



Materials and Pavement at MCDOT

Jennifer Toth

Director/County Engineer

Maricopa County Department of Transportation



INFRASTRUCTURE INVESTMENTS

Fastest growing county for the 3rd year!

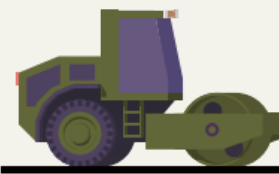
Transportation infrastructure is vital to residential life, business operations and future economic development



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

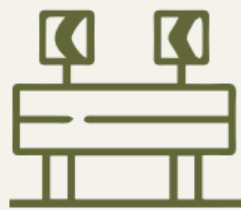
396



miles of dirt roadways
includes many rural and local roadways



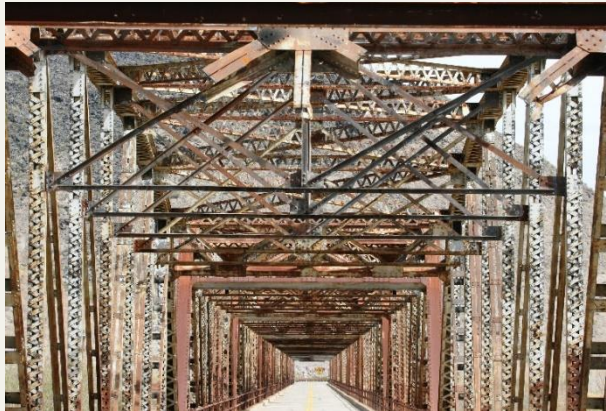
59,056
traffic signs
9,852 Critical signs- stop, yield, railroad



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

CONTINUOUS IMPROVEMENT

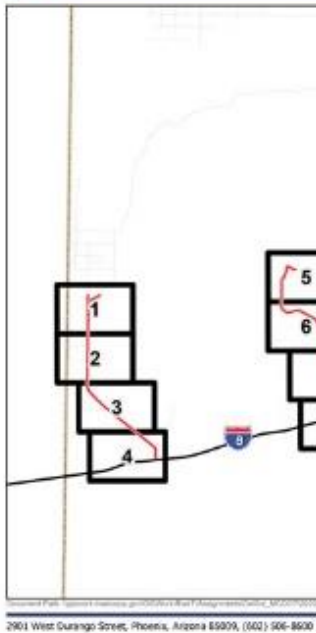




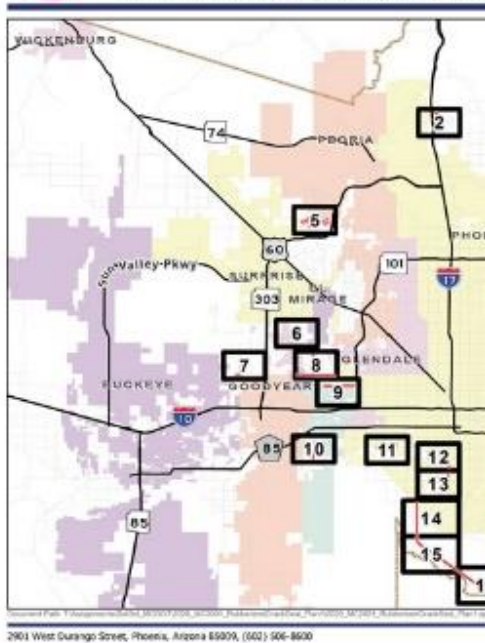
Pavement Preservation



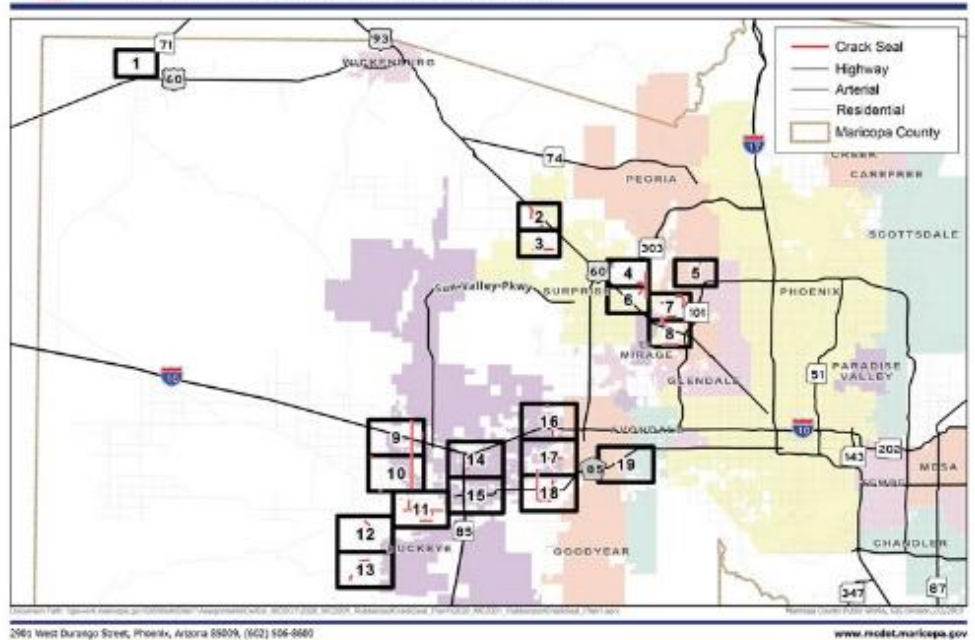
Maricopa County Department of Transportation Operations Division
FY2020 MC2001 - Rubberized Crack Seal
Plan 1 - Article 3 Contract South



Maricopa County Department of Transportation Operations Division
FY2020 MC2002 - Rubberized Crack Seal
Plan 2 - Article 3 Contract NE & South



Maricopa County Department of Transportation Operations Division
FY2020 MC2003 - Rubberized Crack Seal
Plan 3 - Article 3 Contract NW & South





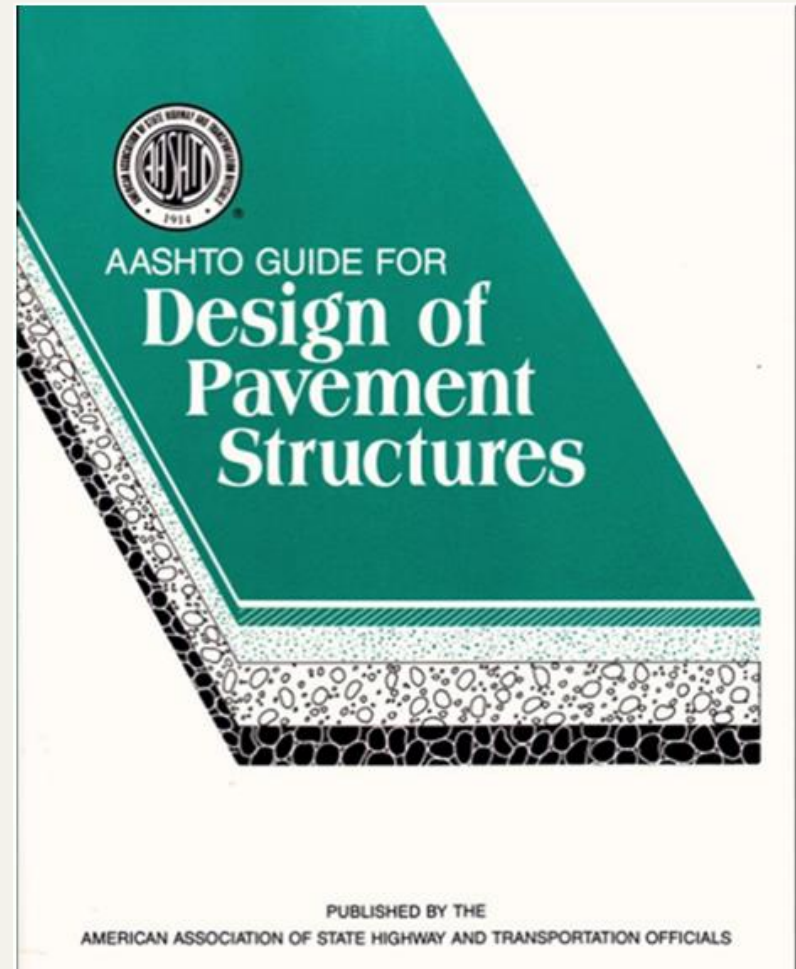
Roadway Design Manual

Roadway Design Manual

Adopted: November 3, 1993

Updated: July 2019

Maricopa County
Department of Transportation
2901 W. Durango Street
Phoenix, AZ 85009



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

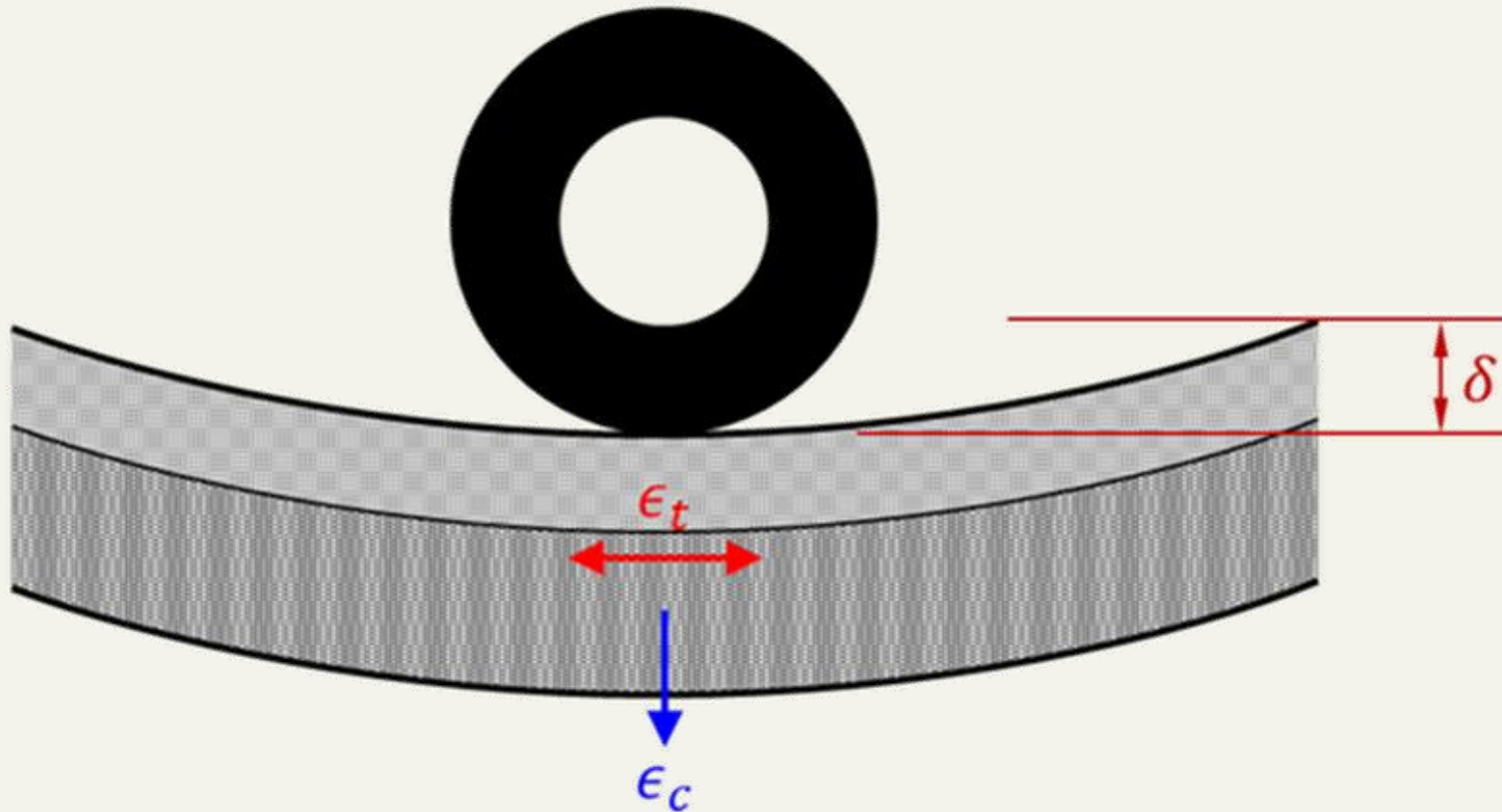


Maricopa County
Department of Transportation

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



**Challenge
Ahead**

- 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

Roadway Design Manual

Adopted: November 3, 1993

Updated: July 2019

Maricopa County
Department of Transportation
2901 W. Durango Street
Phoenix, AZ 85009



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

Edition 2019-1



Pavement ME Design Version 2.5.5

Adopted: October 31, 2019



2901 West Durango Street
Phoenix, AZ 85009

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





Roller Compacted Concrete Projects



Old US 80 at Butterfield Wash

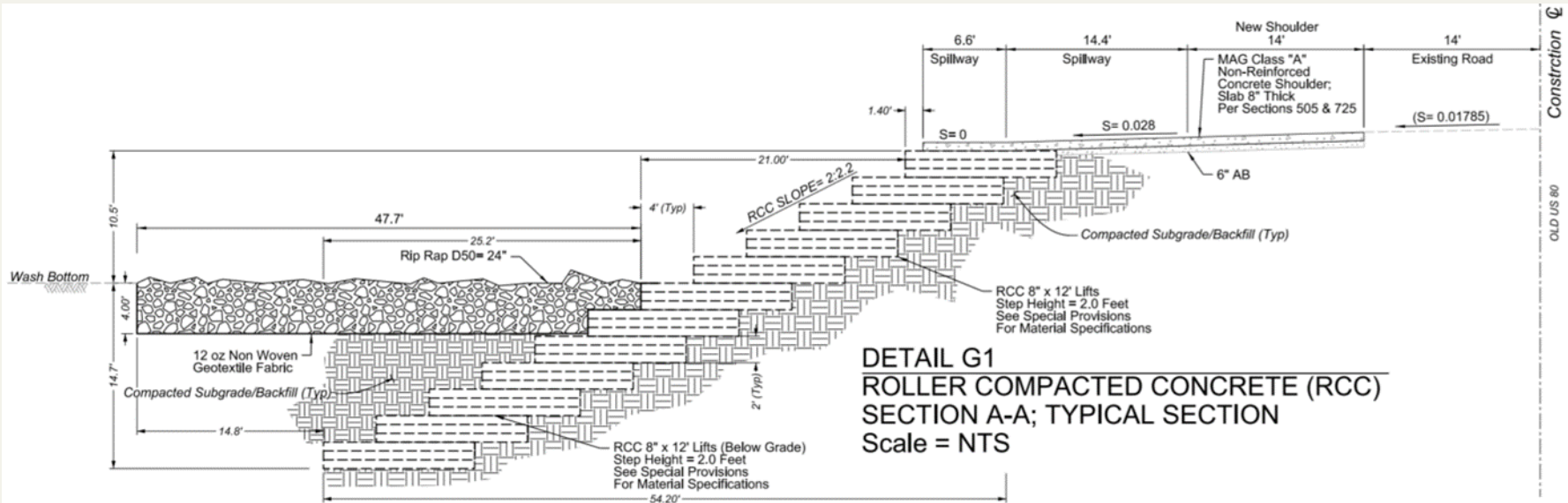


Old US 80 at Rainbow Wash



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?

