

## Case Study: NOAA (NWS, OAR, NOS)

The National Oceanic and Atmospheric Administration “NOAA” requested Facility Condition Assessments and capital expenditure forecasts for 97 facilities. The facilities consisted of off-site housing, upper air inflation building (UAIB), and radar data acquisition (RDA) sites associated with a primary WFO, WFO/RFC, or WSO), were visited across six regions totaling approximately 1,180,500 square feet of space.

To help plan for their investment needs over a 10-year period, Cardno used **paragon** to complete a comprehensive Facilities Condition Assessment (FCA) of the buildings and their respective systems.

### Inventory

The inventory was collected using **paragon** level 5. This is derived from American Society for Testing and Materials (ASTM) E-1557-09 Uniformat II level 4 Work Breakdown Structure. The **paragon** level 5 provides an additional level of detail beyond what is stipulated in the ASTM standard. Inventory is essential to understand how the building is constructed at a very detailed level, and more importantly how the condition of the inventory components affects the overall condition of the building.

### Condition Assessment

Asset and component conditions were analyzed by two methods for these reports, a Component Condition Rating Index (CCRI), which can be averaged at a detailed component level, system level, asset level, and overall site level, providing a metric to evaluate condition that does not take into account deficiencies cost or the PRV of the asset. The second method used a Facility Condition Index (FCI) calculated as a condition metric. The FCI was calculated at the individual asset level as:

$$FCI = \left[ 1 - \frac{\text{Deferred Maintenance Cost (\$)}}{\text{Current Replacement Value (\$)}} \right]$$

### Deficiencies

The FCA included identification of deficiencies, which is any necessary maintenance or repair that has not been completed (considered deferred maintenance). Deficiencies are tied to the unique, individual component records that are most affected by the deficiency. Deficiencies, or work items as they are known in Paragon, are therefore combined together into what is known as Work Packages for execution. Work Packages are a combination of work items that are logically combined into executable groups within a given asset. Analysis results from Paragon were provided to the respective NOAA line offices to help plan and prioritize \$28.3M of deferred maintenance.

### Work Packages

Work Packages and deficiencies were prioritized for execution based on three metrics: likelihood, severity and Mission, with the highest value of Relative Risk indicating the highest risk to mission. The highest risk to mission Work Packages was recommended to be executed first.

### **Recommended Investments**

Component recapitalization investment dollar amounts were calculated from Paragon's cost catalog for the assigned Level 5 code, cost markups/burdens as assigned to the site and the inventoried amount. The cost of component recapitalization assumes replacement-in-kind with similar equipment/materials and was inflated to the applicable replacement year. Component recapitalization was modeled for each component within an asset.

### **Reporting**

Cardno provided a report of findings for each facility and a consolidated report for each line office that objectively rated the remaining life span of the facility, along with the various components, and whether replacement of the facility or various components within a 10-year planning window was warranted. The reports consisted of summary text of our findings for each system assessed with current and deferred maintenance deficiencies, and 10 year recommended investments.



NOAA - Welcome Kelly - Facility Manager

Profile Assets Inventory Work Items Work Packages Review Analysis Reports Administration My Account

NOAA - NWS - Pacific Region - T11/TYA - WSO Yap - DFM0401 - 6 Land - WSO Yap FM

Expand All Collapse All

Specifications Narratives Inspection Details

Save Add Cancel

#### Asset Identifier

Asset Number:  Active?

Asset Name: Land - WSO Yap FM

Hierarchy: -----T11/TYA - WSO Yap - DFM0401

Asset Letter:  Property Record ID: 1400006

#### Photos



#### Specification

FAC Code: 9220 - In-leased Land

Year Built: 2004  Estimated  Asset Size:  ACR

# of Floors:  Above Grade:  Below Grade:

Owned/Leased:

#### Replacement Values

DRV: \$558,357

PRV: \$0

CRV:

Custom PRV:

#### Condition Metrics

FCI:

FCI (100-1):

ACI:  ACI Override:

MDI:

Qualitative Rating:

#### Location

Country: Federated States of Micronesia

State/Province: Yap, Federated States of Micronesia

Geo Adj Region: Jt Base Marianas-Anderson 2.32

Street Address 1: Yap International Airport

#### Management

Name: Joe Lukongaw

Title/Role: OIC

Company:

Mobile:

NOAA - Welcome Kelly - Facility Manager

Profile Assets Inventory Work Items Work Packages Review Analysis Reports Administration My Account

NOAA - OAR - GLERL - 0MIC058 - 1417 Building 1 - GLERL Muskegon MI

Expand All Collapse All

Specifications Narratives Inspection Details

Narratives

Drag a column header here to group by that column

| Delete | Trade                     | Narrative Name           | Description  | Edit |
|--------|---------------------------|--------------------------|--|------|
| X      | A10 FOUNDATIONS           | A10_0                    | The foundation is a poured concrete slab. It is in fair to good condition.   |      |
| X      | A20 BASEMENT CONSTRUCTION | A20_0                    | The basement has poured concrete walls, which are in fair to good condition.   |      |
| X      | B10 SUPERSTRUCTURE        | B10_0                    | The upper floors and roof are wood framed with plank decking. The framing is in generally good condition.  |      |
| X      | B20 EXTERIOR ENCLOSURE    | B2030 EXTERIOR DOORS     | The exterior doors are hollow steel. The newer doors are in good condition.  |      |
| X      | B20 EXTERIOR ENCLOSURE    | B2010 EXTERIOR WALLS     | The exterior walls are stud framed with either plywood or plank sheathing, covered with vinyl siding. The walls are in generally good condition.   |      |
| X      | B20 EXTERIOR ENCLOSURE    | B2020 EXTERIOR WINDOWS   | The windows are mostly vinyl clad with insulated glass. There are a few old wood framed windows. The older windows are in poor condition and need to be replaced. The newer windows are in good condition.   |      |
| X      | B30 ROOFING               | B30_0                    | The roof is covered with asphalt shingles. The shingles are in poor condition and need to be replaced. The gutters and downspouts are aluminum and in good condition.  |      |
| X      | C10 INTERIOR CONSTRUCTION | C1010 PARTITIONS         | The interior partition walls are wood stud partitions, and appear to be in good condition.   |      |
| X      | C10 INTERIOR CONSTRUCTION | C1020 INTERIOR DOORS     | The interior doors are both solid and hollow wood, and of various sizes and vintage. The closet access doors in the upstairs living space are smaller than an average door, and due to their age are in fair condition. There are also hollow wood doors installed in the 1970's that lead to the downstairs office spaces, which are in fair to poor condition. The newest of the doors were installed during the most recent renovation (2005), and are in good condition. |      |
| X      | C10 INTERIOR CONSTRUCTION | C1030 FITTINGS           | This building does not have fittings.  |      |
| X      | C20 STAIRS                | C2010 STAIR CONSTRUCTION | This building has several sets of interior wood frame stairs to accommodate 4 of the 5 levels of this building, and one folding aluminum attic access ladder. There are also a small set of concrete stairs that lead out of the basement to the exterior. All of these stair cases seem to be in good condition. The exterior stairs, for accessing the building, are also wood frame, and are in fair condition.   |      |
| X      | C20 STAIRS                | C2020 STAIR FINISHES     | The interior stairs in this building have hardwood or paint finishes. Each of the finishes are in generally good condition. The wall finishes in this building are primarily painted plaster, with some wall tile, wood paneling, wainscoting, painted drywall, and  |      |