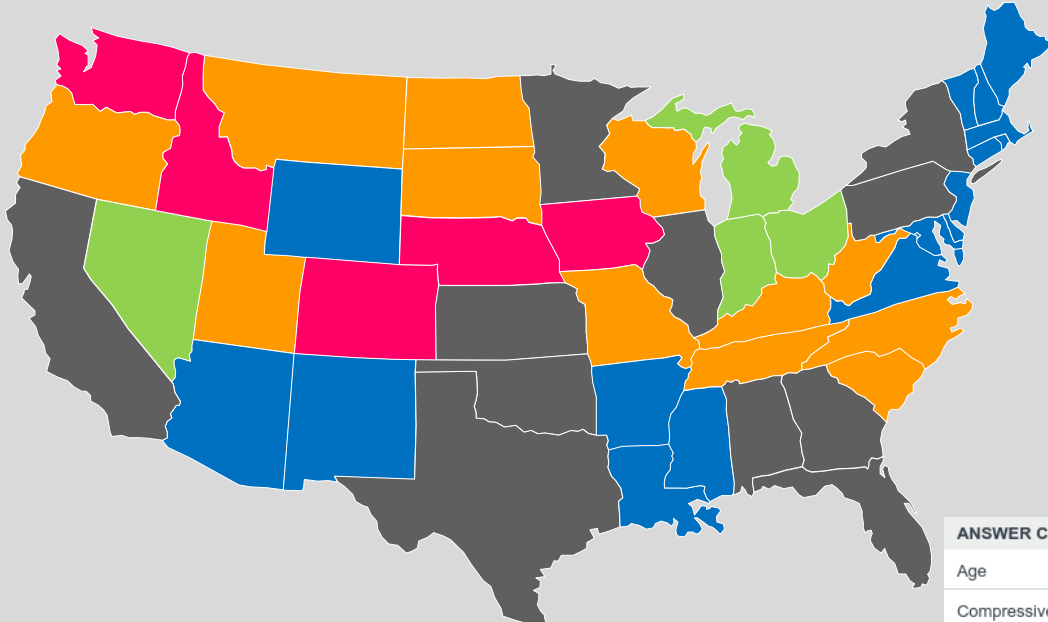


Fall 2019 - State Reports on Early Opening, Maturity, Strength and Bridge Deck Sealing

Tuesday, September 10, 2019

Q2: For early opening to pavements, do you require strength, time or both? Please explain.



ANSWER CHOICES	RESPONSES	
Age	0.00%	0
Compressive Strength	36.36%	12
Flexural Strength	12.12%	4
Age and Strength	36.36%	12
Strength-Maturity Relationship	15.15%	5
TOTAL		33

Q3: What age break is concrete strength acceptance based on?

	PAVEMENT	PAVEMENT REPAIR	STRUCTURAL CONCRETE	MASS CONCRETE	PRECAST CONCRETE	TOTAL RESPONDENTS
28-day	85.71% 24	71.43% 20	85.71% 24	75.00% 21	92.86% 26	28
56-day	0.00% 0	0.00% 0	20.00% 1	80.00% 4	40.00% 2	5
Both (28-day and 56-day)	33.33% 3	22.22% 2	66.67% 6	66.67% 6	33.33% 3	9
Neither	50.00% 2	75.00% 3	0.00% 0	25.00% 1	0.00% 0	4
Other, please explain	40.00% 4	80.00% 8	30.00% 3	20.00% 2	40.00% 4	10

Q4: What criteria is used to determine if 56 day break is required?

State / Province	Open-Ended Response
FL	Acceptance is based on 28 days, we do not have a 56-day requirement.
GA	Only use 56 day breaks on Mass Concrete with high SCM.
IL	Mass concrete
IL TOLL	A 56 day break is considered for mass concrete on a project by project basis depending on the strength required.
IA	High SCM for HPC
LA	56-day breaks are required for structural concrete per DOTD Table 901-3.
MO	A 56-day break would be considered when using over 40 percent supplementary cementitious materials. This is normally done for mass concrete.

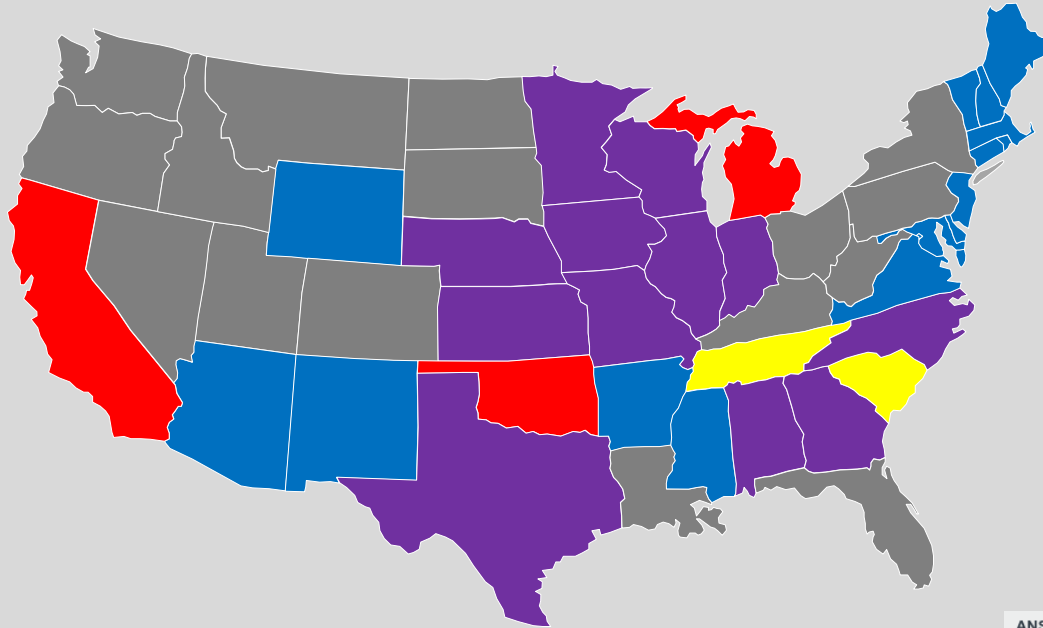
Q4: What criteria is used to determine if 56 day break is required?

State / Province	Open-Ended Response
MN	High SCM Mass concrete
MT	56-day strength acceptances is an option for the contractor and would be based on high SCM content or other factors that result in slow strength gain or slowed reduction in permeability.
ND	Normally high SCM or low breaks on the 28-day.
NV	If 28-day requirements are not meant, 56-day breaks can be accepted on a per basis exception

Q4: What criteria is used to determine if 56 day break is required?

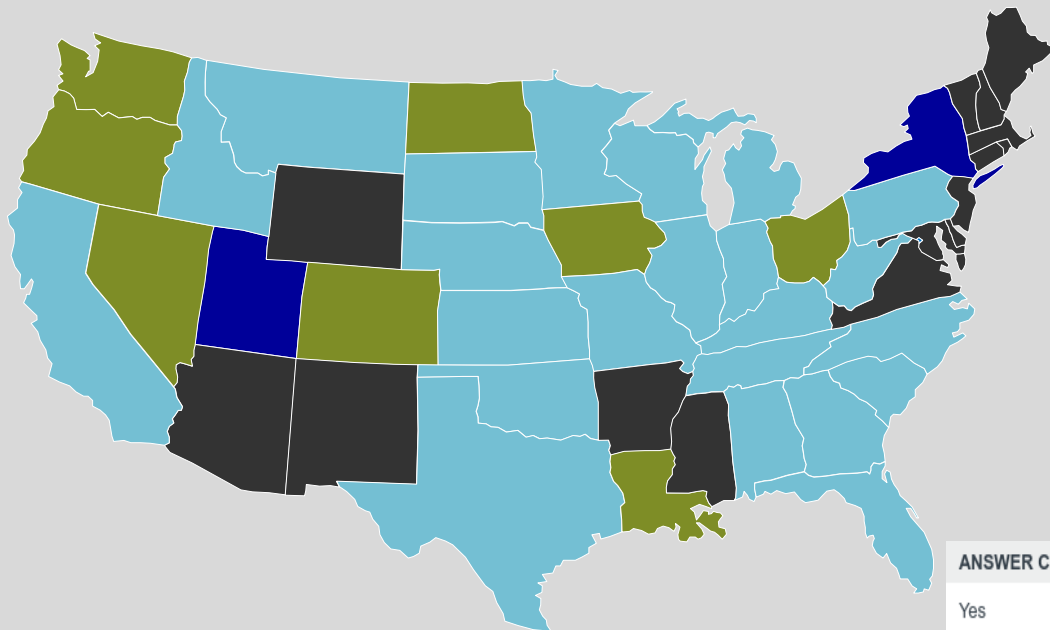
State / Province	Open-Ended Response
NY	Required for High Performance prestressed Concrete
OH	Mass Concrete
PA	If R&R then 56 day may be used to determine need to remove.
TX	Slow strength gain mixes (High SCM)
WI	Prestressed over 8,000 psi
WV	Mass concrete

Q5: What method do you use for establishing a maturity curve?



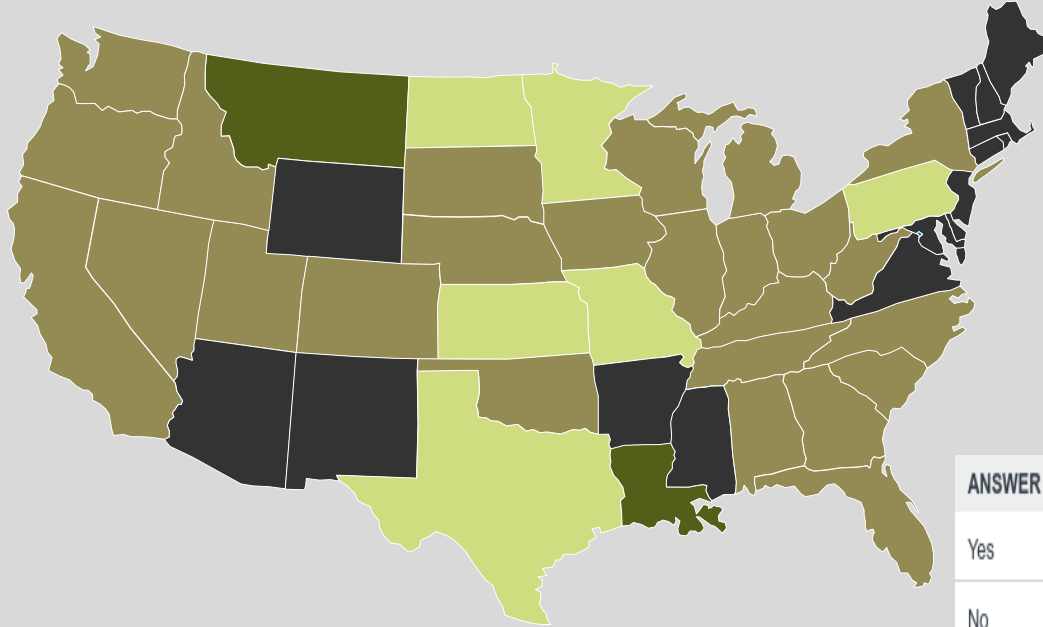
ANSWER CHOICES	RESPONSES	
Lab Developed and Field Verified	51.52%	17
Field Developed and Field Verified	36.36%	12
It Depends	9.09%	3
TOTAL		33

Q6: Does your state require maturity for any specific applications?



ANSWER CHOICES	RESPONSES	
Yes	24.24%	8
No	69.70%	23
It Depends	6.06%	2
TOTAL		33

Q7: Does your state use maturity for strength acceptance in lieu of cylinders or beams?

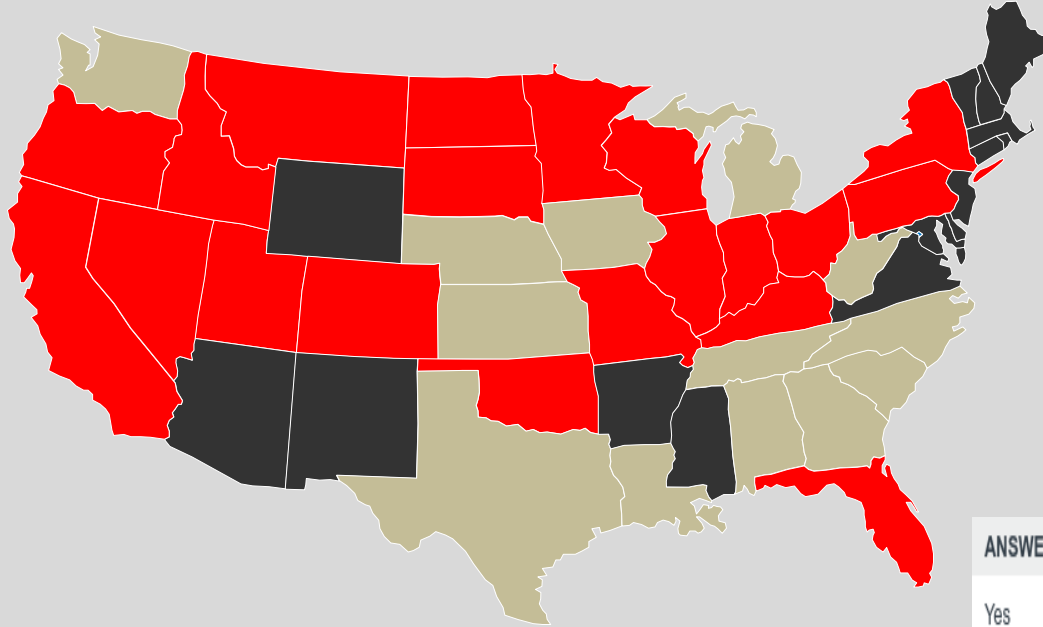


ANSWER CHOICES	RESPONSES	
Yes	18.18%	6
No	75.76%	25
It Depends	6.06%	2
TOTAL		33

Q8: Is your state performing any research related to early opening of

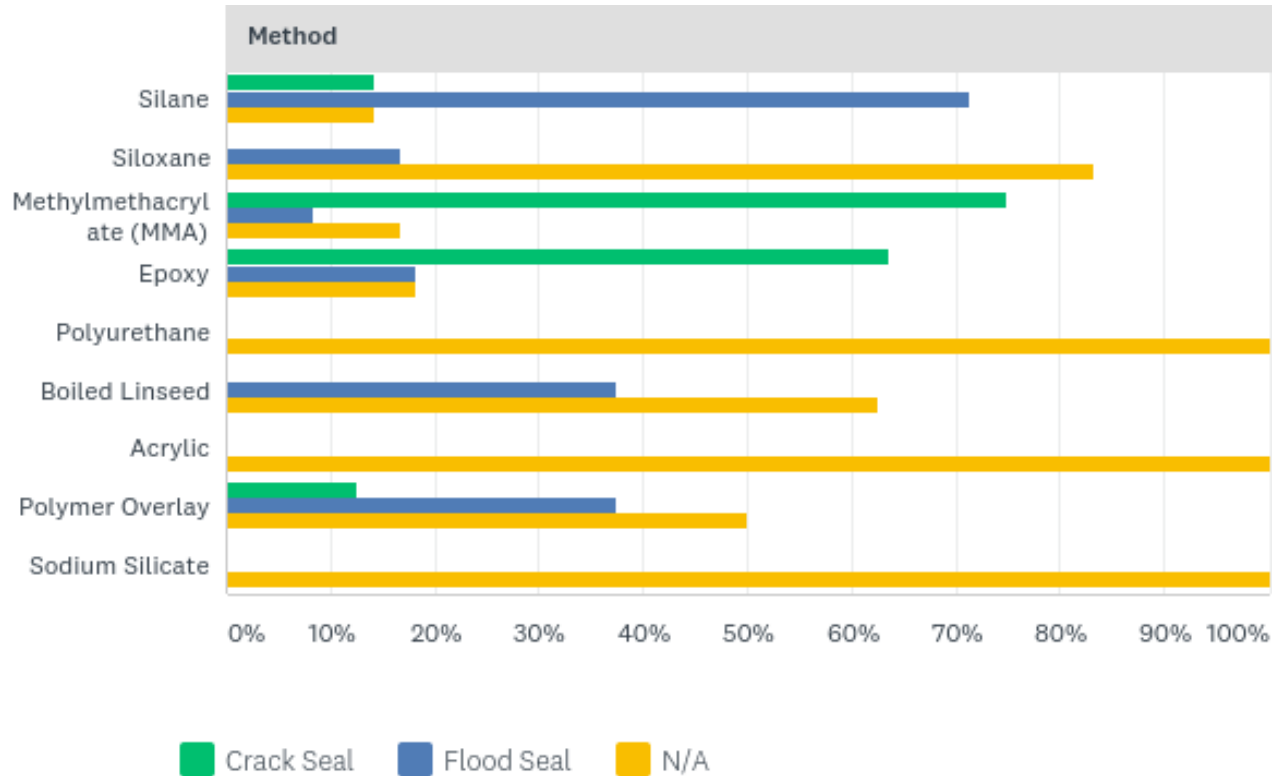
State	Link
CALTRANS	<p>The Cast In-Place (CIP) Concrete Pavement Sub-Task Group of the Materials Partnering Committee (PMPC) has a project in the works to look into removing the 10-day requirement. We posted a question at the last NC2 meeting in Denver. In California, we open concrete pavement to traffic after 10 days and when the flexural strength is 550 psi, as indicated under survey question #2.</p>
ILDOT	<p>https://apps.ict.illinois.edu/projects/getfile.asp?id=7374</p>
IADOT	<p>https://iowadot.gov/research/reports/Year/2003andolder/fullreports/hr380.pdf</p>
MNDOT	<p>Through NRRRA, we have been doing early opening of concrete research.</p> <p>http://www.dot.state.mn.us/mnroad/nrra/structureandteams/rigid/longterm3.html</p>
PENNDOT	

Q9: Do you seal new bridge decks? If no, skip to #13



ANSWER CHOICES	RESPONSES	
Yes	63.64%	21
No	36.36%	12
TOTAL		33

Q11: If you seal new bridge decks, what material(s) do you use to seal the deck?

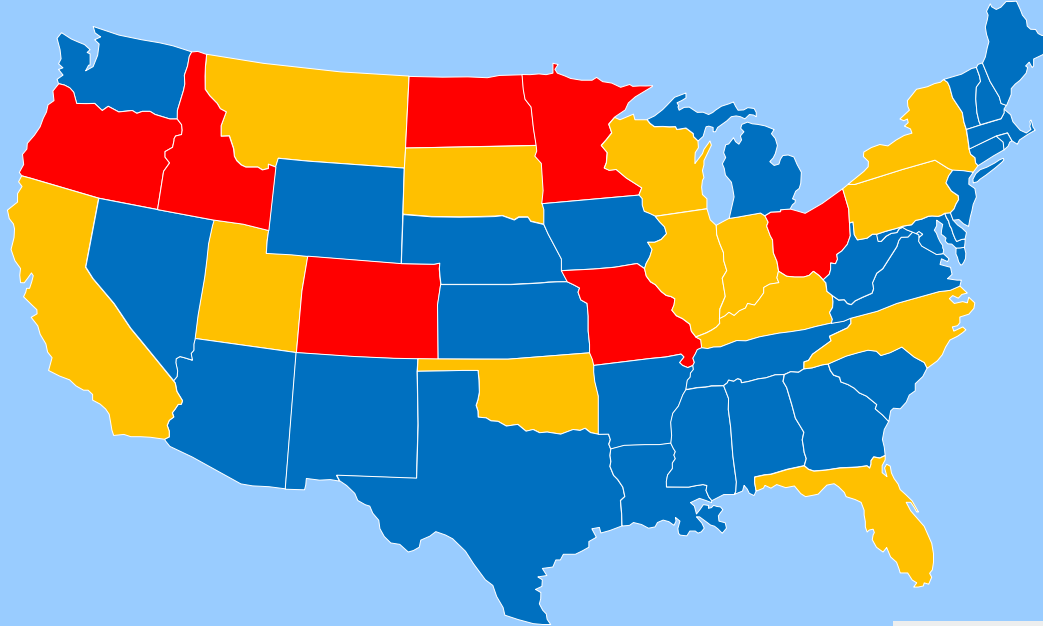


Q11: If you seal new bridge decks, what material(s) do you use to seal the deck?

Answered: 21 Skipped: 12

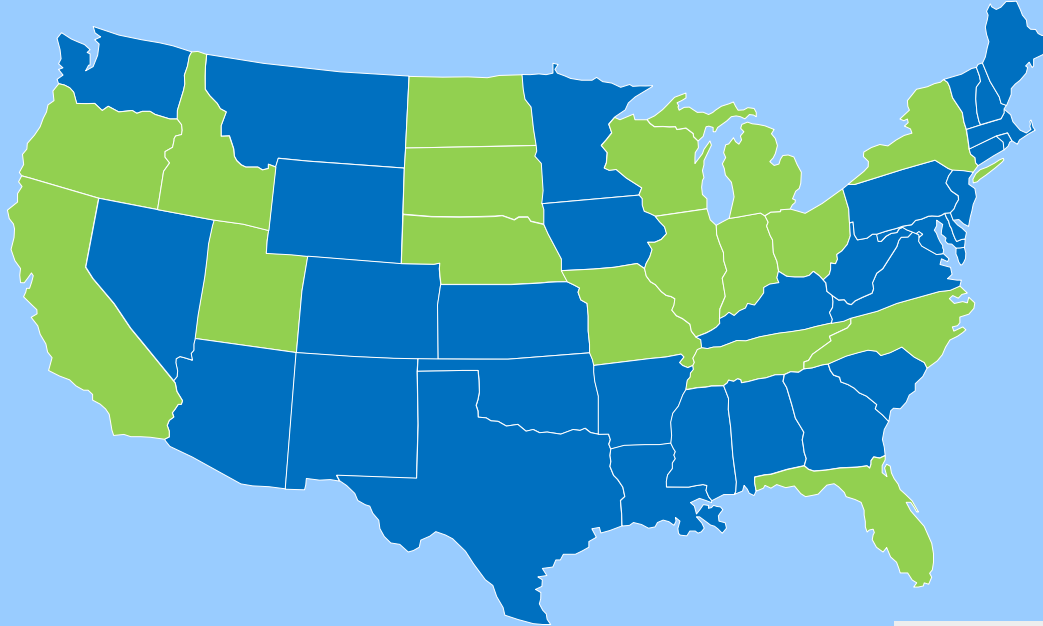
Method	CRACK SEAL	FLOOD SEAL	N/A	TOTAL
Silane	14.29% 2	71.43% 10	14.29% 2	14
Siloxane	0.00% 0	16.67% 1	83.33% 5	6
Methylmethacrylate (MMA)	75.00% 9	8.33% 1	16.67% 2	12
Epoxy	63.64% 7	18.18% 2	18.18% 2	11
Polyurethane	0.00% 0	0.00% 0	100.00% 6	6
Boiled Linseed	0.00% 0	37.50% 3	62.50% 5	8
Acrylic	0.00% 0	0.00% 0	100.00% 6	6
Polymer Overlay	12.50% 1	37.50% 3	50.00% 4	8
Sodium Silicate	0.00% 0	0.00% 0	100.00% 6	6

Q12: Do you require the concrete to be a minimum age before you seal a new deck?



ANSWER CHOICES	RESPONSES	
Yes	68.18%	15
No	31.82%	7
TOTAL		22

Q13: Does your state have a statewide bridge deck sealing preservation program? If no, skip to #17.



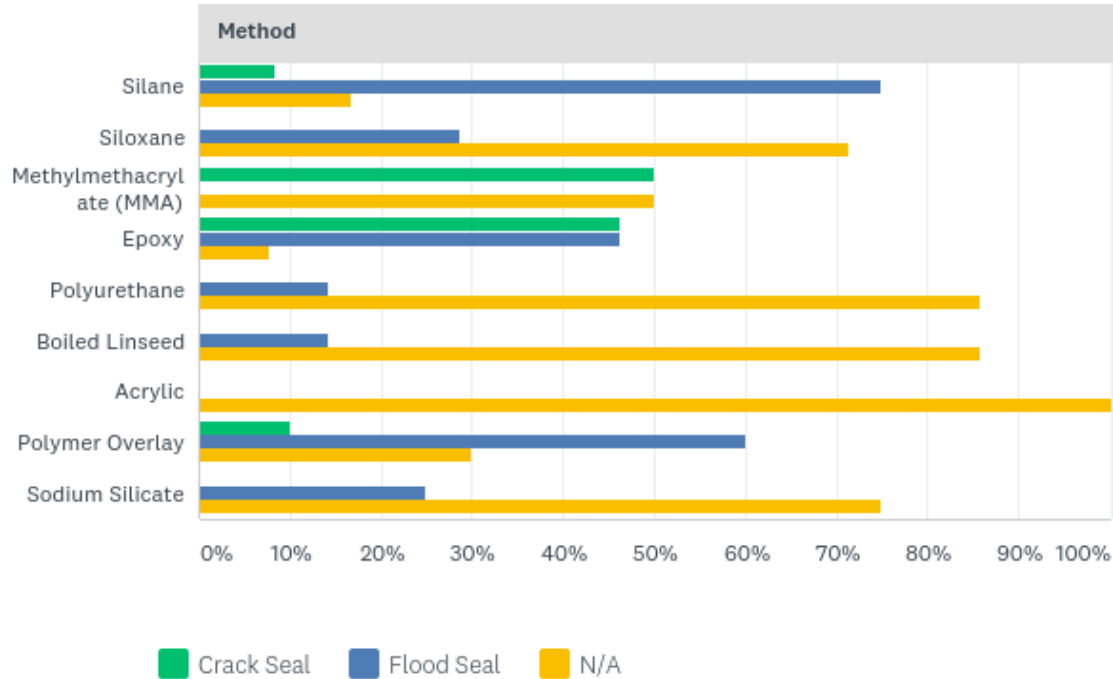
ANSWER CHOICES	RESPONSES	
Yes	54.55%	18
No	45.45%	15
TOTAL		33

Q14: For preservation projects, what criteria (crack width or % cracked)

State / Province	Crack Seal
IL TOLL	We are currently revamping our crack sealing criteria
MO	Other treatments are used depending on the amount and width of cracking occurring. The decision is made by the District Bridge Engineer.
NC	We have done in reaction to larger-width cracking that has shown up in some manner (say on very early strength LMC), and that would likely be a methacrylate treatment of some kind, but I am not sure we really do much of that as an overall deck treatment under a preservation project. For a preservation project, we are more likely to do an application of silane or a flood of High Molecular Weight Methacrylate (HMWM) across the entire deck.
NY	both- when we have wide cracks but low % cracked we crack seal
OR	individual cracks when 10ft or more apart
SD	Did not get from OBD

Q15: For preservation projects, what material(s) do you use to seal the deck?

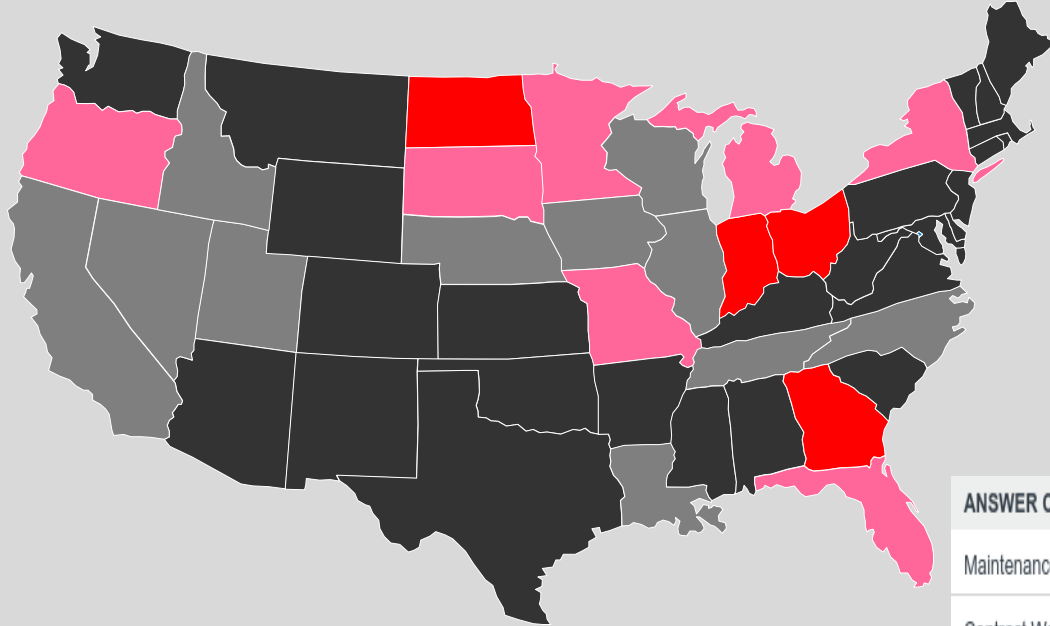
Answered: 17 Skipped: 16



Q15: For preservation projects, what material(s) do you use to seal the deck?

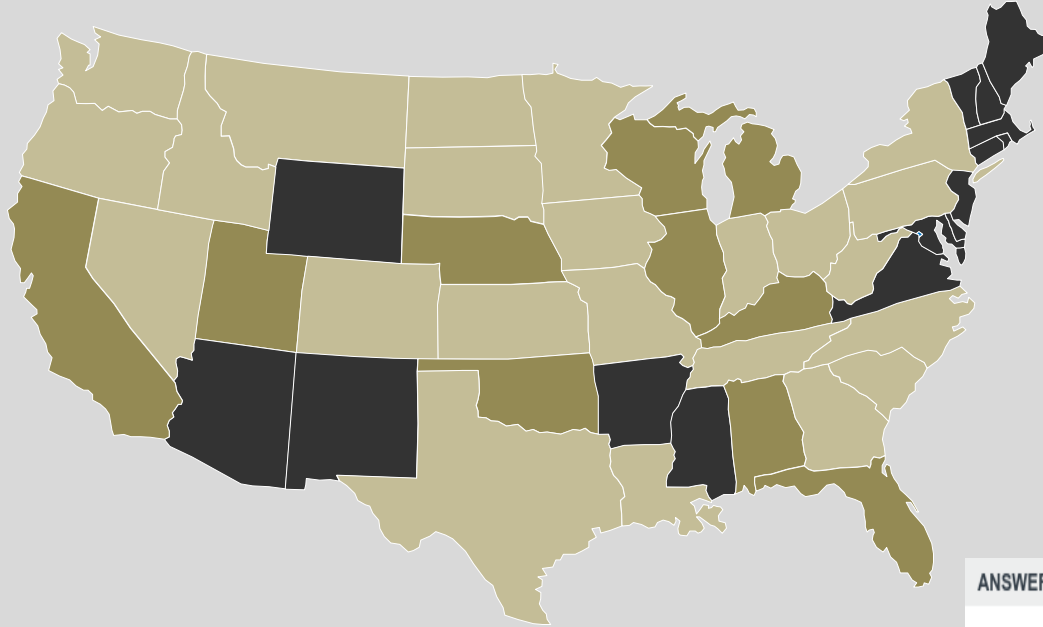
Method	CRACK SEAL	FLOOD SEAL	N/A	TOTAL
Silane	8.33% 1	75.00% 9	16.67% 2	12
Siloxane	0.00% 0	28.57% 2	71.43% 5	7
Methylmethacrylate (MMA)	50.00% 5	0.00% 0	50.00% 5	10
Epoxy	46.15% 6	46.15% 6	7.69% 1	13
Polyurethane	0.00% 0	14.29% 1	85.71% 6	7
Boiled Linseed	0.00% 0	14.29% 1	85.71% 6	7
Acrylic	0.00% 0	0.00% 0	100.00% 6	6
Polymer Overlay	10.00% 1	60.00% 6	30.00% 3	10
Sodium Silicate	0.00% 0	25.00% 2	75.00% 6	8

Q16: Who performs the bridge deck preservation?

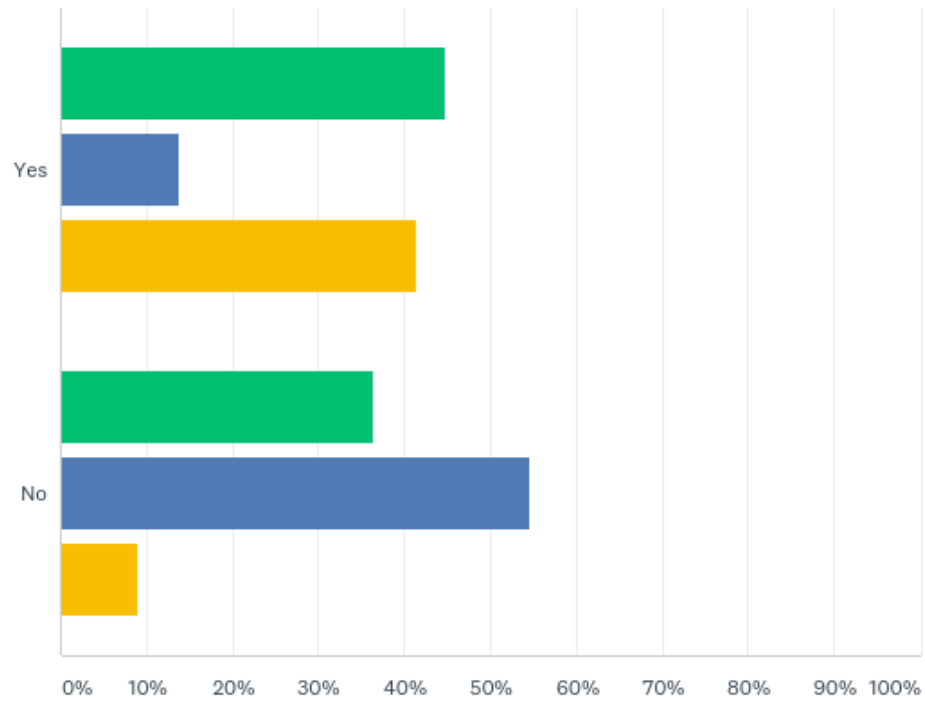


ANSWER CHOICES	RESPONSES	
Maintenance	17.39%	4
Contract Work	52.17%	12
Any additional information you want to share?	30.43%	7
TOTAL		23

Q17: Does your state have any research showing the effectiveness of sealers?

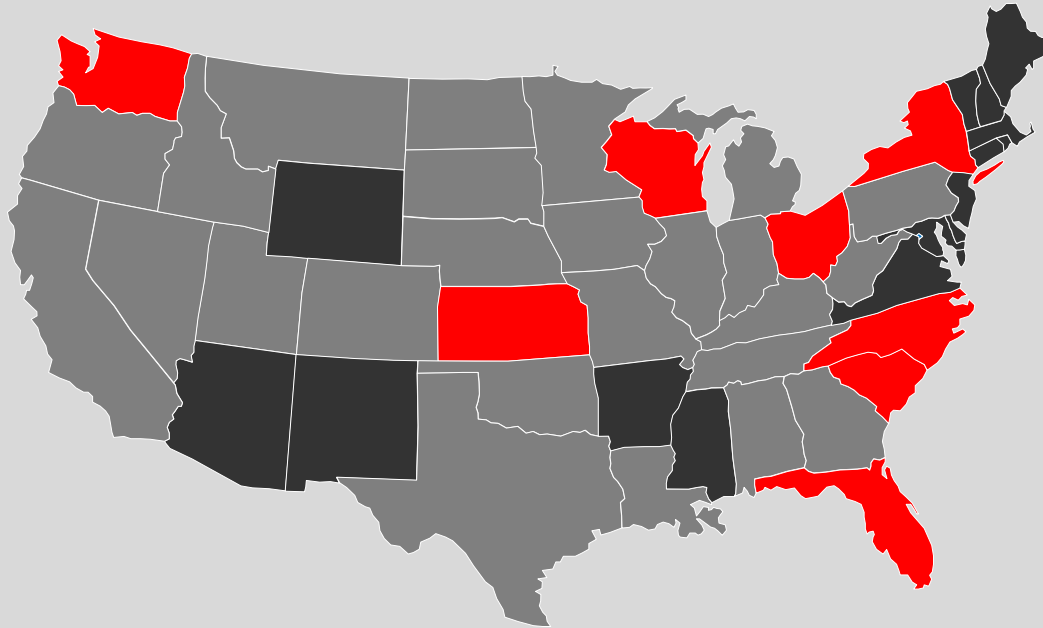


ANSWER CHOICES	RESPONSES	
Yes	30.30%	10
No	69.70%	23
TOTAL		33



■ Pavements ■ Bridge Decks ■ Other, please explain

Q17: Does your state have any research showing the effectiveness of sealers?



ANSWER CHOICES	RESPONSES	
Yes	21.88%	7
No	75.00%	24
TOTAL		32

