United States Government Accountability Office

Report to Congressional Requesters

September 2021

OVERSEAS REAL PROPERTY

Prioritizing Key Assets and Developing a Plan Could Help State Manage Its Estimated $3 Billion Maintenance Backlog

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GAO-21-497

GAO Highlights

Highlights of GAO-21-497, a report to congressional requesters

September 2021

OVERSEAS REAL PROPERTY

Prioritizing Key Assets and Developing a Plan Could Help State Manage Its Estimated $3 Billion Maintenance Backlog

Why GAO Did This Study

State's Bureau of Overseas Buildings Operations operates and maintains over 8,500 owned and leased real property assets, including both buildings and structures. According to State, at least 60 percent of a building's total lifecycle cost stems from operations and maintenance costs. GAO has reported that deferring maintenance and repairs can lead to higher costs in the long term and pose risks to agencies' missions.

GAO was asked to review State's efforts to manage its operations and maintenance needs. This report examines (1) how operations and maintenance funding for overseas assets changed from fiscal years 2016 through 2020, (2) the condition and maintenance needs of State's overseas assets, and (3) the extent to which State has followed leading practices to address its deferred maintenance backlog. GAO analyzed State data on operations and maintenance funding and asset condition, as well as documentation related to leading facility management practices. GAO also met with State officials in headquarters and in seven embassies.

What GAO Recommends

GAO is making five recommendations, including that State should reassess its acceptable asset condition standard and fully follow leading facility management practices, such as developing a plan to address the backlog and specifically identifying the funding and time frames needed to reduce it. State concurred with these recommendations.

View GAO-21-497. For more information, contact Jason Bair at (202) 512-6881 or bairj@gao.gov, or Catina B. Latham at (202) 512-2834, or lathamc@gao.gov.

What GAO Found

The Department of State's portfolio of overseas assets and expenditures to operate them have grown, but State-allocated funding for maintenance has stayed nearly the same. For fiscal years 2015 through 2019, both the number and square footage of State's assets increased 11 percent and operations expenditures grew 24 percent. However, maintenance and repair funding has remained nearly unchanged. For example, State's allocation for Maintenance Cost Sharing—for projects collectively funded by State and tenant agencies overseas—was $399 million in fiscal year 2016 and $400 million in 2020.

GAO found that more than one-quarter of State's overseas assets are in poor condition according to State's condition standard. Further, 20 percent (almost 400) of assets that State identifies as critical to its mission are in poor condition. Federal accounting standards recognize that what constitutes acceptable asset condition may vary by the importance of specific assets to agencies' missions. However, State set a single acceptable condition standard of "fair" for all assets and did not consider whether some assets, like chancery office buildings, were more critical to State's mission when estimating its $3 billion deferred maintenance backlog. Had State set a higher condition standard for critical assets, its backlog would be higher. By reassessing its condition standard, State could determine whether to adopt an approach that considers asset importance and that could help guide maintenance funding to key assets.

Condition of U.S. Embassy Manila, Philippines – Left: Chancery Office Building; Right: Chancery Courtyard Showing Maintenance Issues, Including Mold and Water Damage

Source: (left) Department of State; (right) Department of State, photograph by Ann Beha Architects. | GAO-21-497

State follows most, but not all, leading practices for managing deferred maintenance backlogs. Of the nine leading practices, GAO found that State followed five, partially followed three, and did not follow one. For example, State has goals, baselines, and measures for its facility management performance. However, State did not specifically request funding to address the backlog in its congressional budget requests. Officials said they had not found it necessary to specifically request such funding because they only determined that the backlog had substantially increased from $96 million in fiscal year 2019 to $3 billion in fiscal year 2020 after using a new methodology for estimating deferred maintenance and repair. In addition, State does not have a plan to address the backlog, but officials estimated it could take 30 to 40 years to eliminate the backlog with current funding levels. Developing such a plan with specific information on the funding and time frames needed to reduce the backlog would help decision makers better understand how funding levels affect backlog reduction.

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Abbreviations

DM&R	Deferred Maintenance and Repairs
ESCM	Embassy Security, Construction, and Maintenance
FAM	Foreign Affairs Manual
FRPP	Federal Real Property Profile Management System
GMMS	Global Maintenance Management System
GSA	U.S. General Services Administration
ICASS	International Cooperative Administrative Support Services
MCS	Maintenance Cost Sharing
OBO	Bureau of Overseas Buildings Operations
OMB	Office of Management and Budget
Posts	U.S. embassies and consulates
RPA	Real Property Application
SFFAS	Statements of Federal Financial Accounting Standards
Tenant Agencies	U.S. government tenant agencies
U.S. Facility Managers	U.S. Foreign Service facility managers

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September 15, 2021

The Honorable Robert Menendez
Chairman
Committee on Foreign Relations
United States Senate

The Honorable Ami Bera
House of Representatives

The U.S. Department of State's Bureau of Overseas Buildings Operations (OBO) operates and maintains nearly 8,500 owned and 280 capital-leased real property assets (assets)–including buildings and other structures–at more than 270 U.S. embassies, consulates, and other posts overseas.[1] According to State, at least 60 percent of a building's total lifecycle cost stems from operations and maintenance costs.[2] We have reported that federal agencies typically have large backlogs of deferred maintenance and repair and that it is difficult to predict when or where deferred maintenance might cause an incident that would adversely affect an agency's mission.[3] Since January 2003, GAO has designated federal real property management as a high-risk area.[4]

You asked us to look at operations and maintenance costs for embassies and consulates. This report examines (1) how operations and maintenance funding for overseas assets has changed from fiscal years 2016 through 2020, (2) the condition and maintenance needs of overseas assets, and (3) the extent to which State has followed leading practices to address its deferred maintenance and repair needs.

[1]Capital leases are typically used when (1) State would normally buy such a property, but it is unobtainable because of the host or municipal government's legal or regulatory prohibitions, or (2) State intends to make a substantial investment in major alterations to the building or its systems.

[2]OBO generally constructs new embassies with the expectation they will have a useful life of 50 years.

[3]GAO, *Federal Real Property: Government's Fiscal Exposure from Repair and Maintenance Backlogs is Unclear*. GAO-09-10 (Washington, D.C.: Oct. 16, 2008).

[4]GAO, *High Risk Series: Dedicated Leadership Needed to Address Limited Progress in Most High-Risk Areas*. GAO-21-119SP (Washington, D.C.: Mar. 2, 2021).

To examine operations and maintenance funding for State's overseas assets, we examined State data on expenditures for operations and funding allocated for maintenance and repair projects from fiscal years 2016 through 2020. To assess the condition and maintenance needs of these assets, we analyzed State's fiscal year 2019 data on asset condition.[5] On the basis of discussions with State and our review of related methodological information, we determined that State's data on assets' repairs needs, replacement values, and derived condition index ratings were sufficiently reliable for reporting on the condition of State overseas real property assets. We also identified the methodology State uses to determine its deferred maintenance backlog. Finally, we assessed State documentation and interviewed State officials to determine the extent to which State followed leading practices in managing its deferred maintenance and repair backlog.[6]

Between September and November 2020, we interviewed and collected information from officials from State and other U.S. agencies located within embassy facilities, as well as locally-employed maintenance staff at seven U.S. embassies in The Hague, Netherlands; Kabul, Afghanistan; Manila, Philippines; Nairobi, Kenya; Ottawa, Canada; Rome, Italy; and Santo Domingo, Dominican Republic. In addition, we collected information from U.S. Foreign Service facility managers (U.S. facility managers) at these locations using a semi-structured questionnaire. We selected these locations because they represent variety in terms of location, size, age, and maintenance and operations costs. The information obtained through these interviews is not generalizable. See appendix I for more information on our objectives, scope, and methodology.

We conducted this performance audit from February 2020 to September 2021 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for

[5]Due to 2020 end-of-year federal real property data compilation processes and lagging reporting timelines, fiscal year 2019 real property data were the most recent available at the time of our review.

[6]We have previously reported on leading practices for managing deferred maintenance and repair backlogs. See GAO, *Federal Real Property: Improved Transparency Could Help Efforts to Manage Agencies' Maintenance and Repair Backlogs*, GAO-14-188 (Washington, D.C.: Jan. 23, 2014) and *Coast Guard Shore Infrastructure: Applying Leading Practices Could Help Better Manage Project Backlogs of At Least $2.6 Billion*, GAO-19-82 (Washington, D.C.: Feb. 21 2019).

our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

State's Current Portfolio of Overseas Real Property Assets

As State's overseas real property manager, OBO has the lead role in acquiring, designing, building, operating, and maintaining the department's real property assets at U.S. embassies and consulates (posts).[7] As of fiscal year 2019, OBO managed a portfolio of nearly 8,500 State-owned and 280 capital-leased assets,[8] including buildings (e.g., chancery and consulate office buildings, office annexes, ambassadorial residences, and staff housing) and structures (e.g., perimeter security walls; utility structures; and recreational amenities, such as tennis courts and swimming pools).[9] Additionally, OBO leases over 16,400 assets through short-term operating leases. As with owned assets, State is responsible for covering operations costs on these operating leases, but maintenance is generally completed by the property owners. Table 1 shows the breakdown of State's overseas real property assets.

[7]A U.S. embassy is comprised of some or all of the following assets, among others: chancery office building; annex office building; ambassador's residence; staff housing; marine security guard quarters; recreational amenities (e.g., gym, tennis/basketball courts, swimming pool); warehouse; maintenance facility; security access control/screening facilities; and utility infrastructure (e.g., power, water, communications). Chancery office buildings are the centerpieces of diplomatic missions providing space for diplomatic and consular activities, such as immigration services. Chanceries also are used to host public events that allow U.S. diplomats to represent the U.S. government to the host nation, diplomatic and business communities, and the public. Ambassadorial residences, staff housing, and some annex office buildings and support functions (e.g., warehouses) are often located apart from the chancery. For the purposes of our review, we categorize U.S. consulates and consulate office buildings among embassies and chancery office buildings.

[8]Generally, it is in the U.S. government's interest to own, or execute a capital lease for, chancery and consulate office buildings and ambassadorial residences because of the expected length of occupation and significant modifications required. Short-term operating leases constitute all other lease agreements. See the Department of State's *Foreign Affairs Manual (FAM) 15 FAM 312.1 Capital Leasing* and *15 FAM 121*.

[9]Federal real property reporting guidance generally defines a building as having walls, a roof, and useable space, while structures generally do not have such characteristics.

Table 1: Number of Overseas Real Property Assets Owned or Leased by State, as of Fiscal Year 2019

Property use category	Assets maintained by State (8,482 government owned and 280 capital leases)	Assets maintained by others (16,423 operating leases)
Ambassadorial residences	226	120
Annex office buildings	302	211
Chancery office buildings	226	47
Staff housing	2001	14391
U.S. Marine security guard quarters	137	76
All other buildings	2836	958
Structures	3034	620
Total	**8,762**	**16,423**

Source: GAO analysis of Department of State data. | GAO-21-497

Notes: "Chancery office buildings" include chancery and consulate office buildings. "Ambassadorial residences" include housing for U.S. ambassadors and deputy chiefs of missions at U.S. embassies. "Staff housing" include various types of housing for U.S. government staff who work at an embassy or consulate. "All other buildings" include assets like warehouses, schools, and post offices. "Structures" include assets like perimeter security walls; utility structures; and recreational amenities, such as tennis courts and swimming pools.

Mission Criticality of State's Overseas Assets

Mission criticality is the value an asset brings to the performance of the agency's mission and is a recognized factor in establishing the importance of agency assets.[10] State categorizes all of its assets into one of the following categories:

- **Mission Critical** – without the asset, the mission is compromised (e.g., chancery office buildings, utility buildings, and access control facilities);
- **Mission Dependent, Not Critical** (mission dependent hereafter) – does not fit into mission critical or non-mission dependent categories (e.g., ambassadorial residences, U.S. marine security guard quarters, and official vehicle/motor pool facilities); or
- **Non-Mission Dependent** – without the asset, the mission is unaffected (e.g., staff housing and recreation centers).

[10]The Office of Management and Budget (OMB) *Capital Programming Guide* indicates that prioritizing assets by mission criticality is one of the most significant criteria agencies can employ. OMB, *Capital Programming Guide*, a supplement to OMB's annual Circular No. A-11, *Planning, Budgeting, and Acquisition of Capital Assets.*

Operations and Maintenance of Overseas Assets

OBO officials, including U.S. facility managers and locally-employed staff, oversee the daily operations and maintenance needs of posts worldwide.[11] Operations and maintenance of overseas assets are funded by State and other U.S. government tenant agencies (tenant agencies) that have employees working at embassies overseas.

Operations costs—including utilities, grounds keeping, and wages for locally-employed staff—are funded through the International Cooperative Administrative Support Services program, an interagency cost-sharing system for owned and leased (both operating- and capital-leased) properties managed by State.[12]

Maintenance and repair costs—including repairing and replacing building systems, preventive maintenance, and major rehabilitation projects (major rehabs)—are funded by State and other tenant agencies. In general, maintenance, repair, and major rehab projects are funded under two programs:

1. **Maintenance Cost Sharing (MCS).** State and tenant agencies collectively fund MCS work within facilities where multiple agencies work.[13] OBO officials indicated that since the establishment of the MCS program in 2012, the total funding State has generally requested and received for both (1) the construction of new embassies and (2)

[11]Locally-employed staff are employees hired under the local compensation plan at a U.S. post overseas, which includes foreign service nationals, U.S. citizens residing abroad, third country nationals, and eligible family members of State employees.

[12]As we have previously reported, the International Cooperative Administrative Support Services Program is an interagency system established in 1997 for distributing the cost of administrative services at overseas posts and is intended to ensure that each agency bears the cost of its overseas presence. GAO, *Embassy Management: State Department and Other Agencies Should Further Explore Opportunities to Save Administrative Costs Overseas*, GAO-12-317 (Washington, D.C.: Jan. 31, 2012).

[13]State initially proposed the MCS program for maintenance, repair, and major rehab projects in its fiscal year 2012 budget request. In proposing the program, State noted that while State was responsible for funding 100 percent of maintenance costs, State accounted for 60 percent of the U.S. government presence within U.S. diplomatic facilities. As with the Capital Security Cost-Sharing Program, which funds the design and construction of new embassies, agencies contribute MCS cost-sharing funding based on the size of their overseas staffing presence and the type of space an agency occupies (such as unclassified or classified workspaces).

the maintenance, repair, and rehab of existing buildings (under MCS) has been targeted at $2.6 billion annually.[14] Of that amount, State plans to allocate $2.2 billion for new construction and $400 million for MCS maintenance, including repairs and major rehabs. OBO officials indicated that the exact allocations between the two programs varies based on funding provided in appropriations acts and OBO's estimated costs of projects planned in a particular year. MCS consists of two components:

- *MCS routine maintenance and repair*, including routine repairs to building systems, such as plumbing repairs; preventive maintenance, such as painting and weather stripping; and building system replacements, such as replacing a building's heating, ventilation, and air conditioning system.
- *MCS major rehab projects*, such as addressing deferred maintenance repairs, replacing building systems, and upgrading to meet building codes. Typically, MCS major rehab projects are focused on chancery office buildings that State intends to retain in the portfolio and are not planned for replacement.

2. **State-Only Maintenance.** OBO uses State-only funds for two components:
   - *Minor construction and improvement projects*, such as accessibility improvements; space renovations/reconfigurations; fire system replacements; and some building system replacements, such as heating, ventilation, and air-conditioning projects or roof projects.
   - *State major rehab projects* within State-only occupied facilities, such as State Department staff residences and ambassadors' residences.

[14]Following the September 2012 attacks on two U.S. facilities in Benghazi, Libya, and the loss of four U.S. government personnel, including the U.S. Ambassador, the subsequent Accountability Review Board recommended that State work with Congress to fund the Capital Security Construction Program at approximately $2.2 billion in fiscal year 2015, including an up to 10-year program to address the need for construction of new facilities in high-risk, high-threat areas.

Deferred Maintenance and Repair Backlog and Building Condition

Federal accounting standards define deferred maintenance and repairs (DM&R) as maintenance and repairs that were not performed when they should have been.[15] The cumulative costs associated with DM&R are often called the deferred maintenance and repair backlog (DM&R backlog).

State identifies its DM&R backlog through a combination of annual condition assessments of its assets and parametric modelling that examines whether the age of a building system—such as a roof, elevator,

Condition Index Calculations

Calculating an asset condition index rating is a federally recognized method to assess and compare the relative condition of a group of assets.

State derives its condition index ratings from "repair needs" and "replacement value" data that State reports annually to the Federal Real Property Profile Management System (FRPP), a database of U.S. real property.

- Repair needs is defined by the FRPP as the nonrecurring costs to ensure that a constructed asset (building or structure) is restored to a condition substantially equivalent to the originally intended and designed capacity, efficiency, or capability.
- Replacement value is defined by the FRPP as the cost to design and construct, or acquire, an asset to replace an existing asset of the same functionality and size, and in the same location using current costs, building codes, and standards.
- The condition index formula is: condition index = 1 - ($ Repair Needs/$ Replacement Value) X 100 percent.

State defines condition index ratings as follows:

- 90 to 100 percent = good condition;
- 70 to 89 percent = fair condition; and
- 69 percent or less = poor condition.

Source: GAO analysis. | GAO-21-497

[15]Federal Accounting Standards Advisory Board, *Statement of Federal Financial Accounting Standards 42: Deferred Maintenance and Repairs: Amending Statements of Federal Financial Accounting Standards 6,14, 29 and 32*.

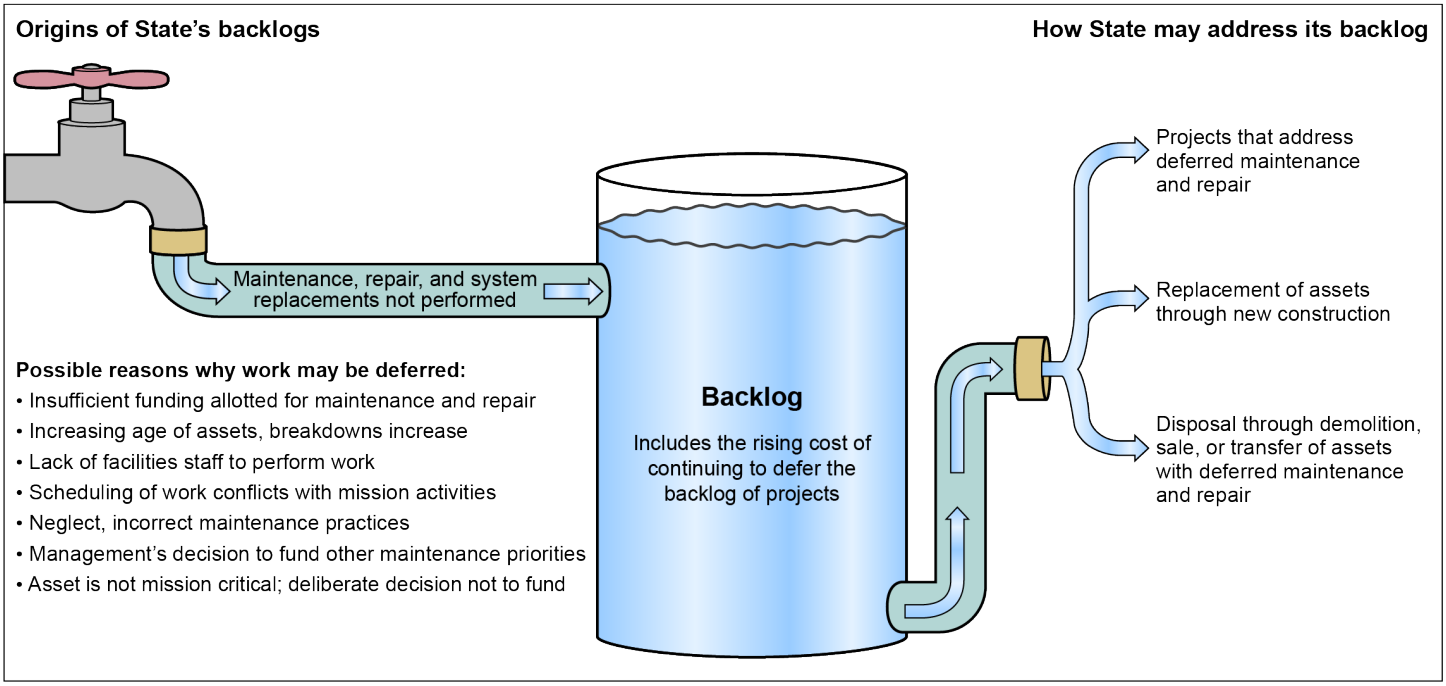
or window—is beyond the expected useful life of that system.[16] State assigns each overseas diplomatic asset a "condition index" that is derived from asset repair needs and replacement value data that State annually reports to the Federal Real Property Profile Management System (FRPP), a database of all U.S. government real property.[17] See the sidebar for more information.

DM&R backlogs can be caused by a number of factors, including insufficient funding allotted for maintenance and repair and the increasing age of assets. According to State, some ways to address backlogs include performing deferred maintenance and repairs and replacing assets through new construction. Figure 1 shows possible reasons why State may defer maintenance work and steps State may take to address the backlog.

[16]State constructs new embassy office buildings and support facilities with an expected useful life of 50 years, although many building systems, such as roofs and heating, ventilation, and air-conditioning systems often require lifecycle replacement earlier, such as in 20 years. In general, Statements of Federal Financial Accounting Standards (SFFAS) guidance on deferred maintenance and repairs allows agencies to use parametric models, condition assessments, or a combination of the two as means to estimate their deferred maintenance backlog. See Federal Accounting Standards Advisory Board, *Statement of Federal Financial Accounting Standards 42: Deferred Maintenance and Repairs: Amending Statements of Federal Financial Accounting Standards 6,14, 29 and 32.*

[17]The U.S. General Services Administration (GSA) manages the database on behalf of the Office of Management and Budget (OMB) and in coordination with agencies comprising the Federal Real Property Council. Exec. Order No. 13327, 69 Fed. Reg. 5897 (Feb. 6, 2004). For the fiscal year reporting guidance, see GSA, *Federal Real Property Council 2019 Guidance for Real Property Inventory Reporting, Version 3* (Sept. 24, 2019).

Figure 1: Components of Agency Deferred Maintenance and Repair Backlogs



Source: GAO analysis of Department of State data. | GAO-21-497

Text of Figure 1: Components of Agency Deferred Maintenance and Repair Backlogs

Origins of State's backlogs:

- Maintenance, repair and system replacements not performed
  - Possible Reasons why work may be deferred:
  - Insufficient funding allotted for maintenance and repair
  - Increasing age of assets, breakdowns increase
  - Lack of facilities staff to perform work
  - Scheduling of work conflicts with mission activities
  - Neglect, incorrect maintenance practices
  - Management's decision to fund other maintenance priorities
  - Asset is not mission critical; deliberate decision not to fund
- Backlog includes the rising cost of continuing to defer the backlog of projects

How State May Address the Backlog:

- Projects that address deferred maintenance and repair
- Replacement of assets through new construction.
- Disposal through demolition, sale, or transfer of assets with deferred maintenance and repair

Source: GAO analysis of Department of State data. | GAO-21-497

While State's Portfolio of Overseas Assets and Expenditures to Operate Them Have Grown, Funding for Maintenance Has Not Kept Pace

State Increased Its Owned and Leased Portfolio of Overseas Assets from Fiscal Years 2015 through 2019

State increased the size of its portfolio of overseas assets both in terms of the total number of buildings and structures and square footage.

- Based on available data for fiscal years 2015 and 2019, State's total number of State-owned and capital-leased assets increased from 7,898 to 8,762 (an 11 percent increase).[18] The total number of State's operating leased assets also increased from fiscal year 2015 through fiscal year 2019 from 15,841 to 16,423 (a 4 percent increase).
- Over these same years, the total square footage of State's owned and leased assets increased 11 percent, from 91 million to 101 million square feet.[19] This change was driven by a nearly 21 percent increase in the square footage of owned properties, primarily because OBO has constructed new embassies that are generally much larger than the previous embassies and has shifted to purchasing and constructing staff housing, rather than leasing it. OBO officials explained that State is buying more staff housing–and therefore is now responsible for its maintenance–to address condition, security,

[18]Due to 2020 end-of-year federal real property data compilation processes and lagging reporting timelines, we used fiscal year 2019 real property data for this report.

[19]Square footage reported includes both gross square footage for State-owned assets and useable square footage for capital-leased assets.

and code issues that existed within the older leased properties.[20]

For example, figure 2 shows the former 91,000 square foot U.S. embassy compound in Pristina, Kosovo (top), which was replaced by a newly-constructed, much larger 125,000 square foot embassy compound (bottom).

[20]According to OBO, the goals of its asset management account is to increase the overall proportion of State-owned property (relative to leased property) in its overseas property portfolio; improve the quality of the housing portfolio; and reduce leasing expenses. In addition, one of OBO's strategic priorities—the diplomatic residential initiative—is to effectively manage the full diplomatic portfolio with a focus on repositioning underused assets and acquiring appropriate diplomatic housing to increase the quality of life of diplomats and their families.

Figure 2: Former U.S. Embassy in Pristina, Kosovo (Top Photos) and the New U.S. Embassy Compound (Bottom Photo)

Source: (top) GAO; (bottom) Department of State, photograph by Nic Lehoux. | GAO-21-497

Note: The former embassy site was comprised of a series of houses converted for office use. The new embassy includes the chancery office building, a U.S. marine security guard quarters, warehouse, and a recreational facility with a swimming pool and tennis/basketball courts.

In addition, figure 3 shows the U.S. staff-housing complex leased by State in 2017 and purchased in 2020 that is comprised of over 70 residences (roughly 150,000 square feet) in Santo Domingo, Dominican Republic.[21] Figure 3 also shows an architect's rendering of the U.S. staff apartment buildings–which will house approximately 150 staff (in roughly 493,000 square feet)–that State is currently constructing on the new embassy compound in Beirut, Lebanon.[22]

Figure 3: State-Owned Staff Housing Complex, Purchased by State in 2020 in Santo Domingo, Dominican Republic (left) and State-Owned Staff Apartment Buildings (Architect's Rendering), Being Built by State in Beirut, Lebanon (right)

Sources: (left) Department of State; (right) Department of State, rendering by Morphosis. | GAO-21-497

The growth in the number and square footage of State's owned and leased assets affects both operations and maintenance costs. As we have previously reported, the larger size and greater complexity of embassies constructed since 2001, compared to facilities they replaced, have resulted in increased operations and maintenance costs.[23] For example, in our report State officials noted that while building systems in newer facilities are more energy efficient compared to systems in buildings that were replaced, the newer facilities are larger, so they consume a greater amount of energy. In addition, we reported that the

[21]A developer built the housing compound in Santo Domingo under a build-to-lease agreement with State. Upon completion, State initially leased the units in May 2017. In 2020, State purchased the compound for $51 million.

[22]The construction of the new U.S. embassy compound in Beirut, Lebanon, began in 2017. State estimates the project will be complete in 2023.

[23]GAO, *New Embassy Compounds: State Faces Challenges in Sizing Facilities and Providing for Operations and Maintenance Requirements*, GAO-10-689 (Washington, D.C.: July 20, 2010).

costs for maintenance staff increased because of the need to hire additional facilities staff to operate and maintain the new facilities.

Building Operating Expenditures for Overseas Assets Increased 24 Percent from Fiscal Years 2016 through 2020

From fiscal years 2016 through 2020, building operating expenditures for State and other agencies that work at overseas assets increased by 24 percent, from $530 million to $656 million annually, as shown in table 2.

Table 2: Department of State Building Operating Expenses, in Millions, for Fiscal Years 2016 through 2020, for State-Owned or Capital-Leased Assets and Operating-Leased Assets

Building operating expenses	FY16	FY17	FY18	FY19	FY20	Total Costs
State-owned and capital leases (long-term leases)	381	392	426	441	513	**2,153**
Operating leases (short-term leases)	149	144	132	135	143	**702**
Total	**530**	**536**	**557**	**576**	**656**	**2,855**

Source: GAO analysis of Department of State data. | GAO-21-497

Note: Totals may not sum due to rounding.

Building operating expenses include the wages and benefits of the locally-employed building operations staff (e.g., carpenters, building engineers, electricians, painters, plumbers, gardeners, custodians, etc.), which totaled $1.3 billion (47 percent) of total expenses of $2.8 billion from fiscal years 2016 through 2020. The remainder, $1.5 billion, was spent on expenses such as utilities and grounds keeping.

Maintenance Funding Remained Nearly the Same from Fiscal Years 2016 through 2020

State's allocated funding for maintenance and repairs for overseas assets has remained about the same in recent years, averaging $505 million

from fiscal years 2016 through 2020.[24] See table 3 for an overview of funding State allocated to MCS and State-only programs for fiscal years 2016 through 2020.

Table 3: Department of State Allocations for Maintenance, in Millions, for Fiscal Years 2016 through 2020

		FY16	FY17	FY18	FY19	FY20	Total
Maintenance Cost Sharing (MCS) for multiagency use and funded facilities	Routine maintenance and repair	110	150	150	150	241	**801**
	Major rehab	289	250	250	271	159	**1,219**
	MCS subtotal	399	400	400	421	400	**2,020**
State-only maintenance for State-only occupied and funded facilities	Minor construction and improvement	93	91	90	100	100	**474**
	Major rehab	20	2	10	0	0	**32**
	State-only subtotal	113	93	100	100	100	**506**
Both	**MCS and State-only total**	**512**	**493**	**500**	**521**	**500**	**2,526**

Source: GAO analysis of Department of State data. | GAO-21-497

MCS funding. For fiscal years 2016 through 2020, State's MCS allocations averaged just over $400 million per year. Our review found that, for fiscal years 2016 through 2019, funding allocated by OBO for MCS routine maintenance and repair averaged $160 million per year. In fiscal year 2020, OBO increased the allocation of funding for MCS routine maintenance and repair by nearly 61 percent, from $150 million in fiscal year 2019 to $241 million.

See figure 4 for an example of a repair project that typically is funded under the MCS routine maintenance and repair program—water pipe repairs.

[24]These funds are provided through annual appropriations for the Embassy Security, Construction, and Maintenance (ESCM) appropriation account. Funds for State's contribution to MCS—routine maintenance and repair and major rehabs of shared facilities—are provided through an ESCM subaccount for worldwide security upgrades as "no-year" appropriations, and therefore they remain available for obligation until expended. Conversely, ESCM appropriations for State-only purposes, such as minor construction and improvement and State-only major rehabs, generally have a 5-year period of availability for obligation.

Figure 4: Pipe Repair at the U.S. Embassy in Nairobi, Kenya

Source: Department of State. | GAO-21-497

According to State officials, OBO allocated more funding toward routine maintenance and repair starting in fiscal year 2020, in part, to address its deferred maintenance and repair backlog. In December 2019, OBO estimated that in order to adequately fund routine maintenance and repair and curtail further growth of this backlog, MCS routine maintenance and repair should be funded at $191 million annually, to include $76 million for life-cycle restoration of aging building systems.

OBO officials reported that allocating more MCS funding toward routine maintenance and repair in fiscal year 2020 resulted in a reduction in the funding for major rehabs. Allocations for MCS major rehab projects decreased 41 percent, from $271 million in fiscal year 2019 to $159 million in fiscal year 2020. While the decision to allocate more available MCS funding to maintenance and repair results in less funding for major rehab projects, OBO officials told us that major rehab projects are partially due to an accumulation of deferred maintenance and repair.[25]

OBO officials told us that in previous conversations with congressional appropriations committee staff, OBO has discussed that at some point in the future the balance of funding between embassy construction and MCS programs will need to shift more towards MCS. However, those

[25]OBO officials expect that increasing MCS allocations for maintenance and repair will help reduce the backlog, better maintain existing buildings, and reduce State's future major rehab needs.

officials indicated that with many new embassies still planned for construction, State has not yet sought to realign funding away from embassy construction and into MCS.

See figure 5 for a photo of the 1960's chancery office building at the U.S. Embassy in Athens, Greece, that is undergoing a $343 million major rehab under the MCS program.

Figure 5: U.S. Embassy Athens, Greece - Example of a $343 Million, Maintenance Cost Sharing-Major Rehabilitation Project, Began in 2018 and Planned for Completion in 2023

Source: Department of State. | GAO-21-497

State-only maintenance. State-only maintenance funding is a much smaller component of maintenance funding compared to MCS; it accounted for about 20 percent of all maintenance funding for fiscal years 2016 through 2020. State's minor construction and improvement allocations increased slightly from $93 million in fiscal year 2016 to $100 million in fiscal year 2020. According to OBO officials, the demand for minor construction and improvement projects has increased during this period, due to the need for building system replacements and necessary repairs to ambassadors' residences. Conversely, allocations for State-only major rehabs decreased from fiscal years 2016 through 2018, and

State did not include funding for the program in its budget requests for fiscal years 2019 and 2020.[26]

State Treated All Buildings Equally, Regardless of Mission Importance, When Estimating That over $3 Billion Is Required to Bring All Its Assets into an Acceptable Condition

More Than One-Quarter of State-Owned Assets Are in Poor Condition

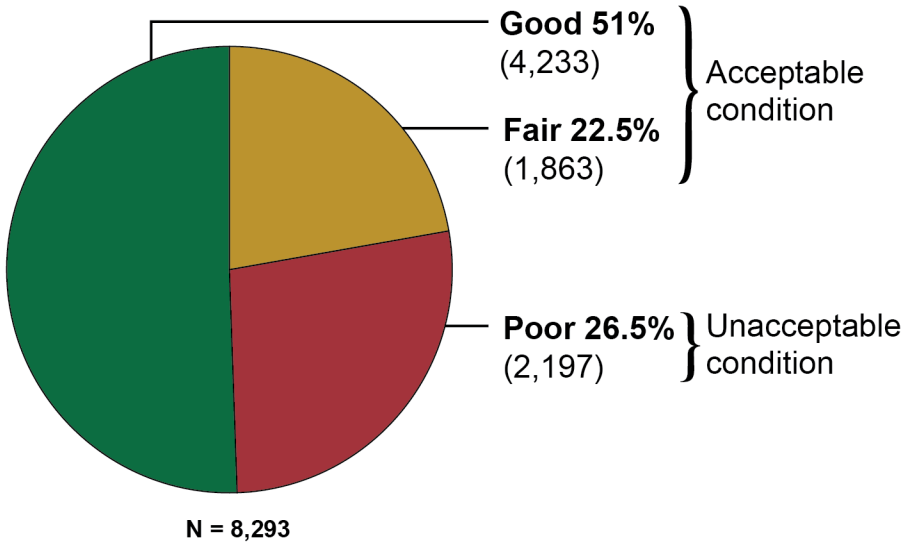
Our analysis of State data shows that 2,197 (or 26.5 percent) out of 8,293 State-owned buildings and structures are in poor condition.[27] State officials we spoke with said that in 2019, OBO's Director established a condition index score of 70 percent (fair) as State's "acceptable condition" target for all State-owned overseas assets.[28] See figure 6 for an overview of the condition of State-owned overseas assets.

[26]OBO officials told us that over the past 5 years, State requested less than OBO identified as necessary to fund State-only major rehab projects. For example, in fiscal years 2016 through 2018, they said that OBO identified a need for $35 million for State-only major rehabs, but after internal State and OMB negotiations, the final amounts put forth in State's budget requests were generally lower than OBO's recommendations.

[27]In fiscal year 2019, State maintained 8,482 State-owned and 280 capital-leased assets for a total of 8,762 assets. The 8,293 figure above excludes 189 owned assets that did not have condition data, as State had designated those assets for disposal, and 280 capital-leased assets whose condition State is not required to report.

[28]Federal accounting standards guidance governing agencies' deferred maintenance backlog estimates allows agency officials to establish what the agency deems is acceptable condition for its mission and portfolio. Federal Accounting Standards Advisory Board, *Statement of Federal Financial Accounting Standards 42: Deferred Maintenance and Repairs: Amending Statements of Federal Financial Accounting Standards 6,14, 29 and 32*. State defines index ratings of 0 to 69 percent as "poor" condition, 70 to 89 percent as "fair" condition, and 90 to 100 percent as "good" condition.

Figure 6: Condition of State-Owned Overseas Assets, as Maintained by State



Source: GAO analysis of Department of State fiscal year 2019 data. | GAO-21-497

Data table for Figure 6: Condition of State-Owned Overseas Assets, as Maintained by State

Condition	Number	Percentage
Good	4,233	51%
Fair	1,863	22.5%
Poor	2,197	26.5%
N = 8,293		

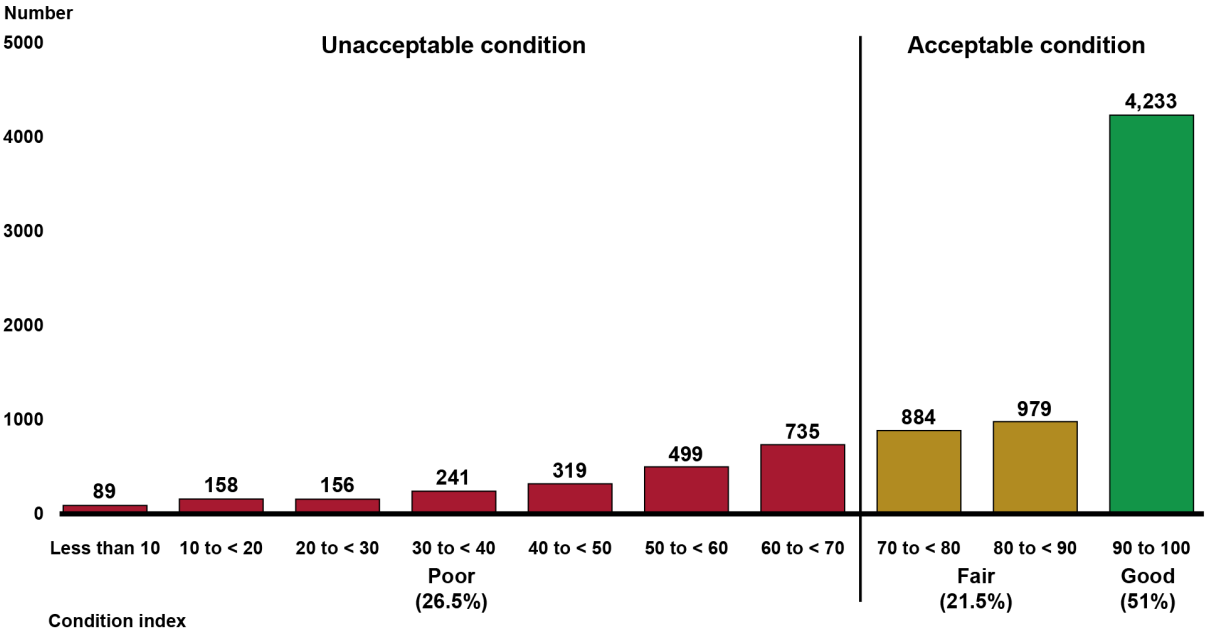
Notes: In fiscal year 2019, State maintained 8,482 State-owned and 280 capital-leased assets for a total of 8,762 assets. The 8,293 figure above (inclusive of buildings and structures) excludes 189 owned assets that did not have condition data, as State had designated those assets for disposal, and 280 capital-leased assets whose condition State is not required to report.

State characterizes asset condition as good, fair, or poor based on an asset's estimated repair needs in relation to the asset's replacement value and as gauged by State's established standard for what is acceptable condition (i.e., fair).

Source: GAO analysis of Dept. of State fiscal year 2019 data. | GAO-21-497

While more than a quarter of State-owned buildings and structures are in poor condition, most of those are in the 50 to 69 percent condition index range, while a smaller number fall below a condition index of 50 percent. See figure 7 for the distribution of condition index ratings for State-owned assets maintained by State, both those above and below State's acceptable condition index standard of 70 percent.

Figure 7: Distribution of Condition Index Ratings for State-Owned Overseas Assets



Source: GAO analysis of Department of State fiscal year 2019 data. | GAO-21-497

Data table for Figure 7: Distribution of Condition Index Ratings for State-Owned Overseas Assets

Condition Index	Number of Assets	Condition
Less than 10	89	Poor
10 to < 20	158	Poor
20 to < 30	156	Poor
30 to < 40	241	Poor
40 to < 50	319	Poor
50 to < 60	499	Poor
60 to < 70	735	Poor
70 to < 80	884	Fair
80 to < 90	979	Fair
90 to 100	4233	Good

0 to 70 = Poor, 26.5%

70 to 90 = Fair, 21.5%

90 to 100 = Good, 51%

Note: State defines condition index ratings of 0 to 69 percent as "poor" condition, 70 to 89 percent as "fair" condition, and 90 to 100 percent as "good" condition. State has set a 70 percent condition index (as denoted by the vertical line above) as its "acceptable condition standard" for all property use categories (e.g., chancery office buildings, ambassadorial residences, staff housing, warehouses, recreational facilities, utility structures).

Source: GAO analysis of Dept. of State fiscal year 2019 data. | GAO-21-497

Our analysis of State's fiscal year 2019 data found different conditions based on the property type, including:

- **chancery office buildings** are generally in fair condition (average condition index of 77);
- **staff housing** is generally in better condition than chancery office buildings, but also in fair condition (average condition index of 80); and
- **ambassadorial residences** tend to be in the worst condition, with an average condition index of 69, indicating poor condition. That property use category also had the greatest percentage of assets (57 percent) over 50 years old.

We also found that some individual property use categories had higher percentages of assets in poor condition. See table 4 for a summary of the average condition index for each property use category and number and percent in poor condition.

Table 4: Condition of State-Owned Overseas Assets by Property Use, for Fiscal Year 2019

Property use category	Average condition index	Percent of assets in poor condition	Number of assets in poor condition	Total number of assets
Ambassadorial residences	69%	53%	111	**208**
Annex office buildings	76%	28%	74	**267**
Chancery office buildings	77%	33%	72	**216**
Staff housing	80%	31%	549	**1,774**
U.S. Marine security guard quarters	87%	16%	22	**136**
All other buildings	85%	18%	497	**2,742**
Structures	76%	30%	872	**2,950**
Total	**80%**	**26%**	**2,197**	**8,293**

Source: GAO analysis of Department of State data. | GAO-21-497

Notes:

In fiscal year 2019, State maintained 8,482 State-owned and 280 capital-leased assets for a total of 8,762 assets. The 8,293 figure above excludes 189 owned assets that did not have condition data, as State had designated those assets for disposal, and 280 capital-leased assets whose condition State is not required to report.

"All other buildings" include assets like warehouses, schools, and post offices. "Structures" include assets like perimeter security walls; utility structures; and recreational amenities, such as tennis courts and swimming pools.

State defines condition index ratings of 0 to 69 percent as "poor" condition, 70 to 89 percent as "fair" condition, and 90 to 100 percent as "good" condition.

In General, U.S. Diplomatic Facilities are in Fair Condition, Due in Part to New Embassies

State reported that the average condition index for its worldwide real property portfolio is 80 percent (fair = 70 to 89 percent). However, it noted that the large number of new facilities built over the past 20 years greatly influences this result, as condition index is a ratio of repair needs to replacement value. Newer assets have lower repair needs but account for a larger percentage of the overall portfolio replacement value.

- For example, the new U.S. Embassy in The Hague, completed in 2018, has a condition index rating of 99.6 percent (good = 90 to 100 percent) based on having only $505,300 in repair needs but whose replacement value is $126.4 million. See photo below.

- By comparison, the former U.S. embassy (built in 1959) in The Hague had a condition index rating in 2017 of 49.1 percent (poor = less than 70 percent) based on an estimated $35.4M repairs needs and an estimated replacement value of $69.6M. State improved the condition of its portfolio by constructing a new embassy and retiring the $35.4M in repair needs on the old embassy, after its sale. See photo below.

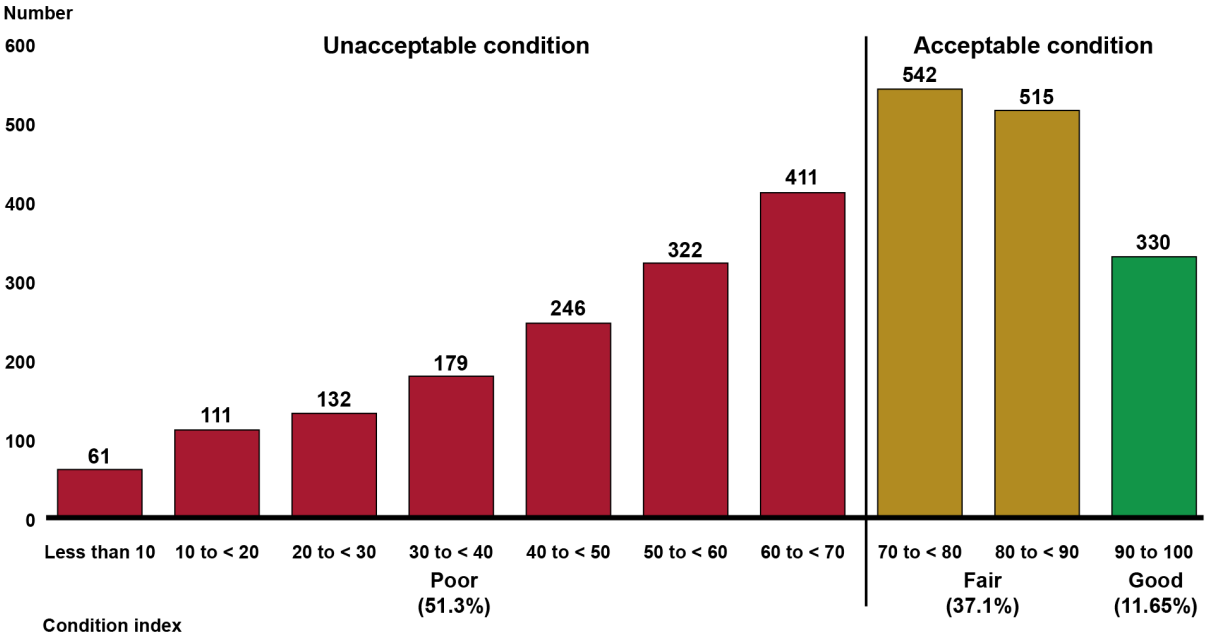
In 2018, we reported that from 1999 through September 2017, State had constructed 77 new embassies and had over 20 more embassies under construction.

Source: GAO analysis; (top photo) Department of State, photograph by Werner Huthmacher; (bottom photo) GAO. | GAO-21-497

The age of many of State's older, legacy assets significantly affects their condition and newer embassies beneficially affect State's average asset condition. In 2020, OBO reported that the large number of new facilities it has constructed over the past 20 years greatly influences the average condition score of the portfolio and that the proportion of assets in poor

condition increases for those that are older (see sidebar).[29] In a statistical analysis we found that age is the factor most closely associated with an asset having condition index greater than or equal to 70 percent. See appendix II for a more detailed analysis of the relationships of condition, age, and other factors. Figure 8 below demonstrates the strong relationship between condition and age whereby after we exclude State-owned assets constructed over the past 20 years, 51 percent of assets are in poor condition, 37 percent of assets are in fair condition, and 12 percent of assets are in good condition.

Figure 8: Distribution of Condition Index Ratings for State-Owned Assets, More than 20 Years Old



Source: GAO analysis of Department of State fiscal year 2019 data. | GAO-21-497

[29]In 2018, we reported that from 1999 to September 2017, State had constructed 77 new embassies and had over 20 more embassies under construction. OBO generally constructs new embassies with the expectation they will have a useful lifecycle of 50 years. GAO, *Embassy Construction: Pace Is Slower Than Projected, and State Could Make Program Improvements*. GAO-18-653 (Washington, D.C.: Sept. 25, 2018).

Data table for Figure 8: Distribution of Condition Index Ratings for State-Owned Assets, More than 20 Years Old

Condition Index	Number of Assets	Condition
Less than 10	61	Poor
10 to < 20	111	Poor
20 to < 30	132	Poor
30 to < 40	179	Poor
40 to < 50	246	Poor
50 to < 60	322	Poor
60 to < 70	411	Poor
70 to < 80	542	Fair
80 to < 90	515	Fair
90 to 100	330	Good

0 to 70 = Poor, 51.3%

70 to 90 = Fair, 37.1%

90 to 100 = Good, 11.65%

Note: Figures above include only State-owned assets greater than 20 years old.

State defines condition index ratings of 0 to 69 percent as “poor” condition, 70 to 89 percent as “fair” condition, and 90 to 100 percent as “good” condition. State has set a 70 percent condition index (as denoted by the vertical line above) as its “acceptable condition standard” for all property use categories (e.g., chancery office buildings, ambassadorial residences, staff housing, warehouses, recreational facilities, utility structures).

Source: GAO analysis of Dept. of State fiscal year 2019 data. | GAO-21-497

Twenty Percent, or Almost 400, of Those Assets State Data Identified as Mission Critical Are in Poor Condition

Hundreds of mission critical real property assets, such as chanceries, are in poor condition. Specifically, our analysis of State data shows that 395 out of 1,941 (or 20 percent) mission critical assets are in poor condition. For example, the chancery office building in Manila, the Philippines, which provides offices for nearly 200 staff—categorized by State as mission critical—is in poor condition. Additionally, 441 out of 1,517 (or 29 percent)

mission dependent assets are in poor condition.[30] For example, the U.S. ambassador's residence in Nairobi, Kenya—categorized by State as mission dependent—is in poor condition. In general, mission critical assets are in somewhat better condition than mission dependent and non-mission dependent assets. Condition index ratings for all of those categories were in the fair range at 82 percent, 80 percent, and 79 percent, respectively. See table 5 for the number of assets in poor condition and the average condition index, by mission criticality.

Table 5: Number and Condition of State-Owned Assets by Mission Criticality, for Fiscal Year 2019

Mission categorization, of State's real property assets	Average condition index	Percent of assets in poor condition	Number of assets in poor condition	Total number of assets
Mission Critical	82%	20%	395	1,941
Mission Dependent, Not Critical	80%	29%	441	1,517
Non–Mission Dependent	79%	28%	1,347	4,795
Total	**80%**	**26%**	**2,183**	**8,253**

Source: GAO analysis of Department of State fiscal year 2019 data. | GAO-21-497

Notes: Mission criticality is the value an asset (a building or structure) brings to the performance of an agency's mission as determined by one of the following three categories:

Mission Critical – without the asset, the mission is compromised;

Mission Dependent, Not Critical – does not fit into mission critical or non-mission dependent categories; or

Non-Mission Dependent – without the asset, the mission is unaffected.

In fiscal year 2019, State maintained 8,482 State-owned and 280 capital-leased assets for a total of 8,762 assets. The 8,253 figure above excludes 189 owned assets that did not have condition data, as State had designated those assets for disposal, and 280 capital-leased assets whose condition State is not required to report. Additionally, the 8,253 figure excludes 40 owned assets that did not have mission criticality data; all 40 of those assets were "dry storage facilities."

State defines condition index ratings of 0 to 69 percent as "poor" condition, 70 to 89 as "fair" condition, and 90 to 100 percent as "good" condition.

Condition of "Mission Critical" Chancery Office Buildings

Older chancery office buildings tend to be in poor condition and are a challenge to maintain. As shown earlier in table 4, we found that 72 of 216 (or 33 percent) chancery buildings—that OBO identifies as mission

[30]We also found 1,347 out of 4,795 (or 28 percent) non-mission dependent assets are in poor condition. In fiscal year 2019, State maintained 8,482 State-owned and 280 capital-leased assets for a total of 8,762 assets. The figures above excludes 189 owned assets that State had designated for disposal and 280 capital-leased assets whose condition State is not required to report. Additionally, the figures exclude 40 State-owned assets that did not have mission criticality data; all 40 of those assets are "dry storage facilities."

condition due to a large amount of deferred maintenance that has built up over time. In particular, one embassy official said the chancery has critical deferred building system needs in the areas of roofing; heating, ventilation, and air-conditioning; plumbing; and electrical systems. Officials also reported that the basement and ground floor have been subject to some flooding during heavy rainfalls and remain at risk to flooding due to the building's seafront location and the now outdated construction standards in place when the building was constructed. The historic Manila Chancery was scheduled for a major rehab in 2017, but State suspended the project in 2018. See sidebar for more information on status and plans for the Manila major rehab project. See figure 9 for photos of the U.S. chancery in Manila.

Major Rehabilitation of the Chancery Office Building in Manila, Philippines, Is Suspended

State awarded a $137 million contract for the major rehabilitation of the Manila chancery, and limited work began in 2017. However State terminated the contract in 2018 because of concerns about the contractor's progress.

Embassy Manilla officials reported the project's termination exacerbated the deferred maintenance issues that State had planned to address as part of the major rehab project.

State officials said they are revisiting the near-, mid-, and long-term solutions for the Manila 17-acre chancery compound, and the "Seafront," a 24-acre office annex and support compound, to include the possibility of constructing a new embassy on a new site.

State's 2020 planning study of the options shows that regardless whether or not State decides to build a new embassy, some of the chancery's deferred maintenance conditions must be addressed in the interim.

State's preliminary estimates show that interim repairs and improvements to the chancery compound alone could range from $53 million to $234 million, and take between 2.5 to 6 years, depending on the extent of the interim project scope. State's preliminary cost estimates for building a new embassy or consolidating the embassy and Seafront compounds on one of the existing sites exceed $1 billion.

Source: GAO | GAO-21-497

Figure 9: U.S. Embassy Manila, Philippines – Chancery Office Building: Top Left (in 1940); Top Right (in 2019); and Bottom - Chancery Courtyard Showing Maintenance Issues, Including Mold and Water Damage

Source: (clockwise from top left) Philippines Magazine, Volume I Number 1 - December 1940; Department of State; Department of State, photograph by Ann Beha Architects. | GAO-21-497

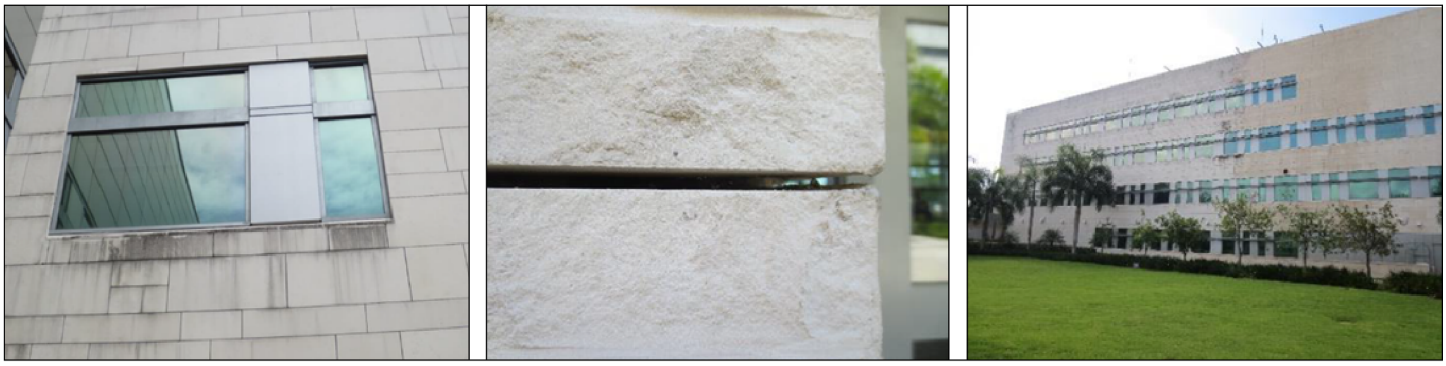
Notes: Originally built as the U.S. High Commissioner's office and residence in 1940, the building was occupied by Japanese during World War II upon the capture of Manila in 1942. The building became the chancery of the U.S. embassy in the Philippines in 1946. In 2006, State listed the chancery on the *Secretary of State's Register of Culturally Significant Property*. The site retains the flagpole where General Douglas MacArthur raised the American flag following Japan's defeat, and the building once housed General MacArthur's office.

While older chancery office buildings can pose maintenance challenges, State's sustained construction of new embassies over the past 2 decades is addressing, in part, the condition needs of some older chanceries through asset replacement. However, while newer embassies built within the last 20 years are generally in fair or good condition, OBO officials said

such newer chancery office buildings also require some deferred maintenance repairs and systems replacements. For example, for 20 embassies built between 2000 through 2006, OBO cost estimates show there is $360 million of deferred maintenance and system replacements including roof replacements and heating, ventilation, and air-conditioning system replacements.

State is taking steps to identify some deferred maintenance requirements associated with some newer embassies. For example, State's 2019 condition survey of the U.S. embassy in Santo Domingo, Dominican Republic, (completed in 2014) identified, for example, the need to caulk various exterior stone joints as a deferred maintenance item that contributed to the staining of the building's stone exterior. See figure 10 for photos of the maintenance issues at the U.S. embassy in Santo Domingo.

Figure 10: U.S. Chancery in Santo Domingo, Dominican Republic – Photos of Needed Maintenance, Repairs, and Washing, in Part Due to Lack of Caulking between Stone Joints That Contributed to Facade Staining



Source: Department of State; photographs by Davis Brody Bond and Mason & Hanger. | GAO-21-497

Condition of "Mission Dependent" Ambassadorial Residences

State also faces challenges with adequately maintaining and repairing many of its ambassadorial residences. As shown earlier in table 4, we found 111 of 208 (or 53 percent) State-owned ambassadorial residences are in poor condition.

In discussing the condition of ambassadorial residences with State, OBO officials said they have taken steps to evaluate and rank State's ambassadorial residences that are in need of major rehabs. OBO officials told us that State has preliminarily identified the need to rehabilitate or replace ambassadors' residences in Beijing, China; Kathmandu, Nepal;

Nairobi, Kenya; Ottawa, Canada; Paris, France; Sarajevo, Bosnia and Herzegovina; and Tegucigalpa, Honduras. However, OBO officials said there is no formal schedule for rehabilitating ambassadorial residences because there is no predictable annual funding for rehabilitating State-only occupied assets. Therefore, OBO requests for such projects compete within the annual budgeting formulation process, both in relation to other State bureaus' budget needs and externally to State, in relation to discussions with OMB about State's and other agencies' budget needs.

In the case of the U.S. ambassador's residence in Nairobi, for example, OBO has been examining how best to address the deferred maintenance needs for the residence that was built in 1935, and that has not been occupied since 2019. Officials in Nairobi we spoke with stated that the residence either needs a major rehab or should be replaced, but embassy officials are awaiting direction from OBO on the long-term future of the residence, including whether to proceed with post's planned renovation of the kitchen or wait for OBO to rehabilitate or replace the residence.[31] See figure 11 for photos of the U.S. ambassador's residence in Nairobi.

Figure 11: U.S. Ambassadorial Residence - Nairobi, Kenya. Built in 1935. Left - Covered Entryway That Needs to Be Rebuilt. Right – the Kitchen Area Now Demolished and Used to Store Furniture Until State Determines Whether to Rehab the Residence or Replace It Entirely

Source: Department of State. | GAO-21-497

[31]OBO officials said that $23 million for major rehab of the ambassador's residence in Nairobi is included in the President's fiscal year 2022 budget request.

Condition of “Non-Mission Dependent” Staff Housing

The condition of State–owned staff housing, while generally maintained in fair condition overall, also poses maintenance and repair challenges to State.[32] As shown in table 4, we found 549 out of 1,774 (or 31 percent) staff housing assets are in poor condition.

State is taking steps to address some deferred maintenance and rehabilitation requirements associated with some older staff residences. For example, State officials in Rome said the embassy maintains four older, multiunit staff apartment buildings. While the building systems are old and some apartment units are outdated, Embassy Rome has been rehabilitating some of the kitchens and bathrooms in a few units every year, as shown in figure 12.

Figure 12: U.S. Embassy Rome - Before and After Kitchen Renovations in a Staff Housing Apartment

Source: Department of State. | GAO-21-497

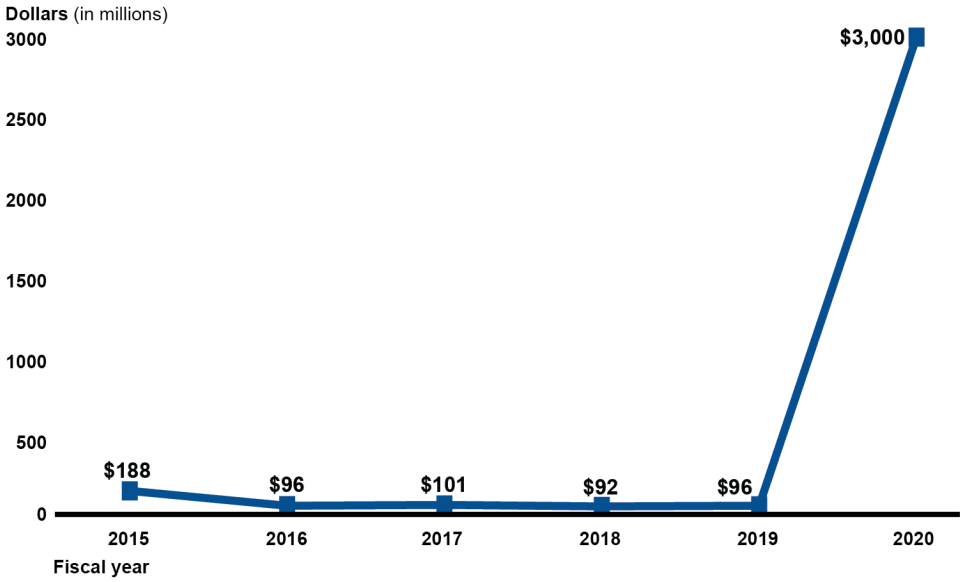
[32]State housing assets include single-family residences, condominium-type complexes, and apartment buildings.

State Treated All Buildings Equally, Regardless of Mission Importance, When Estimating $3 Billion in Deferred Maintenance Requirements

State's New Methodology for Estimating Deferred Maintenance Backlogs Significantly Increased Its 2020 Estimate

State's fiscal year 2020 annual financial report showed a significant increase in its DM&R backlog, as compared to State's prior year financial report.[33] Specifically, as shown in figure 13, State's reported DM&R backlog went from $96 million in fiscal year 2019 to $3 billion in fiscal year 2020.

Figure 13: State's Reported Deferred Maintenance and Repair Backlogs, in Millions, for Fiscal Years 2015 to 2020



Source: Department of State data. | GAO-21-497

[33]U.S. Department of State, *Fiscal Year 2019 Agency Financial Report*, Jan. 17, 2020 and *Fiscal Year 2020 Agency Financial Report*, Nov. 16, 2020.

Data table for Figure 13: State's Reported Deferred Maintenance and Repair Backlogs, in Millions, for Fiscal Years 2015 to 2020

Fiscal year	Reported Deferred Maintenance and Repair Backlog (dollars in millions)
2015	$188
2016	$96
2017	$101
2018	$92
2019	$96
2020	$3000

Note: In fiscal year 2020, State developed a new methodology for estimating State's deferred maintenance and repair backlog that supplements data collected through annual asset condition assessments with parametric models that estimates the extent building systems have deteriorated over time and their estimated costs for replacement.

Source Department of State data. | GAO-21-498

U.S. Federal Government Deferred Maintenance and Repair Reporting

Agencies report unaudited deferred maintenance and repairs (DM&R) estimates as supplementary information accompanying their required financial statements in their annual financial reports. 31 U.S.C. § 3515.

According to the Federal Accounting Standards Advisory Board, DM&R reporting enables the government to be accountable to citizens for the proper administration and stewardship of its assets. It further states that DM&R reporting assists users by providing an entity's realistic estimate of DM&R amounts and the effectiveness of asset maintenance practices the entity employs in fulfilling its mission.

In the U.S. *Fiscal Year 2020 Financial Report*, the U.S. Department of the Treasury reported that the consolidated federal DM&R estimate was $208 billion. Treasury reported that the consequences of not performing regular maintenance and repairs could include increased safety hazards, poor service to the public, higher costs in the future, and inefficient operations.

The consolidated $208 billion DM&R estimate includes departments and agencies such as the Departments of State, Defense, Interior, Energy, and Veterans Affairs, and the General Services Administration (GSA). Defense accounts for $131 billion of the consolidated DM&R estimate.

For fiscal year 2020, State reported a DM&R estimate of $3 billion and a portfolio of more than 8,500 State-owned or long-term leased real property that State assessed as being in fair condition, on average.

GSA—which generally manages the domestic real property portfolio for many U.S. agencies—reported a fiscal year 2020 DM&R estimate of $2.5 billion and 70 percent of its portfolio in good condition. GSA owns or leases more than 8,800 assets.

Source: GAO analysis | GAO-21-497

For the 2020 estimate, OBO developed a new methodology for estimating State's DM&R backlog that supplements data collected through annual asset condition assessments with parametric modelling.[34] State's Fiscal Year 2020 Agency Financial Report indicates that OBO's earlier methodology relied on facility managers providing complete condition survey data about asset repair needs through a manual data call process, but because State's facility managers at posts did not provide complete

[34]In general, State's parametric models estimate the extent building systems have deteriorated over time and the estimated costs for replacement, if needed, based on the ages and expected useful life of individual systems.

data on the condition of all their assets, prior fiscal years reporting estimates were significantly lower.[35]

State reported that its $3 billion DM&R backlog estimate for fiscal year 2020 is the amount needed to address the existing deferred maintenance backlog and bring all of its assets to at least an acceptable "fair" condition (a condition index of 70 or higher).[36] A senior OBO official asserts State's new methodology for estimating its backlog more accurately represents the current DM&R needs of its portfolio and should better convey those needs to stakeholders, such as OMB, other agencies, and Congress.[37] See sidebar for information on the U.S. government's consolidated DM&R estimate for fiscal year 2020.

State's Deferred Maintenance Estimate Is Based on the Same Condition Standard for All Assets

State's current DM&R backlog does not distinguish between assets with differing mission criticality designations. Specifically, State did not set a higher condition standard for mission critical assets, such as chancery offices buildings and utility infrastructure, as compared to non-mission dependent assets, like housing and recreation centers. As discussed earlier, when estimating the $3 billion DM&R backlog in 2020, State set a 70 percent condition index rating as its acceptable condition standard for all asset types, and by extension, all mission criticality categories. OBO considered several scenarios when setting State's acceptable condition standard to include a tiered approach: for example, setting 85, 80, and 70

[35]State reported that in prior fiscal years, OBO calculated its DM&R backlog using an industry-based formula adjusted for building type, age, and geographic location to determine how much maintenance and repair funding (as informed by condition survey data) State should allocate to each facility. The difference between the calculated maintenance and repair requirement and available funding was deemed to be State's backlog. Further, in addition to not having complete facility condition survey data, OBO officials told us the data provided from overseas posts were inconsistent. We discuss steps State is taking to address condition survey data later in the report.

[36]For context, in fiscal year 2019 State data shows $12.2 billion as the "repair needs" estimate were State to restore all assets to a condition substantially equivalent to the originally intended and designed capacity, efficiency, or capability.

[37]State's Bureau of Budget and Planning reported that because some of State's $3 billion estimated backlog is derived from parametric models, OBO would be challenged to implement some backlog projects because those deferred maintenance requirements are based on estimates and not specifically defined projects.

percent condition index standards for mission critical, mission dependent, and non-mission dependent asset groups, respectively.

State's decision about which condition index standard to set had a significant effect on State's estimated DM&R backlog. For example, had State set a 90 percent (good) standard for mission critical assets; 80 percent (middle of the fair scale) for mission dependent assets; and 70 percent (low end of the fair scale) for non-mission dependent assets, State's estimated DM&R backlog would have been roughly $8 billion. See table 6 for some scenarios State examined and how those would have affected State's DM&R backlog estimate.

Table 6: Example Scenarios State Examined in Setting 70 Percent as Its Acceptable Condition Standard

Scenario	Mission criticality category	Acceptable condition index percentage and condition scenarios	Estimated deferred maintenance and repair backlog (in billions of dollars)
1.	All categories	60 (Poor)	$1.5
2. State's selected standard for fiscal year 2020	All categories	70 (Fair)	$3.0
3.	All categories	80 (Fair)	$5.3
4.	Mission critical	85 (Fair)	$6.9
	Mission dependent	80 (Fair)	
	Non–mission dependent	70 (Fair)	
5.	Mission critical	90 (Good)	$8.0
	Mission dependent	80 (Fair)	
	Non–mission dependent	70 (Fair)	
6.	All categories	90 (Good)	$8.3

Source: Department of State data. | GAO-21-497

Notes: Mission criticality is the value an asset (a building or structure) brings to the performance of an agency's mission as determined by one of the following three categories:

- Mission Critical – without the asset, the mission is compromised;
- Mission Dependent, Not Critical – does not fit into mission critical or non-mission dependent categories; or
- Non-Mission Dependent – without the asset, the mission is unaffected.

State defines condition index ratings of 0 to 69 percent as "poor" condition, 70 to 89 percent as "fair" condition, and 90 to 100 percent as "good" condition.

OBO officials acknowledged that State's estimated DM&R backlog would be higher had State adopted a higher condition index standard, and, according to State documentation, OBO's Office of Facility Management initially recommended State adopt 80 percent as its acceptable standard for all assets. Based on the final scenarios OBO considered, such an

approach would have resulted in an estimated DM&R backlog estimate of roughly $5.3 billion, or $2.3 billion more than currently reported in fiscal year 2020. OBO officials told us the 70 percent standard applied to all assets was an OBO director-level decision, and that since 2020 was the first year State used this new methodology for calculating its DM&R backlog, OBO may reevaluate that acceptable condition standard in upcoming years.

The National Research Council has reported that what constitutes acceptable asset condition may vary by the importance of specific assets (e.g., mission critical, mission supportive, mission neutral) and by asset type, as do federal accounting standards, which further say agencies are to identify in their annual financial report the factors the agency considered in determining its acceptable condition standards.[38] In discussing factors in its fiscal year 2020 report, State said the management of real property assets overseas is complex and affects life, welfare, morale, safety, and the provision of essential operations and services. Further, State officials said the management of its assets has a large effect on the environment and on budgets, requiring an approach that results in assets that are efficient, reliable, cost effective, and sustainable over their lifecycle.[39] However, State's discussion of factors in its annual report did not indicate whether some assets–and their condition–may be more critical to the U.S. mission overseas and warrant more attention to address State's DM&R backlog.

Because State does not currently set its acceptable condition standard for its properties based on asset type (e.g., chancery office buildings) or mission criticality groups (e.g., mission critical), State may be estimating a DM&R backlog that does not reflect a need to more fully restore assets that are key to conducting the U.S. mission overseas and that overstates

[38]National Research Council, *Key Performance Indicators for Federal Facilities Portfolios: Federal Facilities Council Technical Report Number 147* (Washington, D.C.: 2005 The National Academies Press). Federal Accounting Standards Advisory Board, *Statement of Federal Financial Accounting Standards 42: Deferred Maintenance and Repairs: Amending Statements of Federal Financial Accounting Standards 6,14, 29 and 32.*

[39]State also reported that some posts have the task of keeping an aging or historic property in good working order, while other posts must operate a complex new building that may be the most technologically advanced in the country.

DM&R needs for less critical assets.[40] Additionally, by reassessing the condition standard applied to its assets, State could determine whether to adopt an approach that factors in asset importance and guides funding to address the deferred maintenance needs of State's key assets.

State's Maintenance and Repair Processes Incorporate Most but Not All Leading Practices for Managing Deferred Maintenance and Repair Backlogs

State follows most, but not all of the leading practices we have previously identified as effective strategies for managing DM&R backlogs.[41] Specifically, of the nine leading practices, we found that State followed five, partially followed three, and did not follow one, as shown in table 7. We have reported that deferring maintenance and repair can lead to higher costs in the long term, that it poses risks to safety and agencies' missions, and that incorporating leading practices can help agencies better manage their DM&R backlog.

[40]In 2008, in examining federal agencies' maintenance backlogs, we reported that agencies may understate the government's deferred maintenance exposure if they have estimated only the cost of correcting assets in the poorest condition. Conversely, agencies may overstate the government's exposure if they include costs for repair and maintenance projects they do not plan to do or include the costs of those projects that would not affect the agency's mission even if completed. See GAO-09-10.

[41]GAO-14-188.

Table 7: Extent to Which State Followed Leading Practices for Managing Deferred Maintenance and Repair

Leading practice	Extent to which State followed the leading practice
1. Establish clear maintenance and repair investment objectives and set priorities among outcomes to be achieved.	Followed
2. Establish performance goals, baselines for outcomes, and performance measures.	Followed
3. Identify the primary methods to be used for delivering maintenance and repair activities.	Followed
4. Align real property portfolios with mission needs and dispose of unneeded assets.	Followed
5. Identify the types of risks posed by lack of timely investment.	Followed
6. Identify types of facilities or specific buildings (i.e., assets) that are mission-critical and mission-supportive to help target investments.	Partially Followed
7. Conduct condition assessments as a basis for establishing appropriate levels of funding required to reduce, if not eliminate, any deferred maintenance and repair backlog.	Partially Followed
8. Structure budgets to specifically identify the funding allotted (1) for maintenance and repair and (2) to address any backlog of deferred maintenance and repair deficiencies.	Partially Followed
9. Employ models for predicting the outcome of investments, analyzing tradeoffs, and optimizing among competing investments.	Not Followed

Source: GAO analysis of Department of State documents and information. | GAO-21-497

Note: These nine leading practices were identified in GAO, *Federal Real Property: Improved Transparency Could Help Efforts to Manage Agencies' Maintenance and Repair Backlogs*, GAO-14-188 (Washington, D.C.: Jan. 23, 2014) and based on research conducted by the National Research Council of the National Academies of Sciences, Engineering, and Medicine.

State Followed Five of Nine Leading Practices for Managing Deferred Maintenance and Repair Backlogs

We found that State followed five of nine leading practices for managing DM&R backlogs: (1) establishing maintenance and repair objectives and setting priorities among outcomes; (2) establishing performance goals, baselines, and measures; (3) identifying the primary methods for delivering maintenance and repair activities; (4) aligning its real property portfolio with mission needs and disposing of unneeded assets; and (5) identifying risks posed by the lack of timely investment.

Establish Clear Maintenance and Repair Investment Objectives and Set Priorities among Outcomes to Be Achieved

Leading practices indicate that agencies with maintenance and repair responsibilities should determine what outcomes are most important to achieve and set priorities among them. State has followed this leading practice by establishing maintenance and repair objectives and setting priorities for achieving outcomes. Specifically, OBO has a goal to "provide

industry-leading, resilient facilities that represent the nation and support Department personnel in achieving U.S. foreign policy objectives."[42] Under this goal, OBO outlined objectives such as employing a lifecycle asset management approach for its overseas portfolio and enhancing the operations and maintenance program to optimize assets' service lives.[43] Further, OBO established "facility maintenance and upkeep" as a strategic priority, where OBO aims to effectively manage its global asset portfolio through various efforts, including expanding data collection and developing long-term maintenance plans.[44] According to OBO, these efforts will help State justify budgets, prioritize work, and forecast its capability to address its DM&R backlog. OBO officials told us that they consider reducing State's DM&R backlog an objective, as well as a measure of the effectiveness of its facility management performance.

In addition, OBO has set priorities among competing maintenance and repair outcomes. According to OBO, it allocates funds for the most urgent critical repairs and improvements across posts. Therefore, it sets priorities among competing investments and projects by applying weighted criteria to score posts' maintenance and repair requests and allocate funding accordingly.[45] OBO's prioritization criteria include the (1) building system specified in the request, such as plumbing; (2) current condition of the property documented in the request, such as risk of failure, rapid deterioration, or normal maintenance needed; and (3) strategic priority of the request, such as a congressional mandate or quality of life issue. Moreover, OBO officials told us that security and life safety are important considerations when prioritizing among competing maintenance and repair outcomes.

[42]Presidential Policy Directive 21, which establishes the national policy for critical infrastructure security and resilience, defines resilience as the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions, including naturally occurring threats or incidents.

[43]OBO outlined these objectives in its fiscal years 2018-2022 *Functional Bureau Strategy*. According to State, a functional bureau strategy is a tool to articulate priorities within the agency's functional bureaus and helps outline specific tradeoffs necessary to bring resources into alignment with State goals and objectives, inform budget decisions, and shape performance reviews.

[44]According to OBO, strategic priorities serve as the foundation for OBO's fiscal years 2018-2022 *Functional Bureau Strategy*. OBO's facility management and upkeep strategic priority supports its strategic goal to provide industry-leading resilient facilities.

[45]OBO applies a similar scoring process for minor construction and improvement project proposals to establish their relative priority.

Establish Performance Goals, Baselines for Outcomes, and Performance Measures

Leading practices indicate that establishing performance goals, baselines for performance outcomes, and performance measures allows agencies to track the effectiveness of maintenance and repair investments; provide feedback on progress; and indicate where investment objectives, outcomes, or procedures require adjustment. State has followed this leading practice by establishing goals, baselines, and indicators to measure the effectiveness of its facility management performance. As part of its "facility management and upkeep" strategic priority and toward achieving its goal to provide industry-leading resilient facilities, OBO established performance measures such as the percent reduction of assets with a condition index score below 70, and the percentage of minor construction and improvement funding allocated to priority needs posts. See the sidebar for a description of how OBO identifies priority needs posts.

In 2019, OBO developed its lifecycle asset management and facility performance evaluation program.[46] Under the program, OBO has started evaluating asset performance on a 5-year cycle, examining five key performance indicators. See the sidebar for more information about the indicators. This program will enable OBO to document and track repairs, replacements, and operations and maintenance costs over an asset's 50-year lifecycle.[47]

Facility Management Performance Program

Department of State's Bureau of Overseas Buildings Operations (OBO) developed a facility management performance program in fiscal year 2017 to measure diplomatic posts' performance worldwide. On the basis of weighted performance metrics related to operations and maintenance, asset condition, and annual surveys from facility managers, OBO ranks posts according to their overall scores. On the basis of this ranking, OBO identifies priority needs posts and provides additional resources to these low performing posts.

Source: GAO summary of State documents. | GAO-21-497

[46]OBO developed its lifecycle asset management and facility performance evaluation program following our recommendation that OBO should finalize the mechanisms it will use to better track and evaluate the actual operations and maintenance performance of its buildings. See GAO, *Embassy Construction: State Needs to Better Measure Performance of its New Approach* GAO-17-296 (Washington, D.C.: Mar. 16, 2017). As of March 2021, officials said the policy directive and standard operating procedures for this program were under review for approval.

[47]Under this program, OBO plans to analyze the total cost of asset ownership for a 50-year lifecycle for all assets, and thereby identify the long-term financial and resource requirements for assets.

Identify the Primary Methods to Be Used for Delivering Maintenance and Repair Activities

Leading practices indicate that identifying the primary methods of delivery for maintenance and repair activities can help agencies determine the level of resources that should be allocated to each type of maintenance activity and to repair projects. State has followed this leading practice and uses four primary methods to deliver maintenance and repair activities:

- locally-employed, direct-hire maintenance personnel, such as electricians;
- post-managed preventive maintenance service contracts, such as for elevators;
- regional or headquarters-deployed maintenance contracts, such as for fire protection;[48] and

Key Performance Indicators for State's Lifecycle Asset Management and Facility Performance Evaluation Program

Department of State's Bureau of Overseas Buildings Operations (OBO) examines the following performance indicators for each diplomatic post under its lifecycle asset management and facility performance evaluation program.

Building condition index. Performance-based index that represents the physical condition of an asset along with its components compared to its replacement value. The higher the score, the better the asset condition.

Facility condition needs index. Monetary-based condition metric that allows for relative comparison among different assets. A measurement lower than 40 on a 0 to 100 scale indicates that an asset's renewal and maintenance costs are approaching the asset's current replacement value, and State should consider replacing the asset.

Normalized maintenance costs. Metric that measures the maintenance cost for an embassy on a square meter basis. This indicator is based on work order analyses.

Energy use intensity. Metric that measures kilowatt hours per square meter per year. This indicator expresses an asset's energy use as a function of its size or other characteristics, allowing for comparison of energy data among posts.

Facility management operations and maintenance. Metric that measures post facility management performance, including staffing levels and resources.

Source: GAO summary of State documents. | GAO-21-497

[48]OBO has regional maintenance support centers located in Frankfurt, Germany, and Fort Lauderdale, Florida.

- full-service maintenance and operations contractors that operate on-site full time.[49]

Figure 14 shows an example of maintenance and repair work conducted by headquarters-deployed maintenance technicians.

Figure 14: Headquarters-Deployed Technicians Working on a Generator at the U.S. Consulate General Dubai, United Arab Emirates

Source: Department of State. | GAO-21-497

Align Real Property Portfolios with Mission Needs and Dispose of Unneeded Assets

Leading practices indicate that agencies should efficiently employ available resources, limit construction of new assets, adapt existing buildings to new uses, and transfer ownership of unneeded buildings to other public or private organizations to align real property with mission needs. In addition, assets that are functionally obsolete, not needed to support an agency's mission, not historically significant, or not suitable for

[49]Full-service maintenance and operations contractors operate full-time at posts with unique physical or technical threats, such as the U.S. embassy in Baghdad, Iraq.

transfer or adaptive reuse should be disposed of whenever it is cost effective to do so.

State has followed this leading practice by establishing processes to align State's overseas real property portfolio with mission needs and dispose of unneeded assets.[50] OBO officials told us that all actions for State's real property portfolio, including maintenance and repair, are related to mission needs. Specifically, OBO issues an annual request asking posts to evaluate their real property portfolio and identify acquisition needs and underused or unneeded assets for disposal.[51] OBO officials said they compile this information in an annual plan for execution. The request outlines various criteria OBO considers for acquisitions, including whether the acquisition (1) provides a significant life or safety improvement, (2) enhances the post's security posture, and (3) improves the post's operational efficiency. In addition, OBO officials told us that they conduct financial analyses to inform decisions related to asset acquisition and disposal. For example, OBO analyzed whether to lease or buy an asset in Lisbon, Portugal, based on various factors such as present costs to own or lease the asset.

Further, State guidance for asset disposal outlines 18 factors a post should consider when evaluating its real property portfolio to identify unneeded properties, including whether (1) the property is used only irregularly for program purposes, (2) the asset meets fire and life safety codes and standards, and (3) operating and maintenance costs are excessive. In addition, OBO has guidance to identify properties that will no longer be needed because of new embassy construction.[52]

[50]We previously reported on the factors State considers in managing its overseas real property portfolio and the extent to which it documents its decision-making process. See GAO, *Overseas Real Property: State Department Needs to Improve Guidance and Records Management*, GAO-14-769 (Washington, D.C.: Sept. 25, 2014).

[51]According to OBO's *Decommissioning Handbook*, posts may suggest disposal of an underused or unused property at any time.

[52]See United States Department of State, Bureau of Overseas Buildings Operations, Directorate of Planning and Real Estate, *Decommissioning Handbook* (Washington, D.C.: October 2018). For example, OBO officials told us that they sold the former chancery building and annex in Paramaribo, Suriname, because these properties were no longer needed after the new embassy was completed.

Identify the Types of Risks Posed by Lack of Timely Investment

Leading practices indicate that agencies should identify the types of risks posed by not investing in deteriorating assets, systems, and components to provide more transparency in the decision-making process and improve communication with staff at all organization levels. According to the National Research Council, deferring investment in needed maintenance and repair poses a variety of risks and can result in adverse events such as interruptions in operations, accidents, and increased operating costs.[53] State has followed this leading practice by identifying the types of risks posed by a lack of timely investment for building systems and components. OBO officials told us that posts individually monitor risks to operations from the lack of timely maintenance investment, and such risks are reflected through their funding requests. Specifically, when requesting funding for a repair or improvement project, posts identify risks that will endanger personnel or property if the project is not performed, such as the following:

- Air quality (such as toxic fumes or mold)
- Drinking water quality
- Electrical risk
- Flood risk
- Fire safety risk
- Hazardous materials (such as exposure to asbestos)
- Physical hazard (such as falling objects)
- Seismic risk

OBO examines these risks when prioritizing among competing projects. As discussed earlier, OBO applies prioritization criteria to score posts' projects and allocate funding accordingly. The risks posts identify in their project requests inform the "threat vulnerability" criterion, which is weighted more than other criteria to help ensure that the most critical requirements are prioritized for funding. OBO also assigns different values to the different types of risks within the "threat vulnerability" criterion, thereby ranking the criticality of these specific risks.

[53]National Research Council, *Predicting Outcomes of Investments in Maintenance and Repair of Federal Facilities* (Washington, D.C.: The National Academies Press, 2012).

Posts also identify whether the building system or component is at risk of failure or whether the mission operation is at risk when submitting their funding requests for projects related to building systems and components. In addition, OBO officials said each post examines and addresses its own risks as they affect the mission's security, including the effects of asset availability and functionality. Further, OBO officials told us that the lifecycle asset management and facility performance evaluation program will incorporate risk assessment, which will enable OBO to identify risks for and across posts.

State Partially Followed Three of Nine Leading Practices for Managing Deferred Maintenance and Repair Backlogs

We found that State partially followed three of nine leading practices for managing DM&R backlogs: (1) identifying types of assets that are mission-critical and mission-supportive, (2) conducting condition assessments, and (3) structuring budgets to address any DM&R backlog.

Identify Types of Facilities or Specific Buildings (i.e., Assets) That Are Mission-Critical and Mission-Supportive to Help Target Investments

Leading practices indicate that agencies should identify assets as mission-critical and mission-supportive to help establish where maintenance and repair investments should be targeted, to ensure that funds are being used effectively. State has partially followed this leading practice. OBO categorizes assets by their mission criticality. As discussed earlier, OBO officials said they assign mission criticality ratings—mission critical; mission dependent, not critical; and non–mission dependent—for each property asset type based on its use. OBO officials told us that they began identifying assets by mission criticality more than 10 years ago, as it was an FRPP reporting requirement.

However, State does not use these categories for targeting maintenance and repair investments. OBO officials said they do not prioritize funding according to the asset's mission criticality or track investments by mission criticality, which would help target investments to the most mission critical assets, as called for by this leading practice. As discussed earlier, we found that almost 400 mission critical assets are in poor condition. In addition, OBO officials told us that they have not reviewed or updated these mission criticality designations in recent years.

Starting in 2013, mission criticality was no longer required for FRPP reporting. Since then, officials said OBO no longer uses these categories in its decision-making processes although its real property management system retains the mission criticality designations for all of State's assets. Without considering mission criticality in funding allocation and project prioritization decisions, State management may be missing opportunities to effectively prioritize and allocate limited resources to the most mission critical and mission supportive assets.

Conduct Condition Assessments as a Basis for Establishing Appropriate Levels of Funding Required to Reduce, If Not Eliminate, Any Deferred Maintenance and Repair Backlog

Leading practices indicate that periodically assessing asset condition is an effective approach for facility management because identifying condition deficiencies can inform budgeting decisions. State has partially followed this leading practice. State requires posts to survey facility conditions annually to help determine maintenance and repair requirements. The summarized survey results serve as a maintenance management tool for justifying funds for unfunded deficiencies, developing maintenance and repair work plans, and documenting posts' maintenance backlogs, among other things.

However, OBO officials told us that data collected through these assessments were incomplete and inconsistent. For example, some posts did not complete their annual facility condition surveys, and, according to OBO officials, posts that completed the surveys often reported projects they planned to accomplish for the year instead of all of their maintenance and repair needs. Therefore, these officials said they lacked a complete picture of posts' maintenance and repair needs, which limited their ability to establish appropriate funding levels to address DM&R.[54]

OBO officials told us that they do not monitor whether posts complete their annual facility condition surveys. These officials said U.S. facility managers at posts are responsible for ensuring the completion of annual

[54]As discussed earlier, OBO developed a new methodology for estimating DM&R in fiscal year 2020 that supplements data collected from the annual facility condition surveys with parametric modeling. Parametric models show how systems deteriorate over time based on the ages and expected useful life of individual systems and facility condition index, according to State's fiscal year 2020 financial report. OBO officials said this combination of data will help provide a more accurate estimate of its DM&R backlog.

facility condition surveys and OBO does not maintain a list of posts with completed surveys. In addition, these officials said OBO had developed, but not yet implemented, a standard inspection methodology for condition assessments to collect consistent information across posts. According to OBO officials, posts will use this newly developed standardized methodology for performing annual condition assessments between 5-year facility performance evaluations.[55] OBO aims to begin implementing this new condition assessment methodology by January 2022, according to its fiscal years 2018-2022 *Functional Bureau Strategy*. In addition, as of March 2021, OBO officials said they are updating existing guidance to include this new effort.[56]

Without complete and consistent condition assessments, OBO's ability to systematically identify posts' real maintenance and repair needs is limited, which could affect its ability to establish appropriate levels of funding for addressing the DM&R backlog.

Structure Budgets to Identify Funding Allotted (1) for Maintenance and Repair and (2) to Address Any Backlog of DM&R Deficiencies

Leading practices indicate that agencies should structure maintenance and repair budgets to differentiate between funding allotted for routine maintenance and repairs, and funding allotted to address DM&R backlogs, to help ensure that underfunding does not affect the health and safety or reduce the productivity of employees, among other things. This leading practice emphasizes that sufficiently funding routine maintenance and repairs is important because the costs to address backlogs may be

[55]OBO officials said they developed a standardized methodology for performing condition assessments as part of OBO's lifecycle asset management and facility performance evaluation program. Facility performance evaluations provide a comprehensive assessment of how well an asset is meeting its mission, goals, and performance criteria, as well as the asset's condition.

[56]According to OBO officials, the policy directive and standard operating procedures for the lifecycle assessment management and facility performance evaluation program were under review for approval. In addition, as of March 2021, these officials said they are in the process of updating the *Foreign Affairs Manual* and *Foreign Affairs Handbook* to include this new effort.

significantly greater than the costs of maintenance and repairs undertaken when needed.[57]

State has partially followed this leading practice. State structures its internal budget documents to identify funds allotted for routine maintenance and repair and to address the DM&R backlog. Within its internal budgets, State uses specific project codes to allocate and track maintenance and repair investments. Beginning in fiscal year 2020, OBO implemented a new funding model, where it organizes maintenance and repair investments according to the following categories.[58]

- **Sustainment.** Routine maintenance and repair activities to keep an inventory of assets in good working condition, including preventive maintenance and building system component repairs expected to occur periodically throughout a system's lifecycle. According to OBO officials, State distributes sustainment funding to posts using a formula based on property sizes and historical funding to address baseline maintenance needs.
- **Restoration.** Repairs and replacements of assets and building systems to restore conditions to their originally designated purpose. This includes work to restore assets damaged by inadequate sustainment, excessive age, and natural disaster, among other causes. According to OBO officials, State divides this funding across post-managed restoration requirements (identified through funding requests) and headquarters-managed programs.
- **Modernization.** Alteration or replacement of assets to implement new or higher standards; to accommodate new or altered functions; and to modernize building systems, fixed equipment, and major components. According to OBO officials, State distributes modernization funding through the minor construction and improvement program.

According to OBO officials, restoration-funded maintenance and repairs specifically address the DM&R backlog. Therefore, OBO officials said all restoration-funded projects are included in the DM&R calculations. In

[57]The National Research Council has reported that the cost of correcting backlog deficiencies increases, with each dollar in deferred maintenance resulting in an estimated capital liability of $4 to $5. See National Research Council, *Investments in Federal Facilities: Asset Management Strategies for the 21st Century* (Washington, D.C.: The National Academies Press, 2004).

[58]OBO officials said they adopted Department of Defense's facilities sustainment, restoration, and modernization model and aligned terminology to OBO standards.

addition, these officials said they also include modernization-funded projects to the extent they address repair needs in the DM&R calculations, although such projects do not specifically address the backlog.[59] Further, OBO officials said that aligning project codes with these new funding categories have allowed them to better calculate backlog reduction based on accounting data rather than work orders.

However, State's budget requests to Congress provide insufficient information regarding the funding needed to address its DM&R backlog. Specifically, in its congressional budget requests since fiscal year 2016, State requested funding specifically for maintenance and repair, but did not specifically request funding to address its DM&R backlog.[60] OBO officials told us that they had not found it necessary to specifically request such funding in its budget requests because they only determined that the backlog was $3 billion in fiscal year 2020 after using a new methodology for estimating DM&R. In addition, OBO officials said that, having adopted the new sustainment, restoration, and modernization funding model in fiscal year 2020, they expect to have better data about efforts to reduce the backlog moving forward. For example, using the new funding model, OBO projected backlog reduction over time (such as 10-, 20-, 30-, 40-, and 50-year time periods) based on various funding scenarios.[61] For more information about OBO's projections, see appendix III. While OBO has analyzed several scenarios for reducing the backlog over time, it does not have a plan to address State's DM&R backlog.

According to the National Research Council, an appropriate budget allocation for routine maintenance and repair for a substantial inventory of assets would typically be 2 to 4 percent of the total current replacement

[59]Modernization-funded projects may include repairs or replacements of building systems, such as replacing a roof, or improvements that increase the value, change the use, or significantly improve the utility of a building or property, such as adding a new bathroom. OBO officials told us that they identify whether the scope of the project addresses repairs or improvements, and include those projects that address repairs in their repair needs calculations for measuring DM&R.

[60]According to OBO officials, they outlined specific funding requested for maintenance and repair, including minor construction and improvement, in an appendix to State's congressional budget requests. State's fiscal year 2021 budget requested $100 million to address DM&R for State's non–cost shared facilities. However, OBO officials noted that this funding was for the minor construction and improvement program (or modernization budget), which does not specifically address the DM&R backlog.

[61]For example, $303 million is required in restoration funding each year to eliminate the estimated $3 billion backlog in 10 years according to OBO's projections.

value of those assets.[62] However, if a backlog exists it is unlikely to be reduced by expenditures limited to the 2 to 4 percent level, and additional funding is likely required.[63] OBO officials said the current MCS budget, which funds routine maintenance and repair, is less than 1 percent of State's current $77 billion replacement value for its portfolio.[64]

OBO officials told us that with current funding levels it would take 30 to 40 years to eliminate the estimated $3 billion DM&R backlog and bring all assets to an acceptable condition standard of 70 percent based on their projections. Further, OBO officials told us that if State were to meet the lower end of the industry standard—2 percent of current portfolio replacement value—the MCS budget would need to be $1.5 billion annually, a three-fold increase. OBO officials said they need to conduct further analysis of State's maintenance and repair spending and industry standards. Moreover, these officials said that even if they had more funding to address and significantly reduce the backlog in the near term (for example, within 10 years), their ability to execute all the necessary work would likely be constrained by staff capacity.[65]

As of March 2021, OBO officials said that while State has discussed its general maintenance needs with stakeholders, including Congress, it has not yet developed a plan or provided specific information regarding the funding needed to specifically address the DM&R backlog, but expects to as part of future budget requests. Developing a plan to address the backlog and providing specific information on the funding and time frames needed to reduce the DM&R backlog would help decision makers,

[62]If an inventory of assets receives an adequate level of maintenance and repair funding, a steady-state situation should exist: the inventory would remain in a service condition, neither declining nor improving, and a backlog would not develop, according to the National Research Council.

[63]See National Research Council, *Committing to the Cost of Ownership: Maintenance and Repair of Public Buildings* (Washington, D.C.: The National Academies Press, 1990).

[64]When State established the MCS program in fiscal year 2012, it anticipated funding MCS annually at 2 percent of the portfolio's replacement value at that time, or $450 million annually (in 2012 unadjusted dollars). However, State proposed funding for the MCS program be phased in over a 6-year period, beginning at $225 million in fiscal year 2012 and increasing annually until fully funding the program at $450 million (in 2012 unadjusted dollars) by fiscal year 2017.

[65]OBO officials noted various staffing related challenges, including providing timely training for locally-employed staff and hiring enough locally-employed staff.

including Congress, better evaluate State's budget requests and understand how funding levels affect backlog reduction.

State Did Not Employ Models for Predicting the Outcome of Investments, Analyzing Tradeoffs, and Optimizing among Competing Investments

Leading practices indicate that agencies should employ models to predict the future condition and performance of their assets as portfolios to ensure that investment decisions are aligned with agency missions and goals. Performance-prediction models predict the deterioration of building components over time and are important because certain asset components are particularly prone to deterioration or failure, thus requiring more frequent maintenance or repairs. Examples of such predictive models, according to the National Research Council, include the following:

- **Service life and remaining service life models.** These models predict the expected service life or remaining service life of building systems and components and help determine the appropriate timing of investments for maintenance and repair or replacement.
- **Parametric models for cost estimating or budgeting.** Economic-based (such as depreciation) or engineering-based (such as physical condition) models that can be used to develop multiyear maintenance and repair programs and cost estimates for annual budget development.
- **Simulation models.** Models used to analyze the results of "what if?" scenarios that can be used to set priorities for maintenance and repair work based on different variables, including budget.

See appendix IV for more examples of such predictive models.

OBO officials said they do not employ models for predicting the outcomes of investments, analyzing tradeoffs, and optimizing competing investments. While State uses a facility condition index–based parametric model to measure its DM&R, it has not applied such a tool for predictive investment analysis.

According to OBO officials, they have not employed predictive models for investment analysis because of the lack of standardized information and practices across posts. These officials said that its lifecycle asset

management and facility performance evaluation program will help standardize information, data, and practices across posts. In particular, OBO plans to use a sustainability management system to consistently measure asset conditions and standardize asset inspections, according to the program's draft standard operating procedures.[66] OBO officials told us that while State's information technology executive steering committee approved the system, it has not yet been funded for use as of March 2021. These officials said future implementation of standard condition monitoring and better data through tools such as its sustainability management system would enable State to examine investment opportunities and tradeoff optimization. While OBO officials said that State has efforts underway to standardize information and practices, it does not currently have plans to employ predictive models to analyze investments.

Employing such models will better position State to identify the combination of competing investment options that would result in the greatest return on investment given budget constraints. This would also enable State to have greater visibility of the risks posed by a lack of investment.

Conclusions

State's real property portfolio includes more than 8,700 owned and capital-leased assets located throughout the world. From fiscal year 2015 through 2019, State's total number and square footage of assets increased. However, State's allocated funding to maintain its overseas assets has been generally unchanged in recent years and more than one-quarter of State's real property assets overseas are in poor condition, including almost 400 mission critical assets.

As of fiscal year 2020, State estimates needing $3 billion to address a backlog of DM&R and get all of its assets to an acceptable condition. Because State does not currently consider the mission criticality of its assets in estimating its backlog, the current estimated backlog amount may not reflect a potential need to more fully restore assets that are most

[66]In November 2020, State's information technology executive steering committee approved BUILDER™—developed by the U.S. Army Corps of Engineers—as its sustainability management system. According to the National Research Council, this system helps predict the service lives of assets' systems and components to support risk-based decision-making related to the timing of maintenance and repair investments. OBO plans to use the sustainability management system to analyze assets' lifecycle costs.

critical to conducting the U.S. government's mission overseas, and may overstate deferred maintenance needs of less critical assets. As a result, State's estimated $3 billion backlog does not provide Congress or stakeholders with a sense of the priority and repair costs associated with assets that may be critical in supporting State's and other agencies' foreign policy missions.

State has taken steps to manage its deferred maintenance and repair backlog by following several leading practices, such as establishing performance goals, baselines, and measures. However, additional efforts are needed if State is going to incorporate all leading practices and make progress on reducing its backlog. Fully incorporating the four leading practices it partially follows or does not follow—such as considering mission criticality in its maintenance funding prioritization decisions and employing models for predicting the outcome of investments and analyzing tradeoffs—could help State more efficiently manage existing resources and improve State's ability to address its DM&R backlog. In particular, developing a plan and communicating information on funding and time frames needed to prevent the growth of, and address, deferred maintenance would give stakeholders important insights on State's ability to adequately maintain U.S. government real property assets abroad and avoid an underinvestment in, and increased deferral of, needed maintenance and repair. Such information could be especially useful since OBO officials have projected that without increased maintenance funding, it could take 30 years or more to eliminate the current estimated backlog and bring all assets to an acceptable condition. Further, deferring maintenance and repair can pose risks to agencies' missions, personnel, and visitors, and can lead to higher costs in the longer term for both newly-built and older U.S. overseas assets.

Recommendations for Executive Action

We are making the following five recommendations to the Department of State:

The Secretary of State should ensure that that the Director of OBO reassess State's acceptable condition standard for all asset types and mission dependencies, to include whether mission criticality justifies a different standard among assets. (Recommendation 1)

The Secretary of State should ensure that the Director of OBO incorporates the mission criticality of its assets when deciding how to target maintenance and repair investments. (Recommendation 2)

The Secretary of State should ensure that the Director of OBO monitors posts' completion of annual condition assessments that use a standardized inspection methodology, so that State has complete and consistent data to address its deferred maintenance and repair backlog. (Recommendation 3)

The Secretary of State should ensure that the Director of OBO develops a plan to address State's deferred maintenance and repair backlog, and specifically identifies the funding and time frames needed to reduce it in congressional budget requests, related reports to decision makers, or both. (Recommendation 4)

The Secretary of State should ensure that the Director of OBO employs models for predicting the outcome of investments, analyzing tradeoffs, and optimizing among competing investments. (Recommendation 5)

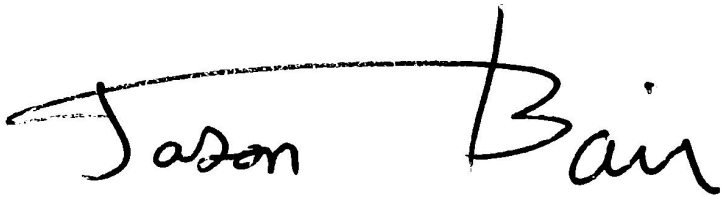
Agency Comments and Our Evaluation

We provided a draft of this product to State for review and comment. In its comments, reproduced in appendix V, State concurred with our recommendations and stated that the agency will continue to work on efforts to estimate and manage its DM&R backlog. For example, State noted it will reassess the acceptable condition standard for all asset types and mission dependencies, including the use of mission criticality. While agreeing with our related recommendation, State said it disagreed with the implication that OBO does not currently have a plan to address the DM&R backlog. As noted in the report and State's comments, State has various initiatives underway to address its DM&R backlog, such as adopting a lifecycle asset management approach for its overseas portfolio and applying a sustainment, restoration, modernization funding model. However, while State has various initiatives underway, we maintain State has not yet developed or documented a plan to address the $2.9 billion increase in its backlog. As discussed in the report, State only recently determined an increase in its backlog from $96 million in fiscal year 2019 to $3 billion in fiscal year 2020—an amount officials said could take 30 to 40 years to eliminate with current funding levels. Developing such a plan that specifies the funding and timeframes needed to address some or all of State's backlog will be critical for decision makers to understand how

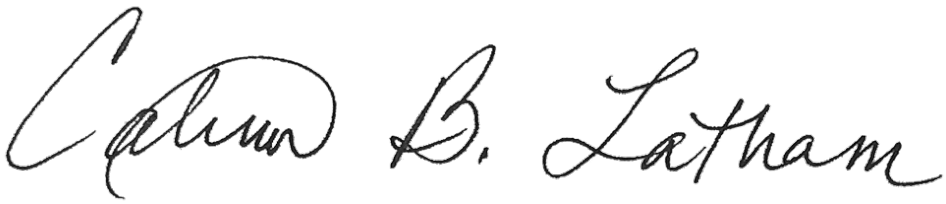
funding levels affect backlog reduction. We recognize that such a plan would be subject to periodic updates and future adjustments based on competing priorities, available appropriations, and continued improvements in State's asset management practices. In addition, State provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees and the Secretary of State. In addition, the report will be available at no charge on the GAO website at https://www.gao.gov.

If you or your staff have any questions about this report, please contact Jason Bair at (202) 512-6881 or bairj@gao.gov, or Catina B. Latham at (202) 512-2834 or lathamc@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix VI.



Jason Bair
Director, International Affairs and Trade



Catina B. Latham
Acting Director, Physical Infrastructure

Appendix I: Objectives, Scope, and Methodology

This report examines (1) how operations and maintenance expenditures for the Department of State's overseas assets have changed during fiscal years 2016 through 2020, (2) the condition and maintenance needs of State's overseas assets, and (3) the extent to which State has followed leading practices to address its deferred maintenance and repair (DM&R) backlog.

In general, State's real property portfolio of assets include both buildings (e.g., office buildings and residential housing) and structures (e.g., security walls, utilities, and parking lots).

To address these objectives we analyzed State's data on operations and maintenance funding, asset condition, and DM&R backlog estimates, as well as documentation related to activities that supported leading practices for deferred maintenance. We reviewed relevant documents such as maintenance and real property user manuals for State's Global Maintenance Management System (GMMS)[1] and State's Real Property Application (RPA).[2] We also reviewed State policy and procedure documents, such as State's *Foreign Affairs Manual* and State's *Foreign Affairs Handbook*. We also reviewed the U.S. General Services Administration's Federal Real Property Profile-Management System

[1]State developed GMMS to support Posts in planning, scheduling, accomplishing, and reporting facility maintenance work at Post. It provides the capability to plan preventive maintenance, and unscheduled work orders (emergency and one-time tasks) for real property and equipment. Work orders are prepared for buildings (real property), residential units, office units, ancillary units and equipment.

[2]State designed RPA to meet the requirements of Executive Order 13327, *Federal Real Property Asset Management*. RPA gives posts the ability to manage all aspects of their real property holdings—in an automated, web-based environment that is centrally managed in Washington, D.C.—and provides the department with a worldwide automated information system to track the acquisitions and disposal of U.S. government–owned and leased properties overseas. RPA's real property data includes, among other information: visual representation of all real property at a post; and a listing of individuals who occupy the real properties, including the funding agencies.

(FRPP)[3] guidance governing agencies' annual reporting about their real property portfolios. We met with State officials at headquarters, including the Bureau of Overseas Buildings Operations (OBO) and the International Cooperative Administrative Support Services (ICASS)[4] to discuss State's operations and maintenance funding. We also reviewed key publications from the Federal Accounting Standards Advisory Board; the National Academies of Sciences, Engineering, and Medicine; and the National Research Council.[5]

Further, we selected seven embassies (posts) as case studies using criteria including: (1) posts with major rehabs planned in fiscal years 2015 – 2020 (Rome, Italy, and Manila, the Philippines); (2) posts with major rehabs planned in fiscal years 2020 – 2025 (Nairobi, Kenya, and Rome, Italy); (3) posts with a variety of ages; and (4) posts in a variety of locations. We conducted semistructured interviews with various officials at these posts, including post management, facility management officials, and facility tenants. The information we gained during these interviews informed our first two objectives and is not generalizable.

To determine operations expenditures, we analyzed operations expenditures data and interviewed ICASS and OBO officials. We used State's operating expenditures data to compare funding changes from fiscal year 2016 to fiscal year 2020 and to compare locally employed building operations staff salary costs with all other building operations

[3]The FRPP was created under Executive Order 13327, *Federal Real Property Asset Management*, to be the federal government's "database of all real property under the custody and control of all executive branch agencies, except when otherwise required for reasons of national security."

[4]ICASS is a customer-driven, voluntary interagency mechanism for managing and funding administrative support services abroad. ICASS gives posts the authority to determine how services are delivered, at what cost and by whom; has customer service standards established by the post, with the service provider formally accountable to the customer; and incorporates a full-cost recovery system through a no-year working capital fund. The goals of ICASS are to provide quality administrative services and increase customer satisfaction; reduce and contain costs; promote local empowerment; and establish a simple, transparent and equitable cost-distribution system. (6 FAM 911.4)

[5]National Science Board, Statement of Federal Financial Accounting Standards 40: FASAB Handbook, Version 18 (06/19) (May 11, 2011); *Study of Operations and Maintenance Costs for NSF Facilities*, NSB-2018-17 (May 24, 2018); National Research Council, *Predicting Outcomes of Investments in Maintenance and Repair of Federal Facilities* (Washington D.C.: The National Academies Press, 2012); Federal Accounting Standards Advisory Board, *Statement of Federal Financial Accounting Standards 42: Deferred Maintenance and Repairs*: Amending Statements of Federal Financial Accounting Standards 6, 14, 29 and 32 (Washington, D.C.: Apr. 25, 2012).

expenses costs. To assess the reliability of State's operating data for fiscal years 2016 to 2020, we interviewed senior State officials knowledgeable of ICASS operating cost data. To assess how State's maintenance funding for State's overseas assets changed during fiscal years 2016 to 2020, we analyzed State-provided data on funding to include (1) OBO's initial internal requests within State for maintenance funding; (2) State's subsequent proposed maintenance funding requests to OMB; (3) amounts later included in State's budget request to Congress for the Embassy Security, Construction, and Maintenance appropriations account; and (4) subsequent funding provided by Congress in annual Embassy Security, Construction, and Maintenance appropriations that were then allocated by State for maintenance. We also interviewed senior OBO officials knowledgeable of State's budget formulation, funding requested, congressional appropriations, and resulting allocations. On the basis of these discussions and our review of related methodological information, we determined that State's data were sufficiently reliable for our purposes.

To understand the condition and maintenance repair needs of State's overseas assets, we interviewed State embassy and headquarters officials, including OBO's Offices of Facility Management and Area Management. We used State's FRPP data to review data elements such as asset replacement value (cost to replace the asset); location; property use category; construction date; repair needs; and mission criticality. We also separately conducted in-depth phone and video conference interviews with U.S. officials at the seven posts we selected as virtual case studies —including U.S. facility managers, local maintenance staff, and other U.S. agency officials—regarding their views about the accuracy of State headquarters' condition data scores in relation to those officials' own knowledge of the condition of select buildings. To understand State's annual estimation and reporting of its DM&R backlog within State's financial reports, including changes State made to its estimating methodology, we reviewed State's annual financial reports for fiscal years 2015 through 2020 and interviewed OBO's Office of Facility Management officials and OBO's Comptroller and Managing Director for Resource Management. For regression analysis with additional detail on correlations between asset characteristics—such as property type, age, location, and condition—see logistic regression models in appendix II.

To test the reliability of State's FRPP data, we reviewed the facility condition data from State's fiscal year 2019 FRPP submission, and we checked for outliers, missing data, and unexpected consistencies or inconsistencies in the data. We also looked at correlations and

associations among the key variables to assess whether there were definitional relationships that would affect the kinds of analyses we could do. We interviewed State headquarters officials—within OBO Directorates of Planning and Real Estate; Construction, Facility, and Security Management; and Resource Management—who use, manage, and oversee the data, including officials who are knowledgeable about State's FRPP reporting. In particular, we discussed with State officials State's reported replacement value and repair needs data, which it uses to calculate asset condition, to ensure our understanding of the data. We also reviewed steps taken by State to verify and certify the accuracy and completeness of the data. We determined that State's FRPP data on repairs needs, replacement values, and derived condition index ratings were sufficiently reliable for reporting on the condition of State overseas real property assets.

To assess the extent to which State followed leading practices for managing DM&R backlogs, we reviewed the nine leading practices we previously identified as effective strategies for U.S. agencies to manage DM&R.[6] We also reviewed our prior work that examined the extent to which other agencies followed these practices.[7] We asked State to provide information and documentation (such as policies, procedures, and plans) about how, if at all, it follows each leading practice in its maintenance and repair processes. To determine the extent to which State followed these leading practices, we reviewed relevant documentation provided[8] and determined the extent to which State followed these leading practices as follows:

[6]These nine leading practices were identified in GAO, *Federal Real Property: Improved Transparency Could Help Efforts to Manage Agencies' Maintenance and Repair Backlogs,* GAO-14-188 (Washington, D.C.: Jan. 23, 2014) and based on research conducted by the National Research Council of the National Academies of Sciences, Engineering, and Medicine between 1998 and 2012.

[7]In 2014, we examined the extent to which five agencies—General Services Administration, and the Departments of Energy, Homeland Security, the Interior, and Veterans' Affairs—followed these practices. See GAO-14-188. In 2019, we examined the extent to which the Coast Guard followed these practices. See GAO, *Coast Guard Shore Infrastructure: Applying Leading Practices Could Help Better Manage Project Backlogs of At Least $2.6 Billion*, GAO-19-82 (Washington, D.C.: Feb. 21, 2019).

[8]Documentation included the *Foreign Affairs Handbook*, OBO's fiscal years 2018-2022 *Functional Bureau Strategy*, budget guidance and related documents, and presentations on such programs as the lifecycle asset management and facility performance evaluation program.

- We determined that State had **followed** the leading practice if it provided documentation showing that all critical elements of the practice were incorporated to a large or full extent in its processes.
- We determined that State had **partially followed** the leading practice if it provided documentation showing that some, but not all, of the critical elements of the practice were incorporated in its processes.
- We determined that State had **not followed** the leading practice if it did not provide documentation showing that any of the critical elements of the practice were incorporated in its processes.

To make these determinations, two analysts reviewed the leading practices and documentation provided and rated the extent to which State followed each practice based on the categories described above. First, one analyst reviewed the documentation provided for each leading practice and assessed whether State had followed, partially followed, or did not follow the practice. A second analyst then reviewed the documentation provided for each leading practice, as well as the first analyst's determinations, and assessed whether State had followed, partially followed, or did not follow the practice. Any differences in the analysts' determinations were discussed and reconciled. In addition, GAO methodologist staff reviewed the analysis and final assessments for completeness and consistency. Further, we interviewed knowledgeable agency officials to understand how State's maintenance and repair processes addressed its DM&R backlog.

We conducted this performance audit from February 2020 to September 2021 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Logistic Regression Analysis of the Condition of State Department Assets

To determine which characteristics of overseas assets are most closely associated with an asset having a poor condition index[1] (i.e. a condition index less than 70), we conducted several statistical analyses of Department of State data on the condition of 1,590 of its overseas assets, in particular chancery office buildings, ambassadorial residences, annex office buildings, and staff housing owned by State in 2019. First, we employed multivariate logistic regression techniques to identify the factors most closely associated with an asset's condition, examining in particular the key characteristics of age, location, property type, and mission criticality. The multivariate approach has the advantage of estimating the effect of any given factor after its relationship with other factors is taken into account. Second, we used scatterplots of the continuous age and condition variables by property use category to explore more specific variations in associations between these variables.[2]

Overall Findings

- Age was the factor most strongly associated with poor condition. The older the asset the worse the condition.

[1]Calculating an asset condition index rating is a federally-recognized method to assess and compare the relative condition of a group of assets. State derives its condition index ratings from "repair needs" and "replacement value" data that State reports annually to the Federal Real Property Profile Management System (FRPP), a database of U.S. real property. Repair needs is defined by the FRPP as the non-recurring costs to ensure that a constructed asset (building or structure) is restored to a condition substantially equivalent to the originally intended and designed capacity, efficiency, or capability. Replacement value is defined by the FRPP as the cost to design, acquire, and construct an asset to replace an existing asset of the same functionality and size, and in the same location using current costs, building codes, and standards. Condition index is calculated as 1 - (repair needs total cost/replacement value total cost) X 100 percent. State defines condition index ratings as follows: 90 to 100 percent = good condition, 70 to 89 percent = fair condition, and 69 percent or less = poor condition.

[2]Note that we also considered performing multivariate analysis of factors associated with operations and maintenance costs contained in the OBO FRPP data but determined that the cost data were insufficiently reliable for such an analysis.

- The statistical relationship between condition index and age for the different property use categories was strongest for staff housing. Ambassador's residences had the highest percentage of properties in poor condition and chancery office building had the smallest percentage.
- Assets in South and Central Asia were more likely to have a condition index below 70 and those in the Western Hemisphere were significantly less likely to have a condition index below 70 than other assets.
- Ambassadors' residences were significantly more likely, and staff housing assets were significantly less likely, than other properties to be in poor condition.
- "Mission dependent, not critical" assets are more likely, and "non-mission dependent" assets are less likely, of being in poor condition than "mission critical" assets.[3]

Methodology

In this analysis, we used multivariate logistic regression models to control for the following characteristics that could affect an asset's condition:

- age based on year of construction;
- property use category (e.g., chancery office buildings, ambassadorial residences, office annexes, and staff housing);
- mission criticality (i.e., the importance of an asset to State's mission); and
- geographic location.

Typically, a logistic regression model, which is a generalized linear regression model, is appropriate when the model assumption of normality is not appropriate, as is the case with a binary (0/1) outcome. A logistic regression model provides an estimated odds ratio, where a value greater

[3]Mission criticality is a categorization of the value an asset brings to the performance of the agency's mission. State categorizes all of its assets into one of the following categories: Mission critical – without the asset, the mission is compromised (e.g., chancery office buildings, utility buildings, and access control facilities); Mission dependent, not critical (hereafter, mission dependent) – does not fit into mission critical or non-mission dependent categories (e.g., ambassadorial residences, U.S. marine security guard quarters, and official vehicle/ motor pool facilities); or Non-mission dependent – without the asset, the mission is unaffected (e.g., staff housing and recreation centers).

than one indicates a higher or positive association, in this case, between (a) whether an asset has condition less than 70 and the independent variable of interest, such as (b) being located in South and Central Asia. An estimated odds ratio less than one indicates lower odds of having a condition index of less than 70 when a factor is present.

We limited our regression analysis to 1,590 chancery office buildings, ambassadorial residences, annex office buildings, and staff housing units owned by State in 2019. We chose to analyze these four types of assets because they constitute a key set of strategic assets among State's overseas real property.[4]

The dependent variable for our analysis is a binary (0/1) variable for whether an asset had a condition index less than 70. Condition index less than 70, as detailed in footnote 1 above, is defined by OBO as a property in poor condition. (See footnote 1 above for the definition and formula for calculating condition index.)

All of our independent variables for this analysis were categorical in nature, meaning each —age, location, property use category, and mission criticality—was comprised of a finite set of categories covering the full set of possible ones. Column 2 of table 8 shows the categories for our independent variables. For our regression models we identified one or more of these categories as our baseline reference category for each factor. A reference category of a categorical factor in a regression model is the value against which the other categories of the factor specified in the model are compared (see table 8, column 3):

[4]Of 28,840 fiscal year 2019 real property data records, 1,590 were land records; 23,437 were building records, and 3,750 were structures. Our analysis did not include: land or structures; assets disposed of in fiscal year 2019; assets located in the United States; assets categorized as "government owned-restricted" as well as capital and operating leases. In addition, we excluded assets older than 149 years; extremely large assets (300,000 square feet and above); and any assets whose condition index rating was equal to or less than 0 or were missing in the data. This resulted in 1590 total critical assets for analysis.

Table 8: Overview of Variables Associated with the Condition of Department of State Overseas Assets

Variable	All categories of the independent variable	Combined final reference categories for models
Year constructed[a]	• before 1919 • 1919 to 1944 • 1945 to 1969 • 1970 and 1999 • after 1999	1919 to 1944 and 1945 to 1969 combined
Geographic location	• Near East • East Asia and the Pacific • Western Hemisphere • Europe • Africa • South and Central Asia	Near East
Property use category	• chancery office buildings • ambassadors' residences • staff housing • annex office buildings	chancery office buildings
Mission criticality	• non-mission dependent • mission dependent-not critical • mission critical	mission critical

Source: GAO analysis of Department of State data. | GAO-21-497

[a]We converted the continuous variable, age, to an ordinal variable of 5 separate categories. The categories are: constructed before 1919, between 1919 and 1944, between 1945 and 1969, between 1970 and 1999, and in 2000 or after.

Factors Associated with Condition

Analysis of Association of Age to Condition

In our first statistical model—in which we controlled for asset age, location, and property use category—we found that age is by far the factor most closely associated with an asset having a condition index below 70. For example, of the 716 assets built in 2000 or later (which account for almost half of the assets we analyzed), only 0.4 percent had a condition index below 70, while 83 percent of the 53 assets built before 1919 had a condition index rating less than 70. Table 9 below shows this age-condition relationship.

Table 9: Relationship of Age and Condition Index of Selected State-Owned Assets

Asset categorized by year built	Total number of assets	Percent of assets in poor condition	Percent of assets in good or fair condition
Built before 1919	**53**	83%	17%
Built between 1919 and 1944	**112**	81%	19%
Built between 1945 and 1969	**256**	68%	32%
Built between 1970 and 1999	**453**	21%	79%
Built between 2000 or after	716	0.4%	99.6%
Total	**1,590**		

Source: GAO analysis of Department of State data. | GAO-21-497

Note: Figures based on fiscal year 2019 data. Figures include only chancery office buildings, ambassadorial residences, and U.S. staff housing. State defines condition index ratings of 0 to 69 = poor condition, 70 to 89 = fair condition, and 90 to 100 = good condition.

Analysis of Association of Location and Property Use Category with Condition

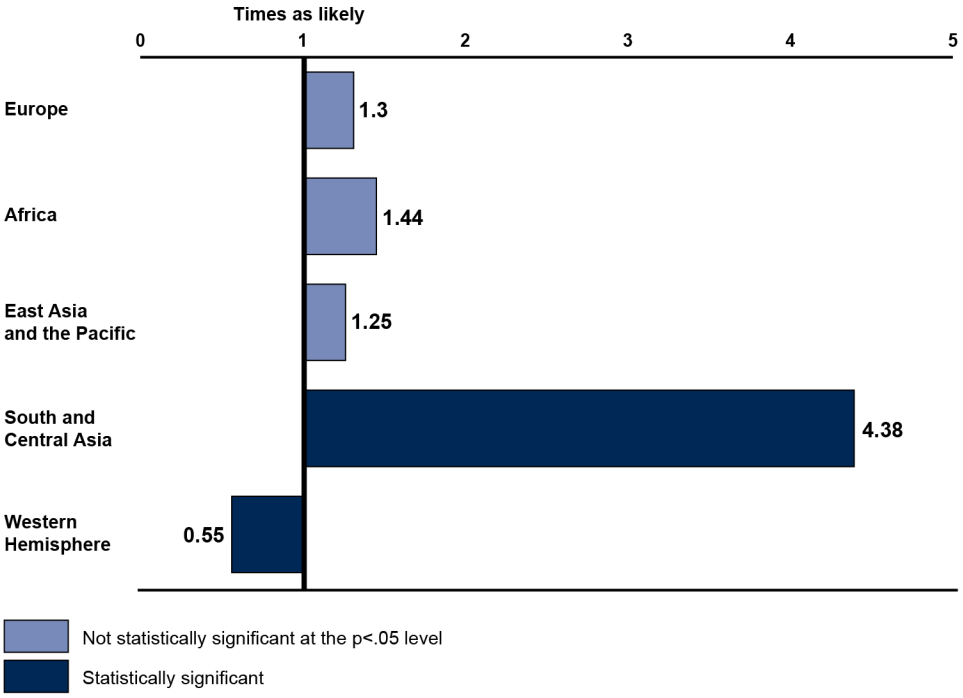
In the next statistical analysis, we examined the outcome of poor asset condition controlling for both location and property use category in determining asset condition, after excluding age.[5] Figures 15 and 16 provide the results of our regression analysis for a model where all but one category for both location and property use were included, as specified in the methodology section above, with the remaining category defined as the reference category. We found that assets in South and Central Asia were significantly more likely to be in poor condition, and those in the Western Hemisphere were significantly less likely to be in poor condition, relative to Near East (the reference category), regardless of property use category. In terms of property use category, we found that ambassadors' residences were significantly[6] more likely, and staff housing were significantly less likely, respectively, to have condition indexes below or equal to 70 relative to annex office buildings, regardless

[5]Because of the very strong association of age with condition index below 70, a multivariate model that includes age categories is not useful for understanding any associations that exist between a condition index less than 70 and location and property use.

[6]Odds ratios presented in both figures are statistically significant at p-value < 0.05 unless otherwise specified.

of location.[7] Note that in figures 15 and 16 the associations among the remaining location and property use categories with poor condition were non-significant when compared with their respective baseline reference categories.

Figure 15: Likelihood (Adjusted) of an Overseas Real Property Asset Having a Condition Index under 70, by Location



Source: GAO analysis of Department of State data. | GAO-21-497

Data table for Figure 15: Likelihood (Adjusted) of an Overseas Real Property Asset Having a Condition Index under 70, by Location

Location	Times as likely	Significance
Europe	1.30	Not statistically significant
Africa	1.44	Not statistically significant

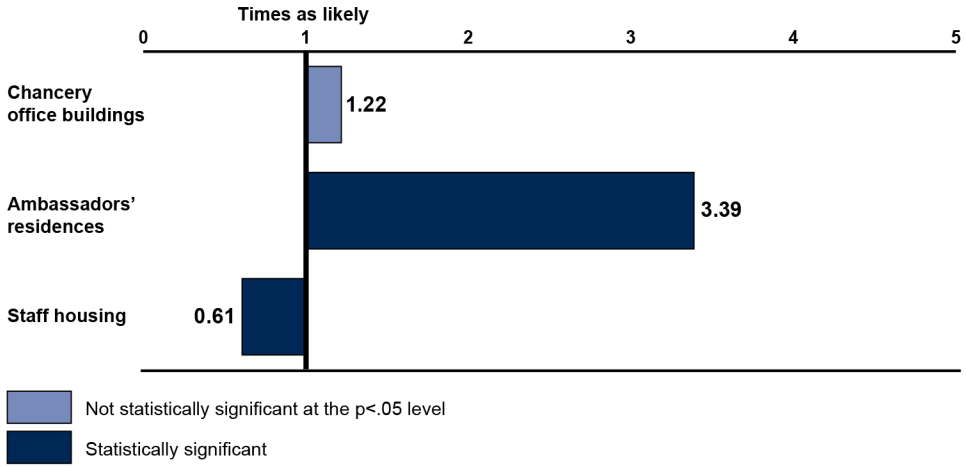
[7]More specifically, an asset located in in South and Central Asia having condition less than 70 is 4.38 times as likely as an asset in the reference category of Near East, while an asset located in the Western Hemisphere is .55 times as likely an asset in to have that condition, regardless of property use category. In the same model, ambassadors' residences were 3.39 times as likely as annex office buildings to be in poor condition, while staff housing was .61 times as likely as annex office buildings to have that condition, regardless of location.

Location	Times as likely	Significance
East Asia and the Pacific	1.25	Not statistically significant
South and Central Asia	4.38	Statistically significant
Western Hemisphere	0.55	Statistically significant

Note: The “times as likely” value corresponds to the adjusted odds ratios in the multivariate logistic models performed.

Source: GAO analysis of Dept. of State data. | GAO-21-497

Figure 16: Likelihood (Adjusted) of an Overseas Real Property Asset Having a Condition Index under 70, by Property Use Category



Source: GAO analysis of Department of State data. | GAO-21-497

Data table for Figure 16: Likelihood (Adjusted) of an Overseas Real Property Asset Having a Condition Index under 70, by Property Use Category

Property type	Times as likely	Significance
Chancery office buildings	1.22	Not statistically significant
Ambassadors’ residences	3.39	Statistically significant
Staff housing	0.61	Statistically significant

Note: The “times as likely” value corresponds to the adjusted odds ratios in the multivariate logistic models performed

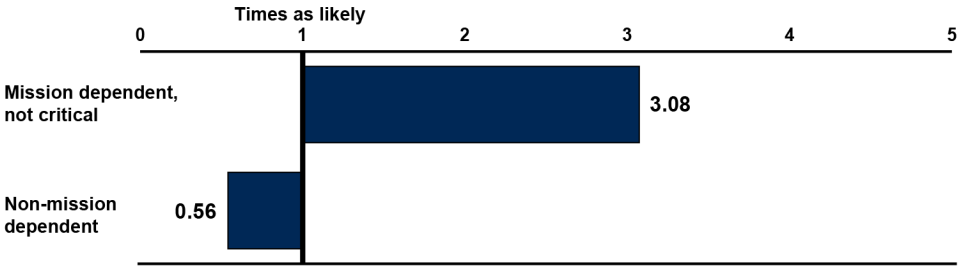
Source: GAO analysis of Dept. of State data. | GAO-21-497

Analysis of Mission Criticality

In our last model, we examined the association of mission criticality and location with poor condition. As shown in figure 17, we found that “mission dependent, not critical” assets are more likely, and “non-mission dependent” assets are less likely, to be in poor condition than “mission

critical" assets.[8] The results for the mission criticality regression mirror those in the property use category regression. This results from the fact that mission criticality category is defined by property use category in the set of 1,590 critical assets examined in this analysis, with "mission dependent, not critical" assets all being ambassadors' residences, "non-mission dependent" assets all being staff housing, and "mission critical" assets being either chancery or annex office buildings.

Figure 17: Likelihood (Adjusted) of an Overseas Real Property Asset Having a Condition Index under 70, by Mission Criticality Category



Source: GAO analysis of Department of State data. | GAO-21-497

Data table for Figure 17: Likelihood (Adjusted) of an Overseas Real Property Asset Having a Condition Index under 70, by Mission Criticality Category

Status	Times as likely	Significance
Mission dependent, not critical	3.08	Statistically significant
Non-mission dependent	0.56	Statistically significant

Note: The results for the location categories were almost identical to the results for it in the above model with location and property use category (figure 1). Therefore we do not include them here. Also, the "times as likely" value corresponds to the adjusted odds ratios in the multivariate logistic models performed. These results are statistically significant at the p<.05 level.

Source: GAO analysis of Dept. of State data. | GAO-21-497

Relationship of Property Use Categories with Age and Condition

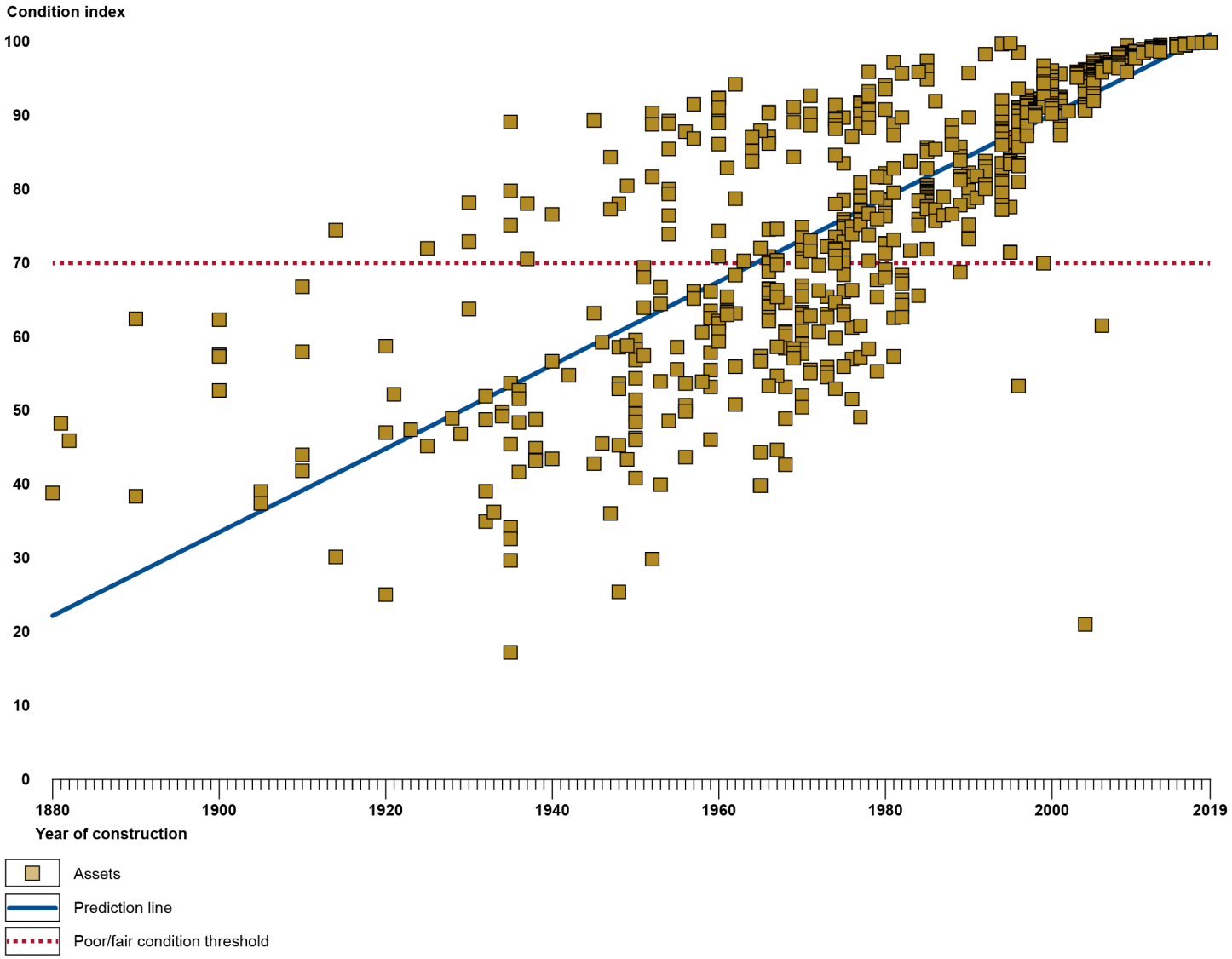
The following figures illustrate in greater detail the association between condition index and age for three property types: staff housing, ambassadorial residences, and chancery office buildings. Figures 18, 19,

[8]More specifically, mission dependent, not critical assets were 3.08 times as likely as the reference category of mission critical assets to be in poor condition, while non-mission dependent assets were .56 times as likely as mission critical assets to have that condition, regardless of location.

and 20 show that staff housing assets had the strongest relationship between year constructed and condition index, whereas ambassadorial residences and chancery office buildings had a somewhat weaker relationship between the two variables.[9] Ambassadorial residences had the highest percentage of properties in poor condition (56 percent), while chancery office buildings and staff housing have similar levels of properties in poor condition (32 percent and 19 percent, respectively).

[9]The strength of the association is based on the R^2 values of each of the bivariate regressions. These values are provided in the scatterplots. They are as follows: Staff housing .72; ambassadors' residences .61; chancery office buildings .59.

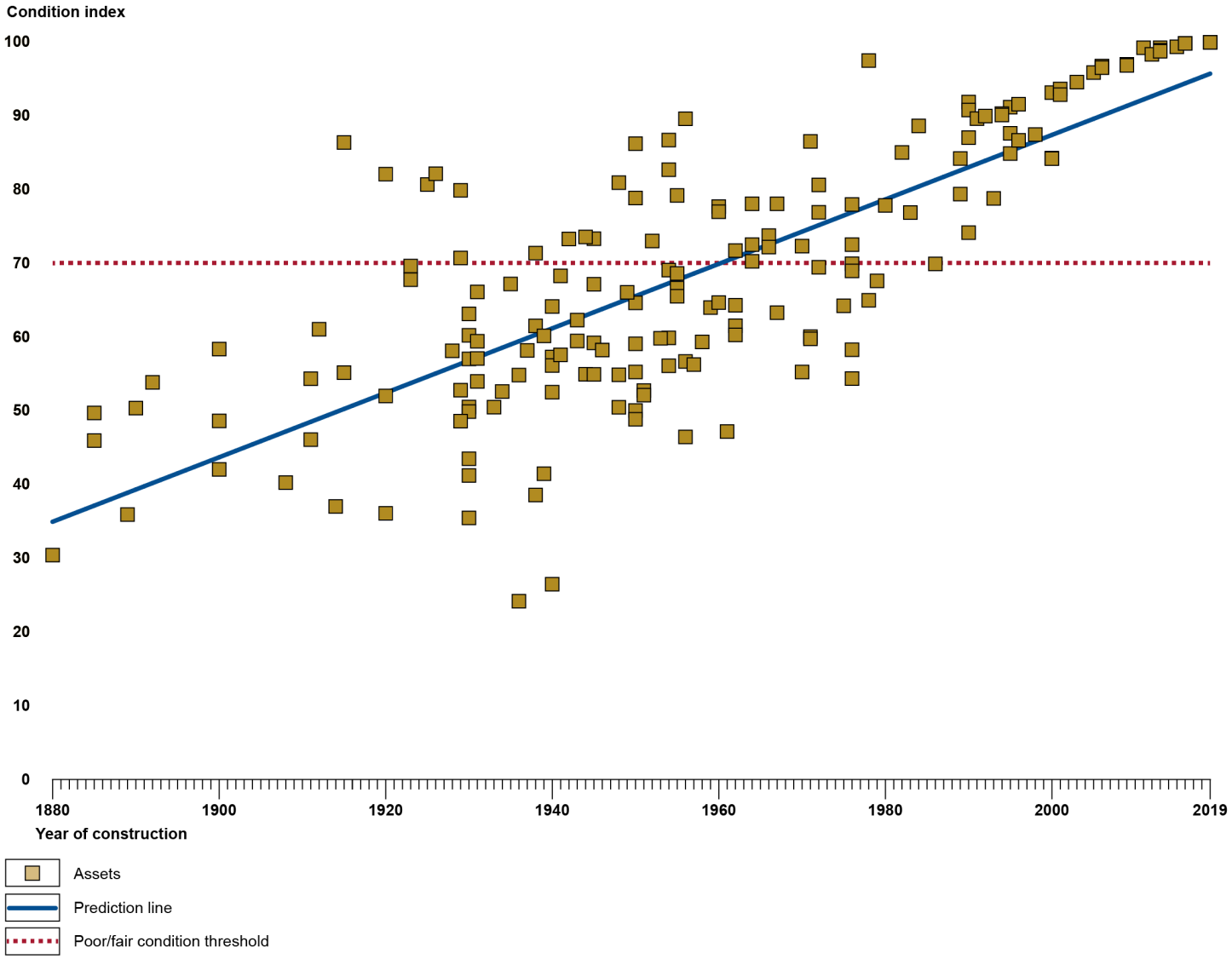
Figure 18: Association of Asset Condition with Year Asset was Built for Staff Housing



Source: GAO analysis of Department of State data. | GAO-21-497

Note: 1084 staff housing assets are included in this figure, and 208 of them (19.9 percent) fall below a condition index of 70.

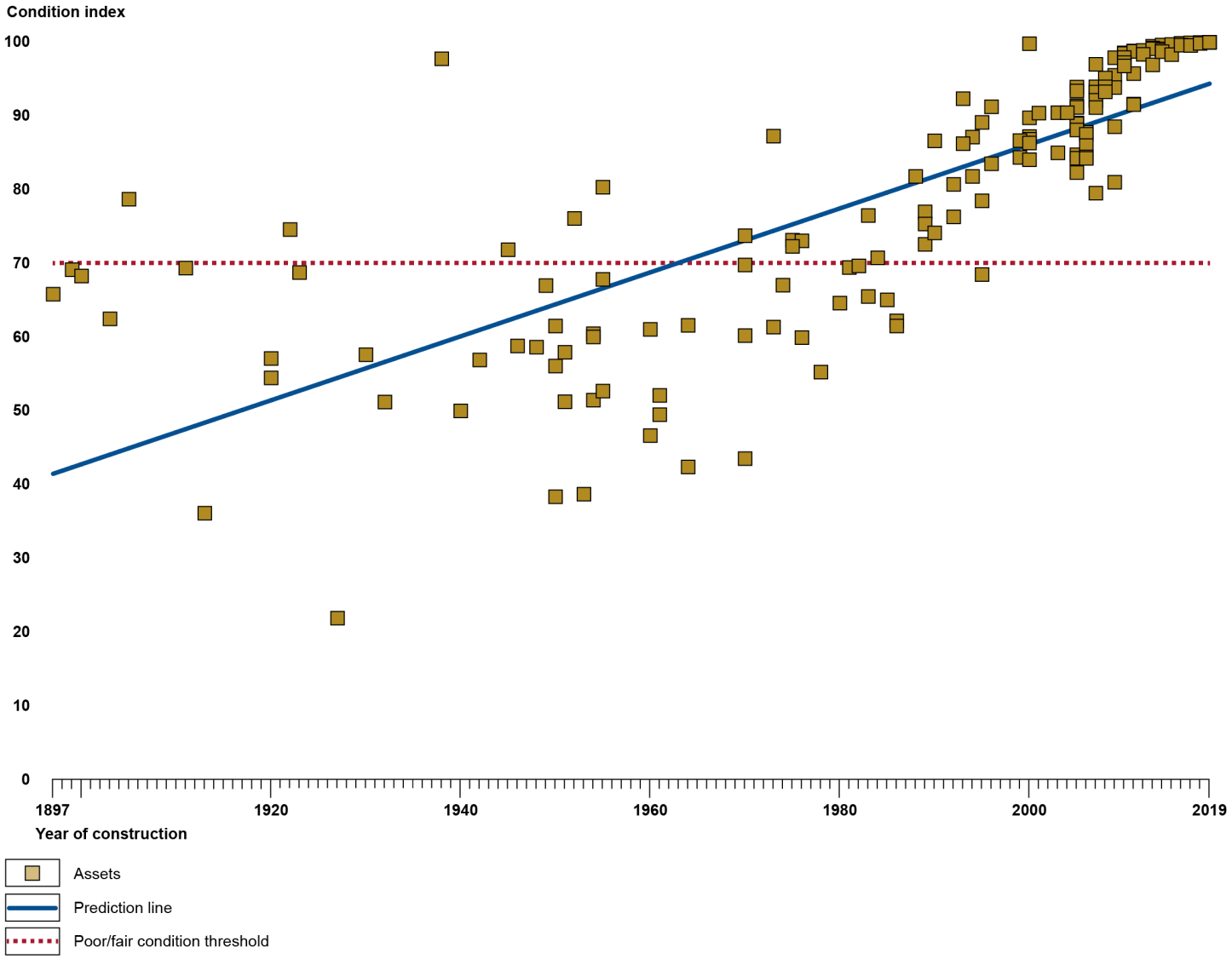
Figure 19: Association of Asset Condition with Year Asset was Built for Ambassadors' Residences



Source: GAO analysis of Department of State data. | GAO-21-497

Note: 176 ambassadorial residence assets are included in this figure, and 98 (55.7 percent) of them fall below a condition index of 70.

Figure 20: Association of Asset Condition with Year Asset was Built for Chancery Office Buildings



Source: GAO analysis of Department of State data. | GAO-21-497

Note: 152 chancery office building assets are included in this figure, and 49 of them (32.2 percent) fall below a condition index of 70.

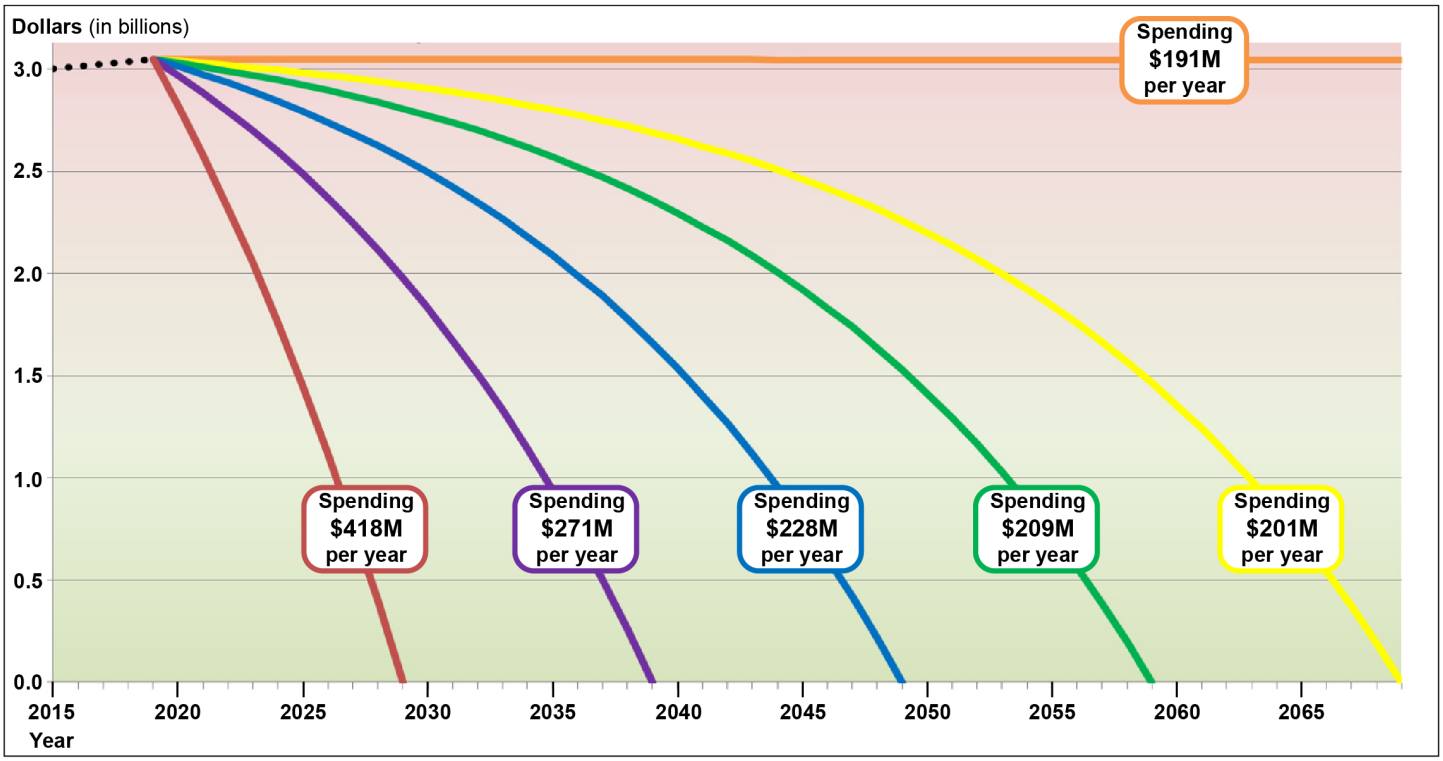
Appendix III: Department of State's Projections for Eliminating Its Deferred Maintenance and Repair Backlog

In 2019, Department of State's Bureau of Overseas Buildings Operations (OBO) examined time frames for eliminating its estimated $3 billion deferred maintenance and repair backlog based on various funding scenarios.[1] Figure 21 shows the estimated maintenance and repair funding required each year to eliminate the backlog and bring all assets to an acceptable condition of "fair"[2] in approximately 10, 20, 30, 40, and 50 years, according to OBO's projections in 2019.

[1]According to OBO, the funding scenarios represent 2019 current-year dollars, unadjusted for future inflation.

[2]State established a condition index score of 70 percent (fair) as its acceptable condition standard for all of its overseas assets. State calculates a condition index score for each asset based on the estimated costs to repair an asset in relation to an asset's replacement value. State defines condition index scores as follows: 90 to 100 percent = good condition, 70 to 89 percent = fair condition, and 69 percent or less = poor condition.

Figure 21: State's Projections for Eliminating Its Estimated $3 Billion Deferred Maintenance and Repair Backlog Based on Various Funding Scenarios, 2019



Source: GAO presentation of Department of State graphic. | GAO-21-497

Text of Figure 21: State's Projections for Eliminating Its Estimated $3 Billion Deferred Maintenance and Repair Backlog Based on Various Funding Scenarios, 2019

- $191 million per year required to maintain current deferred maintenance and repair (DM&R).
- $201 million spending per year eliminates DM&R in 50 years
- $209 million spending per year eliminates DM&R in 40 years
- $228 million spending per year eliminates DM&R in 30 years

- $271 million spending per year eliminates DM&R in 20 years
- $418 million spending per year eliminates DM&R in 10 years

Notes: According to State's Bureau of Overseas Buildings Operations (OBO), the maintenance and repair funding depicted represents 2019 current-year dollars, unadjusted for future inflation, and includes funds for repairs and replacements of assets and building systems to restore conditions to their originally designated purpose (known as restoration).

As shown by the orange line, OBO estimated that $191 million is required for maintenance and repair each year to stabilize its estimated $3 billion deferred maintenance and repair backlog, such that the backlog neither increases nor decreases.

In addition to the funding depicted, State's projections incorporated other factors that might help reduce the backlog, such as completing major rehabilitation projects where funding for such projects would be $250 million annually.

Source: GAO presentation of Dept. of State data. | GAO-21-497

Appendix IV: Predictive Models for Managing Deferred Maintenance and Repair Backlogs

We previously identified nine leading practices as effective strategies for managing deferred maintenance and repair backlogs.[1] One of these practices is to employ models for predicting the outcome of investments, analyzing tradeoffs, and optimizing among competing investments. Specifically, agencies should employ models to predict the future condition and performance of its assets as a portfolio to ensure that investment decisions are aligned with agency missions and goals. Performance-prediction models forecast the deterioration of building components over time and are important because certain asset components are particularly prone to deterioration or failure, thus requiring more frequent maintenance or repairs. See table 10 for examples of such predictive models, according to the National Research Council.

Table 10: Examples of Predictive Models for Decision Support

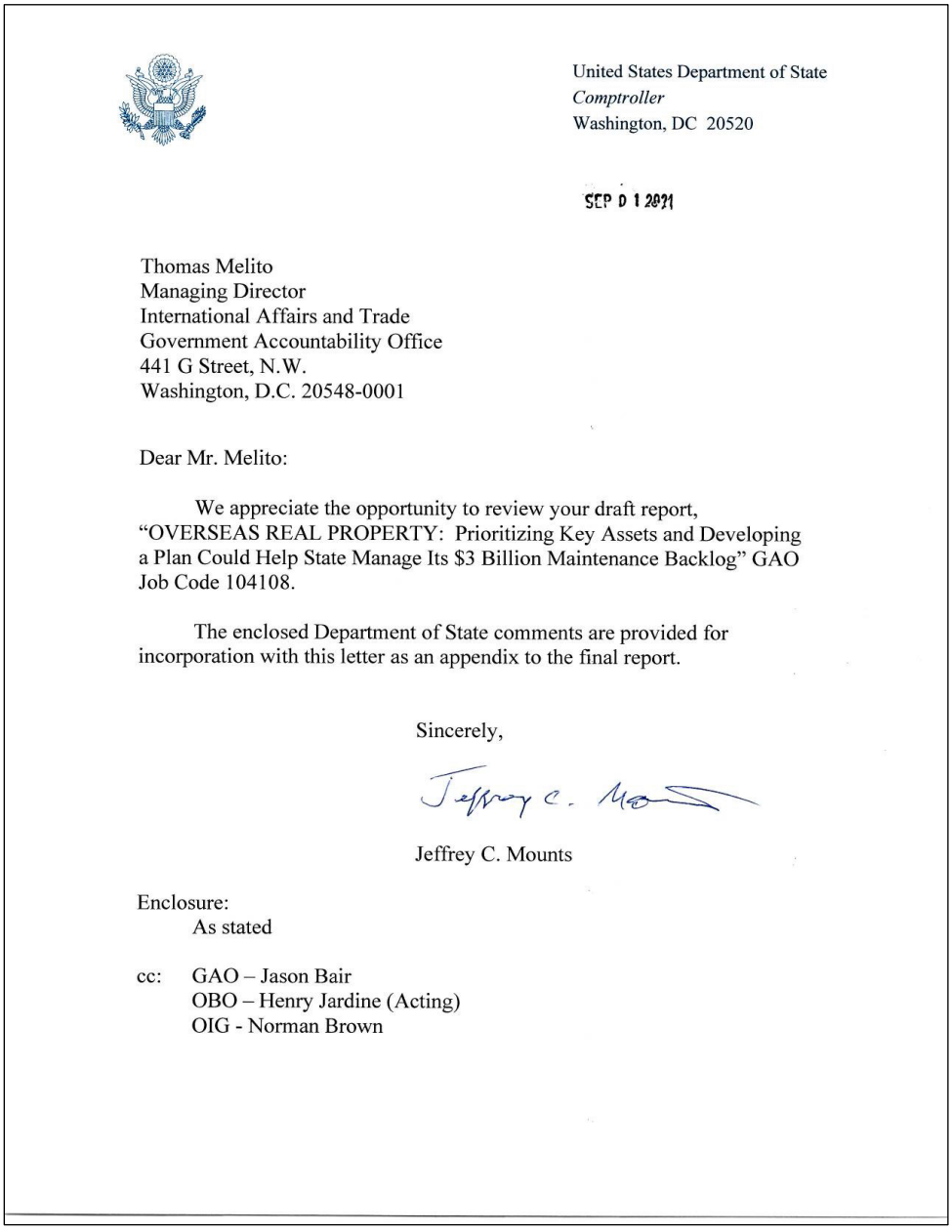
Model	Description
Service life and remaining service life models	Models that predict the expected service life or remaining service life of building systems and components and help determine the appropriate timing of investments for maintenance and repair or replacement.
Weibull models	Models that estimate the probability of failure of building or infrastructure systems or components.
Engineering analysis	Analyses, such as fatigue analysis and wear-rate analysis, used to predict the remaining life of a system or component.
Parametric models for cost-estimating or budgeting	Economic-based (such as depreciation) or engineering-based (such as physical condition) models that can be used to develop multiyear maintenance and repair programs and cost estimates for annual budget development.
Operations research models	Various decision support models that have been applied to some types of infrastructures (such as bridges).

[1]See GAO, *Federal Real Property: Improved Transparency Could Help Efforts to Manage Agencies' Maintenance and Repair Backlogs,* GAO-14-188 (Washington, D.C.: Jan. 23, 2014).

Model	Description
Simulation models	Models used to analyze the results of “what if?” scenarios that can be used to set priorities for maintenance and repair work based on different variables, including budget.
Proprietary models	Facilities asset models developed for various applications, including the prediction of outcomes of investments for maintenance and repair, by private-sector organizations.

Source: GAO summary of information identified in National Research Council, Predicting Outcomes of Investments in Maintenance and Repair of Federal Facilities (Washington, D.C.: The National Academies Press, 2012). | GAO-21-497

Appendix V: Comments from the Department of State



United States Department of State
Comptroller
Washington, DC 20520

SEP 0 1 2021

Thomas Melito
Managing Director
International Affairs and Trade
Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548-0001

Dear Mr. Melito:

We appreciate the opportunity to review your draft report, "OVERSEAS REAL PROPERTY: Prioritizing Key Assets and Developing a Plan Could Help State Manage Its $3 Billion Maintenance Backlog" GAO Job Code 104108.

The enclosed Department of State comments are provided for incorporation with this letter as an appendix to the final report.

Sincerely,

Jeffrey C. Mounts

Enclosure:
As stated

cc: GAO – Jason Bair
OBO – Henry Jardine (Acting)
OIG - Norman Brown

Department of State Response to GAO Draft Report

OVERSEAS REAL PROPERTY: Prioritizing Key Assets and Developing a Plan Could Help State Manage Its $3 Billion Maintenance Backlog
(GAO-21-479, GAO Code 104108)

Thank you for the opportunity to comment on your draft report "*Overseas Real Property: Prioritizing Key Assets and Developing a Plan Could Help State Manage Its $3 Billion Maintenance Backlog*".

Recommendation 1: The Secretary of State should ensure that the Director of OBO reassess State's acceptable condition standard for all asset types and mission dependencies, to include whether mission criticality justifies a different standard among assets.

Department Response: OBO concurs with GAO's recommendation and will reassess the Department of State's acceptable facilities condition standard for all asset types and mission dependencies, including the use of mission criticality.

Recommendation 2: The Secretary of State should ensure that the Director of OBO incorporate the mission criticality of its assets when deciding how to target maintenance and repair investments.

Department Response: OBO concurs with GAO's recommendation and will conduct a review of how to incorporate mission criticality when determining how to target maintenance and repair investments.

Recommendation 3: The Secretary of State should ensure that the Director of OBO monitor posts' completion of annual condition assessments using a standardized inspection methodology so that State has complete and consistent data to address its deferred maintenance and repair backlog.

Department Response: OBO concurs with GAO's recommendation. OBO has developed an Annual Facility Condition Survey with a standardized inspection methodology to monitor posts' completion beginning in FY 2022. This improved tracking and monitoring will provide the Department with more accurate data on maintenance and repair needs, and the deferred maintenance and repair backlog.

Recommendation 4: The Secretary of State should ensure that the Director of OBO develop a plan to address State's deferred maintenance and repair backlog, specifically identifying in congressional budget requests the funding and time frames needed to reduce it.

Department Response: OBO concurs with GAO's recommendation but does not agree with the implication that OBO does not currently have a plan to address the deferred maintenance and repair backlog. Also, this recommendation should not infringe the authority of the Secretary of State and the President to set the priorities in OBO's annual budget requests. OBO has several initiatives underway aimed at improving the management of its real property assets, including addressing deferred maintenance and repair, to include shifting to a lifecycle asset management approach and developing a Sustainment, Restoration, and Modernization (SRM) framework to help categorize requirements affecting deferred maintenance and repair backlog. Additionally, OBO is developing a cross-program prioritization strategy to establish a systematic methodology and common criteria across all funding lines, including maintenance and repair programs, to assess and prioritize facility needs and resource allocation. While these initiatives are long-term strategies, OBO intends them to inform future budget requests and priorities for allocating funds to address deferred maintenance and repair beginning in FY 2024. Finally, the accuracy of a "time frame to reduce it" is contingent upon further progress on recommendations #1, #2 and #3.

Recommendation 5: The Secretary of State should ensure that the Director of OBO employ models for predicting the outcome of investments, analyzing tradeoffs, and optimizing among competing investments.

Department Response: OBO concurs with GAO's recommendation and has already begun exploring predictive models to optimize portfolio performance and reliability-centered maintenance.

Conclusion: The Department appreciates the opportunity to comment on the draft report and is committed to implementing the five recommendations as a part of our continued efforts to manage our deferred maintenance backlog more effectively and develop maintenance and repair strategies that protect and preserve our worldwide assets. We look forward to receiving the published report and updating you on our progress.

Text of Appendix V: Comments from the Department of State

Thomas Melito Managing Director

International Affairs and Trade Government Accountability Office 441 G Street, N.W.

Washington, D.C. 20548-0001

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Jeffrey C. Mounts

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As stated

cc: GAO- Jason Bair

OBO-Henry Jardine (Acting) OIG - Norman Brown

Department of State Response to GAO Draft Report

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Appendix VI: GAO Contacts and Staff Acknowledgments

GAO Contacts

Jason Bair, (202) 512-6881, or bairj@gao.gov, or Catina B. Latham (202) 512-2834, or lathamc@gao.gov.

Staff Acknowledgments

In addition to the contacts named above, Leslie Holen (Assistant Director), Matthew Cook (Assistant Director), Julia Jebo Grant (Analyst-in-Charge), Joshua Akery, Ashley Alley, John Bauckman, Neil Doherty, David Dornisch, John Hussey, and Maria Psara made key contributions to this report.

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