



FACILITY MODERNIZATION PLAN

(FY 2010 – FY 2019)

May 28, 2008

2008



2008 Facility Modernization Plan

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Doppler Radar



NCWCP-Main Entrance-Artist Rendering

I. EXECUTIVE SUMMARY

NOAA’s real property (land and facilities—including buildings and other structures) represents a significant capital investment, and an integral component of NOAA’s mission accomplishment. NOAA’s facility portfolio is both diverse and dispersed—ranging programmatically from state-of-the-art science and research facilities supporting climate, weather, ocean, and fisheries research; to operational facilities supporting multi-billion dollar satellite programs and NOAA’s ship and aircraft operations. NOAA’s real property inventory extends from small leases of sensor towers and sites, to ownership of technical buildings and structures and building “campuses.”

NOAA’s owned facilities are aging, with an average age of 29 years and with 108 buildings over 40 years old. Additionally, the overall facility condition of NOAA’s portfolio is in the “unacceptable” range. To stop continued deterioration of facility conditions, address existing repair and revitalization needs, as well as address building obsolescence issues, NOAA must make difficult investment choices among competing critical infrastructure needs, striving for a balanced program that is integral to NOAA mission. The Facility Modernization Plan establishes a foundation for addressing these challenges in the facility program as well as promoting excellence in NOAA’s facilities consistent with NOAA’s Strategic Plan. It also reflects the efficiencies envisioned by [Executive Order 13327 \(Federal Real Property Asset Management\)](#) and the President’s Management Agenda, and is designed to promote excellence in NOAA programs by attracting and retaining a high-performing workforce.

The following real property goals form the basis of this plan:

- Ensure real property acquisition and sustainment is integral to NOAA mission planning and programming.
- Align real property assets to NOAA strategic requirements and objectives, evolving program goals, and increased opportunities for collocation and consolidation across NOAA and with NOAA partners.
- Ensure full life-cycle management of our real property portfolio.
- Sustain and recapitalize existing real property to achieve appropriate condition levels and ensure NOAA’s property is safe, secure, environmentally sound, and cost-effective.

The NOAA 2010-2019 Facility Modernization Plan presents the key components of NOAA’s facility investment strategy, and the opportunities and challenges associated with maintaining a facility portfolio that effectively supports NOAA mission, current and future.

This Plan builds on and updates the Facility Modernization Plan of August 2007. It includes discussion of real property management challenges and strategies, real property inventory characteristics, roles and responsibilities, and decision-making processes. It includes recommended levels of investment into the facility program, as well as currently planned projects under NOAA’s long-range Capital Investment Plan. The Plan is dynamic and evolutionary to reflect both the changing portfolio of NOAA’s real property assets and evolving needs of NOAA’s mission managers.

The Plan recommends facility sustainment, which are activities necessary to maintain facility condition levels, as a priority for the Line Offices and Programs. The Plan also targets raising NOAA’s overall facility condition to the “good” or “excellent” level within the next 10-15 years, and envisions recapitalizing facilities at an average age of 50 years to address obsolescence and modernization. Based on the foregoing, the Plan advocates specific facility funding levels and strategies.

Additionally, the Capital Investment Plan includes a list of repair, restoration, and strategic recapitalization and modernization projects that will move NOAA towards the “Good” or “Excellent” facility condition level. The Capital Investment Plan will be refined annually to reflect new data and funding levels.

Note: This Facilities Modernization Plan is NOAA’s Facilities Asset Management Plan, as required by Executive Order 13327.

II. OVERVIEW

A. NOAA's Vision, Mission, Goals and Strategy

In support of the NOAA vision, mission, and goals, the NOAA Strategic Plan calls for “*developing long-range, comprehensive facility planning processes...to ensure right-sized, cost-effective, and safe facilities.*”

The Strategic Plan calls for this goal to result in “*a sustainable and strategic facilities master planning process with a 5- to 10-year planning horizon*” with the objectives to “*increase the number of facilities with improved co-location of NOAA services and partners...and improve safety and other condition indices for facilities....*”

This Facilities Modernization Plan is the foundation for achieving the goals and objectives laid out in the NOAA Strategic Plan.

NOAA has critical responsibilities for maintaining and improving the viability of marine and coastal ecosystems, for delivering valuable weather, climate, and water information and services, for understanding the science and consequences of climate change, and for supporting the global commerce and transportation upon which we all depend. To fulfill its mission, NOAA must develop a long-range facility plan and investment strategy. This plan and investment strategy ensures NOAA has aligned its facility portfolio with mission objectives and program goals; is making the necessary investments in its mission critical/mission dependent facilities to sustain its scientific, research, and operational capabilities; and will remain current and responsive in an ever-changing world.

From “*New Priorities for the 21st Century – NOAA’s Strategic Plan (Updated for FY 2006-2011)*,” NOAA’s vision and mission are:

VISION:

An informed society that uses a comprehensive understanding of the role of the oceans, coasts, and atmosphere in the global ecosystem to make the best social and economic decisions

MISSION:

To understand and predict changes in the Earth’s environment and conserve and manage coastal and marine resources to meet our Nation’s economic, social, and environmental needs

B. Real Property Program Goals and Strategies

The real property goals are developed directly from, and are integral to, the NOAA Strategic Plan and the Strategic Program Goals. NOAA’s real property goals are:

- Ensure real property acquisition and sustainment is integral to NOAA mission planning and programming.
- Align real property assets to NOAA strategic requirements and objectives, evolving program goals, and increased opportunities for collocation and consolidation across NOAA and with NOAA partners.
- Ensure full life-cycle management of our real property portfolio.

B. Real Property Program Goals and Strategies (continued)

- Sustain and recapitalize existing real property to achieve appropriate condition levels and ensure NOAA’s property is safe, secure, environmentally sound, and cost-effective.

To achieve the above goals, NOAA must develop the appropriate strategies for real property management. Strategies are constantly evolving as new technologies, new property codes, new acquisition methods, and other innovative property initiatives are developed. Current NOAA real property strategies include the following:

Master Planning: conduct facility master-planning activities in conjunction with mission goals to determine specific long-range facility gaps and options to address those gaps. Complete business case analyses on all major facility projects.

Collocation and Consolidation: promote program collocation and consolidation within NOAA and with academia, other federal properties, or NOAA external partners to optimize program synergies and cost-effectiveness.

Improved Regional Service Delivery: leverage opportunities to improve service delivery at regional and local levels, particularly local/regional point of service delivery approaches.

Innovative Property Initiatives: seek opportunities to leverage the value of NOAA-owned property to reduce real property costs while supporting NOAA mission more effectively and efficiently. Seek or support legislation as necessary to implement new NOAA property initiatives.

Lease Versus Own: ensure an appropriate portfolio of leased and owned facilities. The decisions to lease or own facilities are based on mission requirements and a thorough economic life-cycle analysis and business case analysis for each property acquisition.

Sustain Existing NOAA Facilities: adequately maintain and operate NOAA-owned facilities. Arrest further deterioration due to inadequate maintenance and ensure condition levels are maintained.

Revitalize Existing NOAA Facilities: identify, prioritize, and fund restoration projects to repair NOAA facilities and reduce the backlog of facility deficiencies. Seek appropriate level of investment to ensure NOAA’s facility portfolio is returned to a “good” or “excellent” condition level.

Recapitalize NOAA-Owned Facilities: plan, program and budget for facility modernization and recapitalization. Address facility obsolescence, rising costs due to age, compliance with upgraded building codes and new mandates such as upgraded security, energy conservation, accessibility and environmental sustainability requirements through the complete recapitalization and modernization of NOAA’s aging facilities. Leverage recapitalization investments as opportunities to reduce NOAA’s carbon footprint.

C. Real Property Management Drivers and Challenges

To implement the goals and strategies for real property, NOAA must consider and address several “drivers” as well as “challenges” for real property management, both internal and external, as it moves forward on implementing a long-range modernization plan. Some of the more substantial drivers and challenges are briefly discussed as follows:

C. Real Property Management Drivers and Challenges (continued)

DRIVERS:

NOAA's Strategic Plan and NOAA Mission:

NOAA's real property must align with and be integral to the NOAA mission. NOAA's mission and Programs are the primary drivers of NOAA real property requirements and real property management. NOAA's mission and goals are delineated in the NOAA Strategic Plan (<http://www.ppi.noaa.gov/spo.htm>). Program Goals, set by the Mission Goal Teams in support of the Strategic Plan, are also critical to the management of NOAA real property and will be reviewed annually to ensure real property alignment with Program Goals.

Effectively Managing NOAA's Real Property Portfolio:

NOAA's real property assets (land, buildings, and structures) represent a significant capital investment and are integral to NOAA's ability to fulfill its mission. NOAA's real property portfolio includes both real property controlled directly by NOAA through ownership, lease, contracts, and other arrangements, and real property assigned to NOAA by the U.S. General Services Administration (GSA), including both GSA-owned and leased locations. Section II.D discusses the drivers and challenges caused by NOAA's real property holdings in more detail. In general, the portfolio is a driver due to the assets' ages, conditions, types and locations.

Executive Orders:

Many Executive Orders (E.O.) are in effect that directly influence Federal real property management. For example, E.O. 13287, *Preserve America*, issued on March 3, 2003, requires agencies to complete an assessment of historic properties and report on progress in identifying, protecting, and using historic property in its ownership. E.O. 13327, *Federal Real Property Asset Management*, issued on February 4, 2004, increases management attention through the establishment of the position of Senior Real Property Officer at the executive branch agencies, creation of the Federal Real Property Council to develop asset management guidance and performance measures, and implementation of agency asset management plans. E.O. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, issued on January 24, 2007, advances energy security and environmental performance by establishing goals, practices, and reporting requirements for environmental, energy, and transportation performance and accountability.

Federal Real Property Council:

The Federal Real Property Council (FRPC), established by E.O. 13327, is chaired by the Office of Management and Budget (OMB) and includes all agency-designated Senior Real Property Officers, the Controller of OMB, and the Administrator of General Services. Among its duties, the Council is charged with developing asset management guidance and performance measures, implementation of agency Asset Management Plans, and incorporation of the planning and management requirements for historic property, energy conservation, and environmental compliance. The FRPC sets requirements for agency real property inventories, performance metrics and asset management plans.

Energy Conservation and Environmental Stewardship Federal Mandates:

The *Energy Policy Act of 2005* (EPAAct 2005) (Pub. L. 109-58, August 8, 2005) prescribes specific Federal energy management goals, measurement and accounting, and building performance standards, along with associated reporting and strategic planning activities. The *Federal Leadership in High Performance and Sustainable Building Memorandum*, of which the Department of Commerce is a signatory, establishes principles to reduce the total ownership cost of facilities, improve energy efficiency and water conservation, pro-

C. Real Property Management Drivers and Challenges (continued)

vide safe, healthy, and productive facilities, and promote sustainable environmental stewardship. Other laws and regulations often put unfunded mandates on NOAA for its real property, such as upgrading physical security or improving accessibility. The Energy Independence and Security Act of 2007 (P.L. 110-140) prohibits Federal agencies from leasing buildings which have not earned an EPA Energy Star label, increases the use of cost-effective lighting, ground source heat pumps, and other technologies, and requires 30% of hot water demand in new Federal buildings to use solar hot water equipment.

CHALLENGES:

Program Growth and Expansion:

If not managed with a coordinated strategy, mission growth may not be optimally supported by NOAA's real property. For example, temporary measures, such as the acquisition of modular facilities or acquisition of leased space when owned space would be more cost-effective, often results in further dispersion of programs, rather than greater consolidation and co-location; lower workplace quality; and higher life cycle costs. In addition, as NOAA modernizes its fleet and aircraft, investments in necessary homeport and support facilities will be required. Coordination across NOAA is essential to ensure facilities are available at the right time, in the right size and configuration, and in the right condition to support program and mission growth and changes, such as ship and aircraft modernization.

Legislative Constraints:

In general, NOAA does not have general real property acquisition or disposal authority. The lack of such authority limits NOAA's ability to introduce innovative, flexible alternatives to address real property challenges. Current authority is limited to either project-specific appropriations language or those delegated from GSA's authorities. NOAA is not authorized to sell, exchange, sublease or outlease capital assets and to use proceeds for new replacement or capital projects, unless explicitly authorized for a specific project. Funds for acquiring new real property or recapitalize existing real property must come from annual appropriations and not by leveraging existing real property capital. Modernization and recapitalization projects are generally not fully funded, or fully authorized with incremental funding; as such opportunities for cost effectiveness in the construction and management of these projects are often not achievable.

Resource Constraints:

NOAA lacks the necessary capital planning funding to strengthen its investment planning and programming processes. Additionally, inflationary pressures, especially in the construction industry, put additional pressure on the limited NOAA resources. New real property capital projects compete within the same budgetary framework as other necessary infrastructure requirements: satellites, fleet, and such. A further budget constraint is the OMB and Congressional Budget Office "scorekeeping" rules interpreted from the Budget Enforcement Act of 1990, which limit the types of real property leases under which NOAA may operate and the flexibilities NOAA has available for real property acquisition and disposal. NOAA's investment in restoration of existing facilities and in modernizing with new facilities has historically been undercapitalized—resulting in further degradation of the overall condition of NOAA's facility portfolio.

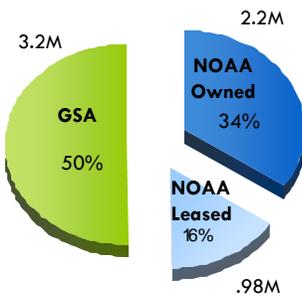
Data Availability and Accuracy:

Maintaining an accurate and complete inventory of NOAA real property assets is critical to the planning of real property requirements. Additionally, capturing the costs of facility operation and maintenance, as well as current repair and construction costs and needs, is essential to determine the gaps between facility requirements and current facility funding. Maintaining the NOAA inventory and capturing accurate and complete facility operations and maintenance spending is a challenge due to the dispersion of the NOAA portfolio and the structure of the current financial information system.

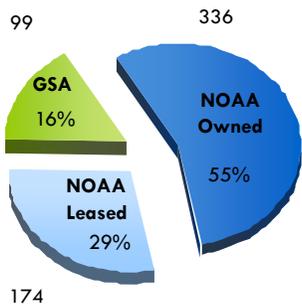
D. NOAA Real Property Inventory

Figure 1:
Buildings by Ownership

Building Ownership by Square Footage



Building Ownership by Number of Buildings



Source: FY07 IFIP

NOAA's mission is executed by more than 12,600 Federal employees and more than 4,000 contractors and associates located in every state and overseas. In support of the NOAA mission and its employees, NOAA maintains a large, diverse, and geographically dispersed real property inventory including both owned and leased facilities, as well as facilities shared with our partners at local, state, national, and international levels (Figures 1 and 2).

NOAA's real property inventory consists of 788 buildings¹. Through the Integrated Facilities Inspection Program (IFIP), NOAA uses a facility assessment model that uses survey data for each facility to identify the characteristics of the current inventory. For the FY 2007 IFIP, NOAA assessed 609 total buildings². The 2008 FMP refers to the FY 2007 IFIP as the source of data.

Table 1 shows a break out of the NOAA's real property portfolio and the Current Replacement Value (CRV) of NOAA's buildings, totaling over \$5.2 Billion³ (not including structures and the value of land).

Table 1: NOAA Real Property Inventory

	Data Source	NOAA Owned	NOAA Leased	GSA	Total
# of Bldgs	Federal RPM Inventory	437	229	122	788
	IFIP Survey	336	174	99	609 ⁴
Sq. Ft.	Federal RPM Inventory	2,502K	1,062K	3,232K	6,797K
	IFIP Survey	2,175K	984K	3,180K	6,339K
CRV		\$2,426M	\$687M	\$2,089M	\$5,202M

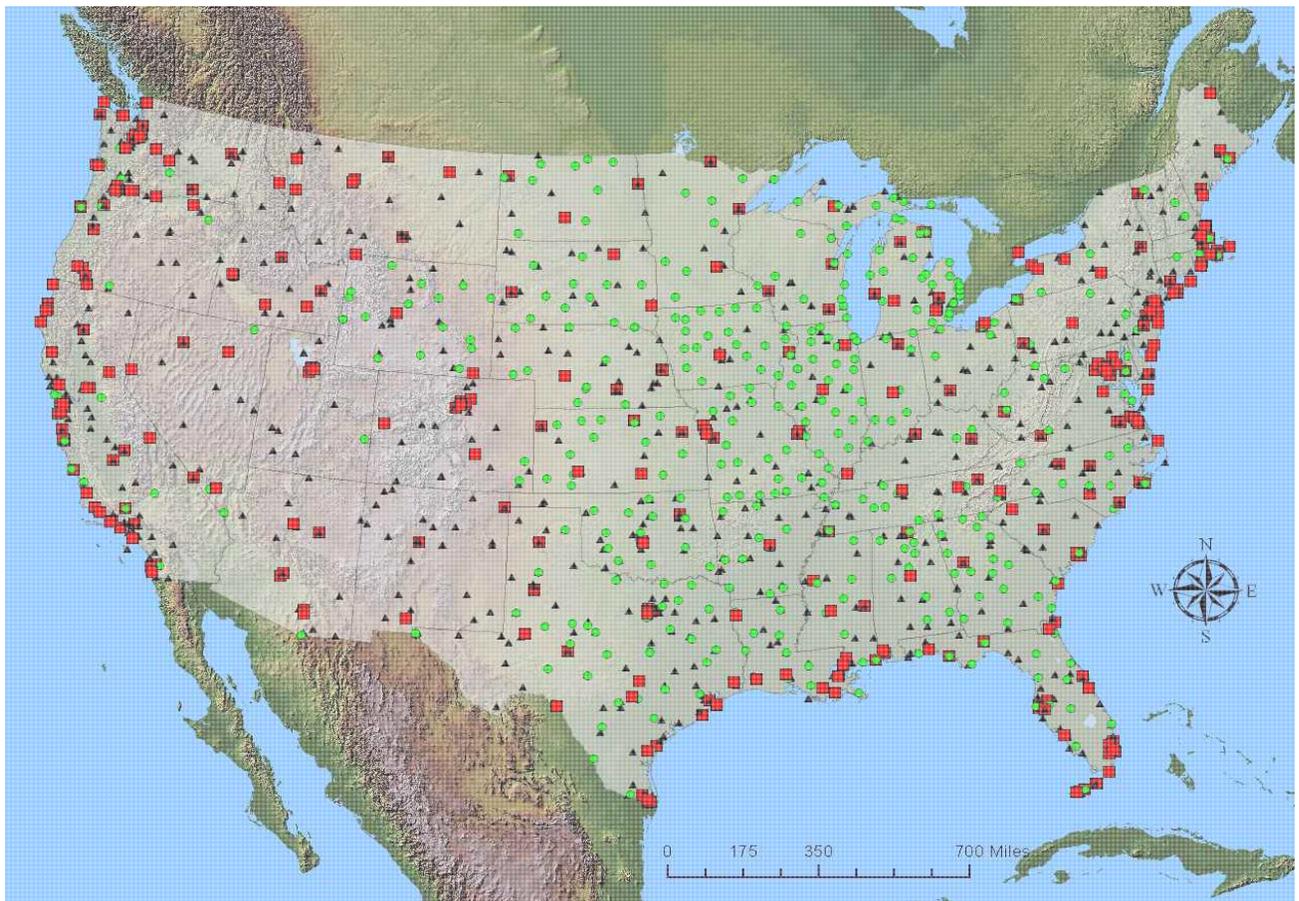
¹ Data from the DOC Federal Real Property Management (Federal RPM) database, as of March 2008.

² The FY07 IFIP excluded buildings less than 100 sf, vacant buildings pending disposal, GSA daycare space, and aquaculture, garage/vehicle maintenance, and upper air buildings; FY07 IFIP assessed 609 buildings, 598 of which are included in the 788 buildings and 11 of which are leased buildings which have expired since the 2007 IFIP assessment.

³ The Current Replacement Value (CRV) is determined by multiplying the size of the NOAA portfolio in square feet by a current construction square foot cost based on recent construction projects.

⁴ Throughout this document, we use the 609 buildings assessed through the FY07 IFIP as the basis for our analysis.

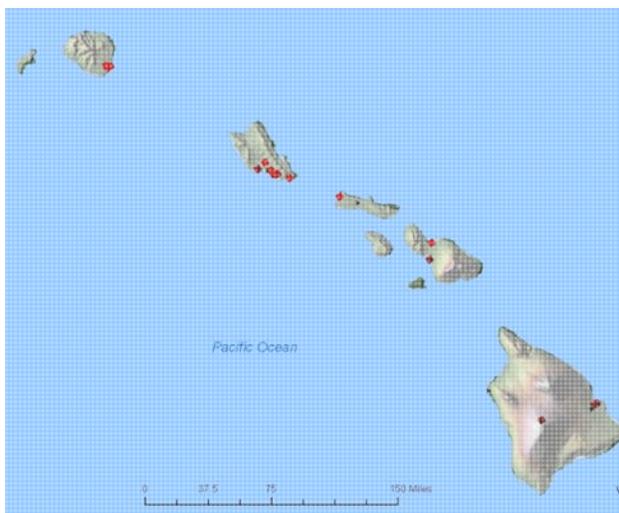
Figure 2: NOAA Facilities in the Contiguous United States, Alaska, and the Pacific



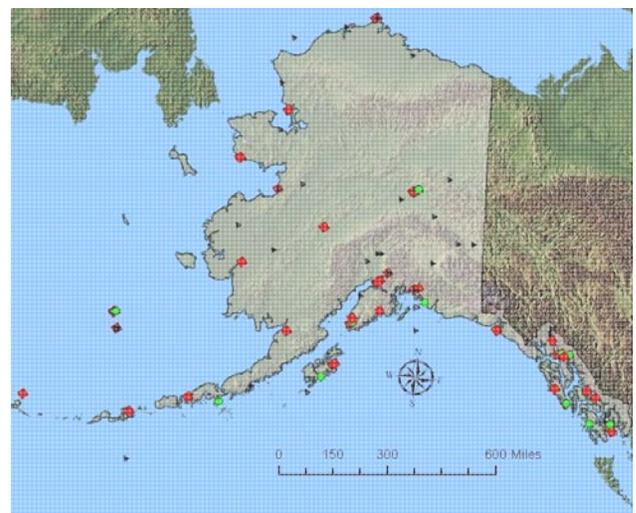
■ Buildings

● Structures

▲ Land



Hawaii



Alaska

D. NOAA Real Property Inventory (continued)

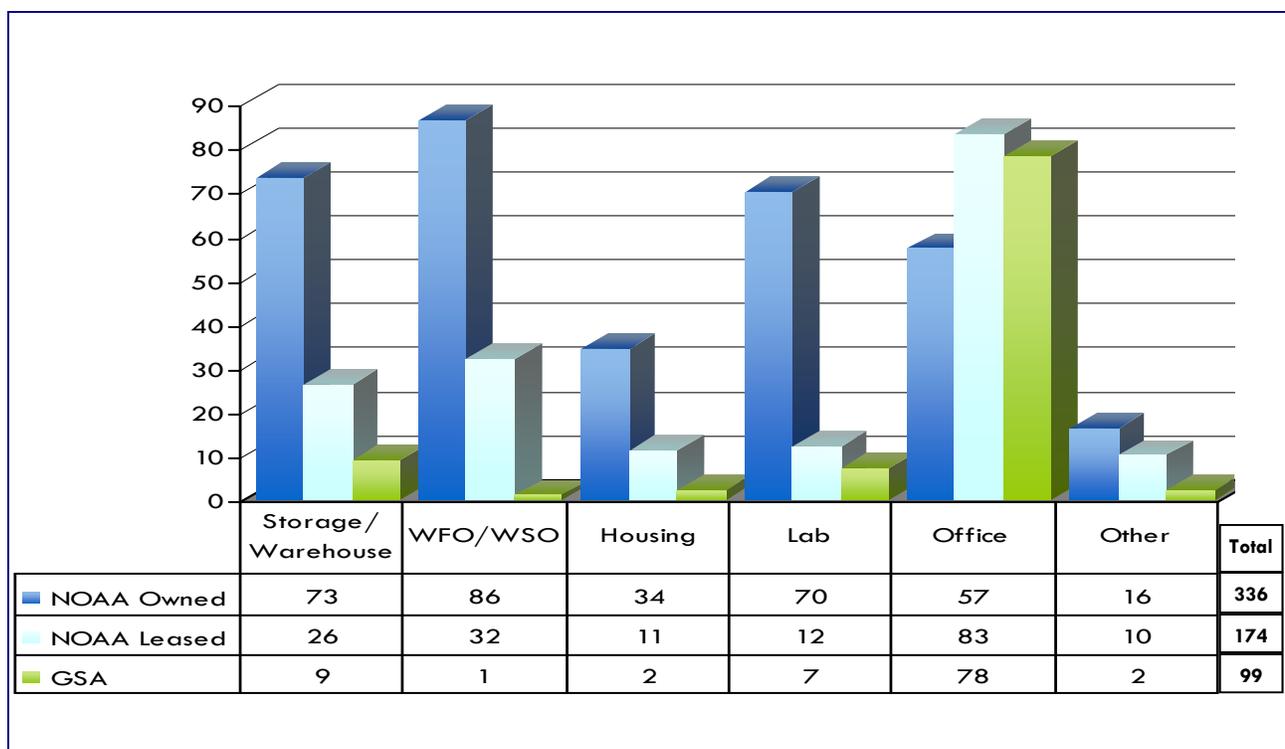
NOAA's facilities range from large office/laboratory complexes (such as the NOAA headquarters in Silver Spring, MD; the David Skaggs Research Center in Boulder, CO; and the Western Regional Center in Seattle, WA), supporting several thousand NOAA employees and contractors, to small and oftentimes remote laboratory and observatory facilities supporting less than five employees, to unstaffed sites supporting remote sensor equipment.

As shown by Figure 3, the nature of these facilities is also diverse and includes different types of buildings, such as the following:

- Laboratories that support NOAA science and research;
- Satellite operations facilities that receive essential satellite information, and support ongoing satellite operations;
- Ship and aircraft operations facilities;
- Corporate headquarters and program support offices;
- Warehouses and equipment storage buildings; and,
- Operational structures, including piers/docks, towers, and unstaffed equipment structures.

Of the 336 buildings owned and operated by NOAA, 213 are primarily operations/laboratory/office buildings occupied by NOAA employees. The remaining buildings consist of housing, warehouses, and equipment storage buildings

Figure 3: Number of Buildings by Type and Ownership (Source: FY07 IFIP)



E. Stewardship of NOAA Portfolio

NOAA’s Real Property assets are integral to mission accomplishment, the safety and productivity of our workforce, and to environmental sustainability. We have a direct Federal stewardship responsibility for assets in NOAA’s real property portfolio. Stewardship of these assets requires an appropriate investment to sustain these facilities to provide a safe, secure, and environmentally sound working environment and to sustain mission-support capabilities. Stewardship also mandates an effective recapitalization plan and investment strategy to ensure facilities that have reached their expected useful life are timely replaced. NOAA utilizes an annual Integrated Facilities Inspection Program (IFIP) to assess its real property inventory.

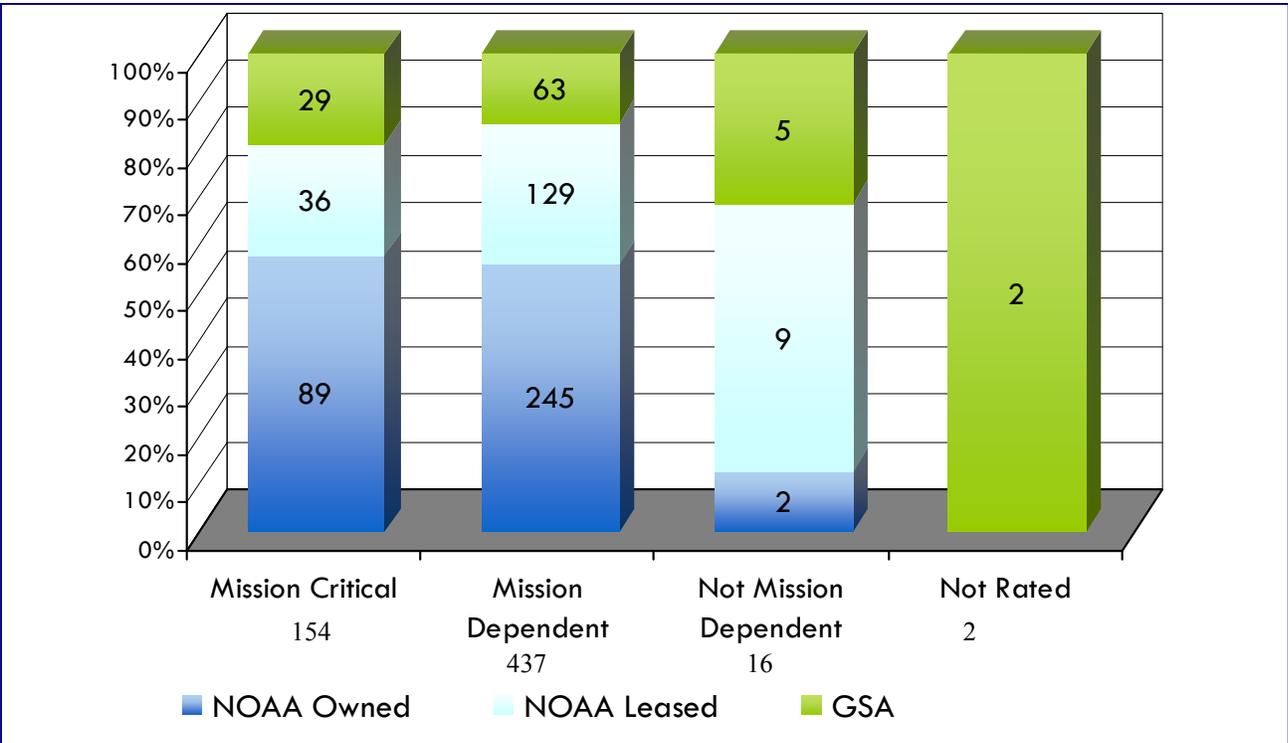
This section of the FMP describes NOAA’s real property assets within the Federal Real Property Council (FRPC) measurements of Mission Dependency, Utilization, and Facility Condition. Additionally, we have included environmental sustainability and energy conservation indicators for our real property portfolio in Appendix C.

1.0 Mission Dependency:

NOAA has assigned each of our owned and leased facilities to one of the following three mission-criticality categories in accordance with the FRPC definitions (Figure 4):

- **Mission Critical:** Mission and/or operations are severely compromised or lost by failure or lack of availability of asset;
- **Mission Dependent:** Mission and/or operations are impeded, but able to continue in the event the asset fails or is lost; or,
- **Not Mission Dependent:** Mission and/or operations are not immediately affected by loss of failure of asset.

Figure 4: Number of Buildings by Mission Dependency and Ownership (Source: FY07 IFIP)



E. Stewardship of NOAA Portfolio (continued)

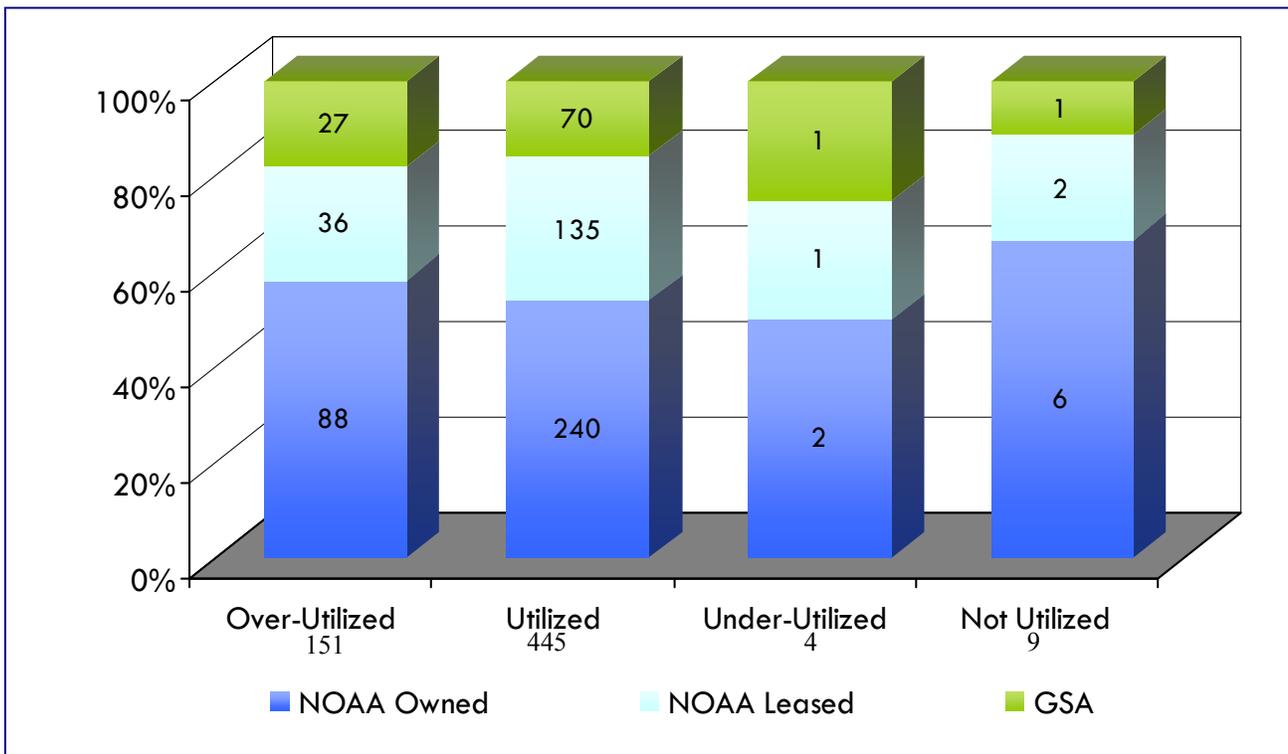
2.0 Facility Utilization:

We also track the current utilization of buildings and assign each building to one of the following four utilization categories in accordance with FRPC definitions: Over-Utilized, Utilized, Under-Utilized, or Not Utilized. The specific criteria for categorizing a building for utilization are issued each year upon receipt of guidance from the FRPC, but are normally based on a percentage of occupied/used space versus design capacity⁵.

Utilization is captured during annual assessments of facilities, and is assigned by the current building primary occupant using the criteria provided by the Real Property, Facilities and Logistics Office (RPFL). As with much of the facility data, utilization is an annual snapshot in time. For example, a facility may be mission critical but not currently utilized due to damage or ongoing repairs forcing a temporary vacating of the building.

Figure 5a shows current facility utilization and ownership, and Figure 5b shows current facility utilization and mission dependency. These figures indicate that NOAA's buildings are well utilized, and are in direct support of NOAA mission.

Figure 5a: Number of Buildings by Utilization and Ownership (Source: FY07 IFIP)



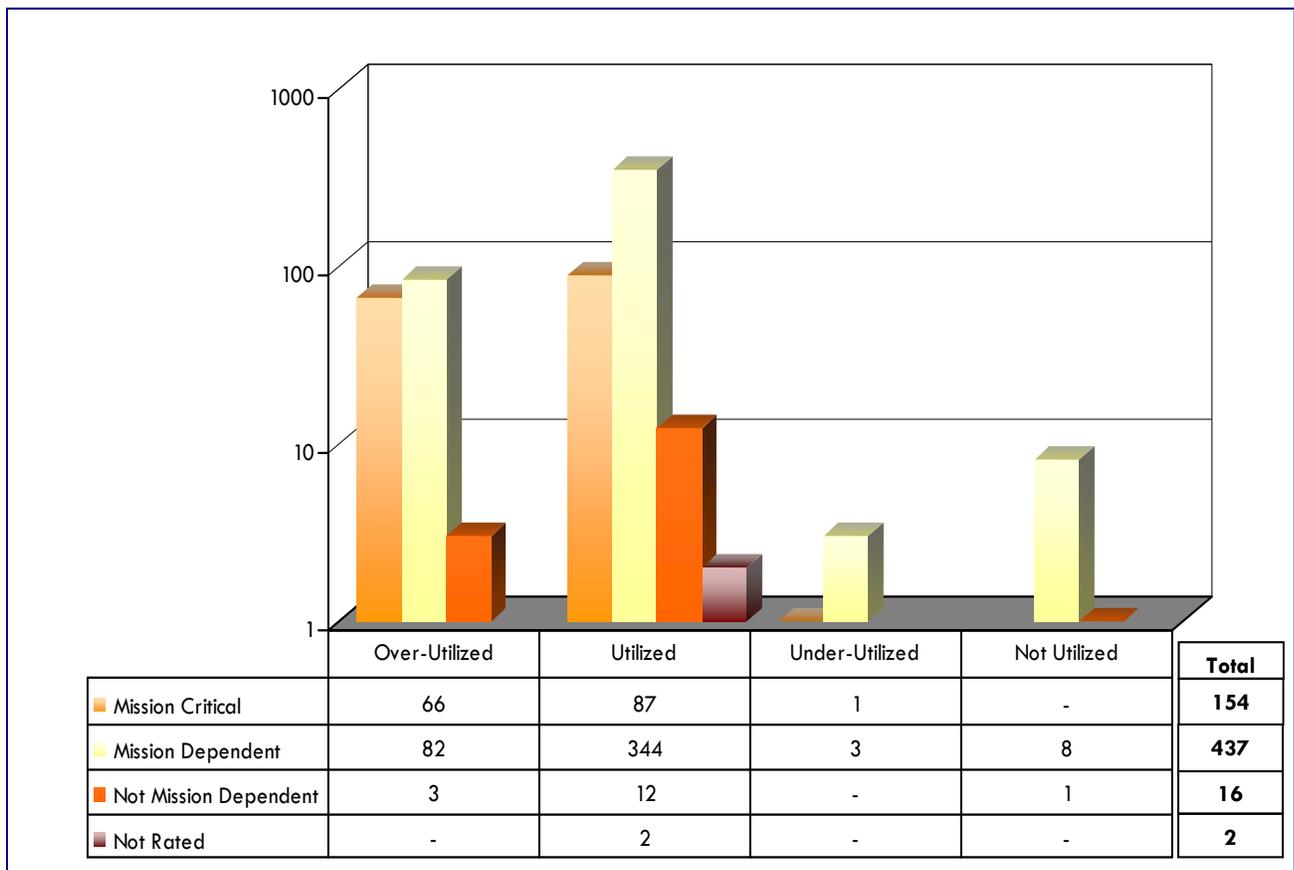
⁵ Utilization is defined by FRPC standards and asset predominant usage. For example, Office space is classified as follows:

- Over-Utilized: Over 95% of the building is currently occupied or utilized.
- Utilized: Between 75-95% of the building is currently occupied or utilized.
- Under-Utilized: Less than 75% of the building is currently occupied or utilized.
- Not Utilized: Office is empty.

E. Stewardship of NOAA Portfolio (continued)

Of the nine not-utilized buildings at the time of the 2007 IFIP, the six NOAA-owned buildings are targeted for disposal, the other three buildings are all leased: two of which have now expired and one of which has been terminated.

Figure 5b: Number of Buildings by Utilization and Mission Dependency (Source: FY07 IFIP)



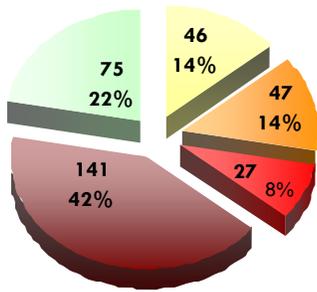
3.0 Facility Condition:

As part of the IFIP, NOAA uses a facility assessment model that uses survey data for each facility and applies the data to standard repair costs to estimate the deficiencies (repair backlog) for the facility. The model also uses the building type, unit of measure, location, and other factors to calculate each building's Plant Replacement Value (PRV⁶) using a method developed by the Department of Defense and approved by the FRPC.

⁶ Plant Replacement Value (PRV) is determined during the IFIP, using the Federal Real Property Management database and a modified Department of Defense (DoD) valuation model. The DoD model is based on type of facility and industry-derived facility costs. It differs from the NOAA-wide CRV reported earlier in the plan, which is based on square feet and unit costs experienced by NOAA. PRV is used to calculate FCI per the standard definitions issued by the FRPC.

E. Stewardship of NOAA Portfolio (continued)

Figure 6: Facility Condition Index (FCI) for NOAA Owned Buildings



- Excellent
95%-100%
- Good
90%-94%
- Fair
85%-89%
- Poor
80%-84%
- Unacceptable
<80%

Source: FY07 IFIP

In accordance with FRPC guidance, NOAA measures its facility condition using the Facility Condition Index (FCI). The FCI is based on a ratio of identified facility repair deficiencies to the PRV of the facilities, expressed as a percentage according to the following formula:

$$FCI = [1 - (\text{Repair Deficiencies}/\text{PRV})] \times 100$$

FCI is an indication of the overall condition of a facility. Figure 6 shows the FCI descriptors for facility condition, which are based on standard industry benchmarks and FRPC guidance. The number and percentage of NOAA-owned buildings that were assessed in each FCI range are also included.

Table 2 shows the overall results of the IFIP assessments from both FY 2006 and FY2007. The total FY 2007 deficiency level, or repair backlog, is \$149.7 million for NOAA-owned buildings, resulting in an overall portfolio FCI of 77.4% (“unacceptable”).

As reflected in Figure 6, 141 owned buildings were assessed as “unacceptable” in FY 2007, or about 42% of the 336 owned buildings assessed.

The IFIP assessed an additional 27 owned buildings in the “poor” range, indicating that over 50% (168) of the owned buildings surveyed were “poor” or “unacceptable.”

The IFIP does not capture such condition data for structures, such as piers, docks, and such; however, NOAA does use the survey model to estimate safety and environmental compliance deficiencies in its leased facilities.

**Table 2: FY06 and FY07
Integrated Facilities Inspection Program Overview**

	FY06	FY07
# of Buildings Surveyed:	670	609
# of DOC leased & GSA Surveyed:	318	273
# of DOC Owned Surveyed:	352	336
DOC Owned Deficiency Costs:	141M	150M

NOAA completed limited assessments of safety, health and environmental compliance in leased facilities.

In examining the FCI of NOAA’s largest, owned facilities, it is useful to group the owned facilities based on size.

E. Stewardship of NOAA Portfolio (continued)

Tier 1 are complexes housing 150 occupants or more; **Tier 2** are complexes housing 100 to 149 occupants; and, **Tier 3** are complexes housing 50 to 99 occupants.

As reflected in Table 3, five of the six NOAA Tier 1 Owned Complex FCI scores are either “Unacceptable” or “Poor,” ranging from 46% to 84%; two of the three NOAA Tier 2 Complex FCI scores are “Unacceptable,” ranging from 67% to 70%; and, five of the eight NOAA Tier 3 Complex FCI scores are “Unacceptable,” ranging from 42% to 73%.

Table 3: NOAA Owned Campus FCI Rankings (Personnel 50+)

Tier 1 - Campus FCI Ranking - Campus Personnel = 150+						
Complex/Campus			FCI		Occupants	SF
Atlantic Oceanographic and Meteorological Lab (AOML)	Miami	FL	90%	Fair	153	50,078
Southwest Fisheries Science Center	La Jolla	CA	84%	Poor	275	52,422
Northeast Fisheries Science Center	Woods Hole	MA	84%	Poor	225	58,461
Montlake Lab	Montlake	WA	83%	Poor	360	67,006
Southeast Fisheries Science Center	Miami	FL	71%	Unacceptable	151	31,948
Western Regional Center	Seattle	WA	46%	Unacceptable	560	497,208
Tier 2 - Campus FCI Ranking - Campus Personnel = 100-149						
Complex/Campus			FCI		Occupants	SF
Coastal Services Center	Charleston	SC	94%	Good	129	65,703
Center for Coastal Fisheries and Habitat Research	Beaufort	NC	70%	Unacceptable	145	35,682
Marine Operations Center--Atlantic	Norfolk	VA	67%	Unacceptable	116	41,745
Tier 3 - Campus FCI Ranking - Campus Personnel = 50-99						
Complex/Campus			FCI		Occupants	SF
Santa Cruz Lab	Santa Cruz	CA	98%	Excellent	68	45,000
WFO/RFC Anchorage	Anchorage	AK	92%	Good	67	12,136
WFO/RFC/RDA New Orleans	Slidell	LA	85%	Fair	50	8,936
NWS WFO/Tropical Prediction Center	Miami	FL	73%	Unacceptable	88	17,876
Milford Biological Lab	Milford	CT	71%	Unacceptable	52	36,124
Pacific Islands Fisheries Science Center	Honolulu	HI	70%	Unacceptable	83	21,921
Wallops Command and Data Acquisition Station	Wallops Island	VA	58%	Unacceptable	86	16,530
Fairbanks Command and Data Acquisition Station	Fairbanks	AK	42%	Unacceptable	58	65,090

E. Stewardship of NOAA Portfolio (continued)

4.0 Facility Age/Obsolescence:

Over 32% of NOAA’s buildings are over 40 years old; 30 buildings are over 60 years old (9% of the owned portfolio). Unless fully sustained (maintained and repaired) and periodically renovated and modernized, aged buildings are more difficult and expensive to maintain, cost more to operate due to low technology energy and utility systems, and require extensive revitalization to extend their useful lives and avoid risk of facility failure.

Also, the older buildings account for a higher percentage of deficiencies as evidenced by the FY 2007 IFIP assessment. As indicated by Table 4, 32 of the buildings surveyed were over 40 years old but they accounted for over 50% of the deficiencies.

Table 4: NOAA Owned Buildings Range from 2 to 117 Years in Age; Average Age 29 Years

	Age			
	0-20 yrs	21-40 yrs	41-60 yrs	61+ yrs
Number	159	69	78	30
% of Portfolio	47%	21%	23%	9%
% of Total Cost of Deficiencies	15.6%	34.0%	34.6%	15.8%

5.0 Energy and Environment

As a leader in understanding and predicting changes in the Earth's environment and managing coastal and marine resources, NOAA has the opportunity to be a leader in promoting the sustainable use of the Earth's resources. NOAA's facility program has a strategic, long-term goal to integrate environmentally-sound business practices in its planning, operations and management of NOAA's facilities. NOAA is committed to reducing consumption of energy and other natural resources, as well as reducing its contribution to greenhouse gas emissions. The following section summarizes NOAA's progress and challenges in becoming a "Green" organization.

5.1 Summary of NOAA's Greening Successes

According to the 2007 IFIP data, 95 NOAA buildings reported implementing some type of energy improvement initiative, including the following: upgrading existing lighting with high efficiency lighting, water conservation improvements, installing programmable thermostats, installing lighting occupancy sensors, and HVAC energy improvements such as installation of geothermal heat pumps.

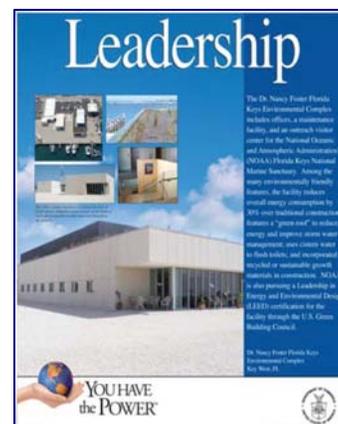
FY07 was also the year NOAA launched the "NOAA Green Team"—an internal working group with representatives across NOAA whose focus is to encourage and promote green practices at all NOAA locations. The NOAA Green Team uses many techniques to accomplish this goal, such as: analyzing NOAA's current business practices and comparing them to best practices; identifying opportunities for change that will achieve the desired reductions; educating staff on green and energy efficient business practices; developing and implementing NOAA-wide green business guidance; incorporating best practices into any plans for future construction, renovation, leases, structures and equipment; and monitoring NOAA's greening progress. To address specific greening programs, the NOAA Green Team launched five sub teams (bike commuting, carbon footprint reduction, electronic stewardship, sustainable design, and water conservation). As of May 2008, there are over 80 NOAA employees from all Line Offices participating on these greening teams.

5.2 Designing and Building High-Performance Facilities.

Executive Order (EO) 13423 mandate agencies achieve 15% total building square footage being high performance by FY 2012. NOAA has adopted the US Green Buildings Council's Leadership in Energy and Environmental Design (LEED) Silver level as its standard for new facility construction. As capital funding for construction or recapitalization of facilities is available, NOAA's adoption of the LEED Silver standard has enabled substantial progress in meeting the EO goal. As of May 2008, five NOAA facilities have received a LEED certification (for a total of 260,398 s.f.). Based on planned new facility construction, NOAA projects that it will exceed the 2012 EO target, with 28% of NOAA's facility square footage projected to meet the high performance



NWS Weather Forecast Office at Miramar, CA 10 KW photovoltaic system shown on lower right

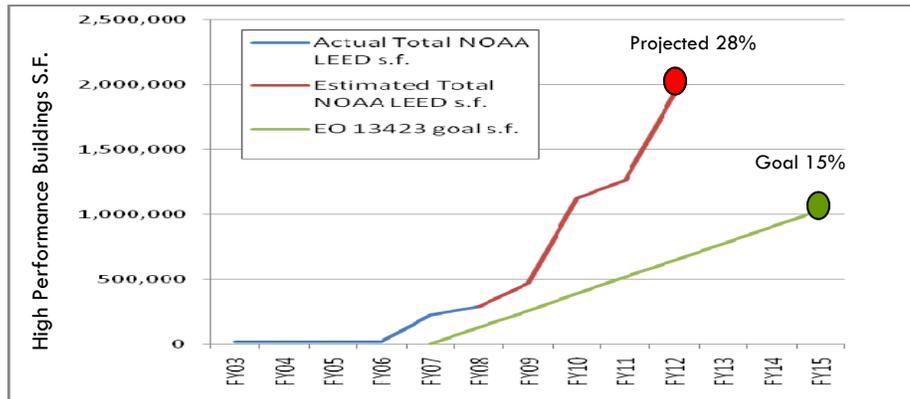


NOS's National Marine Sanctuary's Dr. Nancy Foster Complex (Key West, Florida) is featured in the Department of Energy "You Have the Power" poster series. The environmental friendly facility features a "green roof" to reduce energy consumption and improve storm water management, uses cistern water to flush toilets, and incorporated recycled or sustainable growth materials in construction. Overall energy consumption is reduced by 30 percent over a traditional facility.

E. Stewardship of NOAA Portfolio (continued)

requirement by FY 2012; see Figure 7a showing NOAA's projected compliance with EO 13423. See Table 5 for a complete list of NOAA's certified and projected LEED-certified buildings.

Figure 7a: NOAA's Compliance with E.O. 13423



NOS's National Marine Sanctuary's Great Lakes Maritime Heritage Center (GLMHC), Alpena, Michigan, dedicated on September 17, 2005, received a LEED Gold rating on February 22, 2008. Energy conservation measures include a geothermal heat pump system with estimated energy savings of 41% as compared with a natural gas heating system.



E. Stewardship of NOAA Portfolio (continued)

Table 5: NOAA LEED® Registered and Certified buildings

Project Name	City	State	Ownership	Occupancy Year	LEED Certification & year
West Coast Alaska Tsunami Warning Center	Palmer	AK	DOC/NOAA	2003	"Certified" 2003
Caribou Weather Forecast Office	Caribou	ME	DOC/NOAA	2002	Silver, 2003
NOAA Satellite Operations Facility	Suitland	MD	GSA	2007	Gold 10/31/2007
Key West Weather Forecast Office	Key West	FL	DOC/NOAA	2005	Silver 2/13/2008
Great Lakes Maritime Heritage Center (GLMHC) - Thunder Bay NMS	Alpena	MI	DOC/NOAA Lease	2005	Gold 2/22/2008
Dr. Nancy Foster Florida Keys Environmental Complex	Key West	FL	DOC/NOAA	2006	Silver Estimated FY08
Ted Stevens Marine Research Institute	Juno	AK	DOC/NOAA	2007	Estimated FY09
David Skaggs Research Center	Boulder	CO	GSA	1999	Estimated FY10
Annette Island Weather Service Office and Upper Air Facility	Metlakatla	AK	DOC/NOAA	Estimated 2008	Silver Estimated FY09
Center for Weather and Climate Prediction	College Park	MD	GSA	Estimated FY2009	Estimated FY2010
Pascagoula Laboratory	Pascagoula	MS	DOC/NOAA	Estimated FY2008	Silver Estimated FY09
Cooperative Oxford Laboratory	Oxford	MD	DOC/NOAA	Estimated FY2008	Silver Estimated FY09
UCSB – Ocean Science Education Building	Santa Barbara	CA	Permit	Estimated FY10	Gold Estimated FY11
Monterey Bay NMS Visitor Center	Santa Cruz	CA	Permit	Estimated FY11	Silver Estimated FY12
Farallones – NMS Crissy Field Campus Renovation	Crissy Fields	CA	NOAA & National Park Service	Estimated FY09	Silver Estimated FY10
Sterling WFO - NOAA Relocation	Sterling	VA	DOC/NOAA	Estimated FY2009	Estimated FY2009
National Logistics Support Center & National Reconditioning Center	Kansas City	MO	GSA	Estimated FY2012	Silver Estimated FY13
WSO Upper Air Facility	Barrow	AK	DOC/NOAA	Estimated FY2009	Silver Estimated FY10
NOAA Pacific Regional Center, Ford Island	Honolulu	HI	DOC/NOAA	Estimated FY 2014	Silver Estimated FY14
SW Fisheries Science Center,	La Jolla	CA	DOC/NOAA	FY11	Silver Estimated FY12

Completed - Certified building with USGBC

In Construction - Building to LEED standards

Completed/awaiting Certification with USGBC - Built to LEED standards

Future - Planning/budgeting/design - to LEED standards

E. Stewardship of NOAA Portfolio (continued)

5.3 Recycling Program.

Equally important to NOAA's greening success has been the recycling program across the nation at each facility. Through programs initiated local as NOAA facilities, it is estimated that NOAA's recycling rate is at 37%, surpassing the Environmental Protection Agency's (EPA's) 35% minimum rate.

5.4 Other Successes.

Converting NOAA vessels to biodiesel, installing green roofs to reduce storm water runoff and improve water quality, are other examples of NOAA "Greening" success stories.



OAR's Great Lakes Environmental Research Laboratory (GRERL) research vessel (R/V) **SHENEHON** is one of six NOAA vessels operating on 100% biodiesel (B-100) (four OAR and two NMFS). OAR has three additional vessels operating on 85% ethanol and one operating on 100% pure ethanol.



350 s.f. Green Roof installed at OMAO's **Marine Operation Center – Atlantic** significantly reducing storm water runoff quantity and improving runoff quality.

E. Stewardship of NOAA Portfolio (continued)

5.5 NOAA's Carbon Footprint

NOAA has recently begun to measure its impact on carbon dioxide emissions—NOAA's carbon footprint. By using data from NOAA's FY07 Energy Report to Department of Energy, it is estimated that approximately 155,550 Metric Tons of carbon dioxide gas are released as a result of NOAA's operations. Figure 7b, shows the breakout of NOAA's major emission source. Further analysis of these data revealed that approximately 51% of NOAA's emissions are from facility operations. Establishing baseline data on NOAA's contribution to carbon emissions is an important first step to being able to measure the progress in reducing these emissions as a result of NOAA's "greening" efforts.

Figure 7b: Estimated Metric Tons of Carbon Dioxide

Facility operation's contribution to NOAA's overall carbon footprint is approximately 51% .

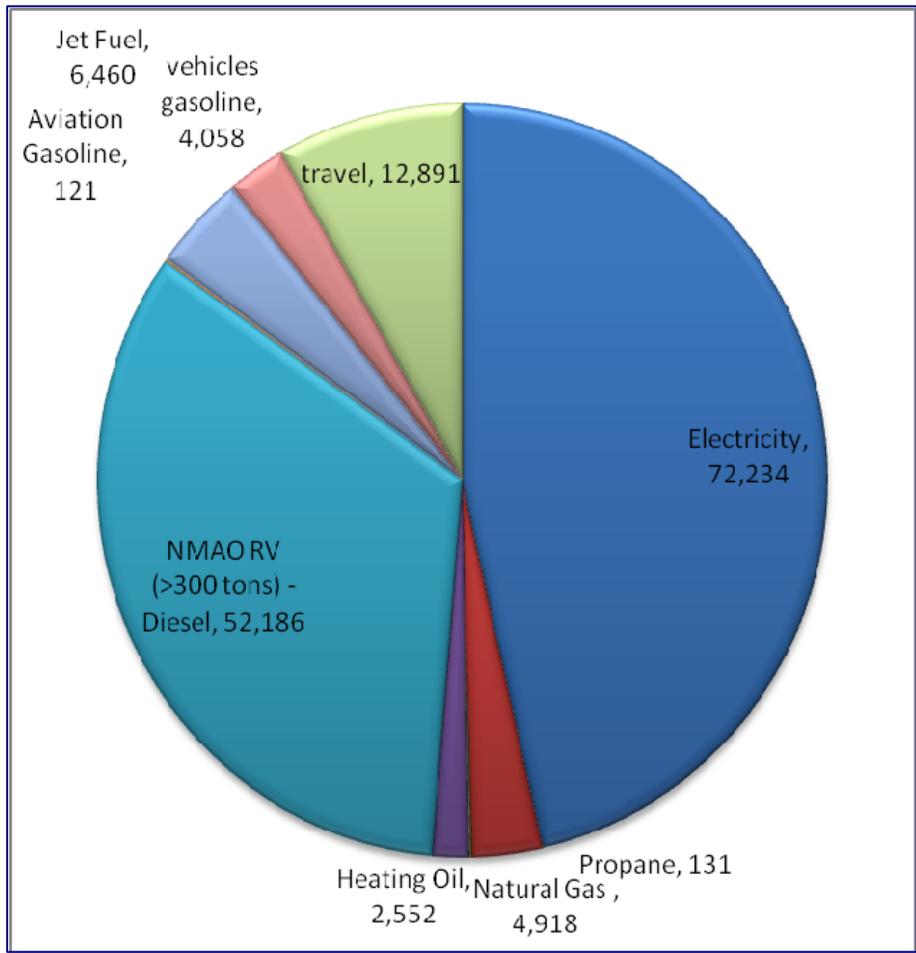
NOAA's Carbon Breakout (estimated):

Facility operations:
51%

Ships:
34%

Aircraft:
4%

Employee Travel:
11%



E. Stewardship of NOAA Portfolio (continued)

5.5 Challenges

NOAA faces two primary challenges in further advancing its efforts in energy and environmental stewardship:

- Aging facility portfolio and adequate levels of investment funding to modernize facilities; and,
- Data and performance measures.

The aging of NOAA's facilities (with more than 100 facilities being over 40 years old) and historical under-capitalization of investments to modernize and recapitalize these facilities has resulted in increasingly energy-inefficient building systems—such as electrical, HVAC, etc. Inadequate capital funding to modernize aged and inefficient building systems to become more energy and cost efficient continues to pose a significant challenge to greater progress. Similarly, NOAA faces challenges in its progress in increasing its reliance on Renewable Energy (RE) sources. In FY 2007, NOAA made only marginal progress towards EO 13423's 3% RE goal (based on NOAA's estimated energy consumption of 109,177 MWh). [Figure 7c](#) shows NOAA's FY 2007 RE progress.

Another challenge is NOAA's ability to capture, in an efficient and easy to use system, energy and water consumption at all NOAA facilities. Due to the geographic dispersion of NOAA's facilities, and current limitations in NOAA's data systems, accurate and easily obtainable energy data has been available only for NOAA's larger facilities; with data for NOAA's smaller facilities having to be estimated in most cases. Capturing NOAA's energy and water data is key to benchmarking NOAA's progress with the many energy reduction mandates and making sound investment decisions.

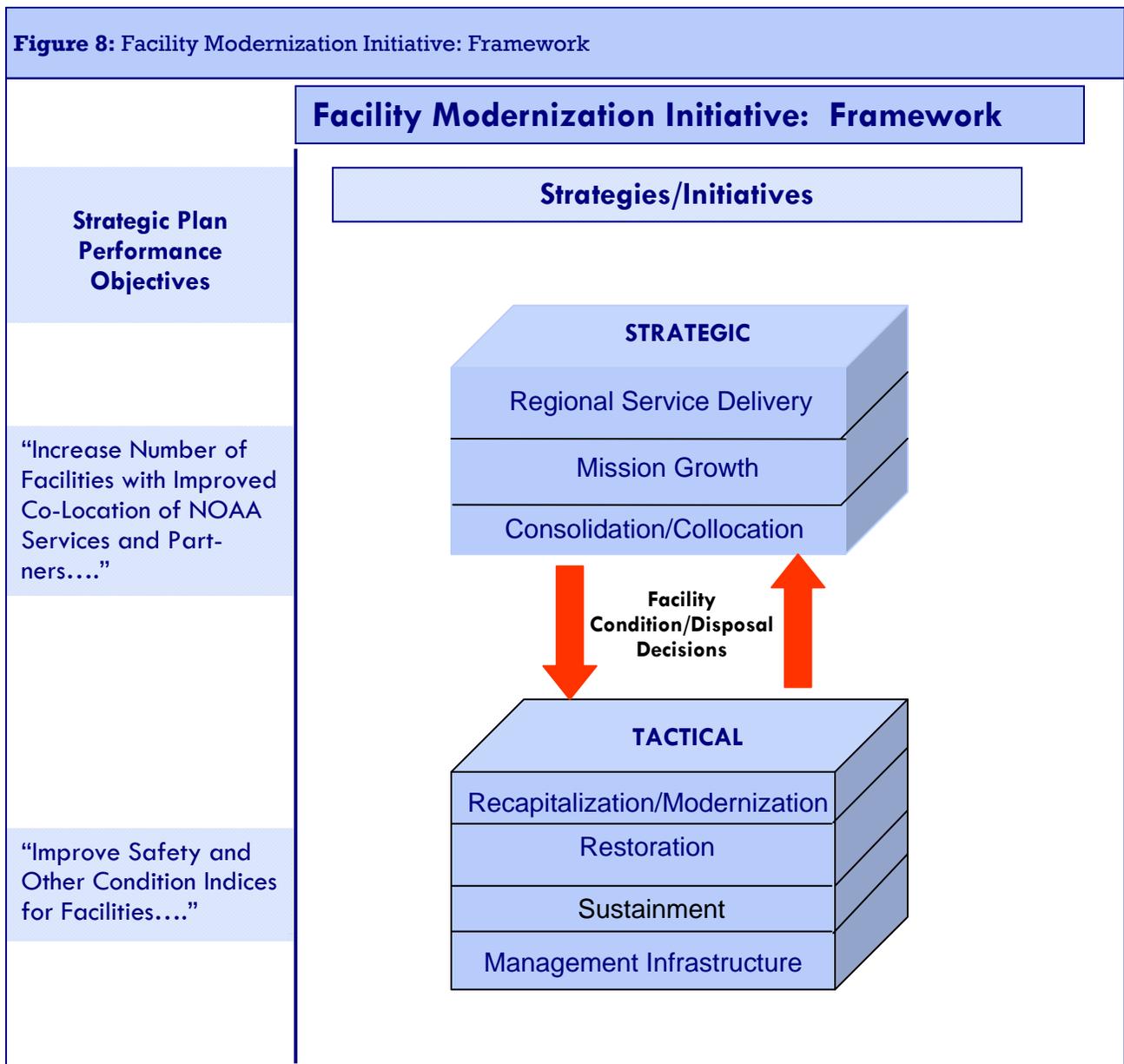
Figure 7c: NOAA's Renewable Energy (RE) Generation and Purchases at NOAA Sites



III. Facility Program Management in NOAA--Framework

A. Facility Modernization Initiative Framework

The dynamic nature and diversity of NOAA’s mission, staff and operations, and the geographic dispersion of its facilities create unique challenges in effectively planning and managing its facility portfolio. The business model employed by NOAA under these conditions must acknowledge the necessary balance between centralization of strategic business and investment decisions and investment management, and decentralized program execution, due to regional and local requirements. To manage its facility assets effectively, NOAA adopted the following framework for ensuring alignment of facility investment decisions with NOAA Strategic Plan objectives (Figure 8):



B. Facility Program Components

NOAA's facility program operates at two levels: **Tactical** and **Strategic**.

1.0 Tactical Components:

These components ensure that NOAA's current facility portfolio is maintained at safe, and operationally sustainable level; and that NOAA is able to effectively manage its facility program.

1.1 Management Infrastructure:

Organizational resources and governance policies, processes, transactional and informational databases, and performance measurement systems to plan and manage the NOAA real property portfolio.

1.2 Sustainment:

Required ongoing maintenance and repairs, including regularly scheduled maintenance and periodic repairs of systems (such as replacing roofs) that are expected to occur over the expected service life of the facilities. Also includes investments in security measures based on security/threat assessments, environmental compliance and safety needs. Sustainment normally does not specifically address upgrades for new building codes or other laws such as accessibility. Funding and executing sustainment is normally the responsibility of the Line Office or Program that "owns" and occupies the facility.

Sustaining facilities at an adequate level is critical to any good, balanced facilities program; a lack of appropriate sustainment results in increasing backlogs of repairs and continued deterioration of facilities. Under-sustainment of facilities reduces facility life, requiring larger investments at earlier times in the future to revitalize failing facilities. It also often leads to increased risk of health and safety problems such as water intrusion or inadequate heating and ventilation leading to the growth of mold or the development of bacterial infections such as Legionnaire's Disease. Improving facility condition through restoration projects is more difficult if facilities are not sustained adequately.

Purpose: Maintain safe, secure and operational working environments. Ensure appropriate level of annual investments in routine maintenance and repairs to maintain facilities and sustain useful life of facilities.

1.3 Restoration:

Repair and replacement work to address deficiencies and damage to existing facilities caused by inadequate sustainment, natural disasters, fires, accidents, or other incidents. "Minor" projects, projects below the prospectus-level as set by the Department of Commerce, are usually categorized as restoration. Restoration projects can include upgrades or renovations specifically required to comply with new building codes or laws, such as accessibility and historic preservation.

Under-funding of restoration results in increased facility deterioration (one study estimated that repair backlogs increase by 5%-10% per year simply due to not addressing current repair needs⁷, and decreased facility life. Failure to take timely restoration actions can also lead to potential facility failures, safety and health hazards such as the growth of mold, or environmental issues such as the release of asbestos or lead based paint. Figure 9 shows the relationship of restoration with facility life and FCI.

Purpose: Restore NOAA facilities (owned and leased) to "Good" or "Excellent" facility condition index, and address critical facility condition issues; improve working conditions and facility reliability in support of NOAA mission.

⁷Rush, Sean C. Managing the Facilities portfolio: A practical approach to institutional renewal and deferred maintenance. Applied Management Engineering, 10991.

B. Facility Program Components (continued)

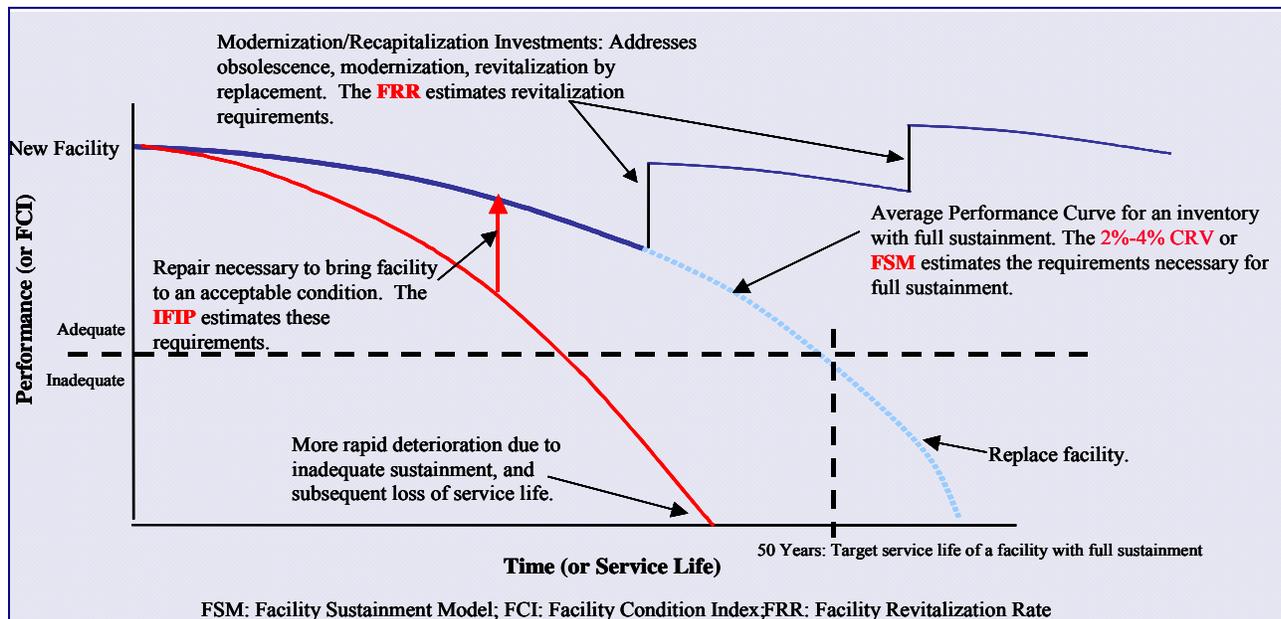
1.4 Recapitalization/Modernization:

Major renovation, reconstruction or modernization activities, including replacement of individual facilities, necessary to keep an existing inventory of facilities modern and relevant in an environment of changing standards and missions and to extend the lives of existing facilities. “Major” projects, those equal to or over the prospectus level, are normally categorized as recapitalization/modernization. Recapitalization/modernization projects will address current building code and other legal requirements, as well as implement new building and facility technologies to reduce facility life cycle costs and comply with the principles of environmental sustainability. Recapitalization/modernization may include the demolition and replacement of existing facilities, and may be addressed through new leases rather than construction and ownership. Recapitalization/modernization can also address consolidation of currently dispersed NOAA owned or leased facilities into a smaller number of collocated facilities to increase program effectiveness and reduce facility operating costs.

Recapitalization/modernization investments address facility aging and obsolescence. Without such investments, maintenance, repair, and facility operations costs will increase due to facility age and obsolescence, and risk of mission failure increases. Timely investments to modernize/recapitalize facilities extend the life of facilities. See Figure 9 below.

Purpose: Ensure NOAA maintains a modern facilities inventory relevant in an environment of changing standards and missions, improve conditions, reduce life-cycle costs and increase facility useful life to support NOAA mission.

Figure 9: Facility Life Cycle Performance Curve Model



B. Facility Program Components (continued)

2.0 Strategic Components:

In addition to maintaining NOAA's current facility portfolio, additional strategic business objectives impact NOAA's facility investment planning. Three specific business drivers to ensure continued alignment of the facility portfolio with NOAA's mission and business objectives are discussed below.

2.1 Enhanced Collocation:

The increasing complexity of the climate, ecosystem, weather, oceans, and coastal issues facing the Nation, require integrated solutions across NOAA and its partners. We recognize the opportunities to optimize NOAA mission accomplishment—in research, science, and operations—through improved integration and collaboration. Collocation—at the NOAA level, across line offices, and between NOAA and its partners, including academia, state and federal agencies—offers unique opportunities to advance these opportunities for collaboration and integration. In addition to enhanced program integration and synergies, and improved solutions and service delivery, collocation can promote improved operational efficiencies through better integration of resources.

Purpose: Identify opportunities to promote enhanced program collaboration and synergies, and improved operational efficiencies through collocation across NOAA and with partners. Leverage opportunities to partner with external organizations—academia, state and federal agencies—to optimize resources (both fiscal and physical—land, buildings, etc.). Identify and advocate innovative leasing and financing authorities to support modernization and enhanced collocation of facilities.

2.2 Expanded Mission or New Business (including Technology) Requirements:

New or modified mission requirements may also require new investments in facilities. NOAA would first seek to use existing facility assets to meet such mission requirements. Re-use of current NOAA facilities may require extensive modifications or new construction to modernize or expand the facility and to support the current mission requirements. New construction and acquisition of facilities may also be required if existing facilities in the portfolio are not sufficient to address the business need—either due to capacity, location or cost. Leveraging partnerships with other federal government agencies or partnerships with other partners (e.g., universities) may also require NOAA capital investments. Finally, NOAA will complete business case analyses to compare the options of new construction, renovation of an existing facility, lease, or other alternatives. Any new construction or major lease project will utilize new building and facility technologies, include sustainable practices and construction, and meet all current building codes and facility legal requirements.

Purpose: Provide the facilities required to meet new mission requirements through use of existing facilities, use of partner facilities, or if no existing facility is available, through new construction or leases.

2.3 Improved Regional Service Delivery:

Increasing recognition of the need for services and products relevant to regional and local needs and factors, and local/regional point-of-service service delivery, will require that NOAA examine future needs and opportunities for facilities specific to supporting improved service delivery regionally across NOAA's programs and mission priorities.

Purpose: Support improved product and service delivery effectively provided through regional or local facilities. Leverage investments required to meet new mission requirements through use of existing facilities, use of partner facilities, or if no existing facility is available, through new construction or leases.

C. Facility Governance and Investment Strategies

NOAA's real property assets are a key enabler of program success and mission accomplishment. The strategic business drivers discussed above require NOAA to approach its investment decision-making process in a more integrated, corporate-level approach. Investment planning and decision-making must look at opportunities to leverage facility investments to promote program integration and improved regional service delivery. To successfully manage the current NOAA facility portfolio and to maximize the mission impact of capital investments, NOAA has established a comprehensive facility program governance and investment management process.

1.0 Governance and Investment Management:

With the promulgation in April 2005 of NAO 217-104 (*Facility Capital Planning and Project Management*), senior NOAA leadership recognized the importance of corporate-level facility investment decisions and execution based on the following principles:

- Consistent, requirements-driven process to identify investment needs;
- Integration of facility and real property requirements as an integral component in mission planning, programming, and budgeting processes;
- Investments aligned with NOAA strategic plan and mission objectives;
- Full life-cycle investment management, involving effective coordination between Line Offices and Staff/Corporate Offices (including the Office of the Chief Administrative Officer, Acquisition and Grant Office, and the Office of the Chief Financial Officer); and,
- Integration of capital investment planning and review to support final investment decisions under NOAA's Planning, Programming, Budgeting and Execution System (PPBES).

The process outlined in NAO 217-104 has been supplemented with a more detailed Key Decision Point (KDP) process for major facility investments (Table 6). The KDP process is designed to effectively integrate major program disciplines and processes (including real property acquisition; construction project planning and management; National Environmental Policy Act (NEPA); and NOAA's Planning, Program-

The KDP process, along with proven project management processes (e.g., integrated project teams to plan and execute investments, requirements/change management process, and executive oversight boards to provide senior level oversight of major projects), mitigate inherent risks in all projects/major capital investments and promote successful project completion.

2.0 Balanced Investment Strategy:

Maintaining a facility portfolio that optimizes NOAA's mission accomplishment requires a balanced investment strategy in sustaining, restoring and modernizing NOAA's facilities. The balanced investment strategy applies the following approaches in establishing NOAA's long-range and tactical investment priorities:

- Establish appropriate sustainment investment levels and strategies to maximize facilities' useful lives. NOAA programs and Line Offices use these targets as guidance for annual sustainment investment levels in facilities for which they are responsible for annual operations and maintenance (funded through the Operations, Research and Facilities (ORF) account).
- Establish target levels for NOAA facility conditions, and performance metrics to assess progress towards these target condition indices, and establish appropriate restoration investment levels to achieve these targets. Annual funding under NOAA's corporate Facility Construction and Management program (ORF) supports restoration projects at NOAA's owned-facilities.

C. Facility Governance and Investment Strategies (continued)

- Develop appropriate and realistic modernization investment levels to support recapitalization or replacement of aged or damaged facilities, modernization or expansion of existing facilities, and construction of new facilities necessary to sustain ongoing or new mission requirements (funded through the Procurement, Acquisition and Construction (PAC) account).

This balanced investment strategy is reflected in the facility program capital investment priorities for FY 2010-2019 discussed in the next section.

Table 6: Key Decision Point (KDP) Process for Major Projects	
Phases and Key Decision Points	
PHASE I - BUSINESS CASE ANALYSIS	
KDP #1	Key Decision Point (KDP) #1a
	▶ Facility Modernization Plan Approved by NOAA Facility Investment Management Board (FIMB)
	▶ Submission to DoC for Budget Notification
	Key Decision Point (KDP) #1b Approval of Major Projects for Capital Investment Review
	Key Decision Point (KDP) #1c DOC Step 1 Request for Budget Consideration
PHASE II - CAPITAL INVESTMENT REVIEW	
KDP #2	Key Decision Point (KDP) #2a
	DOC Step 2 Approval - DOC/RPRB
	Key Decision Point (KDP) #2b Acquisition Plan Approval DOC/ARB
PHASE III - SCOPING	
KDP #3	Key Decision Point (KDP) #3 Conclude site specific NEPA analysis
PHASE IV - PROJECT EXECUTION (DESIGN & CONSTRUCTION)	
KDP #4	Key Decision Point (KDP) #4a
	▶ Approval to proceed with Construction (based on selected project delivery method)
	Key Decision Point (KDP) #4b Issue Building Occupancy Letter
PHASE V - PROJECT CLOSE OUT	
KDP #5	Key Decision Point (KDP) 5 Approval of Project Close-out

IV. FACILITY PROGRAM CAPITAL INVESTMENT PRIORITIES: 2010-2019

A. Capital Investment Challenges

The 10-year capital investment priorities discussed below are the result of the integrated capital investment planning process and NOAA's Planning, Programming, Budgeting and Execution System (PPBES). NOAA has conducted a comprehensive analysis of facility investment requirements—both to recapitalize and modernize the current facility portfolio, and to advance the strategic business drivers discussed in section III.

NOAA faces an impending crisis, reflected along several dimensions:

- Aging and under-capitalized facility portfolio.
- Lack of a sustained investment funding stream to address:
 - Current under-capitalization of facility program requirements; and,
 - New business opportunities for improved product and service delivery.

These substantial gaps in NOAA's current and longer-term investment capabilities pose risks to NOAA employees (providing a safe working environment), current operations, and future mission accomplishment.

Challenges to NOAA's Current Facility Portfolio:

Sustainment Needs to be Fully Funded:

NOAA has not historically funded ongoing sustainment (periodic maintenance and repair) costs in Seattle, WA, nor at many of its owned facilities, as evidenced by the Facility Condition Index (FCI). In order to improve facility conditions, it is also necessary to stop further deterioration, through proper sustainment investments throughout the life of a facility. This Plan outlines an appropriate investment strategy for NOAA to realize the maximum useful life of its facilities to prevent premature facility failure due to inadequate investments in building sustainment.

Significant Investments Required to Modernize Current Facilities:

Substantial current and near-term (3-5 years) investments are required to address restoration ("repair") requirements. Historically, NOAA's investments in facility restoration requirements have not kept pace with facility needs. NOAA's underinvestment, coupled with the aging nature of NOAA's facilities and the frequently extreme/adverse weather conditions in which many of the facilities are located, have resulted in a large backlog of restoration projects. To better assess the conditions of its current facility assets, in 2005, NOAA established an annual Integrated Facility Inspection Program (IFIP). This program assesses current facility conditions of NOAA's owned and leased assets, and identifies current and near-term investments in these assets required to address safety and building systems issues. The current inventory of restoration requirements for owned buildings as identified by the IFIP data gathered in 2007 totals nearly \$150 million.

The estimates in the IFIP assume that facilities merely need to be restored; they do not consider other relevant investment factors, such as whether the facility is over-utilized (overcrowded) or is approaching (or has passed) its expected useful life, that might warrant recapitalization or replacement of the facility as the most appropriate investment decision.

A. Capital Investment Challenges (continued)

Planned Recapitalization Projects Require Significant Investment:

Based on the 2007 IFIP assessments, as well as building age, several laboratory and operations complexes are identified as potential recapitalization/modernization targets. These projects were also identified in the FY 2007 Facilities Modernization Plan, and are included in the Capital Investment Plan at [Appendix A](#).

- Beaufort, North Carolina;
- Atlantic Marine Operations Center, Norfolk, Virginia;
- Seattle Western Regional Center, Seattle and Montlake, Washington; and,
- Miami, Florida.

Use of Temporary Structures in Lieu of Permanent, Sustainable Facilities:

Mission growth has often been supported through such temporary measures as acquisition of modular units or acquisition of leased space, increasing life cycle costs, lowering workplace quality of life, and sometimes resulting in further dispersion of programs. For example, NOAA owns over 200 “temporary” or modular structures (including trailers), with an acquisition value of nearly \$11 million. Temporary buildings are seldom the best solution for long-term needs. Plans to replace them with permanent structures where it makes business sense should be developed, and policies discouraging the purchase and installation of temporary structures should be considered for future implementation.

Fleet/Aircraft Modernization Plans:

As NOAA finalizes its ship and aircraft recapitalization and modernization plans, new investments will be required to ensure appropriate homeport and shoreside infrastructure for NOAA’s ships, and to effectively support new technology—including greater use of autonomous underwater vessels and unmanned aerial systems. The investments to support homeporting decisions for NOAA’s fleet are discussed in the NOAA Homeport Plan at [Appendix E](#).

Limited Investment Funds Hinder Progress and Escalate Costs:

NOAA has initiated several facility projects to replace at-risk, overcrowded or failing facilities. In planning these investments, we have addressed the strategic business objectives of enhanced collocation, anticipated mission growth and improved regional service delivery. However, the lack of sustained funding (i.e., either full funding or full program authorization with incremental funding) has resulted in project delays and cost escalation. Some case studies are useful to amplify the challenges and problems NOAA faces.

Case Study: NOAA Southwest Fisheries Science Center (SWFSC): The SWFSC, located in La Jolla, CA, conducts critical research and fisheries management assessments of the status and trends of federally-managed fish and protected resources stocks in three ecosystems: the California Current, eastern tropical Pacific and Antarctica. The SWFSC is responsible for assessments under three Fishery Management Plans, including Highly Migratory Species (13 managed species, 50 monitored species, and 7 prohibited species), Coastal Pelagic Species (5 species and recent addition of 2 krill species), and Pacific Groundfish (82 species). Assessments and research are conducted on over 100 Pacific and Hawaiian Island marine mammal, sea turtle stocks and abalone stocks, and several stocks of Antarctic fish, mammals and seabirds. NOAA operates the world’s most authoritative research programs on cetaceans, whales, and dolphins; and has a world-class fish stock assessment capability used in support of U.S. fishery management. In addition to supporting more than 200

A. Capital Investment Challenges (continued)

NOAA staff, the SWFSC headquarters also houses the Inter-American Tropical Tuna Commission and staff from the California Department of Fish and Game; nearly 300 staff altogether. This facility is one of NOAA's mission-critical facility assets.

The SWFSC facility consists of four buildings located on a 2.5-acre situated on top of a 180-foot high coastal bluff. The bluff is eroding through natural processes caused by wave and tidal action, placing three of the four buildings within 25 feet of the coastal bluff edge. The lack of timely investment funding to replace this facility has forced NOAA to take short-term steps to relocate staff and programs from the two most at-risk buildings to temporary offsite, leased space, at substantial annual costs. The delays in funding the replacement facility will also cause the final cost of the facility to continue to escalate. Over the last 5 years, the construction market has experienced annual escalation rates of 8-10 percent; with substantially higher escalation during some years due to the global construction market and price escalation for concrete and steel. For each year the SWFSC replacement project is delayed, NOAA will face a cost growth of approximately \$10 million.

Case Study: NOAA Pacific Regional Center (PRC): NOAA's programs in the Pacific encompass a large geographic area—covering over 30 million square miles—and with broad national and international impacts. The programs have broad scope and responsibilities: weather and climate prediction, Pacific tsunami warning, fisheries management and stock assessments, marine mammal and endangered species protections, coral reef conservation and debris removal, national marine sanctuaries (including the Papahānaumokuākea Marine National Monument), and enforcement of laws and treaties governing living marine resources and their habitats. The impact of NOAA's programs in the Pacific region on the nation's economy is large. Hawaii alone represents over 20 percent of the U.S. Exclusive Economic Zone; and together with the Commonwealth of the Northern Mariana Islands, Guam, American Samoa and other possessions, that percentage rises to nearly 50 percent. Consequently, nearly one-half of the nation's EEZ is encompassed in the Pacific region.

NOAA's programs and staff (over 500 employees/contractors) are currently dispersed over more than a dozen locations on the Island of O'ahu. NOAA's employee/contractor workforce is expected to increase over the next 5-10 years to well over 600. The current facilities (12 separate locations) occupied by NOAA are overcrowded, at-risk due to development plans, have outlived their useful life in a number of instances, and are inadequate to effectively support NOAA programs/operations in the Pacific region. In addition, due to a continued tightening of the commercial real estate market in Honolulu accompanied by generally higher Hawai'i costs, NOAA faces increasingly costly annual leased costs (with lease costs increasing from \$2.1 million in FY 2005 to \$4.1 million in FY 2007). In addition to the economic costs of this dispersion, effective program integration and collaboration is made more difficult. NOAA recognized that integration across the programs NOAA manages in the Pacific region could best be promoted by co-location of these currently dispersed programs and operations at a consolidated facility. Such program integration was recognized as being crucial by a number of authoritative studies, including the Stratton Commission in 1969, and the U.S. Commission on Ocean Policy.

In 2004, NOAA embarked on a large facility consolidation project: the NOAA Pacific Regional Center. The Pacific Regional Center will consolidate NOAA programs and operations on the island of O'ahu into a single facility on federally-owned property at Ford Island. In selecting this investment alternative, NOAA identified both operational benefits and longer-term cost savings from the consolidation, including the following:

A. Capital Investment Challenges (continued)

- Savings of over \$113 million by avoiding other more costly capital investments and increasing lease costs for facilities;
- Greater synergy and integration across NOAA in delivering its products and services in the Pacific Region, and greater visibility of the vital role NOAA’s programs play in understanding and predicting the Pacific Region’s climate and protecting the sustainability of Pacific Basin resources; and,
- Operational efficiencies and control program expenditures by locating NOAA facilities and services in a common location on existing U.S. government property.

Funding for the consolidated Center has forced delays in the construction schedule. While the ship operations facilities required to support NOAA three ships homeported in Hawaii has been completed, and design-construction work on the marine science and storage facility is underway, funding for the Main Facility (facilities that will support the full consolidation of NOAA programs and operations into a consolidated laboratory/research and operations facility) has been delayed. Like the Southwest Fisheries Science Center project, each year of delay in full program funding will result in a projected ten percent cost escalation of the project—approximately \$20 million—plus continued lease payments.

As NOAA looks forward to the next round of modernization efforts to replace facilities that have outlived their useful lives, it faces substantial new investment challenges. For example, the research and laboratory facilities at Beaufort, NC, and Miami, FL; and the Marine Operations Center in Norfolk, VA, will require substantial recapitalization and modernization funding to proceed with the necessary planning, design and construction investments. Without such timely funding, NOAA’s operational sustainability and safety of its employees will be placed at risk; and the final cost to modernize mission-critical facilities will continue to escalate.

Multi-Year Modernization Funding Strategy Needed:

The investments required in NOAA facilities—restoration and recapitalization/modernization of existing facilities, strategic investments in new facilities—will require a multi-year, sustained modernization funding strategy. Specific investment priorities and requirements in each of these areas are discussed in the next section.

B. Investment Priorities and Requirements

To support the President’s Management Agenda and NOAA’s Strategic Plan, we have developed a multi-year corporate facility investment strategy to repair, recapitalize and modernize NOAA’s portfolio of owned facilities through the following actions:

- Maximizing full utilization of owned facilities (disposing or re-purposing, as appropriate, of under-utilized facilities);
- Providing safe, and sustainable working conditions by improving facility condition indices to “good” or “excellent” (FCI of 90% or better), as determined from the most recent IFIP; and,
- Recapitalizing facilities that have reached the end of their useful life.

B. Investment Priorities and Requirements (continued)

1.0 Utilization of Current Facilities:

In 2006, NOAA had identified 31 buildings that were either under-utilized or not utilized. Since that time, NOAA has taken appropriate steps to ensure optimal utilization of its existing portfolio, including re-purposing, termination or expiration of leases, disposal, and data validation through the annual IFIP process.

As of the end of 2007, none of the 31 buildings identified in 2006 are currently classified as under-utilized or not utilized and the 13 buildings currently classified as under-utilized or not utilized are under review for disposal, lease termination, re-purposing, or re-evaluation of utilization.

2.0 Restoration:

The FY 2007 IFIP identified estimated facility deficiencies and identified \$150 million in current and impending restoration requirements at NOAA-owned facilities (excluding piers and other structures that are not part of the annual assessment process).

The following are several potential investment scenarios to address the currently defined restoration requirement:

Scenario A: No increase to the current level of funding in the NOAA budget for facility restoration. Funding in the FY 2009 budget for facility restoration is currently zero.

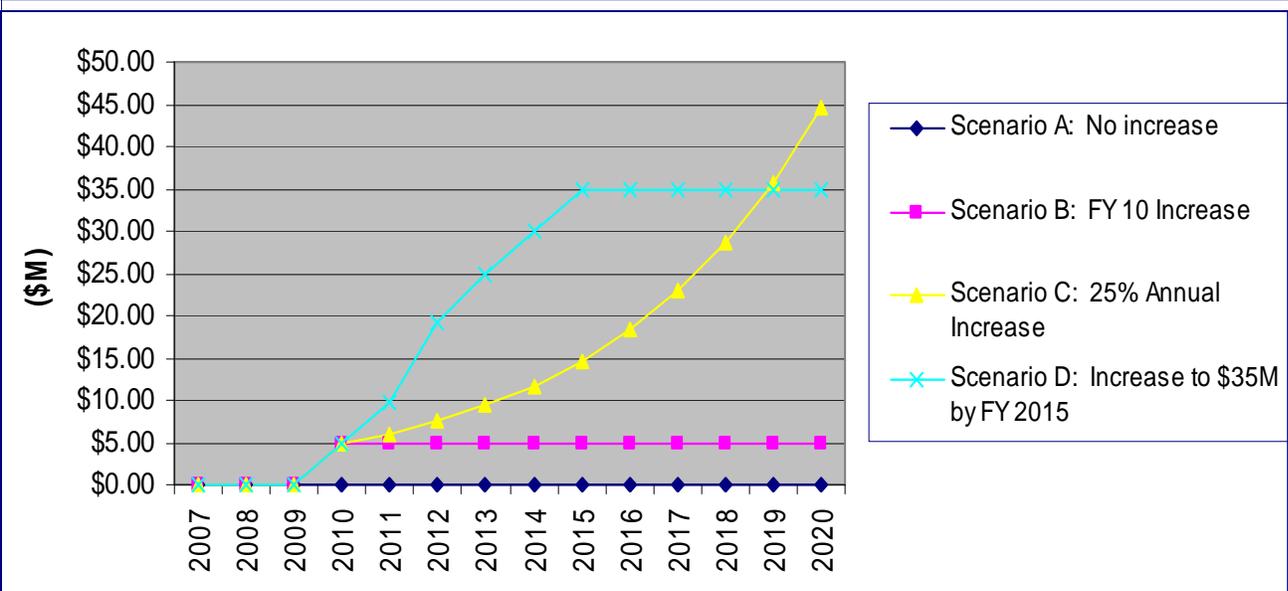
Scenario B: Increase annual level of funding for facility restoration to the level recommended in the NOAA FY 2010 program: \$4.8 million. Straight-line this level of investment into out-years.

Scenario C: Increase annual level of funding for facility restoration to the level recommended in the NOAA FY 2010 program: \$4.8 million. Increase this level of funding in subsequent years by 25 percent annually through 2019.

Scenario D: Increase annual level of funding for facility restoration to the level recommended in the NOAA FY 2010 program: \$4.8 million. Increase this level of funding in subsequent years to \$35 million by 2015; then straight-line this level of funding in out-years.

These funding scenarios are reflected in [Figure 10](#), Restoration Funding Scenarios.

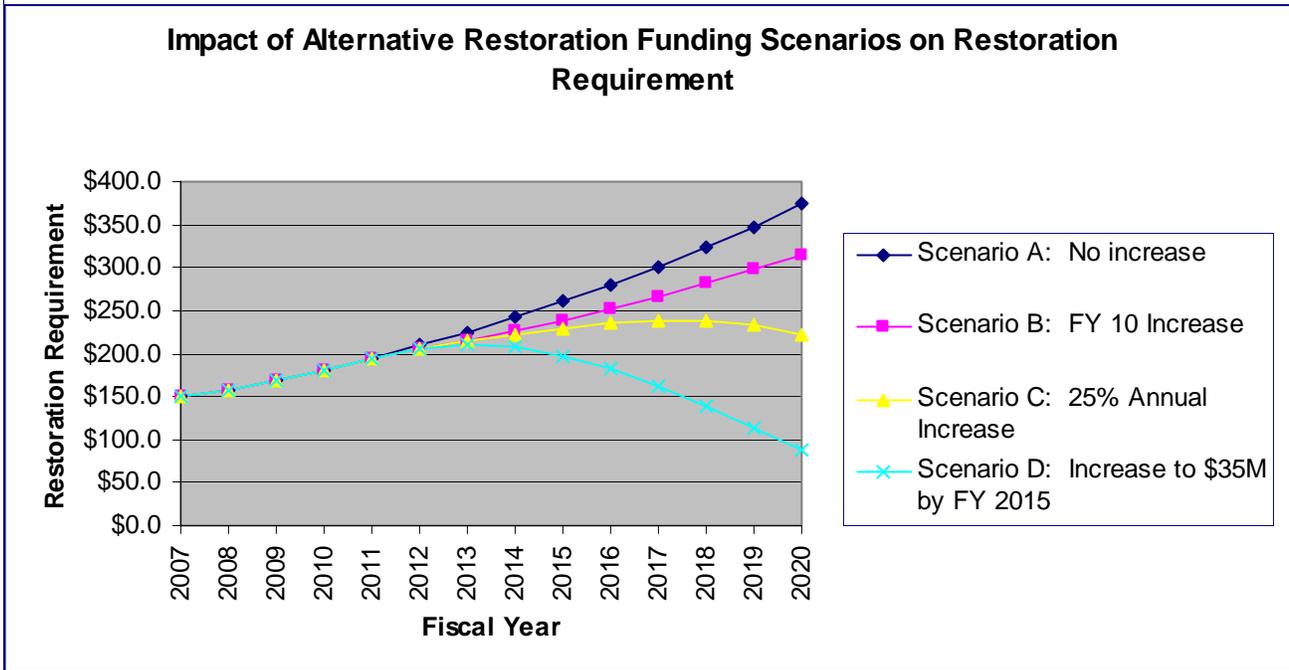
Figure 10: Restoration Funding Scenarios



B. Investment Priorities and Requirements (continued)

The impact of these four investment scenarios on the current \$150 million restoration requirement is reflected in Figure 11.

Figure 11: Alternative Restoration Funding Scenarios—Impact on Backlog



Failure to make adequate investments in facility restoration has a clear impact on the level of future funding that will be required to address the restoration needs. This cost growth is due to the following factors:

- Construction market factors attributable to annual labor and material cost escalation.
- Further deterioration in building systems as they further age, and reach the end of their useful lives. The current IFIP restoration requirement only looks out five years through FY 2012.

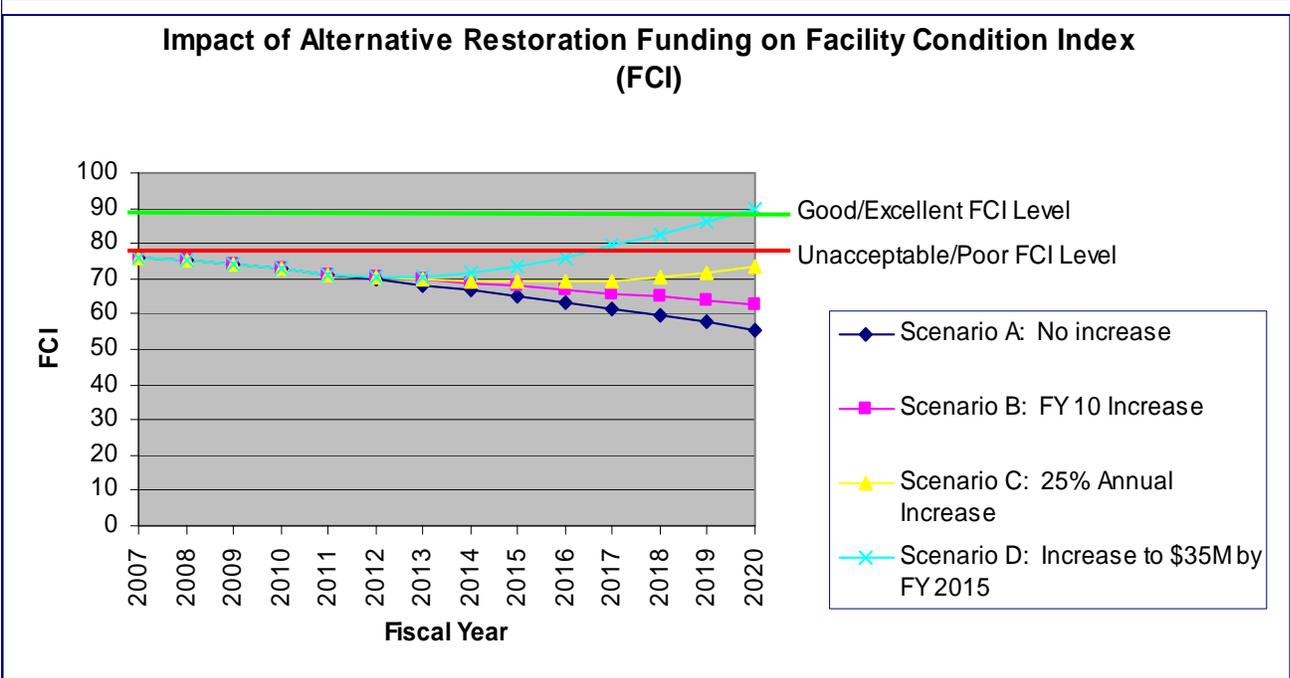
Based on the level of increase we have experienced between the FY 2006 and the FY 2007 IFIP, we project this annual rate of increase to be approximately 7.5 percent.

We ultimately measure our progress in addressing the facility restoration requirements not in terms of the funding requirement, but in terms of the conditions of NOAA’s facilities. The Facility Condition Index (FCI) characterizes the condition of individual NOAA facilities, and the overall NOAA facility portfolio. The overall FCI for NOAA’s portfolio is currently “Unacceptable.” Under all four investment scenarios, the overall portfolio facility condition continues to deteriorate through FY 2013. Under both [Scenario A](#) and [Scenario B](#), the overall portfolio condition continues to deteriorate in all subsequent years; with a more rapid deterioration occurring under [Scenario A](#). Under [Scenario C](#), the overall condition does not return to the FY 2010 level of facility condition until 2020, and does not improve above the “Unacceptable” level during the 20-year period covered by this Plan.

B. Investment Priorities and Requirements (continued)

As reflected in Figure 12, only under Scenario D, with the facility restoration level increasing to \$35 million by FY 2015, does the overall condition for the NOAA facility portfolio improve to a “Good/Excellent” level; and only by 2020.

Figure 12: Impact of Alternative Restoration Funding on FCI



Failure to make timely and appropriate levels of investment in facility restoration will result in continued deterioration in the condition of NOAA’s facilities, with a commensurate increase in risks to operational sustainability and threats to employee safety due to unsafe or unhealthy working environments. The rate of deterioration could be further accelerated as a result of weather events, fire, or other unplanned events.

3.0 Facility Recapitalization/Modernization:

In addition to planned investments necessary to maintain and improve the condition and sustainability of NOAA’s current facility portfolio, investments in modernization/recapitalization of NOAA’s facilities are also necessary to replace or modernize NOAA’s facilities. A sustained investment strategy (and sustained funding level to execute this strategy) is necessary to ensure adequate replacement of NOAA facilities as they approach the end of their useful lives, generally estimated at 50 years. Failure to have a planned and sustained recapitalization strategy will increase risks of unplanned building failure, and increased threats to operations and employee safety. The requirements for NOAA’s recapitalization and modernization investments are outlined in Appendix A.2 (Capital Investment Plan—Recapitalization, Modernization and Consolidation Projects).

B. Investment Priorities and Requirements (continued)

4.0 Other Investments:

Structures, such as waterfront facilities, roads, utility distribution systems, towers, etc., are generally not addressed in this Plan due to a lack of adequate data on NOAA's owned structures, yet there are known repair and recapitalization needs for some NOAA structures. Only where conditions have deteriorated to the point of impending threat of failure and resulting loss of operational sustainability and/or an unacceptable threat to employee safety (such as the Marine Operations Center – Atlantic bulkhead, which is both), has NOAA assessed the conditions of the facility and the investment required to address the requirement.

New mission requirements that result in expanded facility needs in the future are also not addressed in this Plan. New requirements will be evaluated annually as part of NOAA's PPBES process and will be supported by individual business case analyses. NOAA will normally consider new construction only when necessary to meet long-term NOAA mission, and other options are not viable.

V. ACCOUNTABILITY AND GOVERNANCE

Implementing an effective real property asset (facility) program requires a clear business model, with roles and responsibilities clearly articulated and understood. The need for clarity is heightened by the multiplicity of responsible parties within NOAA—both at the corporate level, within the line offices, and at the goal/program level. Ultimately, the success of NOAA’s facility program to support agency mission accomplishment and enable NOAA to perform its broader societal role effectively, requires the commitment and cooperation of the entire organization. The facility program business model adopted in February 2006, establishes the following broad areas of responsibilities:

- **Corporate Office—Office of the Chief Administrative Officer (OCAO):**
 - Provides facility planning guidance and establishes policies and standards.
 - Collaborates with LO/Goals/Programs’ to identify and prioritize requirements for facility restoration, recapitalization, and modernization investments.
 - Executes major facility projects as “Provider of Choice”—optimizing previous investments to strengthen NOAA’s facility program.
 - Provides oversight and corporate reporting on program execution and performance metrics.
 - Accountable for sustainment planning and support for corporate-owned complexes.

- **Line Offices:**
 - Identify and validate facility program requirements and priorities.
 - Collaborate with Goals/Programs on sustainment requirements.
 - Collaborate with OCAO in developing execution plans and reporting.
 - Represents program interests on integrated project teams.
 - Accountable for sustainment of non-corporate-owned facilities.

- **Goals/Programs:**
 - Identify and validate facility program requirements and priorities.
 - Represents program interests (as necessary) on integrated project teams.

These roles and responsibilities across the phases of NOAA’s planning, programming, budget, and execution system (PPBES) are reflected in [Table 7](#).

Table 7: Facility Program Governance: Roles and Responsibilities

	Planning	Programming	Budgeting	Execution
Corporate Program/OCAO	Provides Corporate Guidance and Solicits Input for 100% Requirements	Within Overall Programming Guidance: Develops NOAA (1) Corporate Sustainment Plan and (2) NOAA Corporate Restoration and Recapitalization Priorities	<p>Sustainment: Reflects NOAA-Owned Corporate Complex Budget within "Facilities" Budget Line;</p> <p>Restoration & Recapitalization: Reflects Investment Decisions in "Facilities" Budget Line</p>	<p>Sustainment: Executes Corporate Complex Spending Plan;</p> <p>Restoration & Recapitalization: Project Execution as "Provider of Choice";</p> <p>All: Quarterly Execution Reporting</p>
Line Offices	Identifies 100% Requirements for Facilities	<p>Sustainment: Recommends Facilities Sustainment Priorities & Ensures Goals/Programs Reflect Requirements in Program Plans;</p> <p>Restoration & Recapitalization: Submits Facility Priorities to OCAO</p>	<p>Sustainment: Finalizes LO Spending Plan Based on NOAA Budget Guidance and Reflects in LO Budget (Informational copy to OCAO);</p> <p>Restoration: (1) Identifies Planned LO-funded projects & OCAO PM support required, and (2) Collaborates with OCAO in Developing</p>	<p>Sustainment: Finalizes/Executes LO Spending Plan & Submits Plan and Quarterly Execution Reports to OCAO;</p> <p>Restoration & Recapitalization: Serves on OCAO-led Integrated Project Teams</p>
Goals/Programs	<p>Sustainment: Incorporates requirements in program plans.</p> <p>Restoration & Recapitalization: Provides Input to 100% Requirements</p>	<p>Sustainment: Incorporates requirements in program plans.</p> <p>Restoration & Recapitalization: Submits Recommended Priorities to OCAO</p>	No Action Required	Serves on OCAO-led Integrated Project Teams, as appropriate

VI. HISTORICAL CONTEXT-FACILITY PROGRAM REENGINEERING

1.0 Necessary Improvements Identified by Previous Reviews

NOAA's current Facility Modernization Program builds on improvements made over the last several years to address a number of reviews and external drivers:

Executive Order 13327 (*Federal Real Property Asset Management*). On February 4, 2004, the President issued E.O. 13327 requiring executive branch departments and agencies to recognize the importance of real property resources through increased management attention, establishment of clear goals and objectives, and improved policies and levels of accountability. EO 13327 also requires that agencies develop and implement asset management planning processes and outlines elements to be included in those plans.

Logistics Management Institute (LMI) review conducted in 2003 identified the need for the following:

- Facilities management business plan, including establishment of definitive roles, lines of accountability, and authorities/responsibilities;
- Standardization and promulgation of NOAA policies and procedures, and more aggressive implementation of standards;
- Capital asset management program with a longer-term facilities management strategy – this should be reflected in the Facilities Management Plan; and,
- Individual and organizational competency development for NOAA construction and facility management staff.

Government Accountability Office report (*Budget Issues: Agency Implementation of Capital Planning Principles Is Mixed*; GAO-04-138) identified the need for an integrated NOAA capital planning and investment management process for facilities.

Facilities Tiger Team (internal NOAA) study, identified the need for clear and effectively executed business model to support NOAA's facilities investment planning and management program, including policies/standards, and automated tools to support investment planning, project management, and facilities and property management.

2.0 NOAA Facility Program Improvements/Reengineering

To address the consistent themes that emerged from these reviews—consistent Agency-level policy and process for facility capital planning and management, competent facility workforce, clear delineation of roles and responsibilities—NOAA implemented the following changes to strengthen its management of real property assets:

2.1 Functional Management Model: NOAA implemented a functional management business model to provide clear accountability for NOAA’s facility management program by NOAA’s Chief Administrative Officer. (2005)

2.2 Realignment of Facility Program with Senior Executive as Director: NOAA realigned its facility organization under the functional management model, and established and filled a senior executive position of Director, Real Property, Facilities and Logistics position in headquarters accountable for facility management policy, planning and program execution. (2005)

2.3 Focal Point for Construction Project Management and Policy: NOAA established a construction project planning and management staff to provide policy, oversight and direction to the facilities construction program (for restoration projects, replacement and recapitalization projects, as well as consolidation projects), and staffed this organization with professionally-certified/registered engineers/architects. (2005)

2.4 Corporate Capital Investment Policy: NOAA established an enterprise-wide policy for facility capital investments and management—NOAA Administrative Order 217-104 (*Facility Capital Planning and Project Management Policy*). (2005)

2.5 Accurate Facility Condition Assessment Data: NOAA implemented a sustainable facility condition assessment process. NOAA needed the capability to have current and complete data on facility conditions, including life-cycle data on building systems (average life expectancy of a building system vs. current age of building system) to begin to plan for necessary investments in facilities in the future. To meet this need, NOAA fielded a new integrated facility inspection program (IFIP) system that yields annually refreshed data on the conditions of NOAA's facility and costs of necessary repairs. The IFIP assessment process was conducted over the last two years. (2006)

2.6 Long Range Planning: NOAA implemented new planning processes to conduct facility master plans at several of its “campus” sites, and developed the NOAA 2006 Facilities Modernization Plan. (2006)

2.7 Key Decision Point (KDP): NOAA developed a Key Decision Point (KDP) process to improve coordination, development, and management of major real estate projects. (2008)