

NAPA-FHWA Survey on RAP/RAS/WMA

NAPA completed a survey of RAP/RAS use for 2009 and 2010 with support from FHWA.

- The complete survey and report is available for download at www.asphaltpavement.org.
- Response overview: A total of 196 companies/branches with 1,027 plants are represented in 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.
- The average tons per plant are 121,000 and 117,000 for 2009 and 2010, respectively.
- The survey is being conducted again in 2012 (for year 2011) with support from FHWA
(http://www.asphaltpavement.org/index.php?option=com_content&view=article&id=776:help-napa-measure-warm-mix-rap-ras-use&catid=196:uncategorised&Itemid=100003)

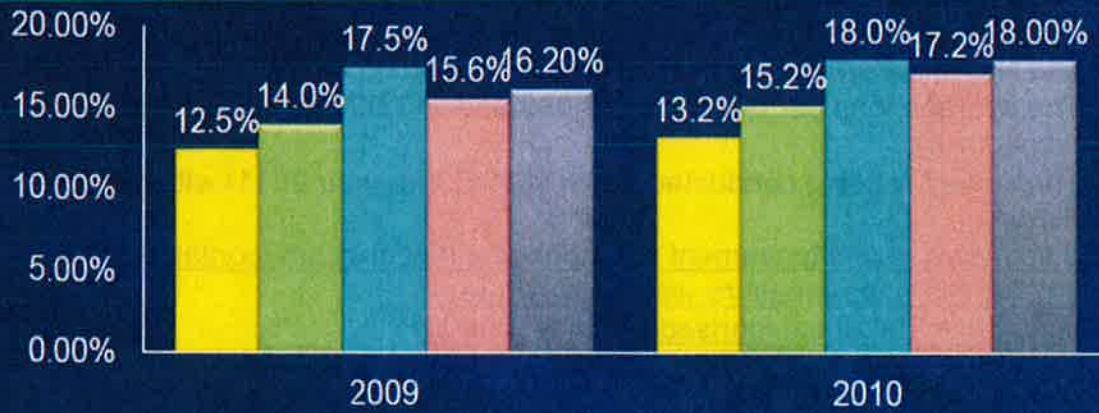
RAP overview:

- 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.
- The average percent RAP used in mixes has increased about from about 16 to 18 percent between 2009 and 2010.

Table: 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%		

Total Estimated RAP Use by Sector



- Avg. % for DOT mixes
- Avg % for Other Agency mixes
- Avg % for Commercial & Residential
- National average all mixes based on % reported for different sectors
- National average all mixes based on RAP tons used in HMA/WMA

RAS overview:

- 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.
- 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.

Table: 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%		

WMA overview:

- The survey shows the 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.
- WMA use as a percentage of total asphalt pavement production was 5.4% in 2009 and increased to 13.2% in 2010.
- 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.
- 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.

Table: 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%		