

Superpave5 Implementation in Indiana

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Superpave5 Implementation

- Based on successful results of SR 13 follow up testing:
 - 2019
 - Contractor option, Superpave4 or Superpave5
 - 45% Superpave4
 - 55% Superpave5
 - 2020
 - All mixtures Superpave5

INDOT Specs (pre-2019)

- PWL Specification
- Air Voids at Ndes = 4.0%
- Gyration levels
 - > 3M ESALs = 100 gyrations
 - < 3M ESALs = 75 gyrations
- Density LSL = 91.0%

INDOT Specification Revisions

- Air Voids at Ndes = 5.0%
- Design Gyration
 - 100 → 50
 - 75 → 30
- Density LSL = 93.0%

2019 Air Voids

- Superpave4
 - 3.92%
 - 1735 sublots
- Superpave5
 - 4.86%
 - 2105 sublots



2019 Density

- Superpave4
 - Average = 93.19%
 - 1735 sublots
- Superpave5
 - Average = 94.42%
 - 2105 sublots

“Based on prior studies, a 1% increase to in-place asphalt pavement density achieved through improved compaction was estimated to improve the fatigue performance of asphalt pavements between 8 and 44% and improve rutting resistance by 7 to 66%. A 1% increase in in-place density was estimated to extend the service life by 10%, conservatively.”

~FHWA-HIF-19-052

Superpave5 Density

- 2019 = 94.42%
- 2020 = 94.64%
- 2021 = 94.25%

- $N_{des} = 50$

- 2019 = 94.30%
- 2020 = 94.53%
- 2021 = 94.52%

- $N_{des} = 30$

- 2019 = 94.82%
- 2020 = 95.16%
- 2021 = 94.98%

Pay Factors

- 2016 and earlier
 - Air Voids = 35%
 - Binder Content = 20%
 - VMA = 10%
 - Density = 35%
- 2017-2018
 - VMA = 35%
 - Air Voids = 30%
 - Density = 35%
- 2019-now
 - **Vbe** = 35%
 - Air Voids = 30%
 - Density = 35%

Pay Factors

	Pay Factors				
	Air Voids	Vbe	Density	LCPF	Samples
2019 S4	1.00	0.98	1.00	0.991	1735
2019 S5	0.99	0.99	0.97	0.985	2105
2020	1.00	1.03	0.99	1.01	4377
2021	1.00	1.03	1.00	1.01	4136

Thank you!

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