



# IGGA

International Grooving  
& Grinding Association

John H. Roberts  
Executive Director



# International Grooving and Grinding Association

- Industry trade association formed in 1972
- Represent Contractors, Manufacturers, Suppliers, Consultants and Associates world wide
- Serve as the ACPA's Pavement Restoration Division since 1995
- Conduct industry related research
- Promote and disseminate information related to Concrete Pavement Preservation



# Pavement grooving was known to the ancient Greeks and Romans

*According to Turkish archaeologist Dr. Musa Baran, the ancient Greeks and Romans were very much aware that shod horses tended to skid on wet pavement. Grooves found in a street in the ancient city of Ephesus indicate that they also knew how to alleviate this problem.*

Twentieth Century man tends to think that all the world's technology is of recent vintage, developed within the past 50 to 60 years. The pavement grooving process—cutting precise channels into highways and runways to help prevent skid accidents in wet weather—is often considered a development of the 1950's. American and British scientists are credited with discovering the hydroplaning phenomenon and devising a practical cure—grooving.

Not so, reports the International

Grooving & Grinding Association, a group comprised of companies engaged world-wide in grooving and grinding of all types of pavement.

The ancient Greeks and Romans were very much aware that shod horses, either pulling chariots or carrying riders, tended to skid on wet pavement. In the ancient city of Ephesus, which was settled by Greeks in the 10th Century B.C., there still exist remnants of a marble street. If one bothers to look, one will find clear vestiges of grooves. They were cut

transversely and spaced on approximately 2 to 3 in. (50–75 mm) centres. [By way of comparison, the transverse grooves cut in 1973 on runway 13L 31R at New York's J. F. Kennedy International Airport were on 1½ in. (38 mm centres).]

No one knows for certain when or how the grooves were made in Ephesus. But, according to a well-known Turkish archaeologist, the prime purpose of the grooves was to provide better traction for horses, all of whom were fitted with metallic horseshoes.



# Industry Milestones

- 1949 First grooving completed with single blade concrete saw
- 1956 First pavement grinder is used to grind Davis Monthan AFB in Tucson Arizona
- 1956 First highway grinding constructed in Phoenix Arizona, on Black Canyon Freeway
- 1957 Machines with 24” heads used to groove railroad overpass in Turlock California



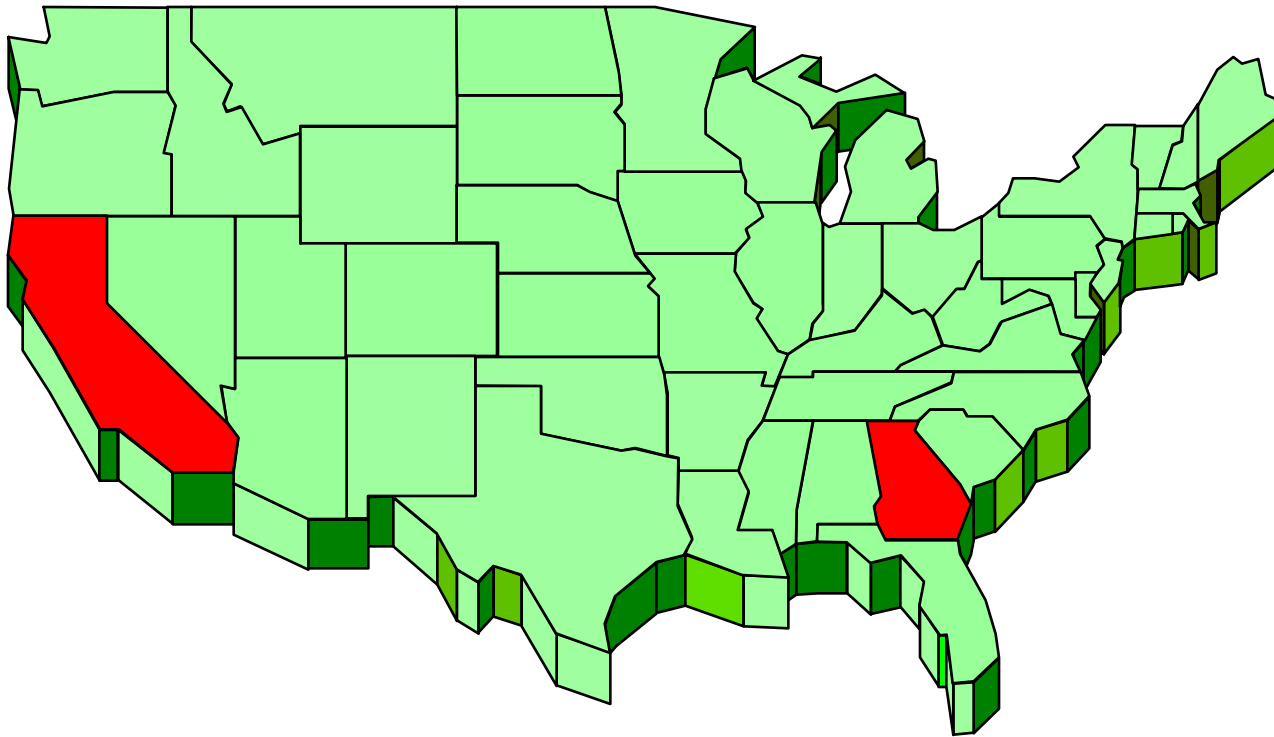


# I-10 California – Circa 1965

In 1965 Machines with 38" wide heads, 250 hp engines weighing 10,000 lbs utilized to grind San Bernardino Freeway in CA



# Concrete Pavement Preservation Origins





## Department of Transportation

State of Georgia

No. 2 Capitol Square

Atlanta, Georgia 30334-1002

June 1, 1982

THOMAS D. MORELAND  
COMMISSIONER  
STATE-HIGHWAY ENGINEER

HAL RIVES  
DEPUTY COMMISSIONER  
ASST. STATE HIGHWAY ENGINEER  
DANIEL O. KELLY  
TREASURER

Mr. Harold J. Halm  
Executive Director  
American Concrete Pavement Association  
2625 Clearbrook Drive  
Arlington Heights, Illinois 60005

Dear Harold:

Reference is made to your letter of May 17, 1982. I will attempt to address the questions raised in your letter.

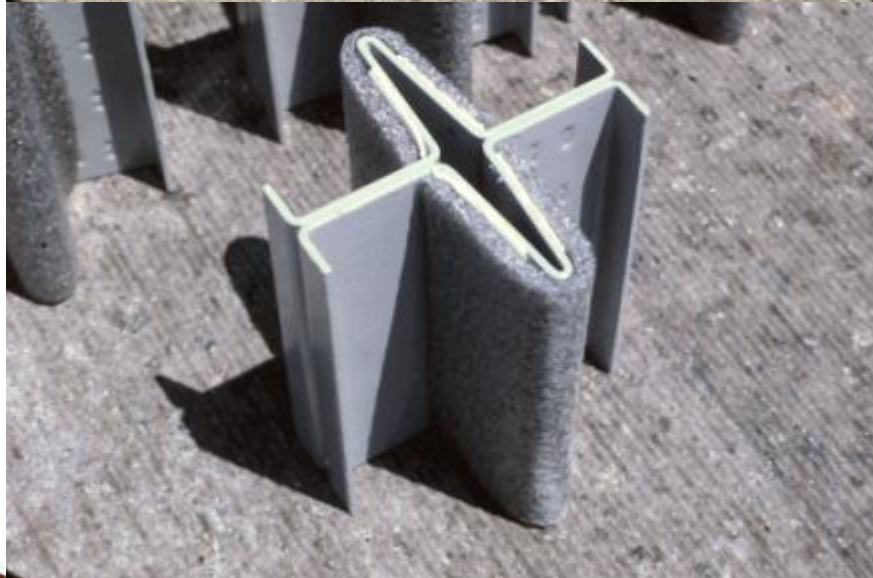
1. We are quite pleased to date with our concrete rehabilitation program. The only flaw is that we can't really place load transfer devices into the old pavement and I am convinced that load transfer devices are necessary for long time satisfactory performance.
2. We have restored our confidence in concrete paving and are now letting many projects allowing it as an alternate. We have just completed some paving on non-Interstate projects in North Georgia of which I am quite proud. Eisenhower did an Appalachian project in Pickens County which is one of the best we have ever seen. In addition, we have had two other projects recently completed by Denton.





# Load Transfer Restoration





# Dowel Bar Retrofit

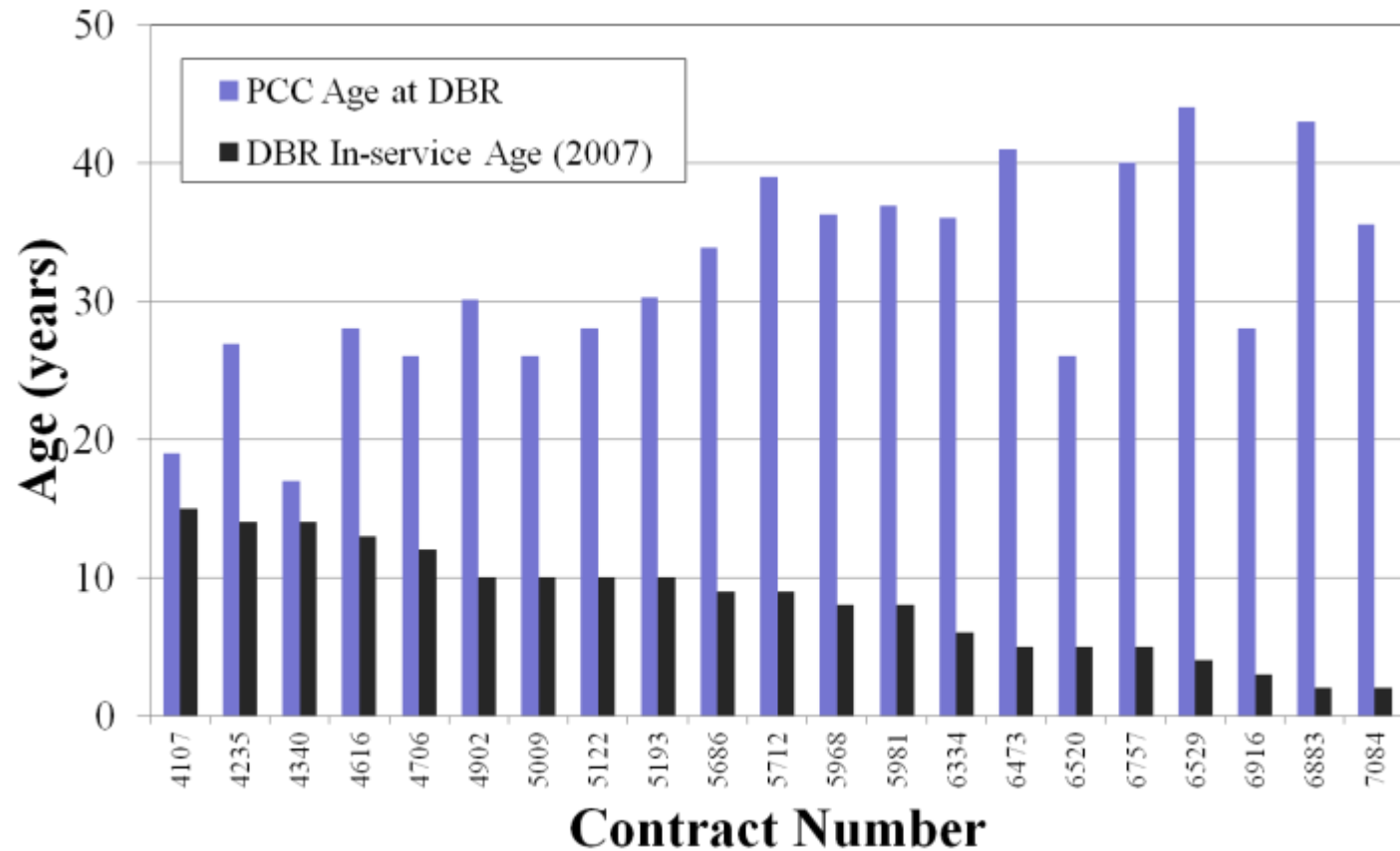


# Washington State DBR Experience

- DBR test section conducted in 1992
- Full-scale use of DBR began in 1993
  - Heavily faulted interstate pavements
  - 280 Ln-mi (450 Ln-km) or 600,000 bars



# Pavement Age vs. DBR Placement



# San Bernardino Freeway - CA I-10



# California I-10 Preservation Efforts

- Diamond grinding used in California in 1965 on a 19-year old section of I-10 to eliminate significant faulting
- In 1983, CPP was conducted on this same pavement section, including the use of additional grinding to restore the rideability and skid resistance of the surface.
- In 1997, the process was repeated.
- Some sections of this 66 year old pavement are still in use today!





# Effectiveness of Diamond Grinding

- CALTRANS has determined that the average life of a diamond ground pavement surface is 16 to 17 years and that a pavement can be ground at least three times without affecting pavement structurally. See IGGA.net for full report

 **STATE OF CALIFORNIA**  
**DEPARTMENT of TRANSPORTATION**

**DIVISION OF  
ENGINEERING SERVICES**

**MATERIALS ENGINEERING  
AND TESTING SERVICES**

**OFFICE OF RIGID PAVEMENT  
AND STRUCTURAL CONCRETE**

5900 Folsom Boulevard  
Sacramento, California 95819





**THE EFFECTIVENESS OF DIAMOND GRINDING  
CONCRETE PAVEMENTS IN CALIFORNIA**

November 2004



# Environmental and Sustainability Considerations

- Reduced tire/pavement noise
- Increased friction and reduced potential for hydroplaning
- Reduced roughness and increased fuel economy



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International Grooving  
& Grinding Association

Your Pavement Preservation Resource® since 1972

