



FIGURE 1 Preoverlay IRI versus initial postoverlay IRI for SPS-6 overlay treatments.

icantly different from zero. This prevents the within-treatment (i.e., site-to-site) variation from masking significant between-treatment differences.

The design of the SPS-6 experiment (Table 1) suggests the following interesting comparisons of long-term performance:

- No rehabilitation (Section 601 or linked GPS) versus nonoverlay rehabilitation without grinding (some Sections 602 and 605);
- No rehabilitation (Section 601 or linked GPS) versus nonoverlay rehabilitation with grinding (some Sections 602 and 605);
- No rehabilitation (Section 601 or linked GPS) versus overlay (Sections 603, 604, 606, 607, and 608);
- Minimal (some Sections 602) versus intensive (some Sections 605) nonoverlay repair with grinding;
- Minimal (Section 603) versus intensive (Section 606) preoverlay preparation;
- A 4-in. overlay without saw and seal (Section 603) versus a 4-in. overlay with saw and seal (Section 604);
- A 4-in. overlay with saw and seal (Section 604) versus a 4-in. overlay with crack or break and seat (Section 607); and
- Crack or break and seat with 4-in. (Section 607) versus 8-in. (Section 608) overlay.

The first comparison would be interesting, but alas, is not possible with the available data. The three sites and test sections at which nonoverlay rehabilitation was done without grinding are Arizona (minimal repair; Section 602), Indiana (minimal and intensive repair; Sections 602 and 605, respectively), and Michigan (minimal and intensive repair; Sections 602 and 605, respectively). Long-term IRI data are not available for Sections 602 and 605 at the Arizona site, and long-term IRI data are not available for the unrehabilitated section (Section 601) at the Indiana site. At the Michigan site—the only SPS-6 site at which full-depth repairs were done with asphalt concrete—the IRI trends for the control section (Section 601) and the nonoverlay repair sections (Sections 602 and 605) are erratic and atypical.

Seven feasible comparisons of interest therefore remain. The significance level, α , used for each individual comparison should be selected so that $(1 - \alpha)^7$ is equal to the desired overall level of con-

fidence. For seven comparisons to yield a 95% overall level of confidence, the required α is 0.0073.

Control Versus Nonoverlay Rehabilitation with Grinding

The mean difference is calculated from the IRIs available for 12 pairs of sections. The results indicate that the sections that received grinding have performed significantly better than the control sections at nearly all sites. However, considering that the initial preoverlay IRI for sections that received grinding (excluding the sections in Arkansas) averaged 1.05 m/km, it is evident that the IRIs for the sections that received grinding are approaching those of the control sections at several sites and now equal or exceed the IRIs for the control sections at two sites, Missouri 0 and Pennsylvania. (Note that there are two SPS-6 sites in Missouri; Missouri 0 refers to Site 290600, and Missouri A refers to Site 29A600.)

Control Versus Overlay Rehabilitation

The mean difference is calculated from the IRIs available for 30 pairs of sections. The results indicate that the sections with overlays have performed significantly better than the control sections at all sites. It also appears that the sections with overlays have performed more consistently than the sections with grinding.

Minimal Versus Intensive Nonoverlay Repair with Grinding

The mean difference is calculated from the IRIs available for nine pairs of sections. The sections with intensive repair have performed slightly better to date with respect to IRI than the sections with minimal repair—a 0.22-m/km lower IRI, on average—but the mean difference is not statistically significant.

At nearly every site, the sections with both minimal repair and intensive repair had full-depth repair, joint sealing, and crack sealing,