Next Generation Concrete Surfaces (NGCS)

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CALTRANS

Agenda

- Defining NGCS
- How NGCS is Constructed
- The Pilot
- Pilot Project Results
- Current Status and Future Goals

Defining NGCS

- Developed by International Grooving & Grinding Association (IGGA), American Concrete Pavement Association (ACPA), and Perdue University
- Texturing technique that combines diamond grinding and grooving
- Developed to:
  - Reduce tire-to-pavement noise
  - Create a smoother pavement
  - Increase durability

How NGCS is Constructed

1. Diamond Grind
   - Removes surface irregularities
   - Prepares a uniform base
2. Surface Cleaning
3. Dimond Groove
   - Narrow, closely spaced grooves
   - Cut parallel to direction of travel
4. Quality Control & Quality Assurance
   - Groove depth & spacing
   - Surface Smoothness
   - Skid resistance

Diamond Grind

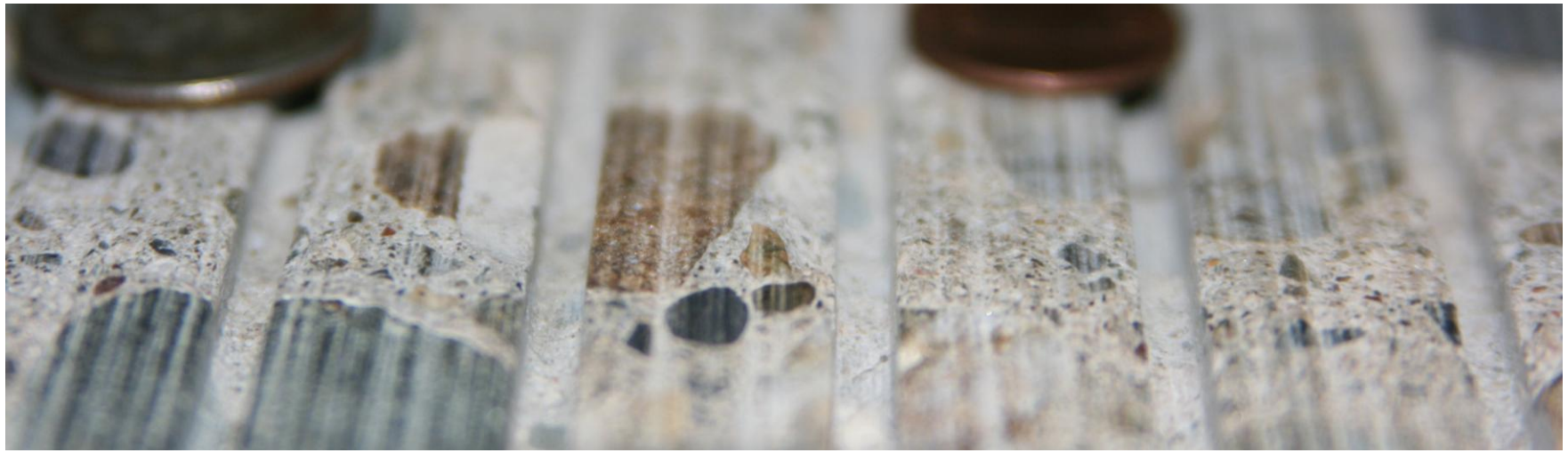
Diamond Groove

The Pilot

- I-5 near Solana Beach, north of San Diego
- Conventional Diamond Grind on 10mi (both directions, all lanes)
- NGCS on multiple 1mi long test sections (both directions, all lanes)
  - Pavement construction dates varied from 1960 to 2000s
- Average Annual Daily Traffic (AADT) = 148,000 (approximately 5,600 trucks)
- Data was collected prior to CDG, after CDG, and after NGCS.
- Evaluated
  - Smoothness
  - Noise
  - Surface friction

Pilot Project Results

	Project Avg. IRI (in/mi)	Project Avg. OBSI (dBa)	Project Avg. SN-Ribbed Tire (SN40)	Project Avg. SN-Smooth Tire (SN40)
Original Pavement	158	105.2	-	-
After CDG (before NGCS)	60	103.2	48	42
After NGCS	40	100.7	44	39



Current Status and Future Goals

- Current Status
  - At least 9 projects have implemented NGCS in California
  - Continued monitoring of noise sensitive areas
  - Continued research on weather/climate resilience
- Future Goals
  - Integration into the Caltrans Pavement Strategies
  - Integration into the Caltrans Standard Specifications
  - Possible training programs

Thank you

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