2019 MITS DATA

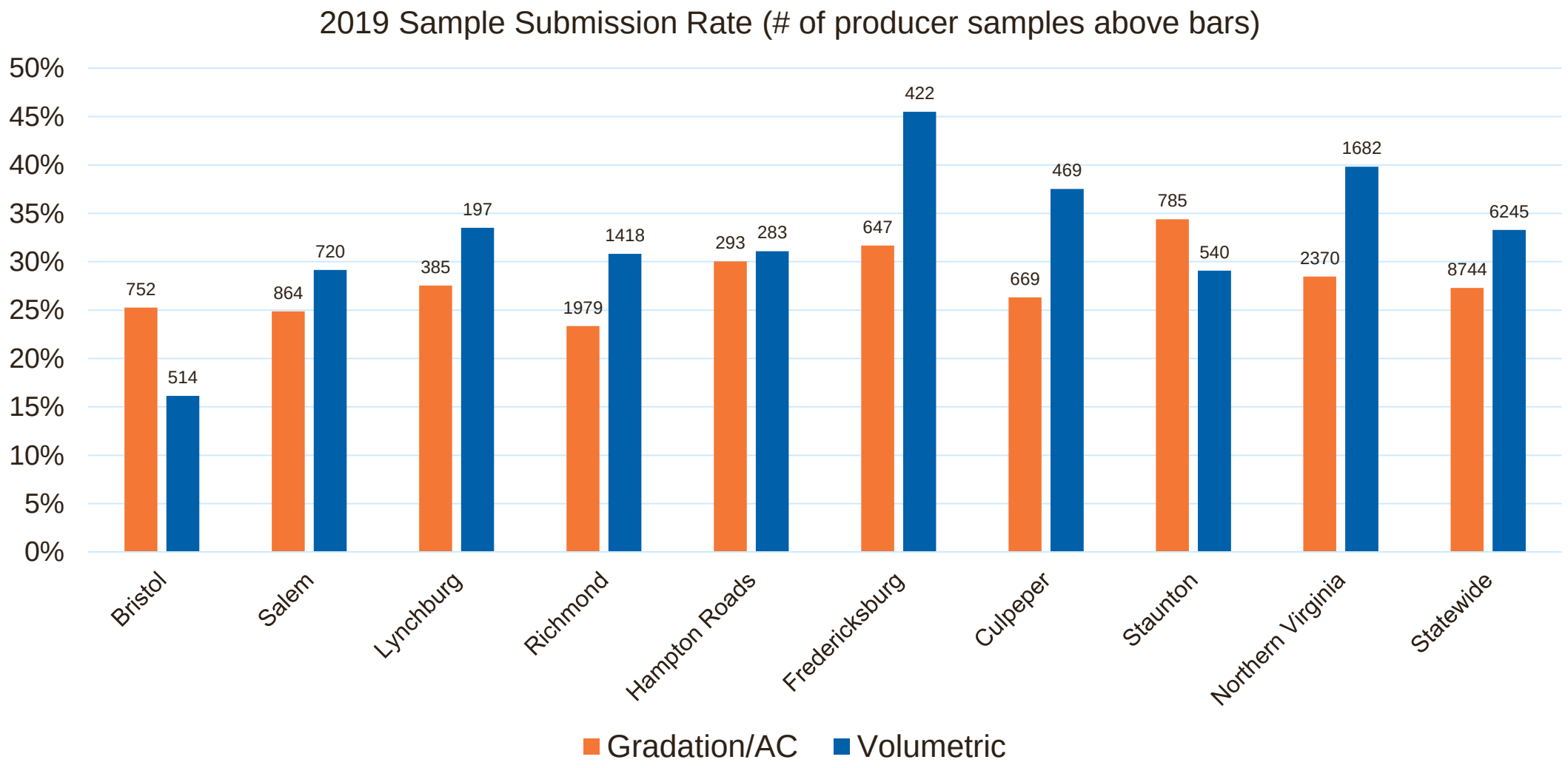
MARCH 10, 2020

CO Materials / Sungho Kim, Ph.D., P.E.

Sample Submission Time

	% within 24 hr				% within 2 hr			
District	2017	2018	2019	Sparkline	2017	2018	2019	Sparkline
Bristol	89%	92%	82%		2.1%	4.2%	3.6%	
Salem	86%	84%	86%		0.7%	0.4%	0.1%	
Lynchburg	92%	86%	85%		0.4%	0.8%	0.8%	
Richmond	90%	91%	84%		1.9%	1.1%	1.7%	
Hampton Roads	83%	80%	75%		0.1%	0.7%	1.0%	
Fredericksburg	94%	95%	94%		0.3%	0.6%	1.4%	
Culpeper	86%	86%	86%		0.7%	0.8%	0.3%	
Staunton	72%	86%	79%		0.8%	0.8%	1.8%	
NOVA	88%	89%	91%		1.3%	1.0%	0.5%	
Statewide	**87%**	**89%**	**86%**		**1.2%**	**1.3%**	**1.2%**	

Sample Rate


2019 Sample Submission Rate (# of producer samples above bars)
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
752
514
864
720
385
197
1979
1418
293
283
647
422
669
469
785
540
2370
1682
8744
6245
Bristol
Salem
Lynchburg
Richmond
Hampton Roads
Fredericksburg
Culpeper
Staunton
Northern Virginia
Statewide
Gradation/AC
Volumetric

2019 Gradation/AC Flags

	Producer	VDOT	d2S
Total Samples	8750	2388	
1"	128	72	77
3/4"	541	281	101
1/2"	719	362	100
3/8"	1021	462	97
No. 4	1555	668	57
No. 8	1731	794	63
No. 16	15	7	1
No. 30	435	233	36
No. 50	1	0	0
No. 100	1	0	0
No. 200	830	507	23
AC	1639	784	135
Total Flagged Samples	4794	1888	

- **#8, AC, #4 most flagged sieves/property**
- **3/8" and No. 200 next.**

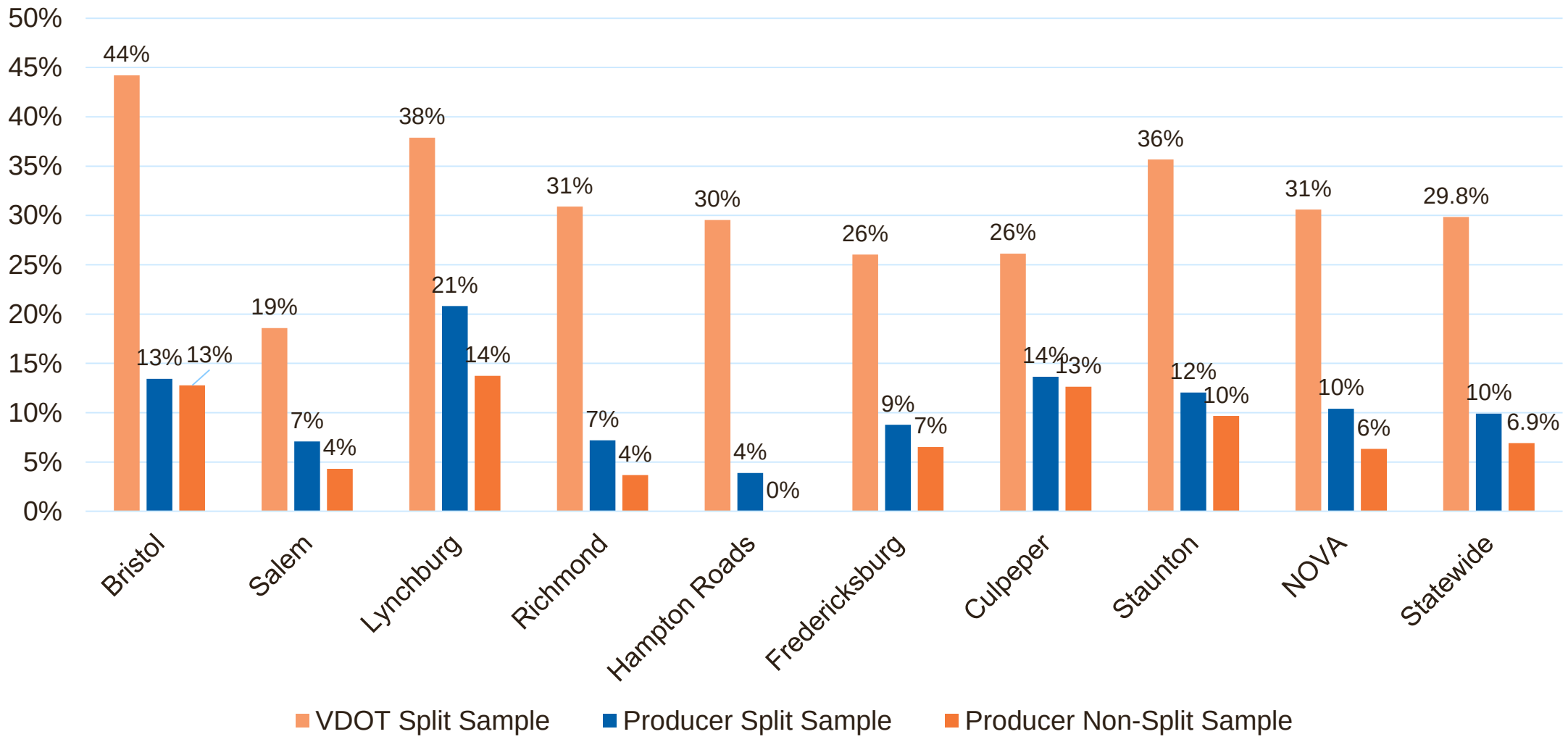
- **1607 lots**
- **124 lots with a point adjustment**
- **Total point???**

2019 Volumetric Failures

	Producer	VDOT
Vol Samples	**6245**	**2082**
VTM	213	236
VMA	167	252
VFA	282	285
VCA	20	15
F/A Ratio	125	92
Total Vol Failures	**609**	**620**

	d2s Flags
RICE	88
BULK	13

Volumetric Failure Rate



MITS/PLAID updates in progress

- TL50 Email uploader (PLAID): xml file
- TL50 Automated Submit (PLAID): xml file
- Investigation
- Header changes

2019 DENSITY DATA

MARCH 10, 2020

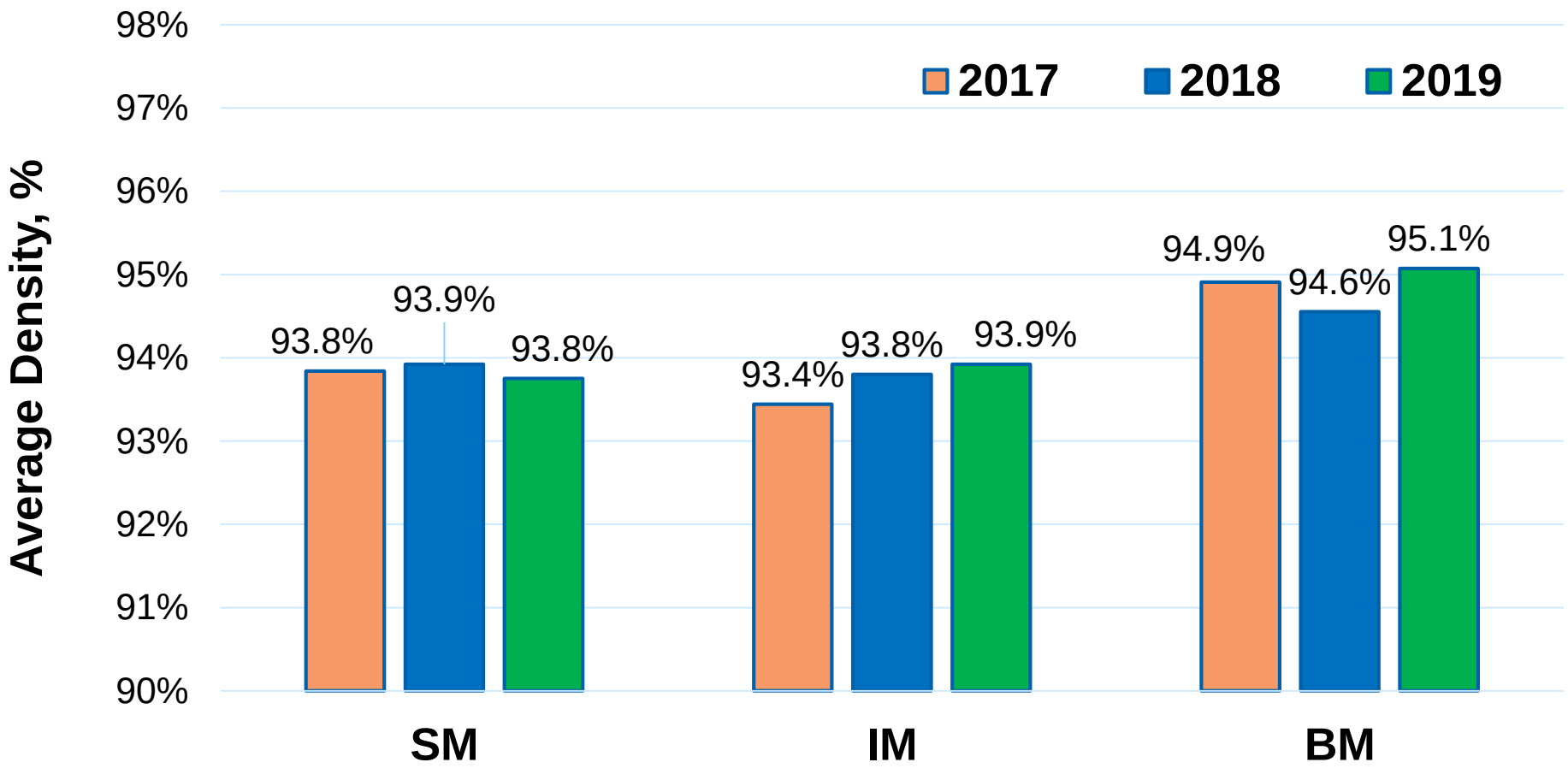
CO Materials / Sungho Kim, Ph.D., P.E.

Density Data

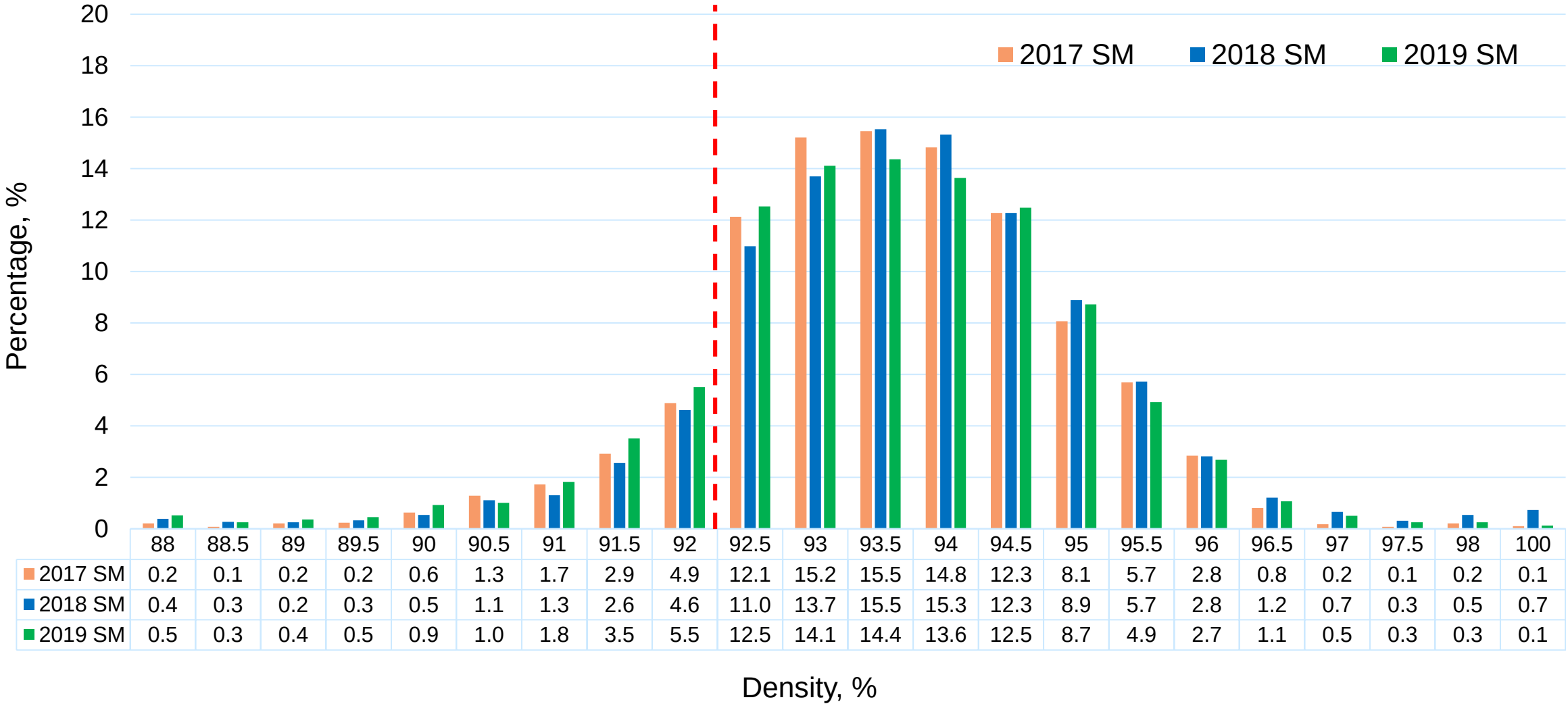
- 2019 Density data from Districts
- Select SM, IM, and BM Data

MIX	SM	IM	BM
# of DATA	6,377	696	300

Density Comparison: 2017 vs 2018 vs 2019 Averages

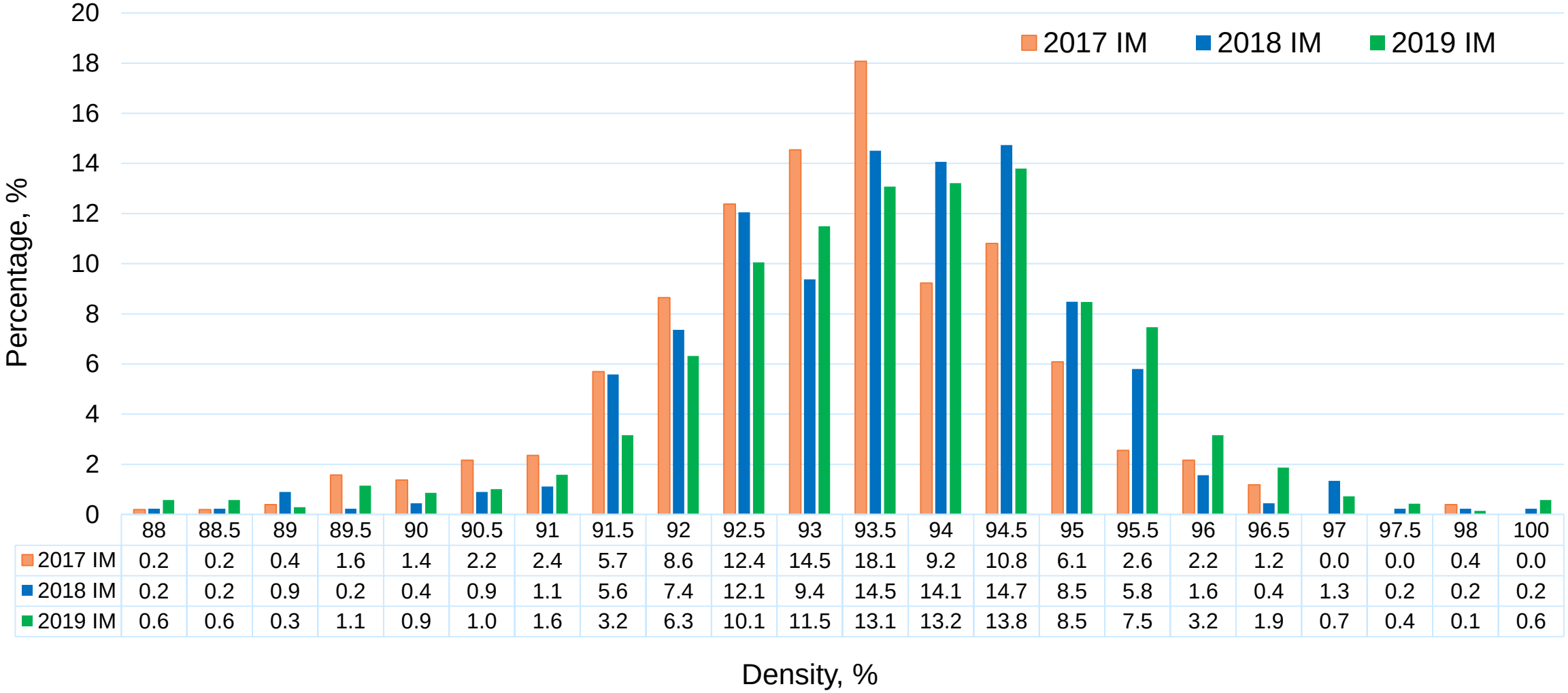


Density Comparison: 2017 vs 2018 vs 2019 (SM)



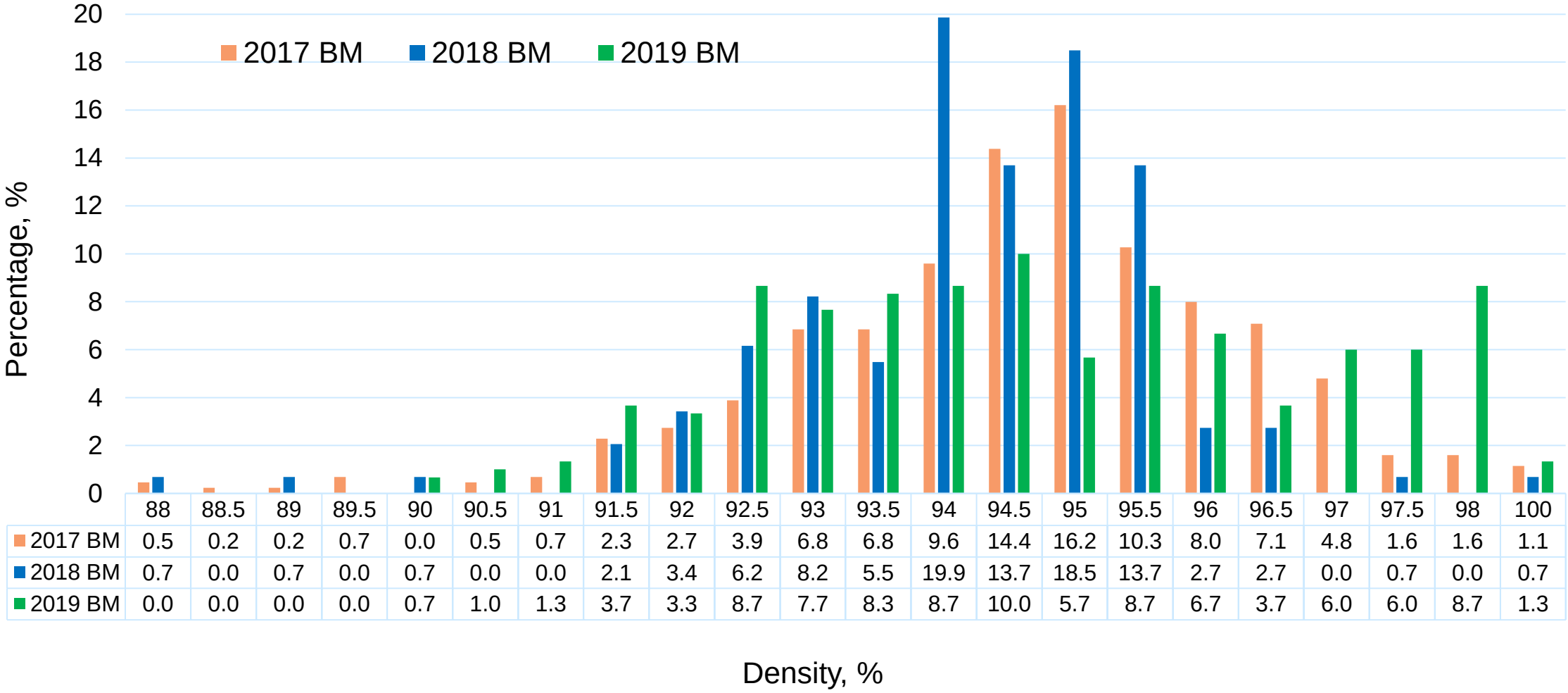
	88	88.5	89	89.5	90	90.5	91	91.5	92	92.5	93	93.5	94	94.5	95	95.5	96	96.5	97	97.5	98	100
2017 SM	0.2	0.1	0.2	0.2	0.6	1.3	1.7	2.9	4.9	12.1	15.2	15.5	14.8	12.3	8.1	5.7	2.8	0.8	0.2	0.1	0.2	0.1
2018 SM	0.4	0.3	0.2	0.3	0.5	1.1	1.3	2.6	4.6	11.0	13.7	15.5	15.3	12.3	8.9	5.7	2.8	1.2	0.7	0.3	0.5	0.7
2019 SM	0.5	0.3	0.4	0.5	0.9	1.0	1.8	3.5	5.5	12.5	14.1	14.4	13.6	12.5	8.7	4.9	2.7	1.1	0.5	0.3	0.3	0.1

Density Comparison: 2017 vs 2018 vs 2019 (IM)



	88	88.5	89	89.5	90	90.5	91	91.5	92	92.5	93	93.5	94	94.5	95	95.5	96	96.5	97	97.5	98	100
2017 IM	0.2	0.2	0.4	1.6	1.4	2.2	2.4	5.7	8.6	12.4	14.5	18.1	9.2	10.8	6.1	2.6	2.2	1.2	0.0	0.0	0.4	0.0
2018 IM	0.2	0.2	0.9	0.2	0.4	0.9	1.1	5.6	7.4	12.1	9.4	14.5	14.1	14.7	8.5	5.8	1.6	0.4	1.3	0.2	0.2	0.2
2019 IM	0.6	0.6	0.3	1.1	0.9	1.0	1.6	3.2	6.3	10.1	11.5	13.1	13.2	13.8	8.5	7.5	3.2	1.9	0.7	0.4	0.1	0.6

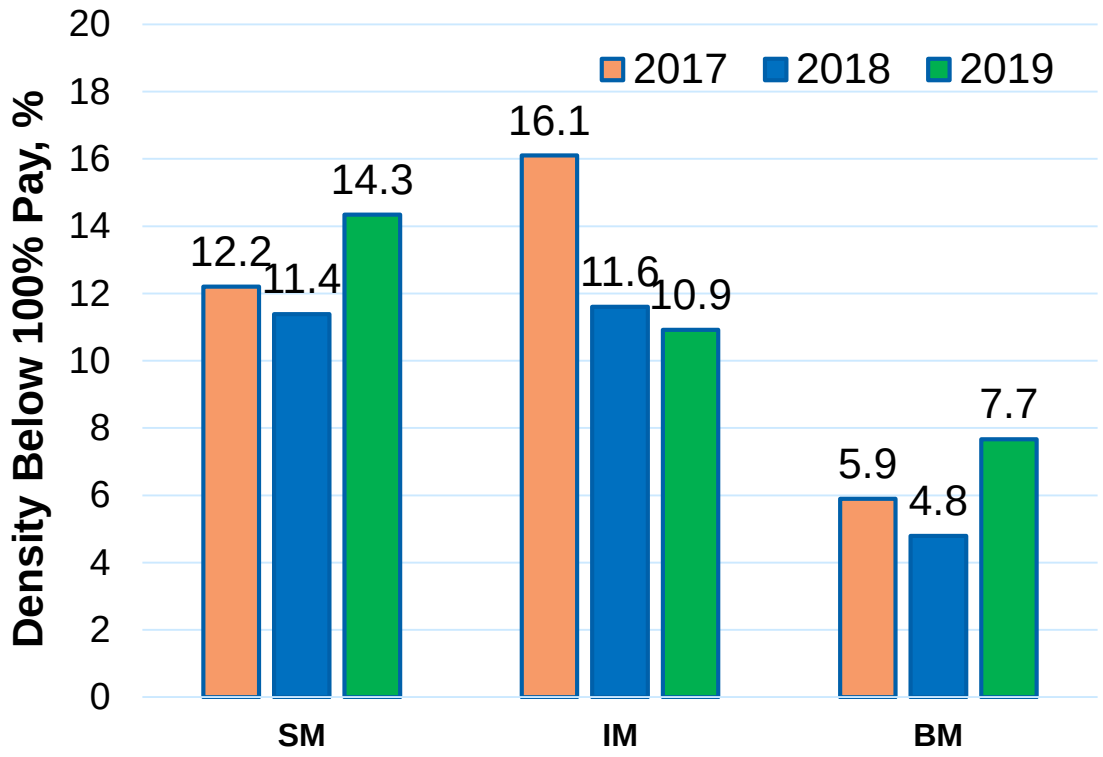
Density Comparison: 2017 vs 2018 vs 2019 (BM)

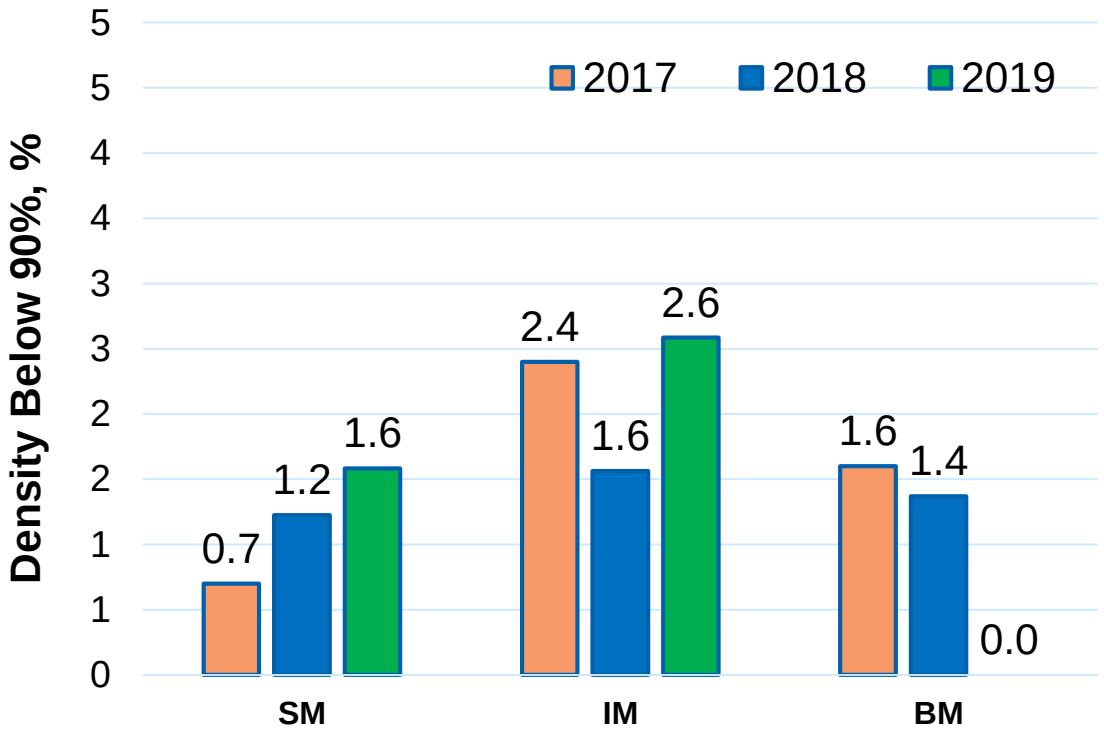


	88	88.5	89	89.5	90	90.5	91	91.5	92	92.5	93	93.5	94	94.5	95	95.5	96	96.5	97	97.5	98	100
2017 BM	0.5	0.2	0.2	0.7	0.0	0.5	0.7	2.3	2.7	3.9	6.8	6.8	9.6	14.4	16.2	10.3	8.0	7.1	4.8	1.6	1.6	1.1
2018 BM	0.7	0.0	0.7	0.0	0.7	0.0	0.0	2.1	3.4	6.2	8.2	5.5	19.9	13.7	18.5	13.7	2.7	2.7	0.0	0.7	0.0	0.7
2019 BM	0.0	0.0	0.0	0.0	0.7	1.0	1.3	3.7	3.3	8.7	7.7	8.3	8.7	10.0	5.7	8.7	6.7	3.7	6.0	6.0	8.7	1.3

Density: Below 100% Pay / 90% Density

- **100% Pay: SM = 92.5% / IM, BM = 92.2%**





2020 SPECIFICATION CHANGES

MARCH 10, 2020

CO Materials / Sungho Kim, Ph.D., P.E.

SS 210 & SS310: Tack Requirements

SS210: Binder & Tack Spec

- **Will use "the Curve" (MSCR Grading) for % recovery of binder**
  - Reference to AASHTO R92
- **Some Minor Clarifications on Emulsion Testing**
- **New Requirements for Non-Tracking and Hot-Applied Tacks**

SS210: Non-Tracking Tack Requirement

- **Based on Discussion with Binder Suppliers**

Property	Test Method	Min	Max
Residue by Evaporation, %	AASHTO T59	50	
Viscosity, 77° F	AASHTO T59		150
Sieve (plant)	AASHTO T59		0.1%
Sieve (field)	AASHTO T59		0.3%
Penetration	AASHTO T49		50
Softening Point	AASHTO T 53	57° C	

SS210: Hot-Applied Tack Requirement

- **Based on Discussion with Binder Suppliers**

Test	Test Method	Min	Max
Penetration, 25°C, 100g, 5s (dmm)	AASTHO T49		35
Softening Point (°C)	ASTM D36	70	
Rotational Viscosity, 149°C, (Pa-s)	AASHTO T316		3.0
Ductility, 25°C, (cm)	ASTM D113-17	20	