Preserving What You've Built Through Pavement Management

Katie Zimmerman, P.E.
Applied Pavement Technology, Inc.
(APTech)

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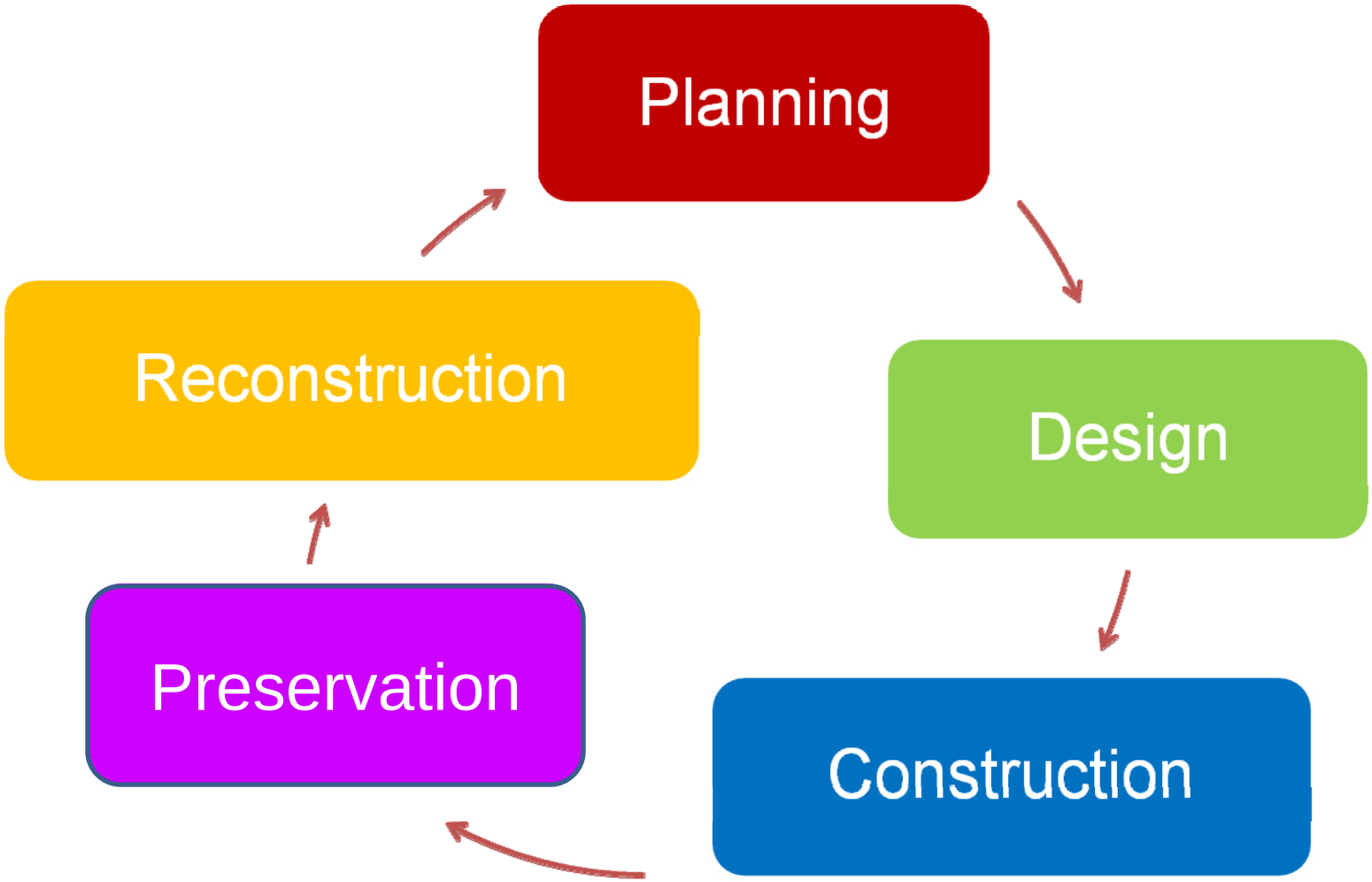
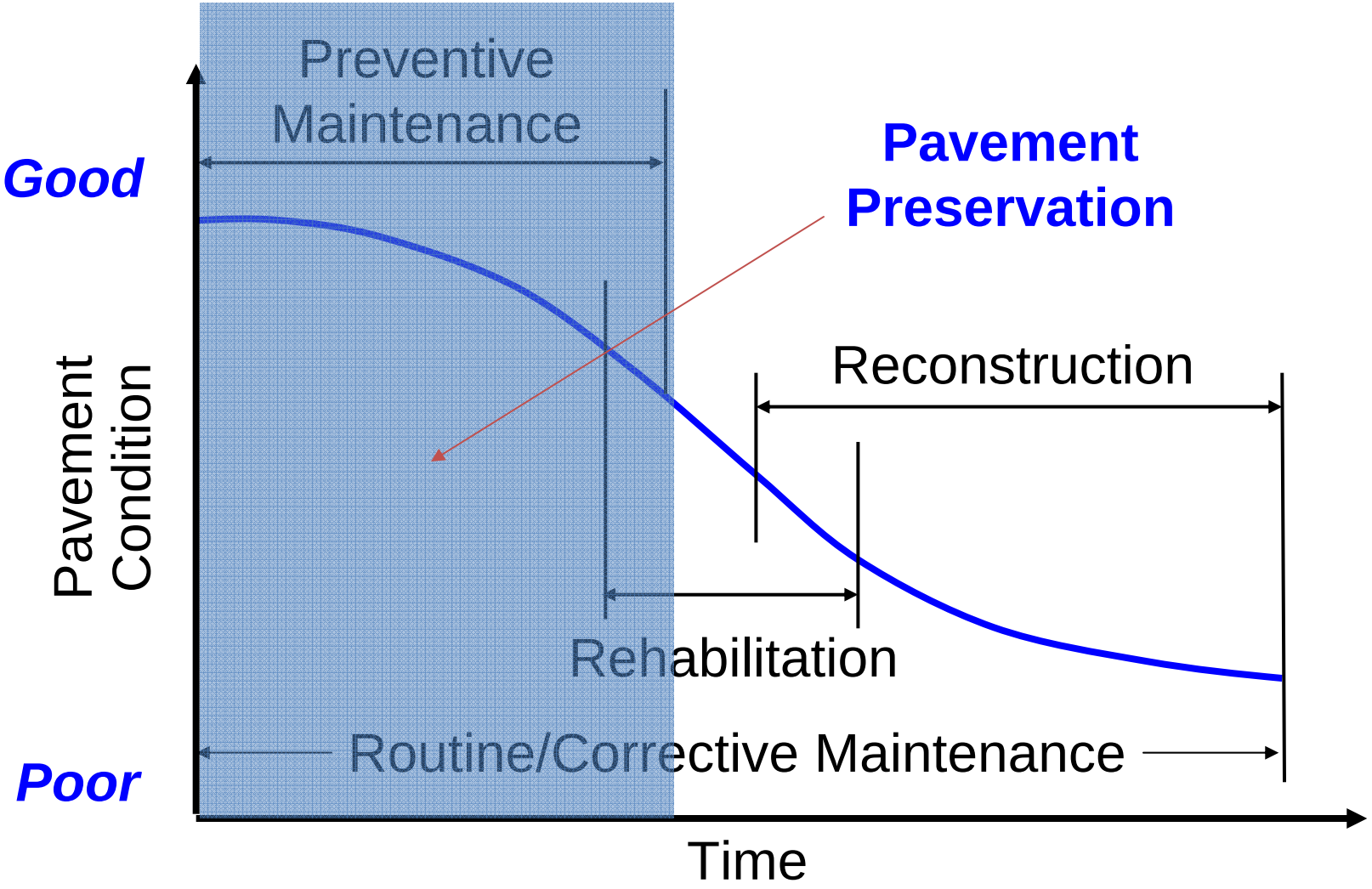
applied pavement TECHNOLOGY

providing engineering solutions to improve pavement performance

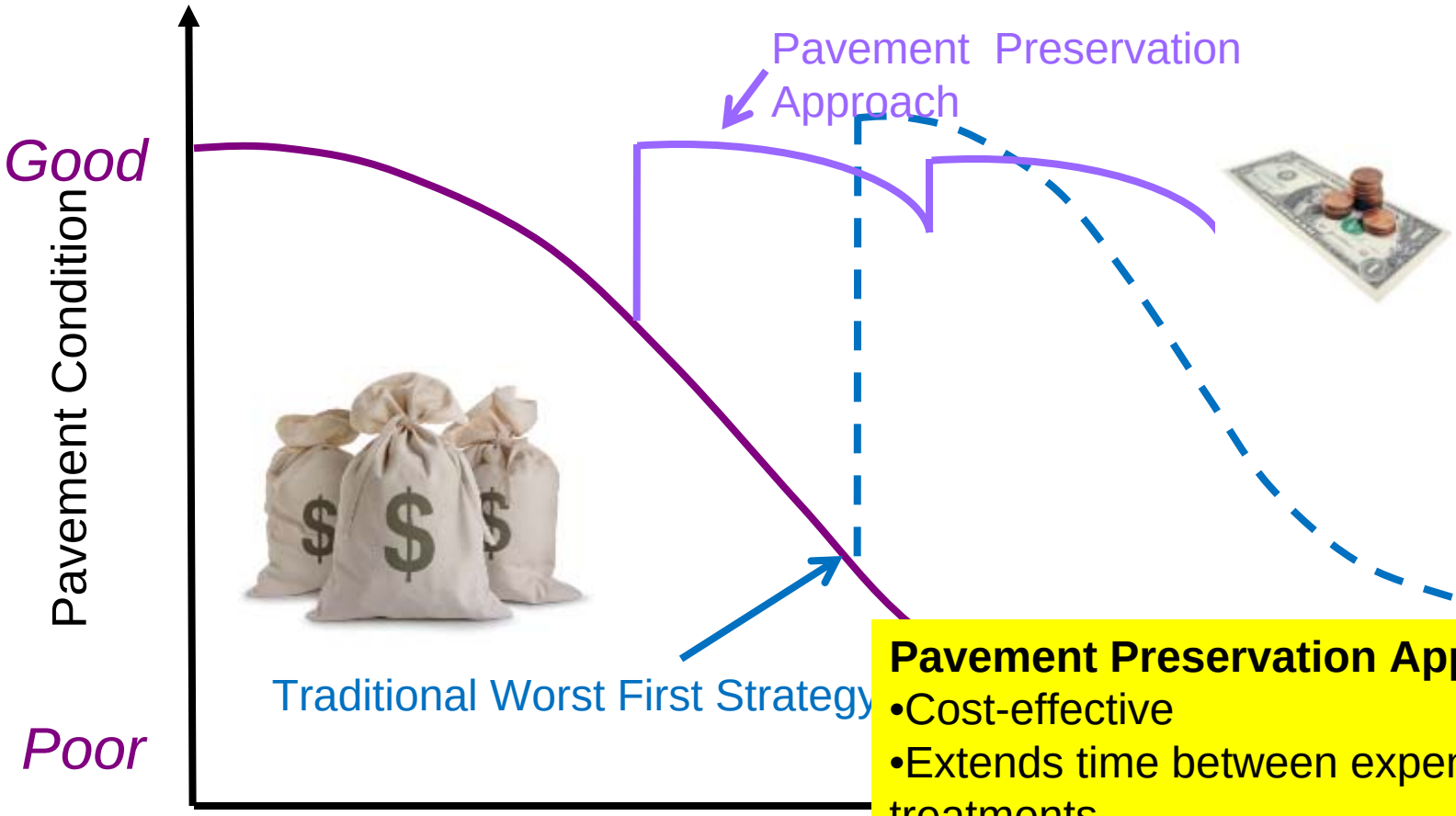
Pavement Life Cycle



What Is Pavement Preservation?



Why Is It Important?

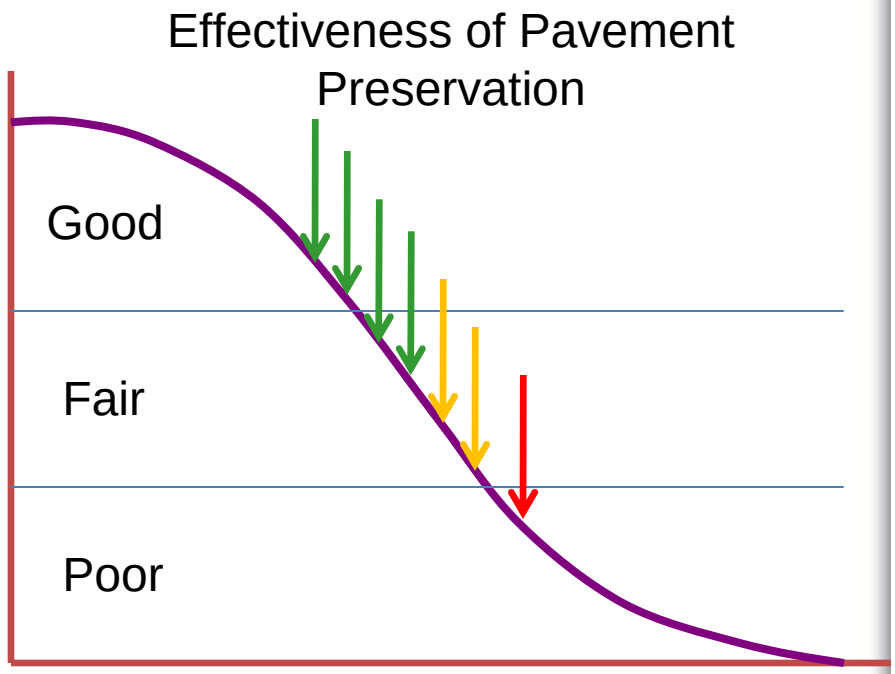


Pavement Preservation Approach

- Cost-effective
- Extends time between expensive treatments
- Keeps assets in better condition
- Reduces the overall cost of maintaining assets

Keys to Success

- Be **proactive**
- Keep roads from dropping into poor condition
- Incorporate a **mix of** fixes into your program



A pavement management system helps identify what treatments are needed and when they are cost-effective

Role of Pavement Management in Preservation

- Assist with project and treatment selection
- Determine best project timing
- Establish program funding needs
- Build program support
- Provide accountability

Pavement Management System Components

Inventory

Condition

- •Last construction date
- •Treatment history

- •Evaluate current conditions
- •Identify type and extent of deterioration
- •Predict future changes in pavement condition based on past performance

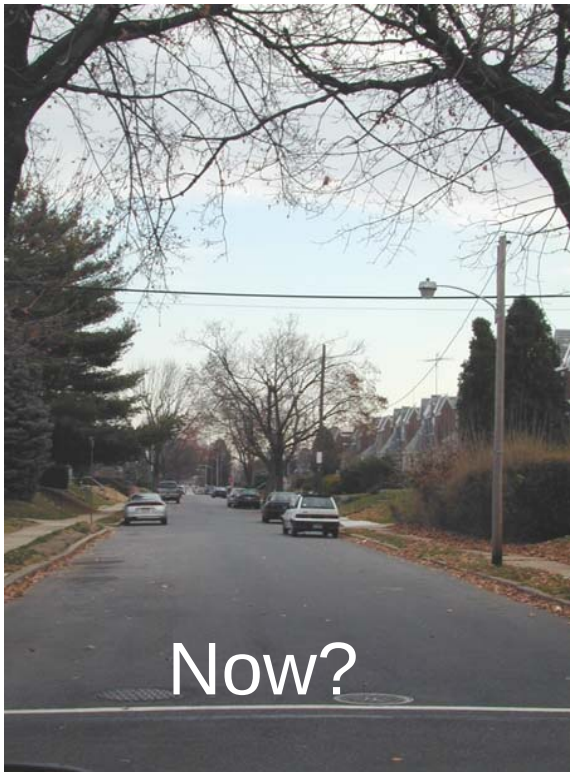
Project Selection

- Sample Questions to Address:
  - What type and severity of deterioration is present?
  - How extensive is the deterioration?
  - How have conditions changed with time?
  - What are current and projected traffic levels?
    - How are those expected to change with time?
    - What kinds of vehicles use the road?

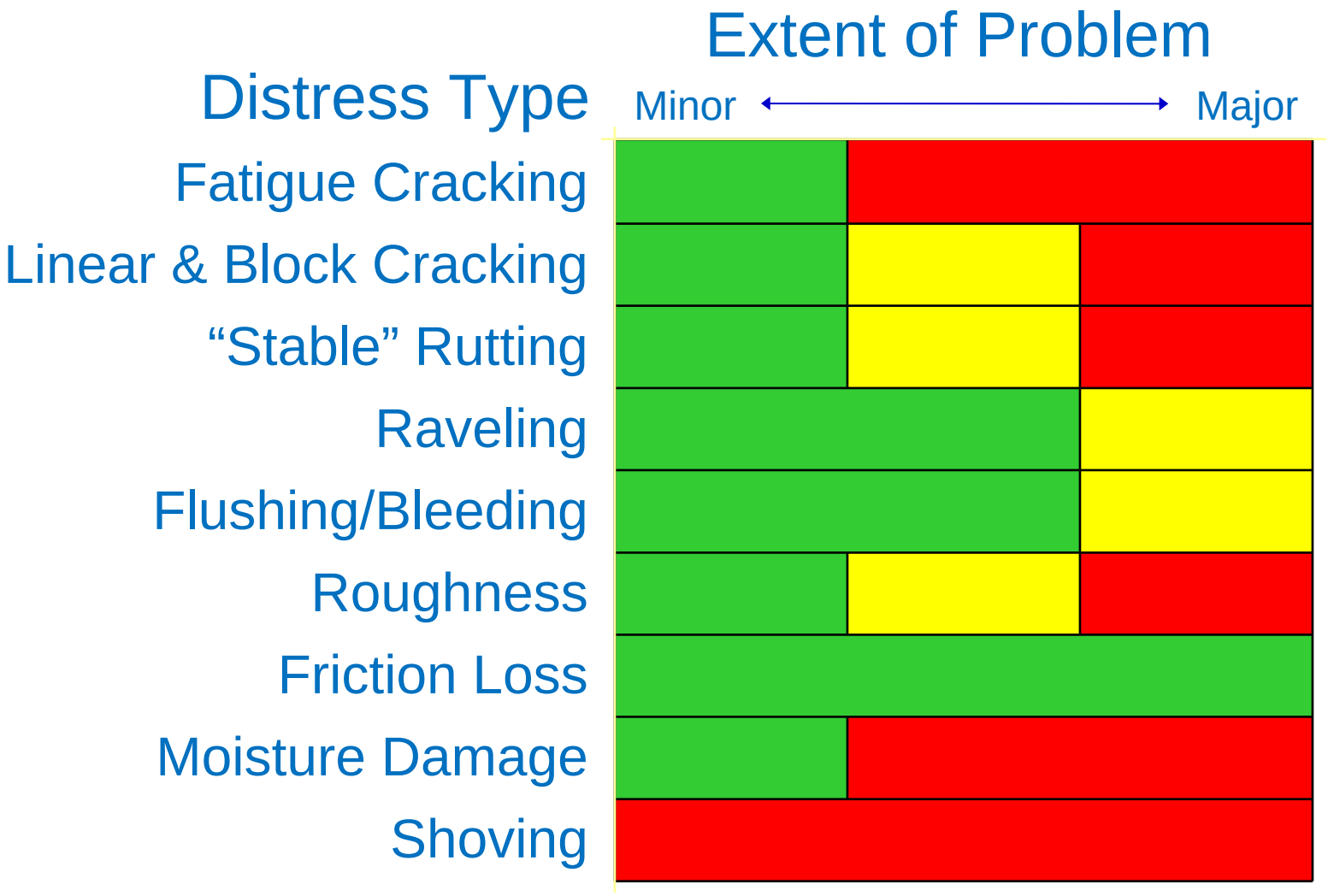
Treatment Selection – Preventive Maintenance

Treatment Selection - Rehabilitation

Treatment Timing



Maximum Allowable Distresses - HMA



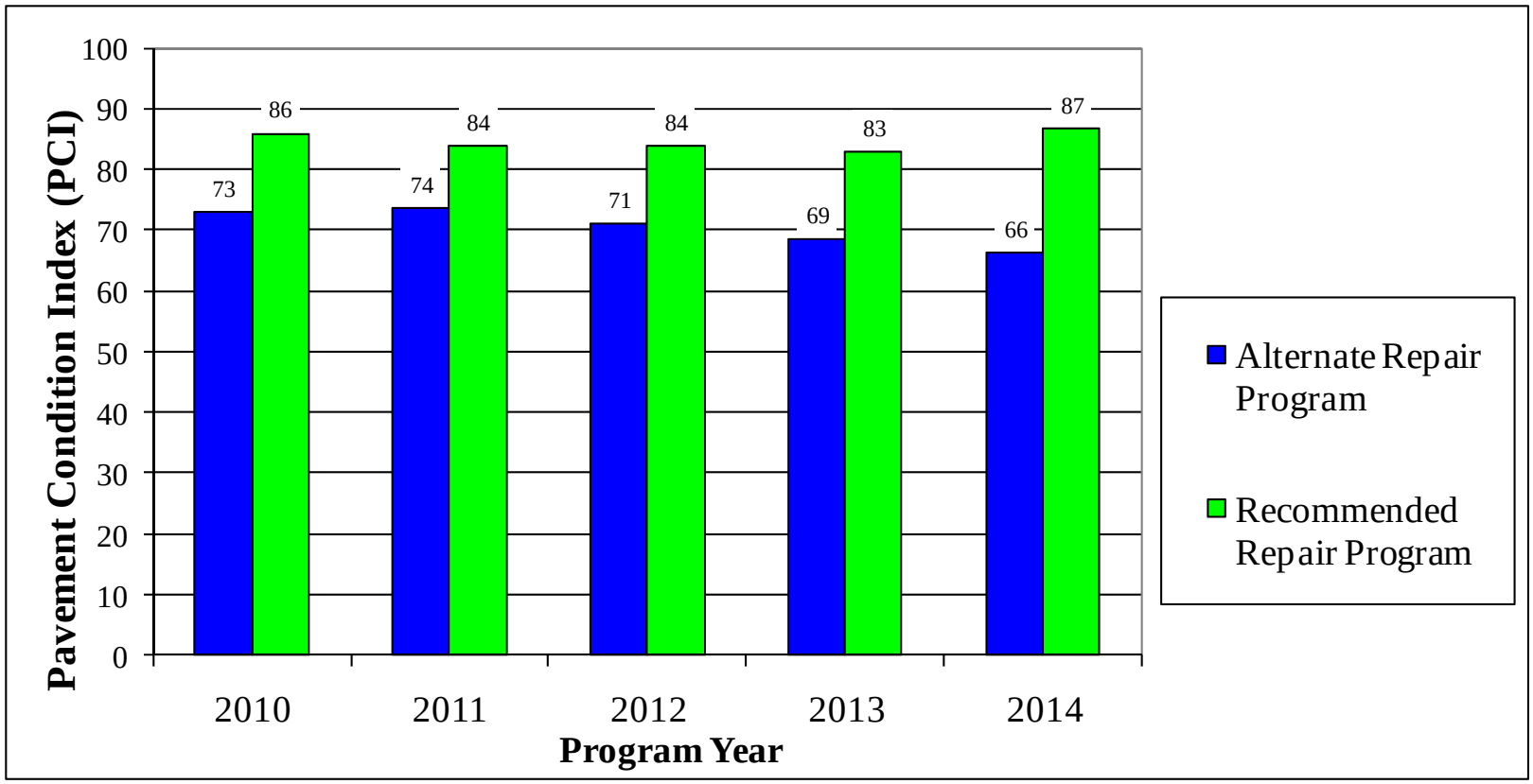
Treatment Selection Guidelines

1. Use:
   - the right treatment
   - on the right pavement
   - at the right time
2. A mix of fixes is an effective way to manage your roadways – as long as the first guideline is satisfied

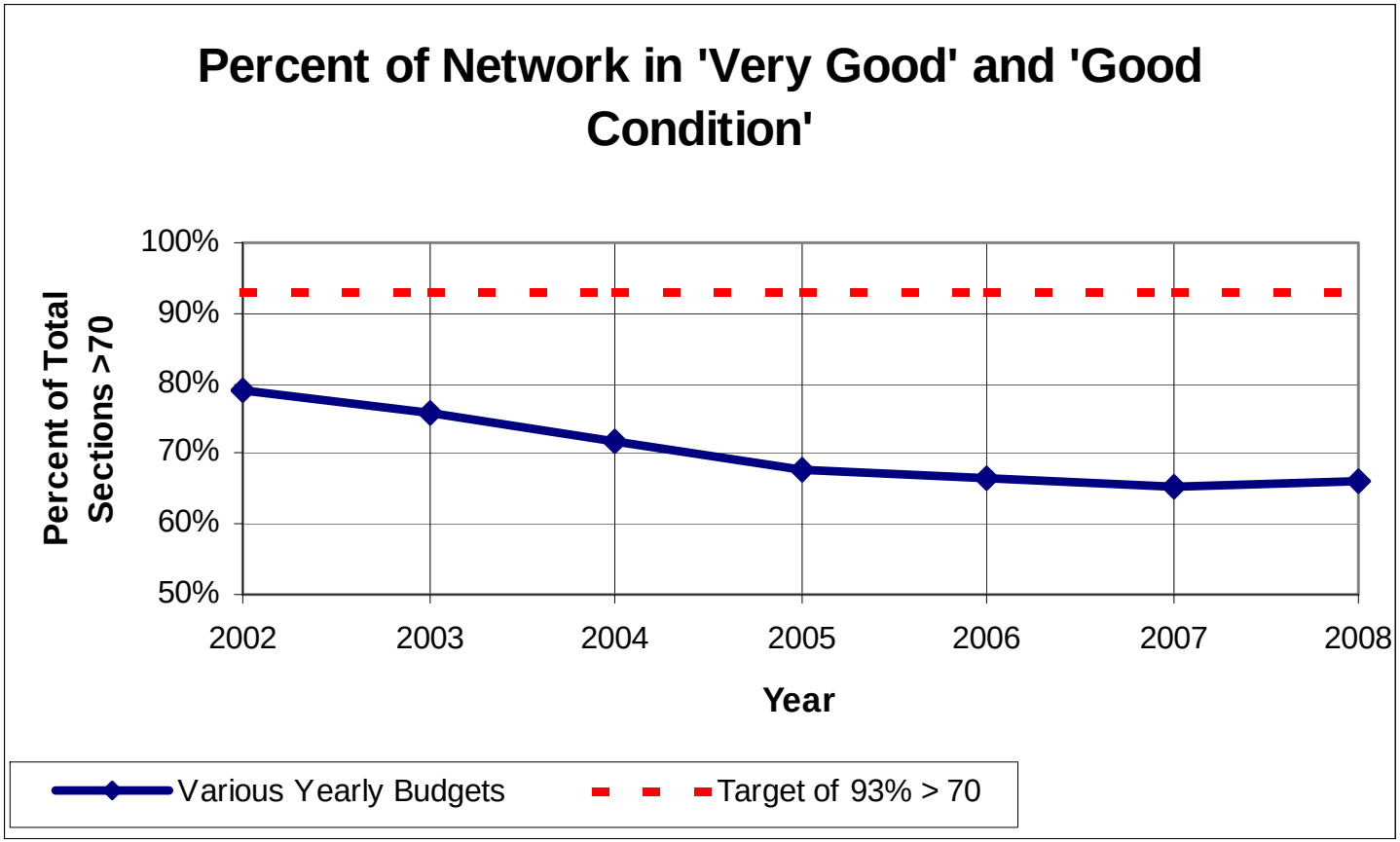
Other Uses of Pavement Management

- Compare impacts of different treatment strategies and funding levels
- Monitor progress towards goals
- Determine funding needs

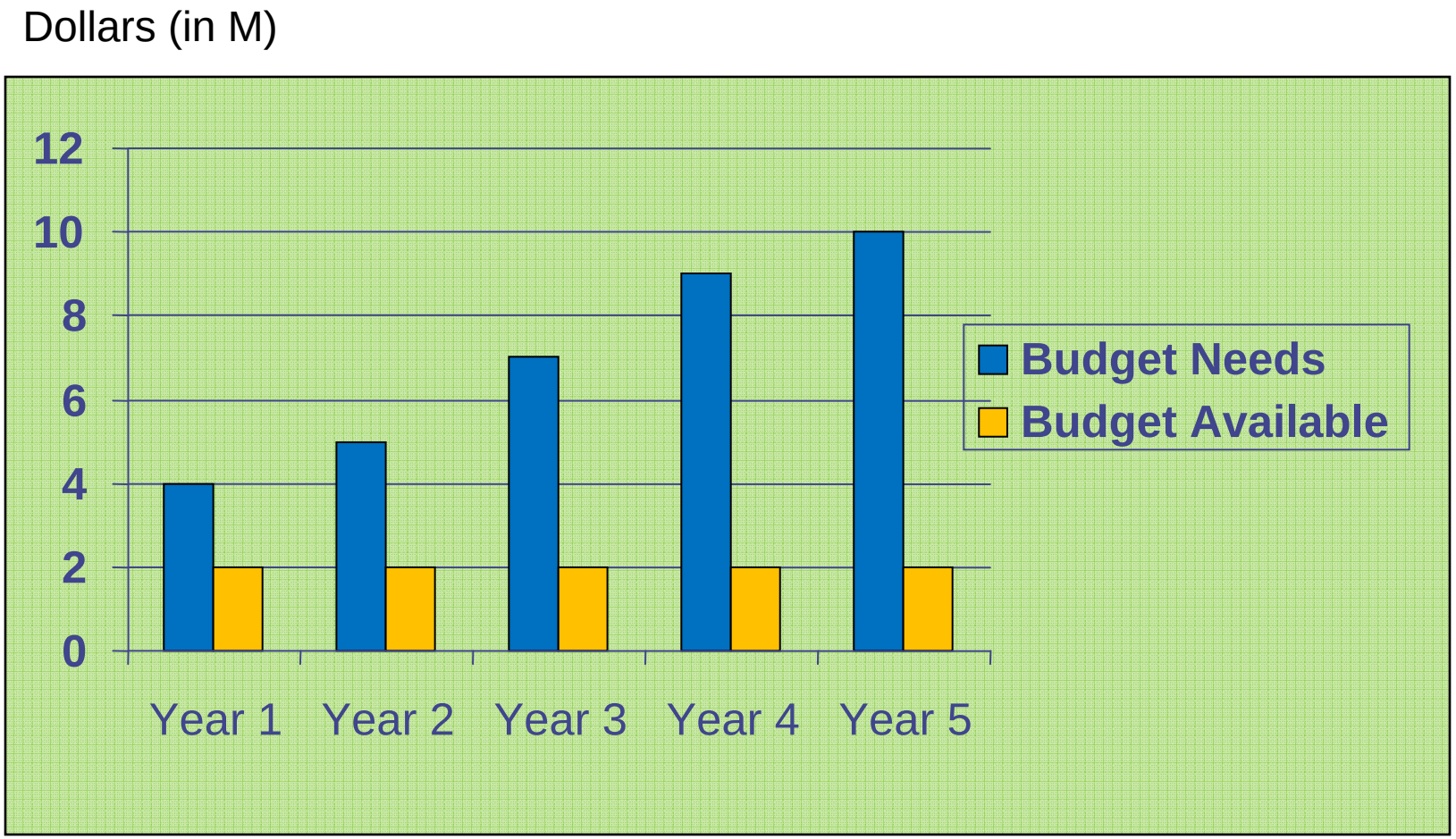
Program Impacts



Monitoring Progress Towards Goals



Evaluating Budget Needs



Example

- Small network of 80 miles
- 20 miles are in each of the 4 condition categories (Excellent, Good, Fair, Poor)
- 20% of the network deteriorates to the next condition level each year
- It costs $100 to repair a road in poor condition
- It costs $25 to repair a road in fair condition
- Total budget is $400 annually

Worst First

	Now	Year 1	Ttl	Year 2	Ttl	Year 3	Ttl
Exc	20	-4 +4	20				
G	20	-4 +4	20				
F	20	-4 + 4	20				
P	20	+4 -4	20				

Worst First

	Now	Year 1	Ttl	Year 2	Ttl	Year 3	Ttl
Exc	20	-4 +4	20	-4 +4	20		
G	20	-4 +4	20	-4 +4	20		
F	20	-4 + 4	20	-4 + 4	20		
P	20	+4 -4	20	+4 -4	20		

Worst First

	Now	Year 1	Ttl	Year 2	Ttl	Year 3	Ttl
Exc	20	-4 +4	20	-4 +4	20	-4 +4	20
G	20	-4 +4	20	-4 +4	20	-4 +4	20
F	20	-4 + 4	20	-4 + 4	20	-4 + 4	20
P	20	+4 -4	20	+4 -4	20	+4 -4	20

PM Example (75/25 split)

	Now	Year 1	Ttl	Year 2	Ttl	Year 3	Ttl
Exc	20	-4 +7	23				
G	20	-4 +4	20				
F	20	-4 + 4 -4	16				
P	20	+4 -3	21				

PM Example (75/25 split)

	Now	Year 1	Ttl	Year 2	Ttl	Year 3	Ttl
Exc	20	-4 +7	23	-5 +7	25		
G	20	-4 +4	20	-4 +5	21		
F	20	-4 + 4 -4	16	-3 + 4 -4	13		
P	20	+4 -3	21	+3 -3	21		

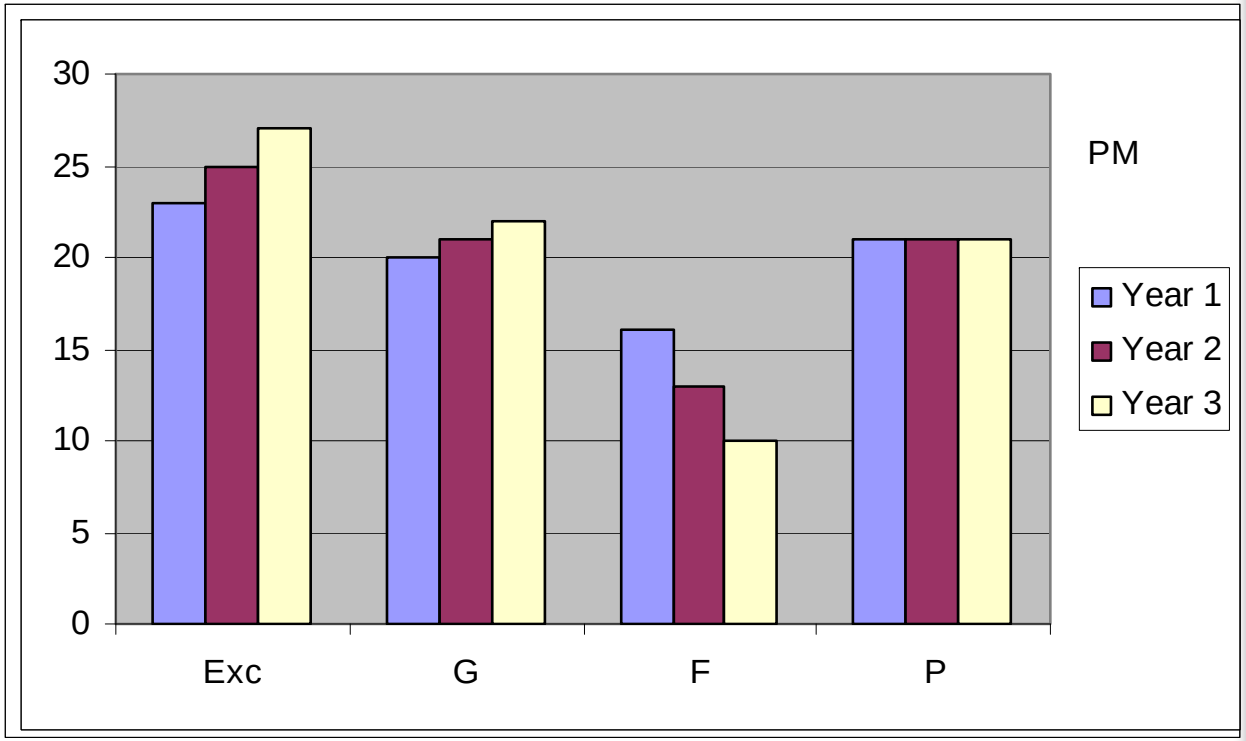
PM Example (75/25 split)

	Now	Year 1	Ttl	Year 2	Ttl	Year 3	Ttl
Exc	20	-4 +7	23	-5 +7	25	-5 +7	27
G	20	-4 +4	20	-4 +5	21	-4 +5	22
F	20	-4 + 4 -4	16	-3 + 4 -4	13	-3 + 4 -4	10
P	20	+4 -3	21	+3 -3	21	+3 -3	21

Comparisons

Worst First
Good or
Better: 40

Mix of Fixes
Good or
Better: 49



Take Away Points

- Don’t rely on a worst first strategy
  - Use a mix of fixes that includes preventive maintenance treatments on roads in good or fair condition
- Consider the use of pavement management tools
  - Help you make the best use of your road $
  - Help you tell your story

Thank you!

Katie Zimmerman
Applied Pavement Technology, Inc.
kzimmerman@appliedpavement.com
(217) 398-3977