Maryland's Perspective on Pavement Condition Data for Pavement Preservation

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Condition Data – Maryland's Perspective

How long do preservation treatments last?

How can they be used more?

Condition Data

Condition Data – Maryland's Perspective

Overview

- Why pavement condition data – **relevant to preservation** – matters

- **Types and Quality needed**

Condition Data – Maryland's Perspective

Why does relevant-to-preservation condition data matter?

- Historical focus on worst-first…**on rehab**
  - ➤ Too far gone for Preservation
  - ➤ Geared to Rehab (IRI, etc.)
  - ➤ Hard to justify **not** picking the worst

Condition Data – Maryland's Perspective

How can focus move away from rehab to preservation?

- Balanced approach
  - ➢ Mix of Good, Fair, Poor
  - ➢ Have justification for **not** picking the worst

Condition Data – Maryland's Perspective

How to justify not picking the worst?

Benefit/Cost

- ➢ **Type of data**
- ➢ **Quality of data**

Condition Data – Maryland's Perspective

Type and Quality of data

- ➢ Objective
- ➢ Reliable } **Require automatic detection**
- ➢ Useful
- ➢ Repeatable

Condition Data – Maryland's Perspective

Why are type and quality of data important?

- If relevant type is not collected:
  - ➢ Difficult to identify preservation candidates
- If quality is lacking,
  - ➢ Preservation will not be cost-effective

Preservation will not get chosen.
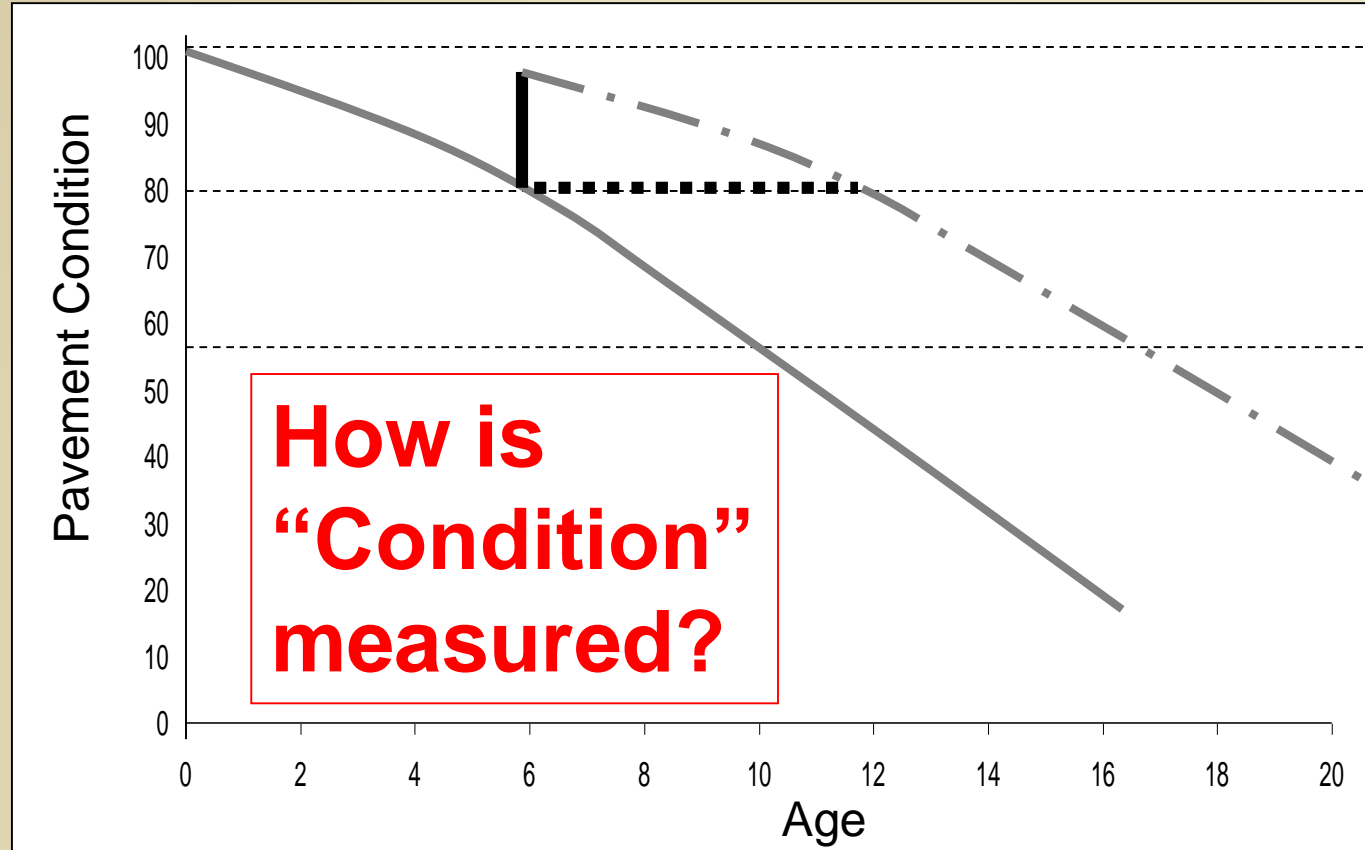
Condition Data – Maryland's Perspective

The fill-in-the-blank doesn't last long enough!

Preservation will not get chosen.

Prove that wrong:
- ➤ Quantify the performance extension
- ➤ Quality data is needed

Performance Extension

Defining Condition

Ride quality?
Cracking?
Overall?

Several ingredients make up Condition.
- Important to distinguish – and measure – **all** of them.

Types of Distresses for Preservation

Several distresses fixable (or **SLOW** ed by Preventive Maintenance

If we can identify these, **Preservation** has a **MUCH** better chance at **success.**

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Block Cracking

Block Cracking

Can network-level collection occur?

No

- **Needs reliable way to distinguish structural and surficial cracks**

Joint-Reflective Cracking

Composite Pavement – PCC joints reflect through HMA.

Joint-Reflective Cracking

Can network-level collection occur?

Yes, but

- **Needs excellent inventory (pavement structure)**

Longitudinal/Transverse Crack

Longitudinal/Transverse Cracking

Can network-level collection occur?

Not really

- **Needs reliable way to distinguish structural and surficial cracks**

Oxidation

Oxidation

Can network-level collection occur?

No

Polished Aggregate

Polished Aggregate

Can network-level collection occur?

YES

- **Needs texture and skid truck**

Rutting/Ponding

Rutting/Ponding

Can network-level collection occur?

YES

Raveling

Raveling

Can network-level collection occur?

Indirectly, Maybe
- **Needs texture and raveling detection**

Collection of Distresses

Distress Type	Needed Collection Method
Block Cracking L/T Cracking	• Reliable crack width • Network-Level Deflection • Crack sealant detection • Layer bonding
Joint-Reflection Cracking	• Reliable crack width

Collection of Distresses

Distress Type	Needed Collection Method
Oxidation	• Color
Polished Aggregate	• Texture • Skid Truck
Rutting/Ponding	• ARAN (or similar)
Raveling	• Texture • Raveling

Types of Condition Data

Currently collected:

- Cracking – by zone
- Rutting
- Skid
- Texture
- Raveling

Collection Methods

Need:

- Color/Aging
- Network-Level Deflection
- Network-Level Layer Bonding
- Crack Sealant Detection

Types of Condition Data for Preservation

What preservation treatments are affected by missing data?

Pretty much all of them.

Example – Micro-surfacing

What does this fix or ?

- Low severity surface cracks
- Rutting
- Friction problems
- Aging
- Raveling

Example – Micro-surfacing

Can we collect this?

- ~~Low severity surface cracks~~
- Rutting
- Friction problems
- Aging
- Raveling

Example – Micro-surfacing

Can we collect this?

- ~~Low severity surface cracks~~
- Rutting
- Friction problems
- ~~Aging~~
- Raveling

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Example – Micro-surfacing

Can we collect this?

- ~~Low severity surface cracks~~
- Rutting
- Friction problems
- ~~Aging~~
- Raveling

Condition Data

But Wait...

THERE'S MORE!

Quality of Condition Data

Small condition window for Preservation

- If road really is better – preservation is not cost-effective
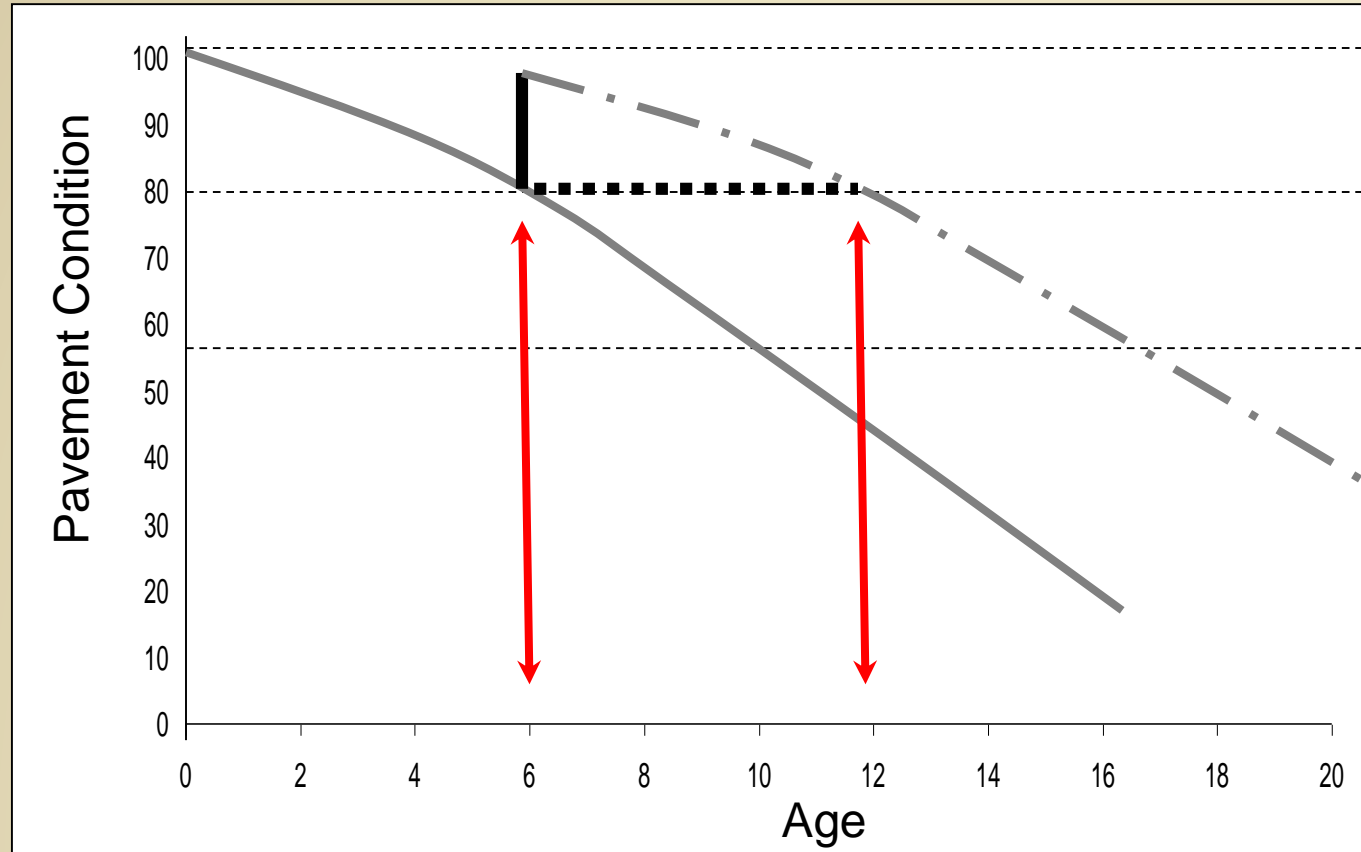- If road really is worse – too late for preservation
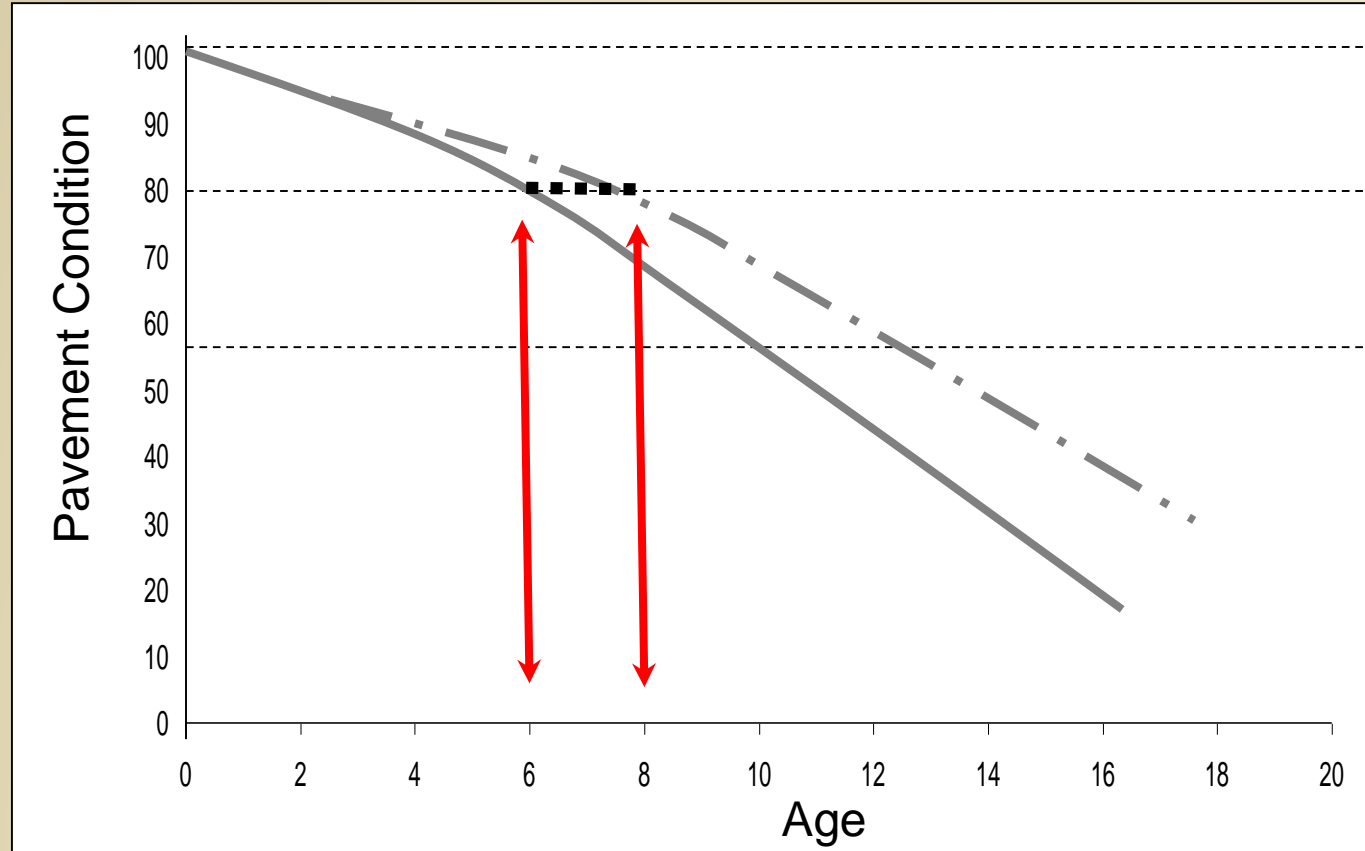
Quality of Condition Data

The dog that didn't bark.

- Life-extending benefit of preservation =
  - ➢ Performance with preservation
                VERSUS
  - ➢ Performance without preservation

Life Extension – Condition Improvement

Life Extension – Slower Deterioration

Quality of Condition Data

The dog that didn't bark.

- For this concept to work:
  - ➤ Little room for data variability
  - ➤ Data MUST be high quality

Summary of Needs

Do you want preservation?

We need:

Well, do ya, punk?

- Texture
- Raveling
- Ponding
- Color

- Bonding of layers
- Network-level deflection
- Reliable crack width
- Crack sealant

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Summary of Needs

And we need this data to be:

- Objective
- Reliable
- Repeatable
- Fast

Summary of Needs

Once we have it, we can:

- Determine how long each preservation treatment **actually** lasts

- **Competently** identify preservation candidates

Questions?

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