



# Modified Asphalt Market Survey 2007 – 2008 revised

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The Association of Modified Asphalt Producers Meeting

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# Modified Asphalt Survey



- Review DOT Survey & Results
- Actual Reported Usage in 2007
- Forecast 2008 Modified Usage
- State's Views on Modified Asphalt

# 2007 State DOT in Review

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## 25 States participated in the Survey

- The States which did respond are:

Alabama  
Colorado  
Connecticut  
Delaware  
Florida  
Georgia  
Illinois  
Iowa  
Kentucky

Minnesota  
Mississippi  
Nebraska  
Nevada  
New Hampshire  
New Jersey  
New York  
North Carolina  
Pennsylvania

South Carolina  
Tennessee  
Texas  
Utah  
Washington  
West Virginia  
Wyoming

# 2007 State DOT in Review

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**Blue** always respond

***Italic*** respond often

*Alabama*

**Colorado**

**Connecticut**

**Delaware**

**Florida**

*Georgia*

**Illinois**

*Iowa*

**Kentucky**

*Minnesota*

**Mississippi**

*Nebraska*

**Nevada**

*New Hampshire*

*New Jersey*

*New York*

**North Carolina**

**Pennsylvania**

**South Carolina**

*Tennessee*

**Texas**

*Utah*

**Washington**

*West Virginia*

*Wyoming*

# 2007 State DOT in Review

**The States which did not participate.**  
***Italic* have submitted to previous.**

Did not respond to  
this survey for 2007

***Arizona***  
***Indiana***  
***Maryland***  
***Montana***  
***North Dakota***  
***Virginia***

***California***  
***Louisiana***  
***Missouri***  
***New Mexico***  
***Oregon***

Also did not respond to previous  
2006 & 2005 surveys

**Alaska**  
**Hawaii**  
**Kansas**  
**Massachusetts**  
**Ohio**  
***Rhode Island***  
**Wisconsin**

**Arkansas**  
**Idaho**  
**Maine**  
**Michigan**  
**Oklahoma**  
**Vermont**

# The Survey

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- The survey format has been consistent for the last 5 years.
- Enables Data Mining

# Who Replies from each Region

	<i>Every year</i>	<i>Miss 1 or less*</i>
• SEAUPG	43%	<b>71%</b>
• NEAUPG	27%	<b>45%</b>
• PCCAC	29%	<b>29%</b>
• RMAUPG	25%	<b>25%</b>
• NCAUPG	8%	<b>25%</b>

- *From 2003 to 2008*
- *\* Used for following trends*

# Trends: % Modified of Total Binder

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**From all the same States reporting:**

<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
21%	25%	24%	24%	24%



# Trends: % Volume Change from Previous Year Reported

## Total Binder

2004	2005	2006	2007	2008
18.5%	7.3%	6.1%	13.2%	1.59%

## Modified Binder

2004	2005	2006	2007	2008
12%	24.3%	1.4%	11.4%	1.78%

# Modifiers Used (of the respondents)

## 2006

- 85% SBS Modified
- 56% SB Modified
- 53% SBR Latex Modified
- 15% Other Polymer Modified (EVA, etc)
- 12% Chemical Modified (oils, etc)
- 18% Other (GTR)
- 21% PPA
- 12% Other Chemical (Air Blown)

# Modifiers Used (of the respondents)

## 2007

- 92% SBS Modified
- 64% SB Modified
- 56% SBR Latex Modified
- 16% Other Polymer Modified (EVA, etc)
- 4% Chemical Modified (oils, etc)
- 16% Other (GTR)
- 36% PPA
- 8% Other Chemical (Air Blown)

# Most Common Binders Reported

**2006**

- |                |                   |
|----------------|-------------------|
| • 74% PG 64-22 | 38% are Modified  |
| • 59% PG 76-22 | 100% are Modified |
| • 53% PG 64-28 | 97% are Modified  |
| • 44% PG 58-28 | 62% are Modified  |
| • 38% PG 70-22 | 85% are Modified  |
| • 23% PG 70-28 | 100% are Modified |
| • 15% PG 58-34 | 100% are Modified |
| • 15% PG 76-28 | 100% are Modified |
| • 12% PG 58-22 | 62% are Modified  |
| • 12% PG 67-22 | 80% are Modified  |

# Most Common Binders Reported

## 2007

- |                |                   |
|----------------|-------------------|
| • 85% PG 64-22 | 28% are Modified  |
| • 68% PG 76-22 | 100% are Modified |
| • 52% PG 64-28 | 96% are Modified  |
| • 44% PG 70-22 | 88% are Modified  |
| • 40% PG 58-28 | 60% are Modified  |
| • 28% PG 70-28 | 100% are Modified |
| • 20% PG 67-22 | 80% are Modified  |
| • 16% PG 58-34 | 100% are Modified |
| • 16% PG 76-28 | 100% are Modified |
| • 16% PG 58-22 | 88% are Modified  |

# Other Binders Reported

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- Under 5% reported
- PG 82-22 100% are Modified
- PG 64-34 100% are Modified
- PG 67-22 80% are Modified

# 2007 DOT in Review

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- 60% specify for Modification
- 80% must be Modified to Meet Specification.
- 48% Specify Type of Modifier
- 13% Specify Percent of Modifier
- 21% have a Stability Specification

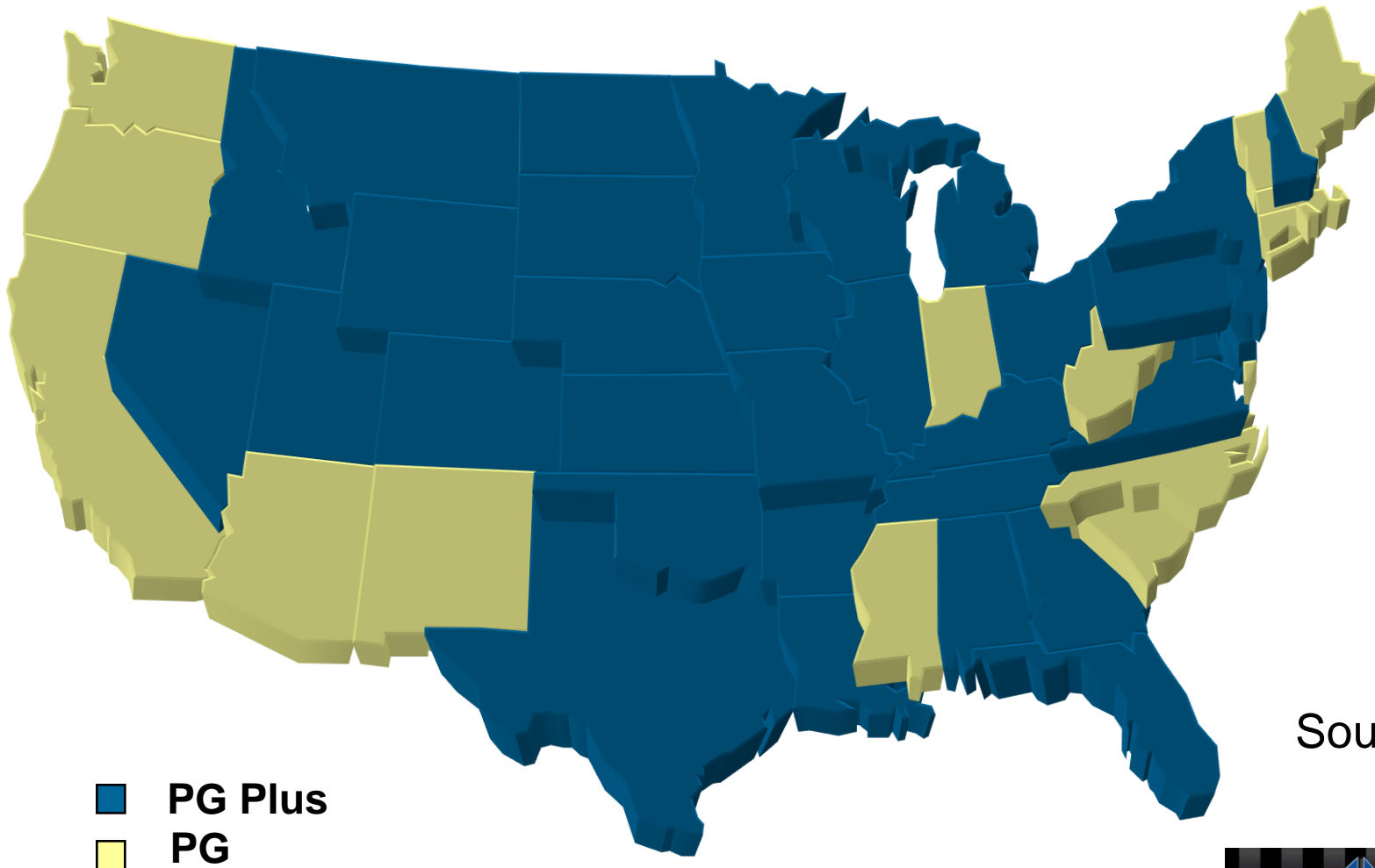
# Modes Of Failure Addressed with Modified Binder

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- 84% Rutting
- 48% Fatigue Cracking
- 52% Thermal Cracking
- 16% Other



# State DOT's with *Plus* Spec's



Source FHWA

# 2007 DOT in Review

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## *Plus* Specifications:

- 62% of All 50 States have *Plus* Specs

## Responses:

- 72% of those responded have *Plus* Specs

# Plus Specifications & the DOTs

- Of the 72% that have *Plus* Specifications
  - 83% are Elastic Recovery
  - 44% are DSR; Phase
  - 28% are DSR; Multiple Stress Creep Recovery
  - 17% are Other (Ring & Ball; FTIR; etc)
  - 11% are Forced Ductility
  - 17% are Toughness & Tenacity
  - 11% are Direct Tension

# Would Consider Specifications...

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**To Improve or Reduce:**

- **76% Compaction**
- **76% Rutting Resistance**
- **72% Fatigue Cracking**

# Experiences with Modified Asphalt

- **Very Satisfied** 44%
- **Satisfied** 32%
- **Neutral** 16%
- **Unsatisfied** 4%
- No Comment** 4%

**76% are Satisfied**

# Experiences with Modified Construction

- **Very Satisfied** 20%
- **Satisfied** 56%
- **Neutral** 16%
- **Unsatisfied** 4%
- No Comment** 5%

**76% are Satisfied**

# 2007 DOT Spending Expectation

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- 32% Expect to Spend **More** on Paving
- 40% Expect to Spend the **Same** on Paving
- 24% Expect to Spend **Less** on Paving

# 2007 DOT in Review

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Total Modified reported:

Reported: **1, 463,018** liquid tons

- **26%** of Binder reported was Modified



# 2007 DOT in Review

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Total Binders Reported: **5,719,218** liquid tons

- 32% of responses Expect to use **More** in 2008
- 28% of responses Expect to use **Less** in 2008
- 40% of responses Expect to use **Same** in 2008

# 2007 DOT in Review

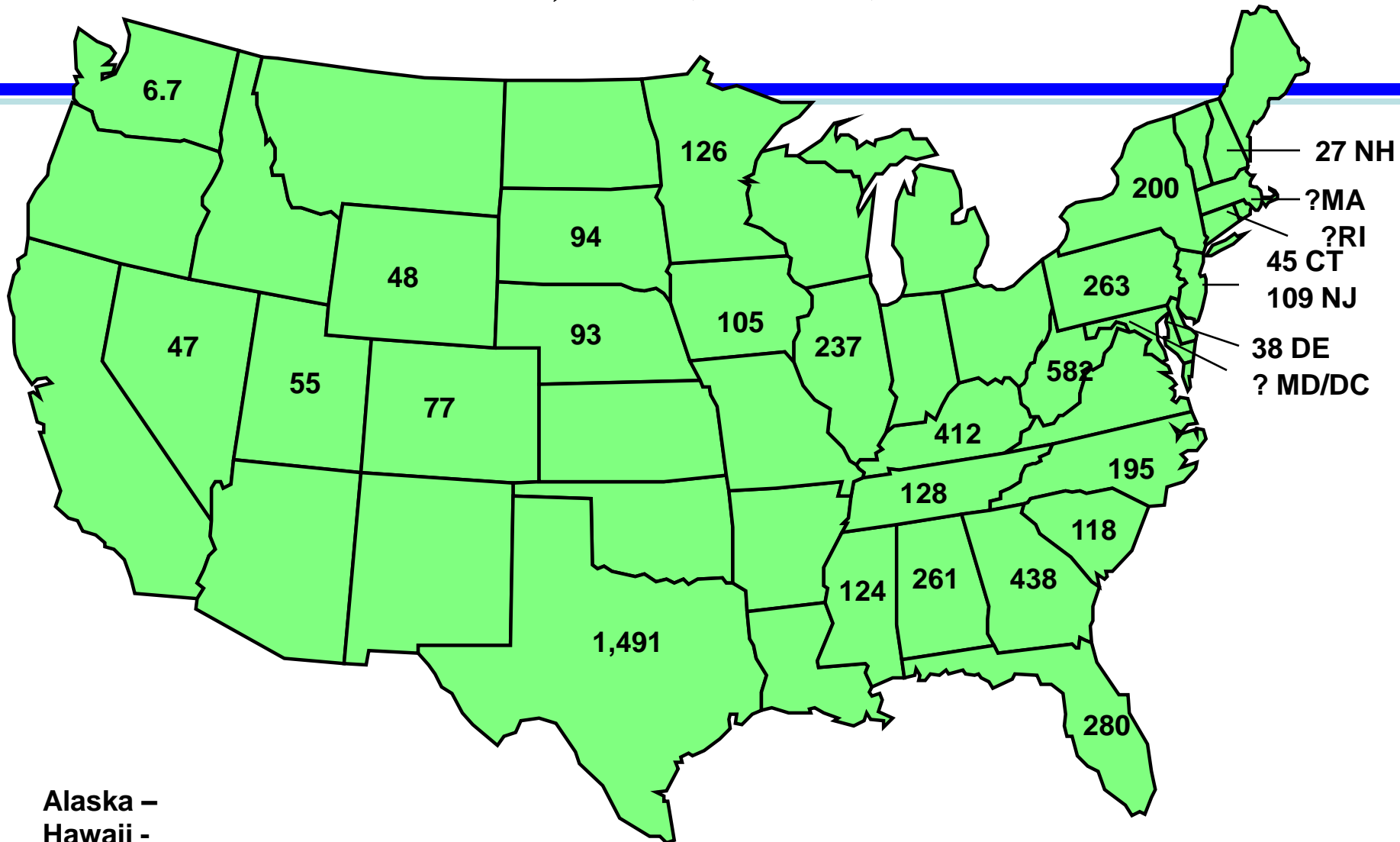
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Total Modified Reported: **1,463,018** liquid tons

- 32% of responses used **More** in 2007 vs 2006
- 48% of responses used **Less** in 2007 vs 2006
- 32% of responses Expect to use **More** in 2008
- 28% of responses Expect to use **Less** in 2008

# Reported Total Asphalt Usage

2007, DOT(000 TONS)

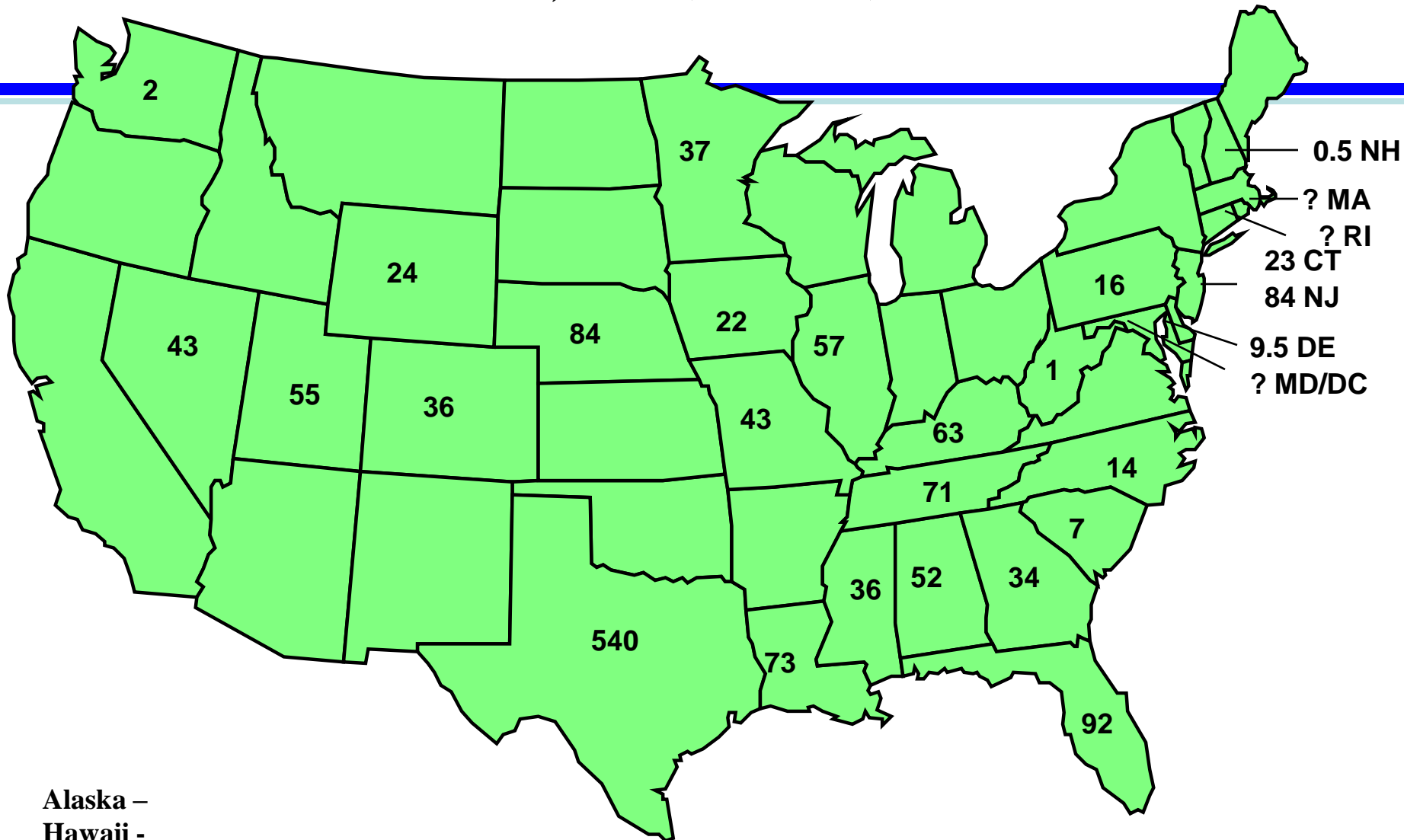


Alaska -  
Hawaii -

Total 5,719,218

# Reported Modified Asphalt Usage

## 2007, DOT(000 TONS)

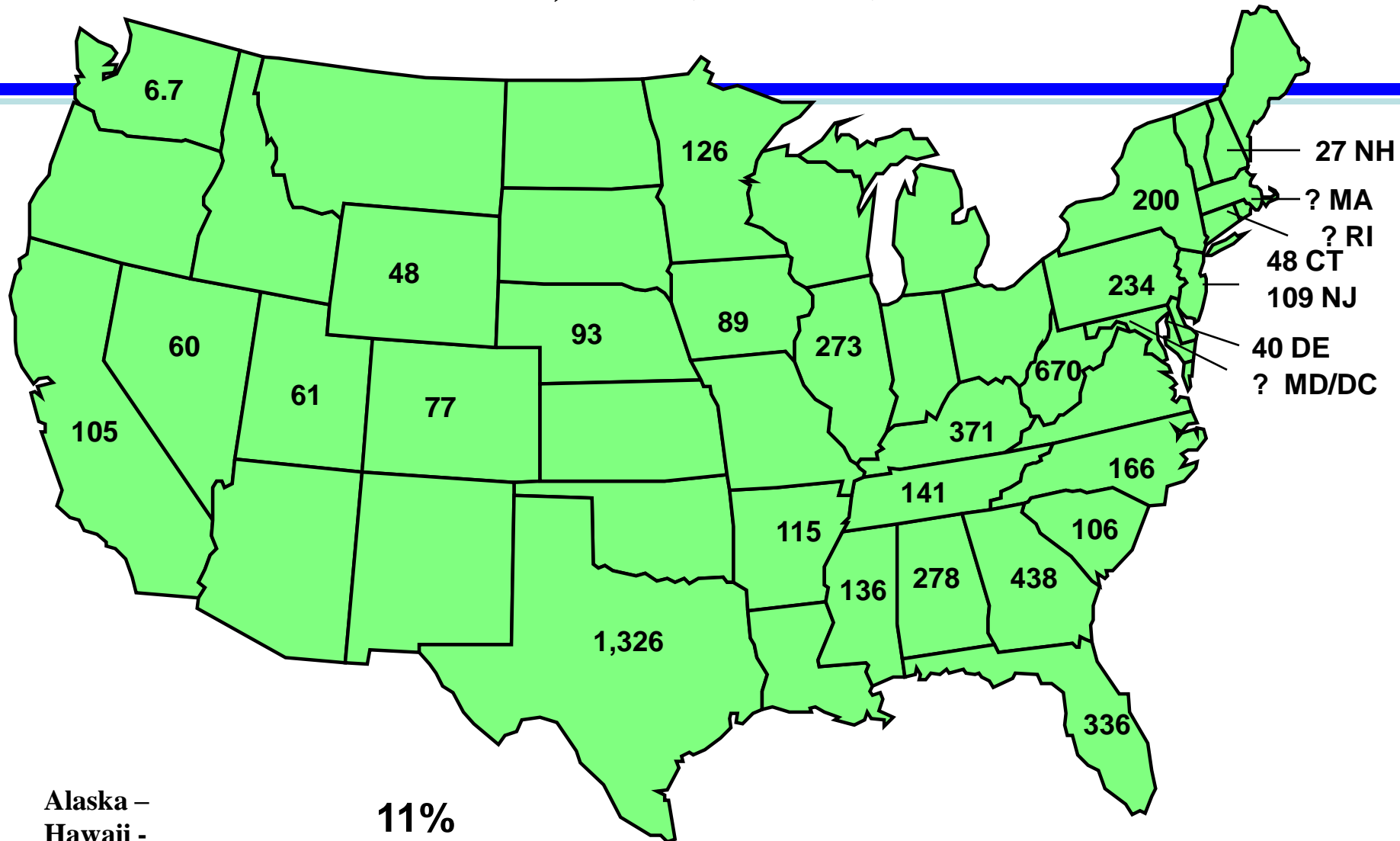


Alaska –  
Hawaii -

Total 1,463,018

# Total Asphalt Forecast

2008, DOT(000 TONS)

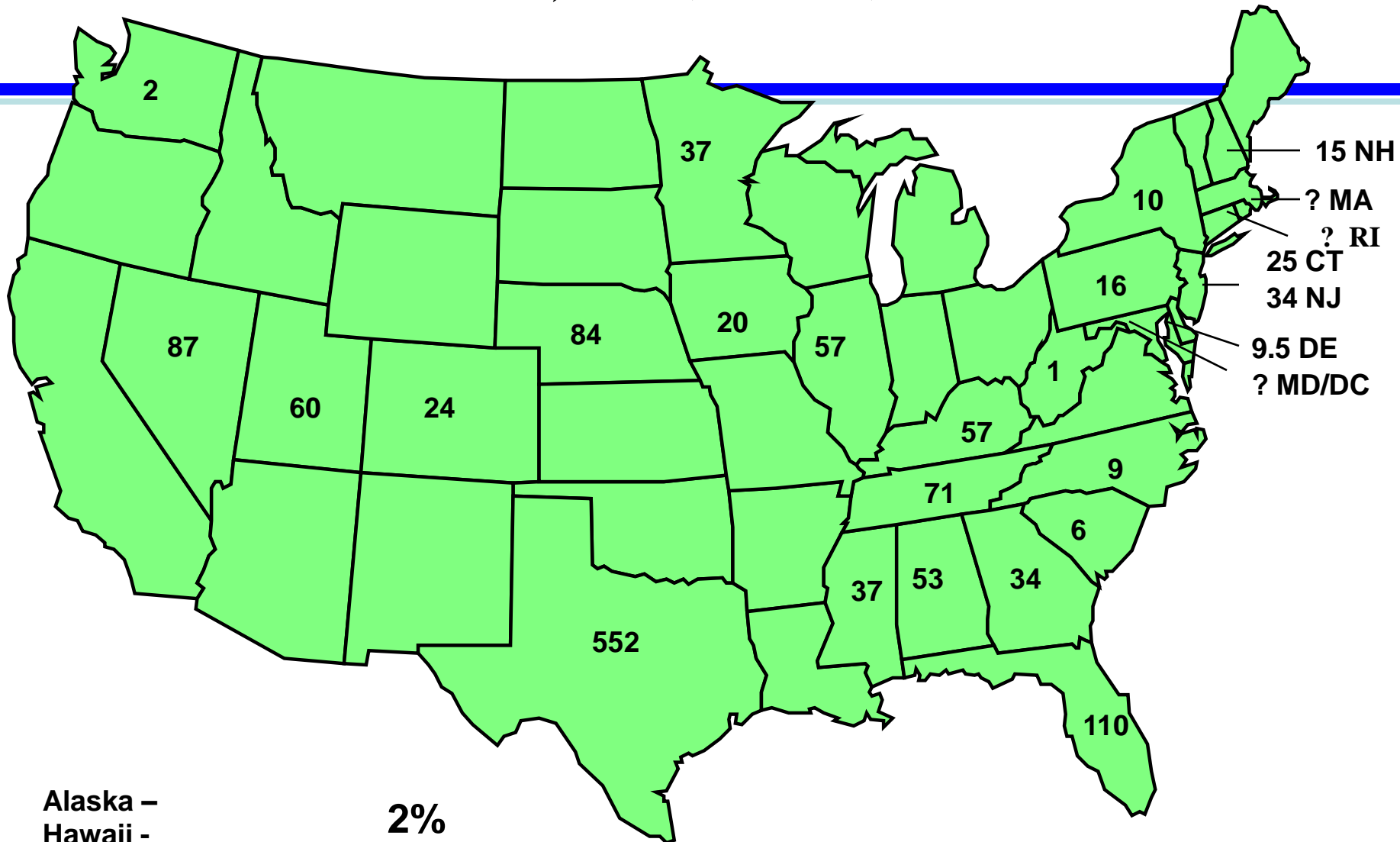


11%

Total 6,356,013

# Modified Asphalt Forecast

2007, DOT(000 TONS)



Alaska –  
Hawaii -

2%

Total 1,492,660

# This Survey...

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- will be updated as additional information is received.
- will be located on the AMAP website

***[www.modifiedasphalt.org](http://www.modifiedasphalt.org)***



# Questions?

*[www.modifiedasphalt.org](http://www.modifiedasphalt.org)*







# Many thanks

- To all the participating States DOTs for their responses
- To all the members that helped collect all the information

*[www.modifiedasphalt.org](http://www.modifiedasphalt.org)*



# Visit our website...



# [www.modifiedasphalt.org](http://www.modifiedasphalt.org)

