

**ctre**

Center for Transportation  
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roadway infrastructure  
management & operations systems

# Pavement Management & Decision Making

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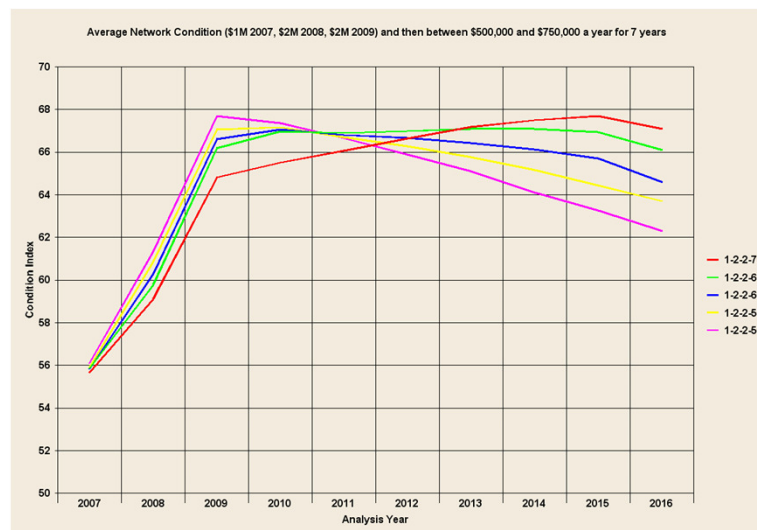
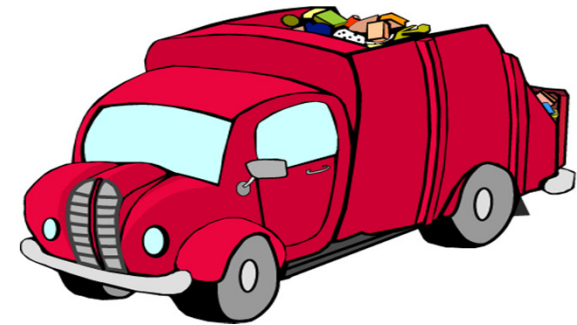


**Pavement Evaluation 2010**  
October 25-27, 2010 ▼ Roanoke, Virginia

# Decision Making (what?)

- Importance of Data:
  - Inventory
  - Assessment of condition
- Proper DST
- Needs

Garbage IN Garbage OUT

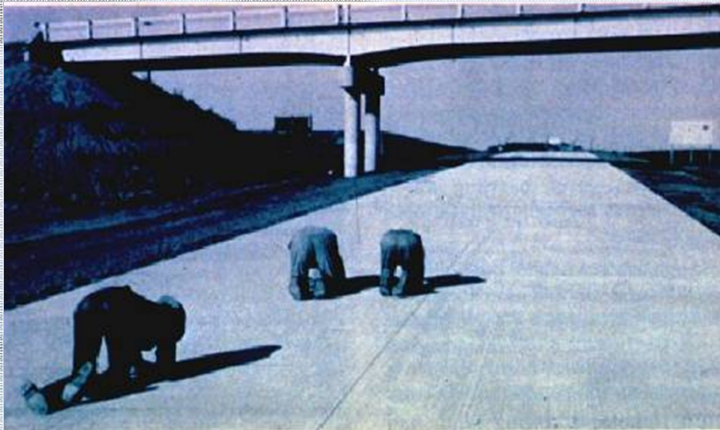


# Assets we Maintain



# Data Collection Process

- Objective
- Repeatable
- Added features (one pass)
- Safety considerations  
(automated data collection)



# Good or Bad?



# Good or Bad?



# Good or Bad?



# Good or Bad?

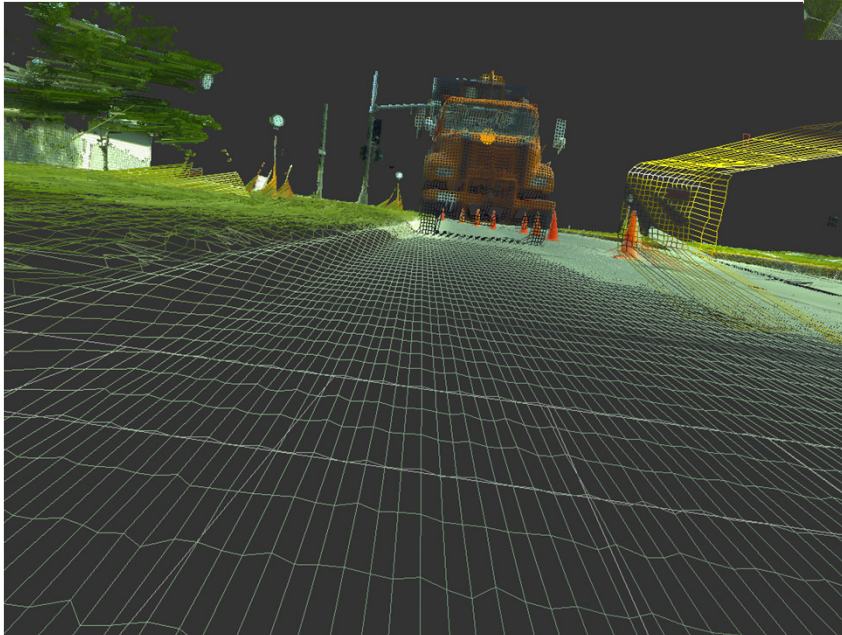
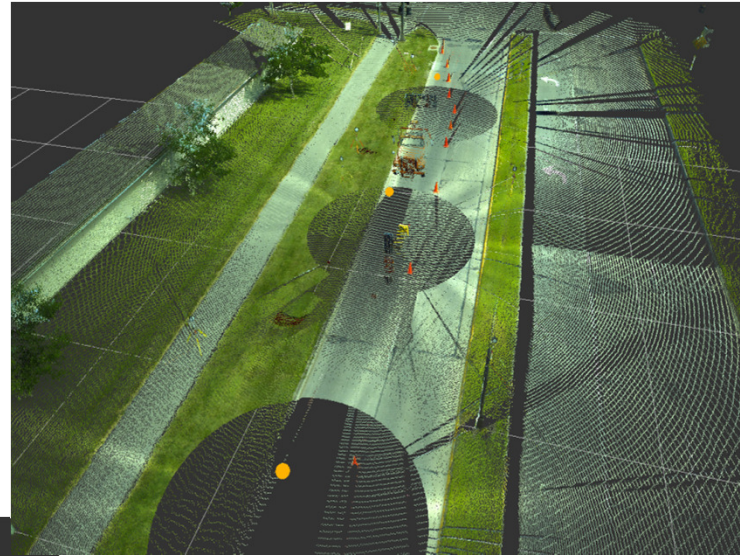




# Good or Bad?



# Data Collection



# Decision Support Tools

- Management systems:

- **Pavement Management**

- **Bridge Management**



Physical Assets

- Maintenance Management

- Sign Management



Operational Assets

- Pavement Marking Management

- **SAFETY**

# Decision Support Tools

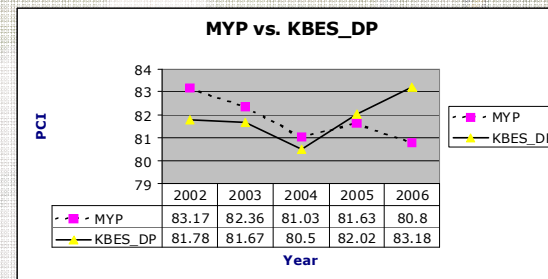
- Components:

- Models:

- Prioritization
    - Economic analysis
    - Optimization

- Data:

- Existing conditions
    - Forecasted condition
    - Financial (budget, interest and inflation rates)



# Decision Support Tools

- Functions:

- **Project Selection**
- **Resource Allocation**



Project Level

Internal Communication

- **Develop Funding Needs**
- **Package Funding Requests**

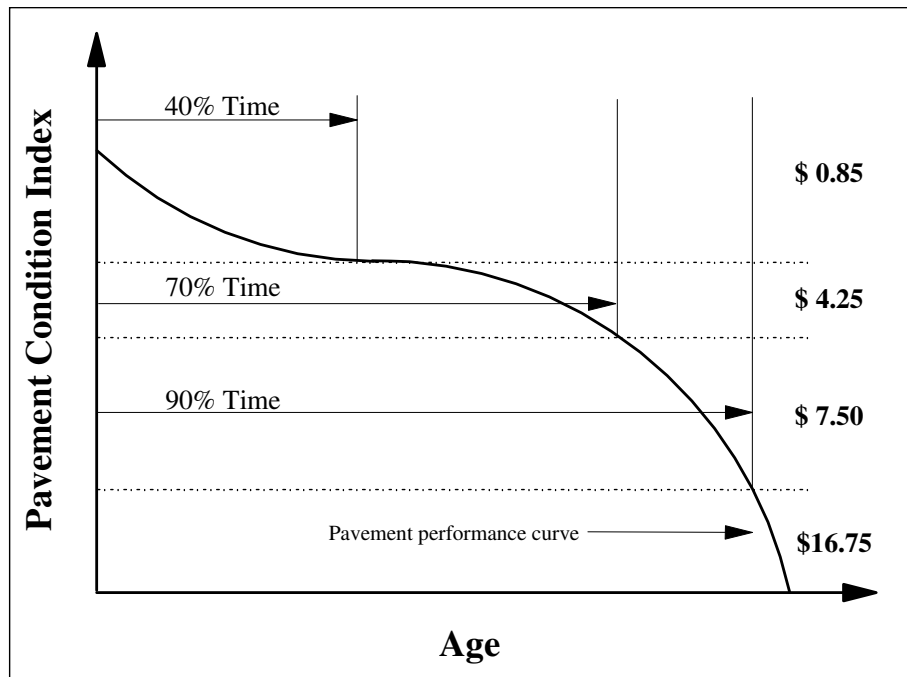


Network Level

Internal and External  
Communication

# Reactive vs. Proactive

- Fix the worst first
- Mix of fixes
- Asset Management



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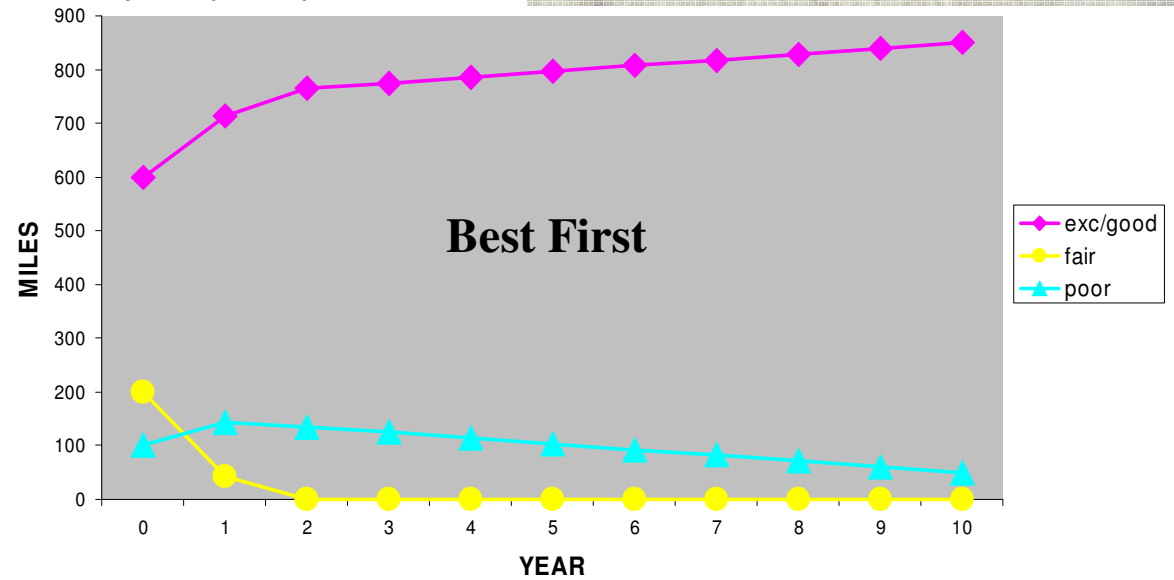
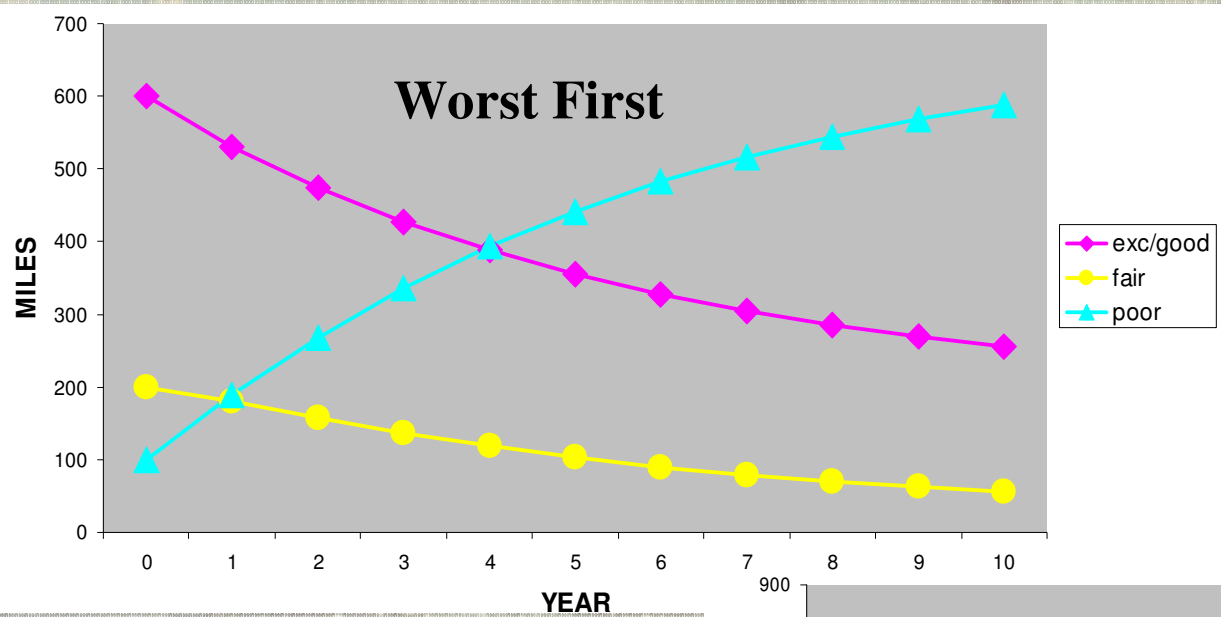
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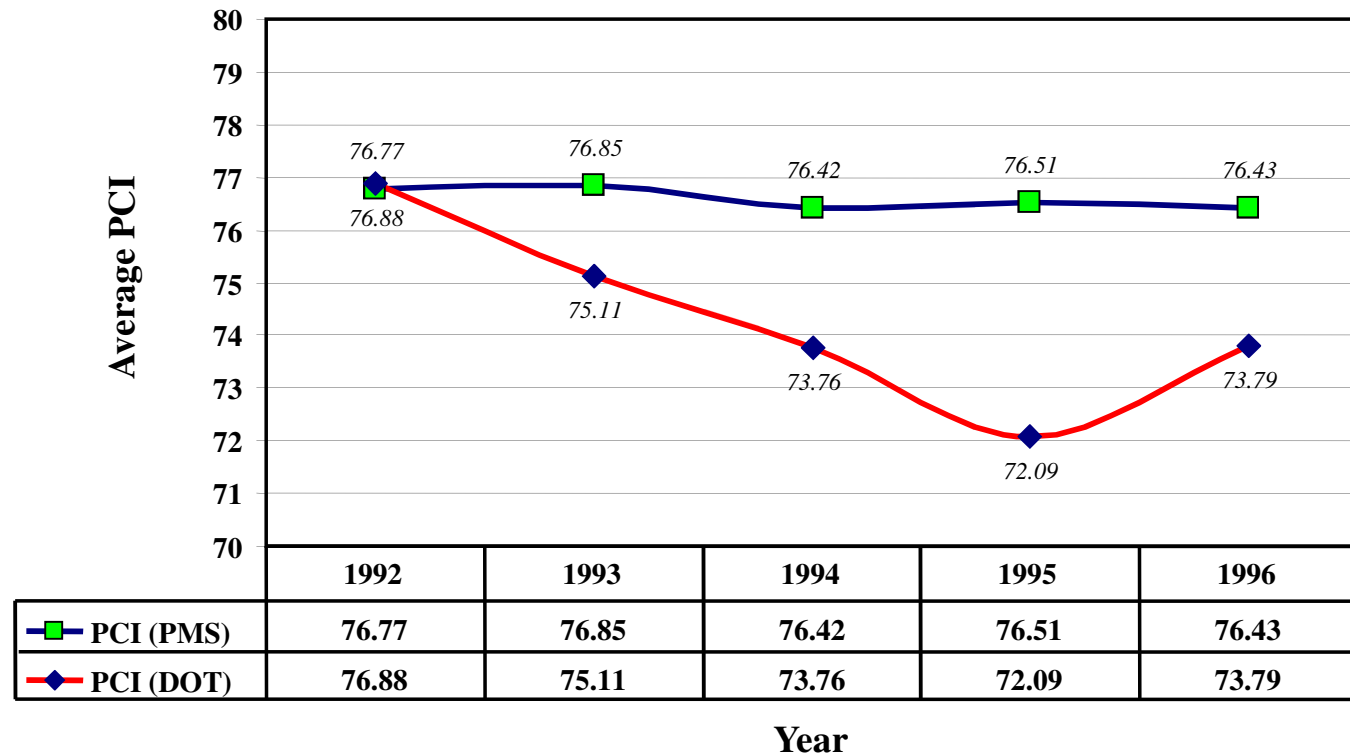


# Fix the Worst First!



# Average PCI Comparison (Before PMS)

Average Network Condition Comparison 1992-1996





# Results (Before PMS)

- DOT Average PCI = 73.79
- PMS Average PCI = 76.43

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**2.64**

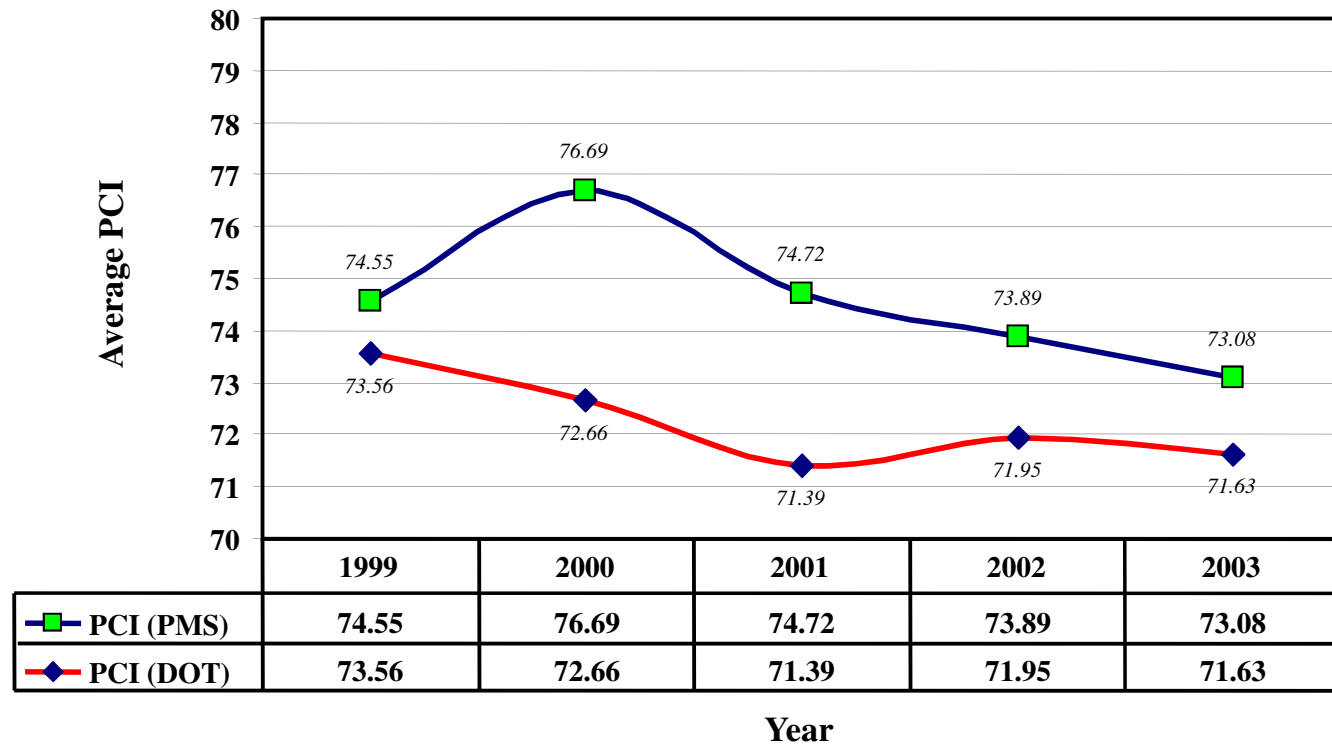
- Total Budget = \$175 Millions over 5 years

# Results (Before PMS)

- The Level of Investment For the PMS to Achieve an Average PCI of 73.79:
  - \$162.5 Millions
  - \$12.5 Millions difference over 5 years
  - \$5 million for each PCI point

# Average PCI Comparison (After PMS)

Average Network Condition Comparison 1999-2003



# Results (After PMS)

- DOT Average PCI = 71.63
- PMS Average PCI = 73.08

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**1.45**

- \$7.5 millions difference based on the previous analysis

# Results

- Before PMS:
  - 2.64 PCI point difference
  - Equates to \$12.5 millions difference in investment



- After PMS:
  - 1.45 PCI points difference
  - Equates to \$7.5 millions difference in investment

**Benefits = \$5 millions over 5 yrs**