



Modified Asphalt Market Survey 2008 - 2009

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Malvern Instruments

The Association of Modified Asphalt Producers Meeting

February 10-11, 2008



Modified Asphalt Survey



- Review DOT Survey & Results
- Actual Reported Usage in 2008
- Forecast 2009 Modified Usage
- State's Views on Modified Asphalt

2008 State DOT in Review

23 States participated in the Survey

- The States which did respond are:

Alabama
Connecticut
Georgia
Iowa
Maine
New York *
South Carolina
Wyoming

Alaska*
Delaware
Illinois
Kansas
Nevada
Pennsylvania
Texas

Colorado
Florida
Indiana
Kentucky
New Jersey*
Rhode Island
Washington

** Partial*

2008 State DOT in Review

Blue generally 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

The Survey

- The survey format has been consistent for the last 6 years.
- Enables Data Mining

Who Replied from each Region

- NEAUPG 54%
- SEAUPG 50%
- NCAUPG 40%
- PCCAC 40%
- RMAUPG 22%

Trends: % Modified of Total Binder

From all the same States reporting:

					Forecast
2004	2005	2006	2007	2008	2009
21%	25%	24%	24%	25%	23%

Most States were conservative on forecast

1 State is planning on Stimulus

Modifiers Used (of the respondents)

2008

- 91% SBS Modified
- 48% SB Modified
- 39% SBR Latex Modified
- 17% Other Polymer Modified (EVA, etc)
- 13% Chemical Modified (oils, etc)
- 22% Crumb Rubber Modified (CRM/GTR)
- 26% PPA
- 13% 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

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 |

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

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

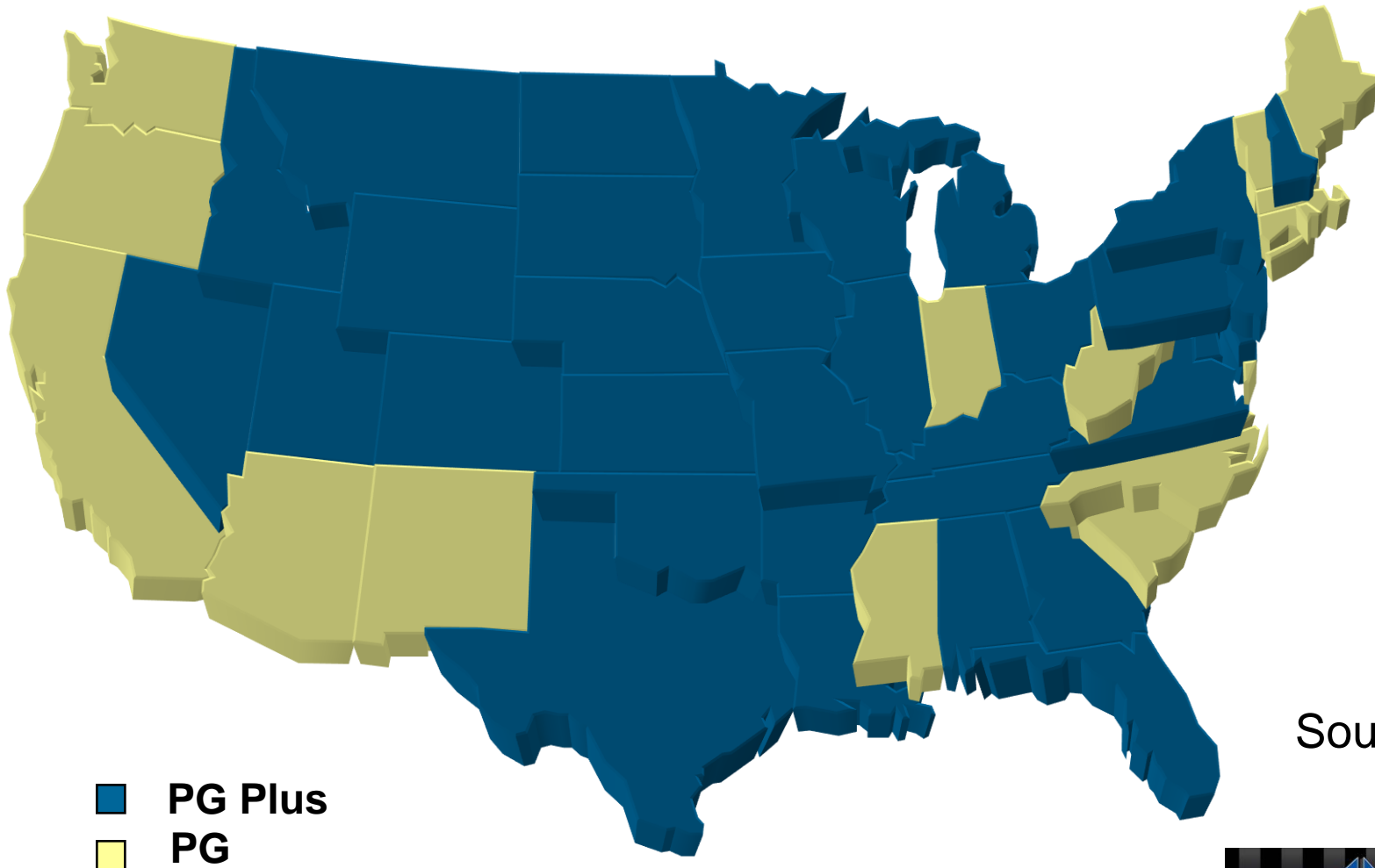
2008 DOT in Review

- 65% must be Modified to Meet Specification
- 44% specify for Modification
- 40% Specify Type of Modifier
- 18% Specify Percent of Modifier
- 22% have a Stability Specification

Modes Of Failure Addressed with Modified Binder

- 83% Rutting
- 43% Fatigue Cracking
- 39% Thermal Cracking
- 9% Other (raveling / stripping)

State DOT's with *Plus* Spec's



Source FHWA

2008 DOT in Review

Plus Specifications:

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

Responses:

- 78% of those responded have *Plus* Specs

Plus Specifications & the DOTs

- Of the 78% that have **Plus** Specifications
 - 61% are Elastic Recovery
 - 55% are DSR; Multiple Stress Creep Recovery
 - 22% are DSR; Phase
 - 22% are Forced Ductility
 - 22% are Toughness & Tenacity
 - 22% are Direct Tension
 - 11% are Other (Ring & Ball; FTIR; etc)

Would Consider Specifications...

Additional Spec's To Improve or Reduce:

- **76% Compaction for HMA**
 - **65% Rutting Resistance of HMA**
 - **57% Fatigue Cracking for HMA**
-
- **52% Chip Retention of Emulsions**
 - **57% for an Emulsion Performance Spec**

Experiences with Modified Asphalt

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

82% are Satisfied

Experiences with Modified Construction

- **Very Satisfied** 22%
- **Satisfied** 52%
- **Neutral** 13%
- **Unsatisfied** 13%
- No Comment** 0%

74% are Satisfied

2008 DOT Spending Expectation

- 44% Expect to Spend **More** on Paving
- 9% Expect to Spend the **Same** on Paving
- 39% Expect to Spend **Less** on Paving

2008 DOT in Review

Total Binders Reported: **4,832,716** liquid tons

- 48% of responses Expect to use **More** in 2008
- 30% of responses Expect to use **Less** in 2008
- 21% of responses Expect to use **Same** in 2008

2008 DOT in Review

Total Modified reported:

Reported: **1,185,408** liquid tons

- **25%** of Binder reported was Modified

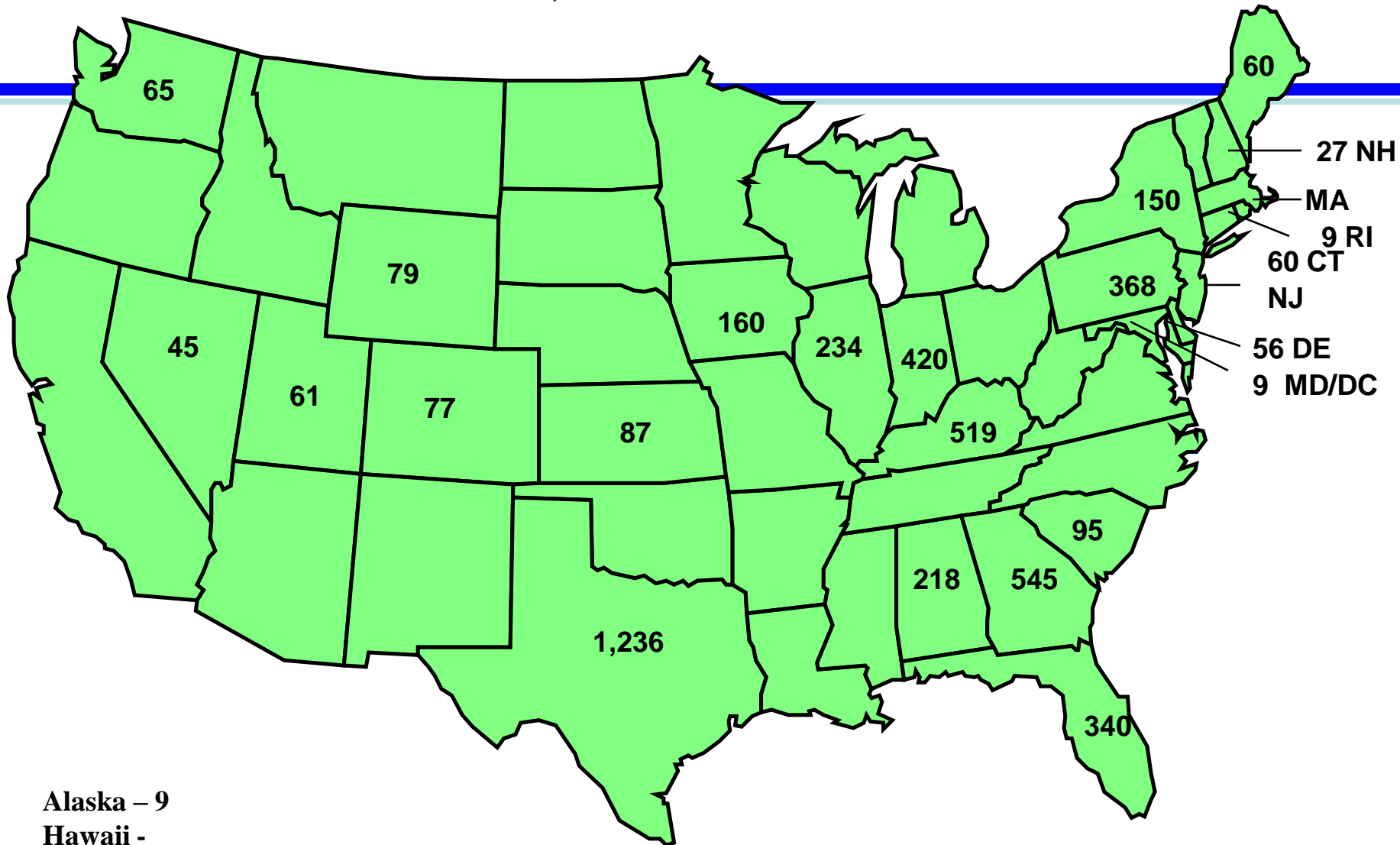
2008 DOT in Review

Total Modified Reported: **1,185,408** liquid tons

- 44% of responses used **More** in 2008 vs 2007
- 22% of responses used **Less** in 2008 vs 2007
- 35% of responses Expect to use **More** in 2009
- 39% of responses Expect to use **Less** in 2009

Total Asphalt Useage

2008, DOT(000 TONS)

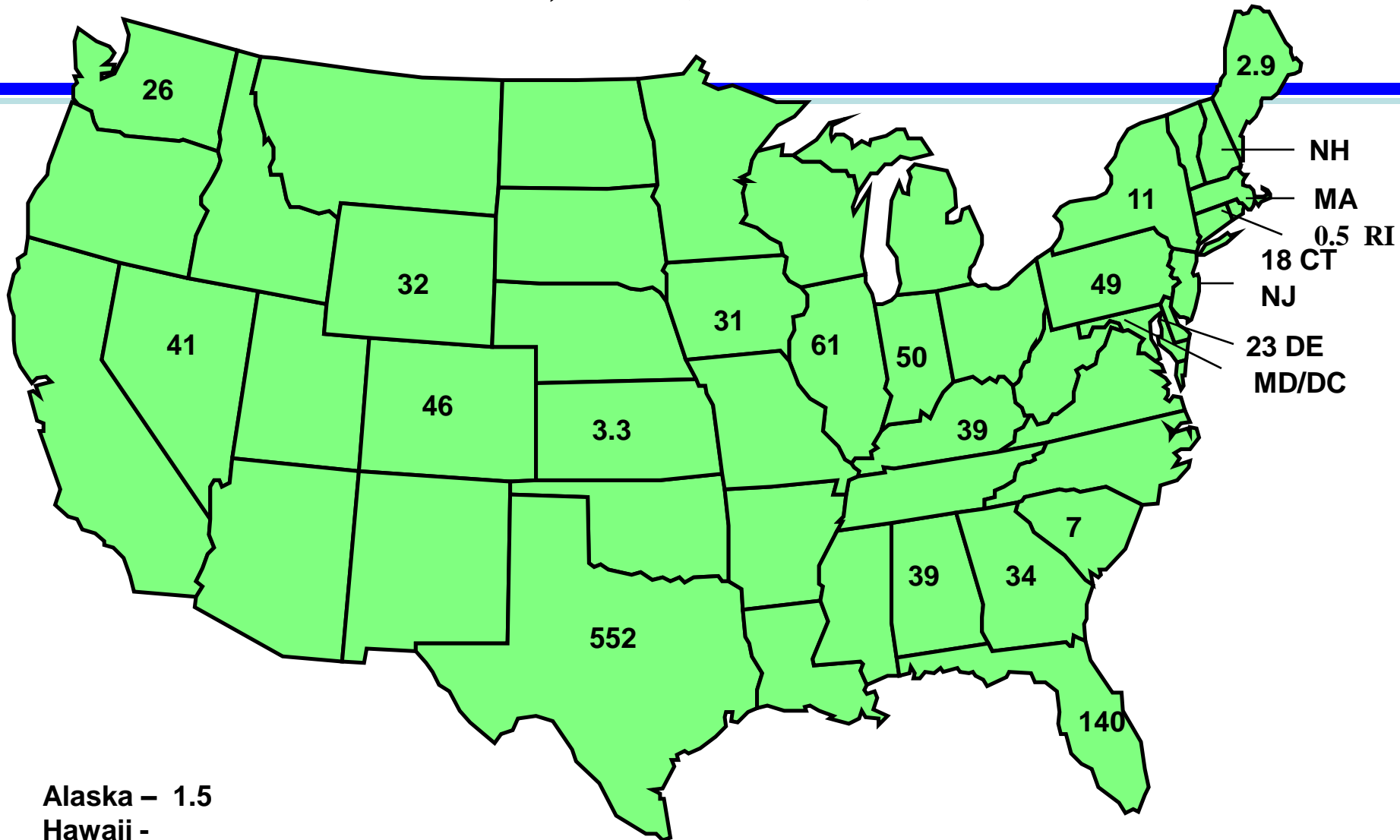


Alaska – 9
Hawaii -

Total 4,831,716

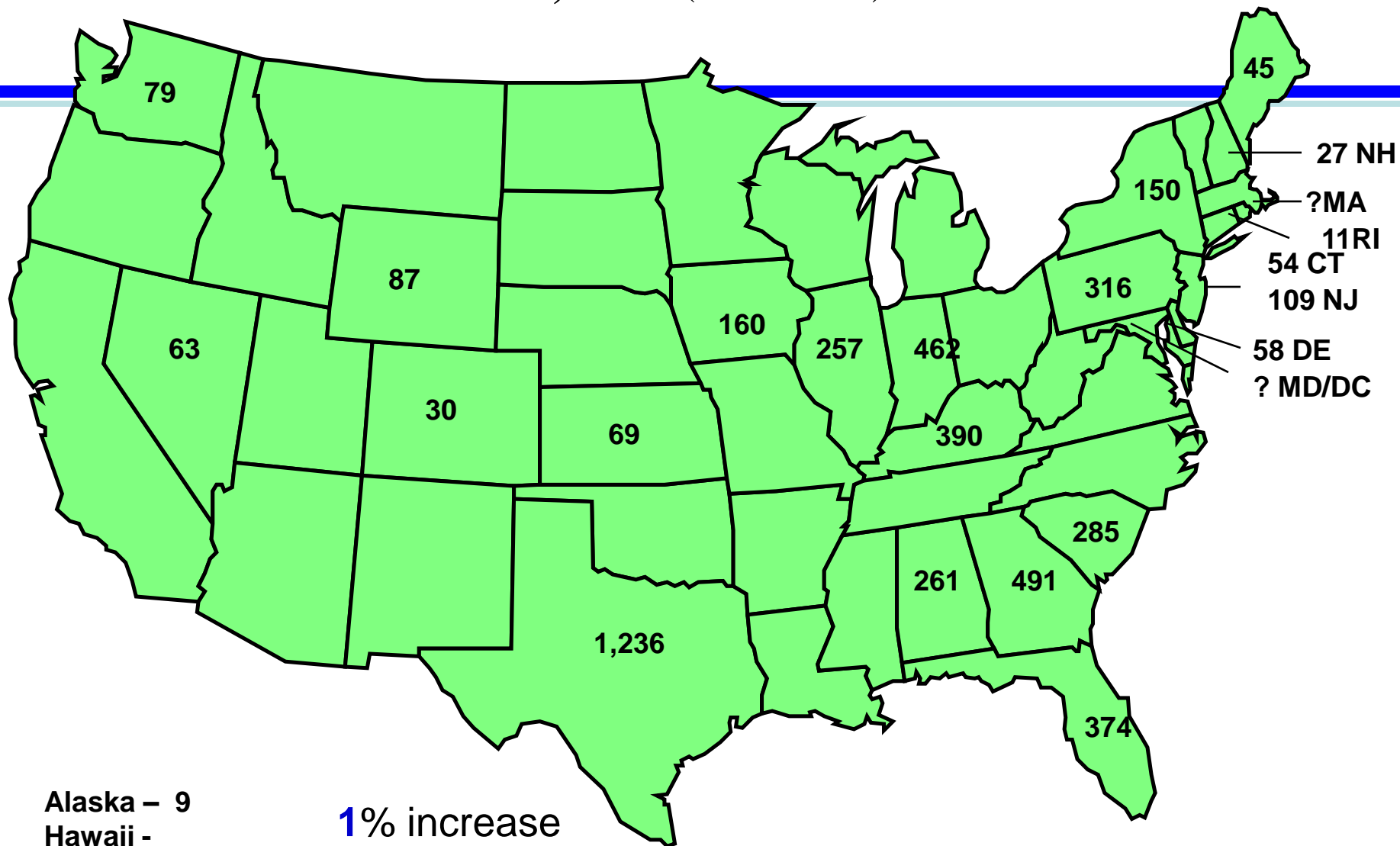
Modified Asphalt Useage

2008, DOT(000 TONS)



Total 1,185,408

2009, DOT(000 TONS)



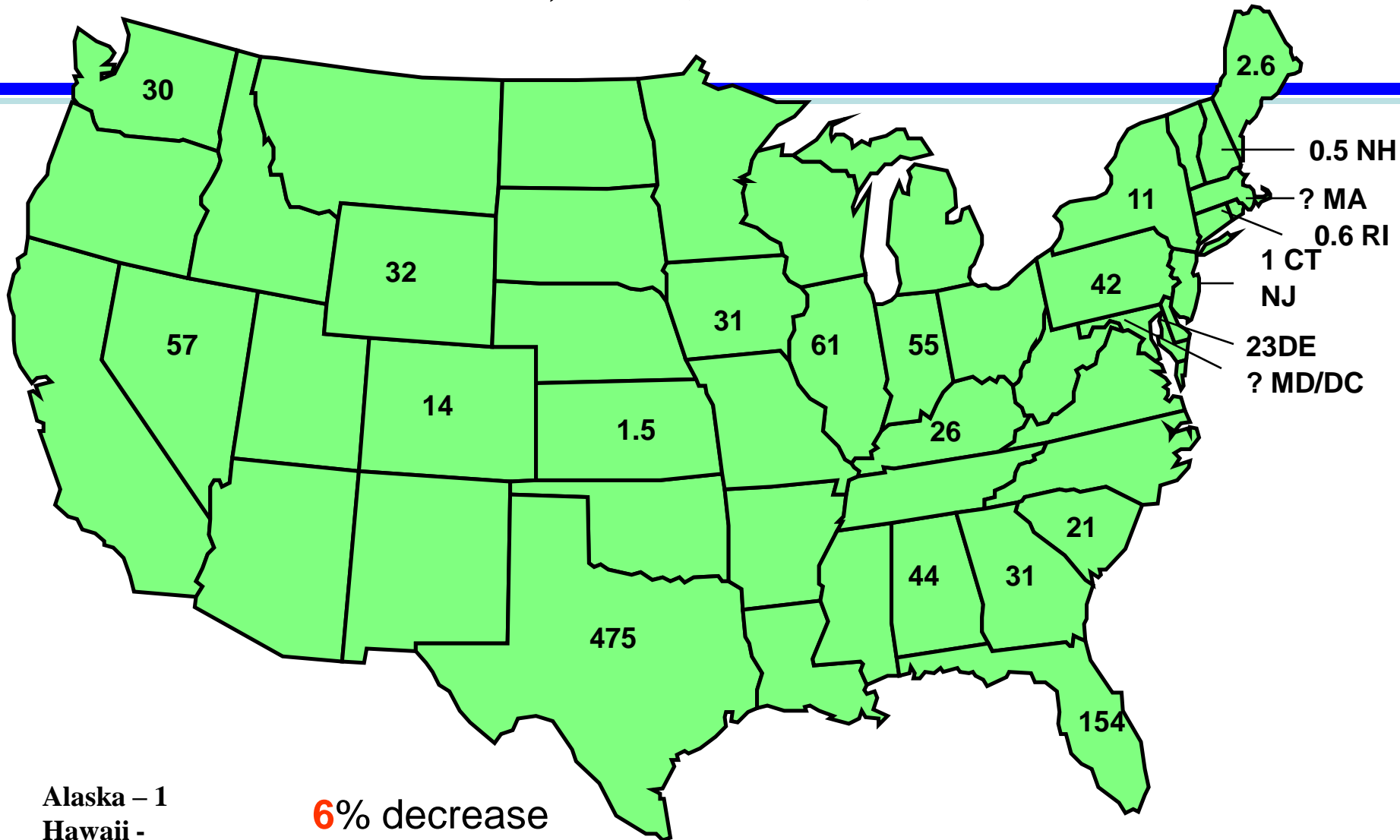
Alaska – 9
Hawaii -

1% increase

Total 4,887,387

Modified Asphalt Forecast

2009, DOT(000 TONS)



This Survey...

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

www.modifiedasphalt.org



Market Perspective 2008 - 2009

Henry Romagosa
ICL Performance Products

The Association of Modified Asphalt Producers Meeting

February 10-11, 2008



Market Perspectives

- Some comments on industry status and perspectives
 - A bit of history
 - A look at today
 - A look at the future

A Bit of History

- Wild Gyration in asphalt pricing and tightness on availability
- Wild gyrations on butadiene pricing and availability
- AMAP White Paper
Tentative Conclusion: “The Sky is Falling”

A Pregnant Pause...

**...followed by a Roseanne
Roseannadana moment...**

“Never Mind”

Current Status

- Butadiene readily available
- More than adequate SBS polymer availability
- Most forecasts show little or no SBS polymer shortage for this season

...Life is good???

What Did We Accomplish?

- Create greater awareness of supply chain
- Identify and provide preliminary information on valid alternatives – from an unbiased source
- Create a mechanism for prompt, reliable, information updates

How Have Things Changed?

- Volatility – both in pricing and supply - is here to stay
- Predictability is and will remain poor
- Producers are more likely to avoid overdependence in one product
- Materials suppliers may perceive new opportunities

What for the future?

- AMAP has learned that we can be a valuable conduit for information
- We will continue to proactively pursue and disseminate information on supply and availability, and in identifying new technology
- We need everyone's help to make this survey broader and better

Technology and Information Transfer

We see this as a key activity for AMAP

- Annual Survey
- Paper on life cycle of PMA
- White Paper on supply

In trying to get you the latest and most reliable information on these key issues...

A Winston Churchill Moment...



A Winston Churchill Moment...

We will never, never, never,
never give up!



Questions?

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





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





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





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

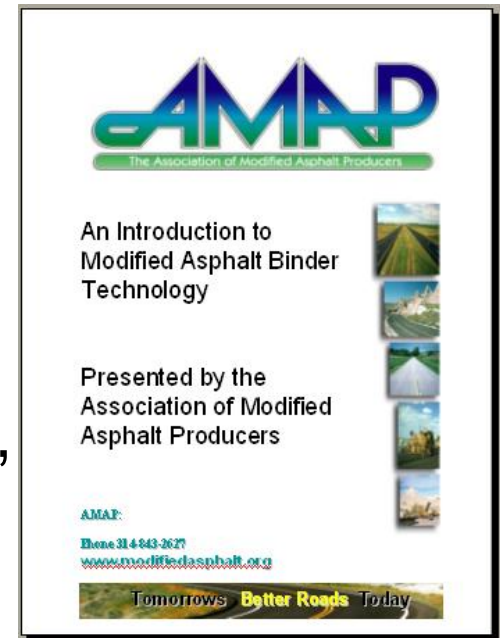




Workshops:

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



Visit our website...



www.modifiedasphalt.org

