

Runway Pavement Paint Implementation Study

The Problem

- ✓ Iron that is present in the pavement aggregate stains the airfield markings, especially the white markings.
- ✓ The staining affects compliance with the color standards maintained by all governing agencies.
- ✓ Staining occurs within 6 months to a year of the application of paint.
- ✓ The staining occurs at roughly 50% of NH airports. Staining is not unique to NH; ME to FL, OH and WA states also report staining.

The Objectives

- ✓ Identify which paint type (with or without rust inhibitor/stain resistance) limits the rust-like staining of pavement markings.
- ✓ Evaluate paint thickness and bead types for extending paint service life.
- ✓ Provide recommendations for follow-up studies and airfield management actions.

Findings

- ✓ Stain resistant additive incorporated into the FAA specification P-620 Type II or III paint kept the runway pavement markings whiter over the 2-year study as compared to paint with rust inhibitor or no additive.
- ✓ Seal coat under the paint reduced the staining of the paint but increased the paint cracking.
- ✓ Rust inhibitor additive did not stop the surface rust discoloration but did limit the number of "bottom-up" rust stain spots.
- ✓ Reflectivity readings taken with a retroreflectometer remained at or above the FAA 'at installation' requirement after two years of observations.
- ✓ Type I and III beads applied in paints at 115 SF/GAL performed slightly better than Type III beads in thicker paint.
- ✓ Bead loss was approximately equal for all the samples at the end of the two-year study. The thicker the paint, the higher the bead retention.



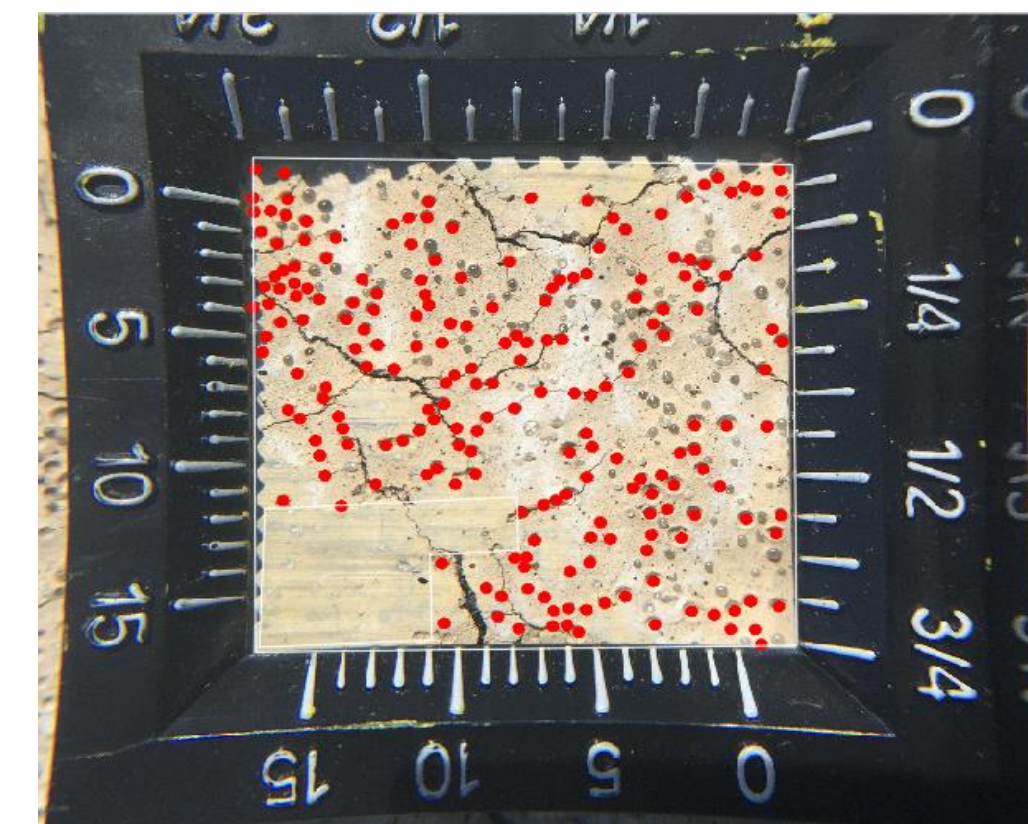
Type II paint @ 9 months



Type II paint @ 24 months



Bottom-Up Rust Stain Spot



Magnified image of beads in paint. Bead loss marked with red dots



Runway 8-26 @ Laconia Municipal Airport

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Area 3

Area 4

Area G (on FAA P-608 Sealcoat)

Location	Paint Type	Bead Type	Length	Application Rate
Area 1	II SR	III	300 ft	115 SF/GAL
Area 2	III SR	III	200 ft	75 SF/GAL
Area 3	III RI	III	240 ft	90 SF/GAL
Area 4	II	I	315 ft	115 SF/GAL
Area G	III	III	1050 ft	90 SF/GAL

Recommendations

Observe runway paints for discoloration and implement the following recommendations if staining is present.

- ✓ With FAA approval, include stain resistant additive to P-620 paint to mitigate staining.
- ✓ Apply more durable Type III paint if painting frequency is greater than 12 months.
- ✓ Install, with FAA approval, at thicker application rates to increase bead retention.



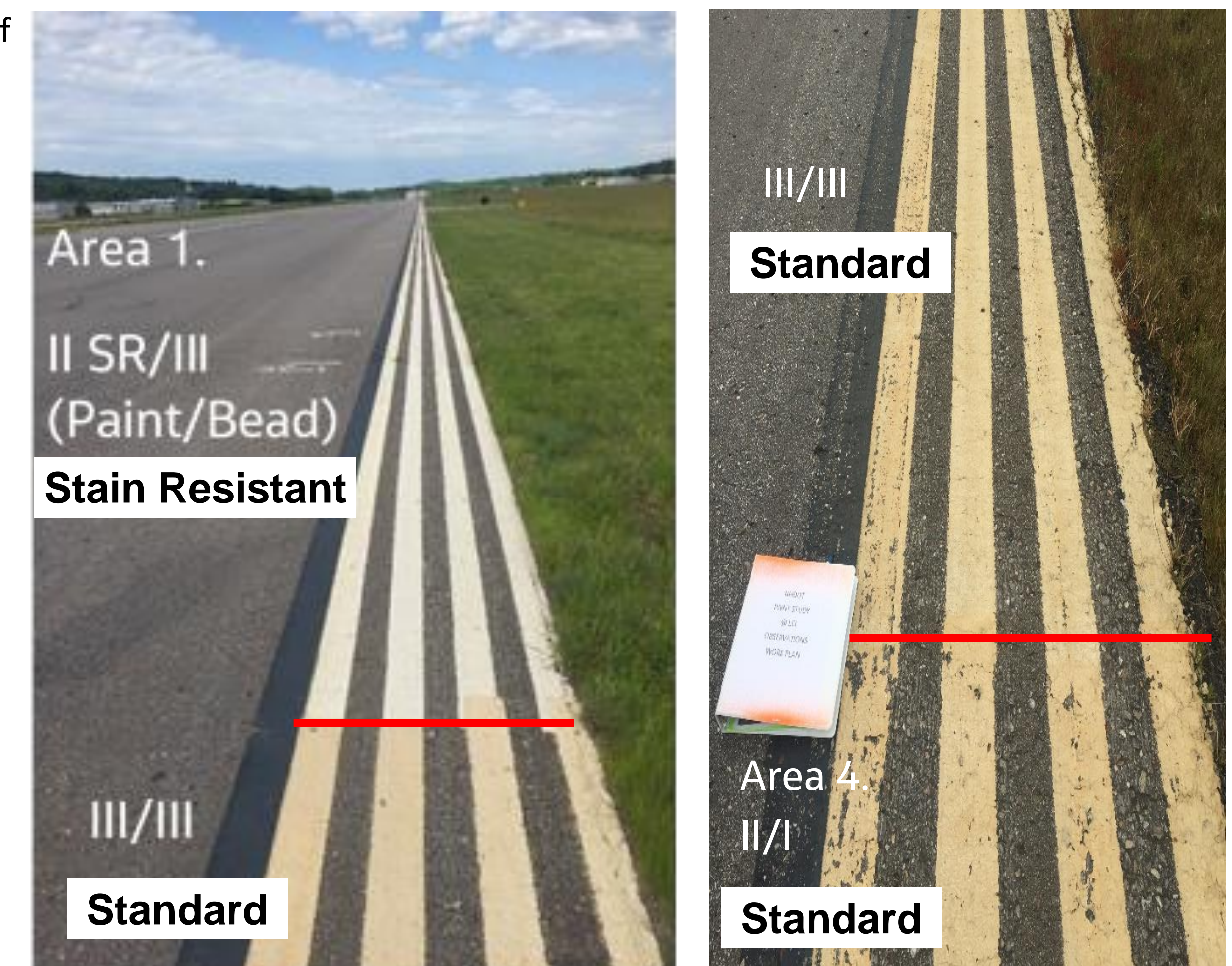
Key:
 Paint Type II – Fast Dry Waterborne
 Paint Type III – High Build Waterborne
 SR – Stain Resistant Additive
 RI – Rust Inhibitor Additive
 Bead Type I – 0.085 cm max. diameter
 Bead Type III – 0.118 cm max. diameter

Example:
 "IISR/III" is a Type II Paint with Stain Resistant additive with Type III Beads

For More Information

Visit www.nh.gov/dot/research

Contact NHDOT Research Section
 (603)-271-3151



Stain Resistant (SR) vs. Standard Paint at Two Years