



A Keller Renaissance: Final Report

KELLER AUDITORIUM FEASIBILITY STUDY

30 August 2023



SPONSORS & PARTICIPANTS

Marking Keller Group

Private nearby property owners and other interested parties.

- John Russell
- Scott Andrews
- Karen Whitman
- Don Stastny

Halrpin Landscape Conservancy

501(c)3 nonprofit led by a partnership of public and private interests, and the sponsor of this study.

- Karen Whitman, Executive Director
- Bob Naito, Treasurer

City of Portland

Owner of both the Portland's venues and the Portland Open Space Sequence properties.

Spectator Venues, Office of Management and Finance

- Karl Lisle, External Partnerships and Programs Manager
- Lauren Broudy, Program Coordinator

Portland Parks & Recreation

- Lauren McGuire, Development Program Manager

Metro

Regional government and operator of parks and visitor venues.

- Steve Faulstick, General Manager - Visitor Venues
- Nancy Strening, Senior Capital Projects Manager

Portland's Centers for the Arts

A Metro agency operating five theater venues, including Keller Auditorium.

- Robyn Williams, Executive Director
- Ed Williams, Director of Operations

Users & Stakeholders

Public patrons, employees, visiting performers and productions crews, and resident companies.

- Broadway Across America
- Oregon Ballet Theatre
- Portland Opera

More information about the project sponsors and participants can be found in Section 1: Introduction.

DESIGN TEAM

Hennebery Eddy Architects

Prime Architect | Portland, OR

- Tim Eddy
- Andrew Smith
- Erica Thompson
- Jason Smith
- Mackenzie Pratt
- Kari Hayenga

PLACE

Landscape Architect | Portland, OR

- Carol Kekez
- Dylan Morgan
- Mauricio Villarreal

Grummel Engineering

Structural Engineer | Portland, OR

- Bob Grummel
- Jesse Wolfe
- Eric Pfau

STUFISH Entertainment Architects

Entertainment Design Architect | London, UK

- Maciej Woroniecki
- Simone Plekkepoel
- Hui Hui Teoh
- Daniel Langstaff
- Ricardo Lopez

Michael Curry Design

Creative Consultant | Scappoose, OR

- Michael Curry
- Marcus Gannuscio

The Shalleck Collaborative

Theater Consultant | Berkeley, CA

- Adam Shalleck

KPFF Consulting Engineers

Civil Engineer | Portland, OR

- Mark Reuland
- Josh Yun

Hoffman Construction Company

General Contractor/Estimator | Portland, OR

- Han-Mei Chiang
- Matthew Thompson

More information about the design team can be found in the appendix.

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Executive Summary

VISION

The Keller Auditorium has served the greater Portland region for more than 100 years as a venue for events such as concerts, theater performances, presidential speeches, and high school graduations. Owned by the City of Portland and operated by the Portland's Centers for the Arts, a service of Metro, the Keller is the largest theatrical auditorium in Oregon and is the only theater in the Portland area capable of hosting Broadway performances, large operas, and ballet productions. Built in 1917 and substantially modernized in the mid-1960s, after five and half more decades of service, the Keller Auditorium needs to be rehabilitated to current standards.

Purpose

Revitalize the iconic Keller to meet the needs of a modern, world-class performing arts venue while realizing the benefits of its centralized location, surrounding infrastructure, existing structure and materials, and potential to energize its neighborhood and take better advantage of its physical relationship to the world-renowned Keller Fountain.

Context

A seismic study commissioned by the City of Portland in 2018 and published in 2020 confirmed that, like many older civic buildings, the Keller was not built to withstand a major earthquake. The early structural study was prepared in the absence of programming and conceptual design, or material testing and geotechnical engineering information. A preliminary program was prepared separately by a consultant engaged by the City.

This report, "A Keller Renaissance," documents a comprehensive, six-month, multidisciplinary feasibility study for rehabilitating and expanding the Keller Auditorium (including programming, architectural, structural and geotechnical engineering, urban design, and construction cost



Rendering: Keller Auditorium and Third Avenue Plaza

and schedule). This work incorporates programming direction from the arts groups that use the Keller, along with those who manage and maintain it. This in-depth feasibility analysis utilized geotechnical information and structural testing of existing concrete and brick masonry walls not available to the early study commissioned by the City, rendering it a reliable guide for redevelopment of the facility; it should be considered to supersede the 2018 studies.

Principles

1. Revitalization
2. Safety & Functionality
3. Inclusivity & Participation
4. Stewardship

Process

A partnership among dedicated Portlanders, this project includes both public and private interests, design and planning professionals, and entertainment experts. Over the course of several years, the process has included engineering and programming studies, an aspirational design competition, and collaborative concept refinement.

Findings

A series of programming and design workshops engaged the design team, project sponsors, operators, and users in February, May, and June 2023. Through the workshops, participants identified a variety of needs at the Keller, summarized as follows.

1. *The building's structure is not designed to current seismic resilience standards.*
2. *The two existing loading bays are insufficiently sized, steeply sloped, difficult to maneuver into and out of, and don't meet current City code requirements.*
3. *Public lobbies at the orchestra and balcony levels are constricted, not allowing adequate space for concessions, dining, congregating, and circulating.*
4. *Dressing rooms and other backstage spaces are cramped and difficult to navigate.*
5. *The quantity and quality of restroom fixtures are obsolete and insufficient relative to the capacity of the auditorium.*
6. *Building systems are near or past useful life expectancy.*
7. *Connections between front-of-house and backstage spaces are limited, resulting in circuitous and inefficient circulation.*
8. *The orchestra pit does not meet modern standards for size, exiting, and mechanization of the lifts.*
9. *Accessible seating positions within the auditorium space do not meet code requirements for either quantity or distribution.*
10. *The acoustics within the auditorium are substandard and not adaptable to different performance needs.*
11. *Interior finishes throughout the auditorium are outdated and in various states of disrepair.*
12. *The north, south, and east building facades are mostly solid concrete panels that are inhospitable to pedestrians and do little to enliven the surrounding streetscapes.*
13. *The Keller Auditorium and the adjacent Keller Fountain are disconnected from one another, and from the remainder of the Halprin Open Space Sequence, by automobile-dominated streets.*

Through the duration of the study, the project team developed and tested solutions for each of the identified needs. The resulting concept design resolves all of the Keller Auditorium's current shortcomings and achieves the following:

1. *Expands the building footprint east and west.*
2. *Includes a dramatic, curving, sloped glass curtainwall addition on the west, which creates public lobby space at all levels that is commensurate with the scale of the auditorium while embracing, and directing views toward, the Keller Fountain.*
3. *Creates a programmable urban plaza connecting the Keller Auditorium to the Keller Fountain across Third Avenue, incorporating interactive elements and digital display glass.*
4. *Features an addition at the east side of the building housing an enlarged loading facility, reconstructed dressing rooms, additional rehearsal space, and other naturally lit backstage program areas.*
5. *Provides for a structural retrofit of the building to bring it to the standard of a newly constructed theater.*
6. *Raises the stage elevation and restructures the orchestra pit to eliminate current safety hazards and enhance accessibility.*
7. *Incorporates an electronic acoustic enhancement system to provide better acoustical performance and accommodate a wider range of performance demands.*
8. *Overframes the orchestra level to maintain superior sightlines, gain additional accessible seating positions distributed throughout the auditorium, and create a void for implementation of state-of-the-art displacement ventilation for the auditorium space.*
9. *Preserves most of the embodied carbon in the existing structure, providing for a carbon-efficient facility.*

This study has concluded that it is feasible to upgrade the Keller Auditorium to the standards of a state-of-the-art, 21st-century performance venue and to resolve all of the facility's current physical and operational challenges.



Rendering: Second Balcony

Sustainable and Equitable Design

Modernization of the Keller Auditorium will be required to meet the City of Portland Green Building Policy and Metro Sustainable Building and Sites Policy. By enhancing the building envelope, reducing lighting loads, and installing high-efficiency HVAC systems, overall energy usage will be markedly reduced. In addition, the proposed rooftop solar array will provide 50-70% of the Keller's resulting annual energy demand.

Embodied carbon refers to the amount of energy already expended in the construction of an existing building. Based on a comparative analysis of embodied carbon using the Carbon Avoided: Retrofit Estimator (CARE) tool, retaining and modernizing the Keller results in a carbon impact that is nearly 48% lower than a new construction performance venue. If the new venue is located at a site that requires an associated parking structure, that carbon savings jumps to an 83% reduction in avoided carbon emissions.

As a publicly owned and community-used facility, it is imperative that the community is meaningfully engaged in the planning, design, and implementation process. Successful outreach during the project must involve an intentional shift in approach from

not simply informing and consulting with community stakeholders, but involving and collaborating with them in the decision making process. In addition, the project team seeks to support diverse regional partners by acknowledging past harms and investing in a diverse and inclusive team including Disadvantaged Business Enterprise (DBE) trade partners and vendors.

Construction Cost and Schedule

The project team has identified two approaches to carrying out the Keller construction phase. The baseline option assumes a 28-month construction schedule, including commissioning and start-up procedures, during which the facility would be out of service. The construction cost for the Baseline option is roughly \$174.9M. Soft costs for this option are estimated at \$61.2 M.

Because of the impact a shutdown will have on performances and operations at the Keller, the project team developed an accelerated schedule approach. By utilizing double shifts and overtime work, construction can be accomplished in 19 months. The resulting construction cost for the accelerated schedule is \$197.9M. Soft costs for this option are estimated at \$69.3 M.

NEXT STEPS

Building on the findings of this conceptual design and feasibility study, the design team has identified several supplemental tasks that will establish a comprehensive set of information for Portland City Council to consider in their decision-making process. The next step in the process will be focused on planning for equity and community engagement and comprehensively evaluating the economics of and funding for creating a state-of-the-art, 21st-century performance venue at the Keller Auditorium. Additionally, it is recommended that the entitlement process for the proposed rehabilitation and expansion project be further vetted with the City of Portland. The proposed next steps during the October 2023 through April 2024 timeframe include the following tasks.

Equity

Meaningful community engagement is critical to the success of the project. The next steps in the equity and inclusion process will be to: establish the level of engagement and a transparent decision-making protocol; identify participants, with a particular emphasis on communities that have been historically excluded; and hold initial informational sessions with these groups to discuss what an equitably designed and inclusive Keller Auditorium could look like from a variety of community perspectives.

Economics

Beyond the projected hard construction costs and other project-related soft costs included in this report is a larger economic picture of a revitalized Keller Auditorium. To give City Council greater confidence in their decisions regarding the Keller Auditorium, the design team recommends a comprehensive economic analysis of the proposed rehabilitation and expansion project be completed, including at a minimum:

1. The economic impact of a fully modernized Keller Auditorium on downtown Portland, the city as a whole, the Portland region, and beyond;
2. The economic impact of a fully modernized Keller on nearby downtown Portland facilities such as hotel nights generated and parking and restaurant revenue;
3. A comparative economic analysis of a revitalized Keller versus a new venue elsewhere in Portland;
4. The potential economic harm to the core of downtown Portland if the Keller is fully closed; and
5. The economic impact of the temporary shutdown of the Keller during construction of the improvements.

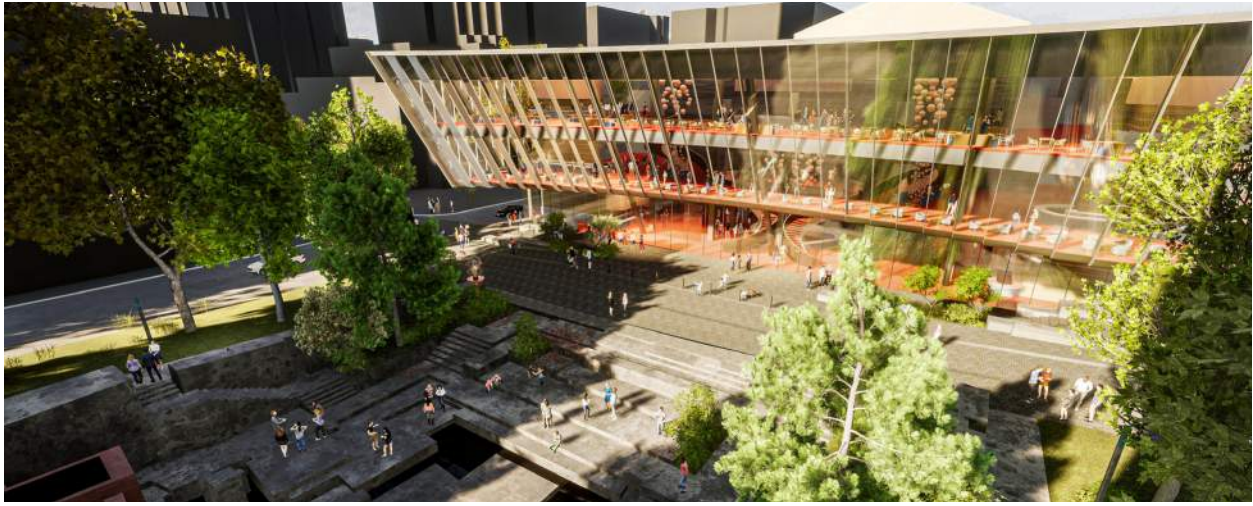
Project Funding

As part of the next steps, we recommend that the City of Portland conduct an analysis of potential public sources of funding for the rehabilitation and expansion of the Keller Auditorium as well as the addition of a new performing arts facility located elsewhere. This effort should consider all public sources of funding (local, regional, state, and federal) as well as potential funding from philanthropic sources.

It is anticipated that the rehabilitation and expansion of the Keller Auditorium will attract substantial philanthropic support as a result of many decades of broad community attachment to the facility, its physical relationship to Halprin's internationally renowned masterwork of the Keller Fountain, and its location, embedded in the core of downtown Portland.

Based on the accelerated schedule Option 2B, overall funding needs are estimated at \$267.2M for the rehabilitation and expansion of the Keller Auditorium with construction starting in 2027.

Overall funding needs for Option 3 are estimated at \$517.4M for a new facility with structured parking starting construction in 2029. This figure does not include land acquisition.



Rendering: Keller Fountain Park, Third Avenue Plaza, and Keller Auditorium

Entitlements

Early Assistance Meeting

To more fully engage City of Portland bureaus and departments in this planning effort, an Early Assistance meeting should be conducted. This will provide an opportunity for the design team to review the fundamentals of the proposed rehabilitation and expansion project with city agencies such as Bureau of Development Services, Bureau of Planning and Sustainability, Bureau of Transportation (PBOT), Urban Forestry, Bureau of Environmental Services, and the Water Bureau. The responses received from these regulatory stakeholders will be valuable in demonstrating the feasibility of achieving approval for the proposed improvements and giving City Council greater certainty in their decision-making process.

Street Vacation / Encroachment

While the design team has received favorable feedback on the proposed project to date, gaining approval from PBOT and other city agencies on the proposed right-of-way modifications – particularly at Second and Third Avenues – will require a detailed traffic study. The design team recommends commissioning such a study to quantify traffic counts, broad traffic patterns in the neighborhood, the trips

generated by the modernized venue, and the specific traffic pattern changes expected by the narrowing and closure of adjacent streets.

Design Advice Request

Because of the scope and scale of the proposed Keller alterations, the project will ultimately require a Type III Land Use approval, which is processed through a public hearing with the City of Portland Design Commission. Acquiring early feedback on the proposed design from the Design Commission will be valuable in demonstrating the feasibility of ultimately achieving the Commission’s full approval for the project and giving City Council greater certainty in their decision-making process. As such, the design team recommends scheduling a Design Advice Request (DAR) – a type of design dialogue prior to submission of a land use application – with the Design Commission. Members of the public would also be able to comment on the design proposal at the DAR hearing. The proposed interventions into the National Register-listed Keller Fountain Park may prompt a joint DAR including both the Design Commission and the Historic Landmarks Commission.

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1. Project Overview & Background

PROJECT SPONSORS & PARTICIPANTS

Marking Keller Group

The Marking Keller (MK) Group originally comprised private building and property owners surrounding Keller Auditorium and along the Halprin Open Space Sequence; the group has since expanded to include other nearby stakeholders. The name “Marking Keller” originated from the group’s aspiration of “marking” the Keller as a centerpiece of the neighborhood. This group sponsored the 2017 design competition that resulted in a bold new vision for the Keller and selected the Portland firm, Hennebery Eddy Architects, to lead the overall design team via an RFQ process in 2022.

The City of Portland and Metro acknowledged the new vision for the Keller put forth by the Marking Keller Group by including it as a component of Option 2B, one of the options they are evaluating for the future of the Keller Auditorium – Option 2b is the subject of this feasibility analysis effort. The group has also contributed private funding for this project.

Halprin Landscape Conservancy

Halprin Landscape Conservancy was formed in 2008 to advance the original vision of the Portland Open Space Sequence — which includes Keller Fountain, Lovejoy Fountain, Pettygrove Park, the Source Fountain, and a connected series of pedestrian pathways — designed by Lawrence Halprin and Associates in the 1960s.

This 501(c)3 nonprofit is led by a partnership of public, private, and broader neighborhood interests dedicated to revitalizing these beloved and internationally recognized public open spaces. The conservancy serves as the coordinating and contracting entity for the Marking Keller Group and this project.

City of Portland

The City of Portland is the owner of the Keller Auditorium and the Portland Open Space Sequence properties, including Keller Fountain. The city does not operate the properties; operation and maintenance are the purview of Metro and the Halprin Landscape Conservancy, respectively. Portland Parks and Recreation shares the management and activation of the Portland Open Space Sequence with the Halprin Landscape Conservancy. The city is a grant funding partner for this project.

Metro

Metro is the regional government for the Portland metropolitan area, covering Multnomah, Washington, and Clackamas Counties. Metro helps coordinate and manage regional planning, infrastructure, and growth; the agency also operates visitor venues in the region, including Portland’s through the Metropolitan Exposition and Recreation Commission (MERC). Metro is a grant funding partner for this project.

Portland’s Centers for the Arts

As the fifth-largest performing arts center in the country, the Portland’s comprises five venues, owned by the City of Portland and managed by Metro and the Metropolitan Exposition Recreation Commission: The Keller Auditorium, Arlene Schnitzer Concert Hall, Winningstad Theatre, Newmark Theatre, and Brunish Hall.

Users & Stakeholders

The Keller Auditorium has many users: public patrons who come to see performances, the many people employed by Portland’s to operate the venue, the visiting performers and production crews (including Broadway shows staged by Broadway Across America), and the resident companies for which the auditorium is their primary venue: Portland Opera and Oregon Ballet Theatre.

PROJECT STORY: WHY THIS WORK IS IMPORTANT

One way to look at the potential renovation of the Keller Auditorium is to consider this question: “What does the Keller Auditorium bring to Portland?” For more than 100 years, the central city has been the cultural center for performing and visual arts for Portland, the metro area, and the greater region. This is due in no small part to the energy and influence that the Keller Auditorium brings to downtown Portland and the performing and visual arts community.

Called the “workhorse” by Portland’s Centers for the Arts, the Keller hosts a diverse range of performances, including Broadway, Oregon Ballet Theatre, Portland Opera, family events, and many others. The five venues of the Portland’s theaters bring more than 1,000 performances to the city every year and more than 1 million visitors. All of this in the very core of one of the greatest urban places in the United States.

Another way to look at the Keller’s renovation is locational: “What does Portland bring to the Keller?” The auditorium is strategically located, not necessarily by design, but by how the city has grown around the Keller over the past century. This unique place is supported by its proximity to Portland State University, an abundance of supporting hospitality and retail spaces, unparalleled public transit access, pedestrian connectivity, parking infrastructure, and other arts and cultural institutions (including the other Portland’s venues within walking distance).

This renovation project is more than a perfunctory building upgrade. The proposed project is a full and complete reinvention of the Keller into a state-of-the-art, 21st-century performance venue and civic gathering space integrated with the world-class Keller Fountain, designed by renowned American landscape architect Lawrence Halprin as the forecourt to the Auditorium.



Rendering: Third Avenue Plaza

Keller’s renaissance will be a catalyst for Portland’s renaissance, embracing and activating the community while creating vibrant and safe spaces for all. Investment in the Keller is a symbol of optimism and commitment to Portland’s future.

VISION & GOALS

The Marking Keller Project is a significant opportunity to mark not only the auditorium's next 50 years but a new act in the life of Portland. In one project, the city can put resilience front and center — for the building, but also for the users, the neighborhood, and the people of Portland. Safety, equity, and sustainability will all contribute to make this effort a catalyst for reactivation of a key Portland neighborhood.



Revitalization

- Embrace the iconic Keller Fountain and Halprin Sequence.
- Prioritize the pedestrian to activate foot traffic.
- Welcome visitors with improvements to surrounding outdoor spaces.
- Create a destination with new food service and other amenities.
- Serve as a symbol and catalyst for Portland's renaissance.



Safety & Functionality

- Fully upgrade Keller's structure to current code to save lives in an earthquake.
- Integrate universal accessibility to welcome and serve all people.
- Better accommodate all through expanding the front-of-house and restrooms.
- Establish safe, off-street loading for over-the-road trucks.
- Incorporate flexibility to support Portland's performing arts for the next 50 years.
- Expand the back-of-house to meet the needs of modern performances.
- Improve daylighting, wayfinding, and circulation for healthier work environments.



Inclusivity & Participation

- Purposefully engage the public in the design process for the project.
- Seek opportunities to advance and integrate human equity in the design.
- Create opportunities for public engagement in the performance experience.
- Connect the performance experience to the public realm at the Keller Fountain.
- Eliminate physical, emotional, and psychological barriers to attending performances and accessing the arts.
- Provide equal access, both indoors and out.
- Programming of the exterior plaza can support/engage artists from across the city/region.



Stewardship

- Retain the good bones of a landmark structure.
- Take advantage of the significant embodied carbon of the existing building.
- Preserve the site and history of a longtime development.
- Take advantage of a site uniquely accessible by foot, bike, and transit.
- Modernize building systems to greatly reduce energy and water use.



Historic Photo of Public Auditorium



Current Photo of Keller Auditorium

KELLER AUDITORIUM HISTORY

Opened as the Public Auditorium on July 4, 1917, the Keller Auditorium building has been a Portland landmark for more than 100 years. The original structure was built at a cost of about \$600,000 and seated more than 4,000. The Portland Symphony Orchestra (now the Oregon Symphony) first performed there in October 1917. Over its first few decades, the Auditorium functioned as a concert hall, movie house, meeting hall and, grimly, as a makeshift hospital and morgue during the 1918 flu pandemic.

Several presidential candidates held campaign events at the Auditorium – most notably Franklin D. Roosevelt in 1932, Dwight Eisenhower in his 1956 bid for re-election, and then-Senator John F. Kennedy in 1960. However, by the early 1960s, the building had been dubbed by Portlanders as the “Old Grey Lady.” The performance space was crowded and suffered from poor sightlines and acoustics. The mechanical systems were inadequate, and life safety was a serious concern.

After a successful ballot initiative in the mid-1960s, the re-named Civic Auditorium was reinvented as part of the South Auditorium District Urban Renewal project. This Modern urban renewal architecture program transformed the building’s external

character, replacing the traditional brick facade with concrete and quartz panels and a grand arcade facing Third Avenue. Also part of the South Auditorium District redevelopment, Lawrence Halprin’s Portland Open Space Sequence was born, providing an open space network of parks and pathways that set the stage for large scale, suburban-type office buildings and housing. The Civic, in its new configuration, remained as the center of the evolving renewal district, which became the touchstone for a number of new development initiatives throughout downtown.

The South Auditorium project was the first initiative of the Portland Development Commission, the city’s urban renewal agency which implemented much of the redevelopment downtown and in neighborhoods beyond. The first Chair of the Portland Development Commission was Ira Keller, for whom both the auditorium and the Halprin-designed Keller Fountain are now named.

In recent decades, the Keller has hosted many local high school graduation ceremonies, and served as the home of Broadway in Portland, the Oregon Ballet Theater, the Portland Opera, and Oregon Children’s theater, among others.

PROJECT BACKGROUND

Marking Keller Design Competition

In 2016, the Halprin Landscape Conservancy organized a group of neighborhood property owners whose mission was to improve the neighborhood. The group worked with the City of Portland to create a local improvement district to raise money for open space improvements. Later in the year, nearby building owner, John Russell organized an international design competition, managed by local architect Don Stastny, aimed at exploring options for the Keller Auditorium's restoration. The design competition and group became known as "Marking Keller" in recognition of the group's desire to "mark" the Keller Auditorium as the centerpiece of the Fountain District which sought to raise the neighborhood profile and maintain the sense of place provided by the Auditorium and adjacent Keller Fountain.

The winning entry came from a partnership between London-based STUFISH Entertainment Architects and Portland-based production designer Michael Curry Design — a compelling concept that would reinforce the public realm by increasing transparency, improving the relationship to the neighborhood, and taking the best parts of the Keller into the future.

City-Directed Seismic & Feasibility Study

In 2017, a parallel effort to determine how to address the Keller's seismic deficiencies was commissioned by the City of Portland. The City engaged a team including Merryman Barnes Architects, LMN Architects, Miller Consulting Engineers, and other consultants to perform conceptual feasibility studies to determine baseline costs and schedule implications of different options. These options included varying levels of intervention, from a basic "brute force" seismic upgrade of the existing facility (Option 1) to a more comprehensive renovation (Option 2), as well as a completely new building on a

new site (Option 3). The report concluded that a major renovation or an entirely new building were preferred options when weighing the disruption, costs, and life-safety benefits along with the long-term functional and programmatic requirements of a first-rate performing arts venue for the metro area.



A detailed summary of the report options, objectives, and outcomes can be found in the appendix.

Integration of Design Concept with Seismic Study

In 2018, the City documented its recognition of the STUFISH/Curry design concept for expanding the front-of-house with permission to pursue a peer review of the Miller Engineering study which was being performed to further understand the project's feasibility. Thus, "Option 2B" was formed which includes a major renovation of the Keller that would be built to the same safety and programmatic standards of a new building constructed on a different site.

Structural Analysis

In 2018, the Marking Keller Group hired Grummel Engineering to perform a peer review of the engineering study prepared in 2017. Additionally, a proposal was solicited, but not acted on, to conduct a non-linear structural engineering study.

The analysis of Option 2B includes developing a structural design to make the building comply with the provisions of the Oregon Structural Specialty Code for a new building while accommodating the STUFISH/Curry design proposal for the front-of-house and full reconfiguration of the auditorium and expanded back-of-house. This study, involving current geotechnical information and structural material testing should be a reliable guide for redevelopment of the facility, superceding the earlier report. A non-linear analysis of the full design of the facility will be performed in the future as part of refining the structural design proposed in this feasibility analysis.

WHERE WE ARE NOW

The Marking Keller project paused during the COVID-19 pandemic and began to gather momentum again in 2022. Supported in part by grant funding from City of Portland and Metro, the Marking Keller Group (via Halprin Landscape Conservancy) solicited proposals to select a “collaborating architect” to assemble a design team and complete concept refinement and further structural analysis of Option 2B. Portland-based Hennebery Eddy Architects was selected to lead the overall design team for the feasibility analysis and to collaborate with STUFISH Entertainment Architects in advancing the design to include functional imperatives, resiliency concerns, universal access, urban design integration with the City of Portland, and community relations aspects unique to Portland. This report represents the culmination of the efforts from January -August 2023.

Methodology / Approach

Option 2B builds on the city-directed seismic feasibility study and integrates the STUFISH/Curry design concept. The combined efforts were presented to various user/operator stakeholder groups through a series of hybrid and in-person collaborative

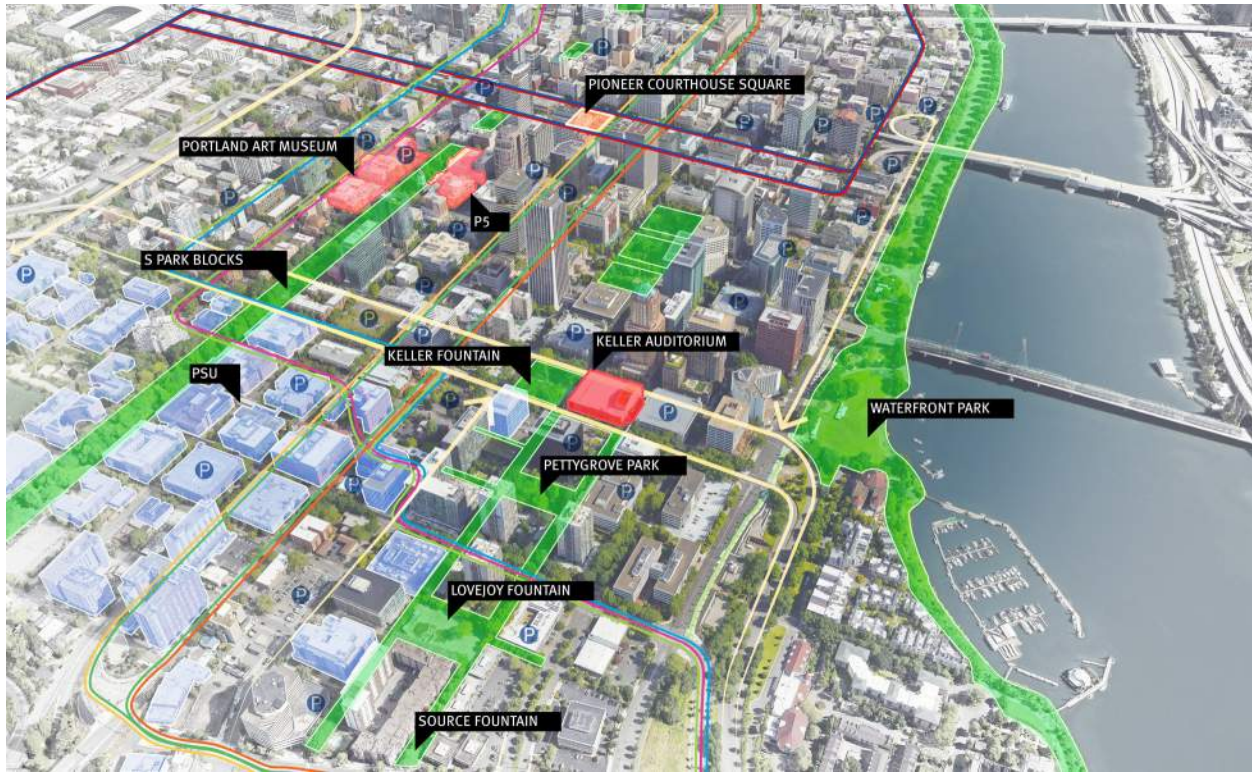
events. Nine bi-weekly meetings were held with the City, Metro, and Halprin Landscape Conservancy stakeholders to review progress milestones, action items, and deliverables. In addition to the bi-weekly meetings, user groups including The Oregon Ballet, Portland Opera, and Broadway Across America, along with representatives from Portland’s facilities, operations and food services were engaged in a series of workshops to assess the viability of the design concept. These efforts are documented by two progress reports and summarized in this final report.

The first design workshop, held in February 2023, included a facilities tour, focused on programmatic needs assessment, used the 2018 programming materials to establish a baseline for the new study, and elicited feedback on how operations have evolved over the ensuing years. At Workshop 2, held in May 2023, the group discussed updates including resolved feedback from the first workshop, program revisions, and development of the exterior design concept. The final workshop, held in June 2023, summarized the design efforts, outlined future community engagement goals, and included an analysis of the sustainability approach of reusing the existing building compared to a newly constructed facility.

PROJECT TIMELINE

2016	2017	2018	2020	2022	2023	2024
<ul style="list-style-type: none"> Marking Keller Design Competition City of Portland Completes Assessment of over 1600 unreinforced masonry buildings 	<ul style="list-style-type: none"> Fountain District named STUFISH/Curry awarded jury selection City of Portland releases unreinforced masonry building policy committee report City starts seismic study of Keller with Miller Engineering 	<ul style="list-style-type: none"> City cites integration of STUFISH/Curry concept NDA agreement / seismic peer review 	<ul style="list-style-type: none"> Grummel non-linear proposal to City City postpones release of seismic study and additional analysis proposal 	<ul style="list-style-type: none"> Marking Keller re-start MK Group re-organized Public-private partnership: \$600,000 project goal City seismic summary report released Metro / City / HLC partnership discussions HLC releases RFQ / interview conducted Hennebery Eddy Architects selected 	<ul style="list-style-type: none"> City / Metro grant agreements approved HLC signs Hennebery Eddy Architects contract / team selection Workshops, bi-monthly meetings, tours Users, operators, HLC, Metro, other stakeholders Grant agreement extension to July 31, 2023 Confirmation of City Council presentation in September 	<ul style="list-style-type: none"> Tentative City Council decision to renovate Keller or build new

2. Site Context



Aerial Map of Downtown Portland

As Portland has continued to evolve, one characteristic of the city's development is predominant: urban development evolves from a fulcrum. The downtown core evolves around Pioneer Courthouse Square, the Pearl District evolves around a series of planned parks and open spaces, and the Fountain District evolves around the Keller Auditorium. A common thread to Portland urban development is that places become more than a geographic location — assuming an almost spiritual quality that is embedded in the identity and civic ownership of a place or space. The Keller Auditorium and fountain complex is exemplar of a civic icon that forms an anchor in its evolving neighborhood of south downtown.

As an organizing element of the Fountain District, the Keller Auditorium has the potential to reach out in the community, supporting physical change and cultural activity. Portland State University, another evolving anchor in the area, is undertaking a placemaking

initiative, buoyed by the idea that a strong cultural and educational core can be a primary building block for an evolving city. Building on the Portland Open Space Sequence as an internationally recognized connector and activator of the neighborhood, a Market Street connector will link PSU's Lincoln Hall and the planned amphitheater in Tom McCall Waterfront Park. Fourth Avenue, from the Keller complex to I-405, will evolve into a zipper, joining together public and private development into a cohesive neighborhood. Each of these city-building activities are contingent upon the continuing role of the Keller Auditorium and fountain as the centerpiece of south downtown, functionally and culturally.

The Marking Keller initiative strives to maximize the immediate and long-term value of the auditorium and fountain complex — not only as a singular facility, but as a cultural hub that represents our values as a city and as citizens.

SITE CONSTRAINTS

The City of Portland's typical block structure limits building footprints to a 200-foot by 200-foot grid. This represents a challenge for buildings that require a larger footprint to meet program needs, like a modern theater. The only way to expand outside the standard grid is to encroach into, vacate or span the adjacent right-of-way.

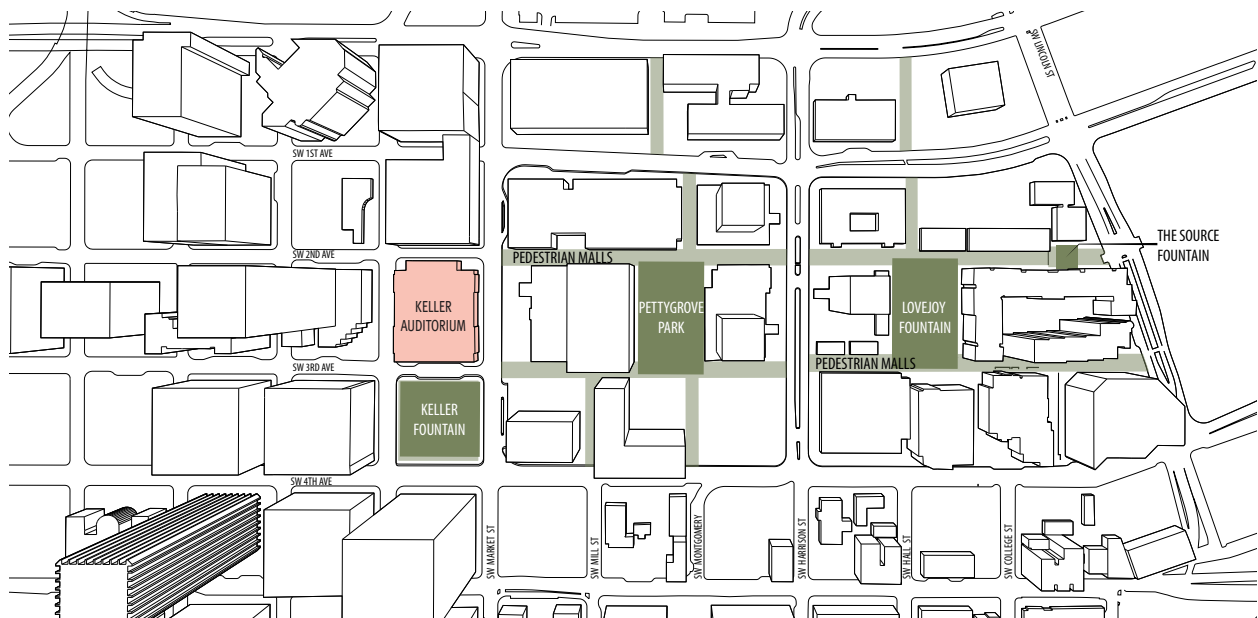
When the Keller Auditorium was redesigned in 1966, the existing adjacent rights-of-way were partially vacated to provide a 249-foot by 202-foot buildable parcel. The westerly property line was moved 29 feet west, reducing the right-of-way width of SW Third Avenue from 80 feet to 51 feet. The easterly property line was moved 20 feet east, reducing the right-of-way width of SW Second Avenue from 60 feet to 40 feet. The property lines on SW Market and Clay Streets were both moved out 1 foot.

KELLER FOUNTAIN & HALPRIN SEQUENCE

Keller Fountain Park is the northernmost part of a collection of parks and plazas known as the Portland Open Space Sequence. These spaces were designed by Lawrence Halprin and Associates in the late 1960s and include Lovejoy Fountain, Pettygrove Park, Keller Fountain, and the Source Fountain. The design and construction of these public amenities profoundly shaped the Portland that emerged from the 1960s. Halprin fused public space, fountains, and sculpture into a new kind of inviting, interactive urban space that made Portland a place to enjoy and have fun.

PEDESTRIAN EXPERIENCE

In its current state, the Keller Auditorium does little to enhance the pedestrian experience on three of its four street frontages. A significant percentage of the building's façades consist of beveled quartz panels from the sidewalk to the roof parapet with little to no transparency or visual interest. In addition to the panels being in a state of significant decay, the lack of fenestration results in a heavy monolithic facade.



Aerial plan of the Halprin Sequence

Southwest Market & Clay Streets

The facades along SW Market and SW Clay Streets are nearly identical. Except for two groups of three double egress doors, the façades are entirely composed of opaque quartz panels. This results in a massive, dark and lifeless façade that extends 60 to 70 up feet from the sidewalk — creating a negative pedestrian experience with dark and unwelcoming spaces.



Façade along Southwest Market Street at Southwest Third Avenue

Southwest Second Avenue

Along SW Second Avenue, the sidewalk directly abuts the concrete wall of the backstage and loading dock. The sidewalk is only 8.5 feet wide, including the street tree planting zone, and does not meet the 10-foot-minimum right-of-way as outlined in the current PBOT Development Review Manual. Despite a mural painted on the concrete façade, the lack of fenestration, coupled with the very narrow sidewalk, creates an uncomfortable pedestrian experience.



Southwest Market Street at Southwest Second Avenue

The path emerging from the Halprin sequence to the South does not directly align with either sidewalk in the Keller block, resulting in a forked crosswalk at the intersection on SW Market Street and Second Avenue.

Southwest Third Avenue

The facade on Third Avenue consists mostly of glass curtain wall set behind a tall colonnade and is much more pedestrian friendly than the other three sides. However, there are significant opportunities to improve this building frontage by better connecting it to the Keller Fountain Park. SW Third Avenue currently bifurcates the auditorium and fountain sites, disconnecting the two urban places. There is an opportunity for the fountain Plaza and auditorium to blend together by remaking Third Avenue as a pedestrian-first plaza. This approach would improve the sense of place for both landmarks while increasing pedestrian safety.



Southwest Second Avenue



Southwest Third Avenue

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3. Programming



Design team members tour the Keller Auditorium

Starting in January 2023, the design team worked with project stakeholders to develop a building space program that supports the variety of events staged at the Keller and their associated audiences, staff, and crew. The program from the previous study was referenced as a starting point, with an acknowledgement that some of the facility needs had changed during the intervening five years — particularly due to the impact of the COVID-19 pandemic. Through a series of interviews that took place during the February 2023 workshops and subsequent follow-ups, the team developed a new set of requirements, taking the aspirational design ideas of the STUFISH/Curry design concept and grounding them in programming needs to create a feasible proposal.

As part of this needs assessment discussions, stakeholders outlined two primary areas of concern: seismic safety and visitor experience. Specific needs and challenges are outlined in the following sections.

FRONT OF HOUSE

Every user group expressed concerns with traffic and egress flow due to overcrowding in the lobby. This issue adversely affects safety and visitor experience. Visitors often wait in lines throughout an event, including while entering the building, using the restrooms during peak times, purchasing drinks

and other concessions, and even returning to the auditorium after intermission.

During a performance, there are currently no interior connections between the front-of-house and back-of-house areas — meaning staff and crew must go outside to move between these areas of the facility. Particularly in the Northwest climate, an interior connection is critical.

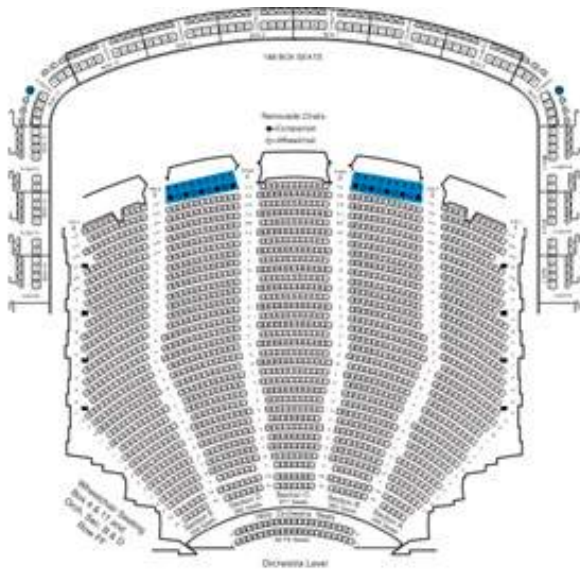
Food Service

A primary takeaway from the food service workshop is there are not enough points of service in the existing facility. There are issues with traffic flow, including long lines for the restrooms and bottlenecks of people inadvertently gathering in corners; these behaviors not only limit patrons' ability to buy concessions during intermission but also create unsafe conditions in the event of an emergency. User groups recommended several different bar locations, with longer bars, to allow more efficient service.

Another shortcoming is the absence of a kitchen. Currently, only food warming is available on-site, which significantly limits catering and food service opportunities. Within an expanded front-of-house space, an opportunity will exist to create a full service restaurant with dramatic views of the Keller Fountain and extended operating hours — further activating the Keller and surrounding neighborhood.

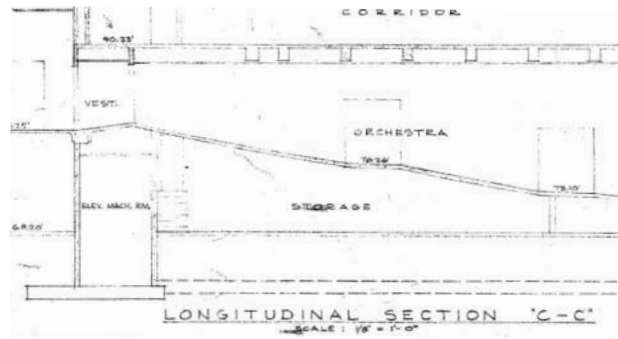
Accessibility

The Keller Auditorium is significantly lacking in equitable access for people of differing abilities. Each user group expressed similar concerns about accessibility. Specific concerns include limited quantity and distribution of accessible seating within the auditorium. Mobility devices are currently restricted to the rear of the orchestra level and very limited positions in the boxes. Additionally, there is no accessible route to the orchestra pit, limiting the participation of musicians. Further concerns include the rigidity of the general seating and spacing of the seating rows, which present barriers for people with a variety of mobility issues. In short, there are not enough seats to accommodate the volume or diversity of needs. Users have expressed a desire for more flexibility in the seating, such as removable chairs and arm rests.



The blue areas on this plan indicate the only wheelchair-accessible seating in the current auditorium.

At the orchestra-level seating entrance, sloped concrete at the aisles creates a tripping hazard for the audience, and people often fall when entering the auditorium. The existing aisles exceed the maximum running slope allowed by building codes for non-



This section illustrates the steep grade at the orchestra level aisles

egress pedestrian ramps. Another concern was the barriers for the hearing or visually impaired. Suggested solutions included integrated technology for closed captioning.



Access to & from aisles creates a hazardous condition

BACK OF HOUSE

There is a desire to improve the back-of-house functionality and loading areas for both performance and facilities staff so that the spaces can be used by both groups simultaneously. Users described the loading and staging before a show as “chaotic.” In general, back-of-house spaces are disconnected, insufficiently sized and difficult to navigate. Circulation within the dressing tower is circuitous and dressing rooms are dark and cramped. The existing ramp connecting the backstage area with the basement level storage is steep with an irregular, warping slope, creating a hazardous condition for staff rolling crates and other storage items.

Restrooms

There are not enough restrooms in the facility to accommodate the demand of a performance. Further, the layout presents challenges to traffic flow during intermissions due to the proximity of restrooms to the lobby and circulation areas, resulting in long lines, bottlenecks, and clusters of people in corners — all detrimental to the visitor experience. Additionally, there are no accommodations for private family restrooms or all-user options.

Ticketing

The current box office has an inadequate number of ticket windows which are situated within the northern entry vestibule along Third Avenue. Often, the result of this configuration is congestion at the entrance and a merging of the queueing lines for will call and ticket scanning.

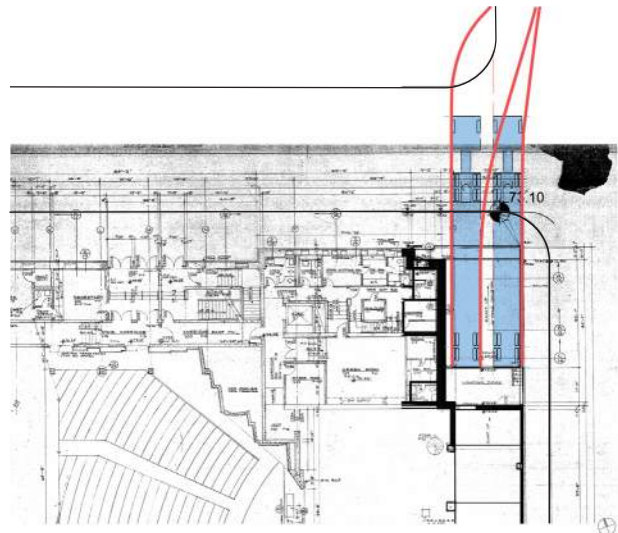
Loading

The existing loading dock dates to the 1966 facility renovation and does not meet modern industry standards — posing logistical and safety concerns for staff and crews, and negatively impacting the surrounding urban environment.

Of the primary user groups, Broadway shows have the most demanding loading requirements, but most events use WB-67 trucks for loading. The current facility dimensions and layout require special maneuvering, specific timing for trucks to arrive at the dock, personnel for flagging, and partial closure of SW Clay Avenue while trucks back across the right-of-way into the dock. The dock dimensions only allow for one truck to maneuver at a time and, when parked for unloading, truck tractors must be detached from the trailers to minimize impact to the right-of-way. Even with the tractors detached, the shallow depth means a portion of the trailer extends across the sidewalk and the parking lane on the street. The shallow dock, combined with the length of modern trailers, means

the slope of parked trailers is between 7% and 8% — exceeding the maximum recommended slope and posing safety issues during loading and unloading.

Because there is only one loading area, all goods arriving for operations and all deliveries for performances must be received at the same location. This leads to the SW Third Avenue entry lobby often being used as a secondary loading and staging location while the primary dock is in use. The separation of these loading activities is further complicated by the lack of direct connection between the front and back of house areas.



This plan illustrates the truck loading path impacts to the right-of-way



Current loading conditions

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4. Marking Keller Design Concept



Rendering: Third Avenue plaza and ground-floor facade

THE KELLER RENAISSANCE

Cultural vitality is the heartbeat of a city. The guiding principles for the Marking Keller project are to create a destination district for culture and entertainment in Portland that is welcoming, safe, inclusive, and accessible. The goal is to facilitate a complete visitor experience, whether this includes a theatrical performance or simply a visit to the fountain. The proposed design concept aims to turn the theater inside out — creating opportunities for the surrounding environment to, itself, be theatrical. Working together, the Keller Auditorium and Keller

Fountain will be powerful public attractors. Strategic design moves will facilitate a variety of features to surprise and delight visitors, while the environment encourages exploration and leisure for the broader community. Above all, the project will create an inviting space that welcomes all Portlanders and visitors to experience communal art and culture. Great cities have magnetic public spaces that sustain the wellbeing of the community. The Marking Keller project and Fountain District will be a centerpiece of that renaissance for Portland.



Rendering: Southwest facade

A Unique & Intentional Form

The key design concept of the Marking Keller vision manifests most visibly in the west façade, which faces the Keller Fountain Park. The new glass façade carries the revitalized spaces within, extends beyond the existing concrete colonnade, cantilevers over the new pedestrianized plaza of SW Third Avenue, and engages with the park. This gently curving façade displays the performative wonders from inside the auditorium stage, connecting the spaces to the outside and infusing the fountain and the surrounding spaces with new energy.

The facades along SW Clay and SW Market are transformed from monolithic, lifeless planes to multi-use canvases that are inviting, engaging, and placemaking for both pedestrians and passing vehicles. Where there are active interior spaces behind the facade, the triangular panels will be made of transparent glass or perforated metal, allowing views

both inside and out. This will help to enliven the façade and connect the public with the activities inside.

The west façade angles outward 30 degrees from the Level 1 balcony up to the roof. This façade is made up primarily of vision glass to enhance the visual link from the auditorium to the fountain plaza, and vice-versa. The north and south façades are clad with a lattice of metal and glass panels supported by a new exo-skeleton framework. The angled gesture of the west façade and the vertical language of the east façade are propagated into the shape of the metal and glass panels found on the north and south façades; this allows these facades to be broken down into smaller modular panels of equal size — around 5 feet wide and 10 feet high — making them more cost effective. The gently curving façade embraces and extends the performative wonders from inside the auditorium stage to the outside, infusing the fountain and the surrounding spaces with new energy.



Rendering: Northwest facade and Third Avenue plaza

This angled west façade literally brings the auditorium space closer to the Keller Fountain and creates a multitude of differing vantage points to experience the fountain while inside the auditorium. This gesture also provides a more intimate visual connection to the auditorium while experiencing the park. This connection increases transparency for both internal and external events, blends the lines between auditorium and fountain, and re-energizes the site and district.

The west façade’s unique shape provides passive shading opportunities as well as an acoustical benefit to the park. The gentle curvature extends westward on the north and south creating “fins” which, in conjunction with the 30-degree angle slope, passively shades the sun through the afternoon hours when sunlight is the most intense. This geometry reduces solar gain in the warm months, and therefore energy demand, making the building more efficient.

Additionally, this unique curving façade form will reverberate the sound emanating from performances and evening shows held outside at the Keller plaza and fountain, creating a memorable experience for attendees and passersby.

By capturing, reflecting, and amplifying the activities and energy of both the fountain and auditorium, the reconstruction and renaissance of this place will enhance the goals and achievements intended for the district, starting in the 1960s. Through the combined design proposals outlined in this report, the Keller will emerge anew, giving Portlanders an invitation to gather again as observers, participants, and performers joining in the Keller Renaissance. From enhancing the experience of the urban fabric to more structured performances inside and outside, the revitalized Keller will extend its legacy by marking the Fountain District for the next 50 years and beyond.

PROGRAM IMPROVEMENTS

Front-of-House

The existing interior lobby is not of adequate size for a 3,000-seat performance theater. Today, the lobby is primarily used for circulation, and it performs poorly. The proposed design adds more than 18,000 square feet of new lobby and circulation distributed over three floors. The façade angle allows the circulation and front-of-house areas to increase as visitors ascend through the building.

The ground floor includes a westward expansion of the lobby area, enclosing a portion of the existing

porch and colonnade, adding 1,675 square feet to the ground floor, for a total of nearly 9,500 square feet of enclosed lobby area. The expansion and redesign allows for several improvements, including three separate concession areas with expansive bars providing several points of service that will significantly reduce lines. The lobby expansion also includes a relocation of the box office to the northwest corner as well as a separate ticketing booth on the south side along SW Market Street.



Before



Rendering: Ground foyer bar



Before



Rendering: Feature stair

The first balcony area increases by more than 5,100 square feet to a total of more than 11,200 square feet, with an opportunity to incorporate a café/bar/lounge as well as two large concessions stations on opposite sides of the open space. There are also opportunities for private, leasable rooms as well as more front-of-house storage space and ushers' meeting rooms.

feet for a total of more than 11,600 square feet. This level includes an opportunity for an extensive flexible event space with an open commercial kitchen, a prime restaurant opportunity, as well as an improved VIP experience in a donor's room on the northwest side of the space. Also planned are two additional bar/concession areas and a second kitchen in the back-of-house area along the south facade.

The second balcony lobby, which is currently very constricted, increases by more than 7,300 square



Before



Rendering: First balcony



Before



Rendering: Second balcony

The Auditorium

The proposed design concept includes several enhancements for the auditorium audience: ease of circulation, maintenance of sightlines, and improvements to accessibility and comfort, all while maintaining a seating capacity necessary to support demand and revenue. The target seat count, influenced largely by Broadway and popular entertainment, is 2,700 with a full orchestra pit in use. An additional 40 to 100+ seats can be deployed on the orchestra lifts when segments of the pit are not required. As a new audience offering, 30 standing-room spots are available at the rear of the parterre.

By elevating the auditorium orchestra level and stage approximately 18 inches, a new cross aisle is configured with an accessible route from the main level of the lobby, reducing the steep aisle angle at the rear of the parterre. Wheelchair positions are provided at various points at the cross aisle, at the front of the auditorium and at the rear of the parterre directly accessed from the main lobby level. The auditorium's excellent sightlines are retained and made more equitable throughout the orchestra level.

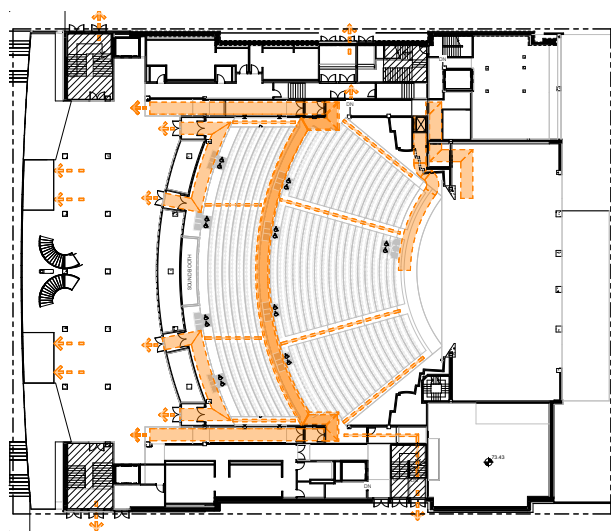


Exhibit: Orchestra-level floor plan / improved circulation and accessible seats

During the 1960's the building code had a limitation on the number of seats allowed between aisles. This requirement is the reason for the number of aisles and narrow rows found in the configuration of the auditorium today. Recent theatre design standards and building code have evolved so that the clear space between rows is a more relevant aspect for access and egress.

In keeping with these best practices, the proposed configuration widens the rows, employs more contemporary seats that have narrower seat envelopes and provides the ability to fill in some of the aisles. The row spacing is increased from the existing 34 inches per row to 36 inches per row, and the risers are made regular in the parterre. Patrons will not have to cross more than 15 seats to get to an aisle; a similar arrangement can be found at the Portland's Newmark Theatre.

Forward of the cross aisle, the aisles and rows are sloped, and all awkward swale conditions at the aisles are eliminated. New, comfortable seating is provided throughout, with the seats staggered from row to row to optimize sightlines. The reconfigured auditorium allows space to be reassigned for audience amenities and production accommodations between the auditorium and lobbies. A dedicated in-house audio mix position is configured at the rear of the orchestra level, and an expansion of control booths are provided above the first balcony. See the accompanying diagrams and appendix for audience flow, seat count distribution and sightline analysis. A comprehensive interior architecture design effort was not performed within the scope of this study.

The removal and replacement of the plaster auditorium ceiling is predicated by several factors. As it exists, it represents a seismic risk due to its weight and insufficient lateral stability. Above the ceiling, the roof structure contains hazardous materials, which require

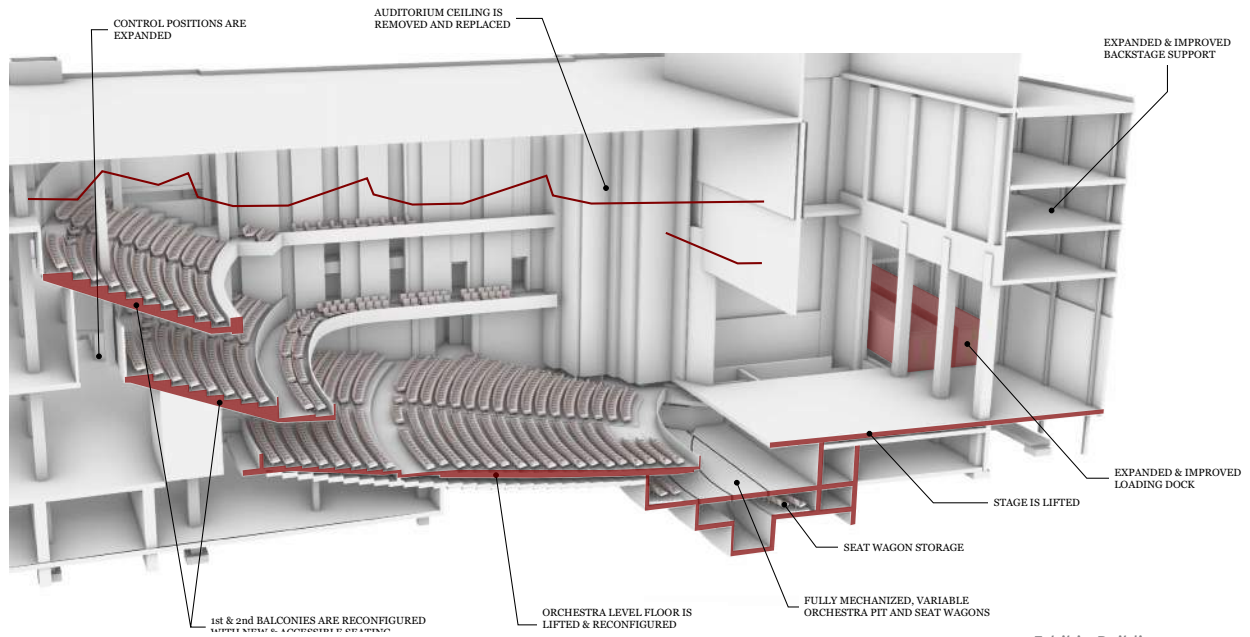


Exhibit: Building cutaway

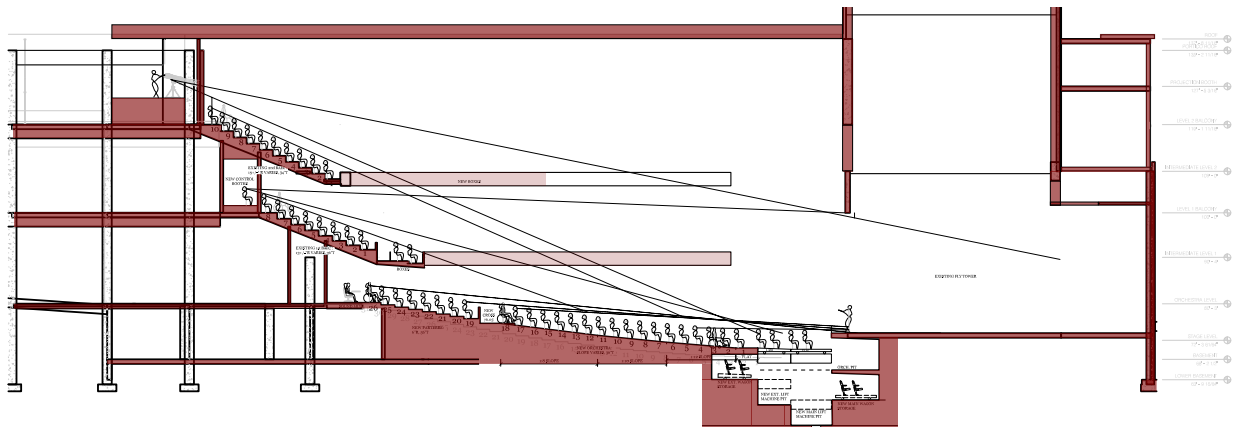


Exhibit: Building section with lifted stage and orchestra, enlarged pit and improved sight lines

abatement; removal of the ceiling provides access for that work. The replacement auditorium ceiling will likely be of a lighter material, which provides a credit to the capacity of the roof structure to support a solar panel array (see more on this in Section 5).

The solution also benefits the approach to the acoustics in the auditorium. Because the Keller is used for amplified and un-amplified uses (e.g. ballet and opera), its acoustic range could be improved in

the same manner as was done at the Arlene Schnitzer Concert Hall and in Silva Auditorium at the Hult Center in Eugene, with an electronic acoustic enhancement system. To best accommodate the use of such a system, architectural finishes in the space would be generally absorptive and therefore weigh less than the existing plaster.

Restrooms

The design team studied options to significantly increase the number of restrooms on each floor and address the challenges inherent with the current layout, including queueing lines. Family-use rooms and lactation spaces were considered as well as all-user options. Significant effort was made to reconfigure bathroom entries to keep lines outside of the public lobby and circulation areas, which will further reduce traffic congestion.

BACK-OF-HOUSE IMPROVEMENTS

Dressing Tower/Support Spaces

The proposed upgrades to the dressing tower add nearly 23,000 square feet of usable area, primarily focused on increases to performer support spaces. The bulk of the existing back-of-house space is located in the dressing tower north of the stage and has limited connection to the south stage and rehearsal areas. In contrast, the newly proposed design bridges across the backstage area and connects north and south. Vertical and horizontal circulation within these spaces is reconfigured to provide more direct connections between spaces and shifts the occupied areas of the back of house toward the building exterior, allowing the opportunity for natural daylighting.

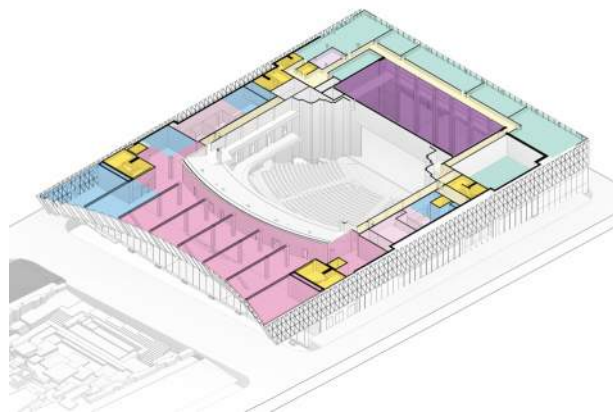


Exhibit: Program distribution

Loading

The proposed new loading facility is a substantial upgrade and meets current best practices and industry standards for loading dock design. The new configuration expands beyond the existing east exterior wall, creating a simpler turning movement into and out of the loading docks and allowing two WB-67 trucks to move independently, and load and unload simultaneously. In addition, the dock is recessed further into the building, providing for trucks to park completely out of the right-of-way and allow overhead doors to seal the dock opening.

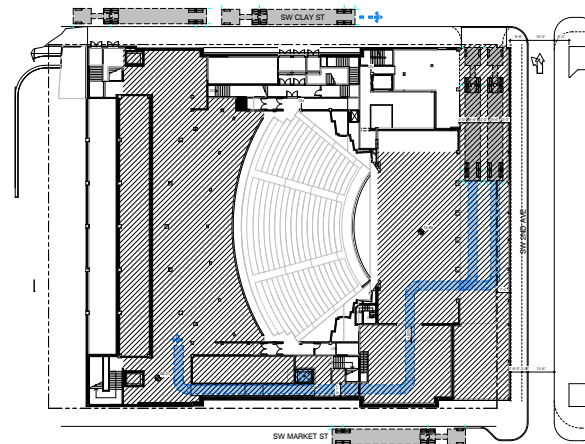


Exhibit: Event loading diagram

By raising the stage floor 18 inches, the newly reconfigured loading dock will be flush with the stage floor, and the slope of a parked trailer will be reduced to less than 5%. The reconfiguring of the loading at stage level create an opportunity for staging to be consolidated to the east and south of stage, allowing direct loading and loading to trucks. When production materials are required to be stored on-site for longer terms, the access ramp to the basement has also been adjusted to create a safer route for the movement of objects.

New facilities and event staff loading locations on SW Clay and Market will divert the additional loading activities away from the front of house and allow discrete connection from front- to back-of-house without needing to pass through the orchestra or exterior of the building.

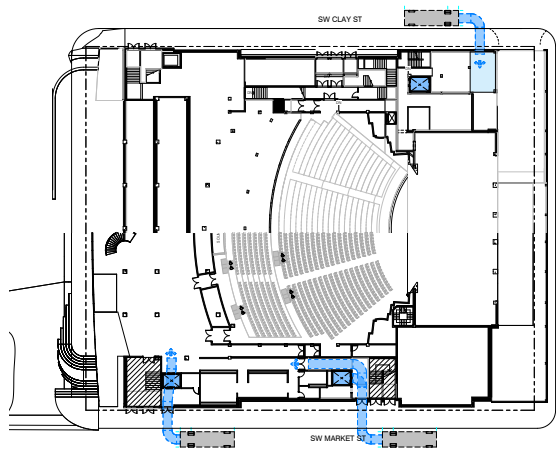


Exhibit: General loading diagram

STRUCTURAL APPROACH

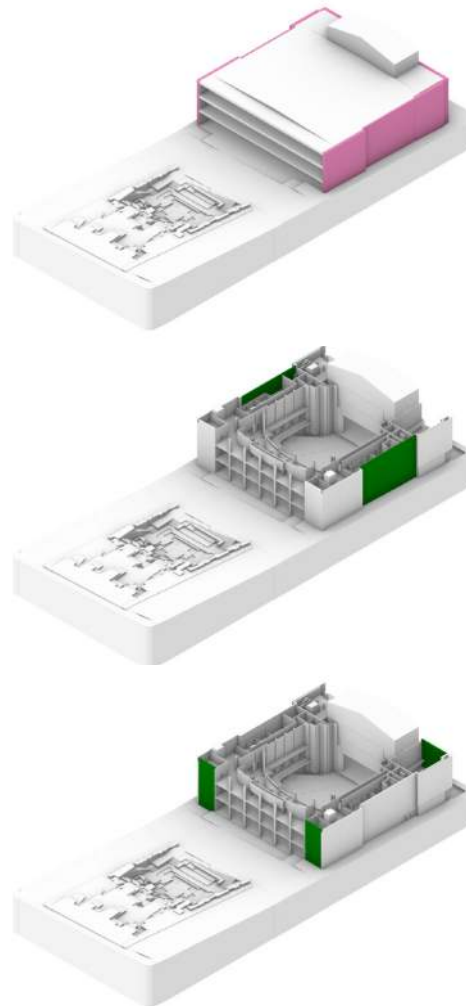
The structural scope includes alterations to the building for programmatic changes, expansion to the front- and back-of-house, and a complete seismic upgrade to a standard equivalent of new construction — all seeking to minimize impact to the existing structure and the associated costs.

Seismic Upgrades

The 1966 Keller remodel added reinforced concrete shear walls, foundations, and floor structure. To determine what further retrofits are necessary to meet current code and safety standards, the design team completed a structural evaluation, geotechnical study, and materials testing. The geotechnical study found stiff soils with no risk of liquefaction; as a result, foundation upgrades are minimal and mainly pertain to new gravity loads imposed by the additions. Unreinforced masonry walls can be upgraded in-place with a combination of steel

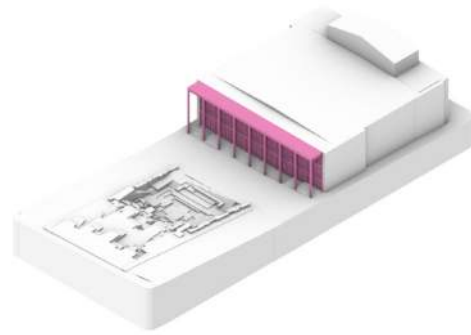
and carbon fiber; the steel doubles as a support for a new lightweight cladding system. Design team analysis identified several wall lines of high-stress concentrations, which can be reinforced with shotcrete. Enhancing existing elements minimizes the need for additional material and shoring and reduces overall construction cost, compared to replacement.

In the event of an earthquake, Non-structural components might be damaged to the extent that they cannot immediately function but are secured in place. Access to life safety systems would remain available. The building would be repairable.



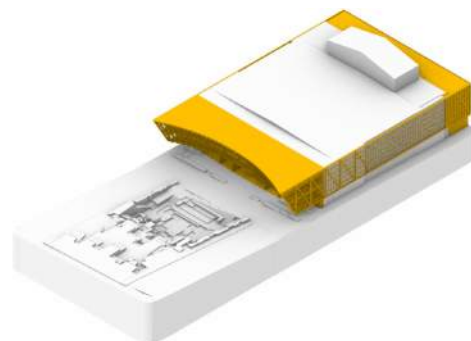
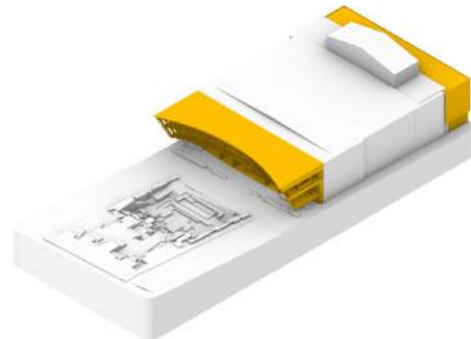
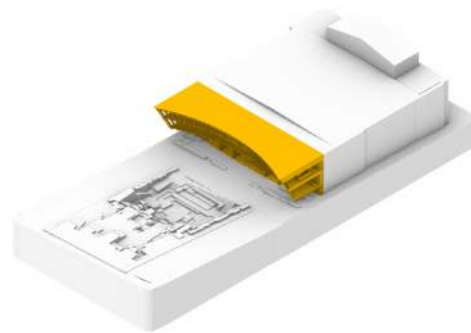
Auditorium Alterations

The elevated seating conceived for the auditorium's main floor can be achieved with lightweight framing over the existing structure. The existing wood stage structure can be largely retained by elevating it with new support posts, while modernization of the orchestra pit can be achieved with a split-level pit to minimize impact to the structure.



Building Additions

The planned west addition support structure uses efficient, deep trusses along the north and south elevation. Between trusses, loads are concentrated on three canted columns. This minimizes the need for new foundations and the impact to existing foundations. At the east addition, conventional framing methods will be used: steel column-and-beam lines with metal decking and concrete topping. Added structure at the east will also double as a seismic improvement for deficiencies at the back stage. Steel columns will reinforce existing piers, and a new wall line will support lateral loads. The new floor space will act as a diaphragm for transferring seismic forces to resisting elements.



More Analysis Required

The analysis in this conceptual study was based on a linear static procedure, which provides a good understanding of the global forces and how they relate to the current lateral system. The design team consulted with City of Portland Bureau of Development Services' structural team along with several experts in the field of non-linear analysis. Due to geometric irregularities, a non-linear analysis will be required, providing additional understanding of the seismic effects on various members. The result of further analysis will narrow work to specific locations requiring upgrades.



More information regarding the structural design is detailed in the full engineering report in the appendix, which includes schematic plans, geotechnical findings, lateral calculations, and material testing.

OTHER PROPOSED IMPROVEMENTS

Stage Production Systems

Most of the backstage production systems of the Keller are approaching the end of their useful life. A significant renovation is an opportunity to bring all of these systems up to current standards, incorporating significant advancements in technology and the high demands of current touring and local productions. Creating flexibility in production efficiency is key to the Keller meeting its goals for delivery of a wide range of exceptional artistic experiences.

The stage rigging system that supports the elements that are raised and lowered into the fly tower above the stage will be replaced with a manual, counterweight system with front-loading arbors and compensating chains to make the system easier to use, as readily flexible as touring productions expect, and widely serviceable.

The stage lighting system will be updated to provide controlled, constant power relays, as has become appropriate for LED stage lighting sources and power connections for touring equipment. The audio-visual system will include a substantial amount of cable path and digital infrastructure, and house systems.

“MARKING” THE FOUNTAIN DISTRICT

Keller Auditorium lies at the intersection of several community assets. It is the active heart of the Fountain District. Market and Clay Streets connect the Keller to arts institutions along SW Broadway, such as PSU’s Lincoln Hall, the Portland’s venues at Antoinette Hatfield Hall and Arlene Schnitzer Concert Hall. Along with Keller Fountain, the auditorium marks the northern and most visible end of the Portland Open Space Sequence. To the south, superblocks limit vehicle access and place additional focus on the site’s

ability to invite visitors further into the sequence. In recent years, the Halprin Landscape Conservancy has highlighted the need for additional lighting, event power, and wayfinding within the historic parks and pedestrian malls. Portland Parks & Recreation should consider the renovation of the Auditorium as an opportunity to undertake any deferred maintenance, infrastructure updates, and any further improvements to the Keller Fountain and Portland Open Space Sequence. Plans for “marking” the Keller include



Strategic signage along the Open Space Sequence helps to identify and tie together The Fountain District

lighting and wayfinding to complement the existing design. These concepts can support the Keller, the Portland Open Space Sequence, and define the Fountain District as a whole, without physically altering the design of the parks and maintaining the historic integrity of the elements.

Poetic Kinetics

Another way to improve wayfinding and further energize and identify the district is through aerial activation with a kinetic art installation along some of these connecting pathways. Skynet installations by Poetic Kinetics, or a similar artist, are a way to inspire and engage pedestrians to use these connections and further activate the Fountain District. The kinetic sculptures are lightweight, colorful, and subtle yet awe-inspiring and will connect people to the environment and draw them into and through these outdoor spaces.

Keller Fountain and Plaza Activation

Halprin intended the Keller Fountain to be an artistic expression reflecting on the intersection between nature and the arts. This project's design and programming continue to embrace and expand on that relationship with the aim of reactivation. The pedestrianization of Third Avenue — the Forecourt Plaza — will connect the Keller Auditorium to the fountain. Together, this space will not only be the prologue and epilogue to every performance at the Keller, it will be a standalone attraction — a strong piece of public art on its own that becomes a true destination in combination with a revitalized plaza and auditorium.

Rotating programming — such as a nightly fountain projection show, live entertainment, and art installations — will keep this space vital throughout the year. In addition, a proposed new lighting concept will promote both safety and beauty. This space will become a public area for both entertainment and



Skynet installations by Poetic Kinetics enhance the identity of a place while drawing the pedestrian along a path and further energizing the district.

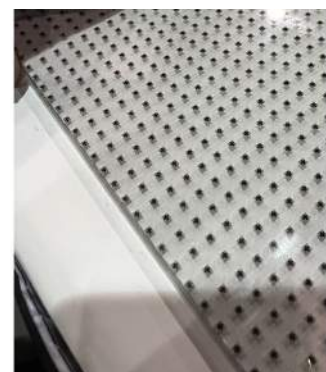
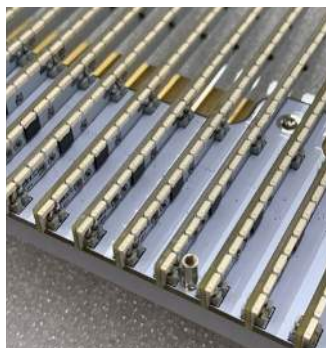
reflection, accessible to our diverse community. Activation in this space in turn will spur vibrancy for the entire neighborhood — encouraging foot traffic, new businesses, restaurants, and more.

Interactive Installations & Public Performance

There are opportunities for public performance throughout the Fountain District and along the Portland Open Space Sequence. Programmed performances will strengthen the identity of the district, giving visitors the sense they have entered a special place within Portland.



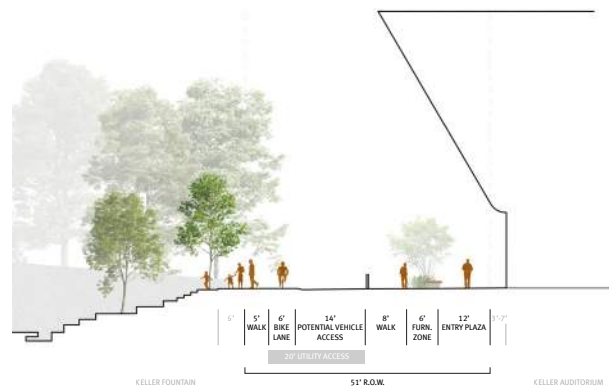
Examples of the possible outdoor programming include an oversized “Ghost Light” sculpture, with classical music and other curated performances staged near the fountain. At dusk, an audio-visual show will play live, projected onto the fountain.



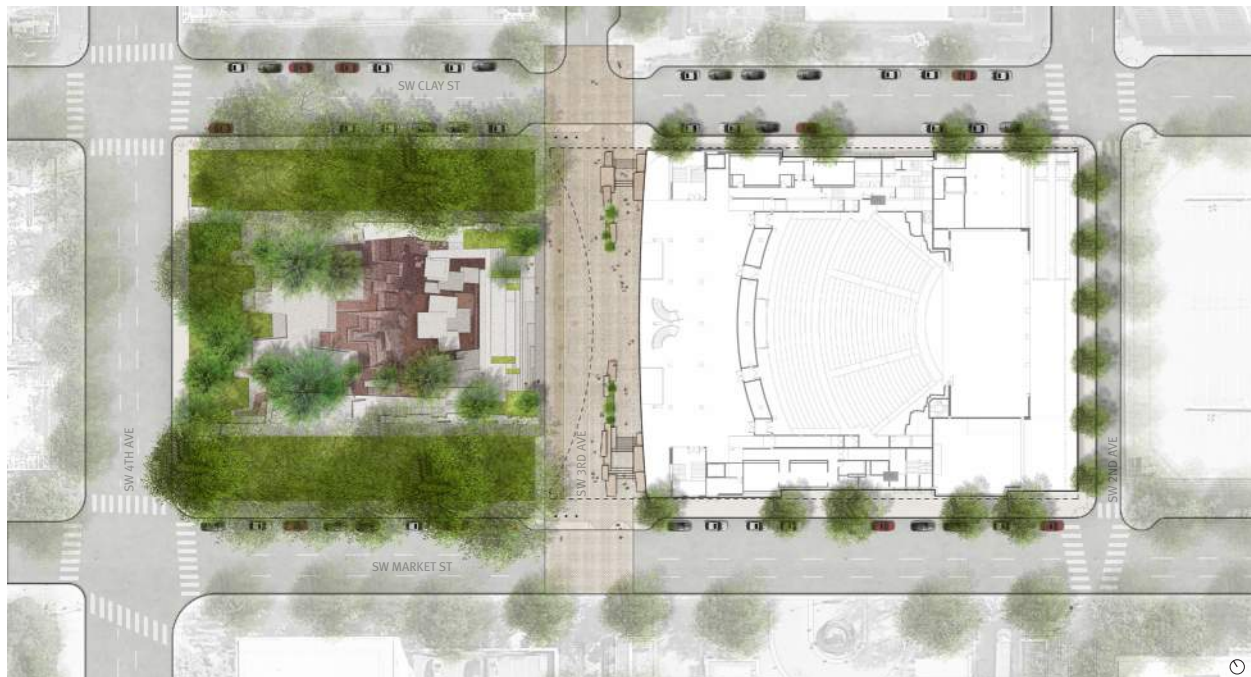
Examples of activating the plaza include interactive art pieces where the public can paint with a water brush on concrete or stone, which would disappear after a minute or two. Fountain District signage and theming could integrate transparent LED film or lattice, programmable content.

Connecting SW Third Avenue & Keller Fountain

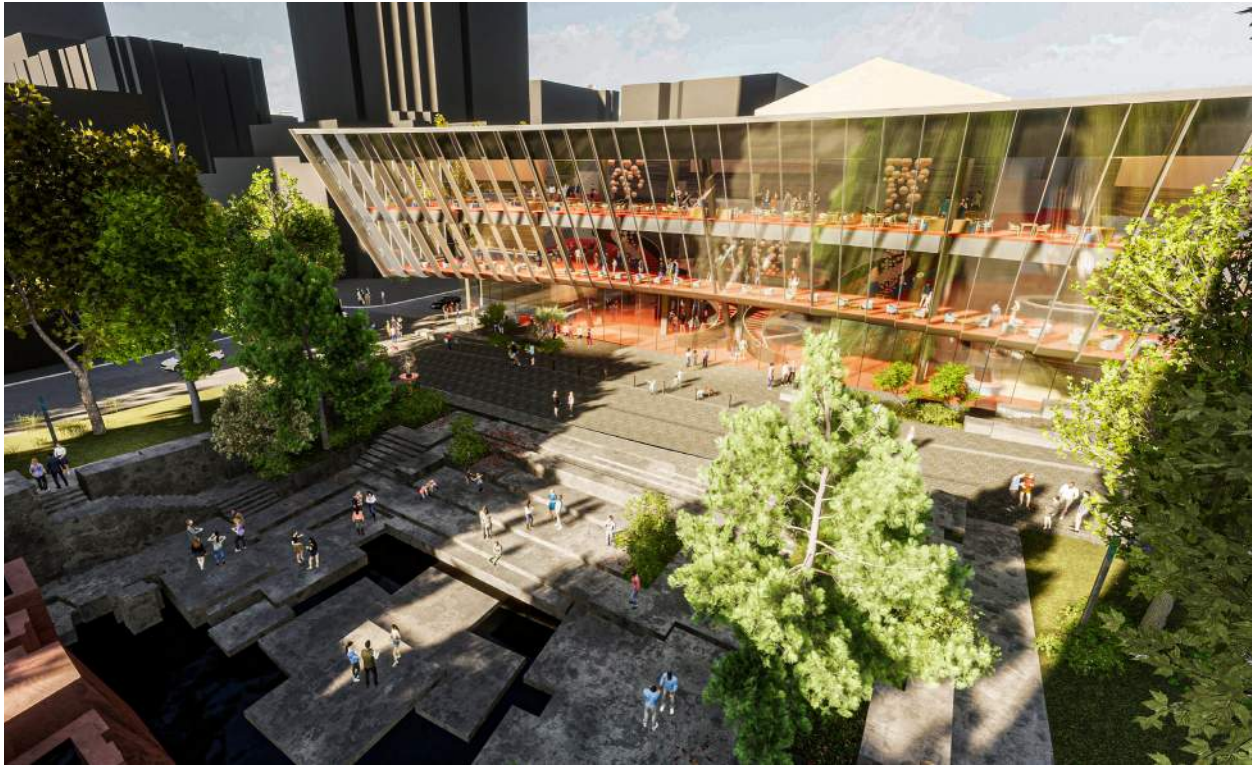
SW Third Avenue is envisioned as a pedestrian-focused street plaza that unites auditorium and fountain. Continuous special paving within the street, including the Clay and Market intersections, extends the Portland Open Space Sequence pedestrian mall and welcomes visitors. Curb extensions improve safety for those arriving from north and south. Regrading of SW Third Avenue improves accessibility to the auditorium and the fountain and provides the ability for programs to spill out from both sides. Landforms inspired by Keller Fountain navigate grade differences at the street edge and provide seating opportunities. While the current concept retains space for a vehicle lane, there is a possibility to completely pedestrianize Third Avenue between Clay and Market and create programming opportunities in the street plaza. Further analysis, including a traffic study will be required to determine the feasibility of closure to 3rd ave and the impacts to the surrounding blocks.



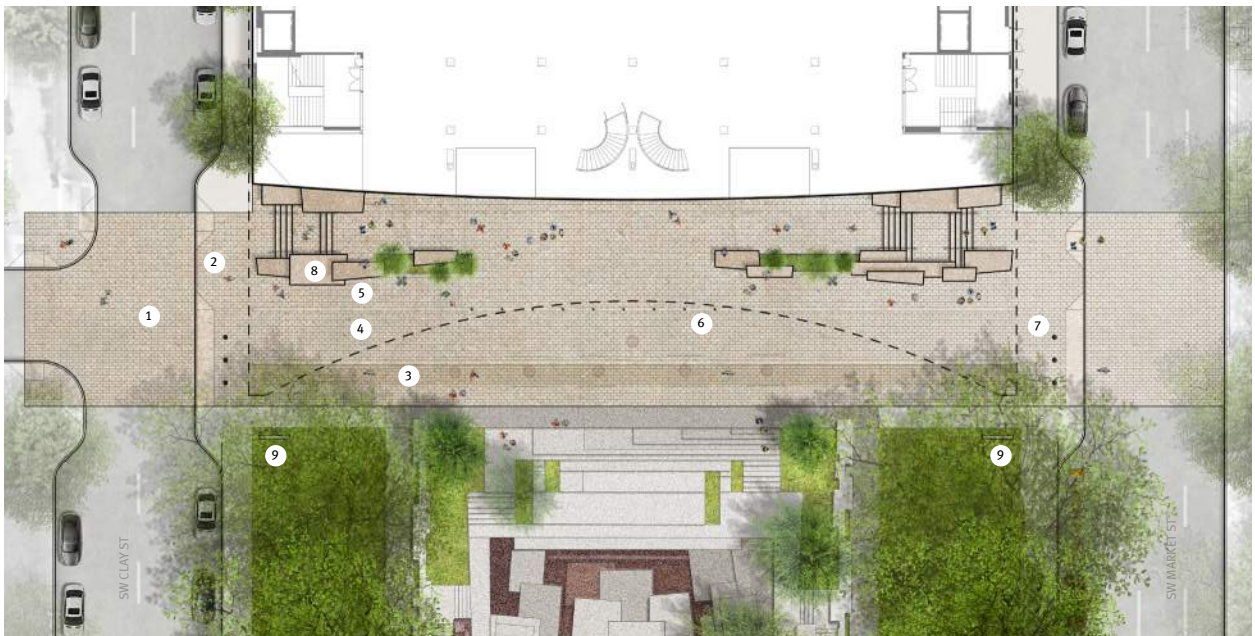
Illustrative site section



Illustrative site plan



Rendering: Keller Fountain and plaza from the west



- | | | |
|---|---|--|
| <ul style="list-style-type: none"> 1. UNIT PAVING 2. CURB EXTENSION 3. BIKE LANE | <ul style="list-style-type: none"> 4. POTENTIAL VEHICLE LANE 5. SIDEWALK 6. REMOVABLE BOLLARDS | <ul style="list-style-type: none"> 7. HYDRAULIC BOLLARDS 8. CONCRETE SEATS 9. INTERACTIVE SIGNAGE |
|---|---|--|

Illustrative plan for Third Avenue plaza

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5. SUSTAINABLE & EQUITABLE DESIGN

SUSTAINABLE DESIGN REQUIREMENTS

The Marking Keller Group and design team have worked closely with the City of Portland, Metro and Portland’s, and the Halprin Landscape Conservancy to ensure we are meeting the sustainable and equitable design goals of the stakeholders and community. The following summarizes the City and Metro policies on sustainable and equitable design that this project will follow.

CITY OF PORTLAND GREEN BUILDING POLICY

The intent of Portland’s Green Building Policy is to “incorporate green building practices into design, construction, and remodeling and operation of all city-owned facilities.” For new, occupied, City-owned buildings with more than 20,000sf and/or a construction budget of more than \$5M, the following requirements should be achieved or exceeded.

- LEED BD+C Gold certification and/or Living Building Challenge.
- 15% energy savings beyond Oregon Energy Efficiency specialty code.
- Onsite renewable energy systems / meet Oregon’s 1.5% green technology requirement.
- Earn or meet LEED’s advanced energy metering credit requirements to support ongoing energy monitoring and commissioning.
- Earn or meet LEED’s enhanced commissioning credit requirements.
- Use native and/or non-invasive drought-tolerant plants / use no potable water for irrigation, except for the first two years to establish plantings, or in cases of drought.
- Select WaterSense-labeled products for all eligible fixtures / reduce total potable water use by at least 20% over the building’s estimated baseline.
- Cover the entire available roof, excluding mechanical access structures, with ecoroof. Exemptions to this requirement must be approved by the commissioner-in-charge.
- Incorporate stormwater management and related watershed-enhancement strategies that support Salmon Safe certification during construction and after project completion.
- Incorporate measures to reduce bird strikes and fatal light attraction, including treatment of exterior glass and glazed surfaces, lighting design, best management practices, and other applicable measures as specified in Appendix B.
- Provide covered and secure bicycle parking for employees and visitors at an amount equal to the 25% mode share target in the City’s Climate Action Plan, unless and until replaced by mode share targets in the 2015 Transportation System Plan.
- Follow construction waste prevention guidelines in Section 3.
- Follow space allocation standards and space planning guidelines in Appendix C.

Note: Guidelines related to parking are not applicable because there is currently no on-site parking at the Keller Auditorium, and none is being proposed.

METRO SUSTAINABLE BUILDING & SITES

“The purpose of the Metro Sustainable Buildings and Sites Policy is to set standards for design, construction, operations and maintenance of Metro buildings and developed properties that support achievement of Metro’s five sustainability goals and the Strategic Plan to Advance Equity, Diversity, and Inclusion.”

- Reduce direct and indirect greenhouse gas emissions to 80% below 2008 levels by 2050.
- Eliminate the use or emission of persistent bioaccumulative toxics (PBTs) and other priority toxic and hazardous substances by 2025.
- Recover all waste for recycling or composting and reduce overall generation of waste by 2025.
- Reduce water use to 50% below 2008 levels by 2025.
- Ensure that Metro’s parks, trails, and developed properties positively contribute to healthy, functioning urban ecosystems and watershed health and that Metro’s natural areas are healthy, functioning ecosystems.

The Keller renovation falls under Section 4 of Metro’s Sustainable Buildings and Sites Policy in the category of “New Construction and Major Renovations.” Minimum requirements for this category include the following.

- Core Green Building Certification
- SITES Gold Certification
- Project Planning: Ensure budget accounts for resources required to properly plan for the requirements of this policy.
- Green Energy Technology: Spend an amount equal to at least 1.5% of the total contract price for the inclusion of appropriate green energy technology in the building.
- Fossil Fuel Infrastructure: Exclude the use of fossil fuels and dedicated fossil fuel infrastructure and fossil gas combustion.
- Electrification Infrastructure: Include vehicle electrification infrastructure consistent with requirements for the Core Green Building Certification.
- Bird-Friendly Design: Incorporate, including window treatments, reducing light attractants, and other measures.
- Materials carbon reduction
- Sustainable Roof Requirements: Evaluate and implement environmental benefit based on the hierarchy below:
 - Solar photovoltaics (solar panels)
 - Ecoroof
 - High-reflectance roofs

Feasibility of LEED Gold and ILFI Core Certification

As a part of the City's Green Building Policy, this project must pursue a third-party certification either for U.S. Green Building Council's (USGBC) LEED Gold status, or International Living Future Institute's (ILFI) Core Green Building Certification. A primary difference between these two systems is a prescriptive (LEED) versus performance-based (ILFI) approach. The design team has evaluated the feasibility of both certifications, including possible opportunities and specific limitations. Many of the requirements of both rating systems are jumpstarted by section 1.1 of the City's Green Building Policy. However, a combination of this program type and the reuse of an existing building make for unique challenges in using these rating systems that will require dialogue with either USGBC or ILFI.

The path to LEED certification requires collecting a certain number of points; while these points are divided into categories, the total number determines certification. Given the project site, this approach could be helpful because some credits will be easier to achieve, allowing the project to leverage the specific strengths in the Location and Transportation categories. Feasibility of certification will likely depend on operational energy reduction, ultimately, as this single credit accounts for the most available points.

The ILFI Core certification requires projects to meet 10 Core Imperatives, or as few as seven for existing buildings. Unlike LEED, all of the imperatives must be met, and leveraging certain categories is not feasible, for a more holistic approach. Some of the imperatives also provide an opportunity to demonstrate success in equity-based design strategies, which could be an opportunity for this project. Imperative 3: Responsible Water Use may be a sticking point for certification. This imperative requires 100% of stormwater be managed onsite, and due to the

city's Combined Sewer Overflow system, stormwater detention may be needed as well. Imperative 4: Energy + Carbon Reduction requires energy reduction similar to LEED energy points.

A third certification that may fit with the reuse of an existing building is the ILFI's Zero Carbon program, which addresses operational energy reductions and embodied carbon emissions as well.

PROPOSED SUSTAINABILITY STRATEGIES

Reduction in the operational energy use of the auditorium will hinge on three primary categories: envelope, lighting, and HVAC efficiency. Because the building has not been updated for many years, an improved envelope brought up to current code or beyond will likely have a significant impact. Updating the current lighting to a more efficient system with occupancy and daylight controls will reduce energy consumption and unwanted heat gain. Lastly, an updated HVAC system and smart building controls provide an opportunity to further reduce energy consumption.

To track operational energy reductions, a baseline must be set; a common industry baseline is the Commercial Buildings Energy Consumption Survey (CBECS) compiled by the U.S. Energy Information Administration. This database establishes a baseline for energy use based on building location and program type. Designing to current Oregon code requirements would reduce operational energy by 50% from the CBECS baseline. Given the third-party certifications targeted for this project, the design team assumes a total reduction of 70% to be feasible.

Potential for Embodied Carbon Reduction

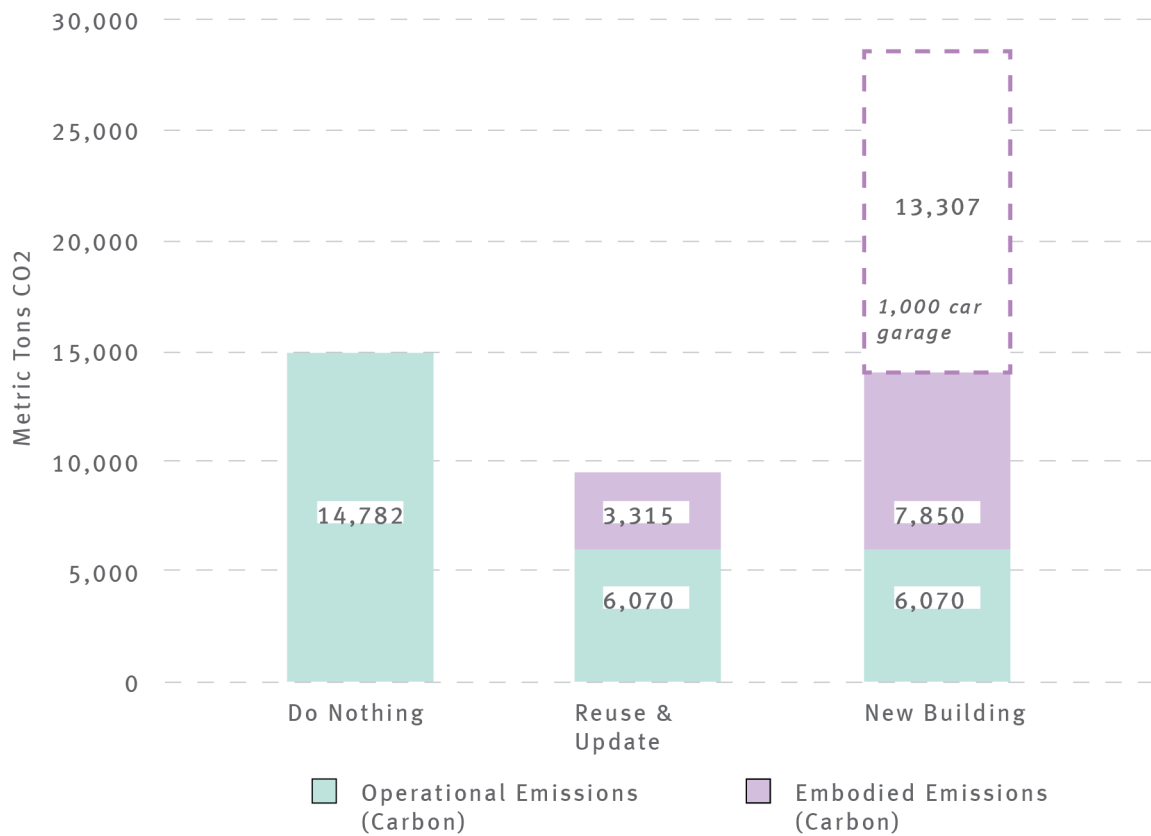
The most sustainable building is typically the one that already exists. This phenomenon is largely attributed to the embodied carbon of a building — that is, the large amount of energy that was already expended to

construct it from raw materials. As buildings become more efficient, operational energy and emissions are reduced; couple this with the decarbonization of the energy grid, and carbon emissions associated operational energy represent a small part of the building's life-cycle emissions — while the building's embodied carbon becomes a much larger part of its emissions. To understand this and the unique opportunity of reusing, updating, and retrofitting existing buildings, the design team analyzed three scenarios — as-is, reuse, and new build — using the Carbon Avoided: Retrofit Estimator (CARE) tool. The calculator uses embodied carbon benchmarks to calculate cradle-to-gate embodied emissions intensities for new buildings and renovated buildings. For renovated buildings, the tool covers structure, envelope, interiors, mechanical, electrical, and plumbing (MEP) systems. Total Embodied Emissions Intensity for a New Building or an Addition (which is

equivalent to New Building in Emissions Intensity) is based on the Type of Structure selected because structural systems and materials have the largest impact on embodied carbon. The calculator does not factor in carbon emissions related to land development. In addition to the expenditure of embodied carbon for a new building, it is assumed that a new facility will need a new parking garage to accommodate patrons. Parking garages adjacent to the Keller Auditorium currently sell about 1,300 spaces for a full-house event, assuming some existing parking, 1,000 stalls was used as benchmark for a new facility. By extensively reusing the existing building foundations and rather than building new, 17,800 tons of carbon emissions can be avoided — equivalent to all vehicle miles travelled in the metro region from 2013 to 2017.



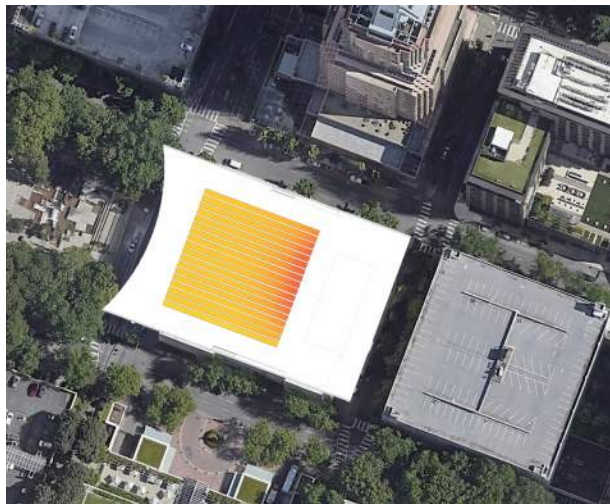
More information regarding the CARE tool data and methodology is detailed at: <https://caretool.org/data-and-methodology/>



Source: Carbon Avoided Retrofit Estimator (CARE).

Renewable Energy

While operational and embodied carbon will be reduced through the strategies described, a source of renewable energy will help offset what remains. Given the Keller’s urban location and roof area, a photovoltaic array (solar panels) was determined to be most efficient means to achieve these goals. Based on the structural analysis determination that the existing roof structure has adequate capacity to support solar loads, the design team identified two primary strategies for such an array. The first strategy assumes solar panels are angled for maximum efficiency. The main drawback of this approach is losing roof space due to the self-shading effect of the angled panels. A second strategy assumes panels are set nearly flat on the roof. This approach produces more energy due to maximum coverage but sacrifices efficiency due to the panel’s angle. Assuming an area of 12,000 square feet is used for solar panels, the array will meet roughly 50-70% of the annual energy needs, depending on the final layout.



Proposed photovoltaic array (solar panel) orientation

Bird-Safe Glass

The design team as well as stakeholders of the Keller are committed to protecting the more than 200 species of birds that stop in Portland annually. The

project will follow all achievable Best Management Practices (BMPs) outlined in the City of Portland’s Green Building Policy for City Owned Buildings including Bird Safe Glass. In addition to the City’s policy, the project will be designed to qualify for LEED Innovation Credit: Bird Collision Deterrence. Since most of the east and west facades are made up of clear glass, we will design either fritted patterns or UV coatings that achieve a threat score of 30 or less on all facades with glazing. For the opaque portions of the façade, we will ensure that they are constructed entirely of materials with a threat score value of 30 or less as well.

EcoRoof

As a part of the City’s Green Building Policy renovation projects that include roof replacements are required to include an ecoroof. The inclusion of an ecoroof was studied as part of this effort and determined that an exemption would likely be sought as the installation of an ecoroof would be particularly challenging for several reasons. Portions of the building structure are unreinforced masonry, dating to the original 1917 construction, which was not designed for ecoroof roof loads. A large portion of the main roof level is supported by long-span trusses over the auditorium space. The trusses are already loaded to near capacity and would need to be retrofit to withstand the weight of saturated soils. Finally, an ecoroof would locate substantial mass at the top of the building which is highly undesirable from a seismic force perspective. These extensive upgrades to the roof structure would likely be prohibitively expensive. Similarly, when the roof was replaced in 2016 upgrading the structure ecoroof was deemed cost prohibitive and instead utilized lightweight roofing materials anticipating the addition of future solar panels. As a result, the comparatively lightweight proposed solar panel array is a more economical and effective use of the existing roof area.

PROPOSED EQUITY STRATEGY

Equity is integral to a sustainable future. The design for the renovated Keller Auditorium should prioritize creating a safe and welcoming place for people of all abilities and backgrounds focused on bringing the community together around the performing arts. To achieve an equitable design that embodies this vision, an equitable process is required. Because design is iterative, equity should be woven throughout the design phases. The equity strategy for the Keller Auditorium should engage meaningfully, support diverse regional partners, and invest in equity.

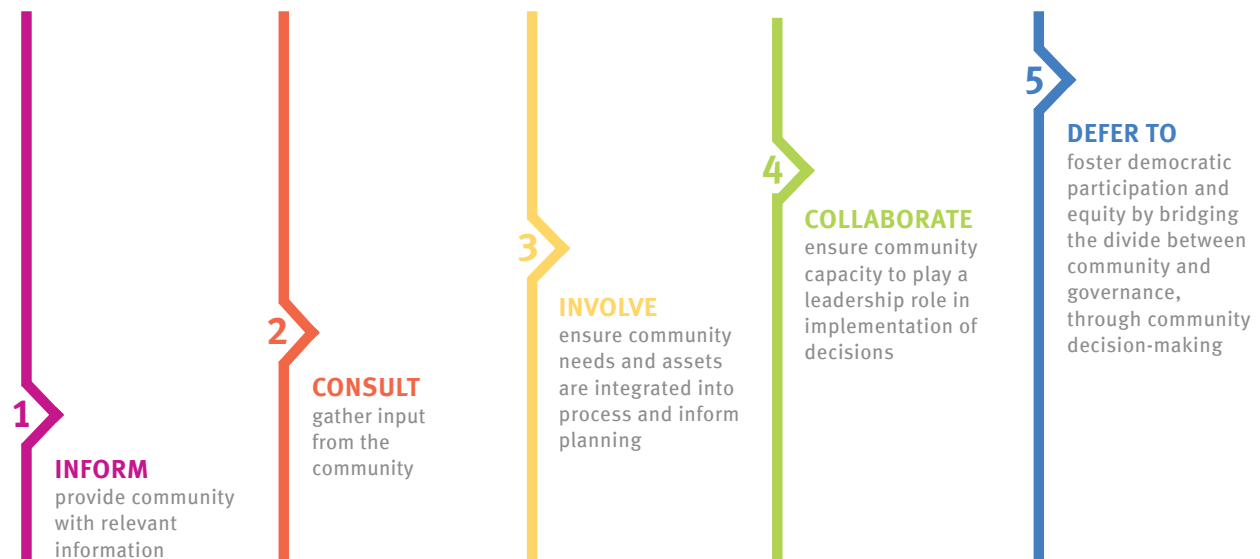
Engage Meaningfully

Both the City and Metro have identified goals to address inequities and racial disparities in Portland through meaningful outreach. As such, successful outreach for the Keller Auditorium must involve an intentional shift in decision-making and relationship-building. Referencing the “Levels of Engagement” diagram, this project should go beyond “Inform,” which does not provide opportunity for community voices, as well as “Consult,” which does not offer any commitments back to the community. Instead, the bar

for future engagement should be held to a level such as “Involve,” “Collaborate,” or “Defer To.”

Each of these levels have different benefits and drawbacks in terms of schedule, logistics, and authentic feedback. It is also possible that an appropriate strategy for a project as complex as the Keller Auditorium would include a combination of engagement at different levels. In any case, the key to success will require moving beyond the extractive idea of engagement and into building reciprocal relationships. In other words, rather than asking how to extract sufficient information for the benefit of the project, the process should ask how the engagement relationship will benefit the community.

In most cases, it is appropriate to compensate participants for their time and feedback because they are providing a service to the project. To create a space for authentic feedback, the process should also consider questions such as “What are the physical barriers to participation?” (e.g. time, location) and “What are the emotional barriers to participation?” (e.g. historic trauma).



Credit: Rosa Gonzalez, Facilitating Power, and Movement Strategy Center

Particularly when approaching communities of color, it is important to acknowledge that other — potentially similar — outreach or revitalization processes may have inflicted physical or emotional harm on their communities. To avoid a similar outcome, it is critical to focus on building a reciprocal relationship both with transparency about how the community will impact the decision-making process and with follow-through on commitments made during engagement.

The following are examples of what meaningful engagement could look like at each level.

Involve

Facilitate multiple workshops throughout early design phases. Include people of color and differing abilities who have been historically excluded. Provide enough time in the project schedule to collect broad community input (being sensitive to the needs of each specific community), integrate feedback into the design, and report back for accountability. Compensate participants for their time with food or gift cards.

Collaborate

Create a decision-making panel that includes members of the community as paid consultants, particularly emphasizing voices that have been historically excluded. Rely on the networks of these community consultants to help form broader outreach (such as workshops).

Defer To

Provide an opportunity for the broader community to vote on a design element. Establish clear parameters for input and be transparent about the outcome. Compensate participants with food or raffled gift cards.

Support Diverse Regional Partners

Supporting regional partners who have experienced injustice and inequity requires acknowledging the past and planning for a shared future.

The land where the Keller Auditorium now sits was not taken peacefully. The Portland metro area occupies the traditional land of many Indigenous tribes, including the Multnomah, Wasco, Cowlitz, Kathlamet, Clackamas, Bands of Chinook, Tualatin, Kalapuya, and Molalla. These Indigenous peoples faced genocide, relocation, and assimilation due to Portland's settlement. Both the City and Metro acknowledge that there are ongoing impacts of colonization on these tribes today and are working to respect and recognize their place in the community as the land's original stewards.

In addition, the development of the Keller Auditorium directly harmed the immigrant community. The South Auditorium Renewal Project, which created space for the Keller Auditorium in the 1960s, did so by clearing away an ethnically diverse neighborhood of lower-class immigrants (Wollner, Provo, and Schablisky, *Brief History of Urban Renewal in Portland, Oregon*). Residents included Jewish, Italian, Irish, Chinese, and Greek immigrants who unsuccessfully fought the leveling of their homes, businesses, and places of worship.

While the site's history has caused much harm, this project has the unique opportunity to facilitate healing in the community through performing arts. Portland is still home to many Native peoples and immigrants, many of whom live in parts of the city that do not have the same access to the arts as neighborhoods closer to the urban center. Their voices — along with others — have often been ignored over the history of the city's development. An equitable process to revitalize the Keller Auditorium and Fountain District could help to reverse this

trend and start to rebuild trust with diverse regional partners. The equitable vision should not end with the date of construction completion, though. While meaningful engagement can lay the foundation for a reciprocal relationship, it is the continued support of these communities that will create a better future for the entire Portland region. One key area of ongoing support could be the programming of the new plaza. This space has the potential to make art more accessible to a wider audience, give a platform to diverse performing groups, and create a shared future for Portland that emphasizes justice and equity through the arts.

Invest in Equity

This project will require substantial resources, which can be used to advance equity within the community. The largest cost for the revitalization will fall under construction costs for materials and labor, so the most effective way to reinvest in the community is to specify materials, finishes, furniture, and equipment that support community priorities and the equity vision. The City of Portland's Sustainable Procurement Policy outlines guiding principles that should be referenced in this process, but which include considerations for how everything is connected, providing fair opportunities, and upholding accountability.

When making product selections, disadvantaged business enterprise (DBE) vendors and trade partners should be prioritized and supported. It is important to note that supporting DBEs goes beyond hiring for the project. Since many of these businesses are smaller, they might not have the experience or resources of larger businesses, which means that investing in equity involves coming alongside DBEs to provide opportunities for them learn. The construction specifications should be examined for inclusive language, making sure that the project's requirements do not create unnecessary barriers to DBEs.

In addition, DBEs are often also small or emerging businesses that have different capacity levels than other businesses. With DBE requirements increasing for public projects across the region, many DBEs find they are at their capacity limit. One solution for the Keller Auditorium, which could have many complexities as a larger project, is to encourage partnerships between DBEs and larger businesses. This arrangement allows DBEs to have a seat at the table while also learning from the larger business and utilizing their deeper capacity to accomplish the work.

Given the challenges that DBEs currently face, it is especially critical to invest in their growth now and work toward a future where diverse businesses have equal footing. With the substantial resources that will be needed to revitalize the Keller Auditorium, this project is uniquely situated to make a significant contribution to the growth of these DBE vendors and trade partners across the region.

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6. Construction Cost, Schedule, and Approach

BASELINE CONSTRUCTION APPROACH

Baseline Schedule

The Project Schedule reflects a 28-month duration, including four months of commissioning. The City of Portland’s downtown holiday moratorium (which restricts street and sidewalk closures between mid-November and mid-January) is taken into account, as coordination will be required with the proposed traffic lane closures and the project sequencing and schedule. No overtime is included in the baseline schedule.

ACTIVITY	2027												2028												2029					
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Mobilization and Site Prep	█																													
Structure		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
Facade		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
New Construction Areas																														
Existing Facility Upgrades																														
Commissioning																														
Site Work, Street Vacation (3rd Ave.)																														

Baseline Cost Estimate

The project cost estimate reflects a 28-month construction schedule, and a construction start date during Q1 2027. The estimate is broken down into the following categories: demo, building, façade/site.

An escalation rate of 25% has been added, which breaks down to 5% per year to the approximate midpoint of construction. Given the conceptual nature of the current proposal, a 20% design and estimating contingency is also included. There may be opportunities to improve this based on the final design, seismic retrofit, and demo requirements.

Baseline Construction Cost: \$174.9M



HOFFMAN CONSTRUCTION COMPANY

UNI-FORMAT COST SUMMARY
SCHEMATIC ESTIMATE

Project Name	Marking Keller
Client Name	Keller
Location	Portland, OR
Date	8/8/2023

System Description	Demo 151,011 S.F.		Bldg 194,813 S.F.		Facade Total	Site 32,739 Total	TOTAL 194,813 gsf	
	Total	\$/S.F.	Total	\$/S.F.			Total	\$/S.F.
A SUBSTRUCTURE	\$0	\$0.00	\$967,431	\$4.97	\$0	\$0	\$967,431	\$4.97
A10 Foundations	\$0	\$0.00	\$493,020	\$2.53	\$0	\$0	\$493,020	\$2.53
A20 Basement Construction	\$0	\$0.00	\$474,411	\$2.44	\$0	\$0	\$474,411	\$2.44
B SHELL	\$0	\$0.00	\$12,617,267	\$64.77	\$14,129,350	\$0	\$26,746,617	\$137.29
B10 Superstructure	\$0	\$0.00	\$11,739,267	\$60.26	\$182,000	\$0	\$11,921,267	\$61.19
B20 Exterior Enclosure	\$0	\$0.00	\$0	\$0.00	\$13,947,350	\$0	\$13,947,350	\$71.59
B30 Roofing	\$0	\$0.00	\$878,000	\$4.51	\$0	\$0	\$878,000	\$4.51
C INTERIORS	\$0	\$0.00	\$15,588,055	\$80.02	\$0	\$0	\$15,588,055	\$80.02
C10 Interior Construction	\$0	\$0.00	\$3,871,306	\$19.87	\$0	\$0	\$3,871,306	\$19.87
C20 Stairs	\$0	\$0.00	\$1,295,000	\$6.65	\$0	\$0	\$1,295,000	\$6.65
C30 Interior Finishes	\$0	\$0.00	\$10,421,749	\$53.50	\$0	\$0	\$10,421,749	\$53.50
D SERVICES	\$0	\$0.00	\$31,671,181	\$162.57	\$0	\$0	\$31,671,181	\$162.57
D10 Conveying	\$0	\$0.00	\$900,000	\$4.62	\$0	\$0	\$900,000	\$4.62
D20 Plumbing	\$0	\$0.00	\$4,998,270	\$25.66	\$0	\$0	\$4,998,270	\$25.66
D30 HVAC	\$0	\$0.00	\$11,913,127	\$61.15	\$0	\$0	\$11,913,127	\$61.15
D40 Fire Protection	\$0	\$0.00	\$1,558,504	\$8.00	\$0	\$0	\$1,558,504	\$8.00
D50 Electrical	\$0	\$0.00	\$12,301,280	\$63.14	\$0	\$0	\$12,301,280	\$63.14
E EQUIPMENT & FURNISHINGS	\$0	\$0.00	\$17,413,285	\$89.38	\$0	\$0	\$17,413,285	\$89.38
E10 Equipment	\$0	\$0.00	\$14,234,250	\$73.07	\$0	\$0	\$14,234,250	\$73.07
E20 Furnishings	\$0	\$0.00	\$3,179,035	\$16.32	\$0	\$0	\$3,179,035	\$16.32
F SPECIAL CONSTRUCTION & DEMO	\$5,019,792	\$33.24	\$0	\$0.00	\$0	\$0	\$5,019,792	\$25.77
F10 Special Construction	\$0	\$0.00	\$0	\$0.00	\$0	\$0	\$0	\$0.00
F20 Selective Building Demolition	\$5,019,792	\$33.24	\$0	\$0.00	\$0	\$0	\$5,019,792	\$25.77
G SITEWORK	\$120,450	\$0.80	\$342,800	\$1.76	\$0	\$2,115,818	\$2,579,068	\$13.24
G10 Site Preparation	\$120,450	\$0.80	\$342,800	\$1.76	\$0	\$0	\$463,250	\$2.38
G20 Site Improvements	\$0	\$0.00	\$0	\$0.00	\$0	\$1,340,818	\$1,340,818	\$6.88
G30 Site Mechanical Utilities	\$0	\$0.00	\$0	\$0.00	\$0	\$475,000	\$475,000	\$2.44
G40 Site Electrical Utilities	\$0	\$0.00	\$0	\$0.00	\$0	\$300,000	\$300,000	\$1.54
Z Other Project Costs	\$128,525	\$0.85	\$1,965,287	\$10.09	\$353,285	\$52,903	\$2,500,000	\$12.83
Z90 Other General Requirements	\$128,525	\$0.85	\$1,965,287	\$10.09	\$353,285	\$52,903	\$2,500,000	\$12.83
Sub-Total	\$5,268,766	\$34.89	\$80,565,307	\$413.55	\$14,482,635	\$2,168,721	\$102,485,429	\$526.07
Contingencies / Allowances	\$2,634,383	\$17.44	\$40,282,653	\$206.78	\$7,241,318	\$1,084,361	\$51,242,715	\$263.04
5.0% Construction Contingency	\$263,438	\$1.74	\$4,028,265	\$20.68	\$724,132	\$108,436	\$5,124,271	\$26.30
25.0% Design & Estimating Contingency	\$1,317,191	\$8.72	\$20,141,327	\$103.39	\$3,620,659	\$542,180	\$25,621,357	\$131.52
20.0% Escalation to Midpoint	\$1,053,753	\$6.98	\$16,113,061	\$82.71	\$2,896,527	\$433,744	\$20,497,086	\$105.21
TOTAL DIRECT COSTS	\$7,903,149	\$52.33	\$120,847,960	\$620.33	\$21,723,953	\$3,253,082	\$153,728,144	\$789.11
GC'S / Insurance	\$741,233	\$4.91	\$11,334,274	\$58.18	\$2,037,479	\$305,105	\$14,418,090	\$74.01
Supervision	\$385,574	\$2.55	\$5,895,861	\$30.26	\$1,059,856	\$158,709	\$7,500,000	\$38.50
Preconstruction	\$25,705	\$0.17	\$393,057	\$2.02	\$70,657	\$10,581	\$500,000	\$2.57
1% Subcontractor Default Insurance	\$80,296	\$0.53	\$1,227,815	\$6.30	\$220,715	\$33,051	\$1,561,878	\$8.02
Street Use Fees	\$18,610	\$0.12	\$284,574	\$1.46	\$51,156	\$7,660	\$362,000	\$1.86
0.66% Construction bond	\$59,335	\$0.39	\$907,299	\$4.66	\$163,098	\$24,423	\$1,154,156	\$5.92
0.31% Builder's risk	\$27,869	\$0.18	\$426,156	\$2.19	\$76,607	\$11,472	\$542,103	\$2.78
1.6% Project Insurance - GL CCIP	\$143,843	\$0.95	\$2,199,512	\$11.29	\$395,390	\$59,208	\$2,797,953	\$14.36
4.00% CONTRACTOR FEE	\$345,775	\$2.29	\$5,287,289	\$27.14	\$950,457	\$142,327	\$6,725,849	\$34.52
TOTAL CONTRACT COST	\$8,990,157	\$59.53	\$137,469,523	\$705.65	\$24,711,889	\$3,700,514	\$174,872,084	\$897.64

Escalation has been figured at 5% / year to the midpoint of construction (5 years x 5%/year = 25%)
 This assumes a Q1 start in 2027. Additional construction costs for start of construction beyond Q1 of 2027 are as follows:
 Q1 - 2028 \$5,531,226
 Q1 - 2029 \$11,062,452

OVERALL FUNDING COMPARISON

The Option 2 and Option 3 cost estimates completed as part of the 2018 study consist of direct construction costs only and included figures escalated to a July 2024 construction start date. As part of the cost estimating exercise for this 2b study, completed by Hoffman Construction, the provided figures were escalated to reflect a Q1 2027 start date in order to provide a comparison between the three studies. The comparison assumes 35% of the construction costs as the soft costs for Options 1b, 2, and 2b and 40% for Option 3 due to the increased timeline. The softcost estimate encompasses project management, permits, legal, accounting and design fees.

Option 1b

Building renovation intended primarily to address structural deficiencies, but not other desirable functional and operational enhancements. This option generally preserves current configuration, amenities, and the internal and external appearance of the building. This structural study was prepared in the absence of programming and conceptual design, or material testing and geotechnical engineering information. Option 1b assumes a seismic upgrade that meets the requirements of an existing building. By contrast, Option 2b meets the structural code requirements of a new building.

Option 2

Building renovation intended to address structural deficiencies as well as strategic improvements to improve the patron and performer experience, meet current accessibility requirements, and meet audience amenity expectations. This option includes modest expansions of the building area at the front (west) and rear (east) and significantly updates the internal configuration and functionality as well as the external appearance. Accessibility,

comfort, sightlines, and acoustics for patrons would be improved. This study was prepared using a preliminary program prepared by a consultant engaged by the City and in the absence of material testing and geotechnical engineering information. Option 2 assumes a seismic upgrade that meets the requirements of an existing building. By contrast, Option 2b meets the structural code requirements of a new building.

Option 3

Full replacement of the auditorium with a new state-of-the-art facility. This option includes a conceptual “ideal” space plan meeting current industry standards and patron expectations. This replacement facility could be built at an alternate location, ideally with a larger footprint than the current site, which would allow continued operation of the existing facility during construction; it could also be located on the current site, though the small footprint presents challenges. The estimate shown does not include the cost to procure a new site.



More information regarding the cost estimate and comparison studies is included in the appendix.

OVERALL FUNDING COMPARISON

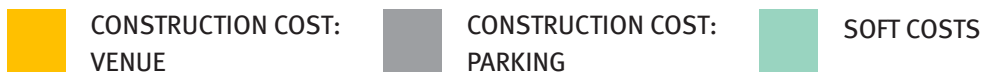
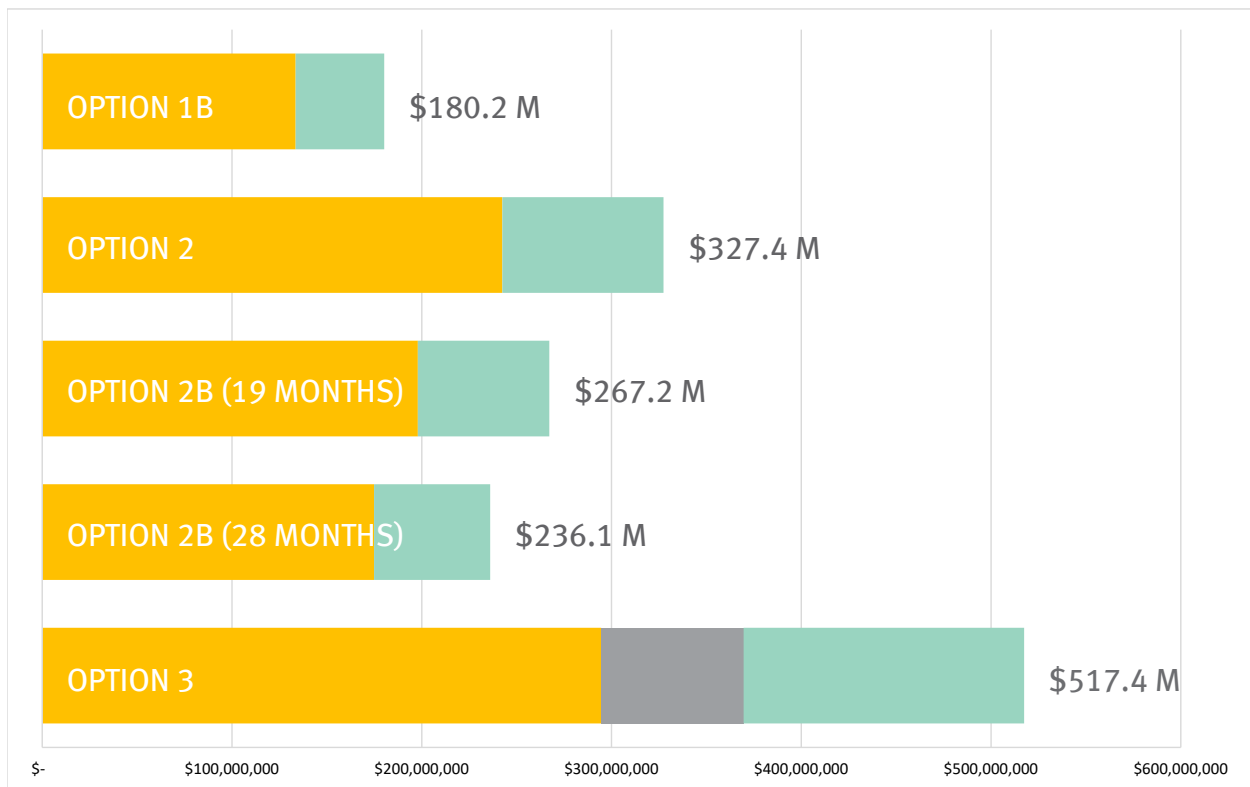
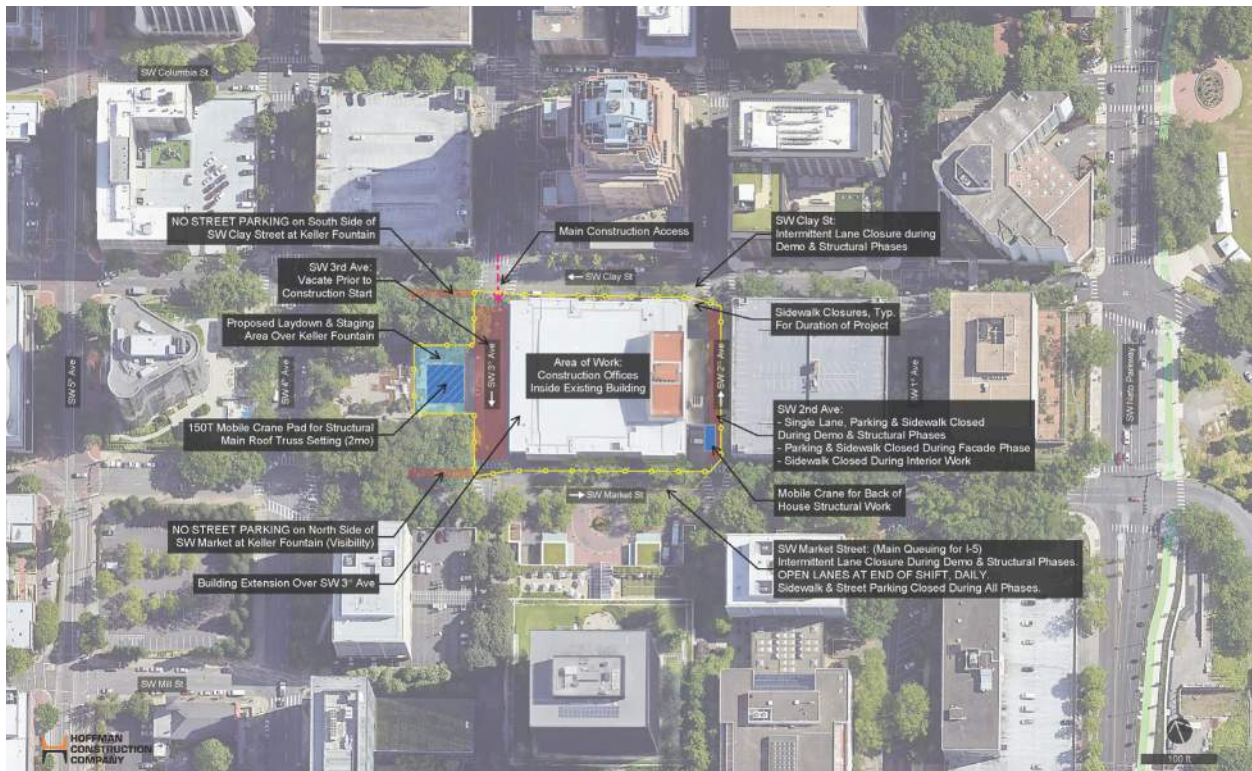


Exhibit: Overall Funding Comparison

SITE LOGISTICS

A comprehensive logistics plan is critical to the success of projects within an urban environment. Our goal is to develop a plan that will minimize impacts to the surrounding businesses and public by utilizing the following strategies:

- The site is bounded on the north and south by SW Clay and SW Market. These streets are main arteries for I-5 access, and considerations have been made regarding the location of the project fence line.
- Clear sightlines for vehicles, bikes, and pedestrians are key safety aspects during construction. The site logistics plan includes closing SW Third Avenue to use as the project site's main construction entrance and exit. On SW Clay and SW Market, the sidewalks and adjacent parking lane will be closed.
- During the structure phase, SW Clay and SW Market will be required to have the adjacent traffic lane closed for public safety. Along SW Second Avenue, the sidewalk and western traffic lane will also be closed for public safety and project access.
- A mobile crane will be staged off SW Third Ave and into the Keller Fountain Park during the demo and structure phases. Coordination with Portland Parks & Recreation and Halprin Landscape Conservancy will be required.
- A small mobile crane will also be used along SW Second Avenue during the structure phase.



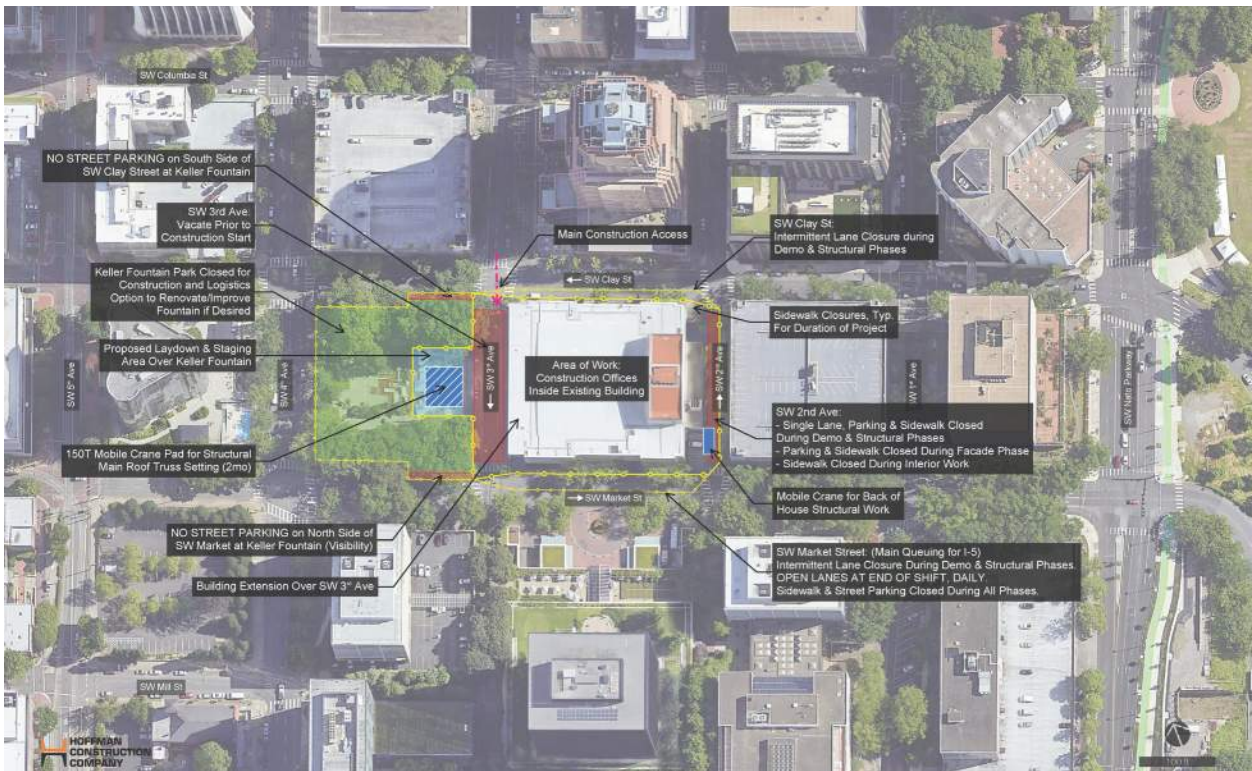
Site logistics plan condensed area



Renderings: Initial site logistics and staging

Alternate Option

The existing Keller Auditorium extends to the sidewalks on all sides of the block. This allows for very little laydown space and access for construction activities. We see an opportunity to utilize the Keller Fountain Park as a staging and laydown area. By fencing it in and including it in the overall project site, a larger public presence is created and allows for the unveiling of an improved Keller Auditorium and a revitalized Keller Fountain Park. Additional discussions with Portland Parks & Recreation would be required, but this option provides a chance to perform any needed maintenance or improvements to the park during the renovation of the Keller Auditorium.



Site logistics plan alternate option

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7. Project Impacts & Next Steps

NEXT STEPS

Building on the findings of this conceptual design and feasibility study, the design team has identified several supplemental tasks that will establish a comprehensive set of information for Portland City Council to consider in their decision-making process. The next step in the process will be focused on planning for equity and community engagement and comprehensively evaluating the economics of and funding for creating a state-of-the-art, 21st-century performance venue at the Keller Auditorium. Additionally, it is recommended that the entitlement process for the proposed rehabilitation and expansion project be further vetted with the City of Portland. Specifically, the proposed effort for the October 2023 through April 2024 timeframe is summarized as follows.

Equity

Meaningful community engagement is critical to the success of the project. The next steps in the equity and inclusion process will be to: establish the level of engagement and a transparent decision-making protocol; identify participants, with a particular emphasis on communities that have been historically excluded; and hold initial informational sessions with these groups to discuss what an equitably designed and inclusive Keller Auditorium could look like from a variety of community perspectives.

Economics

Beyond the projected hard construction costs and other project-related soft costs included in this report is a larger economic picture of a revitalized Keller Auditorium. To give City Council greater confidence in their decisions regarding the Keller Auditorium, the design team recommends a comprehensive economic analysis of the proposed rehabilitation and expansion project be completed, including at a minimum:

1. The economic impact of a fully modernized Keller Auditorium on downtown Portland, the city as a whole, the Portland region, and beyond;

2. The economic impact of a fully modernized Keller on nearby downtown Portland facilities such as hotel nights generated and parking and restaurant revenue;
3. A comparative economic analysis of a revitalized Keller versus a new venue elsewhere in Portland;
4. The potential economic harm to the core of downtown Portland if the Keller is fully closed; and
5. The economic impact of the temporary shutdown of the Keller during construction of the improvements.

Project Funding

As part of the next steps, we recommend that the City of Portland conduct an analysis of potential public sources of funding for the rehabilitation and expansion of the Keller Auditorium as well as the addition of a new performing arts facility located elsewhere. This effort should consider all public sources of funding (local, regional, state, and federal) as well as potential funding from philanthropic sources.

It is anticipated that the rehabilitation and expansion of the Keller Auditorium will attract substantial philanthropic support as a result of many decades of broad community attachment to the facility, its physical relationship to Halprin's internationally renowned masterwork of the Keller Fountain, and its location, embedded in the core of downtown Portland.

Based on the accelerated schedule Option 2B, overall funding needs are estimated at \$267.2M for the rehabilitation and expansion of the Keller Auditorium with construction starting in 2027.

Overall funding needs for Option 3 are estimated at \$517.4M for a new facility with structured parking starting construction in 2029. This figure does not include land acquisition.

Engagement

Over the past several months, the Marking Keller Group and design team have held meetings with many of the stakeholders of the project, which included some of the public entities that will be involved in the entitlement process. Further engagement with all of the public entities will be required, including but not limited to the following:

- **Parks and Recreation and Spectator Venues:** Ongoing engagement with Parks and Recreation as well as Spectator Venues relating to any proposed improvements with the Keller Fountain Park and Keller Auditorium property lines, respectively.
- **Bureau of Development Services (BDS):** Coordination with BDS to determine the requirements of the land use process.
- **Bureau of Planning and Sustainability (BPS):** Further engagement with BPS to establish how the City Green Building Policy requirements will impact this project.
- **Portland Bureau of Transportation (PBOT):** Ongoing engagement with PBOT related to the proposed encroachments into and vacations of the SW Second and Third Avenue rights-of-way. The project traffic engineer will help scope the required traffic impact analysis.
- **Urban Forestry:** Discuss the required street tree removals and replanting.
- **Bureau of Environmental Services (BES):** Coordination with BES regarding stormwater points of connection and stormwater management requirements.
- **Portland Water Bureau (PWB):** Engagement to understand system impacts of removing the SW Third Avenue water main and determining if replacement is required.

Entitlement

Early Assistance Meeting

To more fully engage City of Portland bureaus and departments in this planning effort, an Early Assistance meeting should be conducted. This will provide an opportunity for the design team to review the fundamentals of the proposed rehabilitation and expansion project with city agencies such as Bureau of Development Services, Bureau of Planning and Sustainability, Bureau of Transportation (PBOT), Urban Forestry, Bureau of Environmental Services, and the Water Bureau. The responses received from these regulatory stakeholders will be valuable in demonstrating the feasibility of achieving approval for the proposed improvements and giving City Council greater certainty in their decision-making process.

Street Vacation / Encroachment

While the design team has received favorable feedback on the proposed project to date, gaining approval from PBOT and other city agencies on the proposed right-of-way modifications – particularly at Second and Third Avenues – will require a detailed traffic study. The design team recommends commissioning such a study to quantify traffic counts, broad traffic patterns in the neighborhood, the trips generated by the modernized venue, and the specific traffic pattern changes expected by the narrowing and closure of adjacent streets.

Design Advice Request

Because of the scope and scale of the proposed Keller alterations, the project will ultimately require a Type III Land Use approval, which is processed through a public hearing with the City of Portland Design Commission. Acquiring early feedback on the proposed design from the Design Commission will be valuable in demonstrating the feasibility of ultimately achieving the Commission's full approval for the project and giving City Council greater

certainty in their decision-making process. As such, the design team recommends scheduling a Design Advice Request (DAR) – a type of design dialogue prior to submission of a land use application – with the Design Commission. Members of the public would also be able to comment on the design proposal at the DAR hearing. The proposed interventions into the National Register-listed Keller Fountain Park may prompt a joint DAR including both the Design Commission and the Historic Landmarks Commission.

Establish Community Engagement Goals and Equitable Process

This report has established that the revitalized Keller Auditorium should be a safe and welcoming place for people of all abilities and backgrounds to enjoy performing arts. In full transparency, engagement for the project to date has not yet extended into the broader community. As such, meaningful engagement should be a priority for the next phases, because an equitable process is critical to project success. This type of engagement will require:

- Establishing a level of engagement early to be transparent about who makes what decisions.
- Identifying participants, particularly seeking people of color and differing abilities who have been historically excluded from similar processes.
- Creating a schedule that allows enough time to build trust with these diverse communities, respectfully integrate their feedback, and clearly communicate the impact of this feedback on the decision-making process.

But equity for the project must reach beyond engagement during design phases. Instead of perpetuating or ignoring past harms done to people of color and differing abilities through exclusionary practices, the project should support a diverse network of regional partners who can contribute to the shared future of the Keller Auditorium, centered around healing community divides through

performing arts. The project should also invest its resources in the growth of diverse vendors and trade partners, who can build the stage for this shared future using thoughtful construction and procurement strategies. Through these next steps—engaging meaningfully, supporting diverse regional partners, and investing in equity—this project has the potential to create a lasting, positive impact in the community.

Fountain Programming

A current five-year Stewardship Agreement between the Halprin Landscape Conservancy (HLC) and the City of Portland, through Portland Parks & Recreation, recognizes the HLC mission to activate, educate, and protect the Portland Open Space Sequence comprised of the Keller Fountain, the Lovejoy Fountain, the Source Fountain, and Pettygrove Park.

The HLC Board of Directors shares the management responsibilities of the public spaces within the Portland Open Space Sequence with Portland Parks & Recreation. This responsibility includes management of cleaning, maintenance, and activation of the open spaces within the Open Space Sequence.

The renovation plan envisions the creation of a neighborhood destination that strengthens the connection of the Keller Auditorium and the Keller Fountain through the development of a programmable community plaza located on SW Third Avenue. Discussions to date have identified the collaborative programming possibilities in support of this vision. Further discussions will address the current Keller Auditorium management structure, the Keller Fountain Management structure and the new management structure of the community plaza toward the comprehensive management goals.

Exploration of Temporary Venue

The Keller Auditorium is currently the only venue in the metropolitan area that has the seating capacity, stage area and support spaces for Broadway-scale productions. Through stakeholder meetings, the idea emerged for a temporary performance venue that would serve as a base for Broadway in Portland, Portland Opera, Oregon Ballet Theater, and other local and touring shows during the Keller construction phase.

Through its work on the ABBA Voyage Arena in London, STUFISH has experience with design of a demountable and movable temporary theater. If a suitable site can be identified, a similar structure could be considered as an interim performance solution. Once Keller construction is complete, the temporary structure could be disassembled, sold, moved, and repurposed by another municipality. Additional study will be required to determine the feasibility of this option.



The appendix includes a full case study describing STUFISH's award-winning ABBA Voyage Arena, a temporary facility in London.

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