Materials and Pavement at MCDOT

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Maricopa County Department of Transportation
Fastest growing county for the 3rd year!

Transportation infrastructure is vital to residential life, business operations and future economic development.

- **436 bridges & culverts**
  - providing connections across the valley's seasonal waterways

- **166 signalized intersections**
  - 121 connected to the MCDOT Traffic Management Center for monitoring and greater efficiency

- **2,128 miles of paved roadways**
  - includes local, collector and arterial roadways

- **396 miles of dirt roadways**
  - includes many rural and local roadways

- **59,056 traffic signs**
  - 9,852 Critical signs- stop, yield, railroad

- **27,000 feet of guardrail at 61 locations**
  - improving safety for all roadway users
Thematic Goal – Implement an asset management program department-wide by June 30, 2020
Transportation Asset Management Program

- Finalize Sign work flow process
- Update Maintenance Improvement Project process
- Modernize As-Built process
- Modernize Bridge Preservation Evaluation Program
- Modernize Pavement Management Program
Pavement Preservation
Roadway Design Manual

Adopted: November 3, 1993
Updated: July 2019

Based on 1993 AASHTO Guide
MCDOT Pavement Mechanistic-Empirical Design Guide

MCDOT
Interim Mechanistic-Empirical (ME)
Flexible Pavement Design Guide
Edition 2019-1

Pavement ME Design Version 2.5.5
Adopted: October 31, 2019

Maricopa County
Department of Transportation
2901 West Durango Street
Phoenix, AZ 85009
Mechanistic-Empirical Pavement Design

ME design assumes that pavement can be modeled as a multi-layered elastic structure.
Challenges Moving Forward

- Expensive testing is required
  - MCDOT will provide test data compiled from the research to consultants

- The design process is not very simple
  - MCDOT will provide training sessions

- The software is expensive to maintain
  - A workstation will be setup at MCDOT for on-call consultants to use the program as needed basis for MCDOT projects
During the Transition

Designers should use both guides and select the most suitable pavement section based on their engineering judgement.
High Friction Surface Treatment (HFST)

- Calcined bauxite and epoxy
- Bauxite is the primary ore for aluminum
- Aluminum adds to the strength
Where to Use HFST?

Curves

Standard surface v. HFST

Grades
Roller Compacted Concrete Projects

Old US 80 at Butterfield Wash

Old US 80 at Rainbow Wash
Roller Compacted Concrete (RCC)

- Lower cement and lower water to cement ratio
- Does not require steel reinforcement
- Reduces transverse cracking
- Does well in heat
- Lower material costs
Roller Compacted Concrete Test Bed
OLD WAYS WON'T OPEN NEW DOORS
Any Questions?