



# The 2020 Modified Asphalt Market

Results of the 2020 Industry Survey and Highway Agency Survey Commissioned by AMAP

**Brian Hirt**

Managing Director, CTC & Associates

February 10, 2021



# AMAP Market Surveys

- ❑ 2004-05 through 2010-11 ▶
  - Thanks to John Casola and Henry Romagosa for their efforts in these surveys.
- ❑ 2018, 2019 and 2020 (this presentation)
  - Available online for AMAP Members
  - 2020 report available to all



# Today...

1. 2020 Industry Survey results
  - Comparison with 2019 surveys on key questions
2. 2020 Agency (State DOT, Tollway/Turnpike, and Provincial Ministry) Survey results
  - Comparison with 2019 surveys on key questions
3. Comparison of common questions between producers and agencies

# 2020 Industry Survey

- ❑ Sent to 197 companies that use asphalt modifier in their products
  - 155 paving, 35 roofing, 7 filler
  - AMAP members and nonmember invited to participate
- ❑ **27 companies responded (14%)**
  - 23 paving, 4 roofing, 0 filler
- ❑ Only reporting combined data
  - NDA with AMAP

# Market Size (Who Responded)

Q: In pounds, how much polymer of any type will your company use in total in 2020 across all of your North American locations?

Pounds (millions)	Respondents (n = 25)
Less than 1	<b>Most common</b>
1 to 3	
3 to 6	<b>Most common</b>
6 to 9	
9 to 12	
12 to 15	
15 to 18	
18 to 21	
More than 21	

Bottom end  
**110 million pounds  
of polymer**

Top end  
**160+ million pounds  
of polymer**

# Market Size (Who Responded)

Q: In pounds, how much nonpolymer of any type will your company use in total in 2020 across all of your North American locations?

Pounds (millions)	Respondents (n = 23)
Less than 1	Most common
1 to 3	
3 to 6	
6 to 9	
9 to 12	
12 to 15	
15 to 18	
18 to 21	
More than 21	

Bottom end  
**45 million pounds  
of nonpolymer**

Top end  
**70+ million pounds  
of nonpolymer**

# Market Segments

Q: Indicate the market segments where your company sells modified asphalt product.

(Please rank. 1 = Most primary market segment. Leave blank any market segment your company does not service.)

Market Segment	Binders	Pavement Preservation Products (Micro, Slurry, Chip and Cape Seals, etc.; Crack/Joint Fillers, High-Modified Thin Lift Overlays)	Asphalt Roofing - Steep Slope (Shingles, Tab Sealants, Laminating Adhesives)	Asphalt Roofing - Low Slope (Modified Bitumen Membranes, Shingles, Single Plies)	Binder & Asphalt Additives (Extenders, Bio-Oils, REOB)	Peel-and-Stick Membranes (Steep Slope Roofing Underlayments, Water- and Damp-proofing, Building Envelopes)	Coatings and Adhesives
#1 Rankings	70%	11%	7%	7%	4%	0%	0%
Any Ranking	81%	48%	30%	33%	37%	37%	37%
#1 Rankings by Respondent Type							
Paving	83%	4%	13%				
Roofing				50%	50%		

# Polymer Modifiers

Q: Rank by tonnage the types of polymer modifiers your company expects to use in 2020.

(1 = Greatest tonnage. Leave blank any modifiers your company does not use.)

Polymer Modifier	SBS Linear	SBS Radial	SBR Latex	Recycled Material (Ground Tire Rubber, Plastics, Other)	SEBS	Acrylic Latex	Plastomers (PEs, EVAs, Other)
<b>#1 Rankings</b>	<b>74%</b>	19%	7%				
<b>Any Ranking</b>	<b>85%</b>	63%	48%	33%	22%	33%	22%
<b>#1 Rankings by Respondent Type</b>							
<b>Paving</b>	<b>78%</b>	13%	9%				
<b>Roofing</b>	<b>50%</b>	<b>50%</b>					



# Nonpolymer Modifiers

Q: Rank by tonnage the types of nonpolymer modifiers your company expects to use in 2020.

(1 = Greatest tonnage. Leave blank any modifiers your company does not use.)

Nonpolymer Modifier	Extenders (Bio-Oils, REOB, Other)	Polyphos- phoric Acid	Cross Linkers	Anti Strips (All Types)	Warm Mix Additives	Waxes	Fibers (Cellulose, Mineral, Synthetic)	Other
<b>#1 Rankings</b>	4%	9%	<b>35%</b>	22%	4%	4%	4%	9%
<b>Any Ranking</b>	4%	35%	<b>78%</b>	48%	61%	26%	17%	26%
#1 Rankings by Respondent Type								
<b>Paving</b>	4%	9%	<b>35%</b>	22%	4%	4%	0%	4%
<b>Roofing</b>							<b>50%</b>	50%

# Market Growth

Q: How do you expect your company's sales of modified asphalt product to change from 2019 to 2020?  
From 2020 to 2021 (projected)?

Period	2019 to 2020	2020 to 2021	(2018 to 2019)	(2019 – 2020)
<b>Decrease</b>	26% of respondents	26%	10%	6%
<b>Stay the Same</b>	26% of respondents	37%	37%	31%
<b>Increase</b>	<b>48% of respondents</b>	<b>37%</b>	53%	63%
<b>Range</b>	-30% to 50% growth	-40% to 50%	-30% to 20%	-50 to 50%
<b>Average</b>	<b>6.2% growth</b>	<b>5.8%</b>	3.6%	2.7%

# Market Forces

Q: What market forces are influencing these changes in 2020 and 2021? Select all that apply.

Market Force	Change in demand	Change in market requirements / customer specifications	Change in emphasis at our company regarding selling modified products	Change in market penetration	Availability of new/ improved modified products	Our company acquired one or more other companies	Our company was acquired
Respondents	93%	33%	19%	19%	11%	7%	0%

This was the top choice in 2019 as well, selected by 72% of respondents

#### Other responses –

Market change, COVID-19 concerns, shutdowns, and production issues.

# Why Modify

Q: Why does your company (or why do your customers) choose to modify asphalt? Select all that apply.

Reason	To meet bid specifications	Modified asphalt is required by road agency	To meet performance guarantee	To improve life-cycle cost
Respondents	74%	63%	37%	33%

**This was the top choice in 2019 as well (78%), but slightly lower this year**

**Likewise the second choice in 2019 but higher (66%)**

**Other responses –**

Roofing demand and enhance performance of specialty product applications.

# Thoughts About Vendors

Q: Indicate your agreement or disagreement with each of these statements about the vendors who supply modifiers to your company.

(5 = Strongly Agree to 1 = Strongly Disagree)

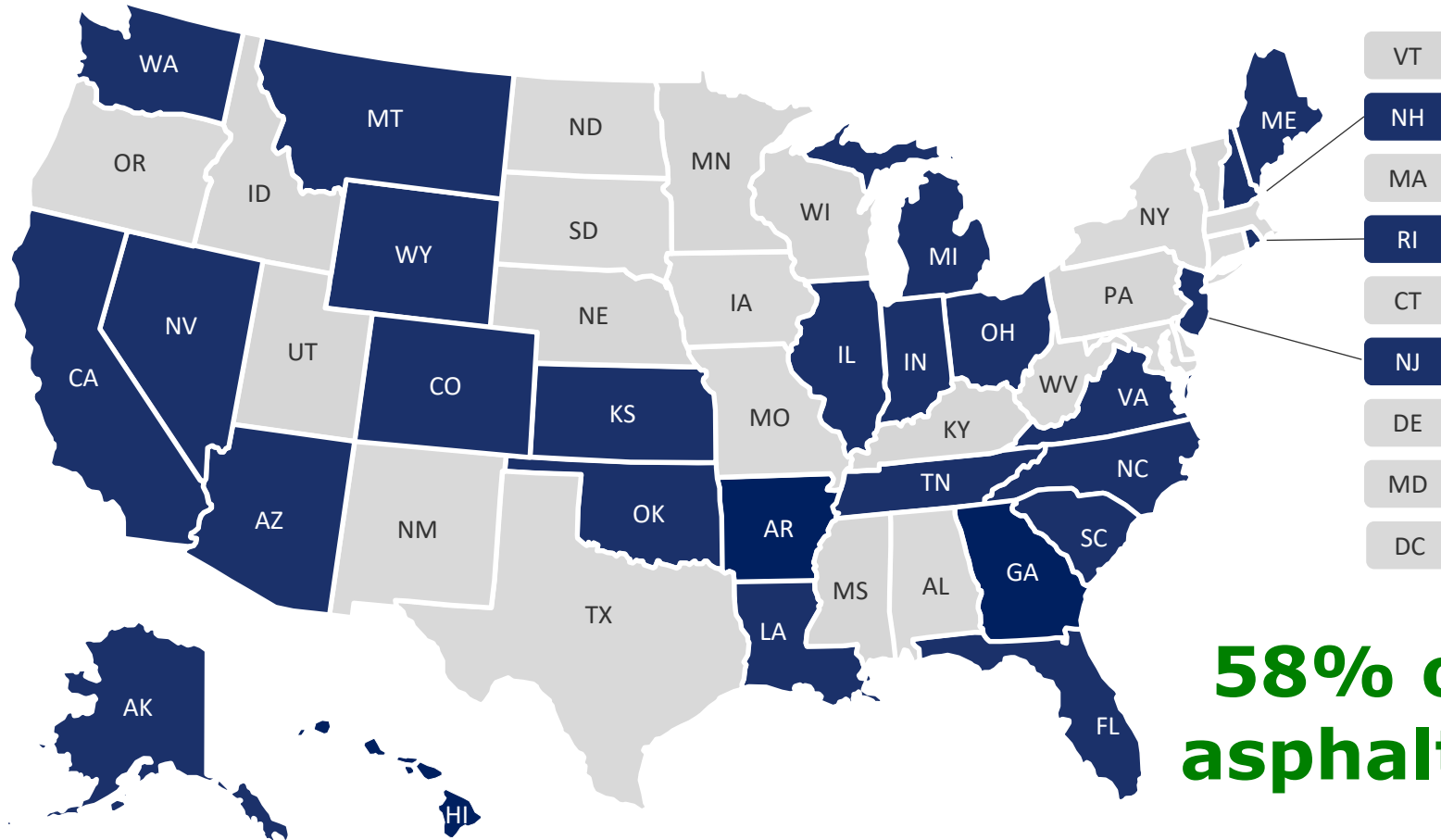
Statement	Average Response	2019
Our vendors provide good value for products and services provided.	4.1	3.8
Our vendors provide excellent technical support.	4.0	3.9
Our vendors continue to provide improved products to meet our needs.	3.7	3.6

# 2020 Agency Survey

- ❑ Sent to state DOTs, turnpikes/tollways, and Canadian provincial ministries of transportation
- ❑ Thanks to Skip Paul of the DOT Advisory Board

# Respondents

Responses from 28 States (56%) and 3 Provinces



**58% of U.S.  
asphalt roads**

# Respondents





# Mix Use

Q: How many tons of asphalt mix did your agency use in 2019, 2020 and 2021 (projected)? (n=30)

	2019	2020	2021	% change 2019 – 20	(Decrease/ Stable/ Increase)	Projected % change 2020 – 21	(Decrease/ Stable/ Increase)
<b>Million tons</b>	71.8	66.8	59.2	-7%	18 / 4 / 8	-13%	12 / 8 / 11
<b>Pro-rated to all states</b>	140	131	134	(Based on 28 states representing 58% of flexible roads per FHWA table HM31R)			
<i>Last year (n=29)</i>	2018	2019	2020	% change 2018 – 19	(Decrease/ Stable/ Increase)	Projected % change 2019 – 20	(Decrease/ Stable/ Increase)
<b>Million tons</b>	79.5	80.1	78.2	1%	10 / 4 / 15	-2%	13 / 6 / 10
<b>Pro-rated to all states</b>	144	145	141	(Based on 28 states representing 53% of flexible roads per FHWA table HM31R)			

# Binder Use

Q: How many liquid tons of asphalt binder did your agency use in 2019, 2020 and 2021 (projected)? (n=28)

	2019	2020	2021	% change 2019 – 20	(Decrease/ Stable/ Increase)	Projected % change 2020 – 21	(Decrease/ Stable/ Increase)
<b>Million liquid tons</b>	3.13	3.00	2.76	-4%	19 / 5 / 4	-9%	5 / 9 / 14
<b>Pro-rated to all states</b>	6.33	5.64	5.74	(Based on 28 states representing 58% of flexible roads per FHWA table HM31R)			

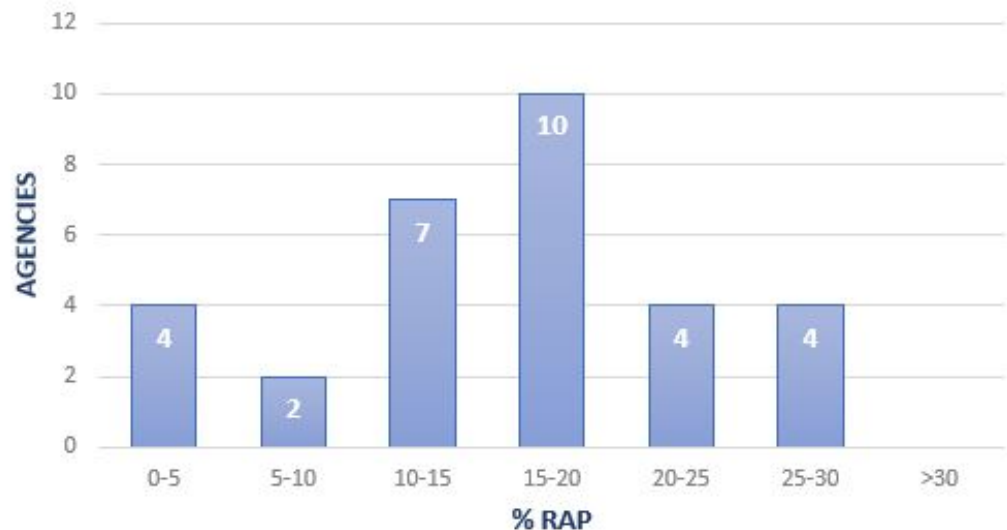
<i>Last year (n=24)</i>	2018	2019	2020	% change 2018 - 19	(Decrease/ Stable/ Increase)	Projected % change 2019 – 20	(Decrease/ Stable/ Increase)
<b>Million liquid tons</b>	3.53	3.50	3.47	-1%	10 / 4 / 10	-1%	11 / 7 / 6
<b>Pro-rated to all states</b>	7.89	7.78	7.71	(Based on 23 states representing 43% of flexible roads per FHWA table HM31R)			

# RAP Use

Q: For RAP projects, what percentage RAP is typically used for surface courses in 2019, 2020 and 2021 (projected)?  
(n=31)

- Nearly identical responses for all three years
- Average = 16.7%

**2020 distribution  
(nearly identical for all three years)**



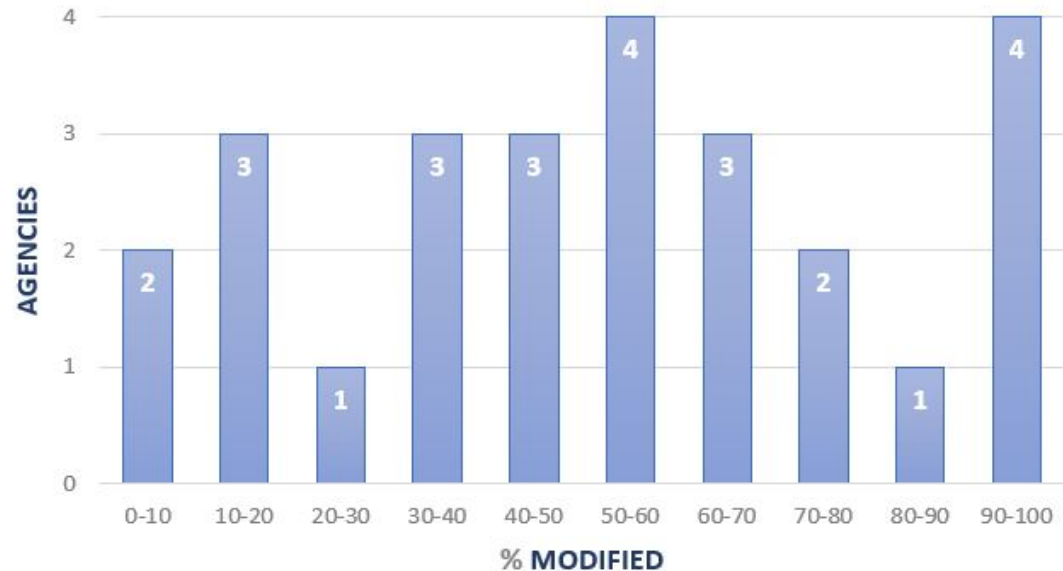
# Mix and Binder Use

Q: What percentage of your agency's asphalt binder was modified in 2019 and in 2020? What percentage do you project for 2021?

	2019	2020	2021
<b>Average</b>	52.6%	51.9%	52.1%

	2018	2019	2020
<b>Average</b>	47.5%	49.2%	49.0%

**2020 distribution  
(typical of all three years)**



# Polymer Modifier Use

Q: Which polymer modifiers are approved for use for your agency? (n=31)

Modifier	SBS Linear	SBS Radial	SBR Latex	Recycled Material: Ground Tire Rubber	Other*	Plasto- mers	Acrylic Latex	SEBS	Recycled Material: Plastics	None
Agencies	19	16	13	12	7	3	5	3	1	2

**Most common in 2020**

\*Other responses: See complete data set in final report.

# Nonpolymer Modifier Use

Q: Which nonpolymer modifiers are approved for use for your agency? (n=31)

Modifier	Warm Mix Additives	Anti Strips	Fibers	PPA	Other*	Cross Linkers	Waxes	Rejuvenators / Rejuvenator-Sealers	Extenders (Bio-Oils, REOB)	None
Agencies	23	17	12	12	6	7	2	7	4	1

**Most common in 2020**

\*Other responses: See complete data set in final report.

What are the most common asphalt grades used by your agency? For each, please indicate *Modified* or *Unmodified* if known.

- See complete data set in final report

# Specification and Testing

Q: When bid specifications are written for a particular asphalt grade, does your agency...

Response	Specify that modification is required?	Specify the type of modifier to be used?	Specify the percent of modifier to be used?	Test for separation?
Yes	39%	32%	10%	35%
Sometimes	29%	19%	19%	n/a
No	<b>32%</b>	<b>48%</b>	<b>71%</b>	<b>65%</b>

(Last Year)	Specify that modification is required?	Specify the type of modifier to be used?	Specify the percent of modifier to be used?	Test for separation?
Yes	<b>42%</b>	23%	6%	42%
Sometimes	10%	13%	6%	n/a
No	48%	<b>65%</b>	<b>87%</b>	<b>58%</b>

Trend away from specification language



# Binder Supply/Quality; Paving Plans

Q: Has asphalt binder supply or quality been a problem for your agency in 2020?

- ❑ 6% Yes, 94% No

Q: Has asphalt binder pricing changed your agency's paving plan in 2020?

- ❑ 6% Yes, 84% No, 10% Other (Don't know; not specifically)
- ❑ Last year: 3% Yes, 84% No

# Specification and Testing

Q: Does your agency include, or plan to include, additional tests for PG Binder Specifications (typically referred to as PG Plus or SHRP Plus) to ensure that modifiers are used?

- ❑ 81% Yes, 19% No
- ❑ Of those who said yes...

Binder Test	DSR MSCR	Elastic Recovery	DSR Phase Angle	Forced Ductility	Toughness and Tenacity	Direct Tension	Other
Respondents	15	13	9	5	2	0	2

# Problem Solving with Modified

Q: Indicate the degree of importance to your agency about how modified asphalt binders prevent the following problems.

Percent who replied “Important” or “Very Important” on a 5-point scale.

Problem	% of Respondents	2019
Fatigue	97%	87%
Rutting	87%	97%
Low temperature thermal cracking	71%	74%
Offsetting increased RAP use	32%	29%

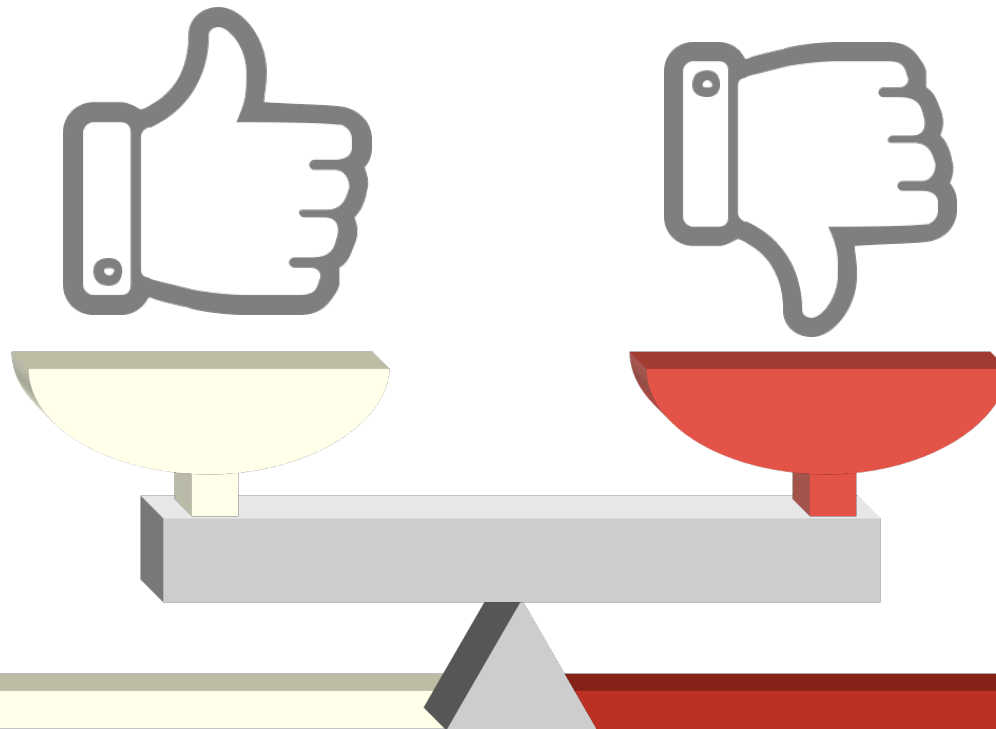
# Satisfaction with Modified

Q: Indicate your degree of satisfaction with your agency's experience with respect of these aspects of modified asphalt.

Percent who replied “Satisfied” or “Very Satisfied” on a 5-point scale.

Aspect	% of Respondents	2019
Service life	<b>77%</b>	<b>71%</b>
Life cycle cost	<b>66%</b>	<b>68%</b>
Warm mix	39%	48%

# How Industry and Agencies Compare



**MARKET TRENDS AND DRIVERS**

# Market Trends Outlook

Q: Looking at the next five years, indicate your agreement or disagreement with each of these statements about market trends.

Percent who replied “Agree” or “Strongly Agree” on a 5-point scale.

Divergence on  
more questions  
in 2020

Statement	Producers	DOTs	Δ	2019  Δ
Use of <b>recycled materials</b> will continue to grow.	85%	43%	42%	21%
Use of <b>polymer modified asphalt</b> products will continue to grow.	85%	39%	46%	24%
<b>Warm mix binders</b> will continue to grow.	59%	35%	24%	8%
<b>Bio-based products</b> will play a more important role in our products.	30%	17%	13%	31%
For paving, <b>asphalt products will displace more concrete.</b>	37%	26%	11%	35%

# Market Drivers Outlook


Q: Looking at the next five years, indicate your agreement or disagreement with each of these statements about market **drivers**.

Percent who replied “Agree” or “Strongly Agree” on a 5-point scale.

Statement	Producers	DOTs	δ	2019  δ
<b>Government regulations</b> will change the way we do business. (Reverse wording for DOTs)	70%	52%	22%	22%
Asphalt will be <b>readily available</b> .	63%	83%	20%	0%
<b>New technologies</b> will change the product we sell. (or “use” for DOTs)	63%	61%	2%	10%
Vacuum tower asphalt extender ( <b>VTAE</b> ) / re-refined engine oil bottom ( <b>REOB</b> ) will continue to <b>play a role in asphalt modification</b> .	37%	13%	24%	19%

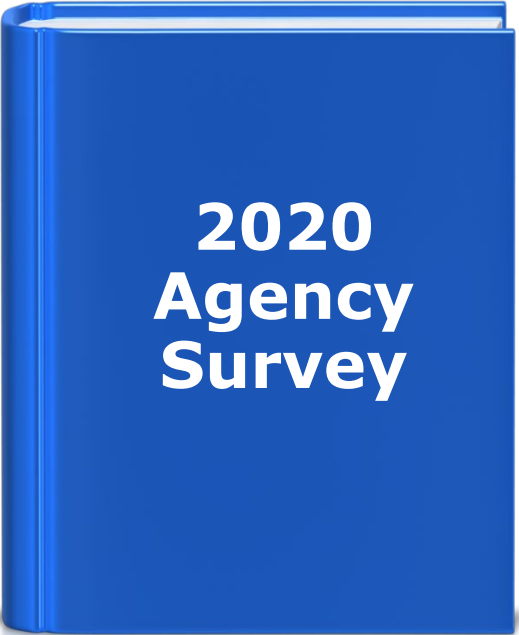
WHAT'S  
NEXT...

# Reports



## 2020 Industry Survey

- ▶ Summary data only



## 2020 Agency Survey

- ▶ Full data set
- ▶ Publicly available



**2021  
Surveys  
Next  
Fall**



# Questions?

**Brian Hirt**

Managing Director, CTC & Associates

402-770-9067

[brian.hirt@ctcandassociates.com](mailto:brian.hirt@ctcandassociates.com)

**Jim Sattler**

Executive Director, AMAP

330-714-4117

[jimsattler@modifiedasphalt.org](mailto:jimsattler@modifiedasphalt.org)



**Thank  
you!**