RPUG
Road Profile Users' Group

CELEBRATING ★★★★★★★★
250
RPUG Road Profile Users' Group
★★★★★
★★★★★ YEARS OF PROGRESS

HONORING THE PAST. PAVING THE FUTURE.

HISTORY OF PENNDOT

COLIN MCCLENAHEN, PENNDOT
ROADWAY PROGRAMS MANAGER

2026 RPUG CONFERENCE ★ PITTSBURGH, PA ★ APRIL 28 - MAY 1

WELCOME TO STEEL CITY

- PennDOT hosted RPUG 33 years ago
- Steel City, City of Bridges, Blitzburg, Iron City
- One of America's most iconic transportation landscapes:
  - 446 bridges
  - 5 active roadway tunnels (It's not just you, even the GPS gets confused)
  - A city carved by three rivers
- Home of the Pittsburgh toilet (Google it)
- Glad "Yinz" are here! (a city with it's on dialect)

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OVERVIEW

- Brief Overview of PennDOT's History
- Our Need to Modernize
- PennDOT's Roughness & Friction Equipment
- 1993 RPUG

DEPARTMENT OF HIGHWAYS

- Governor Samuel Pennypacker signed into law the creation of the Department of Highways in 1903
- One of the first in the country
- Mission was centered around highways
- Rapid expansion in late 1960s
- In 1967, Governor Raymond Shafer urged modernization

Pittsburgh as seen from Mt. Washington in 1905. Smithfield Street Bridge in foreground, Panhandle Bridge in center.
Detroit Publishing Company Photograph Collection - Library of Congress

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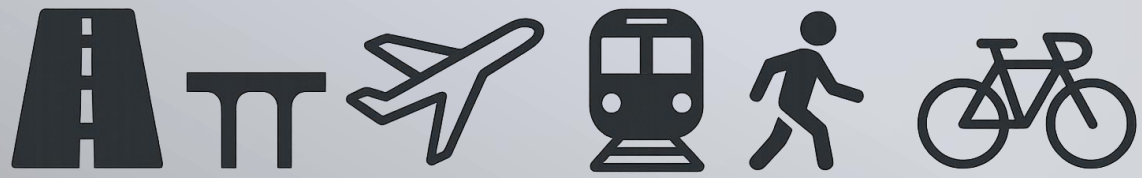
WHY MODERNIZATION?

- Consolidation of duties
- Multimodal expansion
- Integrated policy planning
- Federal alignment



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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

- Launched on July 1, 1970
- Governor Raymond P. Shafer swore in Victor W. Anckaitis as the first Secretary of Transportation
- financial support and oversight for:
  - Aviation and airports
  - Ports and waterways
  - Passenger and freight Rail
  - Public transportation
  - Bicycle and pedestrian networks

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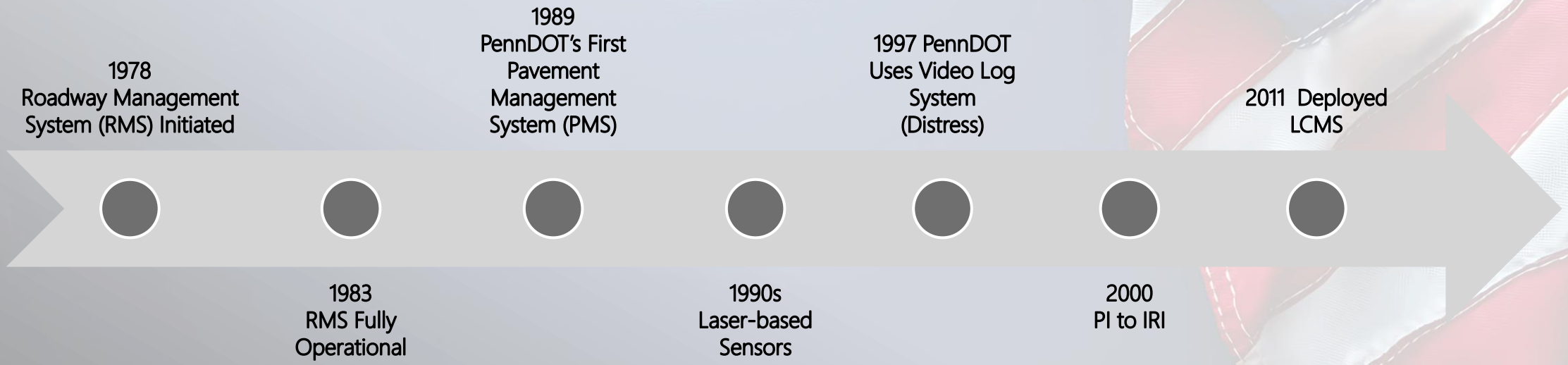
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION



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SKID FRICTION TESTING

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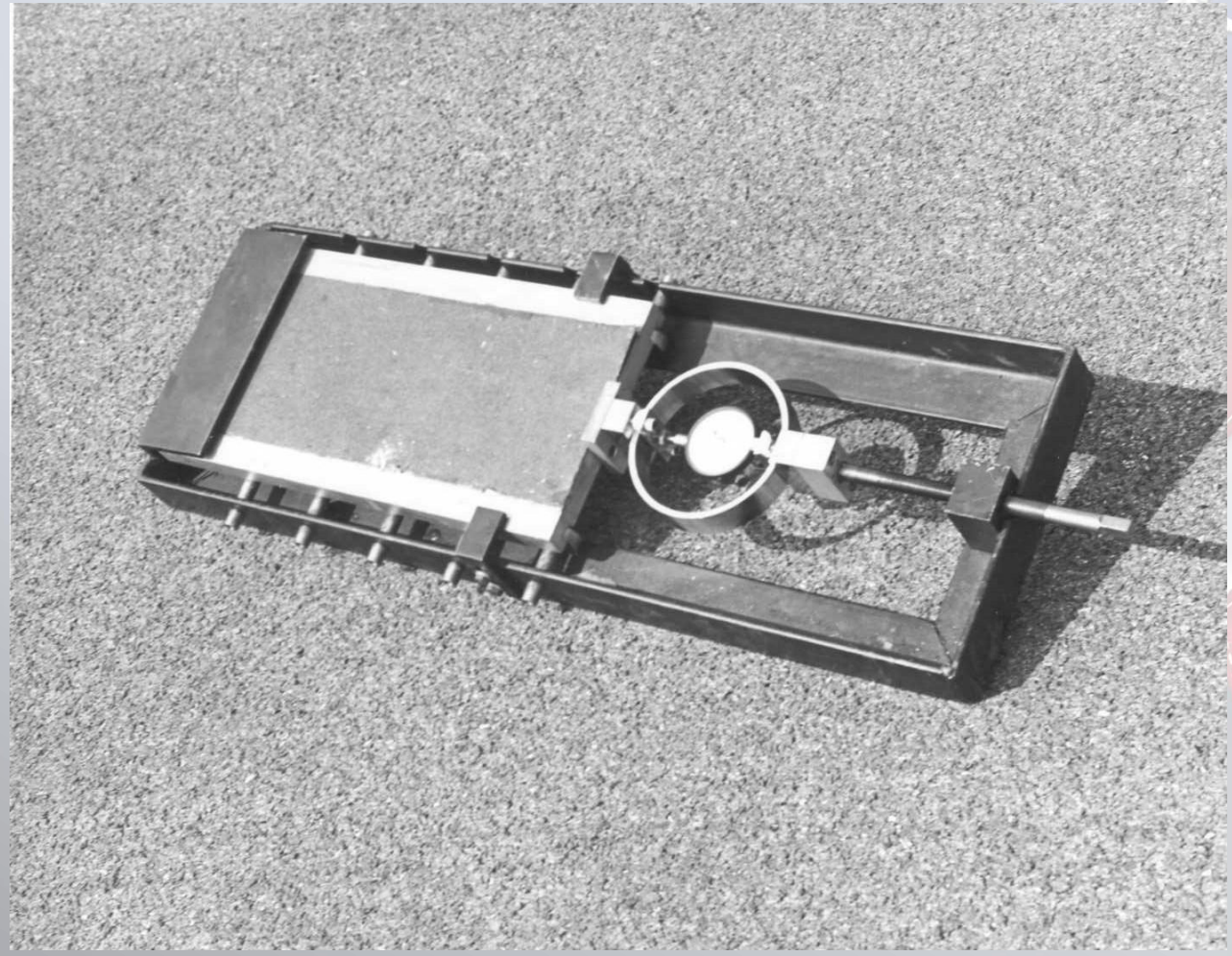
SKID FRICTION TESTING

DOES ANYONE KNOW WHAT THIS IS?



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SKID FRICTION TESTING

How about now?

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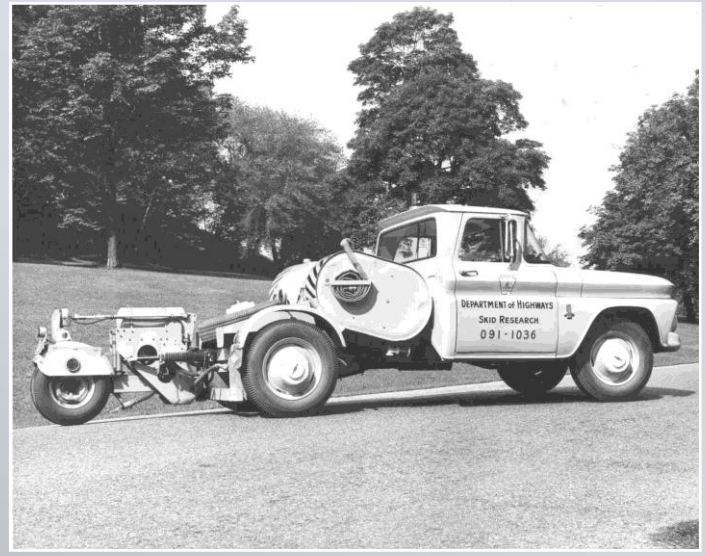
SKID FRICTION TESTING

- Pennsylvania State University model, circa 1968



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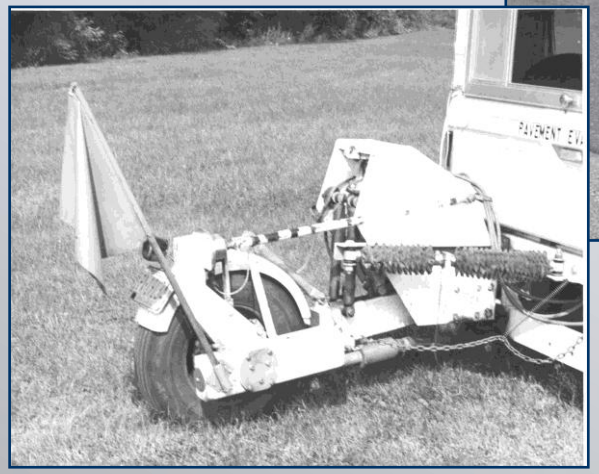
SKID FRICTION TESTING

1950s



ACQUIRED IN 1970

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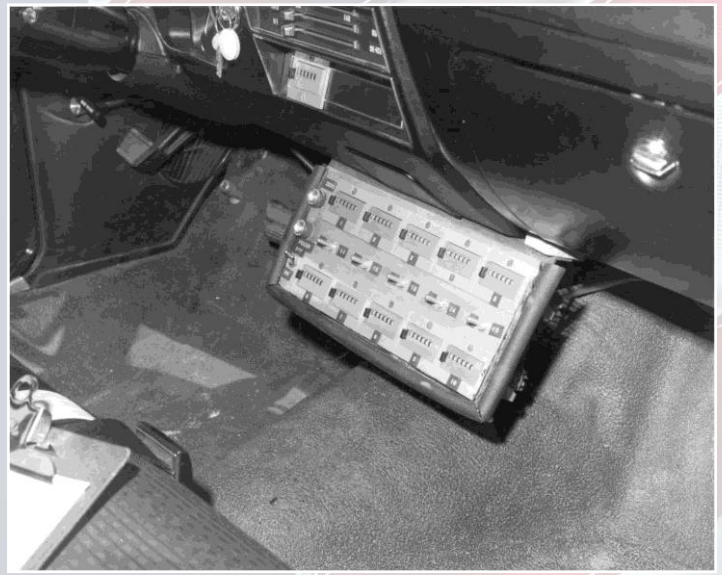
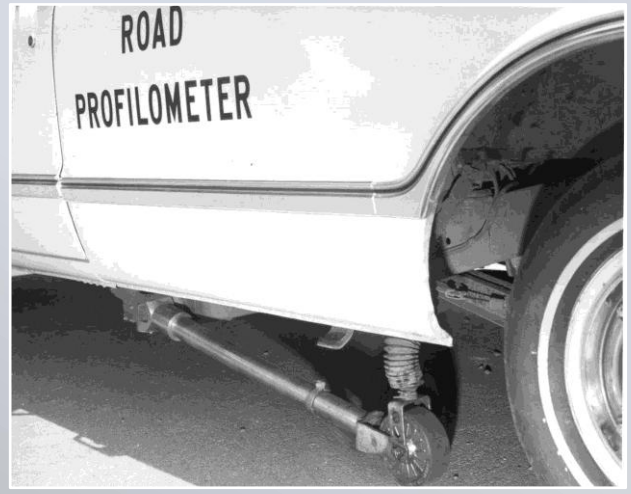
ROUGHNESS TESTING

- AUTOFLECT, MOUNTED INTO A 1968 CHEVELLE, WAS A RESPONSE-TYPE SYSTEM



ROUGHNESS TESTING

- K.J. Law model, used from the late 1960s until the early 1980s



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ROUGHNESS INVENTORY & TESTING UNIT'S FLEET

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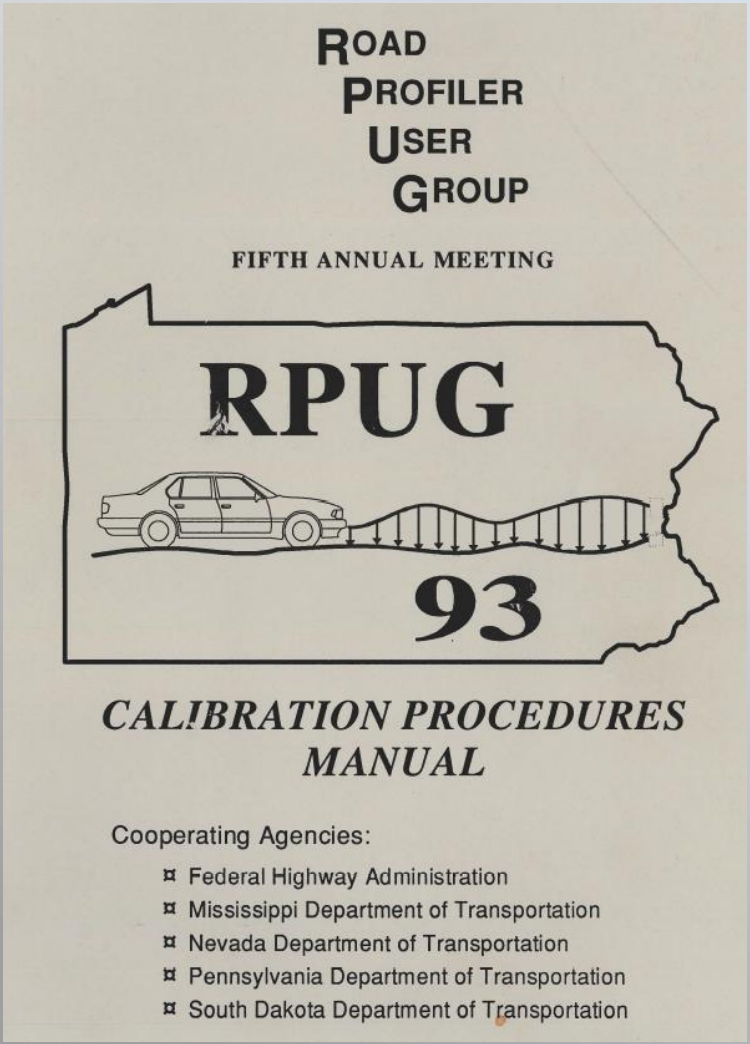
1993 RPUG - OVERVIEW



- PennDOT last hosted RPUG in October 1993
  - Hosted in Harrisburg, Pennsylvania – October 1993
  - Focus areas:
    - Road profiler technology and measurement theory
    - Pavement condition and distress data
    - Calibration and data standardization
    - Practical uses of profile and roughness data
    - Included presentations, demonstrations, and collaborative working sessions
  - Theory, Pavement Condition Data, Profile Measuring Equipment, Uses of Profile Data
    - Dave Huft presented, "Enhancement to Road Profilers"
    - Rudy Blanco, led a discussion on "Automated measurements for faulting and raveling determinations"
    - There was a panel discussion on "regional calibration site operations"

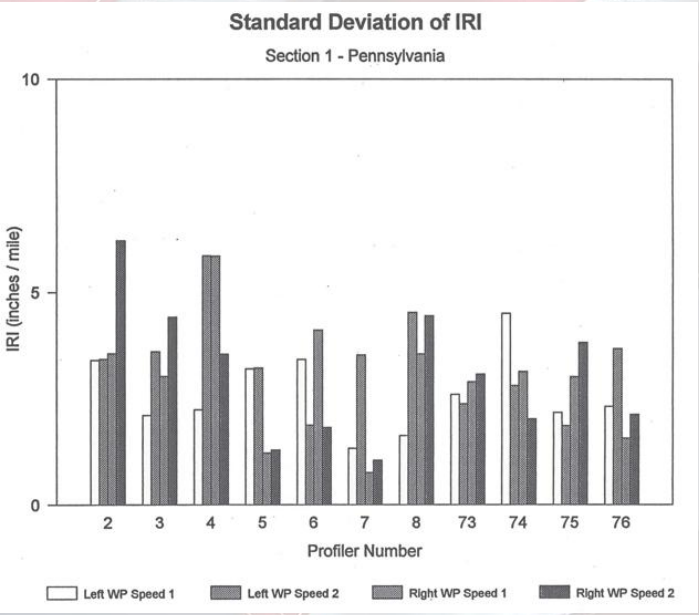
1993 RPUG – TAKEAWAYS

- Emphasis on improving data quality and understanding variations in roughness data
- Shared experiences with SHRP, HPMS reporting, and state pavement programs
- Demonstrations of emerging laser, optical, and ultrasonic profilers
- Expanded awareness of how surface texture and pavement type influence results
- Strong interest in standardizing collection, processing, and reporting methods
- Collaboration across regional calibration centers to improve consistency

  (Mississippi, Nevada, Pennsylvania, and South Dakota)

1993 RPUG – EQUIPMENT ROUNDUP

- Conducted across calibration centers in Mississippi, Nevada, Pennsylvania, and South Dakota
- Compared performance of laser, optical, and ultrasonic profilers
  - Laser and optical units showed the highest consistency with the reference standard
  - Ultrasonic profilers showed greater variability, especially on asphalt
  - Texture effects influenced results
- Identified needs:
  - More consistent calibration practices
  - Better data handling and file formatting
  - Stronger cross-agency alignment
- These findings informed later RPUG standards and best practices



1993 RPUG TO TODAY

- Established multi-state cooperation on profiling and calibration
- Set early expectations for consistent data, formats, and procedures
- Accelerated the shift toward more reliable profiler technologies
- Helped define RPUG's role as a group focused on standards and shared solutions
- Foundations from 1993 continue to guide today's work in consistency, technology evaluation, and calibration practices

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