



Smithsonian
Facilities

Capital Program Outlook

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SAME-CMAA

Technical Workshop & Business Forum

October 17, 2019



ARTS & INDUSTRIES BUILDING



SMITHSONIAN CASTLE

Smithsonian Institution Overview

PURPOSE

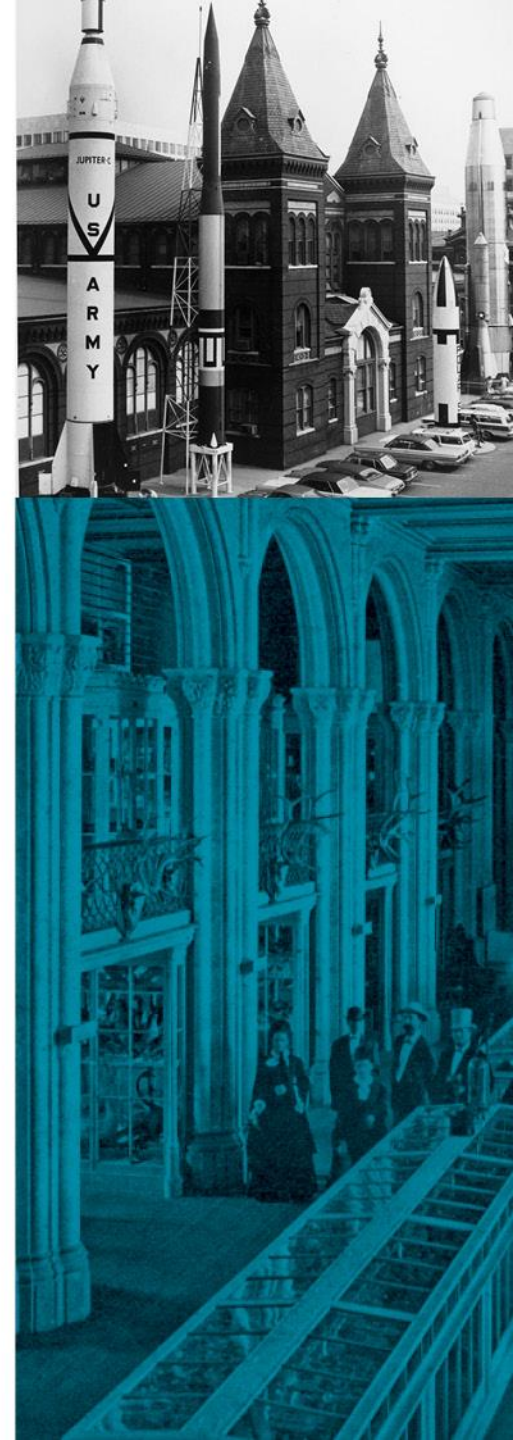
For the increase and diffusion of knowledge.

VISION

The Smithsonian Institution will build on its unique strengths to engage and to inspire more people, where they are, with greater impact, while catalyzing critical conversation on issues affecting our nation and the world.

MISSION

- Create knowledge through high impact research in science, art, history, and culture.
- Preserve our national and natural heritage, as well as aspects of other cultures, through art and its curation, by maintaining important historical artifacts, and by caring for and expanding the National Collection.
- Shares knowledge with the public through compelling exhibitions, education programs, and media products, by telling the American story, and by showcasing American artistic, intellectual, and technological leadership.



By the Numbers

19 MUSEUMS

9 RESEARCH CENTERS

3 CULTURAL CENTERS

1 ZOOLOGICAL PARK

6,675 EMPLOYEES



29.3 MILLION VISITORS ANNUALLY

15 = 1 MILLION VISITORS



154.8 MILLION MUSEUM OBJECTS & SPECIMENS

15 = 15 MILLION OBJECTS

28,533 acres
11,547 Hectares
OF PROPERTY

13.9 Million sq ft
1.3 Million sq meters
OF BUILDING SPACE (OWNED & LEASED)

Smithsonian Facilities

MISSION

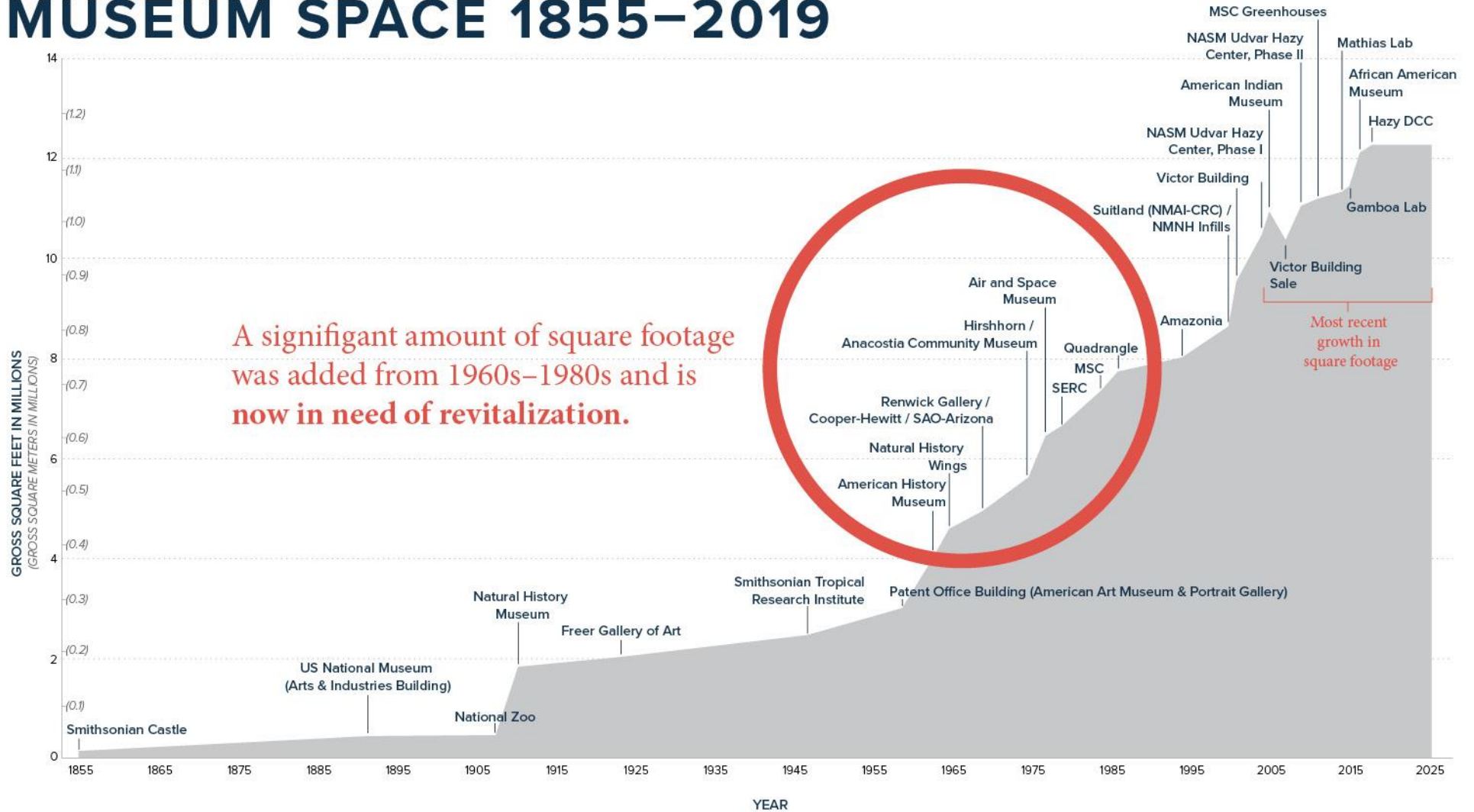
The Smithsonian Facilities (SF) programs underpin the Smithsonian's mission to advance the "increase and diffusion of knowledge." SF builds, maintains, and operates all Smithsonian buildings and collections to allow millions of our visitors access to:

- World-renowned research and scholarship;
- Exhibitions of America's treasures; and
- Programs that fully engage them in exciting learning experiences



GROWTH IN SMITHSONIAN OWNED MUSEUM SPACE 1855–2019

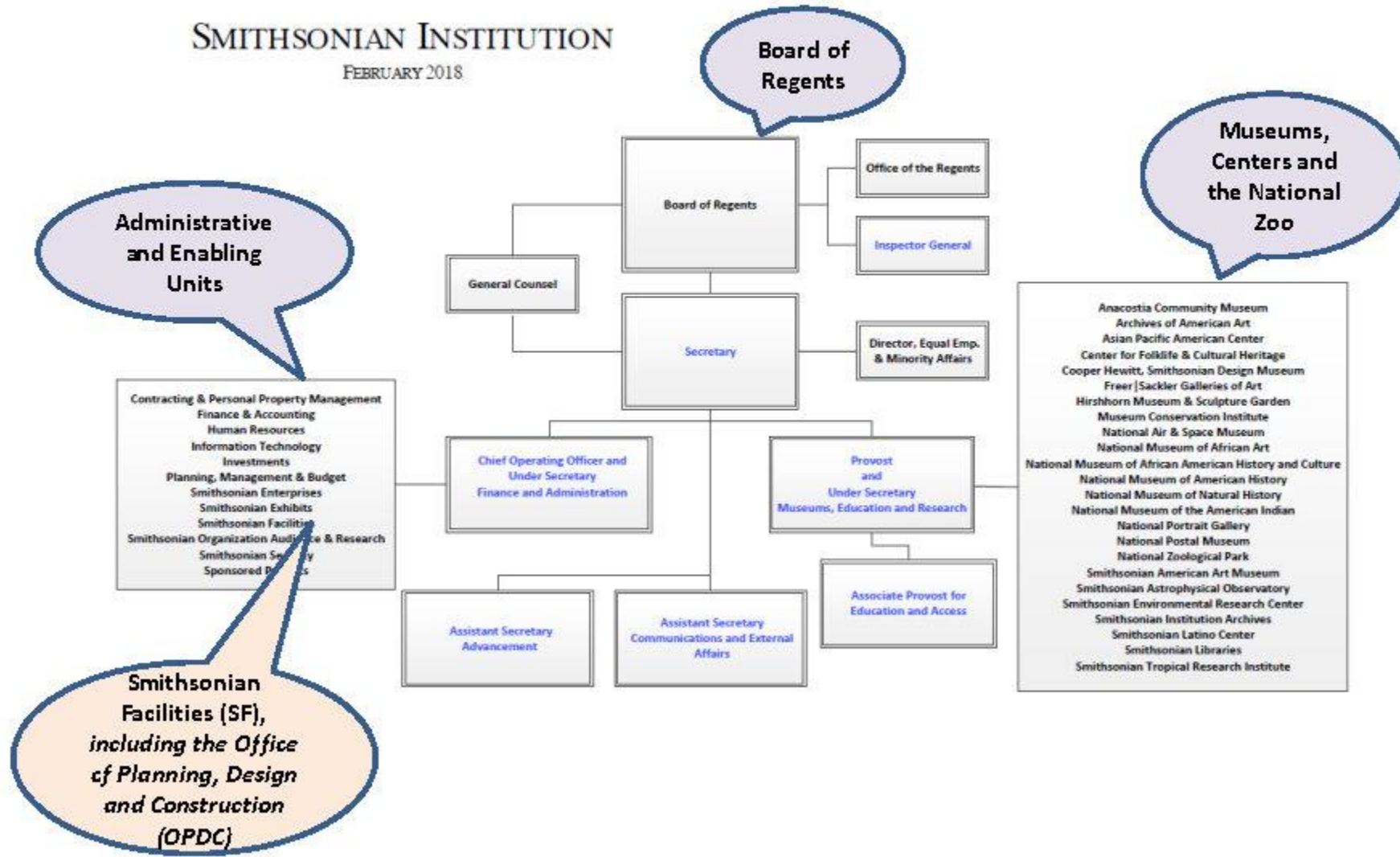
Our Facilities



An additional 1.8 million sq. ft. of leased space is also part of SI's space portfolio and maintained by Smithsonian Facilities.

Stakeholder Management

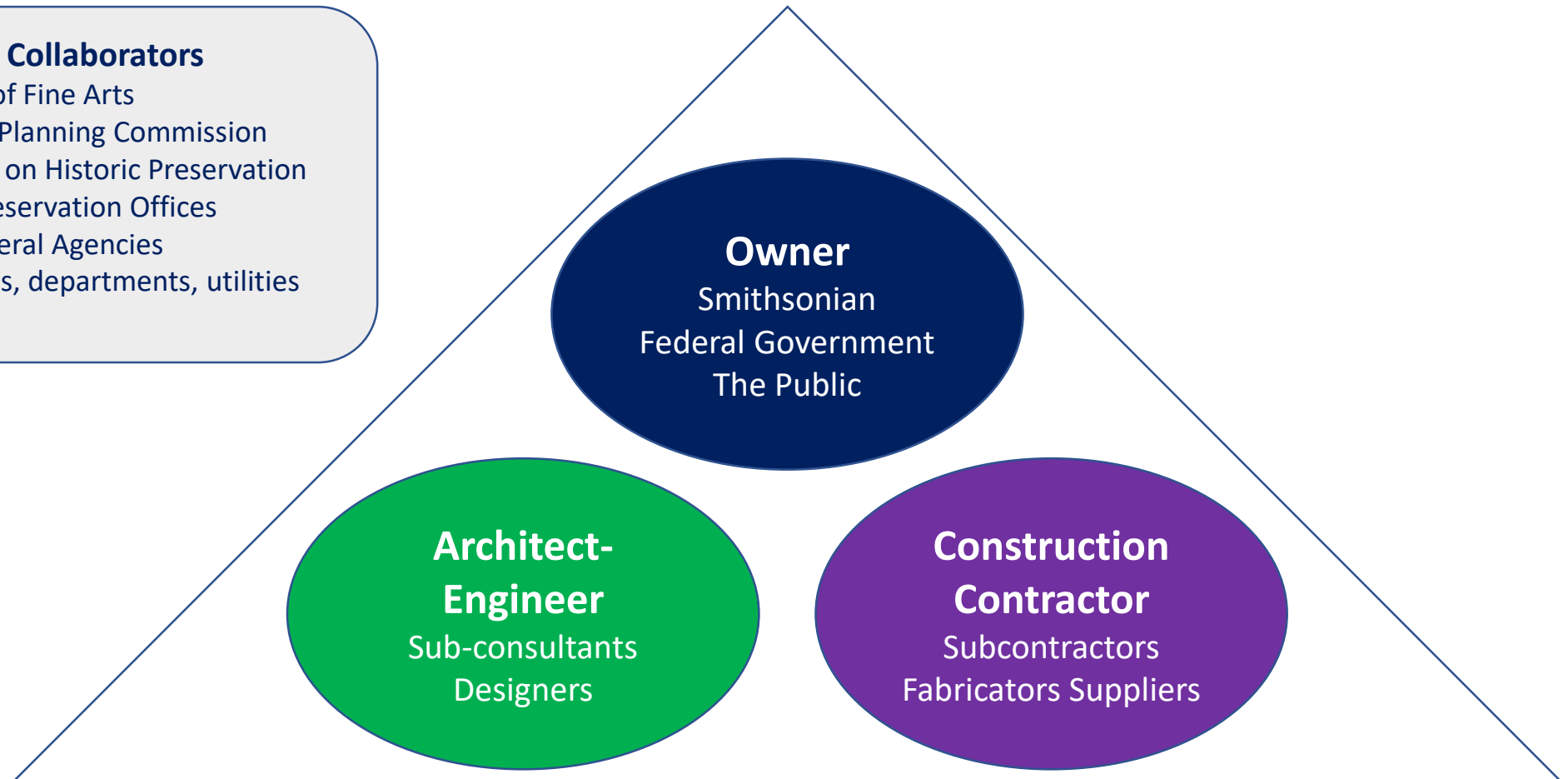
SMITHSONIAN INSTITUTION
FEBRUARY 2018



Partnering / Collaboration

External Collaborators

- US Commission of Fine Arts
- National Capital Planning Commission
- Advisory Council on Historic Preservation
- State Historic Preservation Offices
- Neighboring Federal Agencies
- Local jurisdictions, departments, utilities
- OMB, Congress



Capital Program Highlights FY2019



Construction Substantial Completion

- MSC Pods Roof Replacement
- NASM Dulles Collections Center Module 1
- CHSDM Rehabilitate Mansion Sidewalks
- NMNH West Court Revitalization

Designs Completed / Construction Awarded

- FGA Mass Notification
- NASM-UHC Restore Exterior Envelope and Replace Roof
- NMAH Improve Objects Processing Facility
- NMAI-NY Modernize Electronic Security
- NZP-DC Upgrade Fire Alarm Panels
- SIB (Castle) Façade Stabilization



Facility Condition Index

ALL FACILITIES ARE PHYSICALLY SURVEYED to evaluate the condition of site components and systems on a 3-year cycle.

DATA IS USED TO DETERMINE Deferred Maintenance and Repair (DM&R) costs and Current Replacement Value (CRV).

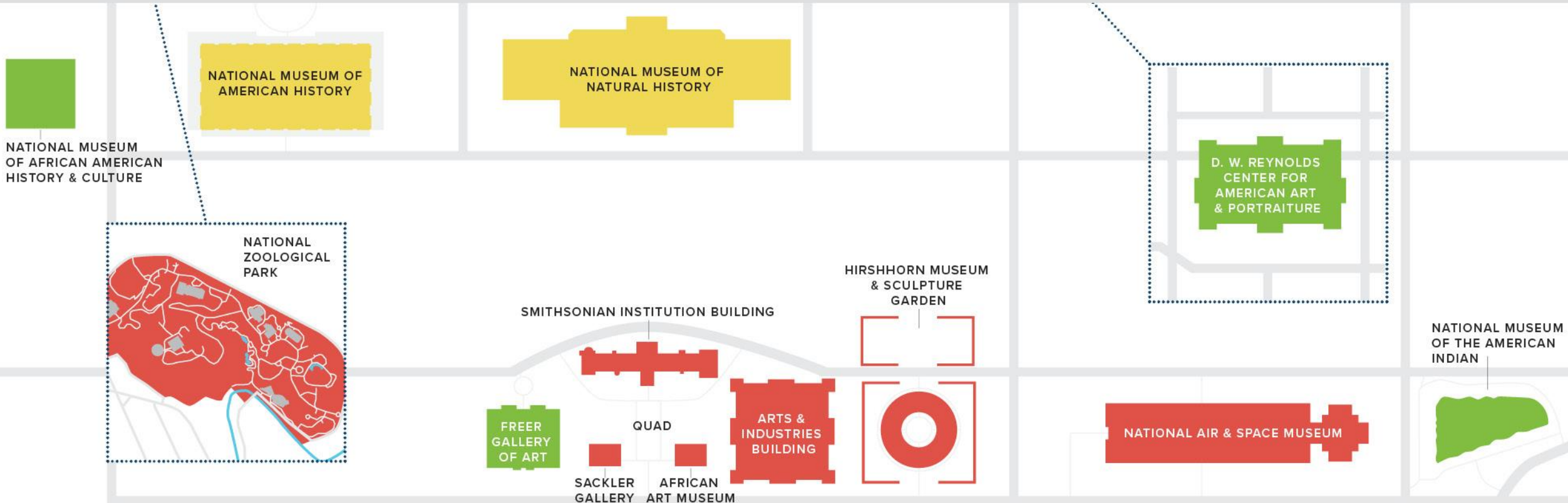
THESE METRICS PRODUCE THE FACILITIES CONDITION INDEX (FCI), which ranks the overall condition of individual facilities on a Poor-Fair-Good scale.



DC METRO REGION

FACILITY CONDITION INDEX

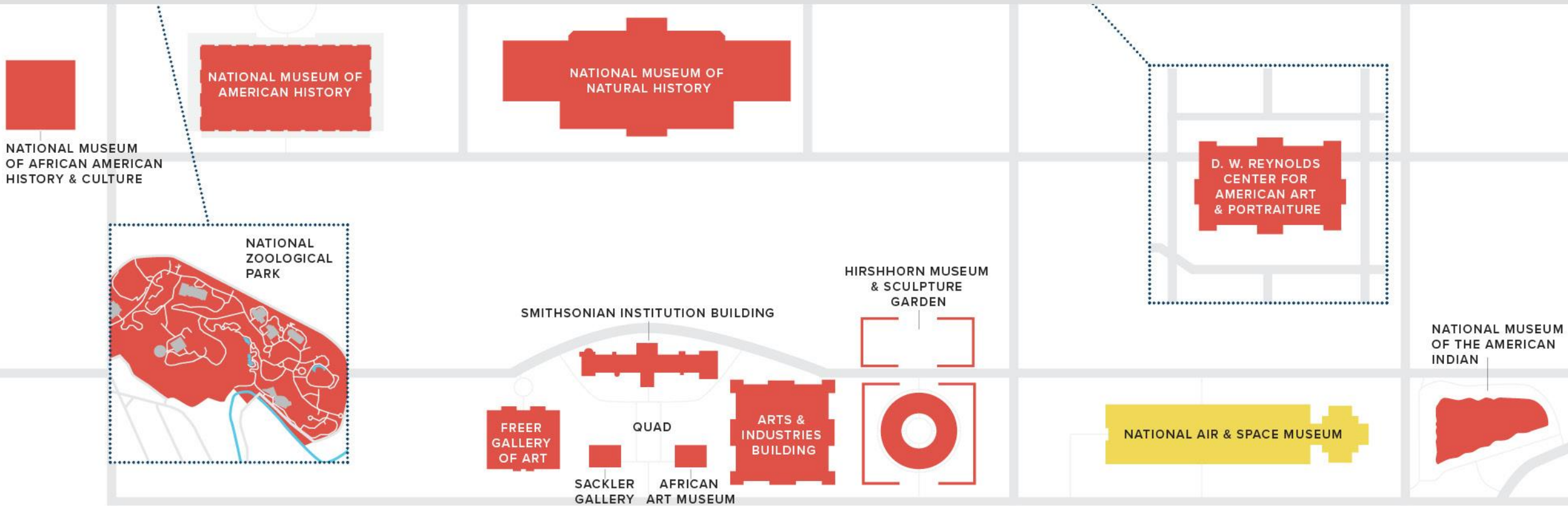
FY19 BASELINE (.89% CRV)



DC METRO REGION

FACILITY CONDITION INDEX

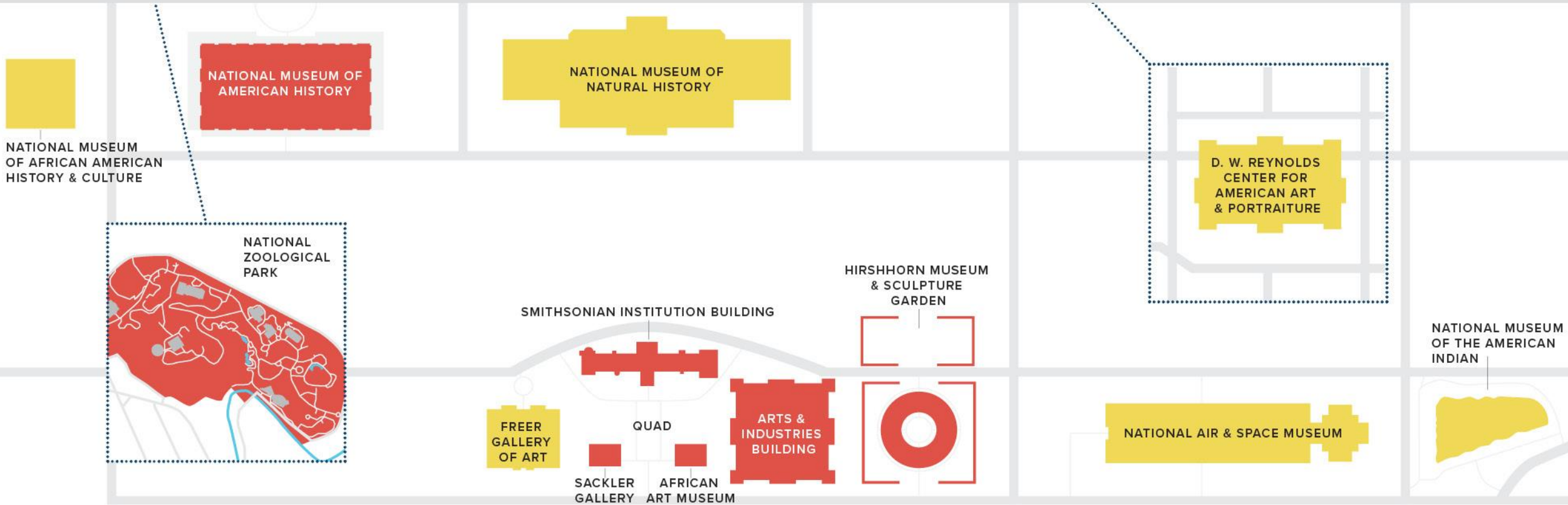
PROJECTED IN 2030 WITH STATUS QUO FUNDING (.89% CRV)



DC METRO REGION

FACILITY CONDITION INDEX

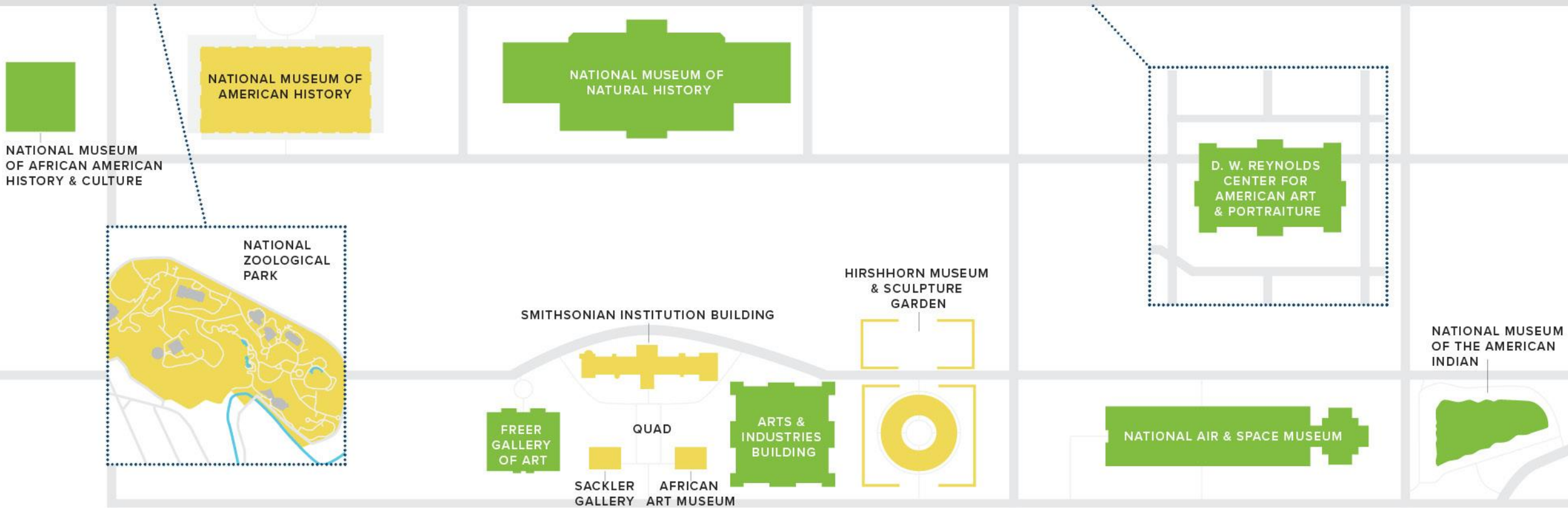
PROJECTED IN 2030 USING INDUSTRY AVERAGE FUNDING LEVELS (2.43% CRV)



DC METRO REGION

FACILITY CONDITION INDEX

PROJECTED IN 2030 USING WORLD CLASS FUNDING LEVELS (3% CRV)



*Assumes that the NASM Revitalization is fully funded by 2028



Smithsonian Institution
National Air and Space Museum
STEVEN F. UDVAR-HAZY CENTER

NATIONAL AIR AND SPACE MUSEUM
UDVAR-HAZY CENTER

Making the Case



NATIONAL MUSEUM OF
NATURAL HISTORY

Why Adequate Funding Matters

Enhancement Of Visitor Experience

Dedication to public education; national service; and scholarship in art, design, science, technology, history, and culture through our museums and collections.

Protection of Collections

Protection and preservation of our country's treasures for the enjoyment of generations to come.

Ensure Public Safety, Security

Funding helps to resolve safety hazards, liability and code compliance.

Prevent Cost Escalation

\$1 spent now could save \$10 in the future.

More Efficient Use of Funds

Performing Predictive & Preventive Maintenance instead of Reactive Maintenance.



Making a Difference

UNDERSTANDING OUR NEEDS

Smithsonian Facilities' budget request of 2.43% of the SI-Wide Current Replacement Value (\$8.447 B) enables the Institution to fulfill its mission and sustain facility capital and maintenance investment needs.

FACILITIES CAPITAL \$300M

Safety/Security

Revitalization

Addressing Deferred
Maintenance

FACILITIES MAINTENANCE \$150M

Deferred Maintenance

Predictive &
Preventive Maintenance

REQUEST FOR
**2.43% OF CURRENT
REPLACEMENT VALUE (\$8.447B)**



NATIONAL AIR AND
SPACE MUSEUM

Revitalization and Construction

Needs and Challenges over the next Decade



- National Air and Space Museum Envelope and Major Systems Renewal - underway
- National Zoological Park – continued revitalization
- National Museum of Natural History – continued revitalization
- National Museum of American History – continued infrastructure repairs leading to East Wing Renewal
- **Smithsonian Historic Core (Castle & Arts & Industries Building) – restoration and systems renewal**
- **Hirshhorn Museum and Sculpture Garden – Garden Revitalization, Roof & Exterior Wall Panels Replacements, Escalator & Elevator Modernizations, and Major systems renewal**
- **Collections Space revitalization and expansion**

Facilities Capital FY2019 – FY2021

Category	FY19 Final	FY20 CR	FY20 House Mark	FY20 Senate Mark	FY21 OMB Requirements
Facilities Planning and Design (FPD)	\$17.0M	\$2.4M	\$29.6M	\$23.5M	\$50.9M
Revitalization NASM	\$210.0M	\$29.4M	\$100.0M	\$190.0M	\$90.0M
Revitalization All Others	\$76.5M	\$10.7M	\$89.4M	\$83.0M	\$159.1M
<i>Subtotal Revit + FPD</i>	<i>\$303.5M</i>	<i>\$42.5M</i>	<i>\$219.0M</i>	<i>\$296.5M</i>	<i>\$300.0M</i>
New Construction / Suppl.	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
TOTALS	\$303.5M	\$42.5M*	\$219.0M	\$296.5M	\$300.0M

*FY 20 CR provides funding to Nov 21, 2019 and is 14% of the FY 19 Allocation.

FACILITIES PLANNING & DESIGN (FPD): This funding enables development of project baselines, including scope, cost, and schedule prior to receiving revitalization and construction funds to perform the work. FPD funding provides for needs assessments, feasibility studies, master planning, and design for all capital projects.

REVITALIZATION: Investment in revitalization projects provides for the replacement of failing or failed major building systems and equipment and for major renovation projects to preserve the buildings. It primarily includes the exterior envelope, HVAC, electrical, and other utility systems. Projects also entail modifications to ensure compliance with life-safety regulations, accessibility requirements, code compliance, restoration of historic features, and modernization.

CONSTRUCTION: Capital Construction funding may be authorized to support the creation or expansion of a mission, program and/or facility footprint.

Upcoming Capital Projects

FY20-21 Construction/Renovation Starts

Projects > \$500M

- **SIB(Castle)/Arts & Industries** – Revitalization of Historic Core - *CMc*

Projects > \$10M

- **HMSG** – Replace Roof and Exterior Wall Panels
- **HMSG** – Revitalize Sculpture Garden
- **MSC** – Replace Air Handling Units

Projects > \$5M

- **NMNH** – Upgrade Electrical Systems and Components
- **NMAI-NYC** – Replace Air Handling Units 1-4
- **NMAI-DC** – National Native American Veterans Memorial – *CMc*



Smithsonian Facilities

Revitalize Historic Core



MISSION / SCOPE:

The Smithsonian Institution Building, the “Castle,” is the Institution’s first home and its symbolic heart. The Arts and Industries Building opened in 1881 as the first home of the National Museum. Together, these two buildings comprise the Smithsonian’s Historic Core. Both buildings are in need of major revitalization, work that will include new, efficient heating, air conditioning, and ventilation systems; new electrical and plumbing systems, and new telecommunications, security and life safety systems. A new, underground Central Utility Plant will provide mechanical and electrical infrastructure and a new Consolidated Loading Facility will improve the efficiency and safety of materials handling in the South Mall Campus. A goal of the revitalization will be to provide efficient and accessible space for visitors and staff. Public spaces will be restored after years of piecemeal remodeling that has diminished their original proportions and appearance.

Office of Planning, Design and Construction
September 2019

Budget and Funding – Design and Construction

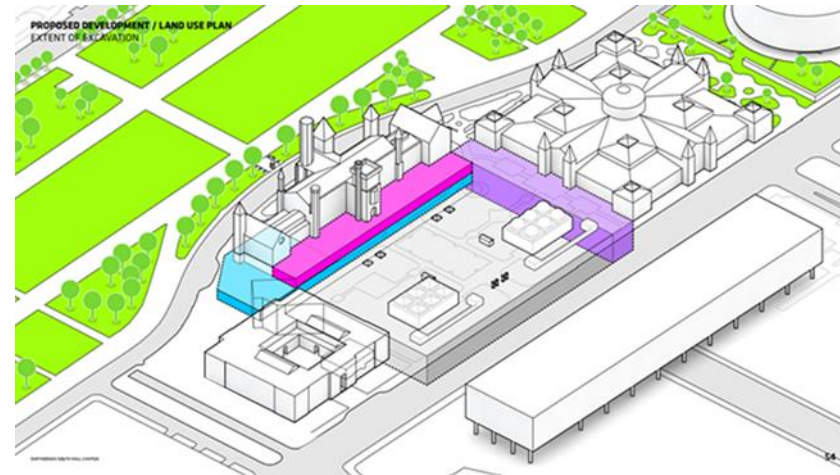
Federal (FY19-25) >\$500M

Schedule	% complete	Timeframe
Design:	0%	2020 – 2022
Construction:	0%	2021 – 2025+

Upcoming Milestones:

Selection of AE October 2019

SIB Programming Study Complete January 2020





Smithsonian Facilities

Hirshhorn Museum and Sculpture Garden Repair Building Envelope - Roof and Panels



View of Exterior Panel and Cavity without a Vapor Barrier and Insulation

Scope

The Hirshhorn Museum and Sculpture Garden has multiple Building Envelope deficiencies due to age and method of construction. These deficiencies contribute to leaking and poor thermal performance. Phased construction is planned to address these problems. Replacement of the roof, plus removal of the panels to provide a new attachment system, vapor barrier and insulation will be first due to the urgent need for these repairs. New panels will be installed. Design for these repairs is underway now. Other major building envelope deficiencies, such as the plaza water-proofing, repair of plaza walls, and window replacement will be addressed when the building closes for major revitalization in FY 2025.

Office of Planning, Design and Construction

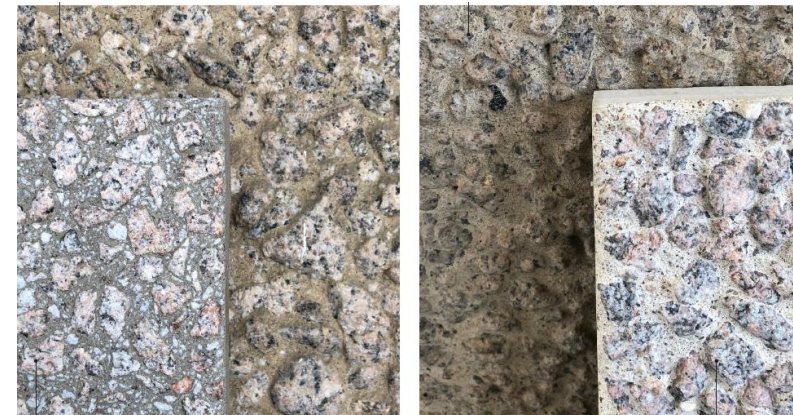
September 2019

Budget >\$10M

Schedule	Completion	Year
Design	65%	2019
Construction		2020-22

Upcoming Milestones:

100% Design January 2020



Mock-up Samples for Aggregate



Hirshhorn Museum and Sculpture Garden Revitalize Sculpture Garden



Concept Design for Sculpture Garden Revitalization

Scope

The Hirshhorn Museum and Sculpture Garden infrastructure will be revitalized and design modifications will be made to suit the current programmatic needs for sculpture display, performances, and public events. Improvements to the landscape planting, major repair or replacement of the deteriorated garden walls and replacement of waterproofing at the tunnel are required. The tunnel will be re-opened to connect to the plaza. This project will be joint funded with Federal and Museum funding.

Design Budget

>\$10M

Schedule

Schedule	Completion	Year
Concept Design	100%	2019
Design		2019-20
Construction		2022-24

Upcoming Milestones:

Schematic Design Completion September 30, 2019



Mock-up Samples for Stone Walls



**Suitland Collections Facility
MSC Replace Lab and Pod AHUs**



Budget >\$10M

Schedule	% Complete	Timeframe
Planning and design	80%	2018-2019
Construction, Phase 1		2020–2021
Construction, Phase 2		2022-2024

Upcoming Milestones
Complete AHU 100% design October 2019

Mission/Scope:

The 11 air handling units (AHUs) serving the lab/office areas and Pods 1, 2 and 4 in MSC are well past their useful lives, and are in need of replacement. This project will replace the AHUs with new, state-of-the-art equipment. The project will also include upgrade of other mechanical systems serving the lab/office spaces. The project will be executed in several phases. The first phase will be replacement of the AHUs supporting the Lab 1 and 2 areas.

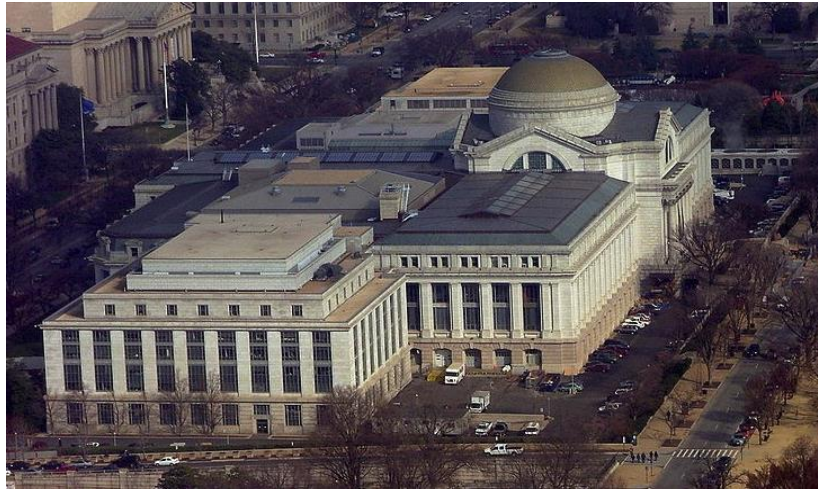




Smithsonian Facilities

National Museum of Natural History Upgrade Electrical System

Office of Planning, Design and Construction
September 2019



Budget and Funding: >\$5M

Schedule:	% Complete:	Timeframe:
Design	75%	2016-2020
Construction:	0%	2020-2022

Upcoming Milestones:
100% Contract Documents complete February 2020

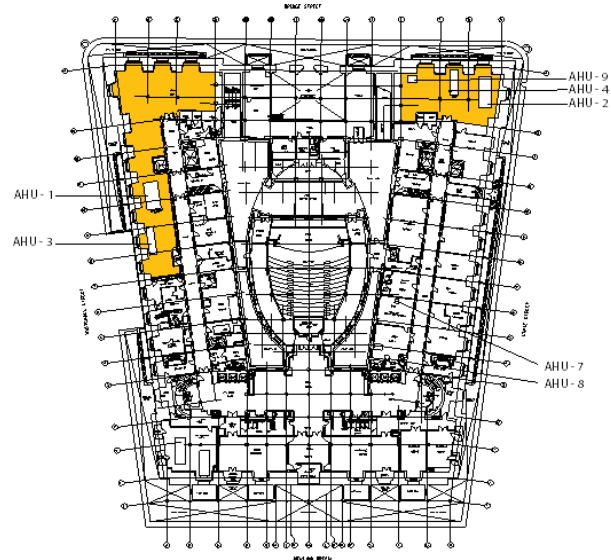
MISSION / SCOPE:

Most of NMNH’s electrical systems were installed in the early 1960s. At more than fifty years of age, they are in need of major replacement. Breakdowns of the systems are frequent, repair parts are difficult to find and the systems are not code compliant, presenting a hazard to visitors and collections. The reliability of the electrical system is compromised by the deteriorated condition of the antiquated switchboards, bus ducts, network protectors, generators, transfer switches, distribution and branch circuit panelboards. In order to protect visitors, staff and collections NMNH’s aging electrical system and components must be upgraded and new dedicated life-safety panels must be installed.





National Museum of the American Indian - NY Replace AHUs 1-4



Smithsonian Mechanical Rms (yellow) Custom House Basement

Scope

The existing four HVAC air handling units were installed with the initial construction of the NMAI-NY museum in the 1990s and have reached the end of their expected life cycle. The system to convert GSA steam to hot water in support of the AHUs will also be replaced. So continuous conditioned air is maintained to the Museum during construction, a temporary exterior air handler will shift from the west side of the building to the east with the work sequence. The AHU replacement complements the new chillers and cooling towers currently in construction (PN 1295604). After all upgrades are completed, a significant improvement to the energy use profile is expected.

Budget

>\$5M

Schedule

	% Complete	Time frame
Survey/Study:	100%	2016 - 2017
Design:	100%	2018 - 2019
Construction:	0%	2021 - 2022

Upcoming Milestones:

100% Back check Complete		10/31/2019
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Existing HVAC AHU-2 in West Mechanical Room



National Museum of the American Indian - DC Construct National Native American Veterans Memorial



Night view Warriors' Circle of Honor

Scope

By act of Congress, the NMAI will establish a National Native American Veterans Memorial to “give all Americans the opportunity to learn of the proud and courageous tradition of service of Native Americans in the Armed Forces of the United States.” The memorial design has been selected through a juried, two-stage, international design competition, and the winning design team of artist Harvey Pratt and BAU architects was announced on July 4, 2018. The jury recommendations suggested an alternate location for the memorial design on the north side of the NMAI grounds. After the memorial site is determined, design will begin in association with a local architectural firm. Design, construction and fabrication are to be completed in time for a Nov, 11, 2020 opening.

Budget >\$5M

Schedule frame	% Complete	Time
Concept/ Schematic Design	100%	2018 - 2019
Design	35%	2019 - 2019
Construction	0%	2019 - 2020

Upcoming Milestones:

Issue 35% Design Intent Solicitation Docs 9/16/19



Walkway along wetland to Warriors' Circle of Honor

Upcoming Capital Projects FY20-21 Renovation Starts

Projects < \$5M

- **Freer** – Upgrade Leak Detection in Collections Storage
- **Freer** – Improve Courtyard Accessibility
- **Herndon IT Control Center** – Install Transfer Switch
- **MSC** – Upgrade Fire Protection
- **NMAH** – Improve Kitchen Grease Ventilation System
- **NMAH** – Replace Fire Alarm Panels
- **NMAI-DC** – Replace Fire Alarm Panels
- **NZP** – Site Systems and Safety Improvements
- **NZP** – Upgrade Living Collections Infrastructure
- **NZP** – Fire Protection and Smoke Evacuation Upgrades

Questions?

