

Federal Facilities Council:

Best Practices in Developing Asset Management Plans

Aligning AMP Requirements and Agency Resources

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Agenda

- **Requirements**

- Executive Order 13327
- OMB/FRPC Requirements & Guidance
- Agency Mission Support
- Local Operations

- **Resources**

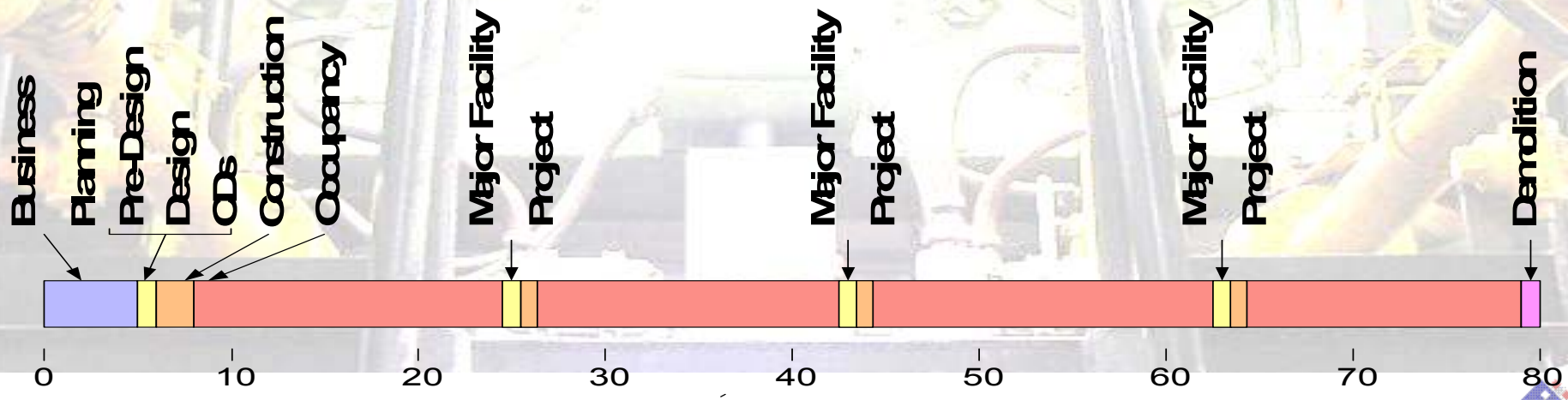
- Information/Knowledge
- Budget
- Personnel

- **Resolutions**

- Asset Management Plan
- **Information Procurement Strategies - CI Metric**
- Knowledge Creation
- Information/Knowledge Technology Support

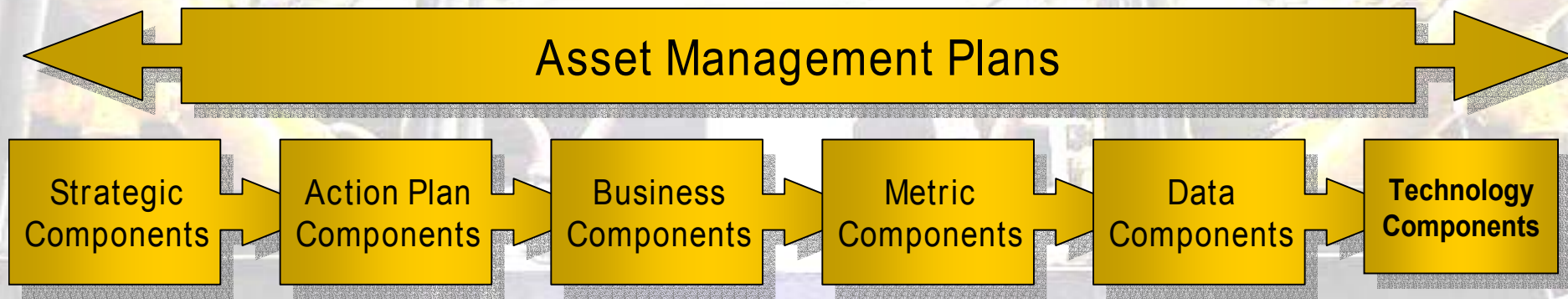
Asset Life Cycle

- Developing a logical framework to manage real property assets
- Evolution of process and technology drivers that make an Asset Management Plan (AMP)

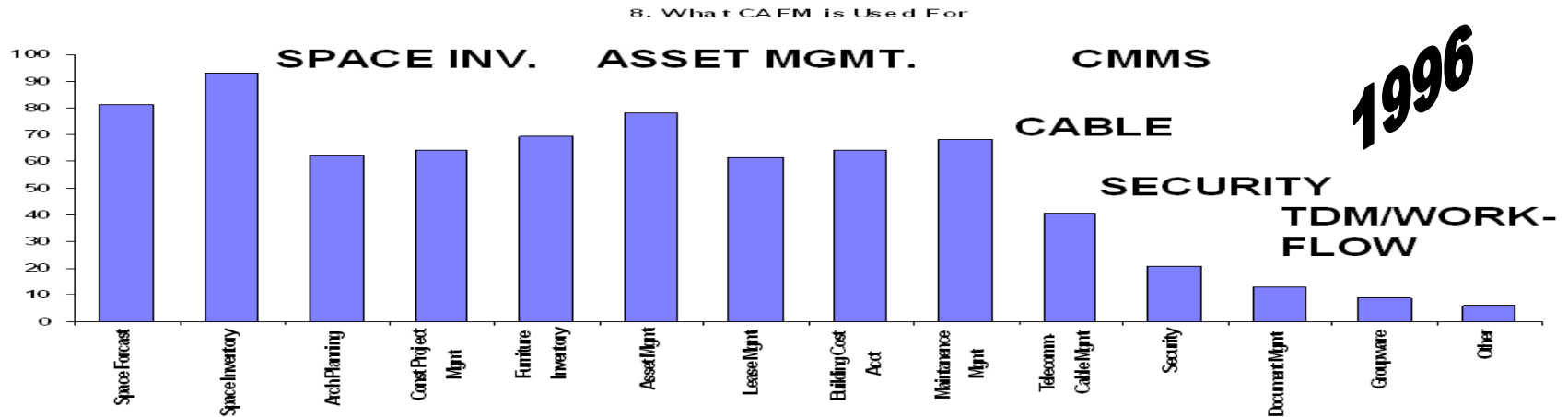


What is the AMP?

- Consists of a series of interlocking components
- Strategic elements at one end and technology elements at the other.
 - Takes into account the Asset Lifecycle
 - Impact on the business and organization
 - Performance Metrics
 - Technology Plan



AMP Drivers/Landscape



- Internet: Collaboration (Internet, Extranet, Intranet)
- Data Standards (XML)
- Interoperability (IAI, IFC, aecXML)
- Real Property Open Standards (OSCRE)
- IT Infrastructure Resource Management
- Regulatory/Compliance (GASB, FRPC, EO#13327)

Federal Real Property Council

Asset Management Survey – September 2004

- Objective: To obtain a baseline assessment of real property asset management activities conducted in Federal agencies.
- Survey consisted of 13 questions in Excel worksheet format, with request for inventory data elements and performance measures.

Consolidated Tally of Responses*

Real Property Asset Mgmt Activity		YES %	NO %
(1) Identified Asset Management Organization		94%	6%
(5) Agency and Asset Specific Policy and Guidance		88%	13%
(6) Real Property Inventory		88%	13%
(7) Asset Documentation		69%	31%
(10) Capital Budget and Plan		69%	31%
(3) Guiding Principles		63%	38%
(9) Operations and Maintenance Plan		63%	38%
(8) Periodic Valuation Mechanism		53%	47%
(4) Owner's Objectives		50%	50%
(13) Continuous Monitoring Mechanism		47%	53%
(2) Asset Management Plan Integrated with Agency Strategy		47%	53%
(11) "Building Block" Asset Business Plans		47%	53%
(12) Balanced Performance Measures		44%	56%

OMB- The President's Management Agenda: Quarterly Stoplight Scoring System

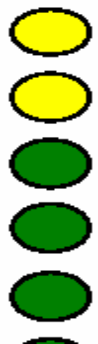
Executive Branch Management Scorecard

	Current Status as of June 30, 2005					Progress in Implementing the President's Management Agenda				
	Human Capital	Competitive Sourcing	Financial Perf.	E-Gov	Budget/Perf. Integration	Human Capital	Competitive Sourcing	Financial Perf.	E-Gov	Budget/Perf. Integration
AGRICULTURE	Yellow	Yellow	Red	Yellow	Yellow	Green	Green	Green	Green	Green
COMMERCE	Green	Yellow	Green	Yellow	Yellow	Green	Green	Green	Yellow	Green
DEFENSE	Yellow	Red ↓	Red	Red	Yellow	Green	Red	Red	Red	Green
EDUCATION	Yellow	Yellow	Green	Yellow	Yellow	Green	Green	Green	Green	Green

Real Property Asset Management:

- Agriculture
- Defense
- Energy
- HHS
- DHS

- **Green** for success,
- **Yellow** for mixed results, and
- **Red** for unsatisfactory.



EO#13327 – Guidance for Improved Asset Management

- **Guiding Principles:** The Guiding Principles serve as the FRPC’s strategic objectives for real property management improvement. Agencies must ensure that all real property initiatives are carried out consistent with these principles.
- **Asset Management Plan:** Each agency will draft an Asset Management Plan (AMP) that addresses, at a minimum, the FRPC Guiding Principles and the AMP required components. AMPs are subject to Office of Management and Budget (OMB) review and approval. The FRPC guidance includes a “shelf document” that agencies are encouraged to use as a template for drafting the AMP.
- **Property Inventory Data Elements and Performance Measures:** The FRPC has identified and defined 23 mandatory data elements that will be captured and reported by all agencies. These data elements support the goals of the executive order, as well as the requirements of the Performance Measures Committee.

AMP Topics

- *Council's template for agency asset management plans includes:*
 1. Integrated Guiding Principles
 2. Agency-Specific Owner's Objectives
 3. Periodic Evaluation of All Assets
 4. Prioritized Operations and Maintenance & Capital Plans
 5. Identified Resource Requirements to Support Plans
 6. "Building Block" Asset Business Plans in Agency Portfolio Context
 7. Continuous Monitoring and Feedback Mechanism
 8. Consideration of Socio-Economic-Environmental Responsibilities
 9. Adequate Human Capital Support of Asset Management Organization
 10. Common Government-wide Terminology

Agency-Specific Document

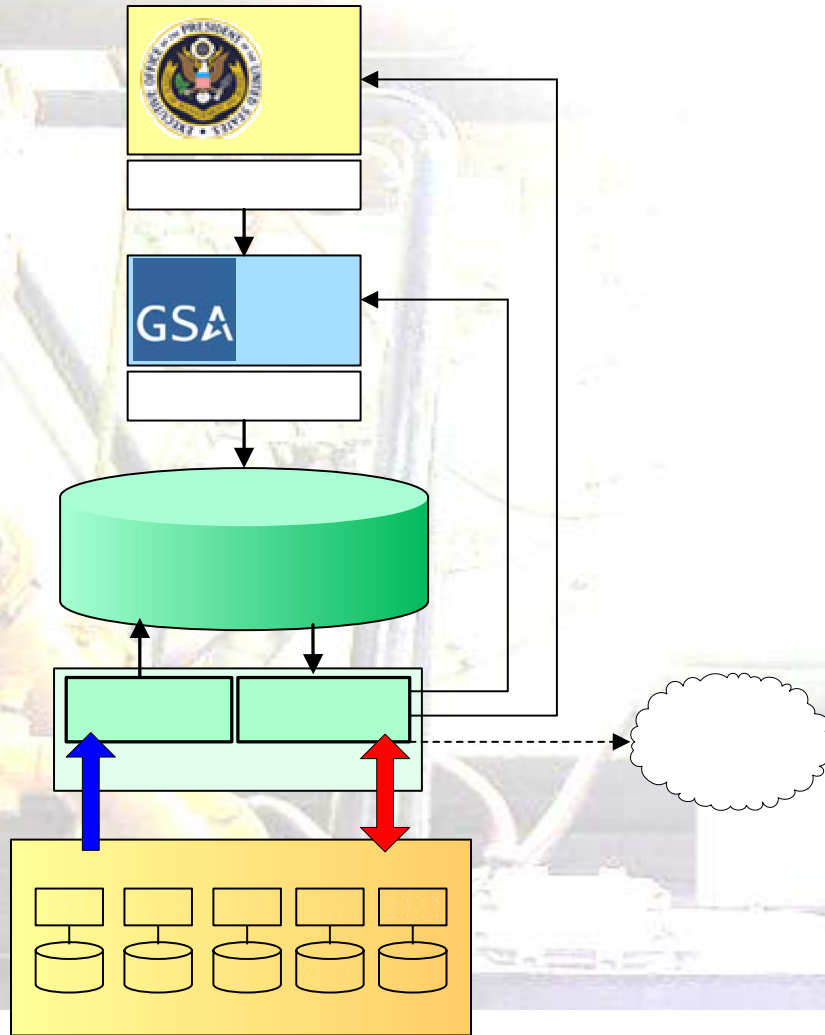
Table of Contents

Asset Management Plan

- 1 Introduction**
- 2 Support of Agency Missions and Strategic Goals**
 - 2.1 Agency's Mission
 - 2.1.1 *Real Property Organization's Mission*
 - 2.2 Human Capital and Organization Infrastructure
 - 2.3 Real Property Asset Management Decision-Making
- 3 Owner's Objectives**
- 4 Acquisition of Real Property Assets**
 - 4.1 Capital Plan for Major Projects
 - 4.1.1 *New Construction Major Projects*
 - 4.1.2 *Repair and Alterations Major Projects*
 - 4.1.3 *Acquisition of Major Leases*
 - 4.2 Acquisition of Leases Below a Critical Threshold
 - 4.3 Acquisition Performance Measures and Continuous Monitoring
 - 4.4 Acquisition Initiatives
- 5 Operations of Real Property Assets**
 - 5.1 Inventory and Describe Assets
 - 5.1.1 *Historic Preservation Requirements*
 - 5.2 Asset Documentation
 - 5.3 Asset Business Plans
 - 5.4 Periodic Evaluation of Assets
 - 5.5 Operations & Maintenance Plan
 - 5.6 Plan for Basic Repair & Alteration Needs
 - 5.7 Capital and Operating Resource Requirements
 - 5.8 Operations Performance Measures and Continuous Monitoring
 - 5.9 Operations Initiatives
- 6 Disposal of Unneeded Assets**
 - 6.1 Tools to Support Decision-Making
 - 6.2 Disposal Process
 - 6.3 Disposal Performance Measures and Continuous Monitoring



FRPC & EO 13327



Federal Government Real Property Portfolio Profile:

- Portfolio valued at \$326 Billion (2003)
- 3.3 billion square feet of building space
- 655 million acres of land
- ~90% owned assets, ~10% leased assets;
- \$6 billion annually spent on leasing costs

OMB

23 Primary Data Elements/Measures

Descriptive Data

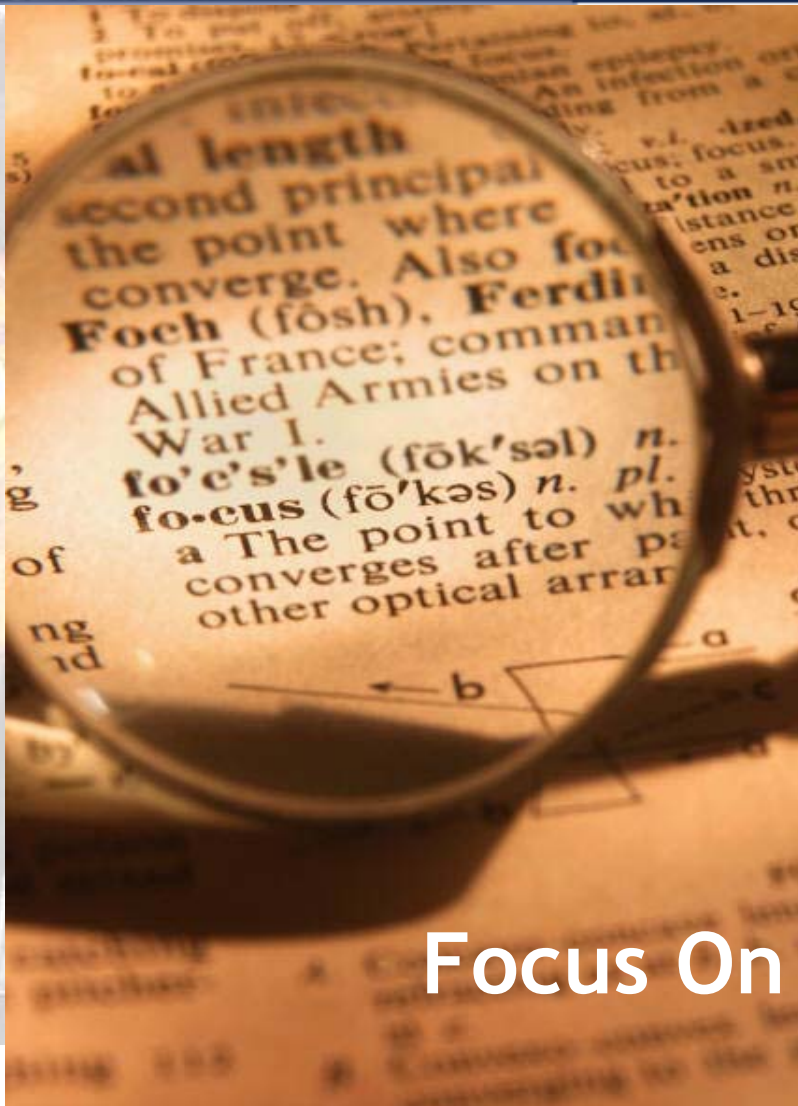
- Asset ID
- Location/Address elements
- Real Property Type
- Real Property Use
- Legal Interest
- Status
- Historical Status
- Reporting/Using Organization
- Size
- Value
- Operating costs

Performance Measures:

- **Condition Index**
- Utilization
- Mission Dependency
- Annual Operating Costs

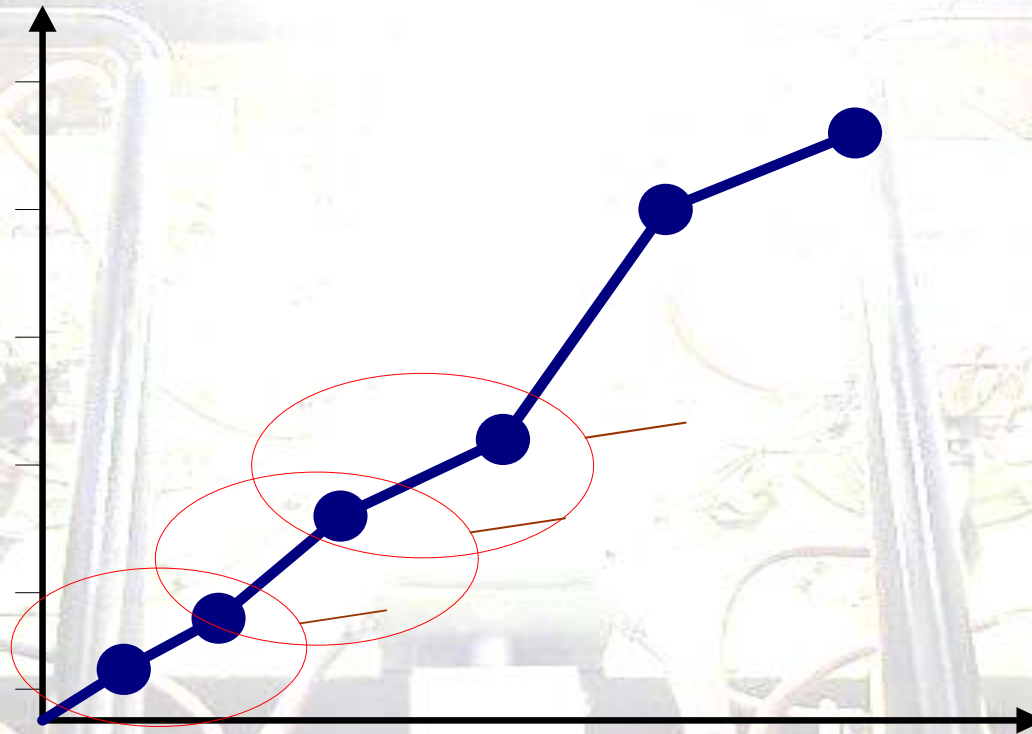
2006/Future

- Data Quality/Utility
- New Data
 - AMP
 - BIM
 - Energy
 - Sustainment
 - OSCRE



Focus On Condition Index Metric

Condition Assessment - Results vs Resource Requirements



Assessment Types

Approaches to Obtain Condition Index (CI) Values

Two Recognized Methods (FASAB)

1. Condition Assessment Surveys

Visual On-Site Assessment

$$CI = \frac{\text{Repair Needs}}{\text{Capital Replacement Value}}$$



2. Total Life-Cycle Cost Methods

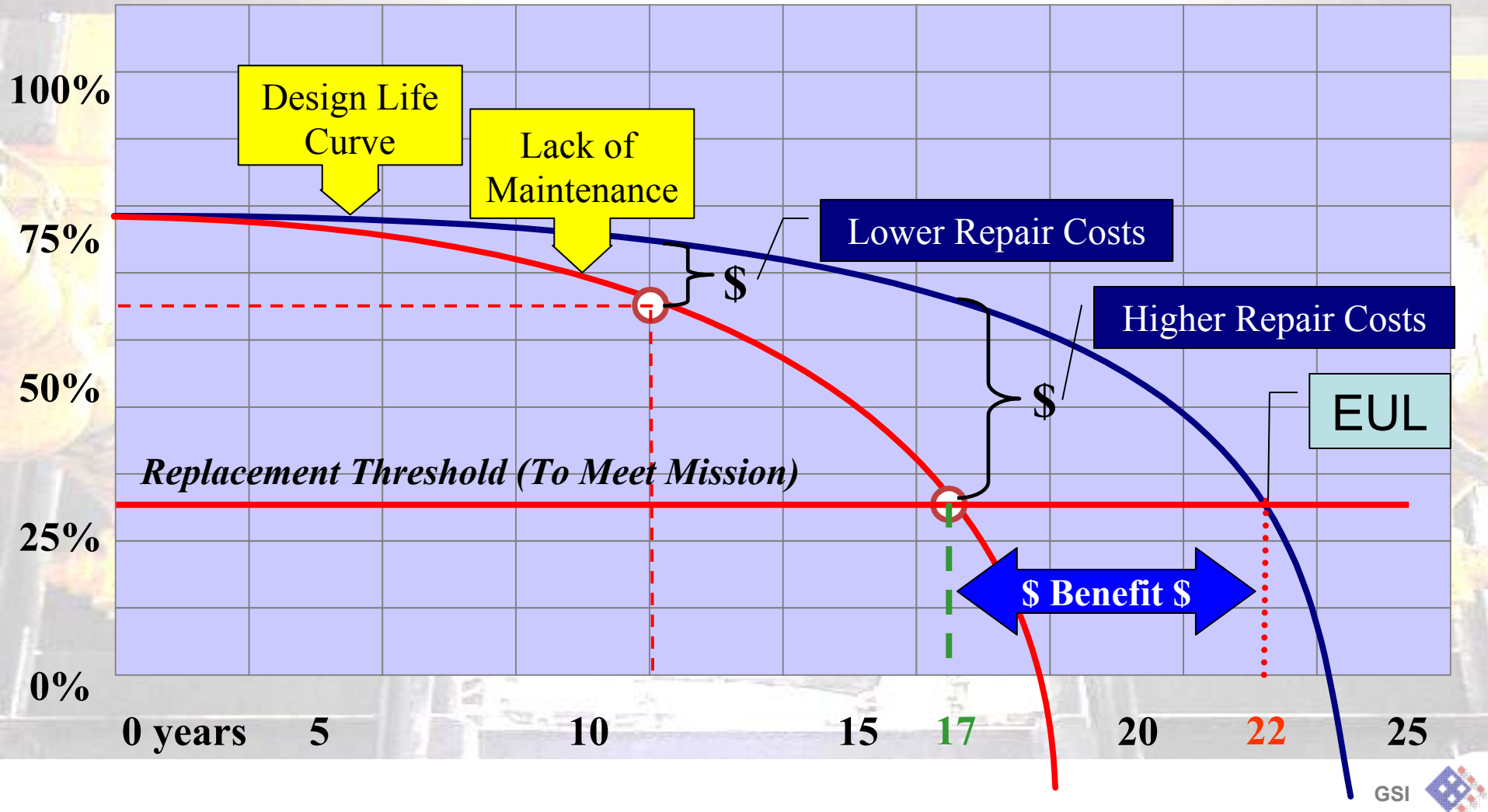
Desktop Exercise

$$CI = \frac{\text{Renewal Requirements}}{\text{Capital Replacement Value}}$$



Assessment Types

Method 1: Condition Assessment Surveys: Early Identification of Repair Needs

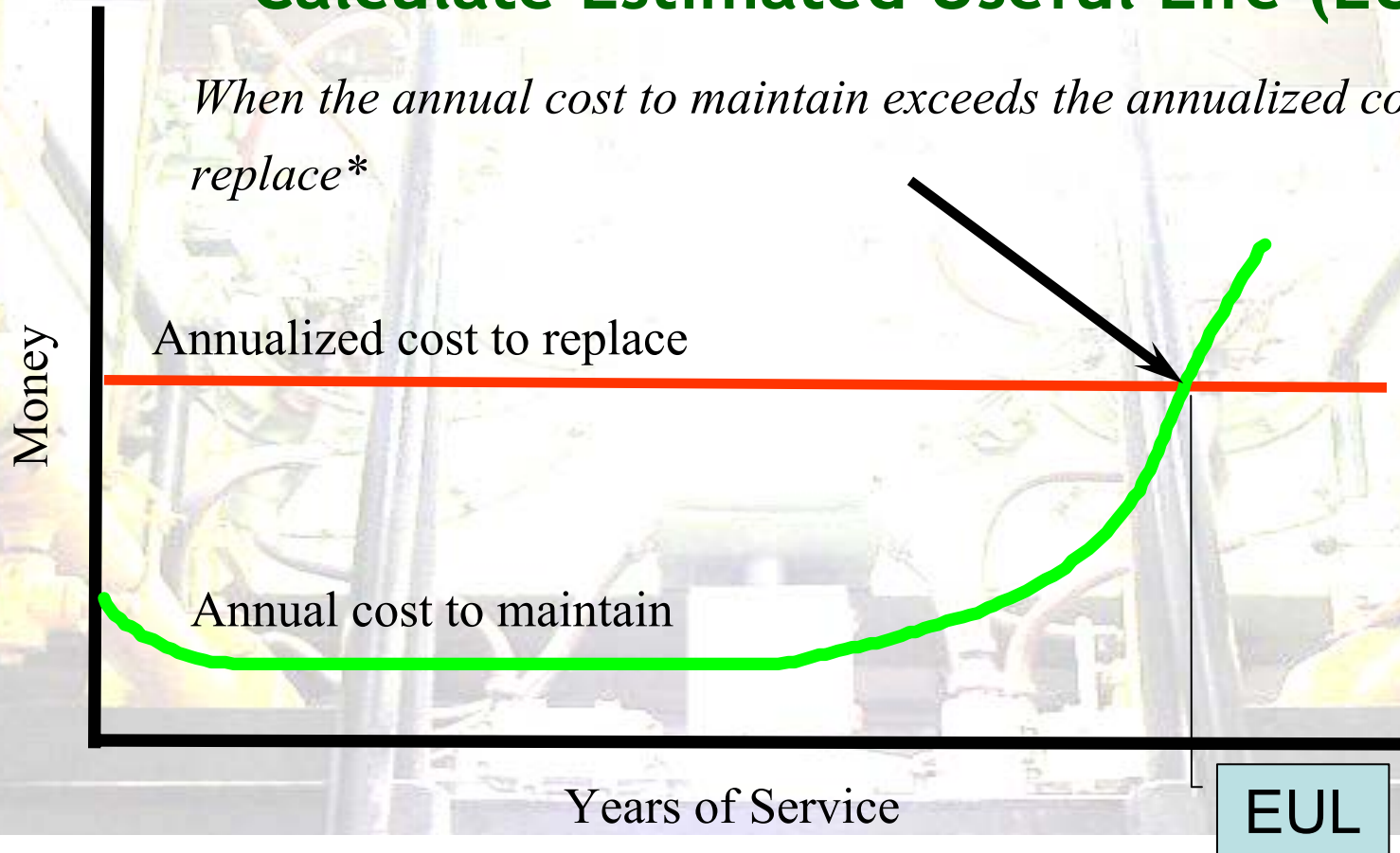


Assessment Types

Method 2: Total Life Cycle Cost Method: Statistical Analysis of Predicted Repair Needs

Calculate Estimated Useful Life (EUL)

*When the annual cost to maintain exceeds the annualized cost to replace**



Selected Condition Assessment Methodologies

- Alabama Commission on Higher Education Model
- Applied Management Engineering Model
- Backlog of Maintenance and Repair Model (NASA)
- Condition Assessment Information Survey (CAIS) (DoE)
- Dryden Flight Research Center Model (NASA)
- Facility Engineering Associates Method
- Facilities Sustainment Model (DoD)
- Physical Planning Technologies (PPTi) Strategic Assessment Method
- Stanford University Model
- Strategic/Tactical Structured Hybrid
- Traditional Visual Condition Assessment Method - Single Site (Defects Only)
- Traditional Visual Condition Assessment Method - Multiple Sites (Defects Only)
- Total Life Cycle Cost Method (From New)
- University of Virginia Model
- VFA Assessment Method (NIH, FDA)
- Whitestone MARS Facility M&R Cost Forecasting System

Assessment Types

	Alabama Commission on Higher Education Model	Applied Management Engineering Model	Backing of Maintenance and Repair Model (NASA)	Condition Assessment Information Survey (CAIS) (DoE)	Dryden Flight Research Center Model (NASA)	Facility Engineering Associates Method	Facilities Sustainment Model (DoD)	Physical Planning Technologies (PP/T) Strategic Assessment Method	Stanford University Model	Strategic/Tactical Structured Hybrid	Traditional Visual Condition Assessment Method - Single Site (Defects Only)	Traditional Visual Condition Assessment Method - Multiple Sites (Defects Only)	Total Life Cycle Cost Method (From New)	University of Virginia Model	VFA Assessment Method (HHS)	Whitestone MARS Facility M&R Cost Forecasting System
Data Requirement																
Asset Level Information																
Asset Inventory	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Plant Replacement Cost (Per Unit Rate) ¹	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Date of Construction/Major Renovation	X	X		X		X		X	X	X		X		X	X	X
Asset Locations	X	X	X	X	X	X	X	X	X	X		X		X	X	X
Defined Asset Types			X	X			X	X		X					X	X
Asset Unit Sizes (Area, Height, etc)		X	X	X	X	X	X	X	X	X	X	X		X	X	X
Operating and Maintenance Costs per Asset	X						X		X				X			
On-Site Visual Assessment ²		X	X	X	X	X				X ³	X	X		X	X	
Original Date of Maintenance Forecast													X			
Original Maintenance Cost Requirements													X			
Systems Level Information																
Systems Inventory	X			X	X				X	X				X		X
System Replacement Costs (Unit Rates)	X ³	X		X ³	X	X		X	X	X	X ³	X ³		X	X ³	X
System Sizes (Area, Capacity, Quantity, etc)	X	X		X	X	X			X	X				X		X
System Replacement Dates	X	X		X	X	X			X	X				X		X
Agency Standard Information																
Pre-Defined Condition Levels (Condition Codes)		X	X	X	X	X		X		X	X	X		X	X	X
Facility/System Replacement Cost Models			X	X				X		X					X	X
Facility Sustainment Cost Model							X									
Baseline Facility Assessment Data (Sample)			X													
Baseline Facility Assessment Data (All Assets)					X									X		
Maintenance Information (Possibly from CMMS) ⁴		X			X	X				X						
Results and Benefits																
Facility Condition Indexes	✓	✓	✓	✓	✓	✓	✓ ⁶	✓ ⁶	✓	✓	✓	✓	✓	✓	✓	✓ ⁶
Provides Details of Required Repair Projects		✓		✓		✓				✓	✓	✓		✓	✓	✓
Provides Renewal Requirement Forecasts		✓		✓		✓		✓ ⁷		✓	✓	✓		✓	✓ ⁷	✓



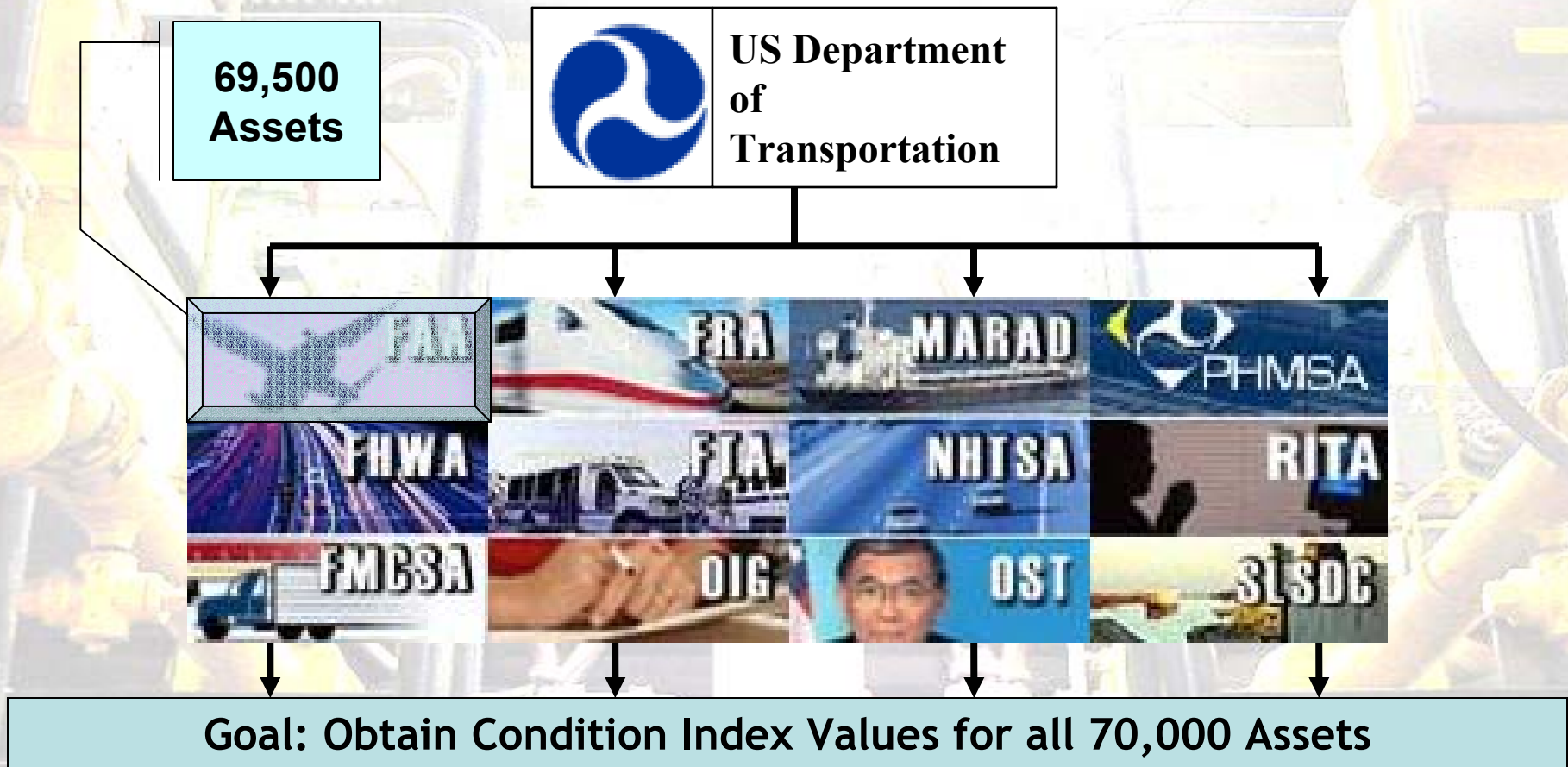
Case Studies

Step 1 - Review Existing Processes and Data:

Evaluate each landholding unit on the following dimensions:

- Appropriate Methodology
- Deficiency Survey Techniques
- Identification of Repair and Replacement Projects
- Facility Inventory Details
- Facility Renewal Identification (i.e. Future Needs)
- Metrics and Benchmarks
- Information Technology

Case Study - DOT



Case Study - DOT

	Alabama Commission on Higher Education Model	Applied Management Engineering Model	Backing of Maintenance and Repair Model (NASA)	Condition Assessment Information Survey (CAIS) (DoE)	Dryden Flight Research Center Model (NASA)	Facility Engineering Associates Method	Facilities Sustainment Model (DoD)	Physical Planning Technologies (PPT) Strategic Assessment Method	Stanford University Model	Strategic/Tactical Structured Hybrid	Traditional Visual Condition Assessment Method - Single Site (Defects Only)	Traditional Visual Condition Assessment Method - Multiple Sites (Defects Only)	Total Life Cycle Cost Method (From New)	University of Virginia Model	VFA Assessment Method (HHS)	Whitestone MARS Facility M&R Cost Forecasting System
Data Requirement																
Asset Level Information																
Asset Inventory	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Plant Replacement Cost (Per Unit Rate) ¹	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Date of Construction/Major Renovation	X	X		X		X		X	X	X		X		X	X	X
Asset Locations	X	X	X	X	X	X	X	X	X	X		X		X	X	X
Defined Asset Types			X	X			X	X		X					X	X
Asset Unit Sizes (Area, Height, etc)		X	X	X	X	X	X	X	X	X	X	X		X	X	X
Operating and Maintenance Costs per Asset	X						X		X				X			
On-Site Visual Assessment ²		X	X	X	X	X				X ³	X	X		X	X	
Original Date of Maintenance Forecast													X			
Original Maintenance Cost Requirements													X			
Systems Level Information																
Systems Inventory	X			X	X				X	X				X		X
System Replacement Costs (Unit Rates)	X ³	X		X ³	X	X		X	X	X	X ³	X ³		X	X ³	X
System Sizes (Area, Capacity, Quantity, etc)	X	X		X	X	X			X	X				X		X
System Replacement Dates	X	X		X	X	X			X	X				X		X
Agency Standard Information																
Pre-Defined Condition Levels (Condition Codes)		X	X	X	X	X		X		X	X	X		X	X	X
Facility/System Replacement Cost Models			X	X				X		X					X	X
Facility Sustainment Cost Model							X									
Baseline Facility Assessment Data (Sample)			X													
Baseline Facility Assessment Data (All Assets)					X									X		
Maintenance Information (Possibly from CMMS) ⁴		X			X	X				X						
Results and Benefits																
Facility Condition Indexes	✓	✓	✓	✓	✓	✓	✓ ⁵	✓ ⁶	✓	✓	✓	✓	✓	✓	✓	✓ ⁶
Provides Details of Required Repair Projects		✓		✓		✓				✓	✓	✓		✓	✓	
Provides Renewal Requirement Forecasts		✓		✓		✓		✓ ⁷		✓	✓	✓		✓	✓ ⁷	✓

Case Study - DOT

DOT Option:

Use existing assessment systems where available.

- Look to make progress towards a consistent approach.
- Issue assessment guidance notes for assessments that need to be performed by in-house personnel.
- Consider using NASA BMAR Method to infill missing information

WHY: Large Number of Assets, Limited Resources, therefore need to use what is available. Renewal forecasting not currently a priority.

Case Study - HHS



Goal: "One-HHS"- Consistent Assessment System & Condition Index Values

Case Study - HHS

	Alabama Commission on Higher Education Model	Applied Management Engineering Model	Backing of Maintenance and Repair Model (NASA)	Condition Assessment Information Survey (CAIS) (DoE)	Dryden Flight Research Center Model (NASA)	Facility Engineering Associates Method	Facilities Sustainment Model (DoD)	Physical Planning Technologies (PP/T) Strategic Assessment Method	Stanford University Model	Strategic/Tactical Structured Hybrid	Traditional Visual Condition Assessment Method - Single Site (Defects Only)	Traditional Visual Condition Assessment Method - Multiple Sites (Defects Only)	Total Life Cycle Cost Method (From New)	University of Virginia Model	VFA Assessment Method (HHS)	Whitestone MARS Facility M&R Cost Forecasting System
Data Requirement																
Asset Level Information																
Asset Inventory	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Plant Replacement Cost (Per Unit Rate) ¹	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Date of Construction/Major Renovation	X	X		X		X		X	X	X		X		X	X	X
Asset Locations	X	X	X	X	X	X	X	X	X	X		X		X	X	X
Defined Asset Types			X	X			X	X		X					X	X
Asset Unit Sizes (Area, Height, etc)		X	X	X	X	X	X	X	X	X	X	X		X	X	X
Operating and Maintenance Costs per Asset	X						X		X				X			
On-Site Visual Assessment ²		X	X	X	X	X				X ³	X	X		X	X	
Original Date of Maintenance Forecast													X			
													X			
Systems Level Information																
Systems Inventory	X			X	X				X	X				X		X
System Replacement Costs (Unit Rates)	X ³	X		X ³	X	X		X	X	X	X ³	X ³		X	X ³	X
System Sizes (Area, Capacity, Quantity, etc)	X	X		X	X	X			X	X				X		X
System Replacement Dates	X	X		X	X	X			X	X				X		X
Agency Standard Information																
Pre-Defined Condition Levels (Condition Codes)		X	X	X	X	X		X		X	X	X		X	X	X
Facility/System Replacement Cost Models			X	X				X		X				X	X	
Facility Sustainment Cost Model							X									
Baseline Facility Assessment Data (Sample)			X													
Baseline Facility Assessment Data (All Assets)					X									X		
Maintenance Information (Possibly from CMMS) ⁴		X			X	X				X						
Results and Benefits																
Facility Condition Indexes	✓	✓	✓	✓	✓	✓	✓ ⁶	✓ ⁶	✓	✓	✓	✓	✓	✓	✓	✓ ⁶
Provides Details of Required Repair Projects		✓		✓		✓				✓	✓	✓		✓	✓	
Provides Renewal Requirement Forecasts		✓		✓		✓		✓ ⁷		✓				✓	✓ ⁷	✓



Case Study - HHS

HHS Option: Use Strategic/Tactical Approach

1. Strategic View (Total Life Cycle Analysis)

- Perform Annually at ALL Buildings
- Need Inventory, EUL & Replacement Cost



2. Tactical View (Facility Condition Assessment)

- Perform Annually at **Selected** Buildings
(With Maximum Assessment Interval)
- Need Access to Facility



Understanding CI Values

Condition Index (CI) Values:

Formula:

$$CI = \left(1 - \frac{\$ \text{ Repair Needs}}{\$ \text{ Plant Replacement Value}} \right) \times 100$$

Expressed as a percentage (e.g., 95%)

Understanding CI Values

Condition Index Values:

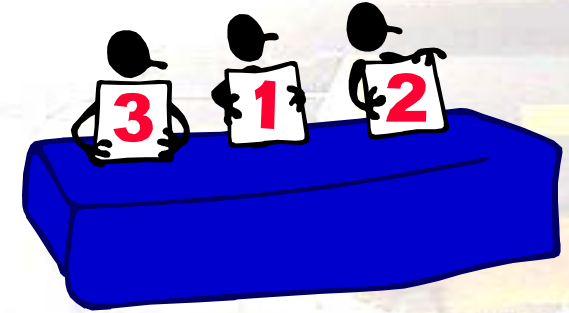


Need Consistent -

- Repair/Replacement Project Thresholds
- Scope Elements
- Inclusion/Exclusion of Contingencies, Architects/Engineering Fees, etc
- Assessment Year

Understanding CI Values

Condition Index Values:



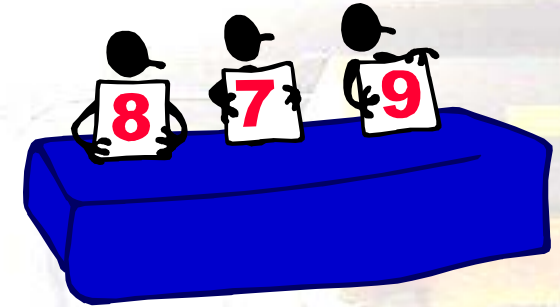
Understanding the Results -

- **Common Industry Standard:**
 - 95% to 100%: Good Condition
 - 90% to 95%: Fair Condition
 - Under 90%: Poor Condition

"I have had numerous questions asked of me about those ratings, and some people tell me they are too high, others think too low, and yet some think too narrow. Thankfully, no one ever asked to define good, fair, and poor!" ...Bob Brooks (AME)

Understanding CI Values

Condition Index Values:



Alternative Method (APPA) -

- 95% - 100%: Showpiece Facility condition
- 85% - 94%: Comprehensive Stewardship condition
- 70% - 84%: Managed Care condition
- 50% - 69%: Reactive Management condition
- 0% - 49%: Crisis Response condition

APPA's "SAM levels of service" guide is useful to management and operations to express needs and expectations and associate levels of service and condition with the needs and expectations of an organization.

(<http://www.appa.org>)

Understanding CI Values

Condition Index Values:

So now you have all the results, and
you get CI values of:



75%, 85% or 95%

- What does that mean to the Asset Management Plan and Organization?
- What actions are suggested?

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Thank You

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