Pavement Triangle: Design/Construction Practice/Preservation

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Design

Traditional Standard Design:

- AASHTO 93 Guide for Design for Pavement Structures – with MCDOT Amendments
- Very conservative Structural Number used
  - Thicknesses used based on roadway type, regardless of actual traffic volumes
    - Arterial 5.5” AC/10” ABC (AC section 2”(1/2” Marshall), 3.5” (3/4” Gyratory))
    - Collector 3.5” AC/ 6” ABC (AC section 3.5” (3/4” Marshall))
    - Residential 3” AC/ 6” ABC (AC Section 3” (3/4” Marshall))

Newly Adopted Design:

- AASHTO 93 Guide for Design of Pavement Structures – with MCDOT Amendments
- Structural number based upon pavement investigation/geotechnical investigation
  - Thickness/Structural Number now reflects actual traffic volumes on street
  - All surface courses are now PMTR+ PG76-22 asphalt binders, with varying underlying base courses marshal or gyratory mixes
  - New Collector and Residential streets as of 2017 will be full depth PMTR+ PG76-22
  - Expanding the use of Cold-In-Place Recycling for structural base course on Arterial segments

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Design – cont.

- Focus is now on performance of materials used and performance of the entire asphalt matrix
  - Less focus on constituent materials, but how they function as a unit
  - Focus on penalties for continuing inconsistencies of materials, not just every chance possible
  - Less focus on overall cost and more focus on performance of the final product
    - Difficult to do in a competitive environment, but will reduce life cycle costs and ultimately reduce overall costs with it

- Possibly looking at MSCR test as well as Dynamic Modulus for Mix Design acceptance, focus on the whole not just the parts

- Focus on the right binder for the roadway use and aid in life cycle performance/construction placement/pavement preservation

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Construction Practice

- Specifications written for performance, not just to have something to follow (cookbook)

- Compaction specifications that are achievable
  - In-place air voids from asphalt coring (Max. theoretical)
  - Combination of both lab and field attained compaction
  - Mesa Standard Specification (3%-8% in-place air voids)
    - Target of 5% desired for maximum life cycle performance

- Quality Assurance (owner)/ Quality Control (contractor/supplier) – Team Effort
  - Transparency and sharing of timely test results
  - More testing = more data = less fliers and less doubt of test results for the Team
  - Aids in the issue of "blame" and focuses on finding solutions
    - Success of this is seen on Mesa's JOC Asphalt Overlay Program as well as our CIP Program – 4 years and running strong

- Timely construction schedules = less impact to the public
  - Issues resolved on the lowest possible level or in a Team setting
  - Communication is a HUGE part of the success!

Preservation

- The City of Mesa has been called very progressive/aggressive in our preservation strategies
- Multiple “tools” in the pavement preservation toolbox
  - New treatments always being explored/tested
    - CQS-TR for Fog Seals and Slurry Seals
    - LMCQS-TR for Slurry Seals
    - FAST – Fractured Aggregate Surface Treatment – using PMAR as well as PMTR and soon to be blend of both
    - Modified surface seals (special blends) PMMRTU, Liquidroad, HA5 and Onyx
- Earlier is better than later – don’t be afraid to put something down in the first year
- Apply products that meet your life cycle needs, what works best for your streets in your inventory
- Don’t just use a formula/schedule – (year-3 Fog Seal, year-5 Crack Seal, year-7 Slurry Seal, year-15 Overlay, and repeat)
- Reach out to fellow Pavement Management people, ask questions, share knowledge.
- Right treatment, Right road, Right time…

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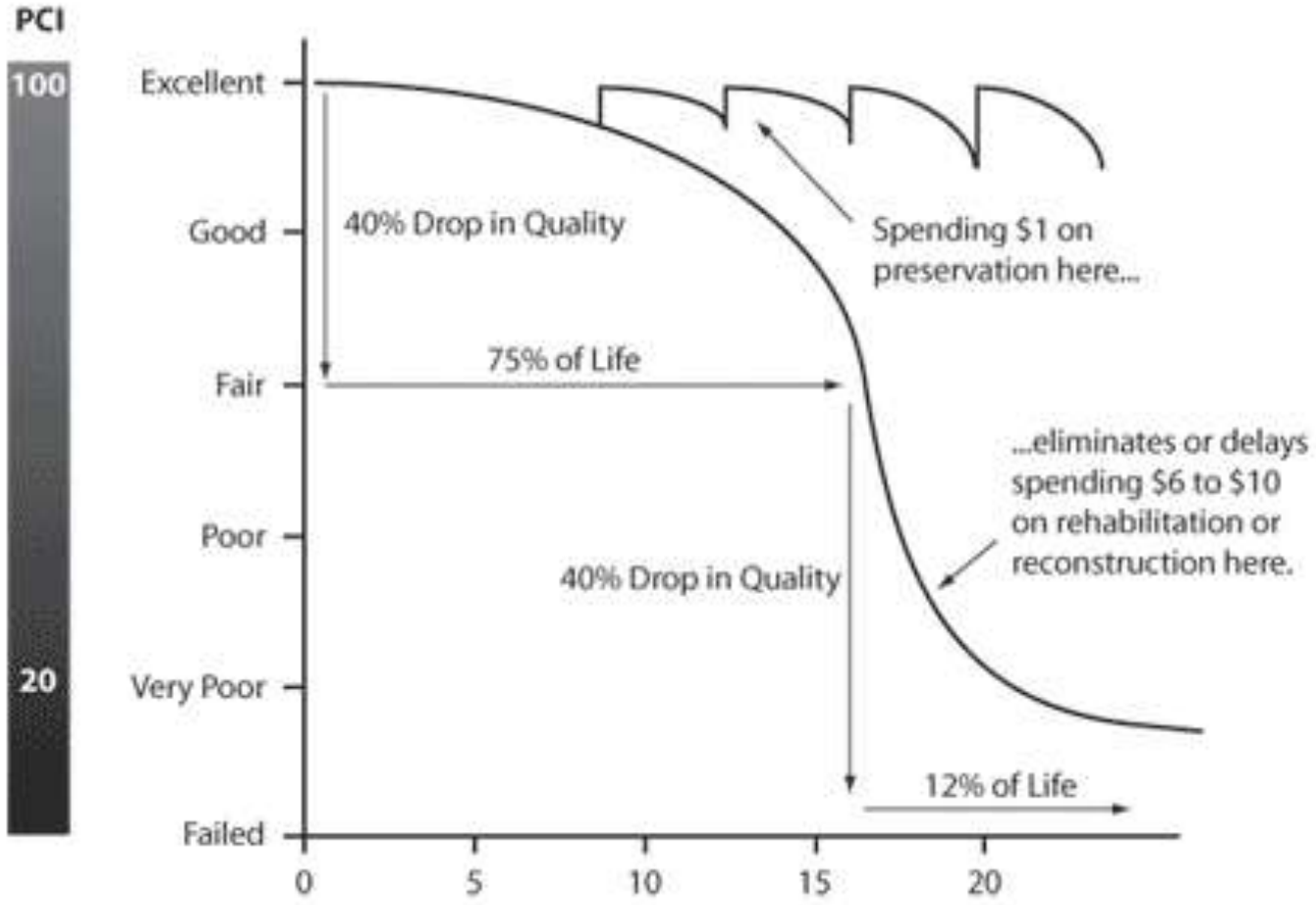
Preservation - Cont.



QUESTIONS??