



**JOINT COMMISSION ON TRANSPORTATION
ACCOUNTABILITY**

**Route 234 Porous Friction Course Pavement
Experiment
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Project Objective

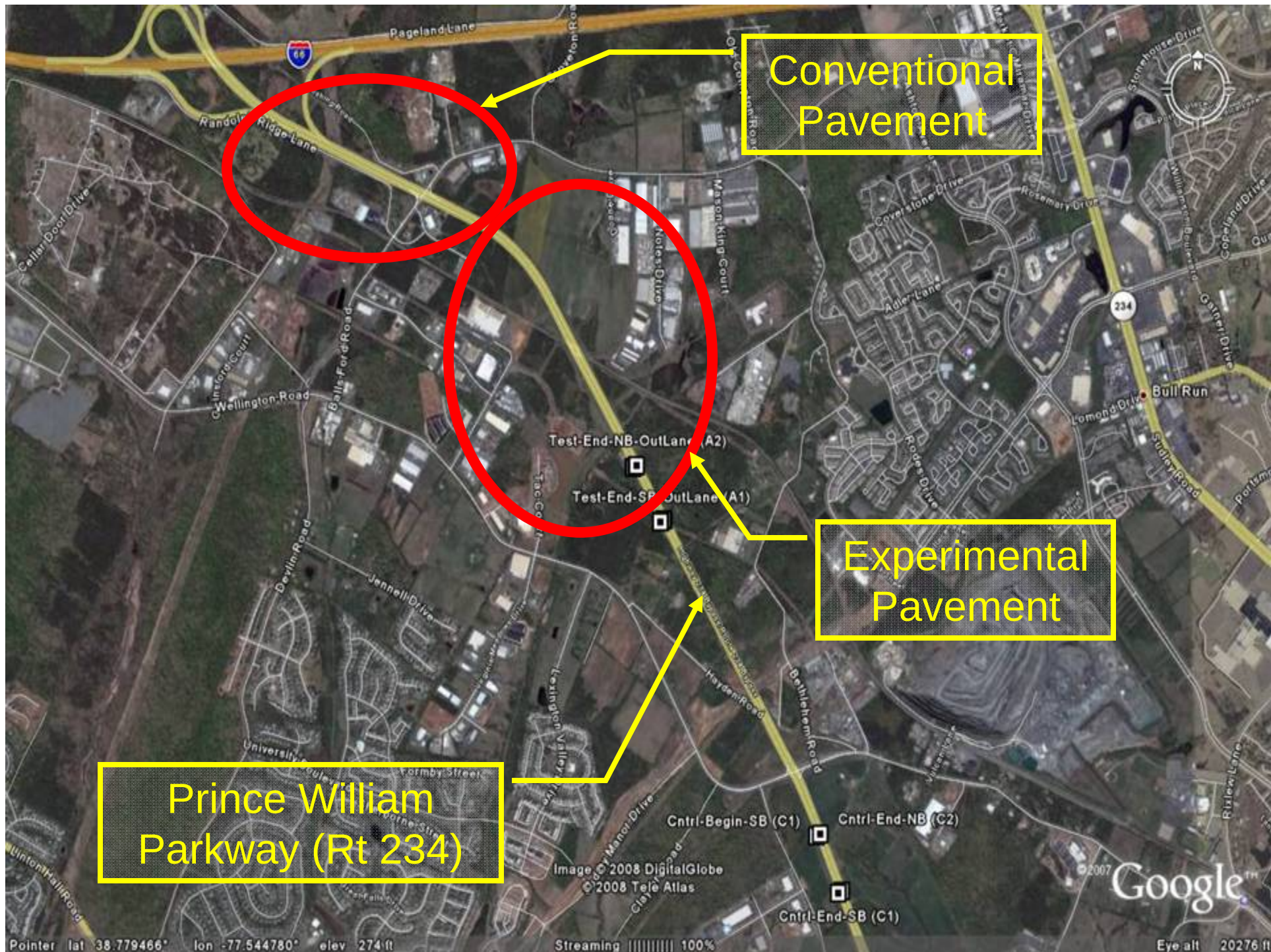
- **Oversee design, production and placement of experimental asphalt concrete pavement in Northern Virginia**
- **Assess experimental pavement from standpoint of tire-pavement noise, skid resistance, ride quality, cost, splash/spray and hydroplaning potential**

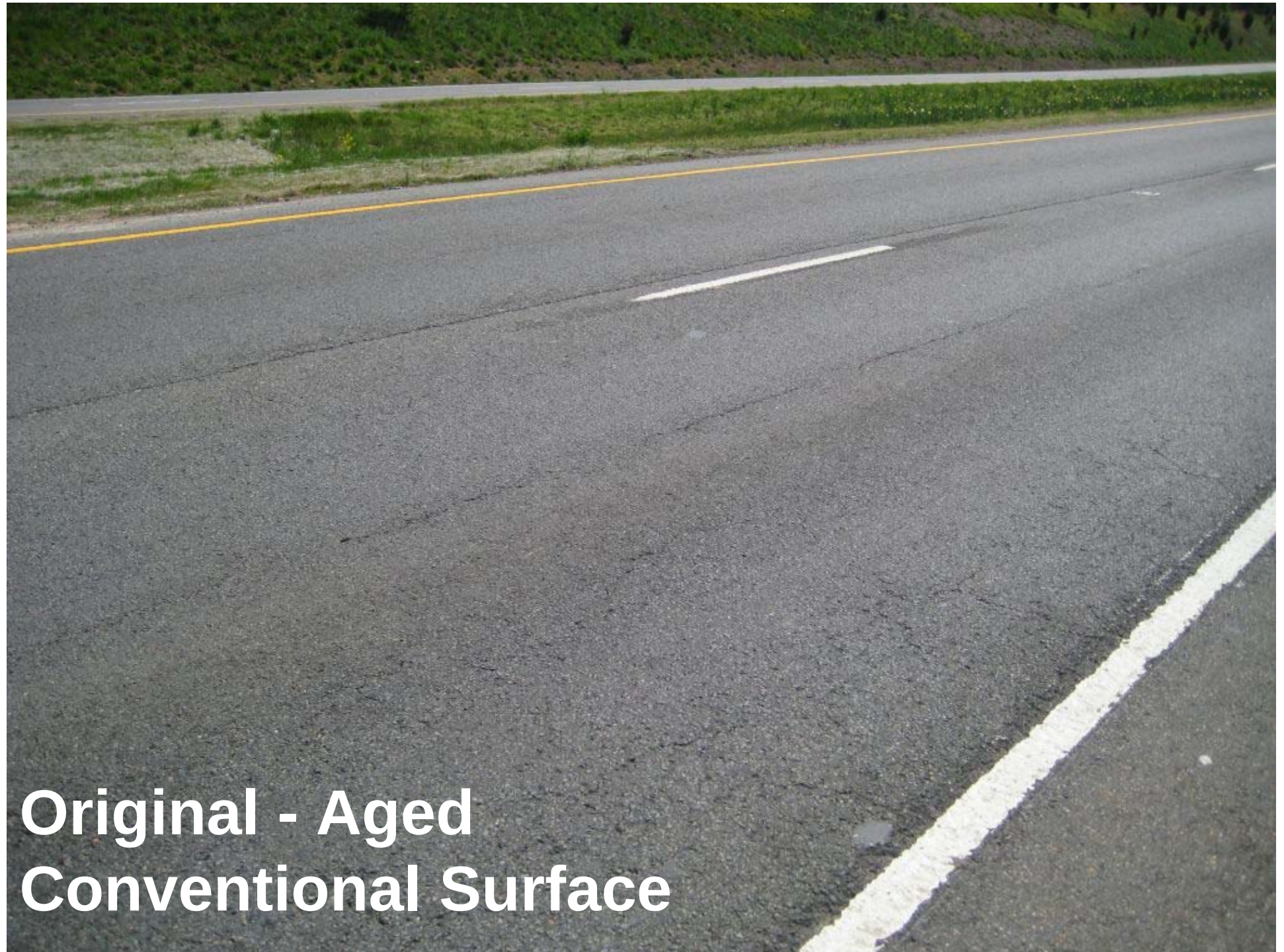
Summary Points

- **Sponsored by FHWA and Virginia DOT**
- **8,200-foot experimental pavement:**
 - Route 234 near Manassas
 - 2,700 tons of New-Generation Porous Friction Course (PFC)
- **Includes comparisons to:**
 - Original surface (old asphalt pavement)
 - Conventional surface (new asphalt pavement)
 - Premium structural surface (new Stone Matrix Asphalt)
- **Performance defined by:**
 - Tire-pavement noise
 - Ride quality
 - Skid resistance
 - Observed/subjective splash-spray

Porous Friction Course

- **Design**
 - 15 percent to 25 percent air voids, which promote rapid surface drainage (normal pavements ~6 percent air)
 - Polymer-modified asphalt binders to ensure durability
 - Thick, high-quality bonding membrane – promotes strong, impervious bond to original surface
- **Production and Placement**
 - Temperature, placement, aggregate size/quality, other characteristics similar to other premium mixes VDOT uses, such as SMA, a riding (non-structural) surface only
 - Designed to be placed at thinner application rates → one-inch or less
 - Cooler production temperatures facilitate early traffic marking





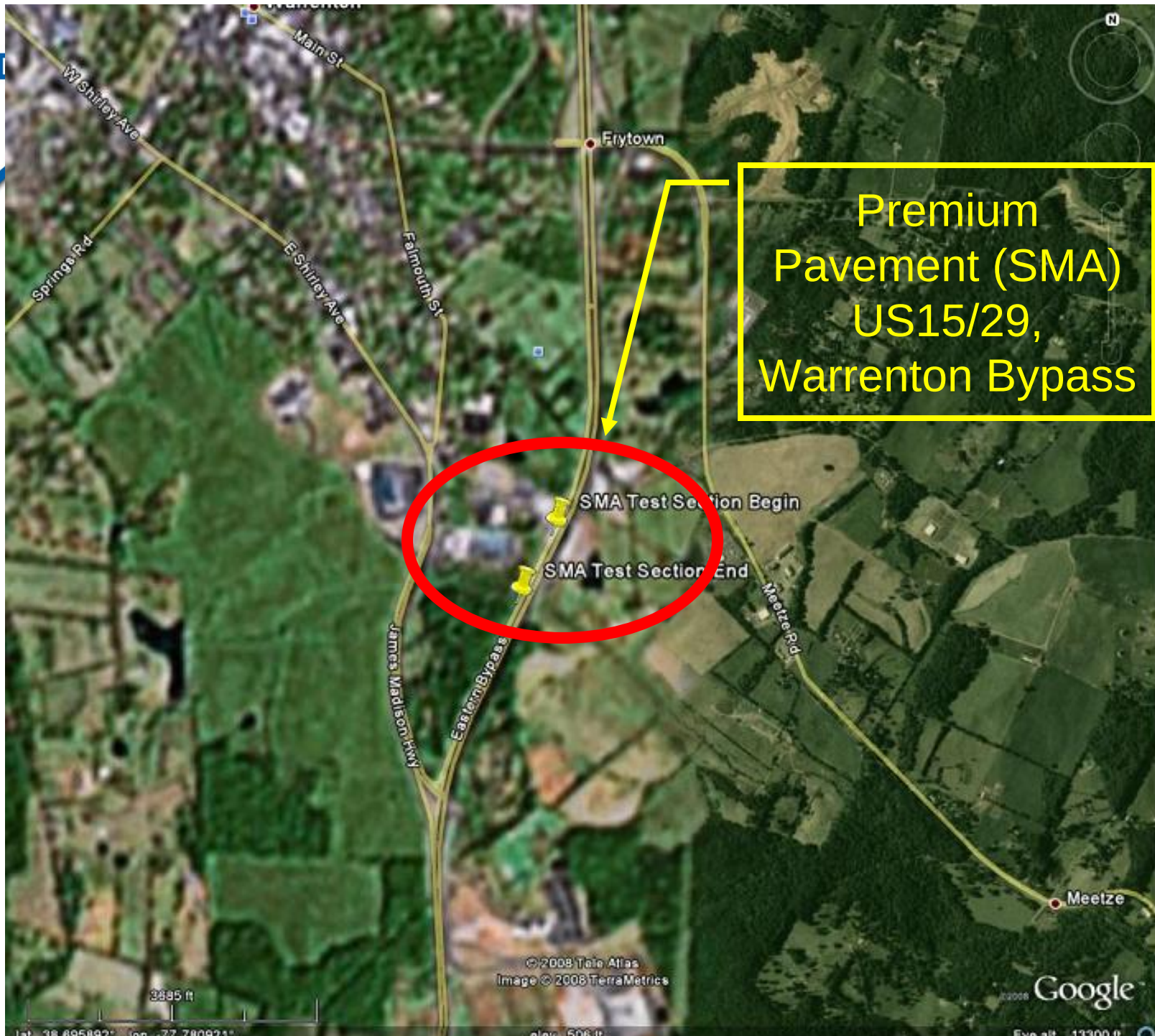
**Original - Aged
Conventional Surface**



**Experimental
(PFC)**



New Conventional Surface





**New Premium
Surface (SMA)**

Functional Performance



Ride quality (International Roughness Index)

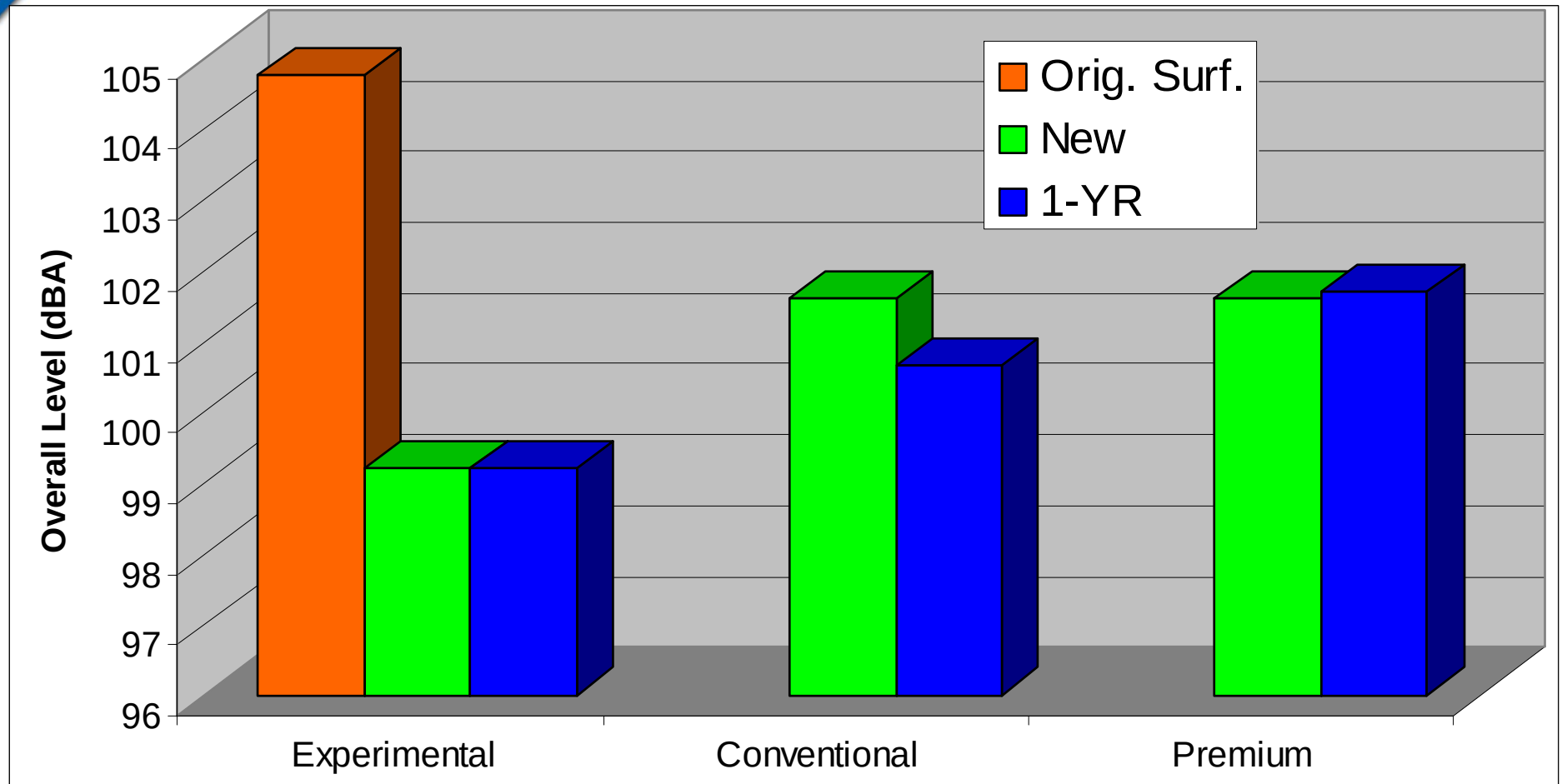


Skid resistance (SN40S)

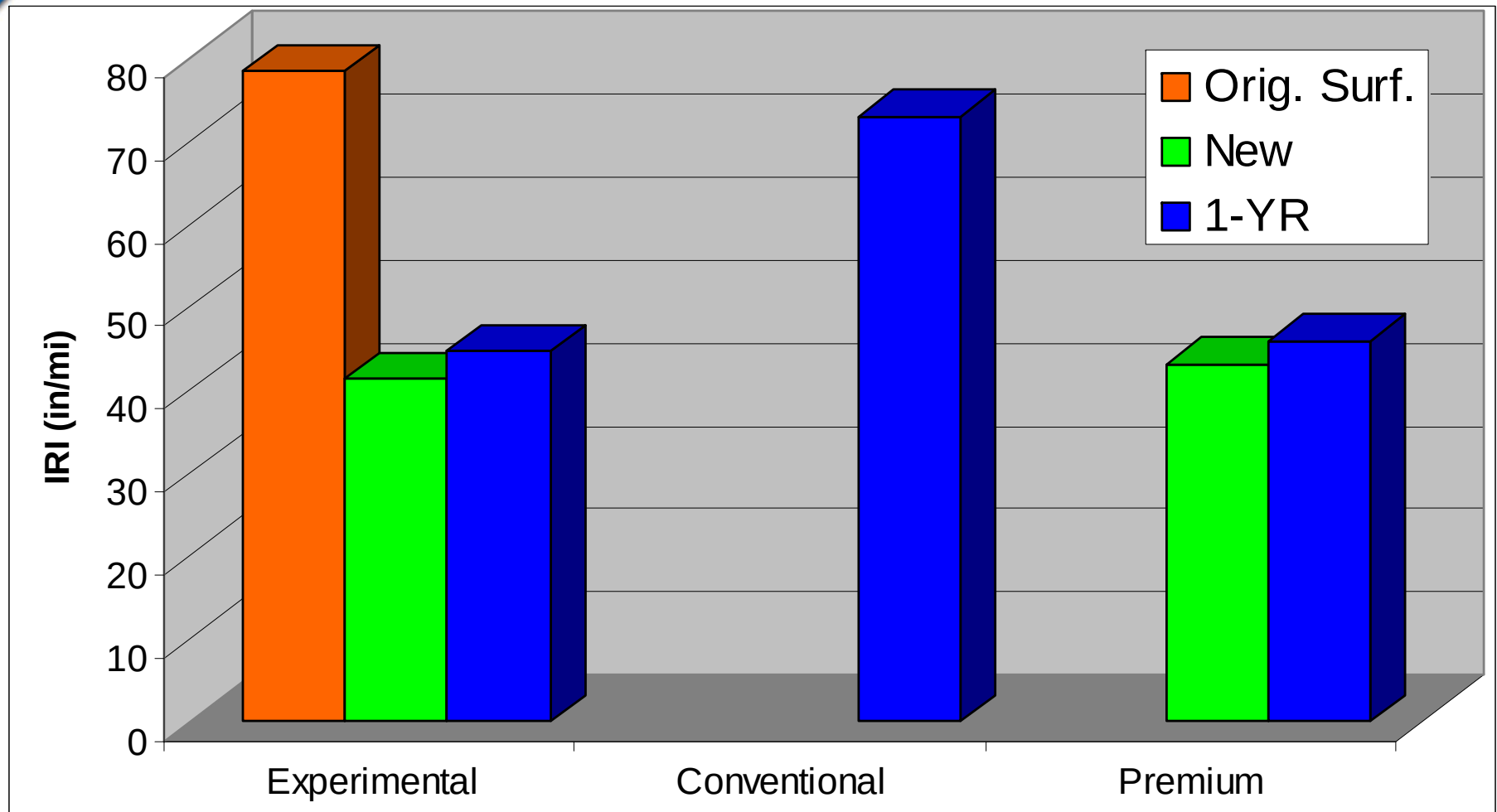


Tire-pavement noise (on-board sound intensity)

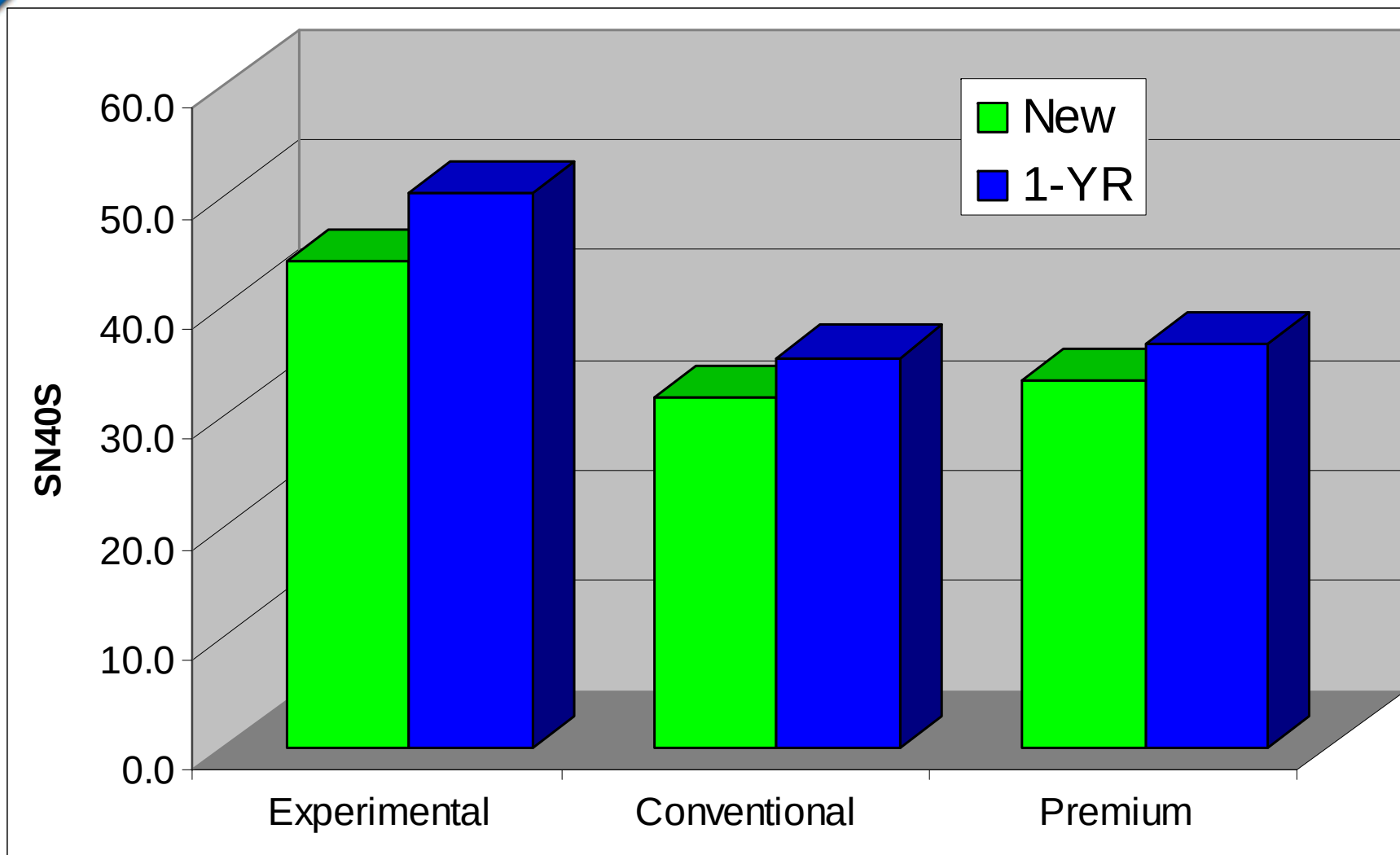
Tire-Pavement Noise (OBSI)



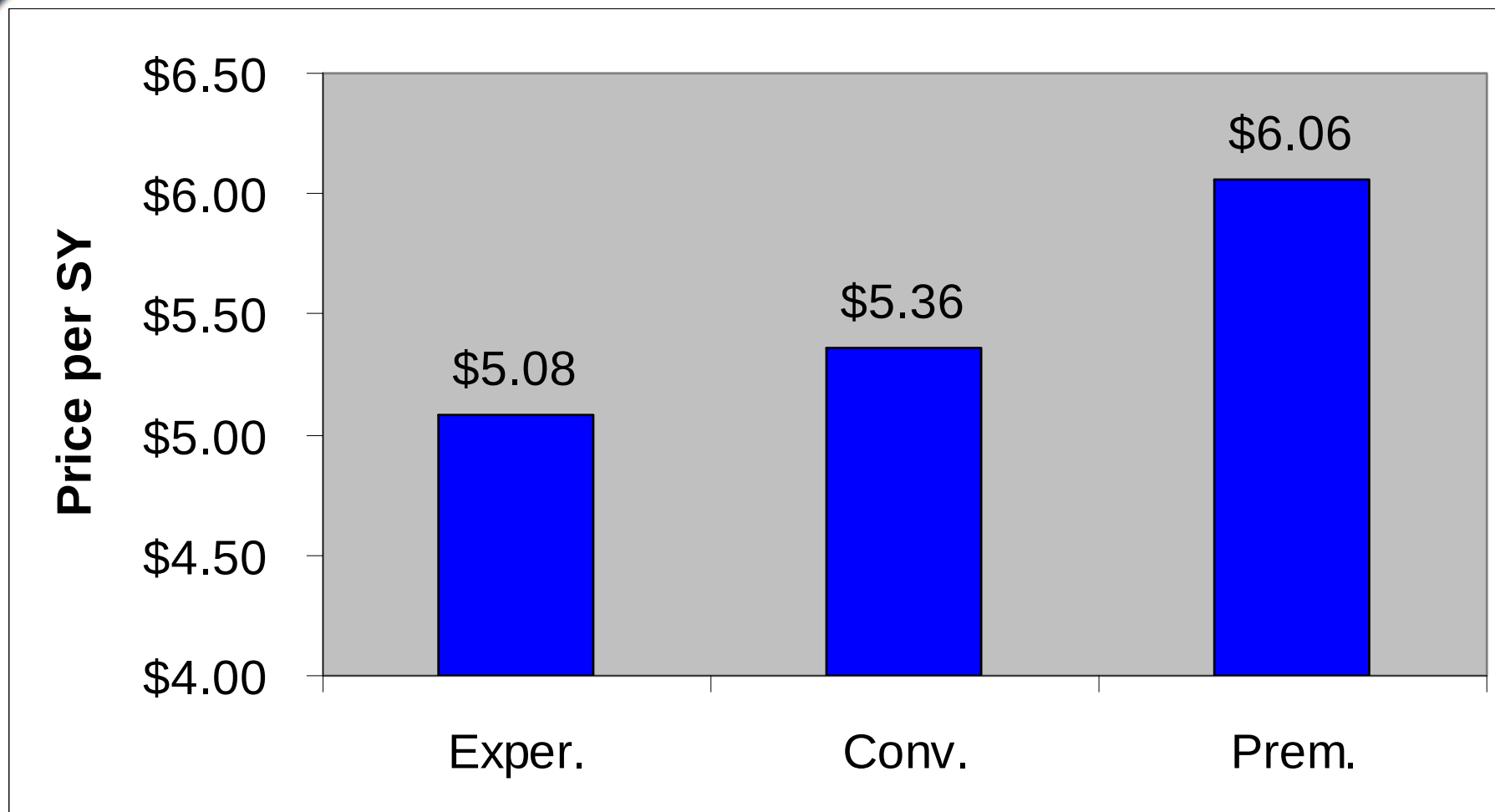
Ride Quality



Skid Resistance



Cost



Note: reflect typical application rates

Splash and Spray



Assessment After One Year

- **Experimental Wearing Course (New-Generation PFC):**
 - Has excellent skid-resistance
 - Provides good ride quality with very thin layer
 - Acoustically superior (as measured at tire-pavement interface) compared to original surface and conventional alternatives
 - Cost-effective in applications where structural improvements to the pavement are not required
- **Candidate Applications:**
 - High-speed, high-volume routes where low tire-pavement noise, high skid-resistance, good ride quality and low splash and spray are critical
 - Facilities where pavement being overlaid is structurally sufficient

The Rest of The Story

- See VTRC 09-R20
- Annual performance monitoring to continue
- Additional reports as warranted

