

NCC State Reports Spring 2016 - Bridge Survey

Saturday, April 16, 2016

List of possible topics for Spring 2016 Meeting

Listserv Poll Results		Exec Bd Points
<i>Rank of #1 = 3 pts, #2 = 2 pts, #3 = 1 pt)</i>	Bridge Topics	
35 points (16 votes)	High performance concrete/ UHPC	9
32 points (14 votes)	Bridge deck cracking	6
8 points (5 votes)	Bridge deck overlays with fibers	6
15 points (7 votes)	Precast approach slabs for integral abutment bridges/ride	5
12 points (6 votes)	Shotcrete	4
2 points (1 vote)	Lightweight bridge decks	2
2 points (1 vote)	Bridge joint seals	2
4 points (2 votes)	Assessing original bridge deck under overlay (w or w/o overlay)	2
0 points (0 votes)	Slabs	1
<i>Rank of #1 = 3 pts, #2 = 2 pts, #3 = 1 pt)</i>	General Topics	
15 points (6 votes)	Internal curing	2
9 points (5 votes)	Guidance on performance-based spec's for concrete pavement	1
2 points (2 votes)	Hydraulic fracture test	1
6 points (3 votes)	Implications of fully implementing AASHTO PP65	1

31

Total Responses

Date Created: Sunday, February 28, 2016

Complete Responses: 31

Refer to the NC2 website for each DOT's response

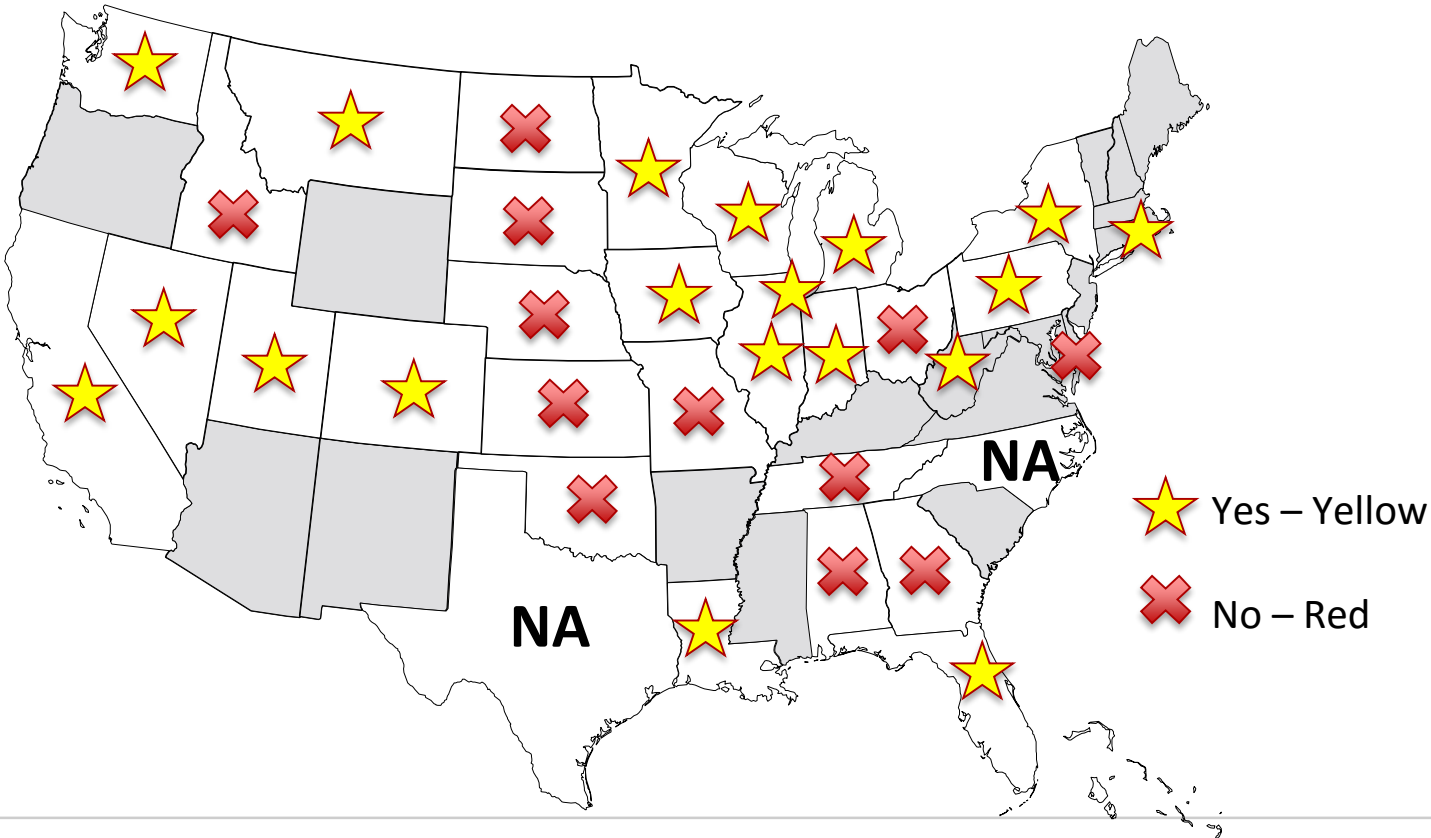


Disclaimer

All data presented herein is based upon the information provided in the survey and the interpretation of the information by the presenter.

Q2: Do you a high performance bridge deck mix specification?

Answered: 31 Skipped: 0

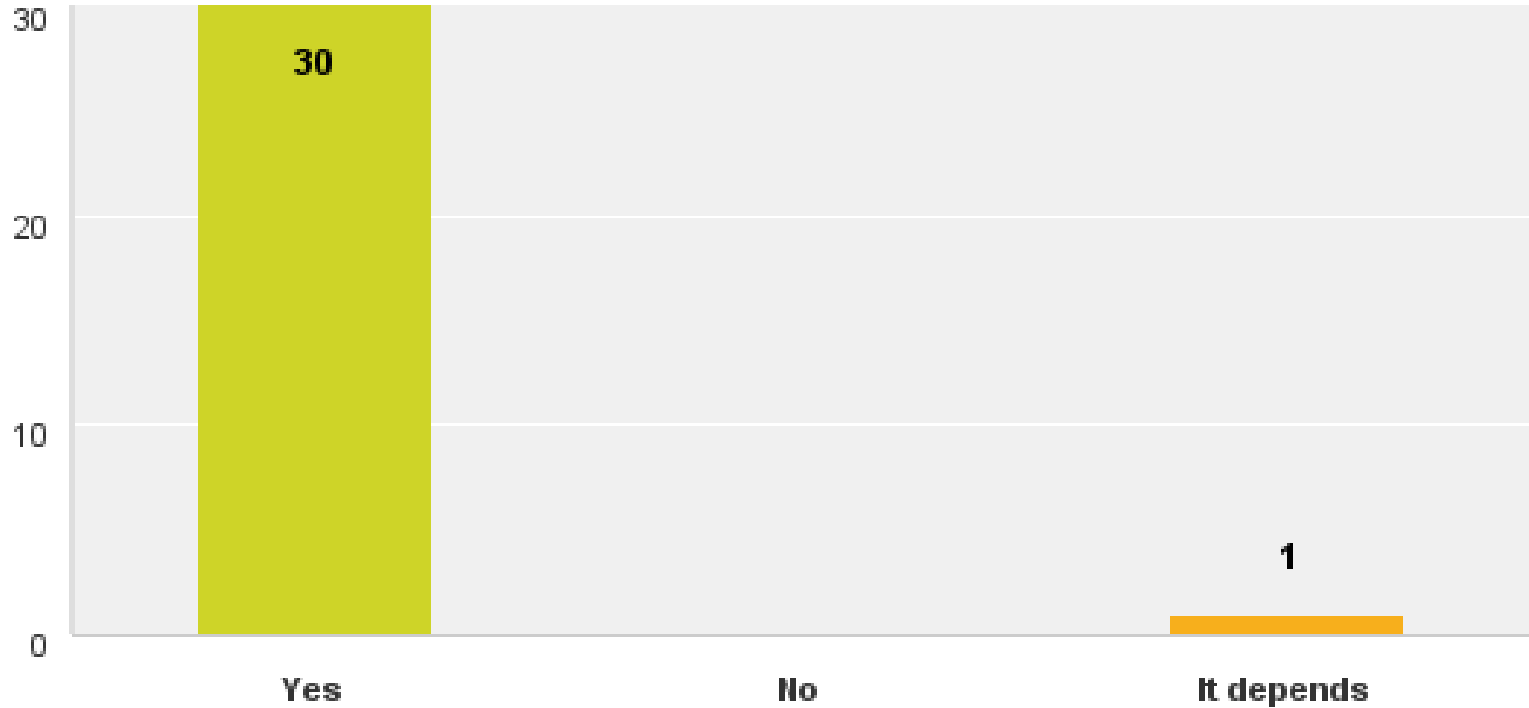


	PA	FL	WI	CO	IA	UT	CA	RI	IN
Compressive Strength	4000 psi @ 28 days				4000 psi @ 28 days	4000 psi @ 28 days		5000 psi @ 28 days	5000 psi @ 28 days
w/c ratio		≤ 0.41			≤ 0.42	≤ 0.44		≤ 0.42	0.36 – 0.43
Cementitious Content	<690 (soon <640)	≥ 658						500 - 700	≥ 390
Permeability T277/C1202	≤ 2000 @ 56 days		≤ 1500 @ 28 days	≤ 2000 @ 56 days	≤ 1500 @ 28 days			≤ 2000 @ 28 days	≤ 1500 @ 56 days
Resistivity					> 30 k-Ω @ 28 days				
Optimized Gradation	Shilstone			Min. 55% 3/4"+ CA		Coarseness Factor			FA 35 – 45%
Shrinkage C157	≤ 0.05 @ 28 days					≤ 0.042 @ 28 days	≤ 0.032 @ 28 days	≤ 0.040 @ 28 days	
Shrinkage T334				No crack before 15 days			Require SRA		
Durability									

	NV	MI	IL TW	IL	MN	MT(V1)	MT (V2)	WA	WV
Compressive Strength			4000 psi @ 28 days **		4000 psi @ 28 days	4000 psi @ 28 days	4000 psi @ 28 days	4000 psi @ 28 days	4000 psi @ 28 days
w/c ratio			**		0.42-0.45	≤ 0.42		≤ 0.42	0.40
Cementitious Content		517-658	**			≤ 564		500 - 700	≥ 390
Permeability T277/C1202			≤ 1250 @ 28 days		≤ 1500 @ 28 days	≤ 1500 @ 56 days		≤ 2000 @ 56 days	≤ 750 @ 56 to 90 days
Resistivity						≥ 21 k-Ω @ 28 days	≥ 30 k-Ω @ 28 days		
Optimized Gradation		Optimized	**		Must be workable/pumpable	3/4" -		1 ½" nominal	FA 35 – 45%
Shrinkage C157	≤ 0.04 @ 28 days		≤ 0.030 @ 28 days	≤ 0.030 @ 28 days	≤ 0.040 @ 28 days		≤ 0.030 @ 28 days	≤ 0.032 @ 28 days	
Durability			80% @ 300 cycles Method A **	Require SRA	90% @ 300 cycles Method A	≤ 0.009 Linear Traverse		90% @ 300 cycles Method A	
								Scaling VSI ≤ 2 @50 cu.yd	

Q3: Do you allow supplementary cementitious materials in bridge deck mixes?

Answered: 31 Skipped: 0

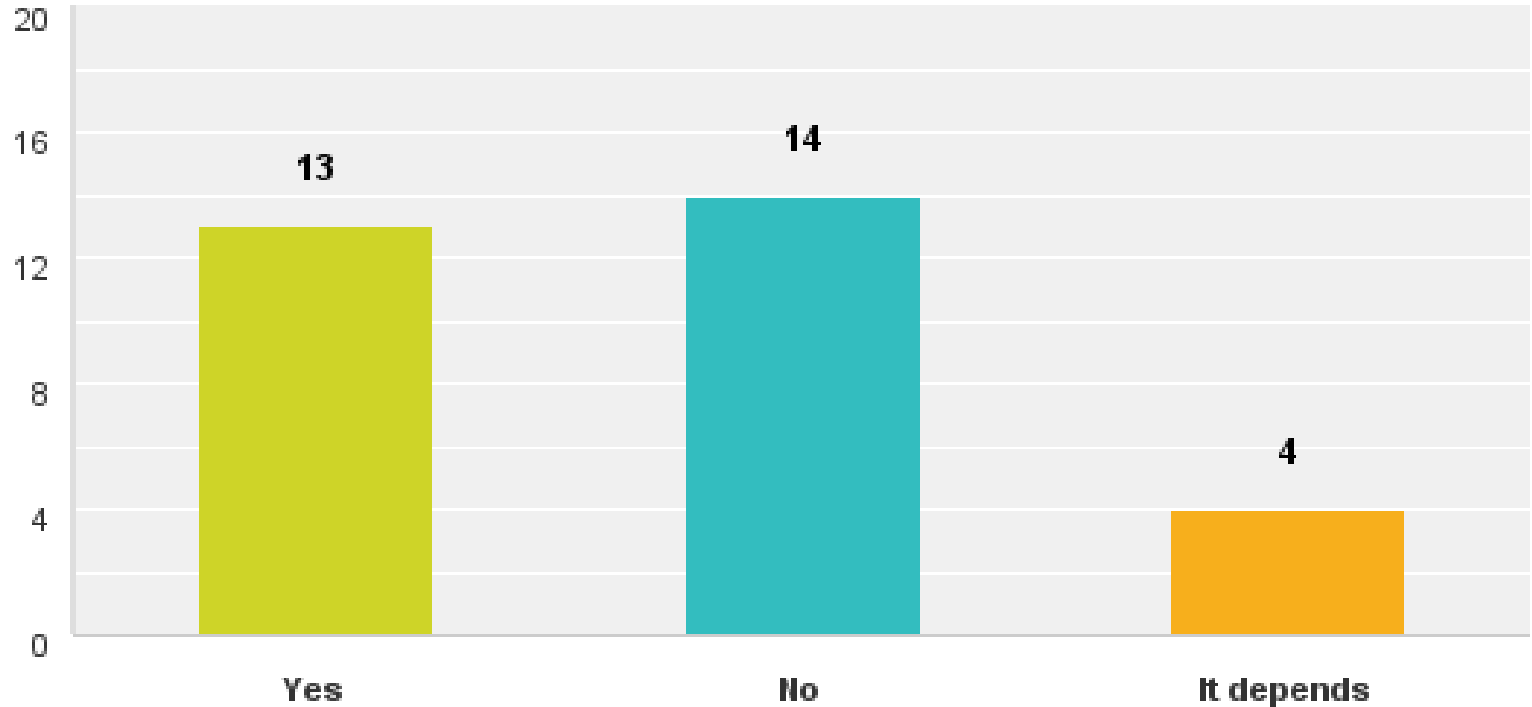


	Ternary			Fly Ash		Slag		Silica Fume		Metakaolin
	Min	Max	Total	Min	Max	Min	Max	Min	Max	Max
FL				18	22	50	70			
MD				15	25	25	50	5	7	
AL					30		50		10	
GA					15		50			
MO					25		30		8	15
ID					25 F only		30		10	
MI				25	40	25	40			
ND					29					
SD				20 Mod Class F						
RI					15	25-40 typical			7	
IA		50			20	25				
KS		50			25		40			
OH		50			25		30		10	
IL		35			30		35		5	5
MN		40			30		35		5	

	Ternary			Fly Ash		Slag		Silica Fume		Metakaolin
	Min	Max	Total	Min	Max	Min	Max	Min	Max	Max
NY				20 + 6SF		20 + 6SF		6		
TN		50 with Min 20FA+SL			25		35			
IN	Ternary required			20	25	15	30	3	7	
WV	FA+SF or SL+SF				19		45		8	
WI	15-30FA + SLA			15	30	20	30			
UT	20 – 30 SCM									
NE	IP, IT, IS									
PA	As needed for mitigation									
CO	As needed for mitigation – min 20%									
WA	Performance Based – not defined								10	10
LA		70	IP or IS 40 FA = % SL%>FA%		30		50			
NV	Min 20% pozzalon	50	15FA+SL	20		35		3	7	allowed
MT		Max 50% using either SF+FA or SF+SL			30		50		10 if 15% SCM used	
IT TW	Performance Based – not defined									

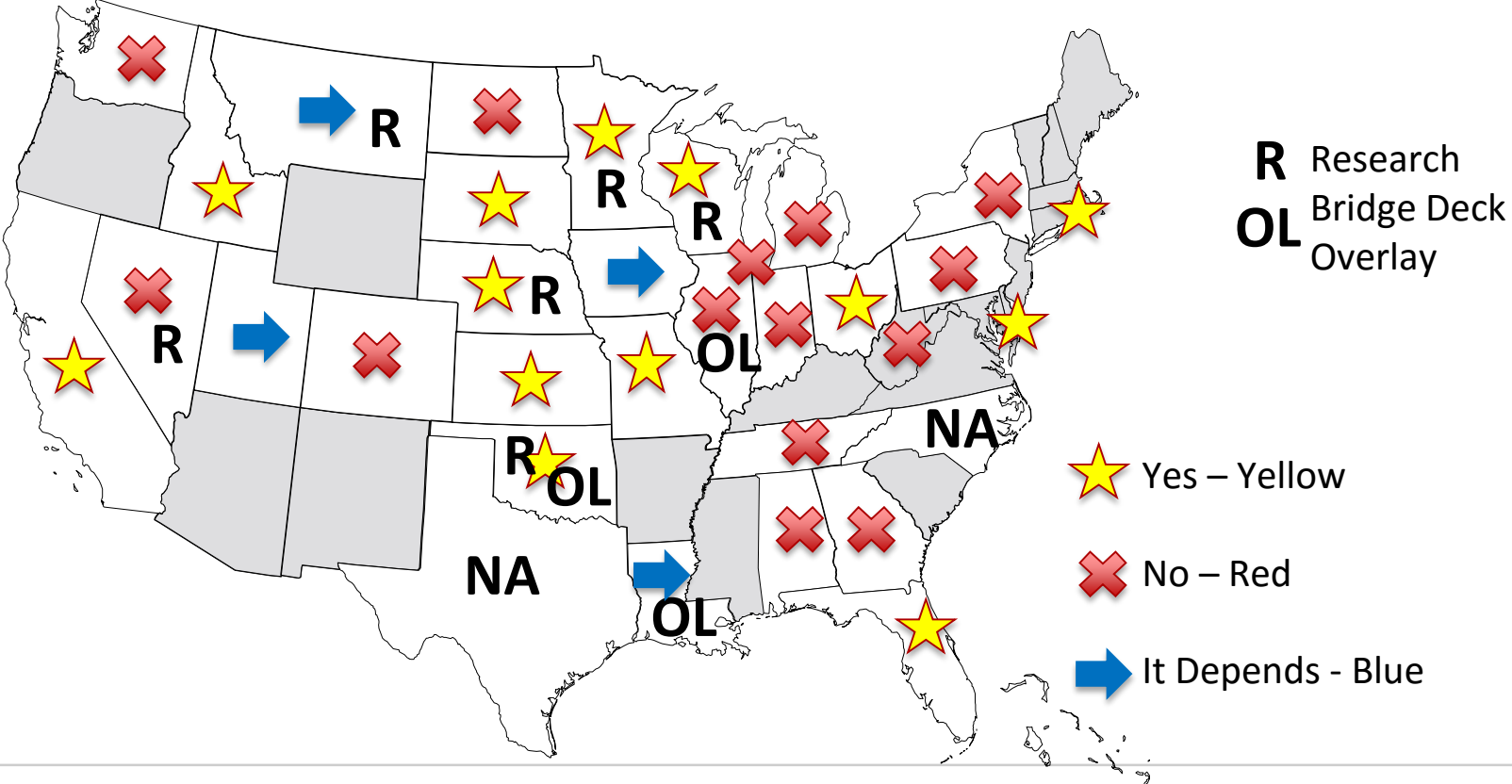
Q4: Have you used fibers in bridge deck mixes?

Answered: 31 Skipped: 0



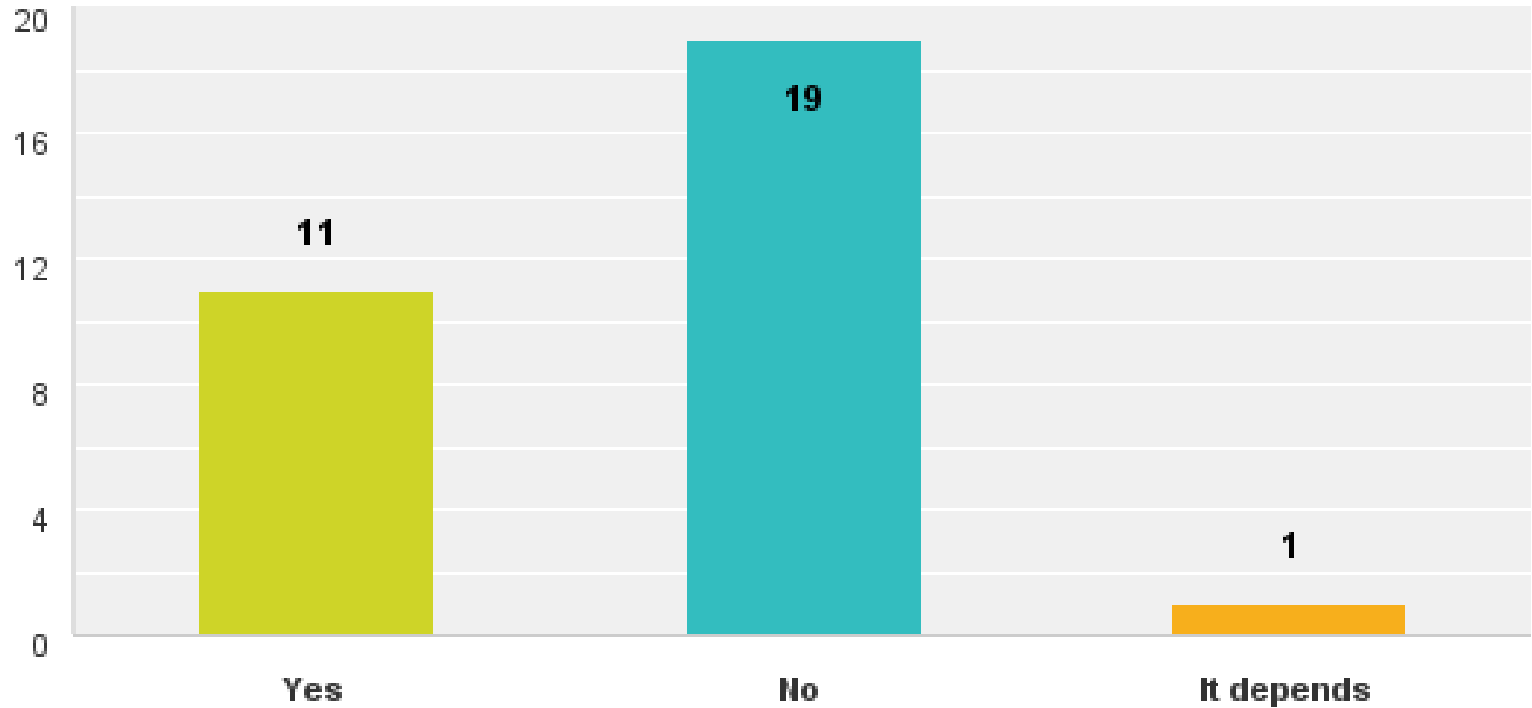
Q4: Have you used fibers in bridge deck mixes?

Answered: 31 Skipped: 0



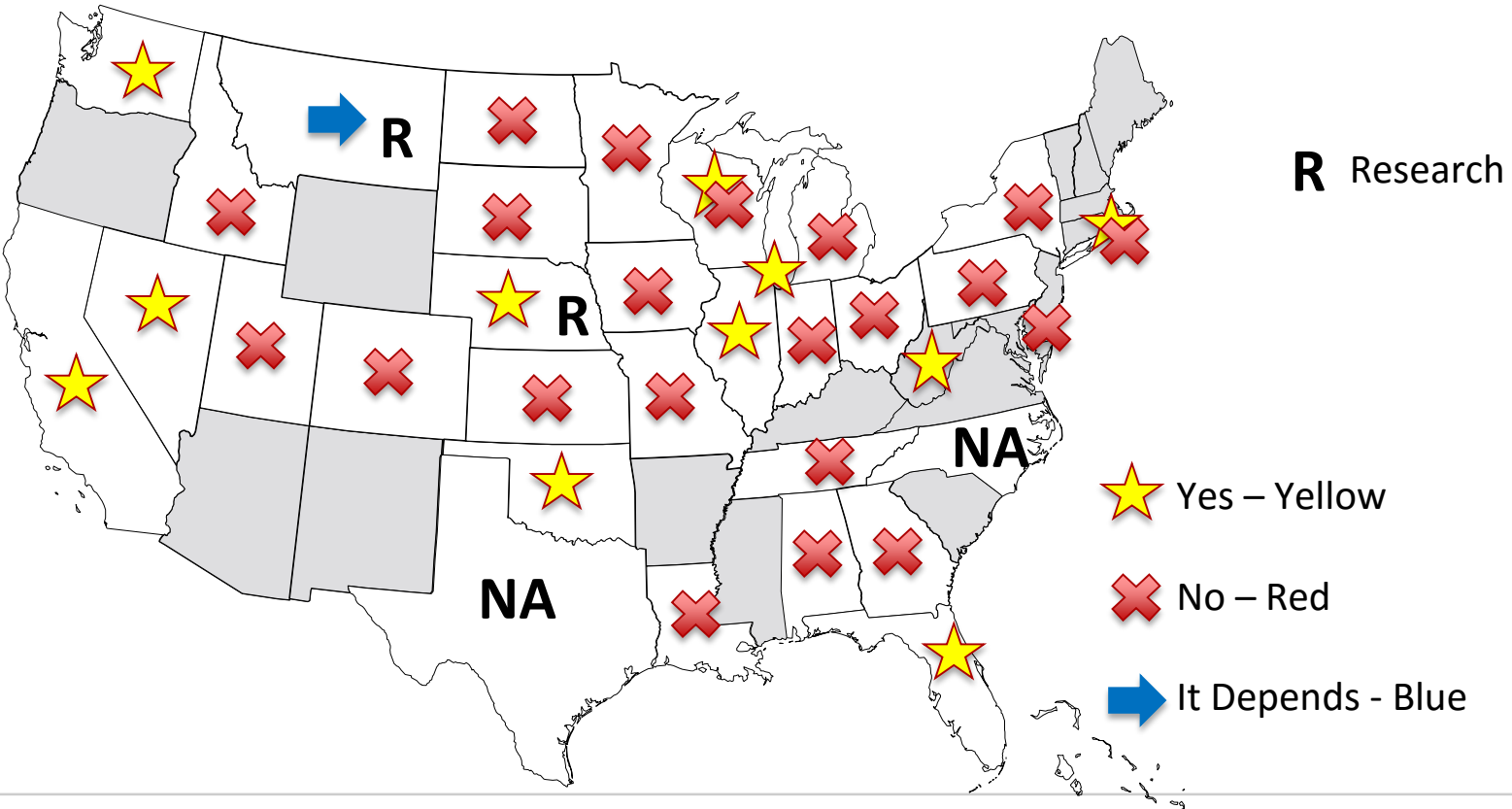
Q5: Have you used shrinkage reducing admixtures in bridge decks?

Answered: 31 Skipped: 0



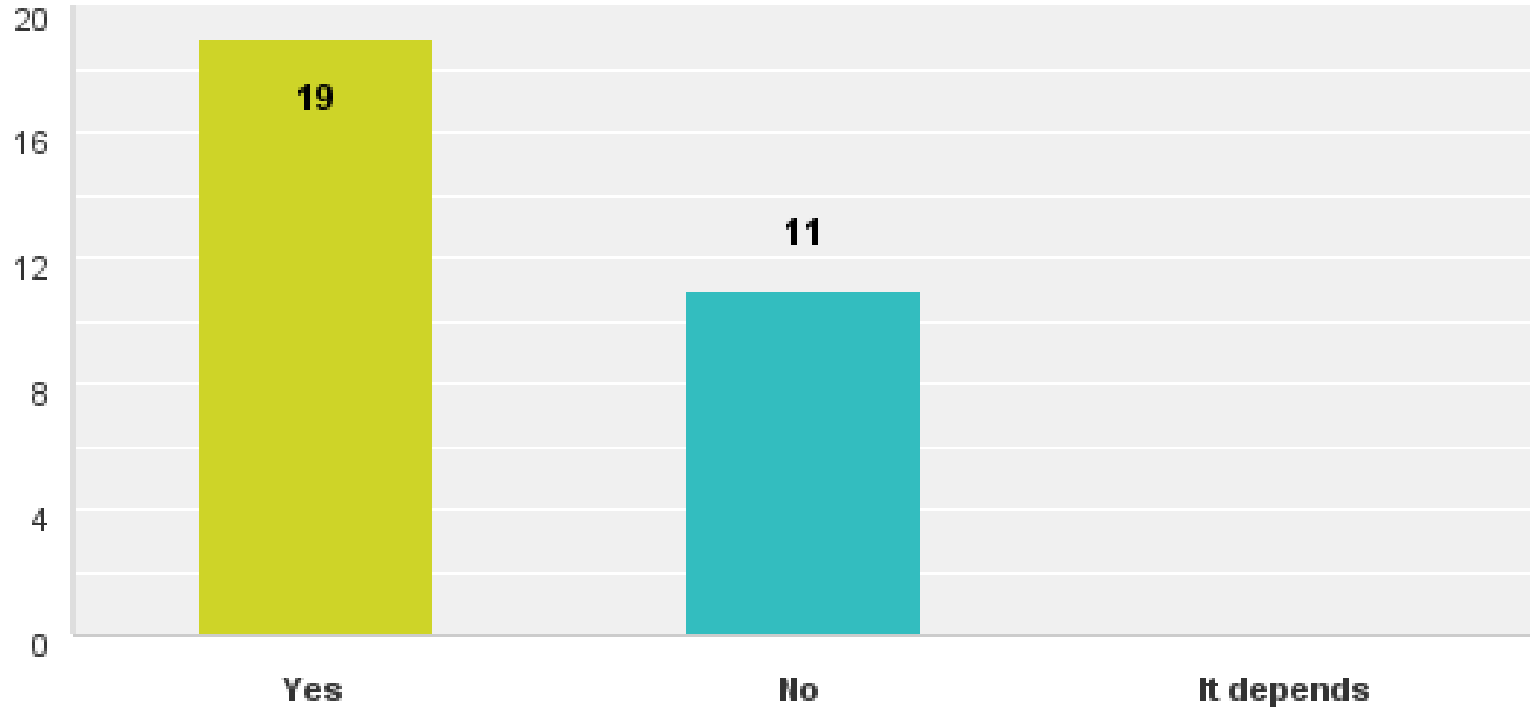
Q5: Have you used shrinkage reducing admixtures in bridge decks?

Answered: 31 Skipped: 0



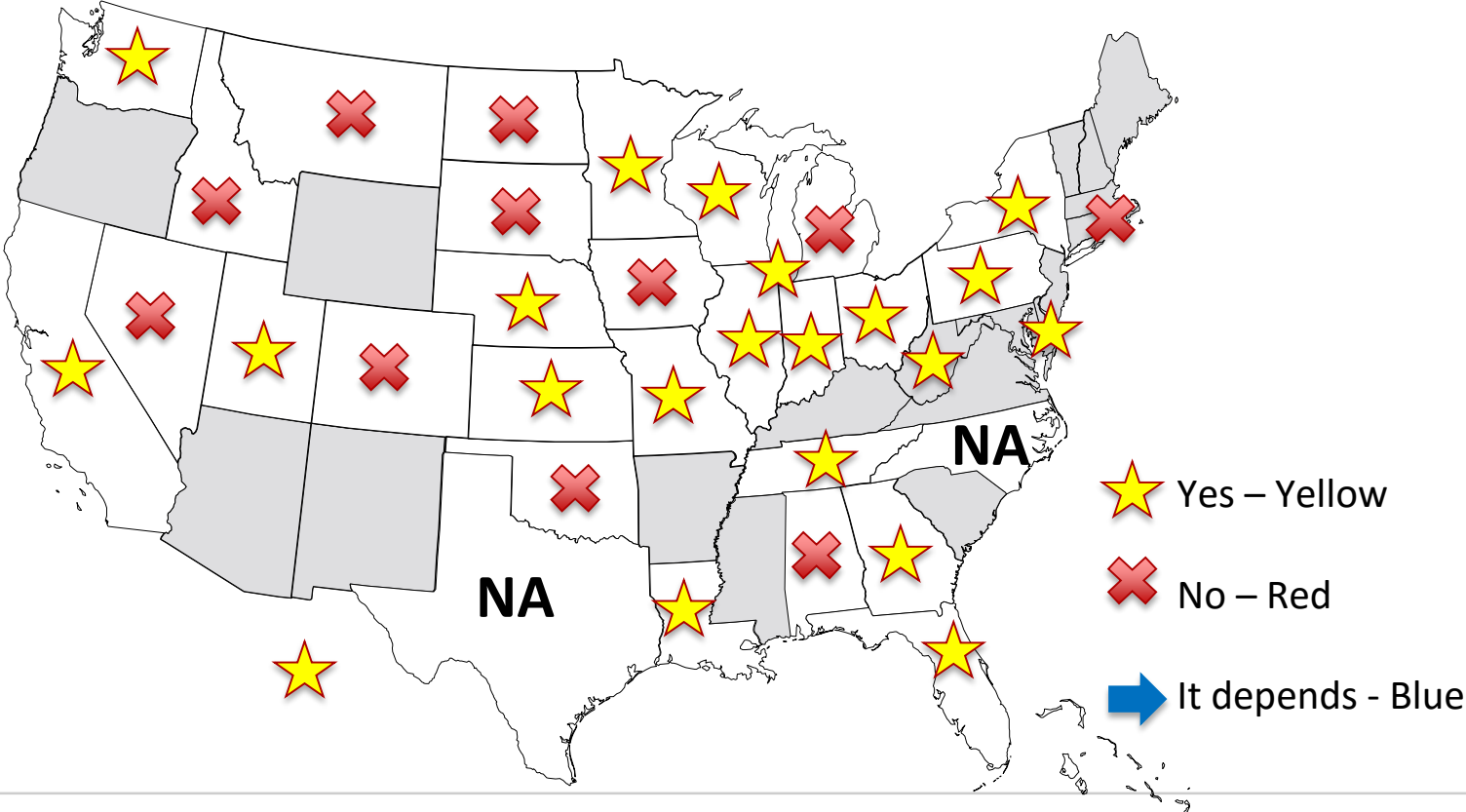
Q6: Have you used lightweight aggregate in bridge deck mixes?

Answered: 30 Skipped: 1



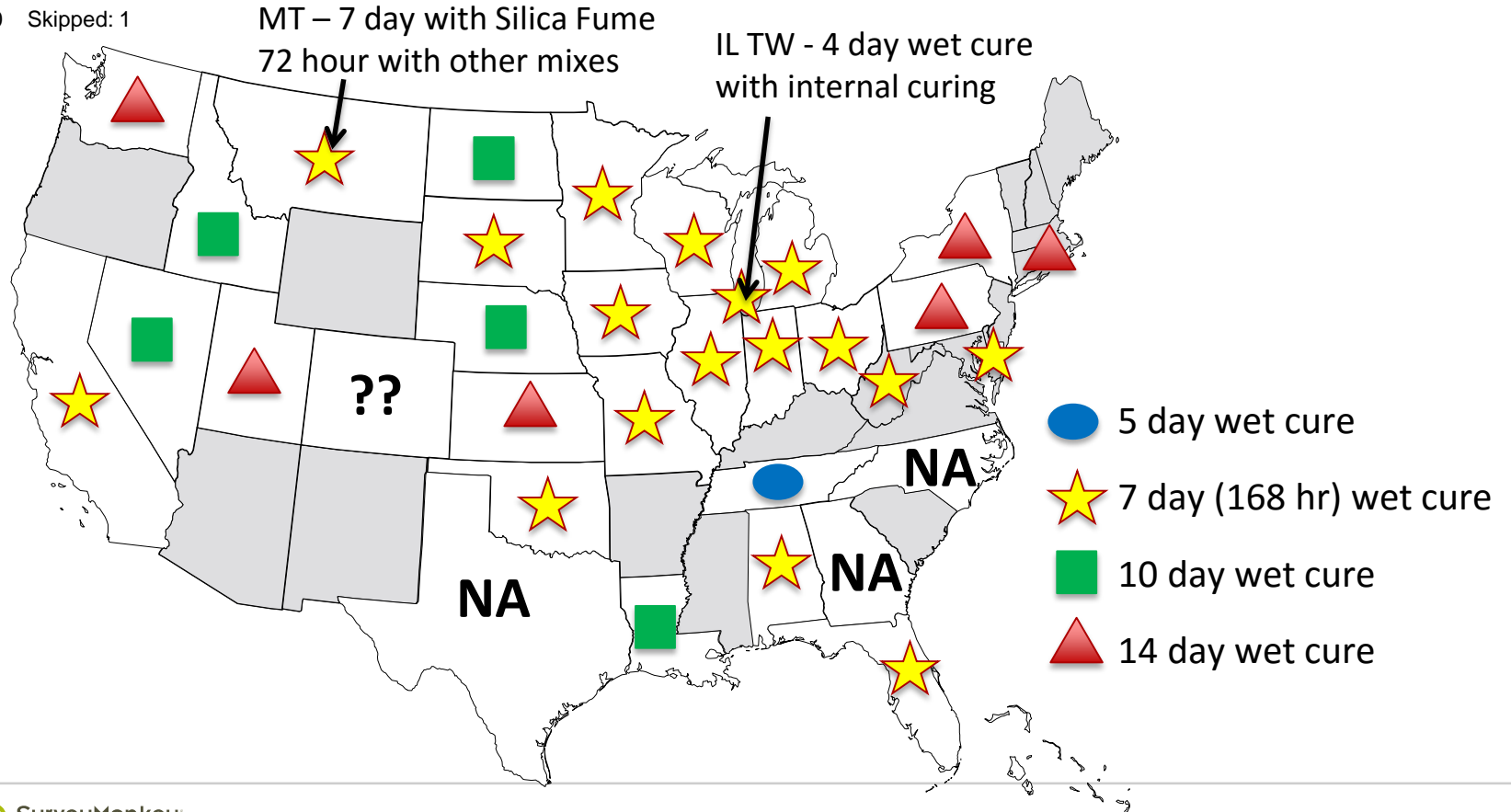
Q6: Have you used lightweight aggregate in bridge deck mixes?

Answered: 30 Skipped: 1



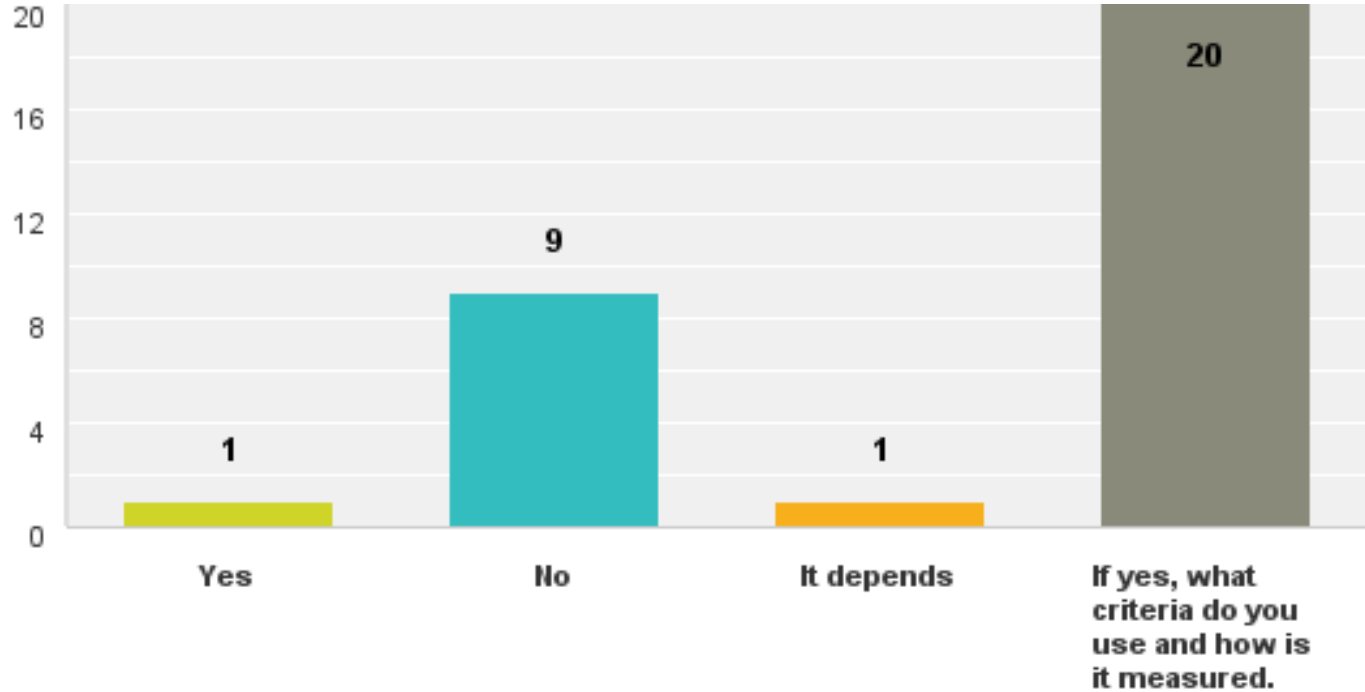
Q7: What are your curing requirements for bridge decks?

Answered: 30 Skipped: 1



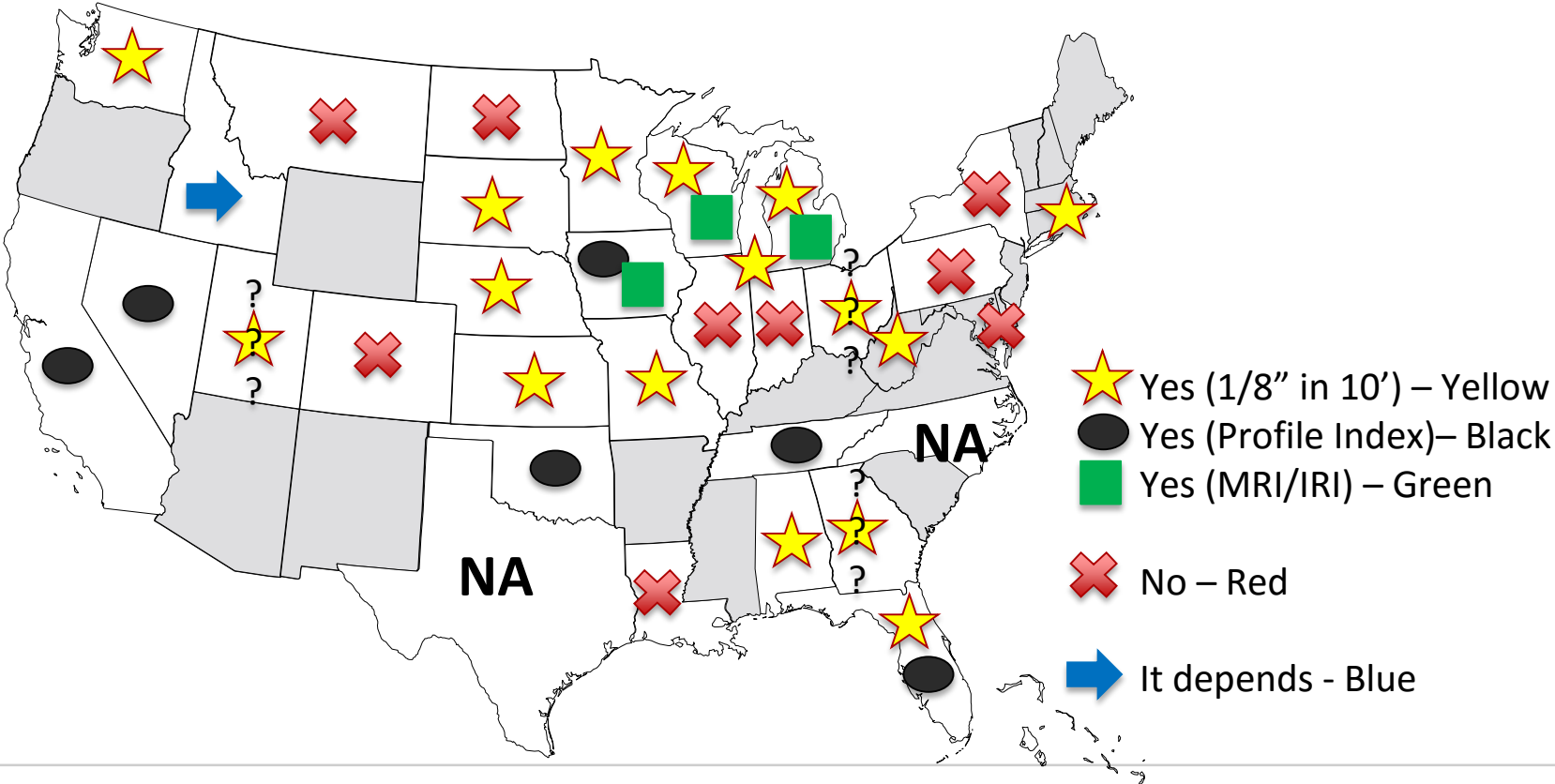
Q8: Do you have smoothness requirements for bridge decks?

Answered: 31 Skipped: 0



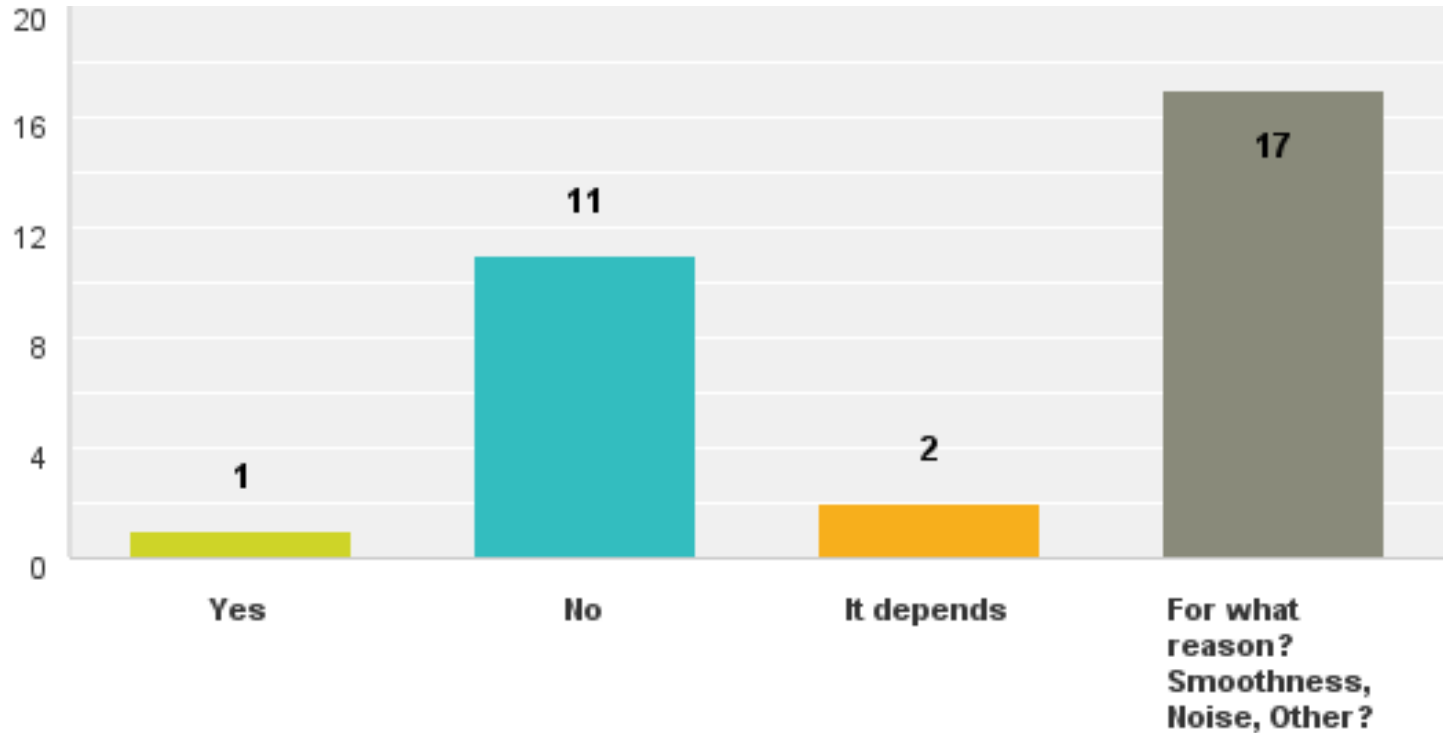
Q8: Do you have smoothness requirements for bridge decks?

Answered: 31 Skipped: 0



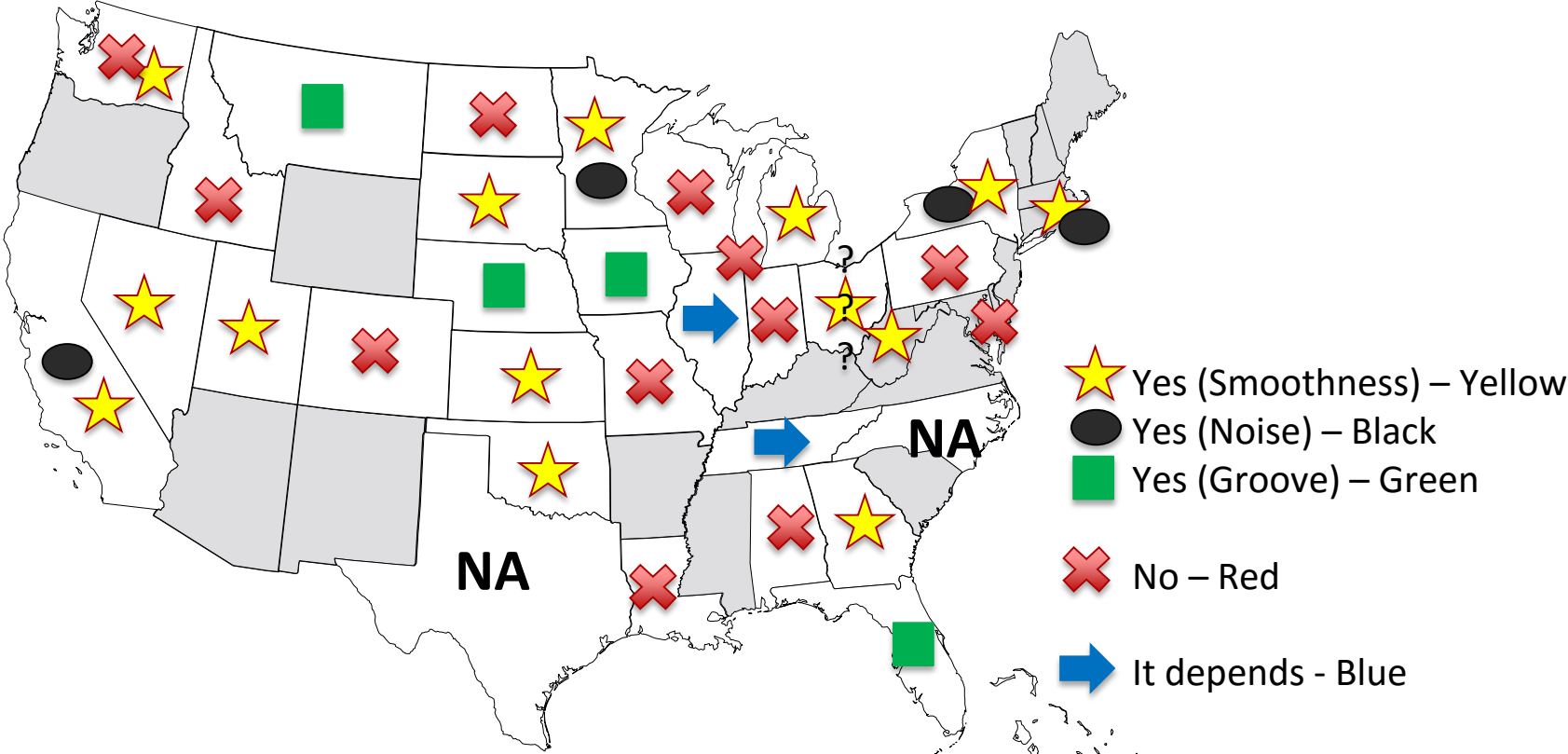
Q9: Do you typically grind bridge decks?

Answered: 31 Skipped: 0



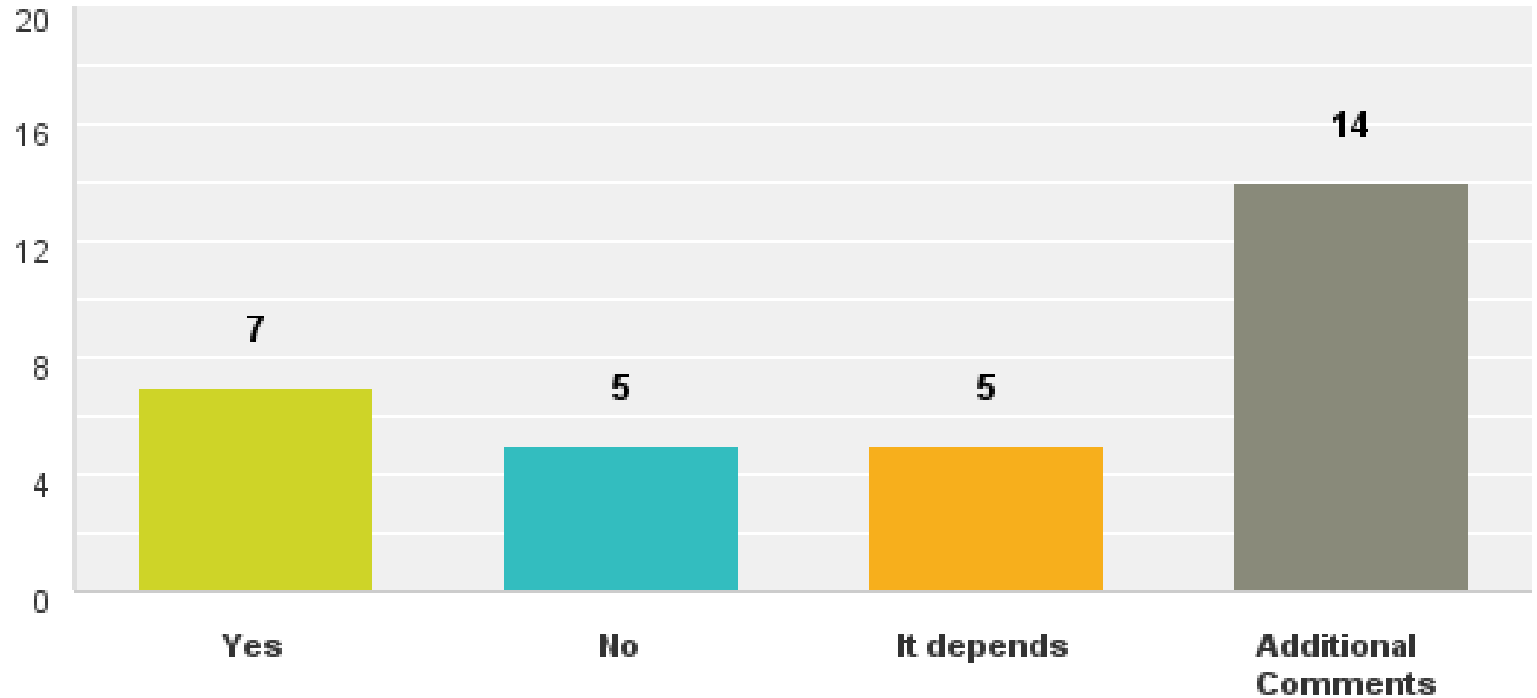
Q9: Do you typically grind bridge decks?

Answered: 31 Skipped: 0



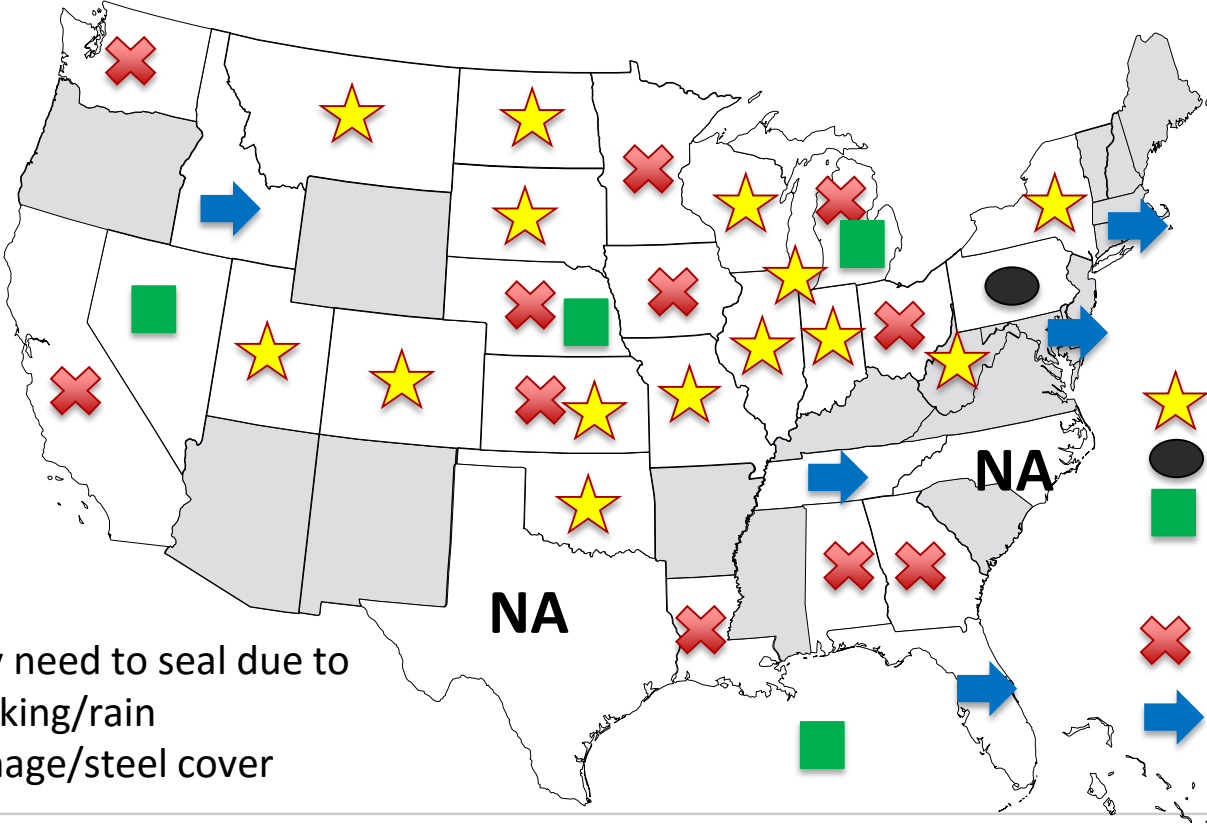
Q10: Do you seal bridge decks?


Answered: 31 Skipped: 0








Q10: Do you seal bridge decks?

Answered: 31 Skipped: 0

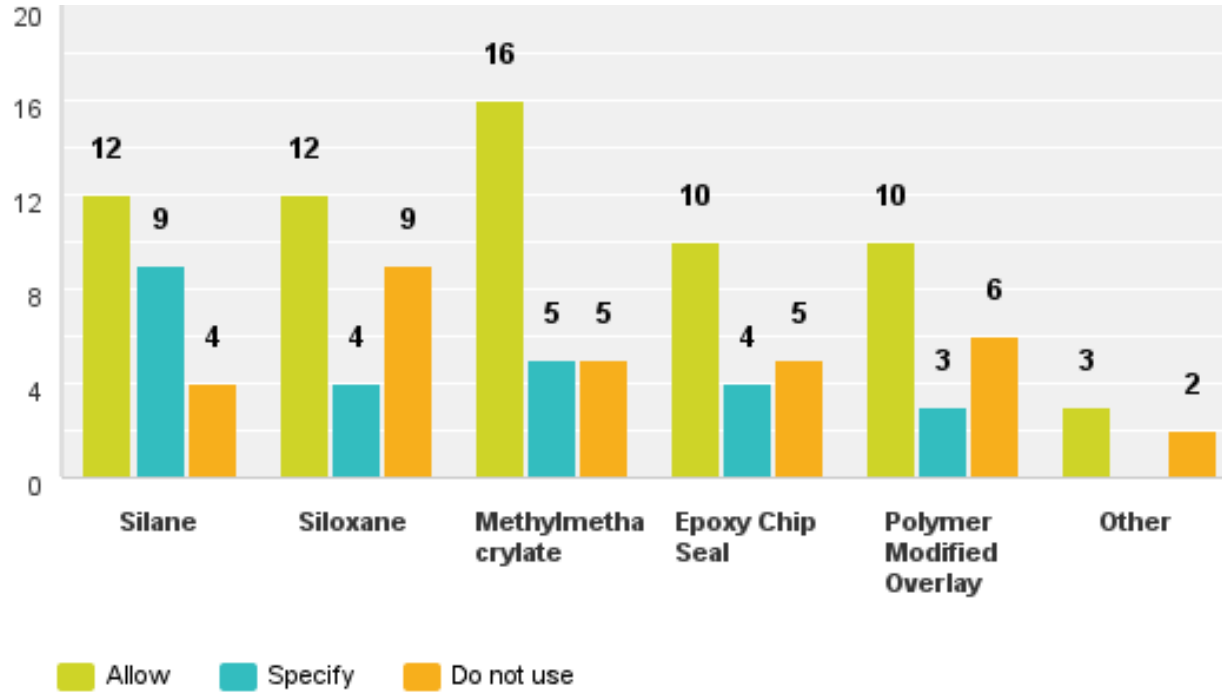


 May need to seal due to cracking/rain damage/steel cover

-  Yes (New Decks) – Yellow
-  Yes (Dist. Choice) – Black
-  Yes (Maintenance or Contract) – Green
-  No – Red
-  It depends - Blue

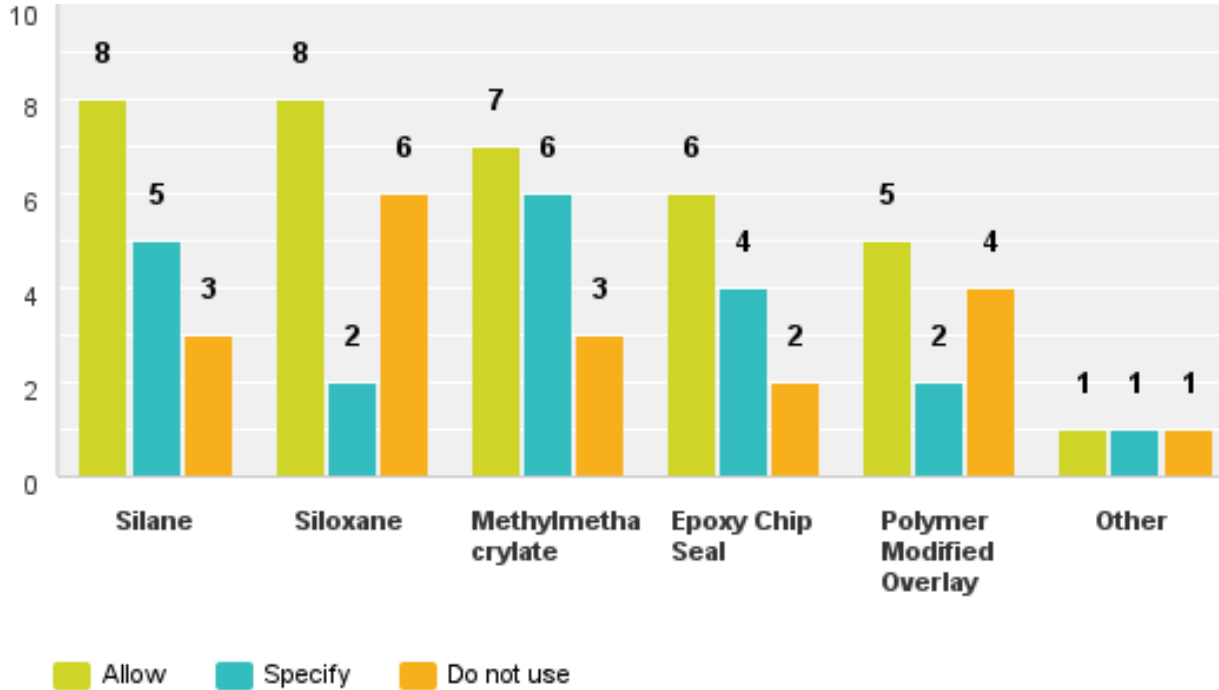
Q11: What type of sealers do you allow/specify?

Answered: 28 Skipped: 3



Q12: What is the application rate for each sealer?

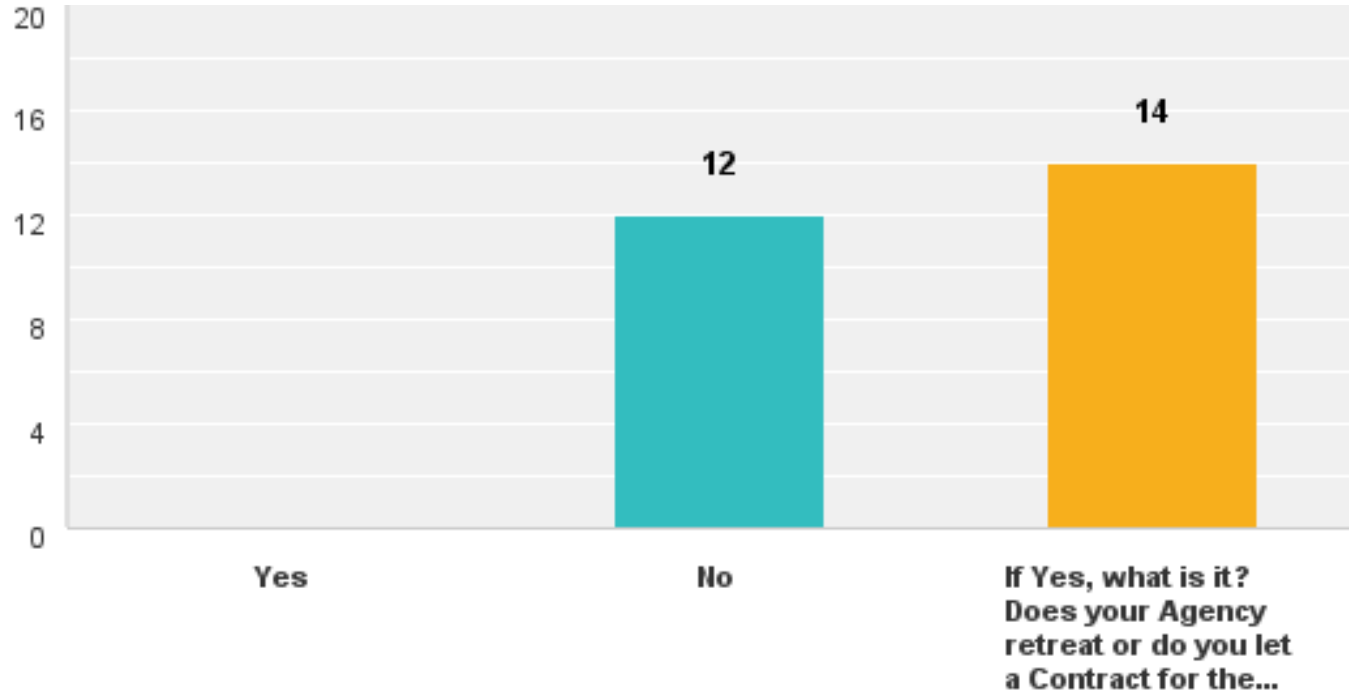
Answered: 19 Skipped: 12



SURVEY
DIDN'T
ALLOW FOR
EASY
ANSWERING
OF THIS
QUESTION!

Q14: If you seal bridge decks, how often do you retreat?

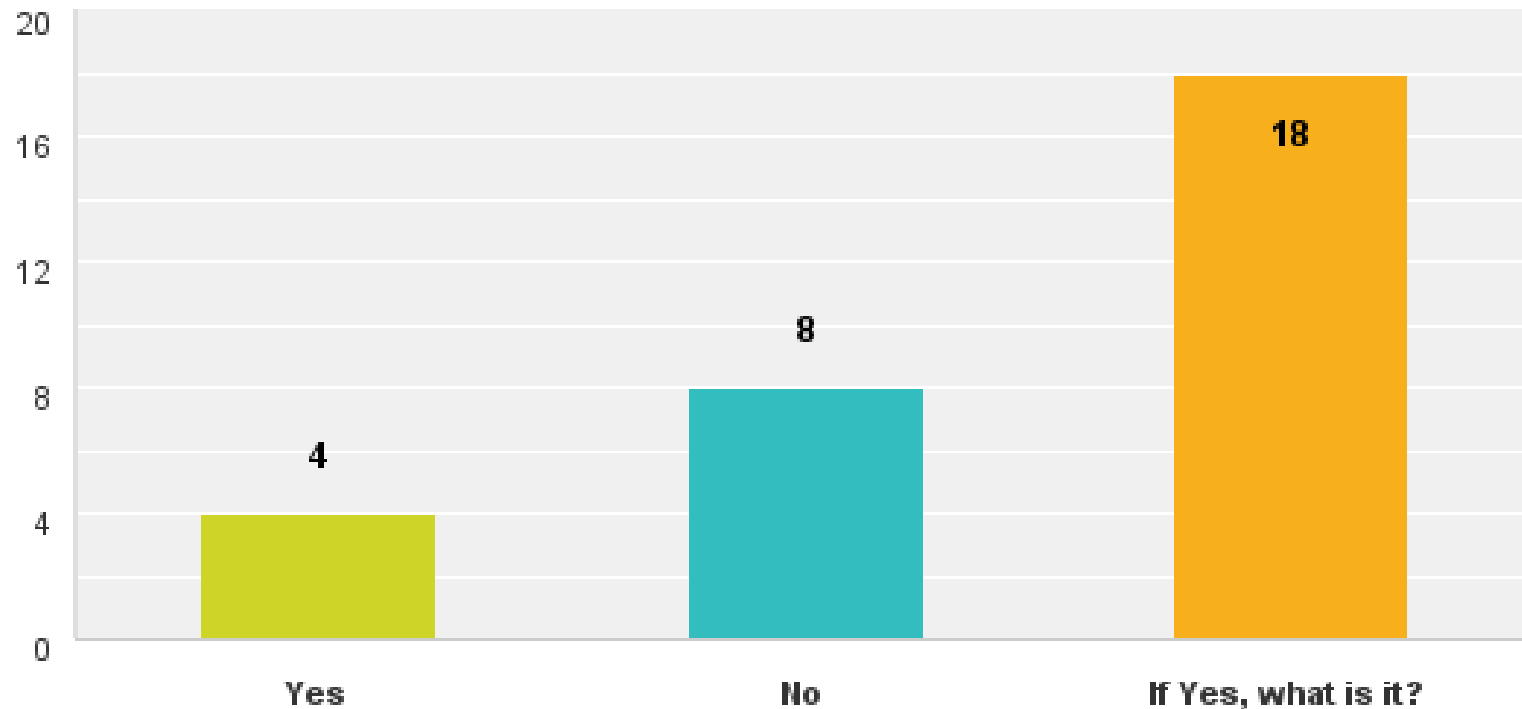
Answered: 26 Skipped: 5



Varies –
see State
Responses

Q16: Do you have a shotcrete specification? If so can you provide a copy of or link to your specification.

Answered: 30 Skipped: 1



Q16: Do you have a shotcrete specification?

Answered: 30 Skipped: 1

