Decision Matrix for Pavement Preservation

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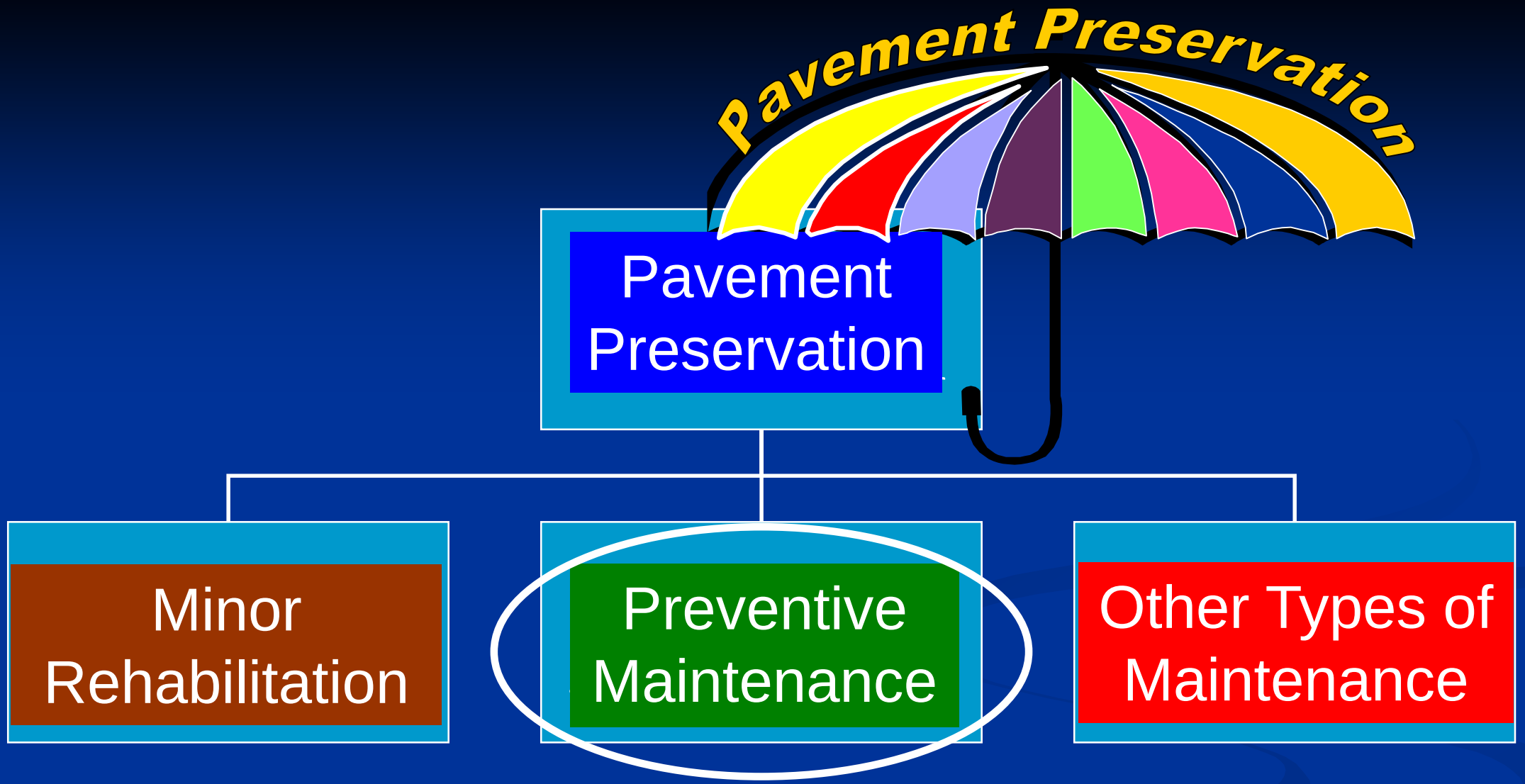
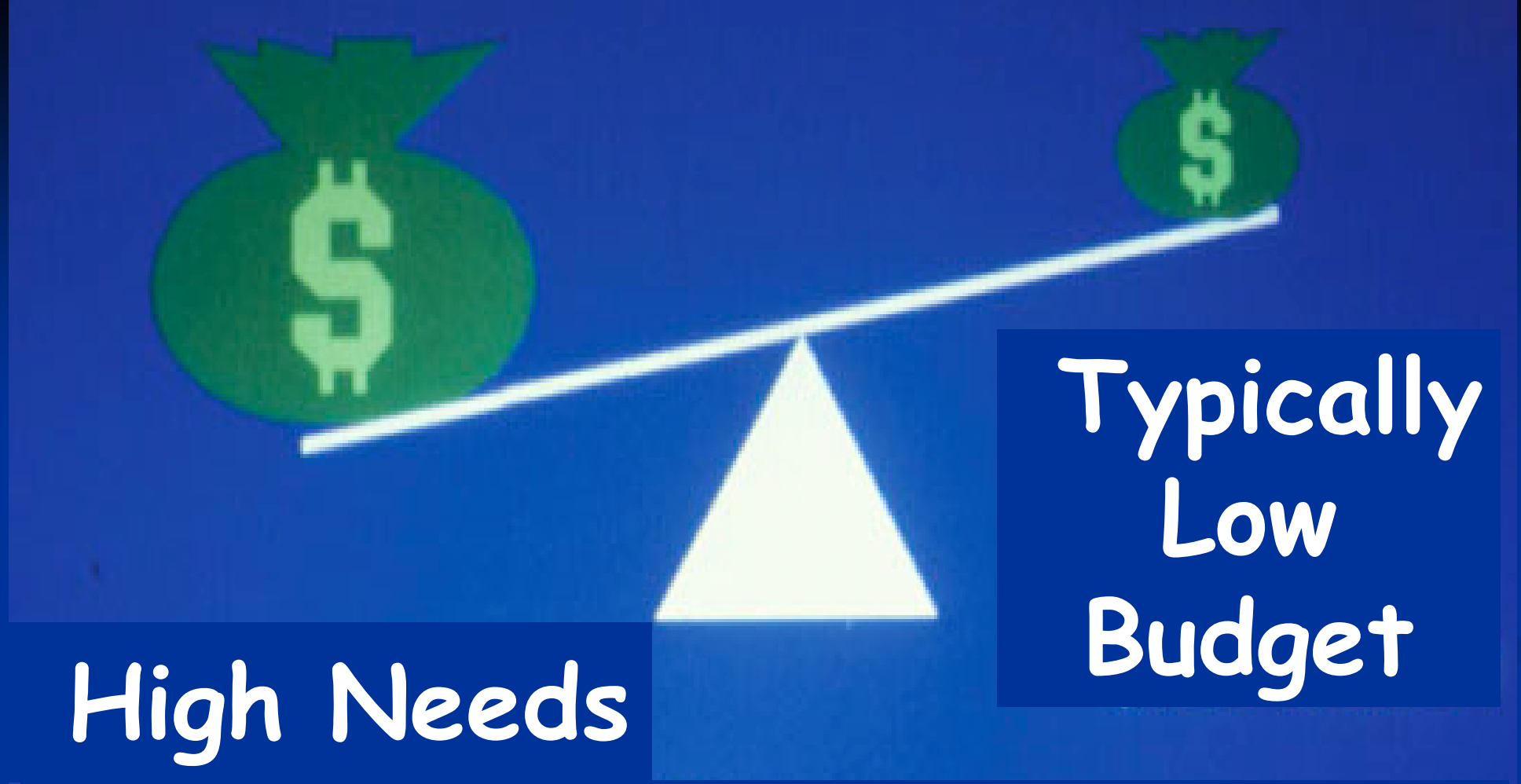
Outline

1. Concept of preventive maintenance
2. Effectiveness of treatments
3. Treatment selection



- It excludes major rehabilitation or reconstruction



Typically Low Budget

High Needs

Preventive Maintenance Could be the Answer

When should a pavement preventive maintenance treatment be applied?

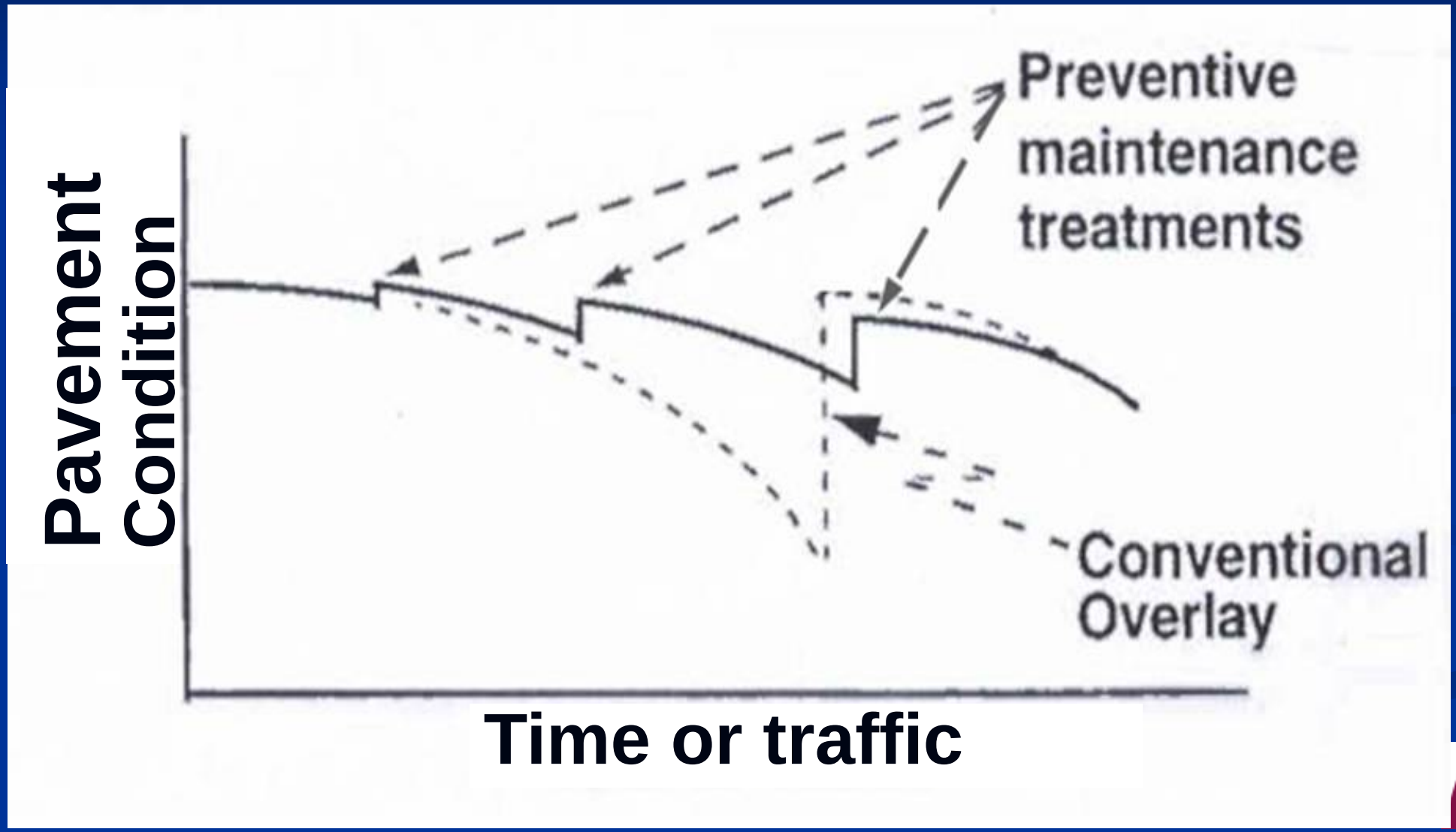
How much oil should a car burn before changing oil?

What is Preventive Maintenance?

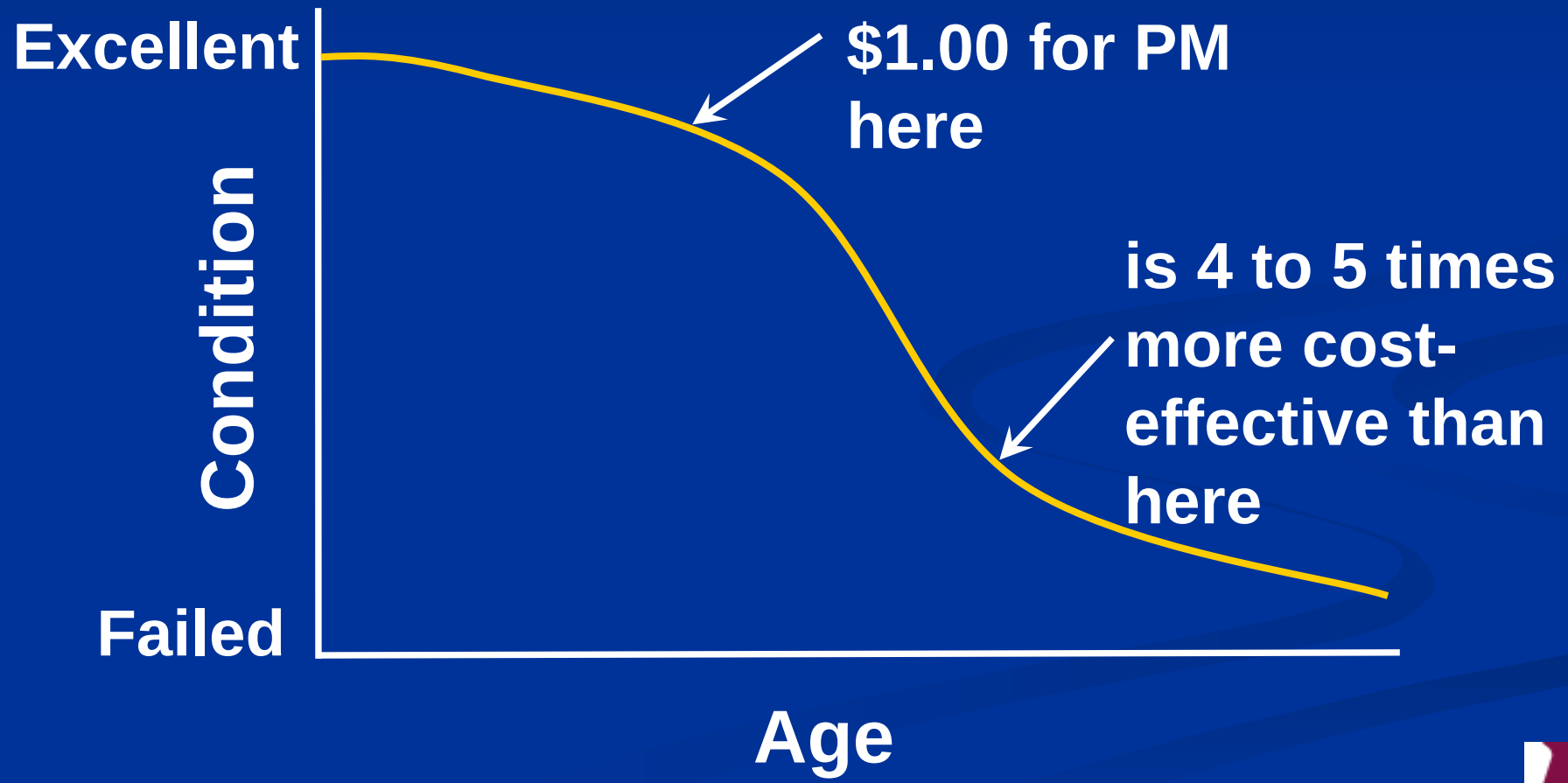
Cost effective treatments that:

- preserve the pavement system
- retard future deterioration
- maintain or improve the functional condition (without increasing structural capacity)

Program Strategy



Effective Preventive Maintenance



Candidate for PM?

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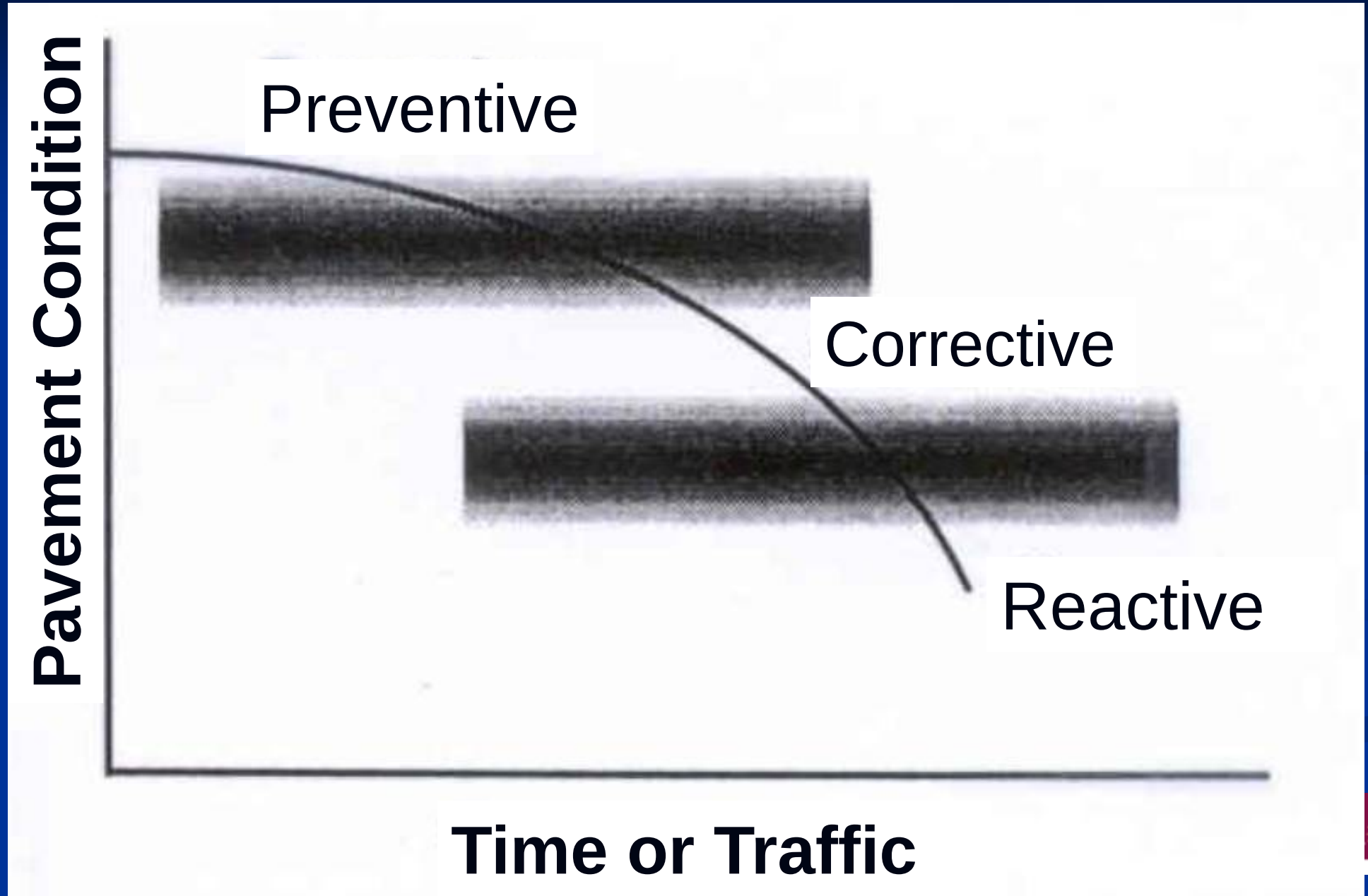
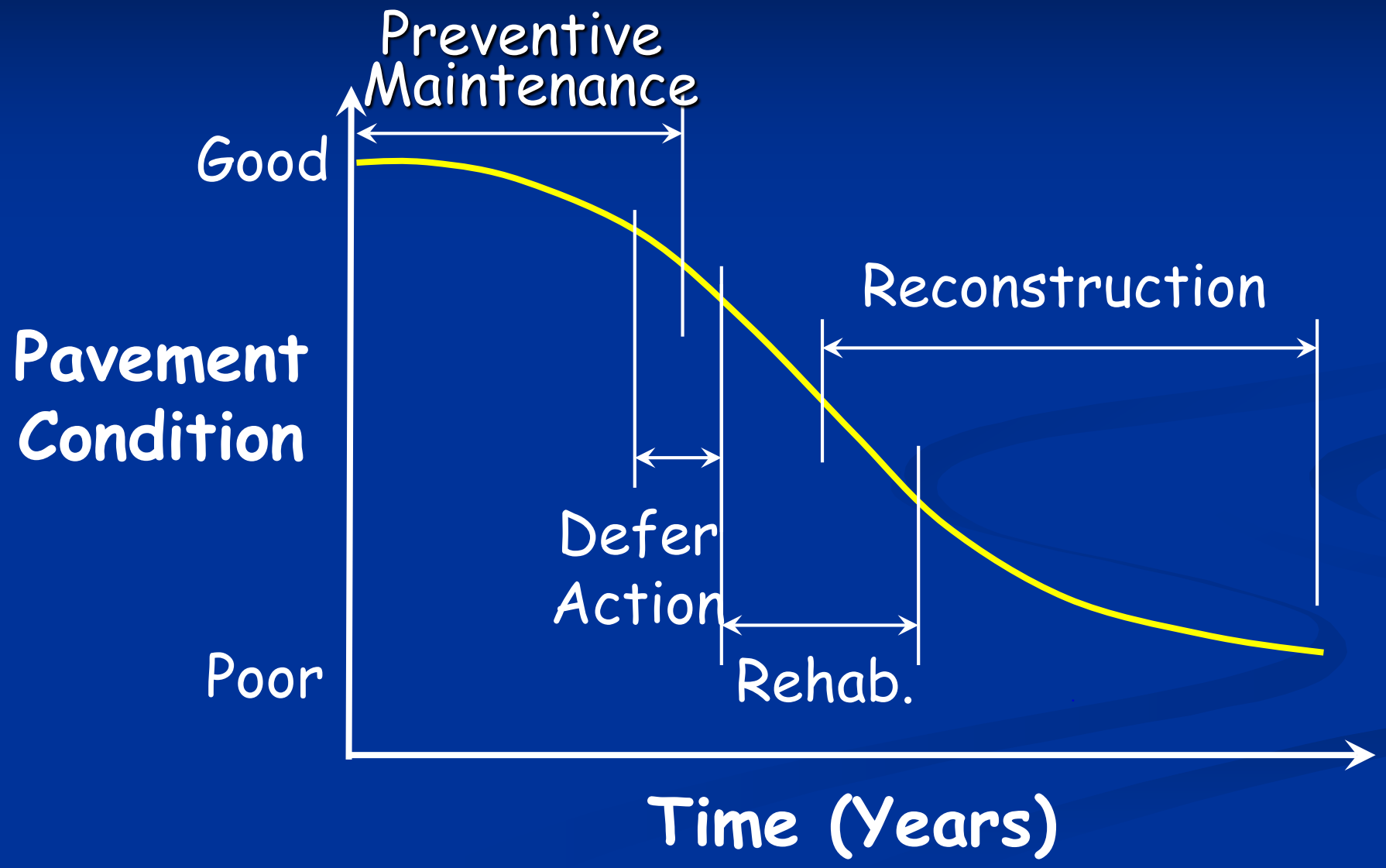
Candidate for PM?

- Minor surface defect
- No structural damage

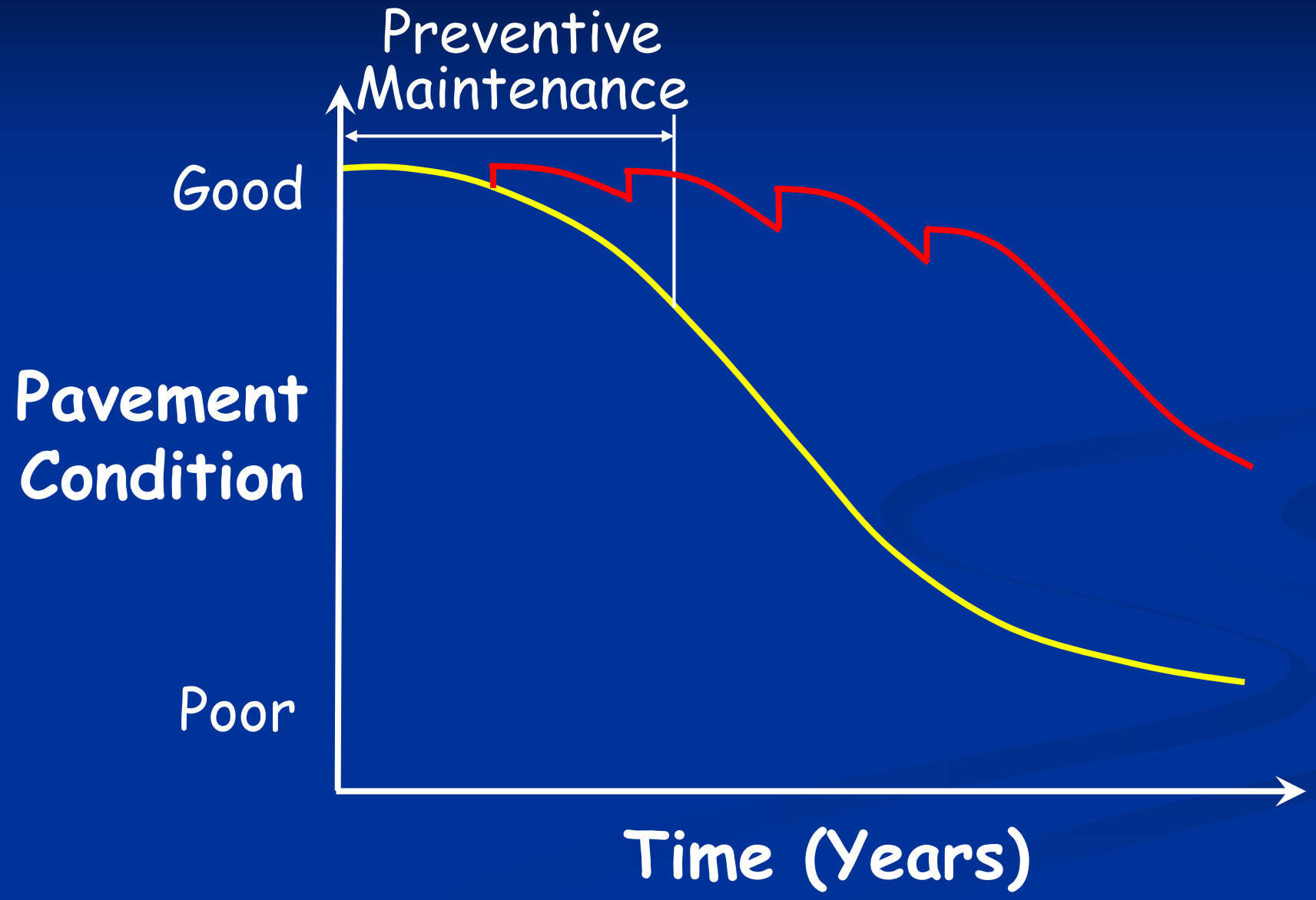
Maintenance Types



When Should PM be Applied?



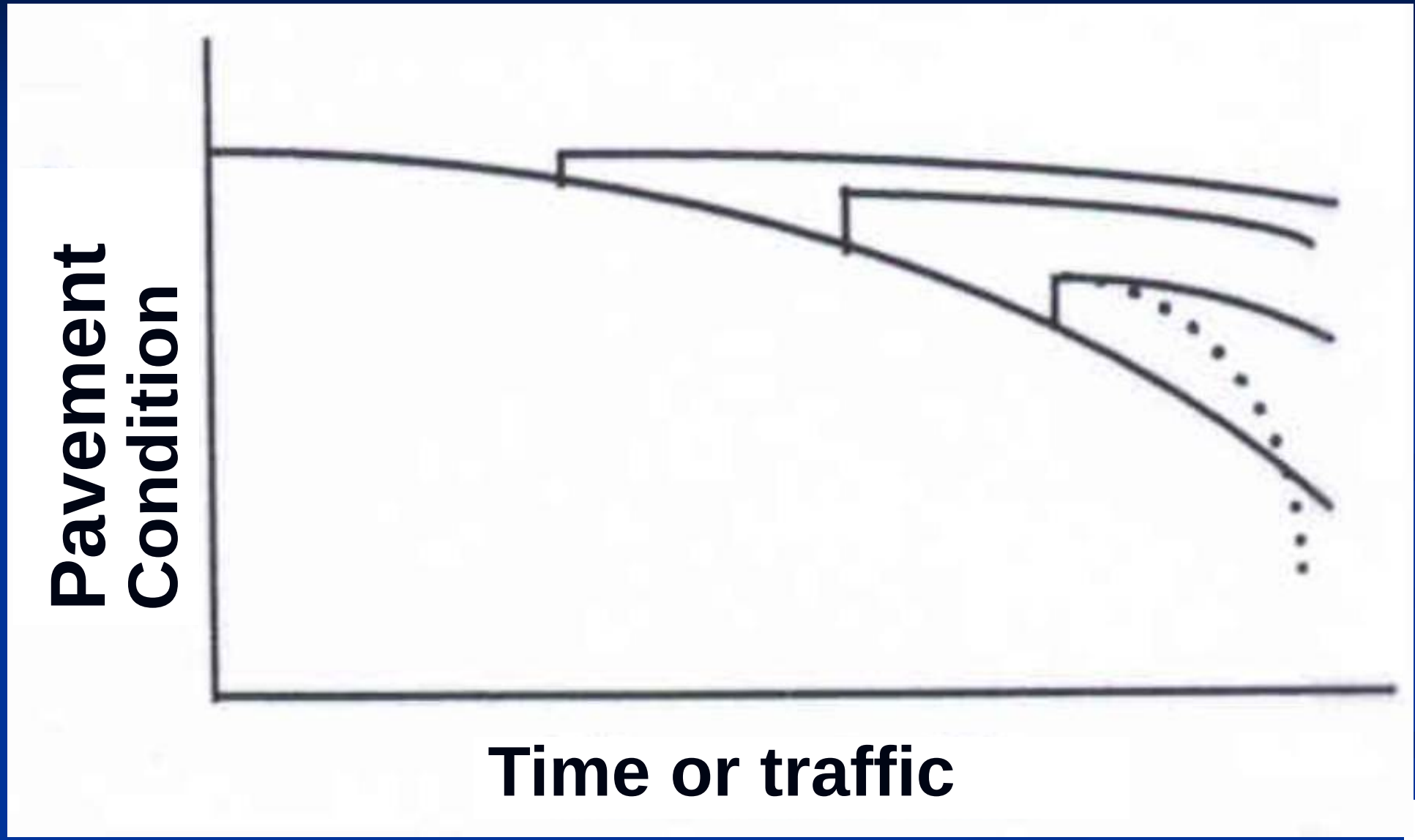
What will PM Do?



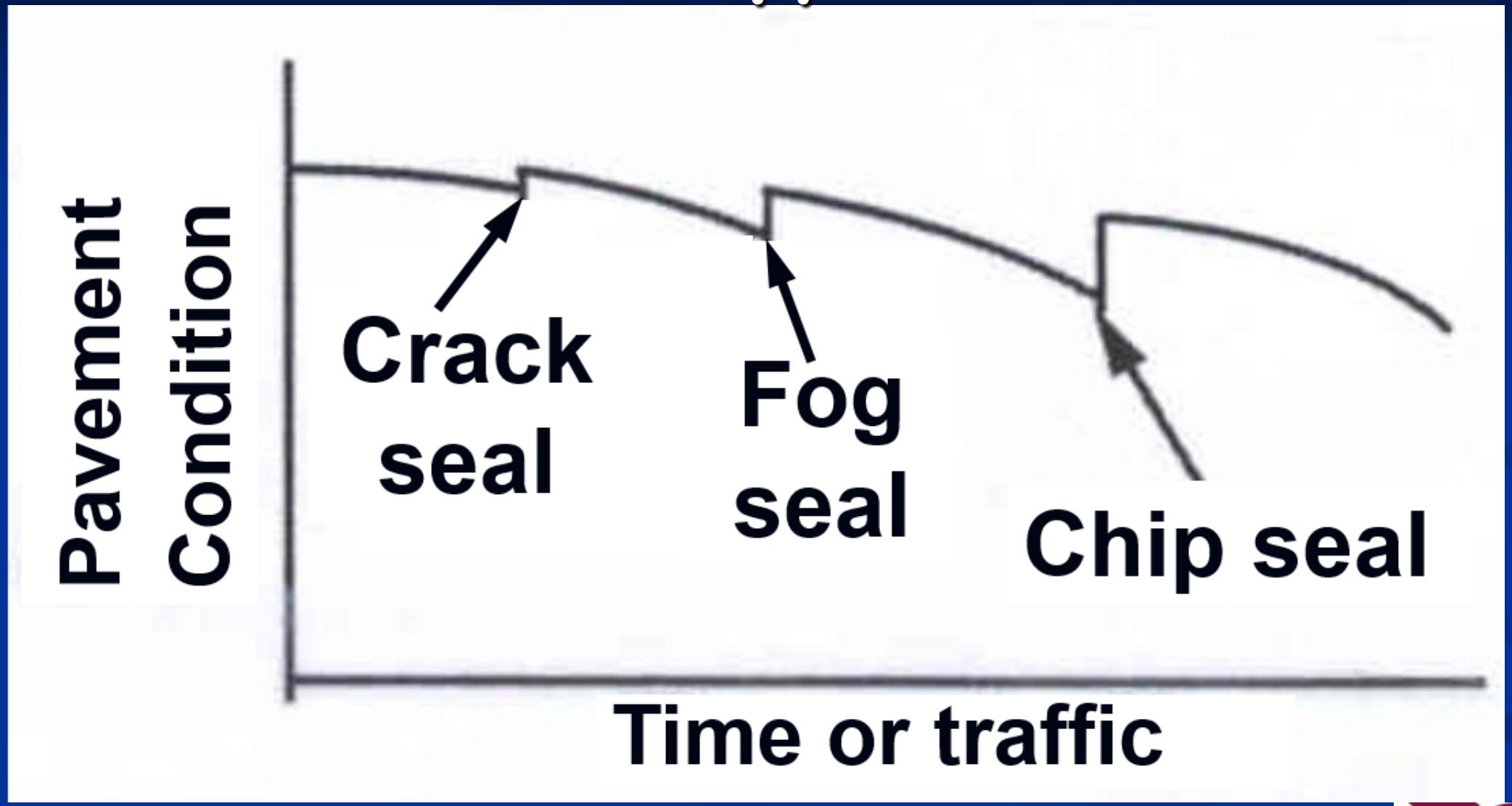
When is it Too Late for PM?

- Potholes
- Severely deteriorated cracks
- Unstable rutting
- Shoving
- Weak structure

How Long Would it Last?



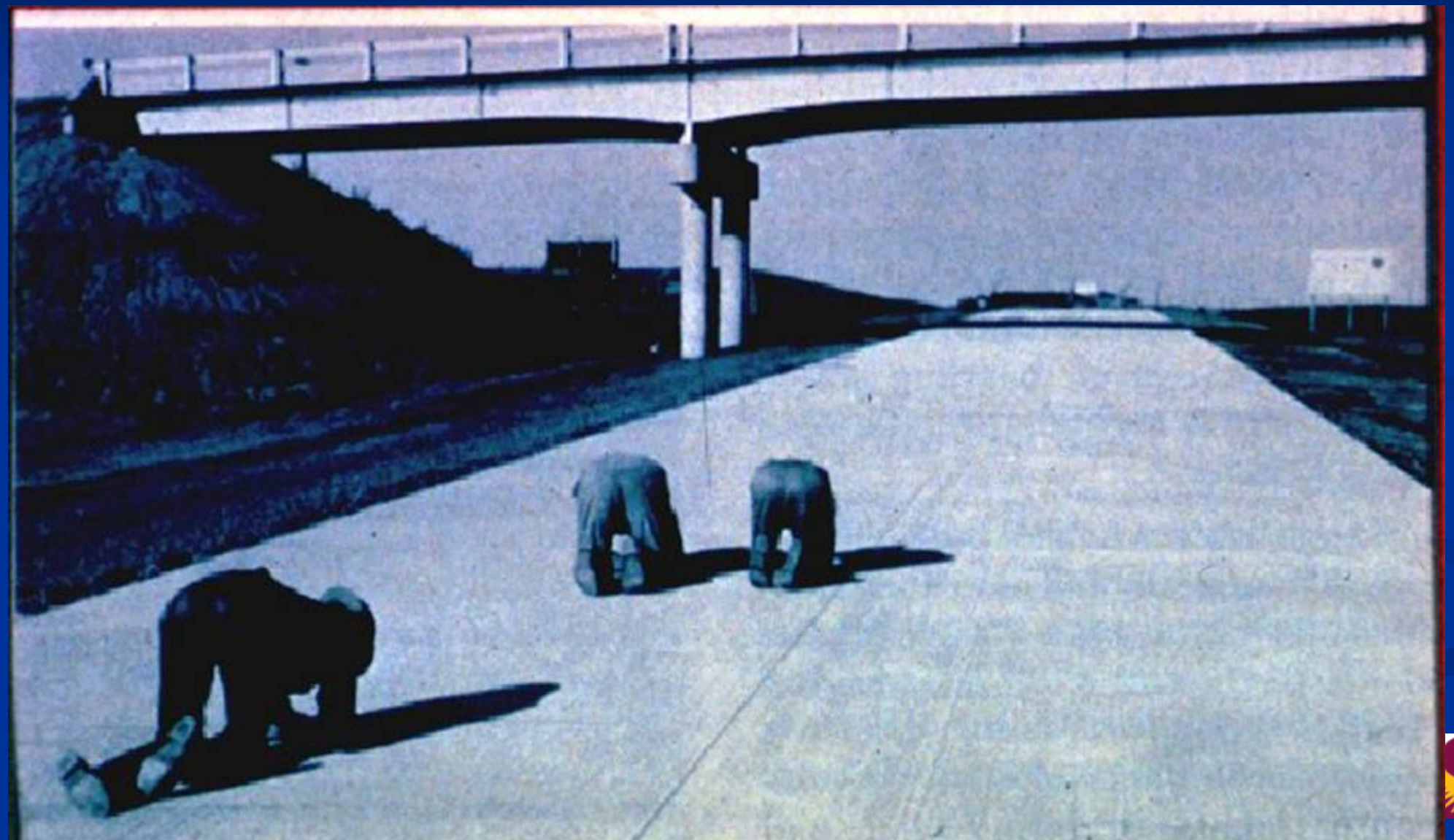
Periodic Applications



How to Determine Condition

- Conduct surveys
  - Type, extent, and severity of distress
- Additional information / historical records
- Engineering judgment

Knees and Elbows Survey

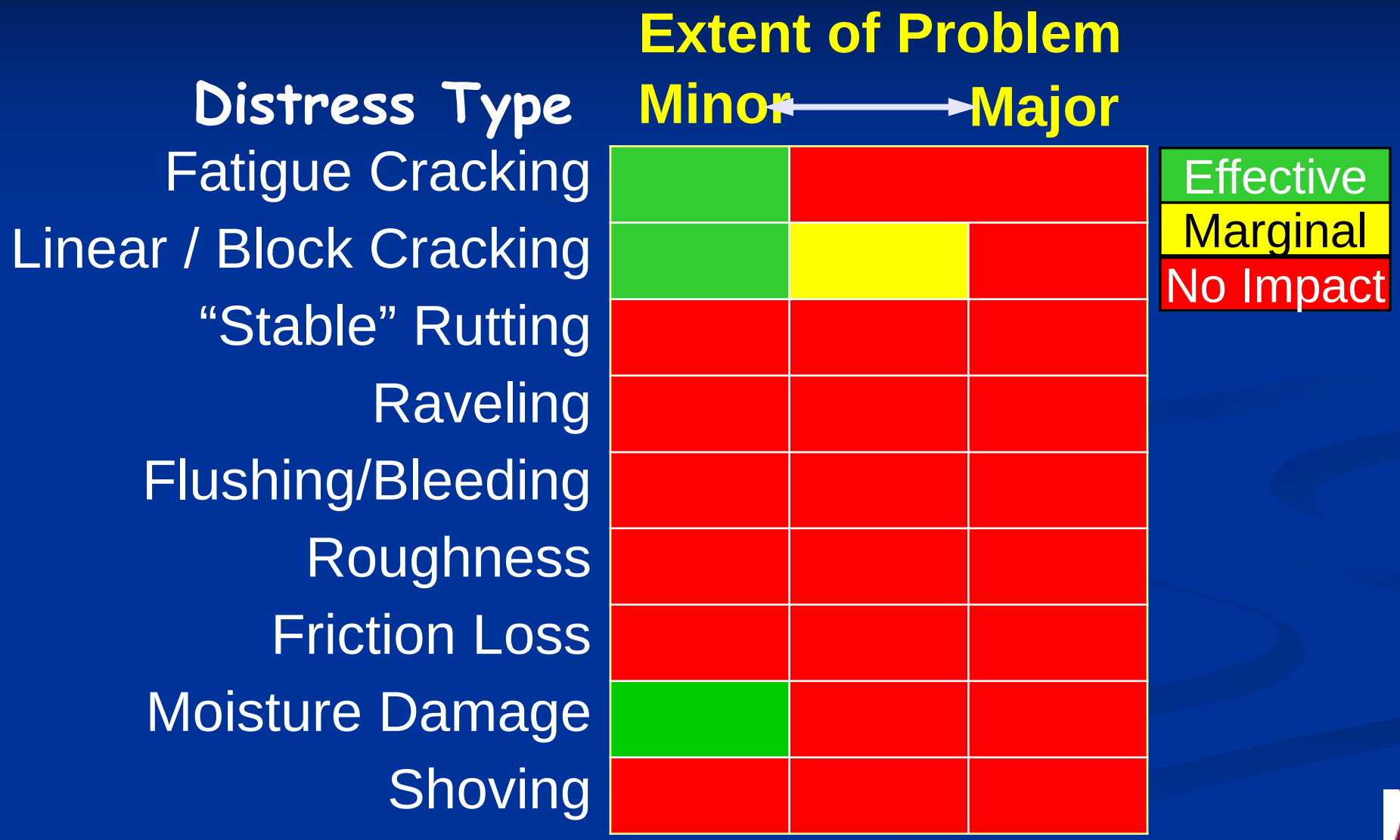


Preservation Types

- Crack treatments
- Surface treatments
  - Fog seal, chip seal, scrub seal, slurry seal, microsurfacing, ultrathin wearing course
- Thin/ultrathin HMA overlays
- Recycling treatments

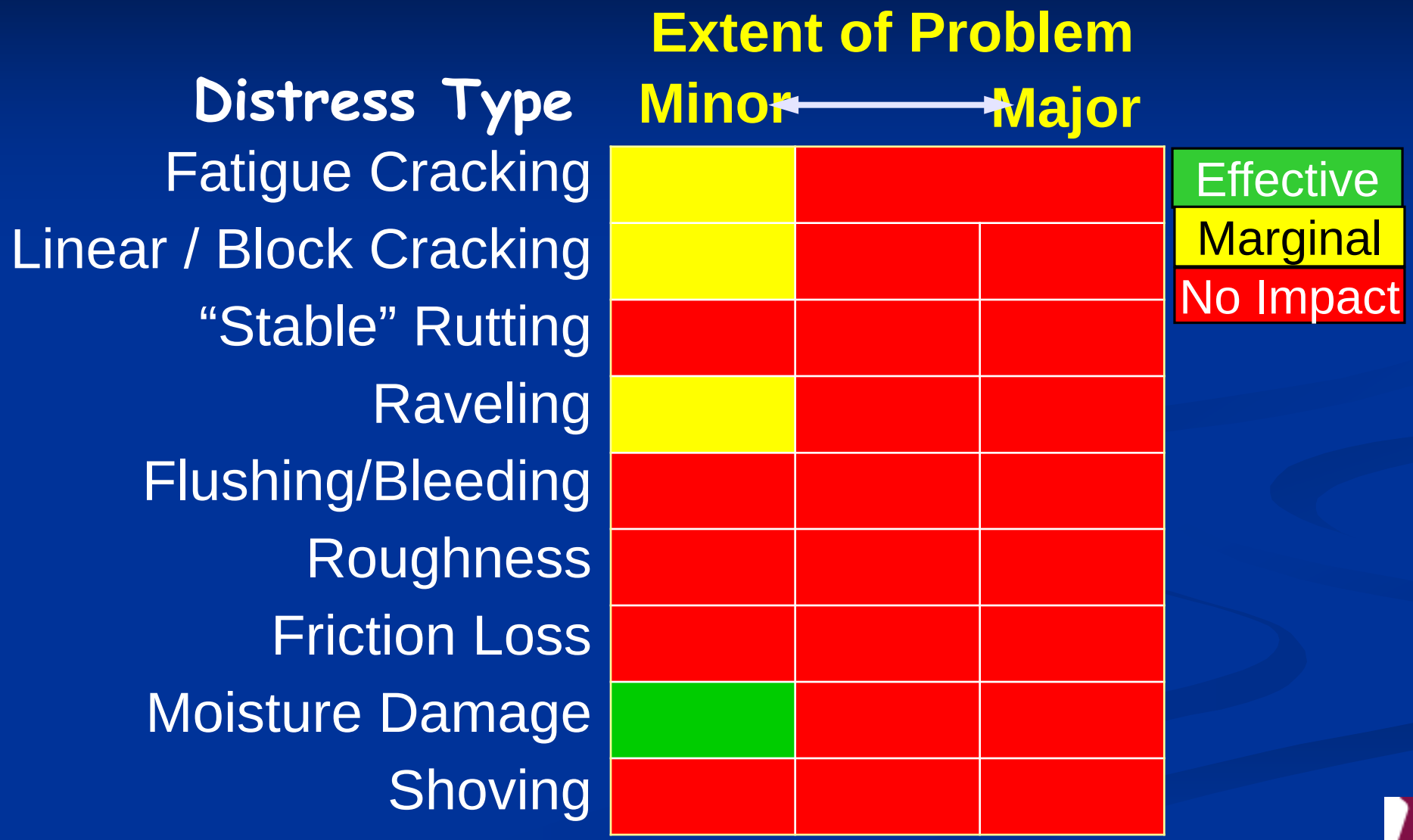
When is crack sealing effective?

Effectiveness of Crack Sealing



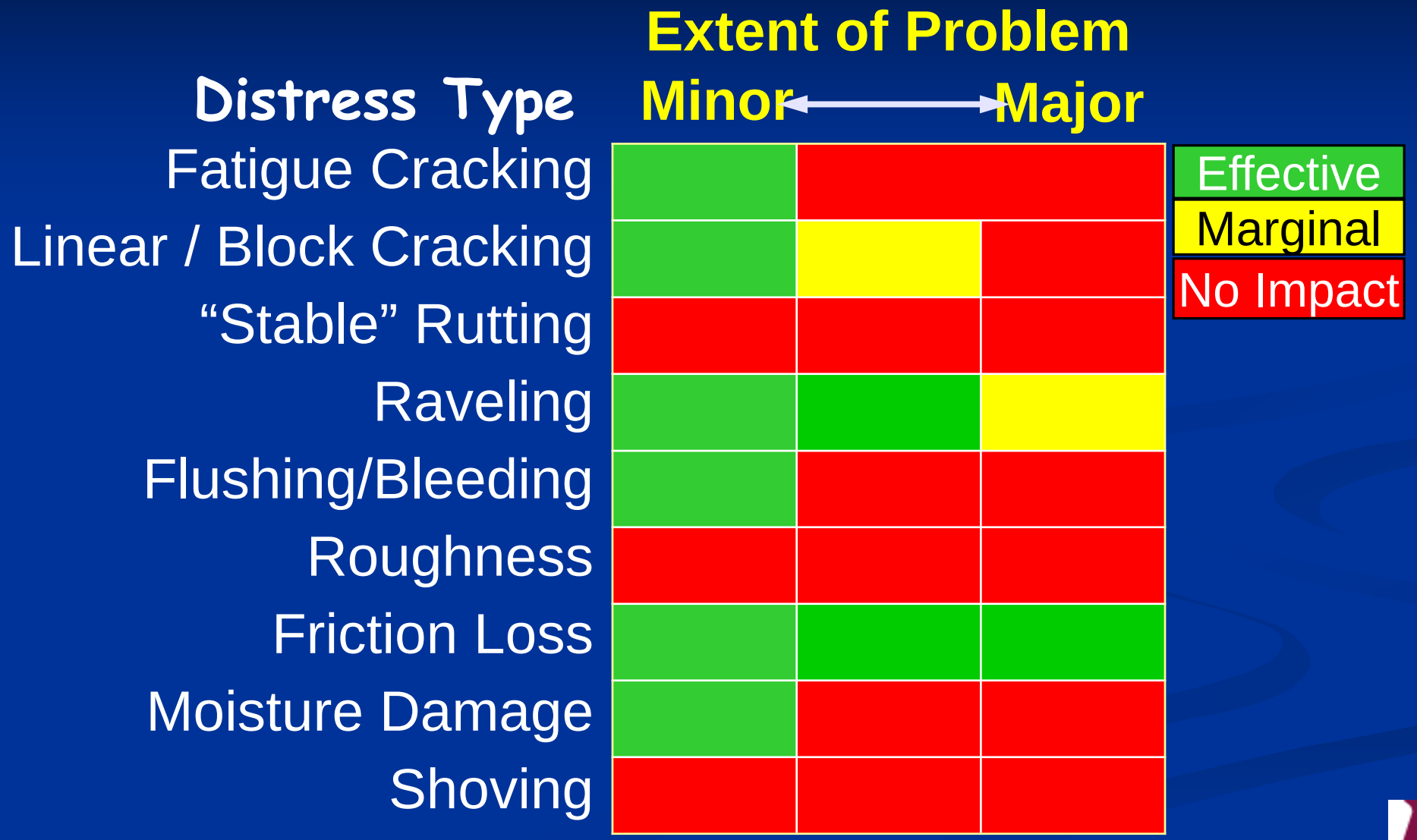
When is fog seal effective?

Effectiveness of Fog Seal



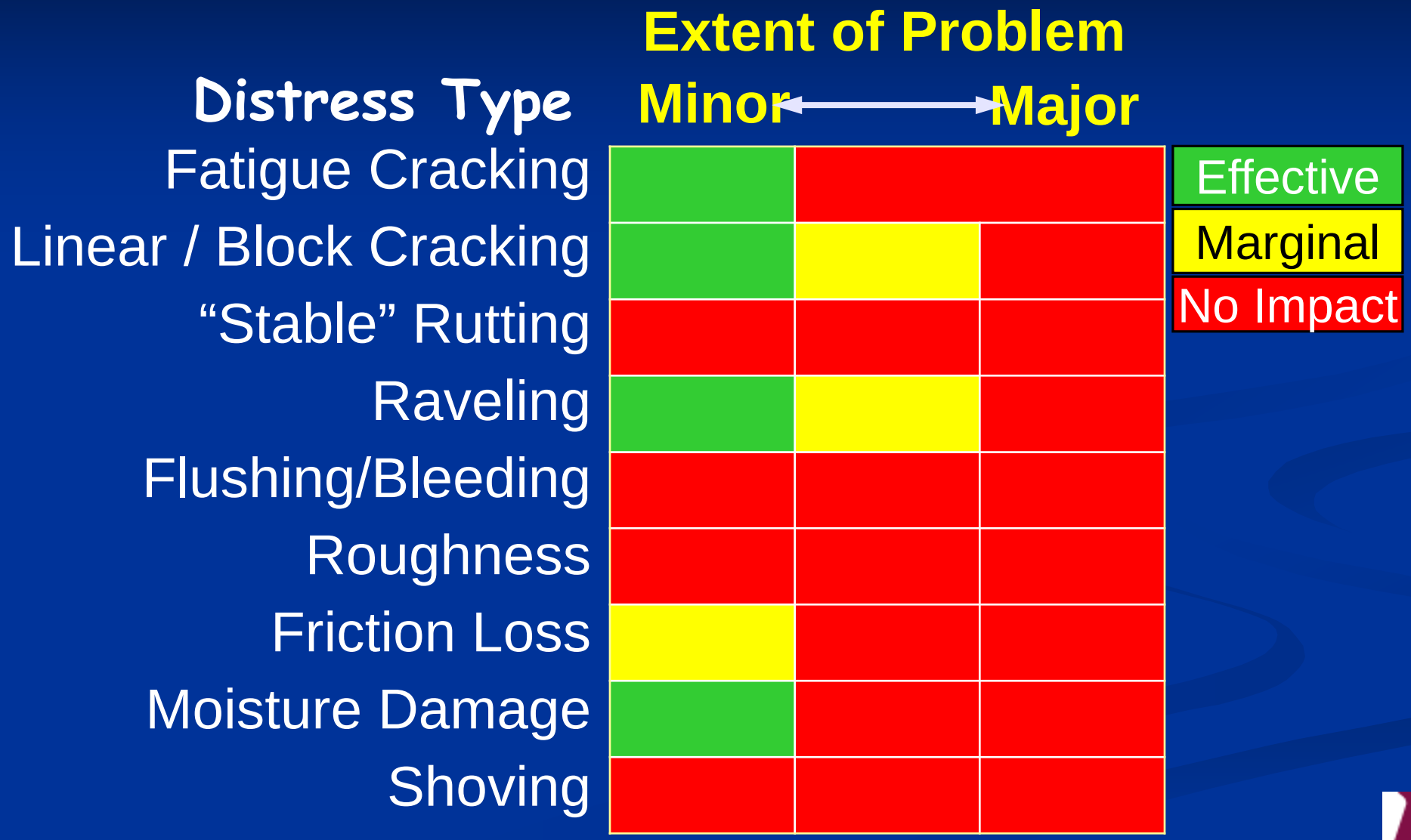
When is chip seal effective?

Effectiveness of Chip Seal



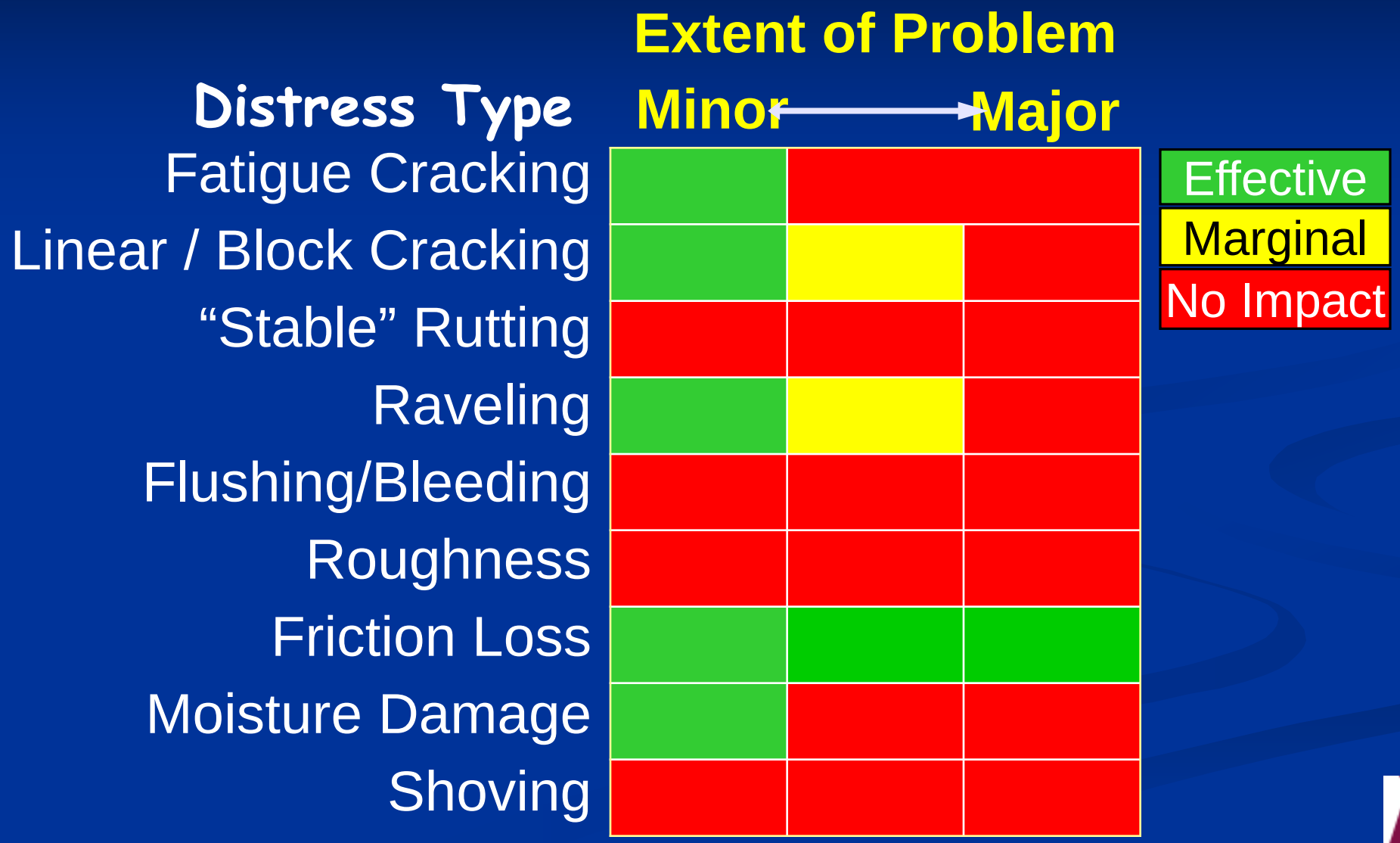
When is scrub seal effective?

Effectiveness of Scrub Seal



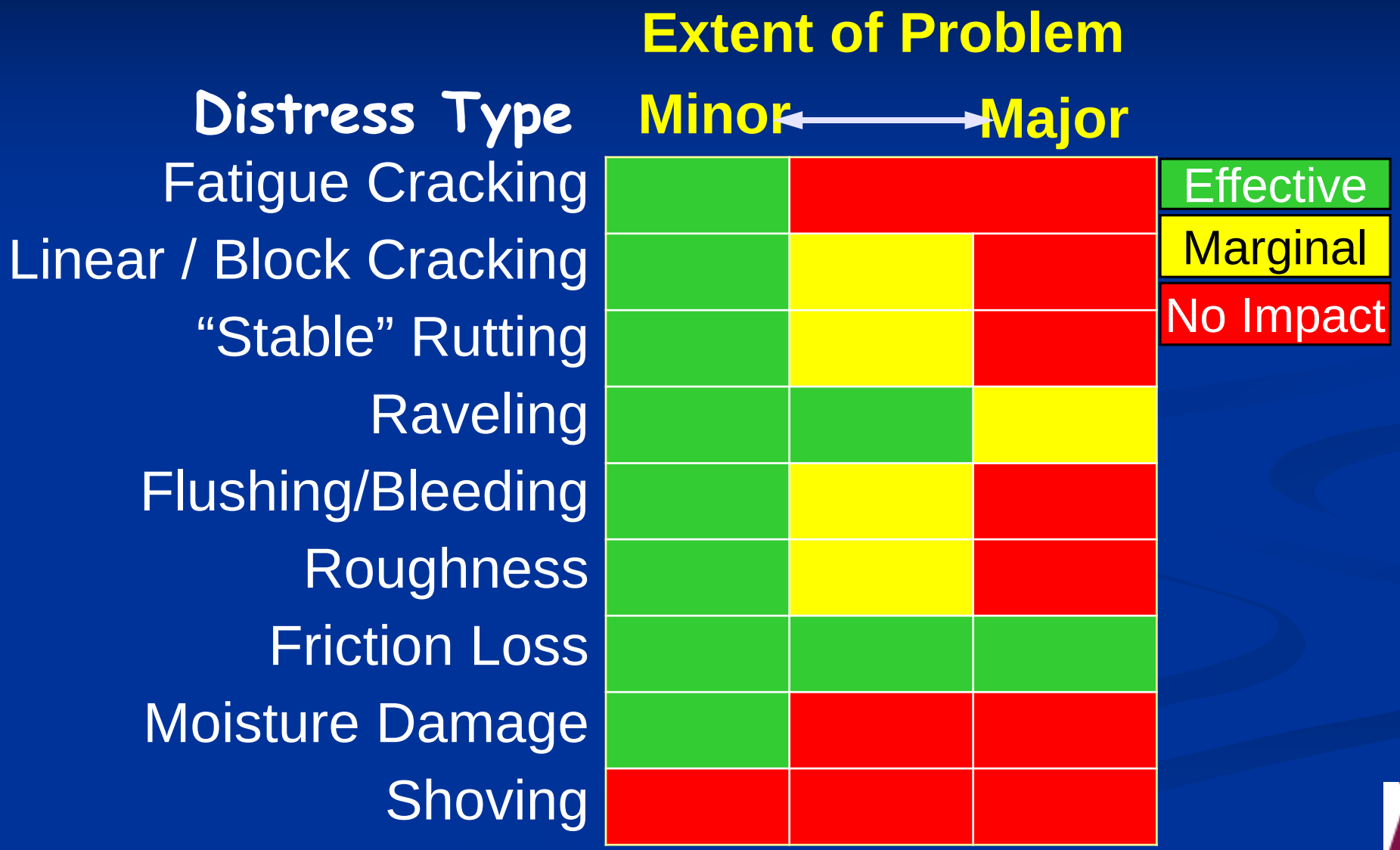
When is slurry seal effective?

Effectiveness of Slurry Seal



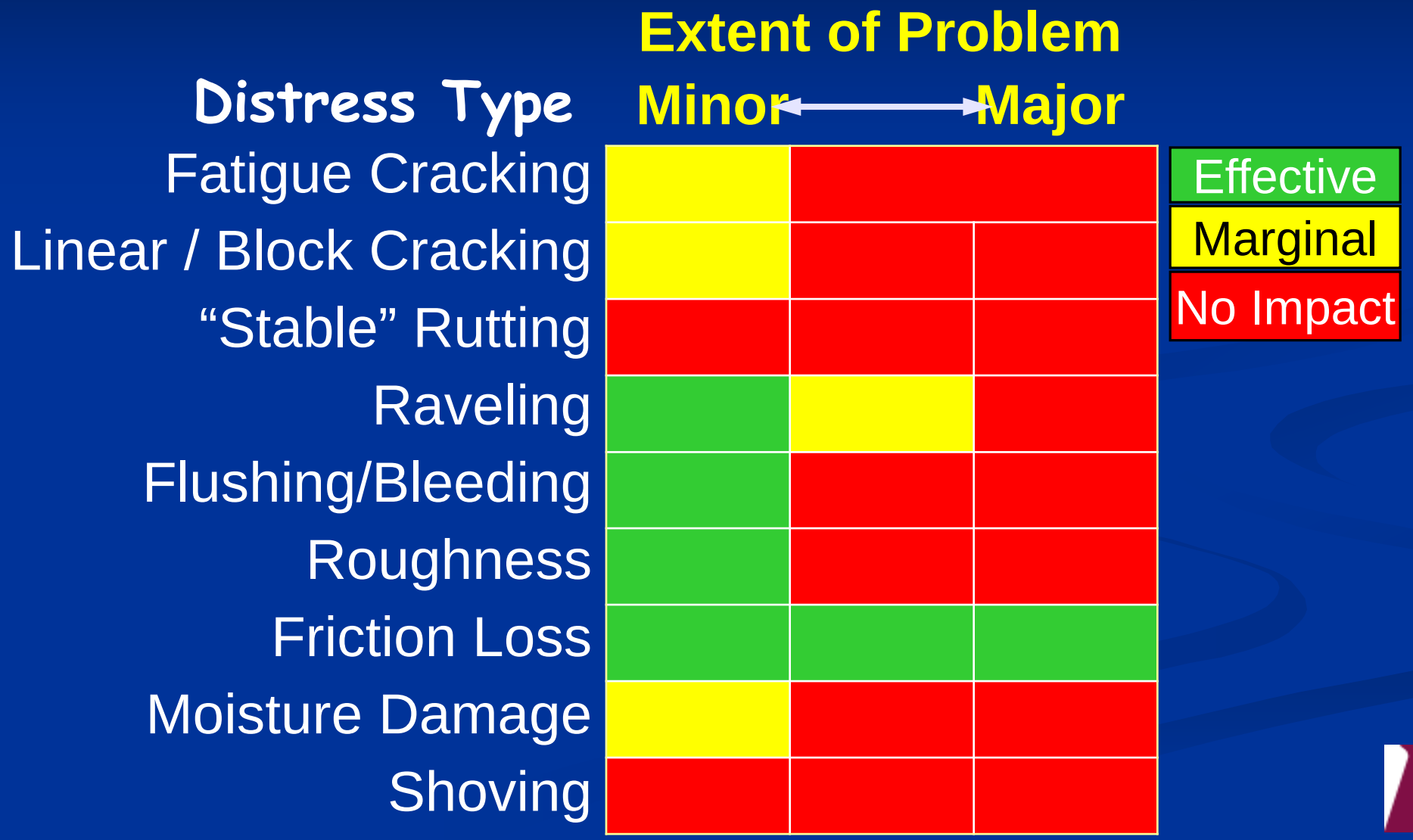
When is microsurfacing effective?

Effectiveness of Microsurfacing



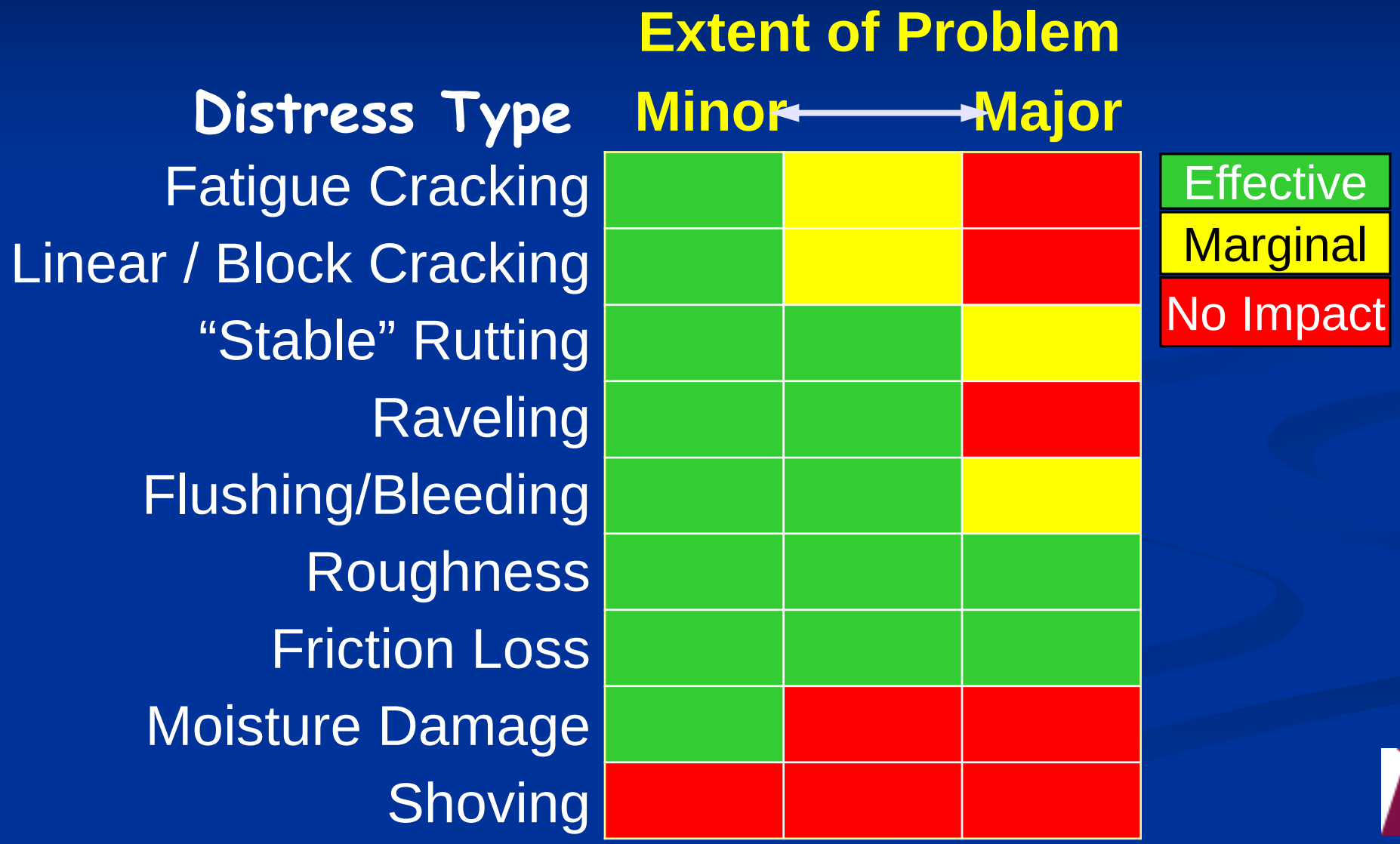
When is Ultrathin Bonded Wearing Course effective?

Effectiveness of Ultrathin Bonded Wearing Course (Novachip)

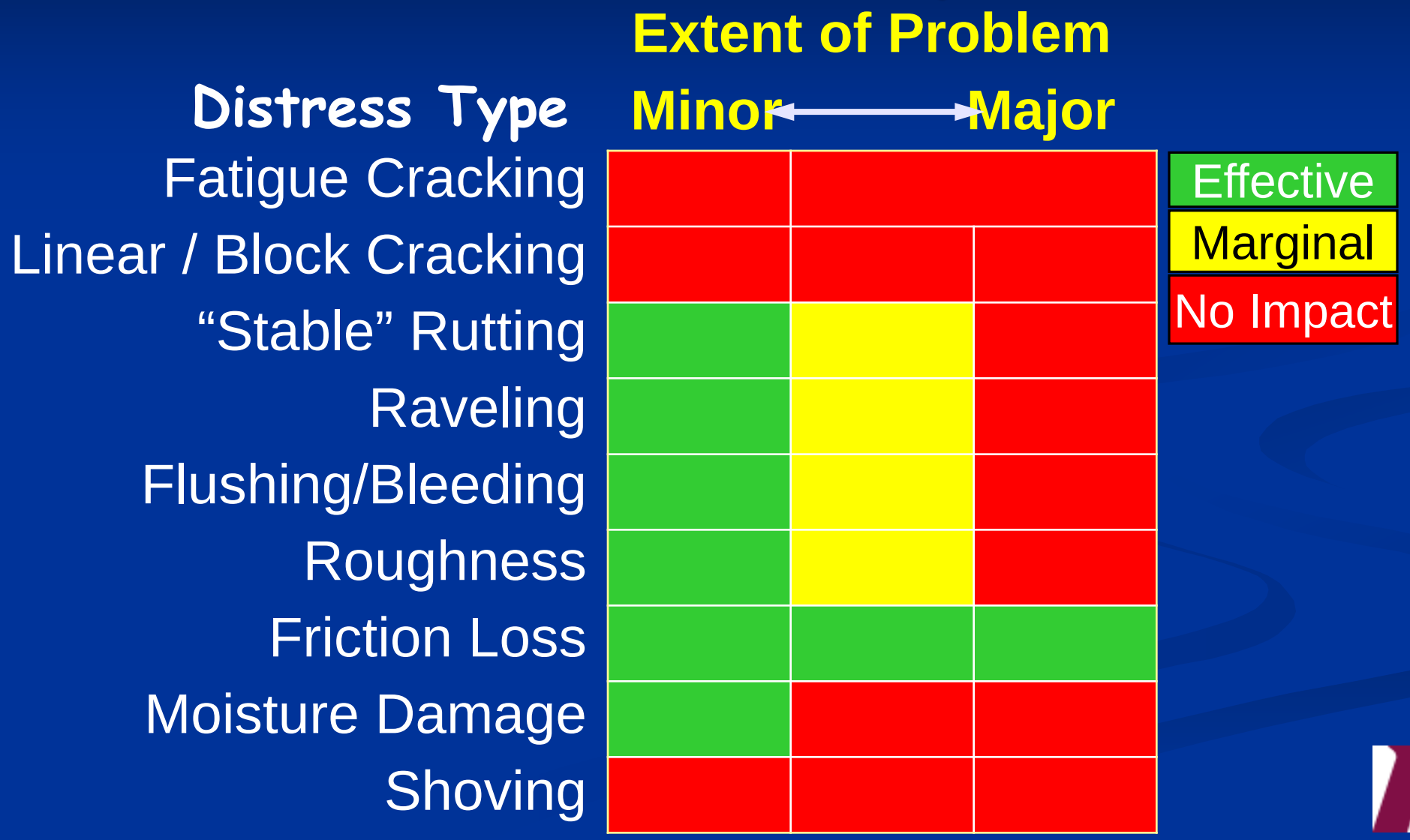


When is in-place recycling effective?

Effectiveness of Cold & Hot In-Place Recycling

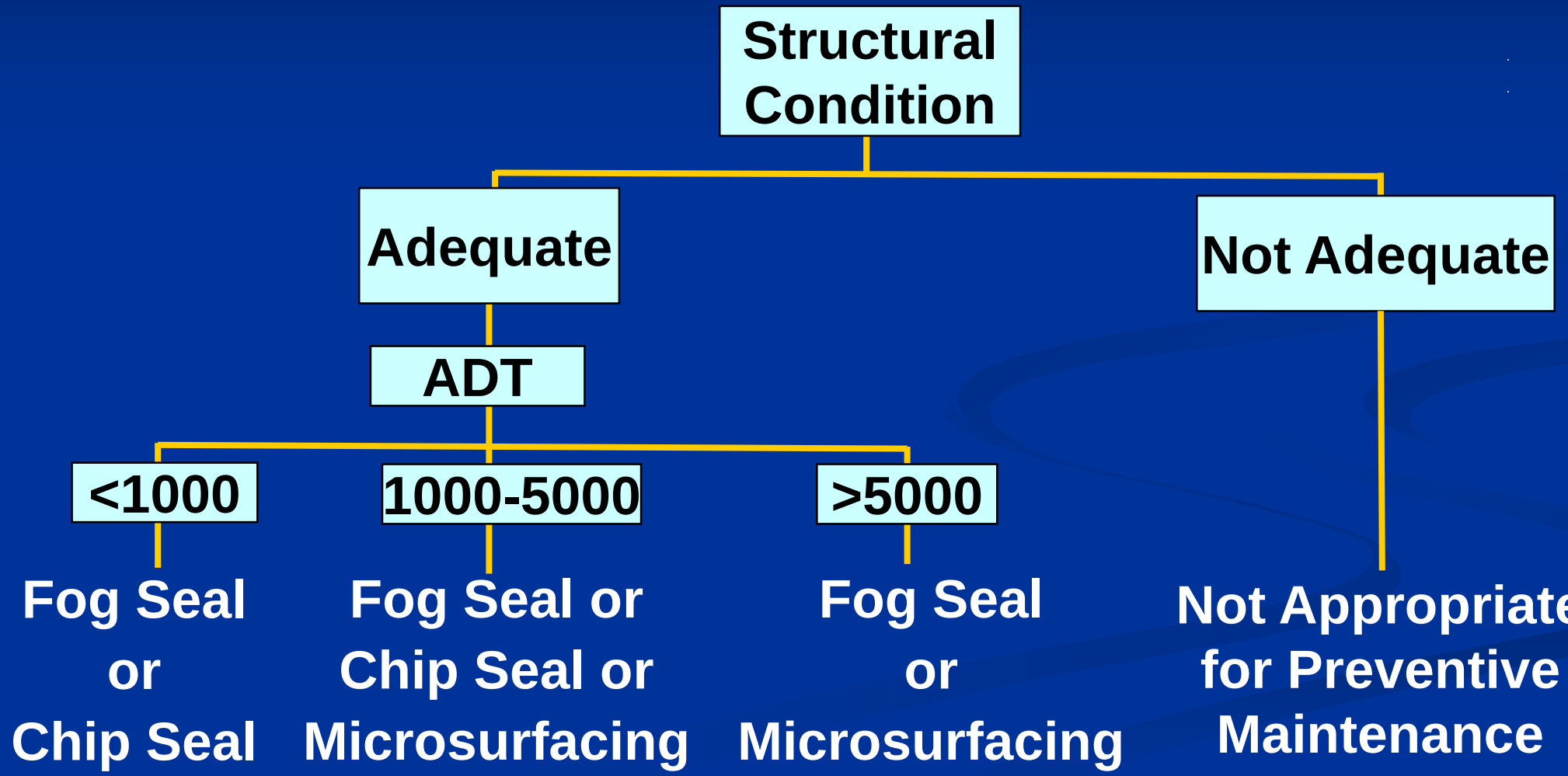


Effectiveness of Milling with Thin HMA Overlay



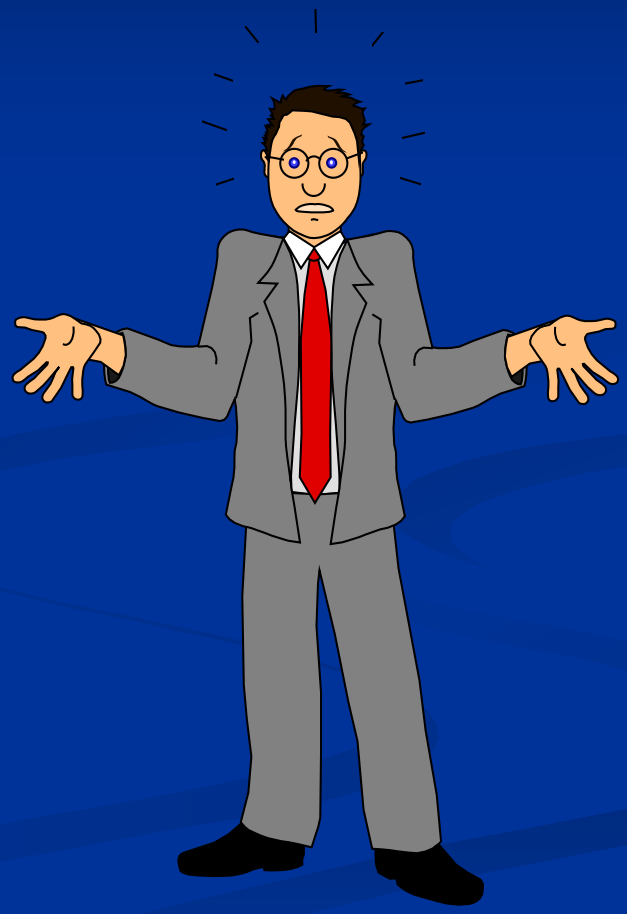
Example of Decision Tree

Raveling and Weathering



Factors for Treatment Selection

1. Cost
2. Performance
3. Traffic
4. Other factors
5. Optimization



AGC Pavement Preservation Committee

Pavement Condition Range	Qualified Treatments	Cost Range
100 - 90		
90 - 70		
70 - 50		
50 - 30		
30 - 0		

Conclusions

1. Applying the treatment on good roads is more cost-effective
2. Treatment effectiveness varies depending on pavement condition
3. Treatment selection should be based on cost, traffic and performance

Thanks for your attention!

Any Questions?