

**Case Studies:
Asset Prioritization**

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Carlos Alvarado
Booz Allen Hamilton
Chicago, IL
Alvarado_Carlos@bah.com

Jim Turner
Booz Allen Hamilton
McLean, VA
Turner_Jim@bah.com

As a portfolio manager, how do you make the choice to invest your limited funds in two similar assets like these?



...Did your answer consider how important each of those assets are to your core mission, or what could happen if you deferred the investment in either one?

In 2004, a survey of asset management executives found that nearly 90% strongly agree that there is a strong linkage between asset alignment and the overall enterprise strategy and mission

- ▶ Other results from the survey:
 - Many responded that their organization has no criteria or process for characterizing this aspect of an asset’s value
 - Most organizations possess assets that are not closely aligned to their missions, and this situation is not expected to improve
 - Asset management executives usually contribute in a key way to enterprise strategy-setting and decision-making, but senior executives (CEO, CFO, COO) and customers assess “mission fit”

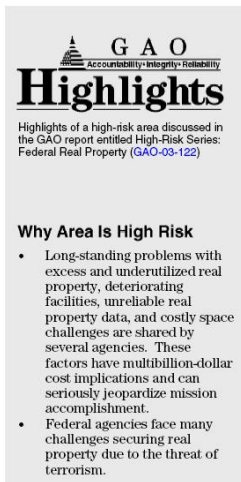
- ▶ There is a need for criteria and processes to characterize the asset’s value to the mission

- ▶ Obstacles include:

<input checked="" type="checkbox"/> Inadequate resources	<input checked="" type="checkbox"/> Lack of criteria or methods
<input checked="" type="checkbox"/> Lack of management commitment	<input checked="" type="checkbox"/> Organizational disconnects
<input checked="" type="checkbox"/> Lack of policy	<input checked="" type="checkbox"/> Lack of accurate information or systems

Source: Enterprise Asset Management Survey, Booz Allen Hamilton, 2004

The emphasis on effective management of Federal real property has increased over the last several years



GAO
 Accountability • Integrity • Reliability
Highlights
 Highlights of a high-risk area discussed in the GAO report entitled High-Risk Series: Federal Real Property (GAO-03-122)

Why Area Is High Risk

- Long-standing problems with excess and underutilized real property, deteriorating facilities, unreliable real property data, and costly space challenges are shared by several agencies. These factors have multibillion-dollar cost implications and can seriously jeopardize mission accomplishment.
- Federal agencies face many challenges securing real property due to the threat of terrorism.

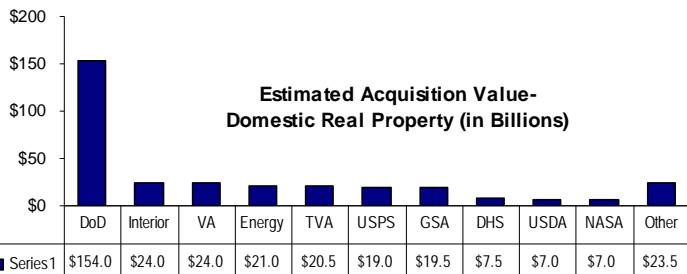
- ▶ In January 2003, the Government Accounting Office (GAO) identified Federal real property as a high risk area for the US

- ▶ The problems identified included the following
 - Lack of accountability
 - Insufficient real property information
 - Significant amount of under or unused space
 - High cost to operate and maintain
 - Lack of means to dispose of unneeded property

- ▶ Following GAO’s findings, President Bush added real property management to the President’s Management Agenda (PMA) through the establishment of E.O. 13327, Federal Real Property Asset Management in February 2004

The domestic US Federal real property portfolio is massive

Comprised of a diverse set of assets, the owned portfolio value is currently estimated at around \$327 billion. Data collected on real property is grouped in to three categories: buildings, land, and structures



Overview of the Federal real property portfolio

- 98% of Federal real property is located in the US
- 89% of Federal building space is owned, 11% is leased from the private sector
- \$7 billion is spent annually on rental costs
- 98% of Federal land is owned, 99% of this land is within the US

Transportation systems:

Roads, Parking Areas, Bridges, Tunnels, railroad and aviation systems

Recreational areas:

Trails, Campgrounds, Maintained Landscapes, Picnic Areas

Utilities:

Water, Waste Water, Electrical, Heating and Cooling Plants, Dams, and Fuel Systems

Technology:

Radio, Phone, Computer,

Marinas and waterways

Buildings: Administrative and housing

Cultural resources: Ruins, fortifications, Monuments, Memorials, and Outdoor Sculptures

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EO 13327- Federal Real Property Management outlines key objectives aimed at changing the status quo

- ▶ EO 13327 aims to “to promote the efficient and economical use of Federal real property resources in accordance with their value as national assets and in the best interests of the Nation...”
 - It requires “executive branch departments and Agencies...recognize the importance of real property resources through increased management attention, the establishment of clear goals and objectives, improved policies and levels of accountability”
 - It requires “heads of all executive branch departments and Agencies...designate among their senior management officials, a Senior Real Property Officer...(who) shall develop and implement an Agency asset management planning process...”
- ▶ Sec. 3 (b) specifically requires Agencies:
 - Identify and categorize all real property owned, leased, or otherwise managed by the Agency
 - Prioritize actions to be taken to improve the operational and financial management of the Agency’s real property inventory
 - Make life-cycle cost estimations associated with the prioritized actions
 - Identify and pursue goals...consistent with and supportive of the Agency’s asset management plan...

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Additionally, the President's Management Agenda, established in 2001, included real estate asset management as part of its strategy for improving the management of the federal government:

- ▶ The PMA include Progress and Status milestones for accomplishment are established by an Agency each for each fiscal year in a "Proud To Be" (PTB) memorandum issued and coordinated by the office of Clay Johnson III, Deputy Director of the OMB
- ▶ PTB is tracked by quarterly following the fiscal year. Agencies may communicate directly with OMB representatives regarding maintaining their established schedule
- ▶ OMB scores Agencies on Progress and Status of implementing EO13327 based on an Agencies' adherence to the schedule established by the PTB for the year going forward
- ▶ While each Agency is allowed to create it's own timeline, all agencies were expected to have created an electronic inventory system by 2006

Making difficult resource decisions is not an uncommon challenge for public and private sector asset managers

- ▶ Real property and facilities are typically the third largest expense an organization incurs – after people and technology
- ▶ Key drivers of asset management decisions
 - Rapidly degrading condition of infrastructure and assets
 - Shortage of resources/funding for renewal
 - Emerging business continuity and renewal needs
 - Underutilization due to changes, realignments, and the introduction of new workplace tools and technology
 - Financial, historical, political, environmental, and institutional difficulties for aligning and disposing assets
- ▶ This need forms the basic business case for developing an asset prioritization tool

...as Peter F. Drucker said, "If you can't measure it, you can't manage it."

What is an Asset Priority Index (API)?

Asset Priority Index (API)

- ▶ A criteria-derived metric that helps asset managers assess and document the priority or level of importance of facilities relative to one another
- ▶ A concept widely used in other facility management organizations and industries, a critical element used by management to support portfolio-level decision making



Benefits

- ▶ Understanding the importance of assets relative to one another empowers leadership to make critical budgetary and programmatic decisions
- ▶ The ability to prioritize allows management to align funding and resource allocation with the most valued assets from a business perspective
- ▶ The API is an industry "best practice" cited in the Journal of Corporate Real Estate and was recently designated an ASTM Standard

The API approach we will share draws from our experience working with large asset portfolios, and builds upon approaches such as the US Navy's Mission Dependency Index (MDI).

Asset prioritization is now a part of ASTM Standard E 2495-06 –



Designation: E 2495 – 06

Standard Practice for Asset Utility¹

This standard is issued under the fixed designation E 2495; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

Identifying assets that are most critical to a mission or practice is challenging for most business entities. The ability of a business entity to minimize the gap between its asset portfolio and ever-changing organizational missions often determines its success or failure in achieving designed objectives. The goal of this practice is to provide managers with a disciplined, quantitative approach to an inherently subjective decision-making process: determining which assets are critical to an entity's designated mission and are therefore deserving of priority attention or funding.

– and was recently highlighted as a component of business continuity and emergency planning.

Journal of
Business Continuity & Emergency Planning

**Asset prioritisation strategy:
A quantitative approach**

Carlos M. Alvarado* and Daniel R. Schriever**

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*Booz Allen Hamilton, 225 West Wacker Drive, Suite 2270, Chicago, IL 60606, USA;
Tel: +1 312 678 4525;
e-mail: alvarado_carlos@bah.com

**Booz Allen Hamilton, 8283 Greenstone Drive, McLean, VA 22102, USA;
Tel: +1 703 902 5361; e-mail: schriever_dan@bah.com

Carlos M. Alvarado, PE has over 12 years of experience in asset prioritisation, infrastructure management and project management. Carlos, an Associate at Booz Allen Hamilton, received his Bachelor of Science (sum laude) and his Master of Science in mechanical engineering from Virginia Polytechnic Institute. He also has an MBA with a concentration in finance from Columbia University. Carlos is a registered professional engineer in the Commonwealth of Virginia and the Republic of Panama. He is certified by the Project Management Institute as a project management professional.

ABSTRACT

When an organisation has many demands competing for limited asset management resources, it must allocate such resources in a way that will have the most impact on its core mission while minimising business continuity risk. Logically, resources should go to managing those assets that are most important to the strategy and operations of the organisation. In reality, however, most business continuity/risk/facility managers lack a disciplined, data-driven approach for setting management and investment priorities. The difficulty in attempting to align funding/management attention with higher priority assets is that the often qualitative concept of 'important' must be quantified. This paper will explain how to develop a quantitative measure — an asset priority index (API) — to score each asset in the portfolio to reflect criteria important to an organisation. It also describes how the API can be used as part of an overarching asset portfolio management strategy, and how business continuity/risk managers can involve senior management in asset management decisions. The authors will explore three basic questions:

- How can API help organisations better manage their assets?
- What is the process for involving upper



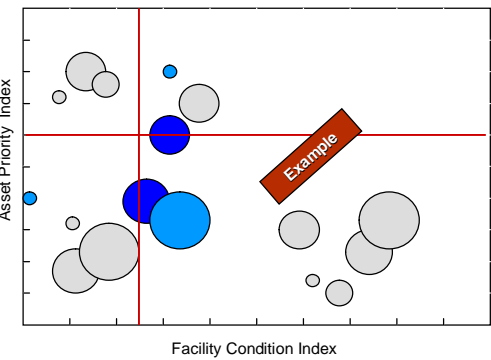
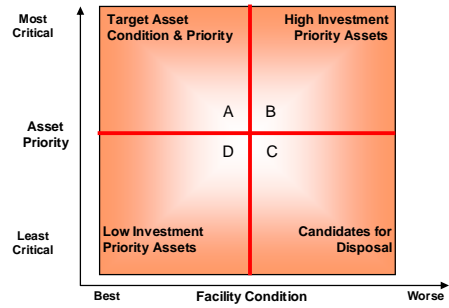
Daniel R. Schriever, PE has 12 years of professional experience encompassing infrastructure engineering design, cost estimating and financial analysis. In addition to design and preparation of construction documents, his engineering experience includes conducting construction feasibility studies, environmental impact analysis and facility operation studies. His cost estimating and analysis experience includes market analysis, recapitalisation planning, life-cycle cost estimating, cost modeling, cost-benefit analysis and economic and requirements analysis. A licensed professional engineer and certified cost estimator/analyst, Dan holds an MBA from Loyola College of Maryland and a Bachelor of Science in civil engineering from Brigham Young University.

Booz Allen Hamilton
225 West Wacker Drive
Suite 2270
Chicago, IL 60606
USA
Tel: +1 312 678 4525
www.boozallen.com



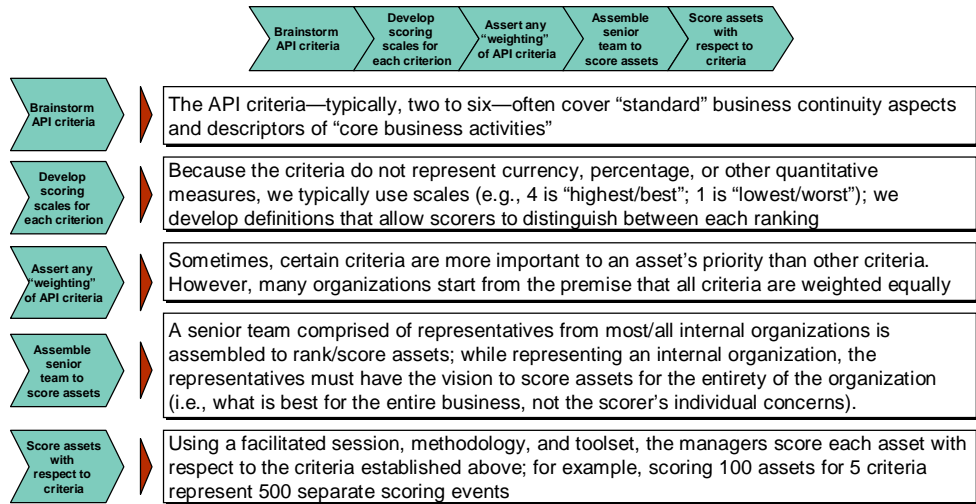
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Before we go into process, here is an example of how to interpret API results



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There are five steps to creating the Asset Priority Index

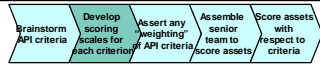


Select API criteria that reflect the organization’s overarching mission, that address all aspects of that mission, and are broadly accepted within the organization

- ▶ Some examples past clients have selected:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Mission support | <input checked="" type="checkbox"/> Exclusivity |
| <input checked="" type="checkbox"/> Asset visibility | <input checked="" type="checkbox"/> Future need |
| <input checked="" type="checkbox"/> Contribution to continuity of operations | <input checked="" type="checkbox"/> Relocatability |

- ▶ When selecting criteria, it is important to consider not only what is important now, but also to consider future business needs
- ▶ Clear definitions and consistent application are also key



API Criteria: Interruptability and Relocatability

Interruptability

Interruptability is the level of tolerance by the business for outages and downtime of an asset. Higher ratings are given to assets that are critical or key back-ups for the core business (e.g., provide single point of failure, key business continuity functions) where impact to the business of an interruption is severe.

Scoring	Definitions
4 – Critical	No outages can be sustained.
3 – Serious	Outages of short duration, minutes to hours, can be sustained.
2 – Moderate	Outages of days or weeks in duration can be sustained.
1 – Minor	Outages for months or longer can be sustained.

Relocatability

Relocatability is the measurement of whether the business can be completed from an alternative or temporary facility. Consideration is given for time and logistics to relocate, the proximity to customers and community, and the "uniqueness" of the asset.

Scoring	Definitions
4 – Critical	It is impossible to relocate functions housed by this asset.
3 – Serious	Relocation is feasible but serious logistics or time constraints exist.
2 – Moderate	Relocation is possible with few constraints.
1 – Minor	Relocation of the assets can be accomplished with little difficulty.

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Asset Inventory and Facility Condition Index

- An asset inventory is compilation of assets that is comprehensive yet minimizes unneeded detail
- CIRF FCI—facility condition index: measure of an asset's condition that is based on its current replacement value using the following formula:

$$CIRF\ FCI = \frac{\text{Cost of backlog and recapitalization}}{\text{Current Replacement Value}}$$



Asset ID	Category	Location	Year	Value	Condition	FCI
1001	Building	STOR, JALCO	1954	1.68	1.68	1.00
1002	Building	MAN MGMT JSAMI	1954	2.00	2.00	1.00
1003	Building	SFP CONVL MUN	1985	1.12	1.12	1.00
1004	Building	SFP CONVL MUN	1985	1.64	1.64	1.00
1005	Building	STOR SPARE INERT	1985	1.67	1.67	1.00
1006	Building	SFP CONVL MUN	1986	1.64	1.64	1.00
1007	Building	YEH MAN SFP	1981	2.00	2.00	1.00
1008	Building	YEH MAN SFP	1981	2.00	2.00	1.00
1009	Building	YEH MAN SFP	1981	2.00	2.00	1.00
1010	Building	YEH MAN SFP	1981	2.00	2.00	1.00

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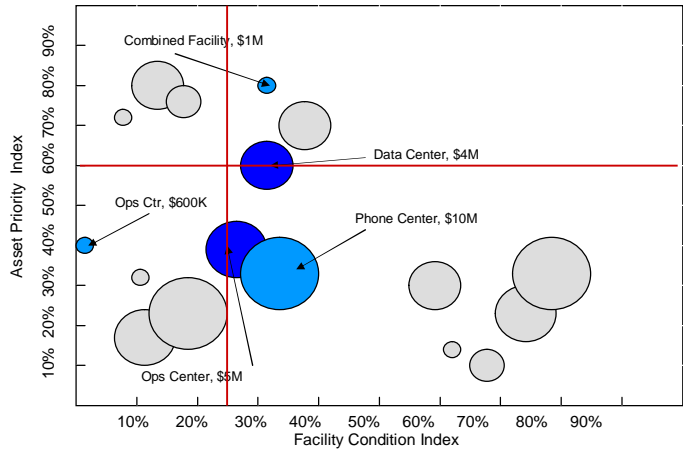
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Example of results from applying the API-FCI approach

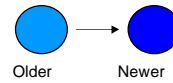


A	B
D	C

Notes:

•Size of Bubble is Proportional to Deferred Maintenance Backlog.

•Shade of Bubble Indicates Relative Age of Asset.



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 McLean, VA
Turner_Jim@bah.com

Case Study:

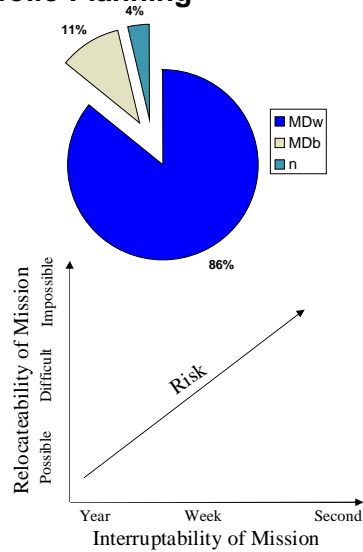
Incorporating Mission Dependency into Portfolio Planning Examples

U.S. Navy Mission Dependency Index (MDI)

- ▶ **Mission Intradependency (MDw) (Within the Mission)**
 How long could the “functions” supported by your infrastructure be stopped without adverse impact to the mission?
 If your facility was not functional, could you continue performing your mission by using another facility or by setting up temporary facilities?

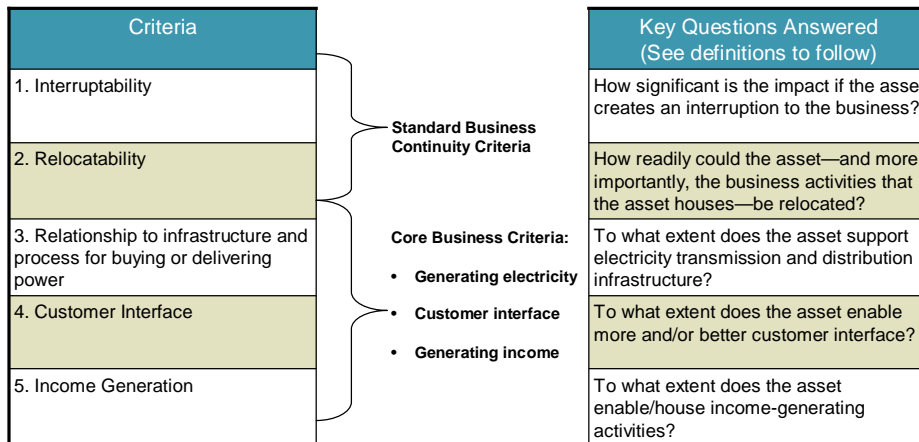
- ▶ **Mission Interdependency (MDb) (Between Missions)**
 How long could the function or service provided by the facility be stopped before you personnel and/or equipment could not perform their mission?
 If the infrastructure was completely destroyed, or not working, could you continue performing your mission?
 Number of Mission Interdependencies (n)

$$MDI = f(MDw, MDb, n)$$



Case Study:

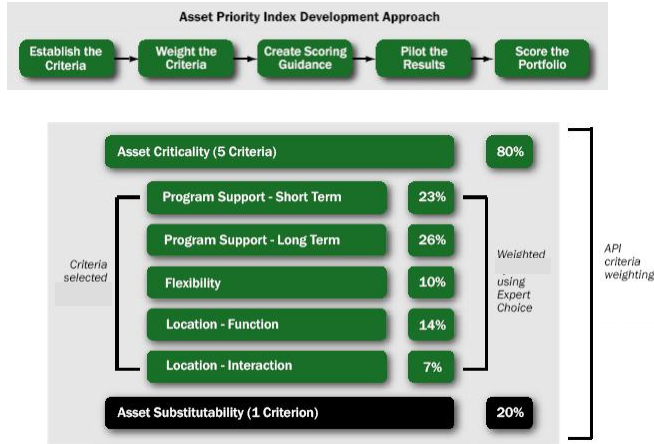
In a strategic planning exercise, an electric utility developed five criteria for facility investments.



These five criteria will be rated on a 1 to 4 scale (4=highest). The average of the five scores will be used as the API score.

Case Study:

A civilian agency client developed weighting for major categories of criteria, supplemented by weighing internal elements with AHP



Case Study:

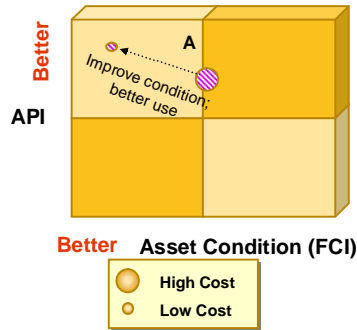
API modifiers

- ▶ Some clients add modifiers to the API Score to address additional requirements

Characteristics	Definition	Examples
Environmental Hazards	function of the building requires special handling and storage of hazardous materials	Houses oil/water separators and fuel storage
High Cost Equipment	facility has items such as laboratory equipment, or other specialized communication equipment	
High Personnel Occupancy	facility houses above average numbers of personnel	Administrative and dormitory buildings
Unique (one of a kind)	facility is the only one of its kind	air traffic control tower
Quality of Life	facility serves to provide amenities for base staff	Recreational facilities, gymnasiums and housing
Safety	facility requires special maintenance to ensure continued personnel safety	Houses functions involving industrial equipment and explosives
Historic Preservation	facility is registered or is awaiting registration with a historical society	Historic lodge
Security	facility requires a specific level of security beyond entrance to the base	

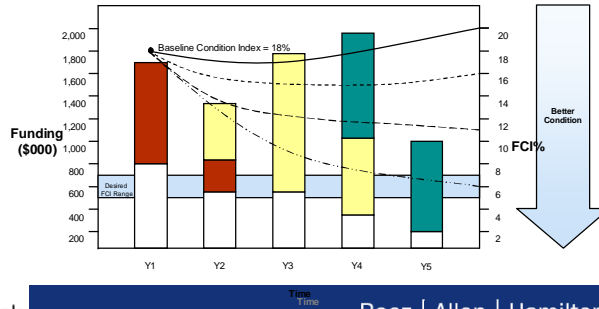
Case Study:
Example of using API to guide strategic decisions

Informed use of limited recapitalization resources can result in improved overall facility condition and improved support to the mission.



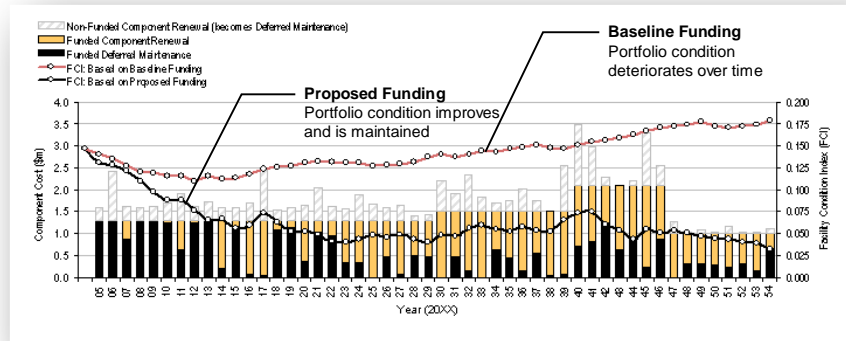
Recapitalization Strategy

- Invest to improve the overall condition of the facility, making it better serve the mission and cost less to maintain.
- When and how should we invest to improve mission critical assets?
- Establish life-cycle based capital investment and renewal plan.



Case Study:
Applying API to Capital Investment Renewal Forecasting

CIRF provides a long-term perspective of an organization's asset portfolio and shows the necessary funding to maintain an acceptable condition. The impacts of funding decisions can be predicted over long periods of time.



Summary

- ▶ The Asset Priority Index (API) is a criteria-derived metric that helps asset managers assess and document the priority or level of importance of facilities relative to one another in order to achieve their goals
- ▶ Understanding the importance of assets relative to one another empowers leadership to make critical budgetary and programmatic decisions
- ▶ The ability to prioritize allows management to align funding and resource allocation with the most valued assets from a business perspective
 - Setting service level objectives for day-to-day operations and management
 - Meeting business continuity and continuity of operations requirements

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