

A Report by a Panel of the

NATIONAL ACADEMY OF PUBLIC ADMINISTRATION

for the United States Architect of the Capitol

# *Rolling Renewal of the Rayburn and Longworth House Office Buildings*



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**Brenna Isman**, *Director of Academy Studies*

**Nancy Augustine**, *Project Director*

**Randolph Lyon\***, *Senior Advisor*

**Joseph Mitchell**, *Senior Advisor*

**Richard Pezzella**, *Senior Research Associate*

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National Academy of Public Administration

1600 K Street, N.W.

Suite 400

Washington, DC 20006

[www.napawash.org](http://www.napawash.org)

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PUBLIC ADMINISTRATION

**February 2020**

***Rolling Renewal of the Longworth  
and Rayburn House Office  
Buildings***

**BLUE RIBBON PANEL**

**Norman Dong (Chair)\***

**Harold Adams**

**Michelle Addington**

**Janet Hale\***

**Gerald Galloway\***

**David Nash**

**Daniel Tangherlini\***

***\*Academy Fellow***

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## Foreword

The Architect of the Capitol (AOC) was founded in spirit in 1791, when President George Washington chose the first commissioners to oversee the construction of the workplace of the Congress, and the layout of the city around it. It took another seventy years for the title of “Architect of the Capitol” to be applied by act of Congress, and it was not until the mid-20<sup>th</sup> century that the title became attached to both the individual, and the agency. No matter the name, AOC, in its various incarnations, has been the caretaker and curator of the halls of Congress, the Supreme Court, and Capitol Hill, since their first bricks were laid.

Among the structures in their charge, the Rayburn and Longworth House Office Buildings (RHOB and LHOB, respectively) rank among the most well-known buildings to anyone who has worked around the Congress. Carrying the names of former Speakers Nicholas Longworth of Ohio, and Sam Rayburn of Texas, the buildings are home to just over half of the Members of the House of Representatives, and hearing rooms that have borne witness to some of the most historic events in American history. More than just centers of government and places of historical significance, the two buildings include the offices of hundreds of legislative and support staff, and boast a diverse array of amenities, such as gymnasiums, cafeterias, barbershops, and a tram to the Capitol. Though perhaps not as famous as the White House, they hold a prestige all their own.

Like any building, however, RHOB and LHOB have suffered the ravages of time, the stresses of nature, and the wear-and-tear of near constant occupancy for decades. With Longworth constructed in 1933, and Rayburn in 1965, they have begun to show their age. Given the work that happens there, it is only natural that a renewal of these two landmarks be of the utmost importance. Yet, refurbishing two, large buildings of historic prominence comes with its own set of implications, made even more challenging because they house critical components of the United States government and are paid for with taxpayer dollars.

As a congressionally-chartered non-partisan, non-profit organization with over 950 distinguished Fellows, the National Academy of Public Administration is eminently familiar with the needs and concerns of the Congress. While architecture is a relatively unexplored dimension of the Academy’s expertise, we were pleased to be able to call upon experts from within our Fellowship, and to partner with architectural firm AECOM, to help AOC chart the future of the House of Representatives.

I extend my thanks to the Academy Panel of experts who offered their invaluable insight and keen analysis, and to the professional study team that provided critical support throughout the project. I expect this report will be a valuable roadmap to AOC as they move forward to make America’s House ready for the future.

Teresa W. Gerton

President and Chief Executive Officer,

**National Academy of Public Administration**

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## **Executive Summary**

At the request of the Architect of the Capitol (AOC), a Blue Ribbon Panel of subject-matter experts in the fields of engineering, architecture, and federal finance and real estate development studied options to renew the Rayburn House Office Building (RHOB) and the Longworth House Office Building (LHOB). Based on research and data collection, the Panel concluded the following statements.

- Substantial reinvestment will be necessary to ensure that buildings will be able to continue to support the business of government into the future.
- The RHOB is in worse condition than the LHOB, despite having been built decades later.
- Space and system configuration constraints necessitate the construction of additional Member suite and Committee hearing room spaces. Without swing space, construction could stretch into a period of 26 years or more.

The Panel recommends that the AOC move forward with renewals of the RHOB and LHOB, starting with the RHOB. Renewal should include the creation of swing space to enable relocation of Members and Committees during construction.

**Recommended renewal approach: Construct new swing space in the Longworth House Office Building courtyard (“Longworth courtyard infill option”).** The Panel concluded that this option best meets the primary criteria of minimizing total project cost, minimizing project duration, and maintaining current operation to the extent feasible. This option entails the construction of 10 new suites and nine new Committee hearing rooms in the courtyard of LHOB. Along with 42 suites made available through the Cannon project, this new construction would serve as swing space until renewal is complete.

**Alternative renewal approach: Construct a new building (“new construction”).** The Panel notes that the Longworth courtyard infill option comes with substantial risks associated with space limitations, construction proximity to occupied space, two-year construction phases, and uncertainty of conditions within the buildings. This option also misses an opportunity to pursue other objectives, such as accommodating the future facility needs of Members and optimizing AOC and House jurisdiction operations. If the AOC and the House agree that decision making should consider these values, then new construction becomes more viable.

Figure 1 below summarizes the Longworth courtyard infill (recommended) option and the new construction (alternative) option. The total cost of the Longworth courtyard infill is estimated to be approximately \$1 billion less than the cost of new construction. The difference in estimated annual appropriations needed to fund these options is approximately \$100 million.<sup>1</sup>

*Figure 1. Cost comparison of the Longworth courtyard infill and new construction options*

	Longworth courtyard infill	New construction
Program duration	17 years	15 years
Rough order of magnitude cost (escalated)	\$5.1 billion	\$6.2 billion
Estimated annual appropriation needed	\$222 million	\$328 million

Cost estimates at this stage in the process are “rough order of magnitude,” based on a set of general assumptions about existing conditions in the buildings and future requirements. Estimates of the total cost and anticipated annual appropriations will be refined as subsequent studies and designs are completed.

**Recommended financing approach:** The most straightforward approach to funding the Longworth courtyard infill option would be the annual appropriations process, relying on financing through the U.S. Treasury. Borrowing through the Treasury has lower financing costs than other options. However, funding through annual appropriations carries some risk that a future Congress would delay or reduce needed funds. Any interruption in funding would lengthen the project schedule and drive up total costs. An alternative would be private sector financing. Although the cost to finance the project would be higher, the AOC might be able to reduce construction costs through an advanced project delivery method that allows the contractor flexibility to reach design objectives. The AOC should explore the feasibility of such project delivery methods.

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<sup>1</sup> Estimates of needed annual appropriations assume that funding will begin in 2023. Annual appropriations would continue through 2045 (23 years) for the Longworth courtyard infill option and 2041 (19 years) for the new construction option. The total cost and the estimated annual appropriations needed would increase with any delay in approval of the project or funding.

## Introduction

In December 2018, the Architect of the Capitol (the AOC) engaged the National Academy of Public Administration (the Academy) to provide a Blue Ribbon Panel of experts (the Panel) to identify and assess major renewal strategies for the Rayburn House Office Building (RHOB) and Longworth House Office Building (LHOB) and to develop recommendations to guide the AOC in development of a renewal plan. The Panel consisted of seven individuals with distinguished careers in government, the private sector and academia, representing the fields of architecture, engineering, finance, and real estate.<sup>2</sup> See Appendix A for brief biographies of Panel members.

This document describes the Panel's analytical process. It accompanies "Longworth and Rayburn House Office Building: Rolling Renewal," February 2020 (AECOM study) which provides details of the technical study and the renewal strategies considered. The Panel considered such issues as:

- Renovation opportunities;
- New construction alternatives to renovation;
- Associated costs and timing for those plans;
- Required swing space;
- Impacts on Congressional Members and operations; and
- Historic preservation of important heritage assets

To understand the severity of the physical problems of the RHOB and LHOB, the study team<sup>3</sup> reviewed AOC documentation, interviewed the AOC staff in charge of management and maintenance, and toured the buildings with AOC staff.

The Panel concluded that the renovation of the RHOB and LHOB will serve the American people by preserving and improving Members' ability to conduct the business of government. Despite the preventive maintenance measures of the AOC, the Panel also found that substantial

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<sup>2</sup> The Panel oversaw the work of the Academy study team and its subcontractor, AECOM, which provided architectural and engineering expertise and support.

reinvestment will be necessary to ensure that buildings will be able to continue to support the business of government into the future.

The impetus for this study is two-fold. During a Committee hearing on the FY18 AOC budget, the Architect of the Capitol at the time, Stephen T. Ayers, F.A.I.A., was asked whether an estimate of the total cost of renewing the RHOB and LHOB was available. Mr. Ayers responded that the AOC would conduct an analysis to answer the question. In addition, the Master Plan for the Capitol campus identified the need for a comprehensive study of renewal of these buildings.

*Figure 2. The Rayburn and Longworth House Office Buildings*



*The Rayburn House Office Building (RHOB) was completed in 1965. It contains 2.4 million gross square feet (GSF) divided among 10 levels, including three parking levels and a sub-basement which are partially below grade. The RHOB has 168 Member suites and 30 Committee hearing rooms.*



*The Longworth House Office Building (LHOB) was completed in 1933. It contains 703,000 gross square feet (GSF) on 11 levels. The LHOB has 131 Member suites and seven Committee hearing rooms.*

## Technical Study

The Panel's technical study proceeded in two phases. In the initial phase, the Panel and team collected data on the buildings and developed multiple renewal scenarios. The work included review of available documents, preliminary analysis, and interviews with key AOC staff to uncover the critical factors in planning for renewal. This phase concluded with the study's first charrette, in March 2019, a day-long meeting convened with experts from across the AOC, in which the Panel refined the scenarios under consideration. In the second phase, the Panel and team conducted more detailed data collection and analysis and convened for a second charrette in May 2019. At that time, the Panel selected the scenario that they believed offers the best combination of features and highest likelihood of meeting the decision criteria of Congressional leaders. Detailed findings are in the AECOM study.

The RHOB and LHOB Renewals are a complex undertaking because of the age, size, and location of the buildings, and the operational needs of their occupants. Discussions of findings are listed below.

➤ **FINDING 1: Aging systems drive the need for the RHOB and LHOB renewals**

Multiple vital building systems within the RHOB are at risk of imminent failure. Consequently, substantial actions are urgent and must be undertaken with sufficient planning and resources. For instance, pinhole leaks are present in domestic water and sanitary pipes throughout the RHOB, due to corrosion caused by pipe hangers of dissimilar metals. In addition, the heating and cooling water systems in the RHOB are also in imminent danger of failure. Pipes originally used to circulate hot water were converted to chilled-water circulation, to provide additional cooling. However, this has resulted in condensation which in turn has degraded the insulation and accelerated corrosion. Compounding the problem, the insulation contains asbestos which means that degradation may have health consequences and removal is likely to have an impact on occupied spaces.

*Figure 3 Decaying pipes in Rayburn are at risk of imminent failure.*



While the systems in the LHOB are not at imminent risk of failure, they are known to be older, inefficient, and ineffective at maintaining comfort levels. Air handling units are original to the building. Masonry on the external façade is in decay. Windows are single pane and in poor

condition, contributing to heating and cooling problems and associated costs. Machinery linked to the energy systems is operational, but repair is becoming more difficult, in many instances requiring the fabrication of custom parts. Repairs to the roof and life safety systems are also high priority.

Several factors will complicate phasing of renovations.

- In its present state, the RHOB heating and cooling system is too fragile to shut down and restart incrementally. A Facility Condition Assessment has determined that the pipes would not likely withstand the change in pressure associated with starting and stopping the system. As a result, the system must be taken down all at once. The AOC will have to plan for temporary systems before the RHOB Renewal starts.
- Any one wing of a building may impact multiple zones for electrical, plumbing, heating, communications and other systems, all of which may extend into adjacent wings. Preparing for each phase of construction will require capping of some systems and extensions of others that operate on continuous circuits or loops (such as electricity and water).
- Some functions currently can only be operated holistically (either all “on” or all “off” on a building-wide basis).
- Each phase of the project could require the AOC to establish alternative arrangements for safety and security; ingress and egress (including elevators and stairways); heating and air conditioning; water; access to the Capitol; bathrooms, and other facilities.

➤ **FINDING 2: Building configurations and locations limit renewal options**

RHOB, LHOB, and CHOB are all space-constrained, leaving little area to accommodate shifting of uses during construction. The CHOB Renewal has required relocating some House staff to as many as 42 new swing suites.

A particular challenge of the RHOB Renewal is that a large number of Committee hearing rooms are concentrated in one section of the building. Phasing will require several to be taken offline at once. New hearing rooms will have to be constructed if Committees are to continue to have dedicated spaces.

Building locations on the campus present additional constraints. Tiber Creek runs beneath the RHOB and under one of the garages. Secure perimeter and other requirements constrain possible expansion size and location opportunities.

*Figure 4. Construction of Rayburn in 1957 broke into the Tiber Creek sewer near C Street*



*Source: The Architect of the Capitol, accessed at [https://www.capitol.gov/html/IMG\\_2010061848457](https://www.capitol.gov/html/IMG_2010061848457).*

➤ **FINDING 3: Construction will create inconveniences and require phased relocation of Members, Committees, and their staffs**

As a major construction project, the comprehensive renewals of the RHOB and LHOB will create some level of disruption to Members, Committees, and their staffs. Anticipated disruptions may entail impact from construction operations including but not limited to demolition, new construction, material deliveries, debris removal, and equipment storage resulting in excess noise, vibration, dust, and fumes during normal and off hours. The RHOB and LHOB Renewals activities must also accommodate security needs, the peace and quiet of the neighborhood, and circulation on adjacent public streets.

Additionally, the temporary closing and relocation of hallways, special purpose spaces, building entrances, access to parking and other support functions within the buildings will result in operational impacts to Members, Committees, and their staffs. Special purpose spaces in the RHOB include the wellness centers, postal facility, cafeteria, other retail spaces, and support functions. Late night and overnight use of offices are likely to experience greater impact, which in turn may constrain off-hours construction work.

➤ **FINDING 4: Project assumptions maintain normal operations and mitigate some of the impact, but also drive up costs and limit options**

Assumptions provided by the AOC maintain normal operations and generally preserve the status quo. Figure 7 lists assumptions and implications for the study.

*Figure 5. Assumptions constrained options*

<b>Assumption</b>	<b>Implication</b>
Renovated Member suites will retain the three-room configuration. The number of Members will remain at 435 with six non-voting delegates.	➤ This study does not consider expansion of facilities to accommodate the future needs of Congress.
Committees will continue to have dedicated hearing rooms, although Committee staffs may be relocated during construction.	➤ To maintain dedicated hearing rooms throughout construction, the phasing plan must include swing space. The RHOB houses 30 hearing rooms, many of which are clustered together.
Two-year construction phases will align with the election cycle, to provide continuity during each Congress. Member and Committee moves will occur at the end of even years, before the start of each Congress.	➤ To accommodate moves, any two-year cycle allows approximately 18 months of construction activity, as construction is limited during changeovers. This down time extends the overall length of the project, which in turn drives up costs.
Steps will be taken to minimize disruption to Members, including scheduling of construction activities, physical buffers, and impact barriers.	➤ Construction in an occupied building tends to be slower than construction in a vacant building because construction activities have to be scheduled around normal uses. In addition, extra steps must be taken to ensure that building users do not encounter hazardous conditions. However, not all inconveniences can be avoided.
House operations will remain on the Capitol campus.	➤ Keeping all House operations on the Capitol campus limits the amount of space available for renewal at any one time and requires construction activity to accommodate the business of government. Members will face disruption from ongoing construction activities for a minimum of 15 years beyond the completion of the CHOB project.

Relaxing some of the assumptions associated with maintaining normal operations could result in substantial cost savings and a shorter schedule. Modified guidelines worth further exploration include:

- Sharing Committee hearing rooms;
- scheduling Committee hearings in the Capitol Visitor Center (CVC);
- moving significant portions of House operations off campus to allow renovation of buildings while vacant;
- reducing or reconfiguring parking garages; and,
- planning for optimization of the campus, as called for in the long-range plan.

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## **Panel Review and Recommendation**

Panel deliberations occurred primarily at two charrettes and in periodic phone discussions. At the first charrette, the Panel developed and applied criteria to a wide range of options. At the second charrette, the Panel came to consensus on the option that best met those criteria. Based on their shared understanding with and direction from AOC that the focus of the study was efficient and effective renewals of the RHOB and LHOB, the Panel identified the following primary criteria:

- Minimize total cost: Taxpayer dollars are at stake, so investments should be made wisely.
- Minimize project duration: Maintaining operations within a construction zone is disruptive and can erode the level of service provided to Members and, in turn, the American people. A shorter period of construction would reduce this impact. A secondary benefit of a shorter construction period is limiting cost escalation – the normal growth in costs that occur over time.<sup>4</sup>

These criteria, along with project assumptions, shaped the options. Other important considerations—including security, historic preservation, and environmental impact—were, with only a few exceptions, relatively similar across the principal options.

### ➤ **The Panel recommends the “Longworth courtyard infill option”**

The Panel recommends the “Longworth courtyard infill option” because it satisfies the primary criteria of minimizing total cost and project duration to renew the RHOB and LHOB. The rough order of magnitude cost estimate is the same or lower than other options considered. The Longworth courtyard infill option is also consistent with study assumptions that maintain normal operations. This option has the added advantage of little visible impact once infill construction is complete.

The Longworth courtyard infill option would start with installation of temporary mechanical systems in the RHOB, followed by construction of 10 new swing suites and nine committee hearing rooms in a portion of the LHOB courtyard; in Figure 6, below, the yellow phase “0”

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<sup>4</sup> Two factors drive the growth in cost estimates over time. First, inflation raises the nominal value of all costs. Second, experience of recent years points to a rise in construction costs in the Washington, D.C. area that outpaces inflation.

blocks in the LHOB represent the newly constructed office space. The new office space is assumed to be permanent, aesthetically attractive, and integrated well into the existing LHOB structure. Roughly one-fourth of the RHOB would be vacated during each of four consecutive two-year phases. After completion of renovation of the RHOB, the LHOB renovation would occur in three two-year phases.

*Figure 6. "Longworth courtyard infill option"*



Assuming that preparations will be complete to allow start of construction in 2030, the project would be completed in 2046 (17 years). Figure 7 lists the number of Committee hearing rooms and Member suites that would have to be relocated to swing space during each phase.

*Figure 7. Projected schedule to complete the Longworth courtyard infill option*

Phase #	Start of Phase	Building	Relocation per Phase	
			Hearing rooms	Member suites
0	2030 <sup>5</sup>		1	6
1	2033	RHOB	6	43
2	2035		9	52
3	2037		6	52
4	2039		9	48
5	2041	LHOB	2	52

<sup>5</sup> The first phase (Phase 0) would be the construction of new swing space in the LHOB courtyard.

6	2043		3	51
7	2045		2	44

Cost estimates at this stage in the process are “rough order of magnitude,” based on a set of general assumptions about existing conditions in the buildings. Even though the AOC has extensive experience with maintaining the buildings and knows the construction practices that were standard when the RHOB and LHOB were built, more precise cost estimates are not available due to the possibilities of unforeseen conditions and concealed construction. As planning and site studies become available, the level of uncertainty will decrease and the precision of the cost estimates will improve.

At this very early stage of the process, the rough order of magnitude cost of this option is \$5.1 billion, including escalation. To finance this option through a steady level of funding for the duration of the project, Congress would have to appropriate \$222 million per year starting in 2023 for start of construction in 2030 and continuing through expected completion of the project in 2047. The total cost and the estimated annual appropriations needed would increase with any delay in approval of the project or funding.

➤ **Advantages of the Longworth courtyard infill option arise from the relatively limited scope**

Lower Cost and Comparable Duration

Among the two principal options considered by the Panel (after narrowing down from 13 and then four options), the Longworth courtyard infill option included construction of the least feasible amount of swing space. Accordingly, the rough order of magnitude estimated costs are lower than the next-best option (new construction) by approximately \$1 billion. The expected duration of the project is only slightly longer than the next-best option (17 years, compared to 15 years for new construction),

Minimum Area of Disruption

Renewal of the RHOB and LHOB will cause disruption but the phases are designed to concentrate it to the extent practicable. The first phase of renewal will entail the construction of swing space in the LHOB courtyard. Although the AOC will take steps to mitigate the impact, Members and staff can expect to experience intermittent noise, dust, vibration, access limitations, and views of construction activities. As each phase of renewal proceeds, Members and staff in the affected areas will have to relocate. Suites and hearing rooms adjacent to

construction activities may experience some impact. Aside from staging areas for storage of equipment and supplies, deliveries, and other construction-related activities, Members and staff elsewhere on campus will have minimal impact.

The relatively small footprint of the new construction also minimizes alteration of the overall campus. Constructing new swing space in the courtyard of the LHOB leaves largely intact existing heritage assets, views, parking areas, and access. Also, by adding the least practical amount of swing space, the additional load for the Capitol Power Plant will be minimized.

➤ **The Longworth courtyard infill option comes with substantial risks and drawbacks**

The Panel notes that the Longworth courtyard infill option comes with substantial risks associated with space limitations, proximity of construction to occupied space, and uncertainty of conditions within the buildings. This option also misses an opportunity to pursue other objectives, such as accommodating the future needs of Members and consolidating AOC operations. The AOC should consider revisiting these values.

Risks of the Longworth courtyard infill option

The Panel noted risks that the project could miss its targets for such reasons as construction fatigue, schedule and budget slippage, and delay of appropriations.

**Construction fatigue:** House Members and staff have had to work with the disruption of the CHOB Renewal since 2014. The AOC has learned from this experience and made some adjustments that should smooth future renewal efforts. However, users closest to construction activity would likely have little to no buffer from the noise, vibration, dust, and changes in access. Additionally, unanticipated disruptions are certain to emerge as construction activity moves into parts of the buildings that are not well documented. The new construction option has a shorter project duration and keeps a physical distance between active construction and occupied space, lessening overall disruption.

**Schedule and Budget Slippage:** Schedule slippage can result from planning too much activity in a single 18-month phase or encountering unforeseen issues. Unforeseen issues can raise costs if they lead to change orders. Unexpected delays or problems could drive up costs if the AOC is forced to authorize a third shift of workers, as is the case with the CHOB Renewal. Schedule slippage could mean that Members moving into newly opened suites would have to accommodate additional work while crews address final punch-list items. Further study, planning, and communication can reduce these risks, but not eliminate them. The new

construction option allows more time to reach fewer milestones, potentially reducing pressure on the schedule.

**Delay of appropriations:** Delay in appropriations could delay the start or continuation of the project. Every two-year delay means an additional two years of investing in old, inefficient and failing systems, an increase in the project price tag due to inflation and escalation, and loss of continuity of the construction management team. A funding plan that asks Congress to appropriate funds annually creates many funding decision points, any of which could slip. The next section of this report discusses financing options that could reduce this risk.

#### Missed opportunities of the Longworth courtyard infill option

The Panel viewed its charge as identifying renewal strategies for the RHOB and LHOB buildings. However, they note that a larger scope could make the new construction option more viable.

**Flexibility:** The small footprint of the infill means that the project will provide little flexibility to accommodate the evolving needs of the House in the future. The Panel noted that, excluding the O'Neill House Office Building (which is beyond the immediate campus) the last new construction on the House side took place more than 50 years ago, when the RHOB was built. Allowing time for detailed planning and site studies, the RHOB and LHOB Renewals could take 20 years to complete, effectively locking in the campus configuration through 2050 or later.

**Optimization of use of space across the AOC campus:** This option foregoes the opportunity for cost savings through studying space needs across the AOC campus. Various House Committee staff, the Architect of the Capitol, Congressional Budget Office, and other tenants currently occupy office space in the Ford and O'Neill House Office Buildings (FHOB and OHOB). FHOB is expected to need renovation in the near future.

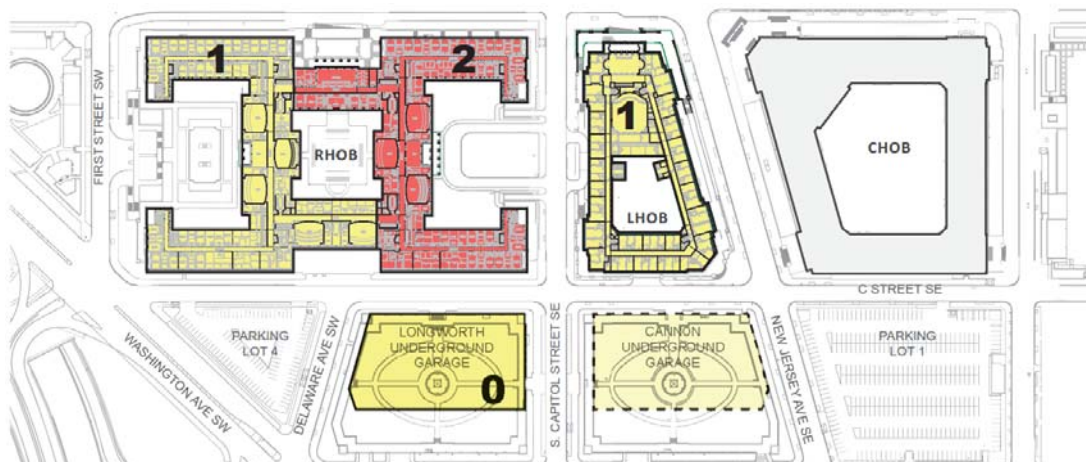
#### ➤ **The new construction option overcomes some of the drawbacks of the Longworth courtyard infill option, but has its own shortcomings**

Construction of a new building to the south of the RHOB shares many of the risks of the Longworth courtyard infill option, but would allow the AOC to accommodate future needs.

The primary reason that the Panel did not select the new construction option is because the rough order of magnitude cost (before considering any offsets from the value of the new facility) is more than \$1 billion higher than the Longworth courtyard infill option. It would also result in substantially more disruption during construction and greater alteration of the campus.

Construction of a new building to the south of the RHOB would occur over a period of two years. Two phases across almost nine years would then renew the RHOB, followed by a single four-year phase to renew all of the LHOB.

*Figure 8. "New construction option"*



Assuming that preparations would be complete to allow start of construction in 2030, the project would be completed in 2045 (15 years). The table below lists the number of Committee hearing rooms and Member suites that would have to be relocated to swing space during each phase:

*Figure 9. Projected schedule to complete the new construction option*

Start of Phase	Building	Required Swing Space	
		Hearing Rooms	Member Suites
2030		0	0
2032	RHOB	16	105
2037		14	90
2041	LHOB	7	133

The rough order of magnitude cost of this option is \$6.2 billion, including escalation. To finance this option through a steady level of funding for the duration of the project, Congress would have to appropriate \$328 million per year starting in 2023 for a 2030 construction start and continuing through expected completion of the project in 2044.

The advantages of the new construction option include:

- With substantially more swing space, construction of a new building would allow larger and longer phases, eliminating several move cycles (and associated down time).
- Physical separation of construction from occupied suites would reduce noise, vibration, dust, and other disruptions to Member, Committee and staff operations.
- At the end of the project, the campus would have additional office space that could be used to accommodate the future needs of the House and/or consolidate AOC functions currently housed in the Ford and O'Neill House Office Buildings and the Fairchild Building, potentially resulting in substantial operational or lease savings to the government.

The new-building option is not without its own shortcomings, related to risks and missed opportunities.

- Even with the shorter project duration and less construction activity in proximity to used spaces, construction fatigue is likely to be an issue.
- Unforeseen conditions can delay, complicate, or raise the cost of new construction.
- Delay in appropriations could delay the start or continuation of the project. A funding plan that asks Congress to appropriate funds annually creates many funding decision points, any of which could slip.
- Construction of a new building over one of the House Underground Garages (HUGs) would disrupt on-site parking for four years and result in the loss of the garage and plaza at roof level, an AOC heritage asset.
- Recent improvements to the HUGs, designed to extend facility life by several years, would effectively be lost.
- The Capitol Power Plant may not have enough capacity to serve the additional space, requiring further investment. Additional studies for heating and cooling capacity are required to confirm this.
- Proposed construction within the House Underground Garage footprints may require modifications or extension to the existing secure perimeter. Additionally, this could impact traffic patterns and below-ground features such as transportation tunnels and Tiber Creek.

➤ **Summary of options**

Figure 10 below summarizes the Longworth courtyard infill (recommended) option and the new construction (alternative) option.<sup>6</sup>

*Figure 10. Comparison of the Longworth courtyard infill and new construction options*

	Longworth courtyard infill	New construction
Program duration	17 years	15 years
Rough order of magnitude cost (escalated)	\$5.1 billion	\$6.2 billion
Estimated annual appropriation needed	\$222 million	\$328 million
Additional space created	13 suites	146 suites, 16 hearing rooms
Strengths	<ul style="list-style-type: none"> <li>❖ Less costly, lower annual appropriations</li> <li>❖ Less alteration to the overall campus</li> </ul>	<ul style="list-style-type: none"> <li>❖ More flexibility for future use</li> <li>❖ Less construction adjacent to current operations</li> </ul>
Weaknesses	<ul style="list-style-type: none"> <li>❖ Little new space</li> <li>❖ Longer periods of construction in occupied buildings</li> <li>❖ Greater risks of schedule slippage, construction fatigue</li> </ul>	<ul style="list-style-type: none"> <li>❖ Costlier, higher annual appropriations</li> <li>❖ Loss of a heritage asset (one of the House Underground Garages and the plaza over it)</li> </ul>

Three other options were considered during the review process. The Panel eliminated an option to create swing space in a temporary building because it would create substandard facilities for Members throughout the period of construction and tearing it down at the end of the project would be a questionable use of taxpayer money. The option of following the model of the CHOB Renewal, to conduct the renewals without any new swing space, was eliminated because of the

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<sup>6</sup> Cost estimates at this stage in the process are “rough order of magnitude,” based on a set of general assumptions about existing conditions in the buildings. Costs will be further refined in subsequent studies and designs. Furthermore, the overall cost and anticipated annual appropriations will be adjusted based on the refined information.

configuration and condition of building systems in the RHOB. Larger sections of the building will have to be taken off line at once than could be accommodated with the existing inventory of swing space. The concentration of Committee hearing rooms in the RHOB created a further obstacle because all hearing rooms on campus are occupied; available swing space is not sufficient to provide temporary Committee hearing rooms. Finally, an option to add new space by enclosing the west courtyard of the RHOB was eliminated because it would unnecessarily alter a heritage asset. A more detailed discussion of the Panel's deliberations is included in Appendix B.

## Financing Options

The AOC asked the Blue Ribbon Panel to advise on financing options for the RHOB and LHOB Renewals, recognizing the potential difficulty in securing appropriations for the full project. Panel deliberations did not focus on the relative merits at length; however, individual Panel members have experience both inside and outside of the Federal Government with advanced project delivery methods and private sector financing. These approaches require either new uses of existing authority or the authorization of additional authorities for the AOC.

The research phase of this part of the study focused on review of documents and authorizing legislation and interviews with knowledgeable officials within the AOC.

➤ **FINDING 1: Direct appropriation offers the lowest total cost to finance the project, but may be difficult to attain**

Several options to finance the project through direct appropriations are available.

The most straightforward and lowest cost approach to financing the RHOB and LHOB Renewals would be a full upfront appropriation to approve the multi-billion-dollar project during a single budget process. This option offers a high level of transparency, as the full estimated cost of the project would be reflected in the budget when Congress decides to move forward. In addition, the AOC would be able to plan for and execute the project with certainty of funding. However, budget caps and 302(B) limits may make this approach impractical.

Another option would be to fund the RHOB and LHOB Renewals incrementally, distributing the fiscal impact over the lifespan of the project. Congress would supply either a steady or varying level of funding that the AOC could draw upon as work progresses on the renewals of the RHOB and LHOB. This approach is in use with the CHOB Renewal. A risk of this approach is that funding could stall midway through a renewal phase or building, leaving a building only partially renovated or, in a worst case, with a significant system or amount of square footage unusable. The element of uncertainty could easily reduce the efficiency of the project. Multiple decision points for funding introduce an equal number of opportunities for delay, which in turn would extend the period of disruption. Furthermore, the current Congress would be effectively committing future Congresses to fund the project.

The utility upgrade components of the RHOB and LHOB Renewals could be eligible for financing through a Utility Energy Service Contract (UESC). A UESC is a limited-source contract between a federal agency and a utility for energy- and water-efficiency improvements and

demand-reduction services. Eligible activities include initial assessment, design, project financing, installation, and performance assurance. The AOC entered into a UESC for upgrades to the Capitol Power Plant.

➤ **FINDING 2: As part of a public-private partnership (P3), private sector financing could reduce project costs and reduce annual expenditures, but the cost of borrowing would be greater**

The AOC could finance the RHOB and LHOB Renewals with private funds as part of a public-private partnership (P3). Rather than borrowing directly from the private sector, the AOC would enter into an arrangement where the contractor provides the capital to design and develop a project. The contractor then recoups the investment by way of payments received over a period of decades, on terms laid out in the contract. P3s can take many forms, but the common concept is to transfer some of the management, decision-making and risk to the private-sector partner.

P3s offer several potential benefits. Private-sector financing could reduce the cost of the project to the government through the use of advanced project delivery methods. These methods would streamline the contracting process and provide an incentive to the contractor to find the most cost-effective means to reach design objectives. Advanced project delivery methods can effectively manage schedule and cost over-runs by allowing for greater communication, collaboration, and accountability among the key players throughout the project. Additionally, use of a P3 would allow Congress to extend the repayment period beyond the construction period, potentially resulting in lower annual appropriations. The risk of delay or loss of appropriations would diminish as annual expenditures become part of a contractual obligation.

The AOC should also weigh the drawbacks of a P3. Total borrowing costs would be higher because agency financing from the private sector would come at an interest rate that is higher than the Treasury's cost to borrow money directly, i.e., the U.S. Treasury rate. The higher cost of borrowing could be offset with lower overall project costs through advanced project delivery methods that reduce cost, transfer risk, and speed delivery. The net effect would be unknown until the AOC entered into a contract negotiation process. Another potential drawback of a P3 is the reduced control over the project that comes with giving the contractor flexibility. The AOC should balance this condition against the promise of cost savings.

While the federal government has limited experience with P3s, these experiences suggest options for the AOC.

A P3 mechanism available to the AOC could be a land swap or swap exchange, if the agency determined that the Ford and/or O'Neill House Office Building could be traded. GSA was able to execute a land swap in Cambridge, Massachusetts for the U.S. Department of Transportation. MIT will construct a new building on federally-owned land in exchange for land that DOT's building currently occupies. However, GAO has noted that GSA has limited experience with swap exchanges (GAO-17-783T Federal Real Property). Prior to 2016, the agency had only completed two relatively small exchanges, in San Antonio and Atlanta. The most common obstacles noted in the GAO study are failure by the government to disclose the condition of the building and property appraisals for the federal facility to be swapped that have come in well below GSA estimates. A low appraisal for a property that can only be used by the government can impede the developer's effort to find financing.

In 1992, Congress authorized a lease-leaseback for construction of the Thurgood Marshall Federal Judiciary Building, which is under the jurisdiction of the AOC. The developer leased the right to construct a building on federal property and then leased space in the building back to the government. Annual payments for 30 years have covered the cost of development plus operation and maintenance. Current budget rules effectively make this mechanism unattractive to federal agencies because it is deemed to be a "capital lease." The cost of a capital lease is calculated as the full cost of the project, including interest. In 2018, GSA proposed to lease land to a developer for the purpose of building a new FBI building which the developer would then have leased back to the government for a period of time. The building would have become federal property after the end of the lease. Budget rules and a lack of funding prevented the project from moving forward.<sup>7</sup>

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<sup>7</sup> The executive and legislative branches have agreed on the budget treatment (scoring) of long-term "capital lease" contracts. As described in OMB Circular A-11 Appendix B, Federal agencies that engage in transactions such as capital leases or lease-purchase agreements that have the effect of transferring ownership or risk to the Federal Government must obtain budget authority for the full cost of such transactions before they enter into these obligations. The cost is the estimated net present value of the government's expected payments over the full term of the lease. (In contrast, the annual cost of a shorter term "operating lease" is only the cost of lease payments, plus interest, for that year.) The Panel, importantly, fully concurs that the true long-run cost of any investment is best reflected through discounted present value analysis. This is consistent with the policies of both the Executive Branch (OMB Circulars A-11 and A-94) and the Government Accountability Office (GAO).

➤ **FINDING 3: The AOC can use advanced project delivery methods even if it does not use private-sector financing**

Whether or not private-sector financing method is used, the AOC could use advanced project delivery methods to potentially reduce cost, transfer risk and speed delivery. Two methods are discussed below.

**Design/Build:** Design-build combines the design contract with the construction contract to speed award, align interest, reduce risk and speed delivery. Combining contracting actions into a single procurement and hiring one overall manager of the project throughout its construction lifecycle places more of the risk on the contractor and reduces the ability of builders and designers to point fingers at each other. Adding responsibilities such as operations and maintenance (Design-Build-Operate-Maintain or DBOM) is a means of creating a long-term fixed price agreement for continuing operations and investments in an asset. Allowing the contractor flexibility to reach design objectives could lead to cost savings, but the AOC may have to cede some direct control of the project in order to realize those cost savings.

**Construction Manager at Risk (CMAR):** This approach maintains a contractual separation between the designer and the builder. However, the builder – or construction manager – is brought on board before design is completed. During the completion of the design, the construction manager agrees to a Guaranteed Maximum Price (GMP) at or below which they are financially liable to deliver the project. GMP compresses the contracting time for the design and construction phase and aligns the interest of the builder and the owner, reducing risk.

➤ **The Panel recommends that the AOC further explore the feasibility of advanced contracting arrangements, including private financing**

Direct appropriation offers the lowest total cost to finance the project, but may be difficult to attain. The AOC might be able to realize some construction efficiencies and reduce project duration by using private sector financing with advanced project delivery mechanisms. Based on its high-level analysis, the Panel concludes that these options are worth further exploration and consideration by the AOC. The Panel does not have enough information to be able to advise on the expected effect on total cost; however, the possibility of construction efficiencies, coupled with reduced risk, make this a viable option.

## **Conclusion**

The National Academy of Public Administration convened a Blue Ribbon Panel of subject-matter experts in the fields of engineering, architecture, and federal finance and real estate development to study options to renew the Rayburn House Office Building (RHOB) and Longworth House Office Building (LHOB). The Panel concluded that the AOC should move forward with renewals of the RHOB and LHOB, starting with the RHOB. Based on detailed study of existing conditions and consideration of numerous scenarios, the Panel recommends construction of new swing space in the LHOB courtyard (“Longworth courtyard infill option”). The Panel concluded that this option best meets the primary criteria to minimize total project cost and project duration while maintaining current operations to the extent feasible. However, the Panel urges the AOC to consider whether the risks and missed opportunities of the Longworth courtyard infill option outweigh the strengths. The most straightforward approach to funding the Longworth courtyard infill option would be the annual appropriations process, but the AOC should explore the viability of advanced project delivery methods.

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## **Appendix A: Blue Ribbon Panel, National Academy of Public Administration**

**Harold Adams** – Harold Adams is a Fellow of the American Institute of Architects (AIA) as well as a member of the National Academy of Construction (NAC) and has designed many prominent government projects. He served as executive architect for design of the U.S. Capitol Visitor Center. He also assisted with rebuilding of the Pentagon after September 11 and renovation of Bancroft Hall at the US Naval Academy, the largest dormitory in the world. He also helped design Lafayette Square and the John F. Kennedy gravesite at Arlington National Cemetery.

**Michelle Addington** – Michelle Addington is Dean of the School of Architecture at the University of Texas. She is expert in building sustainability issues and was called upon to assist with renovation of the Sistine Chapel. She was a member of the jury that recently awarded the Renwick Gallery renovation an AIA Committee on the Environment Award.

**Norman Dong (*chair*)**\* – Norm Dong is an Academy Fellow and recent Director of the General Services Administration's (GSA) Public Building Service. He is currently Managing Director of FD Stonewater, a real estate development firm. Previously, he served as Deputy Controller OMB, Chief Financial Officer (CFO) of the Federal Emergency Management Agency (FEMA), and Deputy Mayor of Washington, DC.

**Janet Hale\*** – Janet Hale is an Academy Fellow. She recently retired from Deloitte, where she was a Director. She is a former Under Secretary for Management at the Department of Homeland Security; Assistant Secretary for Budget, Finance and Technology, at the Department of Health and Human Services; Associate Administrator for Finance/Chief Financial Officer (CFO), U.S. House of Representatives; Executive Vice President, University of Pennsylvania; and Associate Director for Economics and Government at OMB, where she was responsible for the Department of Transportation (DOT) and GSA, among other agencies.

**Gerald Galloway\*** – Gerald Galloway is an Academy Fellow and a member of NAC. He is a Glenn L. Martin Institute Professor of Engineering at the University of Maryland, a Faculty Fellow of the Hagler Institute for Advanced Study at Texas A&M University, and a visiting professor at the A&M Galveston Campus. He is a thirty-eight-year veteran of the U.S. Army, who retired as a Brigadier General and Dean at the U.S. Military Academy at West Point.

**David Nash** – Dave Nash is a Fellow of the National Academy of Engineering and a member of NAC. He is a retired Admiral and past Commander and Chief of Civil Engineers of the Naval Facilities Engineering Command. He is also a past President of the Parsons Brinckerhoff PB Buildings subsidiary and was Director of the Program Management Office for reconstruction in Iraq. Mr. Nash is expert in program and facilities management and was the program manager for a \$1 billion renovation of General Motors' 700-acre Warren Technical Center campus, a project that included significant staff relocations to enable construction.

**Dan Tangherlini\*** – Dan Tangherlini is an Academy Fellow currently serving as CFO of the Emerson Collective. He is a past Chief Operating Officer of Artemis Real Estate Partners, Administrator of GSA, CFO of the Department of the Treasury, City Administrator and Deputy Mayor of Washington, DC, and Interim General Manager of the Washington Metropolitan Area Transit Authority.

***\*Academy Fellow***

## **Appendix B: Academy Study Team**

**Brenna Isman**, *Director of Academy Studies* — Ms. Isman oversees the Academy’s studies and provides strategic leadership, project oversight, and subject matter expertise to all of the project study teams. In coordination with the Academy Panels of Fellows, she guides the teams in developing work plans, research methodology, and comprehensive analysis and recommendations. Ms. Isman has led Academy projects assisting a national regulatory and oversight board in development and implementation of its strategic plan, as well as a statutorily required assessment of the National Aeronautics and Space Administration’s use of its Advisory Council and a study of regulatory affordability for the Environmental Protection Agency. Her expertise includes directing organizational studies of the U.S. State Department’s Office of Inspector General and strategic plan development for the Postal Regulatory Commission and the Social Security Administration, as well as organizational change consulting support for the U.S. Coast Guard. Ms. Isman also led the Academy’s work on the Collaborative Forum, which investigated best practices for states’ management of federally funded programs. She holds an MBA from American University and a Bachelor of Science in Human Resource Management from the University of Delaware.

**Nancy Augustine**, *Project Director* — Dr. Augustine joined the Academy as a Project Director in 2019. She has taught at the Trachtenberg School of Public Policy and Public Administration (George Washington University) since 2006. Following an early career in local urban planning, she has conducted research on management, performance, finance, and urban and social policy for federal agencies, local governments, and non-profit organizations. She holds a Ph.D. in Public Policy and Public Administration from the George Washington University, a M.A. in Economics from Georgetown University and a Master of Urban and Environmental Planning from the University of Virginia.

**Joe Mitchell**, *Senior Advisor* — Dr. Mitchell is the Director of Strategic Initiatives at the National Academy of Public Administration and is serving as a senior advisor on this project. He has worked with a wide range of federal cabinet departments and agencies to develop higher-performing organizations, implement organizational change, and strengthen human capital and teams. He currently leads the Academy’s thought leadership activities, including its Grand Challenges in Public Administration campaign. Most recently, he served at the General Services Administration to stand up its new Office of Shared Solutions and Performance Improvement within the Office of Government-wide Policy, where he led a team to manage multi-functional and cross-agency projects and initiatives in support of the President’s Management Agenda. Previously, he led and managed the Academy’s organizational studies program, providing

oversight to all of its congressionally-directed and agency-requested reviews and consulting engagements. He holds a Ph.D. from the Virginia Polytechnic Institute and State University, a Master of International Public Policy from the Johns Hopkins University School of Advanced International Studies, a Master of Public Administration from the University of North Carolina at Charlotte, and a B.A. in History from the University of North Carolina at Wilmington.

**Randolph Lyon\***, *Senior Advisor* – Mr. Lyon is an Academy Fellow and serves at the Academy’s Chief Financial Officer (CFO). He was a senior executive at the Office of Management and Budget (OMB) for 15 years, leading the Commerce Branch, which is responsible for budget, policy and management issues facing the Department of Commerce, Small Business Administration, Federal Communications Commission, National Archives, and several smaller agencies. Earlier, he served as a senior economist at OMB and an Assistant Director at the Government Accountability Office (GAO). He taught public finance and was responsible for supervising the quantitative research projects required for Master’s degrees in Georgetown University’s Public Policy Program for over a decade. He is a past recipient of a Presidential Rank Award and OMB’s Distinguished Service Award.

**Richard Pezzella**, *Senior Research Associate* – Mr. Pezzella joined the Academy in June 2018 after completing a series of internships around Washington, D.C. Previously, during the summer of 2016, he worked in Washington, as a grassroots organizer with Mayday America, a campaign finance reform group. After college graduation, in May 2017, Mr. Pezzella returned to Washington to intern in the office of Congressman Eliot L. Engel, and for the government relations and communications firm, Signal Group. His areas of interest and experience include infrastructure, public health, international relations, technology, and space policy. Mr. Pezzella graduated in May 2017 from SUNY New Paltz with a Bachelor of Arts in Anthropology and International Relations.

## Appendix C: The Panel's Decision-Making Process

The National Academy of Public Administration's Blue Ribbon Panel studied options for Rolling Renewal over a period of 14 months, beginning in January 2019. The process included extensive document review, discussions of criteria, review of potential development scenarios, and consensus on a final recommendation.

The analysis started with four broad scenarios.

- S.1 Renovate the LHOB and renovate the RHOB, no additional swing space
- S.2 Renovate the LHOB and renovate the RHOB, adding swing space as needed
- S.3 Renovate the LHOB and reconstruct the RHOB, no additional swing space
- S.4 Renovate the LHOB and reconstruct the RHOB, adding swing space as needed

Working with AECOM, the Panel developed and assessed multiple options to illustrate how each of these broad scenarios could be implemented.

The study's first charrette, on March 18, 2019, brought together the Panel, AOC staff from across the organization, and the study team (consisting of staffs of the National Academy of Public Administration and AECOM). Based on discussion of research and analysis findings and review of the scenarios, the Panel identified the following primary criteria for considering the viability of each scenario:

- **Minimize total cost:** Taxpayer dollars are at stake, so investments should be made wisely. A related concern is that spending on the renewal of the RHOB and LHOB could delay or preclude other AOC activities.
- **Minimize project duration:** Maintaining operations within a construction zone is disruptive and can erode the level of service provided to the American people. A shorter timeframe would minimize this impact. A secondary benefit of a shorter schedule is reducing cost escalation – the normal growth in costs that occur over time.<sup>8</sup>

The Panel found that other important considerations—including impact on Members, security, historic preservation, and environmental impacts—were, with only a few exceptions, relatively similar across the principal options.

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<sup>8</sup> Two factors drive the growth in cost estimates over time. First, inflation raises the nominal value of all costs. Second, experience of the last few years points to a rise in construction costs in the Washington, D.C. area that outpaces inflation.

The Panel concluded that substantial investment will be necessary to ensure that buildings will be able to continue to support the business of government into the future.

At the end of the first charrette, the Panel identified several options to advance to the next phase of the study. The Panel included the “Cannon model” to serve as a baseline to evaluate the incremental costs and schedule impacts of the other options. In the Cannon model, renewal would occur with the construction of no additional swing space. The other options selected for additional study added varying amounts of swing space, either by permanently adding onto either the RHOB or LHOB, constructing temporary space, or by constructing a new building on an adjacent site. The Panel eliminated options that entailed the complete demolition and reconstruction of the RHOB because it would have resulted in the unnecessary loss of a heritage asset without the benefit of shortening the schedule or reducing the cost.

A second charrette was held on May 22, 2019. AECOM presented the results of further study and design work related to the scenarios chosen at the first charrette, as well as more detailed cost estimates and phasing plans.

The Panel eliminated the option to plan for a temporary building because it would create substandard space for Members throughout the period of construction. Tearing it down at the end of the project would be an inefficient use of taxpayer money.

The Cannon model proved to be infeasible because of the configuration and condition of building systems in the RHOB. Larger sections of the building will have to be taken off line at once than could be accommodated with the existing inventory of swing space. The concentration of Committee hearing rooms in the RHOB created a further obstacle because all hearing rooms on campus are occupied; available swing space is not sufficient to provide temporary Committee hearing rooms.

The Panel selected the option to construct the minimum number of swing suites necessary rather than the option to construct a new building because although the schedule is two years longer than the “new construction” schedule (17 years compared to 15 years), the rough order of magnitude cost is almost 20 percent lower. The Panel considered an option to locate additional swing space in a new wing of the RHOB but determined that it would result in unnecessary loss of views and alteration of a heritage asset. This option also would have created more than the minimum amount of required swing space. The Panel determined that the better location for the additional swing suites would be in the courtyard of LHOB. However, the Panel noted that this option comes with risks and misses the opportunity to pursue other objectives. They also noted that relaxing some of the assumptions and broadening the scope of study could make new construction a better choice.



1600 K Street, N.W.

Suite 400

Washington, D.C. 20006

Phone: (202) 347-3190

Fax: (202) 223-0823

Website: [www.napawash.org](http://www.napawash.org)