



# Montana's Approach to Asset Management

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## MDT's Performance Programming (P3) Process

*April 26, 2012*

*Revenue and Transportation Interim Committee*

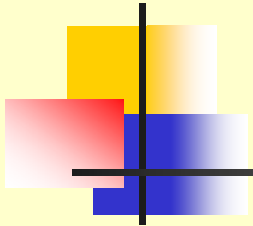


*Presented by:*

*Lynn Zanto, Administrator*

*Transportation Planning Division*

*Montana Department of Transportation*



# Topics

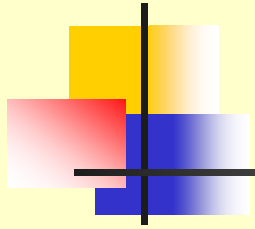
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- **Asset Management Theory**
- **The Performance Programming (P3) Process**
- **System Performance (Results)**



# Asset Management Theory

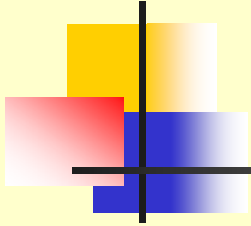
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## Asset Management - Definition

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**A systematic and ongoing process that seeks to maximize an asset's useful life most cost effectively.**



# Asset Management - Features

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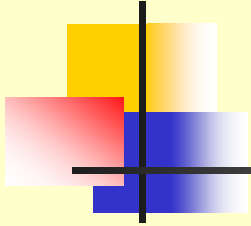
- Assets can be managed by ...
  - Physical Characteristics (Example: Pavement Condition)
  - Operational Characteristics (Example: Level of Service)
  - A Combination of Both
  
- Assets are Governed by Management Systems that ...
  - Utilize Best Available Data
  - Measure System Performance
  - Establish Objectives via Performance Goals
  - Optimize Future Investment Decisions



# Examples of Transportation Assets

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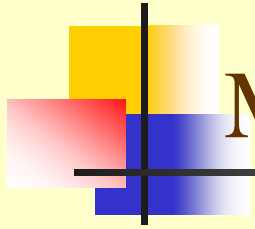
- Roads
  - Managed by Physical Characteristics (Pavement)
  - Or by Operational Characteristics (Level of Service)
    - MDT utilizes Both Methods to Manage Roads
  
- Bridges
  - Managed by Multiple Physical Characteristics
    - Overall Condition – Number of Structurally Deficient/Functionally Obsolete Bridges
    - Bridge Deck Health – Deck Health Index
  
- Rest Areas & Other Facilities
  
- Signs, Guardrails, Equipment, Etc ...



# Examples of Management Systems

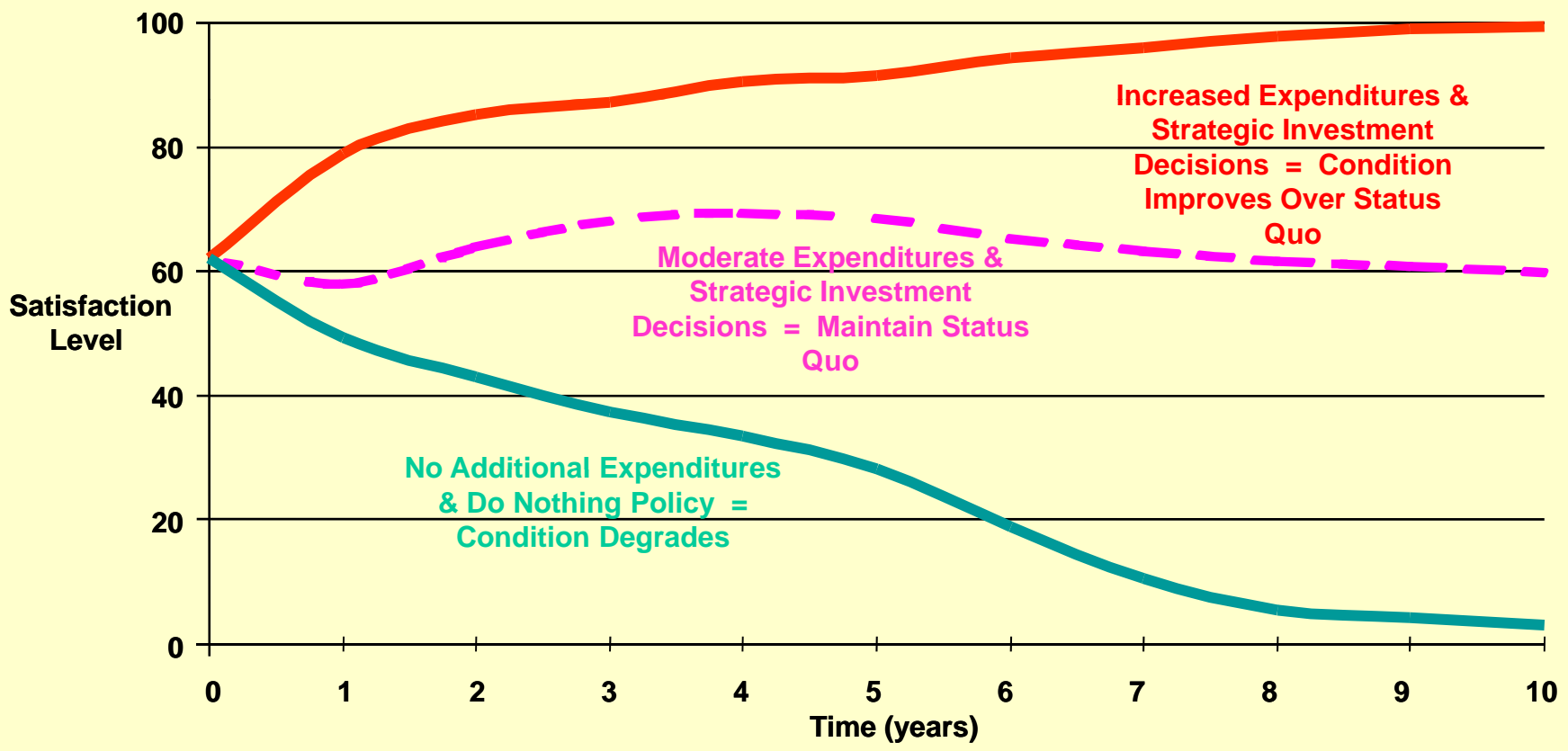
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- Pavement Management System
- Bridge Management System
- Congestion Management System
- Maintenance Management System
- Safety Management System



# Management Systems Predict Performance

( As a Function Of Budget & Investment Strategies Over Time)





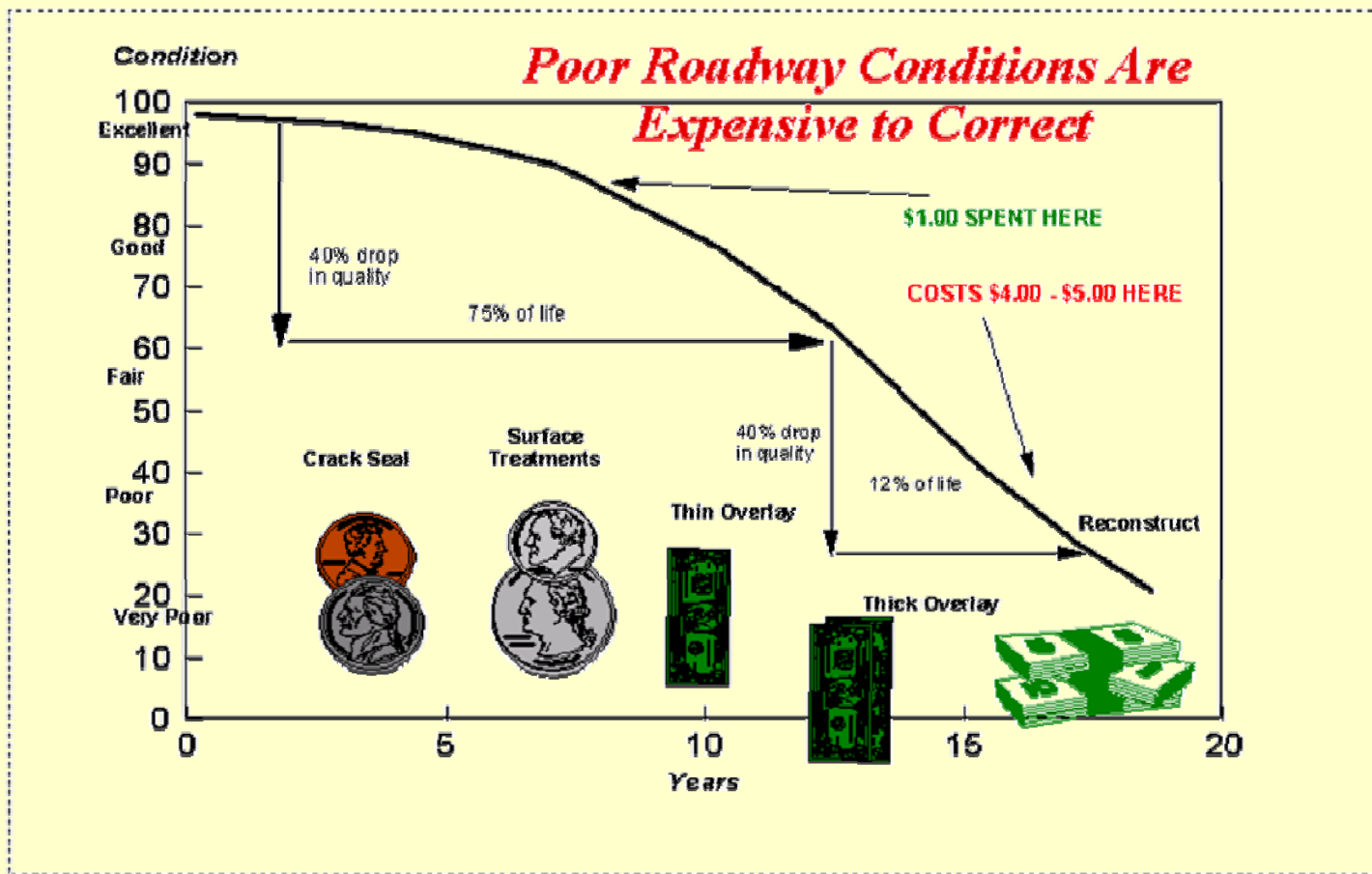
# Management Systems Evaluate Alternatives

**Resurfacing and Rehabilitation Stretch Resources**  
**Reconstruction Work needed when Useful Life is Over**  
*Ideal Mix = Best Package to Meet Performance Goals*



# Resulting in ...

## “The Right Treatment at the Right Time”





# Performance Programming Process (P3)

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# MDT's Performance Programming Process

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**A process to develop an optimal funding allocation and investment plan based on strategic highway system performance goals and the continual measurement of progress toward these goals.**

Implemented in 1999.

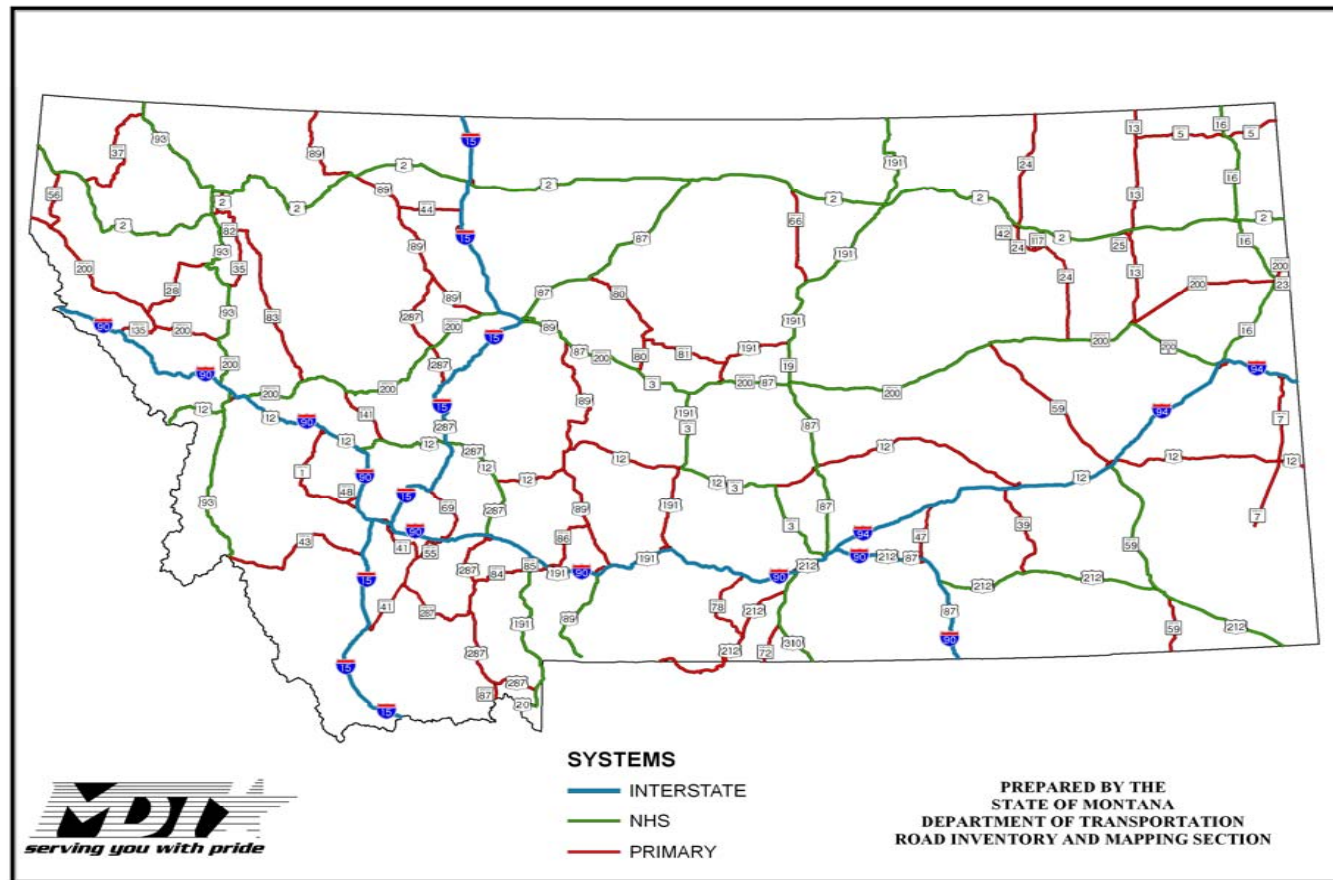


## Vision for P3 Process established via *TranPlan 21*

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- *TranPlan 21* is Montana's long-range transportation plan.
- *TranPlan 21* is part of an ongoing process that ...
  - Identifies Transportation Issues
  - Evaluates Public (and Stakeholder) Needs and Priorities
  - Establishes and Implements Policy Goals and Actions
- The purpose of *TranPlan 21* is to ensure that MDT continues to address customer priorities by directing resources to programs and projects that reflect those priorities.
- The P3 Process is a tool to help MDT accomplish this task.

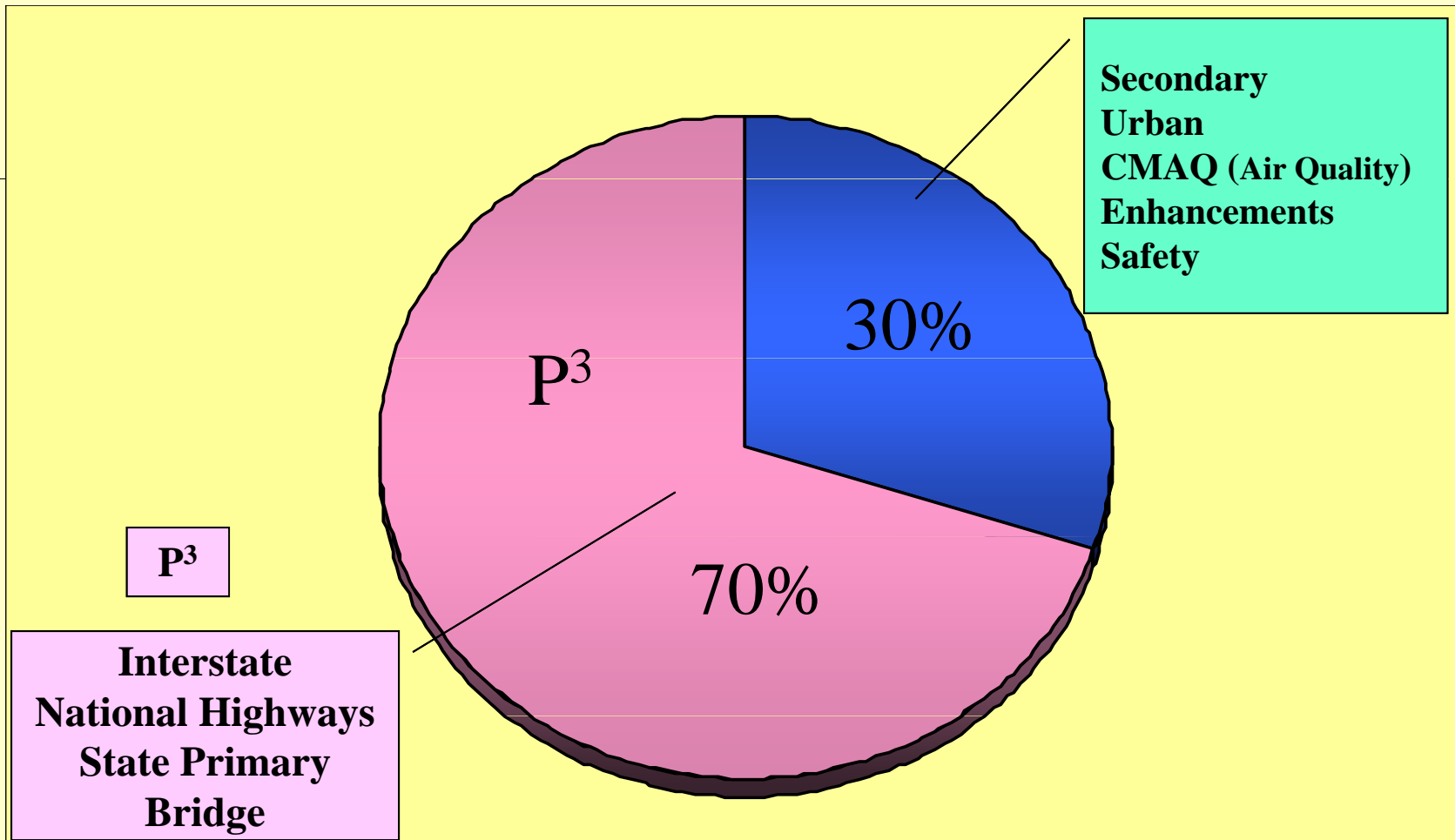
# P3 Process Governs Interstate, NHS & Primary Routes



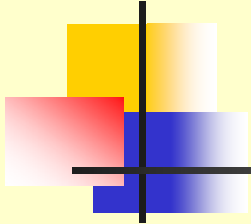
Note: Urban and Secondary Routes not included in P3 Analysis.

# Funds Included in P<sup>3</sup> Analysis

Non - P<sup>3</sup>







# Performance Programming – Goals

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At present, the following goals exist for MDT's Performance Programming Process:

## Pavement Condition (Interstate, Primary, NHS System)

Performance Goal: Maintain average ride in the desirable (or superior) range with less than 3% of the miles in unsatisfactory condition.

*Note: Ride is defined as the quality (smoothness) of the ride as perceived by the highway user.*

## Bridge Condition

Performance Goal: Reduce the number of functionally obsolete and structurally deficient bridges on the state's highway system.

## Congestion

Interstate: Maintain Level of Service at "B" or Above  
NHS: Maintain Level of Service at "C" or Above  
Primary: Maintain Level of Service at "C" or Above

Note: A driver experiences noticeable discomfort when experiencing conditions below Level of Service "C".

## Safety

Performance Goal: To reduce fatalities and incapacitating injuries in the State of Montana by half in two decades, from 1,704 in 2007 to 852 by 2030.





# Performance Programming – Annual Activities

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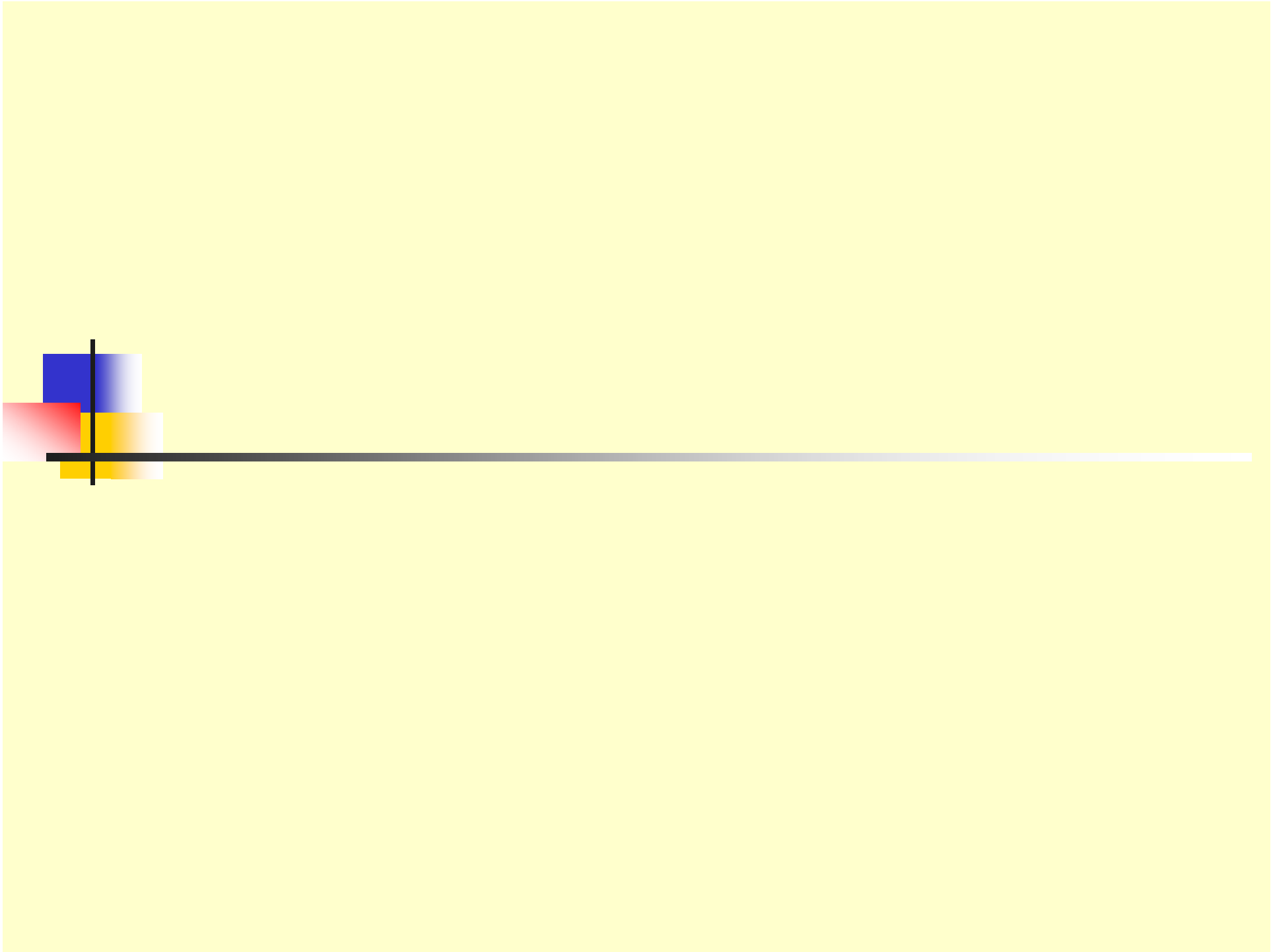
## **Each year the Performance Programming Process (P3) ...**

- Accesses data from MDT's Bridge, Congestion and Pavement Management Systems to determine the current condition of the state's roadways and bridges.
- Analyzes the effects of various funding scenarios on system performance.
- Develops an "optimal" funding plan designed to meet or exceed performance goals for all systems.
- Presents the "optimal" funding plan to MDT staff for approval.
- Presents staff recommendations to the Transportation Commission for approval.
- Monitors MDT's tentative construction plan (TCP) to assure that future projects align with the funding plan.



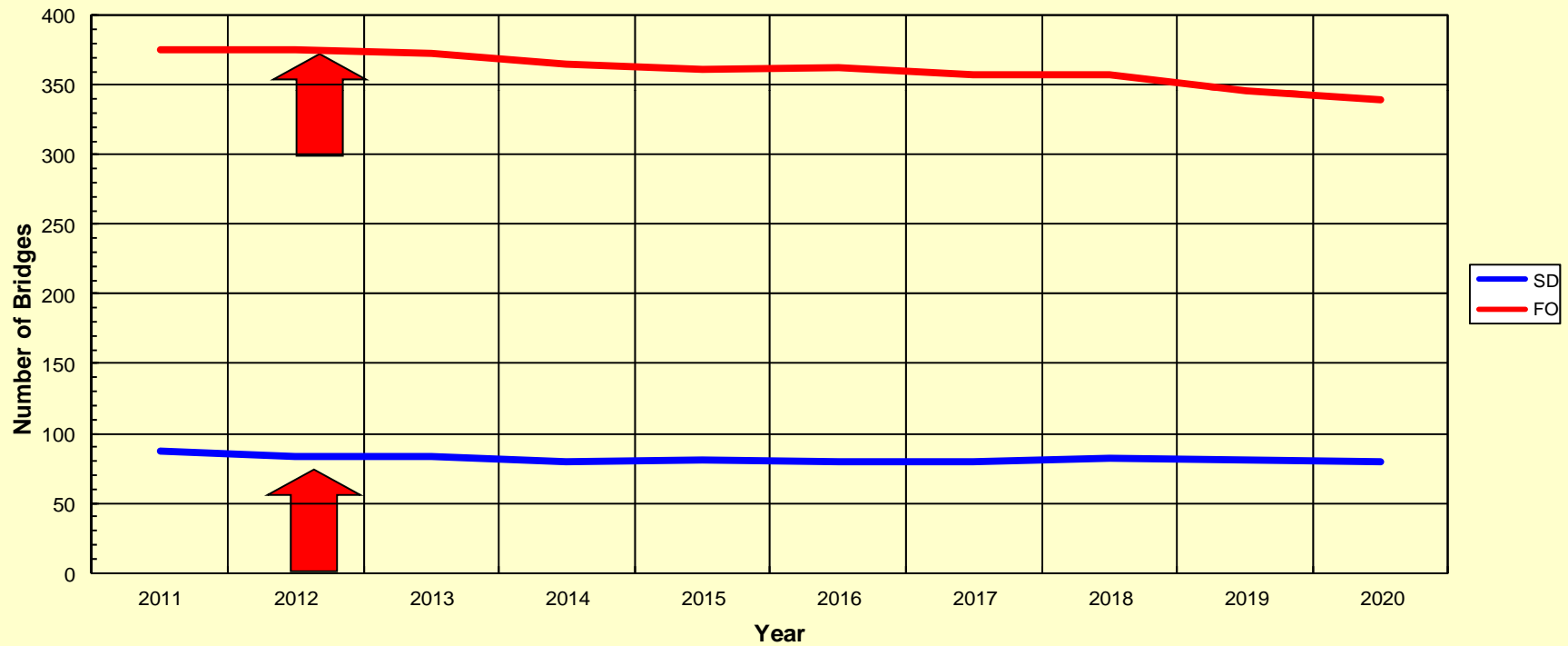
# System Performance (Results)

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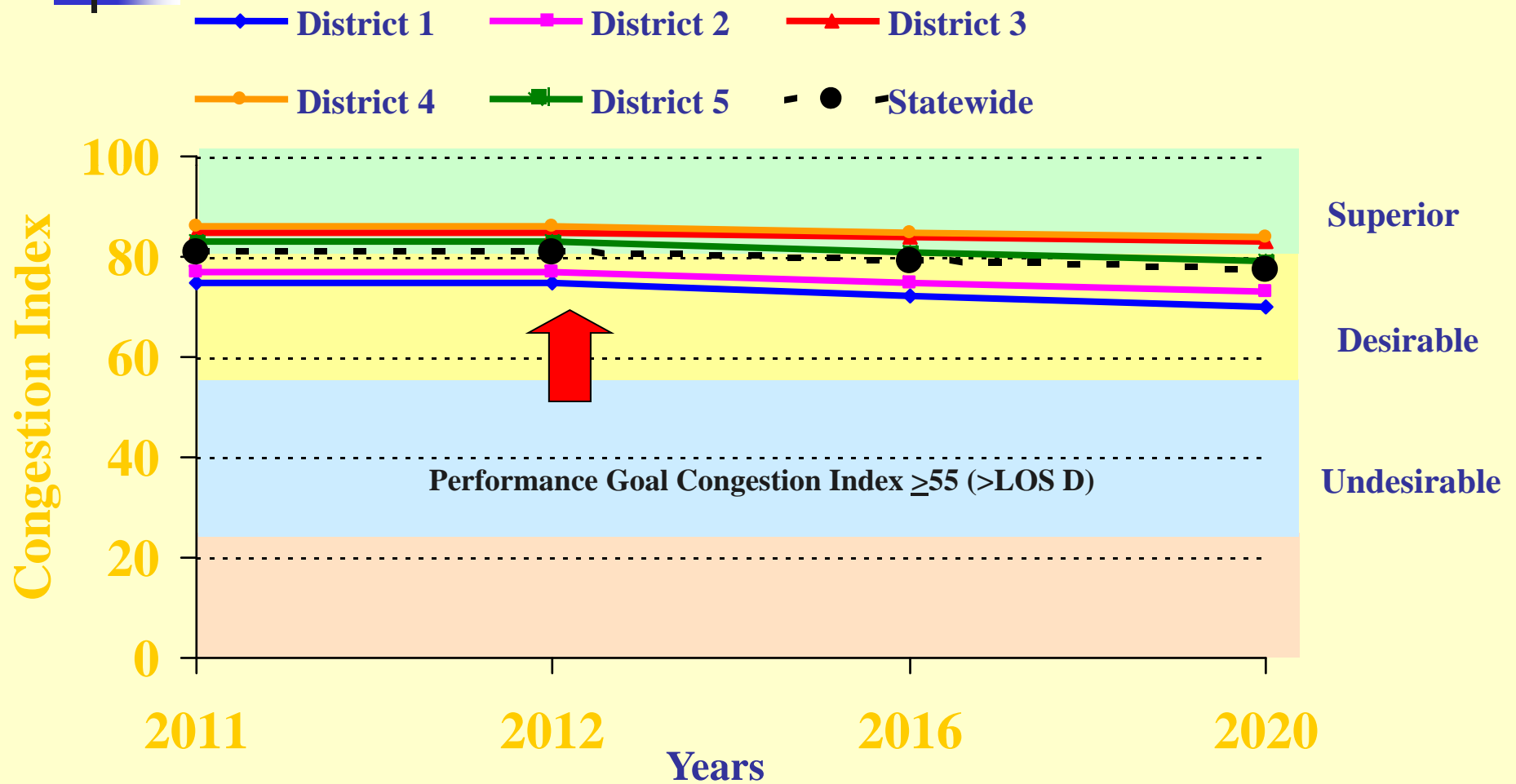
# Bridge Condition - Statewide

## Structurally Deficient / Functionally Obsolete Bridges: 2011 - 2020



Performance Goal = Reduce Total Number of Structurally Deficient (SD) / Functionally Obsolete (FO) Bridges

# Congestion – All Systems





# Funding Recommendations ...

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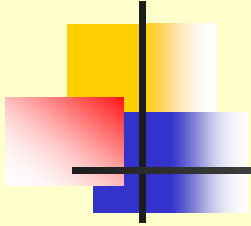


# Fund Distribution (2011 Analysis)

Measure	System	Missoula	Butte	Great Falls	Glendive	Billings	All
<b>Average Ride Quality (Target 60-100)</b>							
	Interstate	80	81	81	82	81	<b>81</b>
	NHS System	80	79	79	79	79	<b>79</b>
	Primary	76	77	77	76	77	<b>77</b>
	All	79	79	79	79	79	<b>79</b>
<b>% of Pavements Poor</b>							
	Interstate	0%	0%	0%	0%	0%	<b>0%</b>
	NHS System	1%	0%	0%	1%	0%	<b>0%</b>
	Primary	1%	1%	1%	1%	0%	<b>1%</b>
	All	1%	0%	0%	1%	0%	<b>1%</b>
<b>Distribution of 2016-2020 Funds by District and System</b>							
	Interstate	6%	6%	5%	3%	4%	<b>24%</b>
	NHS System	12%	6%	6%	8%	7%	<b>39%</b>
	Primary	9%	8%	6%	8%	6%	<b>37%</b>
	All	* 27%	20%	17%	19%	17%	<b>100%</b>

\* Conforms with state law regarding maximum allowable district allocation for Primary System.

Bottom Line: Management Systems help direct funding & provide equity between the districts. District personnel provide direction with regard to nominating individual projects & determining overall district priorities.



# Results of Fund Distribution Plan

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- **Performance Goals = On Track**
  - Bridge – Reduce Number of SD/FO Bridges
  - Congestion – Maintain Level of Service (All Systems)
  - Pavement – Desirable/Superior Pavement (with less than 3% Poor)
  - Safety – Progress toward Reducing Fatalities / Incapacitating Injuries
- **Equality of Pavement Condition Achieved**
  - No Significant Difference in Condition throughout Montana
- **Conformity with State Statutes**
- **Most Optimal Plan Possible Advanced to Transportation Commission for Approval**

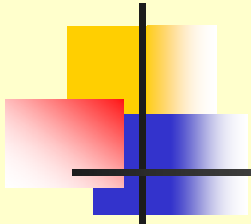




# Alternative Fund Distribution Plans

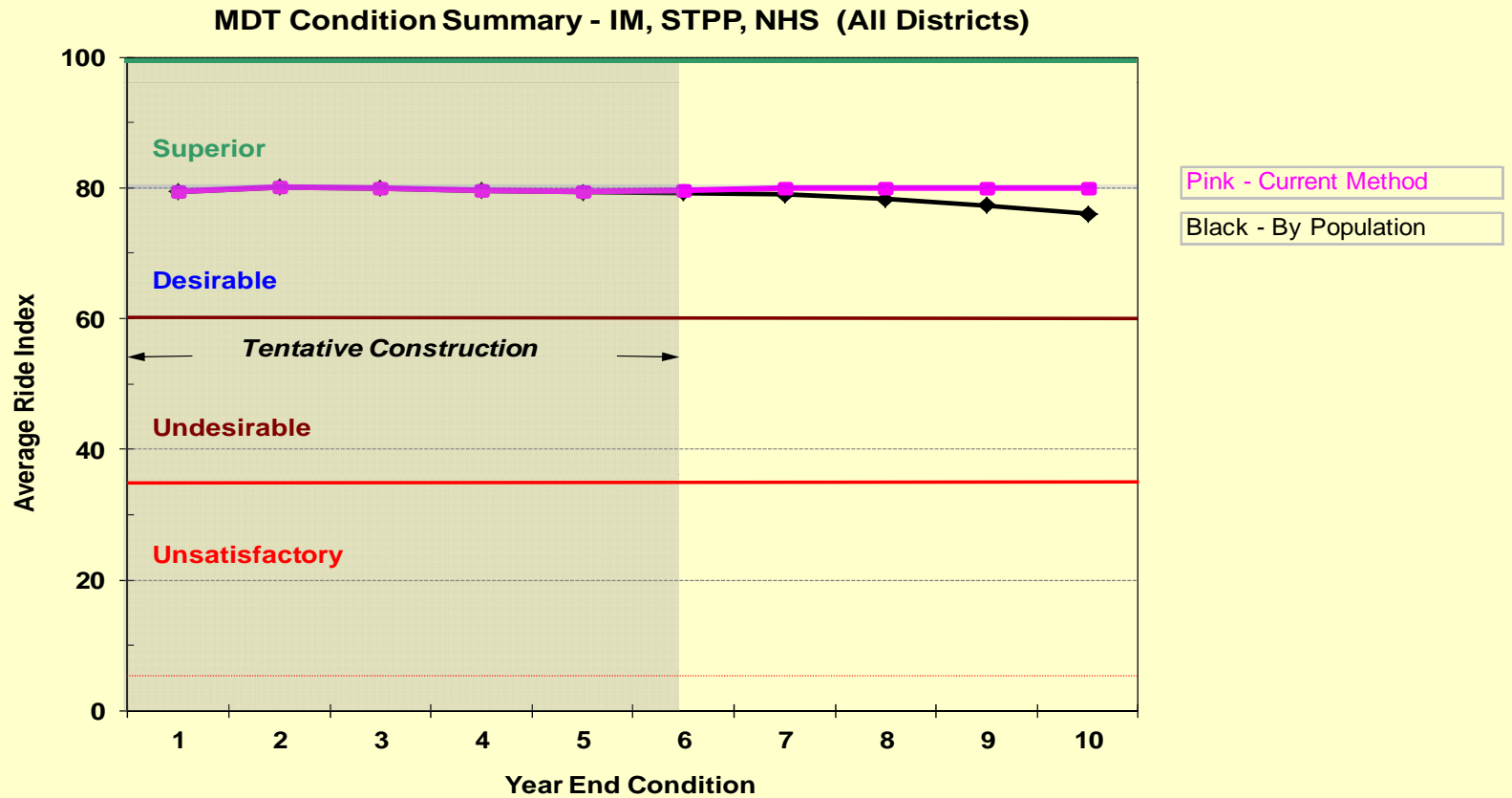
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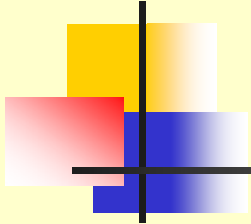
- Based on ...
  - District Population
  - District Lane Miles
  - Equal Funding to All Districts
- Yield Results that are less fair, less efficient and less defensible than our current fund allocation method (equivalent pavement condition).



# Current Method vs. District Population

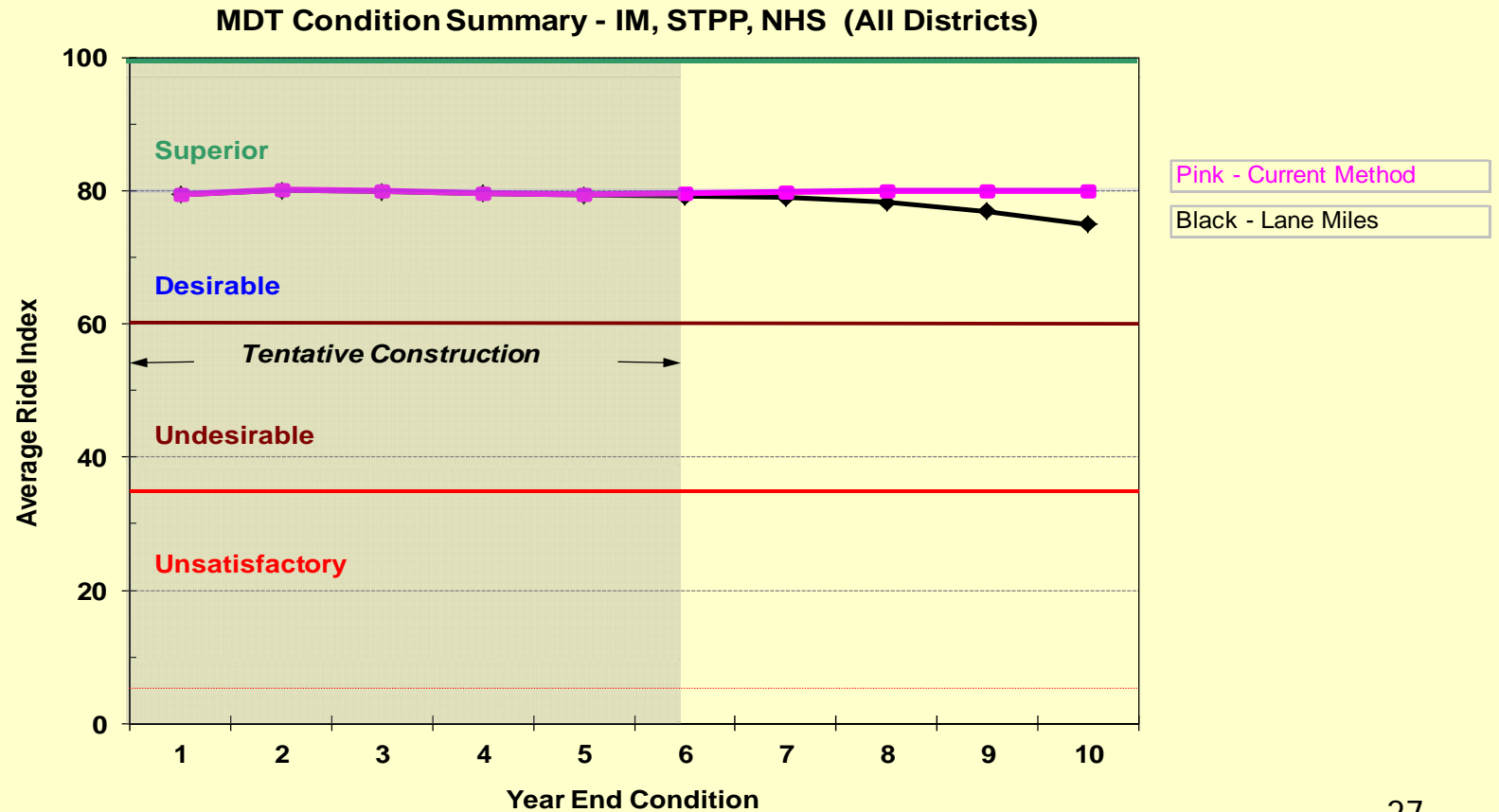
System Performance declines if funds distributed to each District by Population

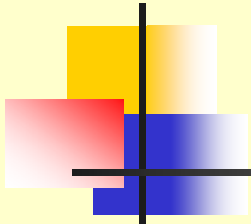




# Current Method vs. Old Method (Lane Miles)

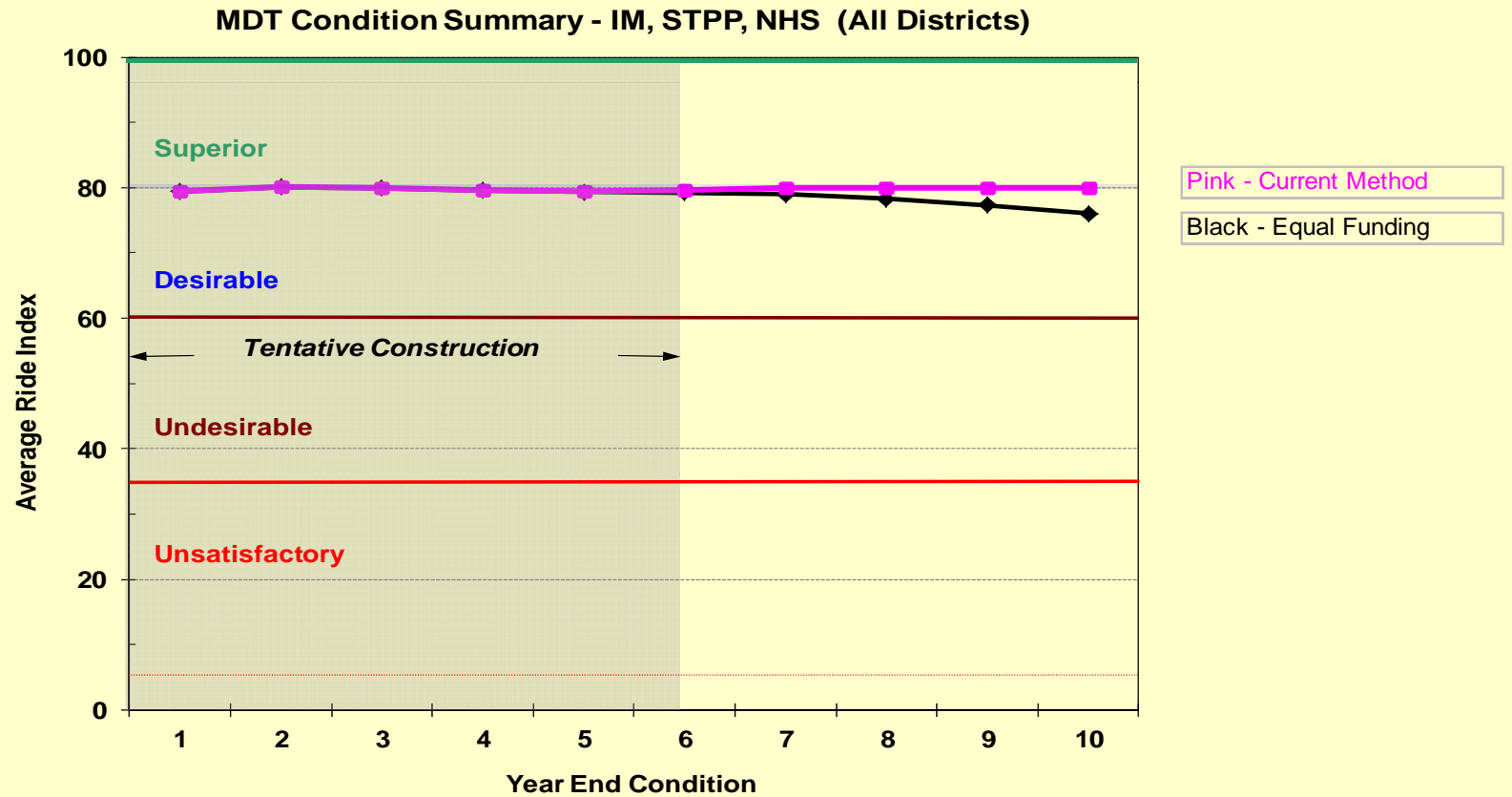
System Performance declines if funds distributed to each District by Lane Miles





# Current Method vs. Equal Funding

System Performance declines if funds distributed to each District Equally

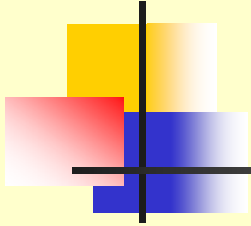




## Bottom Line ...

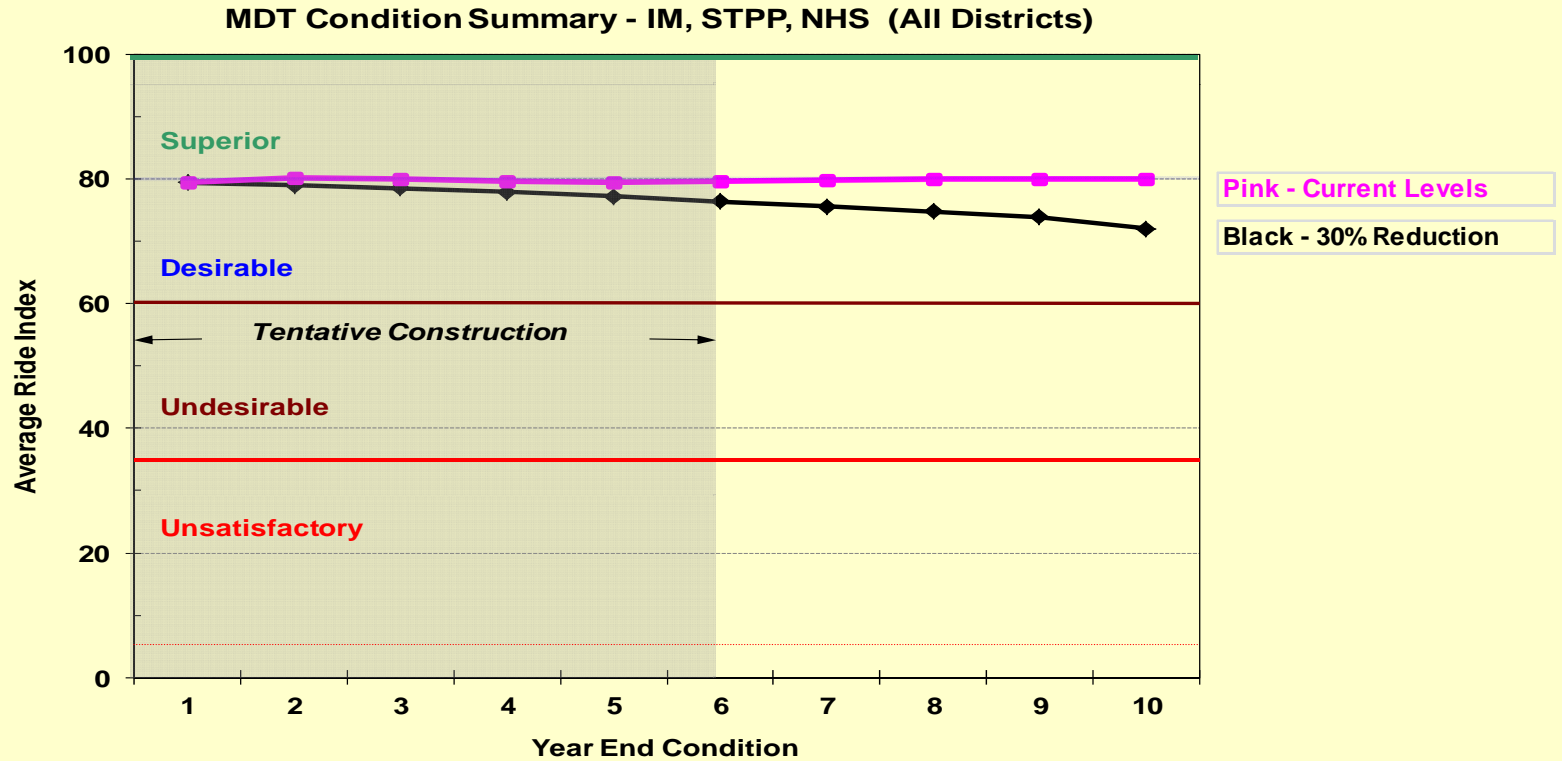
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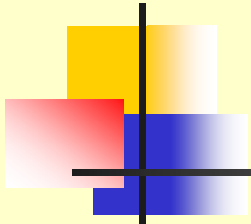
**MDT's current fund allocation and project prioritization method (the Performance Programming Process) is fair, equitable, efficient ... and provides a mechanism for making cost-effective and accountable decisions.**



# One Final Thought ... Directed Funding

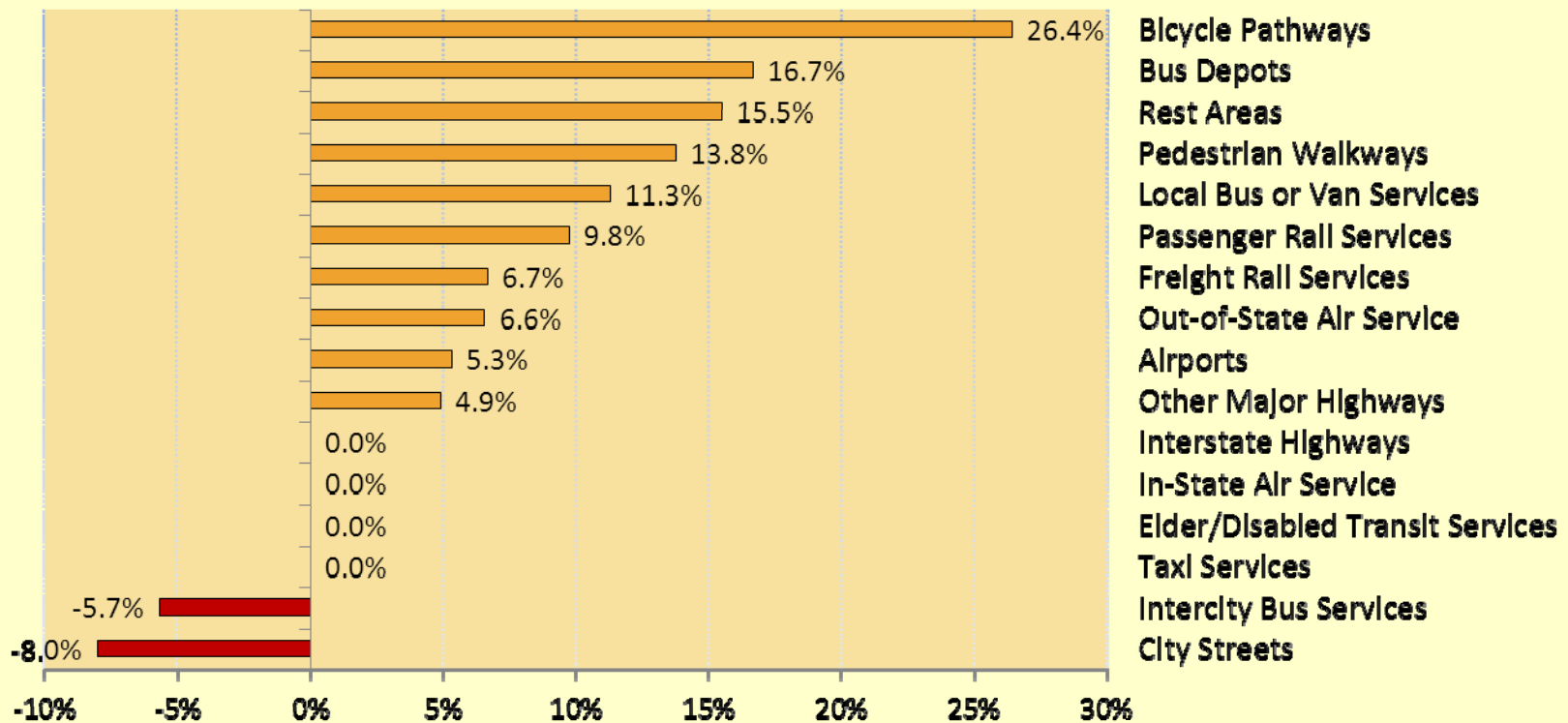
System Performance declines dramatically if funds directed away (lost) from Core Program



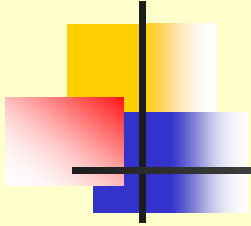


# What Do Our Customers Think?

Customer Satisfaction has Increased "Across-the-Board" since P3's Implementation

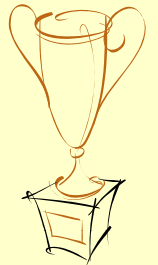


Montana Transportation System Components: Percent Change 2001-2011



# A Little Praise for Performance Programming

National Recognition for the State of Montana



- **2011 Report on the Performance of State Highway Systems:  
*Measuring Transportation Investments: The Road to Success***

*Montana is leading the way in having essential tools needed to help decision makers choose more cost-effective transportation funding and policy options.*

*Sponsored by PEW Center on the States & The Rockefeller Foundation*

- **2008 Transportation Planning Excellence Award:  
*Transportation Asset Management Category***

*Sponsored by Federal Highway Administration, Federal Transit Administration,  
& American Planning Association*



# Questions

