Terminal Blend Ground Tire Rubber Modified Asphalt

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Presentation Goals

- Why Seneca got involved with GTR
- Advantages of GTR – higher performance at lower cost.
- Spotlight some of the noteworthy projects in the region.

Original Objectives

- To keep tires out of landfills.
- To reduce the disposal cost of used tires
- To recycle these used tires in a environmentally friendly manner
- To provide a engineered high quality product that will extend the useful life of our road ways.

Enhanced Physical Properties

- Developed an engineered high performance modified binder.
- Increased Rut Resistance
- Reduced Reflective Cracking
- Reduced Thermal Cracking

Environmentally Friendly

- Uses approximately 2,000 car tires per one mile of typical two lane resurfacing.
- Lower temperatures = 25% reduction in emissions.
- Reduction of road noise

Safety

- Less fumes at both the HMA plant & the paver, better conditions for workers & public
- Less caustic material used for snow/ice control – due to increased thermal properties (it stays blacker longer)
- Little or no release agents needed for trucks or clean up of equipment

Live-bottom without release agents

Workability

- Easier compaction at lower temperatures
- No increase in mix temperature needed
- Easy working with hand tools
- Smoother joints and transitions
- Retains heat longer

The 2,000 miles to Phoenix, AZ

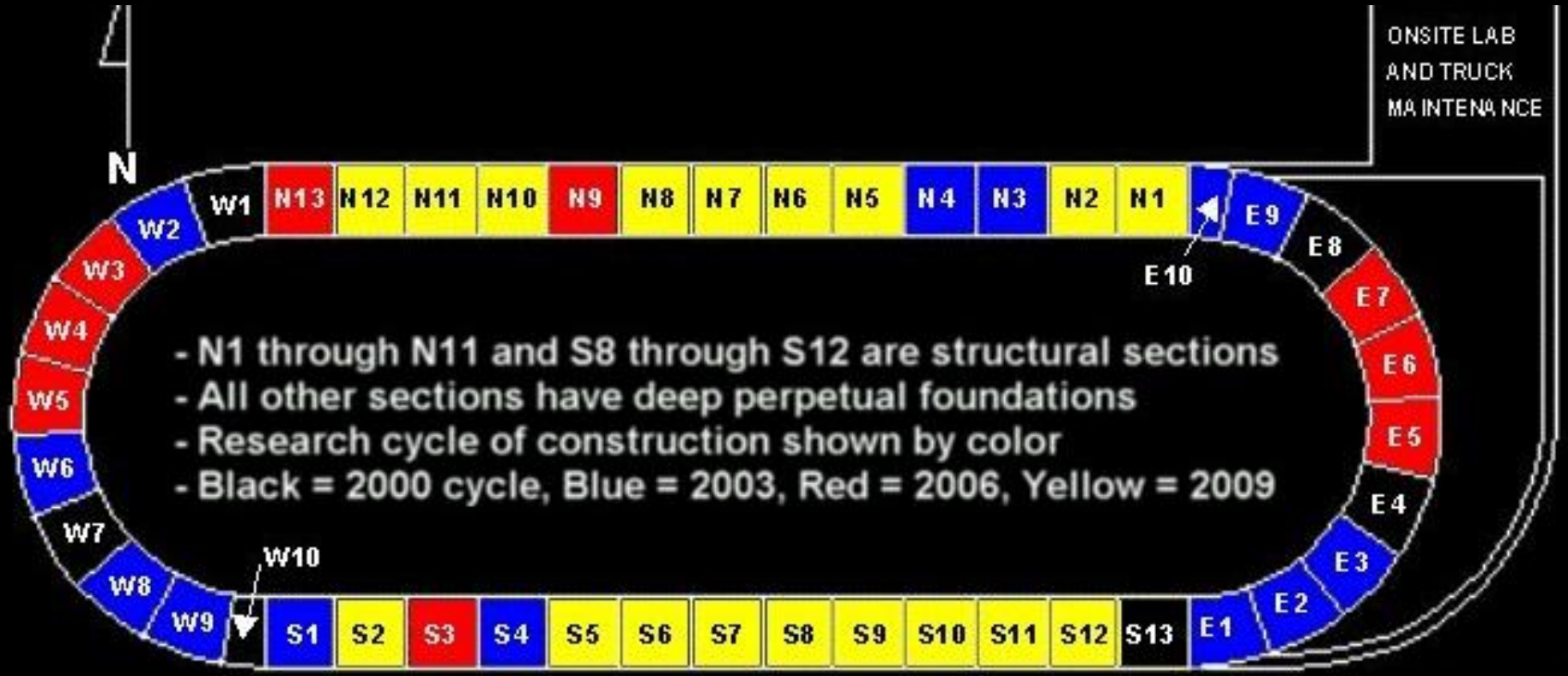
Easy Hand Work

NCAT Test Track

“Our goal is to inflict as much damage to pavement as can be safely done, lap by lap, for 10 million ESALs!” - Dr. Buzz Powell

NCAT Test Track

1.7 Mile divided into 46 sections



NCAT Test Track

- Seneca's method utilized in MODOT sponsored comparison in 2009-11.
- Evaluate performance of GTR modified binder in high-volume, high-speed interstate highway surface mix.
- Determine viability of GTR as an approved alternative binder.

Section S6 SBS vs S7 GTR

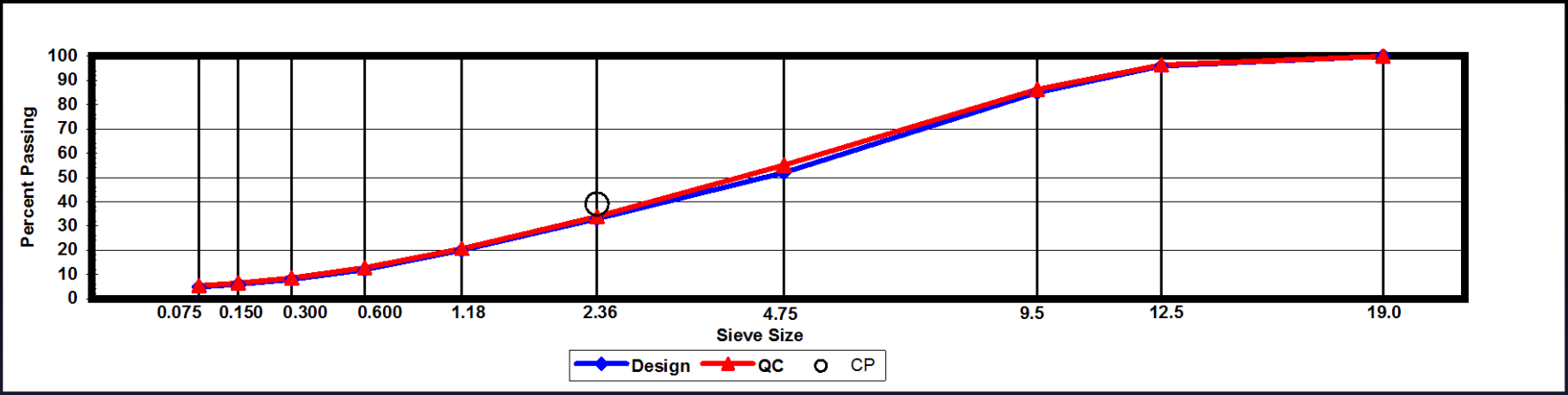
- Mix designs were nearly identical.
- Rubber particles need to be accounted for, either in adjustments in fine aggregate or AC content.
- Design was for 0.2% AC adjustment.
- Both sections constructed same day.

Section S6 SBS vs S7 GTR

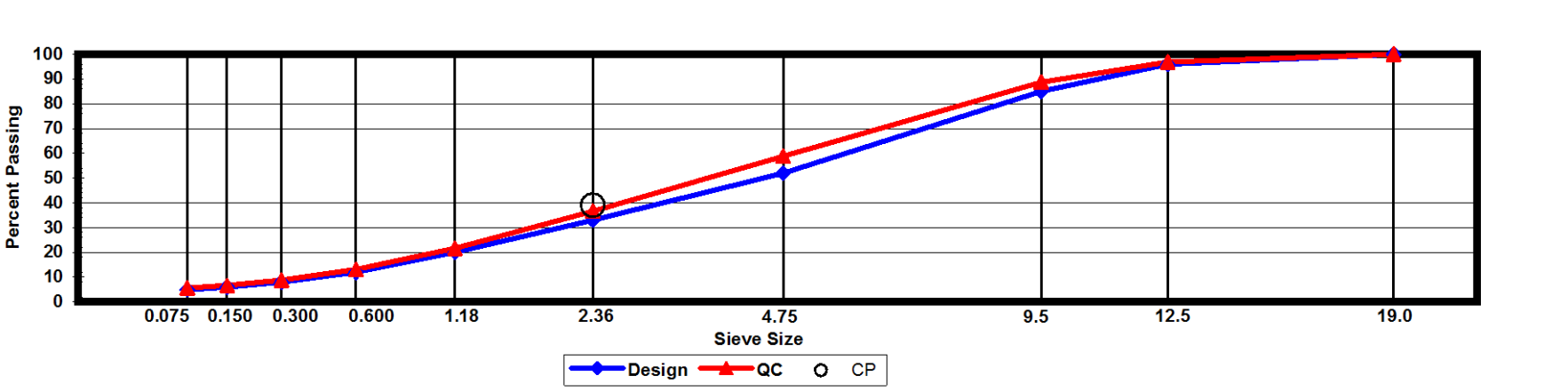
- PG76-22 GTR binder blended at terminal 5 hours away.
- Consisted of PG64-22 with ~11% GTR, which required to meet ER spec.
- True grade of finished GTR binder was ~PG80-22.
- SBS control section true graded to ~PG77-22.

QC/QA Comparison

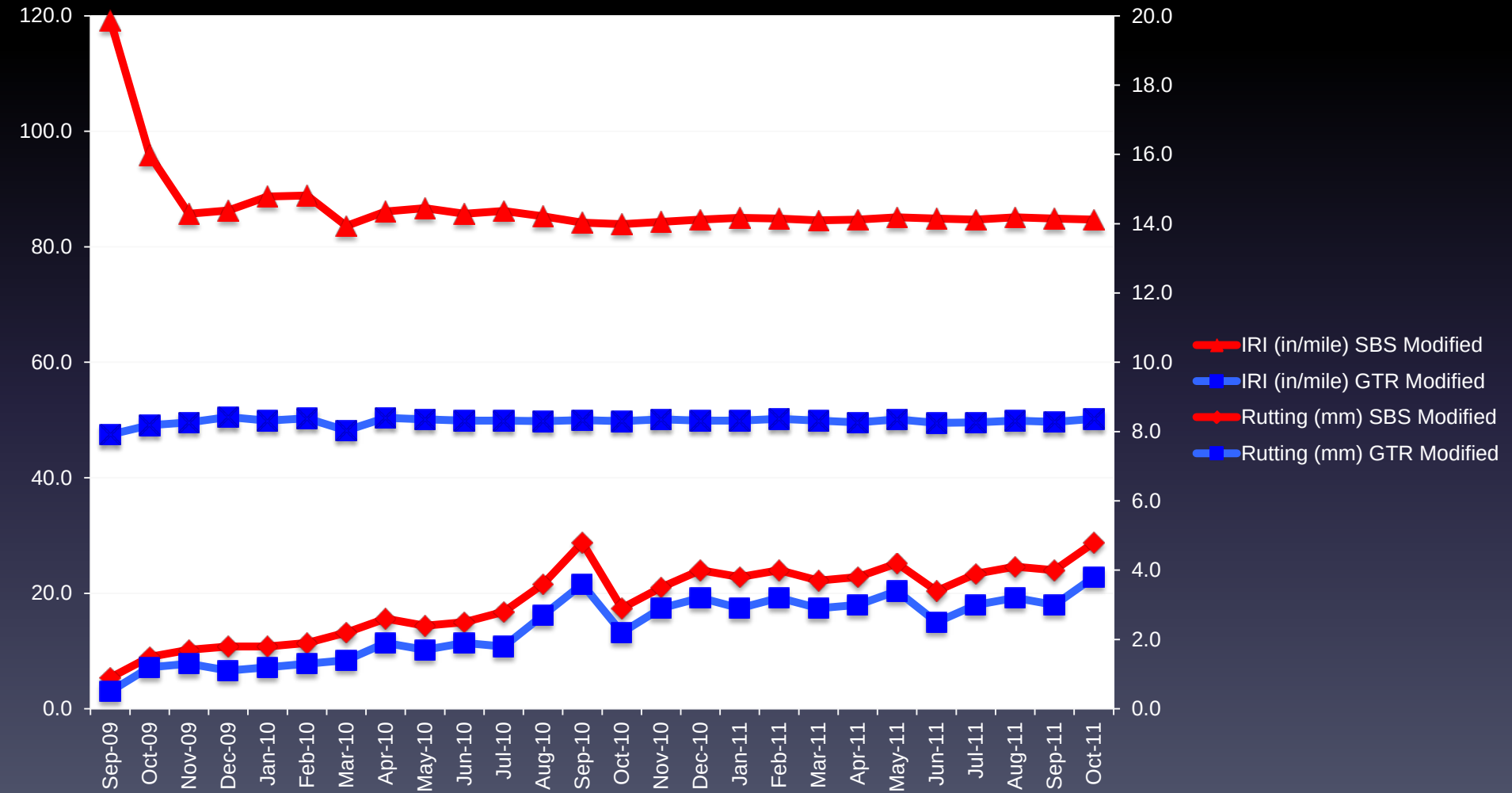
Section S6 SBS



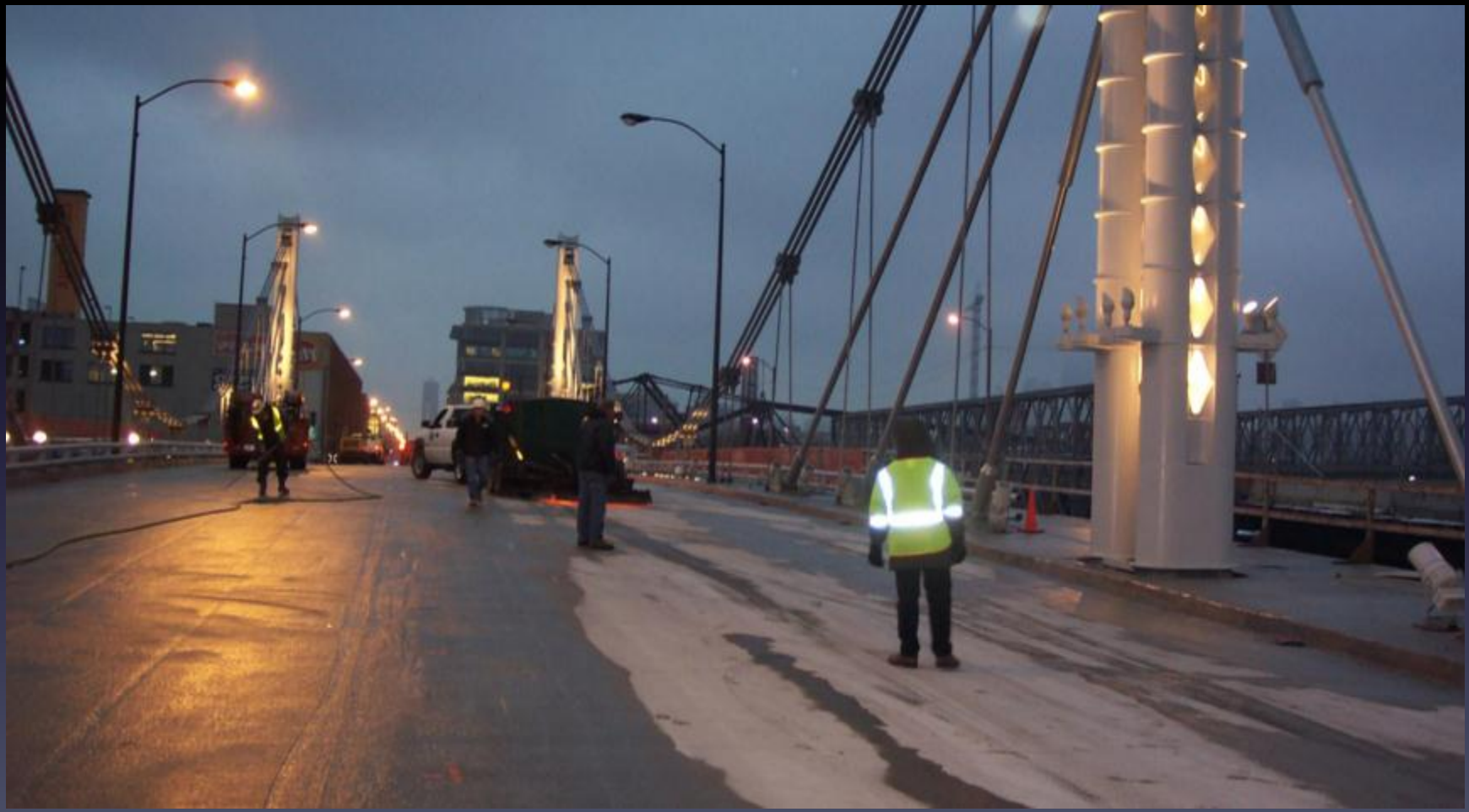
Section S7 GTR



SBS & GTR Comparison



North Avenue Bridge



North Ave Bridge

Winner of 2012 NAPA National Pavement Award for Green Pavement Technologies!

Michigan Avenue

Michigan Avenue

Illinois Tollway - Rockford

Illinois Tollway - Rockford


HYPAC
C784

Illinois Tollway - Belvidere

APPLETON, WI – CRC

City of Chicago DOT Green Alleyways


635

CITY OF CHICAGO DOT

ISTHA I-355


MILE

GTR Binders
A Sustainable Alternative

- GTR technologies have progressed over the past 20 years.
- GTR Binders can be used in any type of HMA.
- GTR can be an effective cost saving tool without sacrificing quality or performance.

QUESTIONS ????

Thank You