

Asphalt Maintenance- Pavement Preservation

Pavement Preservation Series

SDLTAP –

South Dakota State University



What is Pavement Preservation?

- Proactive approach in maintaining our existing highways
- Enables transportation agencies to reduce costly time consuming rehabilitation and reconstruction projects and the associated traffic disruptions
- Can provide the traveling public with improved safety and mobility, reduced congestion, and smoother, longer lasting pavements.

***“Right Road, Right Treatment,
at the Right Time”***

Today's Budget Constraints

- Preform More work with Less Money
 - Pavement maintenance dollar cut or saved today will cost tax payers of tomorrow six to ten dollars
- **Historically** been focused on upgrading and building new roads
- **New focus** is on preserving and maintaining existing pavements



Why do roads fail?

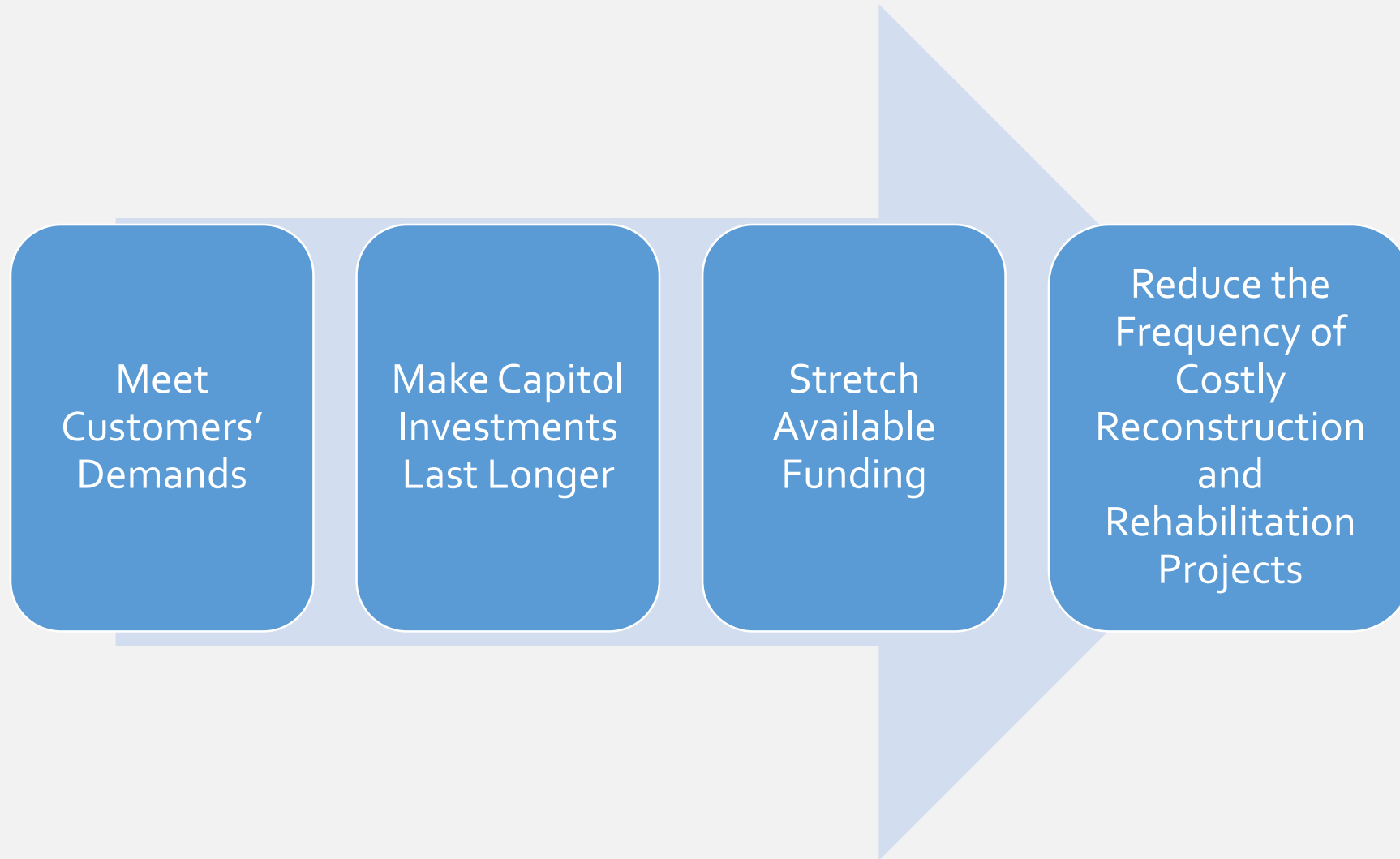
- Design
- Construction
- Materials
- Maintenance

Could be one or all that contribute to premature failure

- Reduce Overall Life Cycle Cost by as much as 50%
- Benefits of Preservation is at least a 6:1 Ratio
- Public and Political pressure to **fix the worst first!**
- In many agencies asphalt roads are the most expensive asset they manage



Pavement Preservation Priorities



Pavement Preservation has two main objectives

1. **Preserve the pavement investment.**

This objective involves minimizing the structural failures and extending the structural life of the pavement to preserve the investment the agency has made in the pavement asset.

2. **Maintain high level of service (LOS).**

This objective involves maintaining acceptable smoothness and surface friction in order to provide a high LOS for the roadway customers.

Includes	Does Not Include
Preventive Maintenance	New Pavement
Minor Rehabilitation (non-structural)	Construction
Some Routine Maintenance	Reconstruction
	Major Rehabilitation (increases Structural Capacity – Typically > 1.5" AC Overlay)
	Corrective Maintenance

What is in your PP Toolbox today?

- That's what we have always done!
- We did Microsurfacing 10 years ago and it failed so we will never do it again.
- Our crews don't do that work.
- Reactive Surface Patching
- Chip Seal
- Mill and Fill - One big project a year.

What could be in your PP Toolbox tomorrow?

- Crack Leveling
- Rout and Seal Cracks
- Chip Seals
- Fog Seals
- Rejuvenators
- Slurry Seals
- Scrub Seals
- Microsurfacing
- Thin Overlay < 1.5"
- Rut Filling
- Spray Patching
- Cold Recycling

Selecting a Preservation Technique

- Amount and type of traffic
- Availability and experience of contractors for a particular type of treatment
- Good handle on the current pavement condition
 - Type and severity of existing distresses
 - Knowing the causes of the distresses
 - Without knowing the cause of the distress, an inappropriate treatment may be selected and may not be effective.

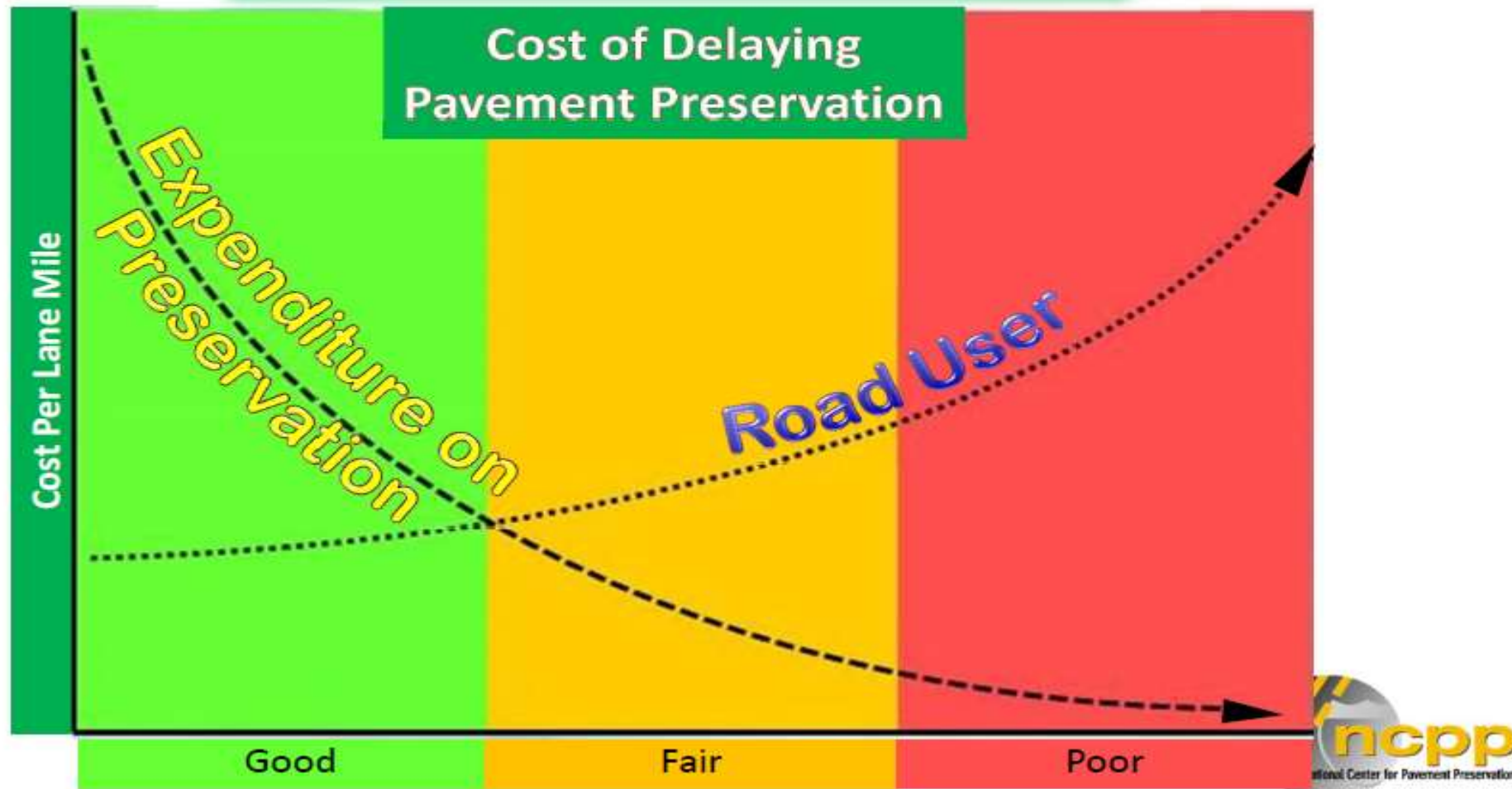
Unacceptable Candidates – Too Late!



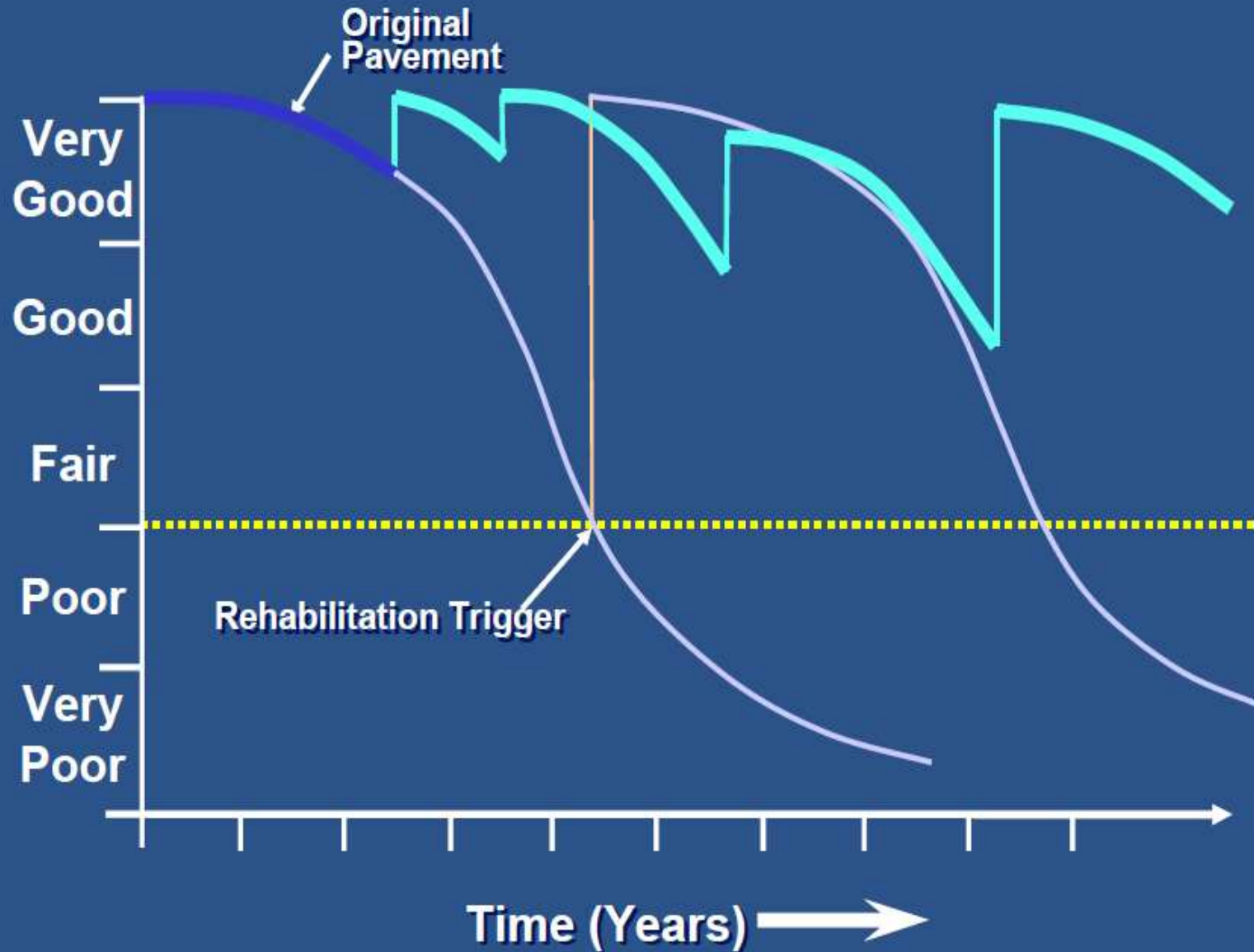


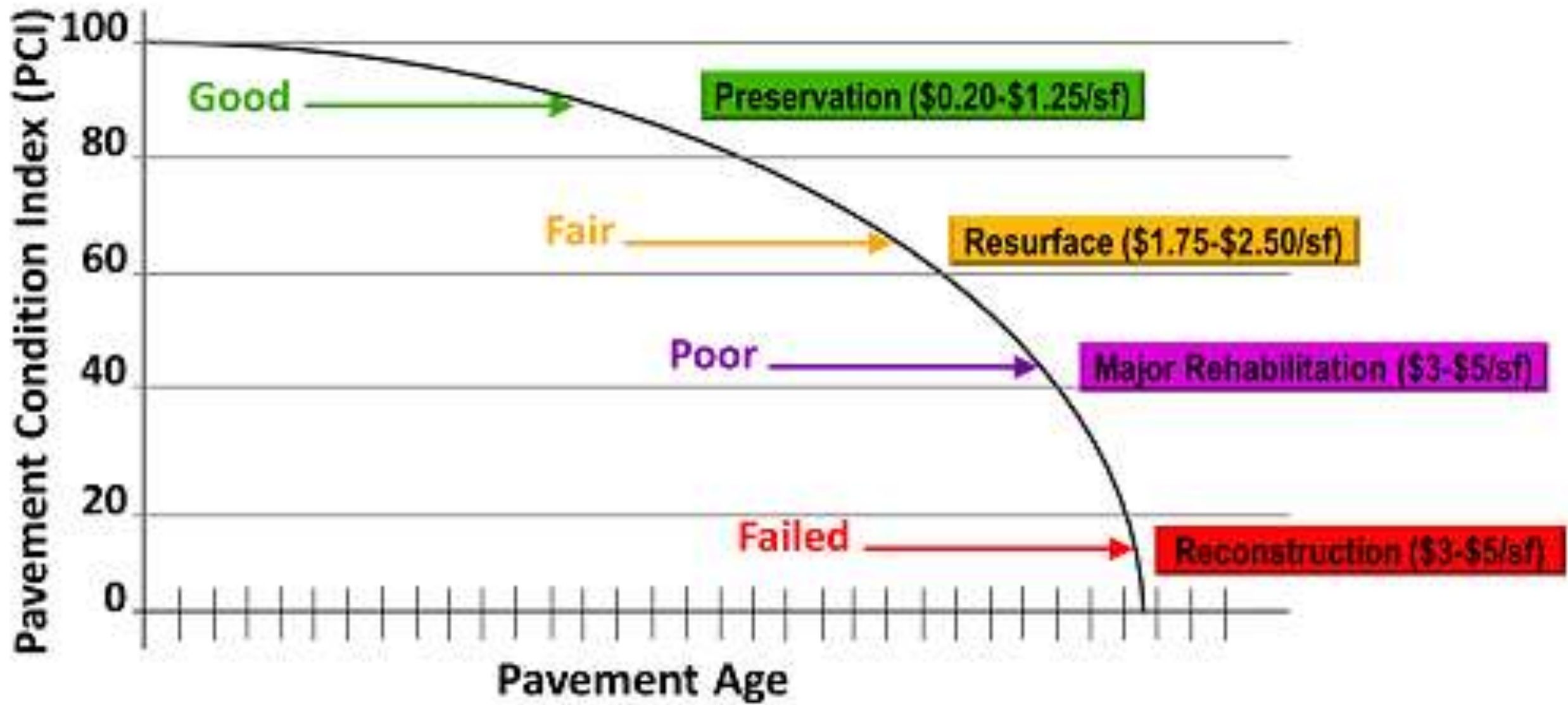
Treatment	Treatment Life (yr)	Estimated Life Extension (yr)
Crack Filling	2-4	1-3
Route & Seal Crack	2-8	2-4
Crack Leveling	5-8	2-4
Slurry Seal	4-5	3-5
Scrub Seal	5-7	5-6
Chip Seal	6-8	5-6
Rut Filling	4-6	3-5
Spray Patching	2-6	1-3
Microsurfacing	4-7	3-5
Thin Lift HMA < 1.5"	10-15	NA

The Benefits of Pavement Preservation



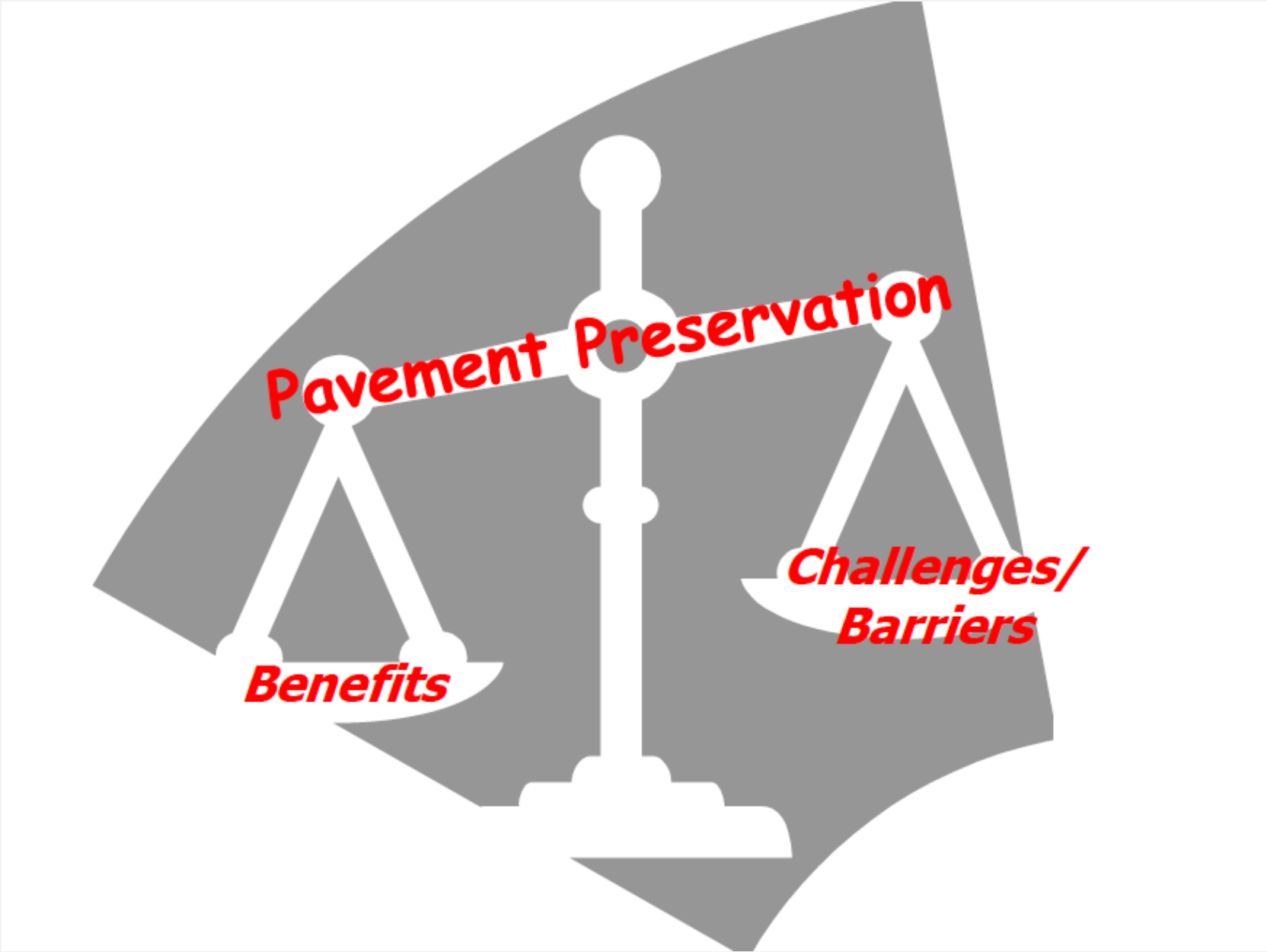
The Pavement Preservation Concept





Cost Effectiveness of Pavement Preservation (California Study)

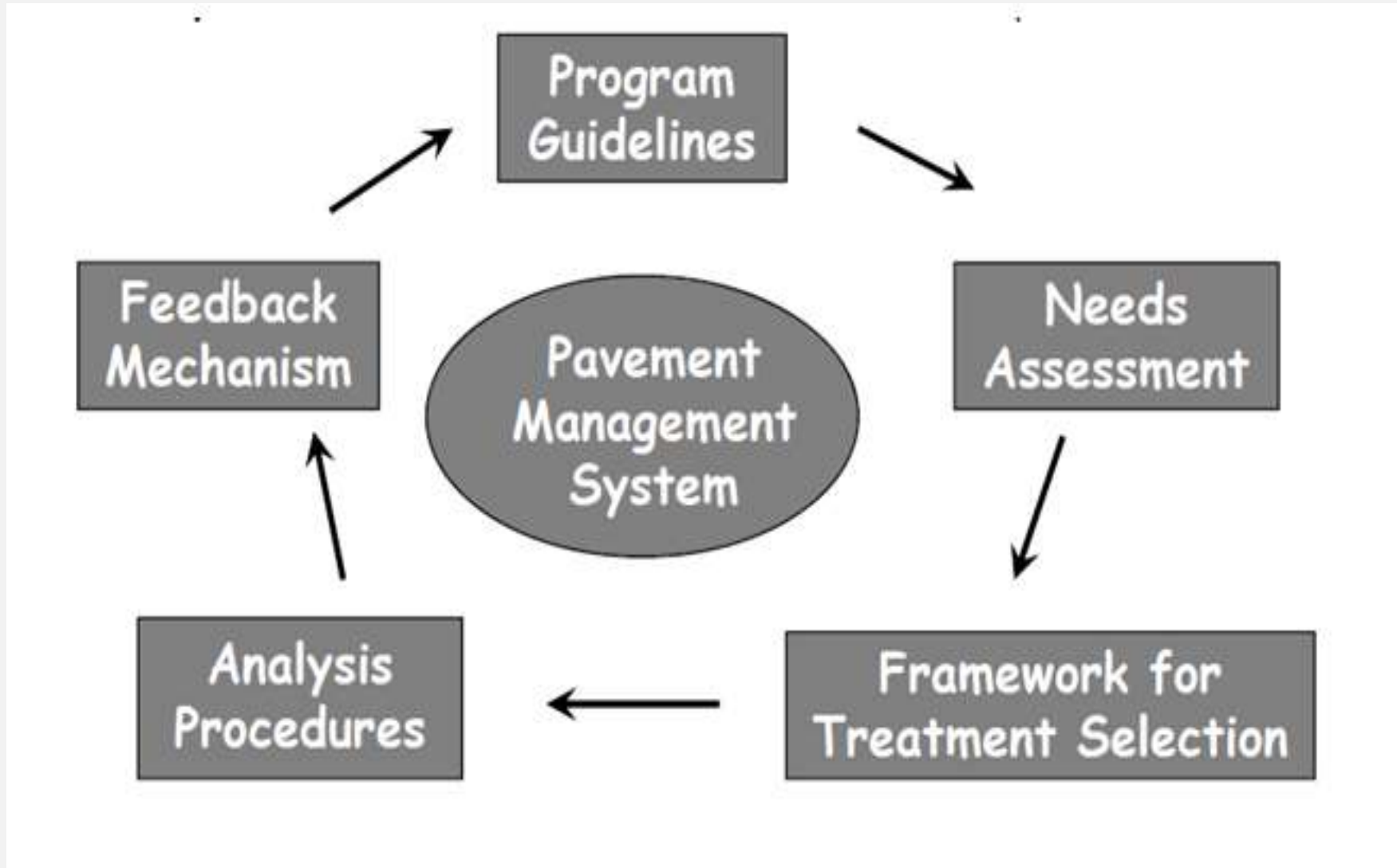
- Rehabilitation – 6 to 10:1 based on First Cost
- Reconstruction – 20 to 50:1 based on First Cost
- Life Cycle Costs Savings – 20 to 50% Over 30 yrs.
- Caltrans Preservation Budget for 30 years = \$5.0 Billion per year or \$150 Billion Total
- Saving To Their Program = 20 to 50% of \$150 Billion = **\$30 Billion to \$75 Billion Savings !!!**
- Relating to SDDOT – Currently a Budget of @ \$40 Million per yr. equates to 20 to 50% of \$120 Million = **\$24 to \$60 Million Savings !!!**



Pavement Preservation Challenges

- Philosophy Change from "***Worst First***"
- Simple and Measurable Goals
- Support from Commission or Council
 - Dedicated and Continuous Funding
- Assessing and Promoting Benefits
 - Need political and public support
- Data Tracking to See The Benefits of Preservation
 - Be Patient good things don't happen over night!

Successful Pavement Preservation Program Elements





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PAVEMENT PRESERVATION GUIDELINES



SOUTH DAKOTA DEPARTMENT OF
TRANSPORTATION

FEBRUARY 2010

CONCLUSION

Pavement Preservation saves money!
Be proactive instead of reactive

*“Right Road, Right Treatment,
at the Right Time”*







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