



# Modified Asphalt Market Survey 2009 - 2010

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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 2009
- Forecast 2010 Modified Usage
- State's Views on Modified Asphalt

# 2009 State DOT in Review

## 23 States participated in the Survey

- The States which did **NOT** respond are:

*Arizona\**

Arkansas

California

Florida

Hawaii

Idaho

Iowa

Kansas

Louisiana

Maryland

Massachusetts

Michigan

Minnesota

Missouri

New Hampshire

New Mexico

North Carolina

North Dakota

Oklahoma

Oregon

Pennsylvania

Rhode Island

Tennessee

Utah

Virginia

West Virginia

Wisconsin

# 2009 State DOT in Review

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## The 23 which did Responded:

**Alabama**

**Alaska**

*Arizona (\*in April)*

**Colorado**

**Connecticut**

**Delaware**

**Georgia**

**Illinois**

**Indiana**

**Kentucky**

**Maine**

**Mississippi**

**Montana**

**Nebraska**

**Nevada**

**New Jersey**

**New York**

**Ohio**

**South Carolina**

**South Dakota**

**Texas**

***Vermont***

***Washington***

***Wyoming***

# The Survey

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- The survey format has been consistent for the last 7 years.
- Enables Data Mining

# Who Replied from each Region

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- NEAUPG 55%
- SEAUPG 55%
- RMAUPG 50%
- NCAUPG 33%
- PCCAC 25%

# Trends: % Modified of Total Binder

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					Forecast
2005	2006	2007	2008	2009	2010
25%	24%	24%	25%	26%	27%

\*Most States were conservative on forecast

# Modifiers Used (of the respondents)

## 2009

- 91% SBS Modified
- 52% SB Modified
- 61% SBR Latex Modified
- 43% Other Polymer Modified (EVA, etc)
- 17% PPA
- 39% Crumb Rubber Modified (CRM/GTR)
- 4% Chemical Modified (oils, etc)
- 4% Other Chemical (Air Blown)



# Modifiers Used (of the respondents)

**2008**

- 91% SBS Modified
- 64% SB Modified
- 39% SBR Latex Modified
- 17% Other Polymer Modified (EVA, etc)
- 26% PPA
- 22% Other (GTR)
- 13% Chemical Modified (oils, etc)
- 13% Other Chemical (Air Blown)

# Most Common Binders Reported

## 2009

- |                |                   |
|----------------|-------------------|
| • 69% PG 64-22 | 35% are Modified  |
| • 55% PG 76-22 | 100% are Modified |
| • 50% PG 64-28 | 95% are Modified  |
| • 46% PG 58-28 | 64% are Modified  |
| • 36% PG 70-22 | 95% are Modified  |
| • 23% PG 70-28 | 77% are Modified  |
| • 18% PG 58-22 | 86% are Modified  |
| • 18% PG 76-28 | 100% are Modified |
| • 14% PG 67-22 | 86% are Modified  |
| • 9% PG 58-34  | 100% are Modified |

# Most Common Binders Reported

**2008**

- |                |                   |
|----------------|-------------------|
| • 75% PG 64-22 | 35% are Modified  |
| • 57% PG 76-22 | 100% are Modified |
| • 57% PG 64-28 | 91% are Modified  |
| • 39% PG 58-28 | 65% are Modified  |
| • 39% PG 70-22 | 96% are Modified  |
| • 30% PG 70-28 | 100% are Modified |
| • 18% PG 58-22 | 87% are Modified  |
| • 13% PG 76-28 | 100% are Modified |
| • 13% PG 67-22 | 87% are Modified  |
| • 9% PG 58-34  | 100% are Modified |

# Other Binders Reported

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- Under 5% reported
- PG 76-34 100% are Modified
- PG 64-34 100% are Modified

# 2009 DOT in Review

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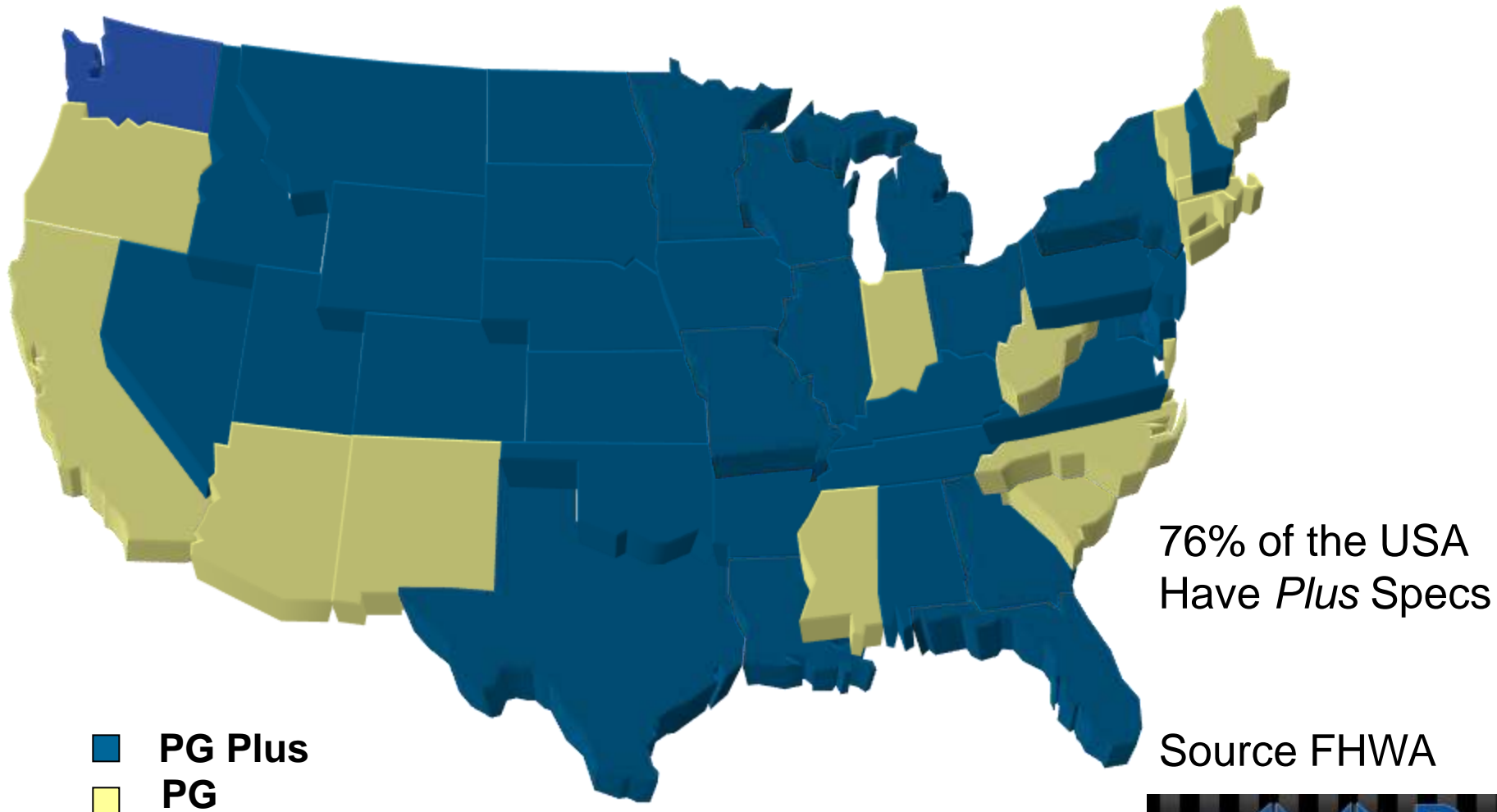
- 48% must be Modified to Meet Specification
- 48% specify for Modification
- 18% Specify Type of Modifier
- 66% Specify Percent of Modifier
- 18% have a Stability Specification

# Modes Of Failure Addressed with Modified Binder

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- 83% Rutting
- 52% Fatigue Cracking
- 39% Thermal Cracking
- 13% Other (raveling / stripping)

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



# 2009 DOT in Review

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## *Plus* Specifications:

- 34% responded have *Plus* Specs  
out of All 50 States

## Responses:

- 74% of those responded have *Plus* Specs



# Plus Specifications & the DOTs

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- Of the 73% that have *Plus* Specifications
  - 70% are Elastic Recovery
  - 59% are DSR; Multiple Stress Creep Recovery
  - 29% are DSR; Phase
  - 18% are Forced Ductility
  - 29% are Toughness & Tenacity
  - 18% are Direct Tension
  - 23% are Other (Ring & Ball; FTIR; etc)

# Would Consider Specifications...

## Additional Spec's To Improve or Reduce:

- **65% Compaction for HMA**
  - **57% Rutting Resistance of HMA**
  - **61% Fatigue Cracking for HMA**
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- **70% Chip Retention of Emulsions**
  - **61% for an Emulsion Performance Spec**

# Experiences with Modified Asphalt

- **Very Satisfied** 30%
- **Satisfied** 52%
- **Neutral** 4%
- **Unsatisfied** 0%
- No Comment** 13%

**82% are Satisfied**

# Experiences with Modified Construction

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- **Very Satisfied** 17%
- **Satisfied** 65%
- **Neutral** 4%
- **Unsatisfied** 0%
- No Comment** 13%

**82% are Satisfied**

# 2010 DOT Spending Expectation

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- 18% Expect to Spend **More** on Paving
- 30% Expect to Spend the **Same** on Paving
- 43% Expect to Spend **Less** on Paving

# 2009 DOT in Review

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Total Binders Reported: **4,084,951** liquid tons

- 18% of responses Expect to use **More** in 2010
- 30% of responses Expect to use **Less** in 2010
- 52% of responses Expect to use **Same** in 2010

# 2009 DOT in Review

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Total Modified reported:

Reported: **1,142,954** liquid tons

- **27%** of Binder reported was Modified

# 2009 DOT in Review

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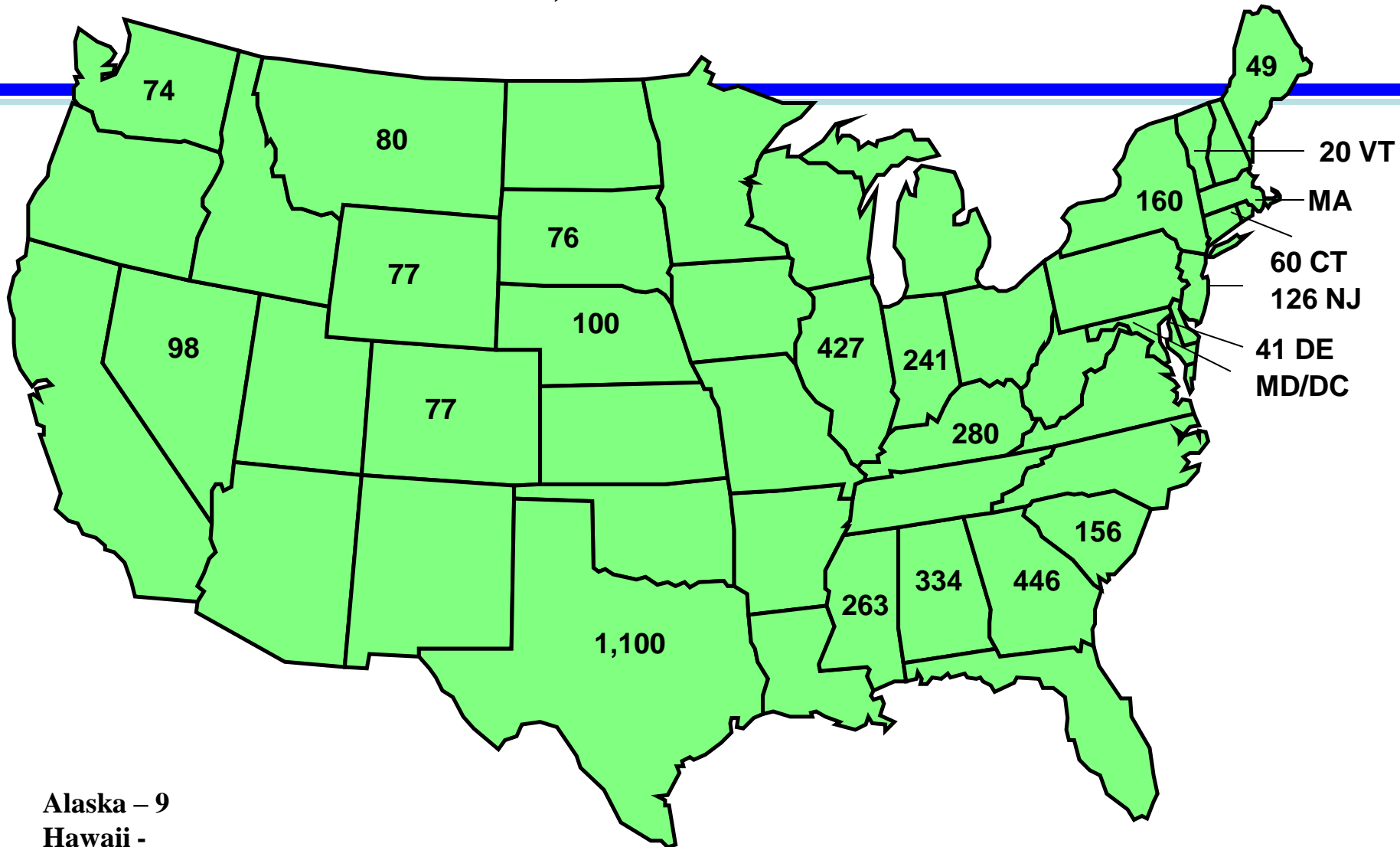
Total Modified Reported: **1,142,954** liquid tons

- 44% of responses used **More** in 2009 vs 2008
- 43% of responses used **Less** in 2009 vs 2008
- 13% of responses Expect to use **More** in 2010
- 22% of responses Expect to use **Less** in 2010



# Total Asphalt Usage

2009, DOT(000 TONS)



Alaska – 9

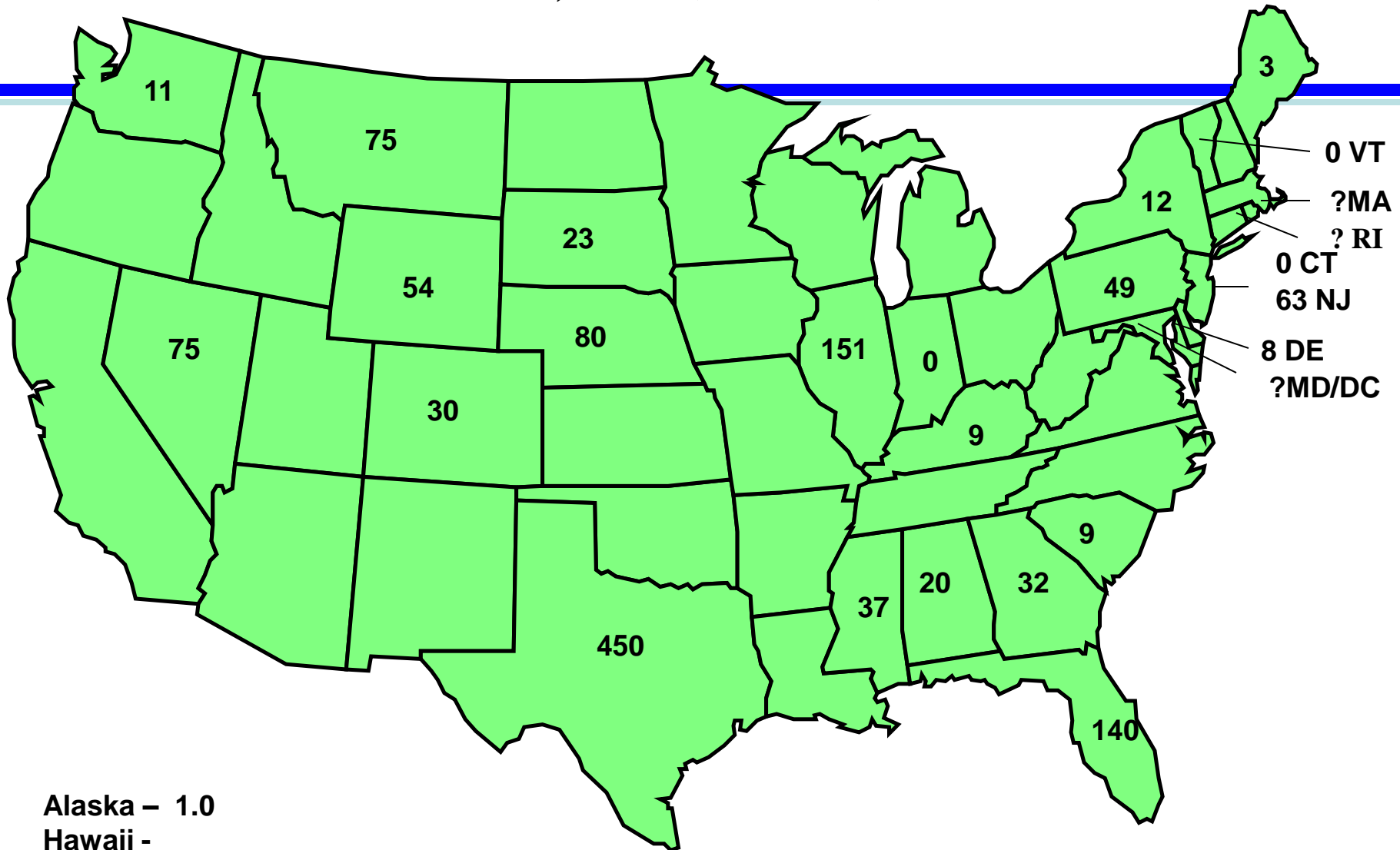
Hawaii -

Total 4,184,951



# Modified Asphalt Usage

2009, DOT(000 TONS)

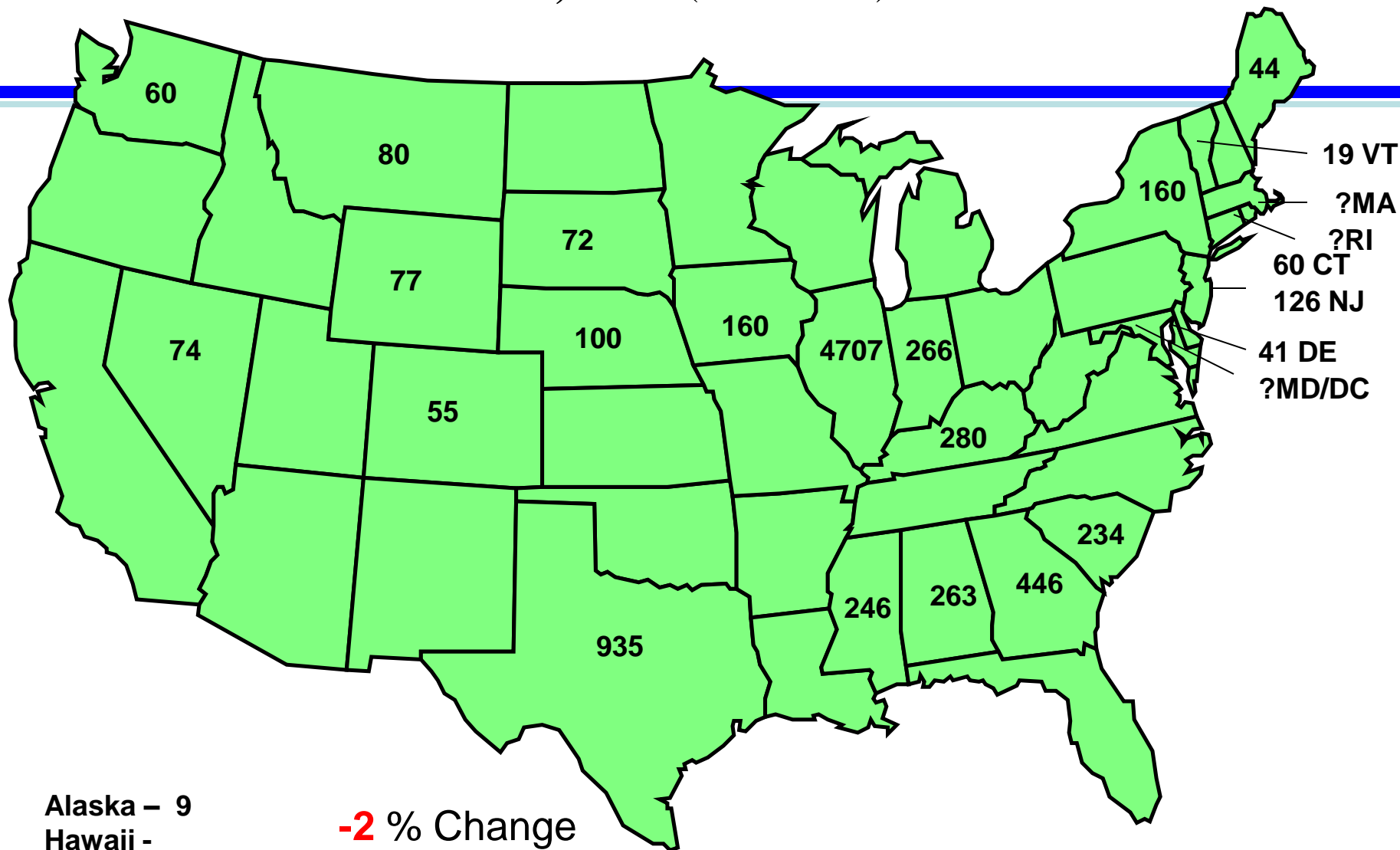


Alaska – 1.0  
Hawaii -

Total 1,142,954

# Asphalt Forecast

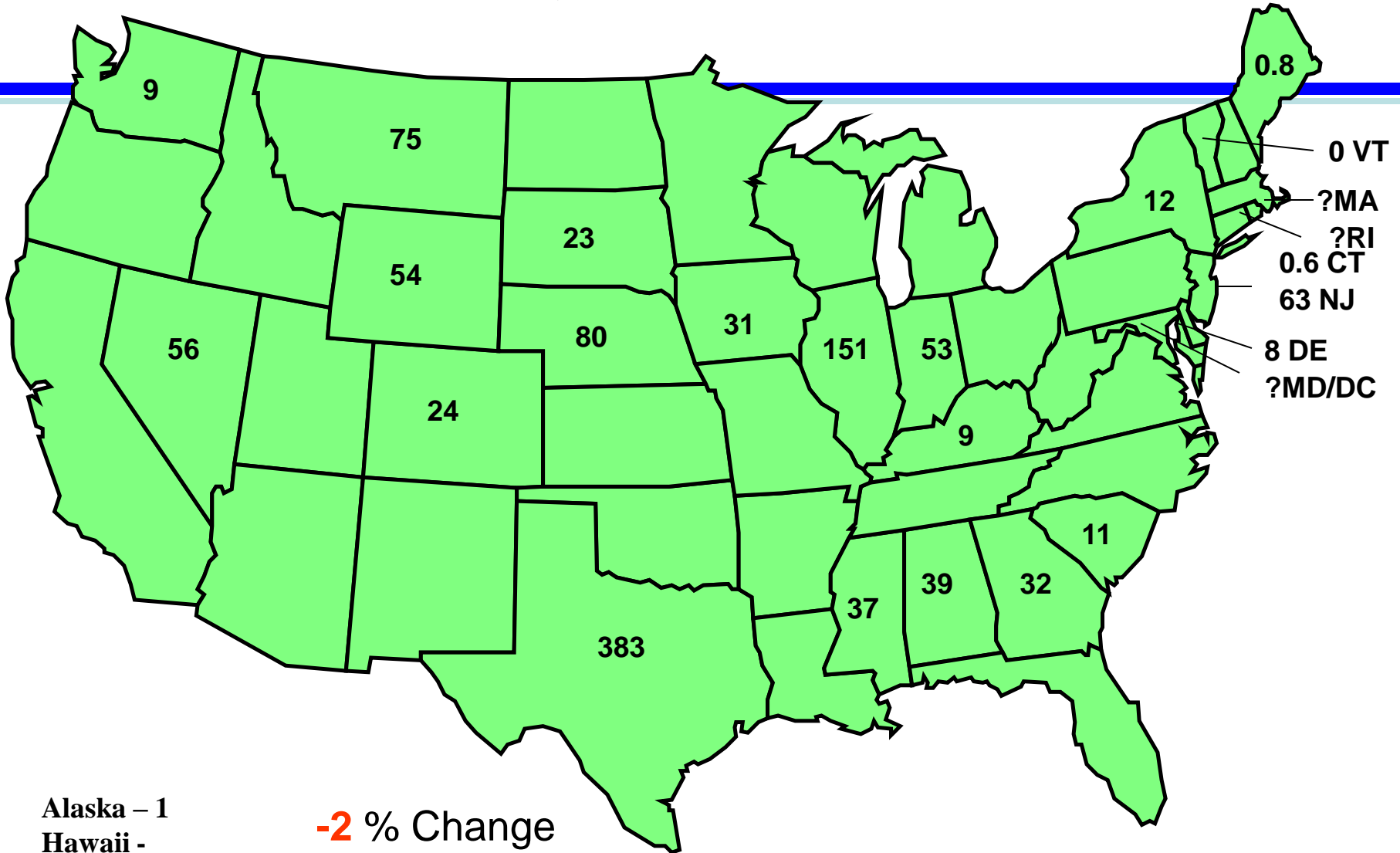
2010, DOT(000 TONS)



Total 4,116,411

## Modified Asphalt Forecast

## 2010, DOT(000 TONS)



**Alaska – 1**  
**Hawaii -**

**-2 % Change**

**Total 1,121,217**

2009

USA PMA Producers Polymer Use Report

State	Dry MT SBR Latex	MT SBS	Total
AK	150	0	150
AL	600	2,500	3,100
AZ	1,000	1,500	2,500
CA	2,530	4,250	6,780
CO	300	200	500
FL	250	1,000	1,250
GA	0	3,500	3,500
IA	0	700	700
ID	1,400	3,000	4,400
IL	100	2,200	2,300
IN	200	1,000	1,200
KS	500	2,000	2,500
LA	650	1,500	2,150
MA	190	250	440
MD	0	1,000	1,000
MI	250	2,150	2,400
MN	1,000	0	1,000
MO	470	4,700	5,170
MS	1,300	6,000	7,300
MT	1,000	5,500	6,500
NC	100	0	100
NE	250	400	650
NJ	90	2,000	2,090
NM	0	3,000	3,000
NY	1,400	1,320	2,720
OH	265	5,450	5,715
OR	250	250	500
PA	2,500	2,050	4,550
SC	100	0	100
RI	0	120	120
TN	0	4,000	4,000
TX	1,300	10,250	11,550
UT	0	5,250	5,250
VA	250	0	250
WA	530	800	1,330
WI	500	650	1,150
WY	0	2,150	2,150
<b>Totals - MT dry</b>	<b>19,425</b>	<b>80,640</b>	<b>100,065</b>
<b>Totals - Lbs dry</b>	<b>42,824,355</b>	<b>177,778,944</b>	<b>220,603,299</b>

# Polymer Producer Sold into Asphalt

USA PMA Producers Polymer Use Total			
<b>Totals - MT dry</b>	<b>19,425</b>	80,640	100,065
<b>Totals - Lbs dry</b>	<b>42,824,355</b>	<b>177,778,944</b>	220,603,299

Canada PMA Producers Polymer Use Report			
Province	Dry MT SBR Latex	MT SBS	Total
AB	-	500	500
NB	-	250	250
ON	650	1,300	1,950
SK	400	1,000	1,400
QC	-	2,000	2,000
Total MT	1,050	5,050	6,100
<b>Totals - Lbs dry</b>	<b>2,314,830</b>	<b>11,133,230</b>	<b>13,448,060</b>

Total North America			
Total MT	20,475	85,690	106,165
<b>Totals - Lbs dry</b>	<b>45,139,185</b>	<b>188,912,174</b>	<b>234,051,359</b>

Compiled by Jim Sattler from Momentum Technology



# 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)*





## Who is AMAP?

A not-for-profit organization comprised of a diverse collection of industry leaders involved in all aspects of the modified asphalt market.

Asphalt suppliers, modified asphalt producers, additives suppliers, contractors, lab equipment & testing services, consultants, even some DOT Engineers comprise the AMAP membership.

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





## What is our mission?

An association committed to informing owners, contractors and all specifying agencies of the performance and economic benefits of modified asphalt binders for bituminous pavements

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





## **AMAP Provides Industry Solutions**

Information: Modified Asphalt technology Clearinghouse.

Support: Industry experts are available to answer questions.

Education: Provide training courses, workshops and seminars specific to Modified Asphalt..

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

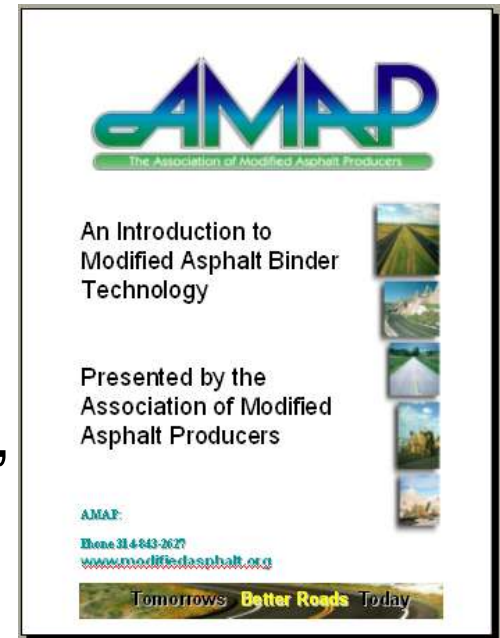




## Workshops:

### An Introduction to Modified Asphalt Binder Technology

Covers all the basics from chemistry, asphalt rheology, testing, specifications, handling, and background to life cycle cost analysis.



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



# Visit our website...



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

