Oklahoma Capitol Restoration
Interior Rehabilitation

DESIGN PHASE 1 - Preliminary Planning, Scope Development & Schematic Design

15151DB | EXECUTIVE SUMMARY

January 22, 2016

Oklahoma Capitol Restoration

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Executive Summary

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Overview

This Executive Summary document serves to outline and summarize the efforts undertaken to this 35% design-build milestone for the Oklahoma State Capitol Interior Rehabilitation Project. This narrative shall summarize the investigations executed, catalog the conclusions derived, and describe the proposed solutions illustrated in the designs within the design-build submission.

The task of rehabilitation for a historic structure such as this one is very daunting and costly. Every effort was made to make the most productive use of the investigation and discovery period to minimize the expense to the citizens of Oklahoma.

The approach for this design process has been holistic in nature, while fully understanding that current funding cannot restore the entire building and that the present financial situation of the State may limit the funding for necessary repairs. Prioritizing the construction elements and coordinating the phasing of delivery is key to the success of this project. Several collaborative working sessions with various stakeholders, departments, and committees have shaped and informed the proposed scope of work. Priority 1 scope serves as the infrastructure backbone and foundation for the overall plan to restore and repair our Capitol building, while taking into account every opportunity to save money and eliminate unnecessary costs.

Beyond the proposed scope of work, we have proposed a long-range vision and master plan for our Capitol building that pays homage to original historic design elements, designed by Solomon Layton, as well as providing functional enhancements that have the ability to support daily operations within a 21st century building. This comprehensive plan also addresses security concerns government facilities face nationally.

Additionally, our team recently concluded the largest whole-scale conditions assessment ever undertaken in our Capitol building's history. Information gleaned from the conditions assessment has served as the building block for the proposed scope of work.

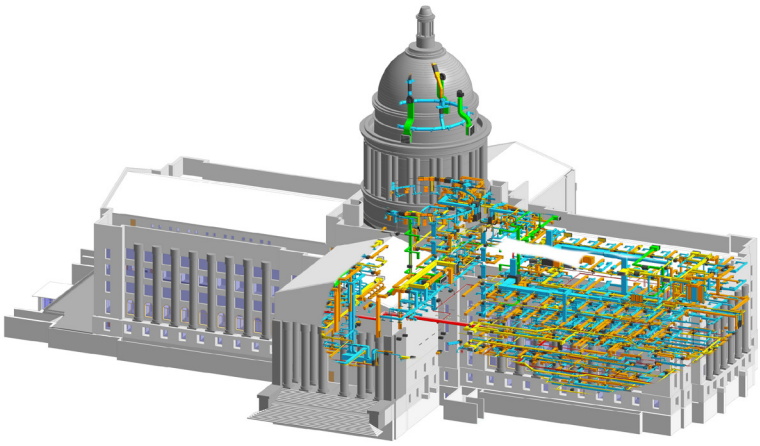
Although funding is not yet allocated to deliver the full extent of the proposed designs, following this

master plan as a guide will facilitate the implementation of the most efficient design and construction program for the restoration of the building. As a case in point, the master plan defines a Phasing Plan to relocate occupants within the Capitol building to circumvent the requirement and financial burden of off-site relocations. This "Single-Move Strategy" has the potential to yield savings that is calculated to be a possible $7 million dollars through Priority 2 activities. These are additional dollars that can be utilized and redirected to address areas of work that are the most critical to the repair and restoration of essential infrastructure systems within the aging building. Our team is continuously working to save money while developing accurate budgets and scopes of work which maximizes the State's investment in this historic structure.

We are excited about the execution of this master plan program and all of the opportunities this project holds to restore the Capitol Complex while acknowledging our history, and incorporating elements that will ensure the continued use of the facility for its future. This project is indeed a monumental challenge, but the finished product will result in a State Capitol that will be a source of pride for generations of Oklahomans in the future.

Investigations & Conditions Assessment

The first step in the development of the scope of work was the significant task of fully understanding the existing condition of the Capitol building structure and its engineering systems. Our team worked with previous documentation, gathered and prepared by OMES facilities staff and Architect Engineer/1, and built upon that information by deploying our staff of architects, engineers, historic preservation experts and construction professionals to assess the building in a room-by-room approach.



Building Information Model (BIM) Representation

This effort led our team to the identification of critical system deficiencies, areas in dire need of repair and some conditions which are of concern from a system and functional perspective. The finished assessment details the items that require immediate attention as well as items that should be considered for near-future replacement. Additional programming and functionality information was collected after meeting with every one of the using agencies occupying space within our Capitol building. To date, our team has logged over 8,000 work hours in an effort to undertake the largest whole-scale investigation of our state Capitol building in its history. State-of-the-art technology has been employed to inventory and evaluate the condition of all infrastructure systems within the Capitol building, to include all piping, cabling, ductwork, heating/air systems, equipment, architectural finishes, and doors and hardware.

This information was then integrated into a Building Information Model (BIM). The effort to complete the model presents the best format to document existing conditions and holds immense capabilities for future automation and building management platforms to achieve additional long-term cost of ownership savings and to prevent the future disrepair to the building's most critical infrastructure and systems.

Summary of implication and consequences

Our team has identified the existing elements of independent systems that can remain, elements to be refurbished, and elements to be removed and replaced. The plumbing system is as bad as previously noted. These issues go much further than anticipated. The plumbing system is in such critical need of

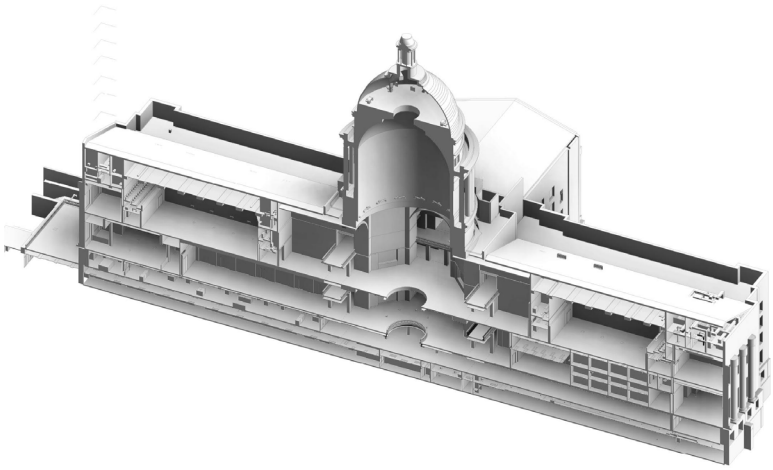
replacement, in certain sections of the building, that there is a real danger to have leakage from failing pipes come into open spaces of the building. The structural systems are generally in excellent condition. Much of the existing geothermal system is effective and components can be reused, but supplemental systems are required. The Information Technology/Data systems are in dire need of an upgrade in efforts to meet modern technological demands as well as removing miles of abandoned and antiquated cabling. The electrical service and primary distribution systems are also inadequate. Original cable and wiring is still in use in some areas of the Capitol building. This condition creates a real hazard for fire and personal injury. The mechanical system is a combination of old and relatively new components that provide little efficiency and create an expense that could be eliminated through the implementation of a holistic mechanical system solution that works in unison to heat and cool the entire facility.

Failure to address the issues with these systems will lead to an increased expense in the daily operation of substandard systems and the ultimate failure and breakdown of these systems and finally the services they provide. It is this aspect that drives the priorities of the project.

In assessing the conditions of our Capitol building, and in conjunction with the Capitol Architect, building standards are being developed that will serve as future guidelines for maintenance and renovation efforts in a post-restoration scenario. These building standards will leverage the lessons learned from decades of poor decisions and serve to preserve our Capitol building's legacy for future generations.

Programming Study

Beyond cataloging the bricks and mortar elements of the building, our team performed in-depth analysis of how people use and interact with the building. This took the form of an interview with each of the twenty-one different tenants. We also scheduled discussions with the Department of Public Safety and Capitol Security, and observed visitor and staff circulation patterns. We also collaborated with facilities staff to understand building mechanics. This depiction of a living, breathing facility is very descriptive in highlighting functional elements that can be improved, augmented, reinforced, or completely re-envisioned.



3-Dimensional, isometric view of the interior.

Gaining this understanding has led to our initial proposed space allocations that support the master plan as defined. This represents an ongoing conversation with stakeholders to vet and verify these proposals and work to a point of consensus. Our analysis also supports the benefits and efficiencies that we may realize with a "Single-Move Strategy" that satisfies the needs and requirements of the ultimate end-users of the building.

Summary of findings

The programming sessions have served as a platform to involve all of the users in the planning process, assess their needs, and provide candid feedback on working within the Capitol building. In many instances, spaces allocated to specific agencies are not conducive to daily operations when considering an agency's purpose, structure, customer interface, technology and security requirements. Efficient space adjacencies to other agencies, and differing levels of public engagement should all be included within a master plan.

Relocation of several agencies would prove beneficial towards addressing programmatic efficiencies. As an example, one of the goals identified by the Oversight Committee is to reopen the Ceremonial Entrance at the second floor. This would require a tenant relocation plan to be approved for the Lt. Governor's office,

specifically, to allow for proper security screening.

The programming initiatives facilitate and properly plan for these programming changes through the construction process by implementing a "Single-Move Strategy" saving millions of dollars in direct and indirect expenses associated with multiple moves, off-site leasing requirements and limiting swing space, all while maintaining an occupied facility through construction.

A common issue to nearly all tenants, users, and visitors is in regard to the general approach and access to the building. The interaction to the People's House begins at the security screening posts which are grossly inefficient and undersized for the traffic patterns and flow seen by the Capitol. This is a significant programming element that must be addressed within foundational phases of design and construction to ensure the success of future climate control, security, and accessibility efforts.

Summary of implications

A plan has been developed that addresses an agency relocation strategy. Potential relocation of agencies working within the Capitol building will be extremely challenging from a legislative perspective necessitating changes approved by statute. However, our goal is to provide a cohesive approach to maximizing efficiency of these required challenges. Solidifying an agency relocation strategy will require an involved discussion that will inevitably include revisions and compromise. Based on the current available funding, it is anticipated that many agencies will remain in spaces currently occupied. The programmatic efficiencies, thus far identified and proposed in early development, will not be realized as the existing funding is prioritized around vital infrastructure improvements.

It is our conclusion that reprogramming the public entry screening MUST be included in Priority 1 activities. The master plan contained within this document builds around this premise, as well as, starts the dialogue with all stakeholders regarding future space allocations.

Historic Preservation

Our team of historic preservationists spent months exploring the Capitol building and reviewing archival documents to determine the existing historic value of elements within the building. The goal has been to completely identify and fully understand the historic fabric extant in the building to define our recommendations for appropriate treatments.

Stephen Kelley and Elizabeth Rosin of Rosin Preservation, review original light fixtures stored in attic spaces.

The experienced team of preservationists is working side-by-side with the design-build team to create a solution that makes the most practical and economical sense to match the goals and criteria of the Oversight Committee. A complete restoration of the entire building complex would be costly and require an exorbitant amount of time to complete. For that reason, a measured approach has been identified which pays homage to the original design and intent of the building while delivering a practical solution that meets the budget objectives that have been set forth to date. The ideal solution we propose is to deliver a solution that maximizes preservation while being sensitive to the needs of a 21st century legislative environment.

Summary of preservation zones

With troves of data and images in hand, we have developed recommendations for the level of preservation that is appropriate to each space. Historic Treatment Zones for the interior of the Oklahoma State Capitol building have been identified to guide the decisions made by the Owner and the Manhattan/FSB team during the course of the Interior Rehabilitation Project and future projects within the Capitol building. The Zones are shown graphically on the Historic Treatment Zone floor plans. These Zones are based upon the United States Secretary of the Interior Standards for the Treatment of Historic Properties. The four treatment zones are defined on the following page.

Zone 1 – Preservation

Preservation is defined as the act or process of applying measures necessary to preserve and sustain the existing form, integrity, and materials of an historic space. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic (original) materials and features with in-kind materials rather than extensive replacement and new construction.

Zone 2 – Restoration

Restoration is defined as the act or process of accurately depicting the form, features, and character of a space as it appeared at a particular period of time by means of preserving remaining historic (original) fabric, removal of features from other periods in its history and reconstruction of missing features from the period of significance.

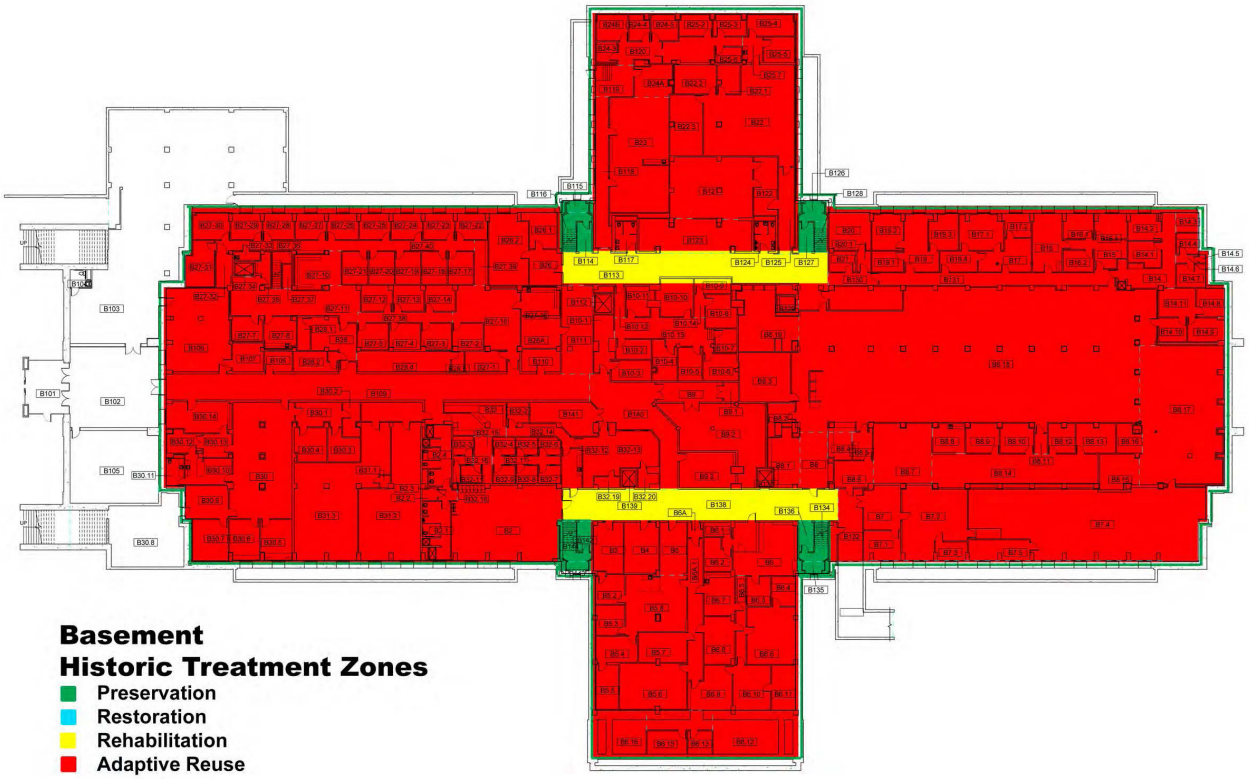
Zone 3 - Rehabilitation

Rehabilitation is defined as the act or process of making possible a sympathetic use for a space through repair, alterations, and additions while preserving those portions or features which convey its historical and/or architectural values.

Zone 4 – Adaptive Reuse

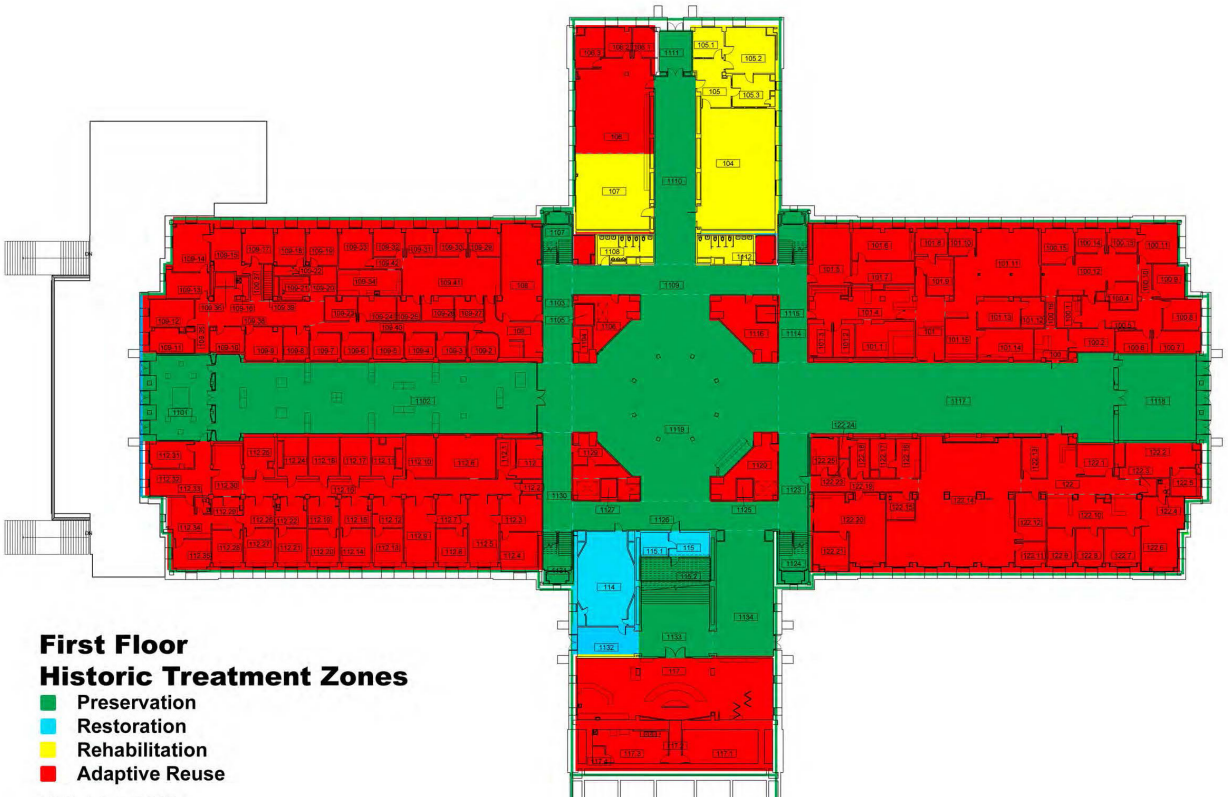
Adaptive Reuse is defined as the act or process of reusing existing spaces adaptively or for a purpose other than which they were originally intended. Adaptive Reuse allows for alteration as needed to suit the tenant's program. Current configuration and finishes need not be retained. Adaptive Reuse spaces are prime locations to carry the load of mechanical, electrical, and plumbing system upgrades and other code-required work.

This recommendation considers the amount, quality and integrity of historic fabric as well as the historic, current, and proposed function of the space. Some areas warrant preservation of their current conditions; in others restoration of historic space, features and fabric are being recommended; large areas of the building can be rehabilitated with more flexibility; and many areas are identified for complete re-imagination and adaptive reuse. Coupled with assessments of the building's architecture, structure, and systems, this information has generated a program of improvements that benefit this very public place.



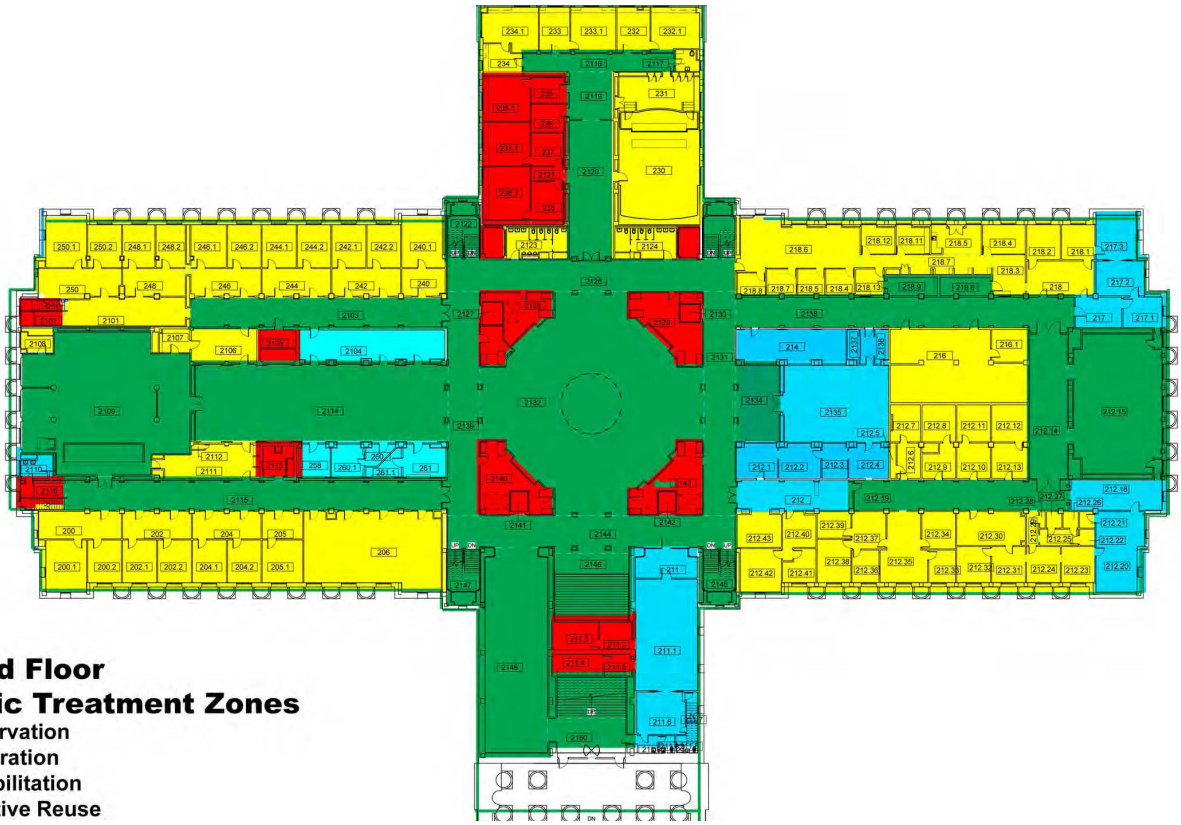
Basement
Historic Treatment Zones

- Preservation
- Restoration
- Rehabilitation
- Adaptive Reuse



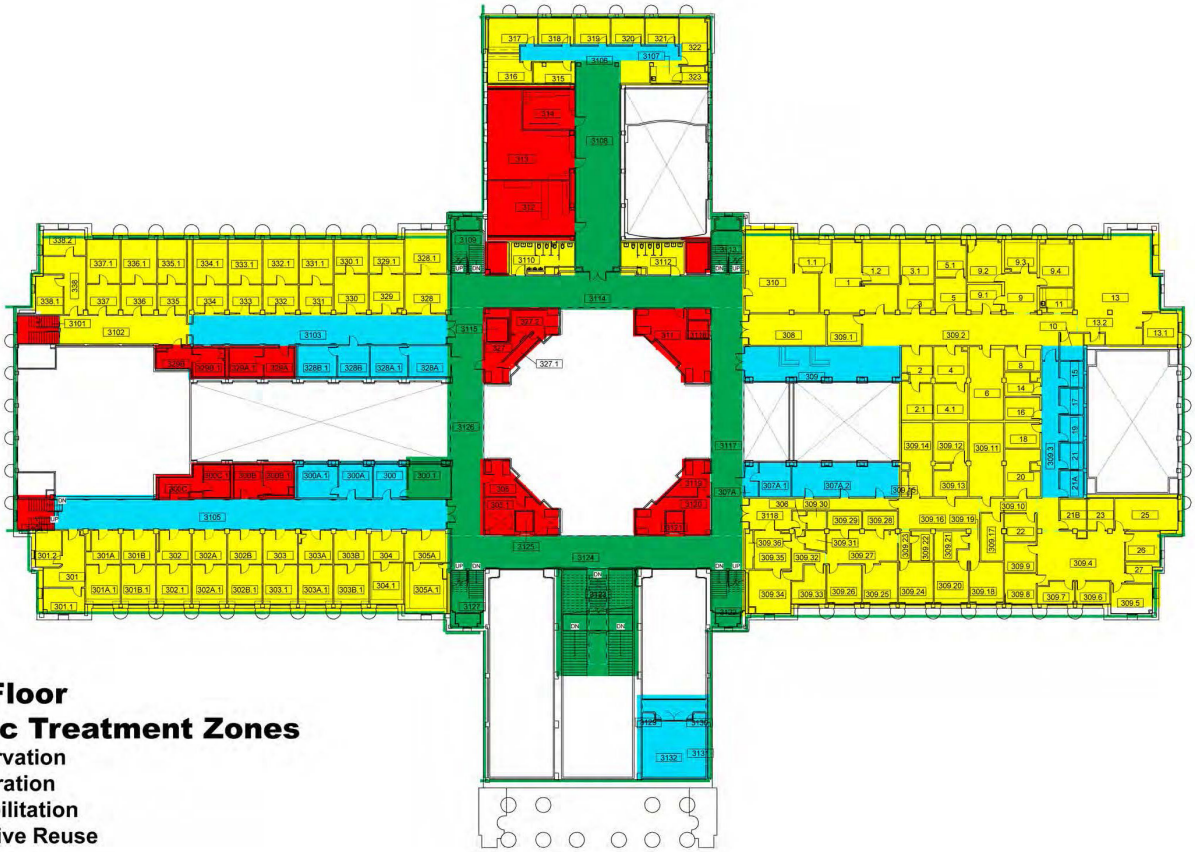
First Floor
Historic Treatment Zones

- Preservation
- Restoration
- Rehabilitation
- Adaptive Reuse



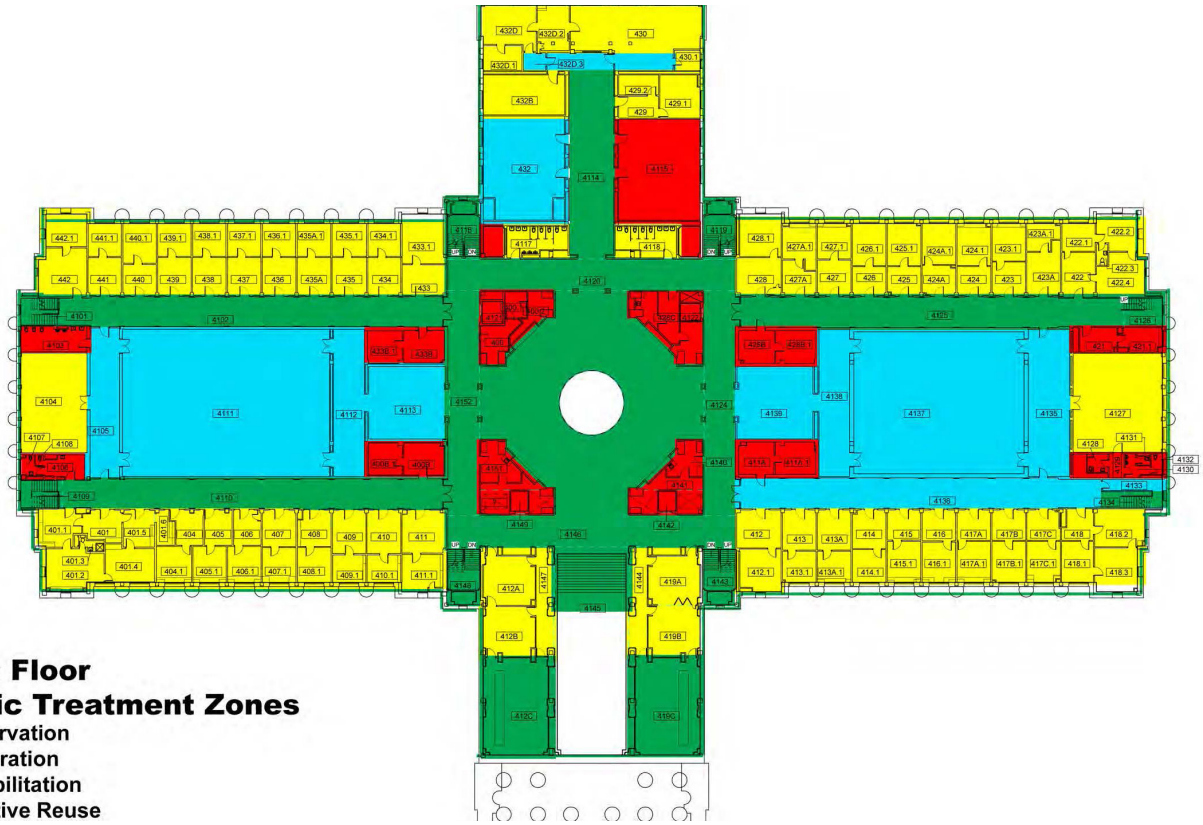
Second Floor
Historic Treatment Zones

- Preservation
- Restoration
- Rehabilitation
- Adaptive Reuse



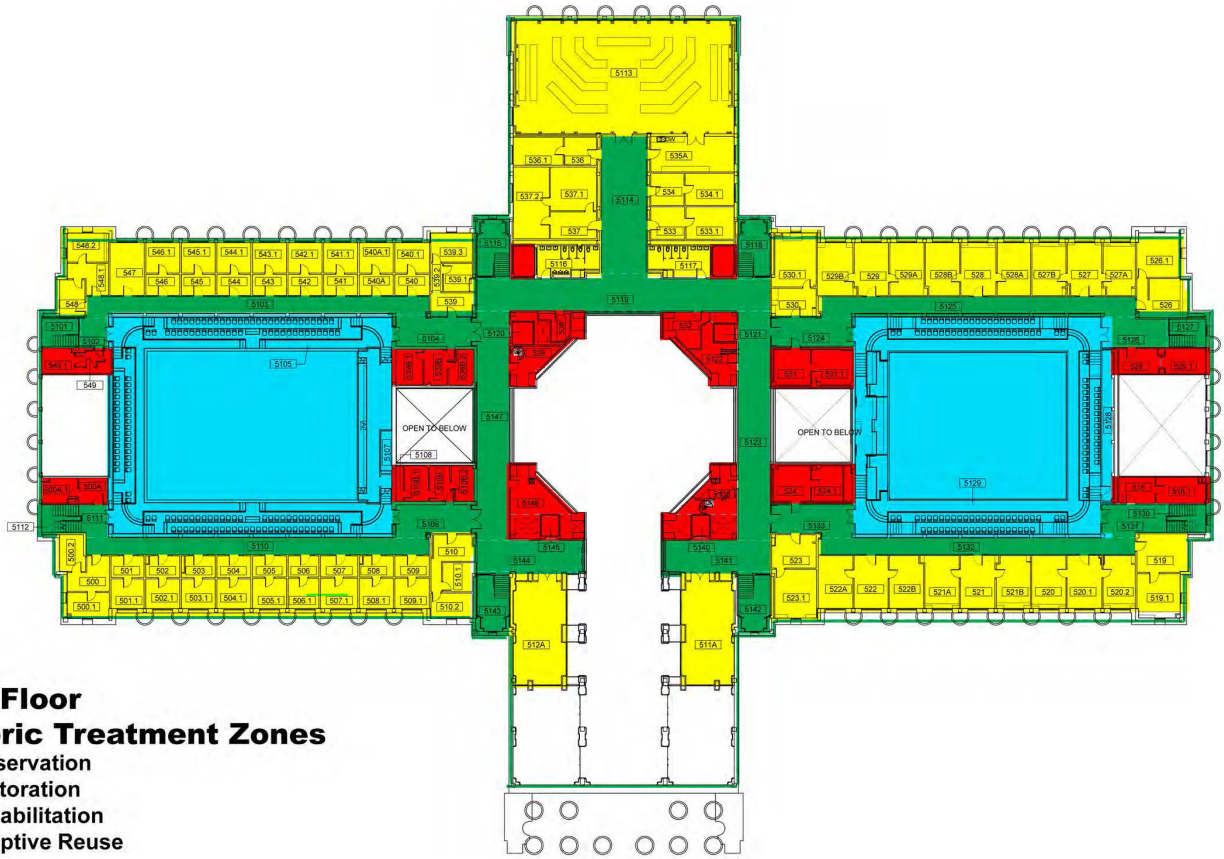
Third Floor
Historic Treatment Zones

- Preservation
- Restoration
- Rehabilitation
- Adaptive Reuse



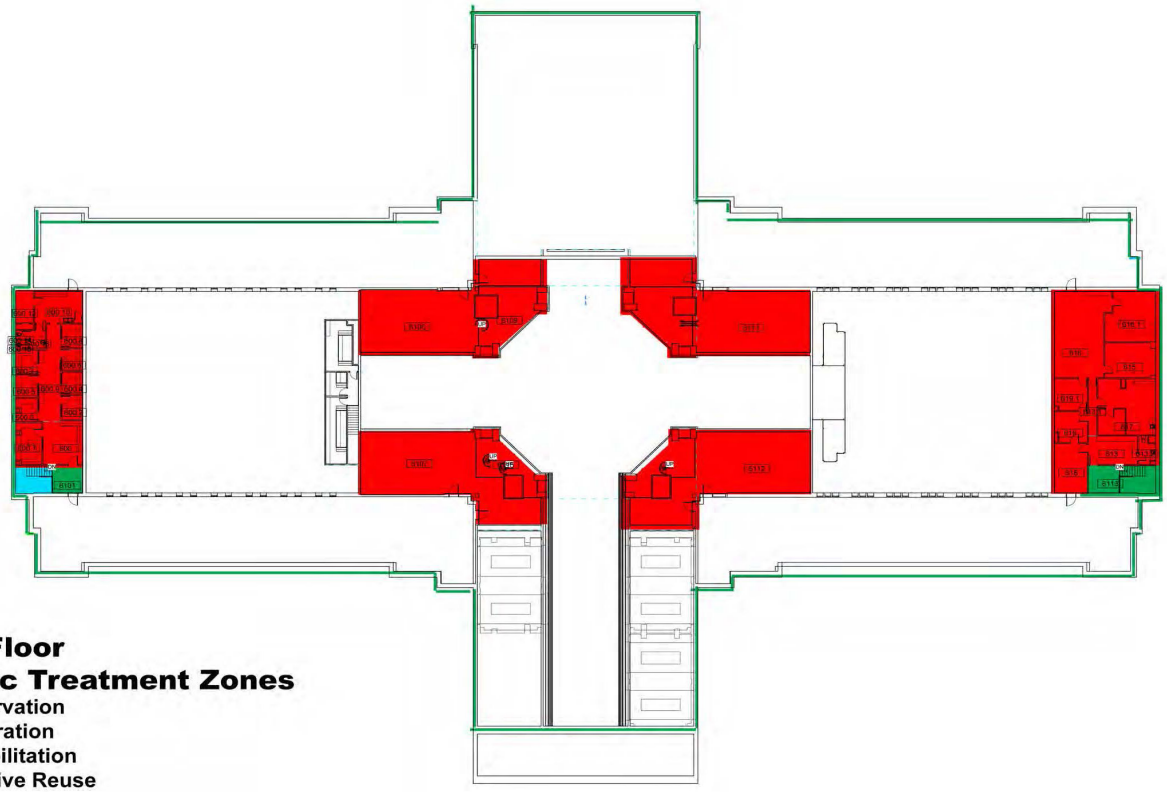
Fourth Floor
Historic Treatment Zones

- Preservation
- Restoration
- Rehabilitation
- Adaptive Reuse



Fifth Floor
Historic Treatment Zones

- Preservation
- Restoration
- Rehabilitation
- Adaptive Reuse



Sixth Floor
Historic Treatment Zones

- Preservation
- Restoration
- Rehabilitation
- Adaptive Reuse

Investigative Conclusions

As specifically identified through the investigation and data compiled from the conditions assessment, existing infrastructure is deteriorated and failing. In addition, our Capitol building was designed to function a century ago. Business, government and administrative requirements have drastically changed over the last century. This requires specific attention to functional enhancements that will serve our Capitol building in the 21st century.

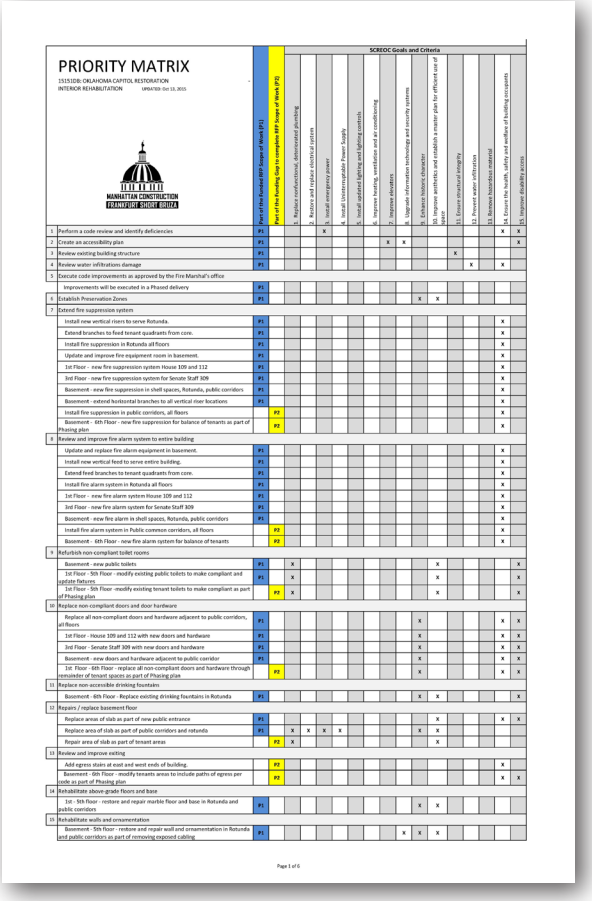
The reality is that 21st century security threats are simply different than those present 100 years ago. Thus, we are recommending a holistic approach to security including access control and force protection. Along with twenty-one using agencies in this building, existing security provisions vary significantly from one agency to the next. However, our confidential security assessment identifies many deficiencies requiring immediate remedy. Security deficiencies affect all building occupants as well as visitors to our Capitol building. We have provided solutions directed towards increasing building security and life safety.

Nearly all twenty-one tenants identified public access as a major deficiency with our Capitol building. The existing public entrance was never intended to be what it is today. While the Ceremonial Entrance on the second floor was designed as the primary entrance, this is no longer a viable option because of the accessibility issues inherent with its design.

The development of a comprehensive scope of work that addresses the issues that currently exist, combined with the most pressing issues of infrastructure, office space and security, is of primary concern. Our team has worked diligently to address the problems and provide practical suggestions that will yield the best results as approved in their full intent. The addition of a master plan also presents additional efficiencies and enhancements that should be seriously considered.

The proposed plan represents our direct response to these conclusions derived from our investigations. Basement-level utility infrastructure and services are to be improved or restored and supplied through the building's core, and climate controls throughout the Rotunda are to be incorporated. The public entry must be reprogrammed and redesigned. All of this initial work must be viewed in the context of a more extensive master plan to ensure minimal overlap or waste in future work.

Priority Matrix



PRIORITY MATRIX

1515100: OKLAHOMA CAPITOL RESTORATION
INTERIOR REHABILITATION UPDATED: Oct 13, 2015

MANHATTAN CONSTRUCTION
FRANKFURT SHORT BRUZA

		Part of the Funding Cap (+ complete RFP Scope of Work)	Part of the Funding Cap (+ complete RFP Scope of Work (P2)	SCREOC Goals and Criteria														
				1. Replace roof/electrical, deteriorated plumbing	2. Restore and replace electrical systems	3. Install emergency power	4. Install Uninterruptable Power Supply	5. Install updated lighting and lighting controls	6. Improve heating, ventilation and air conditioning	7. Improve elevators	8. Upgrade information technology and security systems	9. Enhance historic character	10. Improve aesthetics and establish a master plan for efficient use of space	11. Ensure structural integrity	12. Prevent water infiltration	13. Remove hazardous material	14. Ensure life, health, safety and welfare of building occupants	15. Improve disability access
1	Perform a code review and identify deficiencies	P1				X											X	X
2	Create an accessibility plan	P1								X	X							X
3	Review existing building structure	P1												X				
4	Review water infiltration damage	P1													X		X	
5	Execute code improvements as approved by the Fire Marshal's office																	
	Improvements will be executed in a Phased delivery	P1																
6	Establish Preservation Zones	P1										X	X					
7	Extend fire suppression system																	
	Install new vertical risers to serve Rotunda.	P1															X	
	Extend branches to feed tenant quadrants from core.	P1															X	
	Install fire suppression in Rotunda all floors	P1															X	
	Update and improve fire equipment room in basement.	P1															X	
	1st Floor - new fire suppression system House 109 and 112	P1															X	
	3rd Floor - new fire suppression system for Senate Staff 309	P1															X	
	Basement - new fire suppression in shell spaces, Rotunda, public corridors	P1															X	
	Basement - extend horizontal branches to all vertical riser locations	P1															X	
	Install fire suppression in public corridors, all floors		P2														X	
	Basement - 6th Floor - new fire suppression for balance of tenants as part of Phasing plan		P2														X	
8	Review and improve fire alarm system to entire building																	
	Update and replace fire alarm equipment in basement.	P1															X	
	Install new vertical feed to serve entire building.	P1															X	
	Extend feed branches to tenant quadrants from core.	P1															X	
	Install fire alarm system in Rotunda all floors	P1															X	
	1st Floor - new fire alarm system House 109 and 112	P1															X	
	3rd Floor - new fire alarm system for Senate Staff 309	P1															X	
	Basement - new fire alarm in shell spaces, Rotunda, public corridors	P1															X	
	Install fire alarm system in Public common corridors, all floors		P2														X	
	Basement - 6th Floor - new fire alarm system for balance of tenants		P2														X	
9	Refurbish non-compliant toilet rooms																	
	Basement - new public toilets	P1		X									X					X
	1st Floor - 5th Floor - modify existing public toilets to make compliant and update fixtures	P1		X									X					X
	1st Floor - 5th Floor -modify existing tenant toilets to make compliant as part of Phasing plan		P2	X									X					X
10	Replace non-compliant doors and door hardware																	
	Replace all non-compliant doors and hardware adjacent to public corridors, all floors	P1										X					X	X
	1st Floor - House 109 and 112 with new doors and hardware	P1										X					X	X
	3rd Floor - Senate Staff 309 with new doors and hardware	P1										X					X	X
	Basement - new doors and hardware adjacent to public corridor	P1										X					X	X
	1st Floor - 6th Floor - replace all non-compliant doors and hardware through remainder of tenant spaces as part of Phasing plan		P2									X					X	X
11	Replace non-accessible drinking fountains																	
	Basement - 4th Floor - Replace existing drinking fountains in Rotunda	P1										X	X					X
12	Repairs / replace basement floor																	
	Replace areas of slab as part of new public entrance	P1											X				X	X
	Replace area of slab as part of public corridors and rotunda	P1		X	X	X	X					X	X					
	Repair area of slab as part of tenant areas		P2	X									X					
13	Review and improve exiting																	
	Add egress stairs at east and west ends of building.		P2														X	
	Basement - 6th Floor - modify tenants areas to include paths of egress per code as part of Phasing plan		P2														X	X
14	Rehabilitate above-grade floors and base																	
	1st - 5th Floor - restore and repair marble floor and base in Rotunda and public corridors	P1										X	X					
15	Rehabilitate walls and ornamentation																	
	Basement - 5th Floor - restore and repair wall and ornamentation in Rotunda and public corridors as part of removing exposed cabling	P1									X	X	X					

Page 1 of 6

As a logical next step to the investigation and conditions assessment, a priority matrix was developed and classified into three priority levels. Each level is further defined in the following pages with Priority 1 being of the utmost importance.

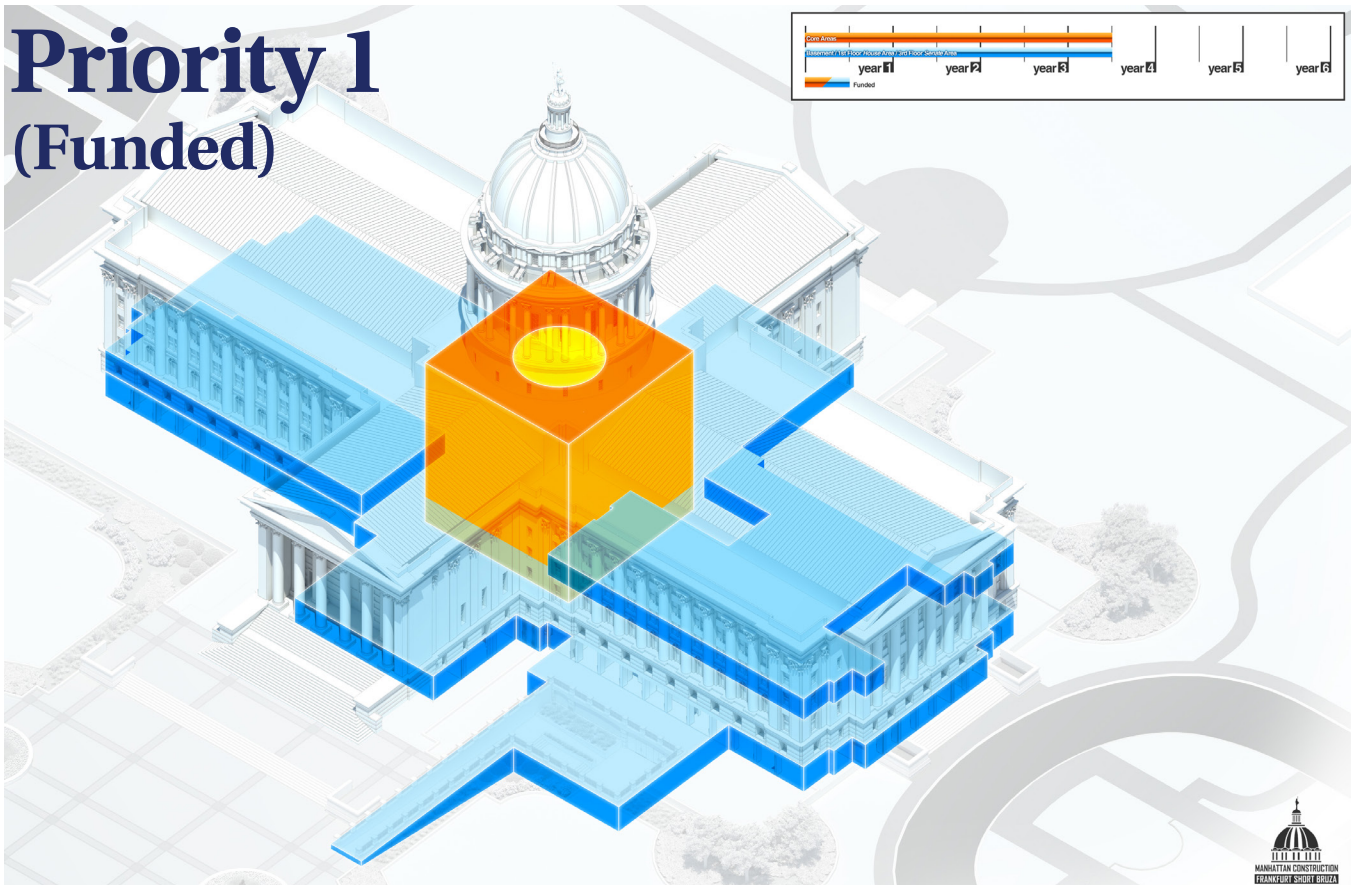
The principle behind the development of a priority matrix is to align multiple priorities associated with the goals and objectives established for the project, in an objective manner, which identifies work elements that should first be specifically included within the existing funding parameters. The priority matrix has served as a collaborative tool, through multiple working sessions, to evaluate and prioritize scopes of work with our professional evaluations and observations from the conditions assessment.

The priority matrix focuses on key factors to serve as guides through the scope of work, as approved by the Oversight Committee on June 11, 2015. Our team has used the following guiding principles through development of the master plan for the Oklahoma Capitol Restoration:

- ***Infrastructure*** upgrades for energy efficiency, required repairs, increased capacities, etc.
- ***Life Safety Systems*** to protect the public and tenants/using agencies.
- Preservation, restoration and rehabilitation of the ***historic fabric*** of our Capitol.
- ***Security***, both access control and force protection.
- Addressing ***accessibility to the Capitol building.***
- ***Functional enhancement*** opportunities regarding daily operations within the Capitol building.
- Intense focus on ***allocating funding resources to public components.***
- Efficiencies of a ***Single-Move Strategy.***

The priority matrix process has enabled our team to define the scope of work that can be included within the existing funding parameters (Priority 1) as well as provide a cost model for the comprehensive master plan (Priority 2), if future funding becomes available.

Priority 1
(Funded)



Priority Level One (P1): Priority 1 includes proposed solutions which yield the biggest impact to address the overall project goals and criteria, and can be completed within the construction cost limitations as noted within the response to the Request for Proposal ($85.5M).

The scope of work included as Priority 1 items are focused on providing:

- Vital repairs and replacement of backbone infrastructure
- Mechanical, electrical, plumbing and life safety systems
- Securing public access into the Capitol building
- Providing a secured public access level
- Providing environmental conditioning and controls to the Rotunda
- Addressing public corridors, including core elements that serve as primary distribution systems
- Addressing deficiencies with public restrooms
- Adding fire suppression and alarm
- Replacing elevators
- Completing our invasive investigation in prerequisite areas
- Providing utilities such as natural gas service which will enhance energy efficiency
- Security and access
- Implementing provisions in unison with the master plan

Priority 1 specifically includes a secured public entrance integrated into the basement level. We conclude this should be held as a requirement as realigning this entry is essential to securing the building, protecting the climate control investment of the Rotunda, and greatly improving the functional approach and access to the building.

Priority 2 (Unfunded Gap)

Priority Level Two (P2): Priority 2 items are no less necessary than Priority 1 items and are absolutely necessary to achieve the requirements set forth by the Request for Proposal. However, these are work items that fall outside of the construction cost limitations.

Although currently listed as "unfunded," Priority 2 items are focused on completing the scope of work described within the Request for Proposal. P2 includes:

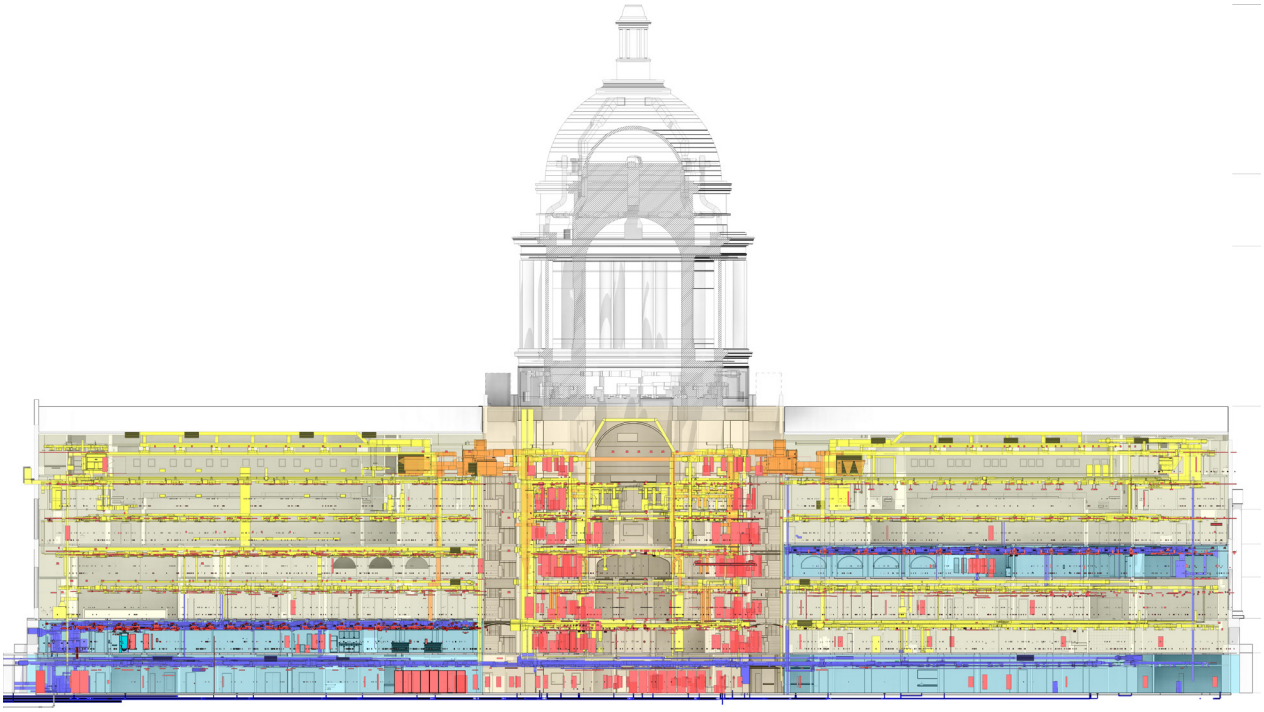
- Completion of secondary systems distribution
- Full implementation of the "Single-Move Strategy"
- Addressing deficiencies with the loading dock
- Addressing a comprehensive plan to provide fresh air
- Providing a plumbing plan to address condensate drains
- Addition of fire suppression
- Fire alarm system throughout the Capitol building
- Addressing code violations by adding stairs to provide vertical access
- Addressing programmatic efficiencies and a tenant relocation strategy
- Finalization of tenant space allocation plan

Cost Modeling

In conjunction with the priority matrix, we have developed an estimate of costs for the scope of work. This is meant to provide the information necessary to make sound and informed decisions, based on the State's overall project goals, in accordance with the associated budget parameters.

As originally expected, additional funding will be required to meet the overall project goals outlined in the Request for Proposal. We have provided budgets to align with the scope of work priority matrix as noted below:

Priority 1 (Funded):	**$ 85,560,000**	**Funding currently allocated*
Priority 2 (Unfunded):	**$ 95,927,813**	**Additional funding anticipated to complete Interior Rehabilitation*
Total Proposed Project:	**$181,487,813**	**Total funding anticipated to complete Interior Rehabilitation*



Cross section of Capitol Building.

Scope Development

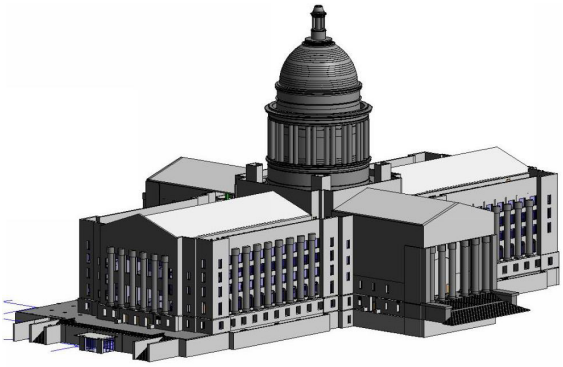
The Oklahoma Capitol Restoration Interior Rehabilitation Project is defined in the Request for Proposal document as a set of potential scope items and expectations for the project intended to protect, restore, repair and enhance the condition and operations of the Oklahoma State Capitol building. Due to the complexity of the project, we have identified additional scope items serving as betterments to meet the demands of a design-build project of this historic caliber.

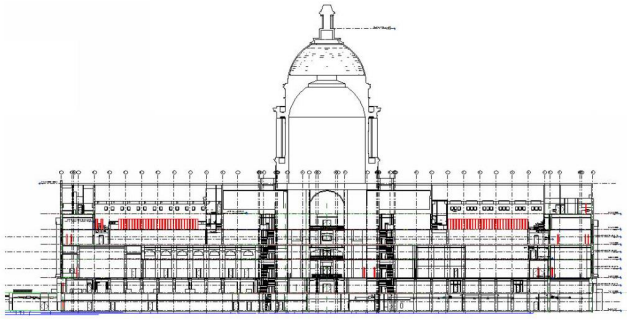
Our scope development plan outlines potential solutions associated with this specific project and how these recommendations may inhibit expectations but also require modifications to the action plans associated with Section 011001 of the Request for Proposals. We must seek only to revise the scope of work when it ensures success for the project. Modifications must allow the fulfillment of the greatest number of expectations and accommodate legal requirements. Those modifications will be defined, and their needs and proposed outcome will continue to be documented.

The development and process to define scopes of work associated with a project is often a living document that is created over the course of a project. It is only fully understood once all project stakeholders acknowledge the multitude of potential risks and benefits associated with a design-build project of this caliber. The development process has identified factors associated with risk as well as betterments to the project. Quantities of actual repair, actual as-built conditions, condition of systems and building elements, initial schedule, necessary deviations, tenant programming requirements, political and public communications and influence - all of these factors have been weighed against the expectations and priorities set forth for the Capitol building.

Summary of development

Scope development involves providing detailed solutions to restore and rehabilitate our Capitol building in order to meet the goals and criteria, as approved and adopted by the State Capitol Repair Expenditure Oversight Committee. The goal of our scope development process has been to provide solutions and details for the project work requirements. This data has been necessary to develop accurate initial cost models in unison with preliminary scheduling milestones. Elaboration of the project scope and refinement will continue throughout the planning process. Based on the defined priorities, the scope development has focused on infrastructure repair and restoration, addressing security and access, providing necessary functional enhancements - all while delivering a seamless master plan, if additional funding is provided to complete the entire restoration effort.





Description of existing conditions and recommendations

Utilizing the conditions assessment as the baseline for scope development has allowed our team to evaluate systems that are in good shape at present time, as well as items than can be reused or refurbished, to reduce overall project costs by avoiding the expense of purchasing all new equipment for these systems. It has also allowed our team to specifically target problems that require immediate attention.

We have found that spaces range from good to extremely poor. There is an inconsistent use of materials throughout our Capitol building. Engineering systems contain a large amount of worn out and outdated components, many of which have been abandoned in place and never removed. Original equipment and wiring continue to be utilized long after their useful lives have expired. Those elements that are most expensive and invasive, such as plumbing lines underneath the Capitol building basement, have never been updated or replaced, and continue to deteriorate at an alarming rate. We have exposed and traced decades worth of cabling above ceilings that needs to be

removed and replaced, in many instances. The lack of building standards allowed for the installation of surface-mounted conduit and cabling in exposed historic corridors; thereby impacting the historic aspect of the same.

Our team has made every effort to identify components that can be reused and incorporated into the new systems. To provide a quick example, over 40% of the heat pumps above the ceilings have been replaced in the last 5 years and will be reused and incorporated into the new mechanical system. Historic door frames are also being salvaged, inventoried, and reused to maintain the historic fabric and be deliberate in reducing overall project costs.

Core samples were taken from the basement slab which indicates terrazzo was applied directly over a compressive layer of asphalt. This has resulted in numerous cracks observed in the basement corridor. The asphalt rests the original floor finish consisting of integrally colored red concrete.

Core samples were taken from areas containing historic marble to gauge the depth of staining. Stain depth varies as shown from ¼" – 3/16". Poultice testing to remove stains has been performed without significant improvement as originally anticipated.

Technical repair methodology

It is anticipated that most of the existing flooring in the basement will need to be removed for installation of necessary infrastructure to include under-slab electrical, utilities and plumbing infrastructure. Finishes in all areas will be completed in accordance with the adopted Preservation Zoning Map and coordinated with the requirements and utilization of the spaces affected.

The method for repairs throughout the Capitol building will be determined by invasive investigation and testing. As an example, poultice testing of the in situ marble flooring has been conducted to determine the extent of the brown stain and what measures, if any, can be taken to remove the stain satisfactorily from the marble flooring.

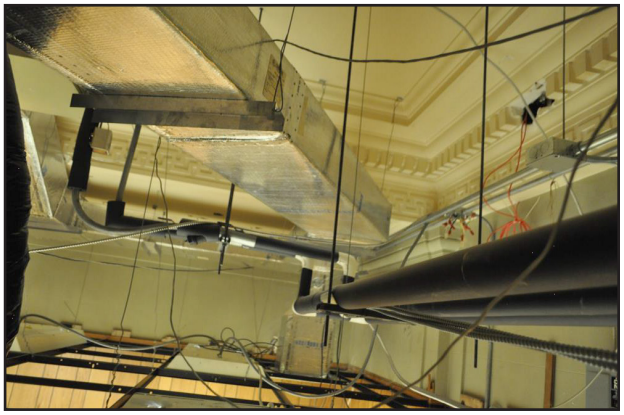
Ceilings in the public and private areas exhibiting a high level of ornamentation will be retained as much as practicable in their original condition as determined by the Preservation Zoning Map. Ceilings in private areas exhibiting a lesser degree of historic ornamentation will be addressed in accordance with the requirements and utilization of the spaces in question.

The existing south entry is intended to be re-opened as a Ceremonial Entrance to the Capitol building as part of the Priority 2 scope of work. Security measures for the south entrance would be addressed at that time.

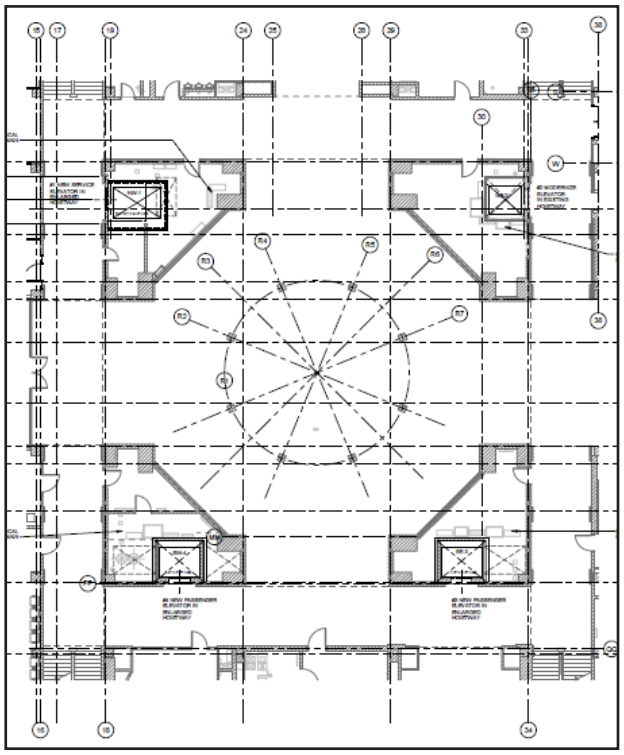
The Capitol building will be fitted with hardware that will follow a Capitol building design standard, as developed with the Owner's Project Team, having the same style and finish. Door hardware function will be determined by utilization of the space and will comply with applicable code(s). New door hardware will be in conformance with Americans with Disabilities Act (ADA) and/or historic preservation standards.

The existing elevators will be replaced with new cars and finishes to complement the Historic Treatment Zone in which they reside. Elevator controls will be upgraded and motors will be changed to modern, efficient, three-phase power. The proposed layout is comprised of three passenger elevators and one service elevator. The service elevator will serve as a functional enhancement to allow vertical access for artwork, tables, chairs, and provide service of typical back-of-house operations.

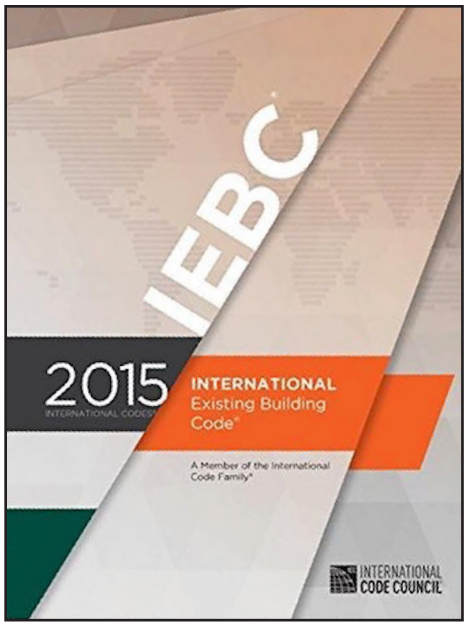
The Oklahoma State Capitol is under the jurisdiction of the Oklahoma State Fire Marshal's (OSFM) office. Thus, work in the Capitol building will be reviewed in accordance with the current edition of the International Existing Building Code (IEBC) with historic building considerations. The design-build team, along with the Owner's Project Team, will continue to meet with the OSFM to determine the extent of the life safety improvements that will be required for the Capitol building. Our team will submit plans and specifications to the OSFM for plan



Many ornamental historic plaster ceilings still remain obscured by grid ceilings today. Asbestos contatining materials (ACM) can be found above ceilings, behind wood paneling, and within layers of floor finishes.



Vertical Access - All four primary elevators will be replaced, including provisions (functional enhancement) for a service elevator.



International Existing Building Code

review and permitting for each phase of work on the project.

We have reviewed the existing structure and will provide recommended methods of repair for any additional existing structural elements that have been compromised. Our team has reviewed the Oklahoma State Capitol Existing Structure Seismic Evaluation Report performed by Wallace Engineering dated January 21, 2015, and has provided a seismic evaluation based on the requirements of the International Existing Building Code (as adopted by the State of Oklahoma). Non-seismic structural elements of the Capitol building will be evaluated and remediation details will be prepared as necessary.

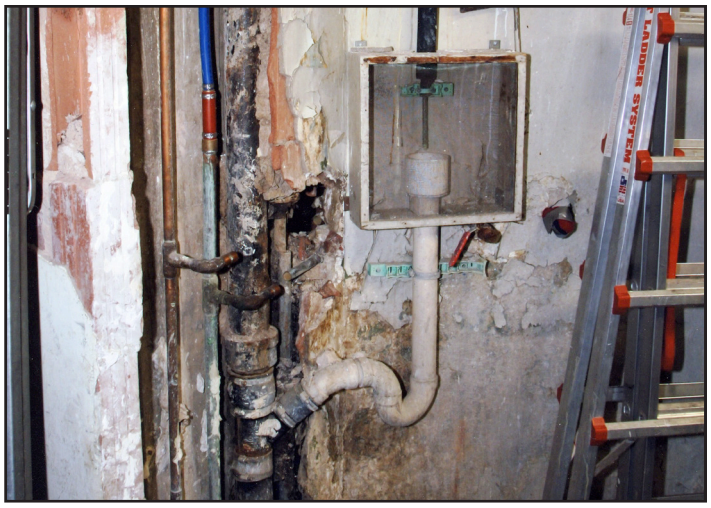
Artwork in the Capitol building that is moveable is intended to be relocated by the Owner prior to construction activities that may affect the artwork. Some artwork cannot be relocated during construction, such as the murals located in 419C. Our team will work in conjunction with Mr. Carmen Bria, Jr., of the Western Center for the Conservation of Fine Arts, to determine ideal methods to protect the artwork during construction activities. Prior to any construction activities that may affect the artwork, methods for protecting the artwork will be presented for approval to the Owner's Project Team and reviewed with the Oklahoma Arts Council.

Mechanical and HVAC Systems

Regarding Heating, Ventilating and Air Conditioning (HVAC) Systems, there are three Direct Digital Control (DDC) systems at the Capitol building. The largest DDC system is the Siemens system. This system controls main condenser water pumps, as well as many of the heat pumps. The system is antiquated, and has lost connectivity to heat pumps in many locations. It is very expensive to service and maintain this system. Recent projects have utilized Automated Logic Controls (ALC). These ALC controls are modern, and use a BACnet (a communications protocol for building automation and control networks) based open protocol, that is web-based in function. The existing controls could use some updates on the graphics to accurately reflect room numbers and heat pump numbering. There is a third system that controls the cooling tower, remote pump house equipment, and three-way valves in the tunnel. This system is reported to be no longer supported, and any modifications are extremely difficult. It is recommended that controls be standardized throughout the Capitol building and the remote pump house. The standardization of controls would save significant energy and reduce recurring maintenance costs. It will also improve comfort control.

Condenser water system piping is generally in good condition throughout the building and tunnel. Direct buried steel piping connects the condenser water piping in the tunnel to the geothermal wellfield.

This piping is in poor condition. This piping is being evaluated. Replacement is to be included alongside the cooling tower as determined to be necessary.



Plumbing systems throughout the Capitol building are in extremely poor condition. Access for plumbing repairs and replacement requires extensive demolition and hazardous materials abatement.

Condensate drain piping connects to storm drain risers in many locations. This is leading to leaks in the storm drain piping during heavy rains. Numerous condensate pumps are located above ceilings. The entire condensate system is poorly configured, leading to excessive leaks and required maintenance. It is recommended that a dedicated condensate drain system be reconfigured throughout the building. The new system should use gravity-flow wherever possible, and should not connect to the storm drain risers.

Unconditioned outdoor air is ducted from in-line fans to heat pumps. This unconditioned outdoor air is a significant cause of humidity problems and leads to decreased occupant comfort. While the physical condition of this system is good, the engineering concept is poor. It is not possible to effectively control humidity throughout the facility with the system in its current configuration. It is recommended that a Dedicated Outdoor Air System (DOAS) be added to pre-condition outdoor air before delivering it throughout the building.

Sanitary waste, vent, domestic cold, hot, and hot water return piping is routed in the light wells adjacent to each restroom. Isolation valves are located on the water lines in the chase before it enters the restrooms. These valves are accessible through the windows in the restrooms, although very difficult to access and maintain. All pipes in these chases appear to be in good condition. This piping was installed in 1999. A new horizontal sanitary sewer main was installed in the basement ceiling in 1999. It collects the sanitary sewer from the stacked main restrooms on levels 1 through 5 and leaves the building through one of the basement light wells. Horizontal domestic water piping running throughout the basement was not replaced when the new risers were installed in 1999. It is in poor condition and is in need of replacement. All sanitary sewer piping running below the basement floor is in poor condition and is in need of replacement. Most is original, and has recurring problems leading to sewage backups and foul odor.

Vertical storm drainage piping, embedded in columns, leaks where condensate drains have been connected. It is recommended the piping be further evaluated for replacement or internal lining. Internal lining has previously been used successfully on some storm drain piping at the Capitol building. There are no overflow drains or scuppers on the roofs.

Restrooms are poorly configured and should be completely reworked. The door swing hits occupants at the urinals or the lavatories. Accessories such as paper towel dispensers are far away from the lavatories. Plumbing fixtures in general are in poor condition. There are no floor drains in these restrooms and proper ventilation is not present.

Electrical rooms are not being used for their intended purpose or designation. As an example, the electrical room shown is being utilized for storage creating life safety, maintenance, and code related concerns.

Numerous code violations, open electrical junction boxes, and life safety concerns are typical in existing electrical rooms.

Electrical Power Distribution System

Existing electrical rooms do not meet current NEC (National Electric Code) requirements. Previous service upgrades and replacements have been conducted over the decades and many original electrical service systems are still in use today. Although several components of the electrical systems are in fair condition, they are quickly approaching the end of their useful life and necessary to replace due to obsolescence and age. Due to their long service life to date, we recommend developing new service within a dedicated electrical room to provide quality power for future uses.

Initial evaluations have been performed for the main electrical service size, main switchboard and main bus ways due to the HVAC improvements, modern elevator service requirements and life safety loads planned for the building. Along with the energy efficiency savings planned, our evaluation does not indicate a need for increased electrical service size/capacity.

The primary electrical systems in the basement serve distribution panels in four main electrical rooms on each floor which have been in service since 1979. Most bus way disconnects are not easily accessible and are in violation of the NEC. Our recommendation is for the vertical riser bus ducts to be replaced due to age (over 36 years in service) and code violations. The new bus ways and disconnects should be located in each Rotunda quadrant electrical room where adequate NEC working space can be provided. The new bus ways should parallel the existing bus ways until all loads are

transferred based on servicing an occupied facility through construction.

Distribution panels located in the four main electrical rooms on each floor are generally in poor condition and are obsolete. Feeder conductors, also installed in 1979, have been energized for 36 years. These panels, associated conduits and conductors, should be replaced due to obsolescence and age.

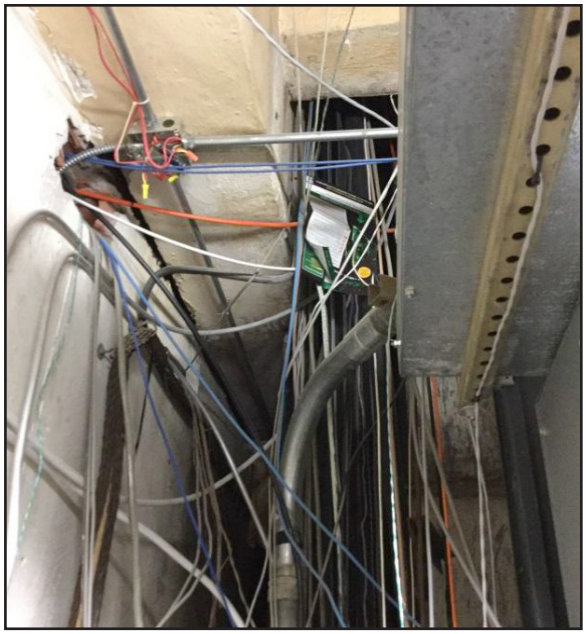
All transformers located in the four main electrical rooms on each floor are generally in poor condition. We recommend replacing all transformers, conduits feeding them and conductors with new transformers. New transformers will be energy efficient type and will comply with federal Department of Energy (DOE) regulations.

Most branch panels in the main electrical rooms are from the 1950's. These panels are generally in poor condition and are obsolete. Our recommendation is to replace all panels, feeder conduits and conductors.

Prior to the installation of the current heat pump system, most of the mechanical equipment was fed from obsolete distribution systems which are still in place. Large panelboards and transformers have been previously abandoned in place in all main electrical rooms. Original elevator drives will be replaced with modern equipment and electrical service. Removing original electrical service and equipment will alleviate space issues in the main electrical rooms and allow these spaces to adhere to NEC requirements.

The dome power system and panels were installed in 2001. They are in good condition and our team recommends that they be reconnected to the new power system.

The Capitol building does not have an emergency power system. Minimal emergency lighting was found throughout the building. An analysis and code review of egress paths and exits has been performed in sequence to determine locations for additional emergency lighting. An emergency power distribution system with emergency panels on each floor is proposed to serve emergency lighting, exit signs, fire alarm, security, surveillance, access control, Oklahoma Highway Patrol Command Center and designated elevators. An optional power system is also being planned to serve the data and telecom rooms, portions of HVAC, etc.



Typical conditions of existing chases throughout the Capitol building contain exposed electrical junction boxes, obsolete and abandoned cabling, no cable/wire management system, and holes created in plaster walls for pathways.

A standby generator system, for emergency power, is being planned to serve code required life-safety loads as well as optional power loads such as IT closets and server rooms. Vertical emergency power busways will be installed in each quadrant of the Rotunda to serve emergency panels

on each floor and the elevators.

The electrical rooms located on each floor of the Rotunda are utilized for routing electrical power, telecom cabling and other low voltage system wiring throughout the building. Open boxes, with exposed wiring, code violations and other life safety concerns can be found throughout the Capitol building. Open telecom and low voltage cabling wiring is routed without proper support. We recommend replacing and rerouting cabling in new approved cable trays and wire management systems. All abandoned cables should be removed. Conduit systems for future cabling should be installed above historic ceilings to provide horizontal pathways. This will allow for removal of exposed surface applied conduit and cable observed throughout the Capitol building.

Existing lighting is primarily inefficient fluorescent lay-in type fixtures with acrylic lenses. Also, existing light levels throughout the Capitol building are insufficient. Based on the adopted goals and criteria, all new lighting shall be energy efficient and comply with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers standards (ASHRAE 90.1). Light Emitting Diode (LED) fixtures are proposed. This will include dimmable lighting and scene based controls. Historic fixtures will be refurbished and retrofitted for LED as well as historic replica fixtures closely matching the original fixtures. Fixture packages will be utilized in accordance with the adopted Preservation Zoning Map and coordinated with the requirements and utilization of the spaces affected.

A central network lighting control system for monitoring and control of the lighting will be provided. A performance specification will be utilized that has the capability of connection to the Capitol Complex campus system. The lighting control system will be compatible with the building automation system. Lighting controls will also be in compliance with ASHRAE 90.1. User Groups have expressed preference to have manual on/off switch controls in offices. However to comply with ASHRAE 90.1, a system utilizing automatic lighting control is required. The proposed lighting system will include a combination of on/off switches in each office/admin area with a vacancy sensor in each room that will automatically turn off the lighting in the room after the room has been vacant for a programmed duration. The system will have the capability to perform programmed sweeps within the building. Programmed sweeps turning off lighting in admin/offices after normal hours will not be utilized per request by the House and Senate personnel frequently working late at night when the legislature is in session. The HVAC system will also utilize the status of the sensors (via the Lighting Control System/ Automated Logic) to set temperatures, etc. for the rooms. Daylight sensors will be provided in rooms with South, East and West exposure to daylight. The network controls will have the capability to dim fixtures based on the available daylight in a space. Daylighting control features can be bypassed where it is not desired (programmed to not utilize the daylight harvesting) based on the desires of user groups to not have this feature.

Fire Protection Systems

Much of the Capitol building does not include fire suppression coverage. Additionally, the condition of fire suppression systems vary throughout the Capitol building. Most of the piping is in poor condition and appears to be the original piping. It is our recommendation to provide fire suppression systems for comprehensive coverage of the Capitol building in a systematic approach based on the proposed phasing plan. This is in conjunction with the Oklahoma State Fire Marshal's requirements.

In addition, multiple differing fire alarm systems are present within the Capitol building creating an inconsistent system with multiple problems associated with split vendor maintenance operations. There are multiple supplementary panels, pre-action control panels as well as power extender panels throughout the building. The majority of the fire alarm wiring throughout the building appears to be exposed and not in conduit when above the ceiling. The system wiring appears to be in conduit in areas where visible. The system wiring located within the recently renovated areas (theater, art gallery, north wing newly renovated floors) appear to be in good condition. All system wiring in areas that have not been recently renovated and have fire alarm devices installed are in extremely poor condition. It is recommended that all new fire alarm wiring be installed in conduit and fastened to the structure or on a cable tray. Additionally, devices are antiquated or off-line completely as well as multiple "trouble notifications" are signaled within the fire alarm control panels. We recommend a singular system approach for continuity and inclusion of a comprehensive addressable fire alarm system to be installed per code requirements and in conjunction with the OSFM.

Project Schedule

Summary of phasing and timeline

We have provided an anticipated comprehensive schedule that matches the overall scope of work for the restoration of the Capitol building. The overall schedule is inclusive of six primary phases of rehabilitation efforts. These six phases are defined as:

Core Elements: *Infrastructure, Security, Public Spaces, Utilities/Infrastructure & Vertical Access (Code Requirements) – P1 Activities.*

Phase 1: *Prerequisites required for the "Single -Move Strategy" – P1 Activities.*

Phase 2: *Public Access Level, Secured Public Entrance & Rotunda (primarily existing basement & Rotunda – P1 Activities)*

Phase 3: *Transitional (Tenant) Spaces – P2 Activities*

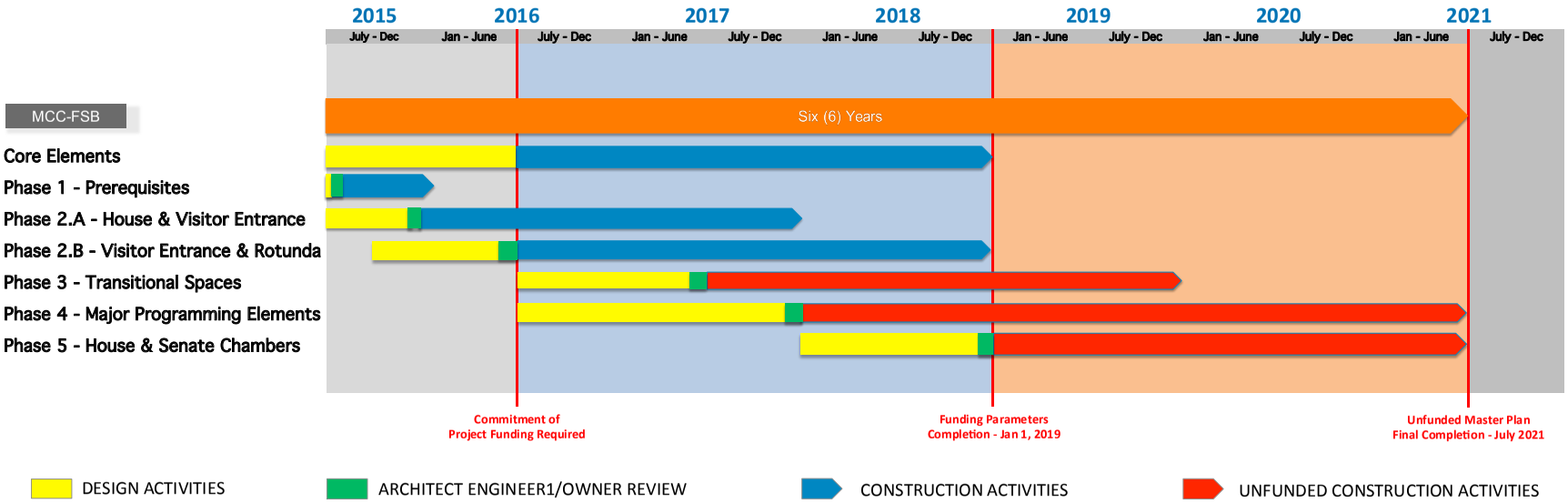
Phase 4: *Enhanced Programming Elements – P3 Activities*

Phase 5: *House & Senate (4th, 5th and 6th Floors) – P2 Activities*

Notes: The anticipated schedule has taken into account the "early start" for spaces that are intended to jump-start the "Single-Move Strategy" for legislative support staff to be able to vacate the basement and transition into areas noted as "prerequisites." Additionally, our team understands there is no guarantee regarding future funding availability. To that point, we have developed the scope of work and schedule applicable to working within the existing funding parameters.

15151DB Oklahoma Capitol Restoration - Interior Rehabilitation

Master Schedule Projection



DESIGN ACTIVITIES | ARCHITECT ENGINEER1/OWNER REVIEW | CONSTRUCTION ACTIVITIES | UNFUNDED CONSTRUCTION ACTIVITIES

Project Recommendations

Prerequisite phase required to clear the basement

The Oversight Committee approved a phased delivery while maintaining an occupied facility through construction. One of the biggest benefits determined by the goals and criteria approved by the Oversight Committee was the ability to begin our intrusive investigation by starting with a Prerequisite Phase. We have implemented the goal of a "Single-Move Strategy" to initially prepare for tenants to vacate the basement – which serves as the lifeline for backbone utilities and infrastructure.

These spaces were targeted as they were largely unoccupied based on the existing conditions of the space. Additionally, this has allowed our team to continue our invasive investigation, define long-term solutions and recommend standards that will be implemented throughout the entire restoration.

Rendering - Senate 309

Rendering - House 112

Focus on utilities, infrastructure, core, and Rotunda

Our recommendations serve as initial steps towards long-term solutions to problems plaguing the Capitol building on a daily basis. Utilities and infrastructure, mechanical, plumbing, electrical, low voltage systems, among others, have exceeded their useful life. Band-Aid fixes of the past have continued the deterioration process and plague tenants, administration, visitors and building technicians alike. These systems are also extremely costly due to their complexity and the lack of access to replace and repair.

The Capitol building represented cutting-edge technology when it was originally designed, more than a century ago. However, providing significant thought to accessing, replacing and repairing vital building components was not widely practiced. Our primary focus is to address vital utilities and infrastructure to serve the Capitol building for the next century. These repairs and improvements are some of the most expensive of the master plan based on square foot analysis. However, these systems are critical and of the utmost priority to address based on the initial funding parameters.

Rendering - Secured public entrance (southeast).

Reprogramming general public entry

Today's security threats are much different than they were 100 years ago. As part of the conditions assessment, we have interviewed all twenty-one tenants. The majority of the tenants identified public access as a major deficiency with our Capitol building. Quite simply, the existing public entrance was never intended to be what it is today. The Ceremonial Entrance on the 2nd floor was originally intended to serve as the primary entrance. Moreover, the entry currently utilized was never designed or programmed as a main entrance.

As such, there is an existing public entrance into the Capitol building from the tunnel today which is inoperable due to its poor condition and extensive water intrusion. We propose to enhance this entrance to provide secured public access into the Capitol building. This entrance addresses multiple project goals and criteria and specifically serves our Capitol building as a Security Checkpoint. This solution also addresses programmatic requirements for public access providing for covered access from the tunnel that is ADA accessible. This solution utilizes and incorporates architectural features of the existing light-well. We believe this is also befitting of a "public entrance" for our State Capitol building. In addition, our solution to condition the Rotunda to protect the priceless works of art exhibited can now be controlled for the first time as the entrance will act as an air lock to retain and control the environmental conditions within the Rotunda.

Public access level

In conjunction with the proposed, secured public entrance, we have proposed a program for the existing basement which adapts specifically to the "Adaptive Reuse" designation of the Historic Preservation Treatment Zone. This solution is focused primarily to serve as a functional enhancement to security, both from an access control and force protection perspective. We have proposed recreating the Rotunda that exists on the 1st floor to enhance the historic character of the basement level, all while providing a space for public engagement with agencies occupying the Capitol building. This level would correct existing programmatic deficiencies and provide for new public restrooms. It also enhances the capability to provide food service within the Capitol building.

Furthermore, the proposed public access level is the existing ground level. It serves as an entrance to the west parking lot. Based on archival research, we also know the existing State seal is not historic as it was installed in the 1960's. Thus, we have proposed removing a section of the existing first floor slab to extend the Rotunda as well as provide a direct view of the Dome. We also have the opportunity to recreate and enhance the State seal at the proposed public access level.

Proposed public access level - Security checkpoint (existing basement)

Proposed public access level - Rotunda (existing basement)

Long-Range Vision

Long-Range Vision

We have proposed solutions for implementing a master plan which specifically addresses the goals and criteria adopted and approved by the Oversight Committee and as defined by the scope requirements of the Request for Proposal. Furthermore, based on our investigations, identifying programmatic requirements, and to provide a platform for continued improvement, we have suggested additional enhancements and betterments. These proposed improvements are not specifically required by the Request for Proposal. However, they serve to continue to address security from a holistic perspective, provide functional public enhancements for our Capitol building, as well as pay respect to the original historic design intent for the Capitol grounds.

Public Parking Garage

Offered as a long-term vision for our Capitol building, we have proposed betterments to the Request for Proposal by providing a covered parking garage capable of increasing public parking by 30%. This is a security enhancement and specifically addresses continued improvements to access our Capitol building by providing covered, handicap/ADA accessible access as well as bus drop off opportunities, loading and unloading functions, and reduces the distance of travel from the existing public parking options. Furthermore, no longer would pedestrians be crossing traffic patterns with vehicular traffic, a significant life safety improvement in contrast to the existing conditions of our Capitol building.

Public parking garage and tunnel entrance - proposed.

State Capitol Park - proposed.

Half size replica of Solomon Layton memorial arches.

Original water color rendering of the WWI Memorial as designed by Solomon Layton, circa 1917.

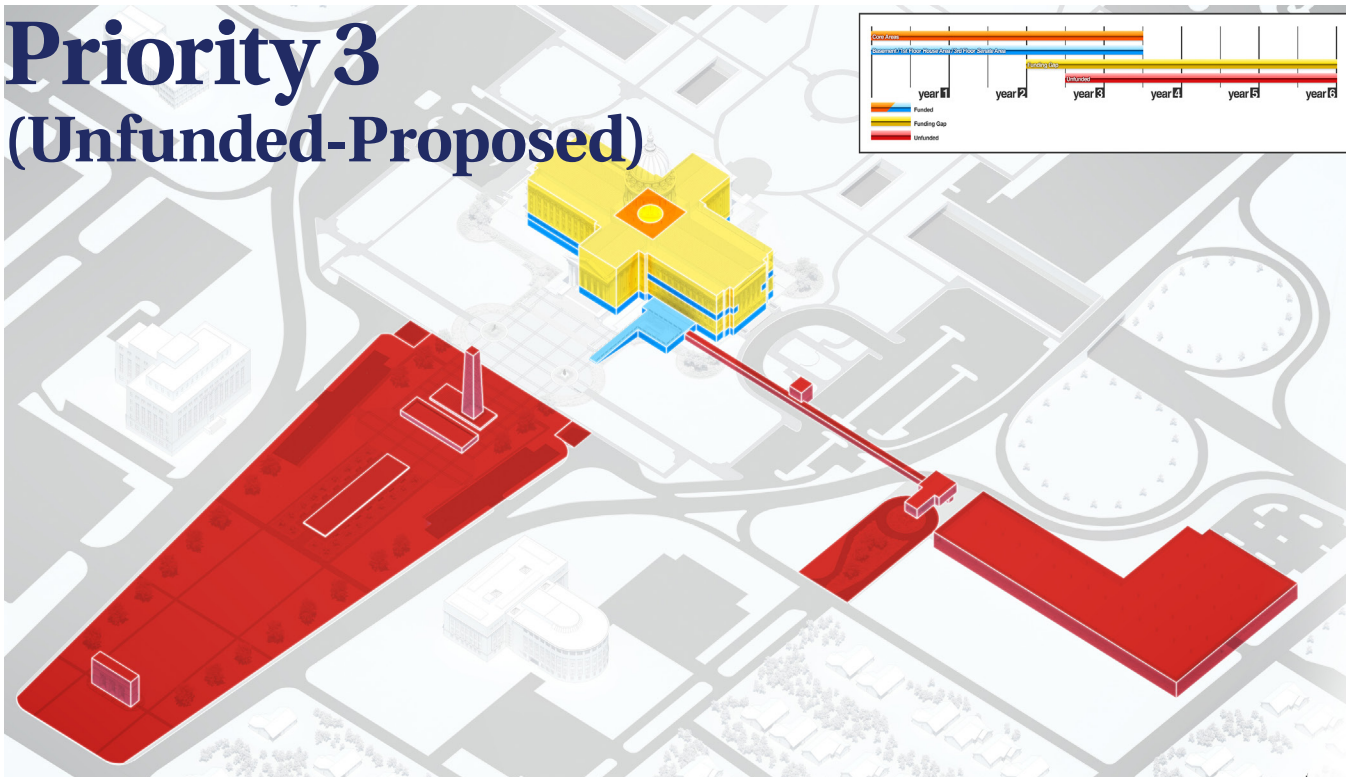
State Capitol Park

Relocating parking to the east side of Lincoln would afford the Capitol grounds to be returned to green space as originally intended. As a security feature, bollards would be removed and presented as landscaping deterrents providing the same features of force protection and access control. Rallies, protests and organized functions could be relocated from the steps of the Capitol building to a public platform by removing existing storage tanks adjacent to Petunia No. 1. A traffic tunnel under the existing plaza has been suggested to extend the existing plaza south to enhance life safety plans by no longer having pedestrian traffic patterns conflicting with vehicular traffic.

Solomon Layton Arches

Initially envisioned as a WW1 Memorial, an original rendering by Solomon Layton exists and is on display in the Capitol building Rotunda today. Initially envisioned to be approximately 100' high, the proposed arches would have included north and southbound traffic on Lincoln to run under the arches. Originally intended to be part of our Capitol building complex, the arches were never funded or built to full scale. A scaled model was built and displayed in 1917 and stood atop the grand staircase through efforts to raise the money for its ultimate construction. We have proposed the construction of a half-size, scaled recreation of the original, historic monument be planned for our Capitol building grounds.

Priority 3
(Unfunded-Proposed)



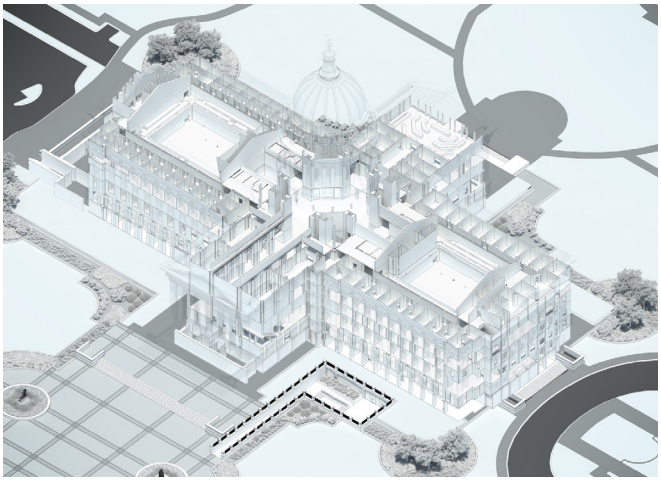
Priority Level Three (P3): The scope of work proposed under Priority 3 serves as functional enhancements to the Capitol complex and reflects the historic intent of original design elements envisioned by Solomon Layton. These suggested enhancements have been proposed as a long-range vision for our Capitol. These items are all considered "unfunded" and have the ability to serve as future enhancements. Additionally, Priority 3 items could create opportunities for community engagement as well as providing a platform for corporate involvement. The scope of work included as Priority 3 includes:

- Providing a public parking garage with 30% increase in capacity (750 cars)
- Security betterments
- Provisions for access control and force protection
- Scale replica of Solomon Layton Arches
- State Capitol Park
- Proposed vehicle tunnel
- Bus parking and drop off
- Planned event/demonstration venue

Cost Model

P1/P2 Project Requirements:	**$ 181,487,813**
*Unfunded Long-Range Vision (P3):**	**$ 65,004,501**
Total Proposed Project (P1, P2, P3):	**$246,492,314**

Conclusion



In planning for a project with limited allocated funding, the first step cannot be taken in confidence without a developed idea of where it is going. Based on our extensive investigation, current programmatic requirements defined by user groups, as well as our professional evaluations, we have presented recommendations that specifically adhere to the goals and criteria established by the Oversight Committee as well as address the Request for Proposal requirements. Evaluating conditions assessments, preliminary planning, scope development and schematic design efforts have thus far defined a completed facility that exceeds the existing funding parameters. The priority matrix and associated cost models are meant to provide realistic information for the State to be able to make well-informed decisions on a direction to proceed through this early stage of development on the Oklahoma Capitol Restoration.

Our concern is to meet as many of the project requirements as possible within the existing funding limitations that are defined under Priority 1. Additional funding is required to complete the entire project requirements and is defined under Priority 2. To that extent, the project is currently at a crossroads needing confirmation and acceptance of the proposed solutions provided as a direction to proceed based on the State's vision for the facility as well as the availability and commitment of project funding.

The correct restoration of the Oklahoma Capitol Building is a monumental undertaking that provides an opportunity to present the Oklahoma Standard to the rest of the nation. The State has the opportunity to lead the country by setting the standard for the restoration of a Capitol building. The master plan presented by the design-build team is well below historical costs for projects of similar size and scope. The proposed master plan and anticipated six (6) year delivery is half to a third of the schedules of other similar Capitol building restorations across the country.

Our Capitol building has served as a beacon of progress and development for the last century. We are proud to have the opportunity to preserve this legacy for future generations.

Kyle Nelson, Project Director
Manhattan Construction Company

Fred Schmidt, Principal
Frankfurt Short Bruza

Oklahoma Capitol Restoration – Interior Rehabilitation

DESIGN PHASE 1

Preliminary Planning, Scope Development & Schematic Design

FRANKFURT SHORT BRUZA ASSOCIATES, P.C.
Professional Work Product is represented and summarized under the following headings:

Investigations & Conditions Assessment

Programming Study

Historic Preservation

Scope Development

STATE OF OKLAHOMA
FRED C. SCHMIDT
1575
LICENSED ARCHITECT
1.22.2016

LICENSED PROFESSIONAL ENGINEER
BRIAN SAUER
23067
OKLAHOMA
1.22.2016

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1-22-2016

OKLAHOMA CERTIFICATE
OF AUTHORIZATION
ARCHITECTURE: # 00199
EXP. 06/30/17

OKLAHOMA CERTIFICATE
OF AUTHORIZATION
P.E: # 1072
EXP. 06/30/16