TRACK REPAVING PROJECT

BILL BRANIFF, P.E.
SENIOR DIRECTOR, CONSTRUCTION
ISC DESIGN & DEVELOPMENT
- Opened 1964
- Previously Paved 1993

- 1.0 Mile Oval Track
- Banking:
  - 11 deg. Turns 1 & 2
  - 9 deg. Turns 3 & 4
Pavement Condition 2011
Track Re-Paving Challenges

- Side-by-side racing
- Uniform vs. Variable banking
- Paving Material Specifications
- Surface Smoothness and Texture
- Existing Infrastructure
Computer Modeling of Racing Surface

- Side-by-side racing is a product of Track ‘wearing-in’ (3 years +/-)

  Track geometry (immediate)

- Modeling inputs
  Track Surface (x, y, z coordinates)

  Vehicle Characteristics (Center of gravity, hp, aero map)

- Modeling outputs
  Lap Times, Speed, Chassis loading

  Race Lines
Existing Track Characteristics:

- Flat banking in turns
- Single-file racing

Goal: Create side-by-side racing by constructing 3 lanes that have similar lap times

- Variable banking
- Iterative computer modeling
3 Lanes, Similar Times

Three Race Lines with Competitive Lap Times
Speed Traces

Before

After
Variable Banking

Point of Maximum Banking
Turns 1-2 & 3-4
Phoenix Modeled Race Lines

[Image of a graph showing modeled race lines on a track]
Phoenix Reconfigured Geometry
Pavement Specification

• PG 82-22 Asphalt Cement
  180 degree softening pt.

• Marshall Mix Design
  4,000 lbs stability

• 8” / mile PRI
  0.1 blanking band

• 96% Gmm target density
Pedestrian Tunnels – Turns 1 & 2
Pit Wall Reconstruction
Crash Wall Reconstruction
Concrete Pit Stalls
Concrete Crew Boxes
Paving Train
Paving Train
Specialized Equipment
Spiral Joint
Pizza cut
Quality Control
Other Tracks.......
Laser Survey to Maintain Existing Geometry
ON-SITE ASPHALT PLANT
RIM ROAD FILL
QUESTIONS