

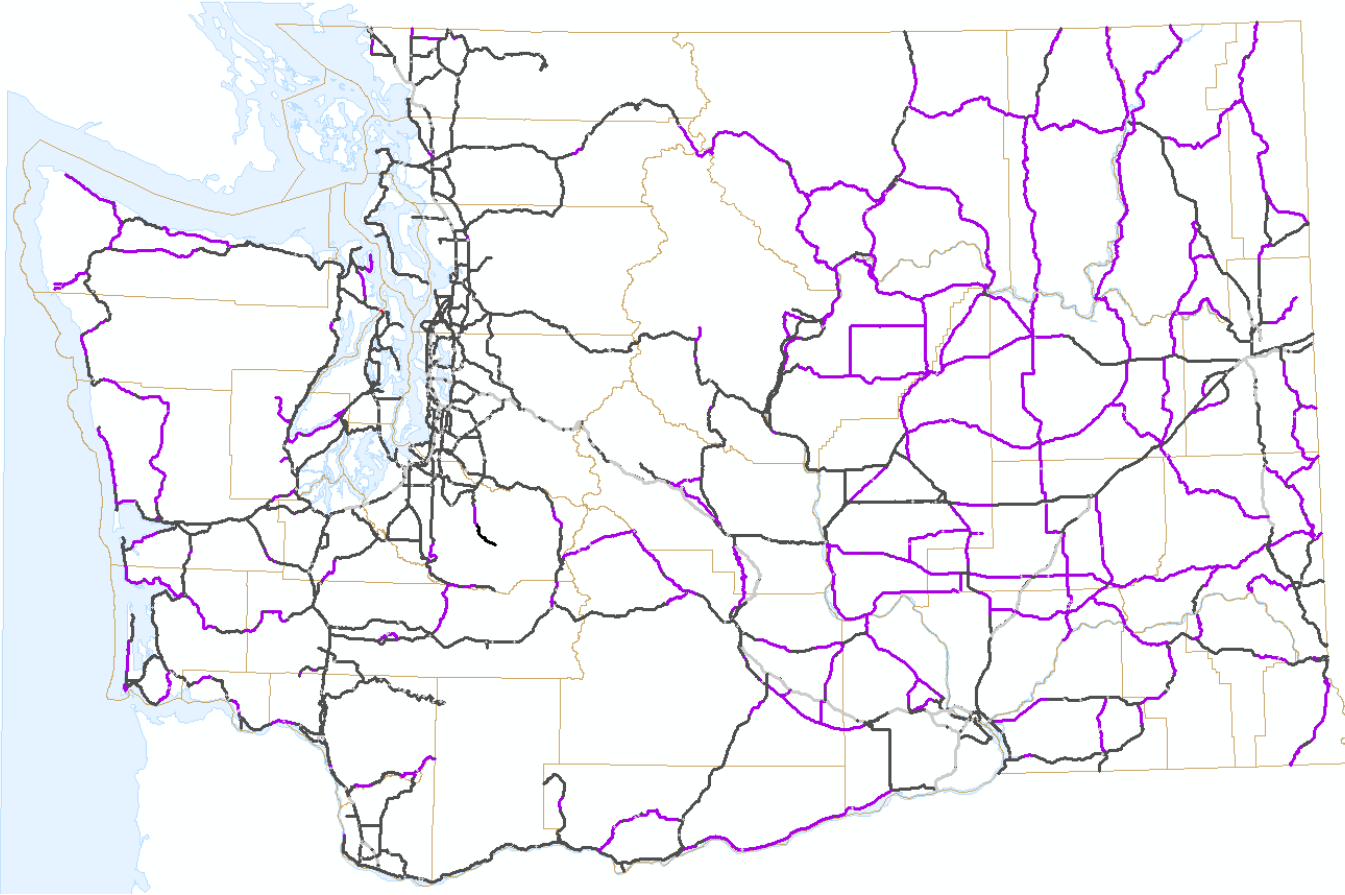
# WSDOT Pavement Management Practices for Concrete Pavement Preservation

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Pavement Engineer

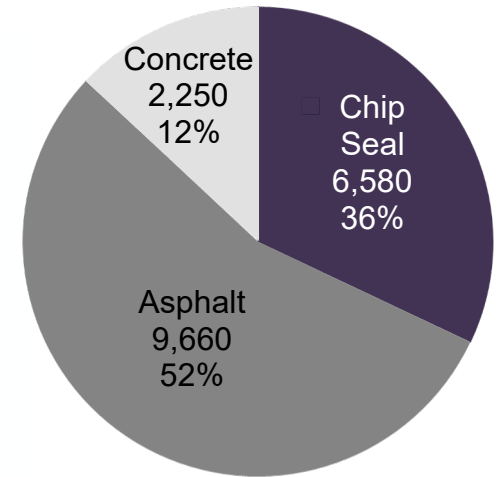
Washington State DOT

# WSDOT Highway System

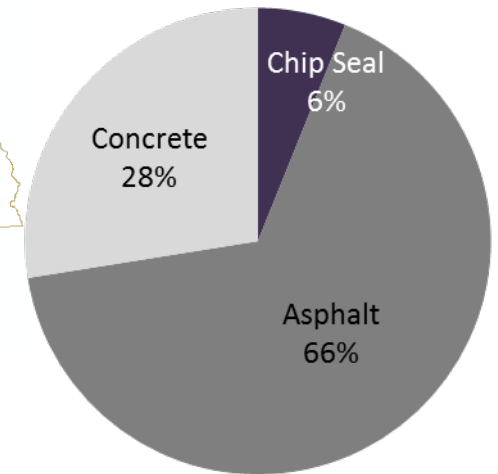


- 18,500 lane-miles

## Statewide Lane Miles



## Statewide VMT



# Cost-Effectiveness

“...the most efficient investment...”

– *Annual Cost (\$ / lane-mile / year of life)*

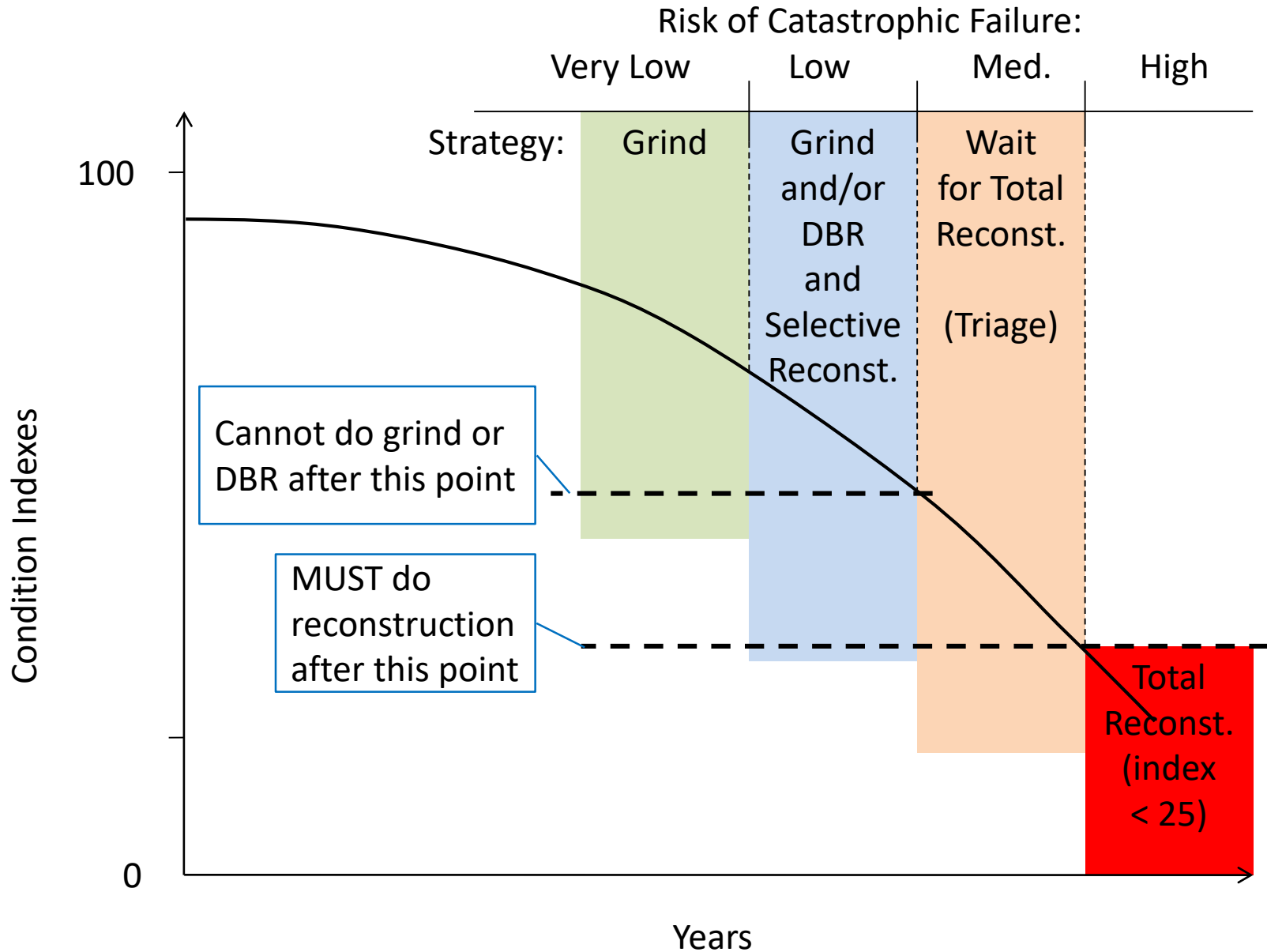
- Historical Cost of Acceptable Pavement Performance

– *Actual historical cost (\$/LMY)*

- Expected Cost of Future Pavement Rehab

– *Projected LCCA (\$ /LMY)*

# LLCC: Concrete



# Replacement (Strategy) Analysis

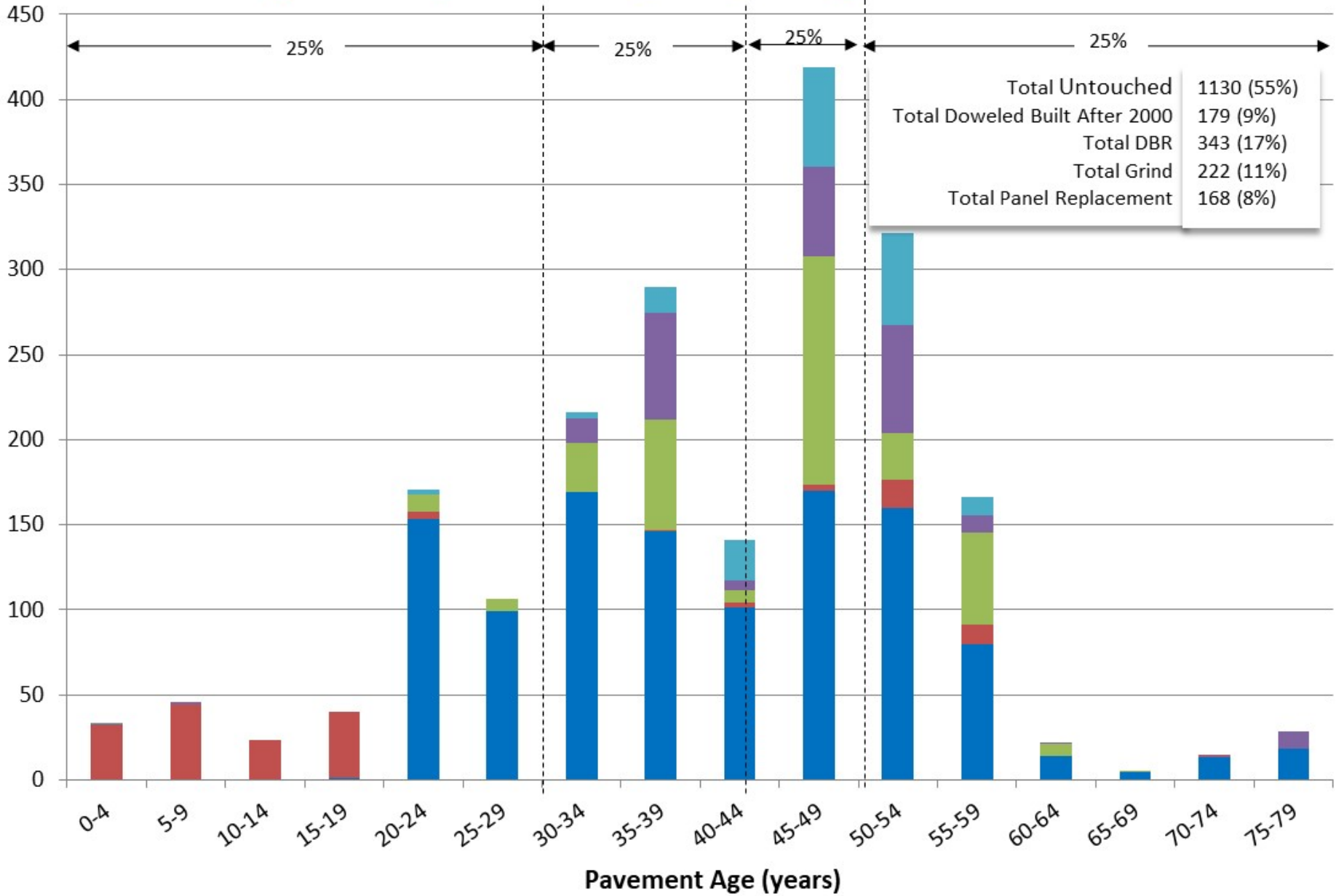
- Decision Analysis to consider:
  - Do Nothing (no replacement)
  - Maintenance
  - Rehabilitation
  - Reconstruction
- If proposed alternative results in lower annual cost, then make decision for (strategy) replacement

# Cost Effectiveness Evaluation

| <b>Treatments</b>                       | <b>Agency Cost<br/>(\$/LM)</b> | <b>Life<br/>Extension<br/>(years)</b> | <b>EUAC<sub>0%</sub><br/>(\$/LMY)</b> | <b>EUAC<sub>4%</sub><br/>(\$/LMY)</b> |
|---|--------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Grinding & slab replacement             | \$400,000                      | 15                                    | \$26,667                              | \$35,976                              |
| CSOL + resurfacing in year<br>20 and 35 | \$900,000 +<br>\$225,000 each  | 50                                    | \$27,000                              | \$49,330                              |
| Reconstruction                          | \$2,500,000                    | 50                                    | \$50,000                              | \$116,376                             |

# Distribution of PCCP Miles by Rehabilitation Method

■ Untouched 
 ■ Built After 2000 
 ■ DBR 
 ■ Grind 
 ■ Panel Replacement



# 30-Year Concrete Rehabilitation Needs

|                       | <b>Triage<br/>(lane-miles)</b> | <b>Reconstruction*<br/>(lane-miles)</b> |
|-----------------------|--------------------------------|---|
| <b>2016-25</b>        | 366                            | 515                                     |
| <b>2026-35</b>        | 567                            | 474                                     |
| <b>2036-45</b>        | 417                            | 504                                     |
| <b>Total</b>          | 1,350                          | 1,493                                   |
| <b>Annual Average</b> | 45                             | 50                                      |



# Pavement Preservation (P1) Funding by Federal Fiscal Year

(2017 \$ in millions)

