National Park Service
U.S. Department of the Interior

1201 Eye Street, NW, 10th Floor
Washington, DC 20005

Park Facility Maintenance - Explanation of some Terminology and Concepts

This document provides an overview of how National Park Service managers use Asset Priority Index, Facility Condition Index, and Optimizer Band information to make informed decisions about the allocation of limited funding and staff time for maintaining park infrastructure.

Asset Priority Index

The asset[1] priority index (API) is a tool developed for use across the Department of the Interior (DOI). It identifies the relative importance of the various infrastructure components at a park. Every asset at a park has an API rating. This API rating is determined using five criteria described in the table below and is calculated out of 100 possible points.

From the Department of the Interior guidance:

> For the Department of the Interior's (DOI's) owned and leased real property assets, the API is a tool that helps provide a clearer link to mission for each existing and proposed asset in the portfolio. This linkage is a result of the prioritization of constructed assets based on the degree to which investments support mission needs and the achievement of strategic goals. As the Department's asset management program and investment management process continues to mature, DOI will continually improve the API process and will continually ensure that investments are aligned with the most current Departmental, bureau, and program missions and strategic goals. API is general enough to apply across the Department to all bureaus with their divergent missions, but it is also specific enough to be a substantial aid to each bureau's decision making process.
>
> The API can be a critical tool to aid in determining when to:
>
> - Allocate resources;
> - Optimize use of buildings, structures, and land (e.g., collocation, consolidation); and
> - Dispose of unneeded assets.
>
> DOI's API has two important components that identify priority; mission dependency criteria and asset substitutability. Mission dependency' criteria relate an asset's contribution to an organization's individual strategy and values based on Departmental and bureau mission and outcome goals. Asset substitutability is the degree to which a comparable substitute asset exists to fulfill the functional requirements or purpose of that asset. An API rating weights these two components with 80% weighting given to mission dependency and 20% weighting given to substitutability.

Table 1: NPS API criteria and Definitions

API Criteria	Definition
1. Natural Resource Preservation	Directly contributes to a park's ability to preserve natural resource processes, systems, and values in an unimpaired condition through understanding, maintenance, restoration, and protection of their inherent integrity.
2. Cultural Resource Preservation	Is a cultural resource or is an asset that enhances a park's ability to preserve and protect its cultural resources.
3. Visitor Use	Contributes to "visitor accessibility, understanding and

[1] An asset as defined by the Federal Real Property Council is any real property owned, leased, or otherwise managed by the Federal Government, both within and outside the United States, and improvements on Federal lands.

API Criteria	Definition
	enjoyment" as measured by: • The potential number of visitors who may use the asset • That asset's role in creating a positive experience for the visitor, which includes education and recreation.
4. Park Operations	Directly supports the day-to-day operations of a park, park management, contracts/agreements, safety, security, and emergency response OR supports employees' ability to perform park operations.
5. Asset Substitutability	Represents the degree to which a comparable, substitute asset exists to fulfill the functional requirements or purpose of an asset. One would ask this question to determine asset substitutability: if the asset were lost, what would be the impact?

These criteria are weighted based on their importance to the National Park Service's (NPS) core priorities: the NPS mission, park enabling legislation, and asset management goals, such as those listed in Director's Order 80. They are distinct enough to ensure that each aspect of an asset is measured independently. As a result, most assets will not rate high in every category. Only a few assets might hold an API of 100.

Across the NPS, park management staff convenes as needed to collaboratively develop API because the API scoring impacts all divisions within a park.

Facility Condition Index

Along with API, each asset at a park receives a facility condition index (FCI). The FCI rates the condition of a facility or asset at a particular point in time using a numeric rating system. This system relies on accurate data reflecting the current replacement value of an asset and its projected cost of repairs. The projected cost of repairs consists of deferred maintenance, recurring maintenance deferred, and component renewal deferred. To determine the FCI for an asset, a park divides the projected cost of repairs by the current replacement value (CRV) of that asset as shown below:

$$\frac{\textit{Projected Cost of Repairs}}{\textit{Current Replacement Value}} = \textit{Facility Condition Index}$$

Deferred Maintenance

> Deferred maintenance (DM), which is used with CRV to calculate the FCI of an asset, is maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period.[2]

[2] Statement of Federal Financial Accounting Standards (SSFAS No. 6) definition.

The NPS categorizes deferred maintenance into three types:

- Deferred maintenance (DM), which refers to routine work has not been accomplished when it was due
- Recurring maintenance DM (RMDM), which indicates recurring work typically completed on a cycle of greater than 1 year and less than 10 years
- Component renewal DM (CRDM), also known as recapitalization, where significant components of an asset are replaced or renewed on a cycle greater than 10 years.

Cost estimates for repairs, both current and deferred, are calculated using the Cost Estimating Software System. Calculations are based on standard tools, materials, and methods on a per unit basis using RS Means® data. Adjustments can be made in a cost estimate when requirements for historically accurate materials or historically accurate construction methods are identified. Adjustments are also made to either inflate or deflate cost estimates according to a park's locality compared to the national average data.

Current Replacement Value

The current replacement value (CRV) is an integral metric in identifying work priorities. A CRV must be established for all assets. CRV values are determined using the CRV calculator. Parks use this internal web-based tool to calculate the CRV. The calculator uses standardized per unit values with a localized adjustment made for each park.

For example, CRVs for buildings are calculated on a per square foot basis. For this calculation, a building's primary use (for example, as a visitor center, maintenance shop, or office) must be identified, along with the gross square feet, and a line item factor can be added if the building is historic or has other unique costs; the tool also adjusts for the locality.

Facility Condition Index Rating Scale

The FCI Rating Scale represents a continuum from good to serious condition. All assets must have an FCI rating, including heritage assets, which although viewed as priceless, still have CRVs based on standard asset information.

Facility Condition Index Rating Scale

FCI ≤ 0.100	Good condition rating
FCI = 0.101–0.150	Fair condition rating
FCI = 0.151–0.500	Poor condition rating
FCI > 0.500	Serious condition rating • Nonheritage assets: strongly consider demolition or replacement • Heritage assets: strongly consider stabilization/restoration

National Park Service
U.S. Department of the Interior

1201 Eye Street, NW, 10th Floor
Washington, DC 20005

Relationship Between the Asset Priority Index and the Facility Condition Index

The API and FCI work together to create powerful metrics that assess both the priority and condition of an asset in relation to other assets within a park's portfolio. This relationship provides management staff with information that assists in prioritizing and identifying maintenance work at each park. When the API and FCI graphs combine, the result is a graph that helps determine the maintenance, repair, and/or rehabilitation needed for each asset. This graph can help parks prioritize where limited resources should be allocated.

Optimizer Band

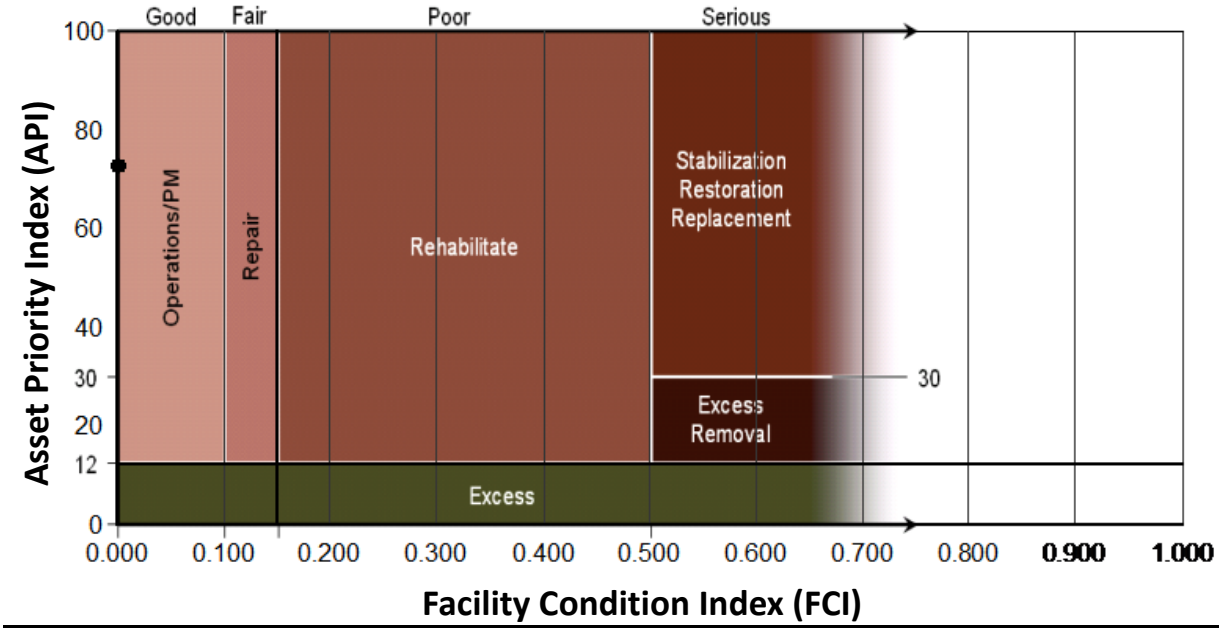
Although NPS maintenance management processes have matured using the Facility Management Software System and greater insight and business intelligence into the data has been fostered, there are additional elements that play into the management requirements of a park's portfolio. One of these elements is that certain assets do not score as high on the API scale as the cultural or natural resource icons at a park, but they have important regulatory requirements or significant visitor use impacts. Facilities management recognized that these assets, along with the iconic assets, require parks' highest level of preventive, recurring, and component renewal maintenance. An additional tool was needed to identify these assets to assist with allocating the limited park maintenance budgets.

Optimizer bands were developed to divide a park's asset portfolio into five bands to represent the level of maintenance that each asset should receive. Standards were developed for the Optimizer bands, as noted in the table below. These parameters can be adjusted by the park to accommodate its requirements, priorities, and funding capabilities. Each individual asset is placed into the appropriate Optimizer band.

Optimizer Bands – Standard Parameters

Optimizer Band	Maintenance Level	API	FCI
1	Highest	88	0.150
2	High	75	0.300
3	Medium	50	0.750
4	Low	21	1.000
5	Lowest	Beyond Band 4	

Prime examples of assets that typically do not receive the highest API scores, but require the application of significant resources to perform preventive, recurring, and renewal maintenance are water and wastewater treatment plants. These assets typically score 50 to 70 API points, which places them into Optimizer Band 3, but they are assets that must be maintained at a low (good condition rating) FCI. For example, regulatory requirements dictate water output quality and wastewater discharge limits. For this reason, these facilities must be well maintained to protect visitor and staff health and the environment.



Further Explanation of the API/FCI Scatterplot

The scatterplot above shows the type of work that should be applied to the assets based on FMSS data when the scatterplot is generated. Each park's scatterplot provides a tool to help park managers visualize their asset data in order to make informed decisions about maintenance activities. The following table describes each area of the API/FCI scatterplot.

Plot area	Description
Excess (green band)	The green band across the bottom represents those assets that are considered inconsequential to the park mission based on parameters in the API scoring; they should be removed. Money spent on these assets represents a drain on the funds that could be used to maintain higher priority assets. Some disposition funds exist to support the removal of excess assets.
Excess Removal (dark brown area)	The dark brown area in the lower right of the scatterplot represents slightly more important assets than those in the green band, but if their API is low and the condition is poor, as represented by FCI data, they are not appropriate for stabilization, restoration, or replacement.
Operations/PM	Assets in the Operations/PM range should be maintained through regular operational and preventive maintenance work.
Repair	Routine repairs can be made to maintain assets that fall into this area to move them into the Operations/PM range.
Rehabilitate	Those assets whose condition has deteriorated to this range need more significant work to move them to the Operations/PM range, if appropriate.
Stabilization/Restoration/ Replacement	Assets that are identified in this range are either historic and warrant stabilization or are modern and warrant replacement.