WELCOME

Smithsonian Institution

National Capital Planning Commission

NATIONAL AIR AND SPACE MUSEUM MALL BUILDING REVITALIZATION

ENVIRONMENTAL ASSESSMENT

SCOPING AND CULTURAL RESOURCES (SECTION 106) CONSULTATION

Meeting Agenda

- Welcome/Introductions
- Purpose of Meeting
- Project Background
- National Environmental Policy Act Overview
- Section 106 Overview
- Project Scope
- Next Steps and Timeline
- Open Discussion and Comments

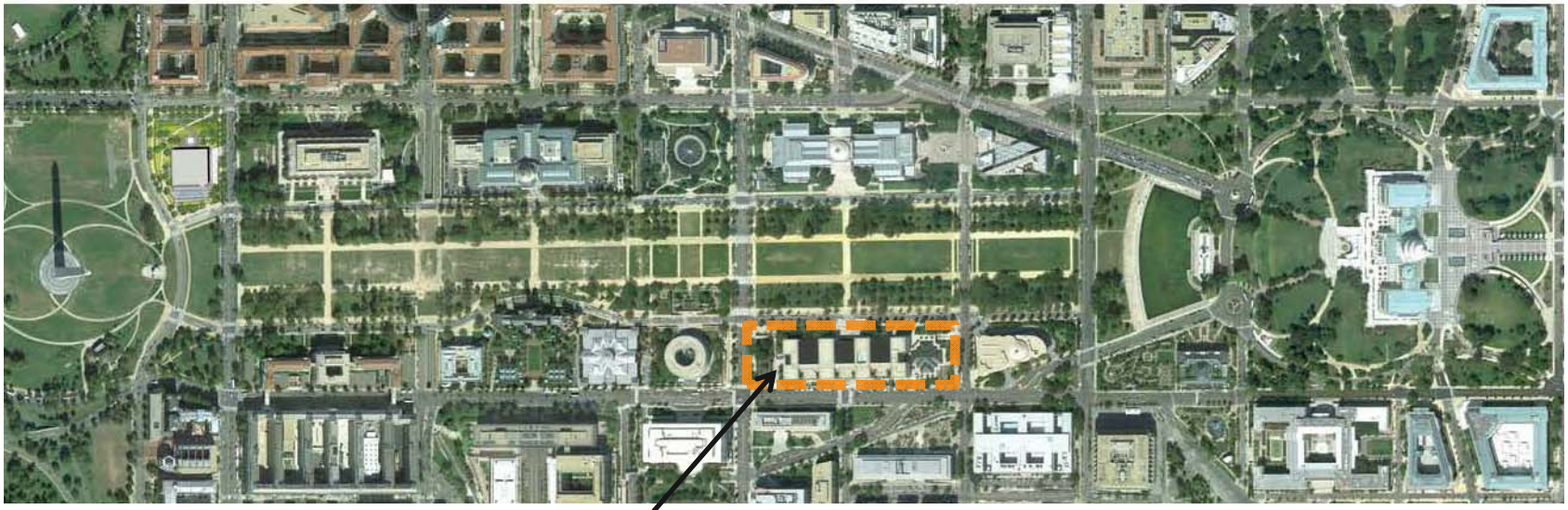
Purpose of Tonight's Meeting

- Notify the public about the project
- Gather early public input
  - Identify impact topics to be analyzed
  - Record input related to alternatives to be considered

Opportunities for Public Input

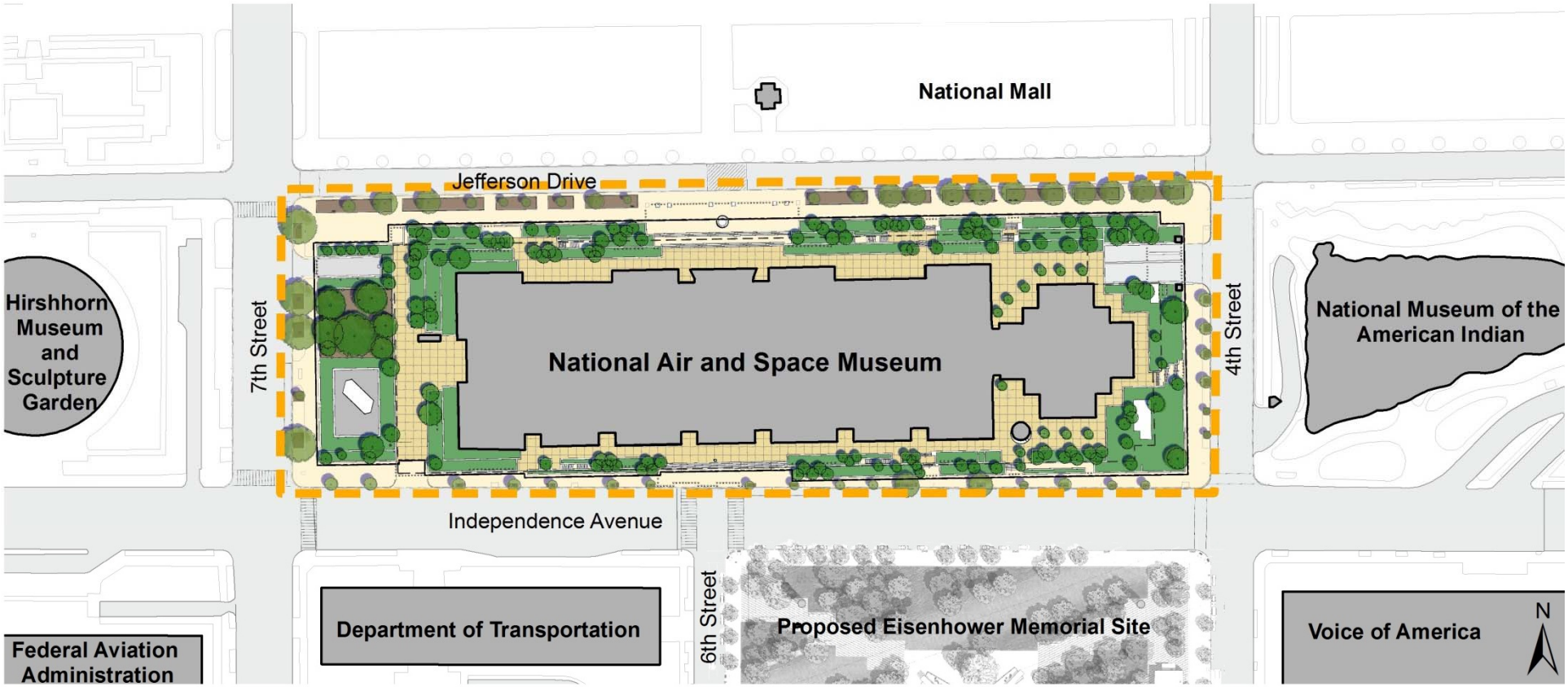
- During NEPA scoping
- During the EA analysis of
  - alternatives
  - the affected environment
  - potential impacts
- In 106 Consultation on the effects on historic resources

Project Location



National Air and
Space Museum

Study Area


National Mall
Jefferson Drive
Hirshhorn Museum and Sculpture Garden
7th Street
National Air and Space Museum
4th Street
National Museum of the American Indian
Independence Avenue
6th Street
Department of Transportation
Proposed Eisenhower Memorial Site
Voice of America
Federal Aviation Administration
N

Exterior Envelope and HVAC

- Sustainability Study
- Exterior Envelope Study
- Feasibility Study

NASM Mall Building Background

- **1958** – planned location authorized by President Eisenhower
- **1971** – Congress appropriated $41 million for building's construction
- **1972-1973** – design by Hellmuth, Obata & Kassabaum (HOK)
- **1976** – opened to the public on July 1 as part of Nation's Bicentennial
- **1995-1997** – last previous major work on stone façade
- **1997-2001** – skylight & window wall replacement

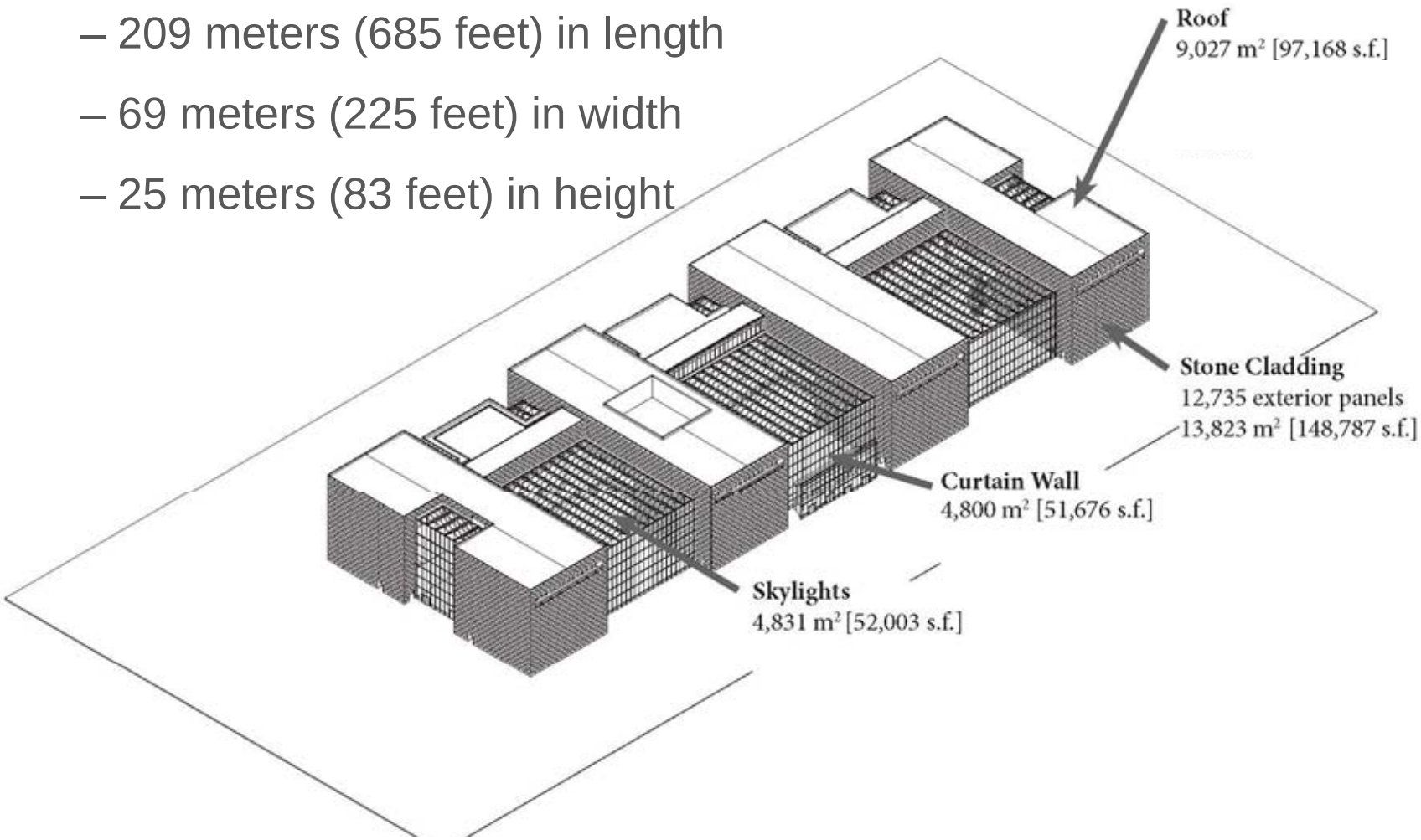
NASM Mall Building Background

- **Contributes to** the National Mall National Register Historic District
- **Entry on Axis with** National Gallery of Art West Building and has same exterior cladding
- **Stone façade** is exclusive weather barrier
- **Mechanical systems** date to the building's construction

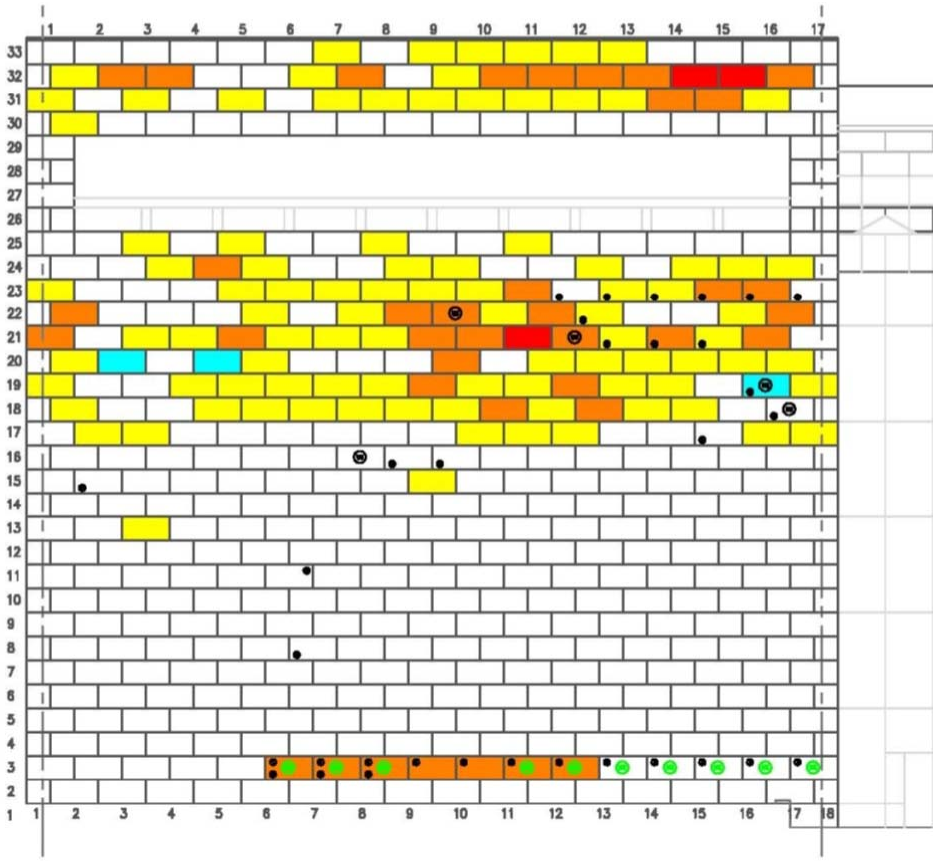
NASM Mall Building Background

Building dimensions:

- 209 meters (685 feet) in length
- 69 meters (225 feet) in width
- 25 meters (83 feet) in height



Exterior – Existing Conditions



- 3-6% Structural distress from cracking
- 9% severely warped (>.25”)
- “Stacking”
- Sealant failure
- Overlap of conditions assumed
- Stone strength

Material Crack

Warping Crack

Low Concave

Low Convex

Some Stone numbered per pod per face

Deep Veining

Medium Concave

Medium Convex

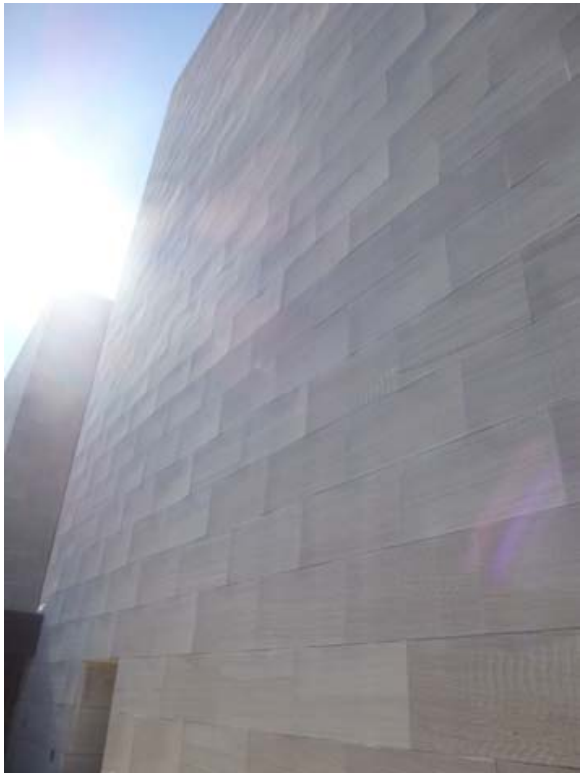
Rust Inclusion

Pink Stone

High Concave

High Convex

Exterior – Existing Conditions



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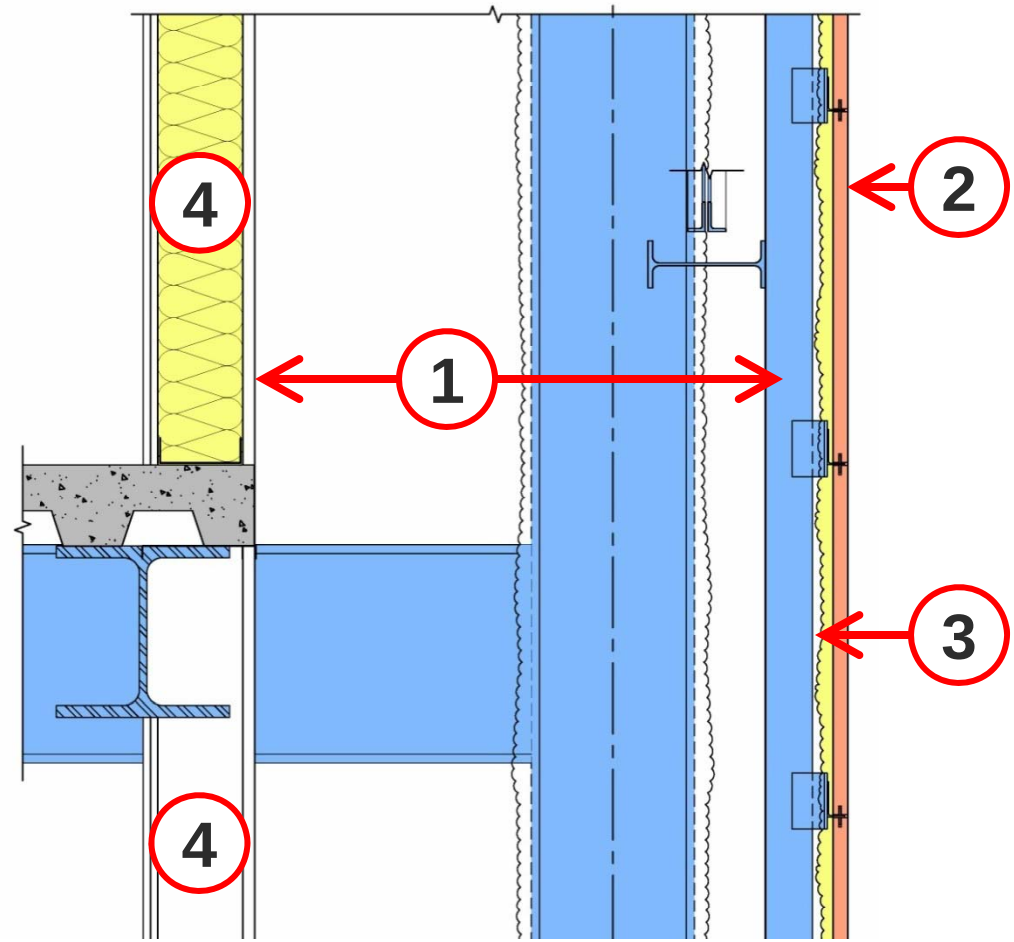


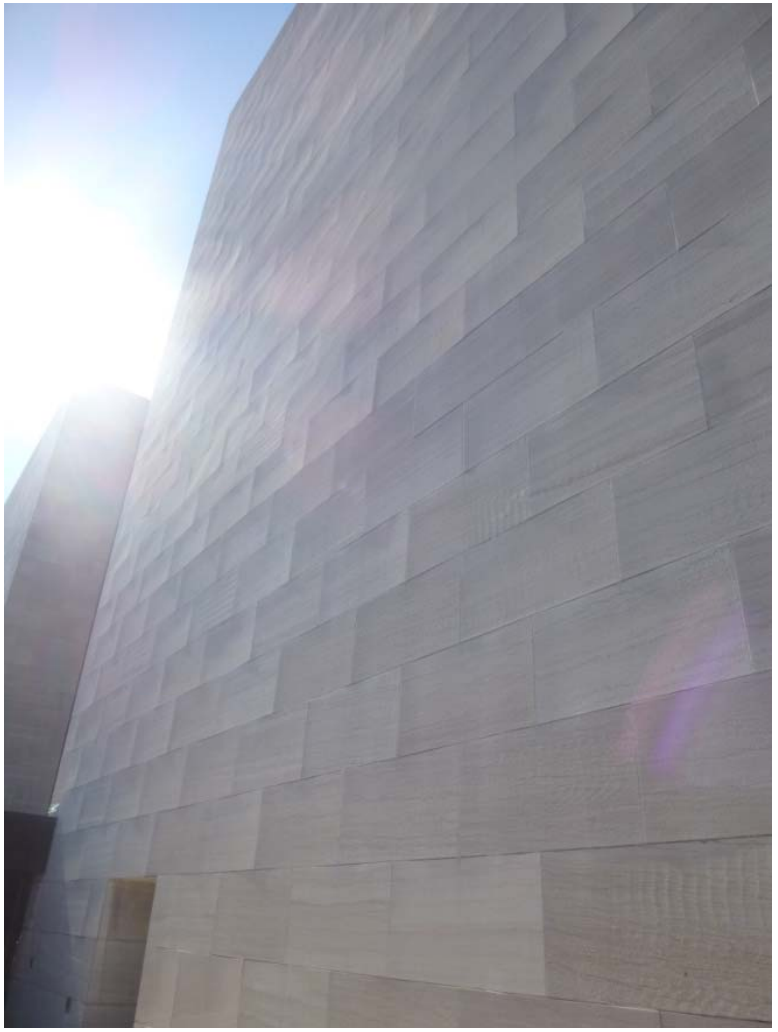
Existing Wall Section

Non Traditional Wall Construction:

1) Return Air Plenum
2) Marble 1-1/4” Thick
3) Spray-On Insulation
4) Interior Fire Partition

Stone Testing Program

- **Petrographic (ASTM C1721 and C457)**
  - Determines effect of weathering (thermal, water, acid rain, uv)
- **Capillary Uptake (RILEM 11.6)**
  - Determine pore structure to inform warping
- **Flexural Strength (ASTM C880)**
  - Determines structural capacity
- **Anchorage Strength (ASTM C1354)**
  - Determines shear capacity of anchorage
- **Absorption (ASTM C97)**
  - Determines porosity and confirms hysteresis
- **Vapor Transmission (ASTM E96)**
  - Condition of exterior/interior surfaces of warped stone (microstructure condition)



Exterior Wall Approach

Envelope Retrofit Planning

Exterior Wall Assembly

- Reuse of existing stone cladding is not feasible
- Multiple cladding options explored
- Options address required blast reinforcement
- Options require varying levels of structural reinforcement

Mock-up of original wall – ca. 1975.

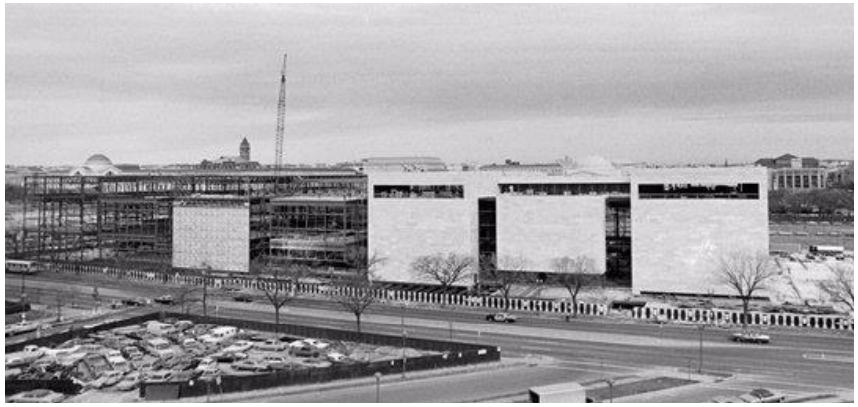
Exterior Comparison to East Building

National Gallery of Art East Building

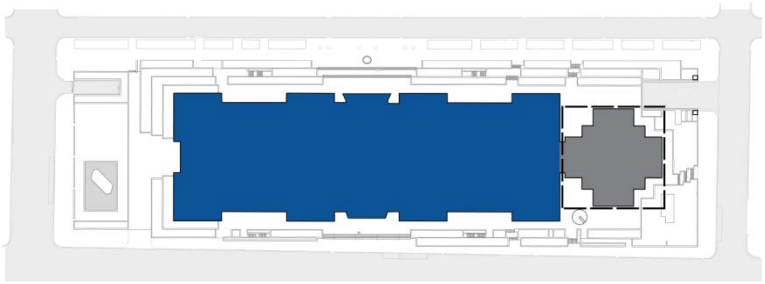
- Opened June 1, 1978.
- Exhibit Galleries – 11,705 sq. m. (126,000 sq. ft.)
- Concrete & brick infill with 76 mm (3”) thick stone cladding.
- Approx. 15,550 sq. m. (172,000 sq. ft.) of stone.
- 16,200 stone panels: 0.6-by-1.5 m. (2-by-5 ft.) each.
- Façade Restoration – stone removed, restored and reinstalled.
- HVAC Upgrade/Interior Renovation – Galleries will close for 3 years starting Jan. 2014.

National Air and Space Museum

- Opened July 1,1976.
- Exhibit Galleries – 14,970 sq. m. (161,145 sq. ft.)
- Steel with 31 mm (1 ¼”) thick stone cladding.
- Approx. 13,800 sq. m. (149,000 sq. ft.) of stone.
- 12,735 stone panels: 0.75-by-1.5 m. (2.5-by-5 ft.) each.
- Façade Restoration – remove stone and re-clad w/new material(s).
- HVAC Upgrade- phase project museum remains open

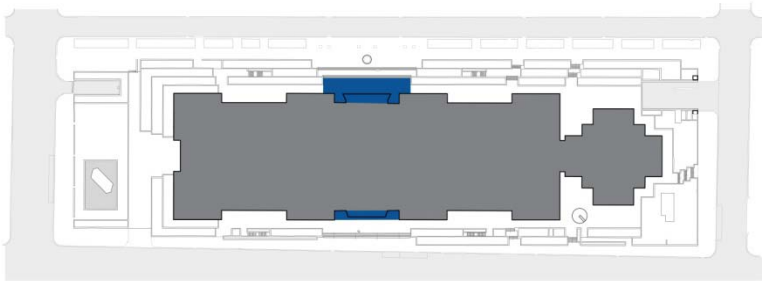


Master Plan
Recommended Projects



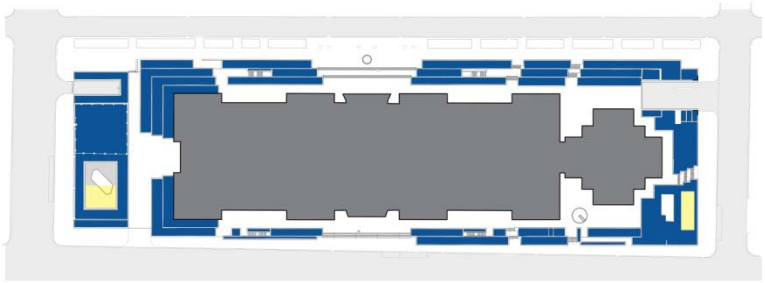
Revitalization of the National Mall Building

- Exploring options and feasibility



Entry Revitalization

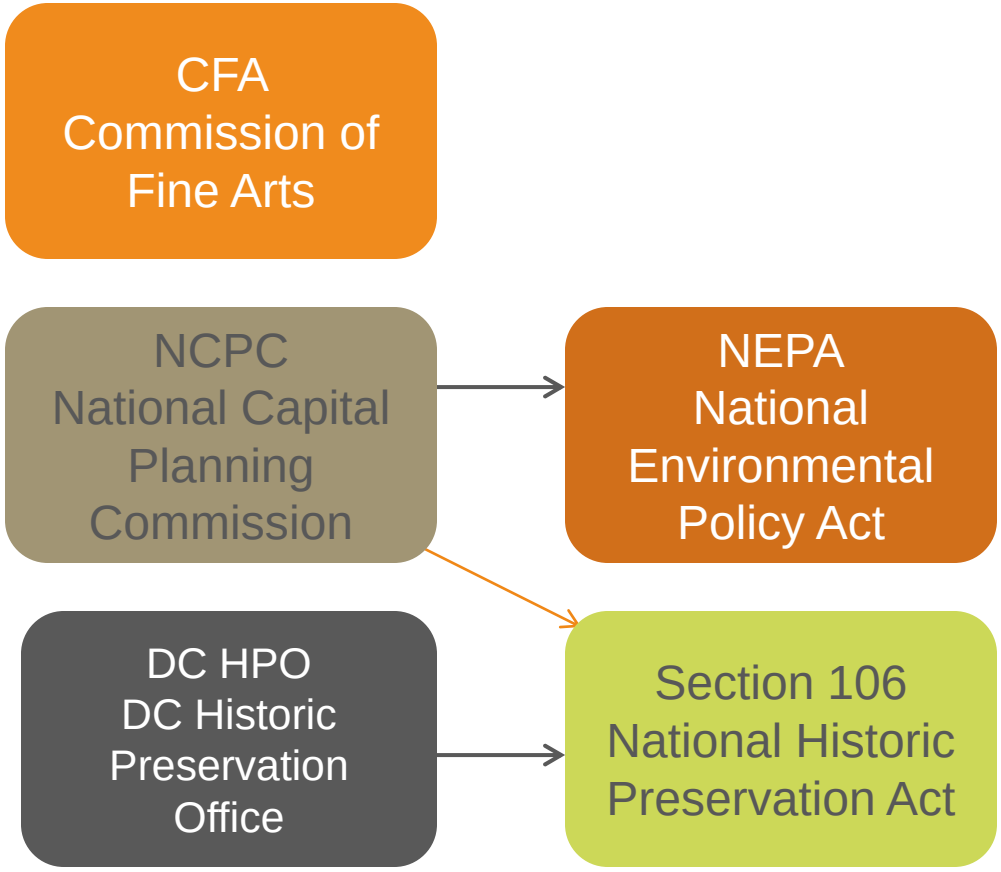
- Entry Revitalization – Vestibules



Terrace Revitalization

- Terrace Revitalization

Review Agencies and Process



What is NEPA?

National Environmental Policy Act (NEPA) of 1969

Requires Federal agencies to consider the impacts of their proposed activities, programs, and projects on the environment.

Purpose of the Project

- **Replace the building exterior** (including the exterior wall cladding, curtainwalls, skylights and roof systems).
- **Replace heating, ventilating, and air conditioning (HVAC), plumbing, and fire protection systems.**
- **Additional related projects**
  - **Rehabilitate terraces.**
  - **Add exterior vestibules at north and south entrances.**

Need for the Project

- **Address deficiencies** that negatively impact the Museum's ability to meet its mission:
  - building envelope
  - HVAC
  - plumbing
  - fire protection
  - energy performance
  - insulation
  - protection of museum collections and security

- **Address requirements** to:
  - reduce carbon emissions
  - reduce energy consumption
  - improve storm water management

Potential Environmental Impact Topics to be Addressed

- Historic Resources
- Views
- Visitor Experience
- Vehicular and Bicycle Circulation and Parking
- Pedestrian Circulation
- Planning Policies
- Sustainability
- Air Quality
- Vegetation
- Storm and Sanitary Sewer System
- Only Construction Related:
  - Sound Levels
  - Hazardous Materials
  - Solid Waste

Potential Environmental Impact Topics Likely to be Dismissed

- Land Use
- Environmental Justice
- Economic Impact
- Archaeological Resources
- Lightscape Management
- Surface Water
- Wetlands
- Floodplains
- Geology
- Soils
- Topography
- Wildlife
- Water Supply
- Special Status Species
- Climate Change

Potential Cumulative Impact Projects

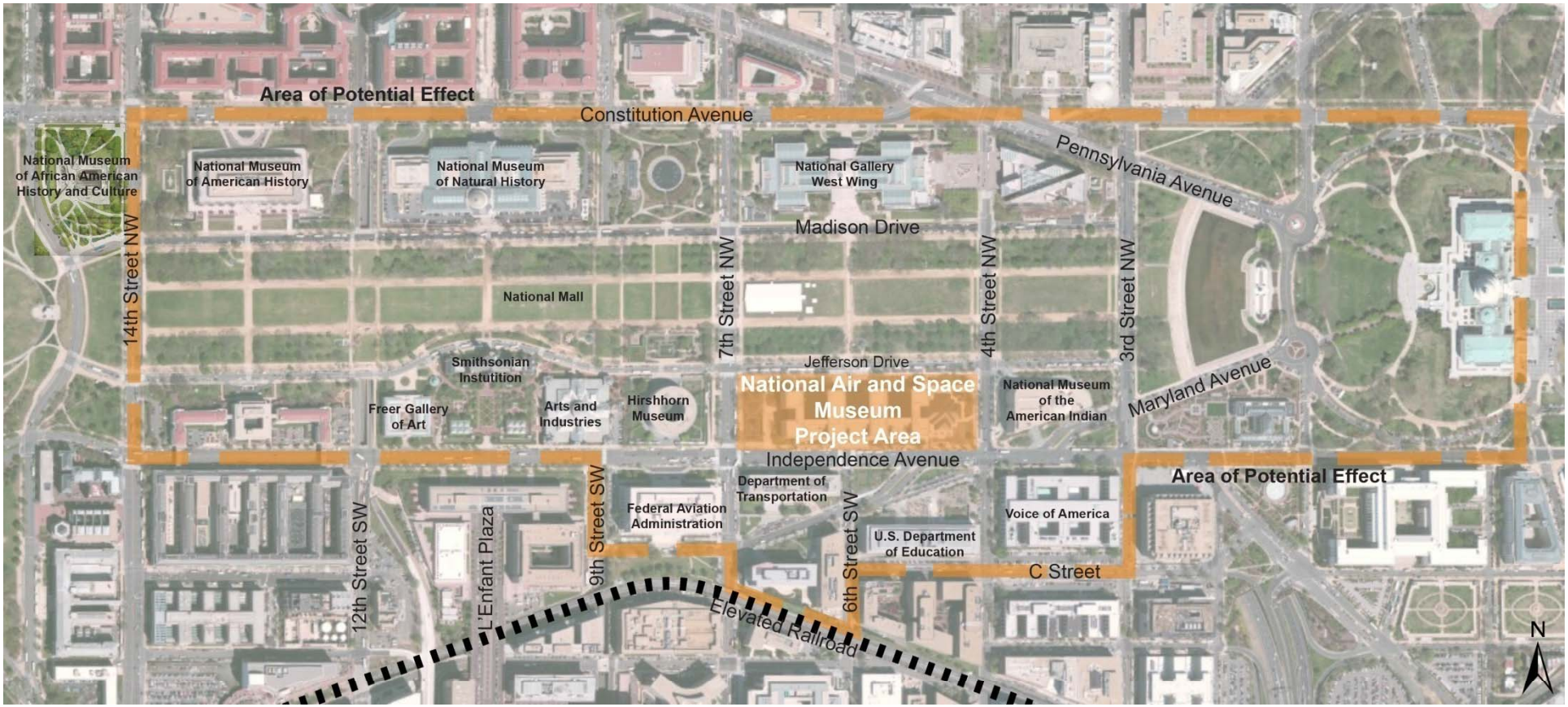
- Mall Circulator System
- NPS Tour Bus Study
- South Mall Master Plan
- Eisenhower Memorial
- NPS Constitution Gardens
- NPS National Mall Plan
- NPS Turf Project
- Hirshhorn Museum Building Envelope Study
- GSA Federal Triangle South
- North-South Trolley Project

National Historic Preservation Act (NHPA)

- **Section 106 of NHPA**
  - Requires federal agencies to consider the effects of their actions on historic properties.

- **Requires consultation to**
  - Identify historic properties
  - Assess adverse effects
  - Resolve adverse effects through
    - avoidance
    - minimization
    - mitigation

Proposed Area of Potential Effect



Project Scope

Project Goals

- Replace building systems to provide a safe and appropriate environment for visitors, staff, and artifacts.
- Reduce carbon emissions and energy consumption.
- Improve queuing and security screening conditions by revitalizing the entrances and improve overall visitor experience.

Project Components

- **Replace the Tennessee marble cladding** with a material that is compatible with the original design of the building, has an acceptable life-span and meets today's requirements for energy performance and insulation.

- **Replace the HVAC, plumbing and fire protection systems** with systems that provide a safe and appropriate environment to protect museum collections and reduce carbon emissions and energy consumption.

- **Replace the roofs, skylights and curtainwalls** so that they will provide required performance for the new interior environmental conditions necessary to properly protect and preserve the museum's collections and reduce energy consumption.

- **Address the building entrances** to provide adequate queuing space, meet security screening requirements, and provide an adequate buffer between exterior and interior environments that results in acceptable fluctuations in temperature and humidity levels for the protection of museum collections.

- **Consider renewable energy alternatives** of the building to address federal requirements for reduced carbon emissions and reduced energy consumption for major modernization projects.

Performance Goals and Requirements

Performance Goals:

- Durability
- Museum quality ambient conditions
- Aesthetics

Performance Requirements:

- Executive Order 13514 (32% reduction in GHG emissions by 2020)
- LEED Gold (SI requirement)
- ASHRAE 90.1 and 189.1
- Improved blast protection
- District of Columbia Department of Environment (DDOE) requirement for 50% of stormwater retained or used on site.

Energy Efficient Strategies

Reduce Energy Use

- Shading of Skylights
- Adjust Environmental Conditions
- Design for Reduced Peak Loads
- Demand-based Systems/Controls
- Decrease Plug/Lighting Loads
- Energy Efficient Systems
- Daylight Harvesting
- Daylight Sensors

Efficient Source Energy

- Heat Sourced at Building (Boilers)
- District Chilled Water with Supplemental Sourced Chilled Water

Generate Energy On Site

- Photovoltaics
- Solar Thermal

Cladding Material Options

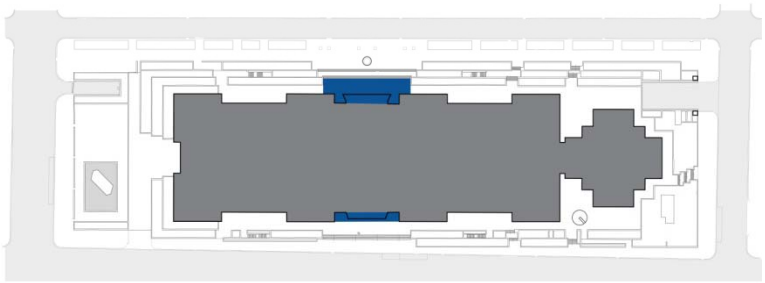
Same as original *Tennessee Marble*

Different Stone *Granite or other*

New Material *Titanium*

New Material *Ceramic*

Options for Other Project Components – Entry Revitalization

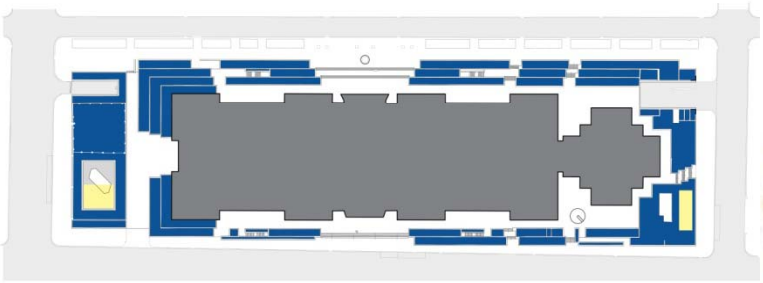


Entry Revitalization

North Entry

South Entry

Options for Other Project Components- Terrace Revitalization



Terrace Revitalization

Schedule / Next Steps

Milestone	Date
Public Scoping Meeting	November 12, 2014
End of Public Scoping Period	November 28, 2014
Preparation of Environmental Assessment Public Review Draft	November 2014 through January 2015
Predicted EA Public Review Period	February 2015
Section 106 Consultation	November 2014 through April 2015
Predicted Preparation of Decision Document	April 2015

Opportunities for Public Comment

- **Tonight:**
  Write your comments on the comment cards provided
- **Submit comments electronically:**
  www.ncpc.gov or
  cheryl.kelly@ncpc.gov
- **Submit written comments to:**
  Attn: Cheryl Kelly
  NCPC
  401 9th Street NW, Suite 500
  Washington, D.C. 20004

Questions and Comments