The Survey

Who
- US Asphalt Producers

How
- Online survey
- Email
- Phone
General Information Questions

- Number of Plants
- HMA/WMA Tons
  - DOT
  - Other Agency
  - Commercial and Residential
RAP & RAS Questions

**Tons**
- Accepted
- HMA/WMA
- Aggregate
- Cold Mix
- Other
- Landfill

**Percentages**
- DOT
- Other Agency
- Commercial & Residential
WMA Questions

Percent
  – DOT
  – Other Agency
  – Commercial & Residential

Technology
  – Chemical
  – Additive Foaming
  – Plant Foaming
  – Organic
How did we do?

- 48 States/Provinces
  - Not reporting
    - District of Columbia
    - New Mexico
    - North Dakota
    - Nebraska

- 196 Companies/Branches
- 1,027 Plants
## Companies Reporting per State

<table>
<thead>
<tr>
<th>Number of Companies/Branches Completing Survey in State</th>
<th>Number of States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>≥ 5</td>
<td>17</td>
</tr>
</tbody>
</table>
Reported Asphalt Tons

Millions

- Commercial & Residential
- Other Agency
- DOT

2009

2010
Given total tons

28 SAPAs provided estimated tons
- about 265 million tons.
- Seven gave DOT tonnages
  Total tonnage estimated by dividing by the percent of DOT tons provided by asphalt mix producers in the survey.

Developed relationships
- Tons vs. Population
- Tons vs. Fed. Apportionment
- Tons vs. Miles Paved.
Estimate of Missing Data

**2009 Estimate by Population**

\[
y = 32.957x^{0.7893} \\
R^2 = 0.8268
\]

**2009 Estimate by Apportionment**

\[
y = 35.736x^{0.9072} \\
R^2 = 0.7841
\]

NAPA

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**Predicted Tons, Million**

**Population, Million**

**Predicted Tons, Million**

**Apportionment, Billion**
Total Estimate HMA/WMA Production

2009 – 358 Million Tons
2010 – 360 Million Tons
Estimated Total RAP

- Tons Accepted
- Tons use in HMA/WMA
- Tons used in Aggregate
- Tons used in Cold Mix
- Tons used in Other
- Tons Landfilled

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons Accepted</th>
<th>Tons use in HMA/WMA</th>
<th>Tons used in Aggregate</th>
<th>Tons used in Cold Mix</th>
<th>Tons used in Other</th>
<th>Tons Landfilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>67.2</td>
<td>56.1</td>
<td>6.2</td>
<td>1.5</td>
<td>0.7</td>
<td>0.1</td>
</tr>
<tr>
<td>2010</td>
<td>73.5</td>
<td>62.1</td>
<td>7.3</td>
<td>1.6</td>
<td>0.8</td>
<td>0.0</td>
</tr>
</tbody>
</table>
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

Companies/Branches Using
- 2009 – 44
- 2010 – 61
Estimated Total RAS

- Tons Accepted
- Tons use in HMA/WMA
- Tons used in Aggregate
- Tons used in Cold Mix
- Tons used in Other
- Tons Landfilled

Estimated Total RAS Tons, Thousands

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons Accepted</th>
<th>Tons use in HMA/WMA</th>
<th>Tons used in Aggregate</th>
<th>Tons used in Cold Mix</th>
<th>Tons used in Other</th>
<th>Tons Landfilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>957</td>
<td>701</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>1,099</td>
<td>1,851</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
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</table>
Reported WMA

Avg. % of DOT tons
Avg % of Other Agency tons
Avg % of Commercial & Residential tons
Companies Reporting Using WMA

No. Companies Reporting using WMA

- 2009: 80
- 2010: 120
Reported WMA by Type

- 2009
  - Chemical Additive %: 10%
  - Additive Foaming %: 0%
  - Plant Foaming %: 0%
  - Organic Additive %: 0%

- 2010
  - Chemical Additive %: 0%
  - Additive Foaming %: 0%
  - Plant Foaming %: 0%
  - Organic Additive %: 0%
<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMA/WMA Tons</td>
<td>358 MT</td>
<td>360 MT</td>
</tr>
<tr>
<td>RAP used in HMA/WMA</td>
<td>56 MT</td>
<td>62 MT</td>
</tr>
<tr>
<td>Total RAP Recycled</td>
<td>64 MT</td>
<td>72 MT</td>
</tr>
<tr>
<td>Total RAS to HMA/WMA</td>
<td>0.70 MT</td>
<td>1.10 MT</td>
</tr>
<tr>
<td>Total WMA Tons</td>
<td>19.2 MT</td>
<td>47.6 MT</td>
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</tbody>
</table>
Summary

- RAP use growing steadily
  - 10% increase 2009-2010
- RAS use growing rapidly
  - 57% increase 2009-2010
- RAP & RAS saving over 4 MT binder
- WMA growing very rapidly
  - 148% increase 2009-2010