

# Comprehensive Asset Management, Project Selection and Programming

*Maximizing Performance and Cost Savings*

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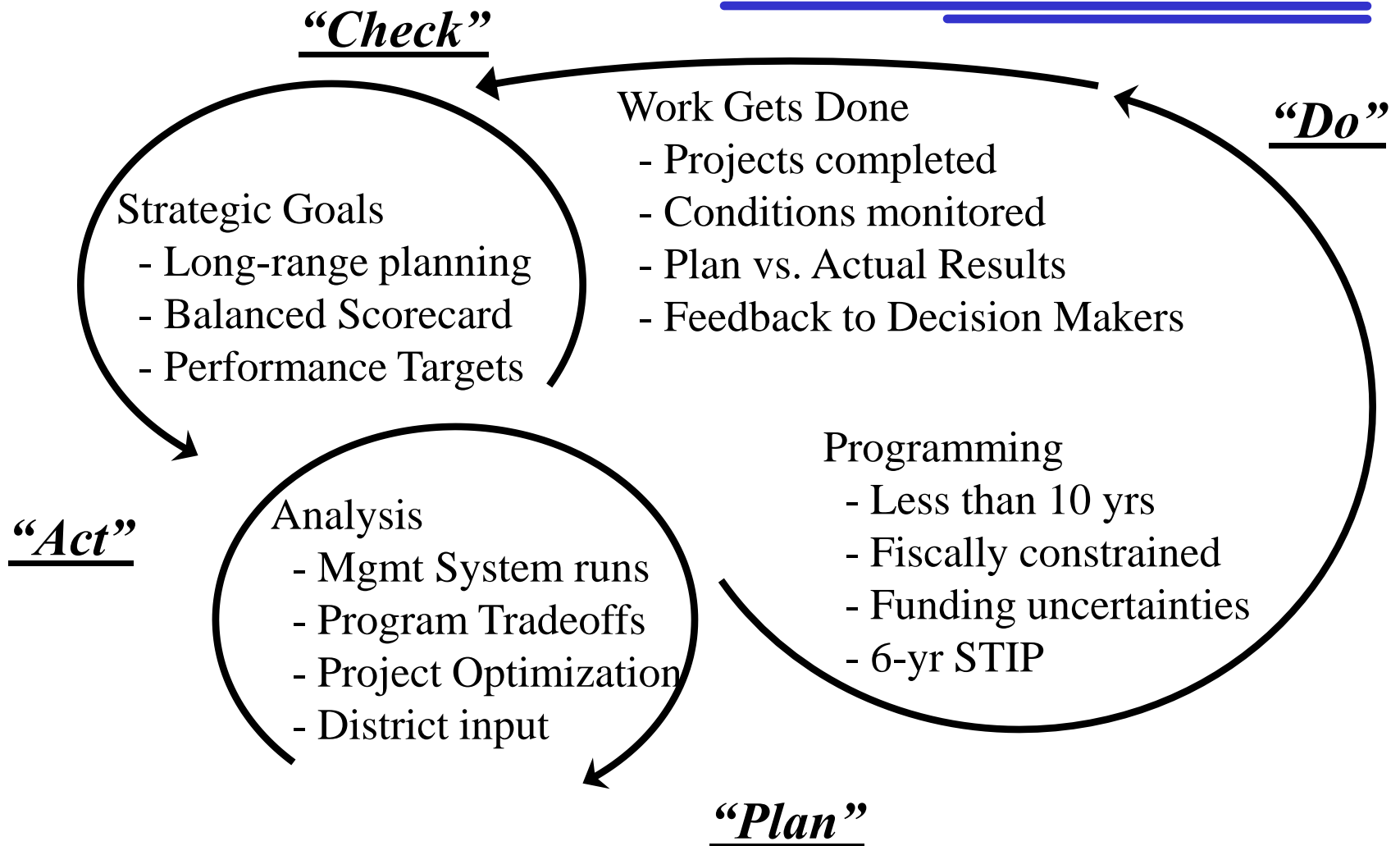
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# *WYDOT Approach to Project Selection and Programming\**

- ✓ Utilize best practices of Asset Management
  - ✓ Performance-Based Planning
- ✓ Incorporate a “closed loop” planning process
  - ✓ “Plan, Do, Check, Act”
- ✓ Maximize savings and value add
  - ✓ Apply sound logic and analysis process(es)

\*Rollout in FY 2010

# Overall Planning Process



# *“It’s More Than a Spreadsheet!!”*

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- There’s a temptation to condense project selection into one easy step
- Reality -- the opportunities to create value and reduce costs are:
  - Within programs / asset classes
  - Across programs / asset classes
  - Between projects and project components
- Therefore, optimum Asset Management analysis requires more than one step

# Sources of Value and Cost Savings

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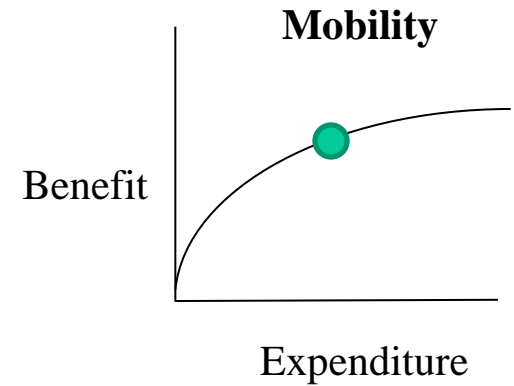
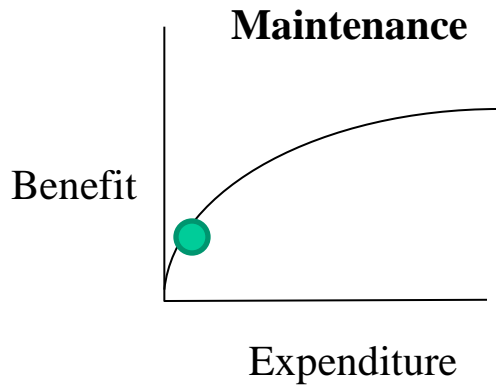
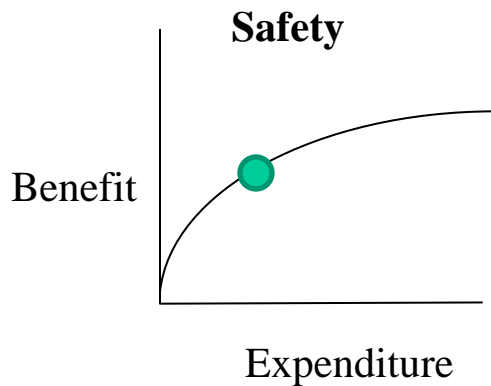
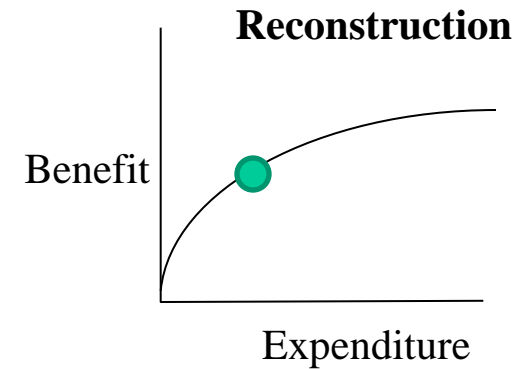
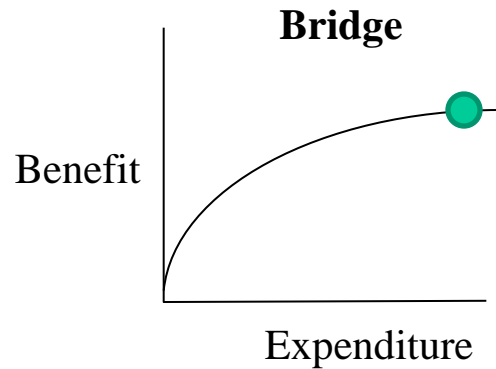
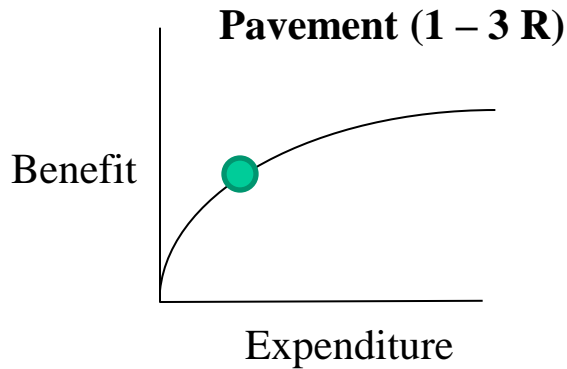
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- Improved benefits and savings are possible at multiple levels:
  - Project recommendations; management systems driving benefit/cost prioritization
  - Program-level; target setting and budget allocation and optimization – across asset classes
  - Project/component-level; synergies and savings
  - Optimized, fiscally constrained programming; robust against funding uncertainties

# Maximizing Value Across Objectives – Requires Resolution of Tough Compromises

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# Levels of Capability

Build cross-program systems

Project-to-Project Optimization and Selection

Program-Program Budget Tradeoffs

PMS - MMS

Bridge

Safety

Mobility

Inventory (linear assets)  
Condition Status  
Construction History  
Deterioration Models  
Network Analysis (B/C  
Prioritization)  
Treatment  
Recommendations  
Surface Maintenance

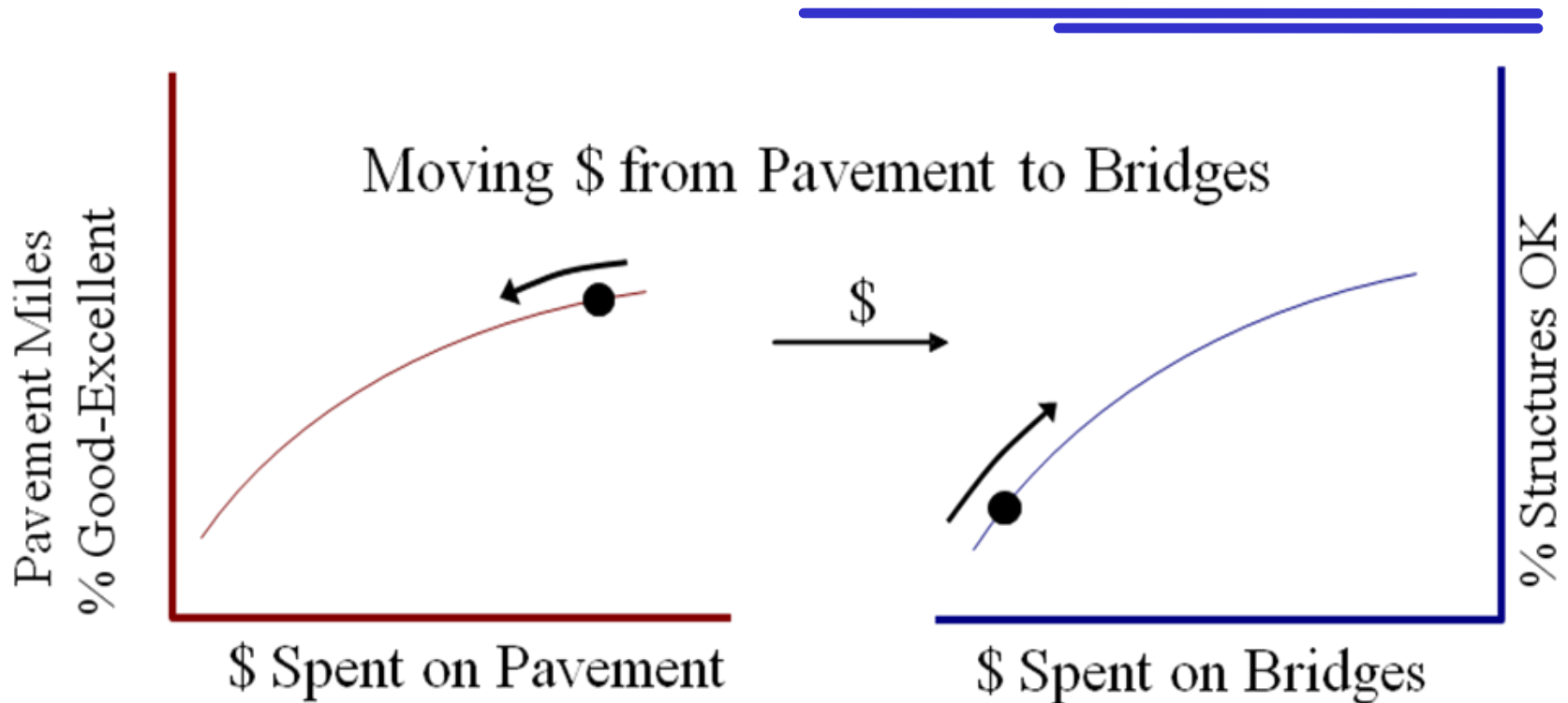
Inventory  
Inspections  
Predictive Analysis  
Remedies & costs  
Acceptable Bridges  
- Functional  
- Structural  
Recommendations  
Composite Measure

Effectiveness Studies  
Project prioritization  
B/C Project dimensioning  
Diagnosis / Remedies  
Safety Index  
Analysis  
- Common/causal factors  
- Crashes & road features  
Traffic records

LOS Measures  
Remedies vs. LOS  
Scoring for LOS  
Remedy Recc's  
Concept for rollup to  
Asset Management  
Needs Pilot Process  
Customer Satisfaction  
& "Quality of Life"

(Linear) Asset Inventory

# Tradeoff Analysis and Target Setting

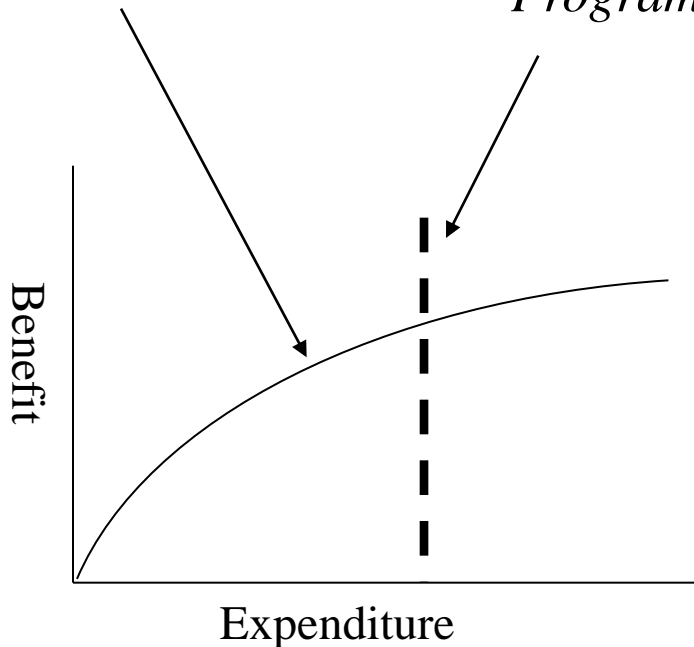


**Objective:** To find the investment mix that maximizes the ROI for both asset classes combined.

# Multiple Levels of Analysis / Optimization

## 1) Program Analysis

*Establishes This Curve for Each Program*

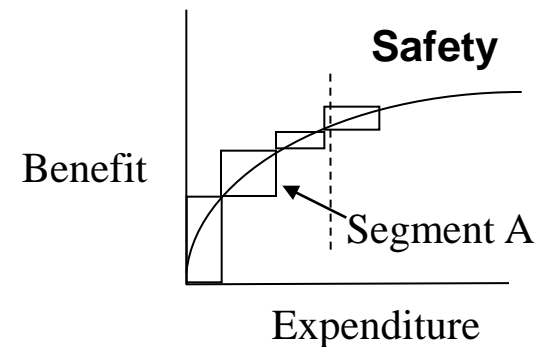
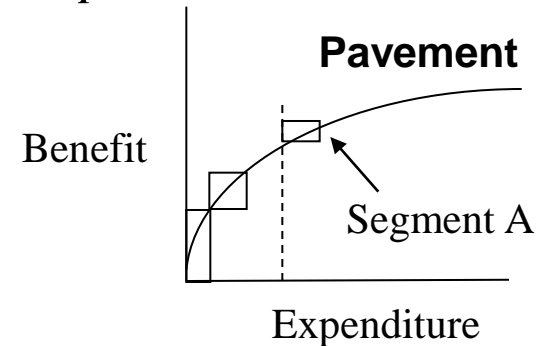


## 2) Tradeoff Analysis

*Establishes the Budget for Each Program*

## 3) Project Optimization

*Explores Synergies and Compromises between project components*



# Network Allowances -- Treatment Types (Results from Project Optimization)

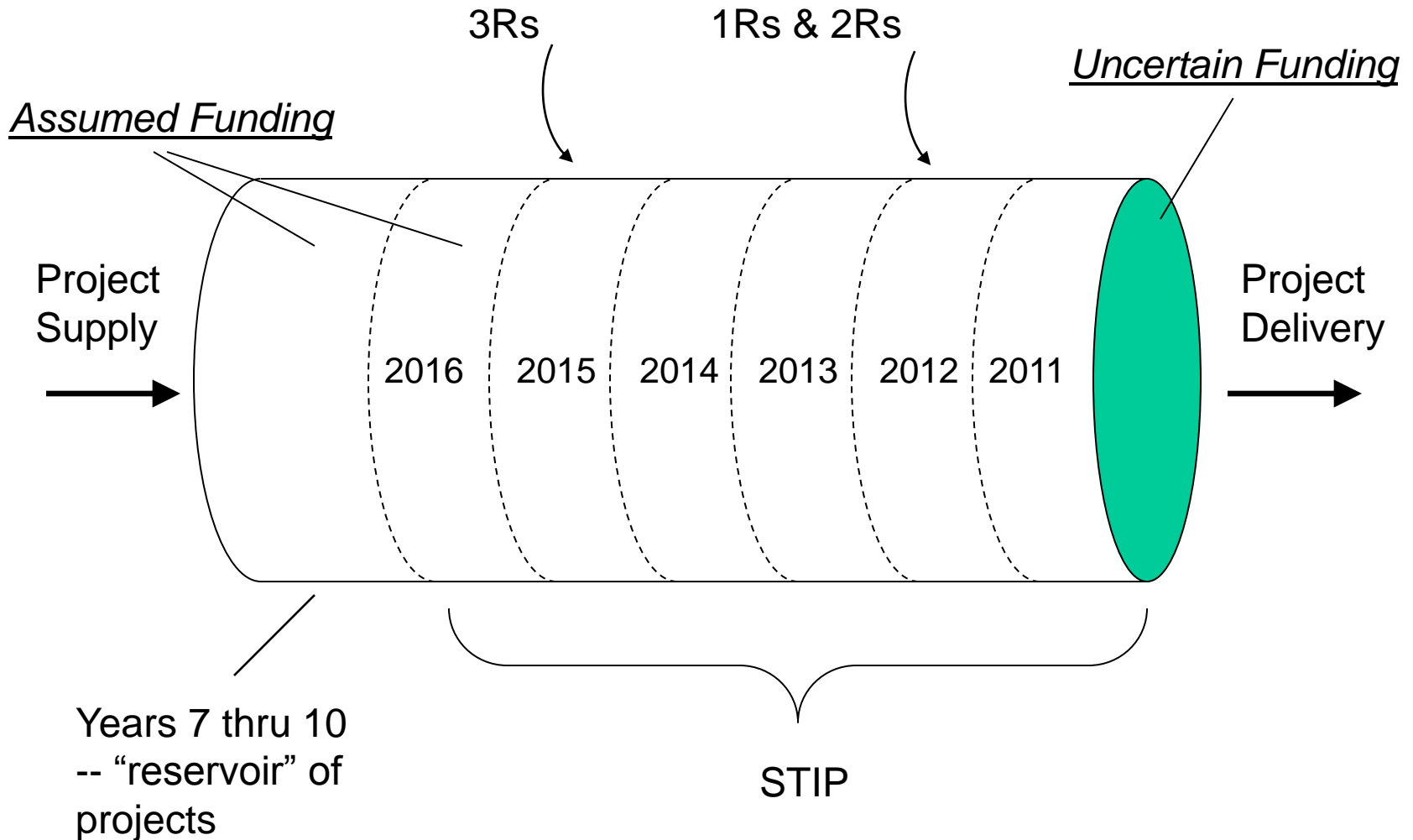
## Average Annual Budgets

	<u>\$30 million</u> <u>1Rs</u>	<u>\$40 million</u> <u>2Rs</u>	<u>\$30 million</u> <u>3Rs</u>
"Present Need" Priority #1 Projects (for years 7 – 10)	<u>6 mi Chip</u> <u>18 mi Micro</u> <u>8 mi O/L</u>	<u>20 mi Mill/Fill</u> <u>15 mi O/L</u> <u>7 mi Trench O/L</u>	<u>3 mi concrete</u> <u>6 mi asphalt</u> <u>5 mi asphalt</u>
e.g. Pavement Spending Constraint	<u>14 mi Chip</u> <u>7 mi Crack</u> <u>6 mi O/L</u> <u>11 mi Micro</u>	<u>17 mi O/L</u> <u>13 mi Mill/Fill</u> <u>12 mi O/L</u> <u>10 mi Trench O/L</u>	<u>6 mi asphalt</u> <u>4 mi concrete</u> <u>5 mi asphalt</u> <u>3 mi concrete</u>

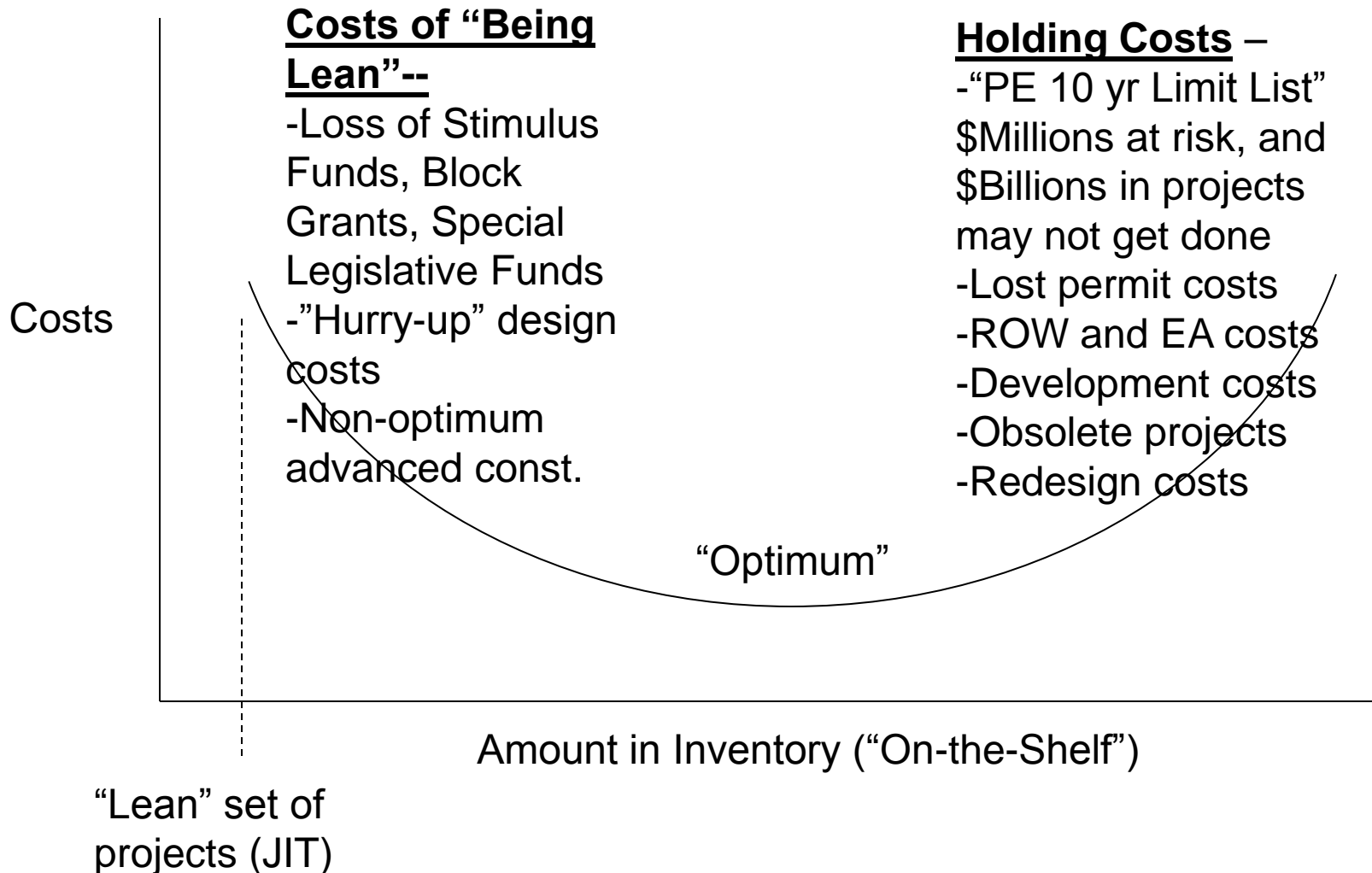
Prioritized  
Project  
Candidates

***During "Project Optimization" this information is formulated, years 5&6 are firmed up, and these "constrained" lists of projects can move into the STIP***

# Managing Project Pipeline Risks

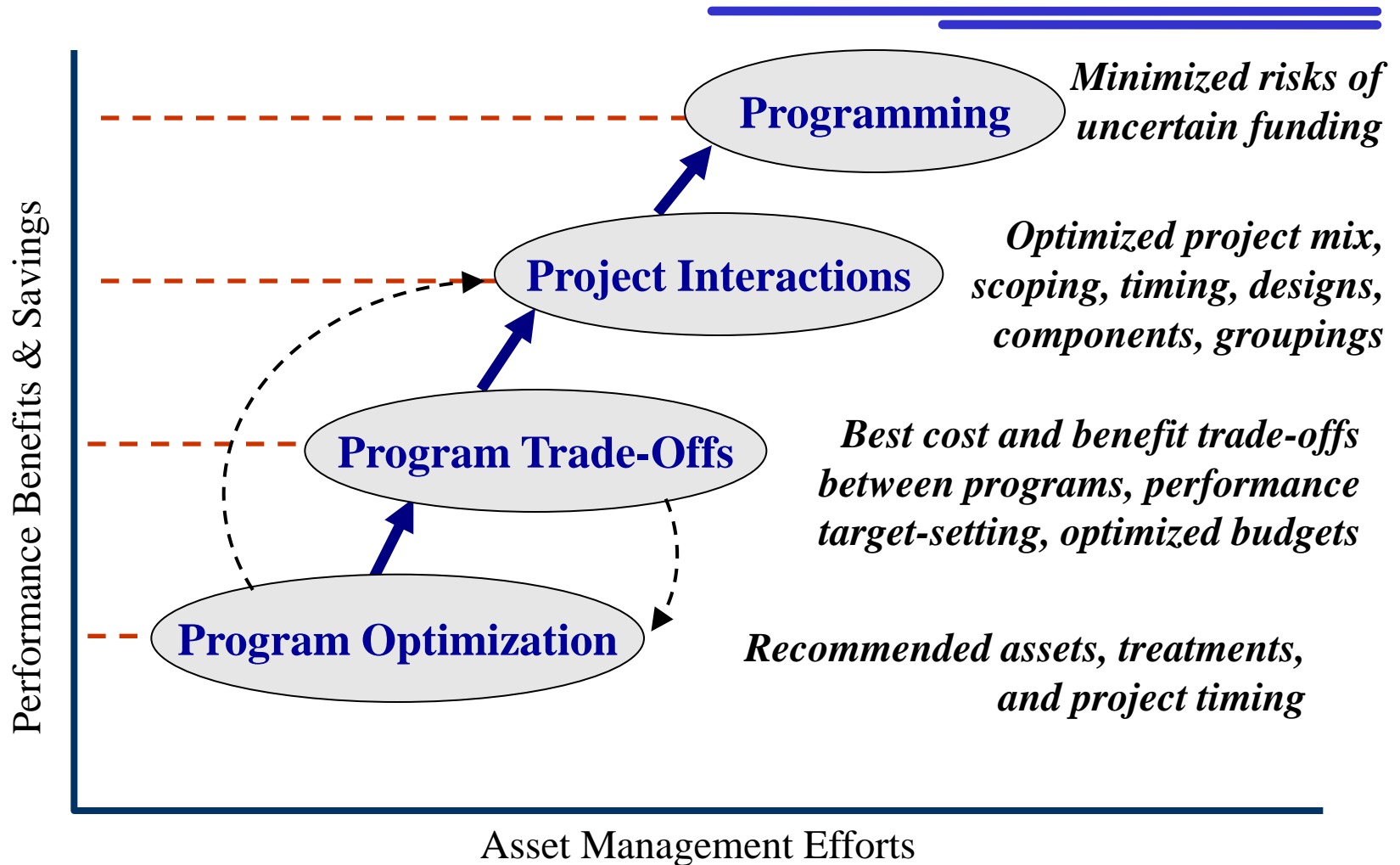


# Non-Optimum Pipeline Costs

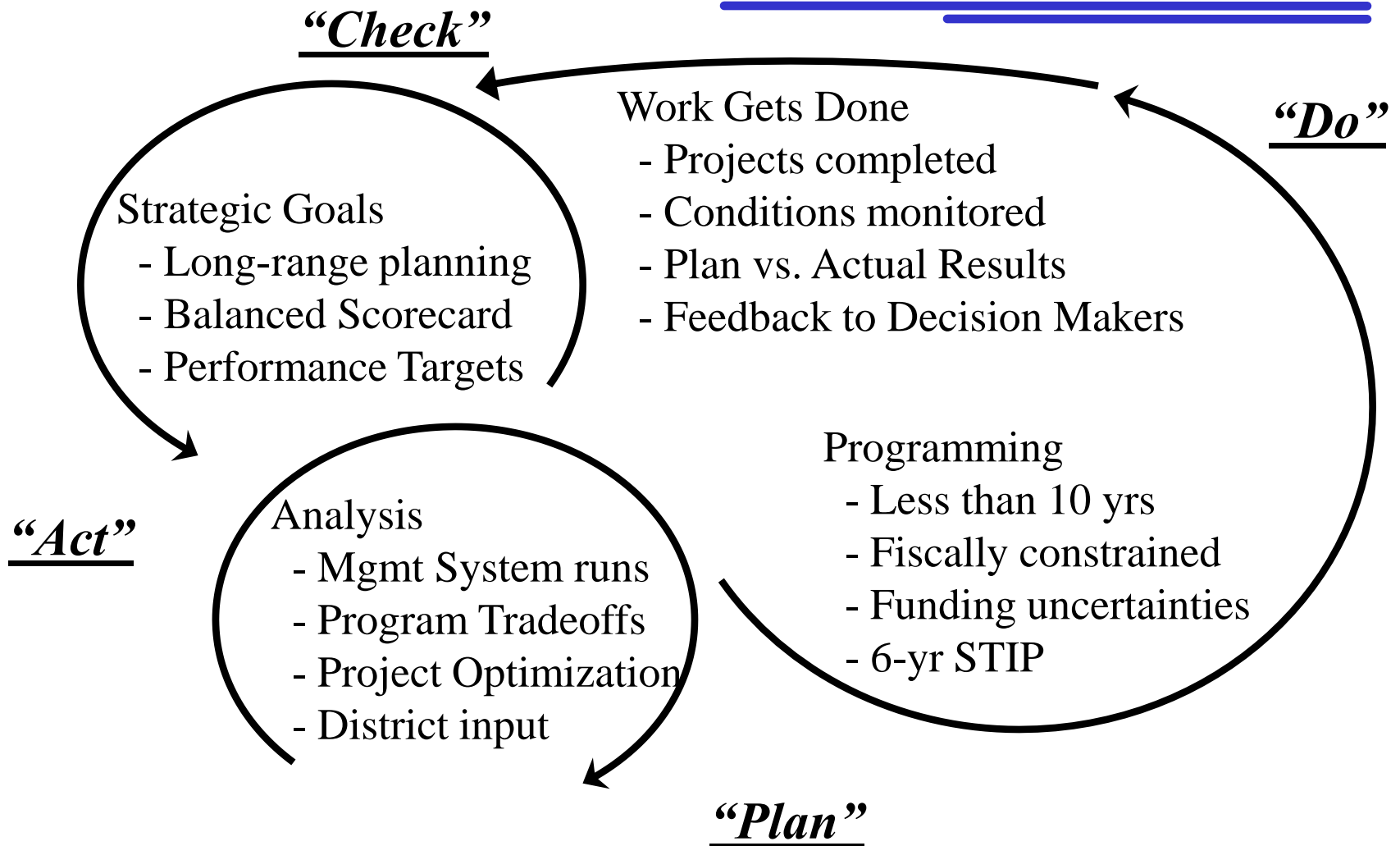


# Performance-Based Planning

## *“Steps to Maximizing Benefit/Cost”*



# Overall Planning Process



# Summary

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- “Closed loop” planning process:
  - Powerful strategic management method
  - Incorporates Asset Management best practices
- Analysis steps create value and reduce costs:
  - Within program / asset classes
  - Across programs / asset classes
  - Between projects and project components
- Costs of funding uncertainties may demand risk mitigation techniques

# For More Info:

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- White Papers:

- Tradeoff Analysis and Target-setting
- Maximizing the Effectiveness of AM—*What Improvements are Possible?*
- Integrating SMS into Asset Management