660,187	1,853,687
Percent WMA Tons using Chemical Additives	15.1%	
Percent WMA Tons using Additive Foaming	1.1%	
Percent WMA Tons using Plant Foaming	83.7%	
Percent WMA Tons using Organic Additive	0.0%	

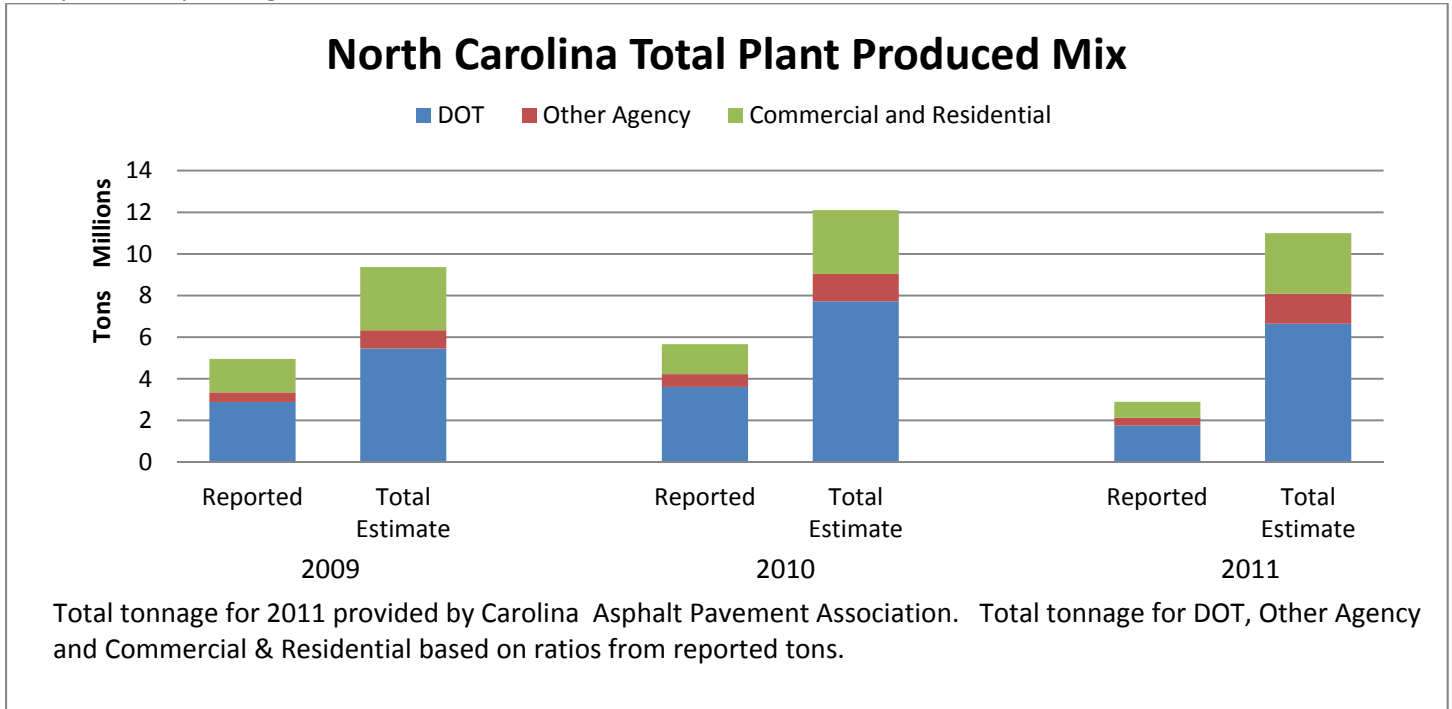
1. Total tonnage provided by the New York Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

North Carolina

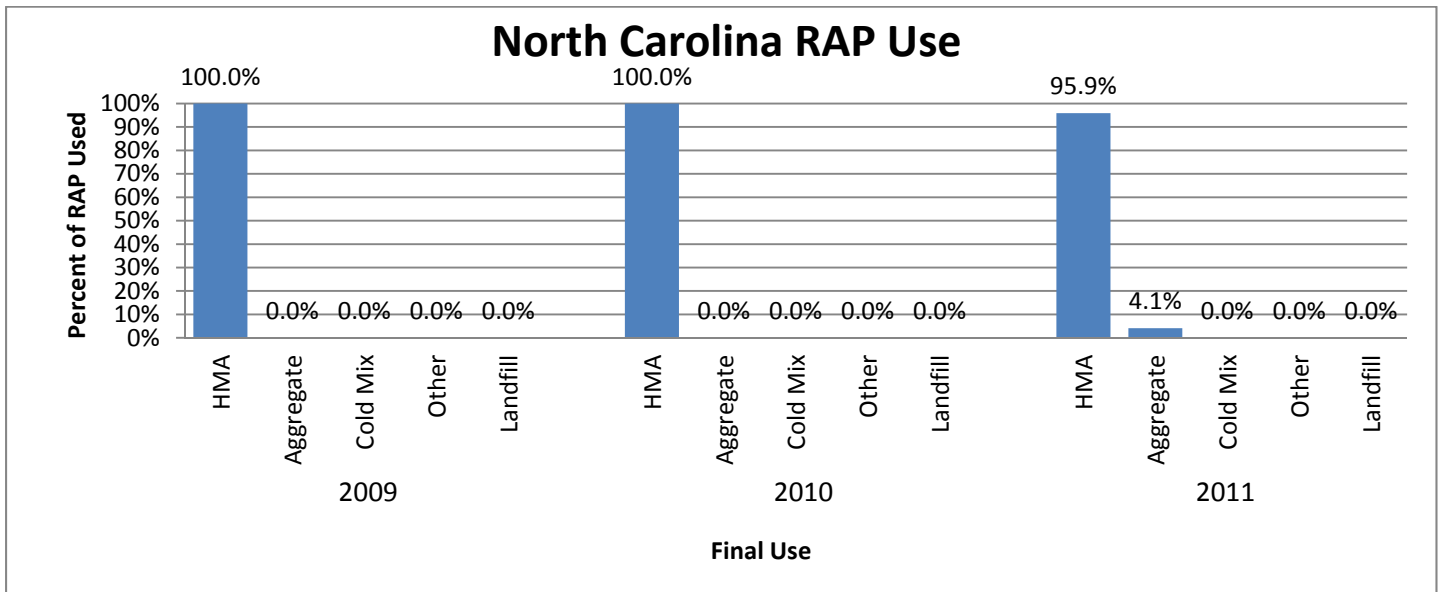
Table B34 summarizes the results received from asphalt mix producers in North Carolina. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

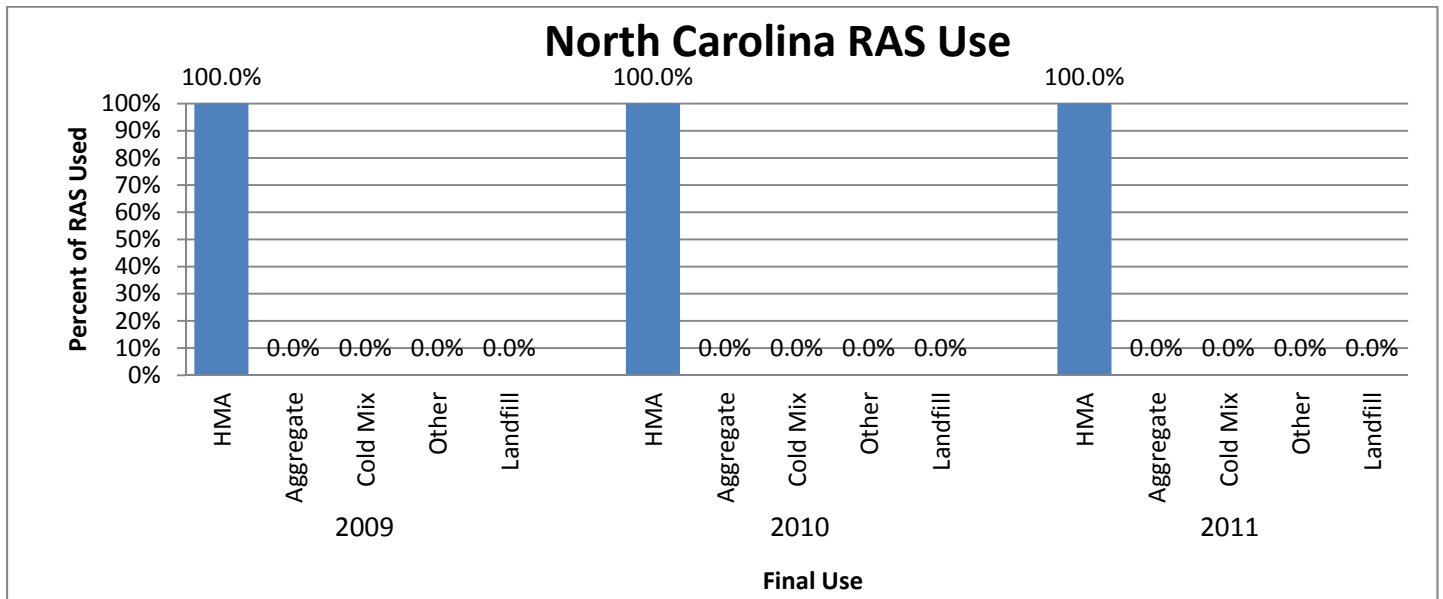
Companies responding: 6 for 2009 & 2010, 5 for 2011



RAP Use



RAS Use



WMA Use

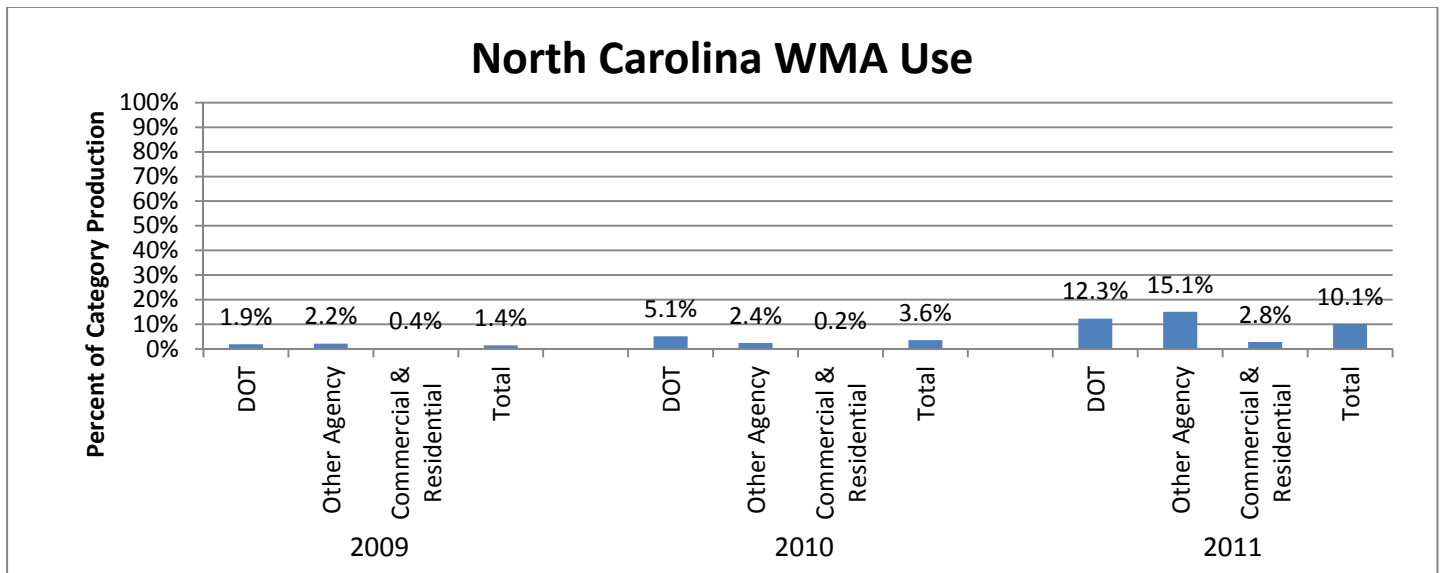


Table B 33: Summary of North Carolina Data for 2011

Companies Reporting

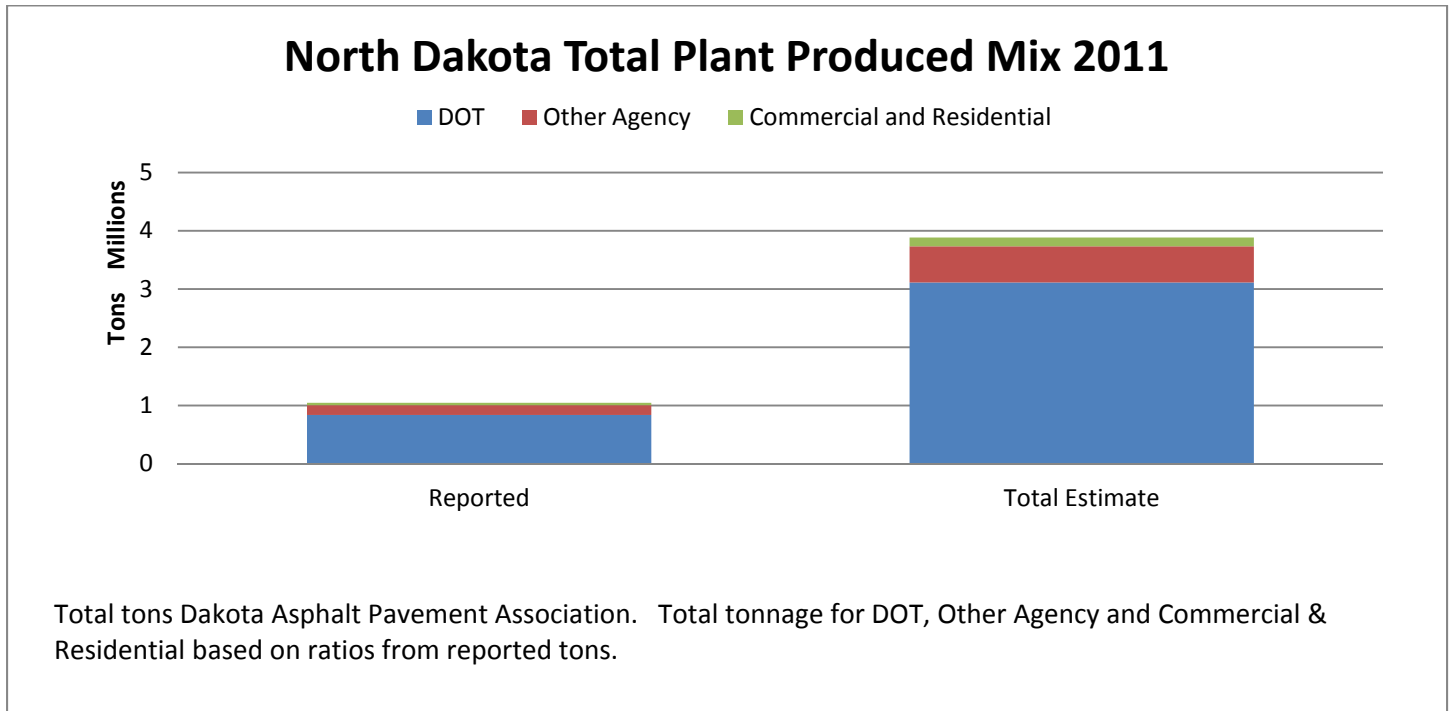
5

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,751,519	6,648,957
Total Other Agency Tonnage	378,093	1,435,283
Total Commercial & Residential Tonnage	768,091	2,915,760
Total Tonnage	2,897,703	11,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	751,121	2,851,338
RAP Tons used in HMA/WMA	703,772	2,671,596
RAP Tons used as Aggregate	30,000	113,883
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	26%	
Average % RAP in Commercial & Residential Mixes	26%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	60%	
RAS Tons Received	50,000	189,806
RAS Tons used in HMA/WMA	2,464	9,354
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	0%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	215,131	816,663
WMA Other Agency Tonnage	57,000	216,378
WMA Commercial & Residential Tonnage	21,395	81,218
Total WMA Tonnage	293,527	1,114,259
Percent WMA Tons using Chemical Additives	4.4%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	95.6%	
Percent WMA Tons using Organic Additive	0.0%	

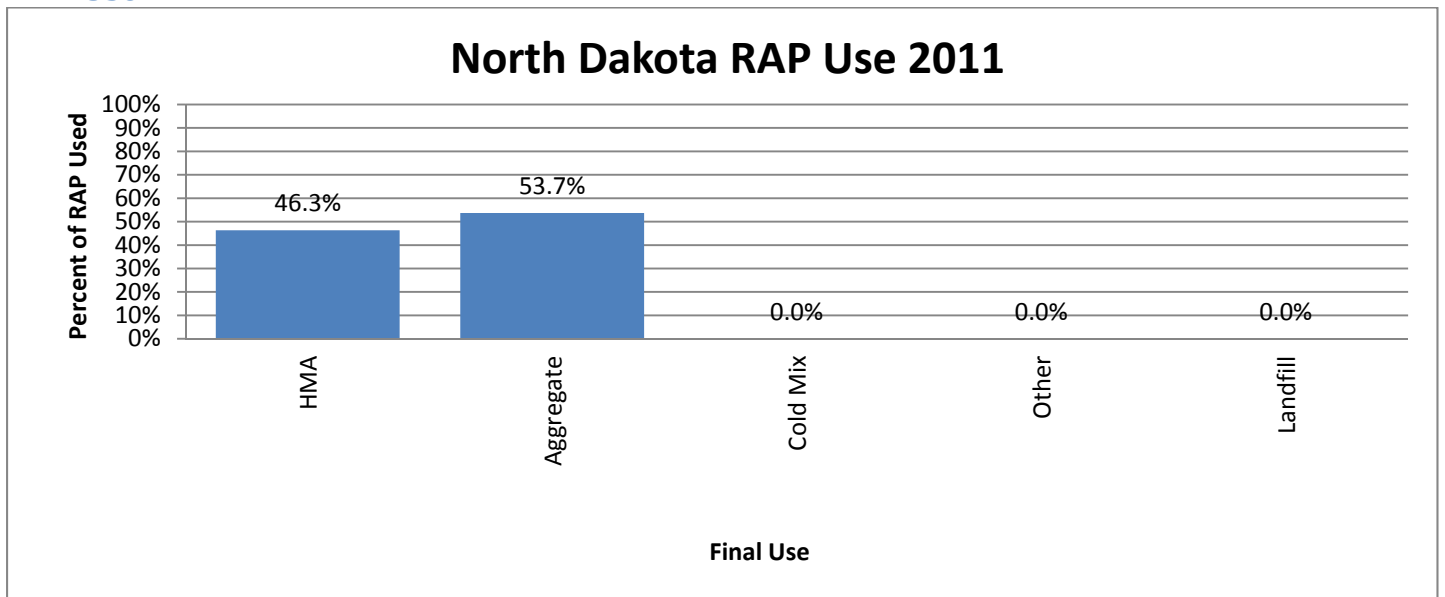
1. Total tonnage provided by Carolina Asphalt Pavement Association. Total tonnage for DOT Other Agency and Commercial & Residential ratios from reported tons.

North Dakota

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



RAP Use



RAS Use

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

WMA Use

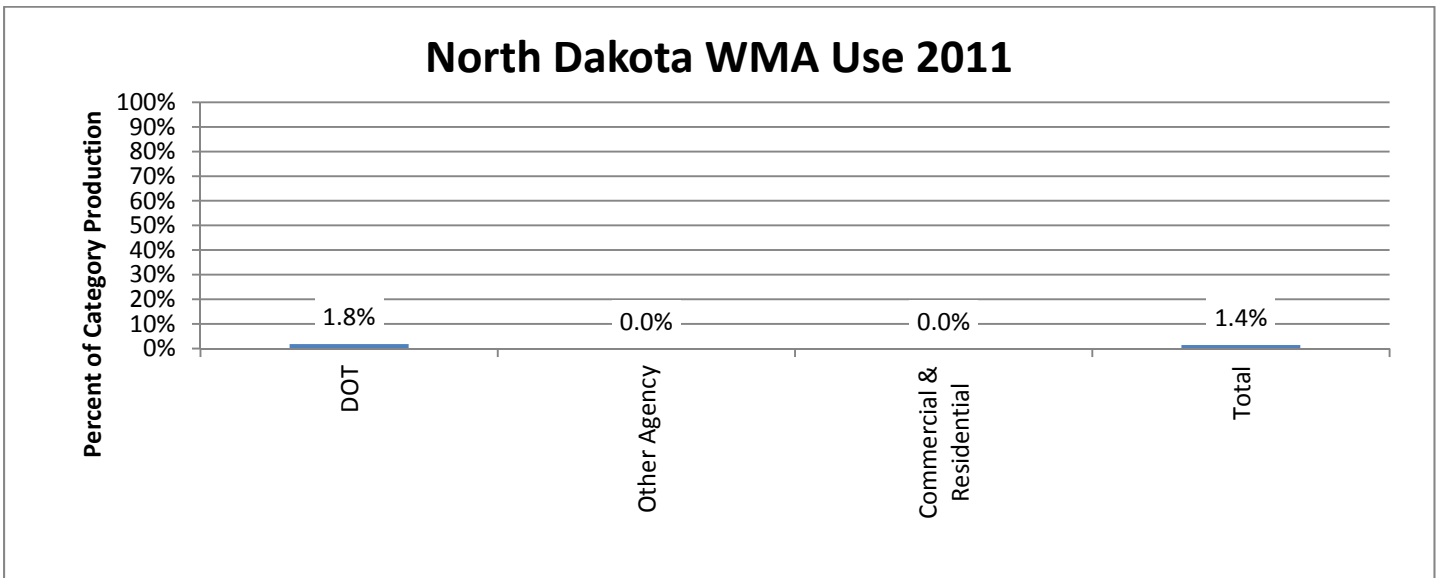


Table B 34: Summary of North Dakota Data for 2011

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	837,875	3,112,249
Total Other Agency Tonnage	167,464	622,038
Total Commercial & Residential Tonnage	40,844	151,713
Total Tonnage	1,046,183	3,886,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	67%	
RAP Tons Received	350,000	1,300,059
RAP Tons used in HMA/WMA	116,350	432,177
RAP Tons used as Aggregate	135,000	501,451
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	12%	
Average % RAP in Commercial & Residential Mixes	24%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	33%	
RAS Tons Received	12,000	44,573
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
	2011	2011
Percent Companies using WMA	33%	
WMA DOT Tonnage	15,000	55,717
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	15,000	55,717
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%	

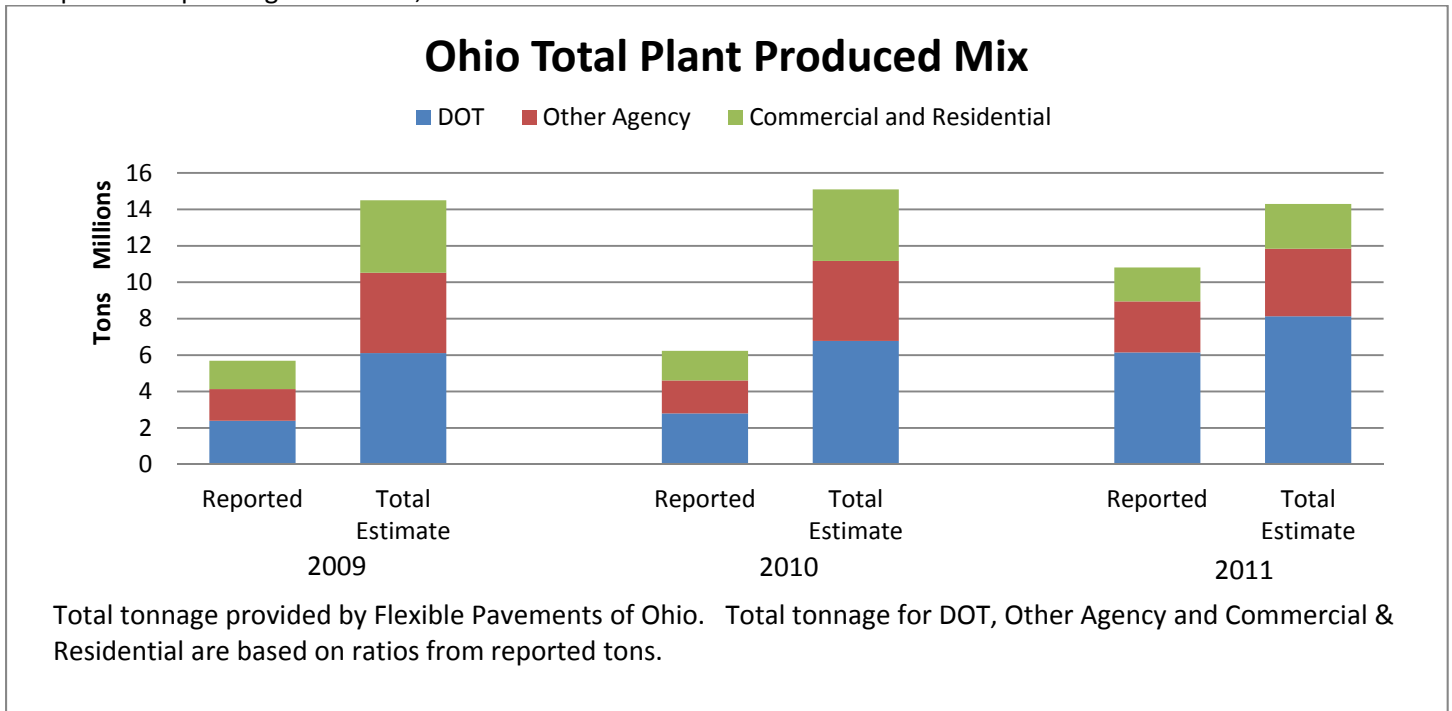
1. Total tons provided by the Dakota Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Ohio

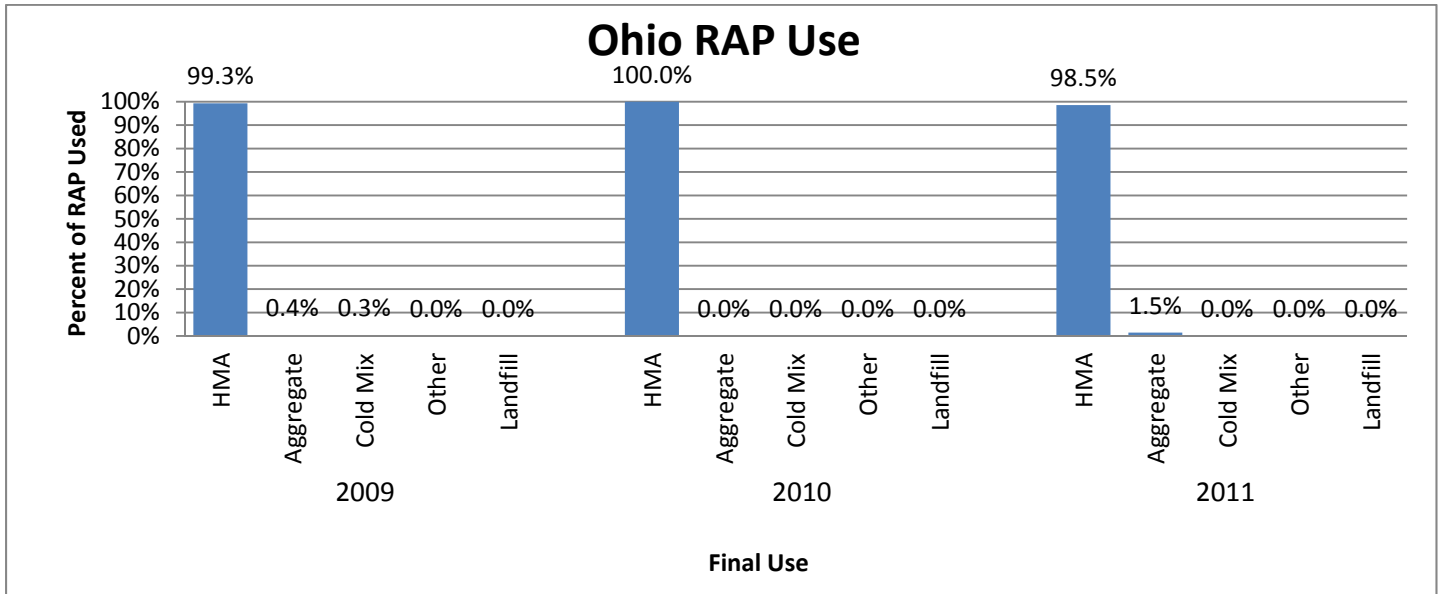
Table B36 summarizes the results received from asphalt mix producers in Ohio. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

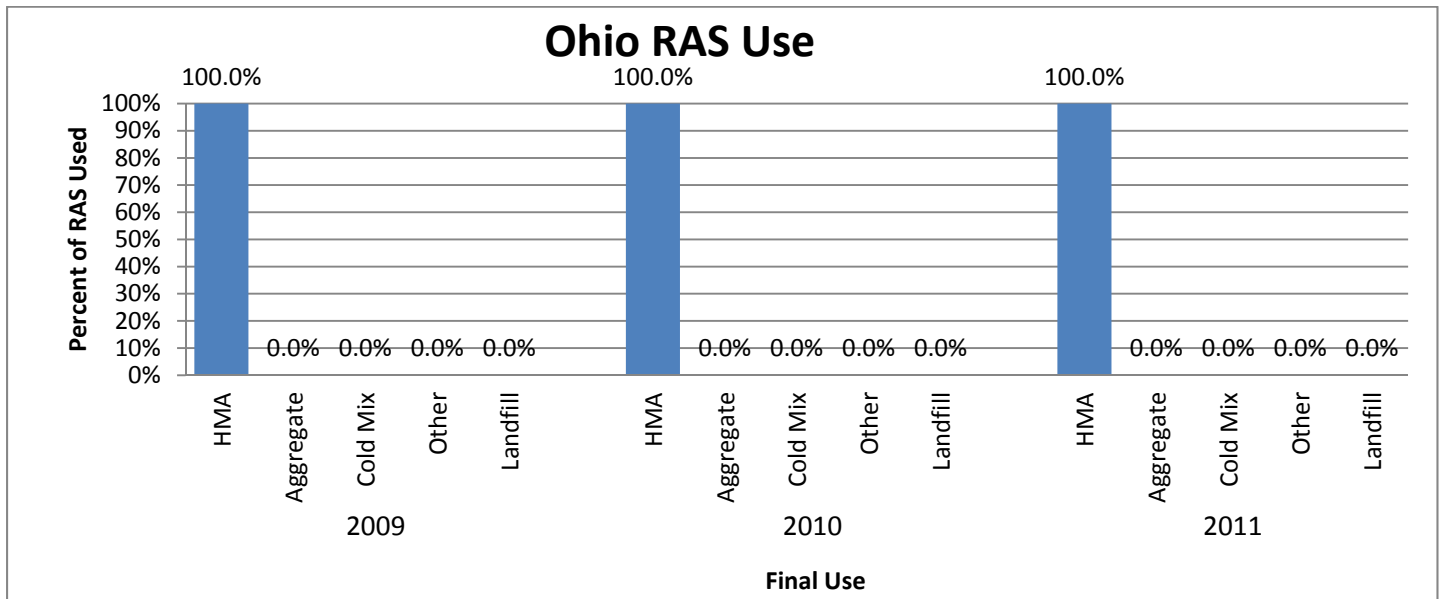
Companies responding: 5 for 2009, 2010 & 2011



RAP Use



RAS Use



WMA Use

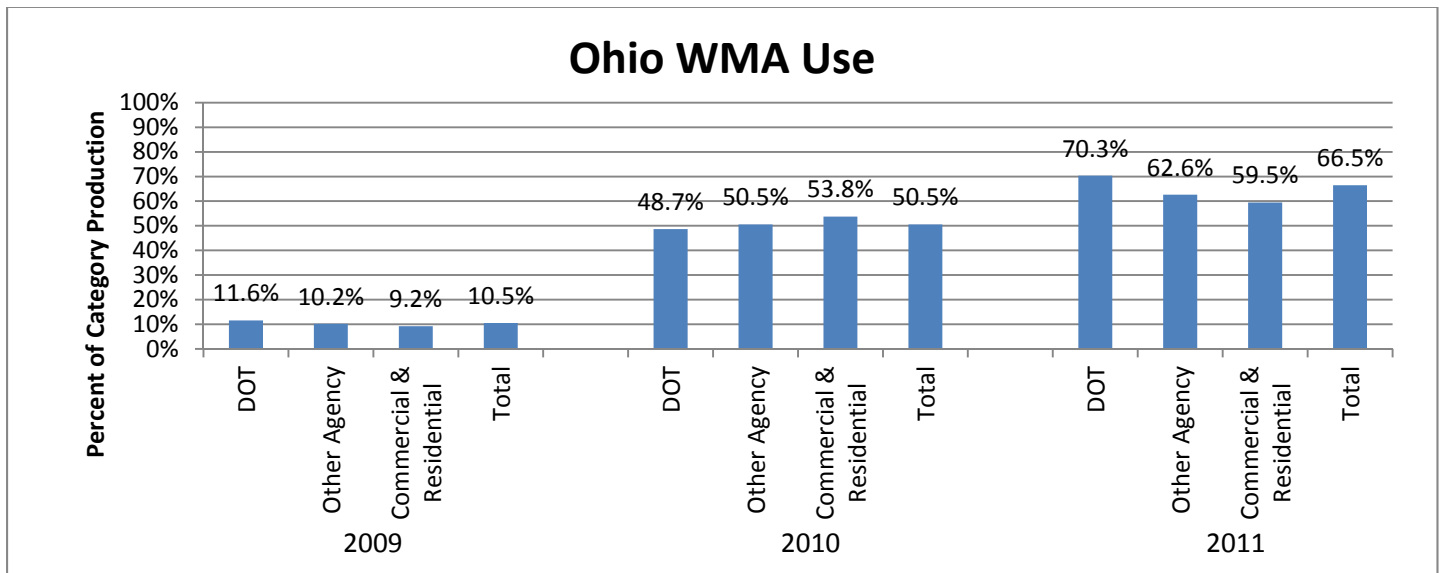


Table B 35: Summary of Ohio Data for 2011

Companies Reporting

5

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	6,149,416	8,132,633
Total Other Agency Tonnage	2,803,516	3,707,664
Total Commercial & Residential Tonnage	1,859,882	2,459,703
Total Tonnage	10,812,814	14,300,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	2,694,025	3,562,861
RAP Tons used in HMA/WMA	2,538,813	3,357,592
RAP Tons used as Aggregate	37,500	49,594
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	25%	
Average % RAP in Other Agency Mixes	23%	
Average % RAP in Commercial & Residential Mixes	26%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	40%	
RAS Tons Received	9,000	11,903
RAS Tons used in HMA/WMA	8,000	10,580
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	3%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	80%	
WMA DOT Tonnage	4,324,761	5,719,517
WMA Other Agency Tonnage	1,755,167	2,321,216
WMA Commercial & Residential Tonnage	1,106,014	1,462,709
Total WMA Tonnage	7,185,941	9,503,442
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%	

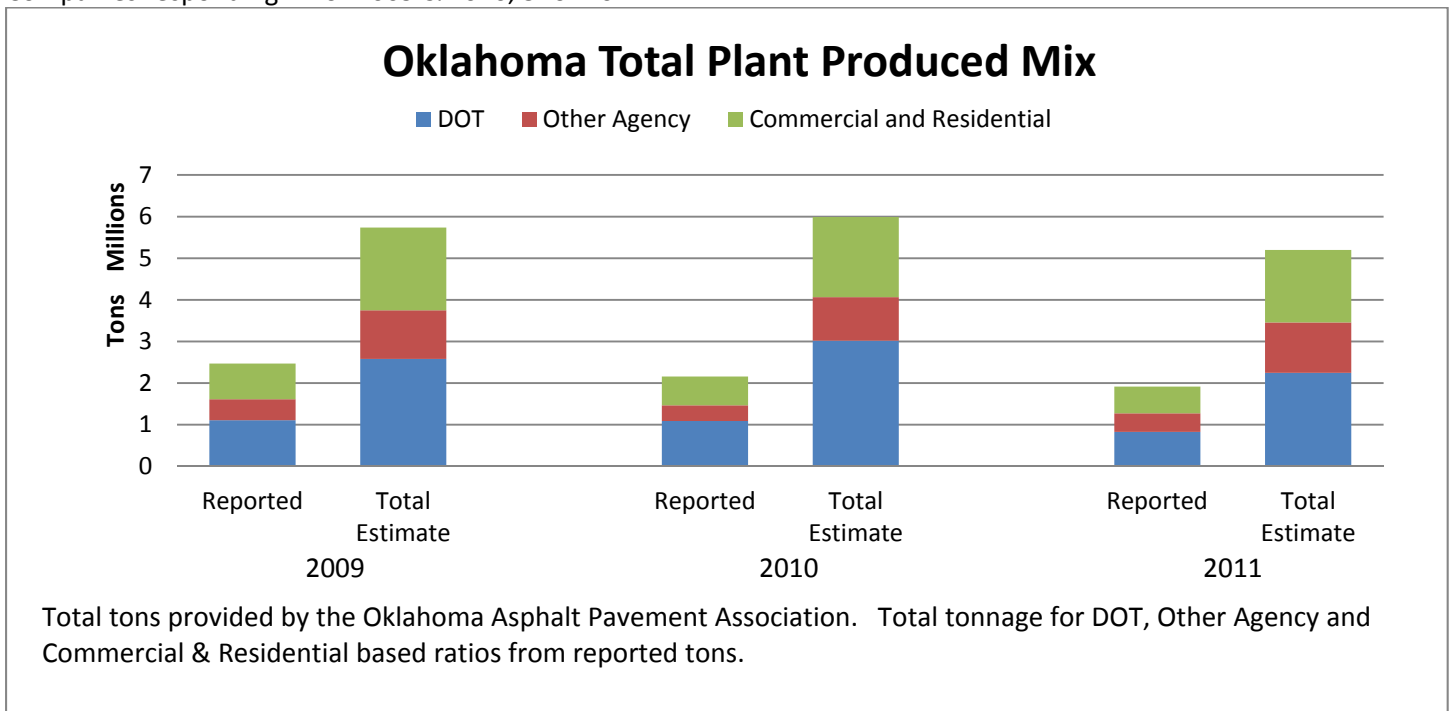
1. Total tonnage provided by Flexible Pavements of Ohio. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Oklahoma

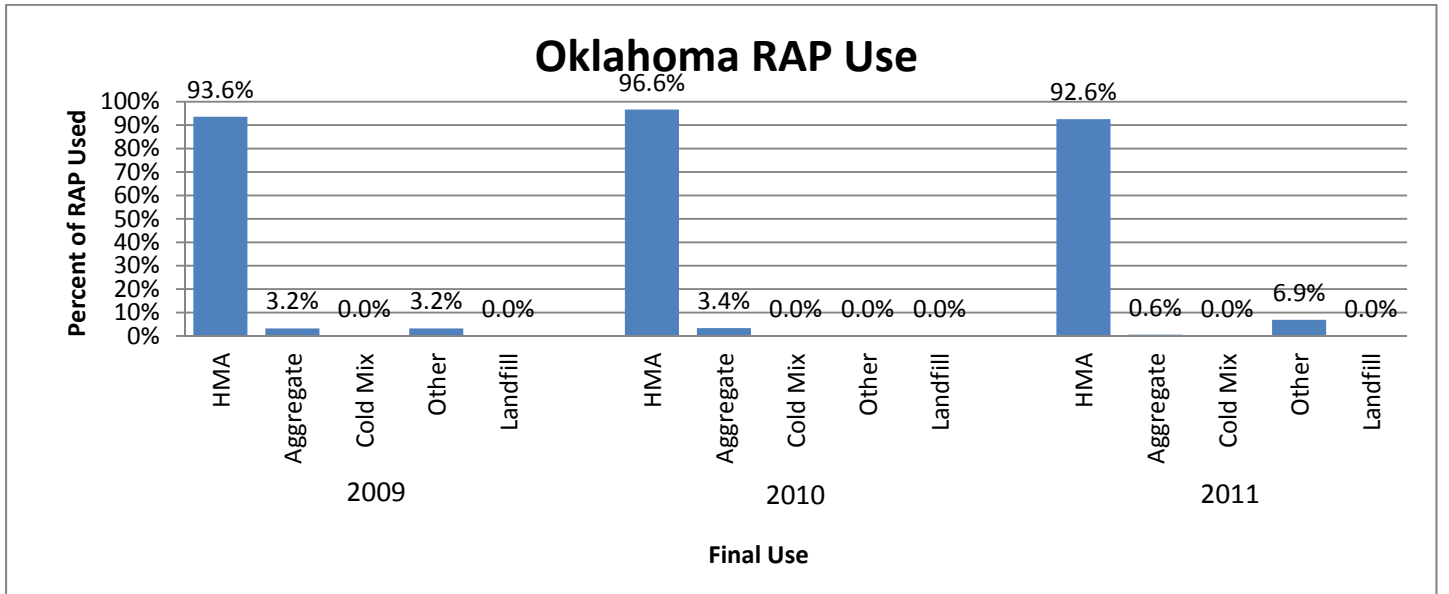
Table B37 summarizes the results received from asphalt mix producers in Oklahoma. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

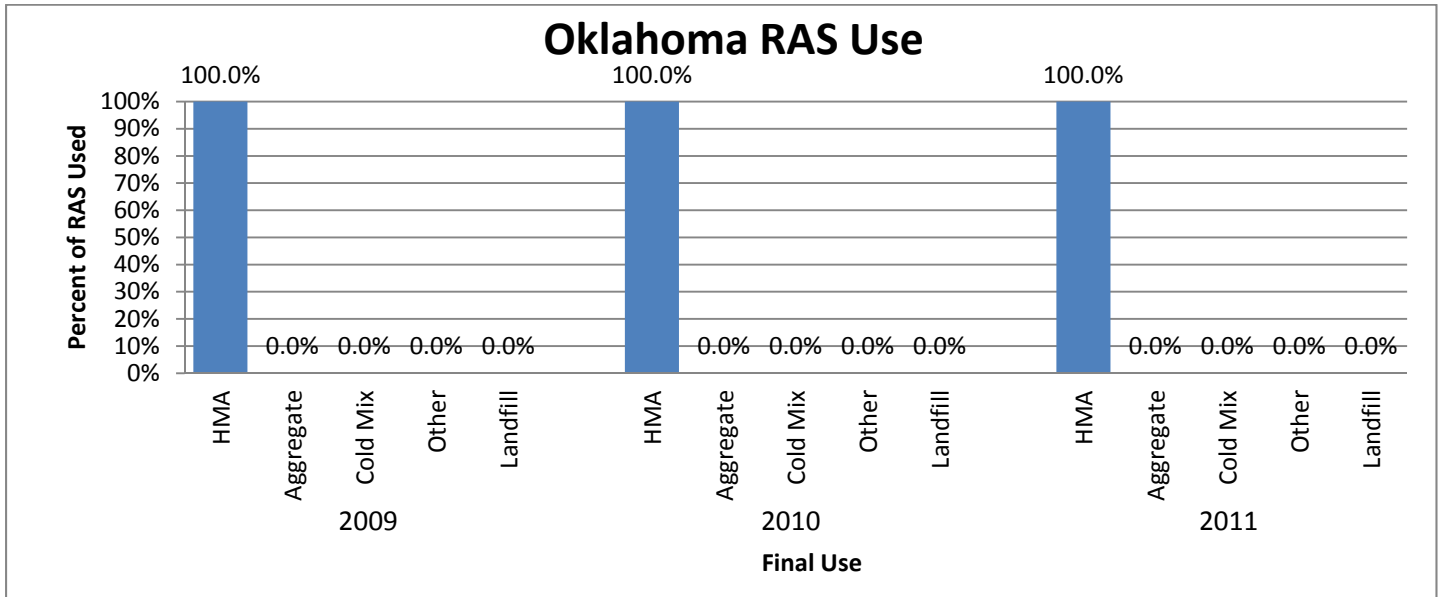
Companies responding: 4 for 2009 & 2010, 3 for 2011



RAP Use



RAS Use



WMA Use

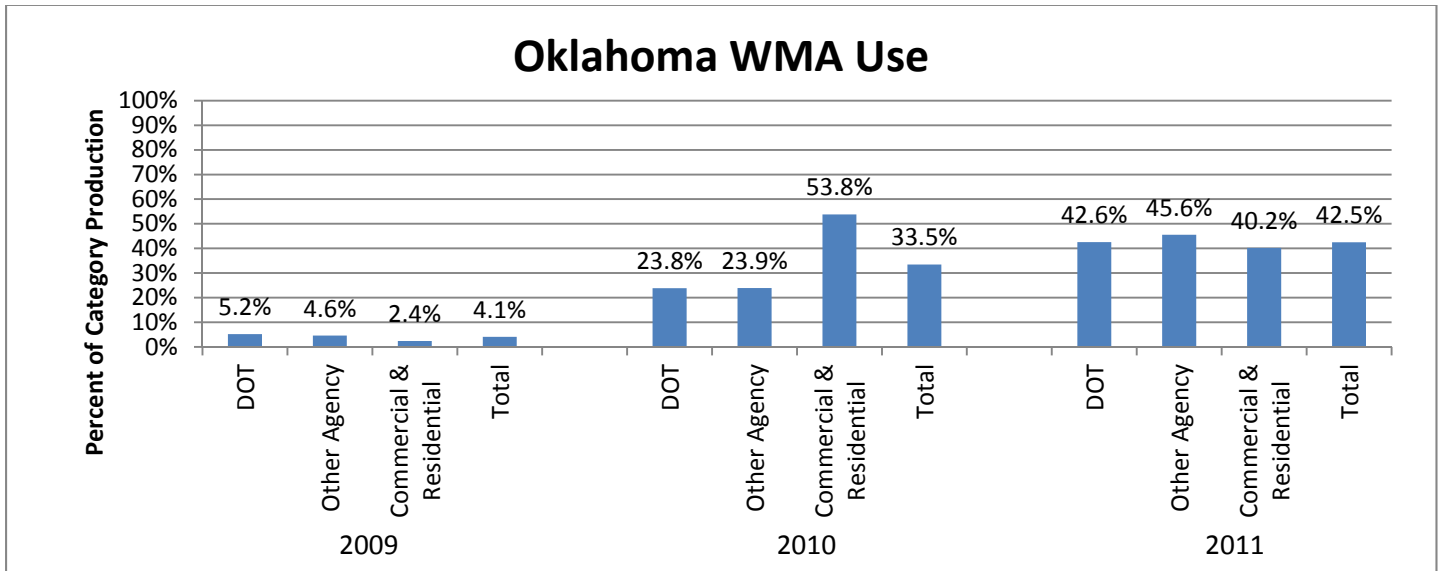


Table B 36: Summary of Oklahoma Data for 2011

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	828,000	2,248,623
Total Other Agency Tonnage	445,000	1,208,499
Total Commercial & Residential Tonnage	641,772	1,742,878
Total Tonnage	1,914,772	5,200,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	522,490	1,418,941
RAP Tons used in HMA/WMA	335,803	911,950
RAP Tons used as Aggregate	2,000	5,431
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	25,000	67,893
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	16%	
Average % RAP in Other Agency Mixes	14%	
Average % RAP in Commercial & Residential Mixes	15%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	100%	
RAS Tons Received	79,700	216,444
RAS Tons used in HMA/WMA	18,905	51,341
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	352,500	957,294
WMA Other Agency Tonnage	202,750	550,614
WMA Commercial & Residential Tonnage	257,943	700,503
Total WMA Tonnage	813,193	2,208,411
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%	

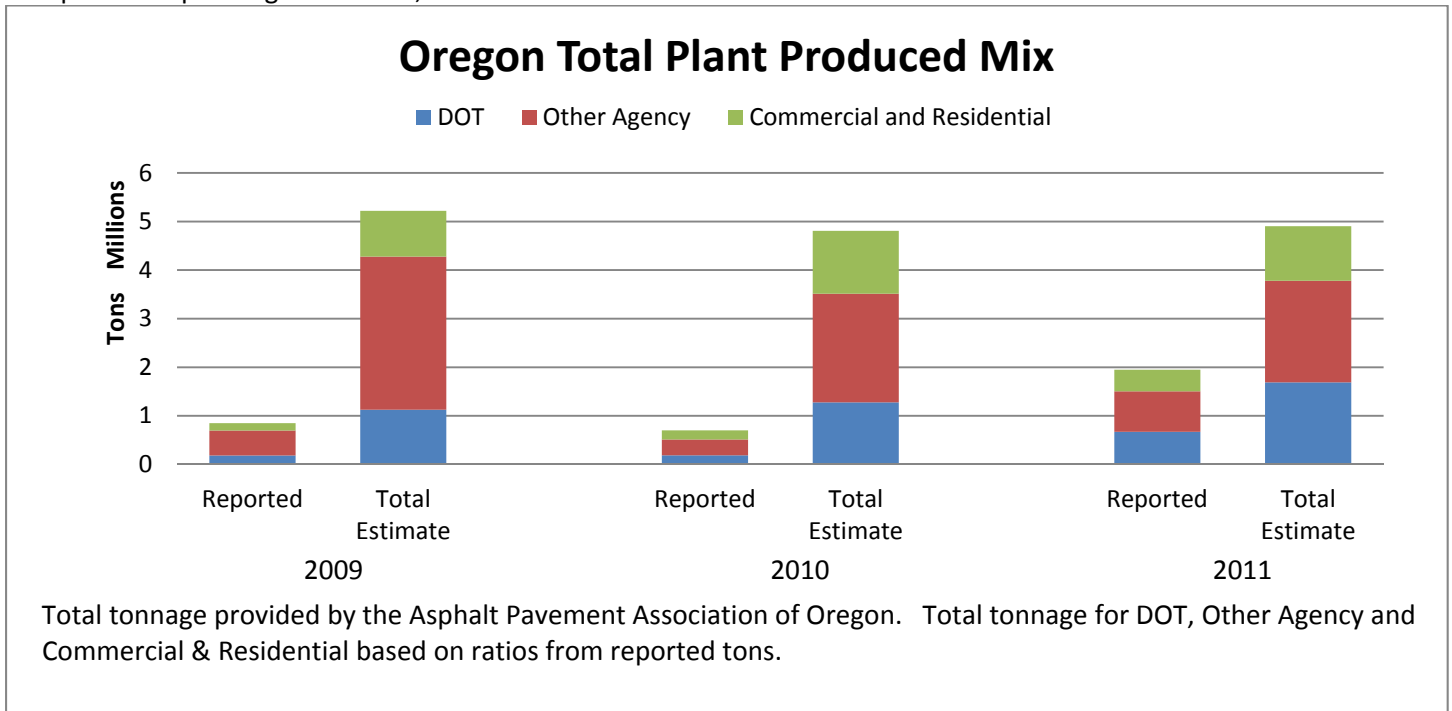
1. Total tons provided by Oklahoma Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Oregon

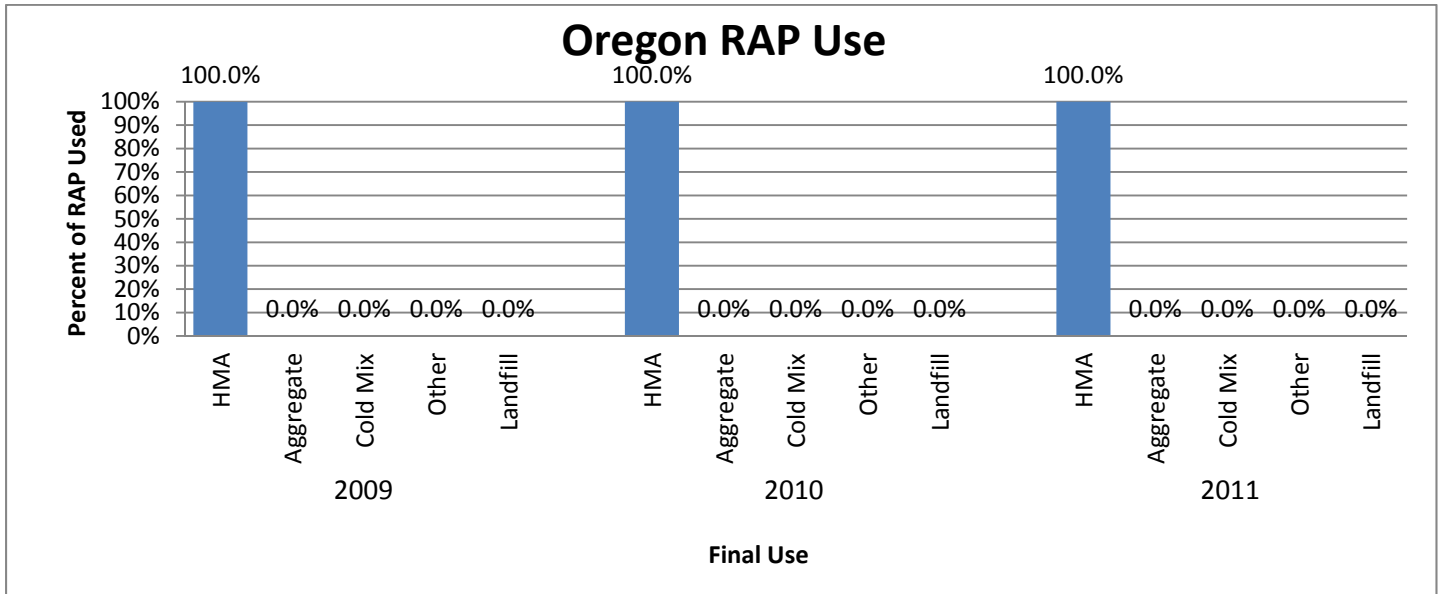
Table B38 summarizes the results received from asphalt mix producers in Oregon. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

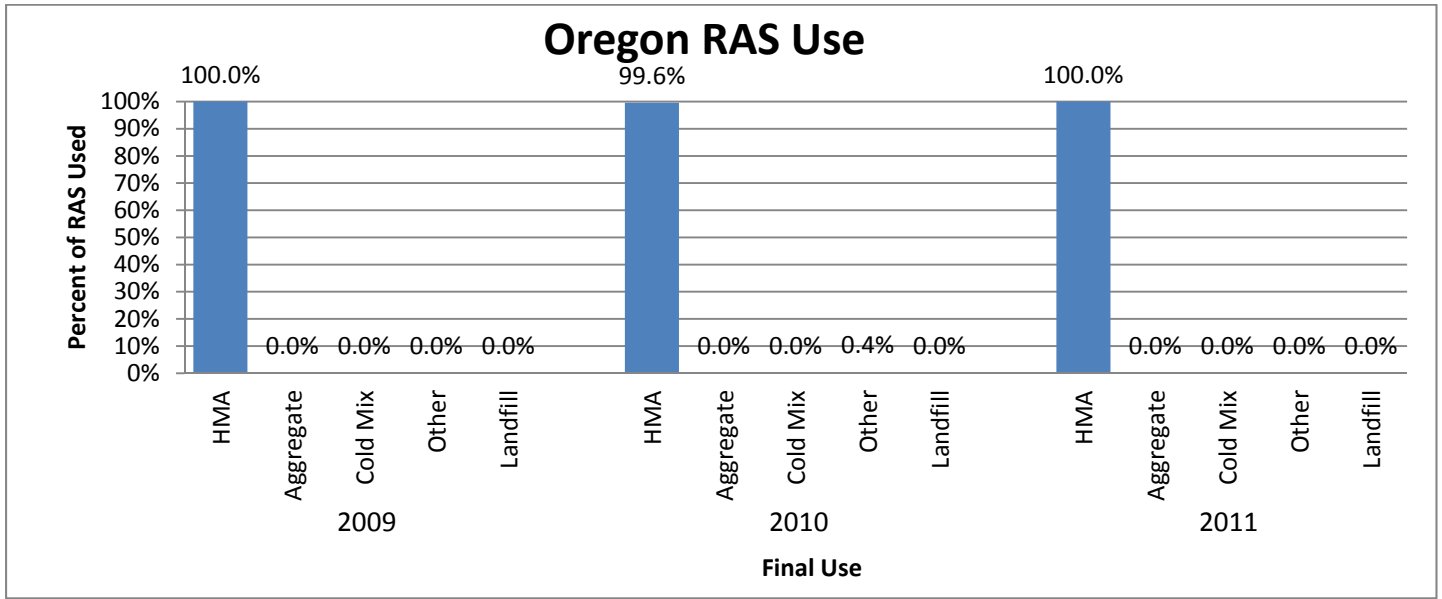
Companies responding: 6 for 2009, 2010 & 2011



RAP Use



RAS Use



WMA Use

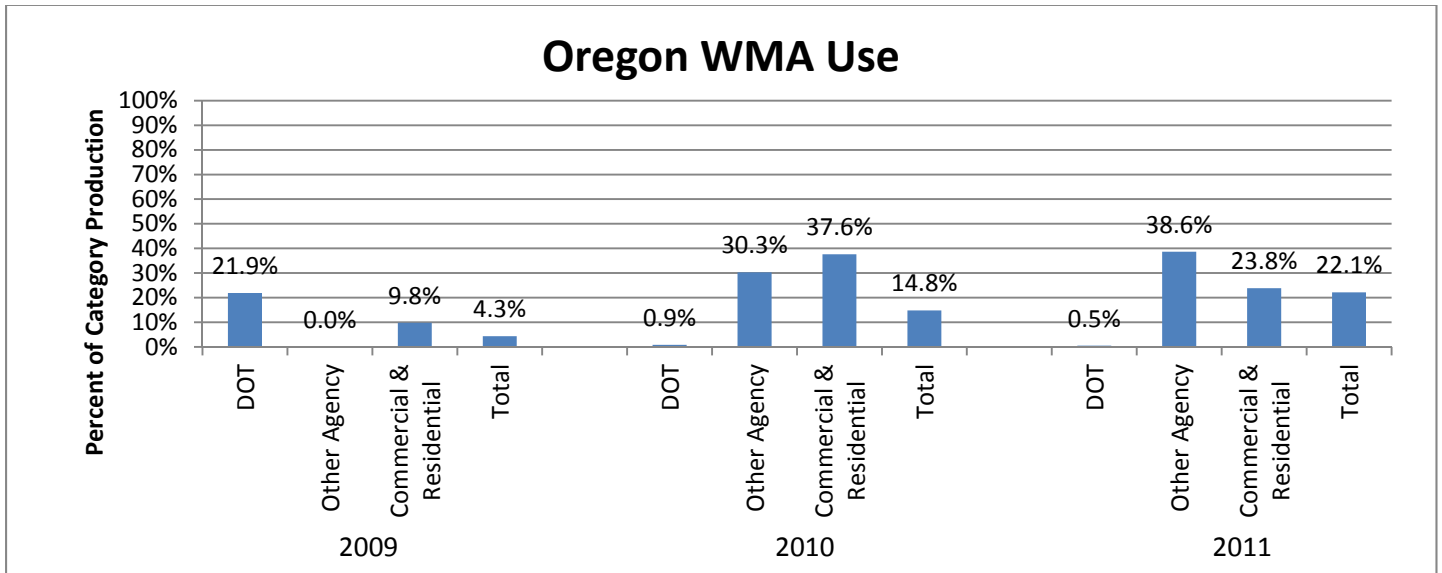


Table B 37: Summary of Oregon Data for 2011

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	671,243	1,688,437
Total Other Agency Tonnage	831,889	2,092,524
Total Commercial & Residential Tonnage	446,865	1,124,039
Total Tonnage	1,949,997	4,905,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	665,302	1,673,493
RAP Tons used in HMA/WMA	459,351	1,155,447
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	27%	
Average % RAP in Commercial & Residential Mixes	25%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	33%	
RAS Tons Received	2,001	5,033
RAS Tons used in HMA/WMA	1,626	4,090
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	3,306	8,315
WMA Other Agency Tonnage	321,505	808,710
WMA Commercial & Residential Tonnage	106,492	267,869
Total WMA Tonnage	431,303	1,084,895
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	99.4%	
Percent WMA Tons using Organic Additive	0.6%	

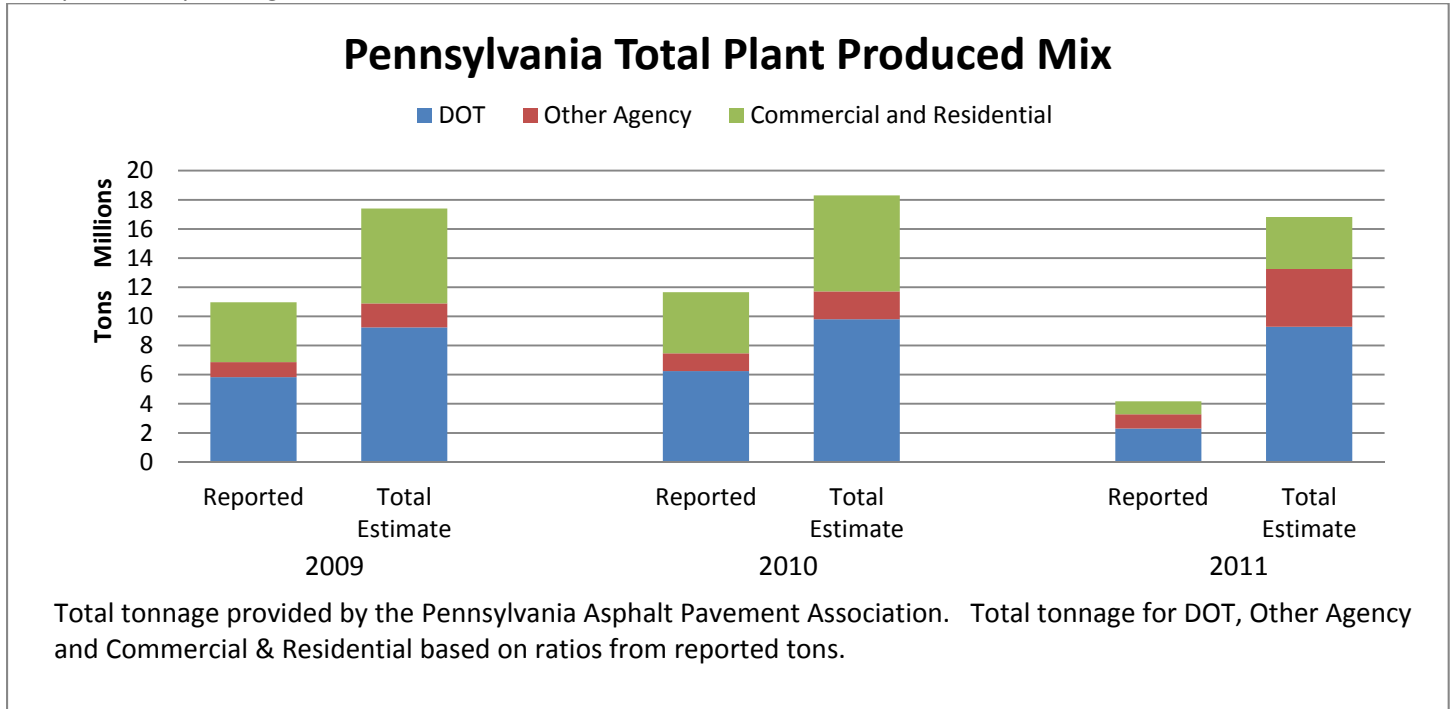
1. Total tonnage provided by the Asphalt Pavement Association of Oregon. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Pennsylvania

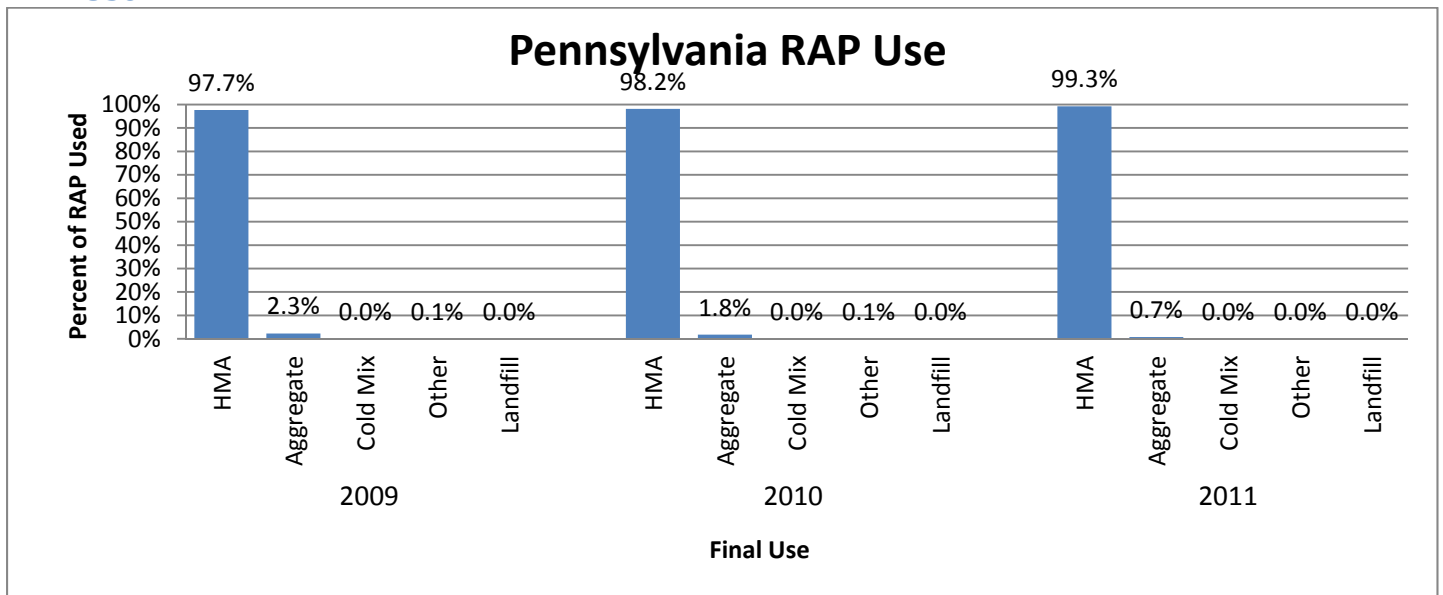
Table B38 summarizes the results received from asphalt mix producers in Pennsylvania. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

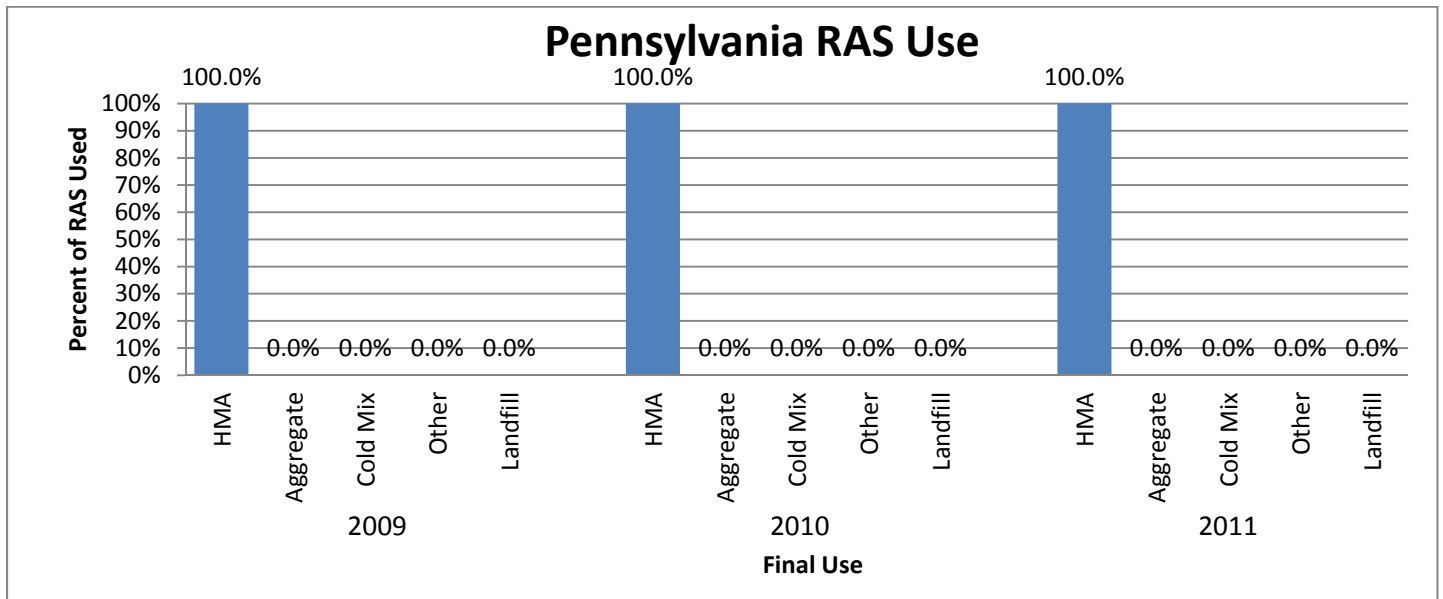
Companies responding: 17 for 2009 & 2010, 7 for 2011



RAP Use



RAS Use



WMA Use

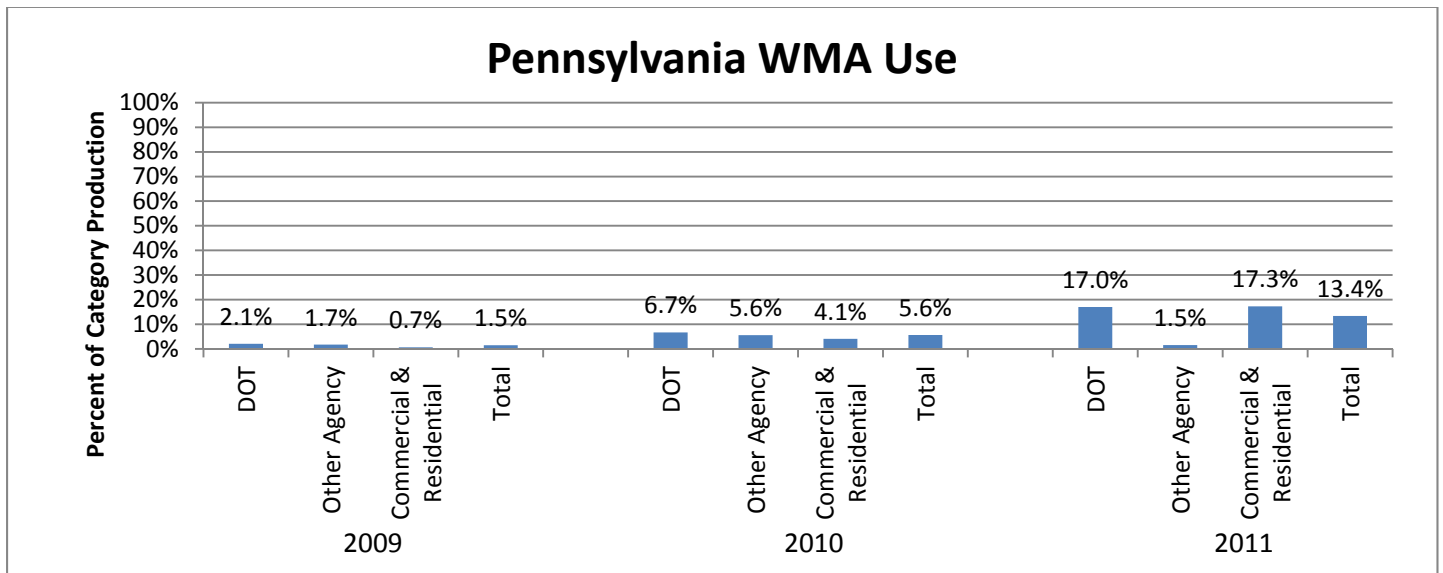


Table B 38: Summary of Pennsylvania Data for 2011

Companies Reporting

7

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	2,300,804	9,287,511
Total Other Agency Tonnage	982,126	3,964,488
Total Commercial & Residential Tonnage	885,143	3,573,001
Total Tonnage	4,168,073	16,825,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	297,872	1,202,401
RAP Tons used in HMA/WMA	665,525	2,686,484
RAP Tons used as Aggregate	5,001	20,187
RAP Tons used in Cold Mix	1	4
RAP Tons used as Other	1	4
RAP Tons Landfilled	1	4
Average % RAP in DOT Mixes	16%	
Average % RAP in Other Agency Mixes	7%	
Average % RAP in Commercial & Residential Mixes	20%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	57%	
RAS Tons Received	20,500	82,751
RAS Tons used in HMA/WMA	14,000	56,513
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	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	390,880	1,577,839
WMA Other Agency Tonnage	15,137	61,102
WMA Commercial & Residential Tonnage	152,817	616,865
Total WMA Tonnage	558,833	2,255,806
Percent WMA Tons using Chemical Additives	30.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	70.0%	
Percent WMA Tons using Organic Additive	0.0%	

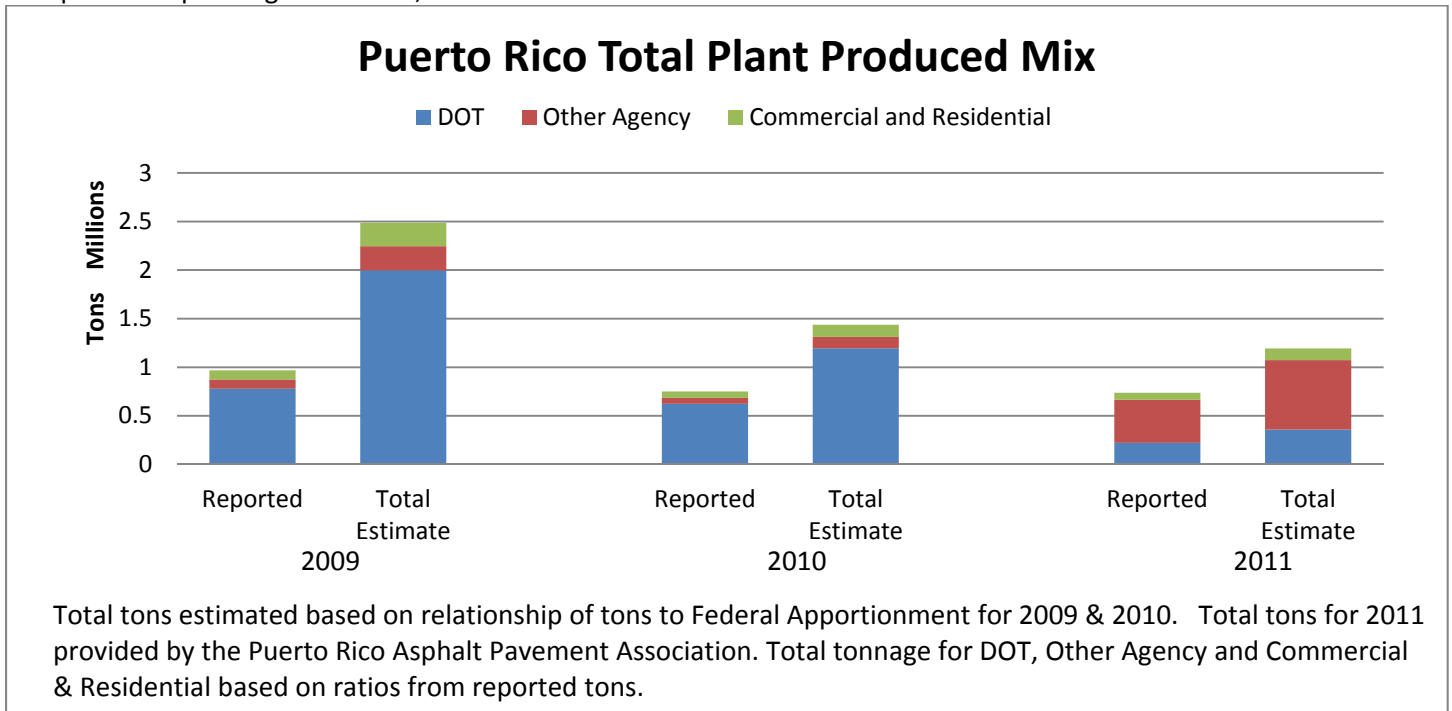
1. Total tonnage provided by the Pennsylvania Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

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.

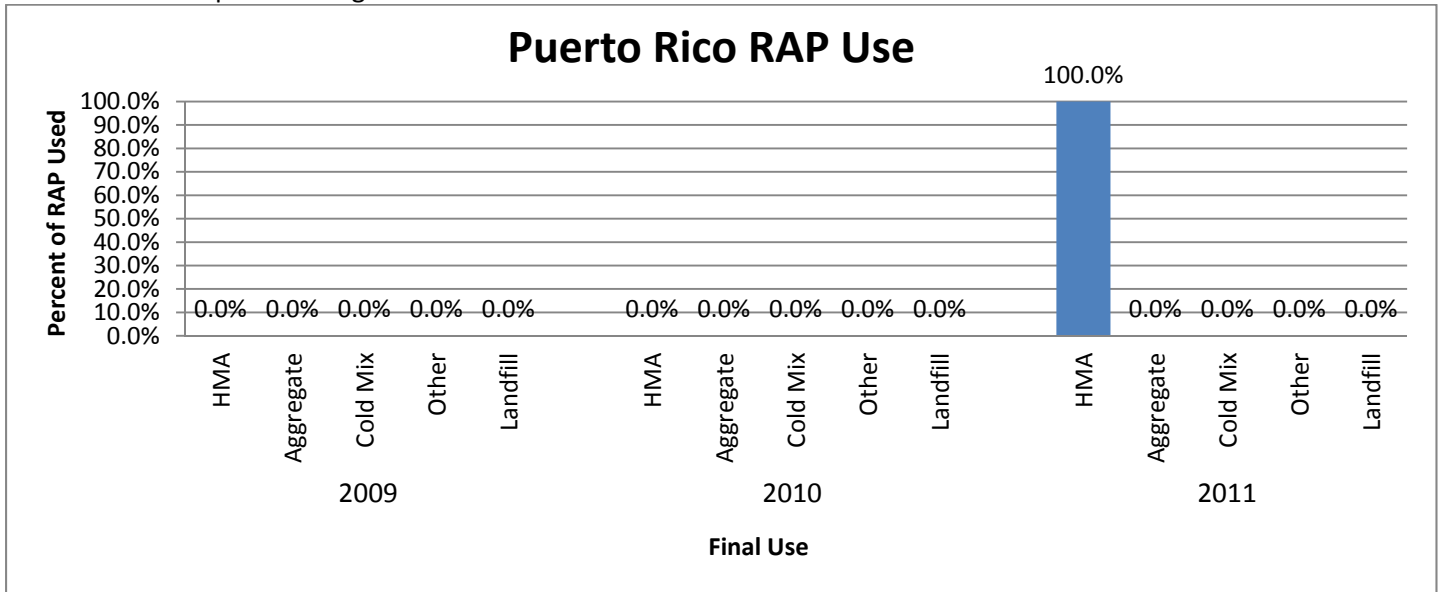
Total Asphalt Mix Tonnage

Companies responding: 1 for 2009, 2010 & 2011



RAP Use

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



RAS Use

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

WMA Use

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

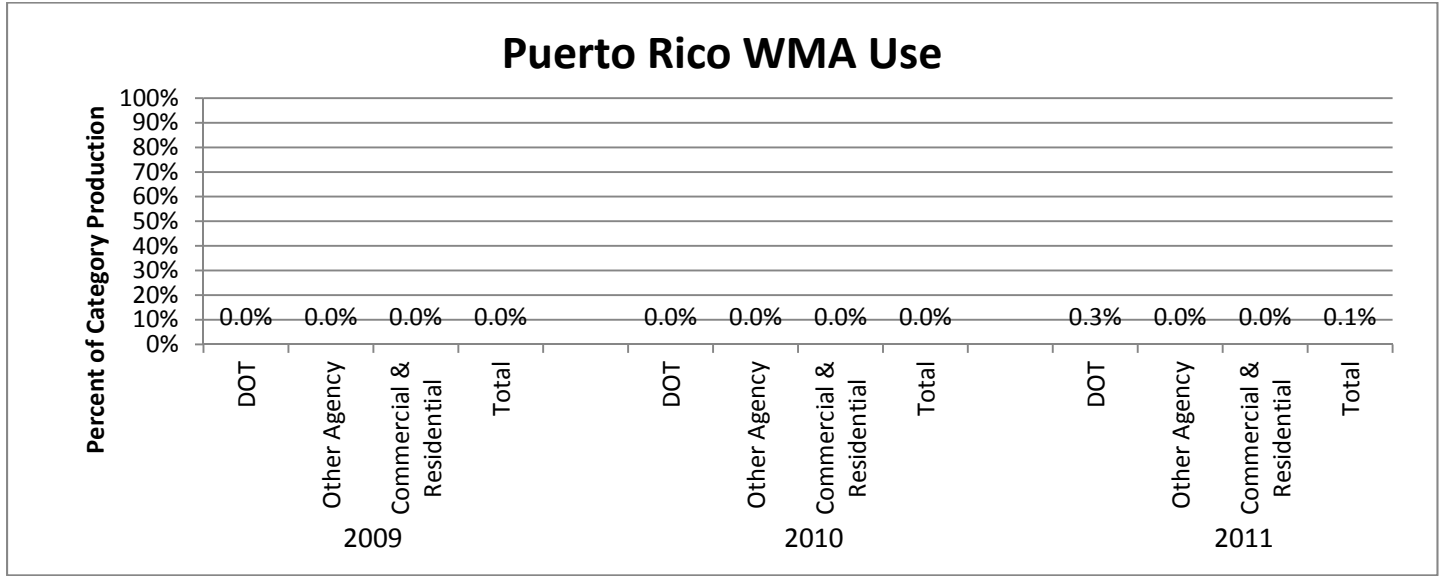


Table B 39: Summary of Puerto Rico Data for 2011

Companies Reporting

1

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	221,400	357,900
Total Other Agency Tonnage	442,800	715,800
Total Commercial & Residential Tonnage	73,800	119,300
Total Tonnage	738,000	1,193,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	63,000	101,841
RAP Tons used in HMA/WMA	13,500	21,823
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	0%	
Average % RAP in Commercial & Residential Mixes	10%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	664	1,074
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	-	-
Total WMA Tonnage	664	1,074
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%	

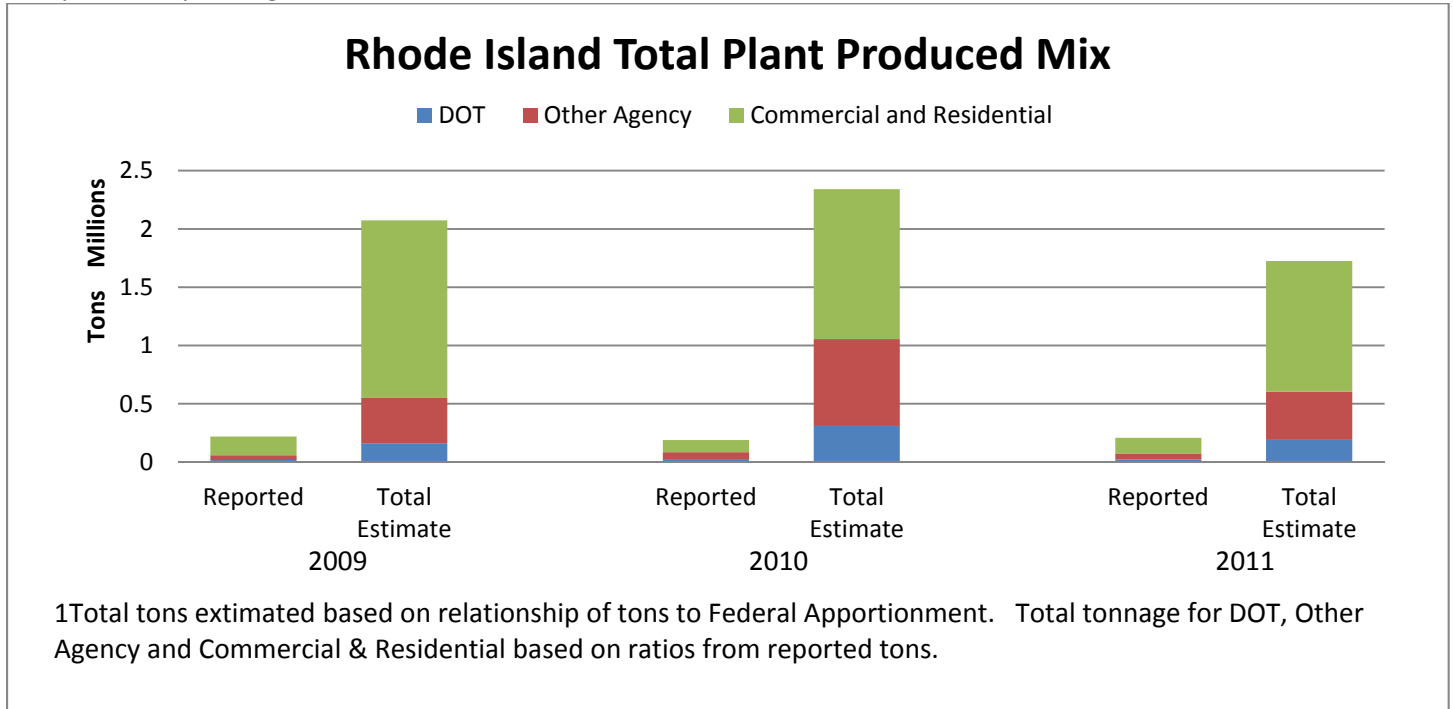
1. Total tons estimated based on relationship of tons to Federal Apportionment for 2009 & 2010. Total tons for 2011 provided by the Puerto Rico Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential based on ratios from reported tons.

Rhode Island

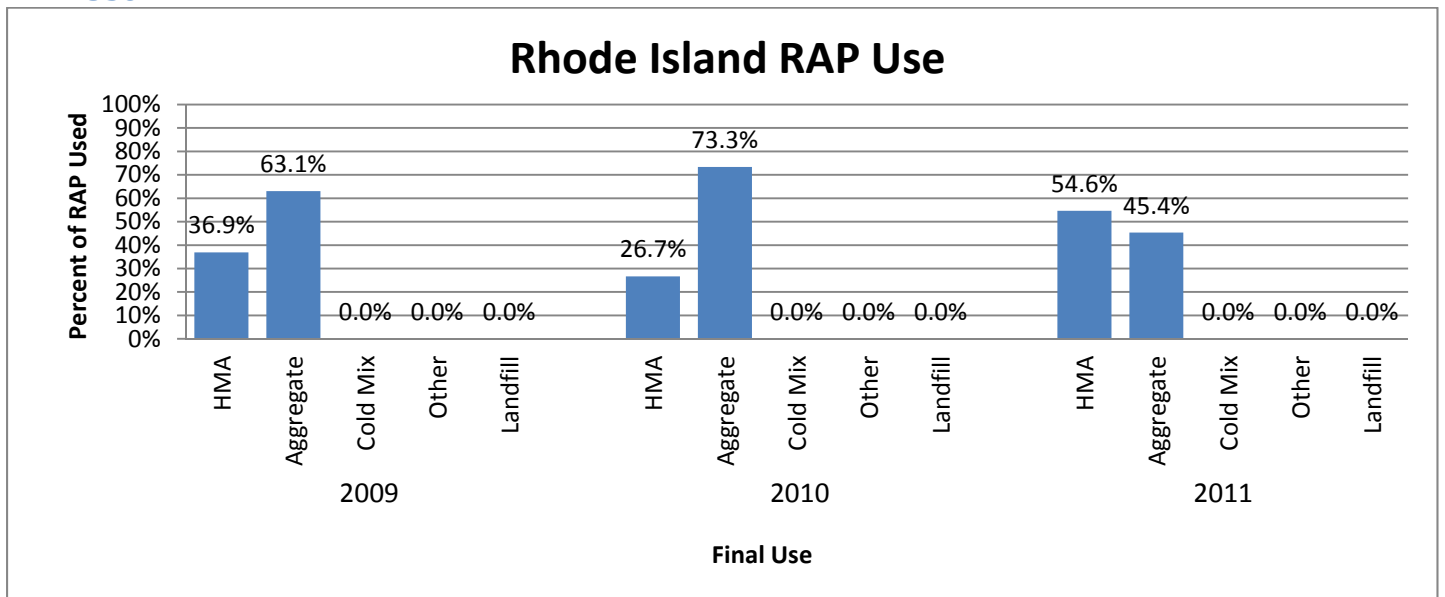
Table B41 summarizes the results received from asphalt mix producers in Rhode Island. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

Companies responding: 2 for 2009, 2010 & 2011



RAP Use



RAS Use

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

WMA Use

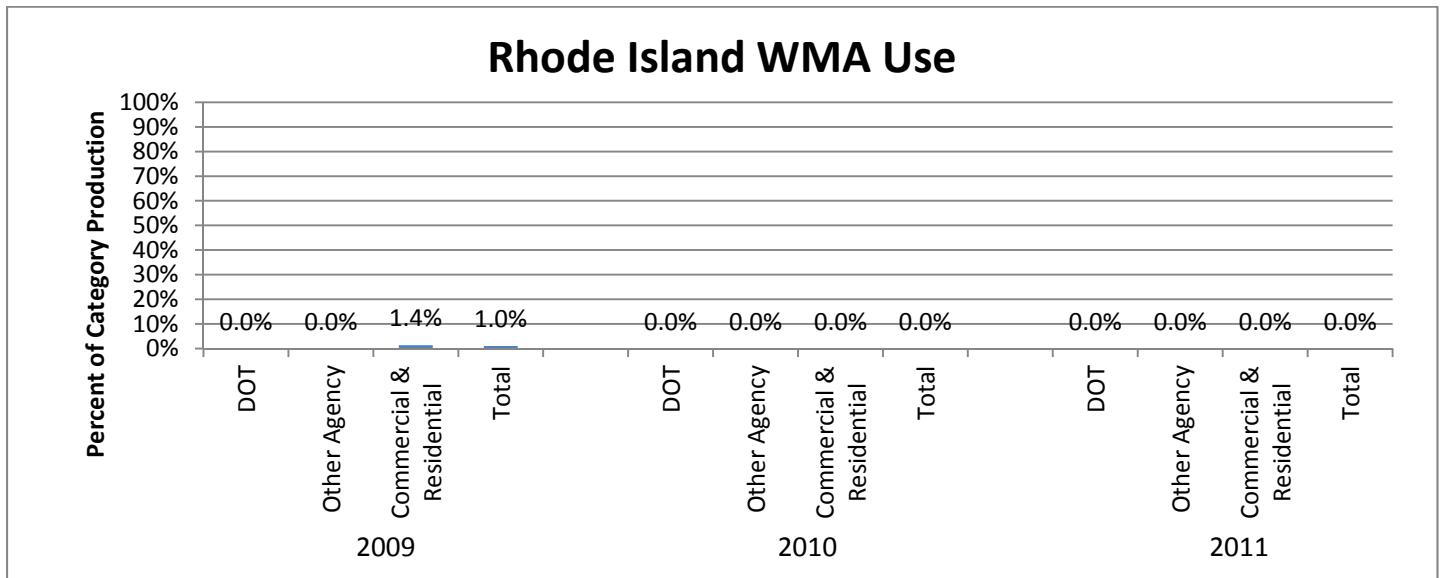


Table B 40: Summary of Rhode Island Data for 2011

Companies Reporting

2

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	23,000	190,745
Total Other Agency Tonnage	50,000	414,663
Total Commercial & Residential Tonnage	135,000	1,119,591
Total Tonnage	208,000	1,725,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	50%	
RAP Tons Received	24,000	199,038
RAP Tons used in HMA/WMA	16,000	132,692
RAP Tons used as Aggregate	13,293	110,242
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	13%	
Average % RAP in Commercial & Residential Mixes	9%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
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%	

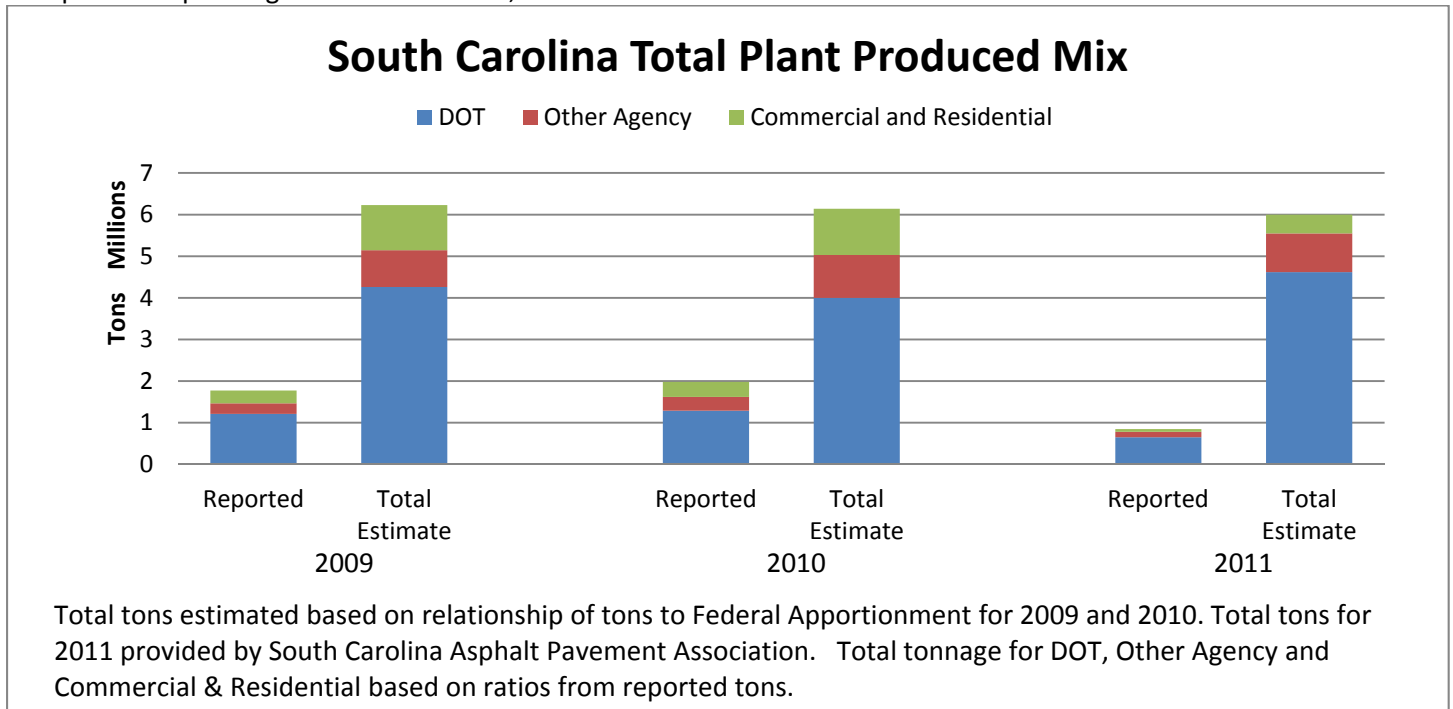
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

South Carolina

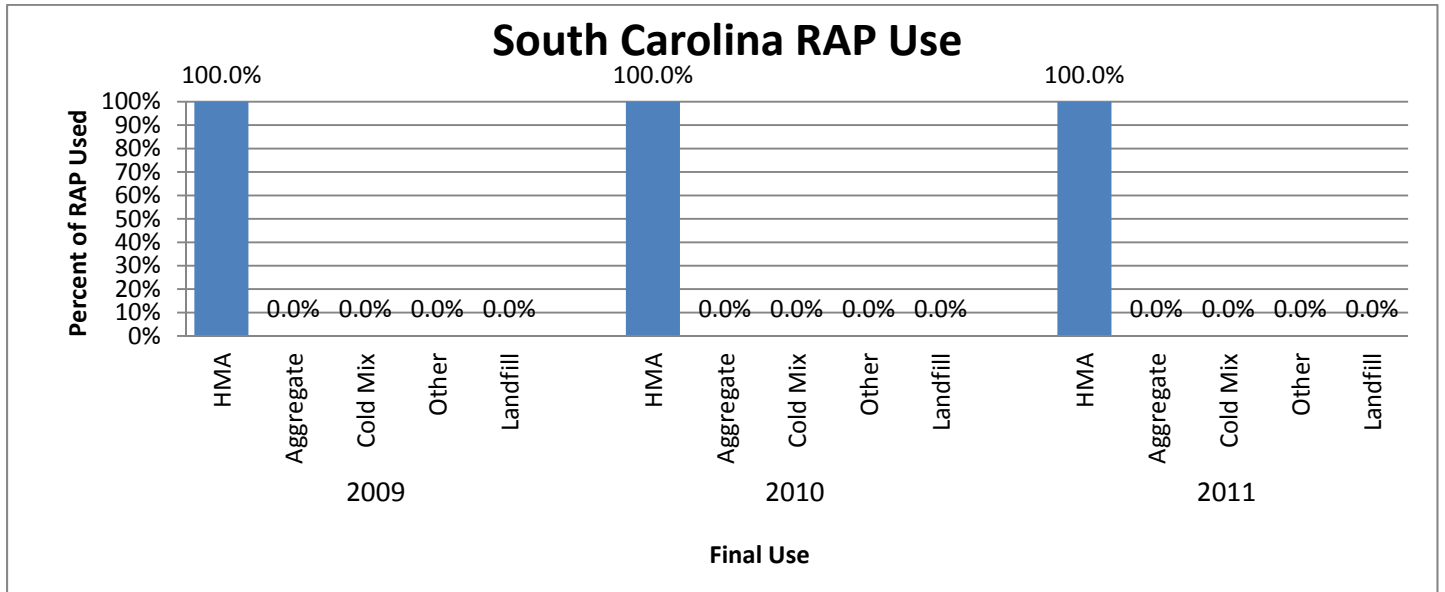
Table B42 summarizes the results received from asphalt mix producers in South Carolina. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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

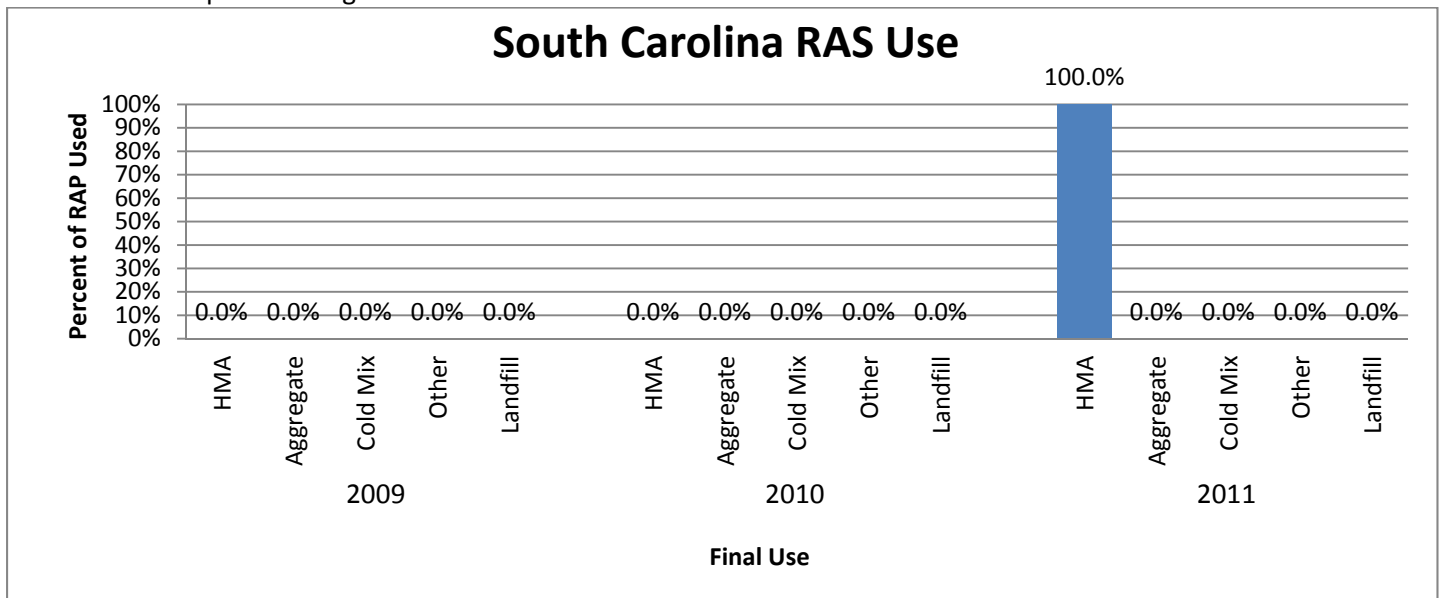


RAP Use



RAS Use

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



WMA Use

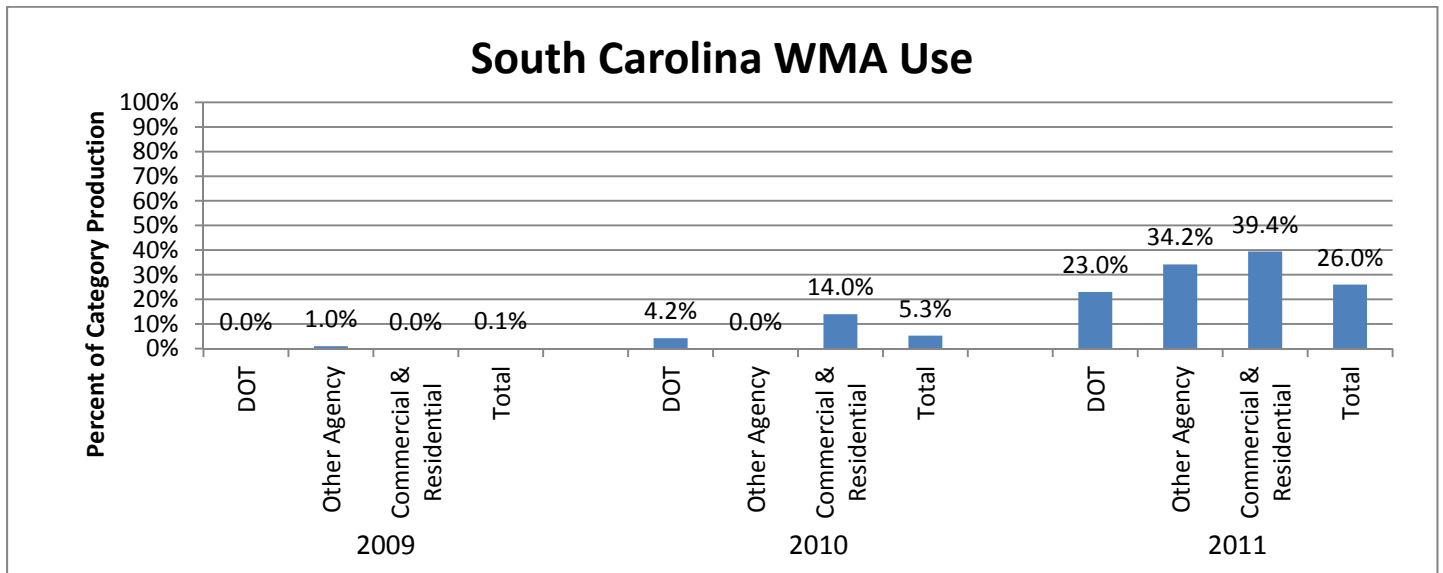


Table B 41: Summary of South Carolina Data for 2011

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	651,650	4,617,538
Total Other Agency Tonnage	131,650	932,861
Total Commercial & Residential Tonnage	63,450	449,601
Total Tonnage	846,750	6,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	221,100	1,566,696
RAP Tons used in HMA/WMA	182,748	1,294,939
RAP Tons used as Aggregate	-	-
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	32%	
Average % RAP in Commercial & Residential Mixes	35%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	33%	
RAS Tons Received	25,000	177,148
RAS Tons used in HMA/WMA	4,300	30,469
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	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	33%	
WMA DOT Tonnage	150,000	1,062,888
WMA Other Agency Tonnage	45,000	318,866
WMA Commercial & Residential Tonnage	25,000	177,148
Total WMA Tonnage	220,000	1,558,902
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%	

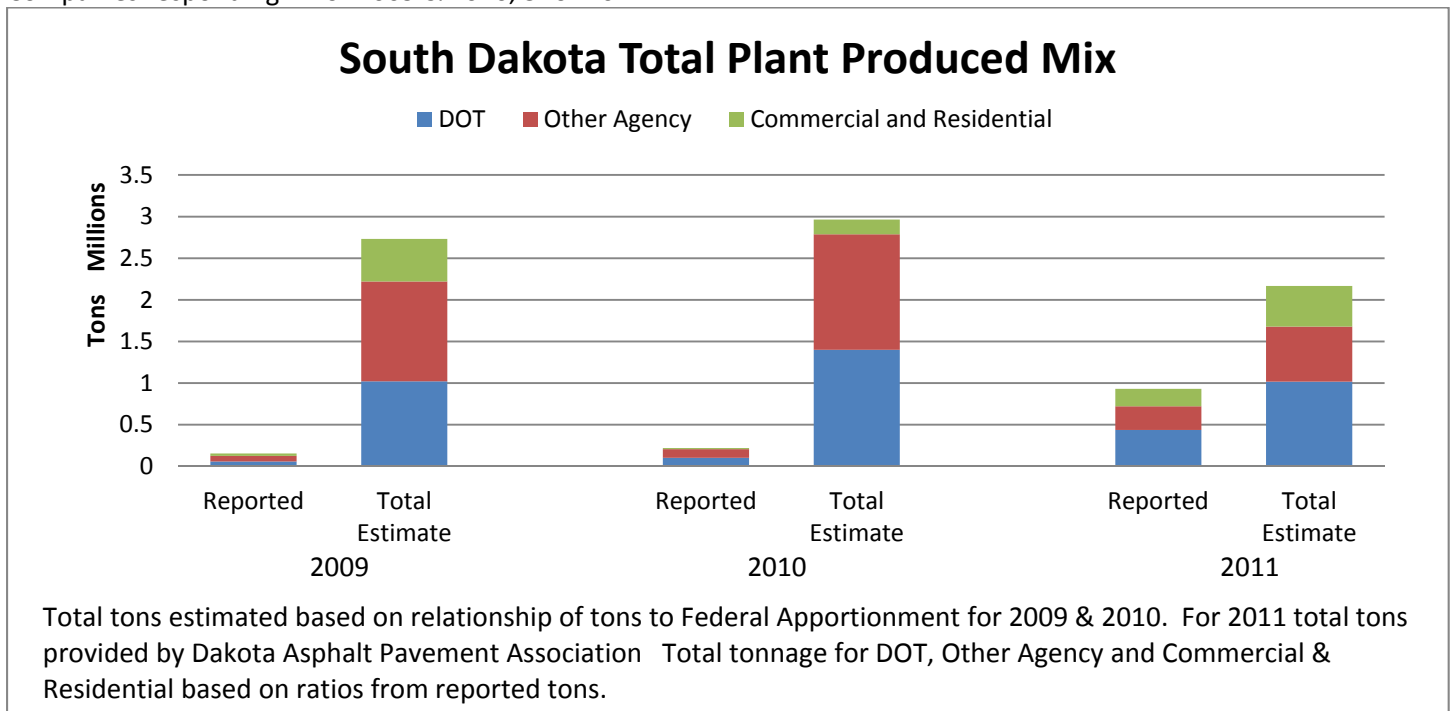
1. Total tons provided by South Carolina Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

South Dakota

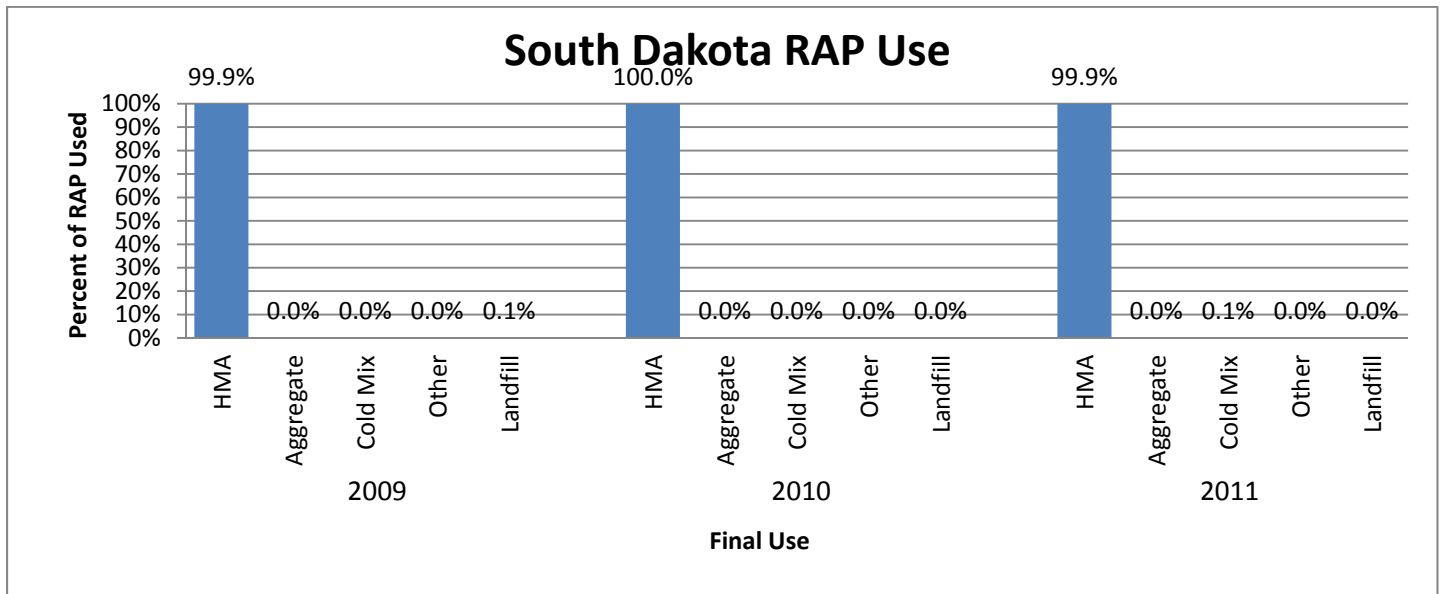
Table B43 summarizes the results received from asphalt mix producers in South Dakota. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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

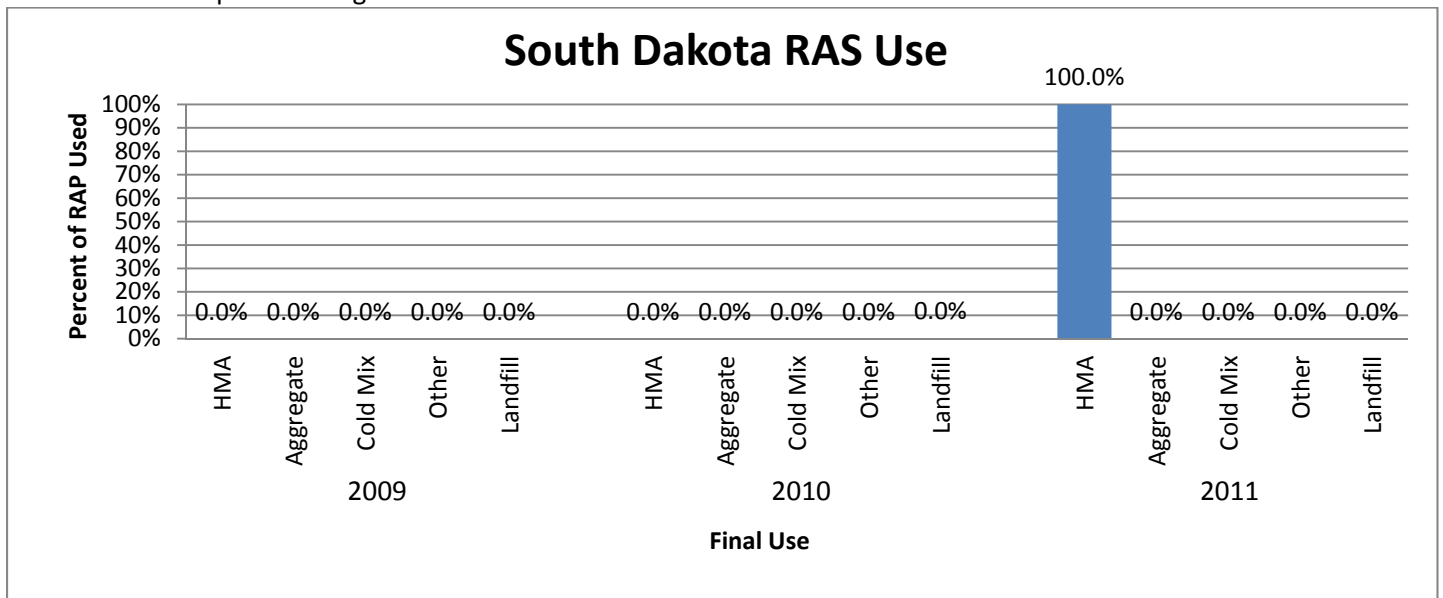


RAP Use



RAS Use

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



WMA Use

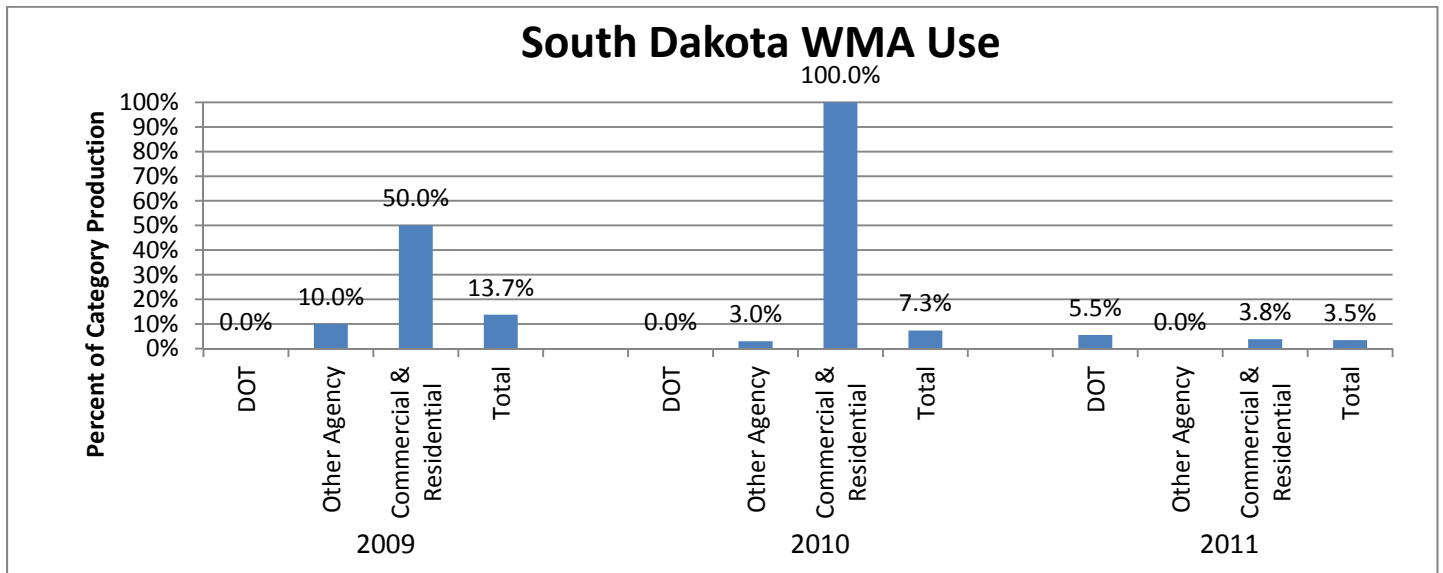


Table B 42: Summary of South Dakota Data for 2011

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	437,635	1,018,417
Total Other Agency Tonnage	283,785	660,394
Total Commercial & Residential Tonnage	209,785	488,189
Total Tonnage	931,205	2,167,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	160,000	372,335
RAP Tons used in HMA/WMA	163,666	380,866
RAP Tons used as Aggregate	-	-
RAP Tons used in Cold Mix	100	233
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	10%	
Average % RAP in Other Agency Mixes	21%	
Average % RAP in Commercial & Residential Mixes	21%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	67%	
RAS Tons Received	2,400	5,585
RAS Tons used in HMA/WMA	673	1,565
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	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	67%	
WMA DOT Tonnage	24,226	56,376
WMA Other Agency Tonnage	-	-
WMA Commercial & Residential Tonnage	8,000	18,617
Total WMA Tonnage	32,226	74,993
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%	

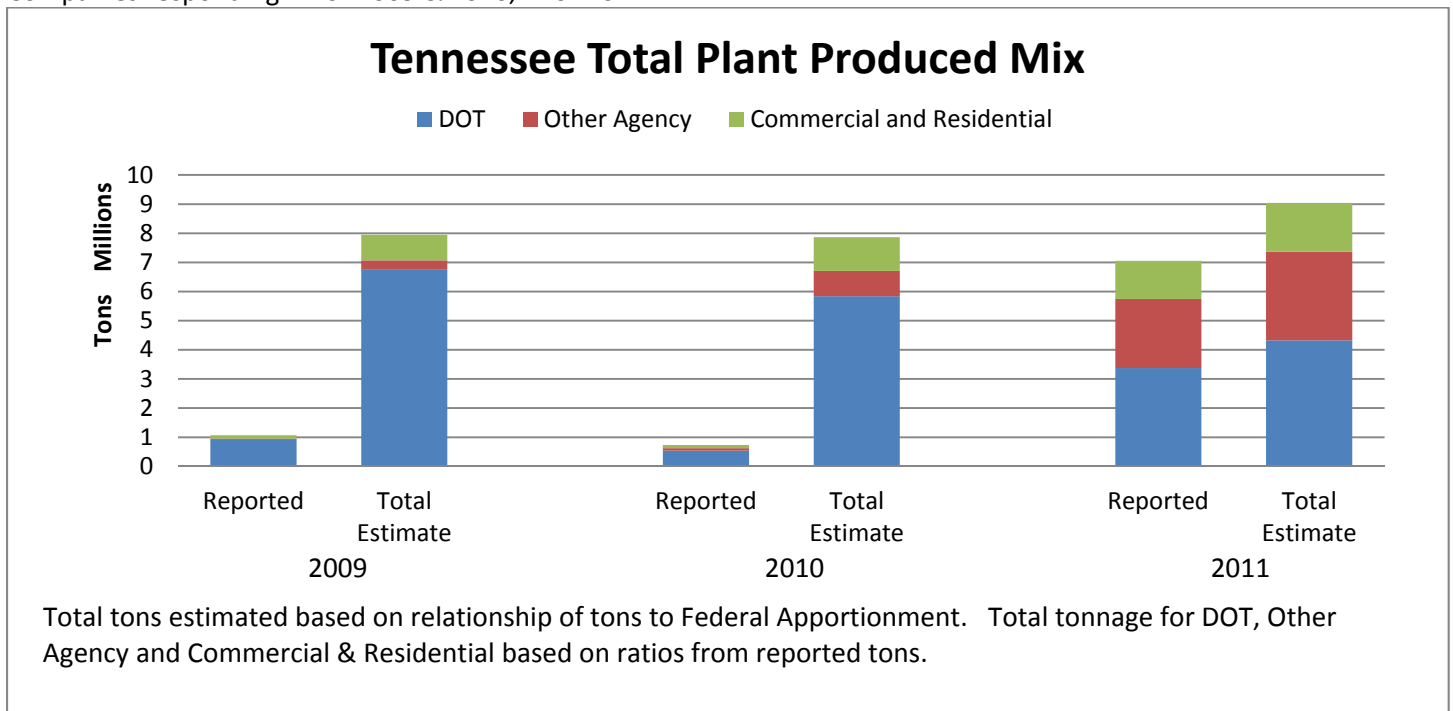
1. Total tons estimated based on relationship of tons to Federal Apportionment for 2009 & 2010. For 2011 total tons provided by Dakota Asphalt Pavement Association Total tonnage for DOT, Other Agency and Commercial & Residential based on ratios from reported tons.

Tennessee

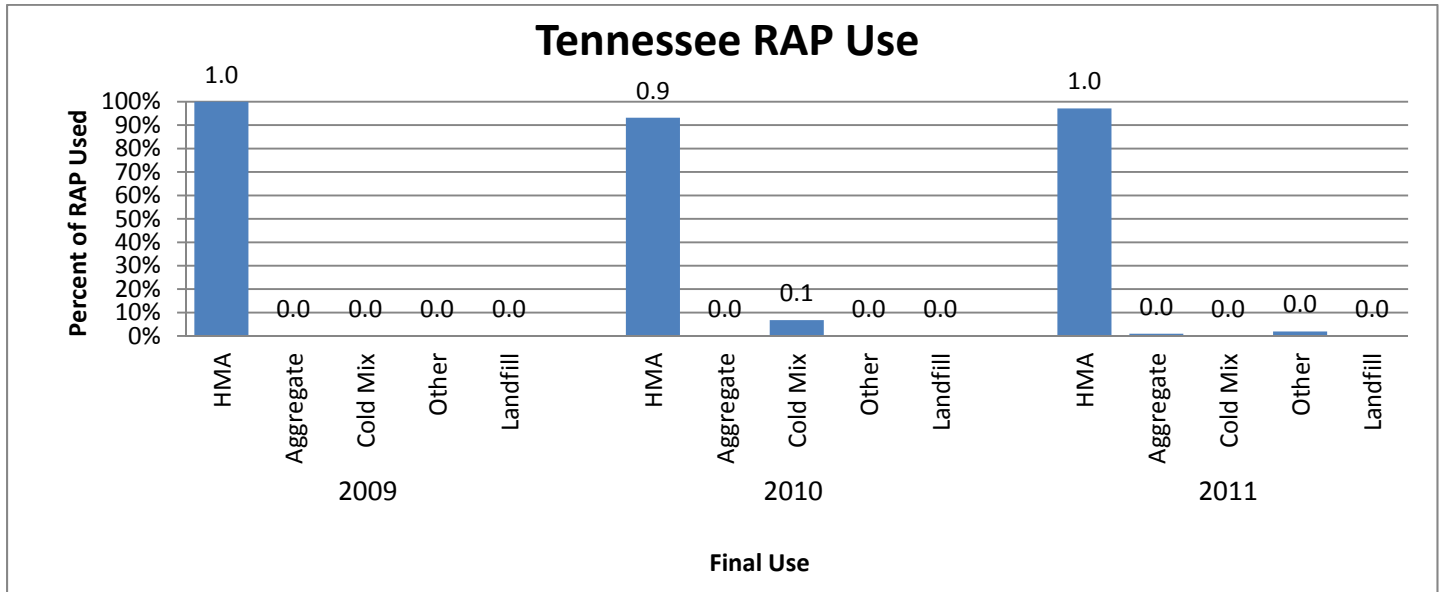
Table B44 summarizes the results received from asphalt mix producers in Tennessee. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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

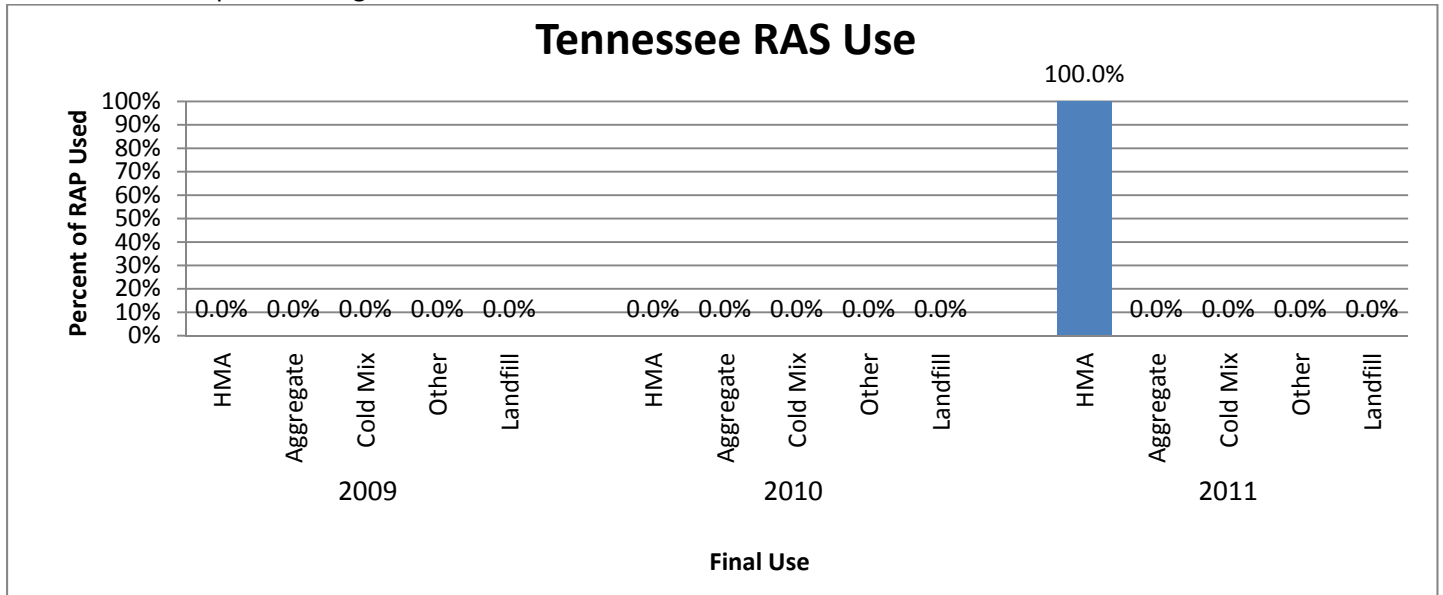


RAP Use



RAS Use

No contractors reported using RAS in 2009 or 2010.



WMA Use

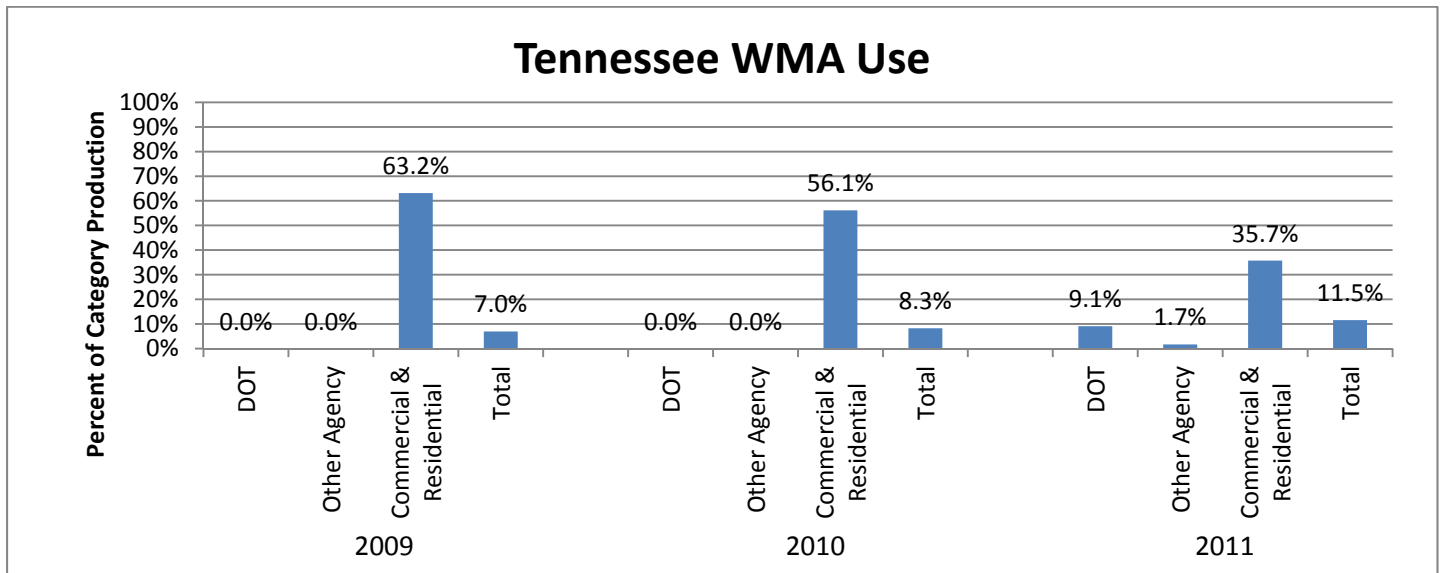


Table B 43: Summary of Tennessee Data for 2011

Companies Reporting

7

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	3,376,134	4,326,947
Total Other Agency Tonnage	2,370,853	3,038,551
Total Commercial & Residential Tonnage	1,307,323	1,675,502
Total Tonnage	7,054,310	9,041,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	1,420,040	1,819,963
RAP Tons used in HMA/WMA	1,010,352	1,294,895
RAP Tons used as Aggregate	10,000	12,816
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	20,000	25,633
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	15%	
Average % RAP in Other Agency Mixes	16%	
Average % RAP in Commercial & Residential Mixes	21%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	29%	
RAS Tons Received	20,749	26,592
RAS Tons used in HMA/WMA	4,000	5,127
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	1%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	86%	
WMA DOT Tonnage	307,938	394,661
WMA Other Agency Tonnage	39,406	50,504
WMA Commercial & Residential Tonnage	466,766	598,221
Total WMA Tonnage	814,110	1,043,386
Percent WMA Tons using Chemical Additives	8.9%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	91.1%	
Percent WMA Tons using Organic Additive	0.0%	

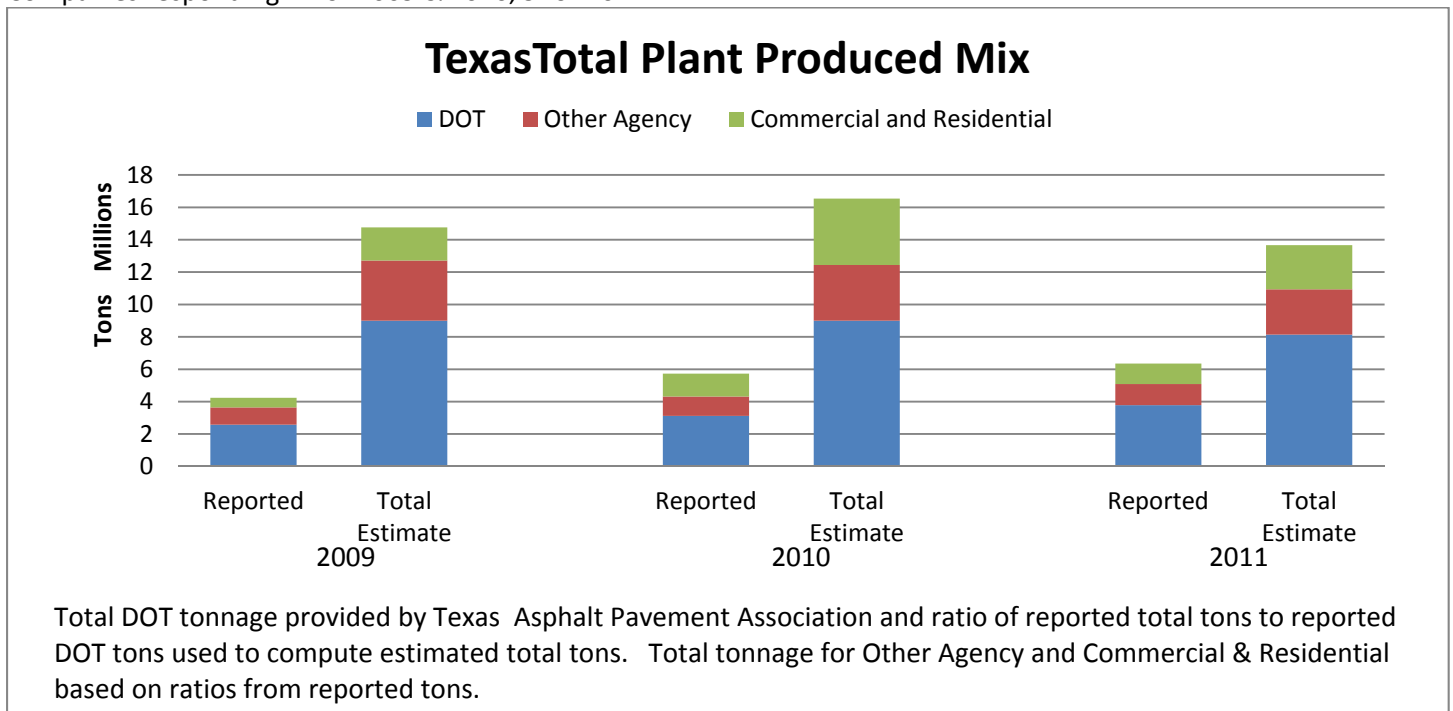
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Texas

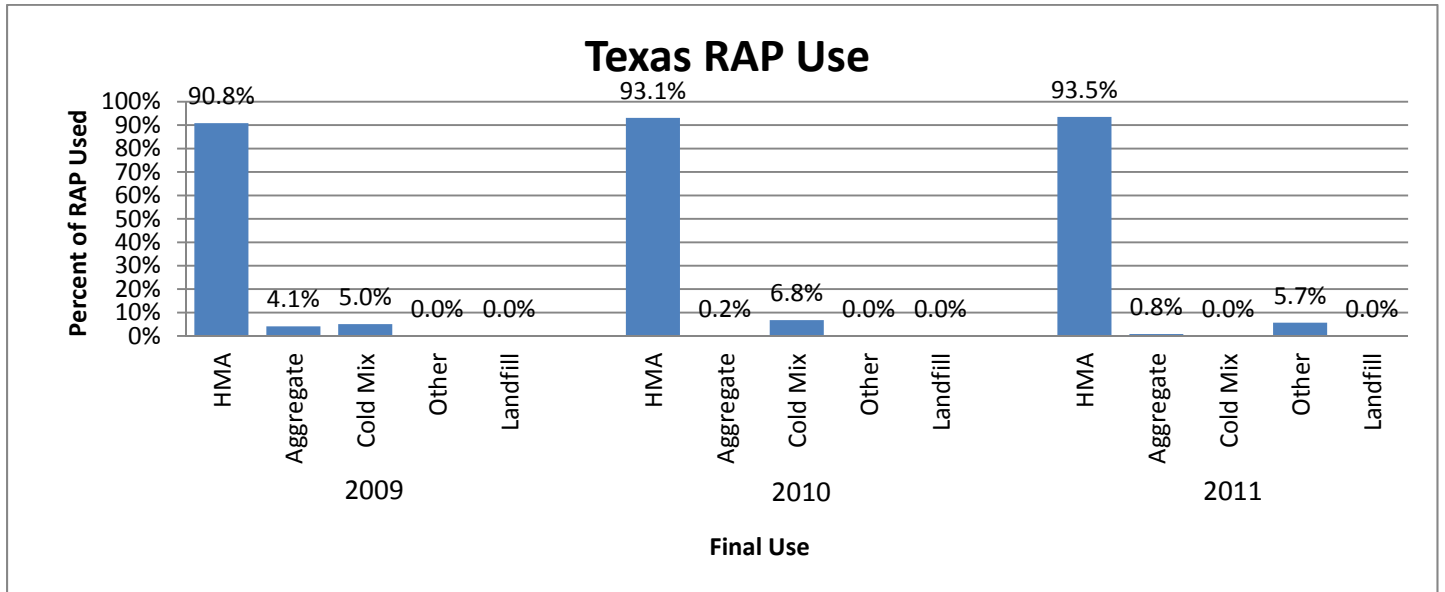
Table B45 summarizes the results received from asphalt mix producers in Texas. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

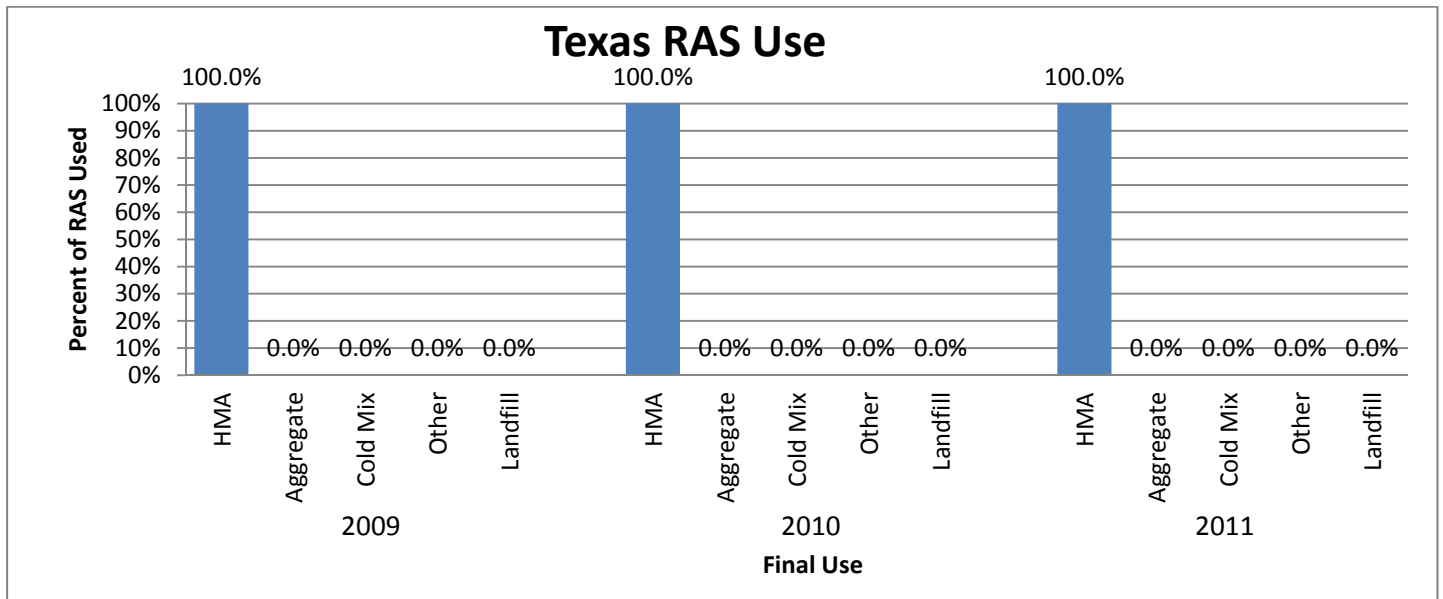
Companies responding: 7 for 2009 & 2010, 9 for 2011



RAP Use



RAS Use



WMA Use

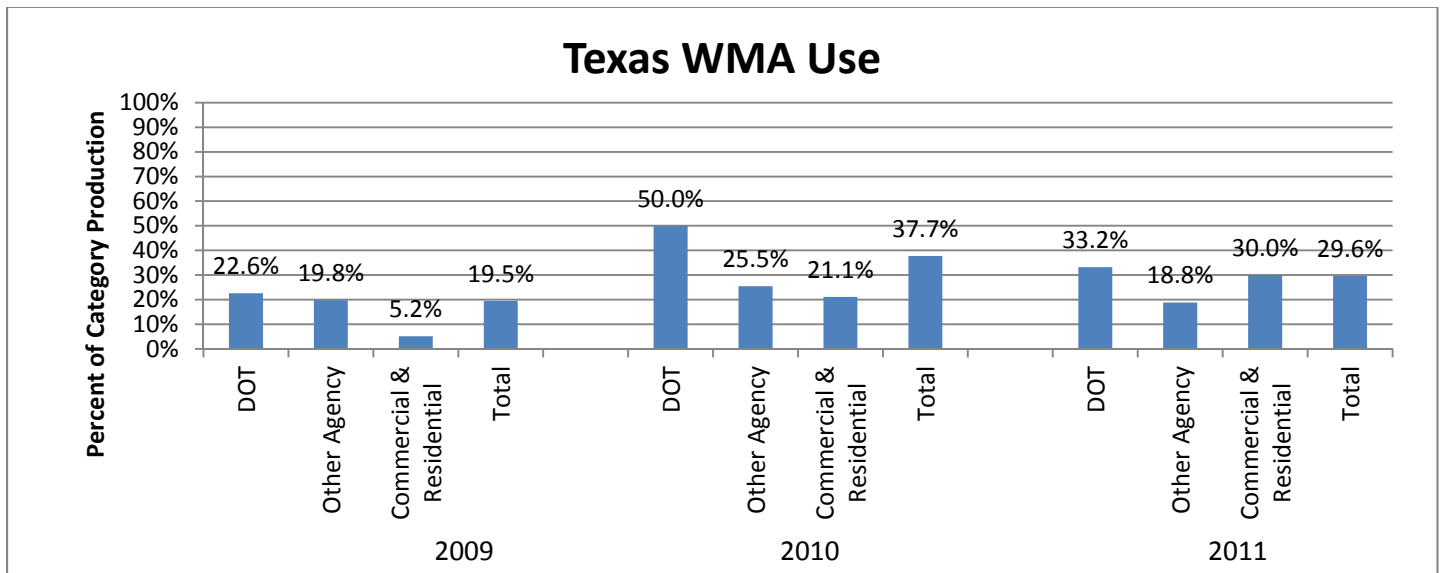


Table B 44: Summary of Texas Data for 2011

Companies Reporting

9

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	3,785,027	8,139,744
Total Other Agency Tonnage	1,302,220	2,800,439
Total Commercial & Residential Tonnage	1,267,985	2,726,817
Total Tonnage	6,355,231	13,667,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	89%	
RAP Tons Received	739,490	1,590,282
RAP Tons used in HMA/WMA	857,709	1,844,513
RAP Tons used as Aggregate	7,690	16,537
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	52,100	112,042
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	20%	
Average % RAP in Other Agency Mixes	13%	
Average % RAP in Commercial & Residential Mixes	17%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	78%	
RAS Tons Received	125,698	270,315
RAS Tons used in HMA/WMA	78,470	168,750
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	4%	
Average % RAS in Commercial & Residential Mixes	3%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	78%	
WMA DOT Tonnage	1,257,405	2,704,064
WMA Other Agency Tonnage	245,372	527,674
WMA Commercial & Residential Tonnage	380,698	818,696
Total WMA Tonnage	1,883,475	4,050,435
Percent WMA Tons using Chemical Additives	2.4%	
Percent WMA Tons using Additive Foaming	2.8%	
Percent WMA Tons using Plant Foaming	94.9%	
Percent WMA Tons using Organic Additive	0.0%	

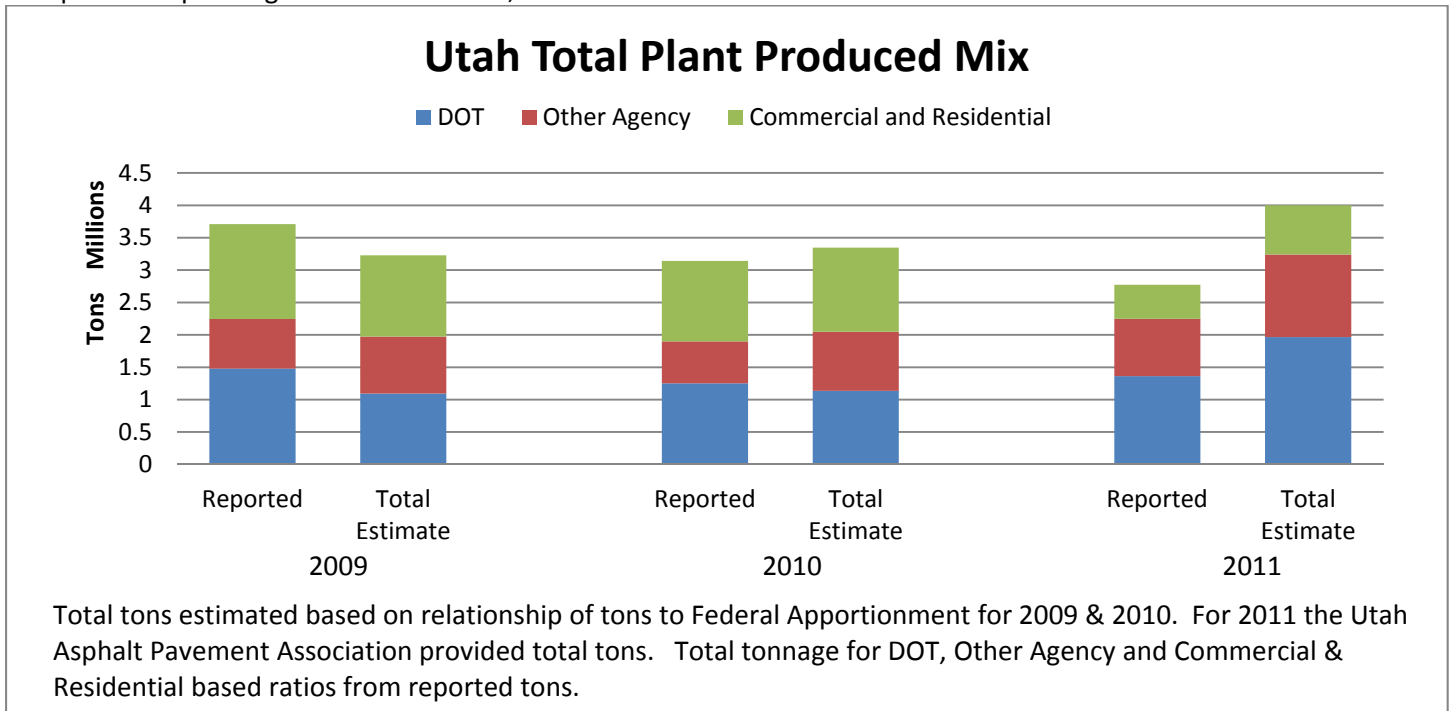
1. Total DOT tonnage provided by Texas Asphalt Pavement Association and ratio of reported total tons to reported DOT tons used to compute estimated total tons. Total tonnage for Other Agency and Commercial & Residential ratios from reported tons.

Utah

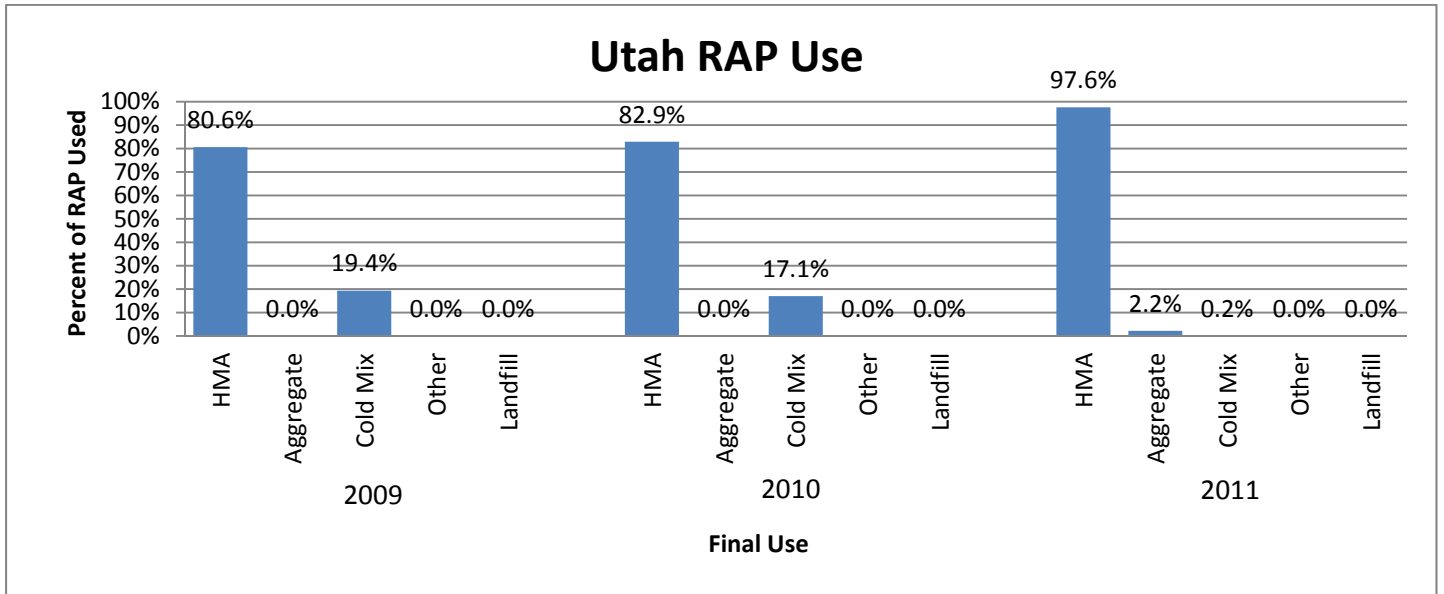
Table B46 summarizes the results received from asphalt mix producers in Utah. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use

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

WMA Use

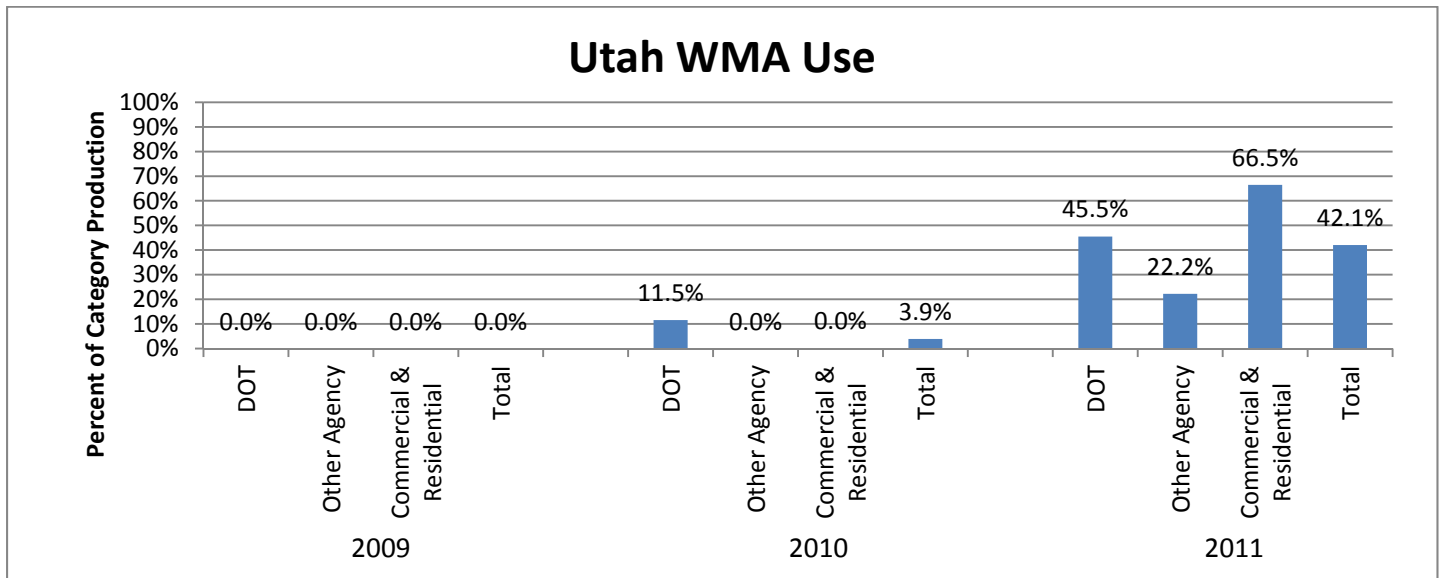


Table B 45: Summary of Utah Data for 2011

Companies Reporting

6

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,362,272	1,964,707
Total Other Agency Tonnage	884,479	1,275,621
Total Commercial & Residential Tonnage	526,735	759,672
Total Tonnage	2,773,485	4,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	1,669,722	2,408,121
RAP Tons used in HMA/WMA	701,092	1,011,135
RAP Tons used as Aggregate	16,000	23,076
RAP Tons used in Cold Mix	1,200	1,731
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	32%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	67%	
WMA DOT Tonnage	619,893	894,027
WMA Other Agency Tonnage	196,230	283,009
WMA Commercial & Residential Tonnage	350,178	505,036
Total WMA Tonnage	1,166,301	1,682,073
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%	

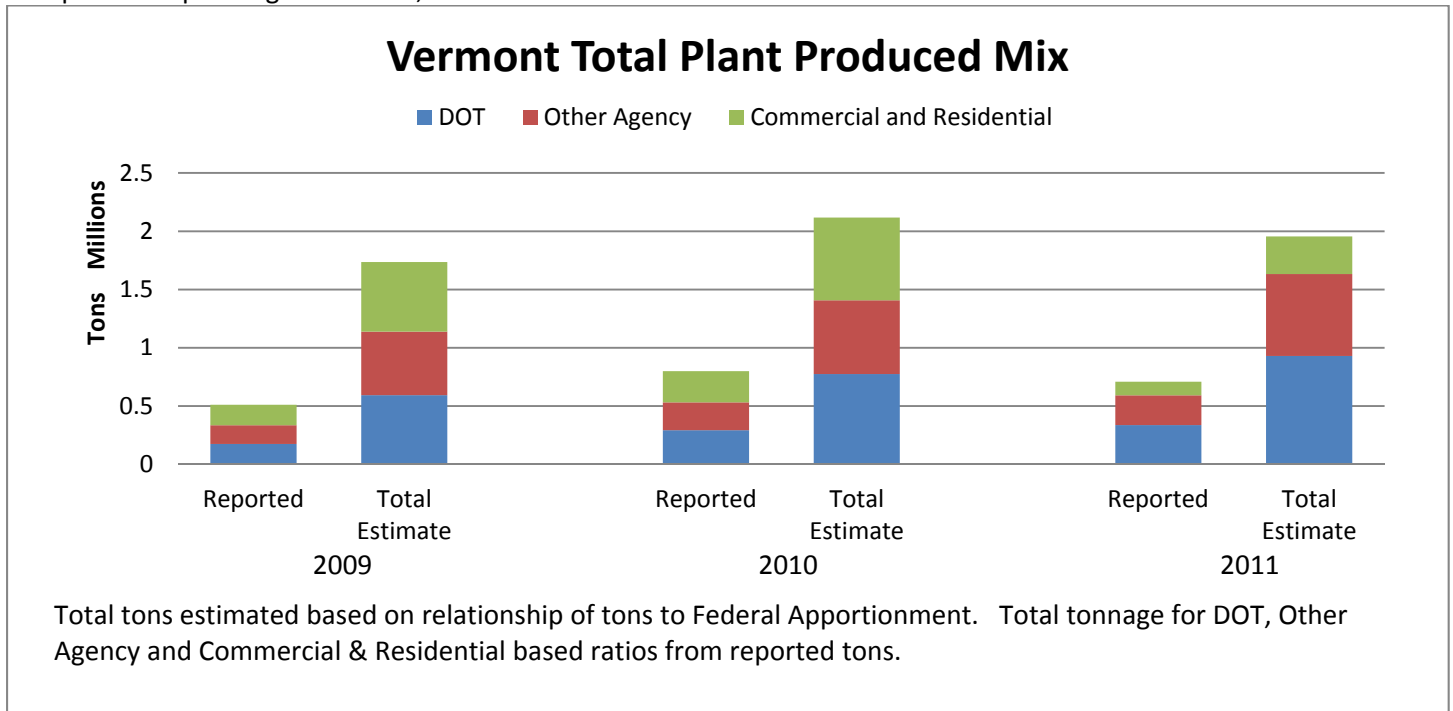
1. Total tons provided by the Utah Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Vermont

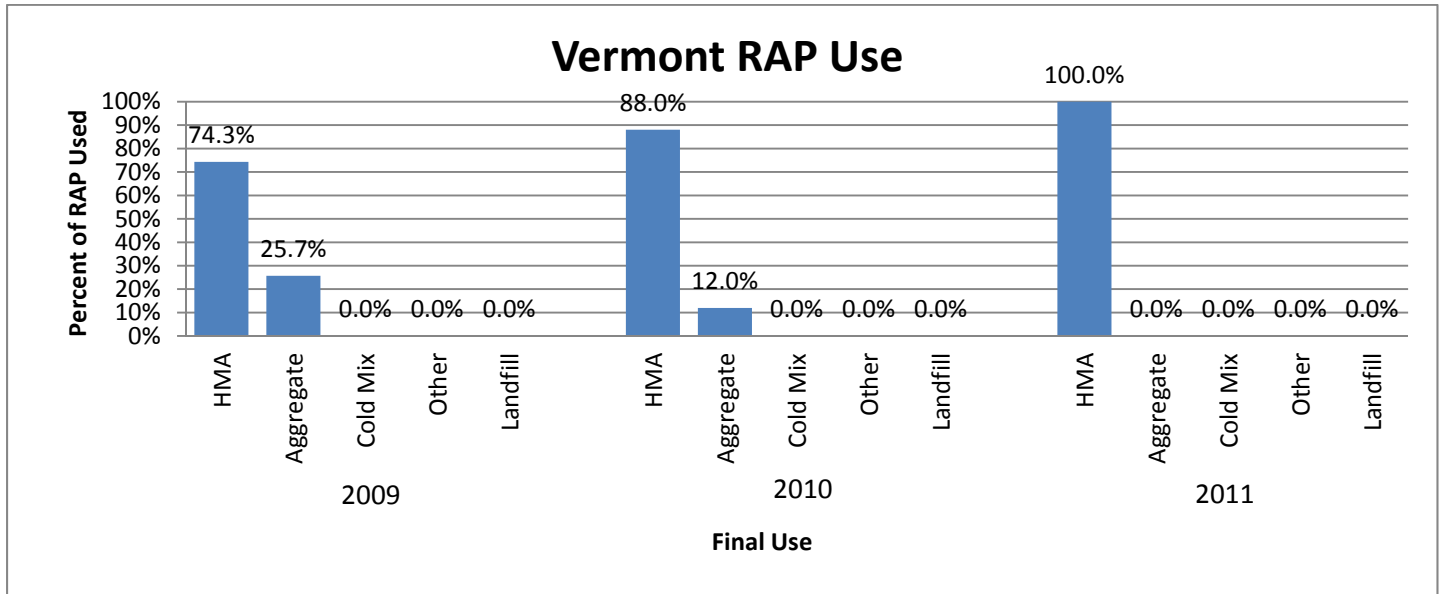
Table B47 summarizes the results received from asphalt mix producers in Vermont. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

Companies responding: 1 for 2009, 2010 & 2011



RAP Use



RAS Use

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

WMA Use

No contractor reported using WMA in 2009 or 2010.

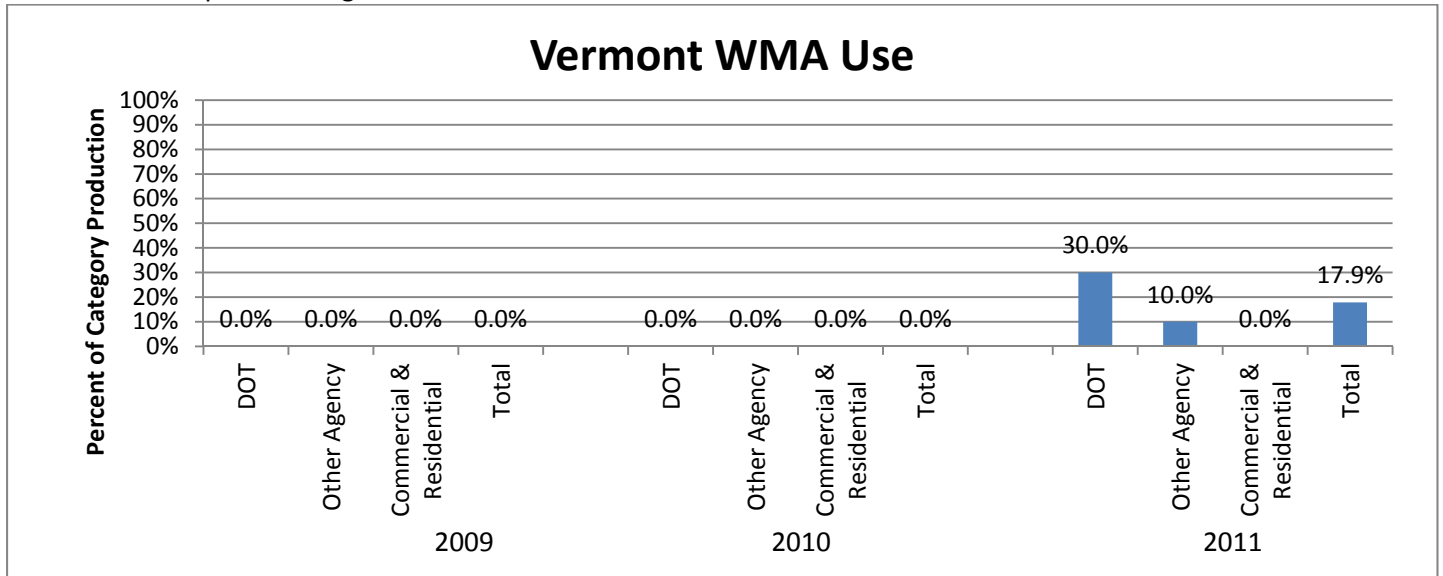


Table B 46: Summary of Vermont Data for 2011

Companies Reporting

1

HMA/WMA				
	Reported		Total Estimated ¹	
	2009	2010	2009	2010
Total DOT Tonnage	175,000	293,000	593,505	775,483
Total Other Agency Tonnage	161,000	239,000	546,024	632,561
Total Commercial & Residential Tonnage	176,000	268,000	596,896	709,315
Total Tonnage	512,000	800,000	1,736,425	2,117,360
Reclaimed Asphalt Pavement (RAP)				
	Reported		Total Estimated	
	2009	2010	2009	2010
Percent Companies using RAP	100%	100%		
RAP Tons Received	91,000	157,000	308,622	415,532
RAP Tons used in HMA/WMA	107,000	162,000	362,886	428,765
RAP Tons used as Aggregate	37,000	22,000	125,484	58,227
RAP Tons used in Cold Mix	-	-	-	-
RAP Tons used as Other	-	-	-	-
RAP Tons Landfilled	21	20	71	54
Average % RAP in DOT Mixes	15%	15%		
Average % RAP in Other Agency Mixes	25%	25%		
Average % RAP in Commercial & Residential Mixes	25%	25%		
Reclaimed Asphalt Shingles (RAS)				
	Reported		Total Estimated	
	2009	2010	2009	2010
Percent Companies using RAS	0%	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%	0%		
Average % RAS in Other Agency Mixes	0%	0%		
Average % RAS in Commercial & Residential Mixes	0%	0%		
Warm-Mix Asphalt				
	Reported		Total Estimated	
	2009	2010	2009	2010
Percent Companies using WMA	0%	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%		

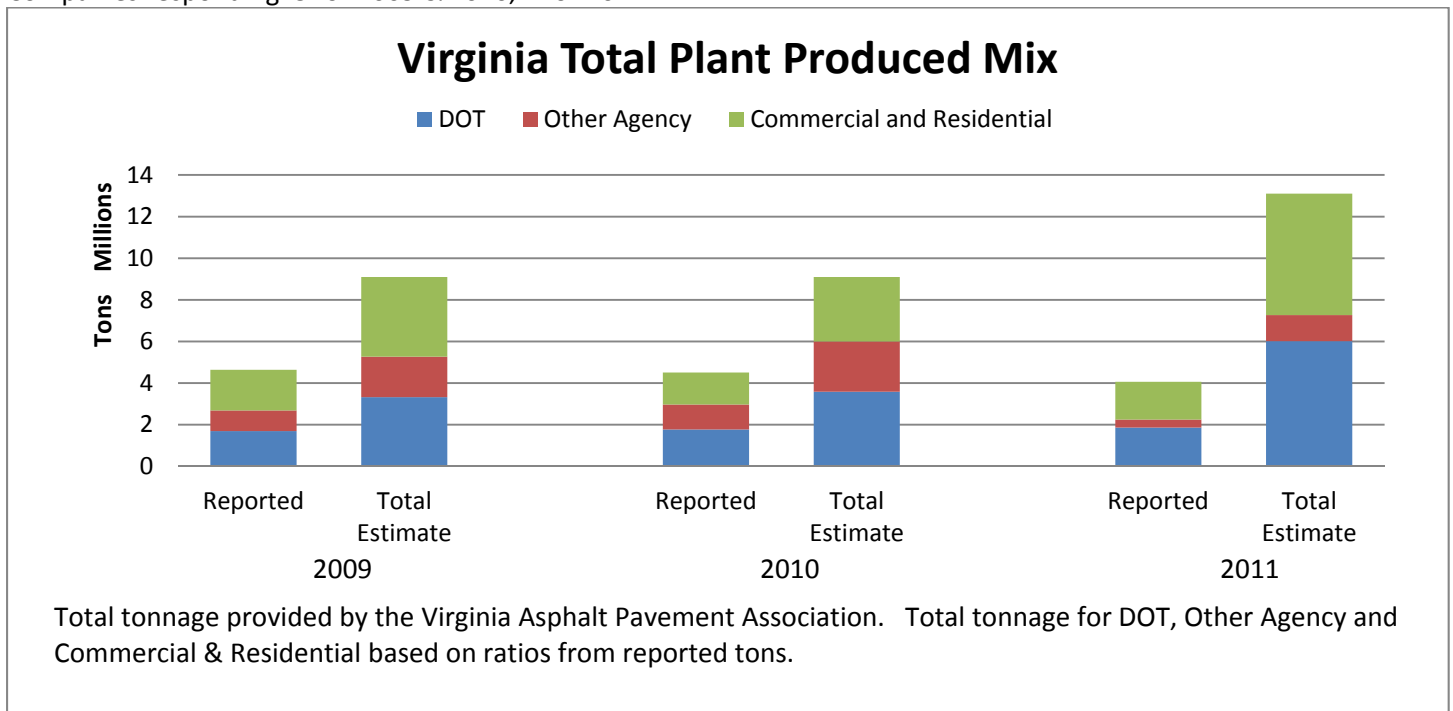
1. Total tons estimated based on relationship of tons to Federal Apportionment. Total tonnage for DOT, Other Agency and Commercial & Residential based on ratios from reported tons.

Virginia

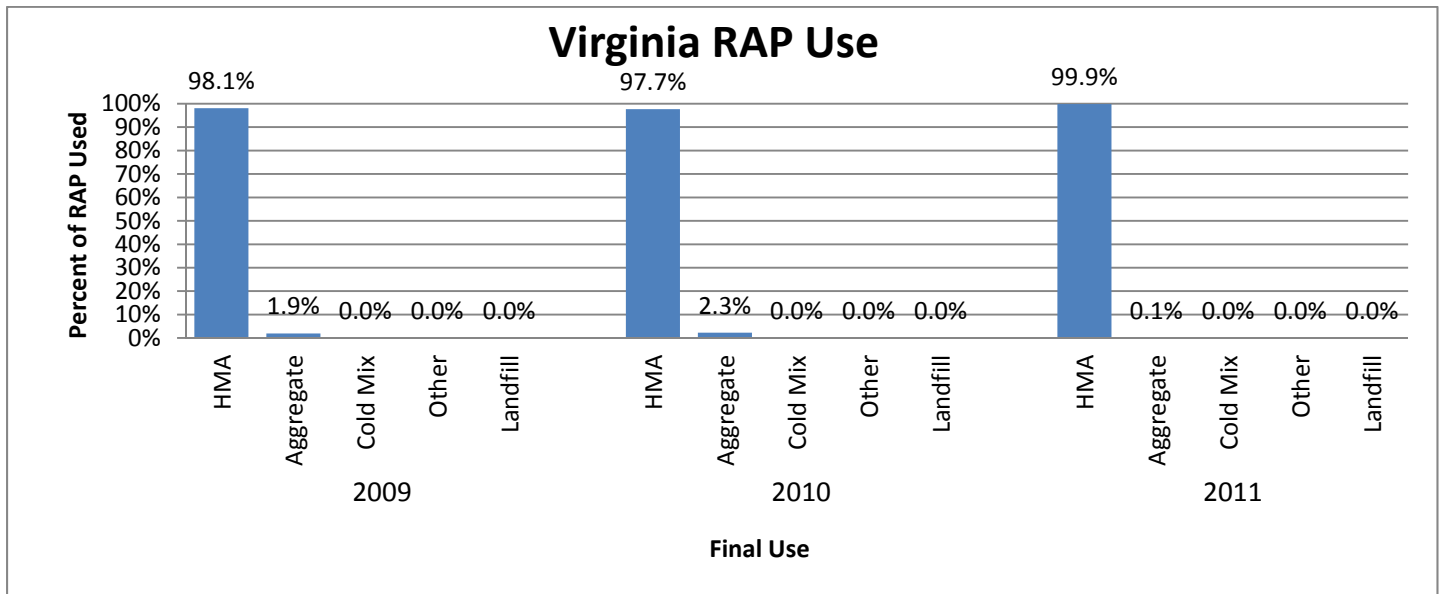
Table B48 summarizes the results received from asphalt mix producers in Virginia. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

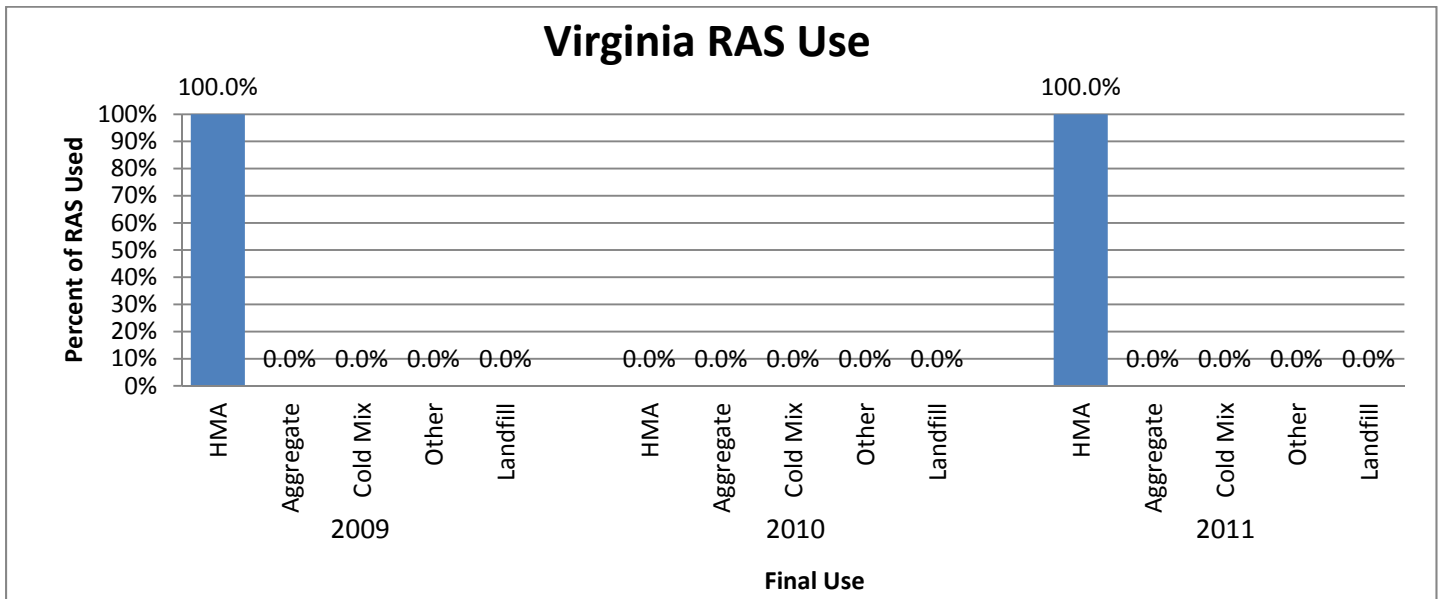
Companies responding: 5 for 2009 & 2010, 7 for 2011



RAP Use



RAS Use



WMA Use

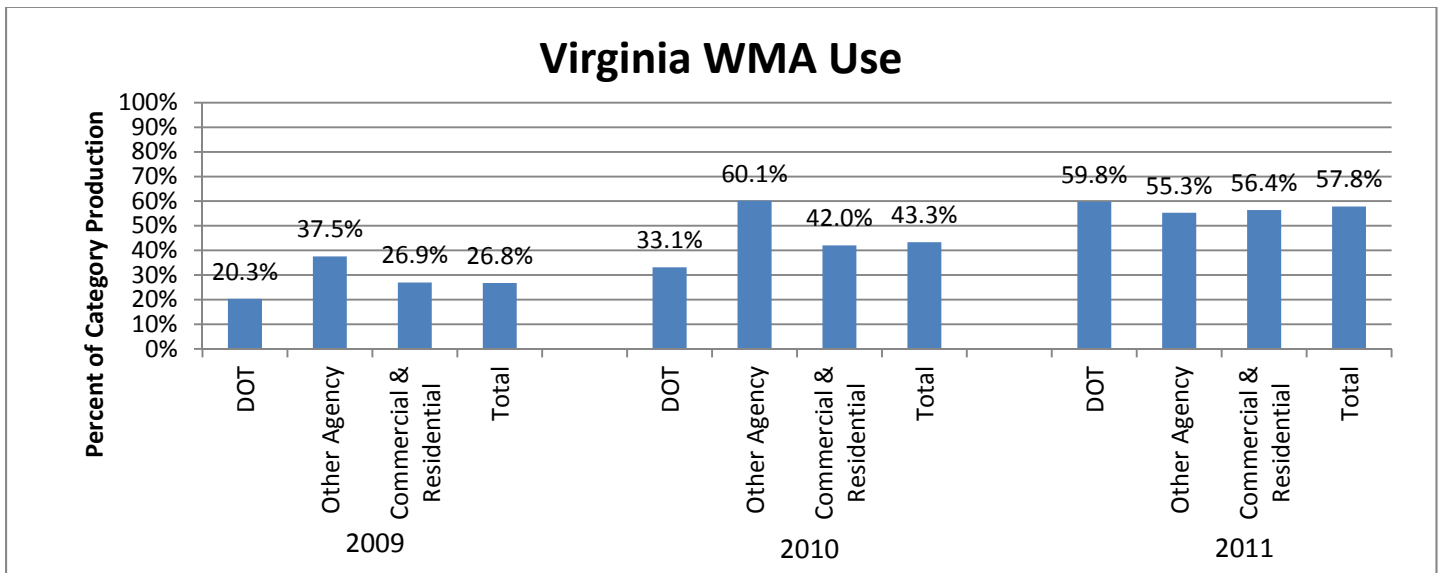


Table B 47: Summary of Virginia Data for 2011

Companies Reporting

7

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,865,012	6,017,189
Total Other Agency Tonnage	387,351	1,249,732
Total Commercial & Residential Tonnage	1,807,948	5,833,079
Total Tonnage	4,060,311	13,100,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	1,228,520	3,963,641
RAP Tons used in HMA/WMA	1,054,694	3,402,817
RAP Tons used as Aggregate	1,103	3,559
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	23%	
Average % RAP in Commercial & Residential Mixes	28%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	43%	
RAS Tons Received	100	323
RAS Tons used in HMA/WMA	2,277	7,346
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	2%	
Warm-Mix Asphalt		
	Reported	Total Estimated
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	1,114,468	3,595,669
WMA Other Agency Tonnage	214,187	691,044
WMA Commercial & Residential Tonnage	1,019,590	3,289,558
Total WMA Tonnage	2,348,245	7,576,270
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%	

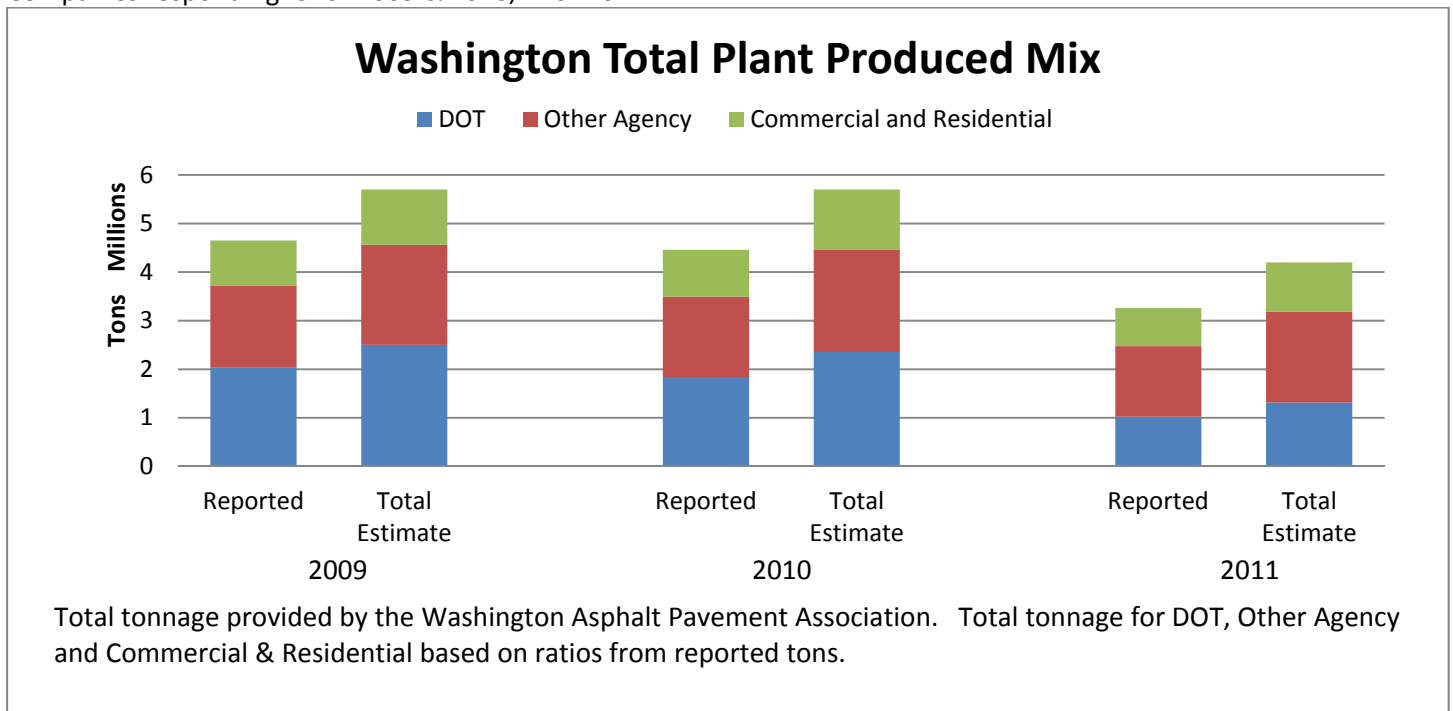
1. Total tonnage provided by the Virginia Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Washington

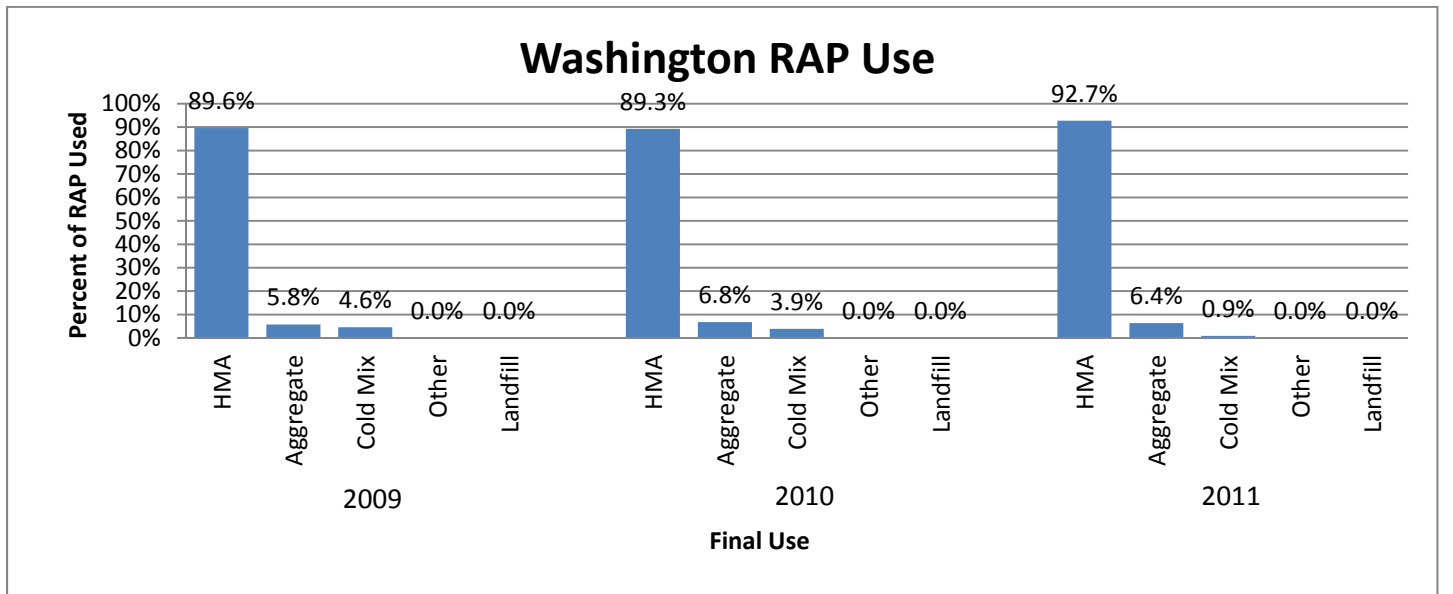
Table B49 summarizes the results received from asphalt mix producers in Washington. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

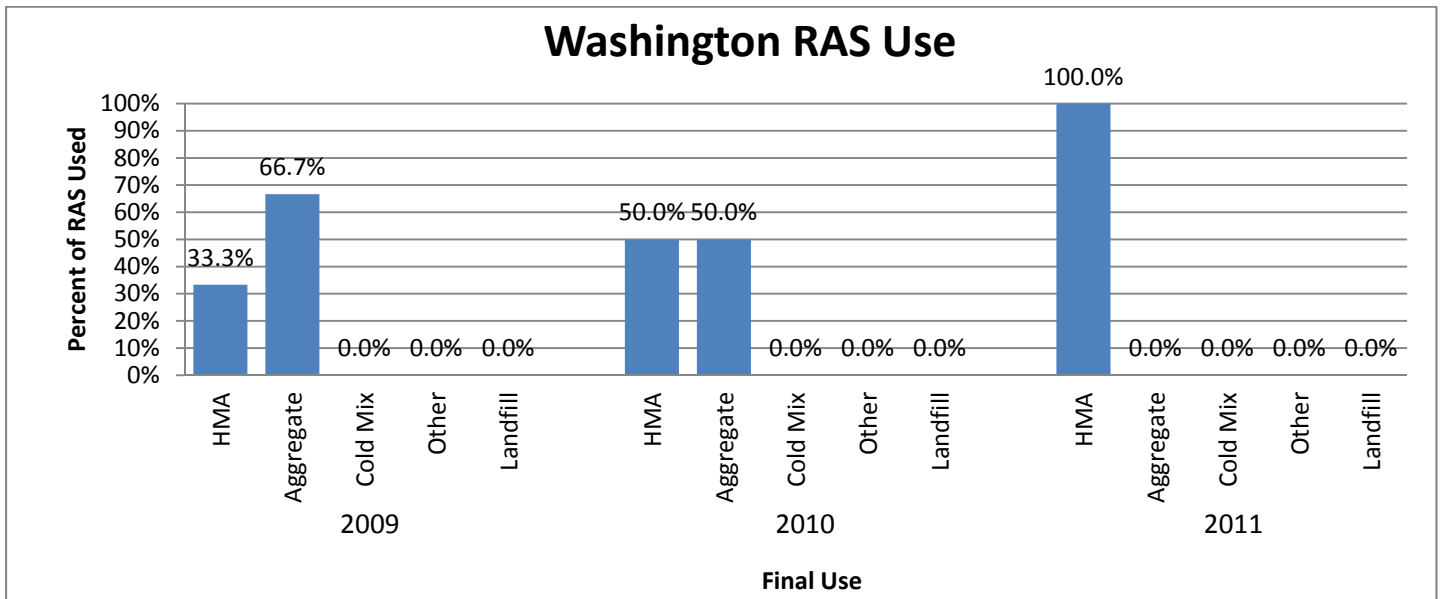
Companies responding: 6 for 2009 & 2010, 4 for 2011



RAP Use



RAS Use



WMA Use

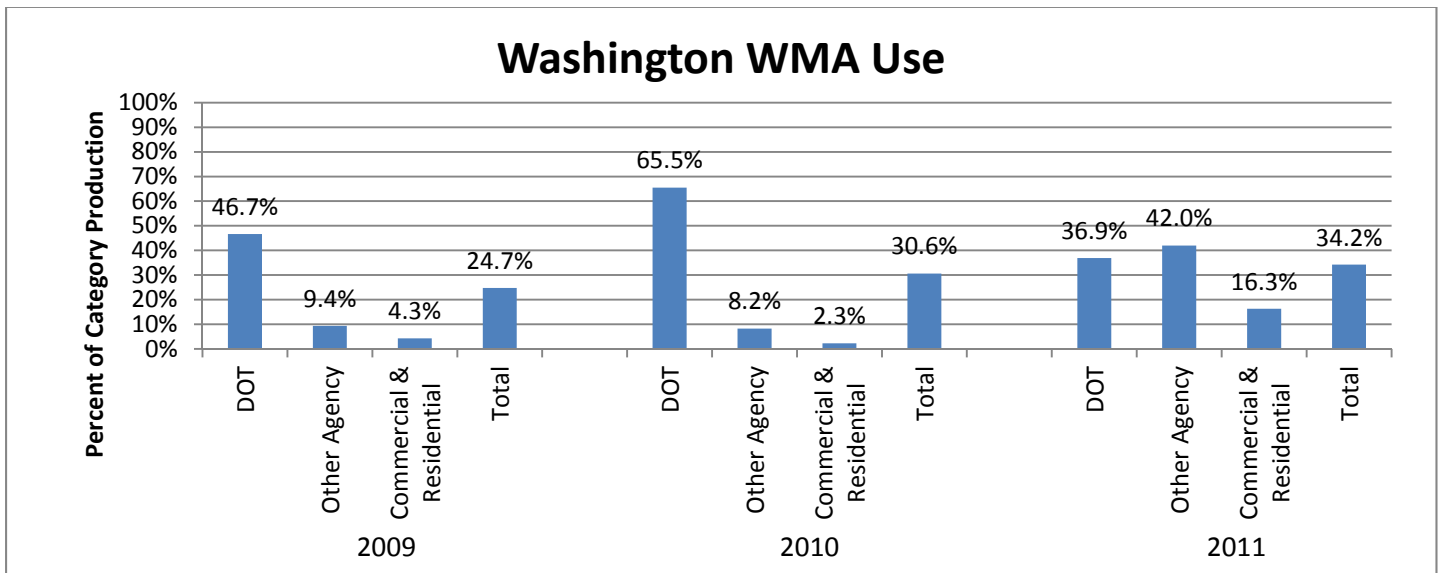


Table B 48: Summary of Washington data for 2011

Companies Reporting

4

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,022,193	1,316,408
Total Other Agency Tonnage	1,452,457	1,870,514
Total Commercial & Residential Tonnage	786,657	1,013,078
Total Tonnage	3,261,307	4,200,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	264,967	341,232
RAP Tons used in HMA/WMA	509,616	656,297
RAP Tons used as Aggregate	35,100	45,203
RAP Tons used in Cold Mix	4,857	6,255
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	9%	
Average % RAP in Other Agency Mixes	14%	
Average % RAP in Commercial & Residential Mixes	24%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	25%	
RAS Tons Received	1	1
RAS Tons used in HMA/WMA	351	452
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	377,270	485,858
WMA Other Agency Tonnage	609,770	785,278
WMA Commercial & Residential Tonnage	128,405	165,364
Total WMA Tonnage	1,115,444	1,436,500
Percent WMA Tons using Chemical Additives	0.0%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	98.3%	
Percent WMA Tons using Organic Additive	1.7%	

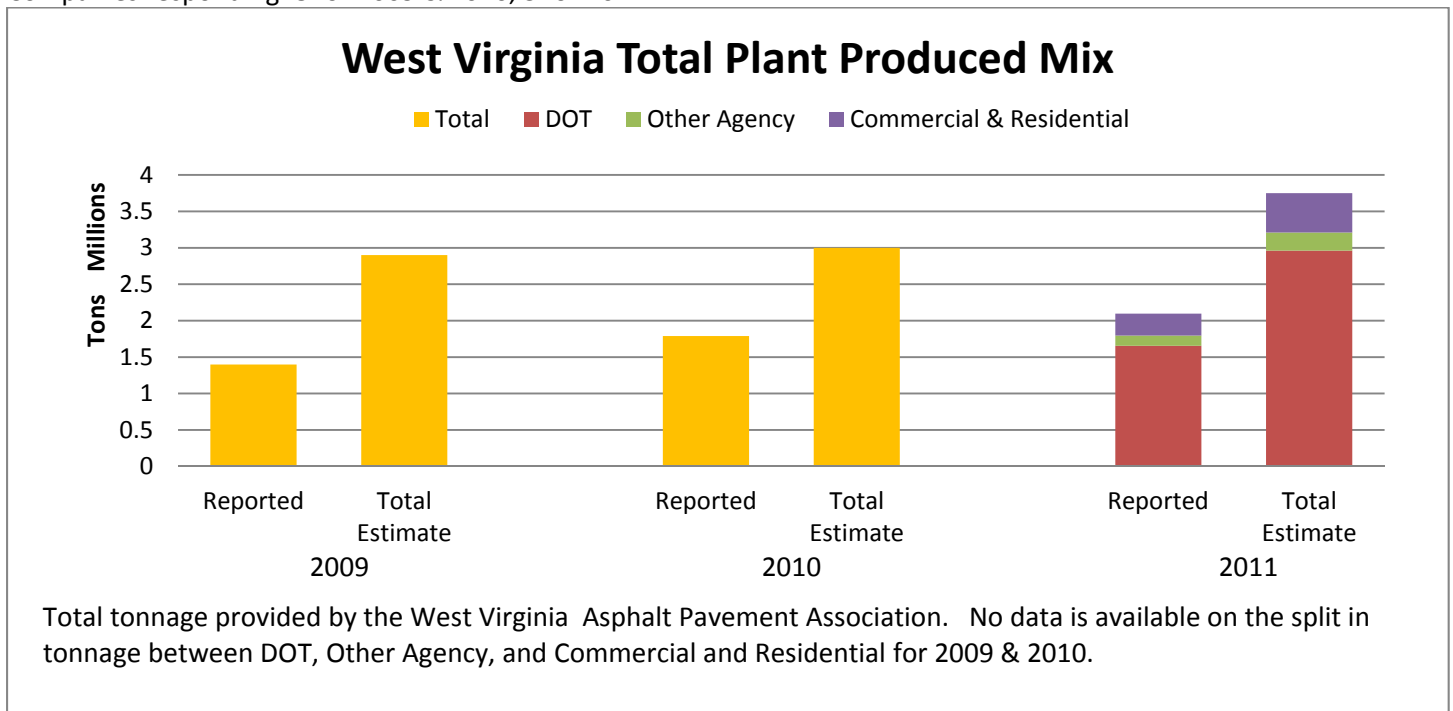
1. Total tonnage provided by the Washington Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

West Virginia

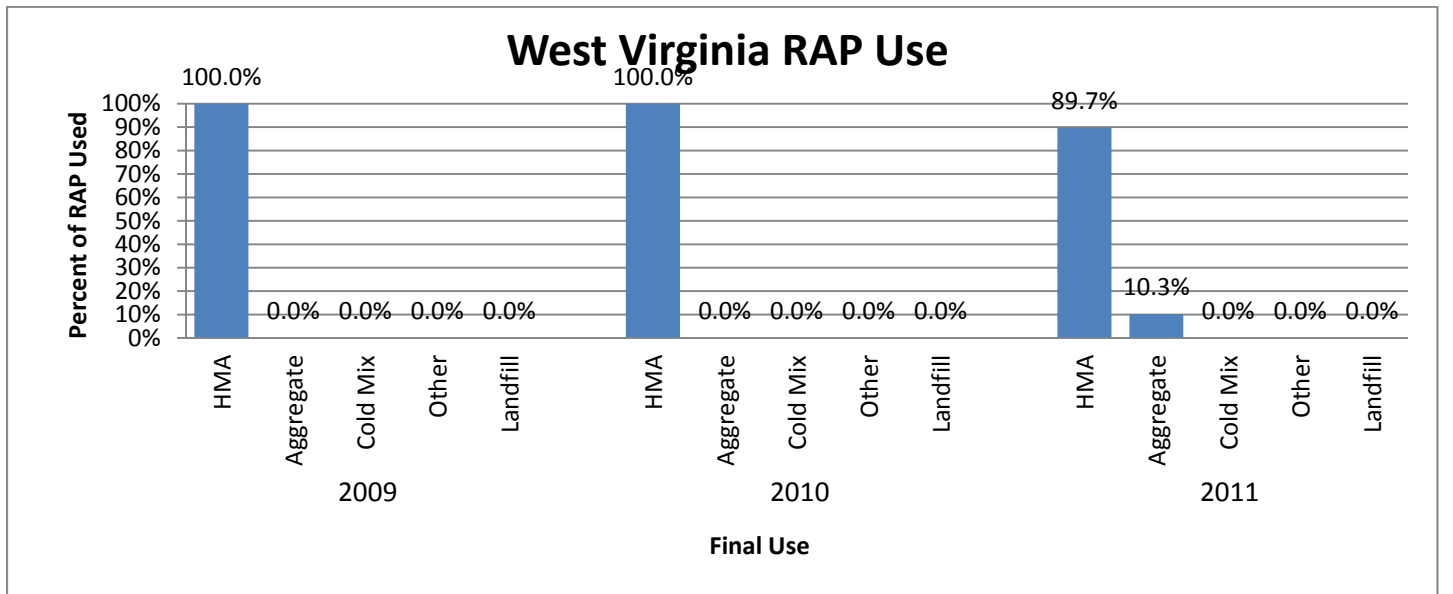
Table B50 summarizes the results received from asphalt mix producers in West Virginia. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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

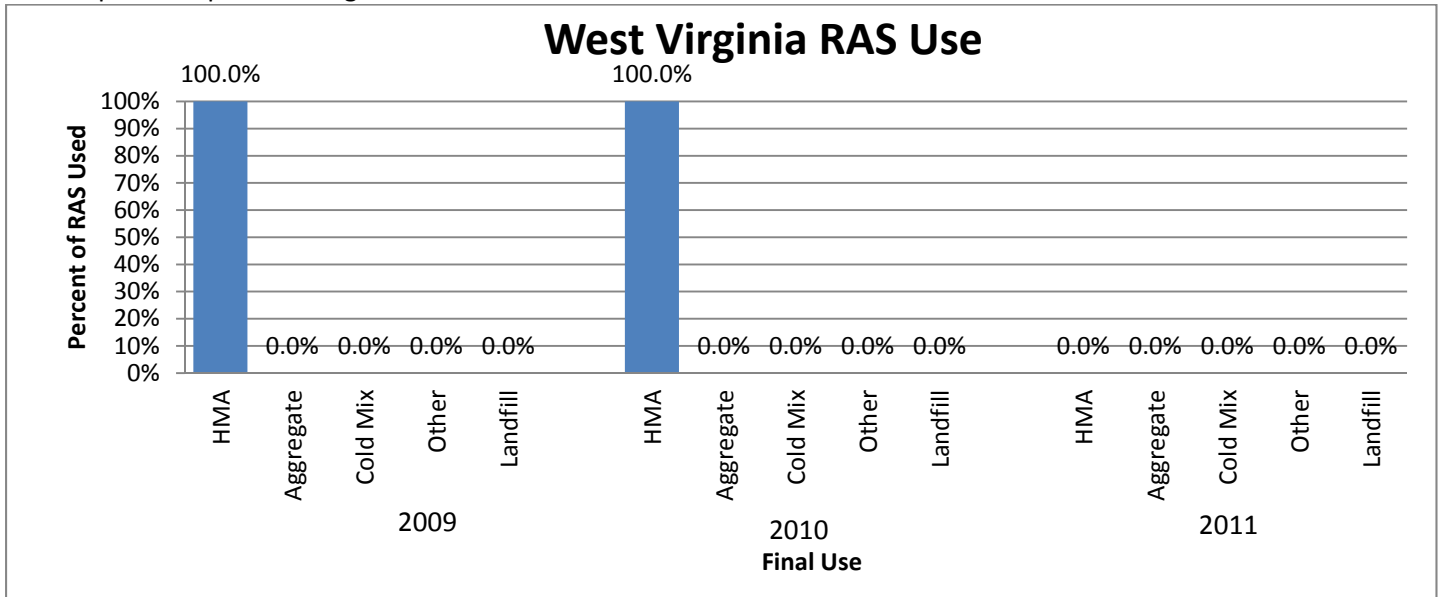


RAP Use



RAS Use

No companies reported using RAS in 2011



WMA Use

No contractor reported using WMA in 2009 or 2010.

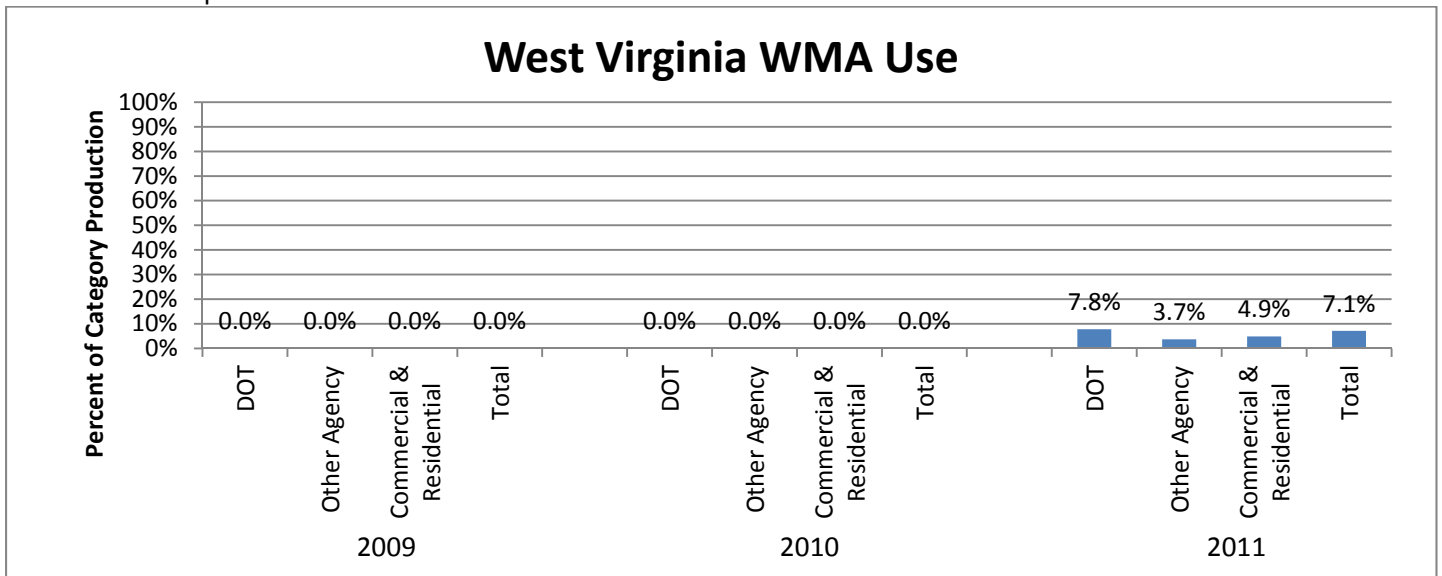


Table B 49: Summary of West Virginia Data for 2011

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	1,656,110	2,961,262
Total Other Agency Tonnage	138,735	248,070
Total Commercial & Residential Tonnage	302,373	540,668
Total Tonnage	2,097,218	3,750,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	221,291	395,687
RAP Tons used in HMA/WMA	222,149	397,221
RAP Tons used as Aggregate	25,500	45,596
RAP Tons used in Cold Mix	-	-
RAP Tons used as Other	-	-
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	10%	
Average % RAP in Other Agency Mixes	5%	
Average % RAP in Commercial & Residential Mixes	12%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
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
	2011	2011
Percent Companies using WMA	67%	
WMA DOT Tonnage	129,275	231,155
WMA Other Agency Tonnage	5,085	9,092
WMA Commercial & Residential Tonnage	14,744	26,364
Total WMA Tonnage	149,104	266,611
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%	

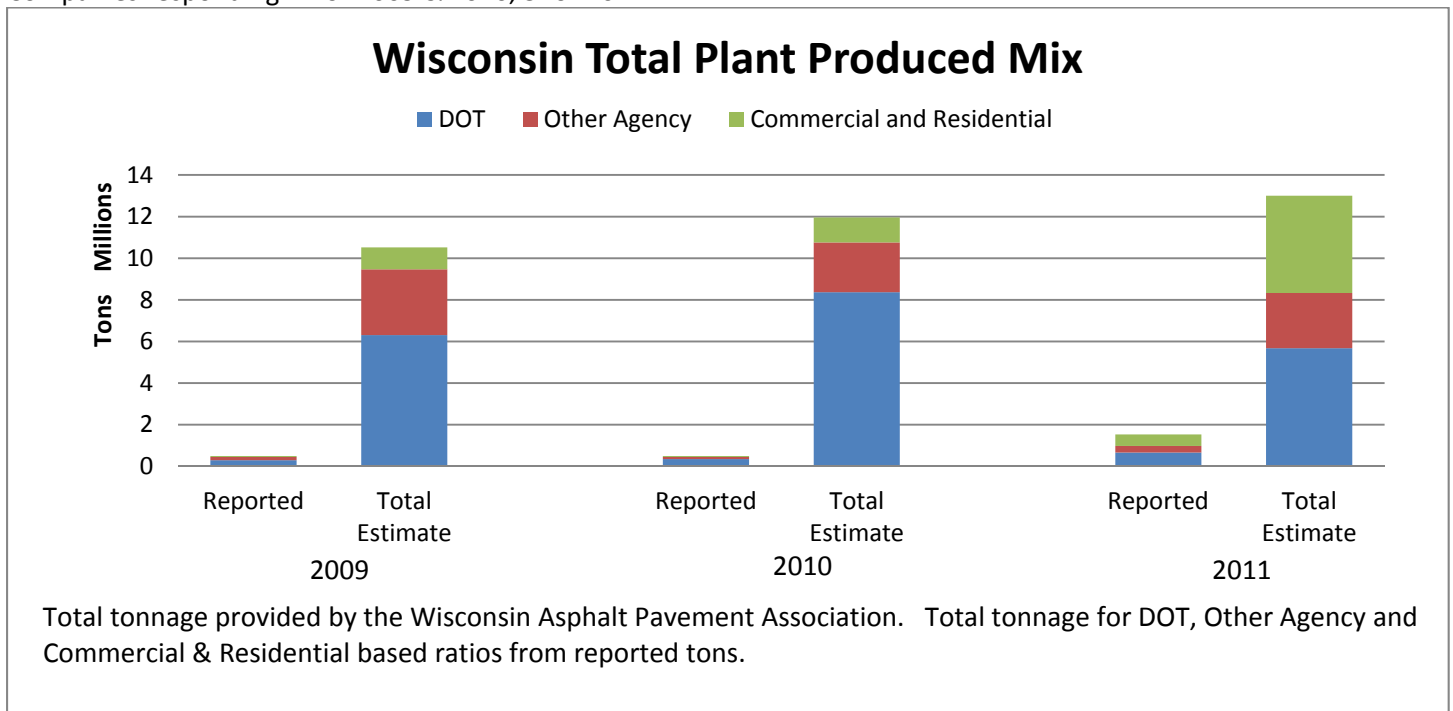
1. Total tonnage provided by the West Virginia Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Wisconsin

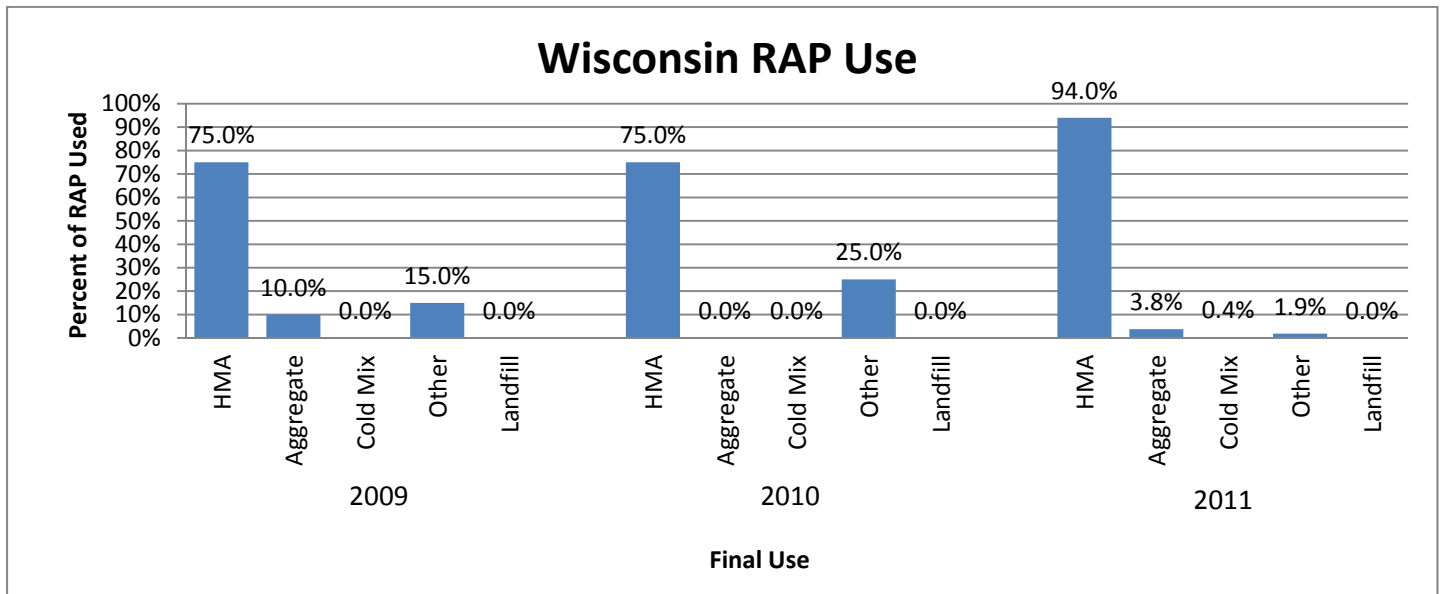
Table B51 summarizes the results received from asphalt mix producers in Wisconsin. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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

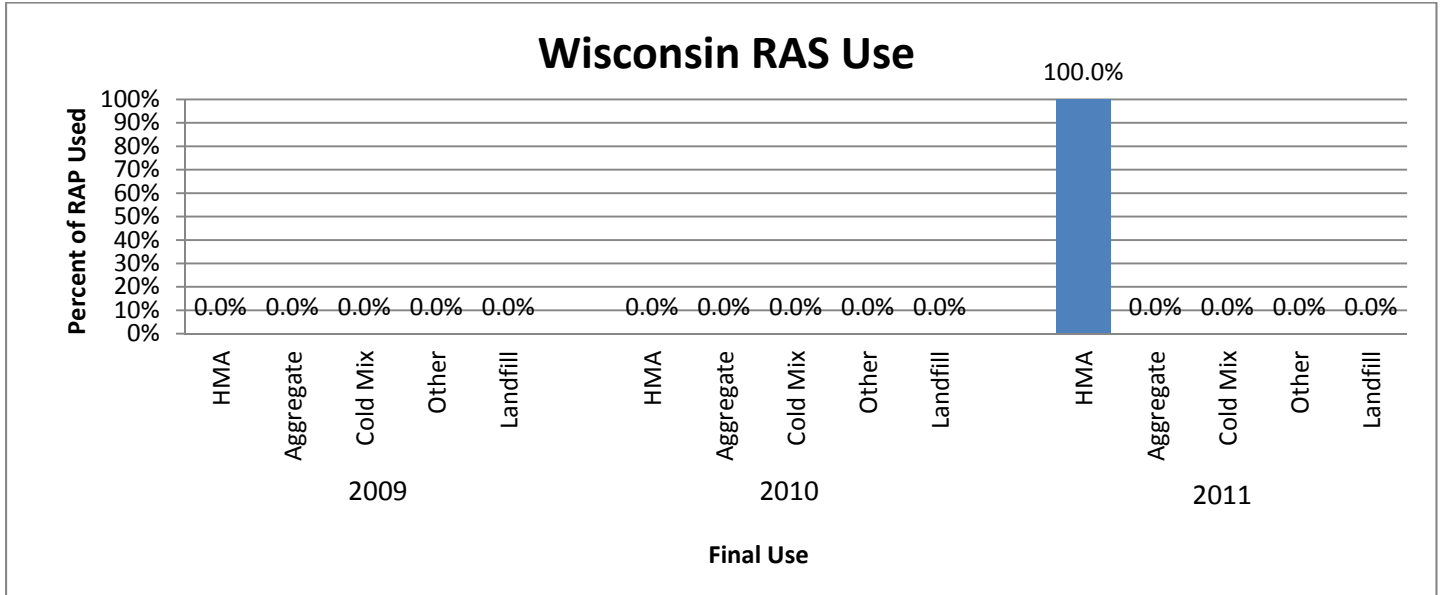


RAP Use



RAS Use

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



WMA Use

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

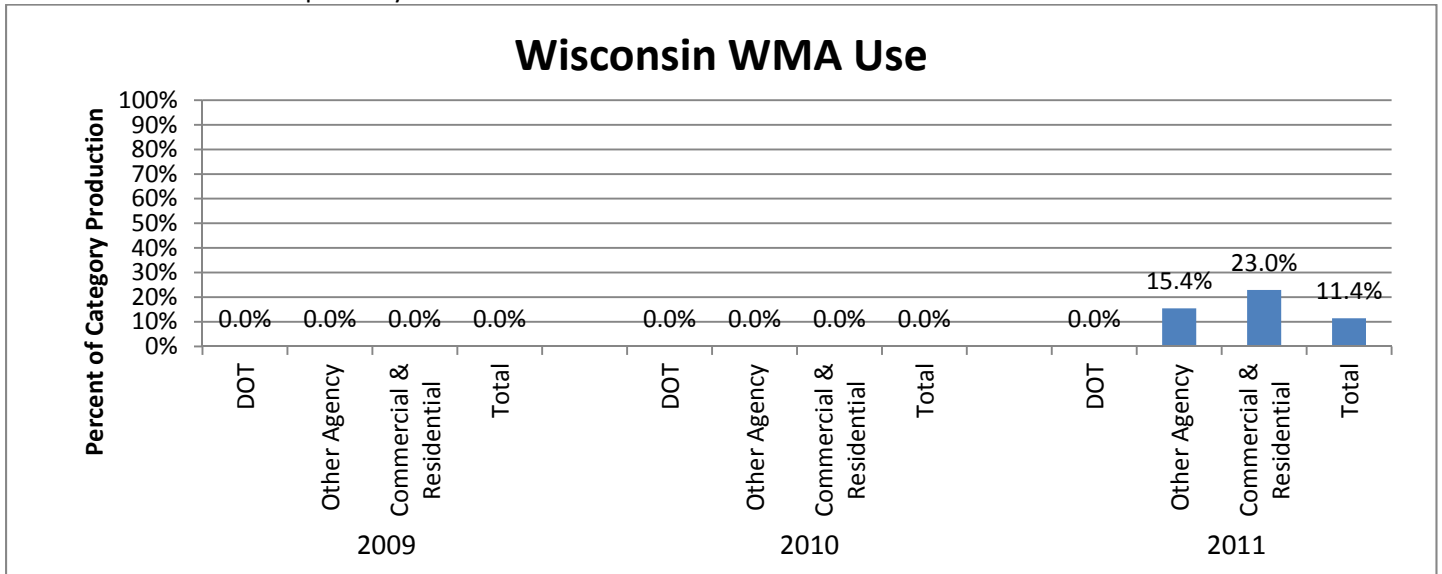


Table B 50: Summary of Wisconsin Data for 2011

Wisconsin

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	669,500	5,674,469
Total Other Agency Tonnage	313,300	2,655,431
Total Commercial & Residential Tonnage	551,000	4,670,100
Total Tonnage	1,533,800	13,000,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	345,000	2,924,110
RAP Tons used in HMA/WMA	249,400	2,113,835
RAP Tons used as Aggregate	10,000	84,757
RAP Tons used in Cold Mix	1,000	8,476
RAP Tons used as Other	5,000	42,378
RAP Tons Landfilled	-	-
Average % RAP in DOT Mixes	17%	
Average % RAP in Other Agency Mixes	17%	
Average % RAP in Commercial & Residential Mixes	15%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	100%	
RAS Tons Received	31,500	266,984
RAS Tons used in HMA/WMA	25,200	213,587
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
	2011	2011
Percent Companies using WMA	67%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	48,365	409,926
WMA Commercial & Residential Tonnage	126,500	1,072,174
Total WMA Tonnage	174,865	1,482,100
Percent WMA Tons using Chemical Additives	7.9%	
Percent WMA Tons using Additive Foaming	0.0%	
Percent WMA Tons using Plant Foaming	92.1%	
Percent WMA Tons using Organic Additive	0.0%	

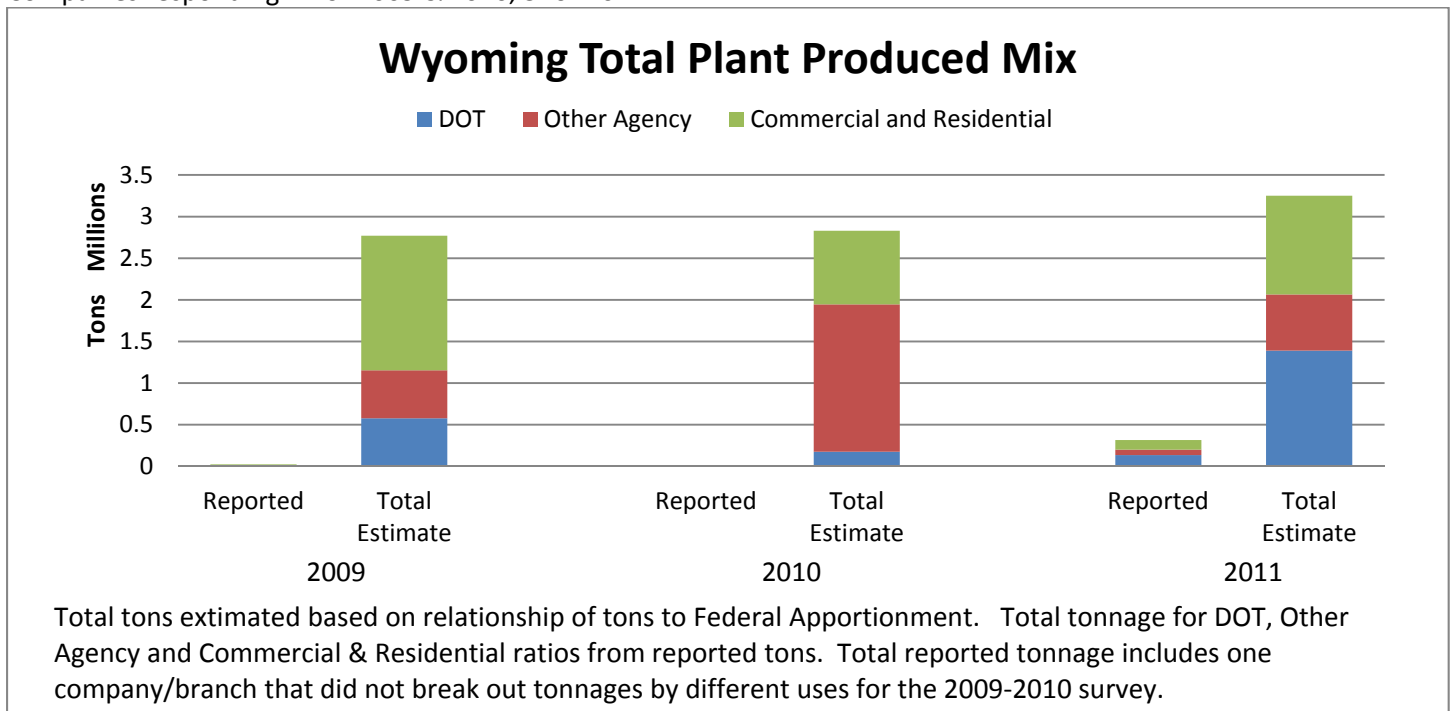
1. Total tonnage provided by the Wisconsin Asphalt Pavement Association. Total tonnage for DOT, Other Agency and Commercial & Residential ratios from reported tons.

Wyoming

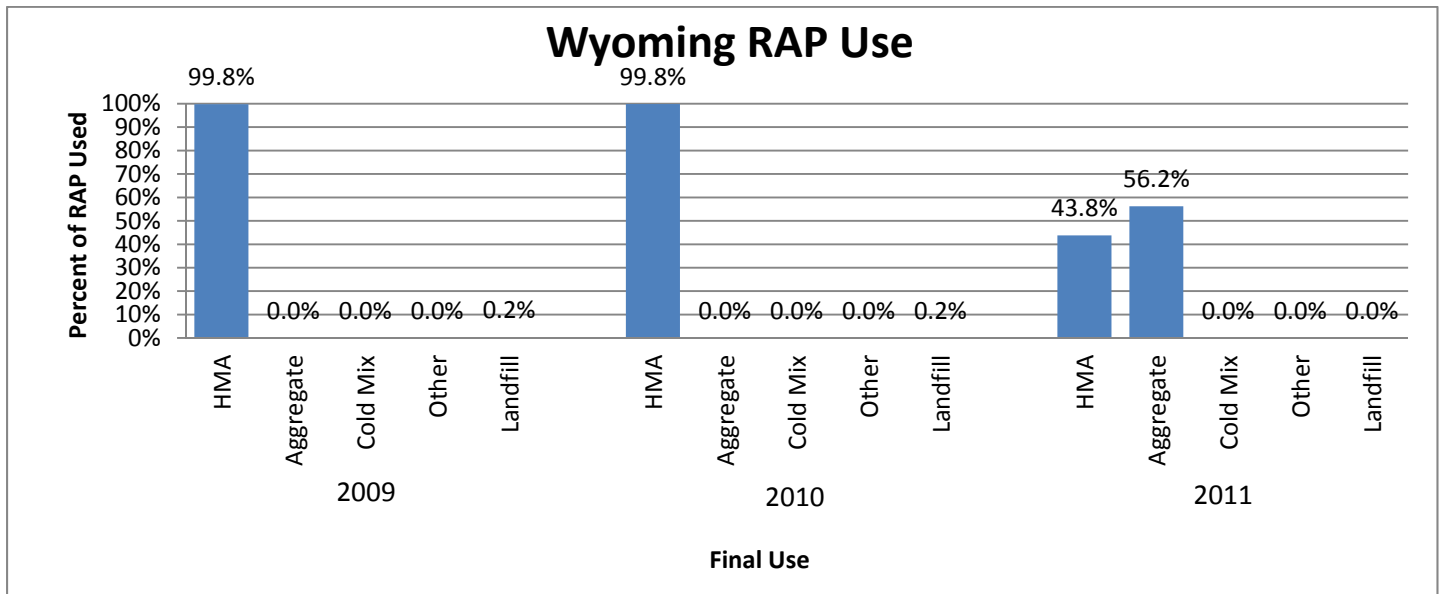
Table B52 summarizes the results received from asphalt mix producers in Wyoming. The charts are used to summarize statistics calculated from information provided by the survey respondents.

Total Asphalt Mix Tonnage

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



RAP Use



RAS Use

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

WMA Use

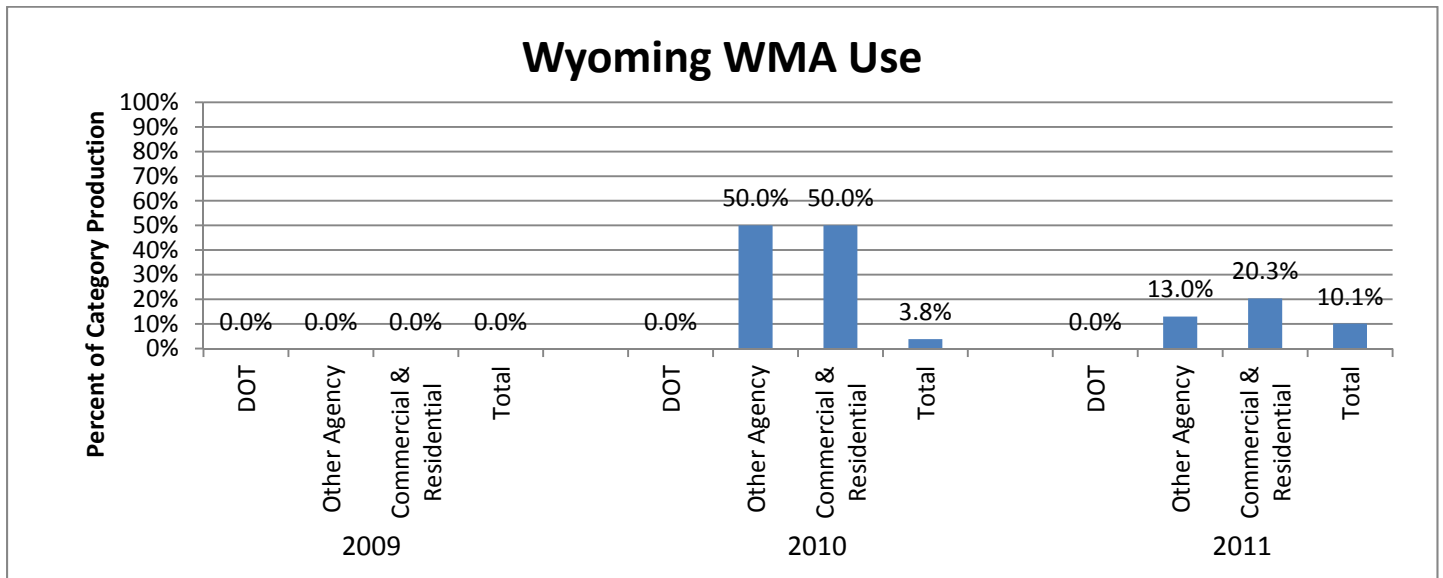


Table B 51: Summary of Wyoming Data for 2011

Companies Reporting

3

HMA/WMA		
	Reported	Total Estimated ¹
	2011	2011
Total DOT Tonnage	135,590	1,391,358
Total Other Agency Tonnage	65,610	673,258
Total Commercial & Residential Tonnage	115,615	1,186,384
Total Tonnage	316,815	3,251,000
Reclaimed Asphalt Pavement (RAP)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAP	100%	
RAP Tons Received	31,795	326,265
RAP Tons used in HMA/WMA	4,208	43,179
RAP Tons used as Aggregate	5,400	55,412
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	1%	
Average % RAP in Commercial & Residential Mixes	5%	
Reclaimed Asphalt Shingles (RAS)		
	Reported	Total Estimated
	2011	2011
Percent Companies using RAS	33%	
RAS Tons Received	1,150	11,801
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
	2011	2011
Percent Companies using WMA	100%	
WMA DOT Tonnage	-	-
WMA Other Agency Tonnage	8,531	87,536
WMA Commercial & Residential Tonnage	23,520	241,352
Total WMA Tonnage	32,051	328,888
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.