

South Dakota Highway Needs & Financing



*South Dakota Department of Transportation
773-3265*



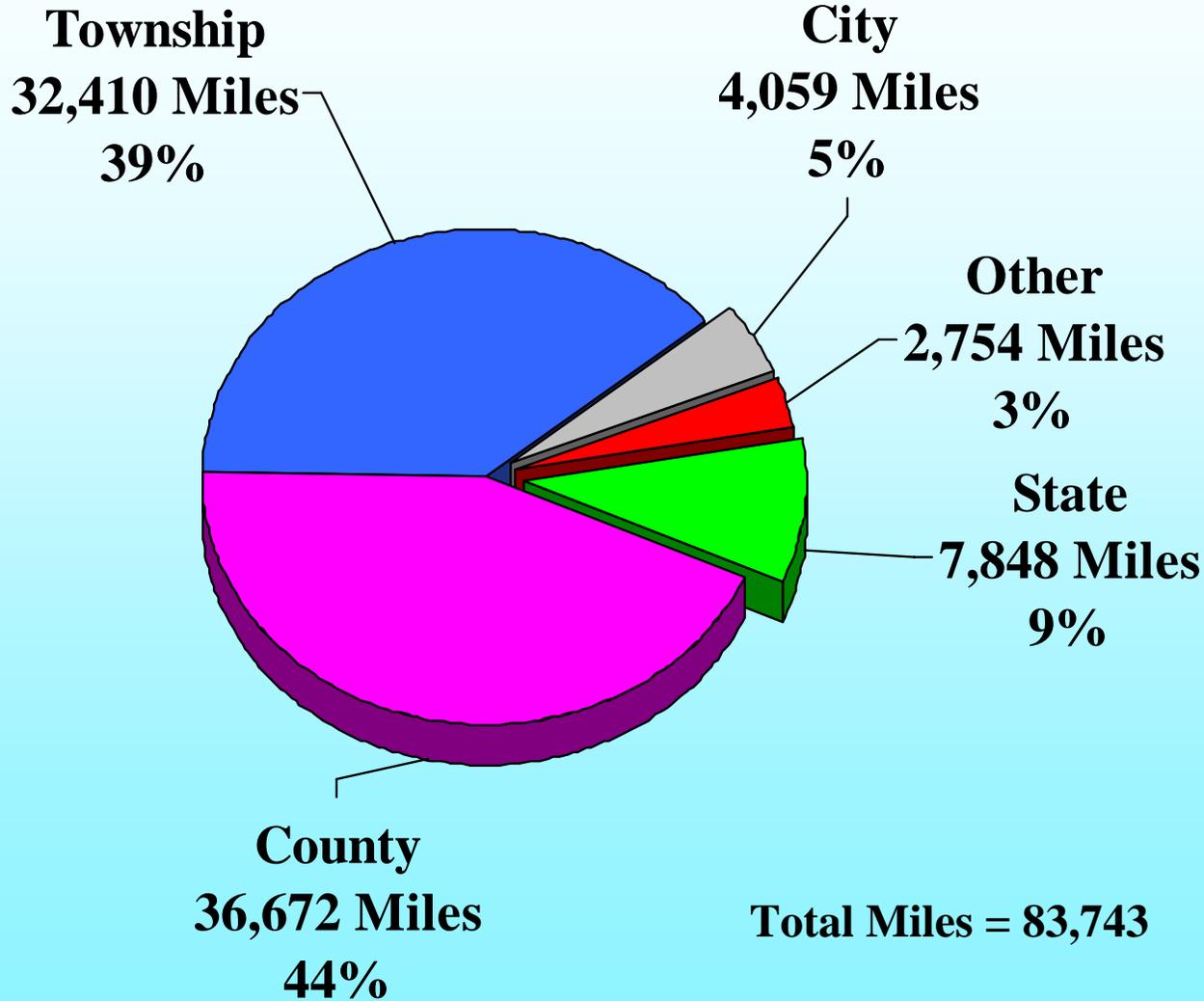
Challenges

- State Highway funds have declined in recent years
- Future Federal funding is uncertain both short-term and long-term
- Costs are inflating at an unprecedented rate
- Highway needs greatly exceed existing funding availability, resulting in the continued deterioration of highways and bridges



Highway and Street Miles by Jurisdiction

CY 2007

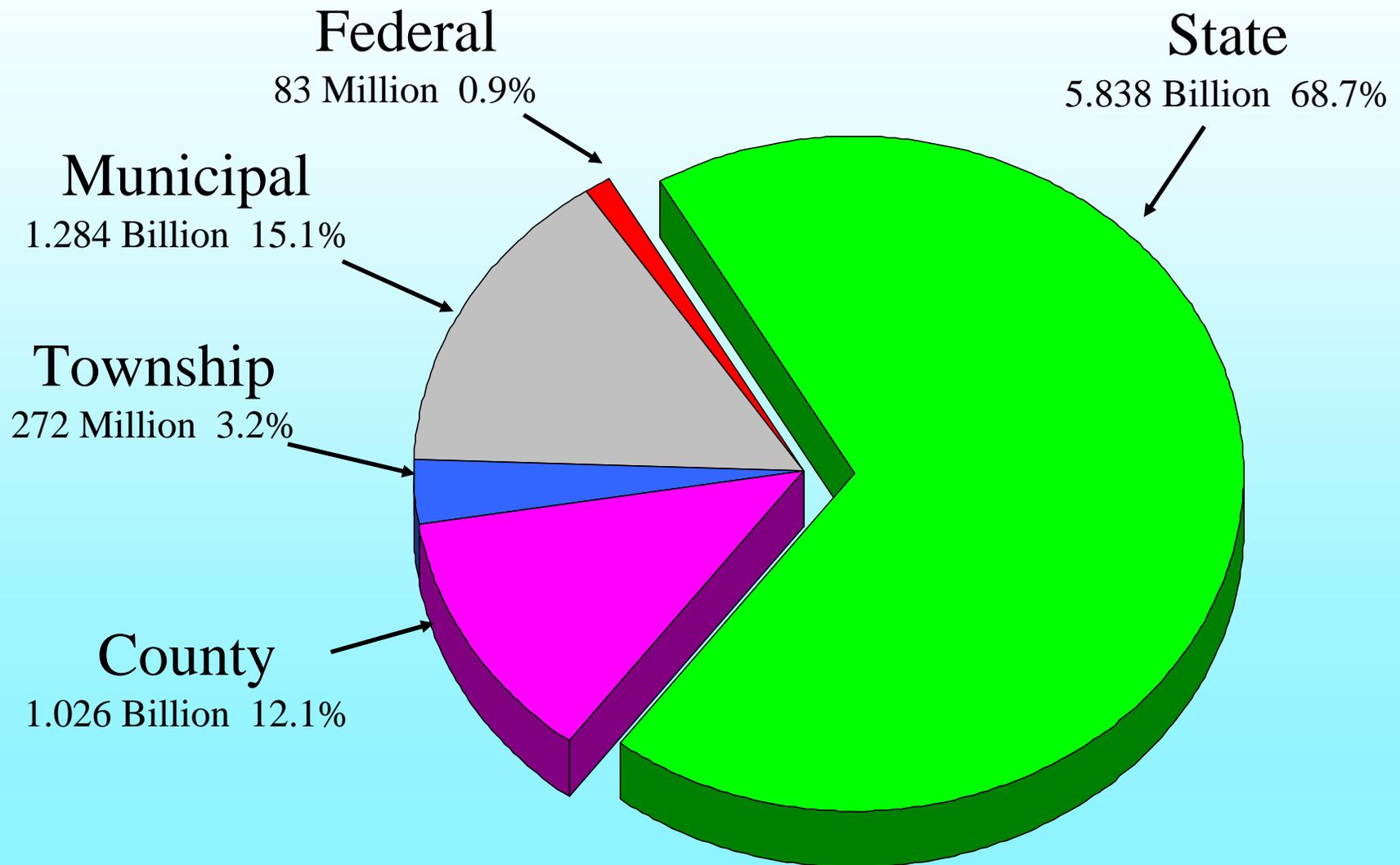




Annual Vehicle Miles of Travel By Jurisdiction

CY 2006

Total = 8.503 Billion

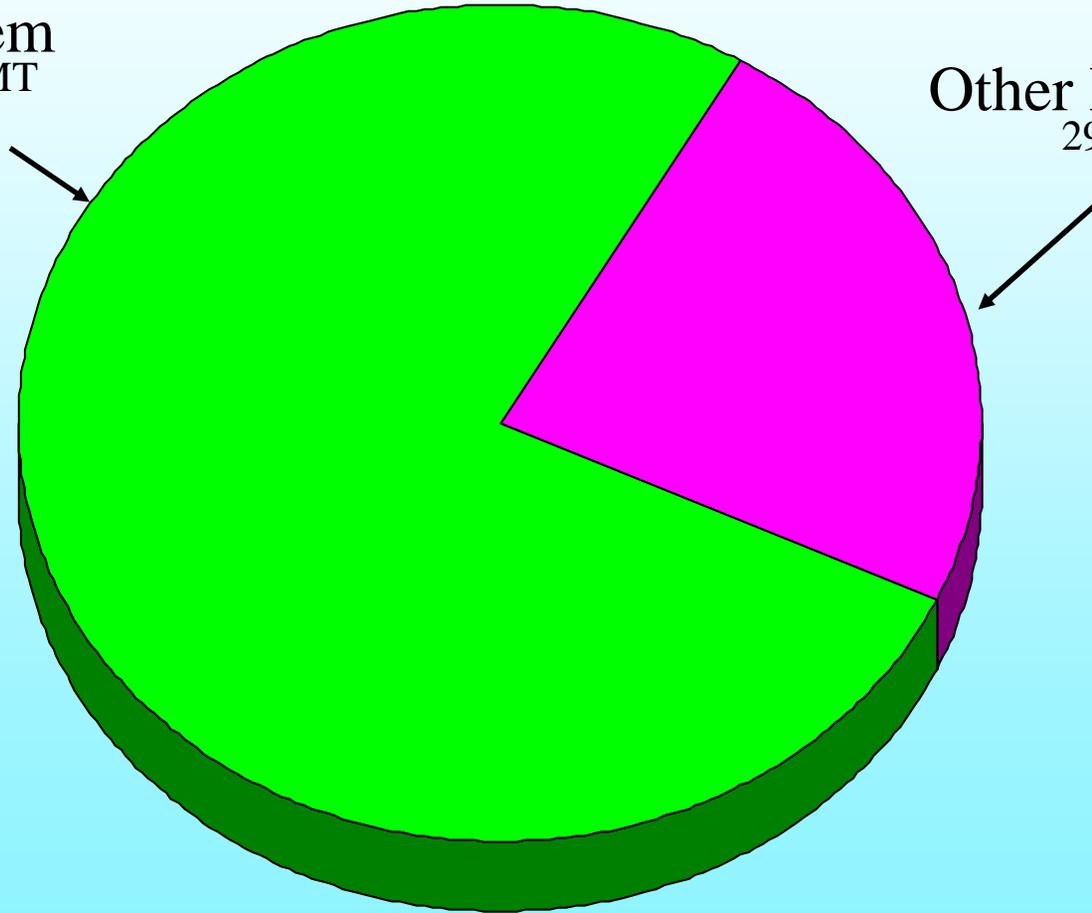




Heavy Truck Vehicle Miles of Travel By Jurisdiction

CY 2006

State System
968 Million VMT
76 %

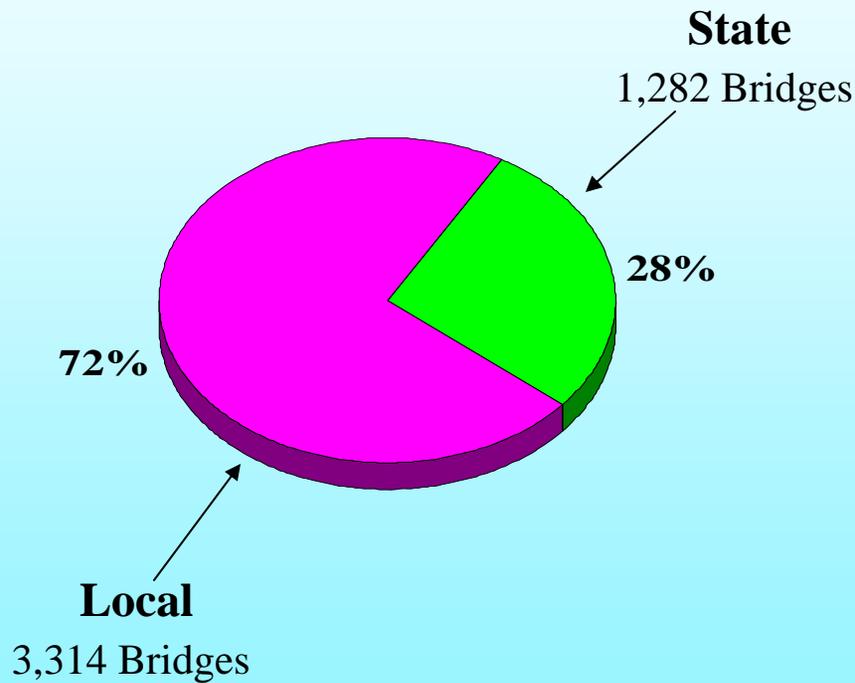


Other Roads & Streets
299 Million VMT
24 %

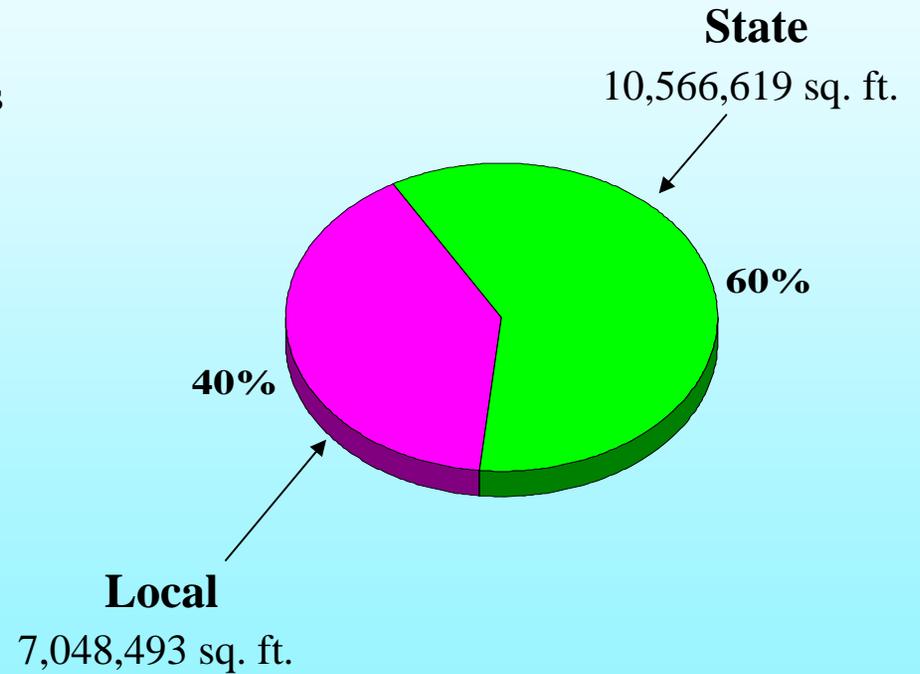


Comparison of State and Local Bridges

Number of Bridges



Deck Area





FY08 State Highway Fund Expenditures

State Hwy Maintenance

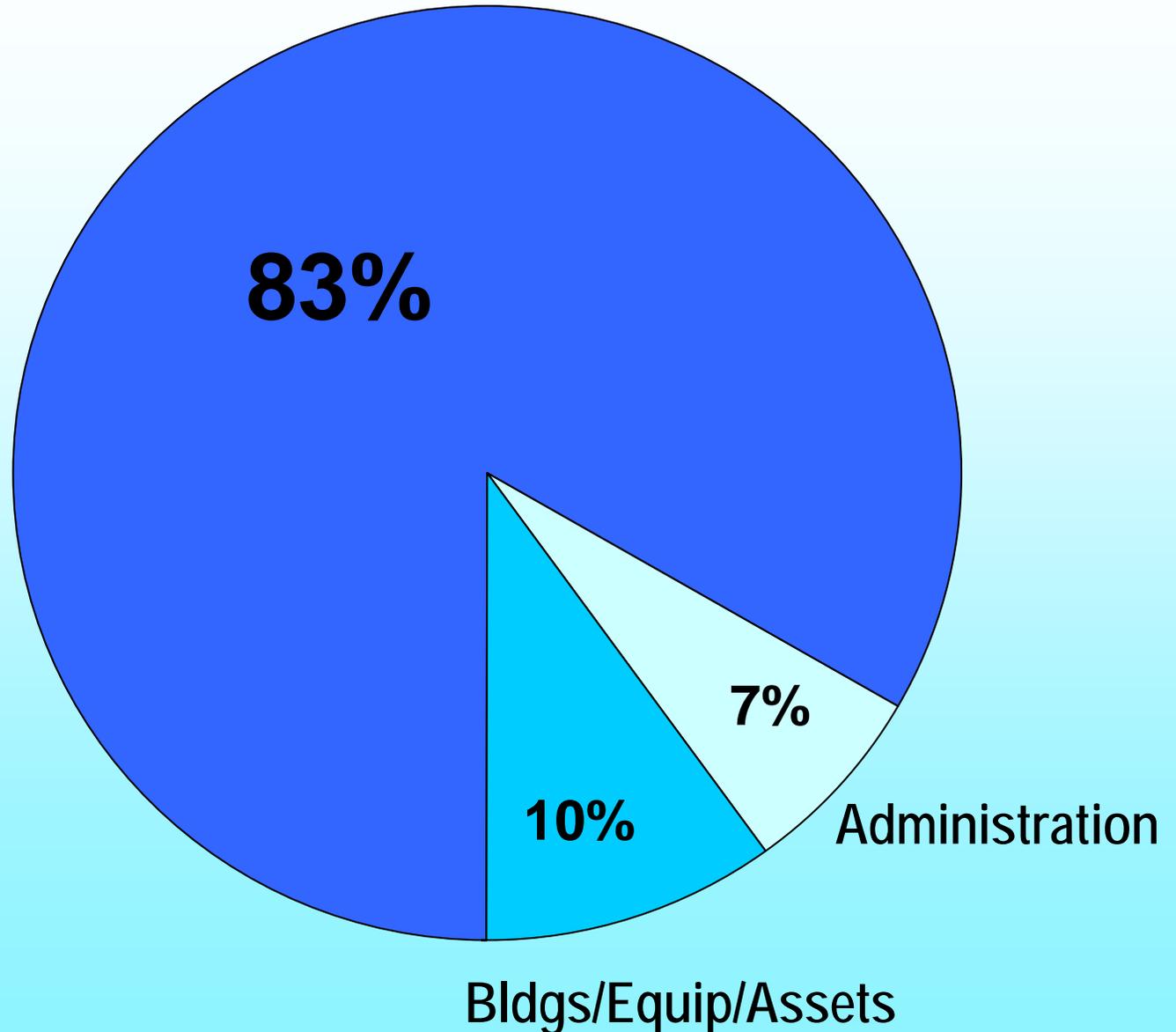
(Snowplowing, Mowing, Equipment, Labor, Signing, etc)

&

Hwy Construction

(Design, ROW, Materials, Labor, etc)

TOTAL:
\$158,497,644





FY08 State & Federal Highway Fund Expenditures

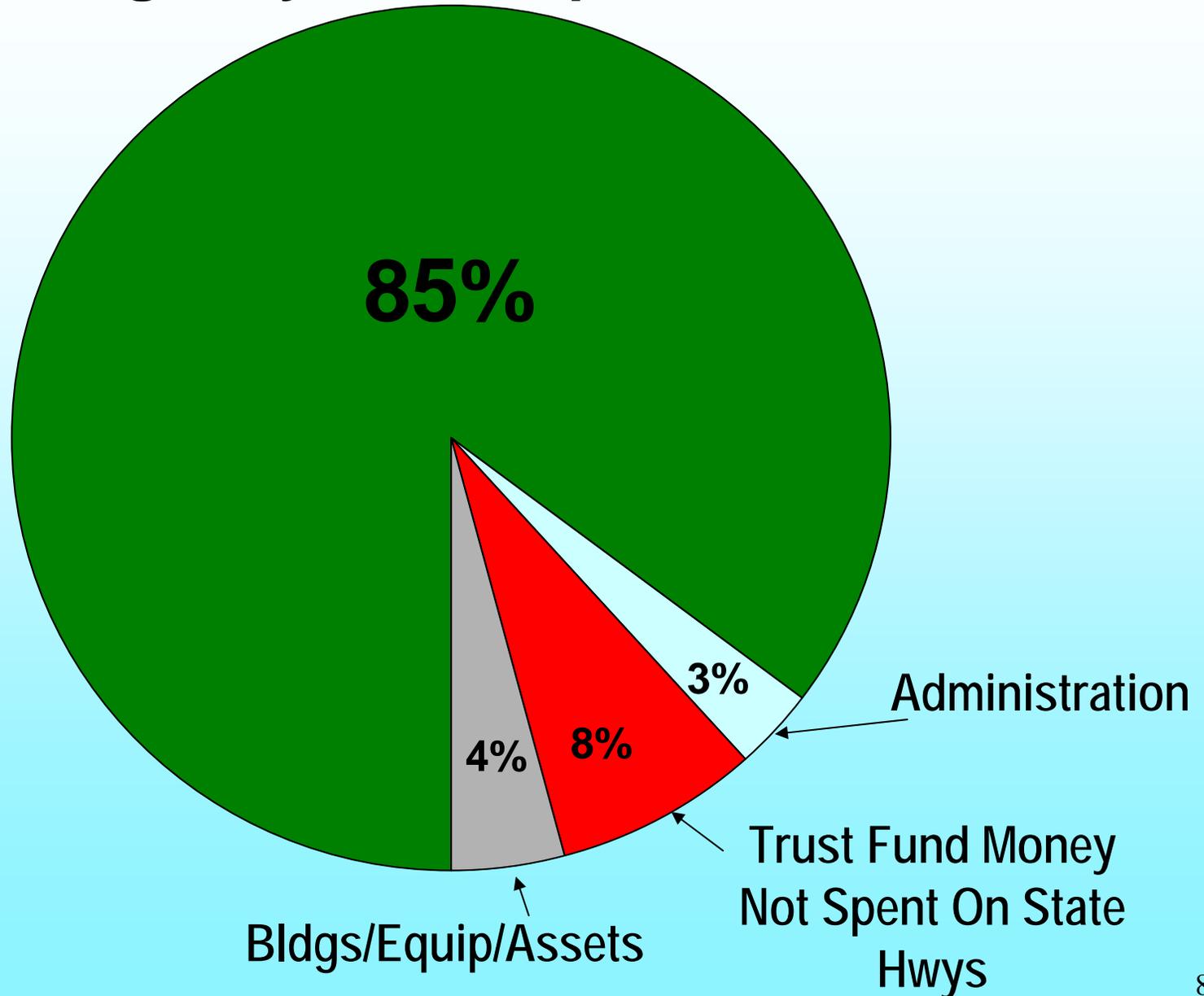
State Hwy Maintenance

(Snowplowing, Mowing, Equipment, Labor, Signing, etc)

&

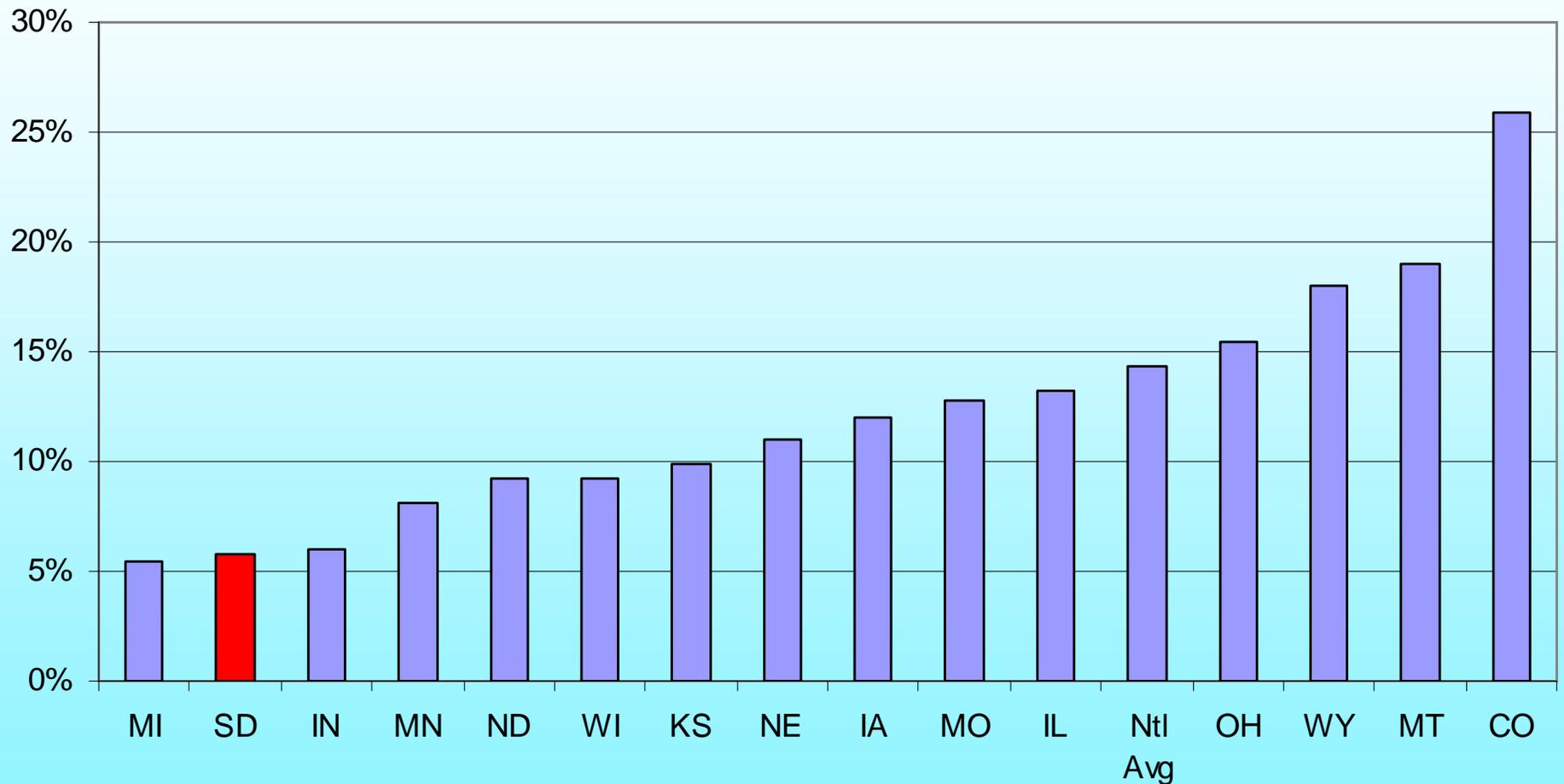
Hwy Construction

(Design, ROW, Materials, Labor, etc)





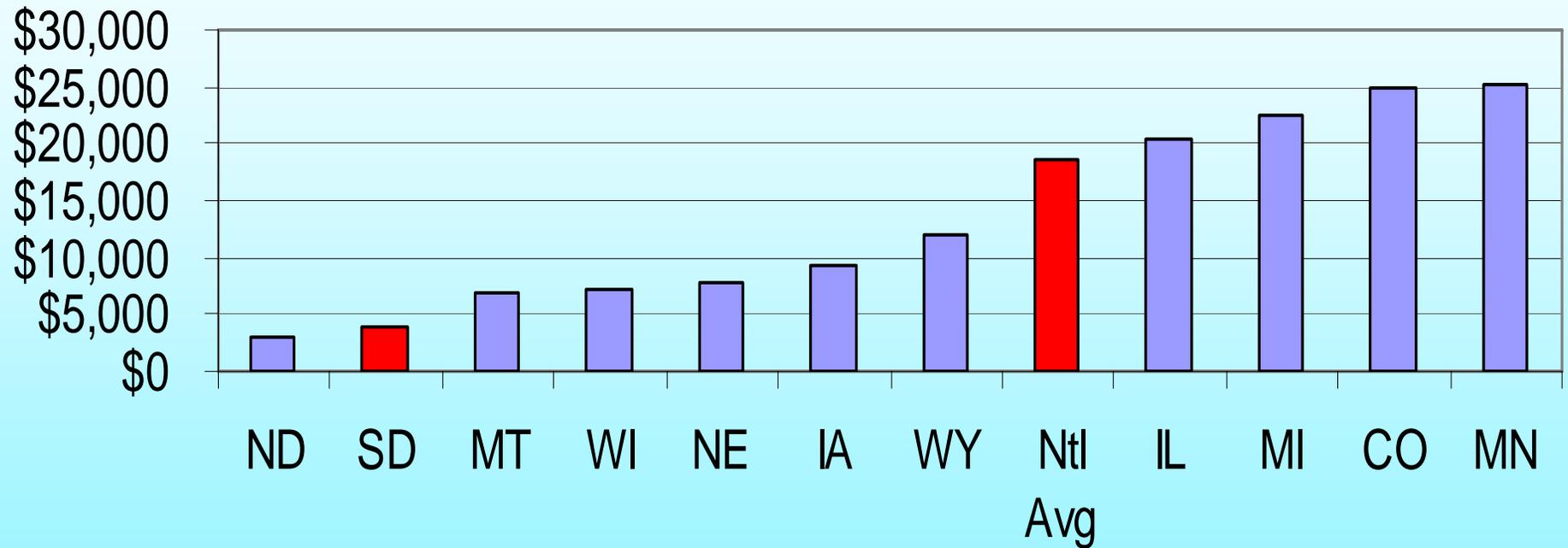
Preliminary & Construction Engineering As Percent of Total Project Cost



Source: 2005 Highway Statistics FHWA



Roadway Maintenance Cost Per Mile



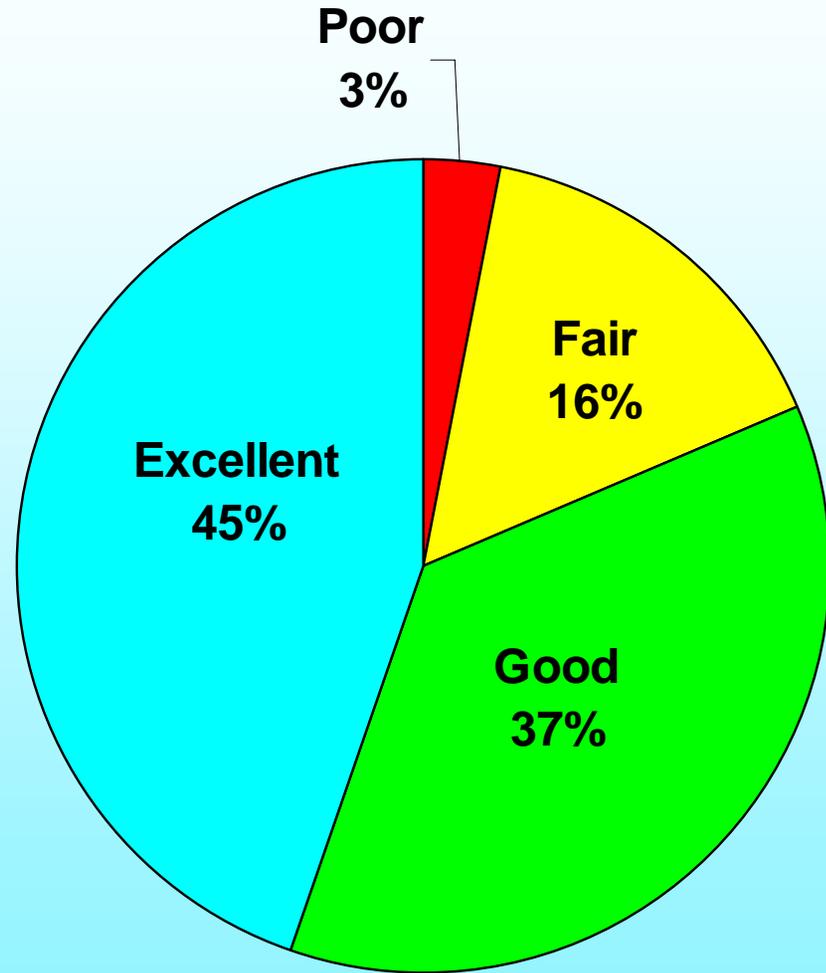
Source: 2006 Highway Statistics FHWA



Highway Pavement Condition

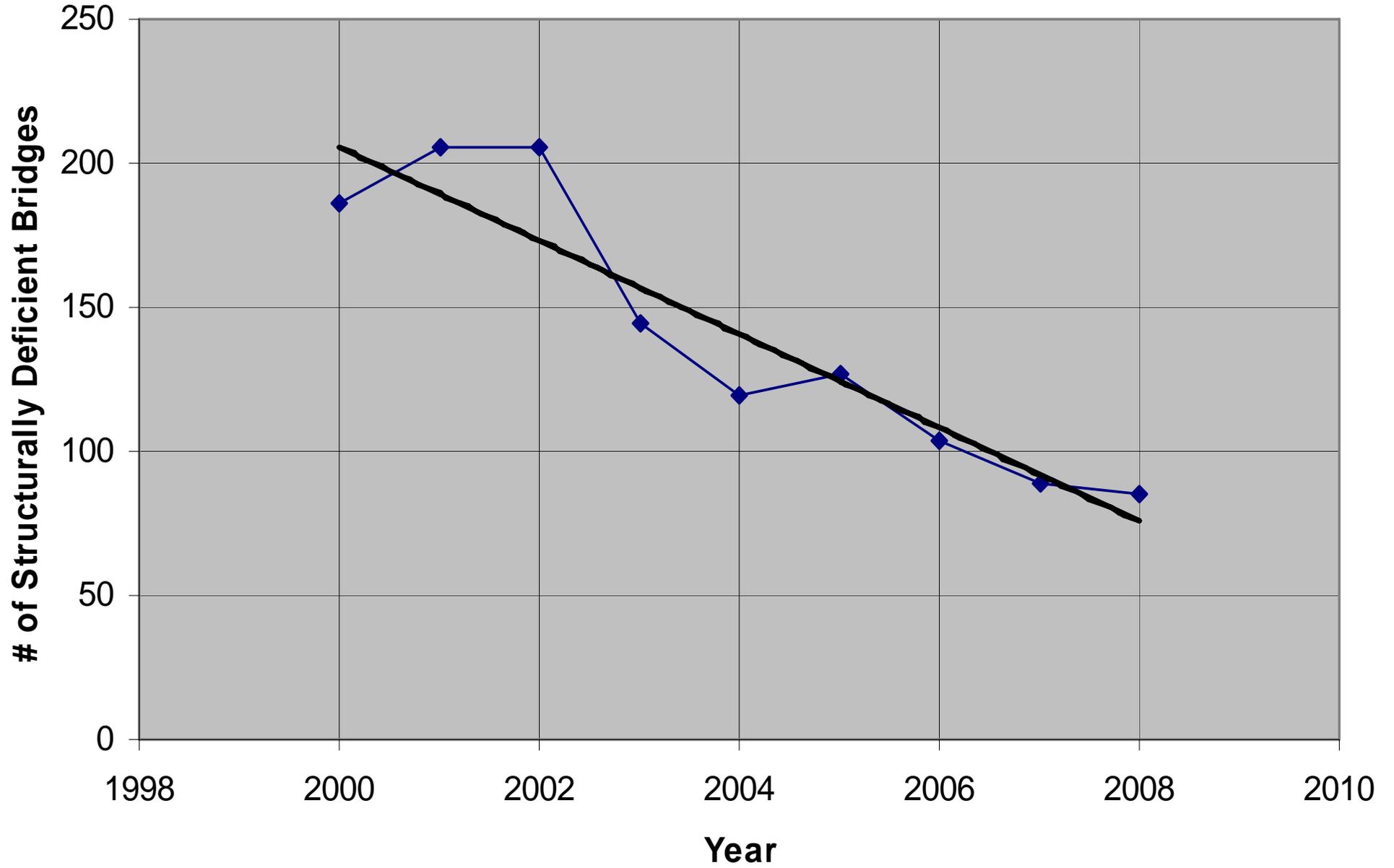


1999 Pavement Condition



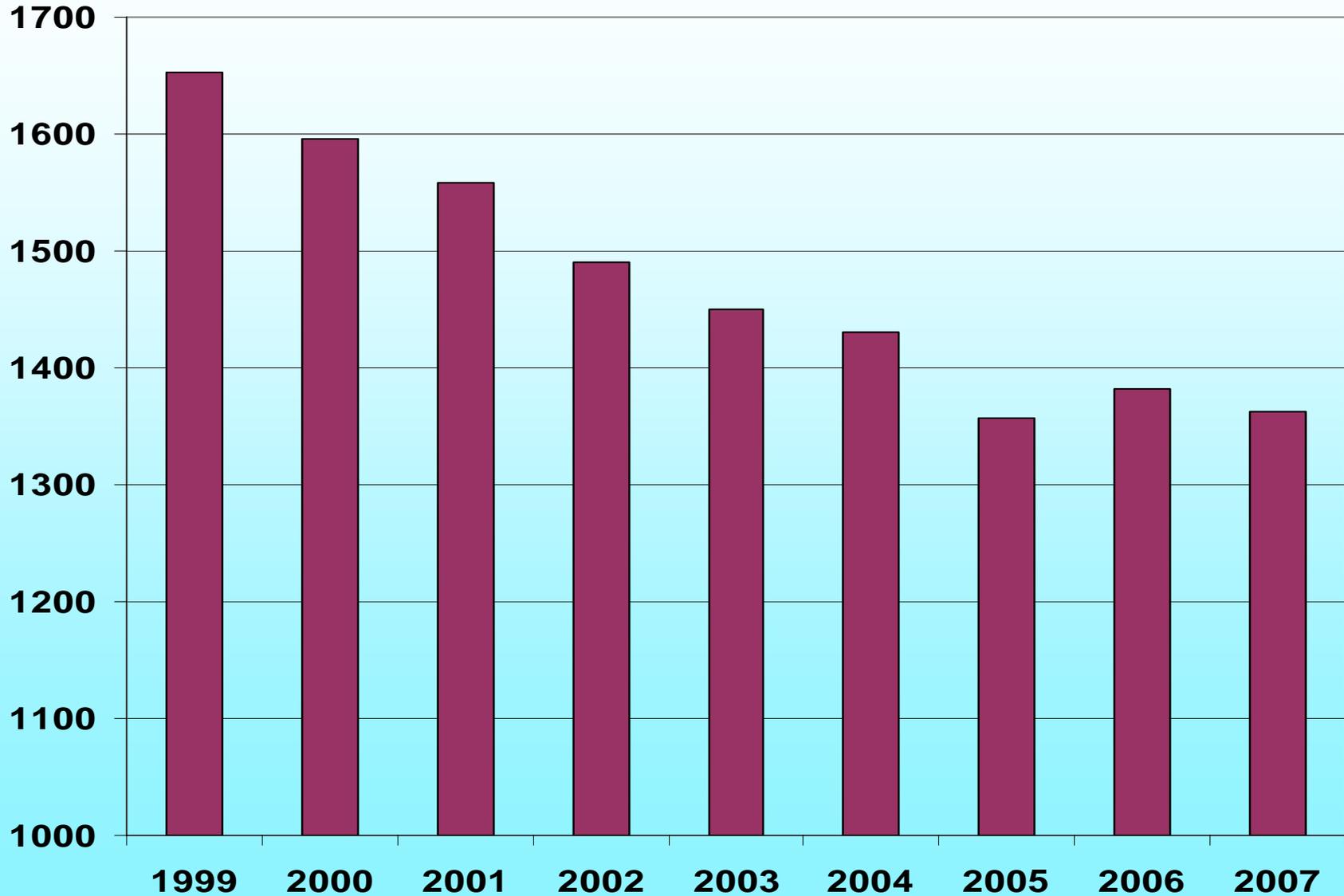
Current Pavement Condition

Structurally Deficient



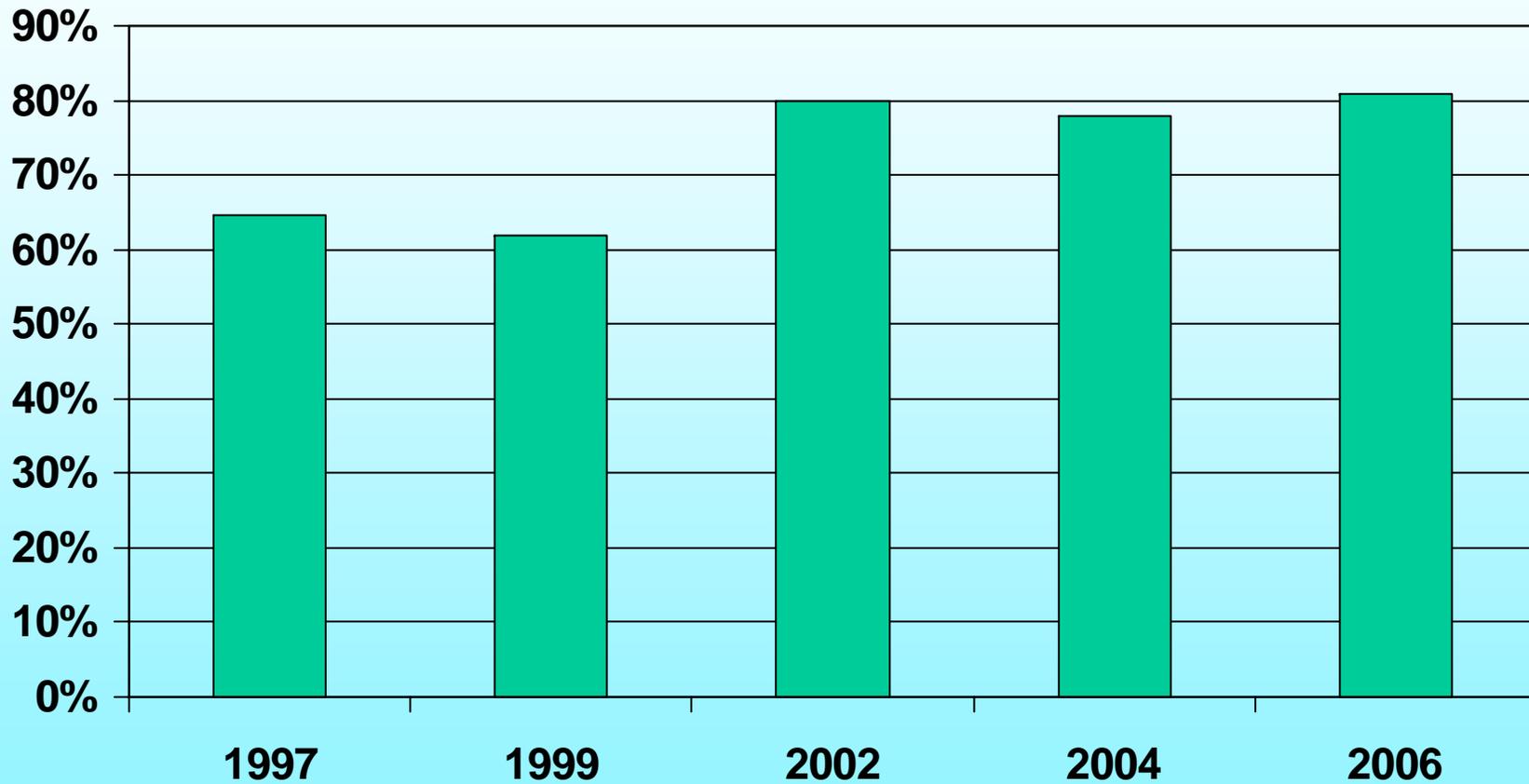


Miles of Roadway less than 28'





Percent Surveyed Satisfied with DOT Services





Customer's Areas of Importance

- **Maintaining Existing Highways**
- **Wider Roadways and Shoulders**
- **Snow Removal**
- **Highway Striping**

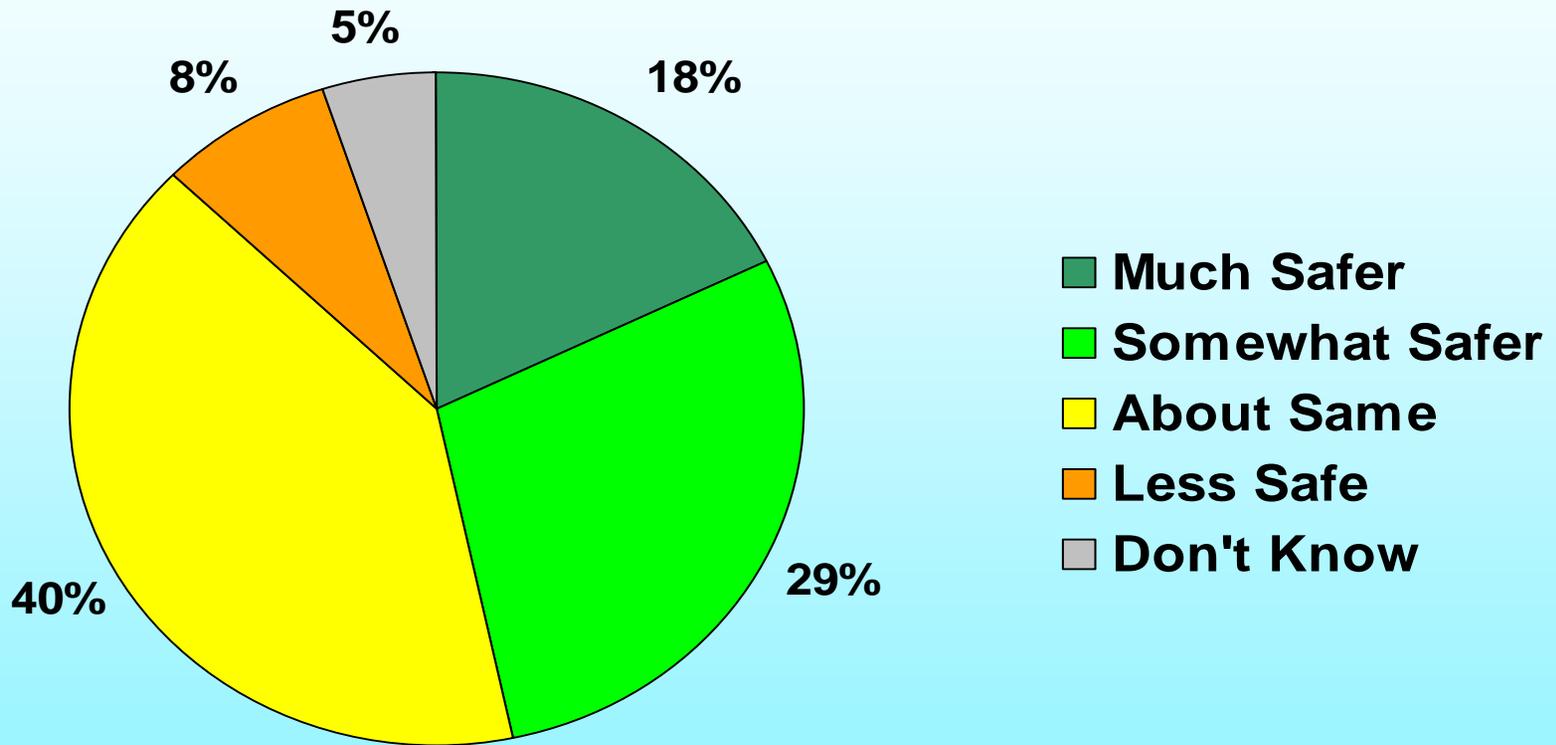


South Dakota Ranks Higher Than Neighboring States in 21 of 25 Areas

- **maintaining guard rails**
- **visibility of signs**
- **cleaning rest areas**
- **maintaining bridges**
- **frequency of signs**
- **center line striping**
- **roadside mowing**
- **snow removal**
- **striping sides of roads**
- **maintaining road surface**
- **overflow of traffic on highways**
- **frequency of rest areas on other highways**
- **shoulders on Interstate**
- **lighting at urban Interstate interchanges**
- **frequency of Interstate rest areas**
- **stormwater runoff from highways**
- **regulation of billboards along highways**
- **smoothness on Interstate**
- **landscaping/snow fences along highways**
- **smoothness on rural two-lane highways**
- **shoulders on rural two-lane highways**



SD Customer Satisfaction Survey: Compared to 5 years ago, do you think South Dakota Highways are:



Source: SDDOT Statewide Customer Satisfaction Assessment 2006



State Highway Needs

Field
Operations

Preservation

System
Improvements

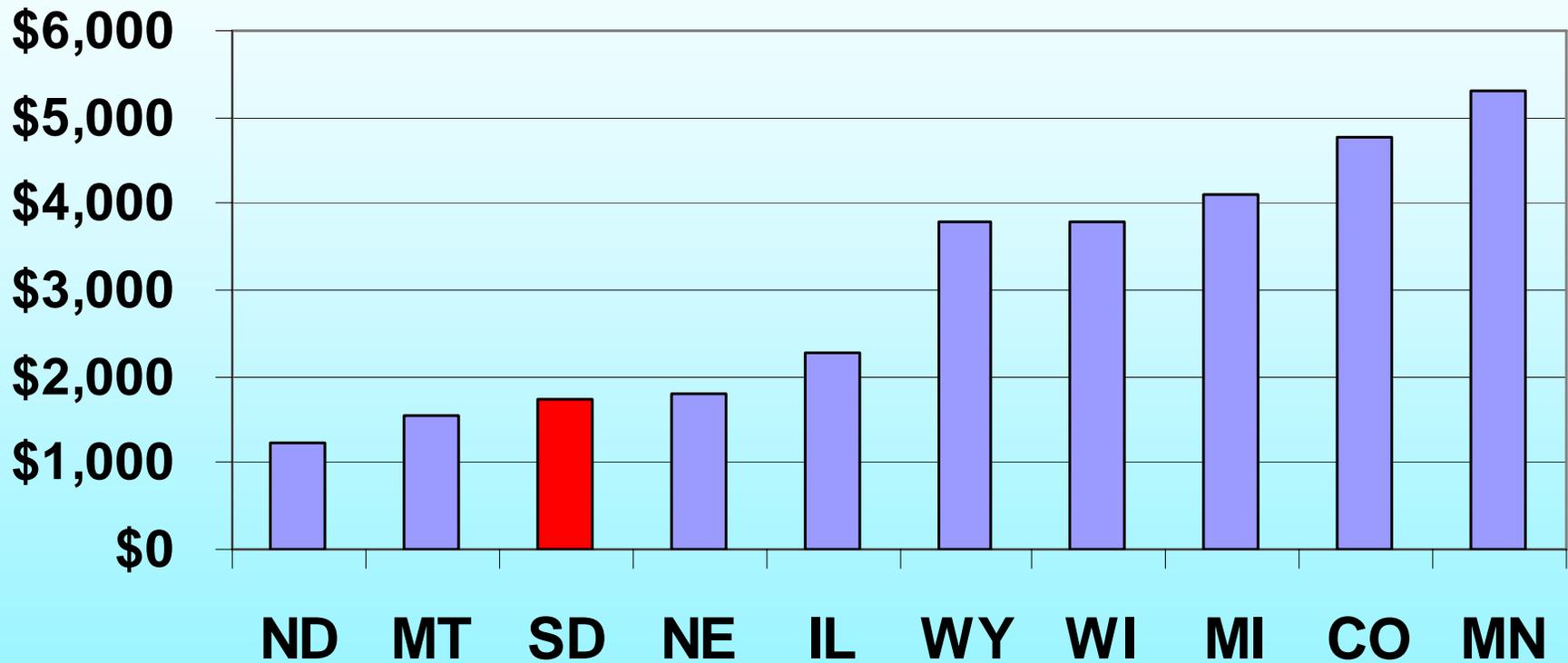


Field Operation Needs

- Winter Maintenance
- Roadway Maintenance
- General Maintenance
- Capital Outlay



Winter Maintenance Cost/Mile



Source: 2006 Highway Statistics FHWA

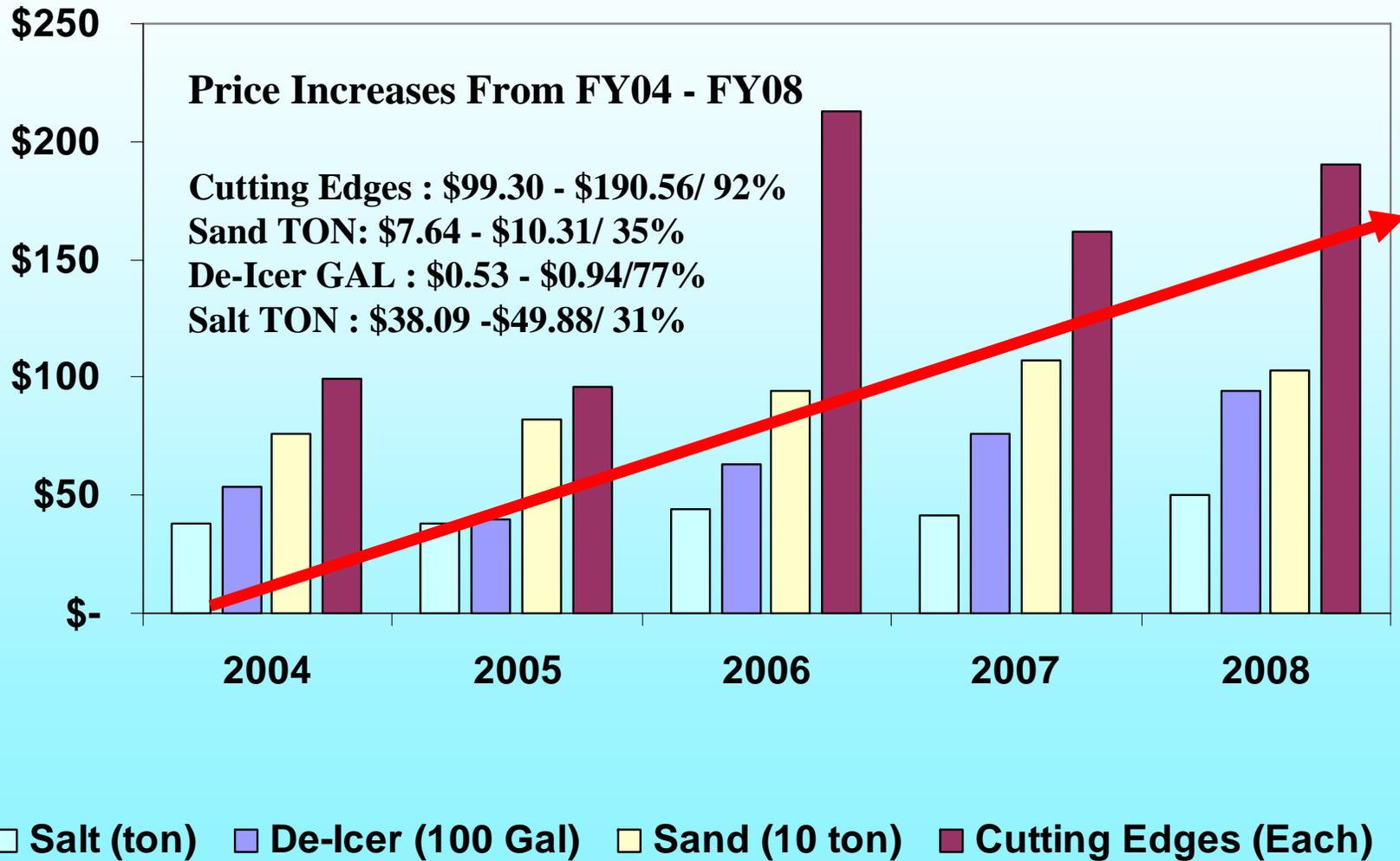


Winter Maintenance

- Not Eligible for Federal Funding
- Annual cost can be impacted by
 - Winter severity
 - Supplies Cost
 - Salt, sand, diesel, cutting edges, de-icer, etc
 - Equipment Age
 - Maintenance



Winter Maintenance Items



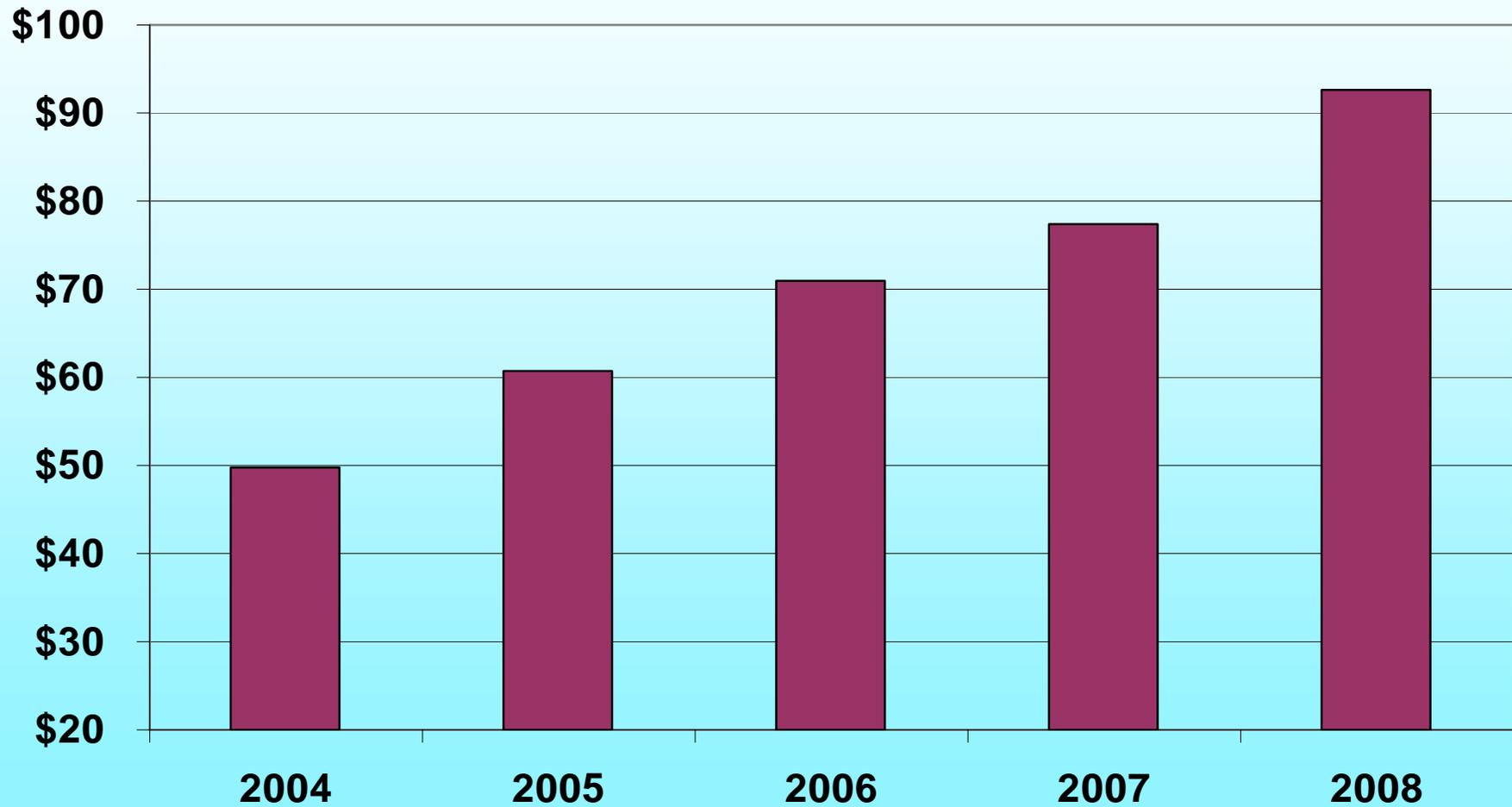


Roadway Maintenance

- Not Eligible for Federal Funding
 - Patching
 - Surface Treatment
 - Shoulder Maintenance
 - Bridge Maintenance



Cost of Asphalt for Patching Per Ton





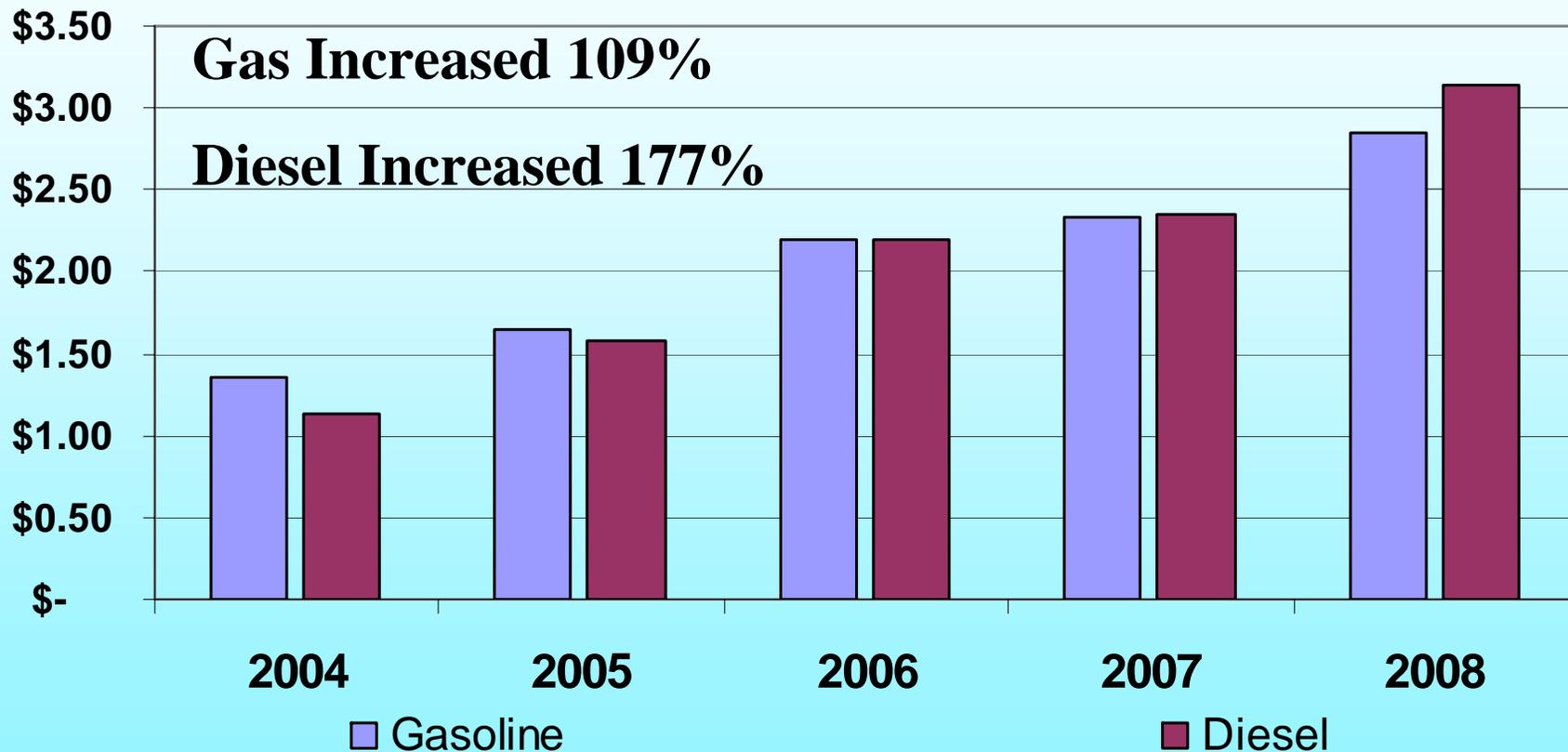
General Maintenance

Not Eligible for Federal Funding

- Machine Mowing
- Roadside Maintenance
- Signing & Delineators
- Striping & Pavement Markings
- Facilities & Grounds
- Other Maintenance Operations



Fuel Cost Increases Per Gallon





Combined Field Operations Needs

- Winter Maintenance - \$17.0 M
- Roadway Maintenance - \$22.9 M
- General Maintenance - \$32.7 M

Total - \$72.6 M



Mileage Difference

- The difference in miles is due to the re-inventory we have done in recent years. Last year we started reporting mileage for several counties that had a drop in township roads because they do not meet minimum criteria for a road anymore. The 2008 certified mileage report will show another significant drop in miles as well.
- Townships - from 33,205 down to 32,410
- Counties - from 36,672 down to 36,656
- City - from 3,993 up to 4,059
- Other (Federal, Tribal, etc) - 2,527 to 2,754
- State - same at 7,848



Field Equipment

- 2004 Study finding
 - Backlog \$48.0 M in Equipment

- Current Equipment Status
 - Backlog \$40.3 M in Equipment
 - \$12 M/yr Needed to Maintain Backlog
 - \$15 M/yr Needed to Eliminate Backlog by 2018

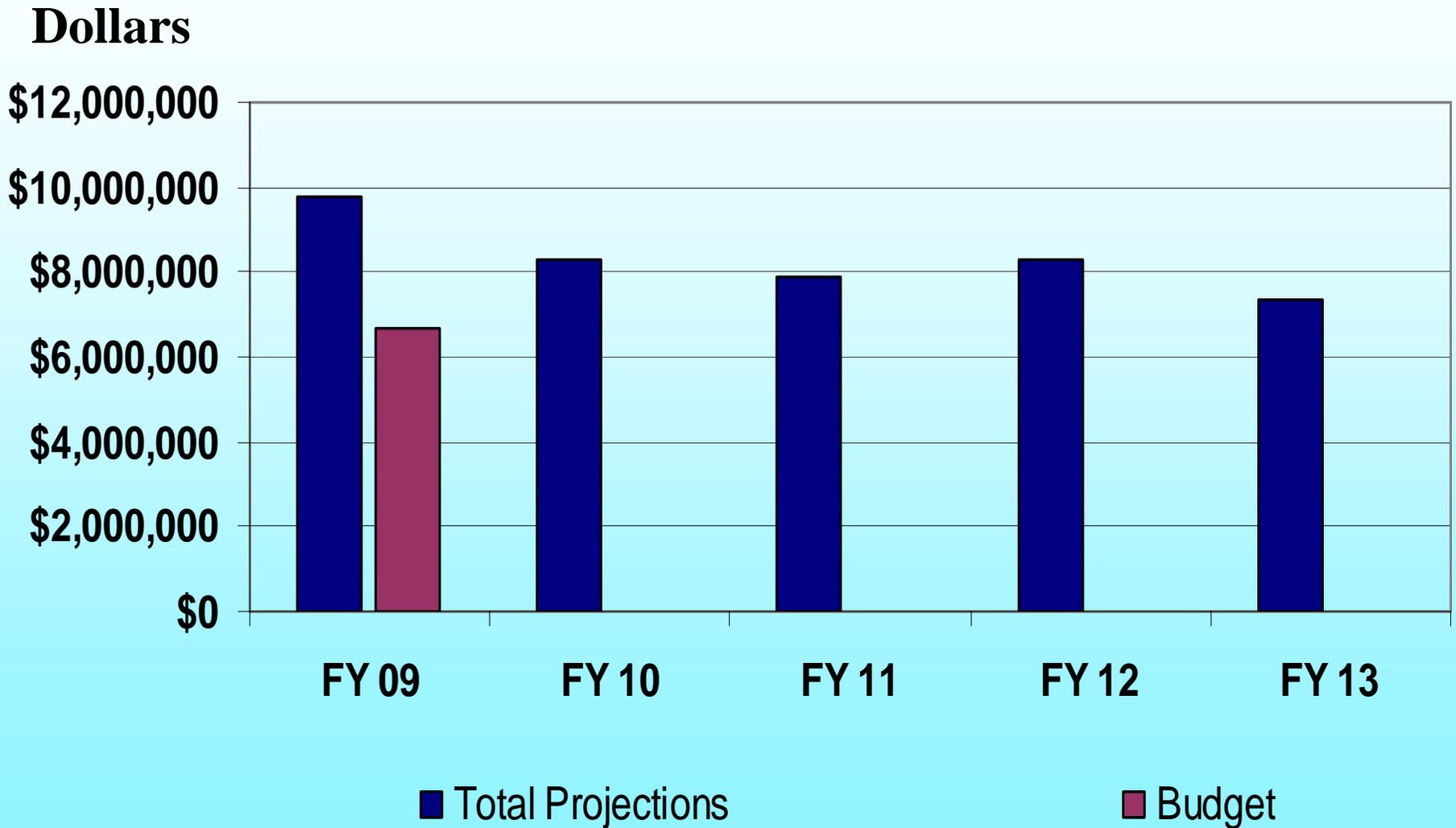


Buildings

- Management System: Audit Mate (2005)
- Organizational Reviews
 - 1984
 - Maintenance Shops Reduced
 - Engineering Residencies Eliminated
 - 1996
 - Review of Maintenance Shops for elimination or management consolidation



Building Needs





Field Operations Needs/Available Funds

- Field Operations - \$72 M / \$68 M
- Equipment - \$15 M / \$9 M
- Buildings - \$8 M / \$7 M



State Highway Needs

Field Operations

Preservation

System
Improvements



How Highway Projects are Selected

- Pavement Management System
 - Annual Condition Inspections
 - Different for Asphalt and Concrete
 - Based on Lowest Life Cycle Cost for the Available Budget



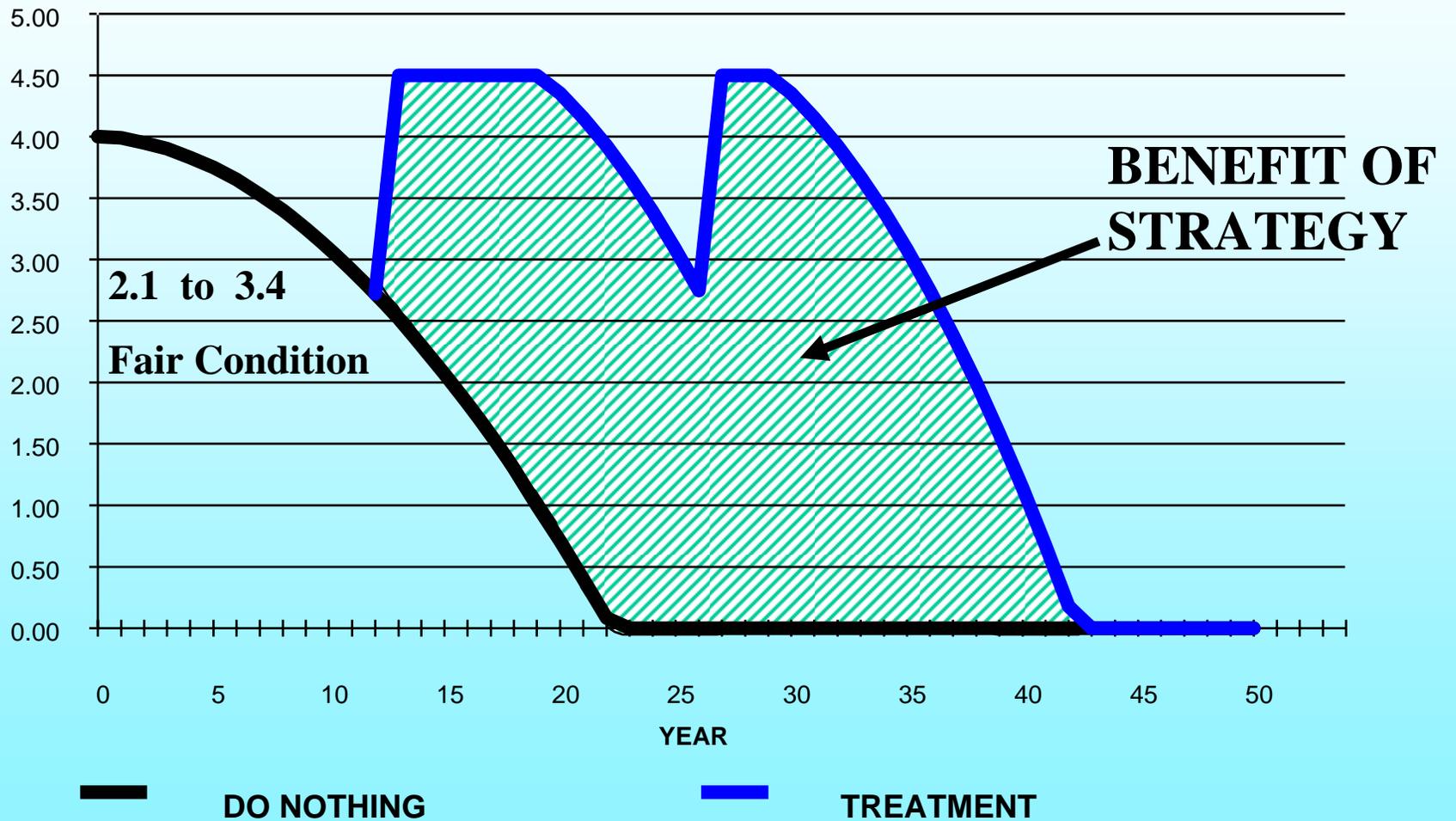
Setting of Category Goals & Minimums

- **Network**
 - Minimum – 3.55
 - Goal – 3.90
- **Interstate**
 - Minimum – 3.90
 - Goal – 4.20
- **Major**
 - Minimum – 3.70
 - Goal – 4.00
- **Minor**
 - Minimum – 3.40
 - Goal – 3.80
- **State Secondary**
 - Minimum – 3.00
 - Goal – 3.60
- **Urban**
 - Minimum – 3.6
 - Goal – 4.0
- **Municipal**
 - Minimum – 3.6
 - Goal – 4.0



Benefits of Pavement Management

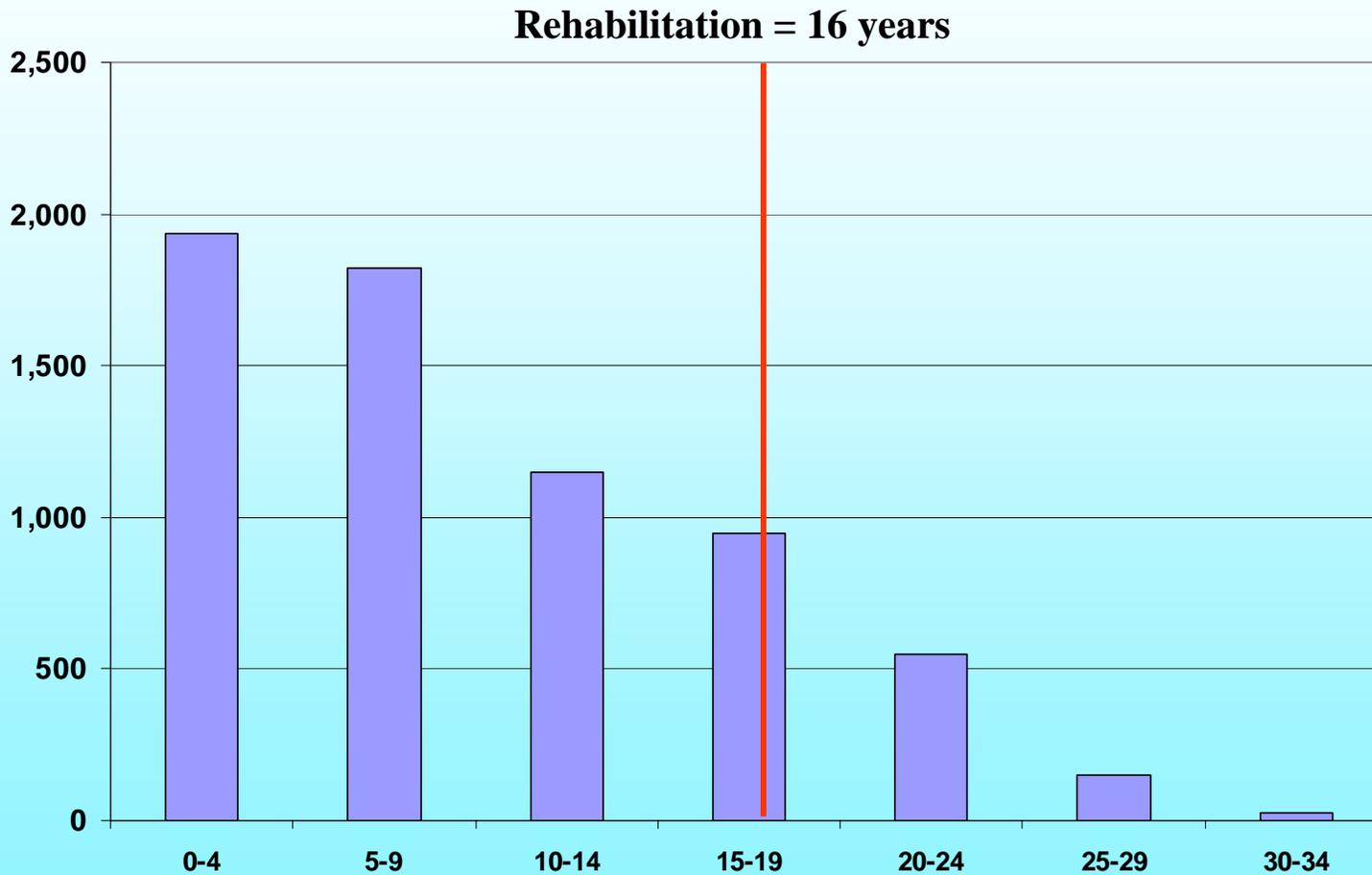
Condition Index





Asphalt Pavement Age

Miles



Approximately 16 % of our asphalt pavement exceed 18 years of age.

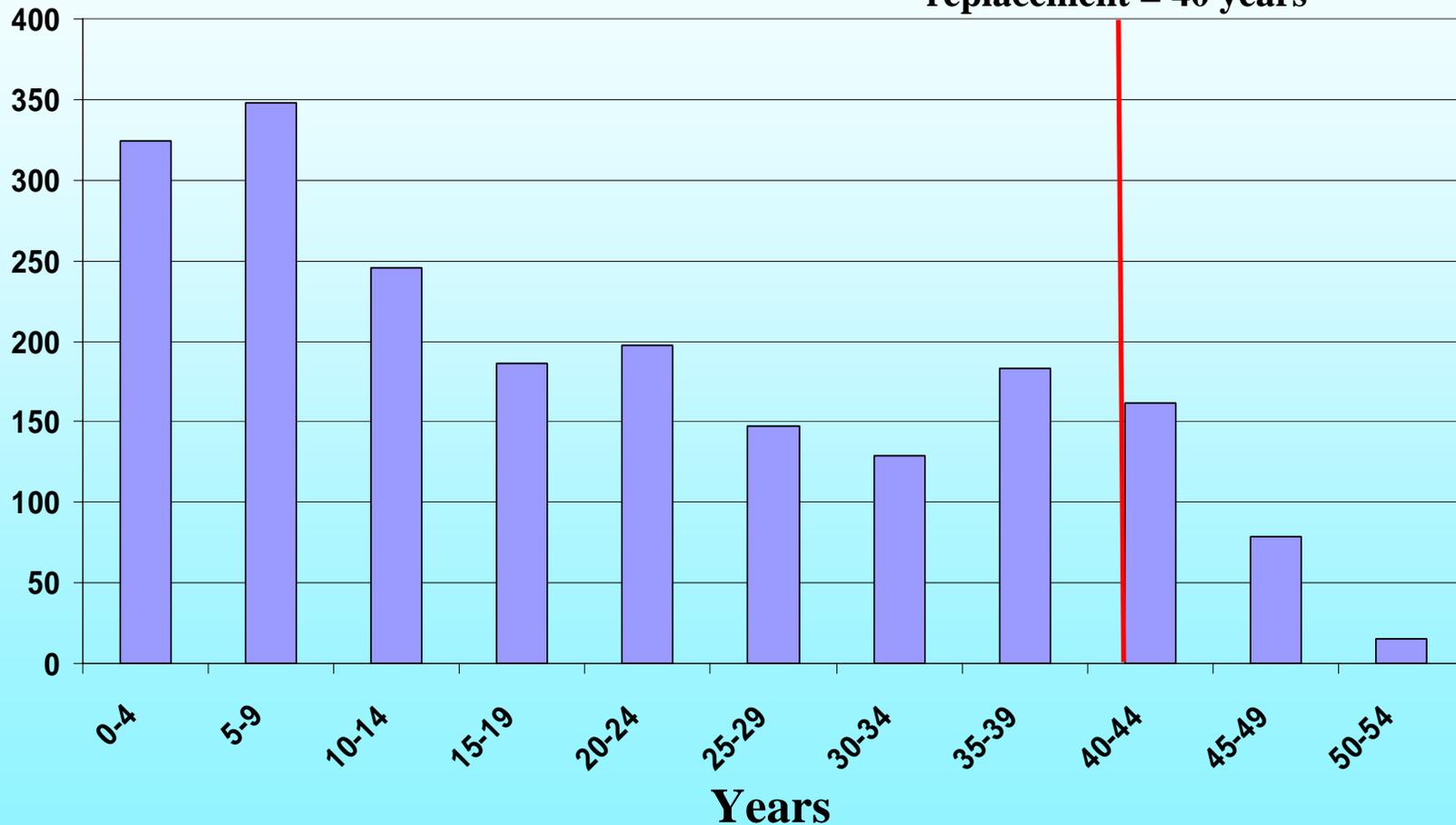
Years



Concrete Pavement Age

Miles

Average age at replacement = 40 years



Approximately 9 % of our concrete pavement exceeds 40 years of age.



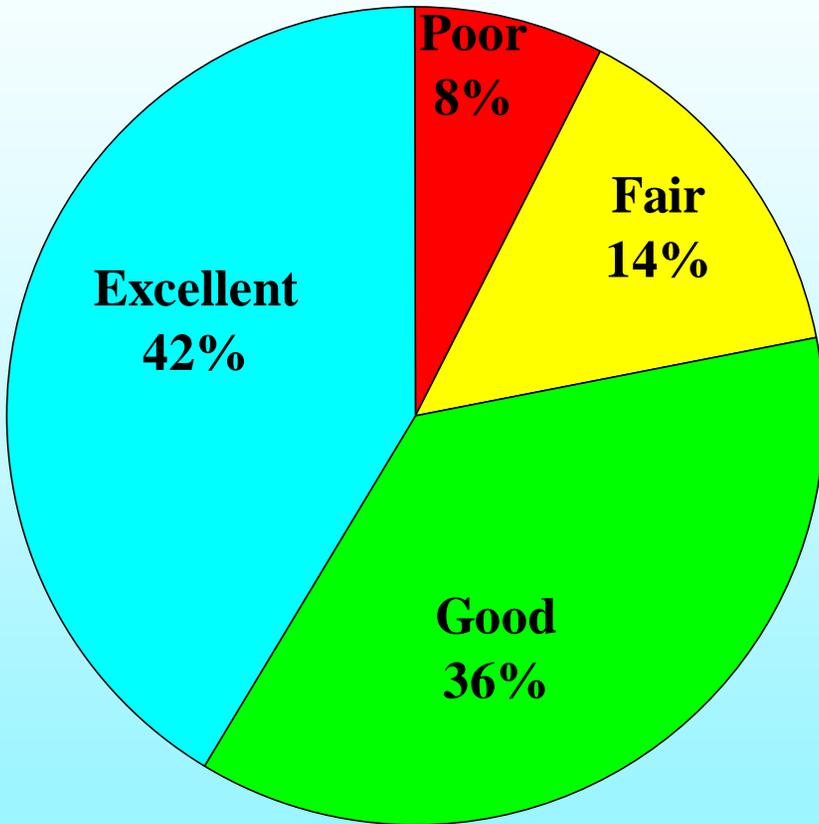
Relationship Between Expenditures and Condition

Pavement Condition

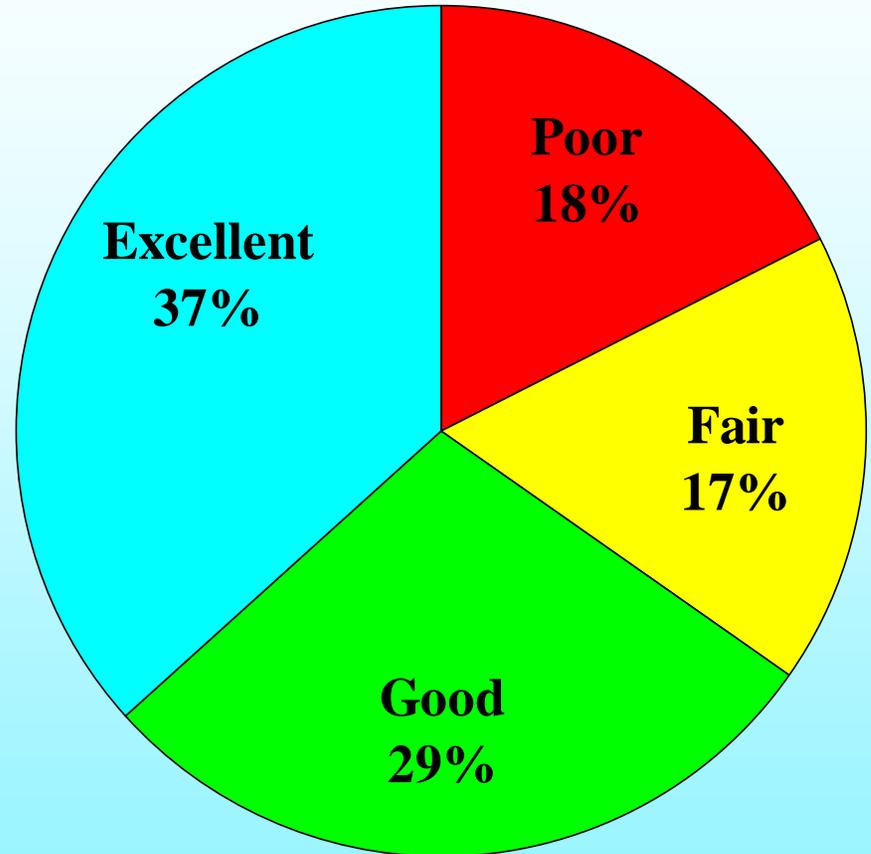




Future Pavement Condition



\$240 M Preservation



\$165 M Preservation



Excellent Road Condition

- Today about 45% of highway system





Good Road Condition

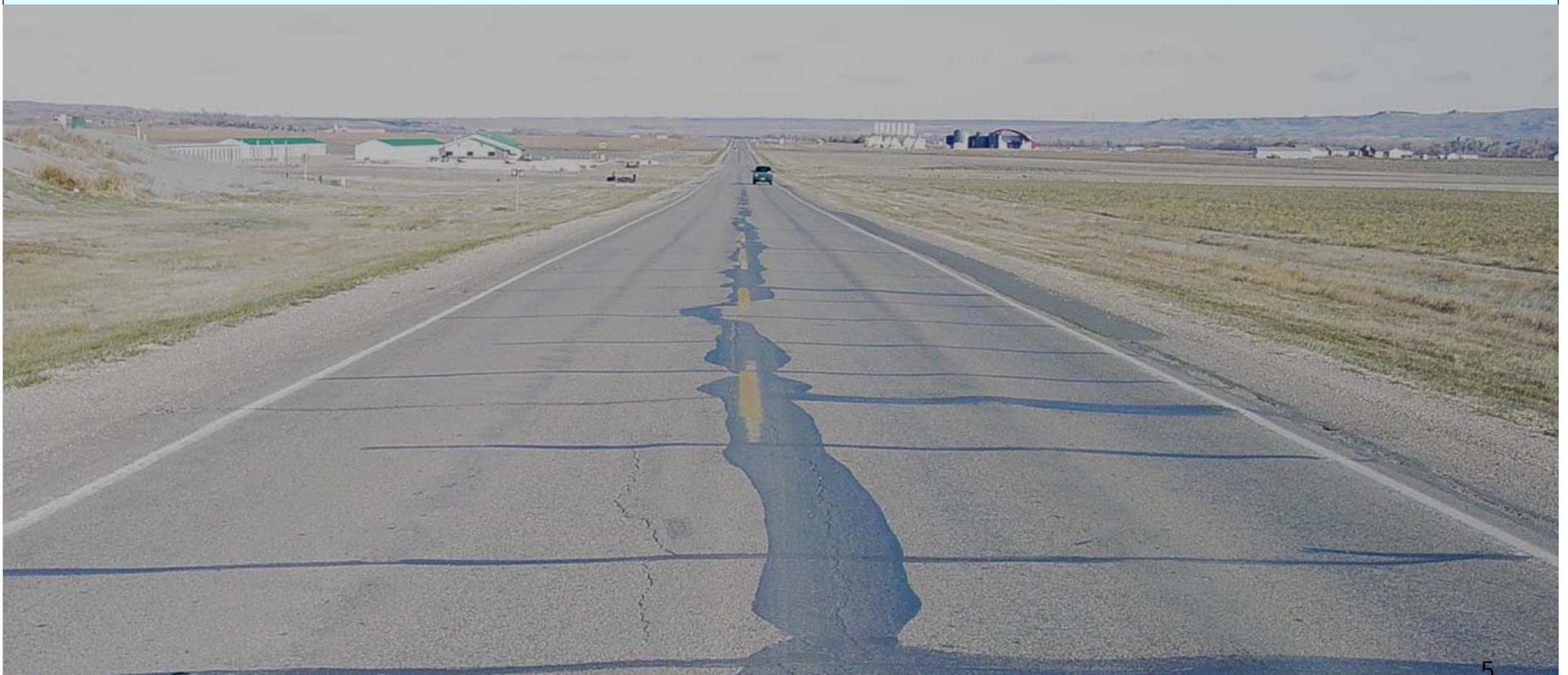
- Today about 36% of highway system





Fair Road Condition

- Today about 16% of highway system





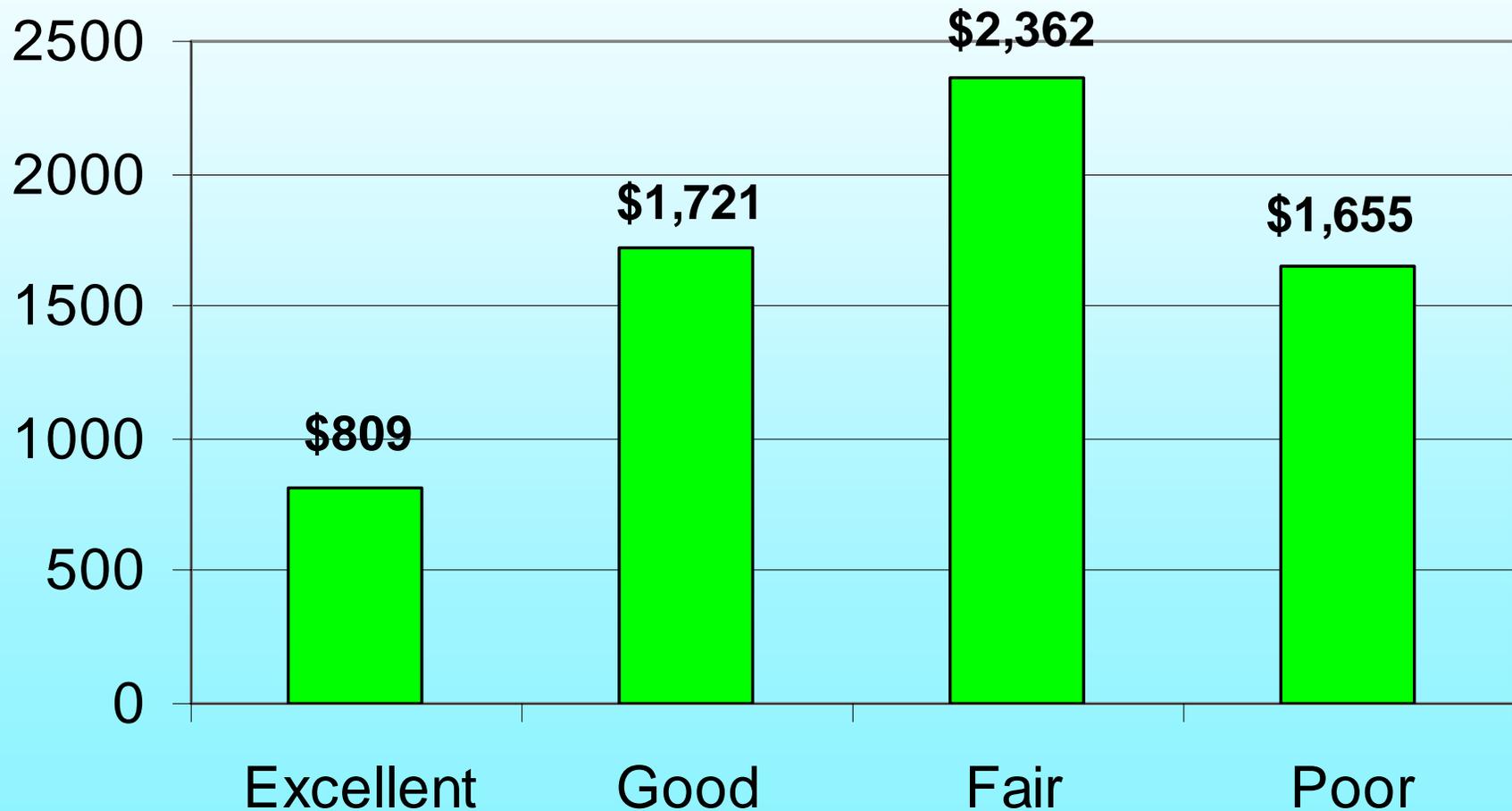
Poor Road Condition

- Today about 3% of highway system





Pavement Maintenance Costs per Mile





How Bridge Projects are Selected

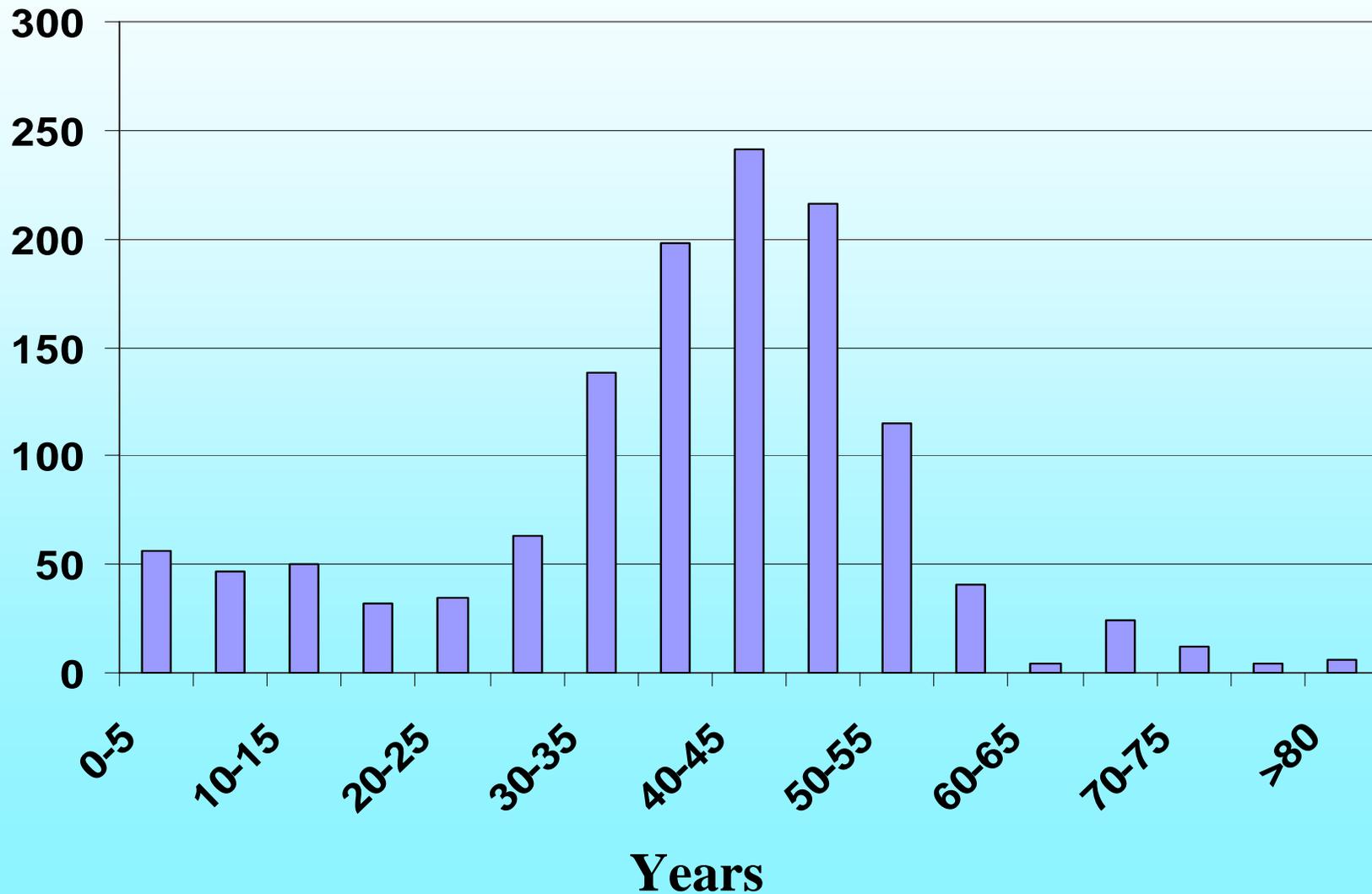
- Bridge Management System
 - Inspected every Two Years*
 - Multiple Data Elements
 - Treatment Strategies are Identified
 - Benefit/Cost Analysis

* FHWA approval for 4 year inspection on 429 structures
Annual inspection on Missouri River Bridges



State Bridge Age

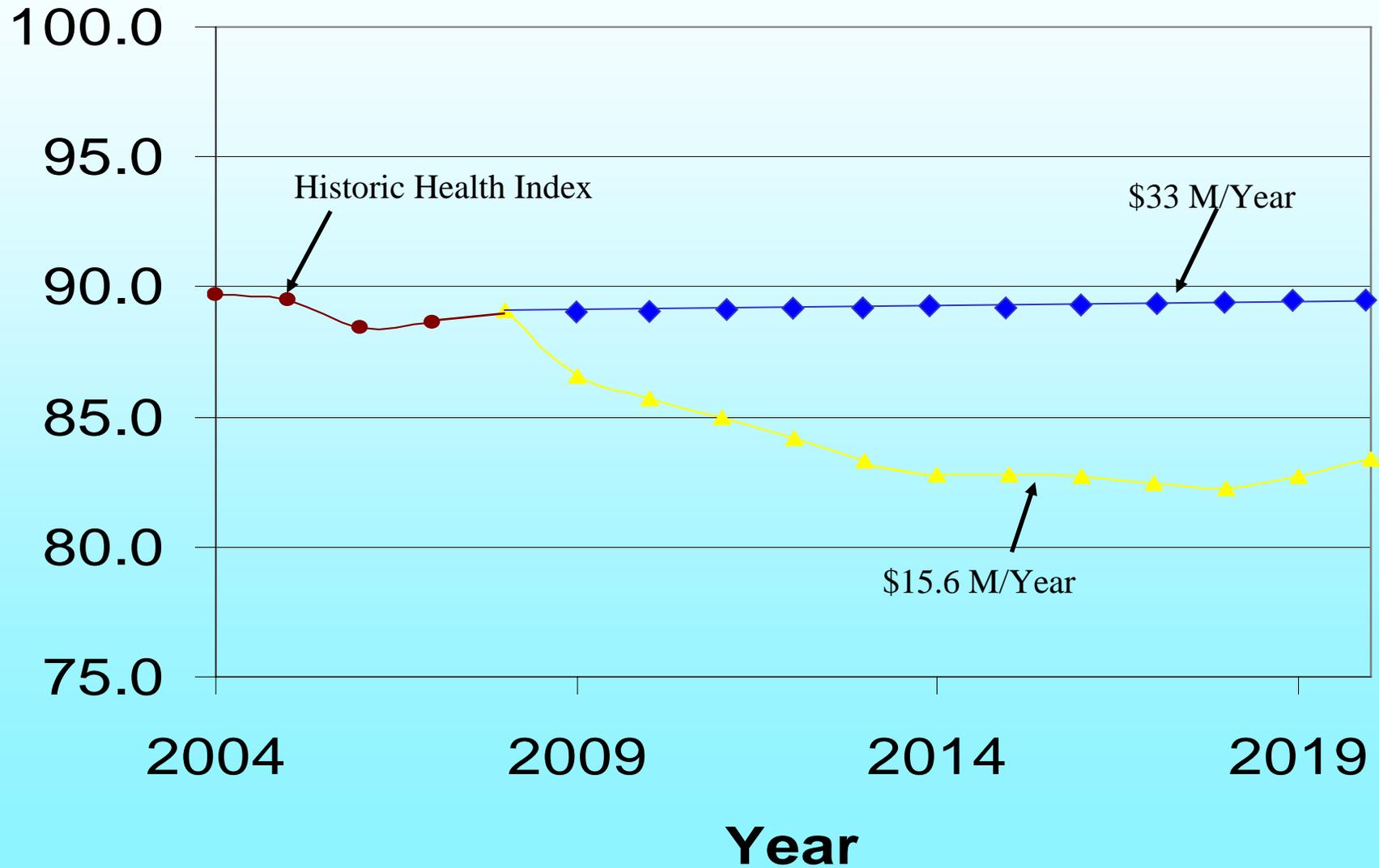
Number of Bridges





Future Structure Health

Condition Compared to a New Structure



State Highway Needs

Operational

Preservation

System
Improvements



Planned Improvements and Additions

- At least \$500 M (in today's dollars)
- I-29/I-229 System Interchange, I-29/US 18 (Canton) Interchange, I-90/I-229 Interchange, US 16 Hell Canyon, SD 47 North of Hoven, SD 34 in Sturgis, SD 44 in Rapid City, US 14 in Brookings, etc.



Requested Additions

- At least \$1 Billion (in today's dollars)
- SD 34 from Madison to I-29, New I-29 Interchange near Summit, Teddy Roosevelt Expressway (US 85 Belle Fourche to ND), US 12 fm Mobridge to Aberdeen, US 81 fm Yankton to I-90, etc.



Economic Development

- Generally “New” Transportation Infrastructure
- New Interchanges to Support Growth
- Research Facilities, Refineries, New Businesses, Population Growth



System Improvements/Needs

Planned Improvements and
Additions - \$25 M/Year

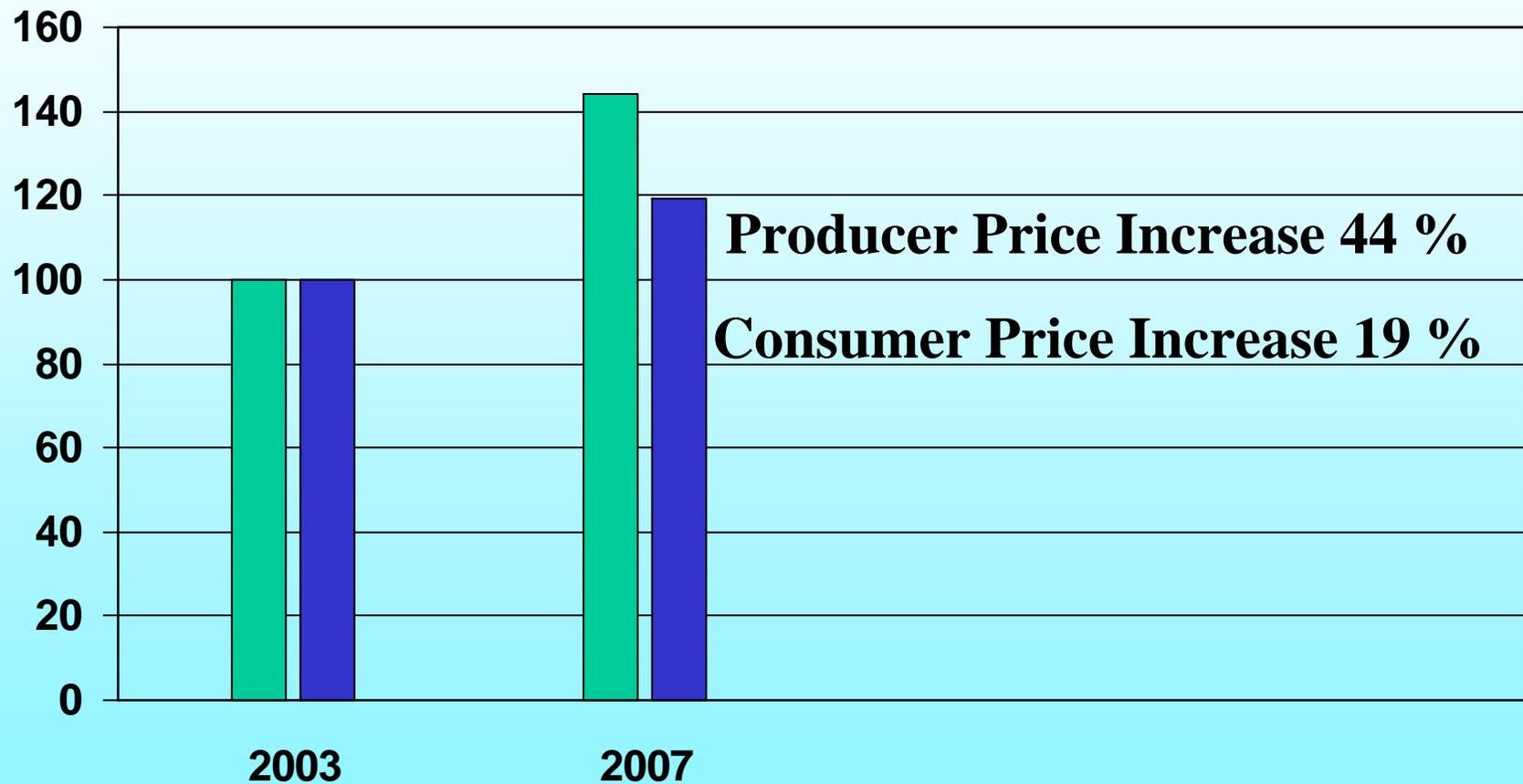
Requested Additions - \$0 M/Year



Producer Prices v. Consumer Prices

2003 - 2007

Index



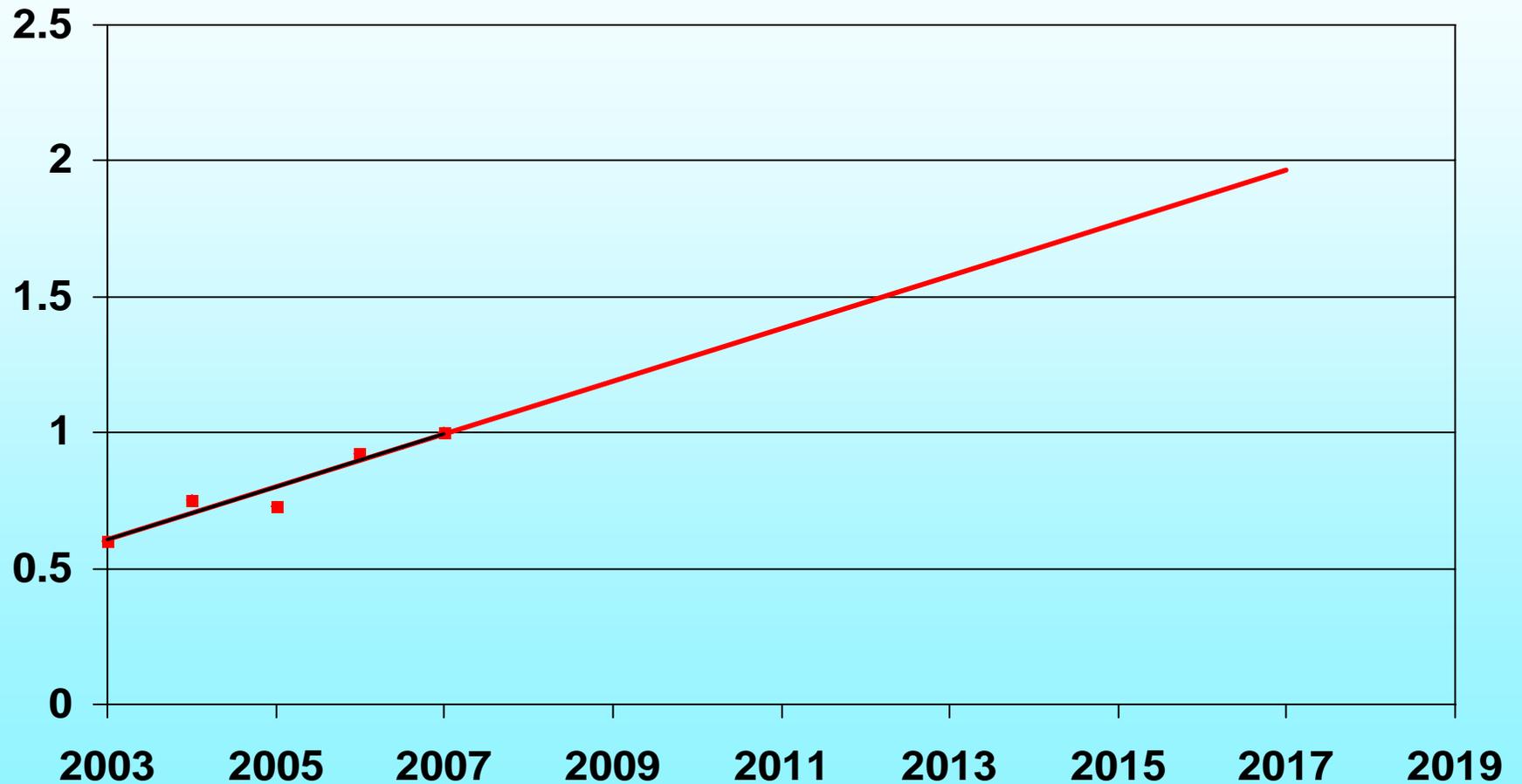
■ Producer Price Index

■ Consumer Price Index



Construction Cost Inflation

Five Year Trend Increases at 9.7 Percent/Year

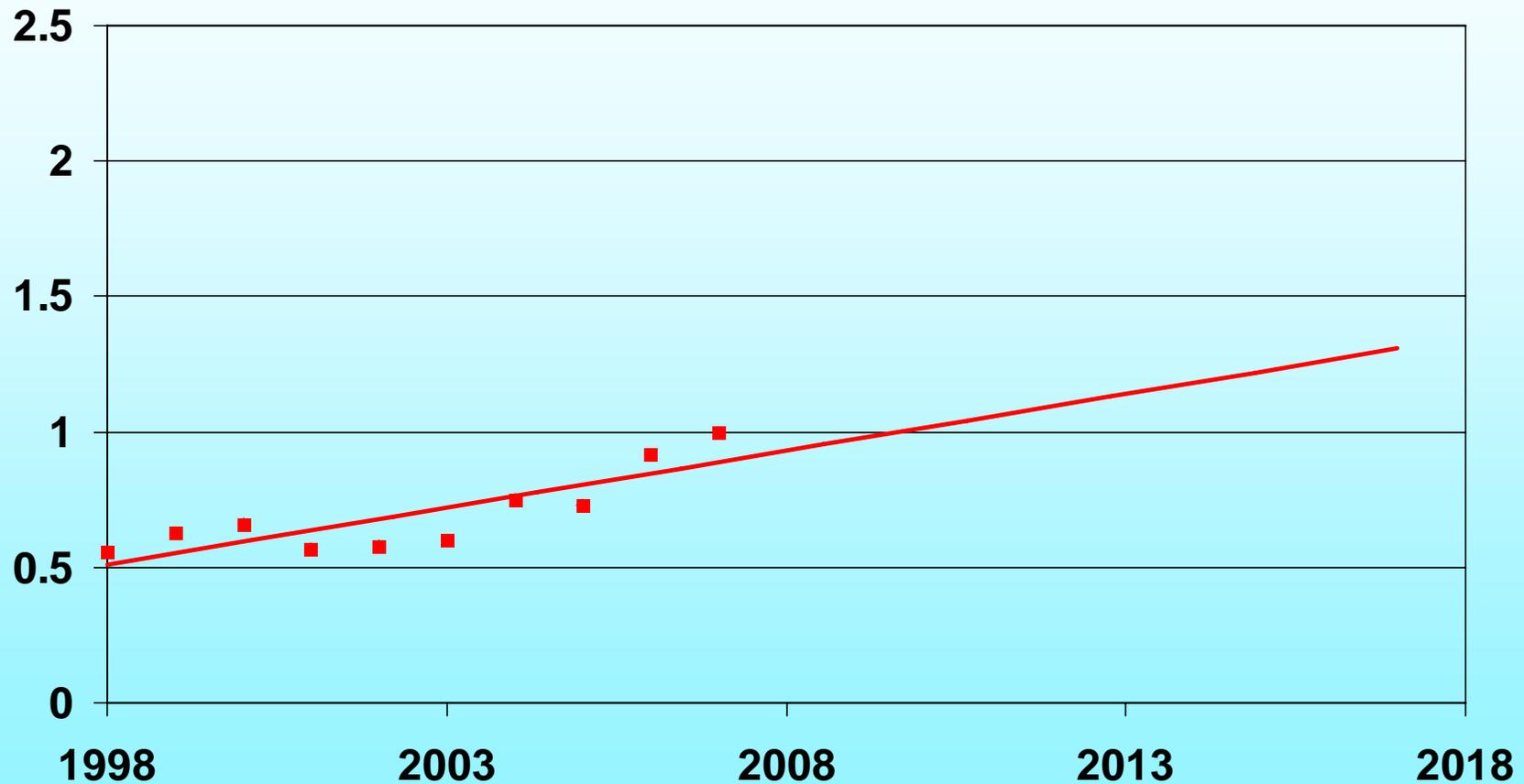


Actuals increase at 67 percent over 5 years and projected to increase 225 percent by 2017.



Construction Cost Inflation

Ten Year Trend Increases at 4.2 Percent/Year

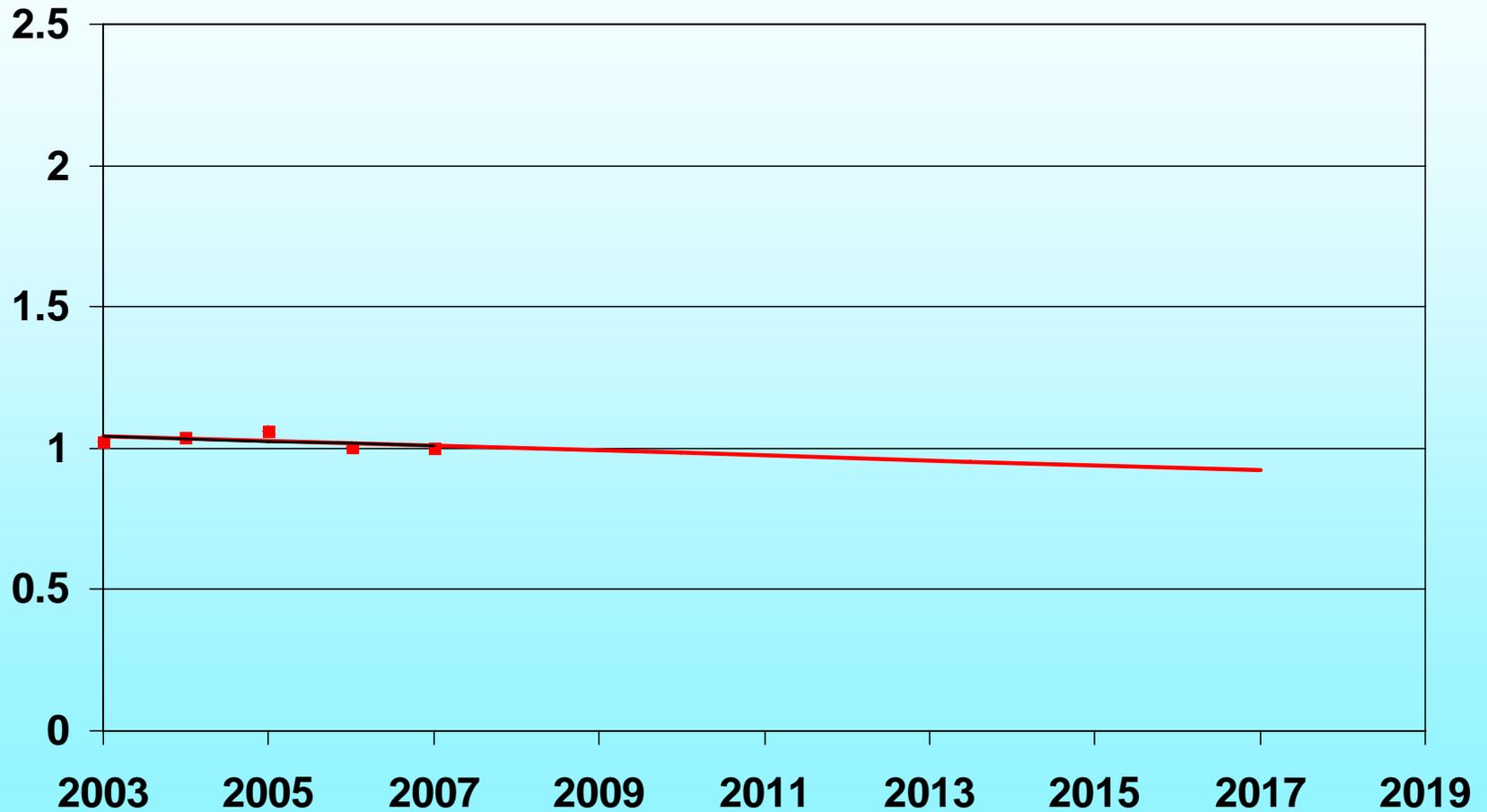


Actuals increase 72 percent over ten years and projected to increase 119 percent by 2017.



State Highway Fund Revenues

Five Year Trend Decreases at About 1 Percent Per Year

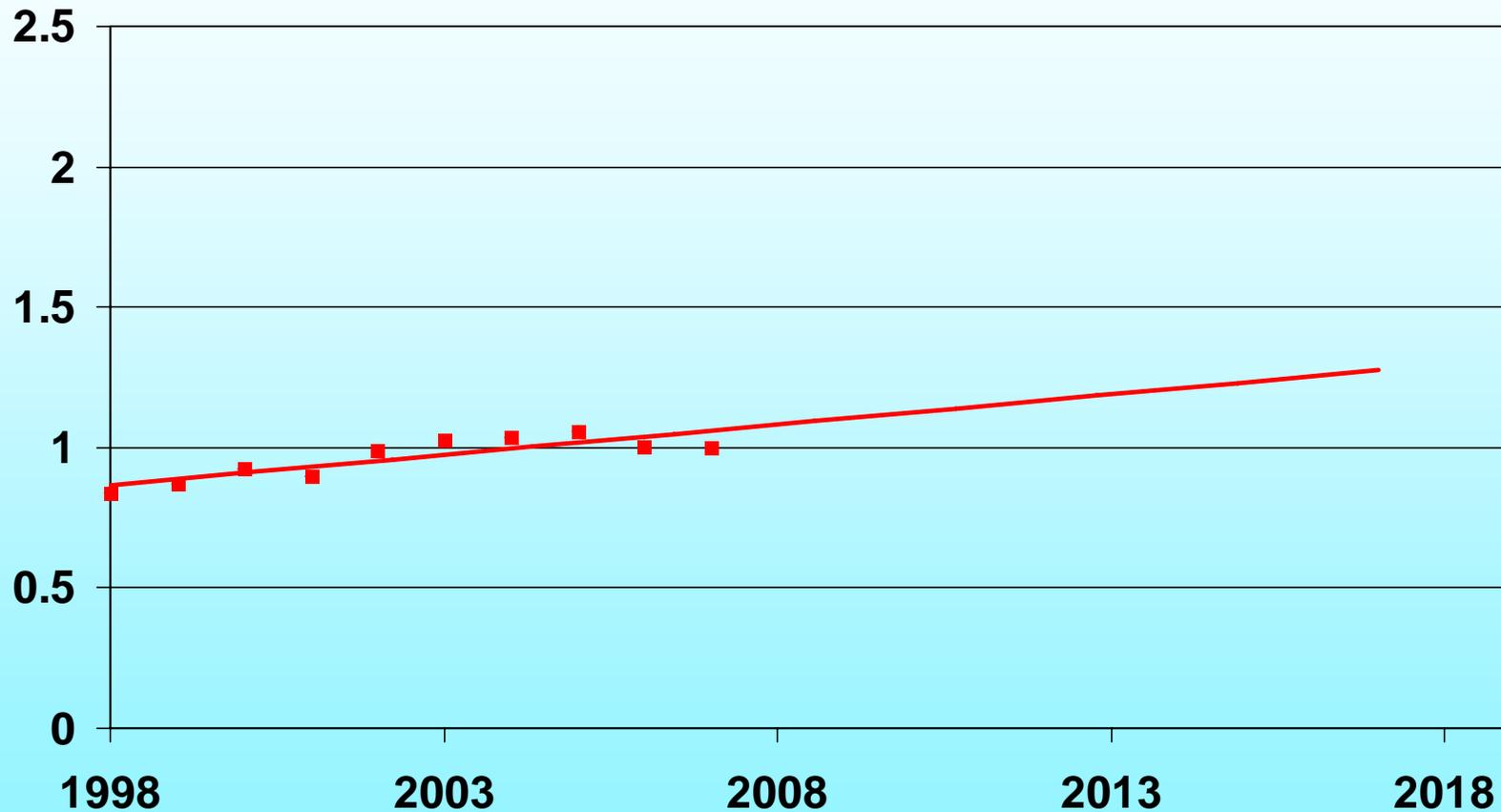


Actuals decrease at 2.4 percent over 5 years and projected to decrease 9 percent by 2017.



State Highway Fund Revenues

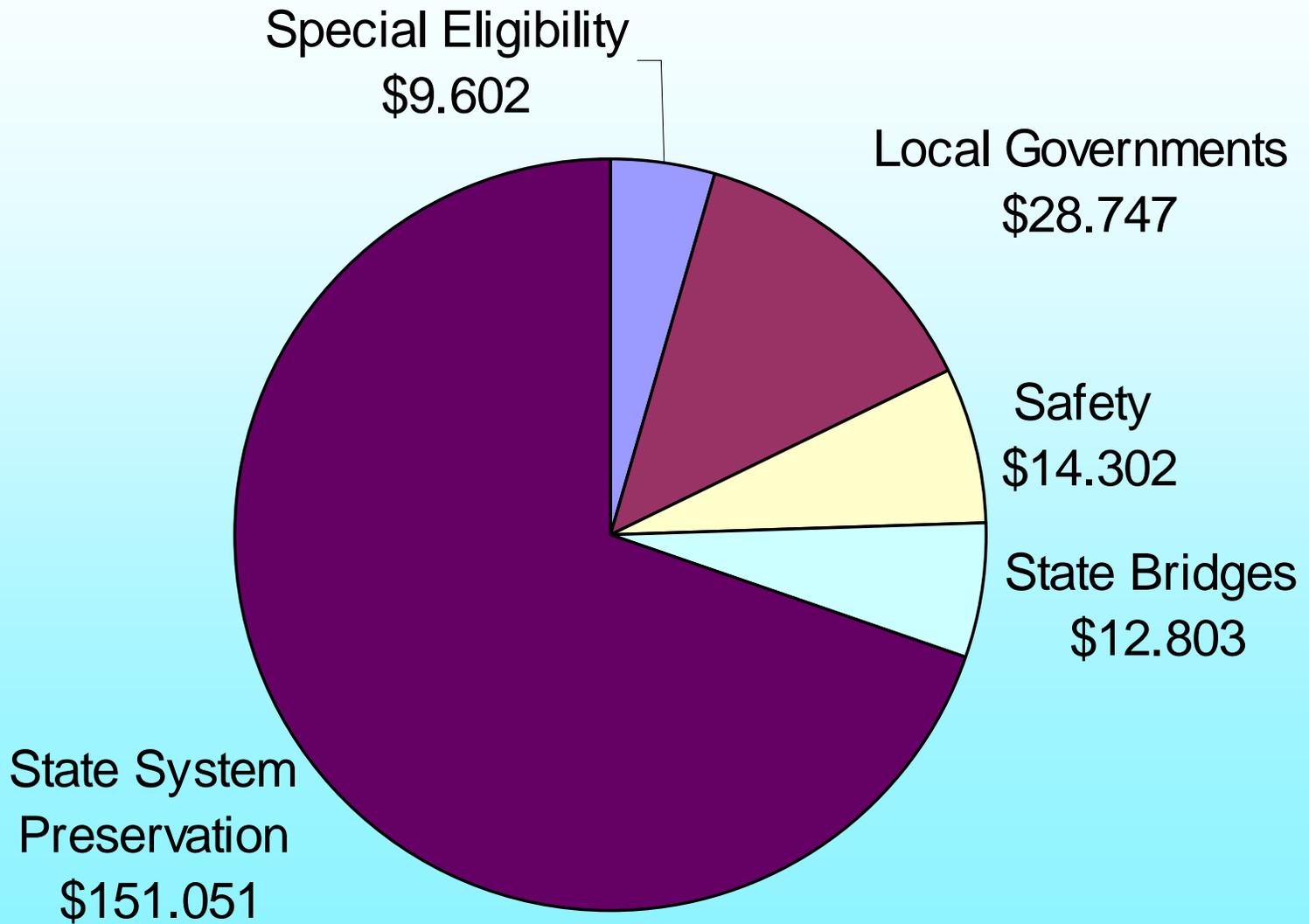
Ten Year Trend Increases at Less Than 2 Percent Per Year



A modest 10 percent increase over 10 years and projected to increase 20 percent by 2017.

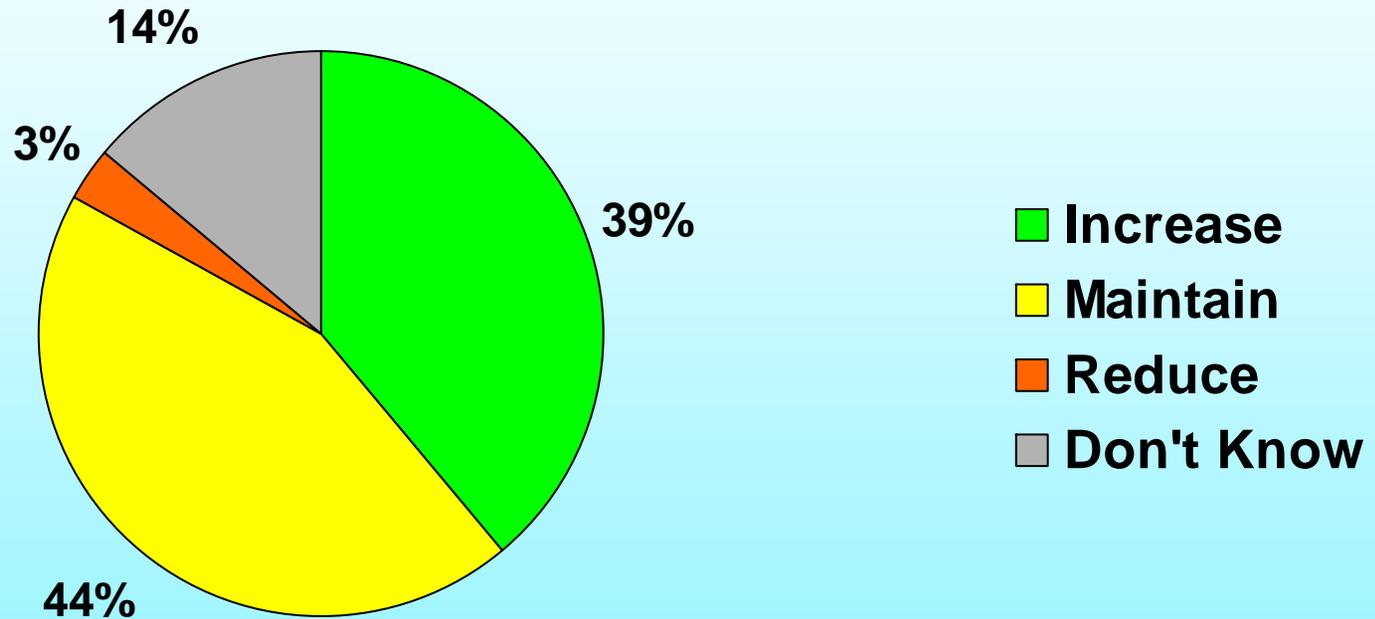


Federal Funds





SD Customer Satisfaction Survey: How Should Funding Level for State Highways Change in Next 5 Years?

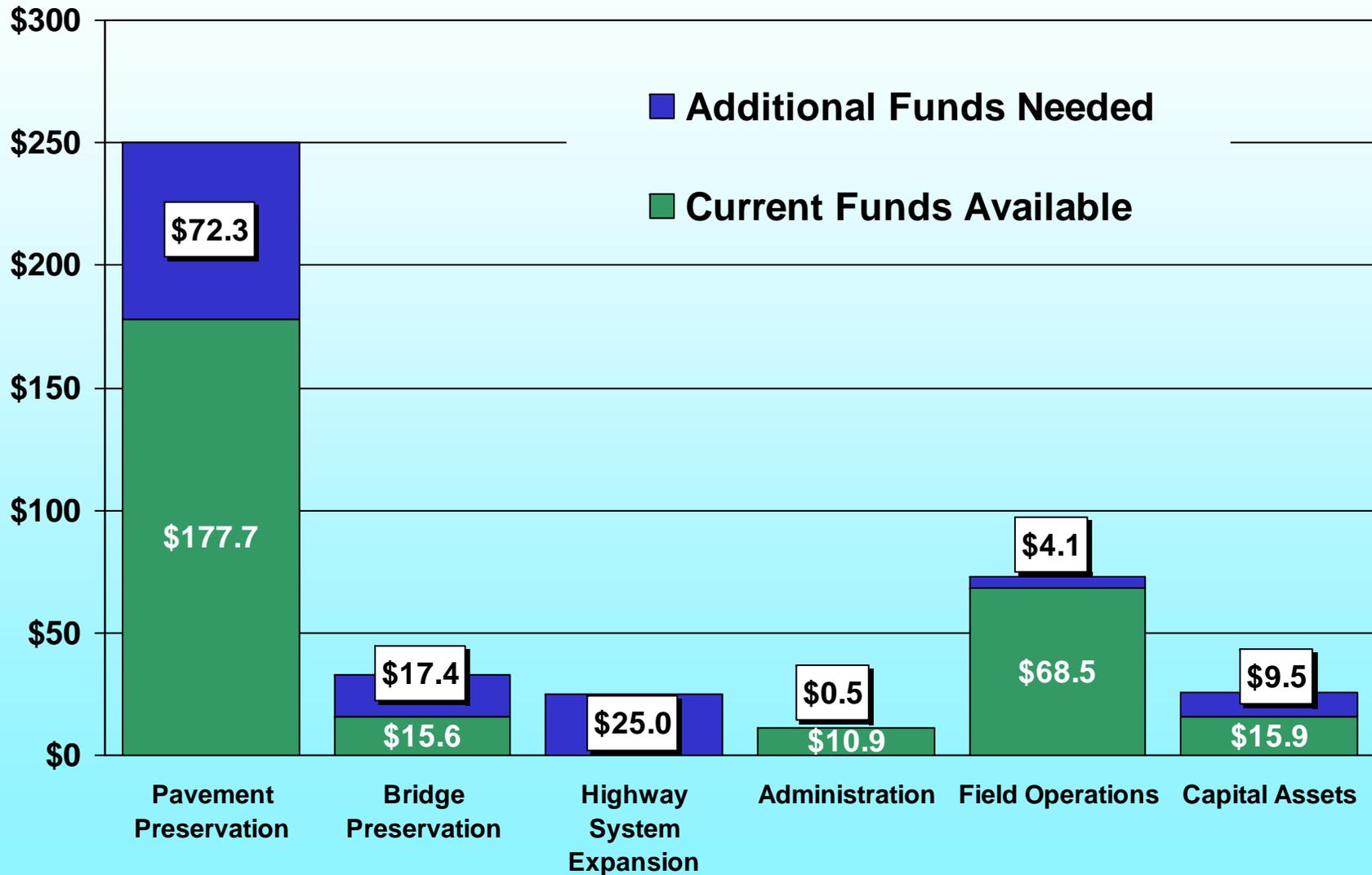


Source: SDDOT Statewide Customer Satisfaction Assessment 2006



State Highway Needs

Dollars in Millions



A yellow snowplow is shown clearing a path through a snowy landscape. The plow's blade is raised, and a large pile of snow is visible in the foreground. The background shows a hazy, overcast sky and some utility lines. The overall scene is a winter maintenance operation.

Questions??

2006 4 19