# PHASE 2 OPTIONS FOR VERTICAL EXPANSION

## GLENDORA PUBLIC LIBRARY

### CITY OF GLENDORA

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# PHASE 2: OPTIONS FOR VERTICAL EXPANSION: Glendora Public Library

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## 1.0 EXECUTIVE SUMMARY

At the request of the City of Glendora, the Project Team has completed a feasibility study for vertical expansion of the existing Library building. The feasibility study was divided into two phases. The first phase involved in-depth structural analysis and material testing of the existing Library structure to provide an understanding of the current condition of the building and any repair or strengthening work required to meet the City's continued use and seismic resiliency goals. The second phase involved the evaluation of the feasibility of vertical expansion of the building while simultaneously working with Library stakeholders to identify the intended use of the expanded space and anticipate the activities that will take place there.

In Phase 1 it was determined that the building satisfies the seismic performance objectives stipulated by the 2022 California Existing Building Code and ASCE/SEI 41-17 for both existing structures, with the exception of wall anchorage upgrade needs at the wood-framed high roof levels. However, the structural analysis unexpectedly revealed that although the structure has demonstrated its ability to support daily sustained service loads for the past 50 years, some existing girders and pad footings do not satisfy current building code provisions for gravity design when considering the original stated design live load of 100 psf. Full details on the analysis, conceptual repair and strengthening recommendations, and considerations for the continued use of the Library are documented in the Phase 1 report.

Phase 2, led by the architectural consultant, Pfeiffer, a Perkins Eastman Studio, involved a series of seven workshops between March and June 2023. The workshops were attended by representatives from the Library, Board of Library Trustees, GPL Friends Foundation, City Manager's office, and Public Works Department, as well as members from MHP and the Pfeiffer team. Through the workshops, the Library's vision and objectives for the future expansion/addition were validated and refined. Four potential options, summarized below, were determined to be feasible and were developed to a conceptual level for comparison and rough order-of-magnitude cost estimation.

- **Option 1:** Complete structural strengthening and repairs only as described in the Phase 1 report. This option serves as a baseline, where the existing water intrusion issues are mitigated, and plaza framing is structurally strengthened to provide the building envelope and load-carrying capacity intended by the building's original design.
- **Option 1a:** Complete structural strengthening and repairs and additionally provide architectural enhancement to the plaza deck through a combination of strategically-located new hardscape and green roof features.
- **Option 2:** "The Deck" concept. Expand the facility by constructing a second story over the plaza deck, with a green roof on top of the new addition, and expansion toward Glendora Avenue. Option 1 work is also completed.
- **Option 3:** "The Paseo" concept. Expand the facility through an extension towards Glendora Avenue and south toward the Police Station, including the creation of a new two-story entrance lobby at Glendora Avenue. Option 1a work is also completed.
- **Option 4:** Construct a completely new facility at a to-be-determined site.

The concept development process, diagrams of each concept, and critical architectural, structural, mechanical, electrical, and plumbing considerations for each option are described in detail within the report and appendices. It is important to note that the concept diagrams are intended to broadly convey the configuration of building massing

and positioning within the existing site – detailed design elements such as windows, doors, finish materials, etc. are not represented in the concept diagrams. Development of the preferred concept will be completed as part of the future design phase.

Initial area allocations are discussed. Flexibility and adaptability of the future Library building and potential expansion are key elements of the Library's vision, however, initial area allocations were defined in order to facilitate a meaningful evaluation of the structural needs and feasibility of an expansion of the Library building for this study. These initial allocations are estimates, forecasted in time for the opening of a new or newly remodeled facility, and may continue to evolve as the project moves forward into future design phases and beyond.

Hard construction cost estimates were generated for each option based on the design concepts and conceptual narratives developed by the Project Team and assuming a September 2024 start date. Soft costs, including design consultant fees, plan-check and permit fees, etc., would be in addition to the budgetary numbers provided in the cost estimate. Hard construction cost estimates are summarized below:

| SUMMARY OF ESTIMATED HARD CONSTRUCTION COST AND SCHEDULE | | | |
|---|---|---|---|
| **OPTION** | **DESCRIPTION** | **CONSTRUCTION DURATION** | **ESTIMATED HARD CONSTRUCTION COST (ROM)** |
| 1 | Baseline structural strengthening and repairs only | 6 months | $2.9M |
| 1a | Option 1 plus plaza deck hardscape/green roof | 6 months | $3.2M |
| 2 | "The Deck" concept | 12 months | $20.6M |
| 3 | "The Paseo" concept | 12 months | $23.0M* |
| 4 | New building | 18 months | $42.7M |

**includes $0.3M for plaza hardscape and green roof features*

These 4 options offer different approaches to achieve project goals at a broad, conceptual level. Further evaluation and detailed consideration will be required in the future to determine the most suitable course of action. Ultimately, once a preferred approach is identified, complete design and construction documents must be developed for the selected option.

Conceptual diagrams, construction cost estimates, mechanical, electrical, & plumbing assessment report, and workshop slide decks are provided as Appendices to this report.

## 2.0 PURPOSE AND SCOPE

The overall purpose of the project is to provide an understanding of the existing structural properties of the library building, including any repair or strengthening needs, and to evaluate the feasibility of a potential second-floor expansion. Using the findings, the City may objectively weigh the options and determine the optimal path forward for their needs. The project scope included structural analysis, material testing, geotechnical studies, development of conceptual structural plans, professional construction cost estimates, and documentation of findings in this report.

While structural considerations are a necessity for any construction project, they assume a humble and supporting role in the larger context of the building's purpose and experience. A critical purpose of Phase 2, led by the architectural consultant, Pfeiffer, a Perkins Eastman Studio, was to begin to bring into focus the City's vision for the future of the Library building and its place within the civic center. Concept diagrams were developed representing potential options for addition/expansion of the library building. It is important to note that the concept diagrams are only intended to broadly convey the configuration of building massing and positioning within the existing site – detailed design elements such as windows, doors, finish materials, etc. are not represented in the concept diagrams. Development of the preferred concept will be completed as part of the future design phase.

Mechanical, electrical, and plumbing systems were also evaluated to assess current maintenance or repair needs, and concepts were developed for modifications required in support the addition/expansion.

# 3.0 PHASE 1 SUMMARY & STRUCTURAL IMPLICATIONS FOR PHASE 2

## 3.1 Phase 1 Summary

In phase one it was determined that the building satisfies the seismic performance objectives stipulated by the 2022 California Existing Building Code and ASCE/SEI 41-17 for existing structure, with the exception of wall anchorage upgrade needs at the wood-framed high roof levels.

However, the structural analysis unexpectedly revealed that although the structure has demonstrated its ability to support daily sustained service loads for the past 50 years, some existing girders and pad footings do not satisfy current building code provisions for gravity design when considering the original stated design live load of 100 psf. If subjected to the 100 psf live load stated on the original design drawings, several main concrete girders would be overstressed due to torsion, and soil bearing pressures underneath the existing pad footings supporting the interior concrete piers would marginally exceed the allowable soil bearing pressure.

A conceptual repair and strengthening design was developed which would replace the existing plaza waterproofing membrane, and bring the plaza framing into conformance with 2022 CBC requirements. Repair work consists of the replacement of the plaza topping and waterproofing membrane. Strengthening work includes the addition of fiber-reinforced polymer overlay of existing concrete beams and girders to provide additional bending, shear, and torsional strength. Hard construction cost for the repair and strengthening is estimated to be $2,867,266 and assumes that the library building will be closed for the approximately 6-month construction duration. It is recommended that a project budget of $4.0M be considered for this work. It is anticipated that the strengthening scope may reduce somewhat as this conceptual design is further developed in future design phases.

Full details on the analysis, conceptual repair and strengthening recommendations, and considerations for the continued use of the Library building are documented in the phase one report.

## 3.2 Structural Implications for Phase 2

In the absence of an addition, alteration, or other circumstance which triggers the requirement for mandatory strengthening in accordance with the 2022 California Existing Building Code the strengthening and repair work may be pursued on a voluntary basis and should be considered a high priority for inclusion in any future major improvement of the building.

However, vertical expansion, which is the subject of this feasibility study, would trigger mandatory strengthening of gravity load-carrying elements which support new loads, including foundations. Depending on the scope of the addition or alteration, mandatory seismic evaluation and potential strengthening may also be triggered for some or all existing lateral force-resisting elements. The impacts of this trigger were evaluated as part of Phase 2, and the existing structure was confirmed to comply with the ASCE 41-17 Basic Performance Objective Equivalent to New Building Standards (2022 CEBC “Full Seismic Forces”), therefore no global seismic strengthening will be needed if triggered by the expansion, however, local elements seeing increased seismic forces due to the expansion will require strengthening to resist the new loads. This impact is included in the concepts presented herein.

The strengthening and repair work identified in Phase 1 may easily be adjusted to accommodate limited enhancements to the plaza level (such as the addition of hardscape, planters, or green roof features) at relatively modest additional cost through the application of additional layers of fiber-reinforced polymer overlay.

## 4.0 PHASE 2 CONCEPT DEVELOPMENT PROCESS

The project was initially launched to conduct a thorough structural analysis, evaluating the existing Library building's structural integrity and capacity and to determine if it could feasibly accommodate vertical expansion. Simultaneously, it was crucial to determine the intended use of the expanded space. Phase 2 of the project, led by Pfeiffer, a Perkins Eastman Studio, focuses specifically on identifying the intended use of the expanded space and anticipating the activities that will take place there.

Pfeiffer conducted a series of seven workshops between March and June 2023, which aimed at validating and refining the Library's vision and objectives for the future expansion/addition.

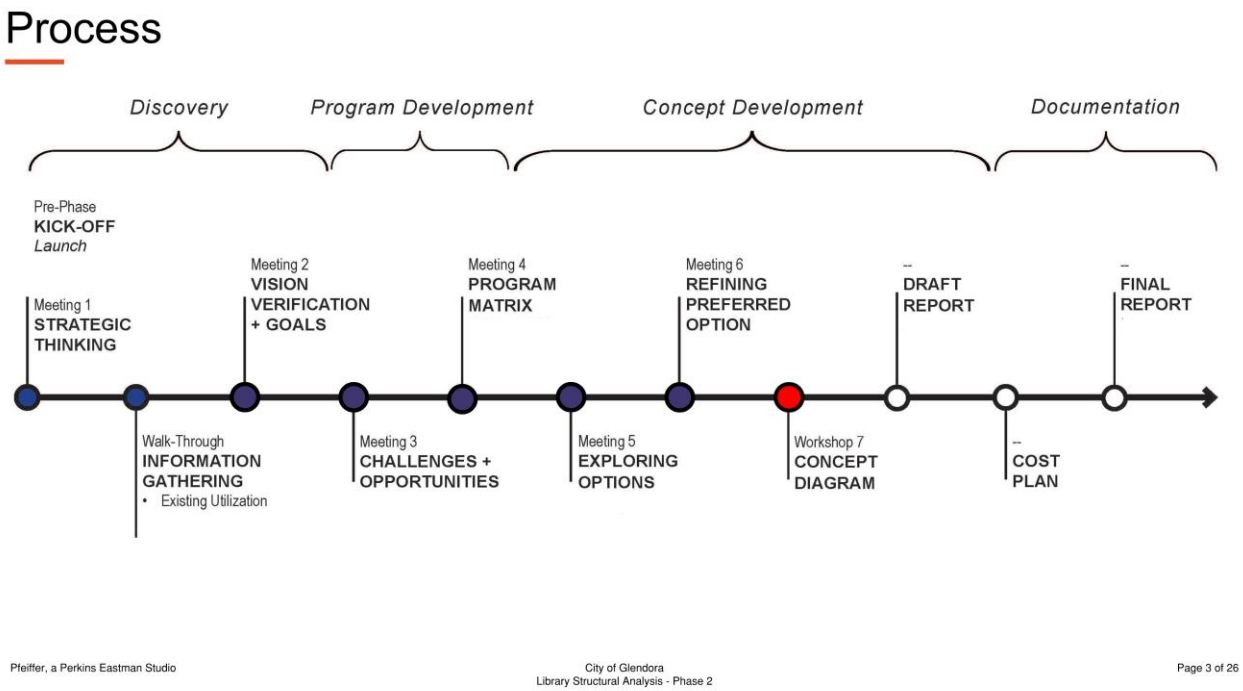



*Figure 1 - Process Diagram from Workshop Slide Deck*

The workshops were attended by representatives from the Library, Board of Library Trustees, GPL Friends Foundation, City Manager's office, and Public Works Department, as well as members from MHP and the Pfeiffer team. The presence of multiple perspectives greatly enriched the conversations, helped ensure that occupants of the current building spaces were part of the discussion, and proved to be valuable.

### 4.1 Vision Verification

#### *Service Philosophy*

The main goal of the library is to prioritize flexibility in order to meet the **changing aspirations and evolving needs of the community**. Janet Stone, the Library Director, provided an explanation of the library's service philosophy and presented the eight tenets of its strategic framework, which are: Proximity, Human Development, Physiology, Preservation, Organization, Protection/Availability, Interpretation/Context, and Sustainability.

### *Meeting the Community's Needs*

The discussion regarding right-sizing the expansion or addition considered the City's current population and future projections based on the 2020 US Census estimates. Upon examination of the per capita library area, it became evident that the size of the library had not kept pace with the growing population. As a result, the per capita library space has decreased and currently ranges around 0.6 square feet per person. In order to adequately meet the needs of the community in the current digital age, it is crucial for library buildings to be properly sized, which often involves making them larger. This adjustment is necessary to ensure the provision of a high-quality level of service, particularly when it comes to electronic information access. Considering the projected population and the per-capita square footage allocation, the library expansion is expected to fall within the range of 45,000 to 52,500 gross square feet.

At the same time, we also recognize that standards, benchmarks, and best practices are merely a starting point. The library must be shaped by its community and offer unique environments tailored to meet the specific needs of the local residents, while promoting discovery, creativity, and engagement.

When participants described the desired outcomes and objectives for this study, the **shared vision** was to create an exciting place with ample learning opportunities, positioning the library building as a civic center that will serve the community's needs for the next 50 years. The goal is to provide a responsive space that aligns with the community's aspirations and to establish the library building as a cultural center.

In general terms, libraries require additional space to enhance their current operations and accommodate activities that are currently limited due to insufficient or inadequate space. When considering the potential uses for additional space, we explored the practices and initiatives implemented by other libraries to broaden our perspective on what could be feasible.

Pfeiffer delivered an environmental scan of public libraries with the purpose of offering insights into potential paths for growth and future services. The presentation featured a variety of examples from different libraries, showcasing their varying sizes, types, and geographic locations. The intention was to highlight how these libraries have successfully utilized their spaces to meet the needs of their specific communities in the following areas:

- **Co-Working**: Creating shared workspaces to facilitate collaboration and productivity.
- **Learning/Studying**: Providing resources and conducive environments for educational pursuits and academic endeavors.
- **Skilling**: Offering opportunities for individuals to acquire new skills and enhance their existing abilities.
- **Discovering**: Promoting exploration and discovery through access to a diverse range of materials and resources.
- **Making**: Supporting hands-on activities and providing spaces for individuals to engage in creative and practical projects.
- **Creating** (tech arts): Fostering the development of artistic and technological skills, enabling individuals to express themselves creatively.
- **Gaming**: Catering to the gaming community by offering gaming spaces and resources for recreational purposes.
- **Sharing**: Facilitating knowledge exchange and collaboration among community members through platforms and programs.
- **Playing**: Providing spaces and resources for recreational activities and fostering a sense of playfulness.

- **Chilling**: Creating comfortable and inviting spaces for relaxation and leisure activities.

This exploration served to broaden the scope of envisioning possibilities beyond conventional library services and spaces, with a focus on the wide range of activities (rather than the User groups) while keeping in mind the diverse needs and interests of the community. Envisioning a public library as a vibrant hub may include the incorporation of various activities such as pop-ups, a culinary kitchen, a tinkering garage, a garden, and art trucks. Moreover, it opens up the potential for a public library to become a center for learning, offering opportunities such as a language center, makerspaces, and a tech arts lab. Additionally, it can evolve into a civic and cultural center, accommodating amenities like a café or coffee cart, a community gallery, a business and career center, a social services center, and a dedicated space to showcase local history and archives.

### *Flexibility is key*

During the discussion, the focus shifted towards finding a balance between providing customized experiences through dedicated spaces for specific activities and creating multi-purpose ("black-Box" type) areas that allow for future flexibility.

The library's physical environment must reflect the values and priorities of its community. For Glendora public library "i**ntentional service makes the world of ideas accessible**"**.** To this end, and to the extent possible, the Library wants a "black-Box" concept – in other words: a setting that will allow for unlimited flexibility to accommodate evolving needs of their community, stay responsive, adapt, change quickly and as needed. This customization will empower the library staff to effectively meet the diverse needs of their customers.

## 4.2 Functional Analysis

The functional analysis consolidates all the knowledge accumulated thus far regarding the library and assesses the building's potential for expansion to accommodate new programmatic elements. During Workshop #3, the architectural and engineering (A&E) team presented the study's findings from the analysis conducted up to that point.

### *Structural*

**MHP Structural Engineers** have summarized the findings of the ongoing structural evaluation process as follows: Phase 1 aimed to establish the baseline by conducting material testing, geotechnical site classification, and seismic evaluation. Phase 2 focuses on assessing the feasibility of any additions or modifications to the structure and conceptually defining the structural elements and strengthening required to support the new additions or modifications.

A summary of Phase 1 findings and their implications for Phase 2 are discussed in Section 3.0 and the Phase 1 report. Structural work during Phase 2 included an additional comprehensive seismic evaluation of the existing Library building following the same evaluation and retrofit standard, ASCE 41-17, but using a heightened seismic Performance Objective as would be required by the 2022 CEBC when triggered due to a substantial structural alteration, such as the addition of a second story or a structurally-connected addition.

For the purposes of the mandatory evaluation, the ASCE 41 Basic Performance Objective equivalent to New Building Standards (BPON) was selected. This two-level Objective stipulates the same Structural Performance Levels but compares them to increased Seismic Hazard Levels.

In order to meet the ASCE 41 BPON, an existing Risk Category III structure must satisfy both:

1. **"S-2" Damage Control** Structural Performance Level when subjected to the **BSE-1N Seismic Hazard**.
2. **"S-4" Limited Safety** Structural Performance Level when subjected to the **BSE-2N Seismic Hazard**.

2022 CEBC Table 304.3.1, which stipulates the required Performance Objective for "Full" seismic forces, is shown below:

**[BS] TABLE 304.3.1**
**PERFORMANCE OBJECTIVES FOR USE IN ASCE 41**
**FOR COMPLIANCE WITH FULL SEISMIC FORCES**

| RISK CATEGORY (Based on IBC Table 1604.5) | STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1N EARTHQUAKE HAZARD LEVEL | STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2N EARTHQUAKE HAZARD LEVEL |
|---|---|---|
| I | Life Safety (S-3) | Collapse Prevention (S-5) |
| II | Life Safety (S-3) | Collapse Prevention (S-5) |
| III | Damage Control (S-2) | Limited Safety (S-4) |
| IV | Immediate Occupancy (S-1) | Life Safety (S-3) |

*2022 CEBC Table 304.3.1*

The existing building has substantial reserve seismic capacity, and it was confirmed that existing structure satisfies with the ASCE 41-17 BPON, therefore no global seismic strengthening will be needed if triggered by the expansion, however, local elements seeing increased seismic forces due to the expansion will require strengthening to resist the new loads. This impact is included in the concepts presented herein.

### *Architectural & Programmatic Utilization*

**Pfeiffer** conducted a baseline analysis of the current (April 2023) programmatic space utilization to assess the anticipated impact of a renovation on the current spaces and services.

In terms of overall space utilization, the 27,455 ASF facility confirms that approximately 78% of the library areas are located on the first floor, while the upper level accounts for 22% of the total space.

Regarding the entry sequence experience, Pfeiffer found that the approach to the building is hindered by its opacity. There is no visibility of the activities happening inside, and the small entries are shaded, resulting in a dark appearance during the daytime. Furthermore, the lack of wayfinding clues makes the entry process non-intuitive. The façade facing Glendora Avenue presents a solid wall, and the corners closest to the sidewalk, although they appear as entries, are not actual entrances. This deceptive design causes confusion among visitors.

However, once inside the building, the experience is entirely different. The space becomes welcoming and inviting, with well-attended service points greeting visitors. Clear and easily readable signage, along with adequate lighting, creates a sense of clarity, orderliness, and calm. Resources are effectively displayed, accompanied by information on how to utilize them, empowering visitors to engage with the resources independently, should they prefer not to seek assistance from others or staff.

Pfeiffer identified several areas where the existing environment fails to meet current codes, highlighting the need to address these issues during the renovation process. One notable issue is the vertical circulation, where the stair to the upper floor is clearly visible from the main entry doors, but the elevator is not. This poses a challenge for individuals with mobility limitations, but can be easily addressed with proper signage. Additionally, the stair's handrail and guardrail do not meet the current code requirements. There are also doors that lack sufficient swinging clearance.

The electrical connectivity in the building is inadequate, with a shortage of electrical outlets. The existing outlets are wall-mounted, making it challenging to provide power to open-plan areas located away from the walls. Consequently, service-points are awkwardly placed either near the available outlet but away from where they are most needed, or with floor-mounted channels covering cords and wires.

Temperature control and ventilation pose challenges, primarily affecting the staff offices, which were constructed with a storefront-type enclosure without adjusting the mechanical system. As a result, the system does not effectively regulate the temperature and ventilation in those areas.

Water leaks have been a persistent issue since the library's opening, particularly under the Plaza, resulting in stained walls and floors, as well as corrosion of some window frames. The affected areas are often covered with plastic or taped off, limiting the library's ability to provide service to the community.

The lighting systems, including fixtures and controls, are outdated and require an upgrade.

In the northeast portion of the floor, the arrangement of collection shelving and patrons' carrels obstructs sightlines and can present challenges or triggers for some visitors. A simple adjustment to the layout can rectify this issue.

The library staff workplace is small, overcrowded, and lacks natural daylight. Moreover, there is a clear shortage of storage space for the various items that support the library's range of activities, services, and programming, including summer reading materials and promotional items.

### *Mechanical, Electrical, & Plumbing Infrastructure Considerations*

Assessment of current and future needs for MEP systems was provided by P2S, Inc.

The HVAC system at Glendora Library utilizes a mix of hydronic systems and standalone DX packaged and split AC systems. The equipment comprises a combination of original components, replacements, and additions made throughout the years. Moreover, a separate system serves the newly constructed west-side library addition. To accommodate the planned expansion, the existing system capacity will require expansion.

The Library's electrical system covers both its facility, and the neighboring City Hall and Police station, with a central 480Y/277V switchboard 'MS'. This electrical system includes two paralleled, standby power generators for backup on utility power loss. The library's remaining electrical infrastructure has changed little from the original 1970s design. Fluorescent lamp fixtures and receptacle coverage are consistent, with mechanical systems having a few more upgrades in the interim. The proposed additions and alterations will necessitate expanding the electrical equipment and devices, correcting several deficiencies, and tentative remodels of existing spaces.

Plumbing conditions consists of the domestic water system, comprised of copper piping served by tankless water heaters, and a small electric water heater serving the mop sink. Sanitary drainage system materials could not be confirmed but are anticipated to consist of cast iron piping. Natural gas is used serving the space conditioning equipment and consists of steel pipe. To support an addition/expansion,

Full documentation of MEP findings and recommendations are provided in the MEP report in Appendix C.

## 4.3 Prioritizing Goals

The Library has refined its vision and space utilization for a 50,000 Gross Square Feet (GSF) building based on Functional Analysis, visioning discussions, and research. The Library Director aims to avoid labelling specific services to ensure a responsive and adaptable building. Instead, the focus is on categorizing spaces based on different human activities. Flexibility and adaptability of the future Library building and potential expansion are key elements of the Library's vision, however, in order to facilitate a meaningful evaluation of the structural needs and feasibility of an expansion of the Library building for this study, initial area allocations were defined. These initial allocations are estimates, forecasted in time for the opening of a new or newly remodeled facility, and may continue to evolve as the project moves forward into future design phases and beyond.

Initial area allocations have been determined through a combination of input, research, and the Director's experience. The allocations include customer-driven workspaces, open-format public assembly spaces, library-mediated public workspaces, fulfillment center services, a physical content showroom, leisure spaces, service points, specialized storage and technology access, and infrastructure. The library envisions a planning paradigm that prioritizes activities rather than individuals or groups, ensuring a flexible space to accommodate a range of human endeavors.

The Library's initial area allocations for the purposes of the structural feasibility study are defined as follows:

| | |
|---|---|
| 13% | Customer-Driven Workspaces |
| 12% | Public Assembly Spaces |
| 10% | Library-Mediated Public Workspace |
| 9% | Fulfillment Center Services |
| 8% | Small Private / Semi-Private Spaces |
| 8% | Physical Content Showroom |
| 6% | Leisure Spaces – Relaxation |
| 4% | Library Services |
| 5% | Additional Library Services and Capacity Including: Preservation/Archival storage, Public Access Technologies, Food Service, Event Catering |
| 5% | Flexible Future Space: Uncharted Possibilities |
| 20% | Infrastructure |
| 100% | |

Additionally, the future library building will provide outdoor opportunities for various activities, utilizing floor space that is separate from the designated park and garden areas.

Here is a description of how each category of space allocation is envisioned:

### *Customer-Driven Workspaces*

In the future library building, approximately 13% of the building's square feet could be **customer-driven workspaces** – which may serve as an enhanced version of the current main floor seating area.

These spaces could be dispersed throughout the library building, offering individuals a place to bring their materials, technologies, and ideas for short-term project staging. Whether visitors will require a space for education-related deskwork, staging and practicing skills, engaging in creative work, or enjoying in-person gaming experiences, the workspaces will be thoughtfully designed to cater to diverse needs. The multi-purpose furniture and flexible seating provided in these areas can be utilized by patrons to fulfill their aspirations and foster collaborative work with others.

The Library building can serve as a gathering place where individuals will collaborate with others and utilize the tools necessary to achieve their aspirations. It will be designed with flexibility in mind, offering workspaces for the community to bring their materials, technologies, and ideas, while also providing short-term staging areas for project development, regardless of how those projects may evolve in the future.

### *Public Assembly Spaces*

In the future library, approximately 12% of the library building could be dedicated to reconfigurable **public assembly spaces**. Public Assembly spaces in the future library building are dynamic and versatile areas designed for a range of activities. These spaces, referred to as the "third place," offer opportunities for learning, training, discussions, and celebrations. They can be utilized by the community for civic, educational, social, and family needs. These areas can be used for entertainment, cultural events, recreation, social gatherings, meetings, emergencies, play, and various other events. They resemble spaces like Bidwell and the Friends Room known for their adaptability and welcoming atmosphere. They are available for "checkout" or can be rented to accommodate different events and purposes.

### *Library-mediated Public Workspaces*

In the future library building, **library-mediated public workspaces** could make up about 10% of the building's area. These shared workspaces may be open and not private, intended for temporary instructional and exploratory installations. They can be equipped with specialized furniture and equipment for various activities. Individuals can receive instruction, build skills using specific equipment, and engage in collaborative work. The library may offer access to experts and resources to support skill development and learning beyond traditional education. The flexible nature of these spaces will allow for their configuration based on community needs, making them adaptable labs for diverse subjects such as cooking or coding.

### *Fulfillment Center Services*

In the future library building, **fulfillment center services** could encompass approximately 9% of the building. These services may involve the storage, preparation, packing, and distribution of various information objects, including traditional materials like books and potential future innovations such as Li-Fi hotspots. The Fulfillment center can also cater to the storage needs of Libraries of Things, program giveaways, crafts, and more. It could serve as the hub where ideas and information objects, ranging from traditional printed books to future possibilities like Li-Fi hotspots, are packaged and made accessible to the community, potentially even incorporating delivery services for some materials. With a focus on efficient supply chains, these spaces will be flexibly designed to accommodate the technology and expertise required for handling and delivering the library's inventory to the community.

### *Physical Content Showroom*

In the future library building, there could be a **Physical content showroom** comprising of approximately 8% of the space. The showroom may showcase a wide range of physical content, including traditional materials like books, libraries of things, historical treasures, future technologies, works of art, and scientific exhibits. It can be a

combination of a gallery and a bookstore, providing visitors with the opportunity to explore and engage with the diverse range of physical content available.

These Library building spaces can be designed to be flexible, allowing customers to engage with and learn from the physical content on-site. Additionally, some of the materials may be available for borrowing or purchasing to be enjoyed beyond the library's premises.

Visitors to the future library building will have the chance to immerse themselves in a dynamic and enriched environment, where they can browse, discover, and appreciate the diverse range of physical collections, spanning from traditional materials to cutting-edge technology and artistic endeavors.

### *Leisure Spaces - Relaxation*

Approximately 6% of the future library facility could be designated for leisure spaces, dispersed throughout the building. These spaces may be dedicated to relaxation rather than organized or formalized gatherings. They can provide a sense of hospitality and offer comfortable lounging areas for visitors to unwind and chill. These spaces may feature choice of lounge seating, designed to enhance the leisure experience. The Library recognizes the importance of providing spaces for relaxation and rejuvenation amidst the world of ideas, offering a respite from information overload.

### *Service Points & Expertise*

In the future library building, 4% of the building area could be dedicated to **service points**. These areas may serve as identified interface zones where visitors can access staff expertise. The service points could be staffed by both library personnel and, as needed, representatives from city services. They can also address other essential needs, such as curbside assistance and technology support.

Whether you need guidance, information, or connections to help you achieve your aspirations, the expert staff at these service points will be there to assist you. Their expertise will make the world of ideas more accessible, organized, and contextual, ensuring that visitors can easily navigate and benefit from the library's resources.

These service points can be reconfigurable spaces within the library building, providing a centralized location for customers to receive help directly from the knowledgeable staff. Whether through walk-in visits or scheduled appointments, visitors can have access to expertise tailored to their specific needs. Additionally, these service points may serve as a home base for library experts who will extend their support and services beyond the library's walls, both in the community and within the building itself.

### *Additional Library Services & Capacity*

In the future library building, approximately 5% of the area could be dedicated to a range of **additional** essential library **services**. This allocation may include specialized preservation and archival storage, ensuring the long-term safeguarding of valuable materials. Additionally, it may provide public access to vital technology equipment, aiming to bridge the digital divide and promote technological inclusivity within the community. A modest space allocation can accommodate food preparation for specialized events, equipped with the necessary facilities and equipment.

### *Flexible Future Space*

In the future library building, there could be a 5% area dedicated to **flexible future space**. This space could represent a dynamic and adaptable environment that holds immense potential for diverse and unforeseen uses. It embodies the concept of exploring new horizons and embracing innovative ideas.

The Flexible Future Space can serve as a canvas for uncharted possibilities, allowing for creative and evolving utilization based on the changing needs and aspirations of the community. This area would be designed to be versatile and responsive, capable of accommodating a wide range of activities, events, and services.

The Library aims to foster experimentation, collaboration, and discovery. It encourages visitors to push the boundaries of traditional library services and engage in activities that may shape the future of knowledge sharing and community interaction. This space represents an exciting realm of unexplored opportunities, inviting individuals to envision and create their own unique experiences within the library's evolving landscape.

### *Facility Infrastructure*

Approximately 20% of the facility will likely be dedicated to Infrastructure, which will provide for essential components like HVAC systems, environmental installations (such as plants and acoustical features), restrooms, technology infrastructure, and janitorial supplies and storage for capital equipment.

This area allocation will prioritize accessibility installations to ensure inclusivity and accommodate the needs of all visitors. This may involve features such as ramps, elevators, accessible restrooms, and other modifications designed to provide a barrier-free experience for individuals with disabilities.

### *Outdoor opportunities*

In the future library building, there could be a substantial allocation dedicated to outdoor spaces, specifically excluding park and garden areas. These outdoor areas would be carefully designed to cater to a wide variety of activities, representing a new planning approach that emphasizes the diverse range of human endeavors. By embracing an innovative approach, the future library can effectively utilize its outdoor spaces to cater to diverse experiences and adapt to evolving user needs. It may offer engaging activities like sustainable gardening, and educational programming, fostering a dynamic and inclusive environment for hands-on learning and exploration. This integration of outdoor opportunities aims to encourage exploration, foster a connection with nature, and provide enriching learning experiences for all.

## 4.4 Conceptual Program Development

The Library's vision for the renovated/future facility demonstrates its dedication to building a strong operational foundation and fostering an inclusive, functional, and welcoming environment for everyone. It acknowledges the importance of having the necessary framework in place to meet the diverse needs of the community and ensure the seamless delivery of library services. To capture the future planning intent, Pfeiffer developed a project matrix that detailed the space requirements and functions discussed earlier, including approximate sizes and seating capacities.

We then proceeded with a block and stack exercise to explore various possibilities, aiming to utilize the building renovation to address existing deficiencies and shortcomings. Our focus was on leveraging strategic interventions to improve the entry sequence and enhance the overall user experience. We also aimed to optimize opportunities for branding purposes and increase visibility from the street, making the activities within the library building visible and inviting. Additionally, we considered the importance of incorporating daylighting to create a brighter and more welcoming environment. We also carefully considered important factors such as determining the optimal number and placement of service points, evolving approach to collection security, defining areas for public and restricted access, and considering accessibility beyond regular library hours.

## 4.5 Concept Development

Concept Development activities involve exploring various options for the future use and utilization of the Second Story Addition. This process considers the approved space-program document, understanding of the existing facility, functional analysis findings, and the limitations of the existing site.

During the concept development phase, the team explored various options for the future of the facility. This involved examining different renovation approaches, such as massing, scale, proportion, and site relationship, as well as considering structural considerations. The concept development process is iterative and involves evaluating and synthesizing multiple scenarios in close collaboration with representatives from the Library and the City.

These options include:

- **Option 1:** Complete structural strengthening and repairs only as described in the Phase 1 report. This option serves as a baseline, where the existing water intrusion issues are mitigated, and plaza framing is structurally strengthened to provide the building envelope and load-carrying capacity intended by the building's original design.
- **Option 1a:** Complete structural strengthening and repairs and additionally provide architectural enhancement to the plaza deck through a combination of strategically-located new hardscape and green roof features.
- **Option 2:** "The Deck" concept. Expand the facility by constructing a second story over the plaza deck, with a green roof on top of the new addition, and expansion toward Glendora Avenue. Option 1 work is also completed.
- **Option 3:** "The Paseo" concept. Expand the facility through an extension towards Glendora Avenue and south toward the Police Station, including the creation of a new two-story entrance lobby at Glendora Avenue. Option 1a work is also completed.
- **Option 4:** Construct a completely new facility at a to-be-determined site.

These 4 options offer different approaches to achieve the project goals at a broad level. Further evaluation and detailed consideration will be required in the future to determine the most suitable course of action.

The architectural exploration focused on two options: building on the deck (option 2) and building on Glendora (option 3).

### *Planning Principles*

Enhancing usability and creating a walkable and interactive civic space are priorities, and incorporating shaded and greened areas on the flat roofs is crucial. Sustainability is an important focus, considering not only the energy efficiency aspects but also the well-being of occupants and visitors (WELL buildings and FIT matrices).

Flat roofs were studied and found to offer opportunities for elevated plazas and roofscapes, including PV arrays, mechanical equipment, and green roofs.

- For green roof criteria, the team's planning assumption is a balanced 50% hardscape and 50% softscape ratio. The cost model will account for electrical, AV light poles, trellises, PV-trellises options, and emphasize plant selection that requires minimal maintenance or is maintenance-free.
- Transforming the accessible roof decks into versatile spaces for programming aligns with the Library's goals. These outdoor areas will offer engaging activities, such as involving children in planting and tending to a

flowering cutting garden, organizing farm-to-table culinary activities, and providing educational opportunities on sustainable farming practices like seasonal planting and crop rotation.

The massing of the library building is crucial in creating a civic center ambiance and fostering a sense of community between City Hall and the Police Department building. Additionally, the renovation and addition of the library building have the potential to turn it into a teaching facility that showcases the city's sustainability goals.

## 5.0 PHASE 2 "PREFERRED" CONCEPT DIAGRAMS

Two conceptual schemes were refined and developed to meet the specific needs of the City and the Library. These proposals were named "The Deck" and "The Paseo." Both concepts entail the renovation of the existing Friends Room and the construction of a modest addition along Glendora Avenue to address concerns regarding accessibility, and to enhance the Library's presence and visibility along Glendora Avenue.

In the Deck option, a second floor will be added above the existing plaza, while in the Paseo option, the existing plaza will be retained, and a new addition will be constructed to the south, utilizing a small portion of the current library and Police Station parking lot.

Both propose the renovation and expansion of the Library facility with a focus on structural improvements, the creation of appealing outdoor programming spaces, improved accessibility, and enhanced pedestrian connectivity. Additional visual diagrams and discussion of the two concepts is provided in Appendix A & Appendix D.

## 5.1 "The Deck" Concept

The proposed Deck concept entails a combination of renovation and expansion to address structural and waterproofing issues, as well as introduce new elements to improve its functionality and overall appeal.

To accommodate the need for more space, the plan suggests constructing a second story over the existing Plaza deck along with a 2-story addition on the Glendora Avenue side. The second level will be designed with a set-back perimeter on both the Glendora Avenue and city hall sides, allowing for the creation of programmable outdoor areas.

The outdoor roof spaces and new entries will be carefully designed to include shade structures and the integration of green elements. This approach aims to enhance the facility's visual appeal and establish a natural environment for library patrons to enjoy and engage in programming.

These shaded outdoor areas can be equipped with connectivity and AV capabilities, allowing for seamless integration of technology and audiovisual resources in programming. This feature enhances flexibility and enables a wide range of activities and events to take place in these shaded areas.

Recognizing the significance of accessibility, the scheme incorporates the addition of a new elevator and stairwell. This new vertical core will be located at the current site of the light-monitor towers, facilitating seamless movement between different levels of the library building for individuals of all abilities.

While the Deck Scheme offers several advantages, it also presents challenges. Supporting the increased load on the plaza necessitates the installation of additional columns and walls on the first floor, which raises concerns about potential impacts on circulation and the usability of the existing space. Future planning will need to effectively address structural requirements while preserving the functionality of the area, striking a balance between the two.

The Deck Scheme seeks to transform the existing structure into a dynamic and inclusive space that warmly accommodates the needs of all library visitors.

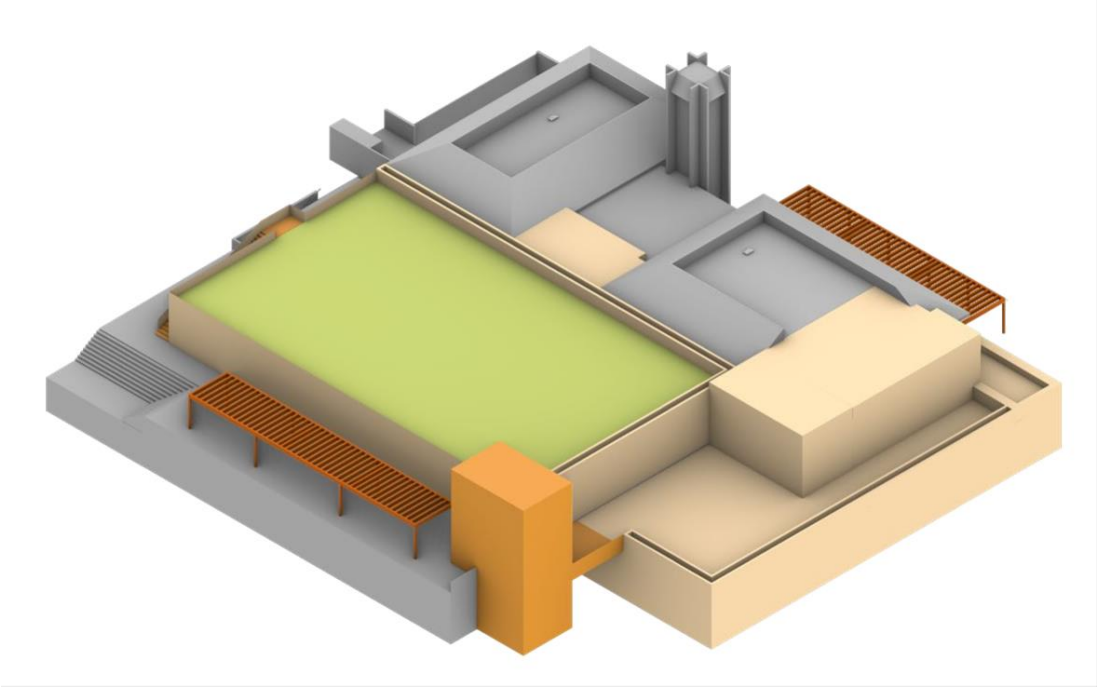


*Figure 2: "The Deck" Massing Diagram, Isometric View*

## 5.2 "The Paseo" Concept

The Paseo Concept focuses on the renovation and expansion of the library building to improve its functionality and overall appeal. It involves a three-part addition, consisting of A, B, and C blocks, with the central B block as the taller Paseo.

Block A, similar to the Deck concept, extends the library building towards Glendora Avenue. Block C is situated to the south and occupies a small portion of the existing library building and Police Station parking lot. Both blocks have a second level that is set back, providing a human-scale experience, rooftop access, and green space.

The Paseo (Block B), is envisioned as an architectural atrium-like space that captures abundant natural light through clearstory windows during the day. It will serve as a radiant lantern during evenings when the library is illuminated. The Paseo may serve as a public lobby, connecting a new library entry from Glendora Avenue to the west entry from the parking lot. The Paseo may offer space for discovery, engaging exhibits, displays, pop-up activities, as well as service points and greeters. It can serve as an identifier/marker for the library and also enhance circulation and intuitive wayfinding, creating a welcoming environment for the community.

The existing plaza will be retained as an open gathering and community space, enriched with a combination of hardscape and a green roof. Importantly, any planters or green roof elements positioned directly above the existing 4-column structure are expected to have minimal to no additional impact on the lower level of the library building.

To promote connectivity and establish a welcoming ambiance, an open-site stair will be incorporated just north of Block A. This feature meant to encourage unrestricted movement between Glendora Avenue, the plaza level, and the parking lot, facilitating pedestrian flow and enabling library visitors to explore and engage with the diverse programs and Library offerings available to them.

An additional advantage of the Paseo Concept is the simplified structural work, as all new additions will have their own structural strength while being tied to the existing structure, minimizing the imposition of additional loads.

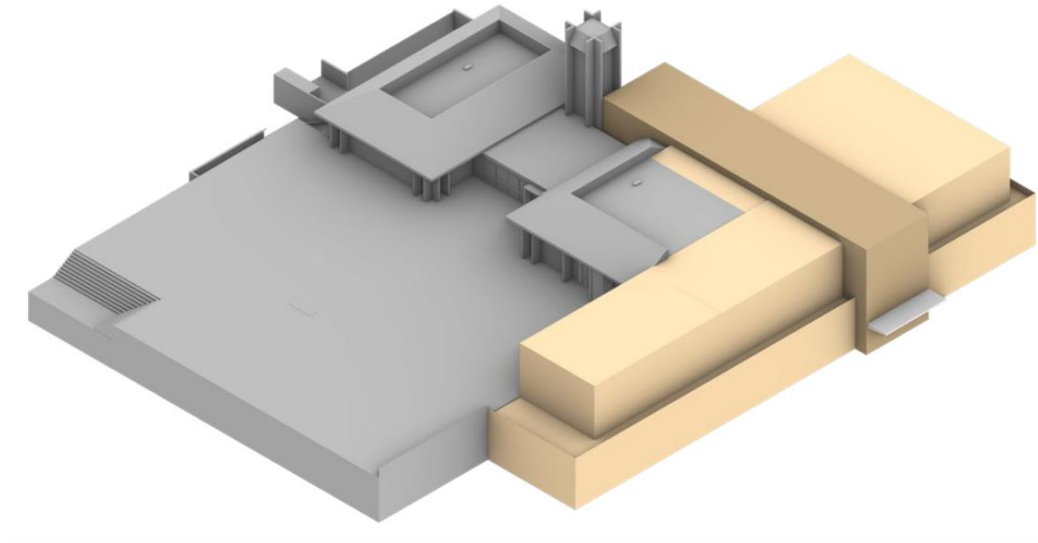


*Figure 3: "The Paseo" Massing Diagram, Isometric View*

## 6.0 CONCLUSIONS

It was determined in Phase 1 that repair and strengthening of the Library structure is necessary to preserve its structural integrity and ensure that the plaza may continue to serve the community as a public gathering space. The necessary repair and strengthening work can readily be incorporated into a future addition/expansion of the Library building, and therefore addition/expansion is considered feasible and represents a potentially cost-effective alternative to construction of a new facility. Options can be objectively weighed, and a preferred approach can now be identified for further development.

### 6.1 Conceptual Cost Estimate Summary

Budgetary numbers for the four options were provided by Cumming. Estimates of strengthening, repair, and construction costs are necessarily broad at this conceptual/feasibility phase and may be refined in future phases as the design progresses.

The estimated hard construction cost and schedule for each option are summarized below:

| SUMMARY OF ESTIMATED HARD CONSTRUCTION COST AND SCHEDULE | | | |
|---|---|---|---|
| **OPTION** | **DESCRIPTION** | **CONSTRUCTION DURATION** | **ESTIMATED HARD CONSTRUCTION COST (ROM)** |
| 1 | Baseline structural strengthening and repairs only | 6 months | $2.9M |
| 1a | Option 1 plus plaza deck hardscape/green roof | 6 months | $3.2M |
| 2 | “The Deck” concept | 12 months | $20.6M |
| 3 | “The Paseo” concept | 12 months | $23.0M* |
| 4 | New building | 18 months | $42.7M |

**includes $0.3M for plaza hardscape and green roof features*

The costs include consideration for the impacts of access to repair locations and for restoration of finishes, and assume the Library building is unoccupied during the construction. The costs have been escalated to an assumed construction start date of September 2024. Soft costs, including design consultant fees, plan-check and permit fees, inspection, and other construction fees, etc., would be in addition to the budgetary numbers provided in the cost estimate.

We trust that this report satisfies your immediate needs for Phase 2 of this feasibility study, and we thank you for the opportunity to be of continued service to the City of Glendora. Should you have any questions, please feel free to contact our office.



Kyle D. White, S.E. CA S6033
Project Manager



Reihaneh Sarraf, Ph. D., S.E. CA S7141
Senior Project Engineer / Engineering Analyst



Lance Kenyon, M.S., S.E. CA S3399
Principal

# APPENDIX A: Conceptual Plans for Phase 2 – Addition/Expansion

**COST ESTIMATE GENERAL NOTES:**

- OPTION 1, BASELINE STRUCTURAL STRENGTHENING FOR THE EXISTING BUILDING, IS DEPICTED IN THE PHASE 1 REPORT AND NOT SHOWN HERE.

- THESE CONCEPTUAL DRAWINGS DEPICT TWO CONCEPTS FOR THE EXPANSION OF THE GLENDORA PUBLIC LIBRARY.

- THERE ARE TWO ADDITION/EXPANSION OPTIONS.
  - **OPTION 2, "THE DECK",** CONSISTS OF A SMALL TWO-STORY ADDITION AND A NEW OCCUPIABLE ROOF OVER A LARGE PORTION OF THE EXISTING UPPER PLAZA. NEW FRAMING CONSISTS OF CONCRETE FILLED METAL DECK OVER STEEL WIDE FLANGE BEAMS AND CONCRETE WALLS. NEW COLUMNS EXTEND DOWN THROUGH THE EXISTING LIBRARY SPACE TO NEW FOOTINGS, AND ADDITIONAL SHEAR WALLS AND FOUNDATION STRENGTHENING ARE REQUIRED. DRAWINGS S-1.0, S-1.1, AND S-1.2. GRAVITY STRENGTHENING AND WATER INTRUSION MITIGATION AS DEPICTED IN THE PHASE 1 DRAWINGS ARE TO BE INCLUDED WITH THIS SCOPE, HOWEVER, WATER INTRUSION MITIGATION WORK NEED ONLY BE COMPLETED OUTSIDE OF THE FOOTPRINT OF THE NEW ROOF AREA OVER THE PLAZA. WALL ANCHORAGE IS PROVIDED AT EXISTING ROOF DIAPHRAGMS.
  - **OPTION 3, "THE PASEO",** CONSISTS OF A TWO-STORY ADDITION. NEW FRAMING CONSISTS OF CONCRETE FILLED METAL DECK OVER STEEL WIDE FLANGE BEAMS AND CONCRETE WALLS. THE EXISTING PLAZA REMAINS OPEN PLAZA. GRAVITY STRENGTHENING AND WATER INTRUSION MITIGATION AS DEPICTED IN THE PHASE 1 DRAWINGS ARE TO BE INCLUDED WITH THIS SCOPE. WALL ANCHORAGE IS PROVIDED AT EXISTING ROOF DIAPHRAGMS.

- **OPTION 3** INCLUDES ONE "**ADD ALTERNATE**" SCOPE ITEM: THE ADDITION OF PLANTERS AT THE PLAZA LEVEL (UPPER FLOOR). NEW MICROPILES ARE PART OF THIS ADD ALTERNATE. ASSOCIATED COSTS SHOULD BE TRACKED SEPARATELY FROM THE REST OF THE OPTION 2 WORK.

- COST OPINION FOR ENTIRELY NEW 45,000 SF PUBLIC LIBRARY SHALL ALSO BE PROVIDED.

***NOT FOR CONSTRUCTION***

*THESE DRAWINGS ARE CONCEPTUAL IN NATURE AND ARE INTENDED SOLELY TO ILLUSTRATE THE GENERAL CONCEPT OF A FEASIBLE FRAMING CONFIGURATION TO ASSIST IN THE DEVELOPMENT OF ROUGH ORDER-OF-MAGNITUDE CONSTRUCTION BUDGETS.*

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PROJECT INFORMATION

# Phase 2 - Feasibility Study

**Glendora Public Library**
140 Glendora Avenue
Glendora
CA 91741

SUBMITTALS AND REVISIONS

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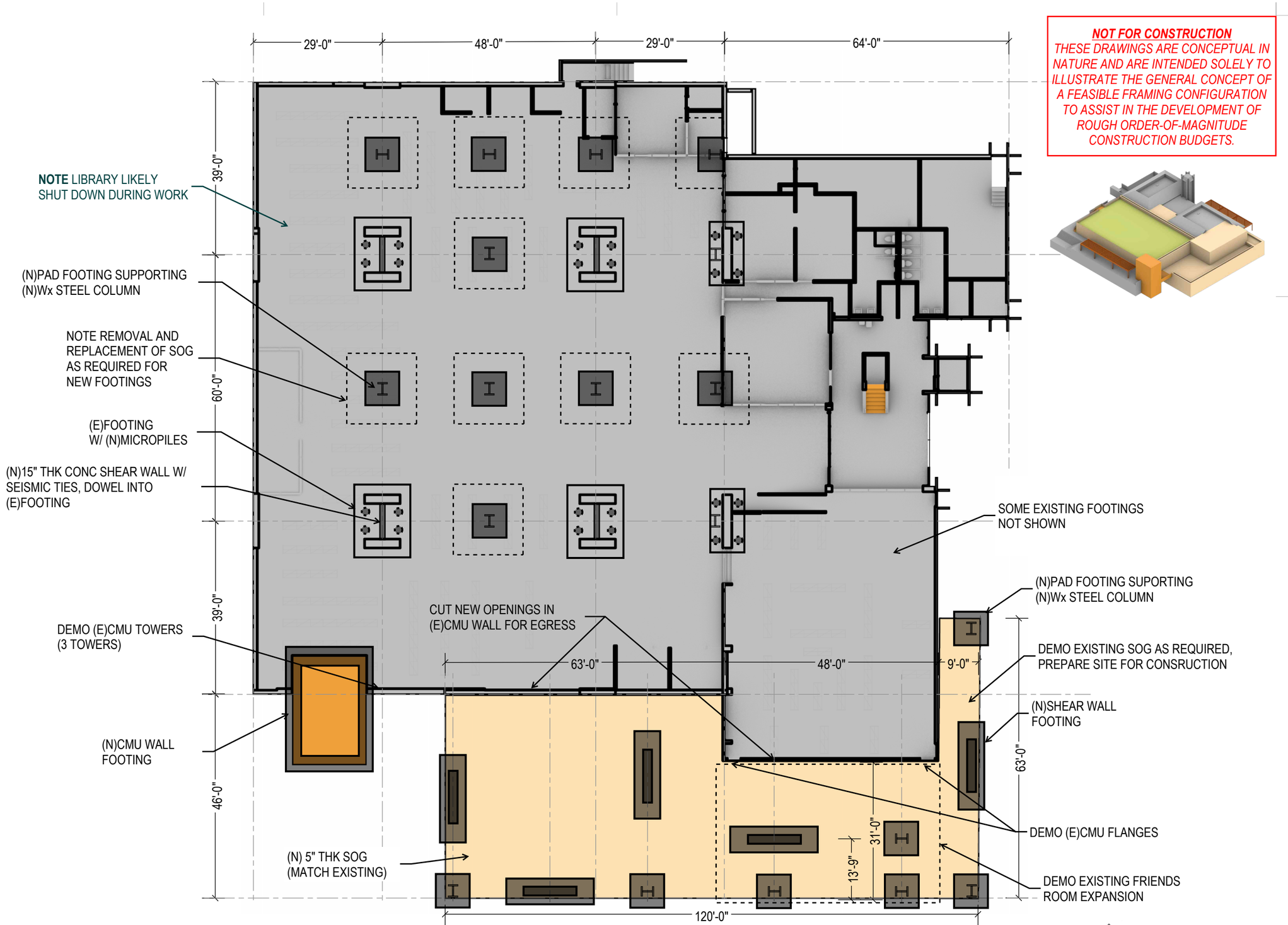
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**OPTION 1 - FOUNDATION AND LOWER FLOOR PLAN**

*REPORT OPTION 2: "THE DECK"*


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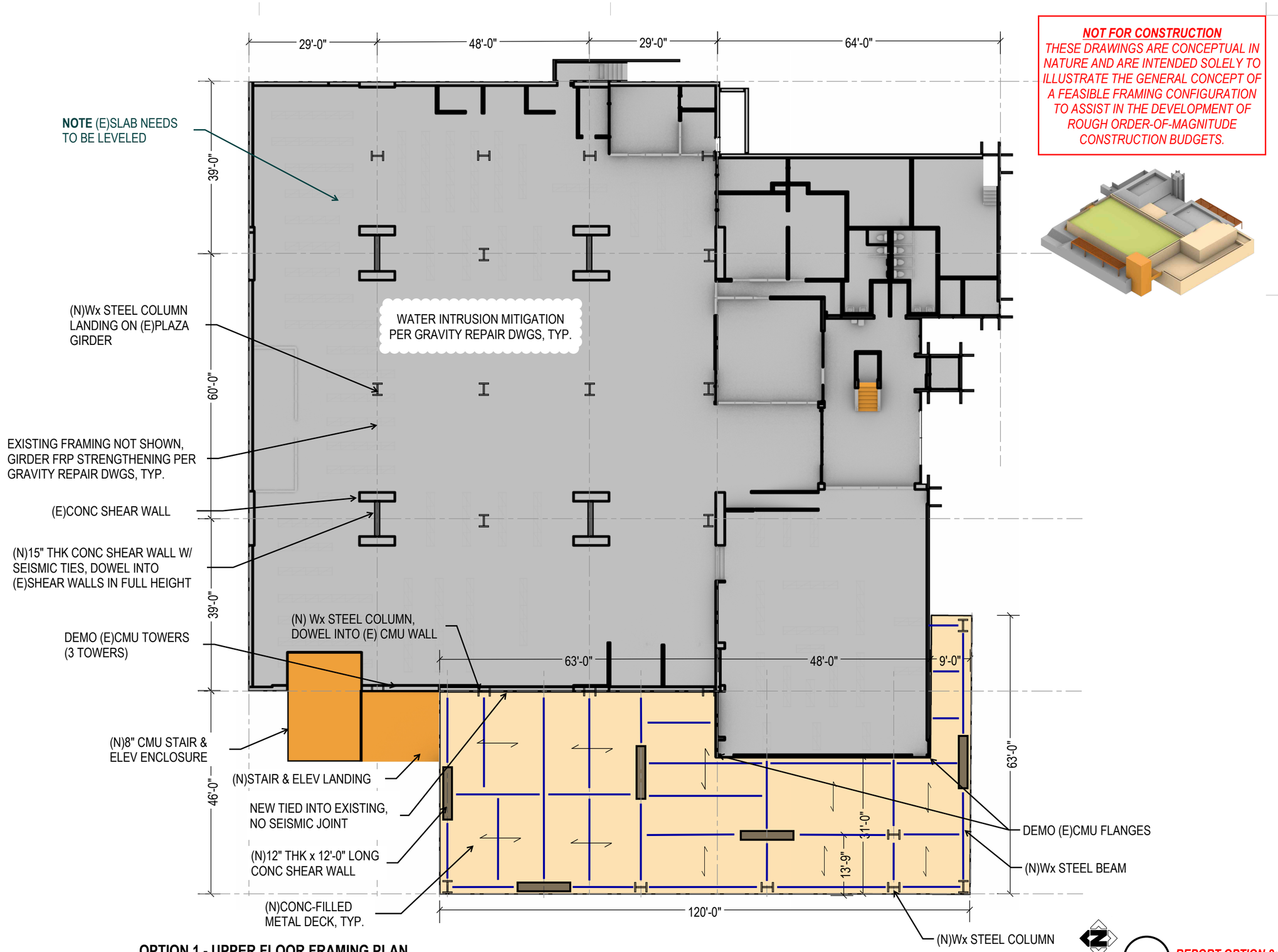
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OPTION 2 FOUNDATION AND LOWER FLOOR PLAN

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**OPTION 1 - UPPER FLOOR FRAMING PLAN**

S-1.1

*REPORT OPTION 2: "THE DECK"*

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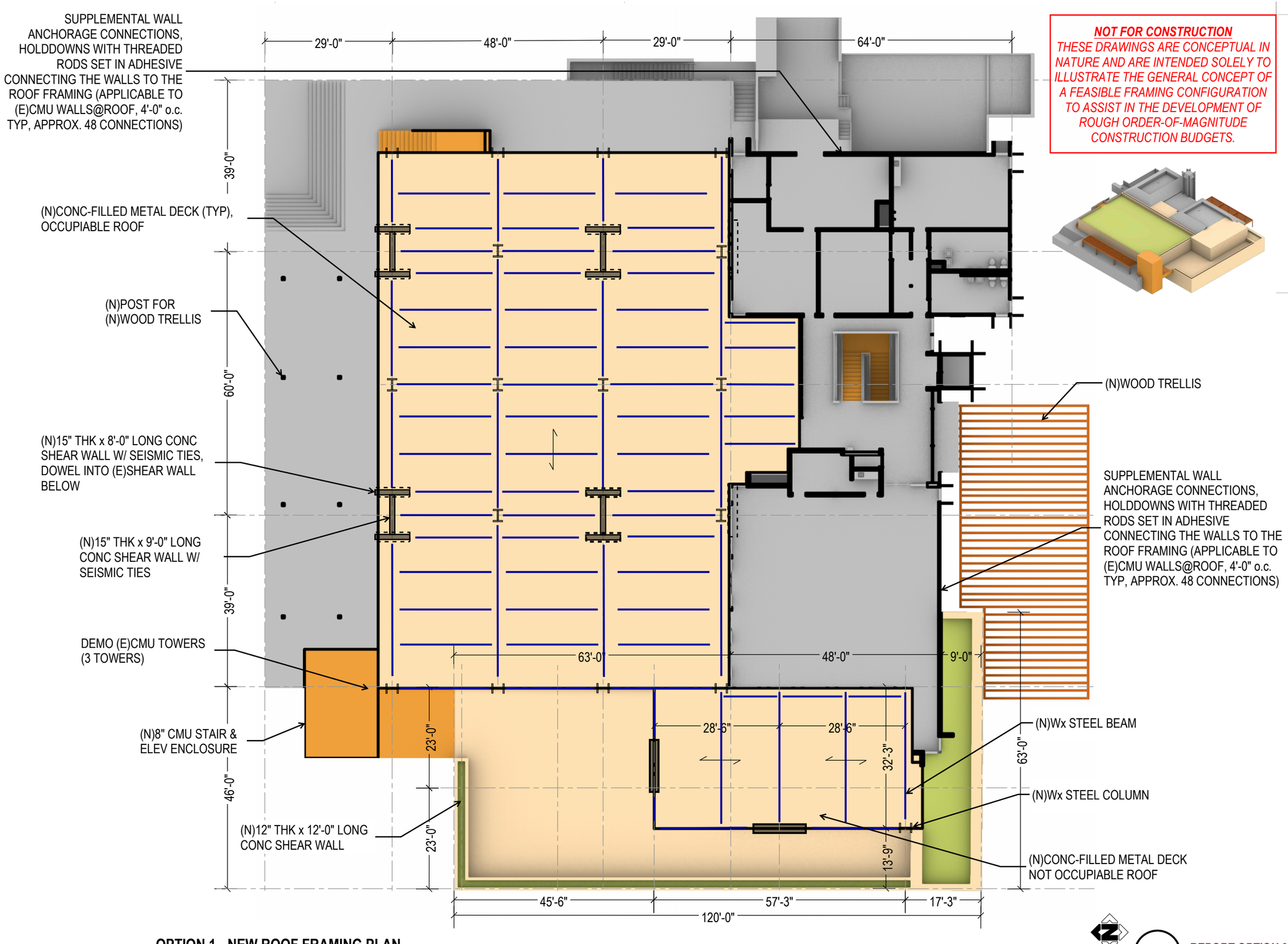
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OPTION 2
UPPER FLOOR
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## OPTION 1 - NEW ROOF FRAMING PLAN

S-1.2

*REPORT OPTION 2: "THE DECK"*

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OPTION 2
NEW ROOF
FRAMING PLAN

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**S-1.2**

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**OPTION 2 - FOUNDATION AND LOWER FLOOR PLAN**

S-2.0

*REPORT OPTION 3: "THE PASEO"*

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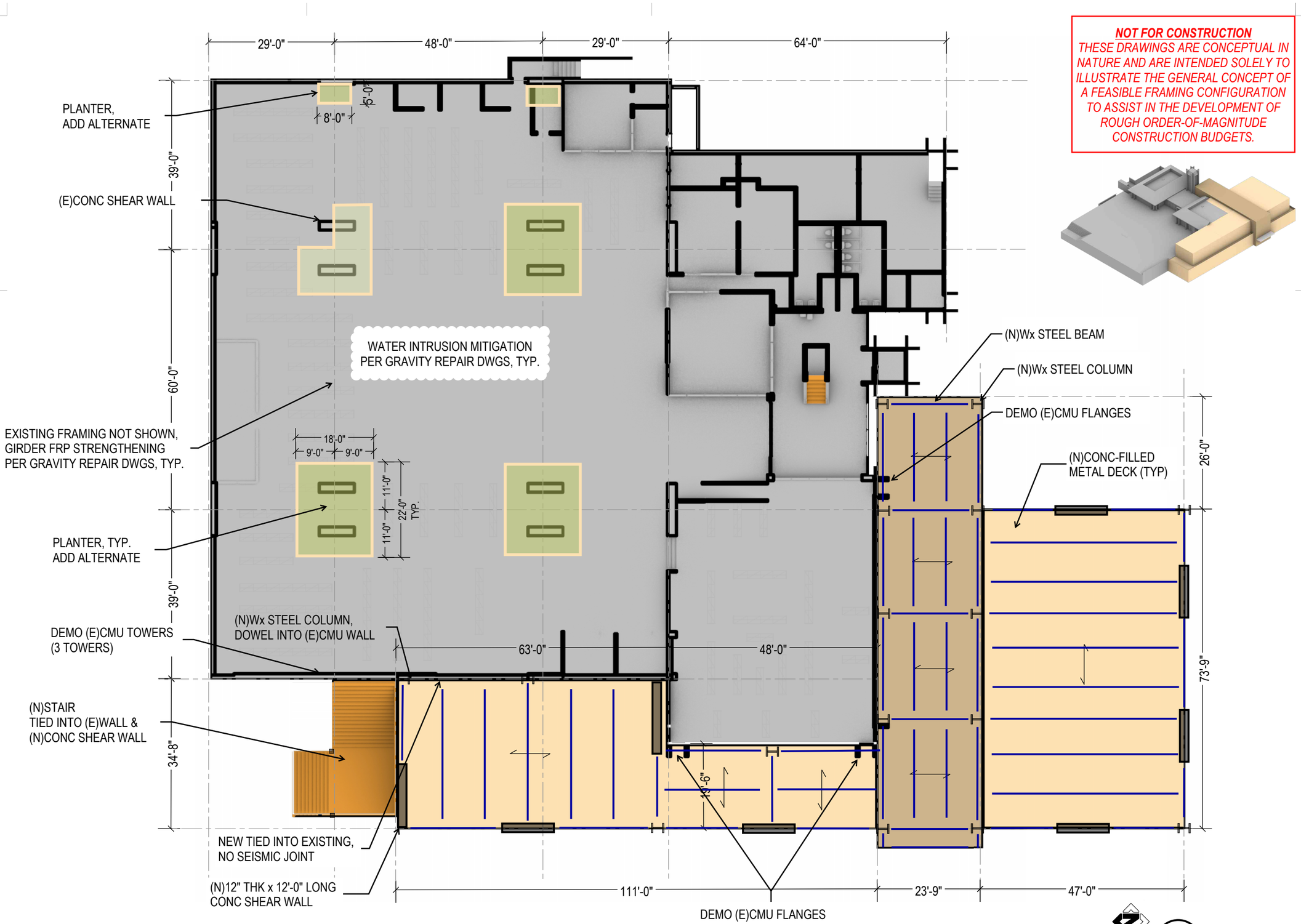
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OPTION 3 FOUNDATION AND LOWER FLOOR PLAN

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## OPTION 2 - UPPER FLOOR FRAMING PLAN

S-2.1

*REPORT OPTION 3: "THE PASEO"*


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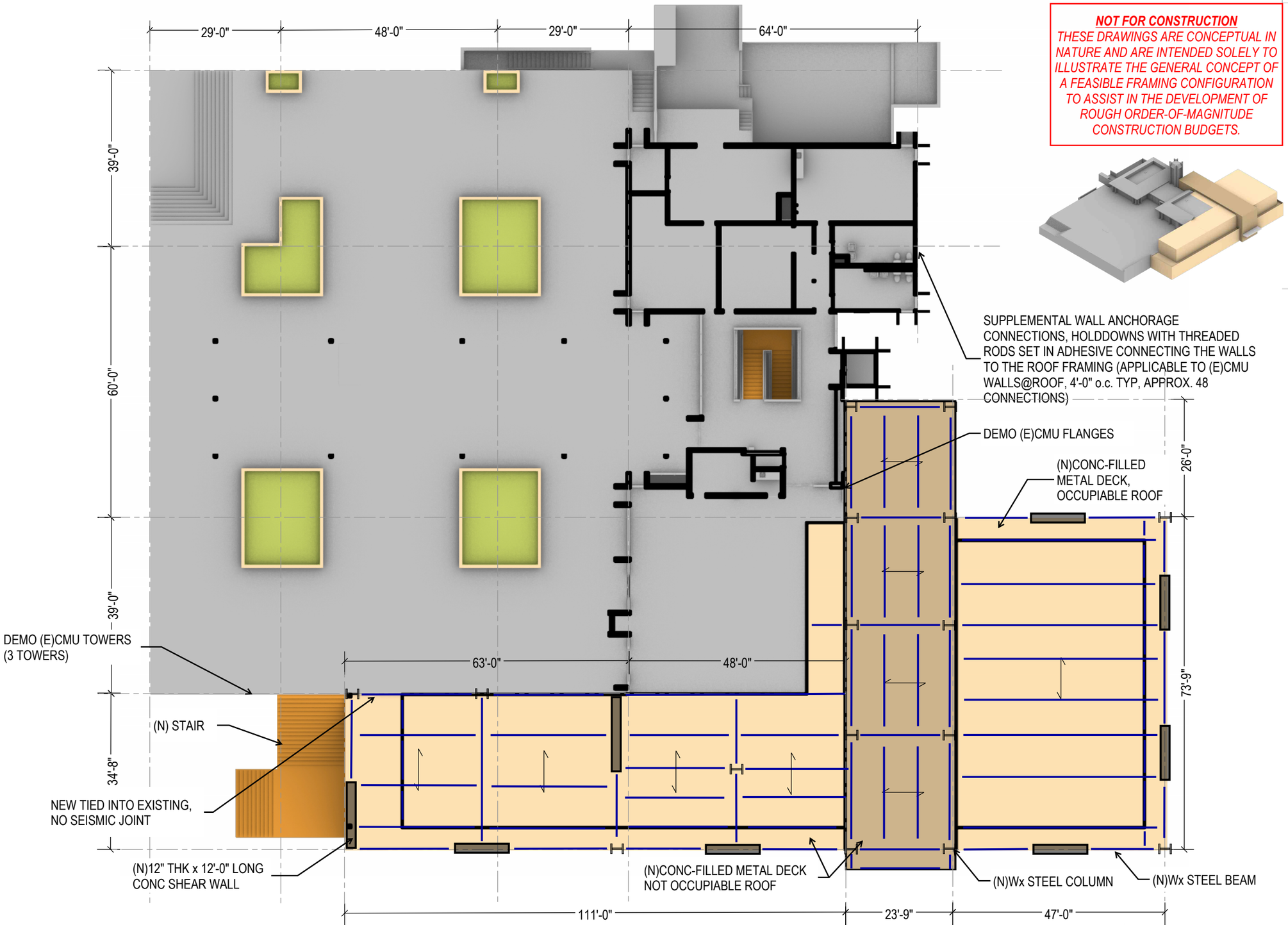
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## OPTION 2 - NEW ROOF FRAMING PLAN

S-2.2

*REPORT OPTION 3: "THE PASEO"*


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# APPENDIX B: Conceptual Cost Estimate

# Glendora Library Structural Analysis & Expansion

Feasibility Study

Statement of Probable Cost

August 18, 2023

CUMMING

Building Value Through Expertise

CUMMING
Building Value Through Expertise

*The information contained within this documents is confidential and should not be distributed or copied for any reason without the consent of either Cumming Construction Management, Inc. or the intended client.*

*Cumming has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions.*

*This opinion of the probable cost of construction is made on the basis of the experience, qualifications, and best judgment of a professional consultant familiar with the construction industry. However, Cumming cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.*

*This document reflects fair market value construction costs obtainable in a competitive bidding market in Los Angeles, California. Cumming assumes a minimum of three (3) competitive bids from qualified general contractors, with bids from a minimum of three (3) subcontractors per trade. This statement is a determination of fair market value for the construction of the project and is not intended to be a prediction of low bid. Please note that experience indicates a fewer number of bidders may result in a higher bid amount, thus more bidders may result in a lower bid result.*

*The Cumming staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with any interested party.*



**LA | Cumming Management Group, Inc.**

**Merilyn Olave**
Associate Director
Los Angeles, CA
molave@ccorpusa.com

# Executive Summary

**Glendora Library Structural Analysis & Expansion**

Feasibility Study SOPC

August 18, 2023

## Project Description

The project is a structural analysis/feasibility study and options for vertical expansion of the existing Library for the City of Glendora. The existing library is a two-story reinforced concrete and CMU structure with 33,500 square feet covered area. The feasibility study includes 3 options:

Option 2 - Seismic upgrade and renovation to (E) library (33,500 SF) + Expansion (11,500 SF)

Option 3 - Seismic upgrade and renovation to (E) library (33,500 SF) + Expansion (18,130 SF)

Option 4 - New 2-story Library (45,000 SF) on New Site (60,000 SF)

| **Project Control Metrics** | **OPTION 2 & 3** | **OPTION 4** |
|---|---|---|
| Construction Start: | September 1, 2024 | September 1, 2024 |
| Construction Completion: | August 31, 2025 | January 31, 2026 |
| Construction Duration: | 12 Months | 18 Months |
| Delivery Method: | Design Bid Build | Design Bid Build |

| Scope of Work | *REPORT OPTION 2: "THE DECK"* Option 2 Upgrade + Expansion Area | $ / SF | Total Cost | *REPORT OPTION 3: "THE PASEO"* Option 3 Upgrade + Expansion Area | $ / SF | Total Cost | *REPORT OPTION 4: NEW FACILITY* Option 4 New Library + Site Area | $ / SF | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| **Existing Building Upgrade + Expansion** | 45,000 SF | $456 | **$20,538,711** | 51,630 SF | $439 | **$22,650,061** | | | |
| **New 2-story Library Building** | | | | | | | 45,000 SF | $859 | **$38,677,225** |
| **Site Development for New Library** | | | | | | | 60,000 SF | $66 | **$3,974,688** |
| **Total Construction Costs** | **45,000 SF** | **$456** | **$20,538,711** | **51,630 SF** | **$439** | **$22,650,061** | **45,000 SF** | **$948** | **$42,651,913** |

**Alternate:**

***New Planter at Plaza Deck (Option 3)*** ***$291,857***

**Note:**

- Assume the (E) Library is shutdown during construction
- Hazmat Abatement to (E) Building - Excluded
- New floor and ceiling finishes replacement are assumed throughout the Existing library
- One new 2-stop elevator for option 1 is Included while there is **No** new elevator for option 2
- Site development for Option 1 & 2 is minimal and it includes 6 ft paving around the new expansion. Wet utilities inlude reconnection and Electrical inlcudes upsizing transformer and new exteior lighting
- The New Library will be constructed on a different location (TBD) - assume 60,000 SF site area
- Cost Escalation to Start Date of Construction (September 2024) - Included
- Audio Visual Equipment - Excluded
- Soft Costs - Excluded
- Construction Contingency - Excluded

## Direct Construction Cost Summary

**Glendora Library Structural Analysis & Expansion**

Feasibility Study SOPC

August 18, 2023

CUMMING
Building Value Through Expertise

| Element | | Option 2 Upgrade + Expansion 45,000 SF | | Option 3 Upgrade + Expansion 51,630 SF | | Option 4 New Construction New Library 45,000 SF | | Site Development 60,000 SF | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total | $/SF | Total | $/SF | Total | $/SF | Total | $/SF |
| **A) Shell (1-5)** | | **$4,910,085** | **$109.11** | **$4,936,662** | **$95.62** | **$9,847,688** | **$218.84** | | |
| 1 Foundations | | $297,358 | $6.61 | $295,554 | $5.72 | $933,813 | $20.75 | | |
| 2 Vertical Structure | | $852,540 | $18.95 | $569,850 | $11.04 | $1,140,750 | $25.35 | | |
| 3 Floor & Roof Structures | | $1,376,135 | $30.58 | $1,376,135 | $26.65 | $3,478,500 | $77.30 | | |
| 4 Exterior Cladding | | $1,649,849 | $36.66 | $1,697,730 | $32.88 | $2,964,875 | $65.89 | | |
| 5 Roofing and Waterproofing | | $734,203 | $16.32 | $997,393 | $19.32 | $1,329,750 | $29.55 | | |
| **B) Interiors (6-7)** | | **$1,755,319** | **$39.01** | **$2,046,440** | **$39.64** | **$2,992,500** | **$66.50** | | |
| 6 Interior Partitions, Doors and Glazing | | $399,500 | $8.88 | $538,380 | $10.43 | $1,350,000 | $30.00 | | |
| 7 Floor, Wall and Ceiling Finishes | | $1,355,819 | $30.13 | $1,508,060 | $29.21 | $1,642,500 | $36.50 | | |
| **C) Equipment and Vertical Transportation (8-9)** | | **$1,005,886** | **$22.35** | **$1,134,843** | **$21.98** | **$3,266,750** | **$72.59** | | |
| 8 Function Equipment and Specialties | | $770,886 | $17.13 | $1,099,843 | $21.30 | $2,996,750 | $66.59 | | |
| 9 Stairs and Vertical Transportation | | $235,000 | $5.22 | $35,000 | $0.68 | $270,000 | $6.00 | | |
| **D) Mechanical and Electrical (10-13)** | | **$5,583,814** | **$124.08** | **$6,502,887** | **$125.95** | **$10,093,950** | **$224.31** | | |
| 10 Plumbing Systems | | $396,289 | $8.81 | $598,074 | $11.58 | $1,276,200 | $28.36 | | |
| 11 Heating, Ventilation and Air Conditioning | | $2,189,273 | $48.65 | $2,484,186 | $48.12 | $3,462,750 | $76.95 | | |
| 12 Electrical Lighting, Power and Communications | | $2,744,003 | $60.98 | $3,106,707 | $60.17 | $4,950,000 | $110.00 | | |
| 13 Fire Protection Systems | | $254,250 | $5.65 | $313,920 | $6.08 | $405,000 | $9.00 | | |
| **E) Building Prep & Demo (14-15)** | | **$212,800** | **$4.73** | **$212,800** | **$4.12** | **$0** | **$0.00** | | |
| 14 Building Preparations & Protection | | $0 | $0.00 | $0 | $0.00 | $0 | $0.00 | | |
| 15 Building Demolition | | $212,800 | $4.73 | $212,800 | $4.12 | $0 | $0.00 | | |
| **F) Site Work (16-18)** | | **$445,516** | **$9.90** | **$510,068** | **$9.88** | **$0** | **$0.00** | **$2,692,550** | **$44.88** |
| 16 Site Preparation and Demolition | | $47,104 | $1.05 | $76,291 | $1.48 | | $0.00 | $375,000 | $6.25 |
| 17 Site Paving, Structures & Landscaping | | $39,072 | $0.87 | $57,792 | $1.12 | $0 | $0.00 | $1,351,000 | $22.52 |
| 18 Utilities on Site | | $359,340 | $7.99 | $375,985 | $7.28 | | $0.00 | $966,550 | $16.11 |
| **Sub-Total Direct Construction Cost** | | **$13,913,420** | **$309.19** | **$15,343,700** | **$297.19** | **$26,200,888** | **$582.24** | **$2,692,550** | **$44.88** |
| Design/Cost Contingency | 15.00% | $2,087,013 | $46.38 | $2,301,555 | $44.58 | $3,930,133 | $87.34 | $403,883 | $6.73 |
| Market Escalation to Buyout | 6.93% | $1,108,088 | $24.62 | $1,221,998 | $23.67 | $2,086,683 | $46.37 | $214,439 | $3.57 |
| **Total Direct Construction Cost** | | **$17,108,521** | **$380.19** | **$18,867,253** | **$365.43** | **$32,217,704** | **$715.95** | **$3,310,872** | **$55.18** |
| General Conditions | 8.00% | $1,368,682 | $30.42 | $1,509,380 | $29.23 | $2,577,416 | $57.28 | $264,870 | $4.41 |
| General Requirements | 4.00% | $684,341 | $15.21 | $754,690 | $14.62 | $1,288,708 | $28.64 | $132,435 | $2.21 |
| Subcontractor Default Insur. | 1.20% | $205,302 | $4.56 | $226,407 | $4.39 | $386,612 | $8.59 | $39,730 | $0.66 |
| General Liability Insurance | 1.50% | $287,423 | $6.39 | $316,970 | $6.14 | $541,257 | $12.03 | $55,623 | $0.93 |
| Overhead & Profit | 4.50% | $884,442 | $19.65 | $975,361 | $18.89 | $1,665,526 | $37.01 | $171,159 | $2.85 |
| **Sub-Total Indirect Construction Cost** | | **$3,430,190** | **$76.23** | **$3,782,809** | **$73.27** | **$6,459,521** | **$143.54** | **$663,817** | **$11.06** |
| **Total Construction Cost** | | **$20,538,711** | **$456.42** | **$22,650,061** | **$438.70** | **$38,677,225** | **$859.49** | **$3,974,688** | **$66.24** |

# OPTION 2

# Construction Cost Detail - Option 2

**Glendora Library Structural Analysis & Expansion**

Feasibility Study SOPC

August 18, 2023

CUMMING
Building Value Through Expertise

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| ***A) Shell (1-5)*** | | | | |
| **1 Foundations** | | | | |
| **Work to Existing Building** | | | | |
| Reinforced concrete pad footings at existing building, assume 30" depth | 71 | CY | $850.00 | $60,350 |
| New micropiles to (E) footing, 10' deep | 24 | EA | $2,000.00 | $48,000 |
| **Building Expansion** | | | | |
| Excavation | | | | |
| Over-excavate and compact building footprint, 5' depth and 5' beyond perimeter | 1,442 | CY | $24.00 | $34,608 |
| Foundation | | | | |
| Reinforced concrete pad/wall footings at expansion, assume 36" depth | 164 | CY | $850.00 | $139,400 |
| Elevator pit, complete | 1 | EA | $15,000.00 | $15,000 |
| ***Sub-Total: 1 Foundations*** | **45,000** | **SF** | **$6.61** | **$297,358** |
| **2 Vertical Structure** | | | | |
| **Work to Existing Building** | | | | |
| Structural steel columns | 30 | TN | $8,000.00 | $240,000 |
| New reinforced concrete shearwall, 15" thick | 2,140 | SF | $80.00 | $171,200 |
| Seismic ties, dowel into shear wall | 504 | EA | $55.00 | $27,720 |
| **Building Expansion** | | | | |
| Structural steel columns (4 lb/sf) | 23 | TN | $8,000.00 | $184,000 |
| New shearwall, 12" thick | 1,800 | SF | $75.00 | $135,000 |
| CMU wall, 8" - elevator/stair enclosure | 2,490 | SF | $38.00 | $94,620 |
| ***Sub-Total: 2 Vertical Structure*** | **45,000** | **SF** | **$18.95** | **$852,540** |
| **3 Floor & Roof Structures** | | | | |
| **Seismic/Gravity Repair** | | | | |
| FRP strenthening of (E) girders including grinding corners, duct for FRP overlay anchorage | 10,161 | SF | $120.00 | $1,219,320 |
| Prepare slab and Epoxy injection of cracks | 218 | LF | $82.00 | $17,876 |
| Prepare beam and Epoxy injection of cracks | 40 | LF | $90.00 | $3,600 |
| Allowance for additional epoxy injection cracks | 200 | LF | $82.00 | $16,400 |
| New 2.5" Light Weight concrete topping, 3,000 psi (Plaza deck) | 15,130 | SF | $6.00 | $90,780 |
| Reinforcement to concrete topping, #3@12" O.C. (Plaza deck) | 15,644 | LB | $1.80 | $28,159 |

# Construction Cost Detail - Option 2

**Glendora Library Structural Analysis & Expansion**

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August 18, 2023

CUMMING
Building Value Through Expertise

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **Work to Existing Building** | | | | |
| Slab on grade | | | | |
| Sawcut and remove slab on grade for new footing | 3,069 | SF | $10.00 | $30,690 |
| Reinforced concrete slab on grade, 5" | 3,069 | SF | $14.00 | $42,966 |
| Dowels between new and existing slab @ 12" o.c. | 923 | EA | $55.00 | $50,765 |
| Plaza deck roof | | | | |
| Structural steel framing (10 lb/sf) | 52 | TN | $8,000.00 | $416,000 |
| Metal deck with concrete topping - roof | 10,341 | SF | $19.00 | $196,479 |
| Supplemetal wall anchorage connections, holdowns wit threaded rods set in adhesive connecting the walls to roof framing, @ 4' o.c. | 96 | EA | $300.00 | $28,800 |
| Trellis | | | | |
| Wood trellis | 4,111 | SF | $80.00 | $328,880 |
| New post and footing for trellis | 16 | EA | $1,590.00 | $25,440 |
| | | | | |
| **Building Expansion** | | | | |
| Slab on grade | | | | |
| Reinforced concrete slab on grade, 5" thick | 5,750 | SF | $14.00 | $80,500 |
| | | | | |
| Suspended floors and Roofs | | | | |
| Structural steel framing (12 lb/sf) | 67 | TN | $8,000.00 | $536,000 |
| Metal deck with concrete fill - floor | 6,042 | SF | $19.00 | $114,798 |
| Metal deck with concrete fill - roof | 6,166 | SF | $19.00 | $117,154 |
| | | | | |
| Miscellaneous | | | | |
| Miscellaneous metal, framing backing, equipment support framing | 11,500 | SF | $3.00 | $34,500 |
| Seismic joint | 200 | LF | $200.00 | $40,000 |
| ***Sub-Total: 3 Floor & Roof Structures*** | **45,000** | **SF** | **$30.58** | **$1,376,135** |

**4 Exterior Cladding**

| | | | | |
|---|---|---|---|---|
| **Work to Existing Building** | | | | |
| Plaza deck | | | | |
| Metal studs framing, sheathing, waterproofing, insulation | 3,066 | SF | $30.00 | $91,980 |
| Cement plaster, painted | 3,066 | SF | $30.00 | $91,980 |
| Gypsum board lining to interior phase | 3,066 | SF | $5.50 | $16,863 |
| Aluminum glazed window and storefronts (20% of wall area) | 613 | SF | $130.00 | $79,690 |
| Patch and repaint existing exterior walls | 14,730 | SF | $5.00 | $73,650 |
| Windows - Existing to remain | | | | No work anticipated |
| | | | | |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **Building Expansion** | | | | |
| Wall framing, furring and insulation | | | | |
| Metal studs framing, sheathing, waterproofing, insulation | 8,331 | SF | $30.00 | $249,930 |
| | | | | |
| Exterior finishes | | | | |
| Metal panel or wood panel, cement plaster | 8,331 | SF | $55.00 | $458,205 |
| | | | | |
| Interior finish to exterior walls | | | | |
| Gypsum board lining | 8,331 | SF | $5.50 | $45,821 |
| | | | | |
| Windows, glazing and louvers | | | | |
| Aluminum glazed window and storefronts (30% of wall area) | 3,571 | SF | $130.00 | $464,230 |
| | | | | |
| Fascias, bands, screens and trim | | | | |
| Miscellaneous architectural features, window canopy, trims | 11,500 | SF | $5.00 | $57,500 |
| | | | | |
| Exterior doors, frames and hardware | | | | |
| Exterior storefront entry doors, metal doors | 1 | LS | $20,000.00 | $20,000 |
| | | | | |
| ***Sub-Total: 4 Exterior Cladding*** | **45,000** | **SF** | **$36.66** | **$1,649,849** |

**5 Roofing and Waterproofing**

| | | | | |
|---|---|---|---|---|
| **Existing Plaza Deck and Roof** | | | | |
| New waterproofing membrane at deck - outside footprint of new roof | 4,789 | SF | $12.50 | $59,863 |
| New rigid insulation at deck -outside footprint of new roof | 4,789 | SF | $5.50 | $26,340 |
| Concrete pavers | 4,789 | SF | $25.00 | $119,725 |
| Single-ply roofing membrane, with cover board and rigid insulation | 10,341 | SF | $25.00 | $258,525 |
| Miscellaneous flashing and sheet metal | 10,341 | SF | $5.00 | $51,705 |
| | | | | |
| **Building Expansion** | | | | |
| Waterproofing | | | | |
| Waterproofing - stair and elevator landing | 292 | SF | $13.00 | $3,796 |
| Elevator pit | 1 | EA | $1,800.00 | $1,800 |
| | | | | |
| Roofing | | | | |
| Single-ply roofing membrane, with cover board and rigid insulation | 6,166 | SF | $25.00 | $154,150 |
| | | | | |
| Roofing upstands and sheetmetal | | | | |
| Miscellaneous flashing and sheet metal | 6,166 | SF | $5.00 | $30,830 |
| | | | | |
| Deck | | | | |
| Hard surface finish to elevator/stair landing | 292 | SF | $35.00 | $10,220 |
| | | | | |
| Caulking and sealants | 11,500 | SF | $1.50 | $17,250 |
| | | | | |
| ***Sub-Total: 5 Roofing and Waterproofing*** | **45,000** | **SF** | **$16.32** | **$734,203** |
| **Total - A) Shell (1-5)** | **45,000** | **SF** | **$109.11** | **$4,910,085** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| ***B) Interiors (6-7)*** | | | | |
| **6 Interior Partitions, Doors and Glazing** | | | | |
| **Work to Existing Building** | | | | |
| Patch and replace damage partition as needed - allowance | 33,500 | SF | $3.00 | $100,500 |
| | | | | |
| **Building Expansion** | | | | |
| Partition | | | | |
| Metal studs partition with gypsum board lining and insulation (0.045 ratio/GFA) | 11,500 | SF | $20.00 | $230,000 |
| | | | | |
| Interior Door and Glazing | 11,500 | SF | $6.00 | $69,000 |
| | | | | |
| ***Sub-Total: 6 Interior Partitions, Doors and Glazing*** | **45,000** | **SF** | **$8.88** | **$399,500** |
| **7 Floor, Wall and Ceiling Finishes** | | | | |
| **Work to Existing Building** | | | | |
| New finish at plaza deck | 10,341 | SF | $9.00 | $93,069 |
| Ceramic tiles at toilet, resilient flooring, sealed concrete at mechanical spaces and carpet throughout | 33,500 | SF | $12.00 | $402,000 |
| Gypsum board ceiling, ACT ceiling, and painted exposed ceiling | 33,500 | SF | $11.50 | $385,250 |
| Miscellaneous painting as needed | 1 | LS | $50,000.00 | $50,000 |
| | | | | |
| **Building Expansion** | | | | |
| Floors | | | | |
| Ceramic tiles at toilet, resilient flooring, sealed concrete at mechanical spaces and carpet throughout | 11,500 | SF | $13.50 | $155,250 |
| | | | | |
| Bases | | | | |
| Ceramic tiles at restrooms, resilient/wood base throughout | 11,500 | SF | $1.50 | $17,250 |
| | | | | |
| Walls | | | | |
| Ceramic tiles to toilet, acoustical wall panel, paint throughout | 11,500 | SF | $8.50 | $97,750 |
| | | | | |
| Ceilings | | | | |
| Gypsum board ceiling, ACT ceiling, and painted exposed ceiling | 11,500 | SF | $13.50 | $155,250 |
| | | | | |
| ***Sub-Total: 7 Floor, Wall and Ceiling Finishes*** | **45,000** | **SF** | **$30.13** | **$1,355,819** |
| **Total - B) Interiors (6-7)** | **45,000** | **SF** | **$39.01** | **$1,755,319** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| ***C) Equipment and Vertical Transportation (8-9)*** | | | | |
| **8 Function Equipment and Specialties** | | | | |
| **Work to Existing Building** | | | | |
| Allowance for patch and repair, modify as needed building specialties, casework, equipment affected during new construction | 33,500 | SF | $5.00 | $167,500 |
| **Building Expansion** | | | | |
| Specialties | | | | |
| Building specialties such as toilet cubicles and accessories, markerboard and tackboards, mirror, fire extinguisher cabinets, lockers and bench | 11,500 | SF | $3.50 | $40,250 |
| Signage - Code, Directional and Exterior ID | 11,500 | SF | $1.00 | $11,500 |
| Window shade, manual | 3,571 | SF | $16.00 | $57,136 |
| Cabinets and countertops | | | | |
| Fixed casework and millwork | 11,500 | SF | $8.00 | $92,000 |
| Equipment | | | | |
| Library shelving/stacks and equipment | 11,500 | SF | $35.00 | $402,500 |
| ***Sub-Total: 8 Function Equipment and Specialties*** | **45,000** | **SF** | **$17.13** | **$770,886** |
| **9 Stairs and Vertical Transportation** | | | | |
| **Building Expansion** | | | | |
| Staircase | | | | |
| Concrete filled metal pan staircase, finish and railings | 1 | FLT | $35,000.00 | $35,000 |
| Elevator | | | | |
| Elevator, 2-stop | 1 | EA | $200,000.00 | $200,000 |
| ***Sub-Total: 9 Stairs and Vertical Transportation*** | **45,000** | **SF** | **$5.22** | **$235,000** |
| **Total - C) Equipment and Vertical Transportation (8-9)** | **45,000** | **SF** | **$22.35** | **$1,005,886** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| ***D) Mechanical and Electrical (10-13)*** | | | | |
| **10 Plumbing Systems** | | | | |
| General Plumbing Equipment | | | | |
| 5-9 kW Electric Water Heater | 2 | EA | $5,996.00 | $11,992 |
| HW rough-in at water heater | 2 | EA | $1,171.00 | $2,342 |
| | | | | |
| Sanitary Fixtures | | | | |
| Water closet, WC-1, wall, sensor FV | 4 | EA | $2,132.00 | $8,528 |
| Urinal, UR-1 | 2 | EA | $1,541.00 | $3,082 |
| Lavatory, L-1, wall | 4 | EA | $1,212.00 | $4,848 |
| Sink, SS-1 | 2 | EA | $1,503.00 | $3,006 |
| Drinking fountain, DF-1 | 1 | EA | $3,523.00 | $3,523 |
| Floor drain, FD-1 | 2 | EA | $809.90 | $1,620 |
| | | | | |
| Rough-ins | | | | |
| Local rough-in at fixture | 15 | EA | $717.00 | $10,755 |
| | | | | |
| Domestic Cold Water | | | | |
| Domestic Cold Water Piping | 11,500 | SF | $4.87 | $56,005 |
| Upsize existing cold water service to 4" with a 2.5" water meter and 4" SOV including trenching and permitting | 1 | LS | $16,500.00 | $16,500 |
| New pressure reducing station on domestic water service to the building | 2 | EA | $6,593.00 | $13,186 |
| | | | | |
| Domestic Hot Water | | | | |
| Domestic Hot Water Piping | 11,500 | SF | $4.18 | $48,070 |
| | | | | |
| Waste Piping | | | | |
| Waste Piping, SF | 11,500 | SF | $5.36 | $61,640 |
| New Sanitary Waste tie-in points including trenching and permitting | 1 | LS | $12,500.00 | $12,500 |
| | | | | |
| Vent Piping | | | | |
| Vent Piping, SF | 11,500 | SF | $4.39 | $50,485 |
| Relocating/Extending the vent pipe serving the friends' room | 1 | LS | $6,500.00 | $6,500 |
| Provide vent caps | 8 | EA | $567.30 | $4,538 |
| | | | | |
| Roof Drainage | | | | |
| Roof Drainage, Allowance | 11,500 | SF | $2.01 | $23,115 |
| New Storm Drain tie-in points including trenching and permitting | 1 | LS | $12,500.00 | $12,500 |
| | | | | |
| Condensate Drainage | | | | |
| Trap and equipment connect | 5 | EA | $503.20 | $2,516 |
| 3/4" pipe, cu type M, in bldg | 150 | LF | $40.24 | $6,036 |
| Pipe insulation, 3/4" | 150 | LF | $12.55 | $1,883 |
| | | | | |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| Miscellaneous Plumbing | | | | |
| Test / clean plumbing | 40 | HR | $127.18 | $5,087 |
| Start-up/check-out | 40 | HR | $152.61 | $6,104 |
| Commissioning assist | 20 | HR | $133.87 | $2,677 |
| Seismic bracing | 11,500 | SF | $0.85 | $9,775 |
| Penetrations and firestopping for plumbing | 11,500 | SF | $0.65 | $7,475 |
| | | | | |
| ***Sub-Total: 10 Plumbing Systems*** | **45,000** | **SF** | **$8.81** | **$396,289** |

**11 Heating, Ventilation and Air Conditioning**

| | | | | |
|---|---|---|---|---|
| HVAC Demolition | | | | |
| Modify existing ductwork layout to rectify HVAC zoning issues | 33,500 | SF | $6.05 | $202,675 |
| Remove air handlers - AHU-1, 660,000 btu/hr, AHU-2, 516,000 btu/hr | 2 | EA | $14,820.00 | $29,640 |
| Remove air handlers - AHU-3, 61,500 btu/hr, AHU-4, 57,000 btu/hr | 2 | EA | $13,720.00 | $27,440 |
| Remove existing cooling tower | 1 | LS | $30,920.00 | $30,920 |
| Existing package units - To remain | 2 | EA | | NIC |
| | | | | |
| Chilled Water Equipment | | | | |
| Chiller, centrifugal - water cooled (York), high eff | 60 | TON | $602.00 | $36,120 |
| CHW pump, end suction, 5 hp, 225 gpm | 1 | EA | $5,361.00 | $5,361 |
| VFD to CHW pump, 5 hp | 1 | EA | $3,887.00 | $3,887 |
| | | | | |
| Condenser Water Equipment | | | | |
| Cooling towers, pumps, misc | 160 | TON | $507.20 | $81,152 |
| CW pump, end suction, 5 hp, 225 gpm | 1 | EA | $5,361.00 | $5,361 |
| VFD to CW pump, 5 hp | 1 | EA | $3,887.00 | $3,887 |
| | | | | |
| Condenser Water Piping | | | | |
| Condenser piping to chiller or HX, weld, 4" | 1 | EA | $8,886.00 | $8,886 |
| Cooling tower rough-in, weld, 6" | 1 | EA | $14,250.00 | $14,250 |
| CW pump connect, weld, end suct, 4" | 1 | EA | $9,541.00 | $9,541 |
| CW piping distribution to HVAC units | 11,500 | SF | $2.08 | $23,920 |
| | | | | |
| Chilled Water Distribution | | | | |
| Chiller connect, weld, 6" | 1 | EA | $11,400.00 | $11,400 |
| CHW pump connect, weld, end suct, 2-1/2" | 1 | EA | $6,232.00 | $6,232 |
| CHW coil connect, cu, 2-way, 2" | 5 | EA | $6,025.00 | $30,125 |
| CHW distribution to HVAC equipment | 11,500 | SF | $3.76 | $43,240 |
| | | | | |
| Hot Water Distribution | | | | |
| Coil connection KIT | 28 | EA | $1,250.00 | $35,000 |
| HHW distribution to HVAC equipment | 45,000 | SF | $4.44 | $199,800 |
| | | | | |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| Air-Side Equipment | | | | |
| Replacement AHU-1, 660,000 btu/hr | 22,000 | CFM | $14.40 | $316,800 |
| Replacement AHU-2, 516,000 btu/hr | 17,200 | CFM | $14.40 | $247,680 |
| Replacement AHU-3, 61,500 btu/hr | 2,050 | CFM | $14.40 | $29,520 |
| Replacement AHU-4, 57,000 btu/hr | 1,900 | CFM | $14.40 | $27,360 |
| New Air Handling Unit for Expansion | 11,500 | CFM | $14.40 | $165,600 |
| Terminal units | | | | |
| VAV box w/ reheat, 10", 1450 cfm max | 28 | EA | $1,197.00 | $33,516 |
| Fans | | | | |
| Exhaust fans | 2,300 | CFM | $2.34 | $5,382 |
| | | | | |
| Air Distribution | | | | |
| Ductwork, galv | 9,200 | LBS | $15.75 | $144,900 |
| Duct insulation, wrap | 5,750 | SF | $3.46 | $19,895 |
| Manual volume damper | 58 | EA | $88.79 | $5,105 |
| Flexible duct, insulated, various sizes | 288 | LF | $24.46 | $7,032 |
| | | | | |
| Grilles and diffusers | | | | |
| Supply/Return/Exhaust Grilles | 58 | EA | $188.00 | $10,810 |
| | | | | |
| Miscellaneous | | | | |
| Pre-read and record - cfm, gpm | 24 | HR | $150.96 | $3,623 |
| Test / balance HVAC | 40 | HR | $150.96 | $6,038 |
| Start-up/check-out | 80 | HR | $137.24 | $10,979 |
| Commissioning assist | 40 | HR | $137.24 | $5,490 |
| Seismic bracing | 11,500 | SF | $0.90 | $10,350 |
| Hoisting and rigging | 1 | LS | $27,610.00 | $27,610 |
| Penetrations and firestopping for HVAC | 11,500 | SF | $0.65 | $7,475 |
| | | | | |
| **Integrated Automation** | | | | |
| HVAC Controls | | | | |
| DDC controls, chiller | 1 | EA | $20,640.00 | $20,640 |
| DDC controls, cooling tower cell | 1 | EA | $28,900.00 | $28,900 |
| DDC controls, pump wth vfd | 2 | EA | $8,257.00 | $16,514 |
| DDC controls, air handler, vav | 5 | EA | $24,780.00 | $123,900 |
| DDC controls, CO2 sensors | 10 | EA | $1,549.00 | $15,490 |
| DDC controls, vav box, reheat | 28 | EA | $2,323.00 | $65,044 |
| DDC controls, general exhaust fan | 2 | EA | $1,549.00 | $3,098 |
| DDC controls, integration/programming | 1 | EA | $15,490.00 | $15,490 |
| Plumbing Controls | | | | |
| DDC controls, domestic water heaters | 2 | EA | $3,097.00 | $6,194 |
| | | | | |
| ***Sub-Total: 11 Heating, Ventilation and Air Conditioning*** | **45,000** | **SF** | **$48.65** | **$2,189,273** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **12 Electrical Lighting, Power and Communications** | | | | |
| Service and Distribution | | | | |
| Replace 1600A 480/277V service switchboard with modern fault protection standards | 1 | EA | $85,487.50 | $85,488 |
| (Alternate - Obtain remaining 400A breaker leftover in stock and install to serve new loads) | 1 | EA | $8,310.00 | $8,310 |
| Provide 400A 480/277V distribution board to serve mechanical systems and lighting including feeders | 1 | EA | $14,465.00 | $14,465 |
| Provide 112.5kVA 480-208/120V transformer including primary/secondary feeders | 1 | EA | $26,586.50 | $26,587 |
| Provide 400A 208/120V panelboard including feeders | 1 | EA | $10,535.00 | $10,535 |
| Replace existing panelboards - LX, LA, A, A2 & B with 225A 208/120V copper bus, 100A for Panel 'LX' - panels shall be upgraded with additional breaker capacity | 5 | EA | $2,700.00 | $13,500 |
| Replace existing 'MCC' distribution panel with 400A 480/277V 72 poles cupper bus including feeders | 1 | EA | $14,618.75 | $14,619 |
| Provide 400A FDS Sw 240V/3Ph on two existing tranformer for secondary protection | 1 | EA | $8,500.00 | $8,500 |
| Grounding System/Coring/Firesealing | 45,000 | SF | $0.25 | $11,250 |
| Testing and Commissioning | 45,000 | SF | $0.35 | $15,750 |
| | | | | |
| Mechanical and Equipment Connections | | | | |
| Mechanical equipment upgrades and misc equipment connections | 45,000 | SF | $2.63 | $118,500 |
| | | | | |
| Convenience power | | | | |
| Provide receptacles on building additions to include computer labs, conference rooms, collaboration spaces, multi-media | 11,500 | SF | $7.00 | $80,500 |
| | | | | |
| Lighting and Control | | | | |
| Provide LED lighting and lighting controls upgrades to comply with latest energy codes/Title 24 on new additions/renovation areas. Provide centralized lighting control station (nLIght Eclypse) | 45,000 | SF | $33.74 | $1,518,500 |
| | | | | |
| General/Electrical Requirements | | | | |
| Electrical selective demolition | 45,000 | SF | $0.85 | $38,250 |
| General conditions / General requirements - Includes Small Tools, Office Staffing, Indirect Labor, Cosumables, Equipment Rental & General Expenses | 45,000 | SF | $12.00 | $540,000 |
| | | | | |
| Communication | | | | |
| Existing telecom infrastructure shall be extended from existing 2nd floor IT room to the addition area. | 1 | LS | $15,000.00 | $15,000 |
| Provide new telecom outlets to addition areas | 11,500 | SF | $9.00 | $103,500 |
| | | | | |
| Paging | | | | |
| Paging for new addition areas - allowance | 11,500 | SF | $2.75 | $31,625 |
| | | | | |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| AV - Conduit Rough-Ins | | | | |
| AV conduit rough-ins for new addition area - allowance | 11,500 | SF | $1.50 | $17,250 |
| | | | | |
| Card Access | | | | |
| Existing access control system shall be extended to the new addition area to match City's preferred vendor or standards | 11,500 | SF | $2.75 | $31,625 |
| | | | | |
| CCTV | | | | |
| Existing CCTV system shall be extended to the new addition area to match City's preferred vendor or standards - allowance | 11,500 | SF | $3.50 | $40,250 |
| | | | | |
| ***Sub-Total: 12 Electrical Lighting, Power and Communications*** | **45,000** | **SF** | **$60.98** | **$2,744,003** |
| **13 Fire Protection Systems** | | | | |
| Upgrade existing fire sprinkler system | 33,500 | SF | $4.50 | $150,750 |
| Wet-pipe sprinklers | 11,500 | SF | $9.00 | $103,500 |
| | | | | |
| ***Sub-Total: 13 Fire Protection Systems*** | **45,000** | **SF** | **$5.65** | **$254,250** |
| **Total - D) Mechanical and Electrical (10-13)** | **45,000** | **SF** | **$124.08** | **$5,583,814** |
| ***E) Building Prep & Demo (14-15)*** | | | | |
| **14 Building Preparations & Protection** | | | | |
| | | | | |
| ***Sub-Total: 14 Building Preparations & Protection*** | **45,000** | **SF** | | |
| **15 Building Demolition** | | | | |
| Selective Demolition | | | | |
| Remove concrete topping at plaza deck | 15,130 | SF | $2.00 | $30,260 |
| Remove rigid insulation at plaza deck | 15,130 | SF | $1.00 | $15,130 |
| Remove waterproofing membrane at plaza deck | 15,130 | SF | $2.00 | $30,260 |
| | | | | |
| Remove (E) friends room expansion complete | 1,616 | SF | $15.00 | $24,240 |
| Demo and remove CMU towers | 3 | EA | $3,000.00 | $9,000 |
| Cut new openings in (E) CMU wall for egress | 1,776 | SF | $10.00 | $17,760 |
| Remove CMU flanges | 48 | LF | $50.00 | $2,400 |
| Remove floor and ceiling finishes | 33,500 | SF | $2.50 | $83,750 |
| | | | | |
| ***Sub-Total: 15 Building Demolition*** | **45,000** | **SF** | **$4.73** | **$212,800** |
| **Total - E) Building Prep & Demo (14-15)** | **45,000** | **SF** | **$4.73** | **$212,800** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| ***F) Site Work (16-18)*** | | | | |
| **16 Site Preparation and Demolition** | | | | |
| Site clearing | | | | |
| Demo and remove slab on grade and paving for new expansion | 8,192 | SF | $2.50 | $20,480 |
| | | | | |
| Site grading | 8,192 | SF | $2.50 | $20,480 |
| | | | | |
| Erosion Control | 8,192 | SF | $0.75 | $6,144 |
| ***Sub-Total: 16 Site Preparation and Demolition*** | **45,000** | **SF** | **$1.05** | **$47,104** |
| **17 Site Paving, Structures & Landscaping** | | | | |
| Paving | | | | |
| New concrete paving around building expansion, 6' width | 2,442 | SF | $16.00 | $39,072 |
| ***Sub-Total: 17 Site Paving, Structures & Landscaping*** | **45,000** | **SF** | **$0.87** | **$39,072** |
| **18 Utilities on Site** | | | | |
| Wet Utilities - No major work anticipated | | | | |
| Allowance for minimal work and reconnection as needed | 1 | LS | $50,000.00 | $50,000 |
| | | | | |
| Site Electrical | | | | |
| Provide primary feeder ductbank for upsizing of existing SCE 500KW transformer/new transformer pad | 1 | EA | $35,000.00 | $35,000 |
| Provide 1600A secondary feeder ductbank only for new service switchboard, (4)-4"C (secondary cable by SCE)- allow | 1 | EA | $29,300.00 | $29,300 |
| Relocate (2) existing generators with (2) new pads + (2) sets 600A emergency feeders at 200ft horizontal run | 1 | LS | $154,250.00 | $154,250 |
| | | | | |
| Site Lighting | | | | |
| Replace existing site lighting with LED equivalent in same locations, provide LED wall packs over exterior exit ways. Provide astronomically controlled 16 relay panel | 1 | LS | $90,790.00 | $90,790 |
| ***Sub-Total: 18 Utilities on Site*** | **45,000** | **SF** | **$7.99** | **$359,340** |
| **Total - F) Site Work (16-18)** | **45,000** | **SF** | **$9.90** | **$445,516** |

# OPTION 3

# Construction Cost Detail - Option 3

**Glendora Library Structural Analysis & Expansion**

Feasibility Study SOPC

August 18, 2023

CUMMING
Building Value Through Expertise

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| ***A) Shell (1-5)*** | | | | |
| **1 Foundations** | | | | |
| **Work to Existing Building** | | | | |
| New micropiles to (E) footing, 10' deep | 24 | EA | $2,000.00 | $48,000 |
| | | | | |
| **Building Expansion** | | | | |
| Excavation | | | | |
| Over-excavate and compact building footprint, 5' depth and 5' beyond perimeter | 2,346 | CY | $24.00 | $56,304 |
| Foundation | | | | |
| Reinforced concrete pad/wall footings at expansion, assume 36" depth | 225 | CY | $850.00 | $191,250 |
| | | | | |
| ***Sub-Total: 1 Foundations*** | **51,630** | **SF** | **$5.72** | **$295,554** |
| **2 Vertical Structure** | | | | |
| **Work to Existing Building** | | | | |
| Structural steel columns - No work anticipated | | | | |
| | | | | |
| **Building Expansion** | | | | |
| Structural steel columns (4 lb/sf) | 36 | TN | $8,000.00 | $288,000 |
| New shearwall, 12" thick | 3,150 | SF | $75.00 | $236,250 |
| CMU wall, 8" | 1,200 | SF | $38.00 | $45,600 |
| | | | | |
| ***Sub-Total: 2 Vertical Structure*** | **51,630** | **SF** | **$11.04** | **$569,850** |
| **3 Floor & Roof Structures** | | | | |
| **Seismic/Gravity Repair** | | | | |
| FRP strenthening of (E) girders including grinding corners, duct for FRP overlay anchorage | 10,161 | SF | $120.00 | $1,219,320 |
| Prepare slab and Epoxy injection of cracks | 218 | LF | $82.00 | $17,876 |
| Prepare beam and Epoxy injection of cracks | 40 | LF | $90.00 | $3,600 |
| Allowance for additional epoxy injection cracks | 200 | LF | $82.00 | $16,400 |
| | | | | |
| New 2.5" Light Weight concrete topping, 3,000 psi | 15,130 | SF | $6.00 | $90,780 |
| Reinforcement to concrete topping, #3@12" O.C. | 15,644 | LB | $1.80 | $28,159 |
| | | | | |
| **Work to Existing Building** | | | | |
| Slab on grade - patch and repair due to construction of new micropiles | 540 | SF | $25.00 | $13,500 |
| Supplemetal wall anchorage connections, holdowns wit threaded rods set in adhesive connecting the walls to roof framing, @ 4' o.c. | 48 | EA | $300.00 | $14,400 |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **Building Expansion** | | | | |
| Slab on grade | | | | |
| Reinforced concrete slab on grade, 5" thick | 9,656 | SF | $14.00 | $135,184 |
| | | | | |
| Suspended floors and Roofs | | | | |
| Structural steel framing (12 lb/sf) | 103 | TN | $8,000.00 | $824,000 |
| Metal deck with concrete fill - floor | 9,065 | SF | $19.00 | $172,235 |
| Metal deck with concrete fill - roof | 9,676 | SF | $19.00 | $183,844 |
| | | | | |
| Miscellaneous | | | | |
| Miscellaneous metal, framing backing, equipment support framing | 18,130 | SF | $3.00 | $54,390 |
| Seismic joint | 204 | LF | $200.00 | $40,800 |
| ***Sub-Total: 3 Floor & Roof Structures*** | **51,630** | **SF** | **$26.65** | **$1,376,135** |

**4 Exterior Cladding**

| | | | | |
|---|---|---|---|---|
| **Work to Existing Building** | | | | |
| Patch and repaint existing exterior walls | 13,890 | SF | $5.00 | $69,450 |
| Windows - to remain | | | | No work anticipated |
| | | | | |
| **Building Expansion** | | | | |
| Wall framing, furring and insulation | | | | |
| Metal studs framing, sheathing, waterproofing, insulation | 10,380 | SF | $30.00 | $311,400 |
| | | | | |
| Exterior finishes | | | | |
| Metal panel or wood panel, cement plaster | 10,380 | SF | $55.00 | $570,900 |
| | | | | |
| Interior finish to exterior walls | | | | |
| Gypsum board lining | 10,380 | SF | $5.50 | $57,090 |
| | | | | |
| Windows, glazing and louvers | | | | |
| Aluminum glazed window and storefronts (30% of wall area) | 4,448 | SF | $130.00 | $578,240 |
| | | | | |
| Fascias, bands, screens and trim | | | | |
| Miscellaneous architectural features, window canopy, trims | 18,130 | SF | $5.00 | $90,650 |
| | | | | |
| Exterior doors, frames and hardware | | | | |
| Exterior storefront entry doors, metal doors | 1 | LS | $20,000.00 | $20,000 |
| | | | | |
| ***Sub-Total: 4 Exterior Cladding*** | **51,630** | **SF** | **$32.88** | **$1,697,730** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **5 Roofing and Waterproofing** | | | | |
| Existing Plaza Deck | | | | |
| New waterproofing membrane - deck | 15,130 | SF | $12.50 | $189,125 |
| New rigid insulation - deck | 15,130 | SF | $5.50 | $83,215 |
| Concrete pavers | 15,130 | SF | $25.00 | $378,250 |
| | | | | |
| **Building Expansion** | | | | |
| Waterproofing | | | | |
| Waterproofing - stair landing | 611 | SF | $13.00 | $7,943 |
| | | | | |
| Roofing | | | | |
| Single-ply roofing membrane, with cover board and rigid insulation | 9,676 | SF | $25.00 | $241,900 |
| | | | | |
| Roofing upstands and sheetmetal | | | | |
| Miscellaneous flashing and sheet metal | 9,676 | SF | $5.00 | $48,380 |
| | | | | |
| Deck | | | | |
| Hard surface finish to stair landing | 611 | SF | $35.00 | $21,385 |
| | | | | |
| Caulking and sealants | 18,130 | SF | $1.50 | $27,195 |
| | | | | |
| ***Sub-Total: 5 Roofing and Waterproofing*** | **51,630** | **SF** | **$19.32** | **$997,393** |
| **Total - A) Shell (1-5)** | **51,630** | **SF** | **$95.62** | **$4,936,662** |
| ***B) Interiors (6-7)*** | | | | |
| **6 Interior Partitions, Doors and Glazing** | | | | |
| **Work to Existing Building** | | | | |
| Restore damage partition as needed - allowance | 33,500 | SF | $2.00 | $67,000 |
| | | | | |
| **Building Expansion** | | | | |
| Partition | | | | |
| Metal studs partition with gypsum board lining and insulation (0.045 ratio/GFA) | 18,130 | SF | $20.00 | $362,600 |
| | | | | |
| Interior Door and Glazing | 18,130 | SF | $6.00 | $108,780 |
| | | | | |
| ***Sub-Total: 6 Interior Partitions, Doors and Glazing*** | **51,630** | **SF** | **$10.43** | **$538,380** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **7 Floor, Wall and Ceiling Finishes** | | | | |
| **Work to Existing Building** | | | | |
| Ceramic tiles at toilet, resilient flooring, sealed concrete at mechanical spaces and carpet throughout | 33,500 | SF | $12.00 | $402,000 |
| Gypsum board ceiling, ACT ceiling, and painted exposed ceiling | 33,500 | SF | $11.50 | $385,250 |
| Miscellaneous painting as needed | 1 | LS | $50,000.00 | $50,000 |
| **Building Expansion** | | | | |
| Floors | | | | |
| Ceramic tiles at toilet, resilient flooring, sealed concrete at mechanical spaces and carpet throughout | 18,130 | SF | $13.50 | $244,755 |
| Bases | | | | |
| Ceramic tiles at restrooms, resilient/wood base throughout | 18,130 | SF | $1.50 | $27,195 |
| Walls | | | | |
| Ceramic tiles to toilet, acoustical wall panel, paint throughout | 18,130 | SF | $8.50 | $154,105 |
| Ceilings | | | | |
| Gypsum board ceiling, ACT ceiling, and painted exposed ceiling | 18,130 | SF | $13.50 | $244,755 |
| ***Sub-Total: 7 Floor, Wall and Ceiling Finishes*** | **51,630** | **SF** | **$29.21** | **$1,508,060** |
| **Total - B) Interiors (6-7)** | **51,630** | **SF** | **$39.64** | **$2,046,440** |
| ***C) Equipment and Vertical Transportation (8-9)*** | | | | |
| **8 Function Equipment and Specialties** | | | | |
| **Work to Existing Building** | | | | |
| Allowance for patch and repair, modify as needed building specialties, casework, equipment affected during new construction | 33,500 | SF | $5.00 | $167,500 |
| **Building Expansion** | | | | |
| Specialties | | | | |
| Building specialties such as toilet cubicles and accessories, markerboard and tackboards, mirror, fire extinguisher cabinets, lockers and bench | 18,130 | SF | $3.50 | $63,455 |
| Signage - Code, Directional and Exterior ID | 18,130 | SF | $1.00 | $18,130 |
| Window shade, manual | 4,448 | SF | $16.00 | $71,168 |
| Cabinets and countertops | | | | |
| Fixed casework and millwork | 18,130 | SF | $8.00 | $145,040 |
| Equipment | | | | |
| Library shelving/stacks and equipment | 18,130 | SF | $35.00 | $634,550 |
| ***Sub-Total: 8 Function Equipment and Specialties*** | **51,630** | **SF** | **$21.30** | **$1,099,843** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **9 Stairs and Vertical Transportation** | | | | |
| **Building Expansion** | | | | |
| Staircase | | | | |
| Concrete filled metal pan staircase, finish and railings | 1 | FLT | $35,000.00 | $35,000 |
| | | | | |
| Elevator | | | | None |
| | | | | |
| ***Sub-Total: 9 Stairs and Vertical Transportation*** | **51,630** | **SF** | **$0.68** | **$35,000** |
| **Total - C) Equipment and Vertical Transportation (8-9)** | **51,630** | **SF** | **$21.98** | **$1,134,843** |
| ***D) Mechanical and Electrical (10-13)*** | | | | |
| **10 Plumbing Systems** | | | | |
| General Plumbing Equipment | | | | |
| 5-9 kW Electric Water Heater | 4 | EA | $5,996.00 | $23,984 |
| HW rough-in at water heater | 4 | EA | $1,171.00 | $4,684 |
| | | | | |
| Sanitary Fixtures | | | | |
| Water closet, WC-1, wall, sensor FV | 8 | EA | $2,132.00 | $17,056 |
| Urinal, UR-1 | 4 | EA | $1,541.00 | $6,164 |
| Lavatory, L-1, wall | 8 | EA | $1,212.00 | $9,696 |
| Sink, SS-1 | 4 | EA | $1,503.00 | $6,012 |
| Drinking fountain, DF-1 | 2 | EA | $3,523.00 | $7,046 |
| Floor drain, FD-1 | 4 | EA | $809.90 | $3,240 |
| | | | | |
| Rough-ins | | | | |
| Local rough-in at fixture | 30 | EA | $717.00 | $21,510 |
| | | | | |
| Domestic Cold Water | | | | |
| Domestic Cold Water Piping | 18,130 | SF | $4.87 | $88,293 |
| Upsize existing cold water service to 4" with a 2.5" water meter and 4" SOV including trenching and permitting | 1 | LS | $16,500.00 | $16,500 |
| New pressure reducing station on domestic water service to the building | 2 | EA | $6,593.00 | $13,186 |
| | | | | |
| Domestic Hot Water | | | | |
| Domestic Hot Water Piping | 18,130 | SF | $4.18 | $75,783 |
| | | | | |
| Waste Piping | | | | |
| Waste Piping, SF | 18,130 | SF | $5.36 | $97,177 |
| New Sanitary Waste tie-in points including trenching and permitting | 1 | LS | $12,500.00 | $12,500 |
| | | | | |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| Vent Piping | | | | |
| Vent Piping, SF | 18,130 | SF | $4.39 | $79,591 |
| Relocating/Extending the vent pipe serving the friends' room | 1 | LS | $6,500.00 | $6,500 |
| Provide vent caps | 8 | EA | $567.30 | $4,538 |
| | | | | |
| Roof Drainage | | | | |
| Roof Drainage, Allowance | 18,130 | SF | $2.01 | $36,441 |
| New Storm Drain tie-in points including trenching and permitting | 1 | LS | $12,500.00 | $12,500 |
| | | | | |
| Condensate Drainage | | | | |
| Trap and equipment connect | 7 | EA | $503.20 | $3,522 |
| 3/4" pipe, cu type M, in bldg | 210 | LF | $40.24 | $8,450 |
| Pipe insulation, 3/4" | 210 | LF | $12.55 | $2,636 |
| | | | | |
| Miscellaneous Plumbing | | | | |
| Test / clean plumbing | 40 | HR | $127.18 | $5,087 |
| Start-up/check-out | 40 | HR | $152.61 | $6,104 |
| Commissioning assist | 20 | HR | $133.87 | $2,677 |
| Seismic bracing | 18,130 | SF | $0.85 | $15,411 |
| Penetrations and firestopping for plumbing | 18,130 | SF | $0.65 | $11,785 |
| | | | | |
| ***Sub-Total: 10 Plumbing Systems*** | **51,630** | **SF** | **$11.58** | **$598,074** |

**11 Heating, Ventilation and Air Conditioning**

| | | | | |
|---|---|---|---|---|
| HVAC Demolition | | | | |
| Modify existing ductwork layout to rectify HVAC zoning issues | 33,500 | SF | $6.05 | $202,675 |
| Remove air handlers - AHU-1, 660,000 btu/hr, AHU-2, 516,000 btu/hr | 2 | EA | $14,820.00 | $29,640 |
| Remove air handlers - AHU-3, 61,500 btu/hr, AHU-4, 57,000 btu/hr | 2 | EA | $13,720.00 | $27,440 |
| Remove existing cooling tower | 1 | LS | $30,920.00 | $30,920 |
| Existing package units - To remain | 2 | EA | | NIC |
| | | | | |
| Chilled Water Equipment | | | | |
| Chiller, centrifugal - water cooled (York), high eff | 70 | TON | $602.00 | $42,140 |
| CHW pump, end suction, 5 hp, 225 gpm | 1 | EA | $5,361.00 | $5,361 |
| VFD to CHW pump, 5 hp | 1 | EA | $3,887.00 | $3,887 |
| | | | | |
| Condenser Water Equipment | | | | |
| Cooling towers, pumps, misc | 170 | TON | $507.20 | $86,224 |
| CW pump, end suction, 5 hp, 225 gpm | 1 | EA | $5,361.00 | $5,361 |
| VFD to CW pump, 5 hp | 1 | EA | $3,887.00 | $3,887 |
| | | | | |
| Condenser Water Piping | | | | |
| Condenser piping to chiller or HX, weld, 4" | 1 | EA | $8,886.00 | $8,886 |
| Cooling tower rough-in, weld, 6" | 1 | EA | $14,250.00 | $14,250 |
| CW pump connect, weld, end suct, 4" | 1 | EA | $9,541.00 | $9,541 |
| CW piping distribution to HVAC units | 18,130 | SF | $2.08 | $37,710 |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| | | | | |
| Chilled Water Distribution | | | | |
| Chiller connect, weld, 6" | 1 | EA | $11,400.00 | $11,400 |
| CHW pump connect, weld, end suct, 2-1/2" | 1 | EA | $6,232.00 | $6,232 |
| CHW coil connect, cu, 2-way, 2" | 7 | EA | $6,025.00 | $42,175 |
| CHW distribution to HVAC equipment | 18,130 | SF | $3.76 | $68,169 |
| | | | | |
| Hot Water Distribution | | | | |
| Coil connection KIT | 30 | EA | $1,250.00 | $37,500 |
| HHW distribution to HVAC equipment | 51,630 | SF | $4.44 | $229,237 |
| | | | | |
| Air-Side Equipment | | | | |
| Replacement AHU-1, 660,000 btu/hr | 22,000 | CFM | $14.40 | $316,800 |
| Replacement AHU-2, 516,000 btu/hr | 17,200 | CFM | $14.40 | $247,680 |
| New Air Handling Units for Expansion | 18,130 | CFM | $14.40 | $261,072 |
| Terminal units | | | | |
| VAV box w/ reheat, 10", 1450 cfm max | 30 | EA | $1,197.00 | $35,910 |
| Fans | | | | |
| Exhaust fans | 3,626 | CFM | $2.34 | $8,485 |
| | | | | |
| Air Distribution | | | | |
| Ductwork, galv | 14,504 | LBS | $15.75 | $228,438 |
| Duct insulation, wrap | 9,065 | SF | $3.46 | $31,365 |
| Manual volume damper | 91 | EA | $88.79 | $8,049 |
| Flexible duct, insulated, various sizes | 453 | LF | $24.46 | $11,086 |
| | | | | |
| Grilles and diffusers | | | | |
| Supply/Return/Exhaust Grilles | 91 | EA | $188.00 | $17,108 |
| | | | | |
| Miscellaneous | | | | |
| Pre-read and record - cfm, gpm | 24 | HR | $150.96 | $3,623 |
| Test / balance HVAC | 80 | HR | $150.96 | $12,077 |
| Start-up/check-out | 120 | HR | $137.24 | $16,469 |
| Commissioning assist | 60 | HR | $137.24 | $8,234 |
| Seismic bracing | 18,130 | SF | $0.90 | $16,317 |
| Hoisting and rigging | 1 | LS | $30,100.00 | $30,100 |
| Penetrations and firestopping for HVAC | 18,130 | SF | $0.65 | $11,785 |
| | | | | |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **Integrated Automation** | | | | |
| HVAC Controls | | | | |
| DDC controls, chiller | 1 | EA | $20,640.00 | $20,640 |
| DDC controls, cooling tower cell | 1 | EA | $28,900.00 | $28,900 |
| DDC controls, pump wth vfd | 2 | EA | $8,257.00 | $16,514 |
| DDC controls, air handler, vav | 5 | EA | $24,780.00 | $123,900 |
| DDC controls, CO2 sensors | 15 | EA | $1,549.00 | $23,235 |
| DDC controls, vav box, reheat | 30 | EA | $2,323.00 | $69,690 |
| DDC controls, general exhaust fan | 4 | EA | $1,549.00 | $6,196 |
| DDC controls, integration/programming | 1 | EA | $15,490.00 | $15,490 |
| | | | | |
| Plumbing Controls | | | | |
| DDC controls, domestic water heaters | 4 | EA | $3,097.00 | $12,388 |
| | | | | |
| ***Sub-Total: 11 Heating, Ventilation and Air Conditioning*** | **51,630** | **SF** | **$48.12** | **$2,484,186** |

**12 Electrical Lighting, Power and Communications**

| | | | | |
|---|---|---|---|---|
| Service and Distribution | | | | |
| Replace 1600A 480/277V service switchboard with modern fault protection standards | 1 | EA | $85,487.50 | $85,488 |
| (Alternate - Obtain remaining 400A breaker leftover in stock and install to serve new loads) | 1 | EA | $8,310.00 | $8,310 |
| Provide 600A 480/277V distribution board to serve mechanical systems and lighting including feeders | 1 | EA | $18,800.00 | $18,800 |
| Provide 112.5kVA 480-208/120V transformer including primary/secondary feeders | 1 | EA | $26,586.50 | $26,587 |
| Provide 400A 208/120V panelboard including feeders | 1 | EA | $10,535.00 | $10,535 |
| Replace existing panelboards - LX, LA, A, A2 & B with 225A 208/120V copper bus, 100A for Panel 'LX' - panels shall be upgraded with additional breaker capacity | 5 | EA | $2,700.00 | $13,500 |
| Replace existing 'MCC' distribution panel with 400A 480/277V 72 poles cupper bus including feeders | 1 | EA | $14,618.75 | $14,619 |
| Provide 400A FDS Sw 240V/3Ph on two existing tranformer for secondary protection | 1 | EA | $8,500.00 | $8,500 |
| Grounding System/Coring/Firesealing | 51,630 | SF | $0.25 | $12,908 |
| Testing and Commissioning | 51,630 | SF | $0.35 | $18,071 |
| | | | | |
| Mechanical and Equipment Connections | | | | |
| Mechanical equipment upgrades and misc equipment connections | 51,630 | SF | $2.44 | $125,977 |
| | | | | |
| Convenience power | | | | |
| Provide receptacles on building additions to include computer labs, conference rooms, collaboration spaces, multi-media | 18,130 | SF | $6.00 | $108,780 |
| | | | | |
| Lighting and Control | | | | |
| Provide LED lighting and lighting controls upgrades to comply with latest energy codes/Title 24 on new additions/renovation areas. Provide centralized lighting control station (nLIght Eclypse) | 51,630 | SF | $32.35 | $1,670,231 |
| | | | | |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| General/Electrical Requirements | | | | |
| Electrical selective demolition | 51,630 | SF | $0.85 | $43,886 |
| General conditions / General requirements - Includes Small Tools, Office Staffing, Indirect Labor, Cosumables, Equipment Rental & General Expenses | 51,630 | SF | $12.00 | $619,560 |
| | | | | |
| Communication | | | | |
| Existing telecom infrastructure shall be extended from existing 2nd floor IT room to the addition area. | 1 | LS | $20,000.00 | $20,000 |
| Provide new telecom outlets to addition areas | 18,130 | SF | $8.00 | $145,040 |
| | | | | |
| Paging | | | | |
| Paging for new addition areas - allowance | 18,130 | SF | $2.25 | $40,793 |
| | | | | |
| AV - Conduit Rough-Ins | | | | |
| AV conduit rough-ins for new addition area - allowance | 18,130 | SF | $1.25 | $22,663 |
| | | | | |
| Card Access | | | | |
| Existing access control system shall be extended to the new addition area to match City's preferred vendor or standards | 18,130 | SF | $2.25 | $40,793 |
| | | | | |
| CCTV | | | | |
| Existing CCTV system shall be extended to the new addition area to match City's preferred vendor or standards - allowance | 18,130 | SF | $2.85 | $51,671 |
| | | | | |
| ***Sub-Total: 12 Electrical Lighting, Power and Communications*** | **51,630** | **SF** | **$60.17** | **$3,106,707** |

**13 Fire Protection Systems**

| | | | | |
|---|---|---|---|---|
| Upgrade existing fire sprinkler system | 33,500 | SF | $4.50 | $150,750 |
| Wet-pipe sprinklers | 18,130 | SF | $9.00 | $163,170 |
| | | | | |
| ***Sub-Total: 13 Fire Protection Systems*** | **51,630** | **SF** | **$6.08** | **$313,920** |

| | | | | |
|---|---|---|---|---|
| **Total - D) Mechanical and Electrical (10-13)** | **51,630** | **SF** | **$125.95** | **$6,502,887** |

***E) Building Prep & Demo (14-15)***

**14 Building Preparations & Protection**

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| ***Sub-Total: 14 Building Preparations & Protection*** | **51,630** | **SF** | | |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **15 Building Demolition** | | | | |
| Selective Demolition | | | | |
| Remove concrete topping | 15,130 | SF | $2.00 | $30,260 |
| Remove rigid insulation | 15,130 | SF | $1.00 | $15,130 |
| Remove waterproofing membrane | 15,130 | SF | $2.00 | $30,260 |
| | | | | |
| Remove (E) friends room expansion complete | 1,616 | SF | $15.00 | $24,240 |
| Demo and remove CMU towers | 3 | EA | $3,000.00 | $9,000 |
| Cut new openings in (E) CMU wall for egress | 1,776 | SF | $10.00 | $17,760 |
| Remove CMU flanges | 48 | LF | $50.00 | $2,400 |
| Remove floor and ceiling finishes | 33,500 | SF | $2.50 | $83,750 |
| | | | | |
| ***Sub-Total: 15 Building Demolition*** | **51,630** | **SF** | **$4.12** | **$212,800** |
| **Total - E) Building Prep & Demo (14-15)** | **51,630** | **SF** | **$4.12** | **$212,800** |
| ***F) Site Work (16-18)*** | | | | |
| **16 Site Preparation and Demolition** | | | | |
| Site clearing | | | | |
| Demo and remove slab on grade and paving for new expansion | 13,268 | SF | $2.50 | $33,170 |
| | | | | |
| Site grading | 13,268 | SF | $2.50 | $33,170 |
| | | | | |
| Erosion Control | 13,268 | SF | $0.75 | $9,951 |
| | | | | |
| ***Sub-Total: 16 Site Preparation and Demolition*** | **51,630** | **SF** | **$1.48** | **$76,291** |
| **17 Site Paving, Structures & Landscaping** | | | | |
| Paving | | | | |
| New concrete paving around building expansion, 6' width | 3,612 | SF | $16.00 | $57,792 |
| | | | | |
| ***Sub-Total: 17 Site Paving, Structures & Landscaping*** | **51,630** | **SF** | **$1.12** | **$57,792** |

# Construction Cost Detail - Option 3

**Glendora Library Structural Analysis & Expansion**

Feasibility Study SOPC

August 18, 2023

CUMMING
Building Value Through Expertise

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **18 Utilities on Site** | | | | |
| Wet Utilities - No major work anticipated | | | | |
| Allowance for minimal work and reconnection as needed | 1 | LS | $60,000.00 | $60,000 |
| | | | | |
| Site Electrical | | | | |
| Provide primary feeder ductbank for upsizing of existing SCE 500KW transformer/new transformer pad | 1 | EA | $35,000.00 | $35,000 |
| Provide 1600A secondary feeder ductbank only for new service switchboard, (4)-4"C (secondary cable by SCE)- allow | 1 | EA | $29,300.00 | $29,300 |
| Relocate (2) existing generators with (2) new pads + (2) sets 600A emergency feeders at 200ft horizontal run | 1 | LS | $154,250.00 | $154,250 |
| | | | | |
| Site Lighting | | | | |
| Replace existing site lighting with LED equivalent in same locations, provide LED wall packs over exterior exit ways. Provide astronomically controlled 16 relay panel | 1 | LS | $97,435.00 | $97,435 |
| | | | | |
| ***Sub-Total: 18 Utilities on Site*** | **51,630** | **SF** | **$7.28** | **$375,985** |
| **Total - F) Site Work (16-18)** | **51,630** | **SF** | **$9.88** | **$510,068** |

# OPTION 4

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| ***A) Shell (1-5)*** | | | | |
| **1 Foundations** | | | | |
| Excavation | | | | |
| Over-excavate and compact building footprint, 5' depth and 5' beyond perimeter | 4,731 | CY | $23.00 | $108,813 |
| | | | | |
| Foundation | | | | |
| Reinforced concrete pad footings, grade beams and wall footings | 45,000 | SF | $18.00 | $810,000 |
| Elevator pit, complete | 1 | EA | $15,000.00 | $15,000 |
| | | | | |
| ***Sub-Total: 1 Foundations*** | **45,000** | **SF** | **$20.75** | **$933,813** |
| **2 Vertical Structure** | | | | |
| Columns | | | | |
| Steel columns and bracings (6 lb/sf) | 135 | TN | $8,000.00 | $1,080,000 |
| | | | | |
| Fireproofing steelwork | | | | |
| Sprayed fireproofing steelwork | 135 | TN | $450.00 | $60,750 |
| | | | | |
| ***Sub-Total: 2 Vertical Structure*** | **45,000** | **SF** | **$25.35** | **$1,140,750** |
| **3 Floor & Roof Structures** | | | | |
| Slab on grade | | | | |
| Reinforced concrete slab on grade, 5" | 22,500 | SF | $15.00 | $337,500 |
| | | | | |
| Suspended floors and Roofs | | | | |
| Structural steel framing (12 lb/sf) | 270 | TN | $8,000.00 | $2,160,000 |
| Metal deck with concrete topping - floor | 22,500 | SF | $19.00 | $427,500 |
| Metal deck - roof | 24,750 | SF | $12.00 | $297,000 |
| | | | | |
| Fireproofing steelwork | | | | |
| Sprayed fireproofing steelwork | 270 | TN | $450.00 | $121,500 |
| | | | | |
| Miscellaneous | | | | |
| Miscellaneous metal, framing backing, equipment support framing | 45,000 | SF | $3.00 | $135,000 |
| | | | | |
| ***Sub-Total: 3 Floor & Roof Structures*** | **45,000** | **SF** | **$77.30** | **$3,478,500** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **4 Exterior Cladding** | | | | |
| Exterior Façade (0.6 ratio/GFA) | | | | |
| Metal studs framing, sheathing, waterproofing, insulation | 20,250 | SF | $30.00 | $607,500 |
| | | | | |
| Exterior finishes | | | | |
| Metal panel or wood panel, cement plaster | 20,250 | SF | $54.00 | $1,093,500 |
| | | | | |
| Interior finish to exterior walls | | | | |
| Gypsum board lining | 20,250 | SF | $5.50 | $111,375 |
| | | | | |
| Windows, glazing and louvers | | | | |
| Aluminum glazed window and storefronts (25% of wall area) | 6,750 | SF | $130.00 | $877,500 |
| | | | | |
| Fascias, bands, screens and trim | | | | |
| Miscellaneous architectural features, window canopy, trims, mechanical screen | 45,000 | SF | $5.00 | $225,000 |
| | | | | |
| Exterior doors, frames and hardware | | | | |
| Exterior storefront entry doors, metal doors | 1 | LS | $50,000.00 | $50,000 |
| | | | | |
| ***Sub-Total: 4 Exterior Cladding*** | **45,000** | **SF** | **$65.89** | **$2,964,875** |
| **5 Roofing and Waterproofing** | | | | |
| Roofing | | | | |
| Claytile roofing and insulation | 24,750 | SF | $35.00 | $866,250 |
| Waterproofing | 24,750 | SF | $6.00 | $148,500 |
| | | | | |
| Roofing upstands and sheetmetal | | | | |
| Miscellaneous flashing and sheet metal | 24,750 | SF | $10.00 | $247,500 |
| | | | | |
| Caulking and sealants | 45,000 | SF | $1.50 | $67,500 |
| | | | | |
| ***Sub-Total: 5 Roofing and Waterproofing*** | **45,000** | **SF** | **$29.55** | **$1,329,750** |
| **Total - A) Shell (1-5)** | **45,000** | **SF** | **$218.84** | **$9,847,688** |
| ***B) Interiors (6-7)*** | | | | |
| **6 Interior Partitions, Doors and Glazing** | | | | |
| Partitions | | | | |
| Metal studs partition with gypsum board lining and insulation (0.045 ratio/GFA) | 45,000 | SF | $24.00 | $1,080,000 |
| | | | | |
| Interior Door and Glazing | 45,000 | SF | $6.00 | $270,000 |
| | | | | |
| ***Sub-Total: 6 Interior Partitions, Doors and Glazing*** | **45,000** | **SF** | **$30.00** | **$1,350,000** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **7 Floor, Wall and Ceiling Finishes** | | | | |
| Floors | | | | |
| Ceramic tiles at toilet, resilient flooring, sealed concrete at mechanical spaces and carpet throughout | 45,000 | SF | $13.00 | $585,000 |
| Bases | | | | |
| Ceramic tiles at restrooms, resilient/wood base throughout | 45,000 | SF | $1.50 | $67,500 |
| Walls | | | | |
| Ceramic tiles to toilet, acoustical wall panel, paint throughout | 45,000 | SF | $9.00 | $405,000 |
| Ceilings | | | | |
| Gypsum board ceiling, ACT ceiling, and painted exposed ceiling | 45,000 | SF | $13.00 | $585,000 |
| ***Sub-Total: 7 Floor, Wall and Ceiling Finishes*** | **45,000** | **SF** | **$36.50** | **$1,642,500** |
| **Total - B) Interiors (6-7)** | **45,000** | **SF** | **$66.50** | **$2,992,500** |
| ***C) Equipment and Vertical Transportation (8-9)*** | | | | |
| **8 Function Equipment and Specialties** | | | | |
| Specialties | | | | |
| Building specialties such as toilet cubicles and accessories, markerboard and tackboards, mirror, fire extinguisher cabinets, lockers and bench | 45,000 | SF | $3.00 | $135,000 |
| Signage - Code, Directional and Exterior ID | 45,000 | SF | $1.75 | $78,750 |
| Exterior signage | 1 | LS | $20,000.00 | $20,000 |
| Window shade, manual | 6,750 | SF | $16.00 | $108,000 |
| Cabinets and countertops | | | | |
| Fixed casework and millwork | 45,000 | SF | $9.00 | $405,000 |
| Equipment | | | | |
| Library shelving/stacks, book detection system | 45,000 | SF | $50.00 | $2,250,000 |
| ***Sub-Total: 8 Function Equipment and Specialties*** | **45,000** | **SF** | **$66.59** | **$2,996,750** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **9 Stairs and Vertical Transportation** | | | | |
| Stairs | | | | |
| Concrete filled metal pan staircase, finish and railings | 2 | FLT | $35,000.00 | $70,000 |
| | | | | |
| Elevators | | | | |
| New traction passenger elevator, 2-stop | 1 | EA | $200,000.00 | $200,000 |
| | | | | |
| ***Sub-Total: 9 Stairs and Vertical Transportation*** | **45,000** | **SF** | **$6.00** | **$270,000** |
| **Total - C) Equipment and Vertical Transportation (8-9)** | **45,000** | **SF** | **$72.59** | **$3,266,750** |
| ***D) Mechanical and Electrical (10-13)*** | | | | |
| **10 Plumbing Systems** | | | | |
| Plumbing systems | | | | |
| General Plumbing Equipment | 45,000 | SF | $1.59 | $71,550 |
| | | | | |
| Sanitary Fixtures | 45,000 | SF | $2.50 | $112,500 |
| Rough-ins | 45,000 | SF | $1.15 | $51,750 |
| | | | | |
| Domestic Cold Water piping | 45,000 | SF | $4.87 | $219,150 |
| | | | | |
| Domestic Hot Water Piping | 45,000 | SF | $4.18 | $188,100 |
| | | | | |
| Waste Piping | 45,000 | SF | $5.36 | $241,200 |
| | | | | |
| Vent Piping | 45,000 | SF | $4.39 | $197,550 |
| | | | | |
| Roof Drainage | 45,000 | SF | $2.01 | $90,450 |
| | | | | |
| Condensate Drainage | 45,000 | SF | $0.32 | $14,400 |
| | | | | |
| Misc. plumbing - test/clean, start-up, commissioning, seismic bracing and penetrations & firestopping | 45,000 | SF | $1.99 | $89,550 |
| ***Sub-Total: 10 Plumbing Systems*** | **45,000** | **SF** | **$28.36** | **$1,276,200** |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **11 Heating, Ventilation and Air Conditioning** | | | | |
| HVAC System | | | | |
| Chilled Water Equipment | 45,000 | SF | $2.63 | $118,350 |
| Condenser Water Equipment | 45,000 | SF | $1.78 | $80,100 |
| Heating Hot Water Equipment | 45,000 | SF | $1.26 | $56,700 |
| Condenser Water Piping | 45,000 | SF | $3.95 | $177,750 |
| Chilled Water Distribution | 45,000 | SF | $5.64 | $253,800 |
| Hot Water Distribution | 45,000 | SF | $6.97 | $313,650 |
| Air Side Equipment: Air Handling Units, DX ancoils/Splits, Terminal Units, Exhaust Fans | 45,000 | SF | $16.87 | $759,150 |
| Air Distribution: ductwork, insulation, air distribution registers, manual volume dampers, flexible duct | 45,000 | SF | $21.82 | $981,900 |
| Misc. HVAC - test/clean, start-up, commissioning, seismic bracing and penetrations & firestopping | 45,000 | SF | $4.90 | $220,500 |
| Integrated Automation | | | | |
| Controls & Instrumentation | 45,000 | SF | $11.13 | $500,850 |
| ***Sub-Total: 11 Heating, Ventilation and Air Conditioning*** | **45,000** | **SF** | **$76.95** | **$3,462,750** |
| **12 Electrical Lighting, Power and Communications** | | | | |
| **Service and distribution** | | | | |
| Service and distribution, including panelboards, transformer, feeders and grounding | 45,000 | SF | $16.00 | $720,000 |
| Mechanical and equipment connections, including HVAC/plumbing and misc equipment connections | 45,000 | SF | $7.00 | $315,000 |
| Convenience power | 45,000 | SF | $8.00 | $360,000 |
| Lighting and lighting control | | | | |
| Lighting and Lighting switching and controls including toggle switches, dimmers, occupancy sensors, and daylighting sensors | 45,000 | SF | $34.00 | $1,530,000 |
| General conditions / General requirements - Includes Small Tools, Office Staffing, Indirect Labor, Cosumables, Equipment Rental & General Expenses | 45,000 | SF | $12.00 | $540,000 |

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| **Communications** | | | | |
| Telephone Data Systems | 45,000 | SF | $12.50 | $562,500 |
| Paging system | 45,000 | SF | $3.50 | $157,500 |
| Audio Visual - roughin only | 45,000 | SF | $1.50 | $67,500 |
| | | | | |
| **Electrical Safety And Security** | | | | |
| Security system, access control and CCTV | 45,000 | SF | $8.00 | $360,000 |
| Fire alarm System | 45,000 | SF | $7.50 | $337,500 |
| | | | | |
| ***Sub-Total: 12 Electrical Lighting, Power and Communications*** | **45,000** | **SF** | **$110.00** | **$4,950,000** |
| **13 Fire Protection Systems** | | | | |
| Wet-pipe sprinklers system | 45,000 | SF | $9.00 | $405,000 |
| | | | | |
| ***Sub-Total: 13 Fire Protection Systems*** | **45,000** | **SF** | **$9.00** | **$405,000** |
| **Total - D) Mechanical and Electrical (10-13)** | **45,000** | **SF** | **$224.31** | **$10,093,950** |

# Construction Cost Detail - Option 4 Site Development

**Glendora Library Structural Analysis & Expansion**

Feasibility Study SOPC

August 18, 2023

CUMMING
Building Value Through Expertise

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| ***F) Site Work (16-18)*** | | | | |
| **16 Site Preparation and Demolition** | | | | |
| Selective demolition and removal | | | | |
| Site clearing and demolition (assumed no building structure to be removed) | 60,000 | SF | $2.50 | $150,000 |
| | | | | |
| Earthwork | | | | |
| General site grading and compaction | 60,000 | SF | $3.00 | $180,000 |
| | | | | |
| Erosion Control | 60,000 | SF | $0.75 | $45,000 |
| | | | | |
| ***Sub-Total: 16 Site Preparation and Demolition*** | **60,000** | **SF** | **$6.25** | **$375,000** |
| **17 Site Paving, Structures & Landscaping** | | | | |
| Paving | | | | |
| Asphalt paving at parking, concrete pavers, standard concrete paving elsewhere | 27,500 | SF | $18.00 | $495,000 |
| | | | | |
| Landscaping and irrigation | | | | |
| Allowance for landscaping, trees, shrubs and ground cover | 10,000 | SF | $15.00 | $150,000 |
| Irrigaton | 10,000 | SF | $5.50 | $55,000 |
| | | | | |
| Site structures | | | | |
| Allowance for site walls, curb, planter wall and perimeter fencing | 60,000 | SF | $10.00 | $600,000 |
| | | | | |
| Specialties | | | | |
| Site specialties such as bike racks, trash receptacle, benches | 60,000 | SF | $0.35 | $21,000 |
| Signage, ADA signs, parking striping | 60,000 | SF | $0.50 | $30,000 |
| | | | | |
| ***Sub-Total: 17 Site Paving, Structures & Landscaping*** | **60,000** | **SF** | **$22.52** | **$1,351,000** |
| **18 Utilities on Site** | | | | |
| Storm drainage | | | | |
| Drainage system including piping, area drain, catch basin, cleanouts, trench drain | 60,000 | SF | $2.00 | $120,000 |
| Storm water capture, assume 4,000 sf x 6' deep | 24,000 | CF | $9.00 | $216,000 |
| | | | | |
| Sewer | | | | |
| PVC piping, connections including trenching and backfill, 6" | 300 | LF | $180.00 | $54,000 |
| Manhole | 1 | EA | $8,500.00 | $8,500 |
| Cleanouts | 2 | EA | $1,800.00 | $3,600 |
| Connect to existing | 1 | EA | $2,200.00 | $2,200 |
| Connect to Building | 1 | EA | $2,200.00 | $2,200 |
| | | | | |

# Construction Cost Detail - Option 4 Site Development

**Glendora Library Structural Analysis & Expansion**

Feasibility Study SOPC

August 18, 2023

CUMMING
Building Value Through Expertise

| Code | Quantity | Unit | Unit Rate | Total Cost |
|---|---|---|---|---|
| Domestic water | | | | |
| PVC piping, connections including trenching and backfill, 4" | 300 | LF | $160.00 | $48,000 |
| Backflow prevener, 6" | 1 | EA | $14,000.00 | $14,000 |
| Meter | 1 | EA | $750.00 | $750 |
| Connect to existing | 1 | EA | $2,200.00 | $2,200 |
| Connect to Building | 1 | EA | $2,200.00 | $2,200 |
| | | | | |
| Fire water | | | | |
| PVC piping, connections including trenching and backfill, 6" | 300 | LF | $160.00 | $48,000 |
| Connect to existing | 1 | EA | $2,200.00 | $2,200 |
| Connect to Building | 1 | EA | $2,200.00 | $2,200 |
| Backflow prevener, 6" | 1 | EA | $14,000.00 | $14,000 |
| Fire hydrant, 6" | 1 | EA | $12,000.00 | $12,000 |
| Fire department connection including (1) post-indicator valve | 1 | EA | $9,500.00 | $9,500 |
| | | | | |
| Site Electrical | | | | |
| Site distribution including transformer, feeder | 1 | LS | $150,000.00 | $150,000 |
| Telecommunication | 1 | LS | $60,000.00 | $60,000 |
| Electric Vehicle Charging Station - Dual Level 2 EVCS with Base - allow | 5 | EA | $21,000.00 | $105,000 |
| Site lighting | 60,000 | SF | $1.50 | $90,000 |
| | | | | |
| ***Sub-Total: 18 Utilities on Site*** | **60,000** | **SF** | **$16.11** | **$966,550** |
| **Total - F) Site Work (16-18)** | **60,000** | **SF** | **$44.88** | **$2,692,550** |

| Code | Quantity | Unit | Unit Cost | Total Cost |
|---|---|---|---|---|
| ***New Planter at Plaza Deck (Option 3 and 1a)*** | | | | |
| Concrete planter wall, 30" high | 925 | SF | $75.00 | $69,375 |
| Plaster finish ith paint to planter wall | 925 | SF | $30.00 | $27,750 |
| Waterproofing | 2,486 | SF | $12.00 | $29,832 |
| Planter soil | 159 | CY | $75.00 | $11,924 |
| Landscaping and irrigation | 1,561 | SF | $30.00 | $46,830 |
| Drainage | 6 | EA | $2,000.00 | $12,000 |
| Markups | | | | |
| Design Contingency | 15.00 | % | $197,711.31 | $29,657 |
| Escalation | 6.93 | % | $227,368.00 | $15,746 |
| General Conditions | 8.00 | % | $243,114.06 | $19,449 |
| General Requirements | 4.00 | % | $243,114.06 | $9,725 |
| Subcontractor Default Insur. | 1.20 | % | $243,114.06 | $2,917 |
| General Liability Insurance | 1.50 | % | $272,287.75 | $4,084 |
| Overhead & Profit | 4.50 | % | $279,289.43 | $12,568 |
| | | | | ***$291,857*** |

## Project Escalation Forecast

***Cumming revises our escalation forecast on a quarterly basis. All rates subject to change with market conditions.***

| | |
|---|---|
| Estimate Date | 07/24/23 |
| Construction Start | 09/01/24 |
| Construction Midpoint | 03/01/25 |
| Construction Completion | 08/31/25 |
| Construction Buyout | 09/01/24 |
| Construction Duration | 364 Days |
| *Construction Duration* | *12 months* |

| Year | Time | Rate | Total | Rate |
|---|---|---|---|---|
| 2023 | 0.44 | 7.86% | 3.47% | |
| 2024 | 0.67 | 5.0% | 3.3% | 6.93% |
| | | | Total Escalation to Start Date | 6.93% |

# APPENDIX C: Mechanical, Electrical, & Plumbing Assessment Report



# Glendora Public Library

## Expansion Study

## Final Submission

www.p2sinc.com

August 8, 2023

P2S Project #23-0674

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# Mechanical Assessment

The HVAC system at Glendora Library utilizes a mix of hydronic systems and standalone DX packaged and split AC systems. The equipment comprises a combination of original components, replacements, and additions made throughout the years. Moreover, a separate system serves the newly constructed west-side library addition. To accommodate the planned expansion, the existing system capacity will require expansion.

## Existing Conditions

### MPR + 1st Floor

The library's first floor utilizes a dual duct air handling system (AHU-1) that supplies air to a hot and a cold plenum. These two plenums connect to 8 mixed air ducts equipped with 16 dampers (See Figure 1 below). These dampers regulate the air temperature in 8 distinct zones spanning the entire first floor of the library. (See Figure 2 below)

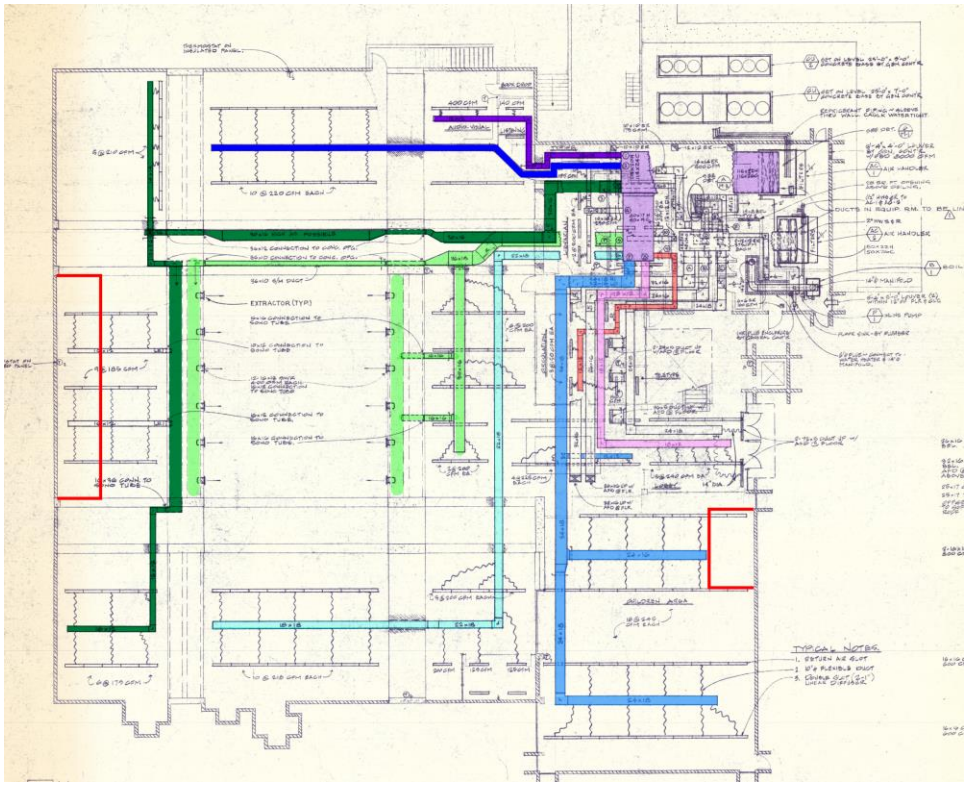


***Figure 1: Original air conditioning zones for (AHU-1) serving the first floor.***

Throughout the life of the library, as the need for additional office spaces was observed, portions of the stacks area and children's area were carved off to be dedicated to office spaces or small group meeting rooms. As these spaces were added to the main library, it does not appear that the existing air handling system was modified to accommodate the changes. These additional spaces are shown on the plan above with bright red lines.

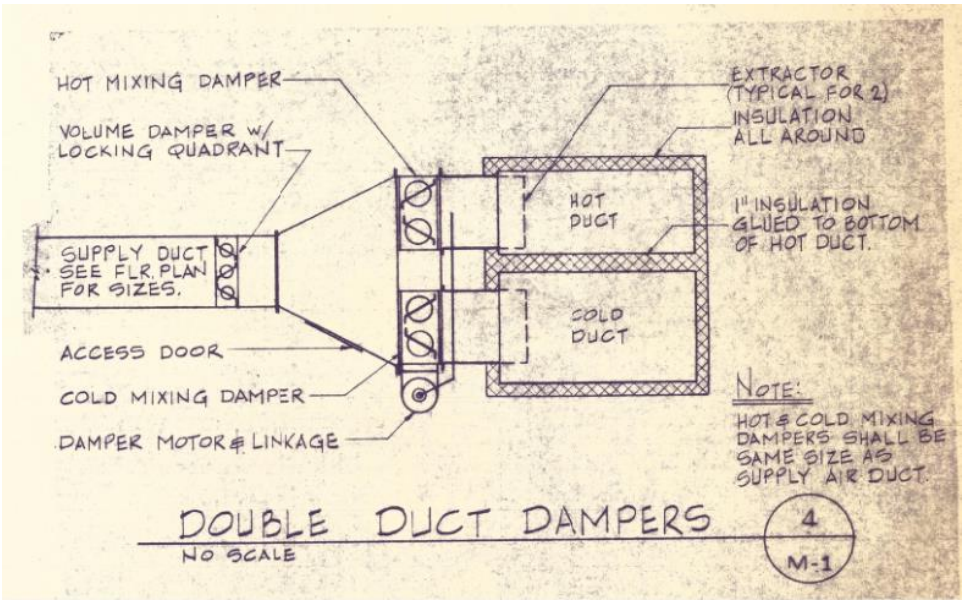



***Figure 2: Existing double duct plenums with mixing dampers***

During our site investigation, facility personnel noted that the controls for the air handling system are managed by Siemens and that they have limited control and access to the system. They also noted that due to changes to the spaces, some portions of the floor feel hotter while the other portions are freezing. This can be due to multiple factors, such as dampers not working properly, or the fact that the additional office spaces have isolated one of the thermostats from the rest of the building.

Furthermore, a portion of the air distribution ducts are embedded within the structural beams which poses additional challenges to proper adjustment of zones within this area. Because of this condition, there are not many opportunities for reprogramming of the stacks area. (See Figure 3 below)

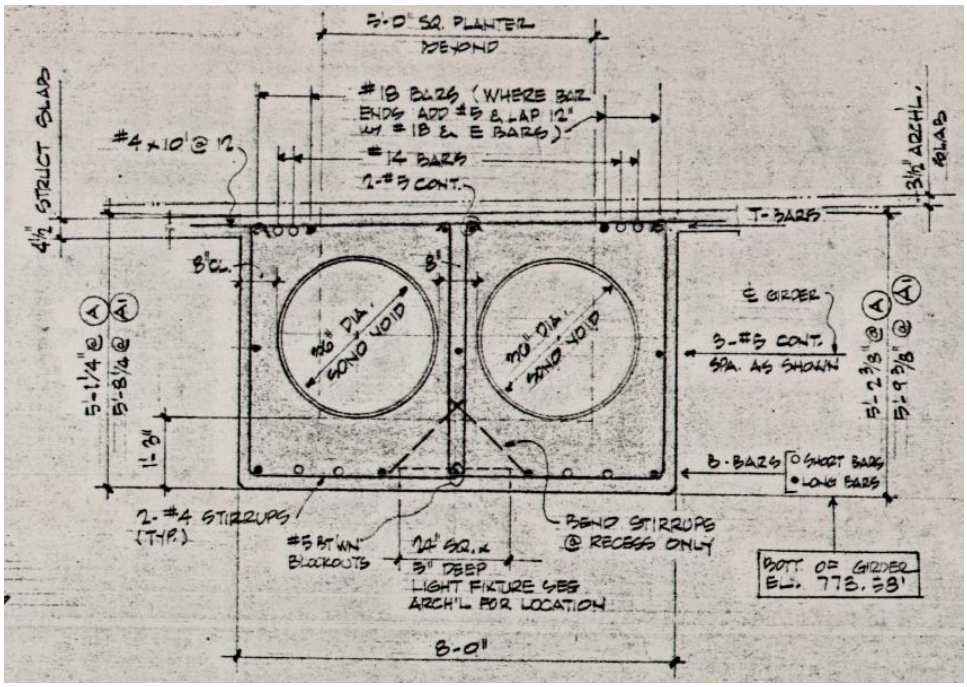



***Figure 3: Ducts embedded within concrete beams.***

Like the first floor, under the old design, a smaller dual duct air handling unit (AHU-2) catered to the entire second floor, including the multi-purpose room (also called the Forum), staff lounge, and what previously used to be a storage space. The multi-purpose room has a retractable wall in the middle that divides the room into two smaller areas. Hence, the multi-purpose room is divided into two zones to better control each smaller room's temperature. AHU-2 also feeds into a hot and cold plenum on the first floor above the offices (see Figure 4 and Figure 5 below). Under the original design, the aforementioned hot and cold plenums fed into six thermal zones on the second floor, including the Forum, staff lounge, lobby, the old history society, and the old storage and tech services. However, later modifications were made to the library that changed the storage and tech services room into a bookstore and the history society room into an IT closet. As a result of these changes, the original HVAC system was modified. A package system was added on the roof, which served both the bookstore and the staff lounge. Three split air conditioning units were also added to provide cooling for the IT closet. Refer to “IT room” and “Bookstore and Staff Lounge” sections below for more information.

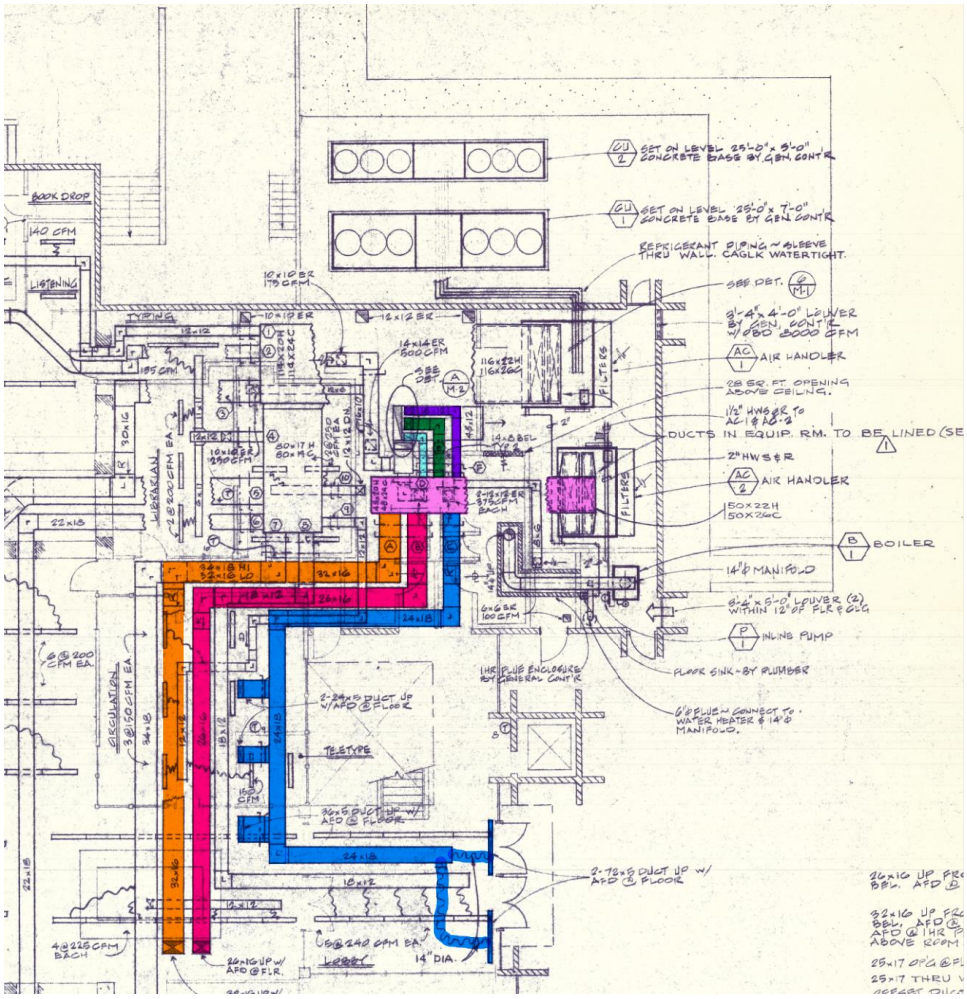



***Figure 4: Original air conditioning distribution on first floor for (AHU-2) serving the second floor.***

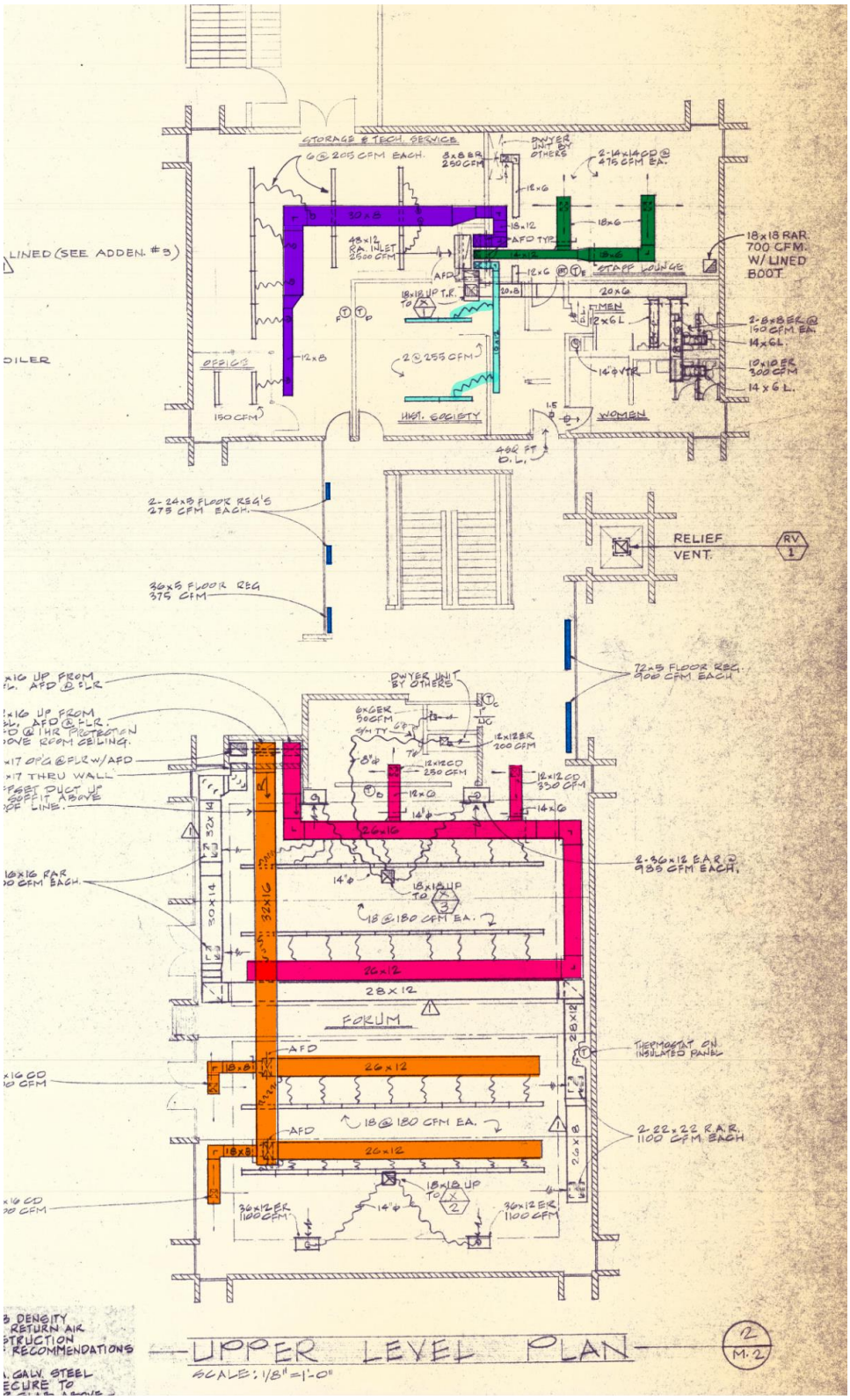



***Figure 5: Original air conditioning zones for (AHU-2) serving the second floor.***

Both AHU-1 and AHU-2 take the air from the mechanical room (See Figure 6 below), filter it, and feed it to the building after passing through the cooling or heating coils. A return duct from each area returns the air to the mechanical room. There are two Fresh air intake louvers mounted on the exterior face of the mechanical room. Hence, the entire mechanical room is a mixing chamber for mixing the return air and fresh outside air. This arrangement might have worked in the past, but it lacks controllability.




***Figure 6: Air intakes for both AHU-1 and AHU-2***

Both air-handling units are served by a central chiller and boiler system. The existing chiller system is housed within a chain-linked area situated at the rear of the building. It consists of a Baltimore Aircoil Company (BAC) evaporative cooling system and a packaged Chiller system comprising two Multistack modules and chilled water pumps.

## IT Room

The IT closet (MDF room) on the second floor of the existing library is being served by three mini-split cooling systems. Two of the existing split systems are manufactured by Mitsubishi, and the third one is manufactured by Fujitsu. The three split systems can provide 10.25 tons of cooling for the MDF room (See figure 7 below).



***Figure 7: Three split systems serving the IT closet.***

## Bookstore and Staff Lounge

The bookstore and the Staff Lounge are being served by a packaged system (AC-1) located on the roof that feeds down to serve both spaces. It is believed that the package system is being controlled by a thermostat located inside the bookstore. The temperature inside the staff lounge is believed to be controlled by a separate thermostat combined with a zone damper creating a Variable Volume and Temperature (VVT) system.

## Westside addition (Friends Room)

The Westside addition is being used as a community gathering room. A packaged system (AC-2) is dedicated to serving this room. This packaged system is manufactured by International Comfort Products and is capable of producing 57,000 Btu/Hr of cooling. This unit at first glance appeared to be in fair condition; however, upon further investigations it was noted that the air intake of the unit was closed off with a plate screen that is heavy enough to prevent any outdoor air entering the unit.

## Existing Chiller (CH-1) and Condensers (CD-1)

The Chiller plant is in the mechanical yard on the back side of the library, next to the parking lot. The original chillers were replaced in 2019. The chillers are inside a container that also houses two condenser pumps and heat exchangers. The existing chillers are Multistack modular chillers consisting of two modules, each having (2) two 25-ton compressors for a total of 100-ton cooling capacity. The chillers are being served by an evaporative condenser manufactured by Baltimore Aircoil Company (BAC) with 1518.00 MBH capacity (See Figure 8 below). The condenser is located next to the chiller box (See Figure 9 in the subsequent sections of this report).




***Figure 8: Multistack Chiller and Condensers inside the mechanical yard***

## Existing Boiler (B-1)

The existing boiler is brand new to the building. According to the information provided to us by the staff, this boiler was replaced in May of 2023. The existing boiler is manufactured by Raypack and is a condensing type. Our team did not have the opportunity to visit the boiler, but considering it has recently been installed, we expect that the existing boiler is in good shape. From the manufacturer data provided to us by the staff, this boiler is rated for 850,000 Btu/hr input and can produce 826,200 Btu/hr output. It appears that the existing boiler has enough capacity for the existing building, but not for the new additions.

## Consolidated table of each system

| *Equipment* | *Area Served* | *Manufacturer* | *Model* | *Cooling Capacity (BTU/HR)* | *Heating Capacity (BTU/HR)* | *Age (years)* | *Estimated Useful Life* (years)* |
|---|---|---|---|---|---|---|---|
| AHU-1 | 1st Floor | Carrier | 39CB1301UA20 | 790,000 | 750,000 | 53 | 15 |
| AHU-2 | 2nd Floor | Carrier | 39C110 | 540,000 | 430,000 | 53 | 15 |
| AC-1 | Bookstore / Lounge | Carrier | 50TCQA06A2A6A0A0A0 | 61,500 | 58000 | 13 | 15 |
| FC-1/CU-1 | IT Room | Fujitsu | AOU36RLXB | 33,000 | 34000 | Unknown | 15 |
| FC-2,3/CU-2 | IT Room | Mitsubishi | PUMY-P60NKMU1 | 60,000 | 66000 | 6 | 15 |
| AC-2 | West Expansion | ICP | PHN360000H00A1 | 57,000 | 55000 | 15 | 15 |
| CH-1 | AHU-1 / AHU-2 | Multi-Stack | (2)MS050XN1H1A0AOC-410A | 1,237,200 | N/A | 4 | 20 |
| CD-1 | CH-1 | BAC | VC1-90P | 1,518,000 | N/A | 4 | 20 |
| B-1 | AHU-1 / AHU-2 | Raypak | H7-0856L | - | 826,200 | 1 | 25 |

*Information is based on "ASHRAE Equipment Life Expectancy Chart" of ASHRAE Applications handbook chapter 37

## Estimated Loads vs. Capacity

The ventilation rate estimation of the existing library was conducted by utilizing a range of 400 to 450 CFM (cubic feet per minute) across the cooling and heating coils. A range of 200 to 300 square feet per ton was employed to estimate the cooling load of the new addition. Manufacturers' published data or submittals were relied upon to obtain information regarding the chillers, condensing unit, packaged AHU, and DX AC systems. This data provided valuable insights into the specifications and performance of the equipment. By combining these methods and utilizing the available manufacturer-provided information, the load of the existing library was estimated, and the requirements for the new addition were determined. Informed decisions were made based on these estimations to ensure optimal performance of the HVAC system for the entire facility.

| *Area* | *Area (SF)* | *Installed Cooling Capacity* | *Estimated Cooling Load* | *Installed Heating Capacity* | *Estimated Heating Load* |
|---|---|---|---|---|---|
| 1st Floor minus Mechanical room | 21,330 | 790,000 | 731,300 | 750,000 | 319,950 |
| Forum + 2nd floor lobby | 4000 | 540,000 | 192,000 | 430,000 | 60,000 |
| IT Room | 320 | 93,000 | 76,800 | - | - |
| Bookstore + Staff Lounge | 1600 | 61,500 | 54,860 | 58,000 | 24,000 |
| Friends Room | 2340 | 57,000 | 93,600 | 55,000 | 35,100 |

## Observed Deficiencies

### Age and condition issues:

The survey of the existing building determined that the two air handling units currently in place were original to the building. However, numerous deficiencies were observed during the assessment process. One significant issue identified was the presence of multiple leaks in both air handling units. These leaks were causing inefficiencies in the system and compromised the overall performance and significantly reducing capacity. Furthermore, the bottom side of both air handling units has rusted, and condensate water leaks into the floor from the bottom. Not to mention that the existing condensate traps provided on these air handling units are installed incorrectly, possibly the main reason for the rusting at the bottom (See Figure 8 below).



***Figure 9: Incorrect condensate trap and rusted walls on AHU-2***

Furthermore, based on our conversations with the tenants, it became apparent that there were complications with the zoning of the air handling units. The zones were found to be misconfigured, leading to improper distribution of conditioned air throughout the building. This resulted in inconsistent temperatures and discomfort for the occupants.

Addressing these deficiencies and rectifying the problems with the air handling units and zone configurations became imperative to improve the overall functionality and comfort of the building.

### Capacity issues:

The current library spans approximately 33,500 square feet. Assuming an average cooling load of 350 square feet per ton, the estimated total cooling load for the existing library is around 96 tons, equivalent to 1,152,000 BTU/hr. It should be noted that these calculations are based on assumptions due to the absence of envelop details. Nevertheless, the existing air handling unit and chiller operate at their maximum capacity, set at 1,237,200 BTU/hr. With no spare capacity, the current air handling unit and chilled water system cannot accommodate any additions or expansions to the existing building.

## Code violation issues:

During the site visit a few code violations were observed that will need to be remedied as part of the renovation project. Below is a list of issues noted during the site visit:

1- In the Friends Room, the sanitary vent pipe termination above the roof is too close to the fresh air intake of the air handling unit AHU-4
2- The fresh air intake for the AHU-4 serving the Friends Room is blocked off.
3- The condensate drains serving several air handling units are not installed correctly and need to be corrected.

## Expansion and Improvement

There are two general concepts proposed for the new addition to the library.

- Option 1: considers using the courtyard and adding a second story to the main lobby. A two-story addition will also be added on the west side incorporating the Friends room. This option will increase the library's square footage by about 11,500 square feet to a total of 45,000 square feet.
- Option 2: aims to utilize the adjacent property around the library for two-story additions, which will increase the total square footage of the library by 18,130 square feet to the total of 51360 square feet.

Under both options, about 4,000 square feet and over 9,000 square feet of assembly spaces are being added to the first and second floors. Both Expansion programs will also house over 4500 square feet of library spaces, about 2000 square feet of reading spaces, and over 5831 square feet of business spaces. Moreover, the new addition will have about 2500 square feet dedicated to the mechanical room and storage spaces.

| ***First Floor*** | ***Area (SF)*** | ***Cooling load (SF/Ton)*** | ***Cooling Load (Ton)*** | ***Heating load (BTU/SF)*** | ***Heating Load (Btu/Hr)*** |
|---|---|---|---|---|---|
| Assembly 1 | 1458 | 200 | 7.3 | 15 | 21870 |
| Assembly 2 | 2346 | 200 | 11.7 | 15 | 35190 |
| Library Stacks | 10072 | 300 | 33.6 | 15 | 151080 |
| Business | 5831 | 300 | 19.4 | 15 | 87465 |
| Storage | 2009 | 500 | 4.0 | 15 | 30135 |
| ***Second floor*** | ***Area (SF)*** | ***Cooling load (SF/Ton)*** | ***Cooling Load (Ton)*** | ***Heating load (BTU/SF)*** | ***Heating Load (Btu/Hr)*** |
| Assembly 1 | 4368 | 200 | 21.8 | 15 | 65520 |
| Assembly 2 | 4832 | 200 | 24.2 | 15 | 72480 |
| Reading room | 1728 | 300 | 5.8 | 15 | 25920 |
| Library Stack | 3491 | 300 | 11.6 | 15 | 52365 |
| Storage | 460 | 500 | 0.9 | 15 | 6900 |
| Business | 7834 | 300 | 26.1 | 15 | 117510 |

| | | | |
|---|---|---|---|
| ***Total Cooling Demand (ton)*** | 166.5 | ***Total Heating Demand (MBH)*** | 666.4 |

### Department Needs

1. HVAC zoning to adequately serve each area's comfort and ventilation needs; approximately 12-20 zones based on the new building expansion schematic plan for location 3.
2. Balance equipment efficiency to minimize utility costs with ease of maintenance.

# Recommendations

While the two options for expansion listed above are different from the Architectural standpoint, our recommendations for both options are similar.

## Option 1

1. **Replace both AHU-1 and AHU-2:** As was mentioned under deficiencies, both AHU-1 and AHU-2 are original to the building and are past their useful life. Both air handling units have major leaks and show signs of deterioration, especially on the lower part. We recommend replacing both AHU-1 and AHU-2 with new and more efficient air-handling units. The replacement can be with an in-kind model, however, considering the minimum flexibility available on the routing of ductworks, we recommend using air handling units with VAV reheat coils for more flexibility and efficiency.
2. **Replace ductworks within the existing Library:** Because of the existing air distribution system arrangements and the fact that portions of the existing ductwork run through concrete beams, there is not much flexibility within the air distribution system to accommodate deviations from the original space programming of the library. Hence, if the owner decides to reprogram the spaces within the book stacks area, the entire ductwork system shall be replaced with more efficient systems. At this point, using VAV boxes with hydronic reheat coils is recommended. If the client is seeking to restore the original programming of the spaces (i.e., removing all offices that were added throughout the time), at a minimum, both air handling units shall be replaced with in-kind as the existing air handling units are in bad condition and past their useful life.

3. **Expand the Central Chiller and boiler plant and loops, relocate Emergency Generator as needed:** For the expansion, we recommend expanding the central chillers and boiler plants and extending the chilled/hot water loops to the new addition (Please see the subsequent “Expansion of existing Chiller / Boiler plant” and “Extension of Chilled/Hot Water loop” sections below). Using Central AHU on the roof to provide cooling and ventilation. Ductwork connects AHU to VAV boxes (located above-ceiling throughout the building) for zoning. Heating is provided at VAV box coils with hydronic heating coils. A total of two (2) air handling units will be required.

   Since the existing system does not have additional capacity for the additional spaces, it is recommended to increase the capacity of the existing chiller and boiler plants to accommodate the additional loads and extend the chilled and hot water loop to the new buildings. Because the existing facility is already on the chilled/hot water system, expanding on the current system appears to be more cost-effective. Secondly, water-cooled systems offer enhanced cooling performance and reliability. These systems are also known for their simplicity and longer useful life, leading to improved reliability and reduced downtime. Furthermore, water-cooled systems provide flexibility for future expansion or modifications. Adjusting the system's capacity to meet changing cooling requirements is relatively straightforward by adding or removing chillers, pumps, or cooling towers. This adaptability allows the chilled water plant to accommodate growth without significant disruptions to the facility's operations. Lastly, from a maintenance standpoint, it would be more efficient to have similar equipment in the facility rather than having a variety of different types of equipment, each with varying requirements of maintenance.

4. **If Item 2 above is not acceptable, provide new packaged units:** If item 3 mentioned above is not acceptable due to the costs associated with the expansion of the existing Chilled / Hot water plants, and possible relocation of the generator, a cheaper alternative would be to provide two new packaged rooftop units with hydronic VAV reheat coils to serve the additional spaces. It is worth mentioning that while this option is cheaper from the installation cost standpoint, the maintenance cost and the life expectancy of this system is lower and may eventually outweigh the lower initial costs.

5. **Remove the package unit serving staff lounge, and reconnect these rooms to the AHU-2:** Considering that the Bookstore and the Staff Lounge were originally served by the AHU-2, and considering that the package unit serving these spaces is at the end of its useful life, we recommend demolishing the existing package unit serving the staff lounge and the Bookstore and providing new VAV system served by the new AHU-2.

6. **Remove Package unit serving the friends room and serve friends room with AHU serving the addition:** The package unit serving the Friends Room will be removed as part of the expansion. Because of the code issues associated with this unit and considering the fact that this unit is at the end of its useful life, we recommend that the Friend's room be served by the new air handling unit that will be serving the new addition building.

7. **Keep the split units serving the IT closet:** The cooling systems serving the IT closet are relatively in good working condition. We recommend keeping the existing two split systems that serve the IT closet.

8. **Update the control system:** Per the information provided by the facilities personnel, the existing control system does not offer enough controllability for the personnel. Considering the fact that the existing air handling units will be replaced, and at least two new air handling units will be added to the facility, we recommend a new control system be provided for the entire library. The control system for the new library needs to be simple yet code compliant. CO2 sensors shall be provided in all high-density spaces, such as assembly and meeting rooms. CO2 sensors shall monitor CO2 levels in the space and increase ventilation as needed.

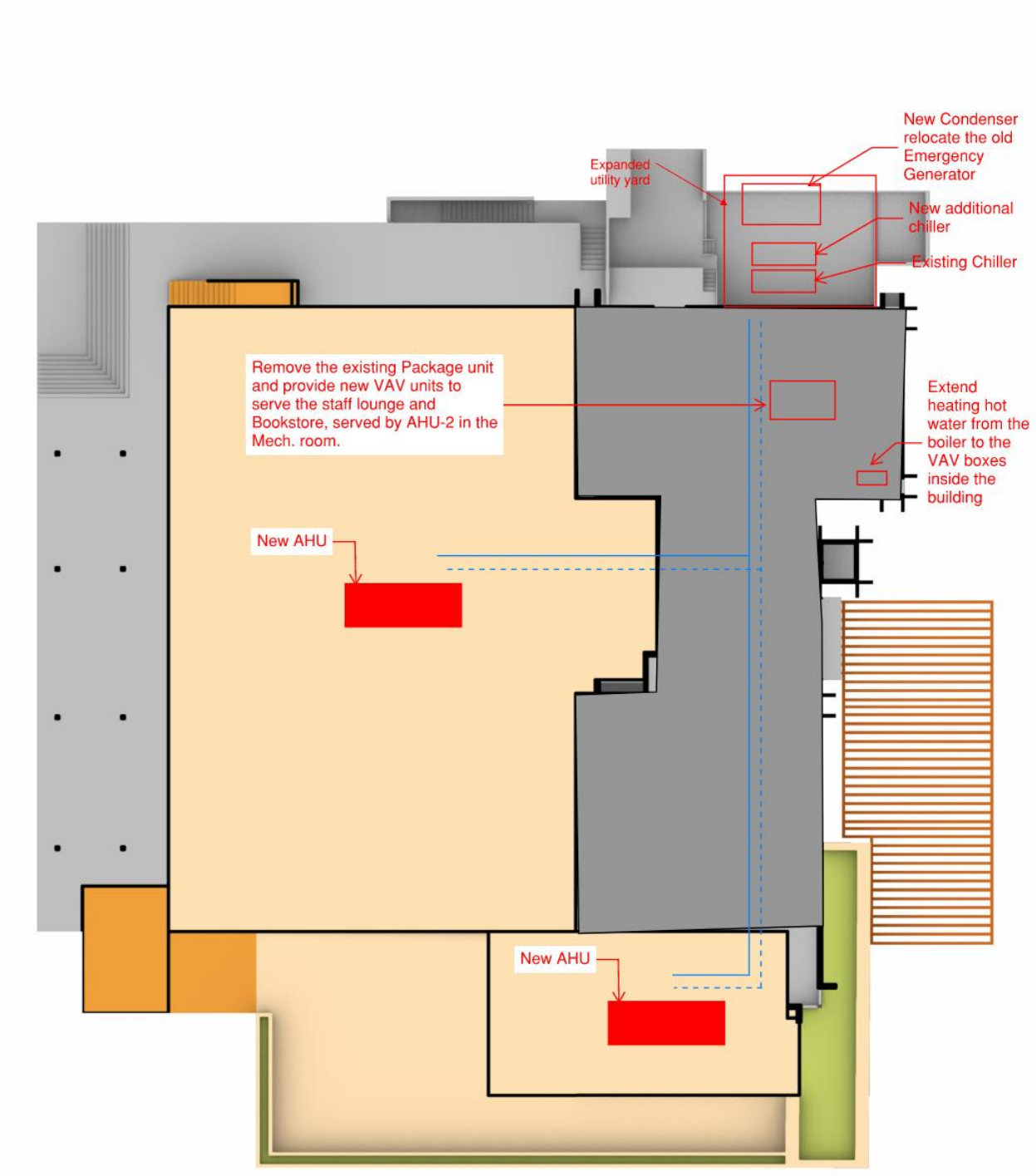



***Figure 10: Option 1 proposed mechanical Layout***

## Option 2

1. **Replace both AHU-1 and AHU-2:** As was mentioned under deficiencies, both AHU-1 and AHU-2 are original to the building and are past their useful life. Both air handling units have major leaks and show signs of deterioration, especially on the lower part. We recommend replacing both AHU-1 and AHU-2 with new and more efficient air-handling units. The replacement can be with an in-kind model, however, considering the minimum flexibility available on the routing of ductworks, we recommend using air handling units with VAV reheat coils for more flexibility and efficiency.
2. **Replace ductworks within the existing Library:** Because of the existing air distribution system arrangements and the fact that portions of the existing ductwork run through concrete beams, there is not much flexibility within the air distribution system to accommodate deviations from the original space programming of the library. Hence, if the owner decides to reprogram the spaces within the book stacks area, the entire ductwork system shall be replaced with more efficient systems. At this point, using VAV boxes with hydronic reheat coils is recommended. If the client is seeking to restore the original programming of the spaces (i.e., removing all offices that were added throughout the time), at a minimum, both air handling units shall be replaced with in-kind as the existing air handling units are in bad condition and past their useful life.

3. For the new expansion buildings, a few HVAC system types are worth considering.
    a. **Expand the Central Chiller and boiler plant and loops, relocate Emergency Generator as needed:** Expanding the central plant chillers and boiler and extending the chilled water and hot water loops to the new addition. Using Central AHU to provide cooling and ventilation. Ductwork connects AHU to VAV boxes (located above-ceiling throughout the building) for zoning. Heating is provided at VAV box coils with hydronic heating coils.
        i. AHU is located outdoors on the roof, packaged chilled water cooling. Or…
        ii. AHU located indoors if the space has exterior wall that can be louvered for outside air intake and louvered for relief air.

    b. **If Item a above is not acceptable, provide new packaged units:** Using DX packaged AC units providing cooling, and ventilation. Ductwork runs from the AC units to each zone, for individual zone control and ventilation. AC units located outdoors on roof, packaged with DX cooling, or the AC unit located indoors if space has exterior wall that can be louvered for outside air intake and louvered for relief air. Split DX condensing unit separately located outdoors, connected to AC units by refrigerant piping.

4. **Keep the split units serving the IT closet:** The cooling systems serving the IT closet are relatively in decent condition. We recommend keeping the existing two split systems that serve the IT closet.

5. **Remove the package unit serving staff lounge, and reconnect these rooms to the AHU-2:**Considering that the Bookstore and the Staff Lounge were originally served by the AHU-2, and considering that the package unit serving these spaces is at the end of its useful life, we

recommend demolishing the existing package unit serving the staff lounge and the library and providing new VAV system served by the new AHU-2.

6. **Remove Package unit serving the friends room and serve friends room with AHU serving the addition:** The package unit serving the Friends Room will be removed as part of the expansion. Because of the code issues associated with this unit and considering the fact that this unit is at the end of its useful life, we recommend that the Friend's room be served by the new air handling unit that will be serving the new addition building.

7. **Update the control system:** Per the information provided by the facilities personnel, the existing control system does not offer enough controllability for the personnel. Considering the fact that the existing air handling units will be replaced, and at least two new air handling units will be added to the facility, we recommend a new control system be provided for the entire library. The control system for the new library needs to be simple yet code compliant. CO2 sensors shall be provided in all high-density spaces, such as assembly and meeting rooms. CO2 sensors shall monitor CO2 levels in the space and increase ventilation as needed.

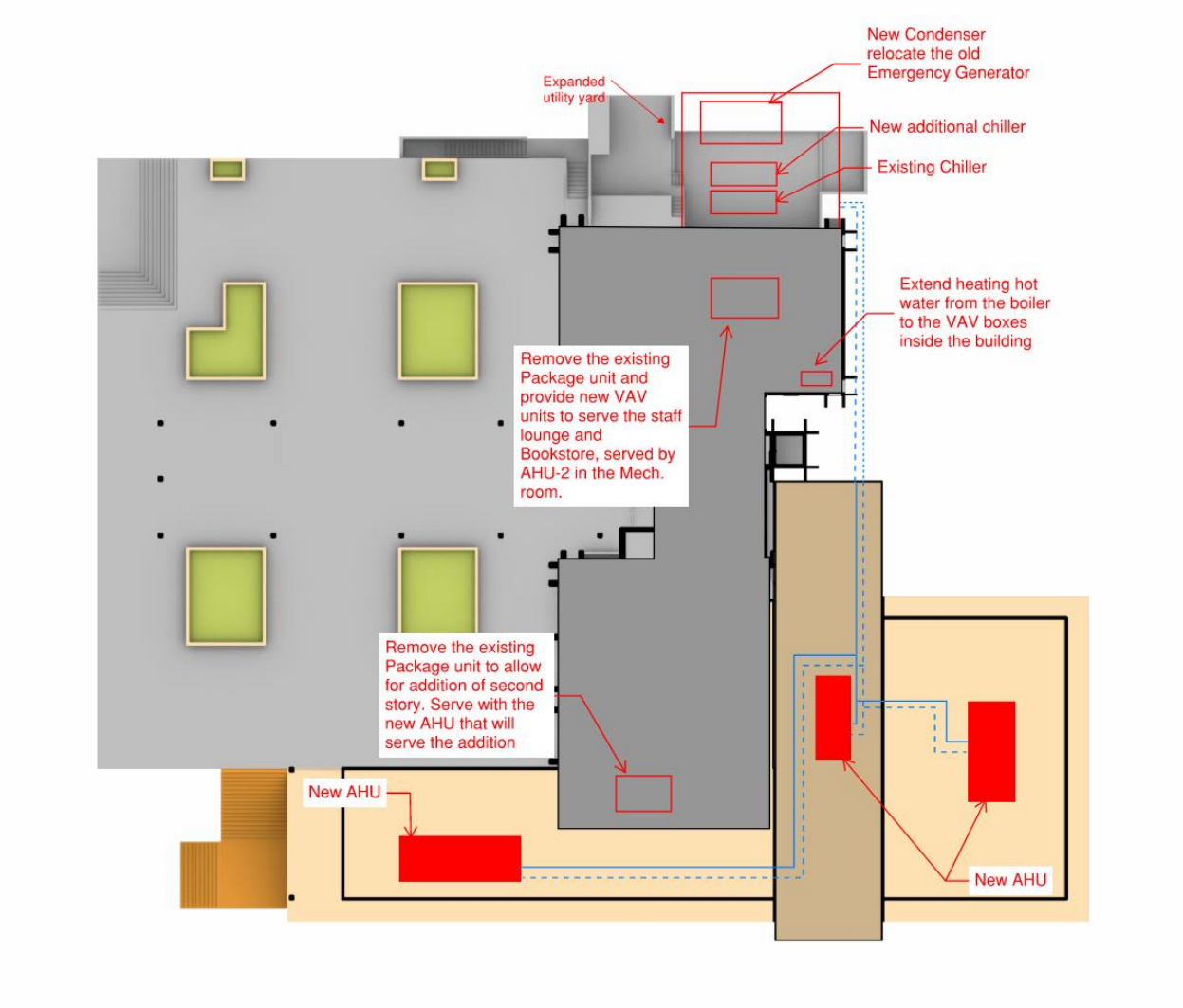



***Figure 11: Option 2 proposed mechanical Layout.***

## Expansion of existing Chilled / Hot Water Plants:

The existing chiller is modular and manufactured by Multistack. The current Modules can handle 50 cooling tons. Based on coordination with the manufacturer's representative, there is a possibility for replacement of the existing modules with 70-ton modules, thus expanding the capacity from 100 to 140 tons is possible within the existing chiller enclosure. However, the expected total load of the library with the new expansion is expected to exceed 140-ton. Therefore, we recommend the chiller plant extension to include a second chiller enclosure. Adding a second chiller enclosure or upgrading the existing chiller modules will require upgrading the existing evaporative condenser unit.

Considering the space constraints within the existing utility yard on the back of the building, the available options are either adding a second chilled water plant or relocate the existing Emergency generators to a different location outside of the utility yard to allow for addition of a new chiller box.




***Figure 12: Mechanical Yard arrangements***

As was mentioned before, the existing boiler has recently been replaced. Based on the manufacturer information this boiler has enough capacity to support the heating needs for both the existing building and the addition. Hence, we recommend keeping the existing boiler.

## Extension of Chilled/Hot water loop to new addition:

Chilled water needs to extend to the Air Handling Units on the new addition roof. We propose routing the chilled/hot water pipes along the side of the existing building, and through the new addition to the related equipment.

With the addition of new VAV reheat units throughout the existing library and the new addition, the existing heating hot water loop shall be extended to serve the VAV boxes within each zone as needed.

# Electrical Assessment

The library's electrical system covers both its facility, and the neighbouring City Hall and Police station, with a central 480Y/277V switchboard 'MS'. This electrical system includes two paralleled, standby power generators for backup on utility power loss. The library's remaining electrical infrastructure has changed little from the original 1970s design. Fluorescent lamp fixtures and receptacle coverage are consistent, with mechanical systems having a few more upgrades in the interim. The proposed additions and alterations will necessitate expanding the electrical equipment and devices, correcting several deficiencies, and tentative remodels of existing spaces.

## Electrical Capacity

The main electrical service for the library consists of a 1,600Amp, 480Y/277V switchboard 'MS'. The electrical service room resides on the east side of the ground level, with an SCE pad mount transformer feed from the exterior east parking lot (2nd level). 'MS' energizes both the City Hall and Police Station facilities via underground ductbanks.

The existing electrical infrastructure at the library has adequate capacity to serve additional loads:

1. The existing service switchboard 'MS' has a capacity of 1600 Amps.
2. The existing SCE transformer has a capacity of 500kVA, equivalent to 600 Amps.
   *(Note that facility equipment designs require greater capacity than utility electrical loads)*
3. Existing four (4) 4" conduits from SCE transformer to switchboard 'MS' will permit only 1200 Amps per latest SCE standards.

If it is determined that additional power is necessary beyond the 600 Amp transformer, SCE could replace the transformer with a larger unit. Note that the existing raceways will cap the limit to 1,200 Amps. The anticipated electrical load of the library is 18W/ft$^2$. For an 16,000 ft addition, this would equate to approximately 300 kiloWatts, an additional 600 Amps (nominally). The existing 1200 Amp infrastructure should be able to accommodate.



***Figure13: Utility Service Transformer***



***Figure14: 'MS' Switchboard***

## Electrical Distribution

SWITCHBOARD 'MS':

Replacement of Switchboard 'MS' is a topic for consideration. The equipment is by Square D (now Schneider Electric) and utilizes fused switches for branch feeders. Fuse technology still operates effectively in modern applications; reliable safety and part availability are questionable regarding the integral switches and bussing though. Circuit breaker protection and assemblies have advanced greatly since the 1970s with respect to short circuit faults and other explosive conditions. From discussions with Schneider Electric, the maximum available branch circuit breaker they can accommodate is 400 Amps from an end-of-line backstock in their inventory.

EXISTING PANELBOARDS AND TRANSFORMERS:

Branch circuiting is accommodated by a mixture of 480/277V and 208/120V panelboards located throughout the building: 'LX', 'LA', 'A', 'A2', 'B', and 'MCC' (motor control center). Panels are 1970 originals and are operational but share the same safety uncertainties as switchboard 'MS'. Also, none of the 208/120V panels include any spare capacity for more branch circuits.

Two interior dry transformers appear to have been recently replaced and are in good condition. Their connections do not include a local overcurrent device on the secondary. This is non-compliant to the electrical code and should be corrected.

PROPOSED ADDITIONAL PANELBOARDS AND TRANSFORMERS:

The proposed renovations and additions could be effectively served by the following branch distribution:

1. 400-600Amp, 480/277V panelboard for mechanical and lighting systems
2. 480-to-208Y/120V stepdown transformer
3. 400 Amp 208/120V panelboard for convenience outlets and power.

## Utility Power Conditioning

In discussions with the facilities department, it was discovered that the SCE utility service has a 3-4% phase imbalance. This was additionally verified from voltage readings at the generator equipment. Facilities noted that SCE is aware of the problem and that the condition is stemming from issues on their portion of the electrical grid. SCE has stipulated to the client that this variance is a permissible allowance per their service agreements.

## Standby Power

The facility has complete standby power from a set of parallel Diesel Engine Generators. Their motors, housing, chargers, and batteries appear to be in good cosmetic condition. Model numbers are IDLC400-3DU; this series of generators would have been manufactured approximately in 2012. Each Generator has the following specifications:

1. Power Capacity: 400kW / 500 kVA, 60Hz, 3-phase
   (Serial number of unit #1: P1201090001)
2. Voltage: 480Y/277V
3. Ampacity: 600 Amps
4. Main Breaker: 600 Amp
5. Base "Day" Tank for approximately 24 hours of fuel capacity when run at full load.

The generators feed service switchboard 'MS' via an exterior transfer switch. The model is a General Electric Zenith, Entelli-Switch 250 series which is still manufactured and with readily available parts. Standby power is combined for emergency and optional loads; emergency loads would include life-safety lighting. Overall, the generator equipment is in decent condition, and both appear to be frequently serviced.

Proposed mechanical designs involve relocating both of these generator units to fit an additional chiller enclosure. An alternate location would need to be allocated to place the generators, as well as accommodate re-connection.




***Figure 15: Utility phase imbalance at generator switch "VCA"***
***[left side readings - 480 is the desired baseline]***



***Figure 16: Dual 400kW Diesel Generator Set***

## Electrical Distribution - Options for Consideration

1. The existing 1970 Service Switchboard 'MS' is obsolete for safe use (modern fault protection standards) and replacement parts.
    a. Replace switchboard with like kind:
        i. 1,600 Amps, 480Y/277V, SCE meter, consistent main breaker, copper busbars
        ii. Branch breakers as follows:
            1. 3P-400 Amps: Police Station
            2. 3P-175 Amps: Library panelboard 'LA'
            3. 3P-400 Amps: Chiller (pending changes to mechanical systems)
            4. 3P-400 Amps: MCC (pending changes to mechanical systems, replaced by distribution panelboard, see note below)
            5. 3P-175 Amps: 112.5kVA transformer to City Hall
            6. 3P-175 Amps: 112.5kVA transformer to Library
            7. 3P-100 Amps: Library Elevator
            8. 3P-60 Amps: Ground Floor – Friends Room
            9. 3P-30 Amps: misc
            10. 3P-30 Amps: misc
    b. Alternate to Service switchboard replacement – maintain Switchboard 'MS'
        i. Obtain one of the remaining end-of-line 400 Amp breakers leftover in stock from the manufacturer (Square-D) to serve new loads at addition.

2. A proposed 16,000 $ft^2$ addition will necessitate a load increase of 300 kiloWatts (kW) for mechanical, lighting, and receptacle power.
    a. Provide a 600 Amp, 480Y/277Volt distribution board to serve mechanical systems and lighting: copper bus, 72 pole spaces.
    (Alternate pending switchboard 'MS' replacement – 400 Amp capacity per the end-of-line 400 Amp breaker provision)
    b. Provide 112.5kVA 480Volt-to-208Y/120Volt step-down transformer. Copper windings, with 115°C rise minimum for increased efficiency
    c. Provide a 400 Amp, 208Y/120Volt panelboard to serve receptacles and accessory items: copper bus, 72 pole spaces.
    d. Locate panels and transformers within the vicinity of new mechanical equipment.

3. The facility's peak electrical load is 329kW [meter readings 9/2022-10/2022], the added load is anticipated to be 300kW (total of 629kW). The existing SCE transformer is rated for 500kW.
    a. SCE requires that they be informed of load changes and upgrades such that they can adjust their capacity and accommodate service.
    (Note - Proposed additional load does not impact the building's electrical equipment, but may require Southern California Edison's (SCE) to upsize the existing 500kW transformer on their side)

4. SCE utility service has a 3-4% phase imbalance from their electrical supply (caused either by transmission lines or transformer). The imbalance has caused nuisance trips throughout the facility to sensitive equipment.

   a. During coordination with SCE regarding service capacity, inquiry shall be made if SCE can provide any solution to the issue.

5. Existing 1970 branch electrical panels LX, LA, A, A2, and B are deficient for fault protection and lack spare capacity for additional circuits.
   a. Replace panelboards: 72 poles, 225Amp, recessed 208/120V, copper bus. (100 Amps for panel 'LX')
   b. Reconfigure panels A and A2 with listed Bus-feed through configuration.

6. The existing 1970 Motor Control Center 'MCC' distribution Panels are deficient for fault protection and lack spare capacity for upgrades.
   a. Replace with Distribution Panelboards: 72 poles, 400Amp, recessed 408Y/277V, copper bus.

7. The existing two (2) 480-208Y/120V transformers at electrical room do not have secondary overcurrent protection within 25 ft.
   a. Provide fused switch or enclosed breaker at each transformer – 3p-400Amps.

8. Existing two (2) generators at exterior east inhibit extension to chiller systems.
   a. Relocate generators to a new location.
   b. Provide reconnection feeders to transfer switches.

## Receptacles, Lighting, and Device Power

RECEPTACLES AND MECHANICAL DEVICES

Aside from aesthetics for surface-mount raceways in select locations, no other concerns were observed or brought to attention for the existing receptacles or power connections at the facility.
For the proposed alterations and additions, refer to "*Receptacles and Device Power"* and *"Auxiliary/Mechanical" under* the Options for Consideration section for extent of provisions.

INTERIOR LIGHTING

The facility's existing lighting is consistent with the original 1970's designs and is in mixed condition both aesthetically and functionally. Interior facilities are illuminated with fluorescent type fixtures with LED retrofit lamps. Many fixture housings are worn out, though the lenses appear to have been cleaned and maintained. Still the illumination output has depreciated enough for some lenses to be removed (center reading area). The required maintenance for the fixture includes re-lamping and ballast replacement. Pending light fixtures are renovated, Title 24 would require that lighting power be restricted per the square footage of space (sections 141.0-I and 140.6).

Exit sign coverage appears adequate at egresses (corridors and exits). Emergency lighting is covered by the generator.

EXTERIOR LIGHTING

Exterior lighting is consistent with the original 1970's designs and is in mixed condition both aesthetically and functionally as well. Exteriors fixtures shall require limiting the amount of power they use where renovated.

LIGHTING CONTROLS

A majority of interior lighting controls consist of manual toggle switches, providing on/off operation only. Switches do not offer automated control or dimming capability. Ceiling motion sensors are present in select areas. Where lighting fixtures are rewired in any fashion, Title 24 would require that these areas have their controls upgraded as well (141.0-E). Exterior lighting controls shall require astronomical tracking and scheduling to limit lights to precise daylight operations.

FIRE ALARM

The library has an existing, complete manual fire alarm system by Fire-Lite. System is a non-proprietary system manufactured by Honeywell and offering readily available components. The system is up to date on tests; Central Monitoring Station: 1-866-890-1519, account A191358.

Where partition changes occur and spaces are re-purposed, fire alarm will need to be updated per building and fire code requirements.

## Receptacles and Device Power - Options for Consideration

1. Devices for the building additions may include computer labs, conference rooms, collaboration spaces, and multimedia.
    a. Provide receptacles per use of space:
        i. Dedicated 1p-20A receptacles for each AV controller, projector, hand dryer, motorized door opener, drinking fountain, etc.
        ii. (1) 1p-20A circuit per four (4) computer receptacles
        iii. (1) 1p-20A circuit per two (2) display screens/televisions
        iv. (3) 1p-20A circuits per four station cubicle office station
        v. Conference rooms – one receptacle for every 12ft of perimeter wall length
        vi. Floor outlets at conference rooms and central table locations
2. Receptacles for the renovations include those listed in the additions.
    a. Utilizing existing panelboards, A, A2, and B – panels shall be upgraded to additional breaker space capacity.

## Auxiliary/Mechanical - Options for Consideration

1. New Mechanical Systems shall be added to accommodate building renovation.
    a. Install replacement feeders from new 600Amp, 480/277V distribution board. (Anticipate (3) 3p-50A feeders, and (2) 3p-100A feeders)
    b. Install circuits for accessory items from new 400Amp, 208/120V panelboard. (Anticipate (12) 1p-20A and (4) 2p-40A circuits)

2. Existing Mechanical Systems shall be altered/replaced.
    a. Install replacement feeders from the distribution board replacing MCC. (Anticipate (6) 3p-200A feeders)

## Interior Lighting - Options for Consideration

1. New additions/renovation - Interior lighting shall be energy code compliant (Title 24: sections 141.0-I and 140.6).
    a. Install interior LED lighting and 277V circuiting to the addition building (color rendering index (CRI) of 90), similar to following:
        i. 8ft length Pendant Linear LED: Open Areas, lobbies, centered in conference areas, etc.
        (Basis Axis Lighting #BBRLED)
            1. Account 13ft on-center lengthwise, and in rows 8ft apart (example 12 fixtures in a 16ft x 75ft area)
        ii. 2x4 troffer LED: Offices and grid ceiling area
        (Basis Mark Architectural Lighting #WHSPR)
            1. Account 8ft x 8ft on-center grid (example 4 fixtures in a 15ft x 15ft area)
        iii. 8ft length recessed Linear LED: Restrooms
        (Basis Axis Lighting #TB4SLED)
            1. Account 3 fixtures per restroom.
        iv. 4in or 6in downlight LED: restrooms, reception areas, larger conference areas
        (Basis Alphabet #NU6)
            1. Account centered in restrooms, over reception desks, and on perimeter of conference spaces (example fixtures arranged for 6ft x 6ft center-to-center square grid)
2. Existing interior lighting may not prove consistent with renovations; upgrades/alterations shall comply with latest energy codes (Title 24: sections 141.0-I and 140.6).
    a. Pending ceiling and structural changes: remove existing lighting and replace with new LED consistent to the addition/renovated areas' lighting noted prior.

## Exterior Lighting - Options for Consideration

1. Exterior site lighting may not prove aesthetically consistent with renovations; upgrades/alterations shall comply with latest energy codes (Title 24 - 141.0-L-ii-a&b, 130.2-C-1).
    a. Replace existing site lighting with LED equivalent in same locations of 1970s design plan.
    b. Provide LED wall packs over exterior exit ways (basis Lithonia WDGE2), 277V circuiting.

## Lighting Controls - Options for Consideration

1. Where lighting is added or altered, lighting controls shall be compliant for latest energy codes (Title 24 - TABLE 141.0-E, 110.9-B-5).
    a. Interior Additions - Install low-voltage interior lighting control system to building (nLight Eclypse basis):
        i. Low-voltage dimming switches and relay pack in each space and control zone with dimming. Account the following zoning:
            1. 1 zone/relay each: enclosed office, electrical and mechanical service spaces, restroom, corridors and stairs, breakrooms
            2. 1 zone/relay per 1,000-1,500 $ft^2$ of open library and office spaces
            3. 2 zones/relays per small conference spaces
            4. 6 zones/relays per large conference spaces

ii. Provide motion sensors in all locations.
    1. General spaces: spaced 14ft x 14ft apart in a square grid pattern
    2. Integrated sensor/wall switches in restrooms and smaller spaces.
iii. Provide a centralized lighting control station (nLight eclypse)

b. Exterior - Provide one astronomically controlled 16-relay panel for exterior lighting control for site (nLight ARP-16 basis).

2. Where lighting is altered, lighting controls shall comply with the latest energy codes (Title 24 - TABLE 141.0-E, 110.9-B-5).
    a. Remove all existing toggle light switches.
    b. Replace lighting controls consistent with the addition/renovated areas noted prior.

# Plumbing Assessment

## Existing Conditions

The Plumbing System consists of:

- Domestic water system
    - Domestic water system is serving plumbing fixtures in restrooms, Janitor rooms, and drinking fountains, etc.
    - Domestic hot water consists of point of use tankless water heaters serving the lavatories inside the restrooms, and a small electric water heater serving the mop sinks.
    - The piping material within the building is copper.
- Sanitary drainage systems
    - Sanitary drainage system is serving plumbing fixtures in restrooms, drinking fountains, etc.
    - Piping material is unknown but is expected to be Cast Iron.
- Storm drains system
    - The roof drainage is served by gutter systems that either spill to grade or go below grade.
- Natural gas system
    - Natural gas system is serving space conditioning equipment.
    - Piping material is steel.

The following conditions are noted:

1. The plumbing fixtures observed in the field are code compliant and meet EPA recommended flow rates; however, a few lavatories were noted to be missing flow aerators/restrictors which should be provided.
2. There is no evidence that the piping systems have been renovated. The bulk of the piping within the building is copper. Although the existing tank type water heaters were not accessible during our site visit, we were informed that the heaters have been replaced and reconnected to the existing system.

3. The condensate traps on the air handling units were observed to be installed incorrectly which has played a major role in water damage to the air handling unit.



***Figure 17: Incorrect Condensate Trap on AHU-1 and AHU-2***

4. The water service size was observed to be 2 inches.
5. The gas meters were observed inside the utility yard. The gas meter, regulator, valves, and piping were in good condition.



***Figure 18: Existing Natural Gas Regulator and Meter***

6. Storm drains were observed to be in ok condition, but they require cleaning. Also, overflow drains are just pipes sticking off roof. While this is acceptable, in some cases the overflow drain does not stick high enough and drains water at the same time as the main roof drain.



***Figure 19: Existing roof drains***

7. As was mentioned in the structural assessment there are signs of water intrusions in parts of the library under the plaza that need to be addressed properly.

8. Few sump pumps were noted around the plaza under the stair landings dedicated to each stair. These sump pumps although old, appeared to be functional.




***Figure 20: Existing Sump pumps***

9. Water pressure on the second floor was measured to be about 80 psi, this means the pressure on the first floor exceeds the maximum value allowed per code of 80 psi. A pressure reducing station is needed to maintain the pressure under code suggested value.




***Figure 21: Existing Water Pressure***

10. On air handling unit serving the staff lounged it was observed that the condensate drains directly into the storm receptor, which is not per code and needs to be corrected.



***Figure 22: Existing condensate drain discharging into storm.***

11. There are three condensate pumps serving the AC units inside the MDF room. These condensate pumps appeared to be in good condition.
12. It was also noted that most of the sanitary vent piping terminated above roof without any protection against dirt or leaves that may clog the pipe. We recommend a vent cap be added to all vent pipes.



***Figure 23: Missing Vent Caps from Sanitary Vents***

13. During the survey a fire sprinkler branched off was noted with a tamper switch inside the mechanical room. Although the location of the sprinklers could not be determined, from the size of the branch line, it appeared that it served multiple sprinklers.

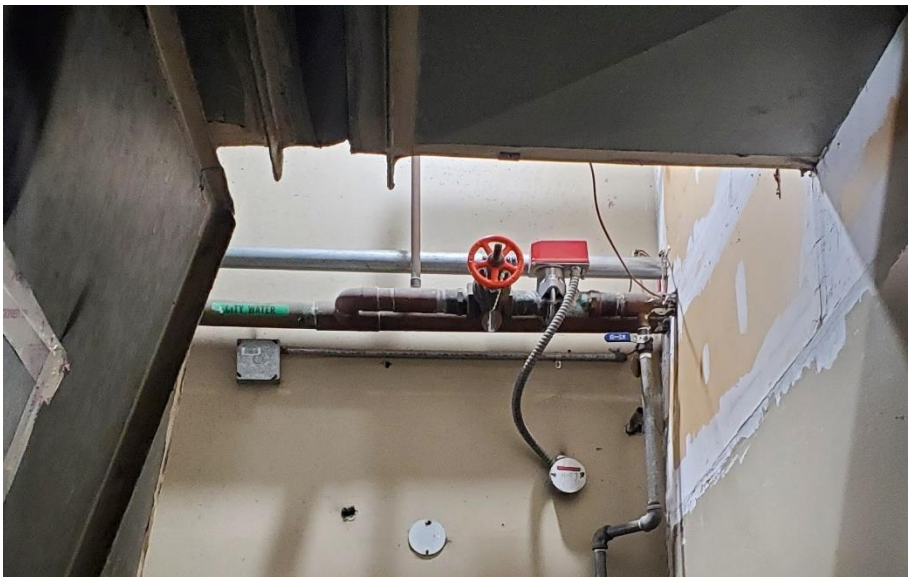


***Figure 24: Sprinkler Flow Switch***

## Department Needs

1. The maintenance personnel stated that other than the water intrusion issue they have had limited issues with the existing plumbing system at the library.

## Recommendations

1. Clean all existing plumbing fixtures. Provide flow aerators/restrictors on the lavatories.
2. For the new addition provide new plumbing fixtures that meet the current regulations.
    a. Current Regulation (CAL Green) mandatory measures to have the following maximum flow characteristics:
        1) Water Closet: 1.28 Gallons/flush (Flush valve).
        2) Urinals: 0. 125 Gallons/flush (Flush valve).
        3) Lavatory Faucet: 0.5 GPM.
        4) Shower: 1.5 GPM
3. For the new addition, the existing water service size is inadequate. We recommend the service size be increased to 4-inches minimum and a branch is extended from the existing meter location to serve the new additions.

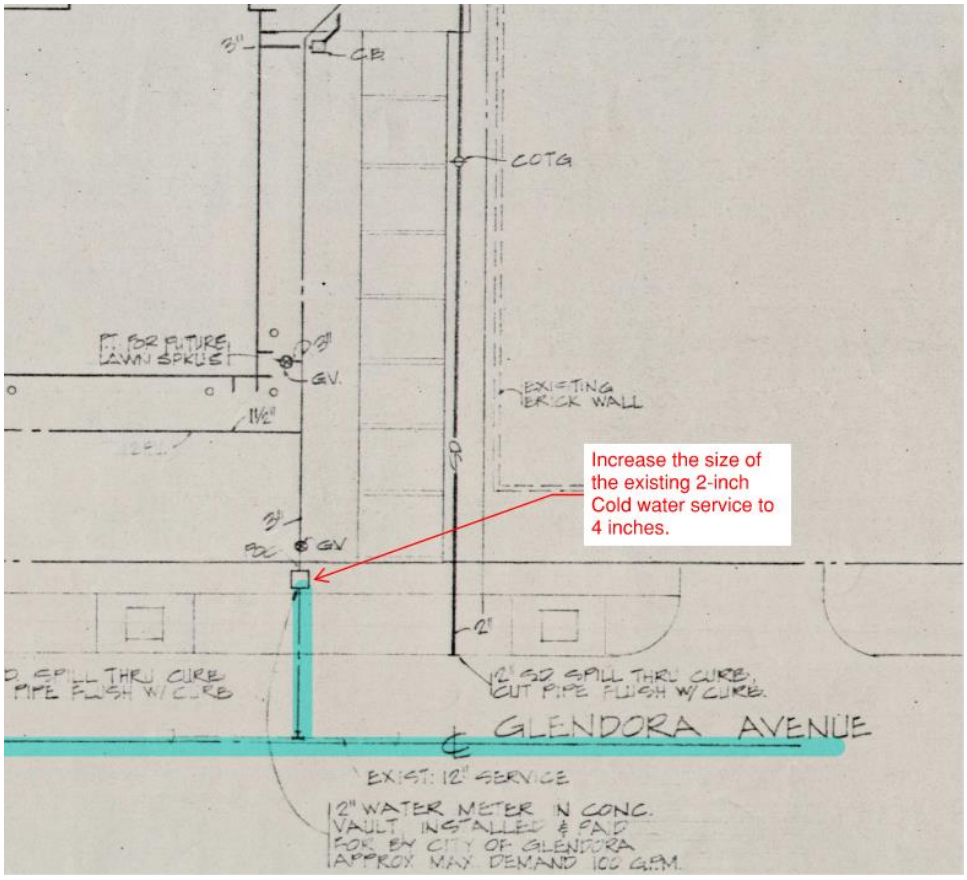



***Figure 25: Upsize the existing water service.***

4. Provide a pressure reducing station on domestic water service before distributing in the building.
5. A new sanitary tie in shall be provided for the addition buildings as the current sanitary drainage line is maxed out.
6. The existing gas service line serving the existing boilers shall remain in place. If the intent is to provide gas water heaters inside the building or increase the capacity of the boilers, then the existing pipe sizes downstream of the gas meter should be increased to meet the demand.
7. Provide vent caps on all sanitary vent termination points

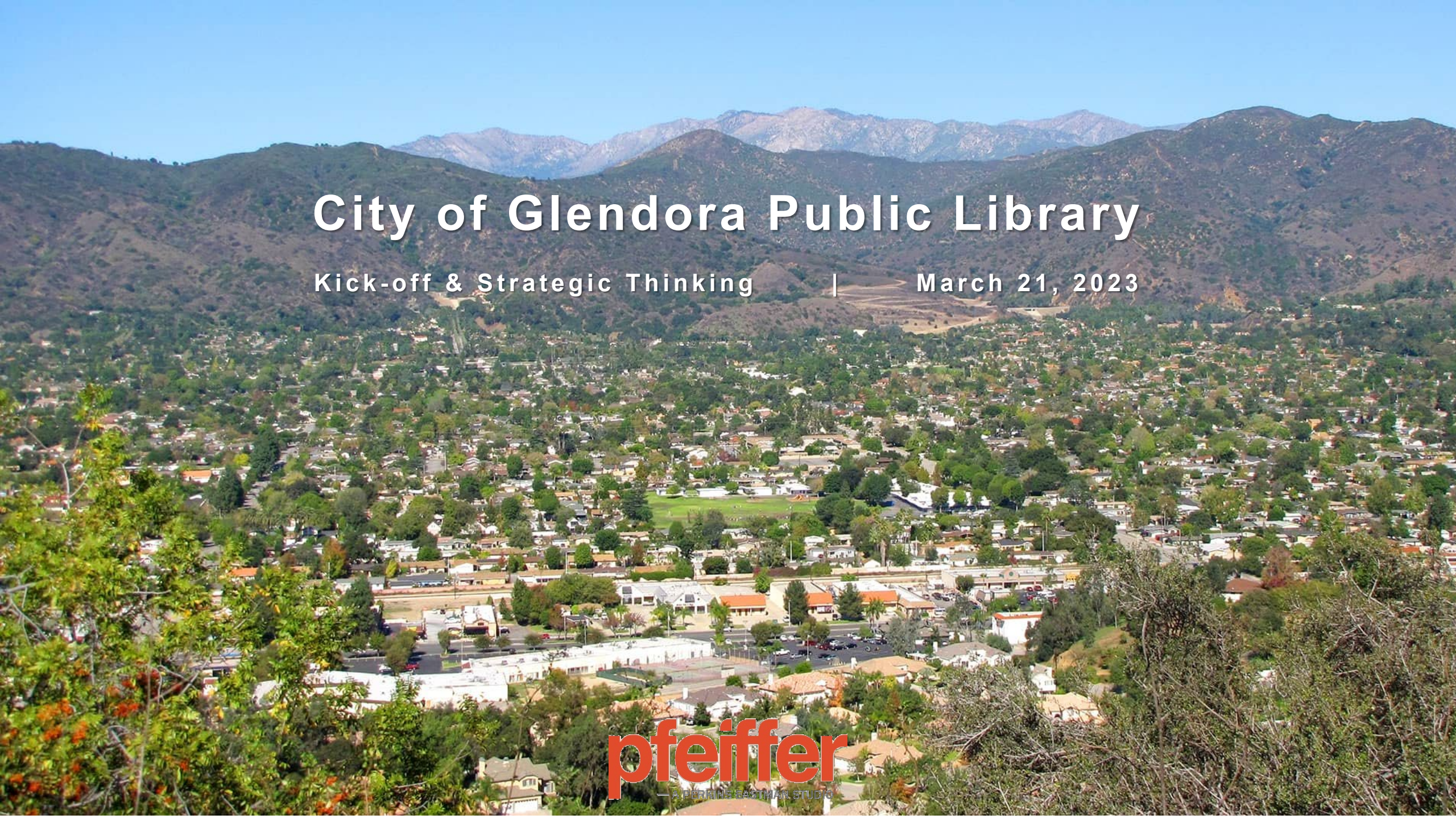
## Technology Assessment

The existing Telecom infrastructure shall be extended from the existing 2nd floor IT room to the addition area. An additional IDF room may be needed in the addition area.

## Physical Security Assessment

The existing access control system shall be extended to the new addition area and shall match the City's preferred vendor or standard.

# APPENDIX D: Workshop Presentation Slide Decks



# City of Glendora Public Library

Kick-off & Strategic Thinking | March 21, 2023

pfeiffer
A PERRAULT EASTMAN STUDIO

# Today

Welcome & Introductions (Michael)

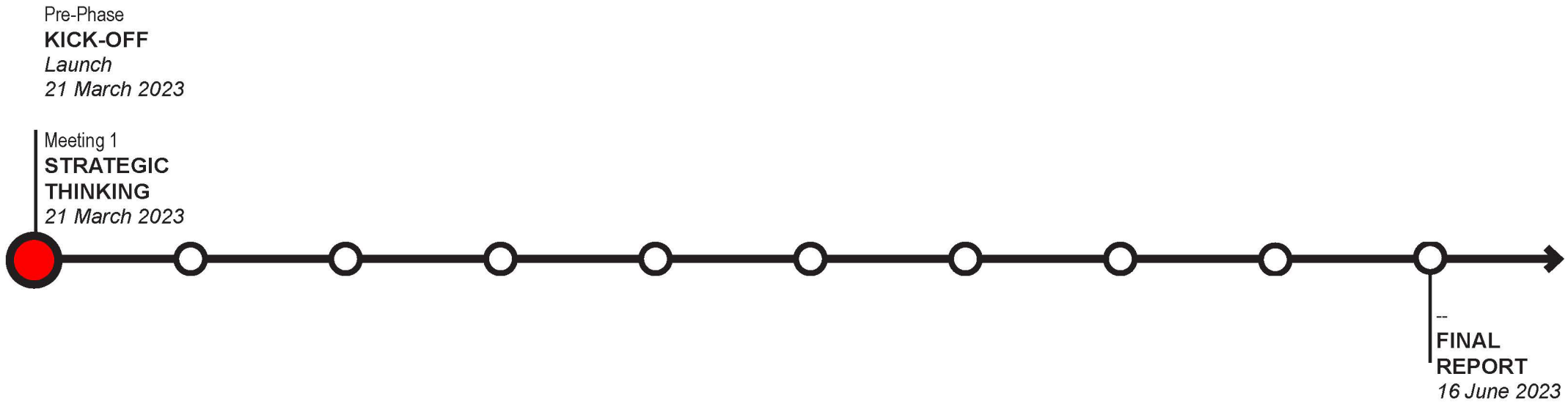
Background Info (by Library)

Discussion

Logistics for Site Walkthrough

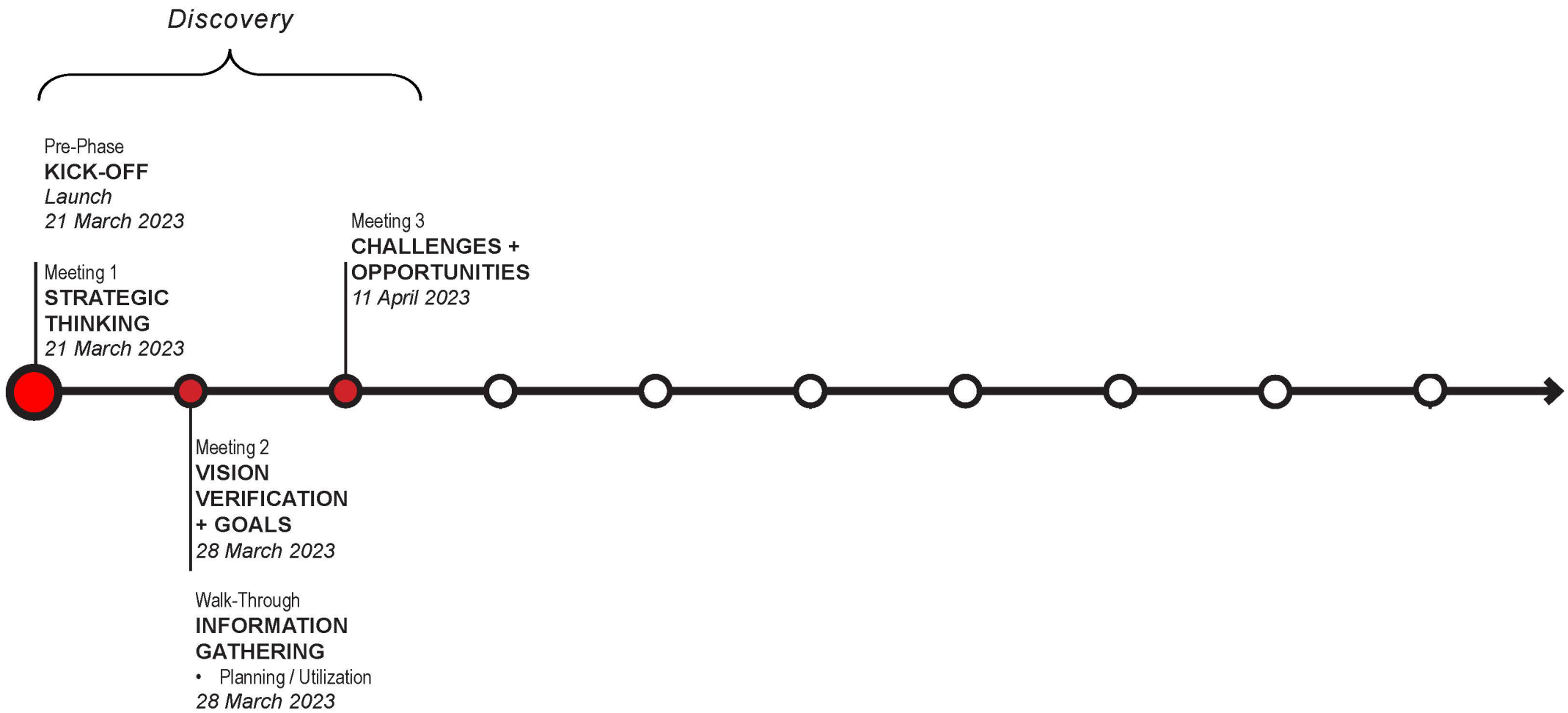
Next Steps

# Process

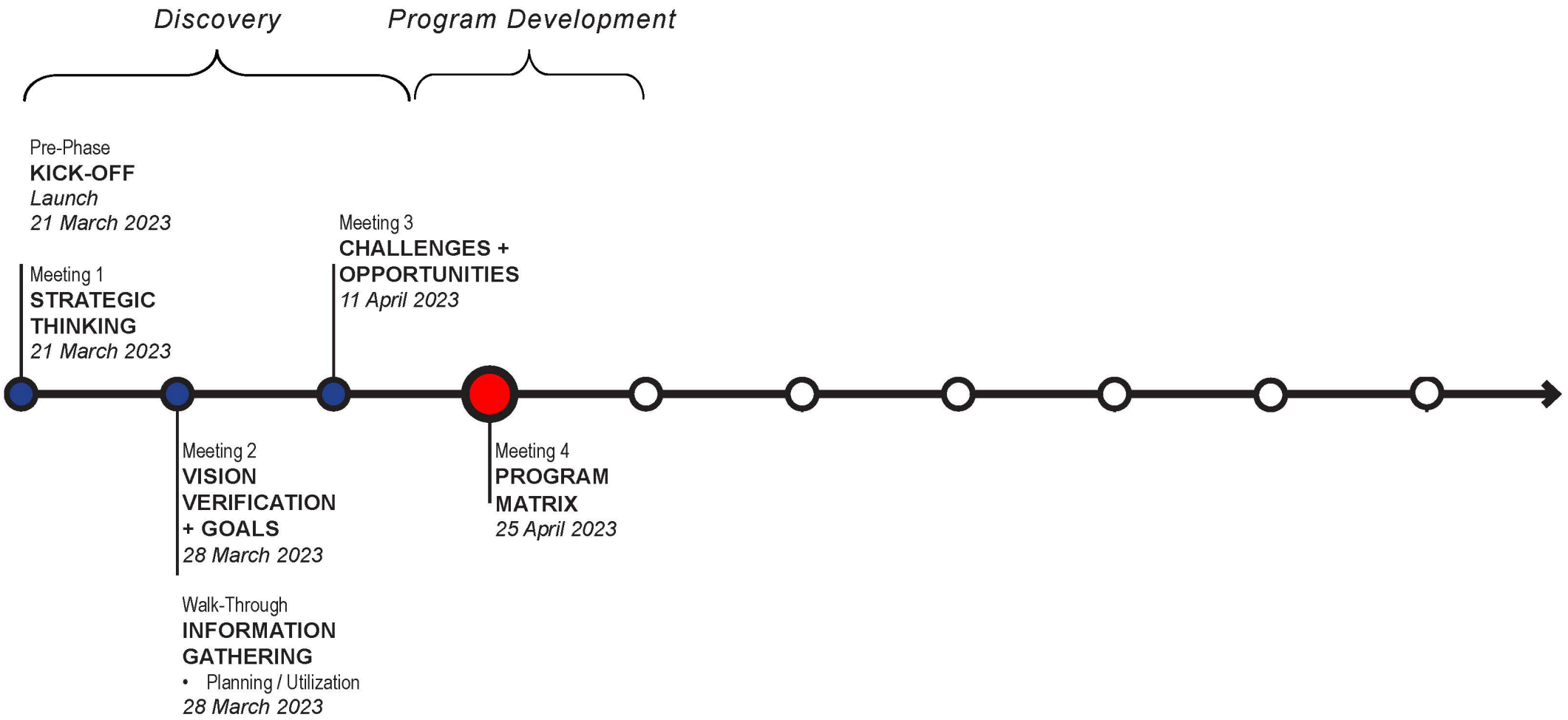

Pre-Phase
KICK-OFF
Launch
21 March 2023
Meeting 1
STRATEGIC
THINKING
21 March 2023
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FINAL
REPORT
16 June 2023


Duration:
13 weeks

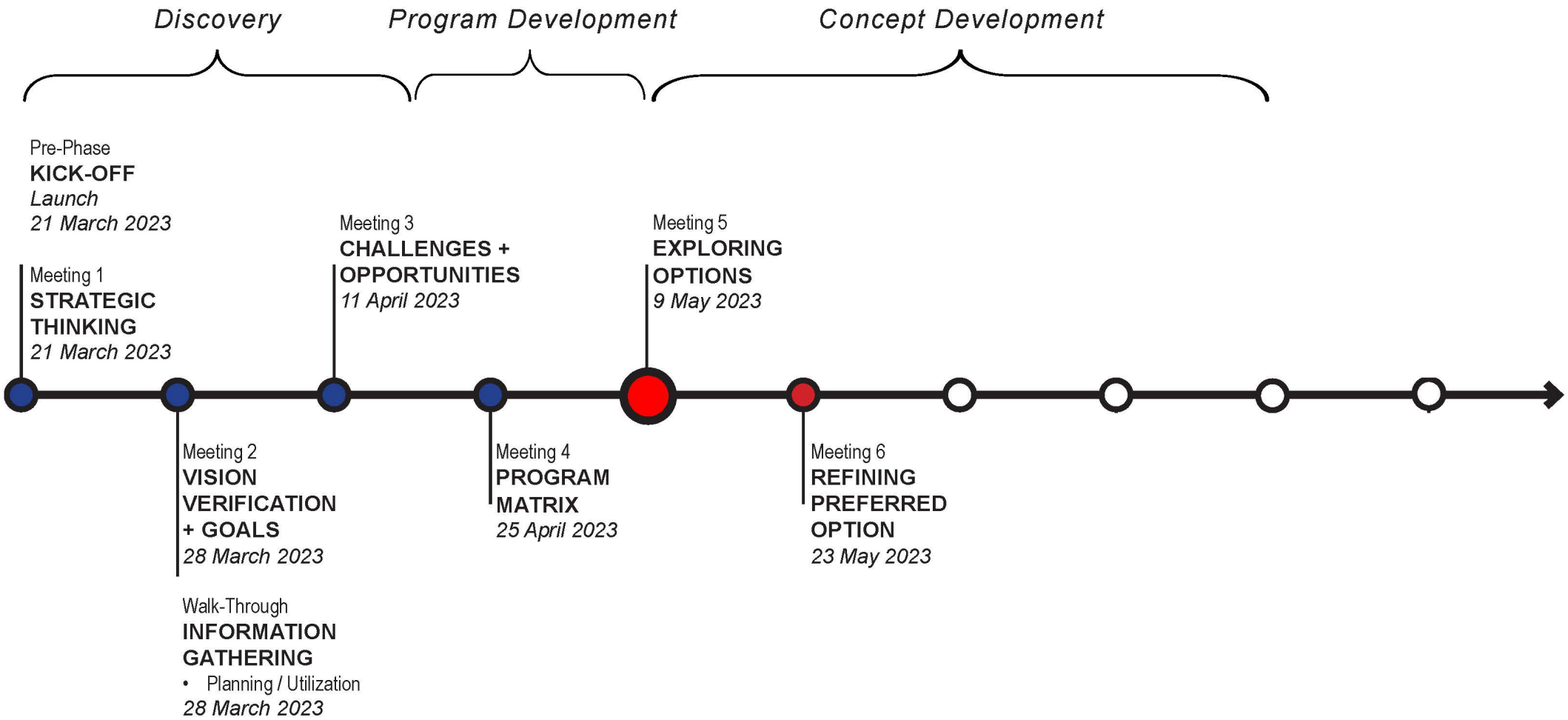
# Process


Discovery
Pre-Phase
KICK-OFF
Launch
21 March 2023
Meeting 1
STRATEGIC THINKING
21 March 2023
Meeting 2
VISION VERIFICATION + GOALS
28 March 2023
Walk-Through
INFORMATION GATHERING
• Planning / Utilization
28 March 2023
Meeting 3
CHALLENGES + OPPORTUNITIES
11 April 2023

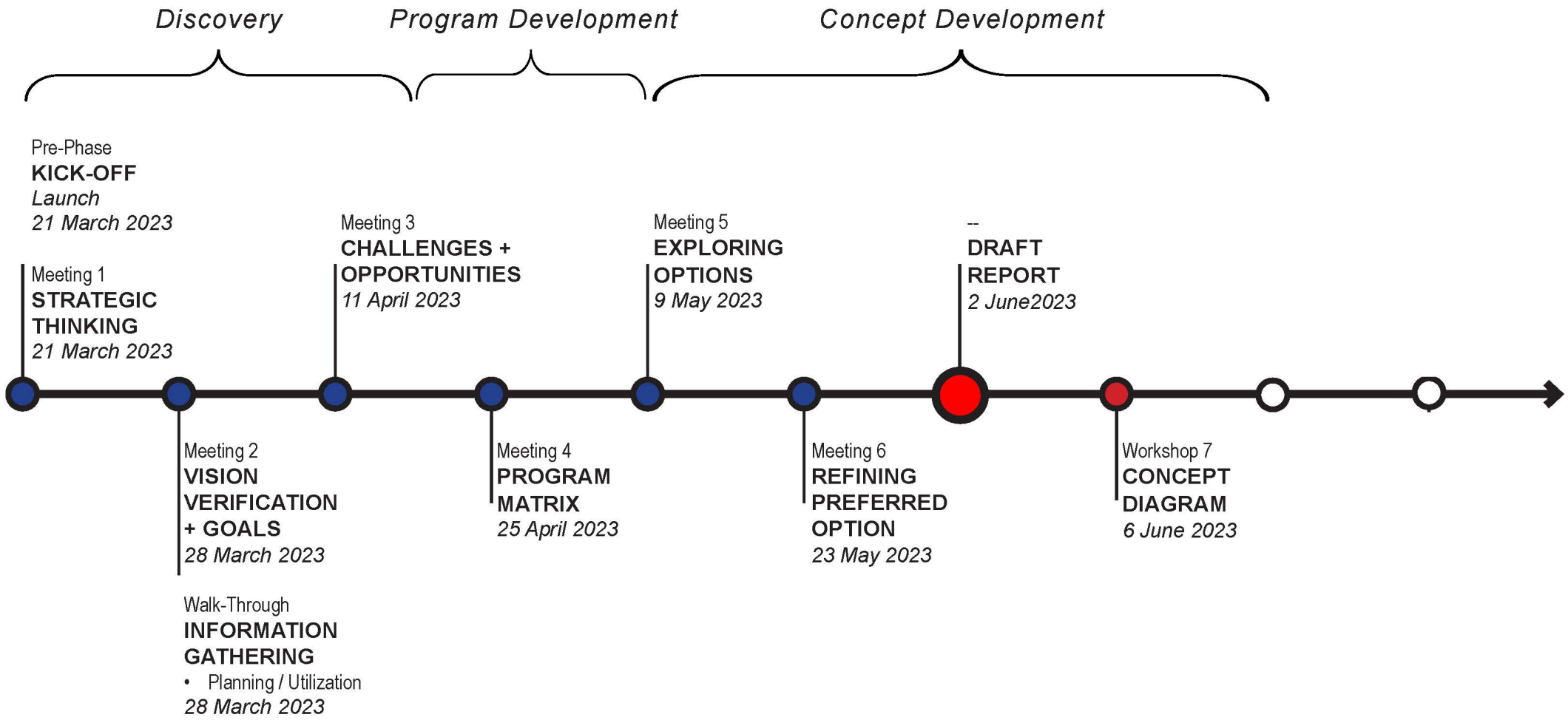
# Process


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Pre-Phase
KICK-OFF
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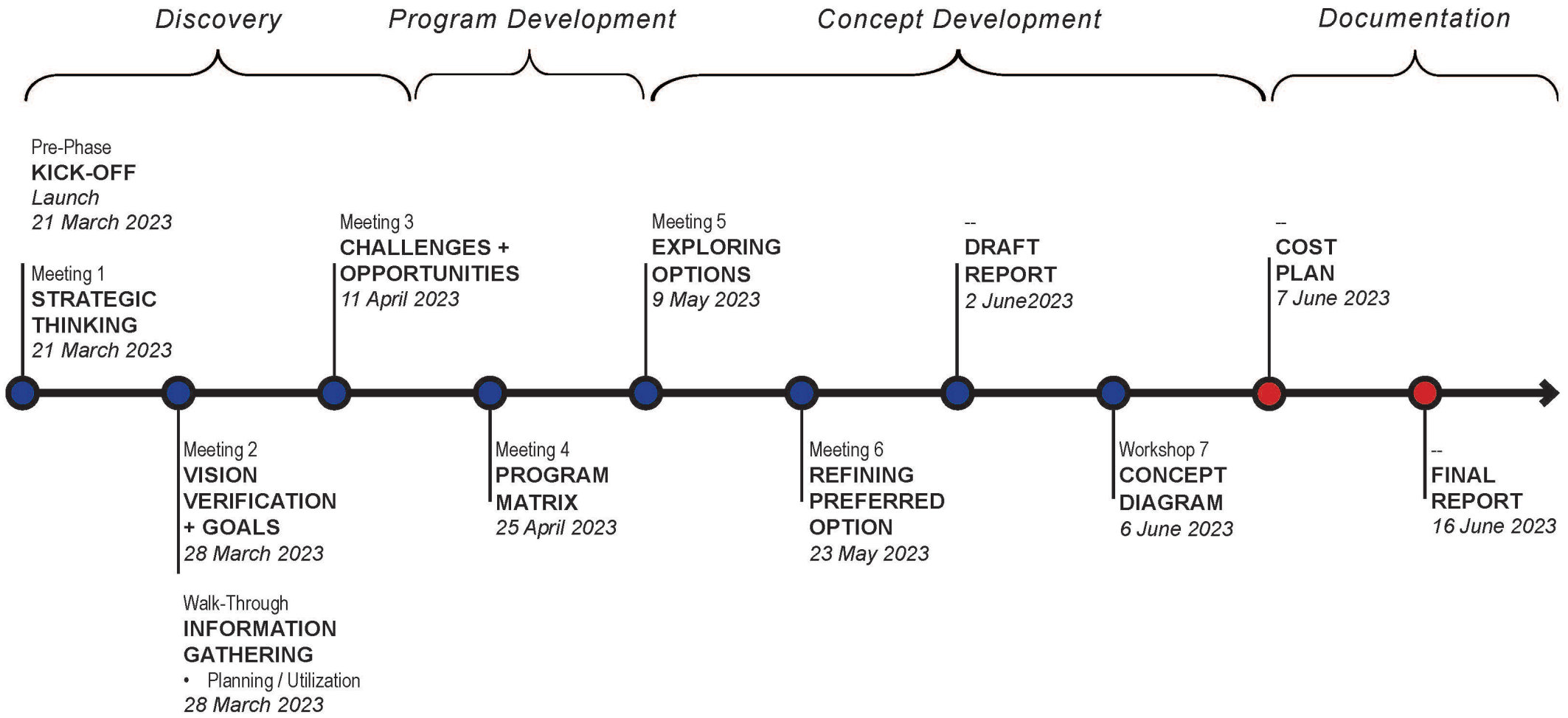
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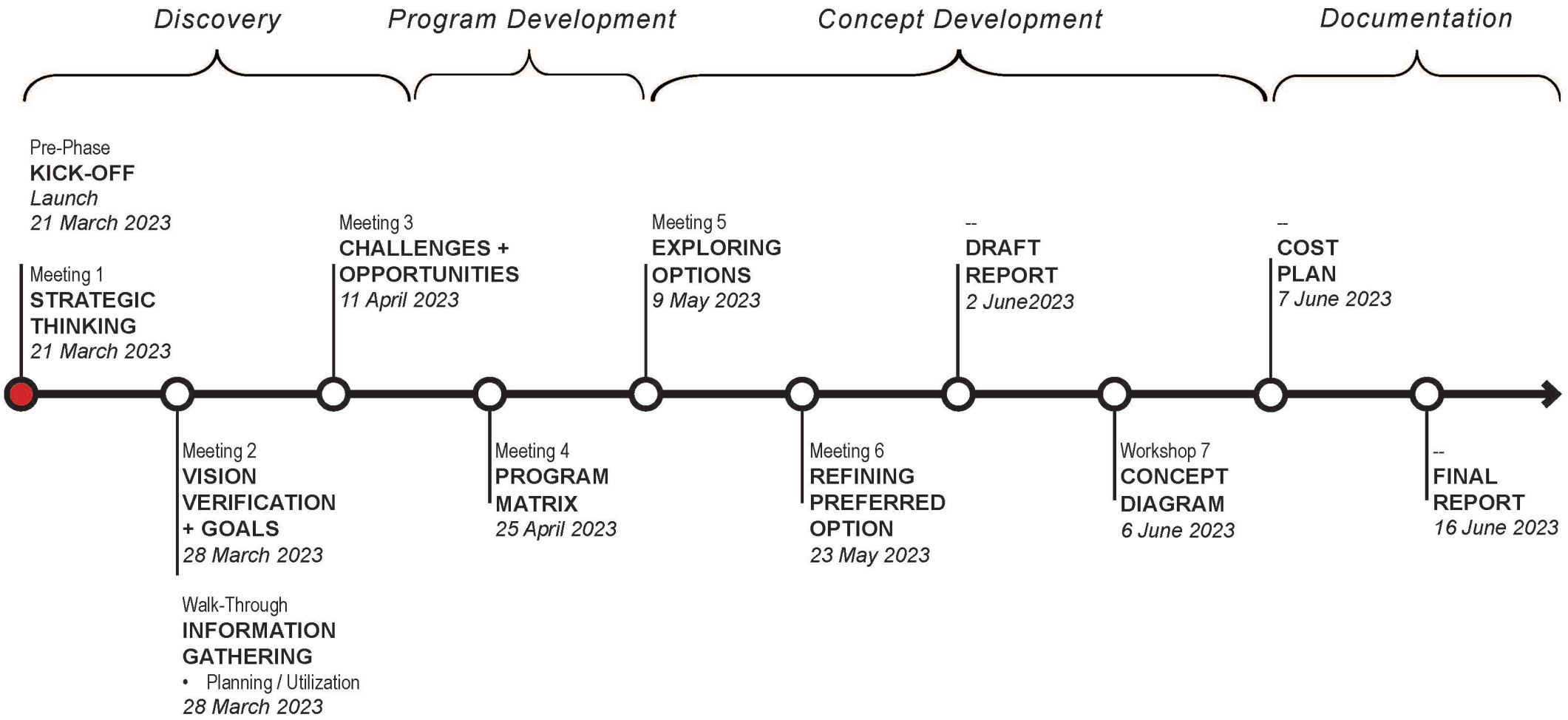
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2 June2023
Workshop 7
CONCEPT DIAGRAM
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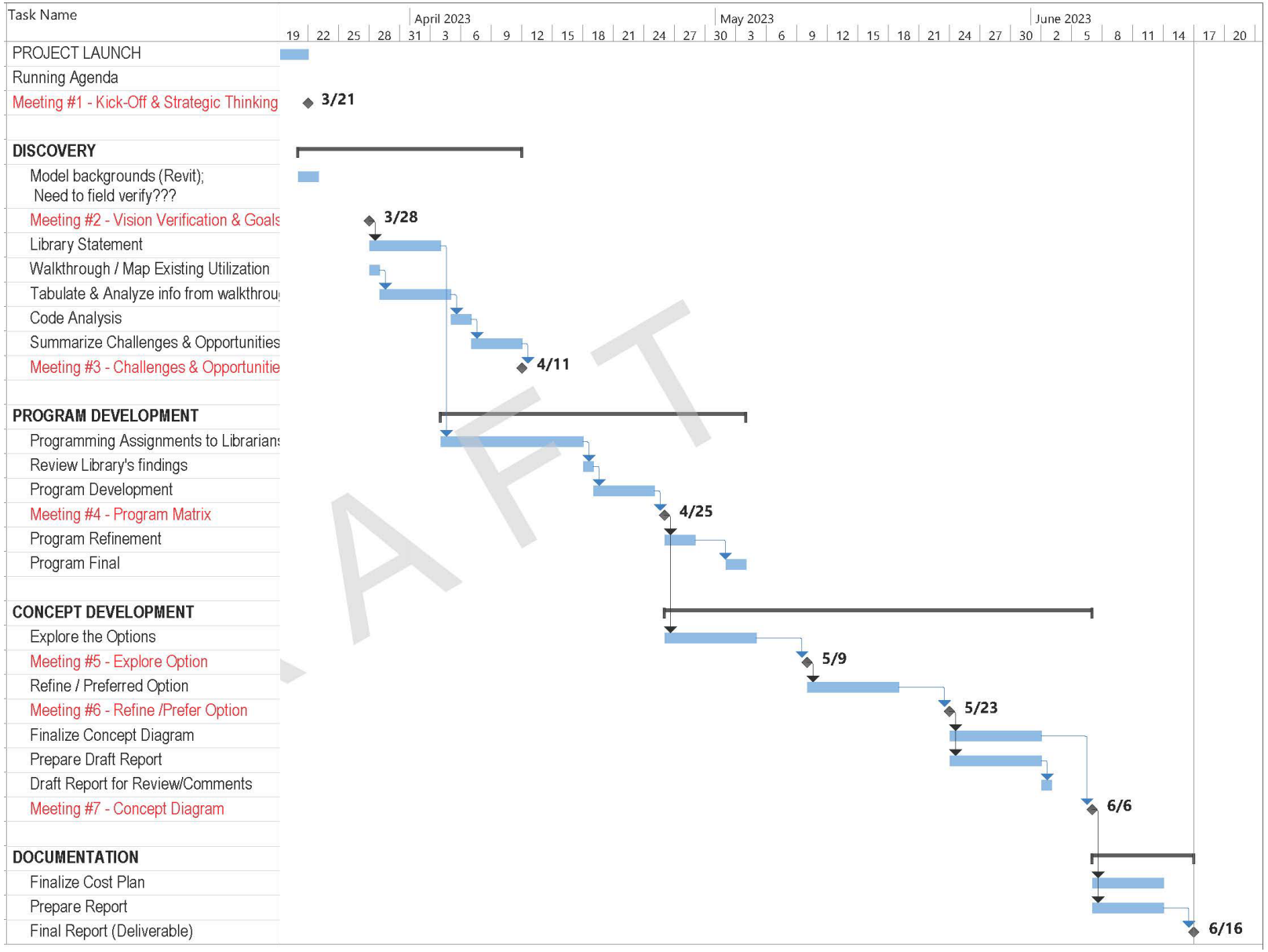
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# Proposed Timeline & Meeting Schedule



Welcome & Introductions (Michael)

Background Info (by Library)

Discussion

Logistics for Site Walkthrough

Next Steps

# Let’s Engage!

**1.**

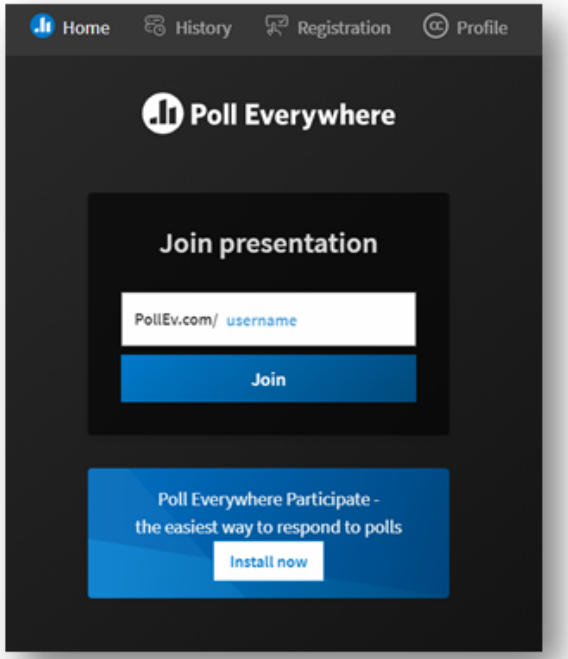
Open a web browser on your phone and navigate to Poll Everywhere by typing in:

**www.pollev.com**



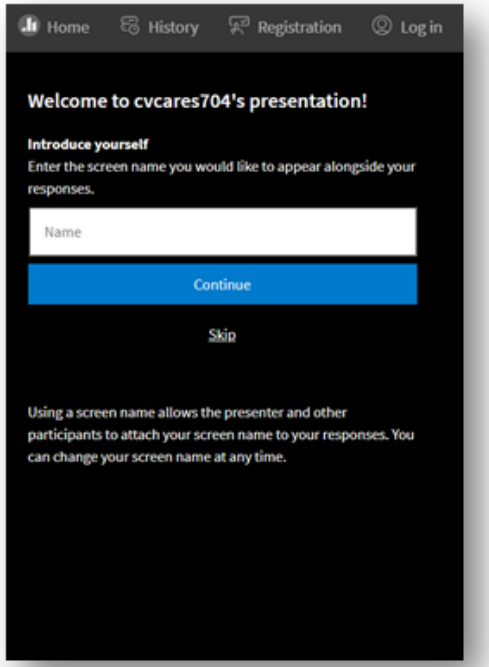
**2.**

Enter **perkinse125** as the username. Turn on notifications if prompted.




**3.**

You can enter your name or skip this step to remain anonymous.




pfeiffer
— A PERKINS EASTMAN STUDIO

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Next Steps

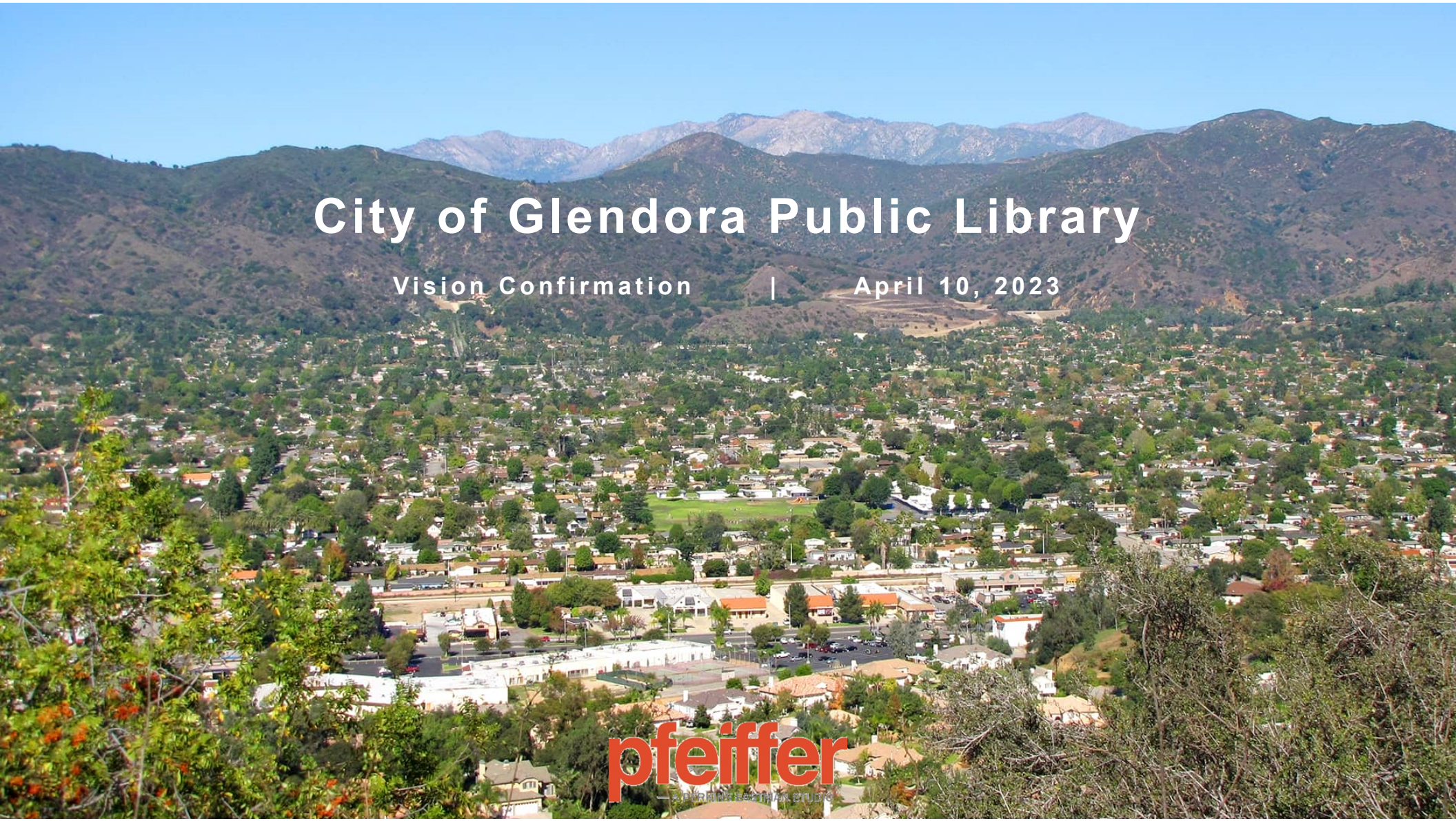
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Next Steps



# City of Glendora Public Library

## Vision Confirmation | April 10, 2023

# Today

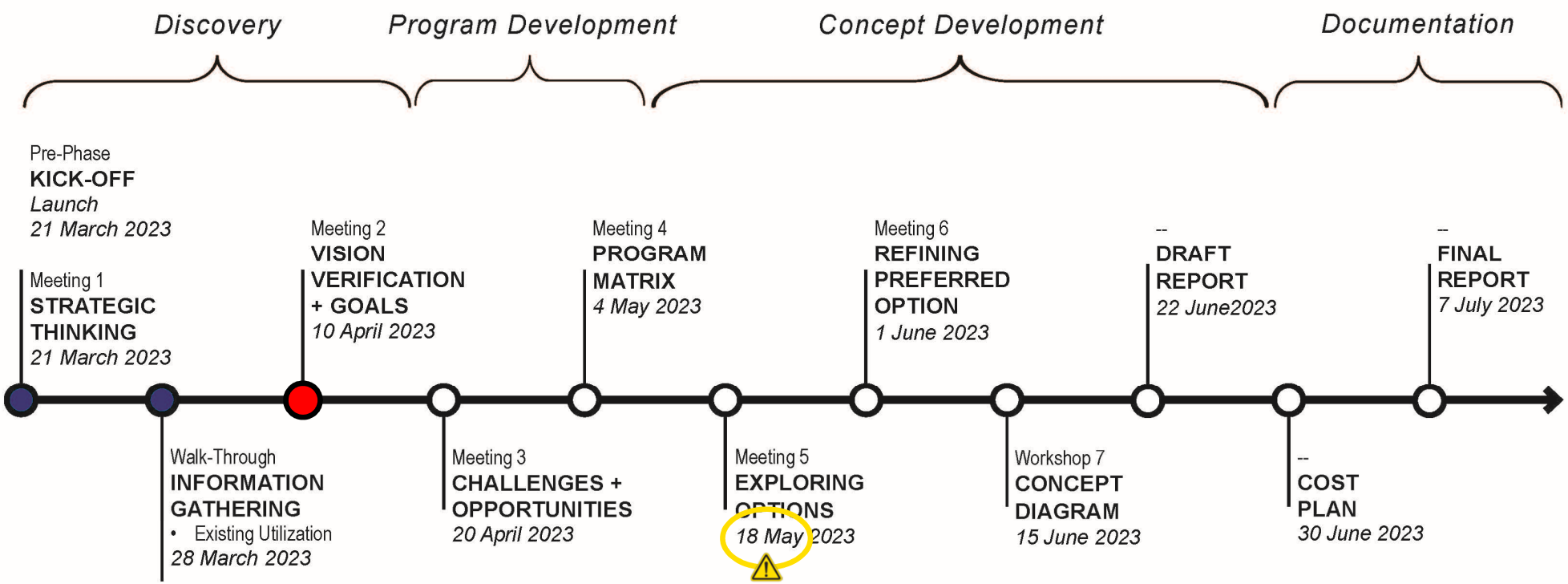
## Welcome / Process

## Vision Verification

- Right Sizing
- Library's Visioning Statement
- Areas for Growth / Expansion (enviroscan)
- Prioritization

## Next Steps

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Welcome / Process

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# City of Glendora - Population

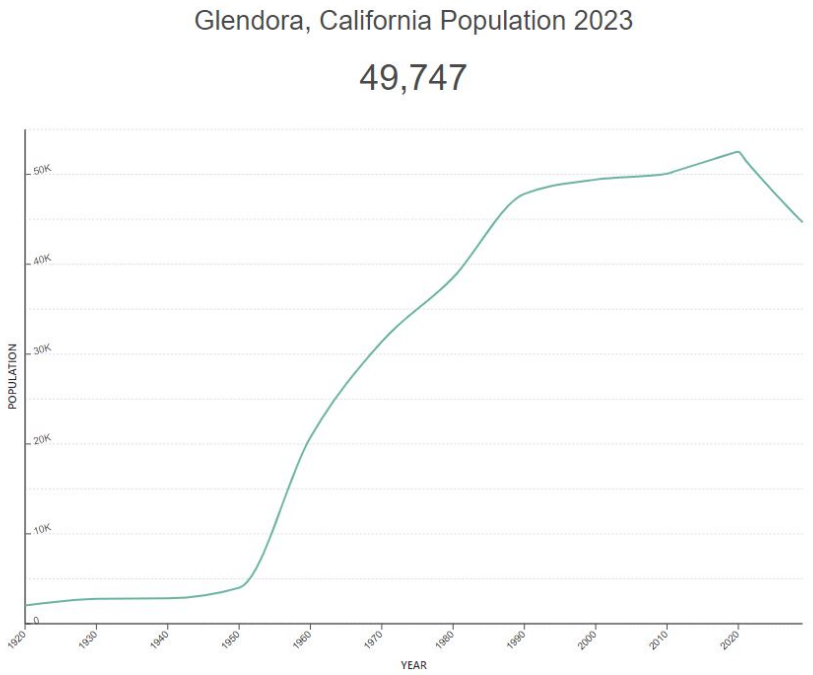
**Glendora Population by Year**

Note: data after 2021 is projected based on recent change

| Year | Population | Growth | Growth Rate |
|---|---|---|---|
| 2029 | 44,658 | -811 | -1.78% |
| 2028 | 45,469 | -825 | -1.78% |
| 2027 | 46,294 | -840 | -1.78% |
| 2026 | 47,134 | -855 | -1.78% |
| 2025 | 47,989 | -871 | -1.78% |
| 2024 | 48,860 | -887 | -1.78% |
| 2023 | 49,747 | -903 | -1.78% |
| 2022 | 50,650 | -919 | -1.78% |
| 2021 | 51,569 | -936 | -1.78% |
| 2020 | 52,505 | 200 | 0.38% |
| 2019 | 52,305 | 248 | 0.48% |
| 2018 | 52,057 | 248 | 0.48% |
| 2017 | 51,809 | 248 | 0.48% |
| 2016 | 51,561 | 248 | 0.48% |
| 2015 | 51,313 | 248 | 0.49% |
| 2014 | 51,065 | 248 | 0.49% |
| 2013 | 50,817 | 248 | 0.49% |

https://worldpopulationreview.com/us-cities/glendora-ca-population

**Glendora, California Population 2023**




| | |
|---|---|
| State | California |
| County | Los Angeles County |
| Land Area (mi²) | 19.5 sq mi |
| Density (mi²) | 2,550.0/sq mi |
| Growth Rate | -1.78% (-903) |
| Growth Since 2020 | -5.25% (-2,758) |
| Rank in State | 177th |
| Rank in Country | 797th |

The current population of Glendora, California is **49,747** based on our projections of the latest US Census estimates.The last official US Census in 2020 recorded the population at **52,505**.

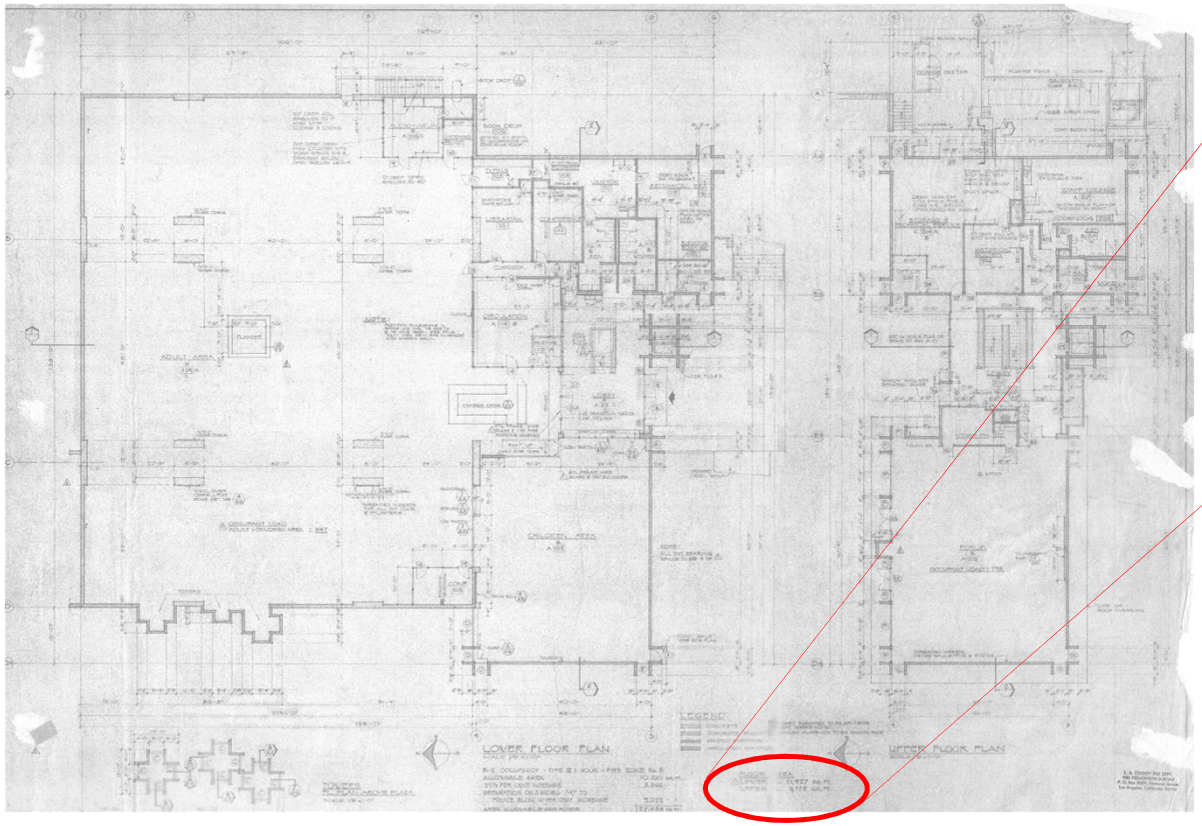
**2020 CENSUS REPORT | CITY OF GLENDORA**

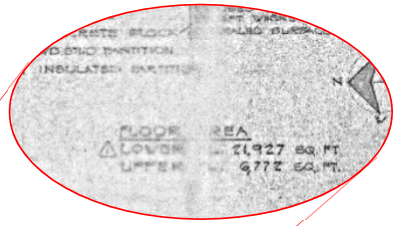



https://www.cityofglendora.org/about-glendora/demographics-and-statistics

# Original Library Area (per 1967 drawing)

## 28,699 GSF



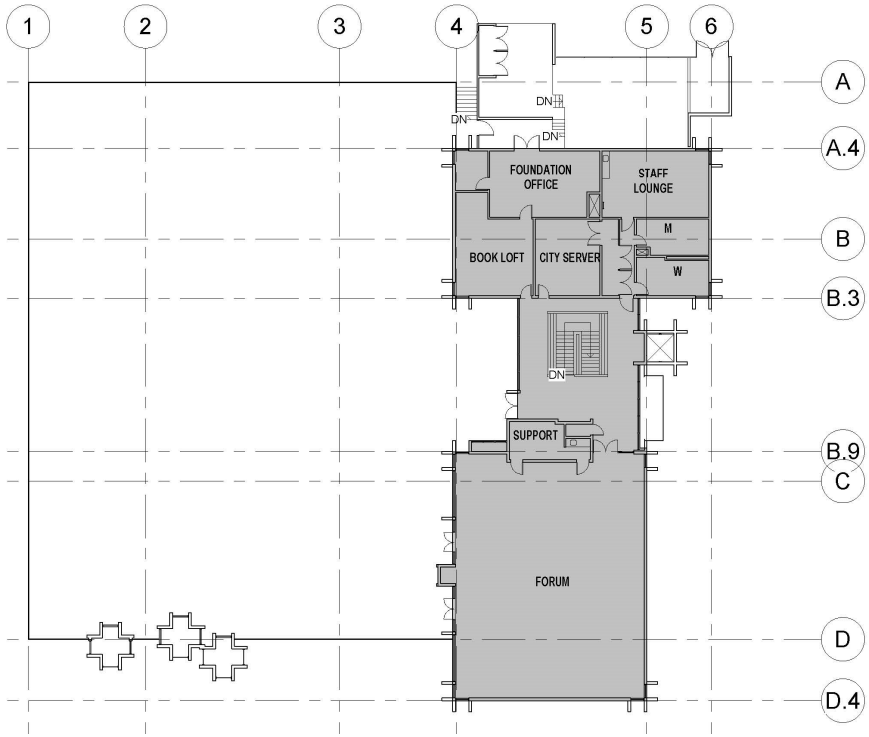

| Floor Area | |
|---|---|
| Lower | 21,927 SF |
| Upper | 6,722 SF |
| Total | 28,699 SF |

Per 1967 drawings: 28,699 SF / 1970 Population: 31,380 / 0.9 SF per Capita

# Existing Library Area (per 2023 utilization mapping) 29,720 GSF




Existing First Floor
23,150 GSF




Existing Second Floor
6,570 GSF

per 2023 utilization mapping: 29,720 GSF / 2023 Population: 49,707 / 0.57 SF per Capita
(27,454 NSF)

# Library Area Per Capita

| Year | Population | Lib GSF | Per Capita |
|---|---|---|---|
| 1970 | 31,380 | 28,699 | 0.91 |
| 1980 | 38,500 | 29,720 | 0.77 |
| 1990 | 47,828 | 29,720 | 0.62 |
| 2000 | 49,415 | 29,720 | 0.60 |
| 2010 | 50,073 | 29,720 | 0.59 |
| 2020 | 52,505 | 29,720 | 0.57 |

| 2020 Population | Lib GSF | Per Capita |
|---|---|---|
| 52,558 | 29,720 | 0.57 |
| 52,505 | 29,720 | 0.57 |
| 49,747 | 29,720 | 0.60 |
| 44,700 | 29,720 | 0.66 |



# Target Growth - Scenarios

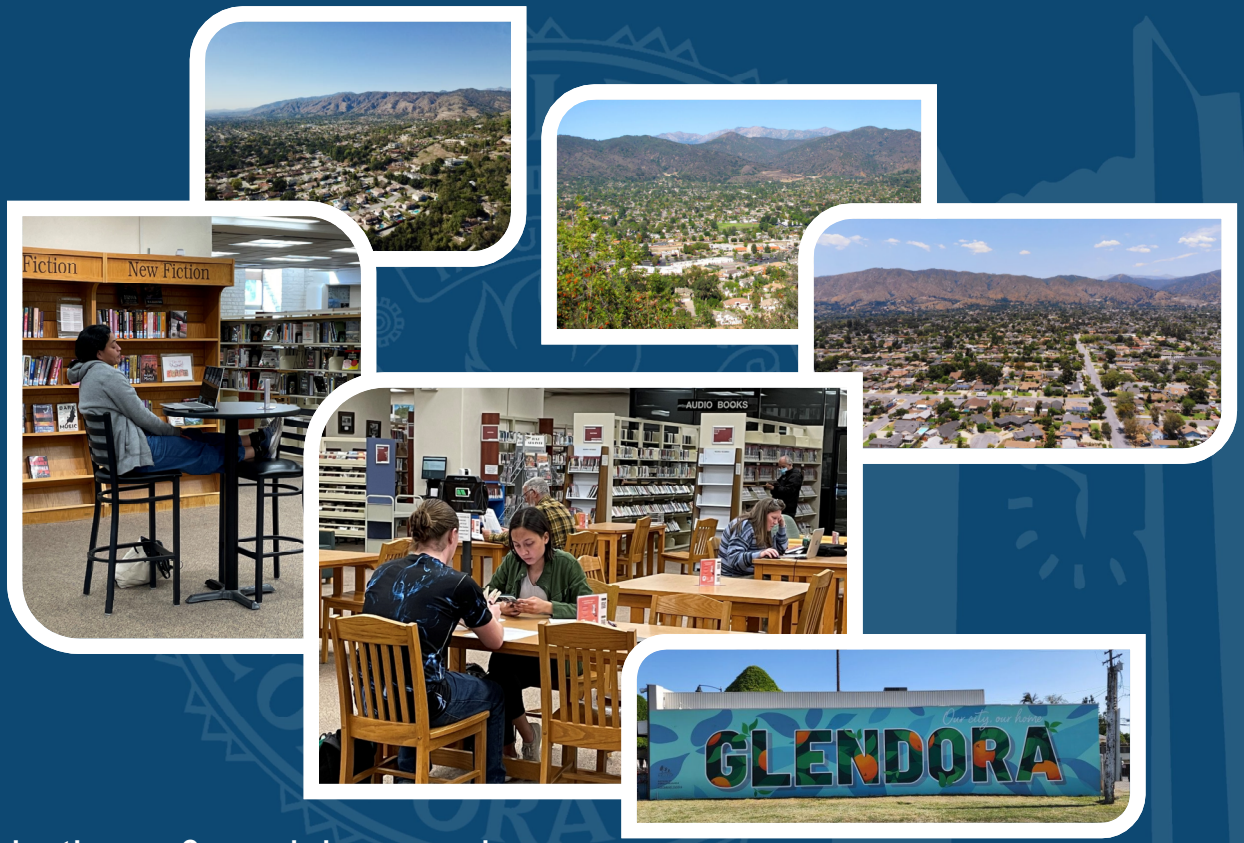
| 2020 Population | Per Capita | Lib SF | Existing | Delta |
|---|---|---|---|---|
| 52,558 | 0.6 | 29,720 | 29,720 | - |
| 44,700 | 0.6 | 26,820 | 29,720 | (2,900) |
| 52,558 | 0.8 | 42,046 | 29,720 | 12,326 |
| 44,700 | 0.8 | 35,760 | 29,720 | 6,040 |
| 52,558 | 1.0 | 52,558 | 29,720 | 22,838 |
| 44,700 | 1.0 | 44,700 | 29,720 | 14,980 |

# Best practices are only a starting point….

Service / Philosophy ≠ Building

Strategic Framework

- Proximity
- Human Development
- Physiology
- Preservation
- Organization
- Protection/Availability
- Interpretation/Context
- Sustainability




Flexibility → meet community's aspirations & evolving needs


How might we ...

# Desired outcomes

When poll is active, respond at **PollEv.com/perkinse125**

## What are the desired outcomes or objectives for this project?

| | |
|---|---|
| 4 | More efficient and exciting place to visit with learning opportunities |
| 3 | Proposed space for both library use & civic center |
| 3 | To provide library service for next 50 years |
| 1 | providing community with a responsive space to meet their aspirations |
| 1 | Cultural center |
| 1 | Multiple options/plans |
| 1 | Meet technological needs |
| 1 | Flexible space that will serve into the future |



# What's right for GPL?



# What's right for GPL?

## Primary Spaces

- Service/Welcome Desk
- Collections
- Reading / Living Room
- Friends Room
- Bidwell Forum (MPR)
- Study Rooms**
- Computers
- Copy
- Bookstore

- Quiet Zone
- Meeting Rooms

## Exciting Place

- Pop-ups
- Culinary Kitchen
- Tinkering Garage
- Garden
- Art Trucks

## Learning Opportunities

- Language Center
- Makers Space
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- Café / Coffee Cart
- Community Gallery
- Business & Career Center
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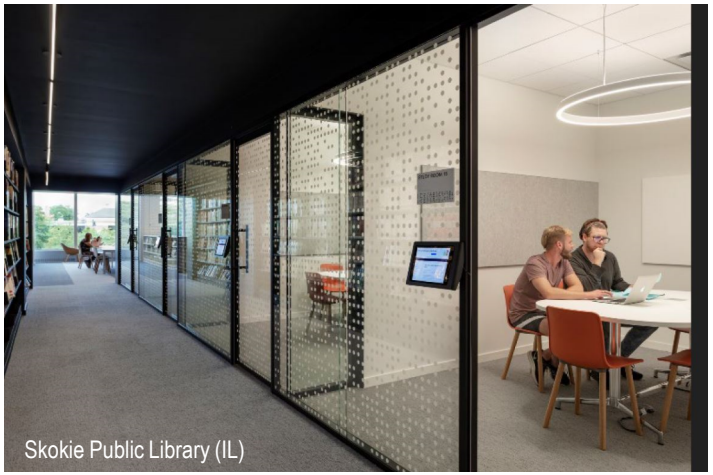
***'Intentional service makes the world of ideas accessible'***

# Co-Working


Washoe County Library (NV)






Skokie Public Library (IL)



# Learning / Studying


Seattle Public Library_Homework Help




Appleton Public Library Wi: *Tutoring Thursday*





Peterborough Public Library, Ontario, Canada

# Skilling



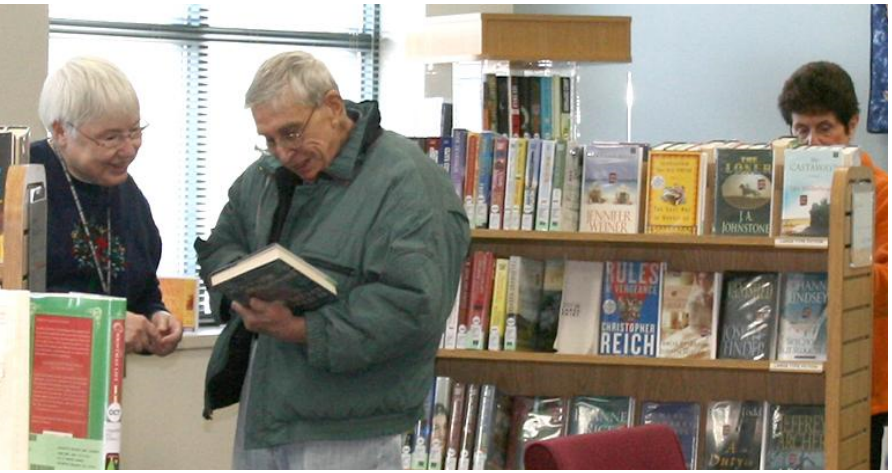
Tinker Lab _ New Haven Free Public Library (CT)



Los Angeles Central Library


Charlotte & William Bloomberg Medford Public Library (MA)

# Discovering





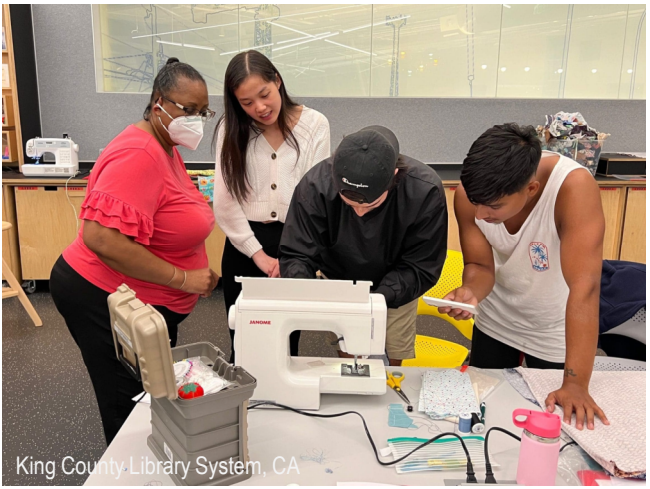
Edmonton Public Library_Milner-branch, Alberta




Queens Library Discovery Center, NY



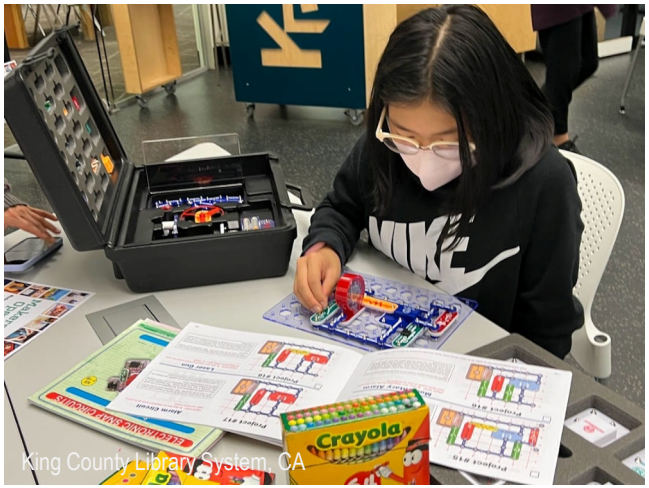
# Making


King County Library System, CA

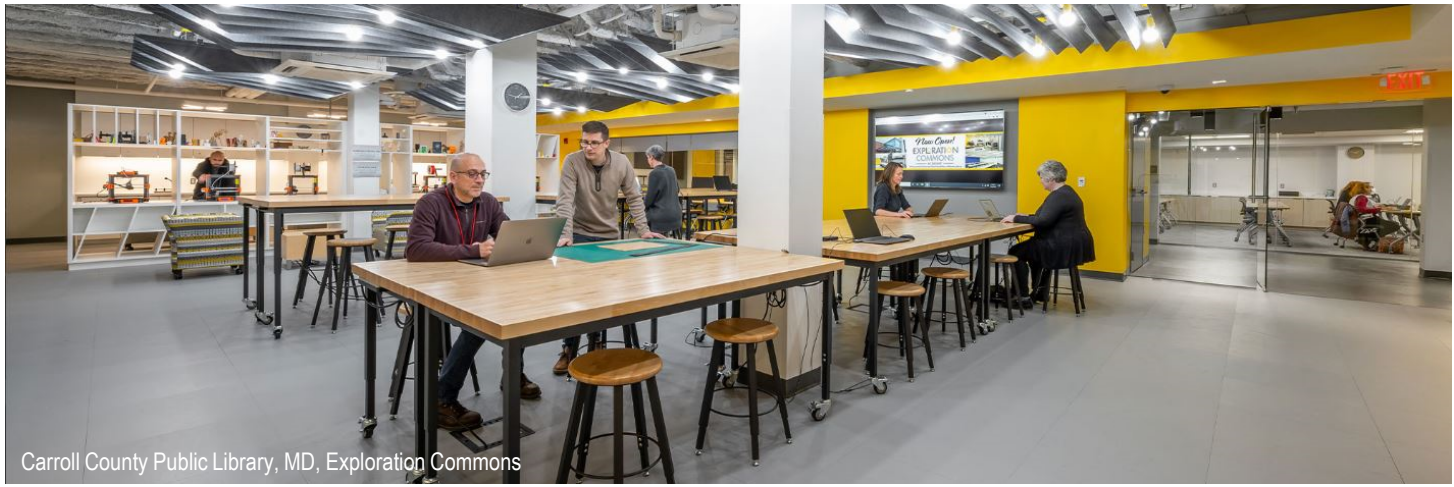


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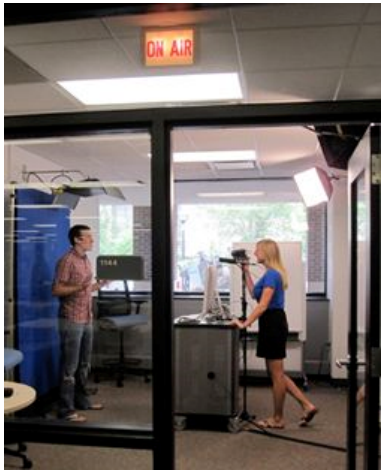
King County Library System, CA


Carroll County Public Library, MD, Exploration Commons

# Creating (Tech Arts)

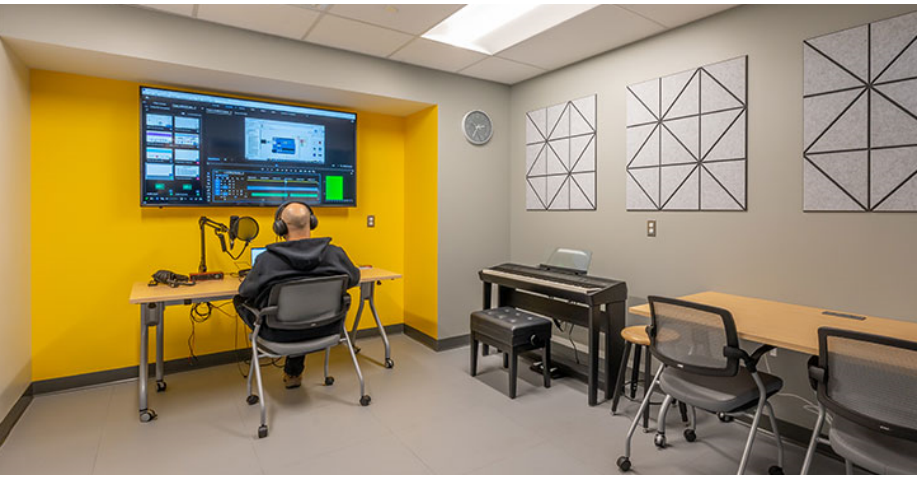


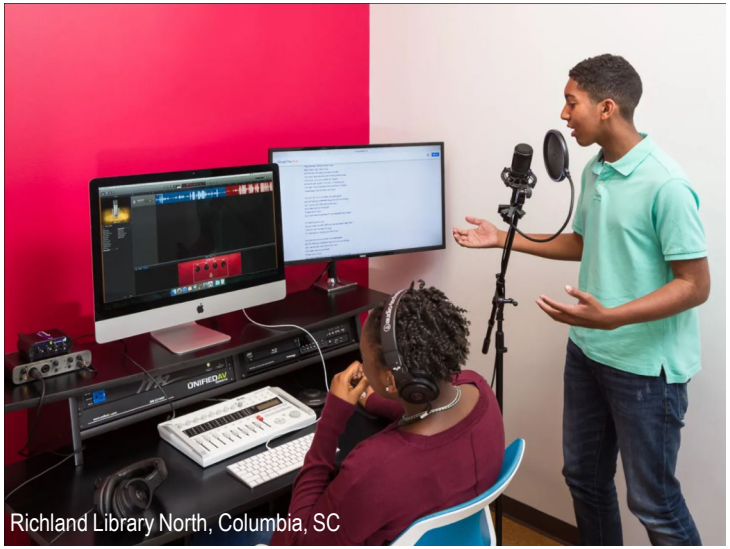
Carroll County Public Library, MD, Exploration Commons





SJSU_King Library_Presentation Practice Room



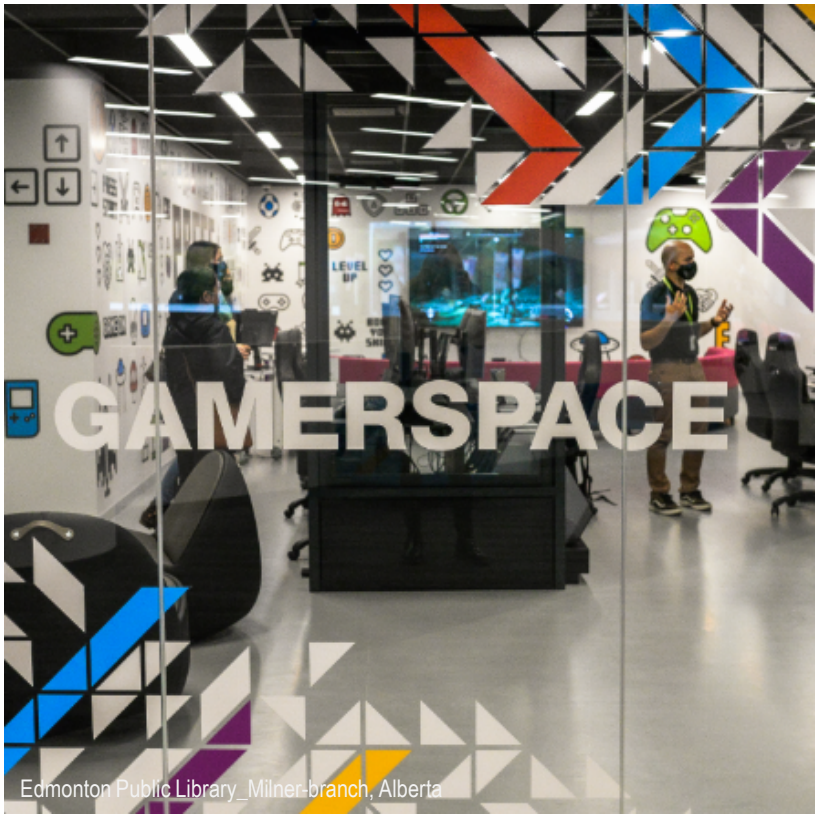

Richland Library North, Columbia, SC

# Gaming


Halifax Public Library



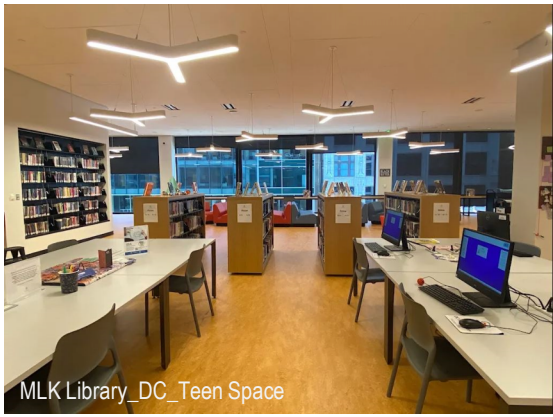
Longview Public Library (TX)



Edmonton Public Library_Milner branch, Alberta



Memphis Public Library (TN)


MLK Library_DC_Teen Space

# Sharing (Arts & Culture)



MLK Library_DC

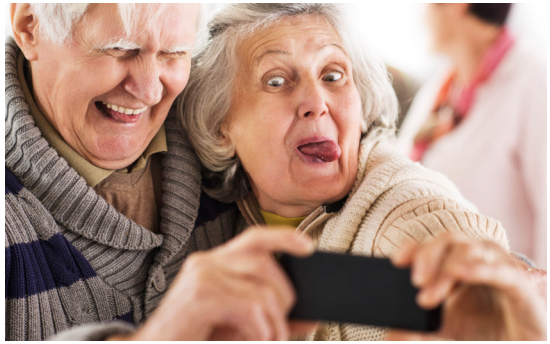

Ruidoso Public Library (NM)


Plano Public Library (TX)

# Playing


Toronto Public Library, Ontario, Canada


Austin Public Library, TX





# Chilling


Richland Library North Main, Columbia, SC


Salt Lake UT, Daybreak Library


Austin Public Library, TX


Austin Public Library, TX




Boston Public Lib_Central Library_Teen Central

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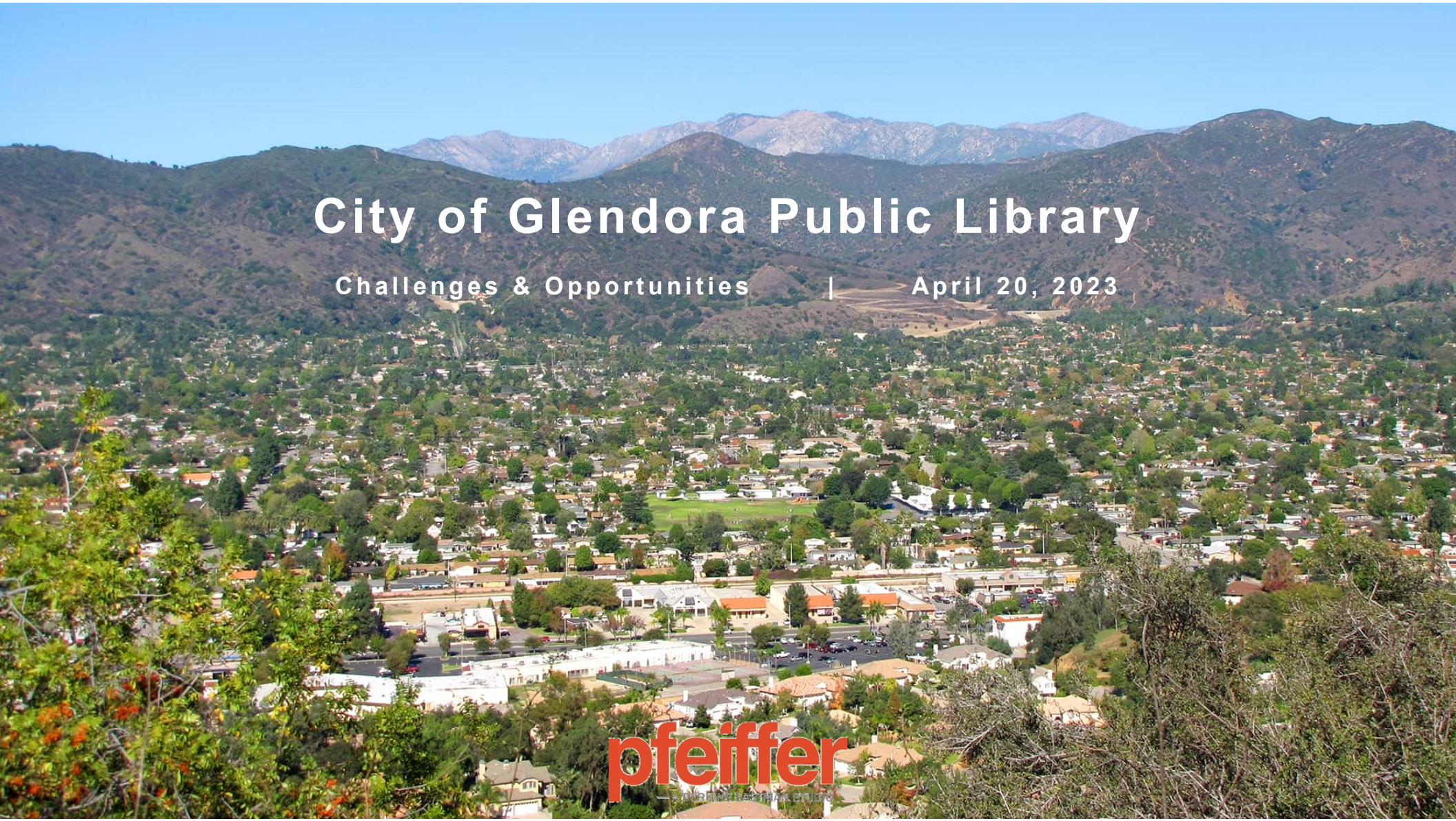
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## Next Steps

- Meeting #3 – April 20, 2023


City of Glendora Public Library
Challenges & Opportunities | April 20, 2023
pfeiffer

# Today

Welcome / Process

The Findings

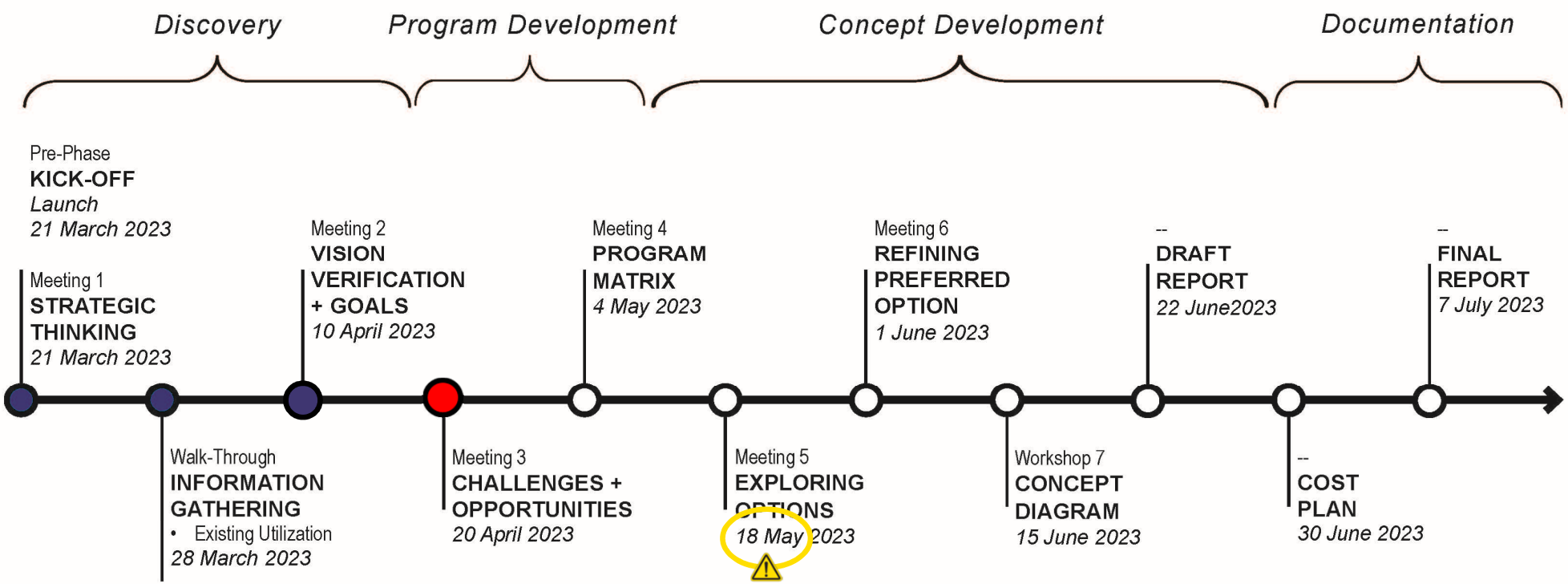
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- Architectural
- Programmatic Utilization

The Library's Vision

Discussion: Challenges & Opportunities

Next Steps

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Welcome / Process

The Findings

- Structural
- Architectural
- Programmatic Utilization

The Library's Vision

Discussion: Challenges & Opportunities

Next Steps

# Approach / Entry Sequence



# Approach / Entry Sequence



# Approach / Entry Sequence



# Approach / Entry Sequence



# Approach / Entry Sequence



# Approach / Entry Sequence



# Approach / Entry Sequence








# Vertical circulation






# Building Entry






# Architectural features



# Welcoming


New Fiction
New Fiction
Look Up
Books, Movies, Music


NEW ARRIVALS!
Jacques Pepin
CEO
Excellence
Tax Savvy
MAGAZINES
HISTORY
BIOGRAPHY

# Welcoming

















# Code-related Issues








# Code-related Issues







# Vertical Circulation









# Code-related Issues









# Electrical


Copy Center
REFERENCE
New Fiction
New Fiction
AUDIO BOOKS
VIDEOS
Glendora READS!
COMPUTER
SELF-HELP

# Electrical


Under the Sea
Storytime
Tuesday, March 7
Friends Room
6:30 PM
Please
Do Not
Touch

# Electrical






# Heating & Cooling





# Heating & Cooling






# Lighting



# Leaks


GLENDORA
STREETS


Look Up
Books, Movies, Music
OUT OF SERVICE
CAUTION



# Leaks







# Sight lines



# Sight lines



# Storage


Little Dino 65
Wings of Fire
24
A Wish in the Dark
48
Demco
Kiss
48



# Storage / Workplace







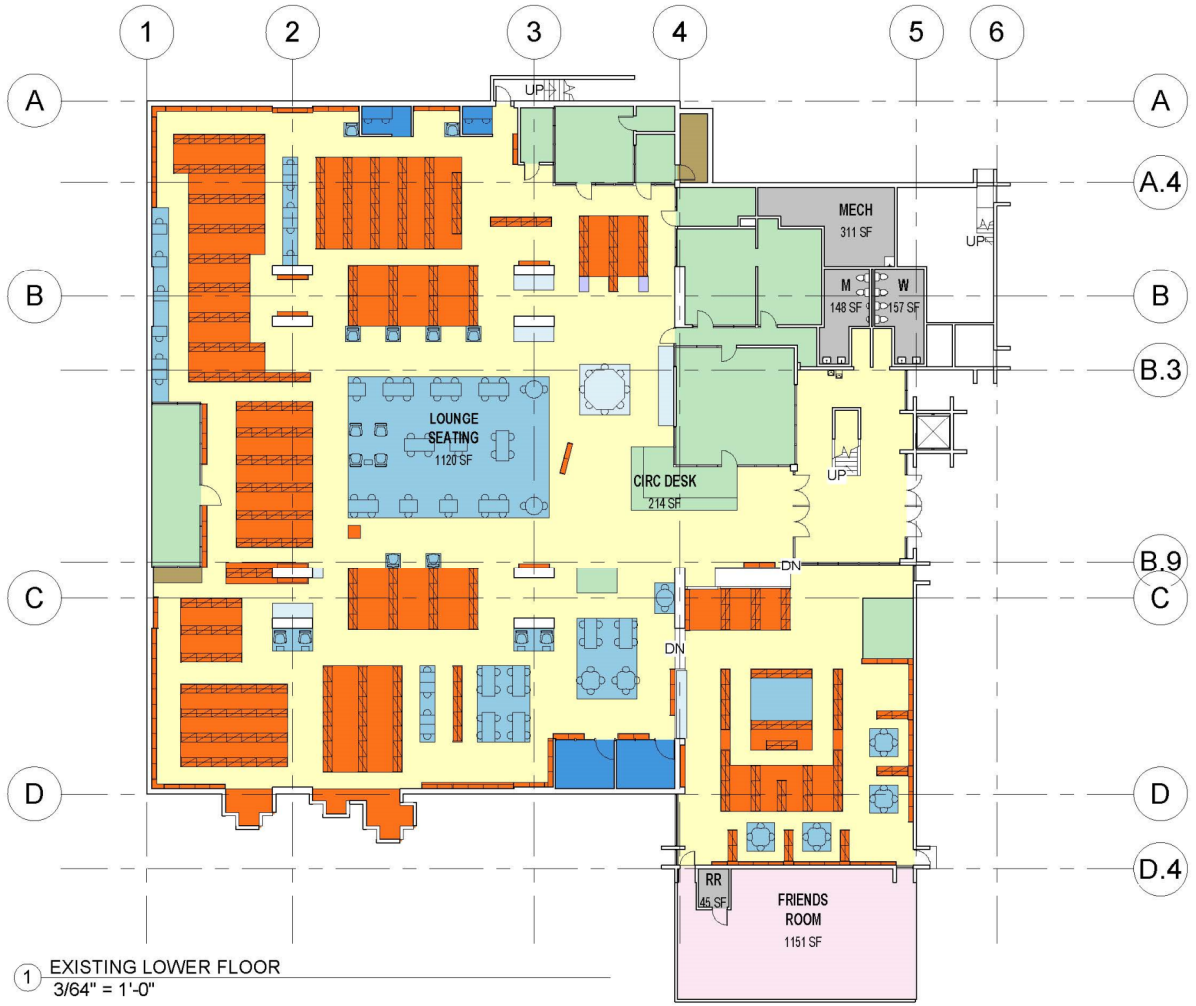
# Workplace



# Workplace



# Space Utilization - Existing




1 EXISTING LOWER FLOOR
3/64" = 1'-0"

Department Legend

- CIRCULATION
- GENERAL COLLECTION / STACKS
- EXHIBIT
- friends
- READER - COLLABORATIVE
- READER - OPEN
- LIBRARY STAFF
- READER SUPPORT
- BUILDING SUPPORT
- STORAGE

# Space Utilization - Existing




1 EXISTING UPPER FLOOR
3/64" = 1'-0"

# Space Utilization - Existing

Department Legend

- CIRCULATION
- GENERAL COLLECTION / STACKS
- EXHIBIT
- friends
- READER - COLLABORATIVE
- READER - OPEN
- LIBRARY STAFF
- READER SUPPORT
- OTHER PROGRAM
- BUILDING SUPPORT
- STORAGE

| | | |
|---|---|---|
| LOWER FLOOR | 18,747 | 68% |
| CHILDREN AREA FLOOR LEVEL | 2,668 | 10% |
| UPPER FLOOR | 6,040 | 22% |
| TOTAL | 27,455 | 100% |

| | | |
|---|---|---|
| CIRCULATION | 10,788 | 39% |
| GENERAL COLLECTION / STACKS | 3,902 | 14% |
| BIDWELL FORUM | 2,929 | 11% |
| LIBRARY STAFF | 2,875 | 10% |
| READER - OPEN | 2,104 | 8% |
| BUILDING SUPPORT | 1,278 | 5% |
| FRIENDS ROOM | 1,151 | 4% |
| FRIENDS | 951 | 3% |
| CHILDRENS COLLECTION / STACKS | 714 | 3% |
| READER - COLLABORATIVE | 315 | 1% |
| READER SUPPORT | 251 | 1% |
| STORAGE | 185 | 1% |
| EXHIBIT | 12 | 0% |
| TOTAL | 27,455 | 100% |

Welcome / Process

The Findings

- Structural
- Architectural
- Programmatic Utilization

The Library's Vision

Discussion: Challenges & Opportunities

Next Steps

## Library's Visioning (projected space utilization based on 50,000 GSF assumption)

| Description | Projected need (designed to morph asneed) | Area Allocation (Sq Ft) | Reference |
|---|---|---|---|
| Customer-driven workspaces – | 13% | 6,500 | |
| Open-format public assembly spaces, reconfigurable (more like Bidwell, Friends Room) | 12% | 6,000 | Bidwell ±3,000 SF<br>Friends Room ±1,200 SF |
| Library-mediated public workspaces | 10% | 5,000 | No equiv space now |
| Fulfillment center services | 9% | 4,500 | |
| Small private/semi-private spaces – | 8% | 4,000 | |
| Physical content showroom – | 8% | 4,000 | |
| Leisure spaces – relaxation rather than organized/formalized gathering | 6% | 3,000 | |
| Service points<br>Identified interface areas for access to staff expertise | 4% | 2,000 | 2,875 |
| Specialized preservation/archival storage | 0% | - | |
| Public technology access – capital equipment for digital divide | 0% | - | |
| Food consumption/services (routine) | 0% | - | |
| Food preparation (event specialized) | 0% | - | |
| Infrastructure | 20% | 10,000 | |
| Subtotal | | 45,000 | |
| Outdoor opportunities (floor space, excluding park/garden areas) | | 16,000-26,000 | |

## Library's Visioning Statement (projected space utilization based on 50,000 GSF assumption)

| Description | Projected need at time of refres | |
|---|---|---|
| Customer-driven workspaces –<br>Large area/not private –<br>With neutral workshop furniture for customer use<br>Education "deskwork"<br>Staging/practicing skills<br>Creative workspaces<br>In-person game spaces<br>(an enriched version of our main floor table area) | 13% | 6,500 |
| Open-format public assembly spaces, reconfigurable<br>Entertainment<br>Culture<br>Recreation<br>Organized social<br>Meeting/conferencing<br>Emergency operations<br>Playing<br>Events<br>(more like Bidwell, Friends Room) | 12% | 6,000 |

## Library's Visioning Statement (projected space utilization based on 50,000 GSF assumption)

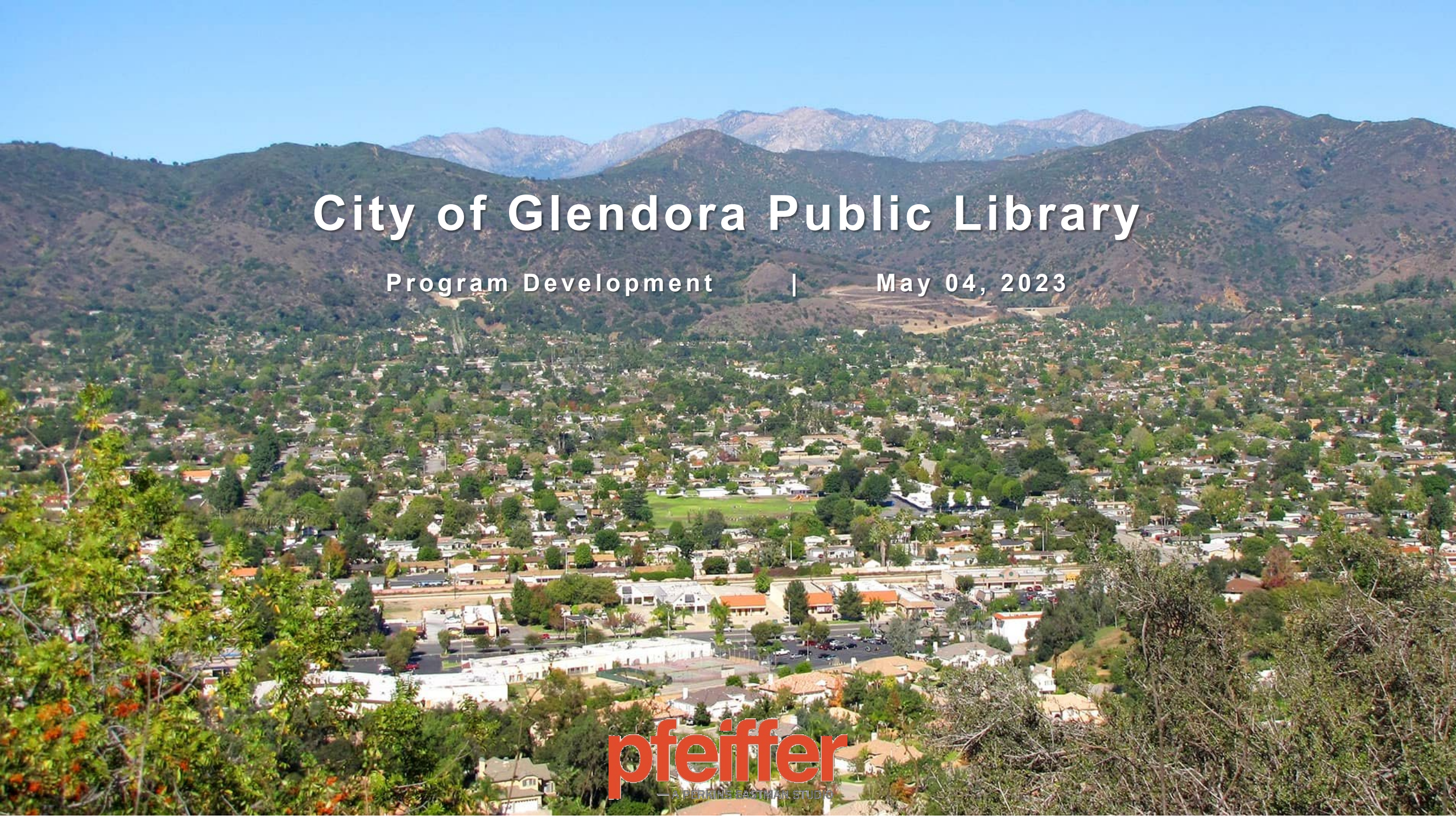
| Description | Projected need at time of refres | |
|---|---|---|
| Library-mediated public workspaces – Large area/not private – Dedicated to temporary instructional/exploratory installations, with purposed furniture and equipment<br>Instruction<br>Equipment-based skills-building, creation<br>(don't have an "instructional laboratory" space like this now) | 10% | 5,000 |
| Fulfillment center services<br>Traditional materials not necessarily on display (could be—see also showroom, below) but certainly available for delivery<br>Storage for libraries of things<br>Storage for program giveaways, crafts, etc.<br>Preparation/packing/shipment/transportation support areas | 9% | 4,500 |
| Small private/semi-private spaces – Multipurpose<br>One-on-one/small group education<br>Health care<br>Social work / human services<br>Officing / co-working<br>Public safety<br>Private City services (passports, etc.)<br>Staff expert consultations<br>(like our study rooms but more, and more private) | 8% | 4,000 |

## Library's Visioning Statement (projected space utilization based on 50,000 GSF assumption)

| Description | Projected need at time of refres | |
|---|---|---|
| Physical content showroom –<br>Direct customer access space<br>Traditional materials<br>Libraries of things<br>"Museum"/exhibit space<br>Sales areas<br>(enriched and more versatile "stacks" areas, bookstore) | 8% | 4,000 |
| Leisure spaces – relaxation rather than organized/formalized gathering<br>Hospitality<br>Lounging<br>Chilling<br>(enriched versions of our lounge seating) | 6% | 3,000 |
| Service points<br>Identified interface areas for access to staff expertise<br>Library staff<br>City services as needed<br>Other "storefront" needs – curbside, technology assistance, etc. | 4% | 2,000 |
| Specialized preservation/archival storage | 0% | - |
| Public technology access – capital equipment for digital divide | 0% | - |
| Food consumption/services (routine) | 0% | - |
| Food preparation (event specialized) | 0% | - |

## Library's Visioning Statement (projected space utilization based on 50,000 GSF assumption)

| Description | Projected need at time of refres | |
|---|---|---|
| Infrastructure<br>"Home base" for expert staff, Friends Foundation<br>Storage of capital equipment<br>HVAC, etc.<br>Environmental installations (plants, acoustical features, etc.)<br>Restrooms, etc.<br>Technology<br>Janitorial<br>Accessibility installations | 20% | 10,000 |
| | | 45,000 |
| | | |
| Outdoor opportunities (floor space, excluding park/garden areas) | | |



# City of Glendora Public Library

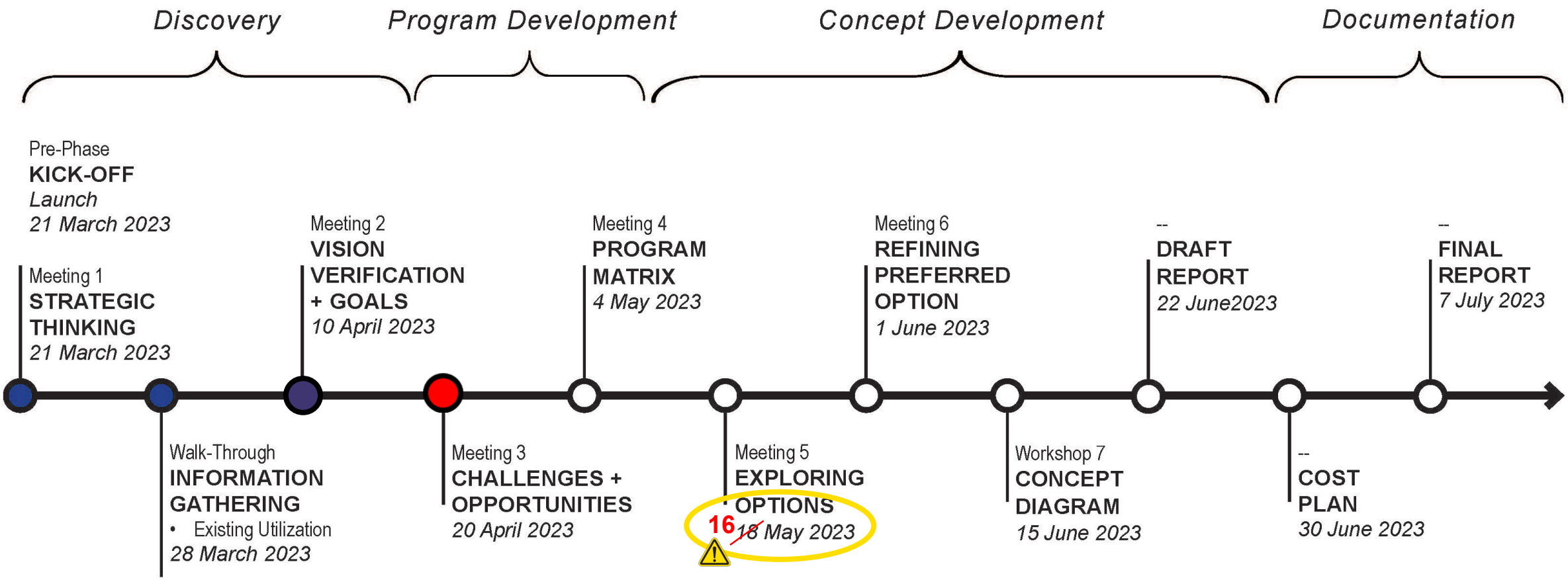
Program Development | May 04, 2023

pfeiffer
A PERKINS EASTMAN STUDIO

# Today

- Welcome / Process
- Program Matrix
- Available Square Footage
- Next Steps

# Process


Discovery
Program Development
Concept Development
Documentation
Pre-Phase
KICK-OFF
Launch
21 March 2023
Meeting 1
STRATEGIC THINKING
21 March 2023
Walk-Through
INFORMATION GATHERING
• Existing Utilization
28 March 2023
Meeting 2
VISION VERIFICATION + GOALS
10 April 2023
Meeting 3
CHALLENGES + OPPORTUNITIES
20 April 2023
Meeting 4
PROGRAM MATRIX
4 May 2023
Meeting 5
EXPLORING OPTIONS
16 18 May 2023
Meeting 6
REFINING PREFERRED OPTION
1 June 2023
Workshop 7
CONCEPT DIAGRAM
15 June 2023
--
DRAFT REPORT
22 June2023
--
COST PLAN
30 June 2023
--
FINAL REPORT
7 July 2023

- Building Lobby
- Customer Driven Workspaces
- Public Assembly Spaces
- Library Mediated Public Workspace
- Fulfillment Center Services
- Small Private / Semi-Private Spaces
- Physical Content Showroom
- Leisure Spaces – Relaxation
- Library Services
- Building Support
- Non-Assignable

# Program Summary

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Proposed ASF | GSF | GPL Vision | Notes |
|---|---|---|---|---|---|---|
| 1 | BUILDING LOBBY | 6 | 1,578 | 2,367 | - | |
| 2 | CUSTOMER DRIVEN WORKSPACES | 106 | 4,604 | 6,905 | 6,500 | |
| 3 | PUBLIC ASSEMBLY SPACES | 300 | 5,853 | 8,780 | 6,000 | |
| 4 | LIBRARY MEDIATED PUBLIC WORKSPACE | 75 | 3,678 | 5,517 | 5,000 | |
| 5 | FULFILLMENT CENTER SERVICES | - | 2,400 | 3,600 | 4,500 | |
| 6 | SMALL PRIVATE / SEMI PRIVATE SPACES | 96 | 2,648 | 3,972 | 4,000 | |
| 7 | PHYSICAL CONTENT SHOWROOM | - | 4,608 | 6,911 | 4,000 | |
| 8 | LEISURE SPACES - RELAXATION | 44 | 2,025 | 3,038 | 3,000 | |
| 9 | LIBRARY SERVICES | - | 5,133 | 7,699 | 2,000 | |
| 10 | BUILDING SUPPORT | - | 1,000 | 1,500 | 15,000 | |
| 11 | NON-ASSIGNABLE | - | - | - | | |
| | | **627 *** | **33,526** | **50,288** | **50,000** | |

DRAFT

LEGEND

| | |
|---|---|
| ASF | Assignable Square Feet |
| GSF | Assignable Square Feet |
| * | Including Public Assembly Spaces Seat Count |

# Entry / Lobby

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| **1.0** | **BUILDING LOBBY** | **6** | | | | **1,578** | **2,367** | |
| | **1.1 Building Lobby** | **6** | | | | **1,578** | **2,367** | |
| | Vestibule | - | - | - | - | | | |
| | Entry Lobby | - | 2 | 350 | 700 | | | Confirm: Single of one per level? |
| | Information Kiosk / Digital board | | 1 | 48 | 48 | | | |
| | Book/Media Return - Thru Wall | - | 1 | 48 | 48 | | | |
| | Display / Pamphlets | - | 1 | 80 | 80 | | | |
| | Seating / Food consumption/services (routine) | 6 | 6 | 35 | 210 | | | |
| | Vending | - | 3 | 20 | 60 | | | |
| | Lockers (Amazon-type?) | - | - | - | - | | | |
| | Waste/ Recycling station | - | 1 | 48 | 48 | | | |
| | Welcome Desk | - | 1 | 144 | 144 | | | |
| | Collection Security Gate | - | 2 | 120 | 240 | | | Confirm: Single of multiple entries? |
| | x | - | - | - | - | | | |
| | | | 0% | 1,578 | - | | | |
| | **Subtotal** | **6** | | | **1,578** | ASF | | |

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# Customer Workstations / Public Assembly

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| *Continued* | | | | | | | | |
| **2.0** | **CUSTOMER DRIVEN WORKSPACES** | **106** | | | | **4,604** | **6,905** | Open Plan; Flexible, large area; not private. Activities include: Education "deskwork", Staging/practicing skills, Creative workspaces, In-person game spaces |
| **2.1** | **Reader/Workspace Area - Open Plan** | **106** | | | | **4,604** | **6,905** | |
| | Public Access Computers - Workstation w/Equipment | 16 | 16 | 45 | 720 | | | |
| | Reader Seat - Table (BYD) | 40 | 40 | 25 | 1,000 | | | |
| | Reader Seat - Counter (BYD) | 20 | 20 | 25 | 500 | | | |
| | Reader Seat - Carrel (Single, Open Plan) | 24 | 24 | 35 | 840 | | | |
| | Reader Seat - Lounge Chair | 6 | 6 | 35 | 210 | | | |
| | Computing - Online Public Access Catalog (OPAC) | - | 4 | 35 | 140 | | | |
| | X | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *35%* | *3,410* | *1,194* | | | |
| | **Subtotal** | **106** | | | **4,604** | ASF | | |
| **3.0** | **PUBLIC ASSEMBLY SPACES** | **300** | | | | **5,853** | **8,780** | Reconfigurable; Similar to Bidwell and Friends Room. Activities may include: Entertainment, Cultural, Recreation, Organized Social, Meeting/conferencing, Emergency Operations, Playing, Events |
| **3.1** | **Open-Format Public Assembly Spaces (Reconfigurable)** | **300** | | | | **5,853** | **8,780** | |
| | Assembly (~~###~~ Seats) | 300 | 300 | 15 | 4,500 | | | 15 SF /PP; Bidwell's Max Capacity is 389 |
| | Presenter's Podium/Station | - | 1 | 48 | 48 | | | |
| | Large Screen / Technology Interface | - | 1 | 180 | 180 | | | |
| | Furniture Alcove | - | 4 | 150 | 600 | | | |
| | AV Rack Room | - | 1 | 100 | 100 | | | |
| | Secure Tech Equip Storage | - | 1 | 100 | 100 | | | |
| | Storage: Carts, Stands, Presentation Tools & Accessories | - | 1 | 100 | 100 | | | |
| | Control Room (Tech / Sound and Light) | - | - | - | - | | | |
| | Sound/Light Locks | - | - | - | - | | | |
| | Green Room | - | - | - | - | | | |
| | Kitchenette / Galley (Event Specialized) | - | 1 | 225 | 225 | | | |
| | *Internal Circulation (Factor)* | - | *0%* | *5,853* | - | | | |
| | **Subtotal** | **300** | | | **5,853** | ASF | | |

*Continued Next Page*

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Change "reader" to "activity"

Missing Friends Room

Total existing capacity for Bidwell & Friends is 522

# Library Mediated Public Workspace

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| *Continued* | | | | | | | | |
| **4.0** | **LIBRARY MEDIATED PUBLIC WORKSPACE** | **75** | | | | **3,678** | **5,517** | Large area/not private – Dedicated to temporary instructional/exploratory installations, with purposed (?) furniture and equipment. Activities may include: Instruction. Equipment-based skills-building. Creation |
| **4.1** | **Creative workspaces / Experiential Learning Lab 1** | **50** | | | | **1,750** | **2,625** | 25 SF /PP; Mobile nesting tables; |
| | Experiential Learning Lab 1 (50-Seat) | 50 | 50 | 25 | 1,250 | | | |
| | "Low-Tech" Maker / Fabrication Area | - | 1 | 500 | 500 | | | |
| | - Equipment: Sewing | - | - | - | - | | | |
| | - Equipment: Decal Machine, Button Maker | - | - | - | - | | | |
| | - Equipment: Poster Printer | - | - | - | - | | | |
| | - Storage: Maker / Craft Supplies | - | - | - | - | | | |
| | - Support Area / Clean-out | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *0%* | *1,750* | - | | | |
| | **Subtotal** | **50** | | | **1,750** | ASF | | |
| **4.2** | **Experiential Learning Lab 2** | **25** | | | | **1,928** | **2,892** | |
| | Technology Skilling & Fabrication Area (25-Seat) | 25 | 25 | 45 | 1,125 | | | 45 SF /PP |
| | - Scanner Station | - | 1 | 45 | 45 | | | |
| | - 3D Printer (provide proper ventilation) | - | 2 | 45 | 90 | | | |
| | - Maker / Electronics Supplies | - | 6 | 21 | 126 | | | |
| | - Storage: Electronics gadgets | - | 2 | 21 | 42 | | | |
| | Recording Studio (audio and video) | - | 1 | 200 | 200 | | | |
| | Sandbox Studio (emerging technology, gaming, VR/AR etc.) | - | 1 | 300 | 300 | | | |
| | *Internal Circulation (Factor)* | - | *0%* | *1,928* | - | | | |
| | **Subtotal** | **25** | | | **1,928** | ASF | | |

*Continued Next Page*

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# Fulfillment Center & Private Spaces

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS: Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| *Continued* | | | | | | | | |
| **5.0** | **FULFILLMENT CENTER SERVICES** | **-** | | | | **2,400** | **3,600** | Traditional materials not necessarily on display (see also showroom, below) but certainly available for delivery. Storage for libraries of things, Storage for program giveaways, crafts; Preparation/packing / shipment /transportation support areas |
| **5.1** | **Fulfillment Center Services** | **-** | | | | **2,400** | **3,600** | |
| | Libraries of Things | - | 1 | 400 | 400 | | | |
| | Program Giveaways | - | 1 | 400 | 400 | | | |
| | Crafts supplies | - | 1 | 400 | 400 | | | |
| | Swag, holiday events/decoration | - | 1 | 400 | 400 | | | |
| | Preparation/packing / shipment /transportation support areas | - | 1 | 400 | 400 | | | |
| | Emergency Response / Supplies | - | 1 | 400 | 400 | | | |
| | x | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *0%* | *2,400* | - | | | |
| | **Subtotal** | - | | | **2,400** | ASF | | |
| **6.0** | **SMALL PRIVATE / SEMI PRIVATE SPACES** | **96** | | | | **2,648** | **3,972** | Multipurpose activities may include: One-on-one/small group education, Health care, Social work / human services, Officing / co-working, Public safety, Private City services (passports, etc.), Staff expert |
| **6.1** | **Small Private / Semi-Private Spaces** | **96** | | | | **2,648** | **3,972** | |
| | Study Room - 4-Seats | 40 | 10 | 100 | 1,000 | | | 25 SF /PP; Acoustical privacy |
| | Project Room - 8-Seats | 48 | 6 | 200 | 1,200 | | | 25 SF /PP; Acoustical privacy |
| | Zoom Room - 1-2 Seats | 6 | 6 | 56 | 336 | | | Acoustical privacy |
| | Focus Room (Neurodivergent needs) | 1 | 1 | 56 | 56 | | | Acoustical privacy |
| | Family Room / Mothers Room | 1 | 1 | 56 | 56 | | | |
| | x | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *0%* | *2,648* | - | | | |
| | **Subtotal** | **96** | | | **2,648** | ASF | | |

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# Physical Content Showroom

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| *Continued* | | | | | | | | |
| **7.0** | **PHYSICAL CONTENT SHOWROOM** | - | | | | 4,608 | 6,911 | |
| **7.1** | **Collection** | - | | | | 2,925 | 4,388 | Direct customer access space to: Traditional materials, Libraries of things, "Museum"/exhibit |
| | Collection - PLACEHOLDER | - | 1 | 2,925 | 2,925 | | | Currently 3,900 SF; Assumed ±25% reduction in footprint |
| | New Books | - | - | - | - | | | |
| | Leisure Reading / Popular Fiction | - | - | - | - | | | |
| | Adult Reference | - | - | - | - | | | |
| | Ready Reserves / Holds | - | - | - | - | | | |
| | Unbound Current Periodicals (Slanted Hinged) | - | - | - | - | | | |
| | Media Collection | - | - | - | - | | | |
| | - Videos | - | - | - | - | | | |
| | - Audio Books | - | - | - | - | | | |
| | Glendora READS | - | - | - | - | | | |
| | Local History Collection _ Secured? | - | - | - | - | | | |
| | Maps? | - | - | - | - | | | |
| | Micro Format (Cabinet, Reader/Printer Station, Supplies) | - | - | - | - | | | |
| | Adult Literacy | - | - | - | - | | | |
| | General Collection | - | - | - | - | | | |
| | Business Home Improvement | - | - | - | - | | | |
| | Cookbooks | - | - | - | - | | | |
| | International Language Instruction | - | - | - | - | | | |
| | Biography's | - | - | - | - | | | |
| | Science (kits) | - | - | - | - | | | |
| | YA Collection | - | - | - | - | | | |
| | Juvenile Collection | - | - | - | - | | | |
| | Children Lit | - | - | - | - | | | |
| | X | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *0%* | *2,925* | - | | | |
| | **Subtotal** | - | | | 2,925 | ASF | | |

*Continued Next Page*

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# Physical Showroom Cont'd & Leisure

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| *Continued* | | | | | | | | |
| 7.2 | **Exhibit Space** | - | | | | 400 | 600 | |
| | Exhibit & Display | - | 1 | 400 | 400 | | | |
| | x | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *0%* | *400* | - | | | |
| | **Subtotal** | - | | | 400 | ASF | | |
| 7.3 | **Book Store** | - | | | | 1,283 | 1,924 | |
| | Friends Book Store | - | 1 | 500 | 500 | | | |
| | Friends Staff & Support Areas | - | 1 | 450 | 450 | | | |
| | Director's Office | - | - | - | - | | | |
| | Staff Workstations | - | - | - | - | | | |
| | Copy / Print | - | - | - | - | | | |
| | Storage: Files | - | - | - | - | | | |
| | Storage: Files Archive | - | - | - | - | | | |
| | Storage: Office Supplies | - | - | - | - | | | |
| | X | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *35%* | *950* | *333* | | | |
| | **Subtotal** | - | | | 1,283 | ASF | | |
| **8.0** | **LEISURE SPACES - RELAXATION** | **44** | | | | **2,025** | **3,038** | Leisure spaces – relaxation rather than organized/formalized gathering; Activities may include: Hospitality, Lounging, Chilling |
| 8.1 | **Reader Leisure spaces** | **44** | | | | **2,025** | **3,038** | |
| | Reader Seat - Table (BYD) | 24 | 24 | 25 | 600 | | | |
| | Reader Seat - Lounge Chair | 20 | 20 | 45 | 900 | | | |
| | x | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *35%* | *1,500* | *525* | | | |
| | **Subtotal** | **44** | | | 2,025 | ASF | | |

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# Library Services

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| *Continued* | | | | | | | | |
| **9.0** | **LIBRARY SERVICES** | **-** | | | | **5,133** | **7,699** | Identified interface areas for access to staff expertise including: Library staff, City services as needed, Other "storefront" needs – curbside, technology assistance, etc. |
| **9.1** | **Service Points** | - | | | | **1,747** | **2,620** | |
| | Welcome Desk / Greater station | - | 1 | 144 | 144 | | | |
| | Collection Security Gate | - | 1 | 100 | 100 | | | Confirm: Single of multiple entries? |
| | Circulation / Access Services P.O.S - (3-positions) | - | 1 | 400 | 400 | | | |
| | Queuing Space | - | 1 | 150 | 150 | | | Assume 2 person per POS at 25 SF/PP |
| | Self Check-Out Station | - | 1 | 48 | 48 | | | |
| | Reference Desk (Mobile) | - | 1 | 80 | 80 | | | |
| | Public Printing | - | 1 | 300 | 300 | | | |
| | Quick-Charging Station | - | 2 | 36 | 72 | | | |
| | x | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *35%* | *1,294* | *453* | | | |
| | **Subtotal** | - | | | **1,747** | ASF | | |
| **9.2** | **Library Staff Work Space** | - | | | | **2,136** | **3,204** | "Home base" for expert staff, Friends Foundation |
| | Library Director | - | 1 | 150 | 150 | | | |
| | Management Analyst | - | 1 | 120 | 120 | | | |
| | Digital Media Assistant | - | 1 | 64 | 64 | | | |
| | Admin Assistant | - | 1 | 64 | 64 | | | |
| | Librarian II | - | 1 | 64 | 64 | | | |
| | Librarian II | - | 1 | 64 | 64 | | | |
| | Library Aide III | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Librarian I | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Librarian I | - | 1 | 64 | 64 | | | |
| | Library Technician | - | 1 | 64 | 64 | | | |
| | Library Services Manager | - | 1 | 64 | 64 | | | |

*Continued Next Page*

DRAFT

# Library Services Cont'd

SPACE PROGRAM

| | | PROGRAM | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | SPACE NEEDS | | | | | |
| No. | Space / Room Type | Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
| *Continued* | | | | | | | | |
| | Library Aide III | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Librarian II | - | 1 | 64 | 64 | | | Shared Desk |
| | Library Aide V | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Services Manager | - | 1 | 64 | 64 | | | |
| | Library Aide I | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide II | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide II | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Technician | - | 1 | 64 | 64 | | | |
| | Senior Library Technician | - | 1 | 64 | 64 | | | |
| | Library Aide I | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide I | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide I | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide I | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide II | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide III | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide I | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide III | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Library Aide III | - | 0.5 | 64 | 32 | | | Shared Desk |
| | Senior Library Technician | - | 1 | 64 | 64 | | | |
| | Library Aide II | - | 0.5 | 64 | 32 | | | Shared Desk |
| | X | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *35%* | *1,582* | 554 | | | |
| | **Subtotal** | - | | | **2,136** | ASF | | |

*Continued Next Page*

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# Library Services Cont'd & Building Support

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| *Continued* | | | | | | | | |
| 9.3 | **Library Staff Support Areas** | - | | | | 1,250 | 1,875 | |
| | Staff Breakroom | - | 1 | 400 | 400 | | | |
| | Staff Workroom | | 1 | 200 | 200 | | | |
| | Public technology access – capital equipment for digital divid | - | 1 | 300 | 300 | | | |
| | Specialized preservation/archival storage | - | 1 | 350 | 350 | | | |
| | x | - | - | - | - | | | |
| | x | - | - | - | - | | | |
| | *Internal Circulation (Factor)* | - | *0%* | *1,250* | - | | | |
| | **Subtotal** | - | | | 1,250 | ASF | | |
| **10.0** | **BUILDING SUPPORT** | - | | | | 1,000 | 1,500 | |
| **0.0** | **Building Support** | - | | | | 1,000 | 1,500 | |
| | Security Office | - | - | - | - | | | |
| | Waste / Recycling Collection Room | - | 1 | 300 | 300 | | | LEED 4.1 |
| | Bicycle Facility (Shower, Changing Rm) | - | 1 | 100 | 100 | | | LEED 4.1 |
| | Shipping & Receiving | - | 1 | 200 | 200 | | | |
| | Mail Room | - | - | - | - | | | |
| | Facility Storage -Capital Equipment | - | 1 | 400 | 400 | | | |
| | Storage: Building/Facility | - | 1 | 400 | 400 | | | |
| | Custodial Closets | - | 2 | 36 | 72 | | | |
| | Custodial Supplies Storage | - | 1 | 200 | 200 | | | |
| | X | - | - | - | - | | | |
| | **Subtotal** | - | | | 1,672 | ASF | | |

*Continued Next Page*

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# Non-Assignable

SPACE PROGRAM

| No. | Space / Room Type | PROGRAM SPACE NEEDS Patrons/ Seats | Unit/ Capacity | ASF/ Unit | ASF / Room/ Area | Proposed ASF | GSF | Notes |
|---|---|---|---|---|---|---|---|---|
| *Continued* | | | | | | | | |
| **11.0** | **NON-ASSIGNABLE** | - | | | | - | - | Included in GSF |
| **11.1** | **Non-Assignable Building Support** | - | | | | - | - | |
| | Mechanical | - | - | - | - | | | |
| | Electrical | - | - | - | - | | | |
| | Telcom | - | - | - | - | | | |
| | Data / IDF / MDF | - | - | - | - | | | |
| | Elevator Machine Room | - | - | - | - | | | |
| | Restrooms | - | - | - | - | | | |
| | Restroom - Gender Neutral | - | - | - | - | | | |
| | Trash Enclosure | - | - | - | - | | | |
| | Loading Dock | - | - | - | - | | | |
| | Shafts | - | - | - | - | | | |
| **11.2** | **Vertical Circulation** | - | | | | - | - | |
| | Interconnecting Stair | - | - | - | - | | | |
| | Egress Stair | - | - | - | - | | | |
| **11.3** | **Internal Circulation** | - | | | | - | - | |
| | Internal Circulation (Path of Travel) | - | - | - | - | | | |
| | **Subtotal** | - | | | - | ASF | | |
| | **Subtotal** | 627 Seats | | | | 33,526 ASF | 50,288 GSF | |

**Exclusions:**

Outdoor opportunities (floor space, excluding park/garden areas)
Parking
Drive-through Book-Drop

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- Available Square Footage
  - Location 1
  - Location 2
  - Location 3

# Location 1




Existing – 33,500 GSF
Available – 15,900 GSF
Possible – 48,400 GSF

# Location 2 – 1st Floor



# Location 2 – 2nd Floor



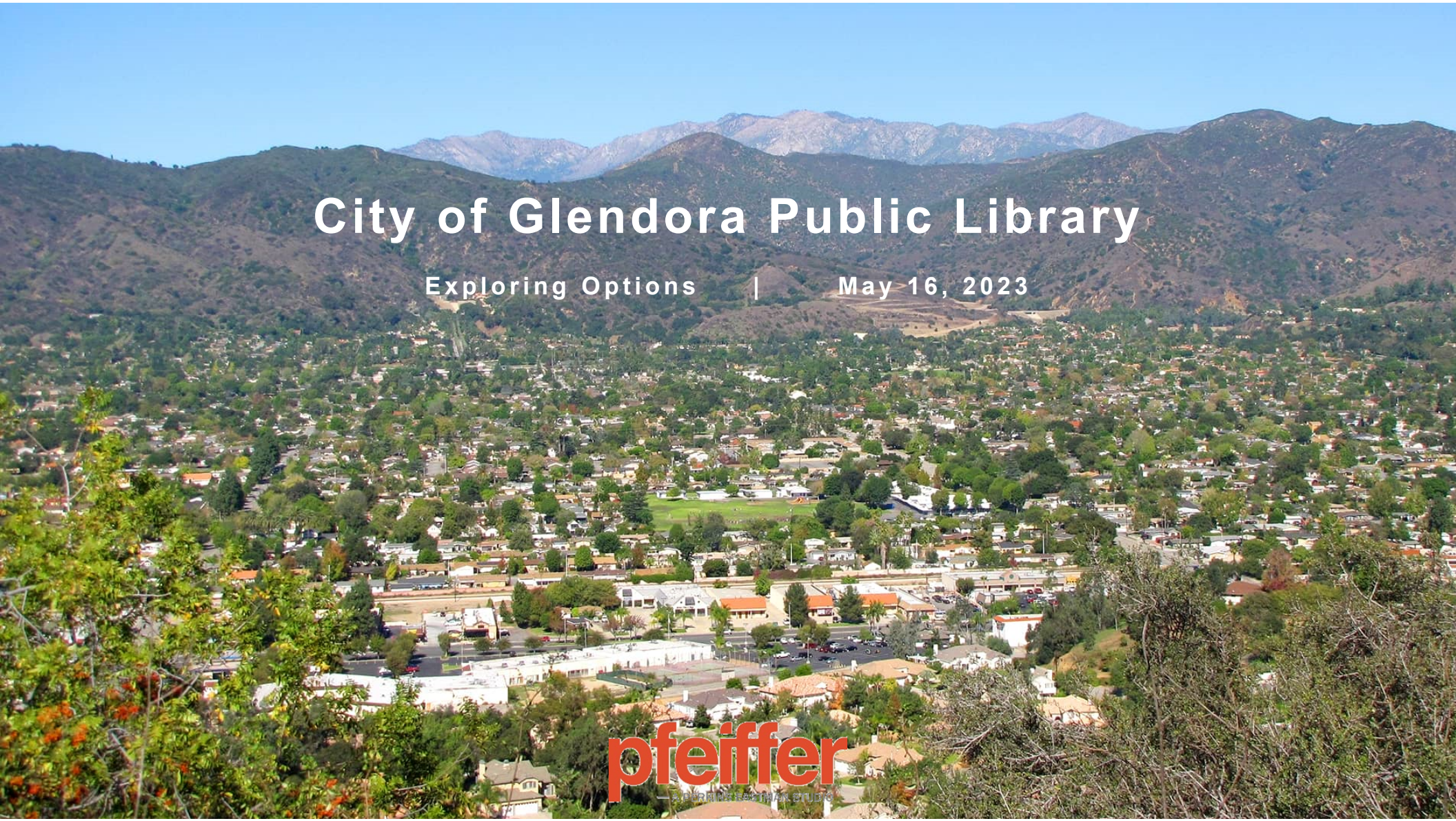

Existing – 33,500 GSF
Available – 15,900 GSF (1st)
Available – 15,900 GSF (2nd)
Possible – 49,400 to 65,300 GSF

# Location 3 – 1st Floor



# Location 3 – 2nd Floor

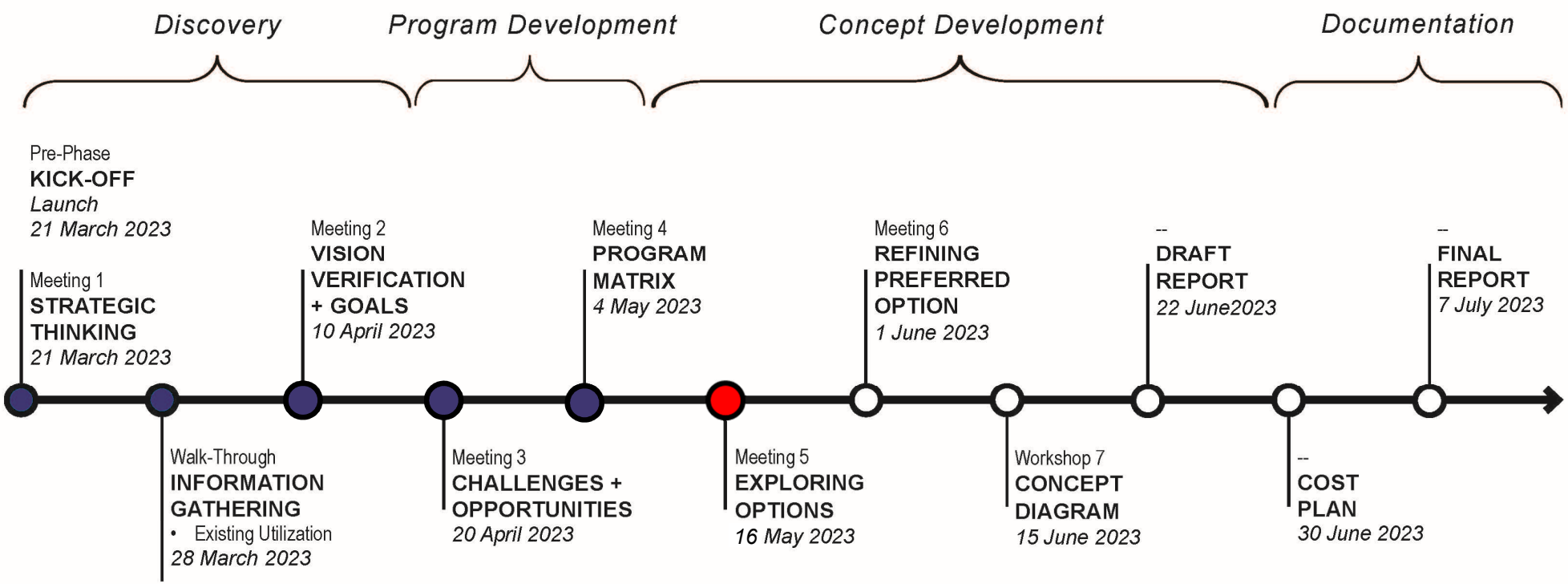



City of Glendora Public Library
Exploring Options | May 16, 2023
pfeiffer

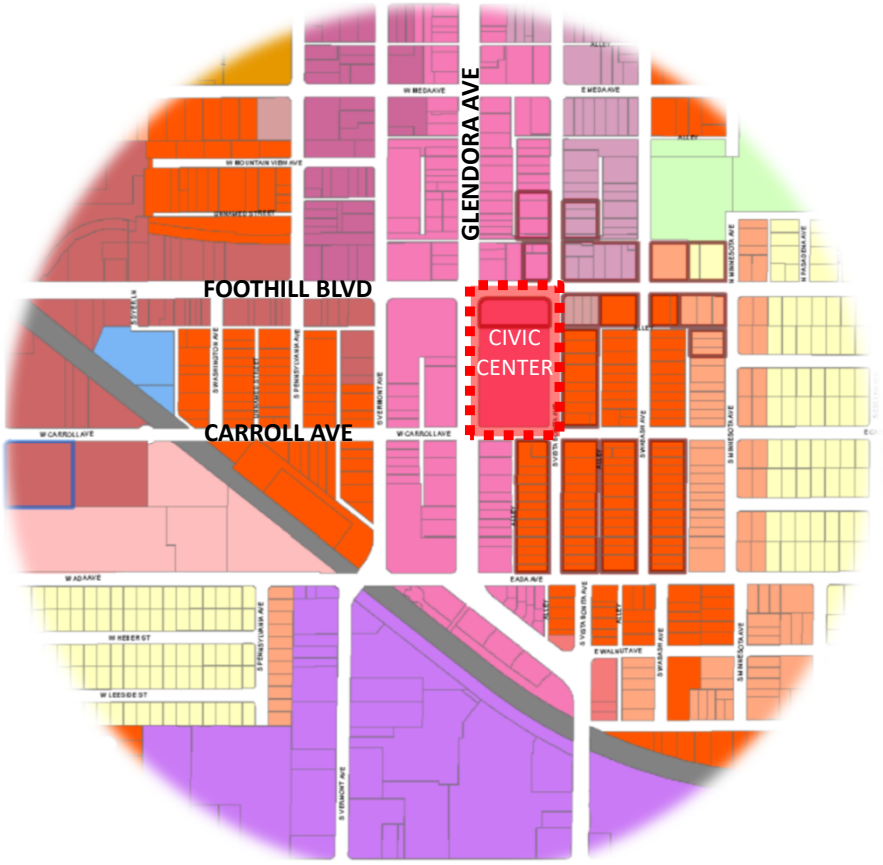
# Today

- Welcome / Process
- Exploring Options
- Discussion
- Next Steps

# Process


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Program Development
Concept Development
Documentation
Pre-Phase
KICK-OFF
Launch
21 March 2023
Meeting 1
STRATEGIC THINKING
21 March 2023
Walk-Through
INFORMATION GATHERING
• Existing Utilization
28 March 2023
Meeting 2
VISION VERIFICATION + GOALS
10 April 2023
Meeting 3
CHALLENGES + OPPORTUNITIES
20 April 2023
Meeting 4
PROGRAM MATRIX
4 May 2023
Meeting 5
EXPLORING OPTIONS
16 May 2023
Meeting 6
REFINING PREFERRED OPTION
1 June 2023
Workshop 7
CONCEPT DIAGRAM
15 June 2023
--
DRAFT REPORT
22 June2023
--
COST PLAN
30 June 2023
--
FINAL REPORT
7 July 2023

# zoning code analysis




City of Glendora
**Zoning Map**

| | |
|---|---|
| Zoning : | **Civic Center Area Plan; T-5 Village Core** |
| Land Use Designation: | **CCAP-T5** |
| Setbacks Requirements: | ***None** |
| Maximum Height: | **45’ + 5’ for additional architectural features** |
| Maximum Stories: | **3 Stories** |

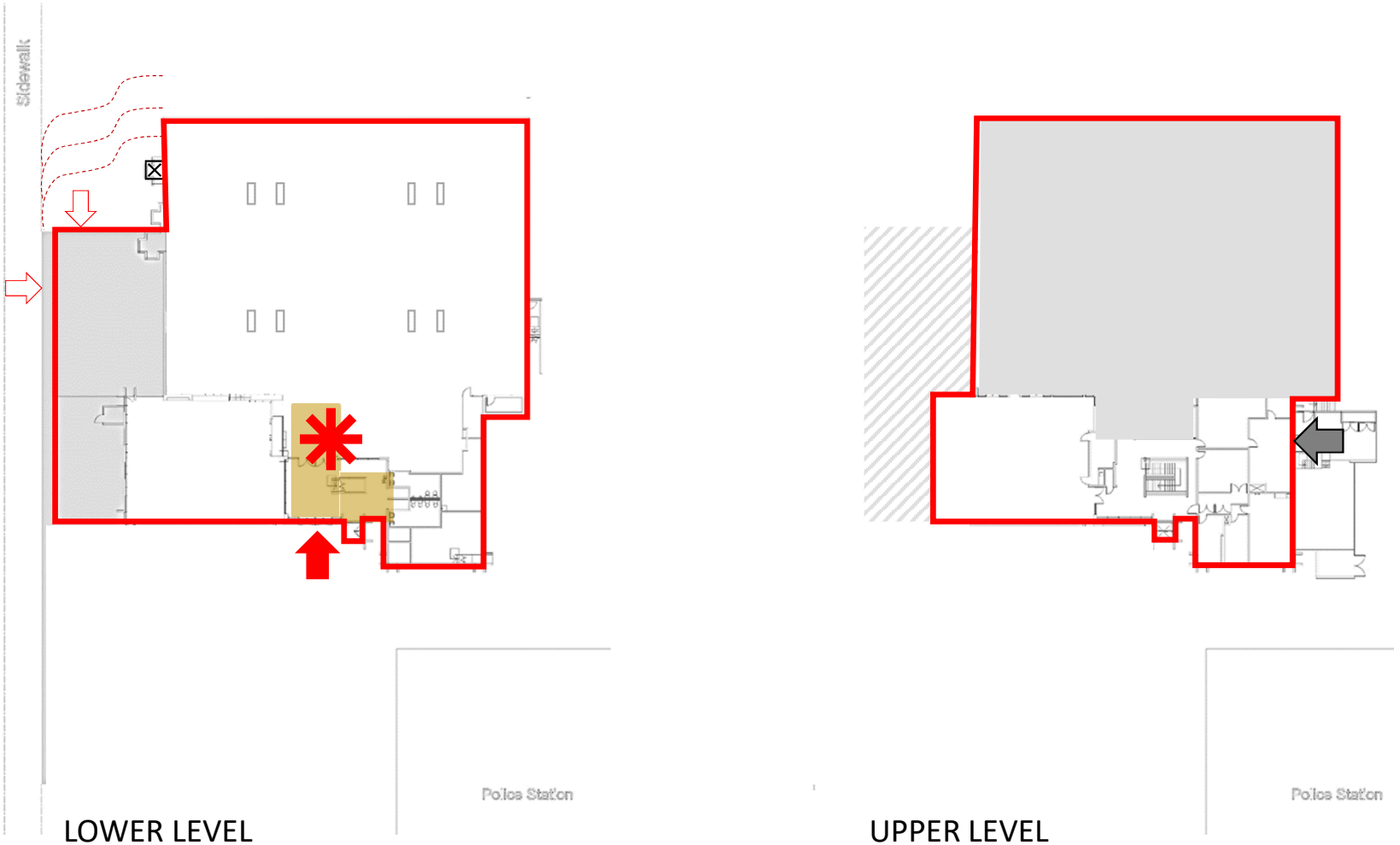
**Properties Fronting on Glendora Avenue*

# Location 1

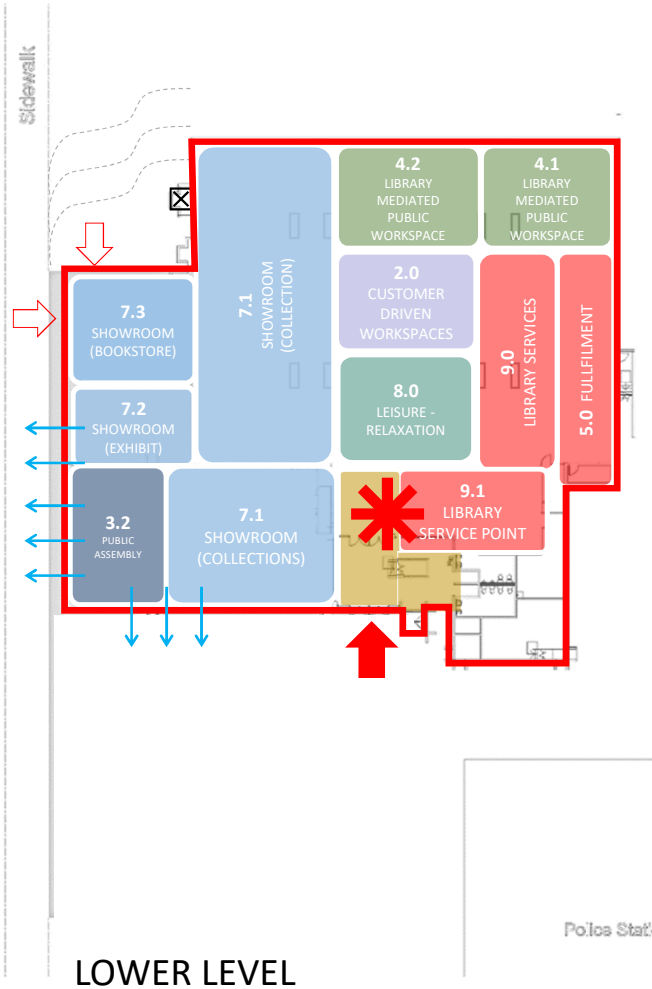
Presented May 4, 2023



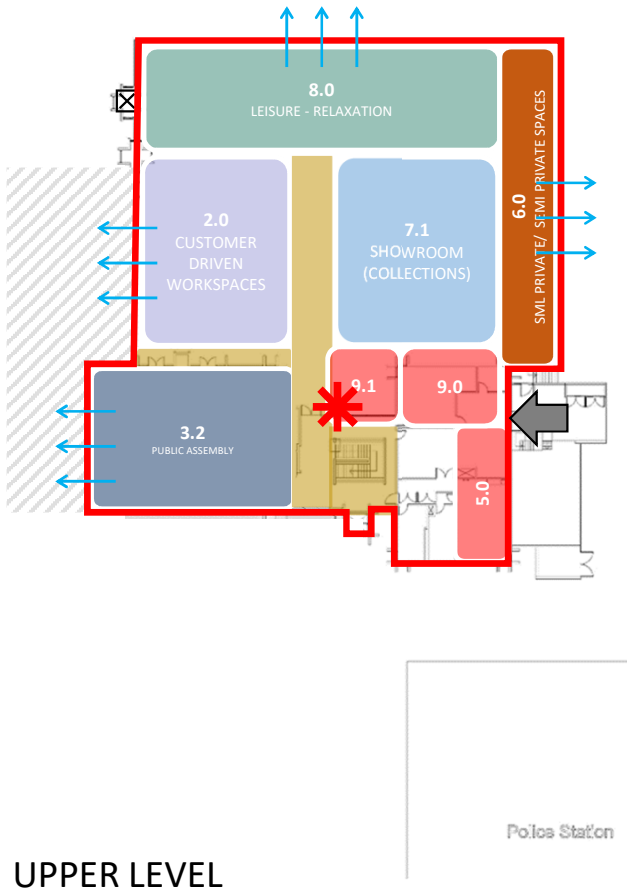
# Location 1- Scenario A



# Location 1- Scenario A.1

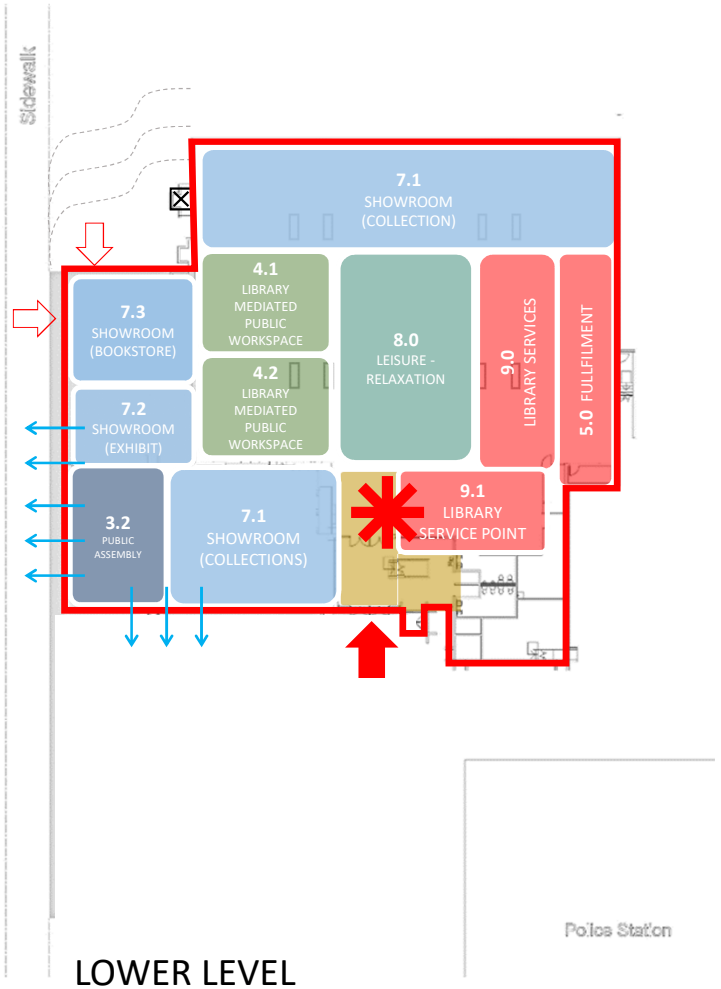



LOWER LEVEL




UPPER LEVEL

# Location 1- Scenario A.2



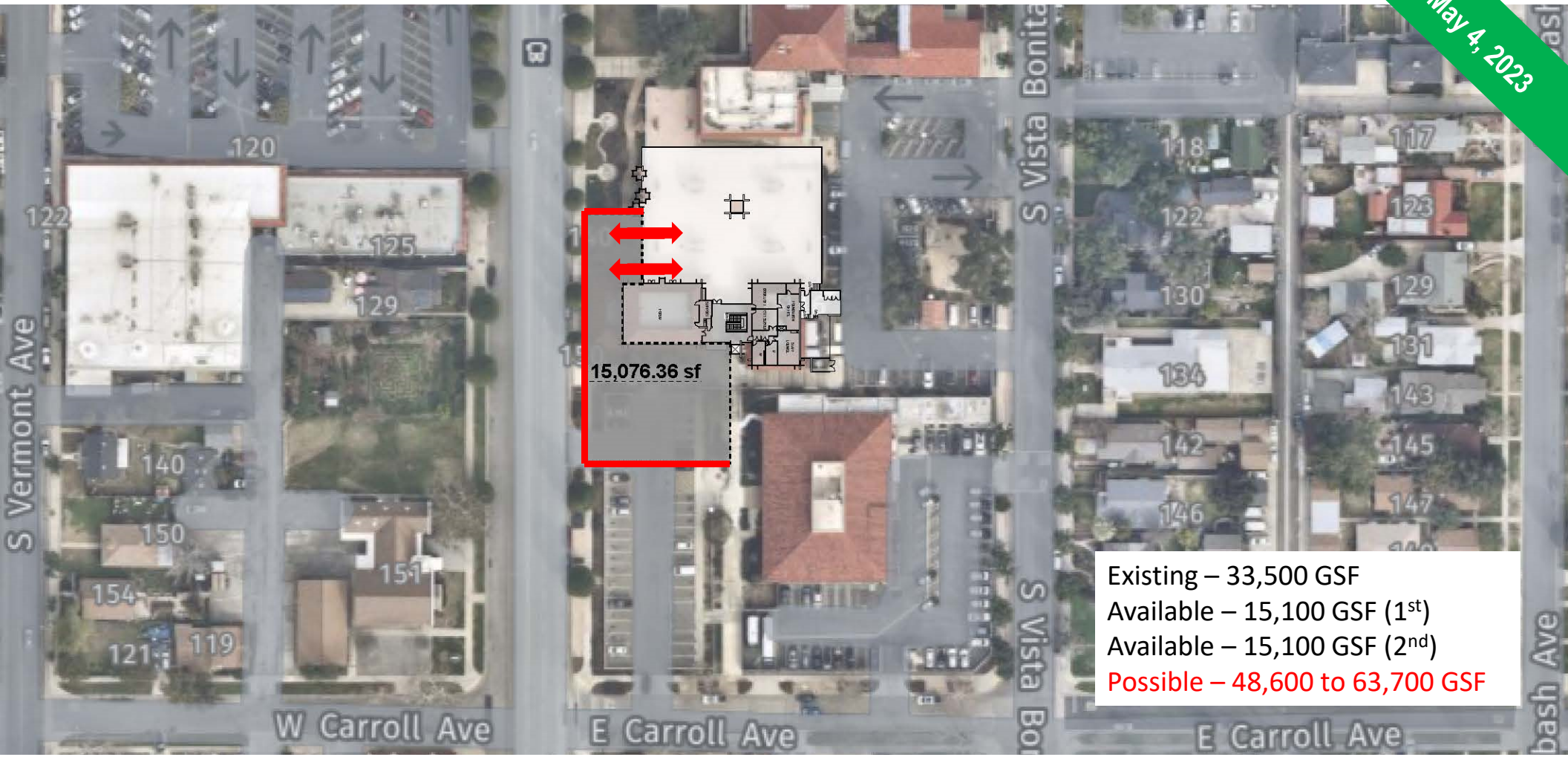

LOWER LEVEL




UPPER LEVEL

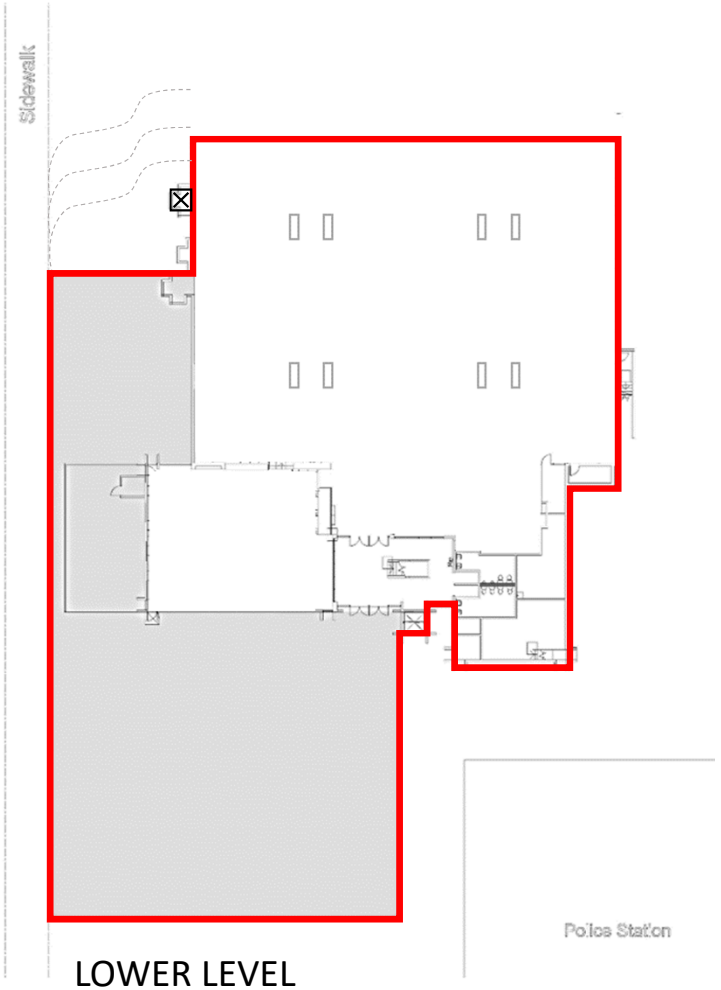
# Location 3

Presented May 4, 2023

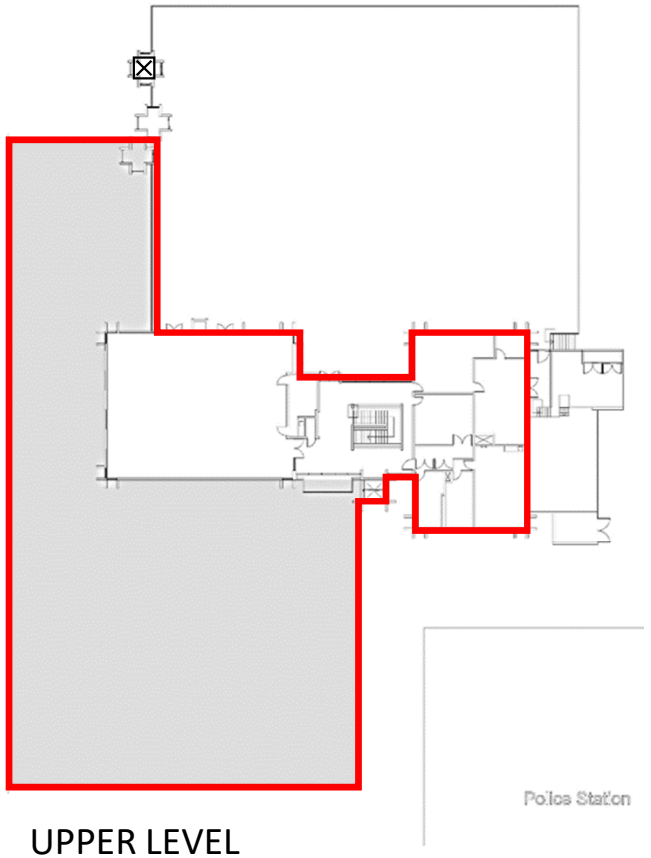



Existing – 33,500 GSF
Available – 15,100 GSF (1st)
Available – 15,100 GSF (2nd)
Possible – 48,600 to 63,700 GSF

# Location 3




LOWER LEVEL

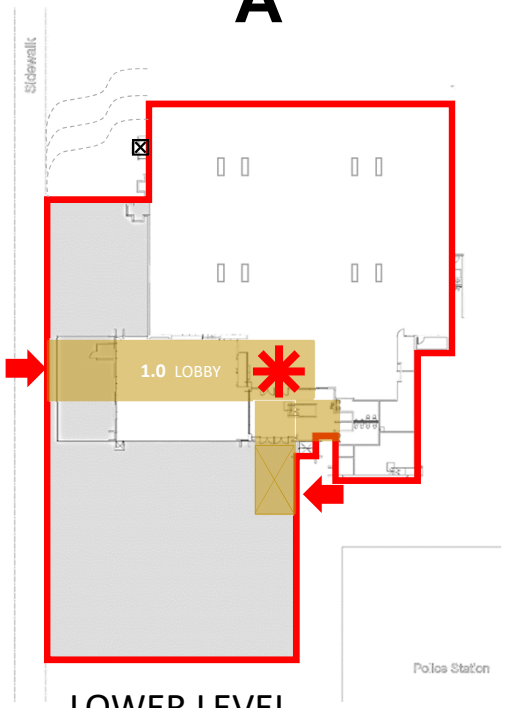



UPPER LEVEL

Existing
Expansion

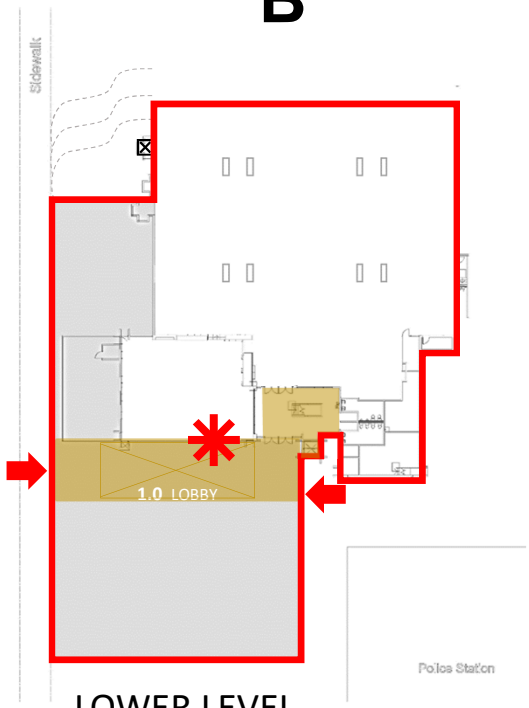
# Location 3 - Scenarios

## A



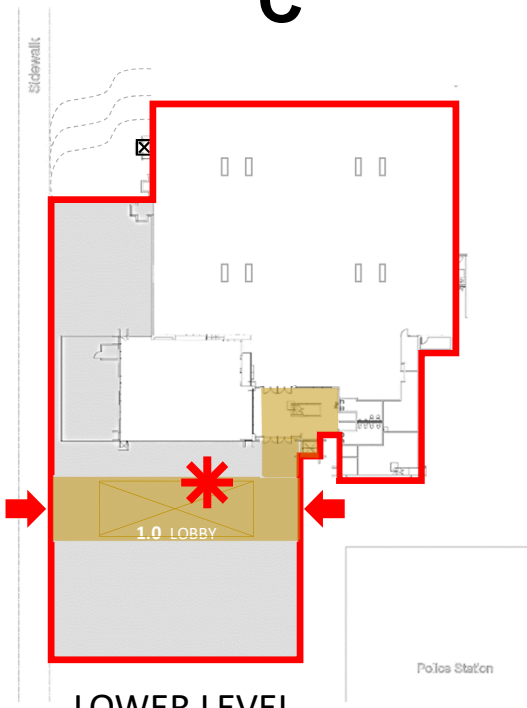

LOWER LEVEL

## B



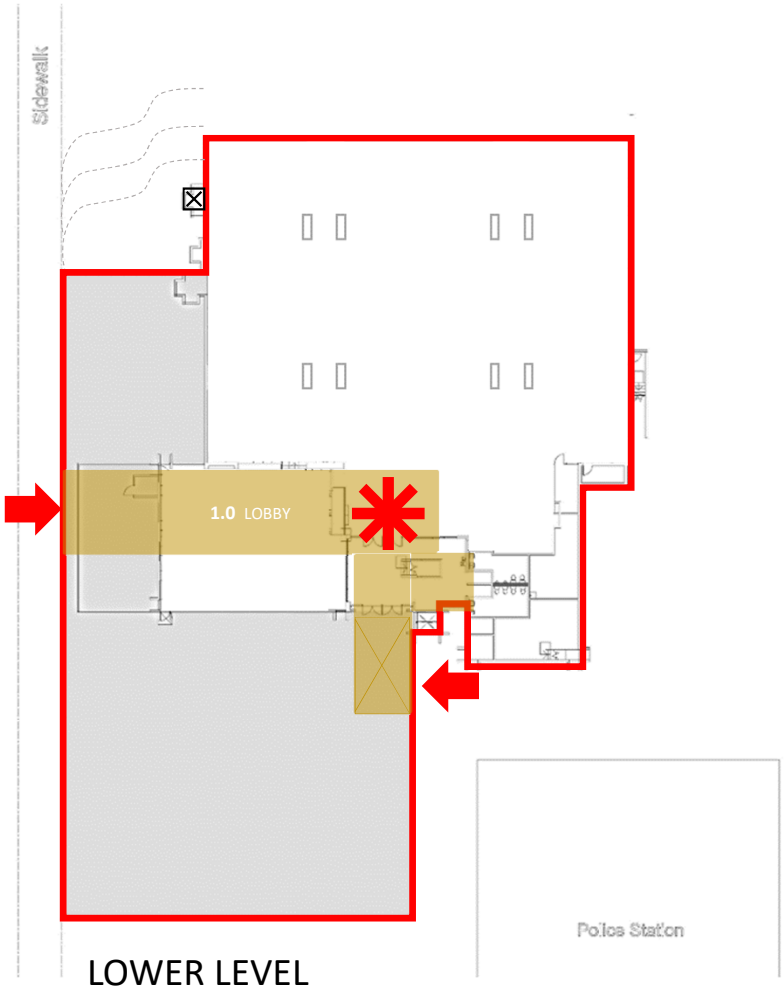

LOWER LEVEL

## C

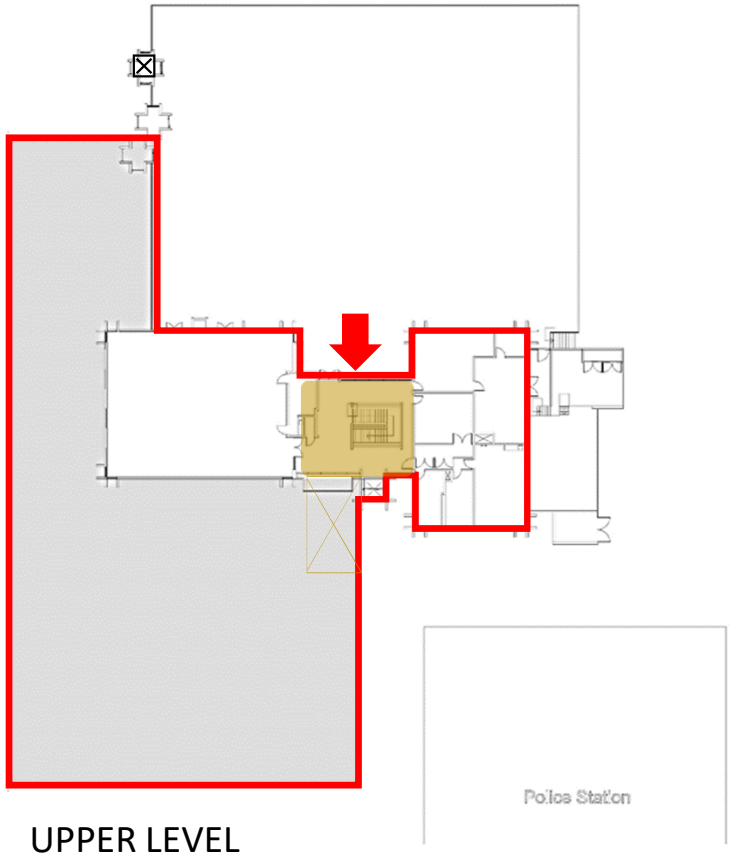



LOWER LEVEL

# Location 3 - Scenario A

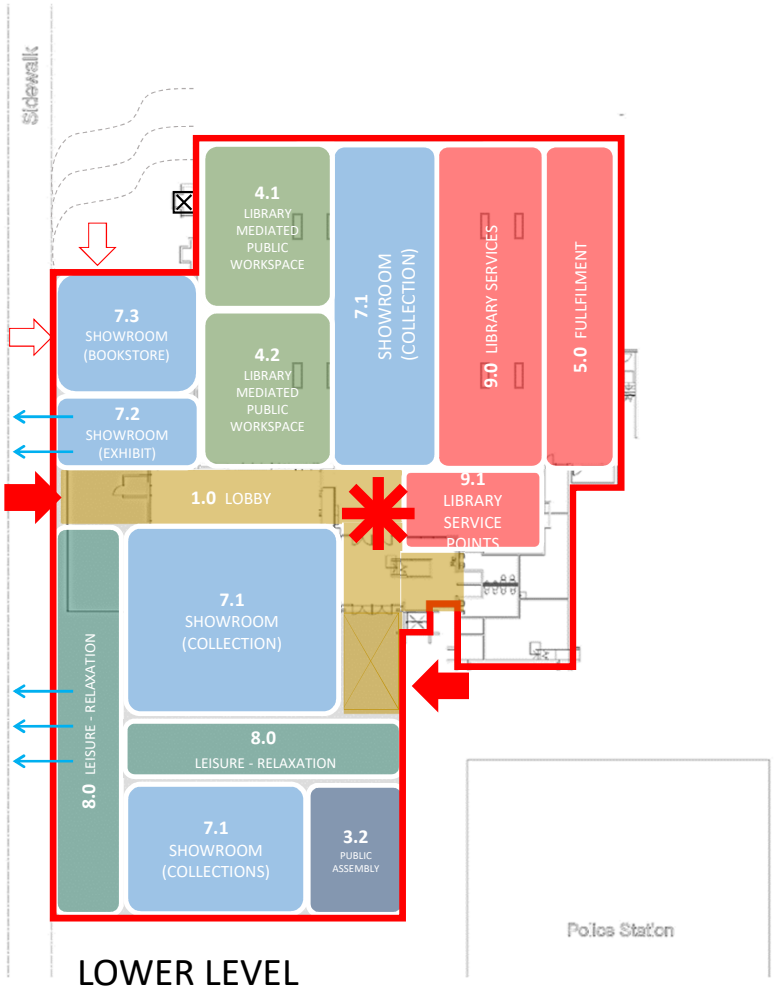



LOWER LEVEL

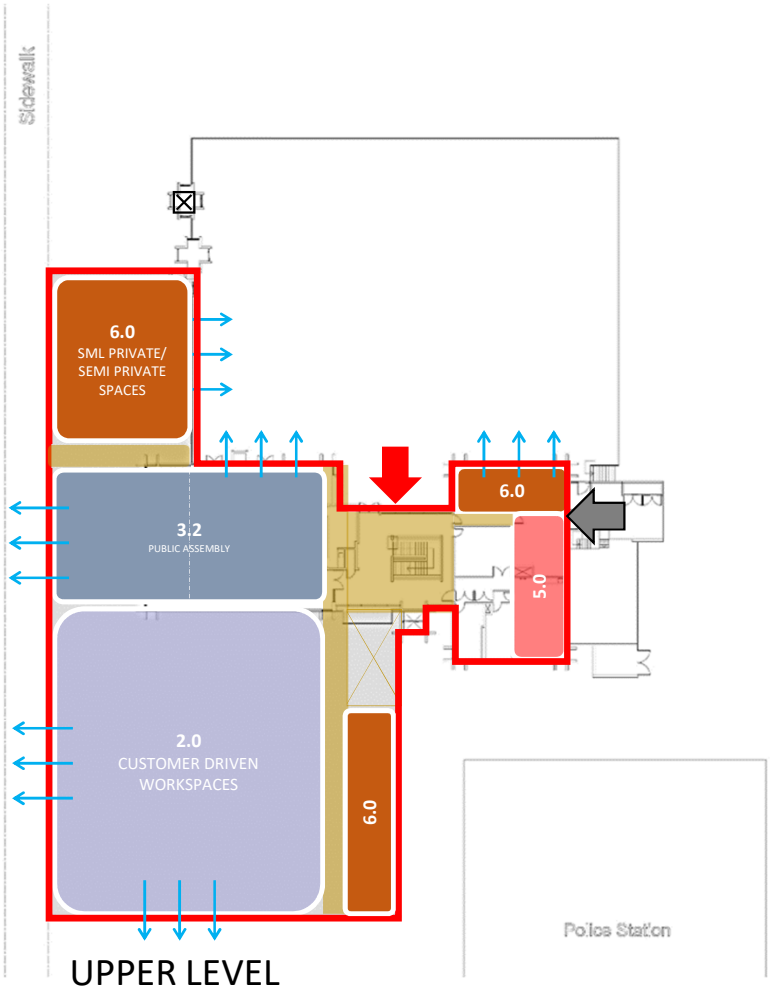



UPPER LEVEL

# Location 3 - Scenario A.1

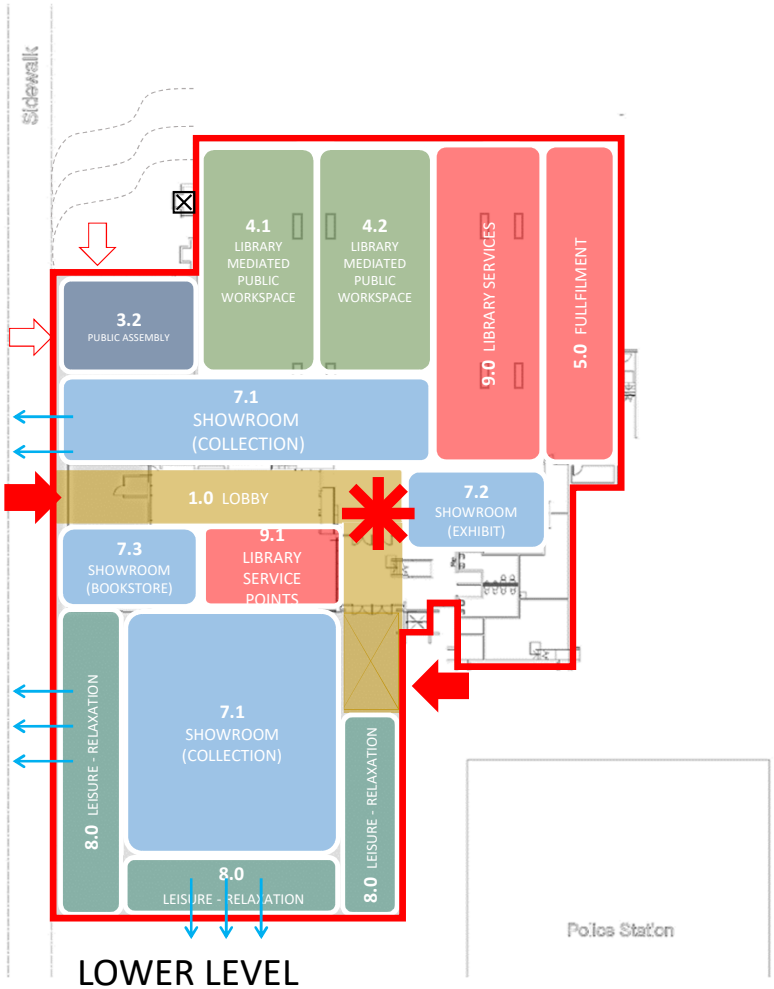


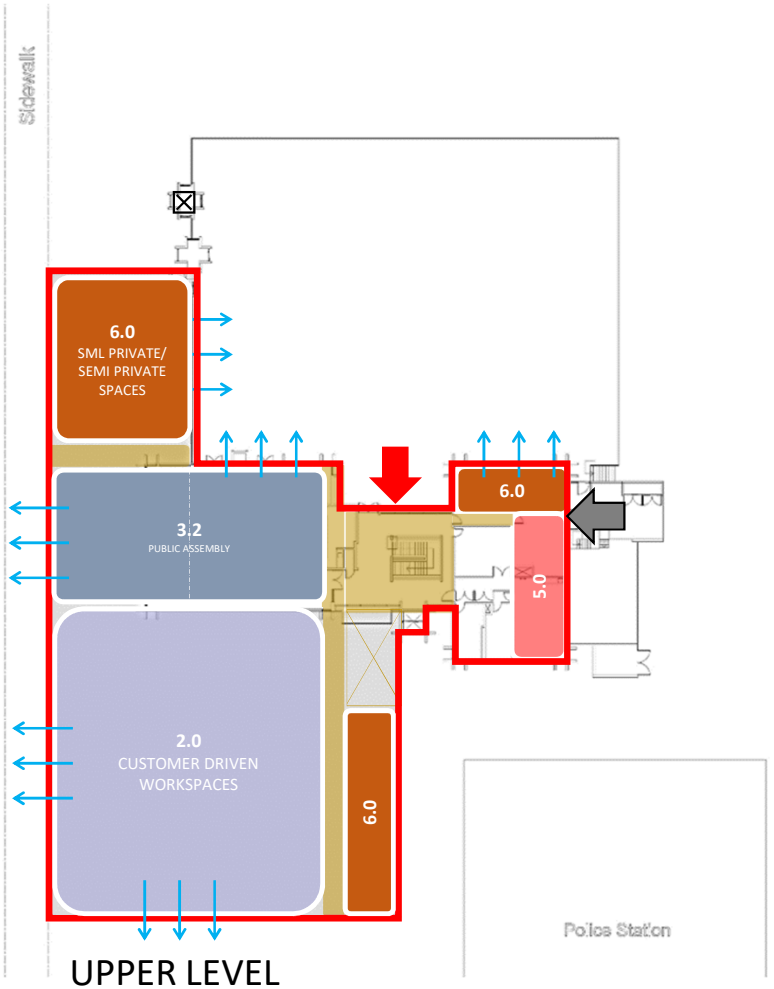

LOWER LEVEL



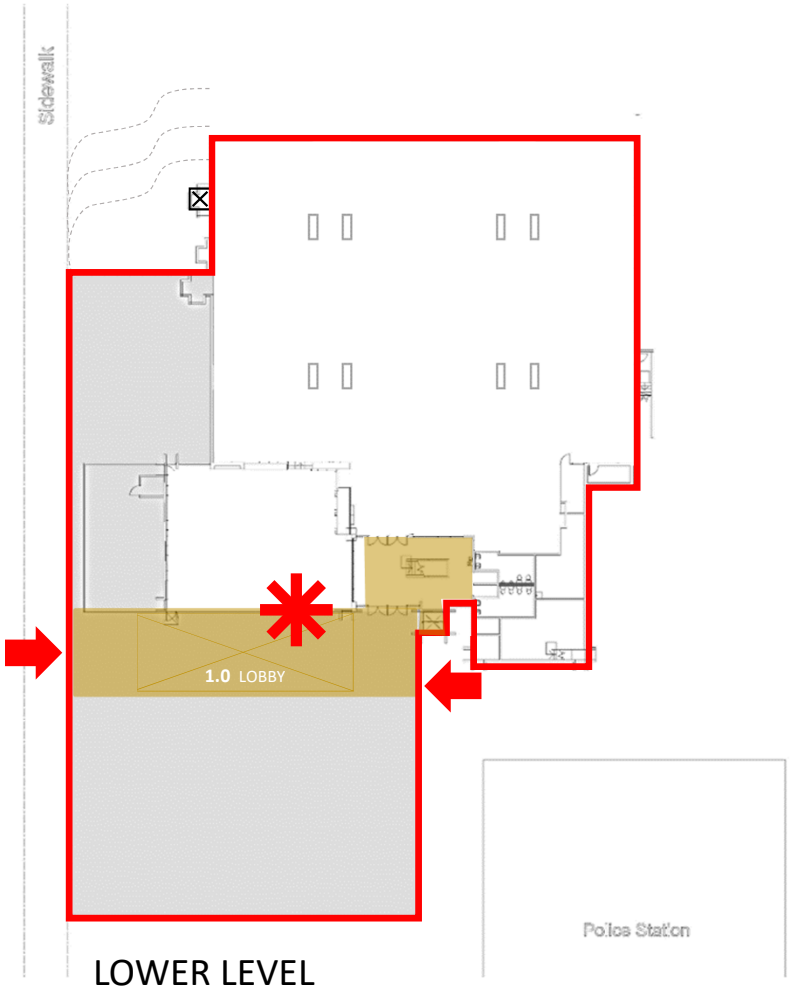

UPPER LEVEL

# Location 3 - Scenario A.2

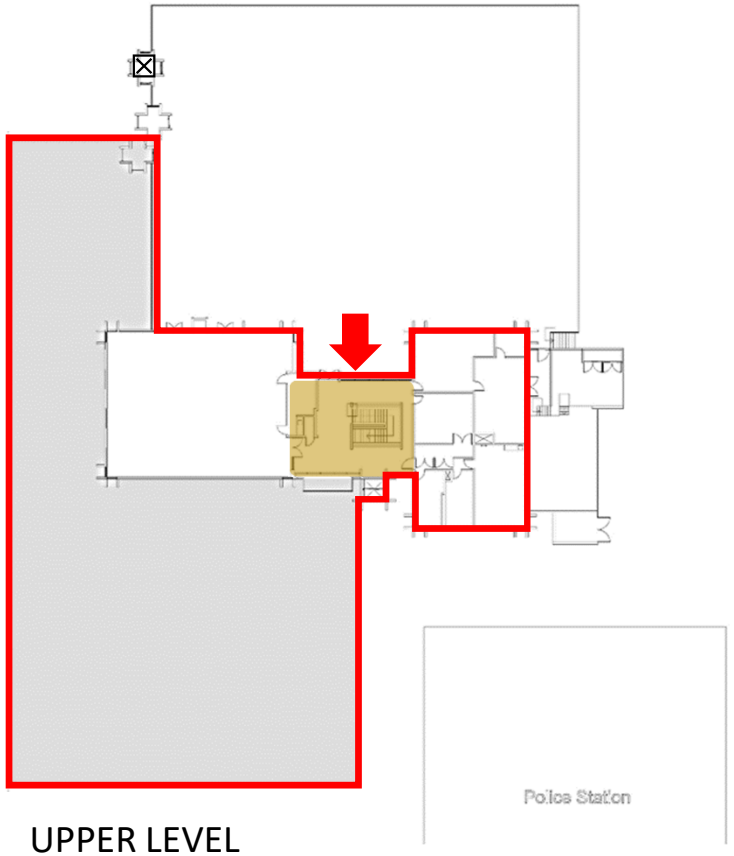


# Location 3 - Scenario B



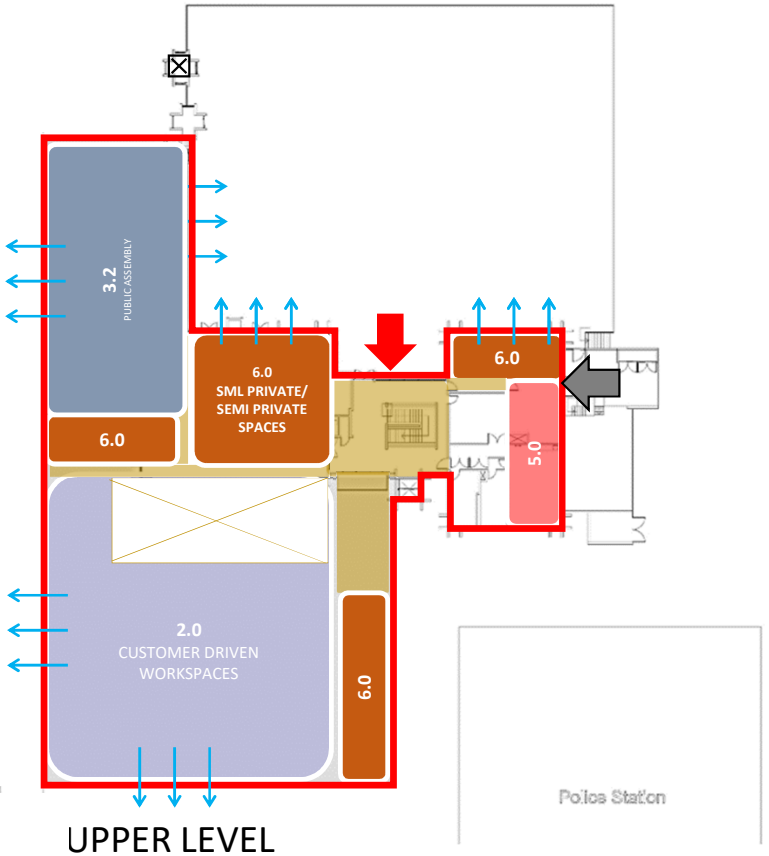

LOWER LEVEL



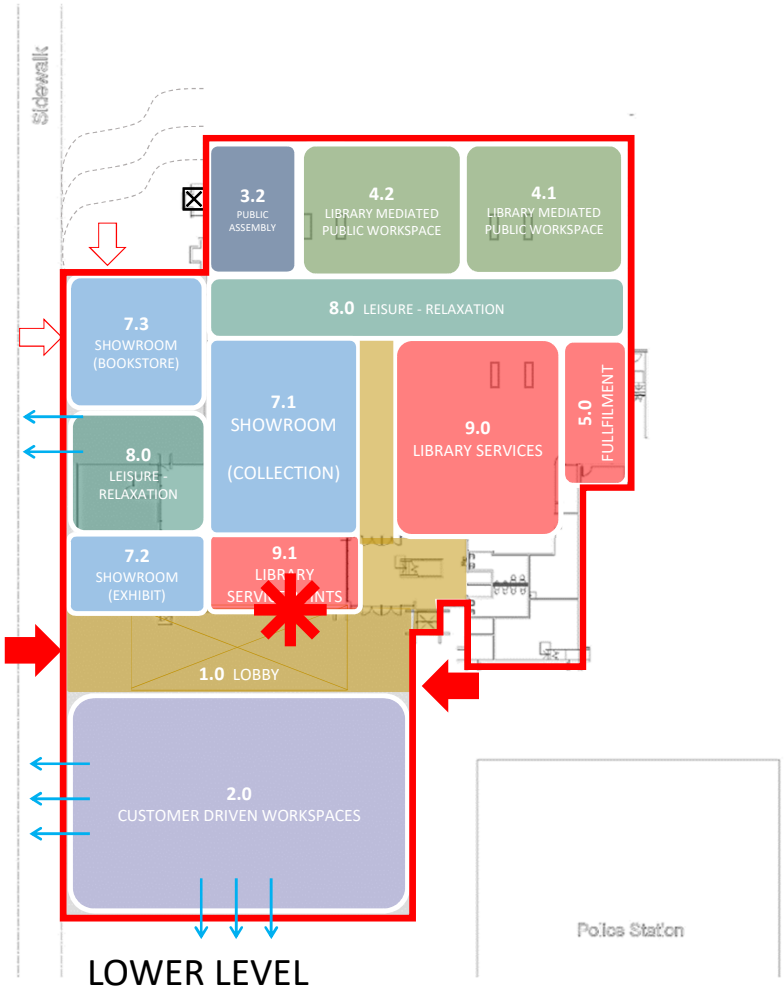

UPPER LEVEL

# Location 3 - Scenario B.1

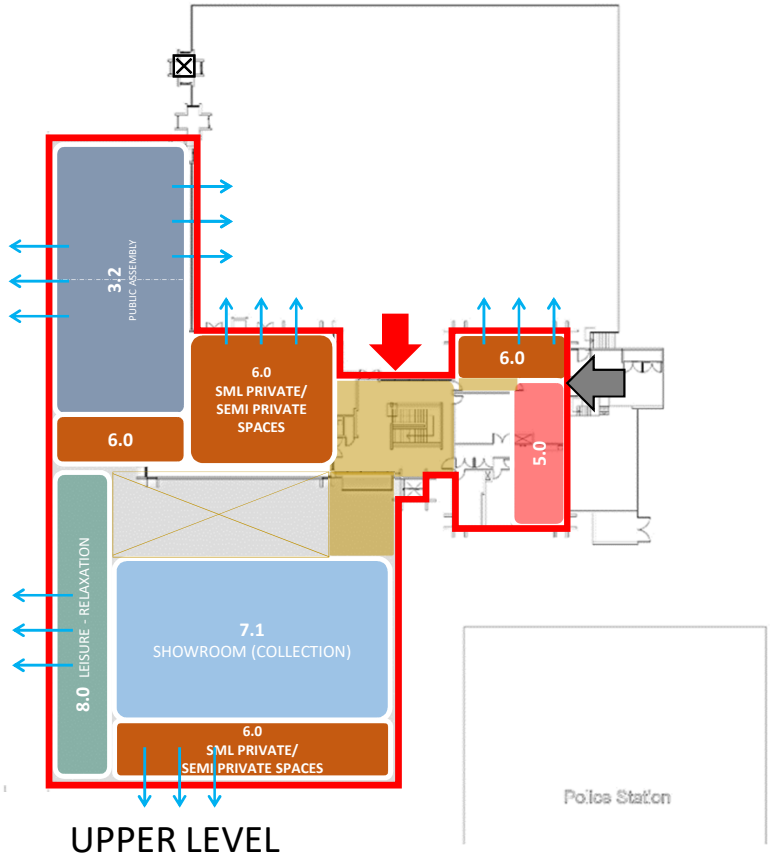


# Location 3 - Scenario B.2



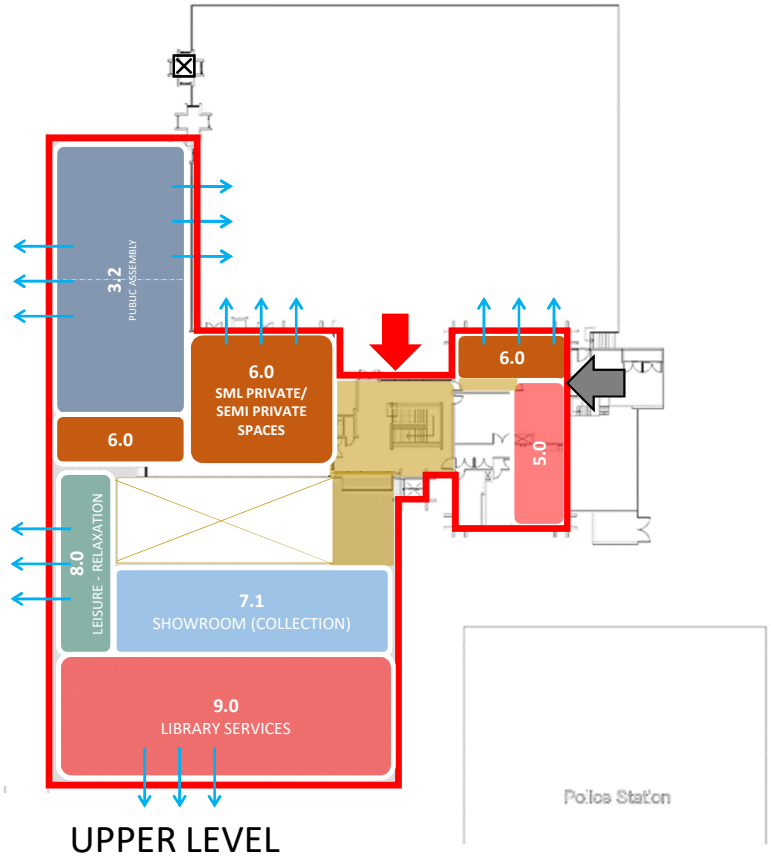

LOWER LEVEL



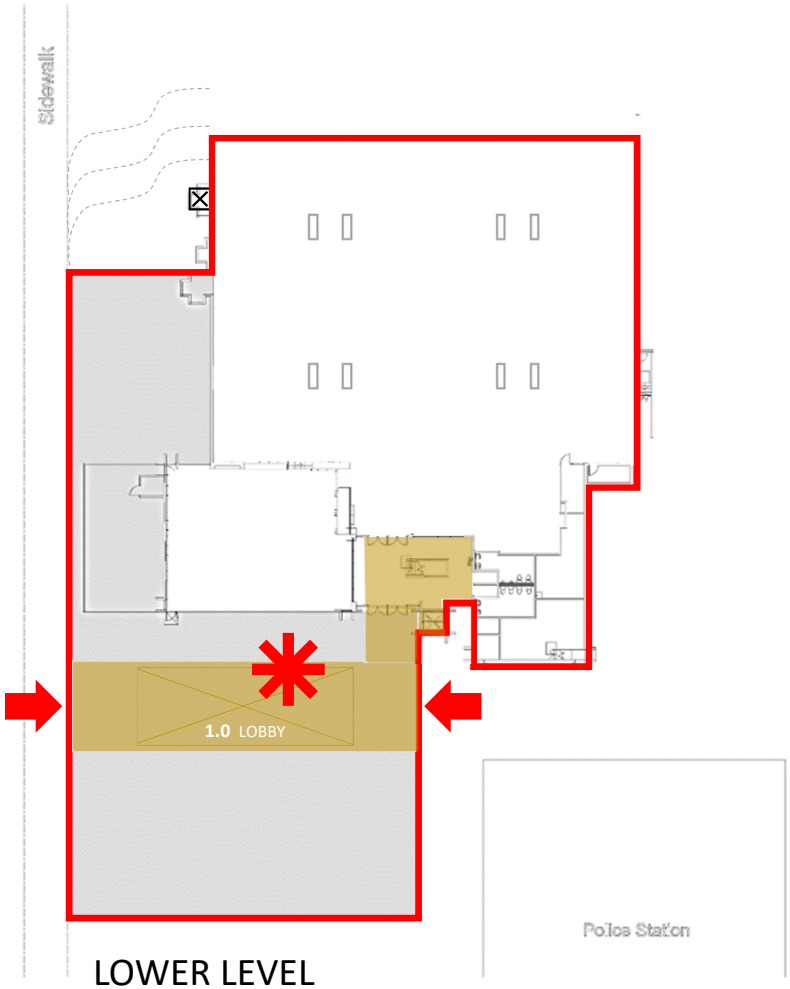

UPPER LEVEL

# Location 3 - Scenario B.3

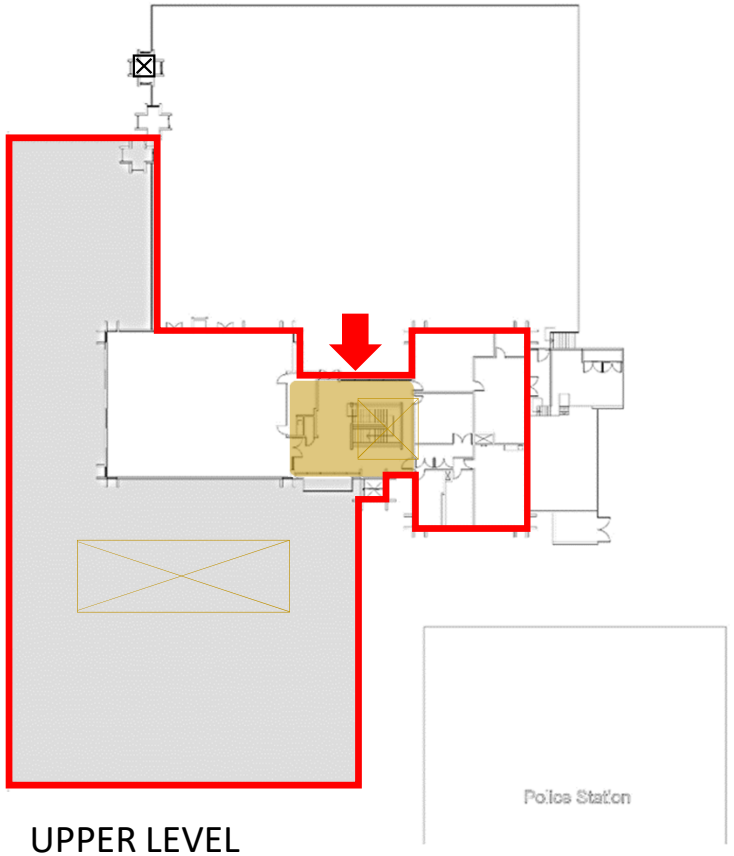


# Location 3 - Scenario C




LOWER LEVEL

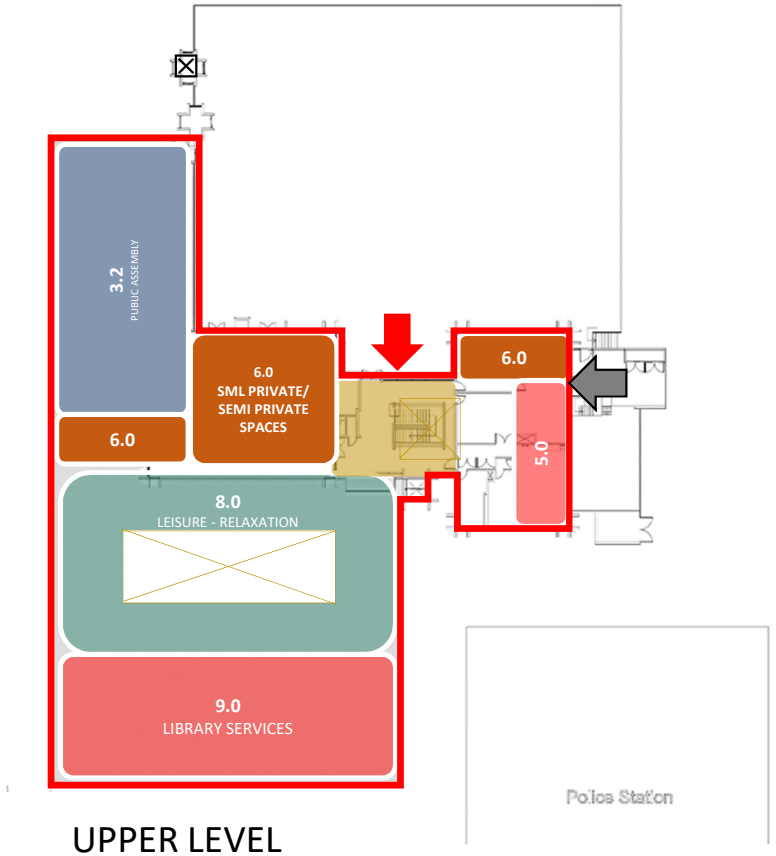



UPPER LEVEL

# Location 3 - Scenario C.1

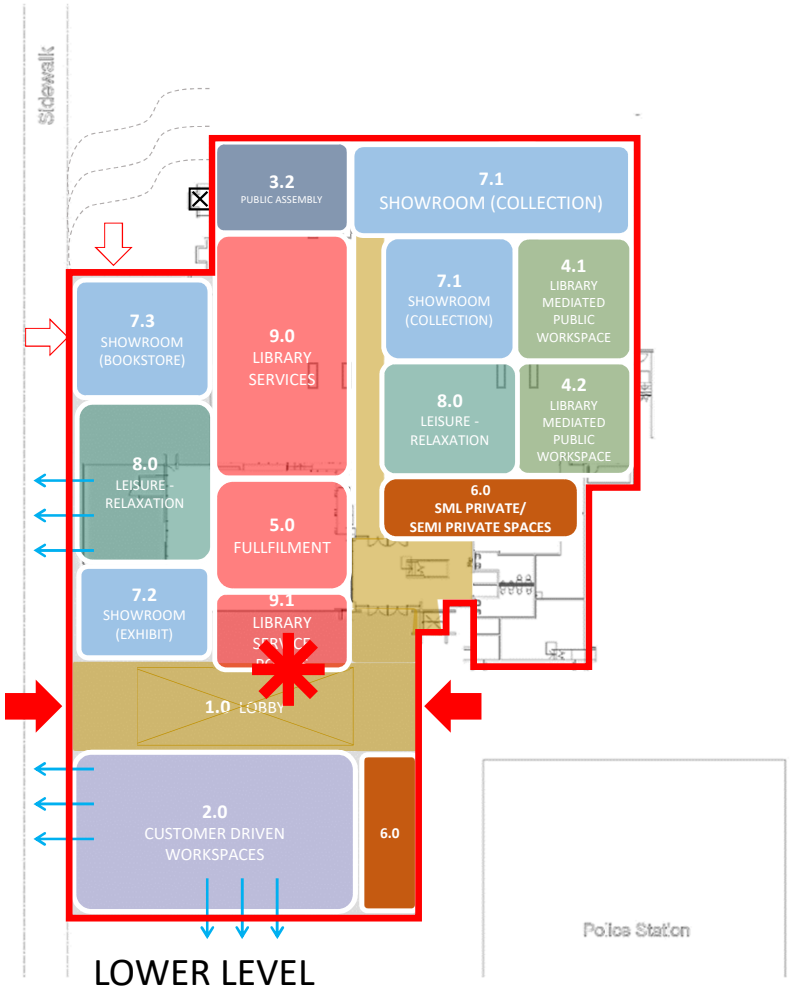


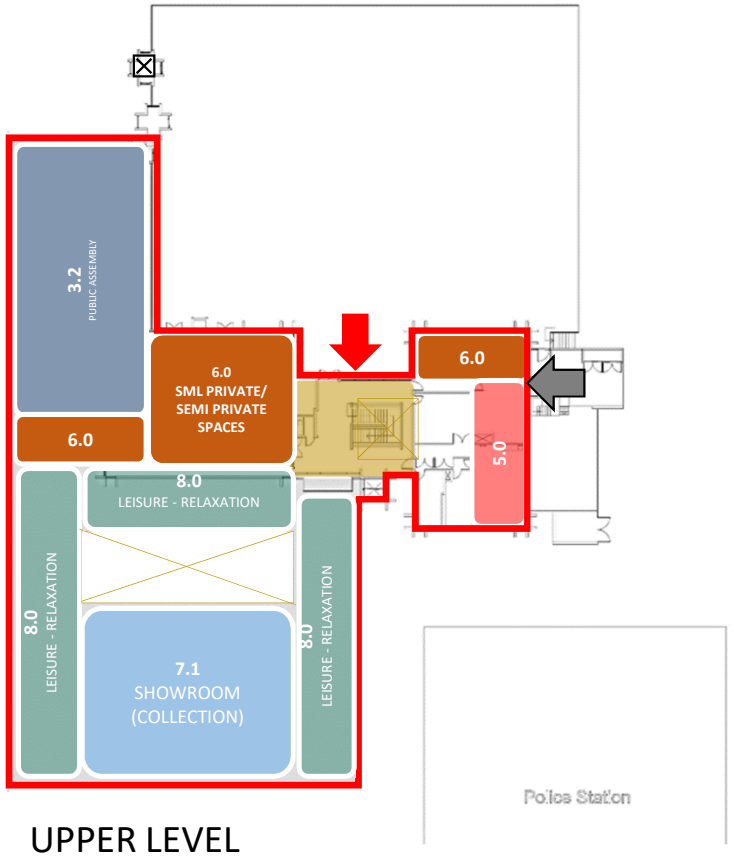

LOWER LEVEL

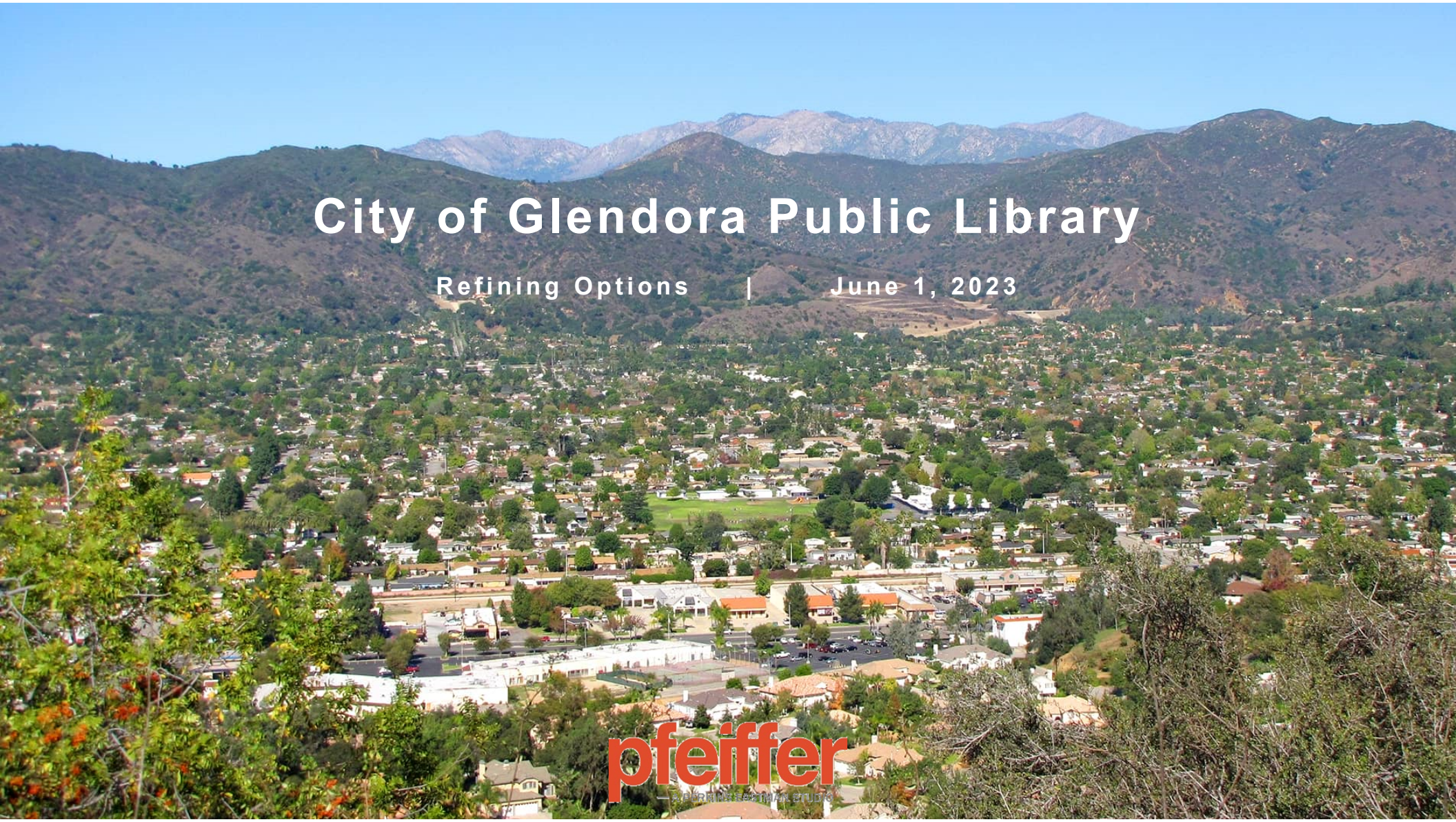



UPPER LEVEL

# Location 3 - Scenario C.2





# City of Glendora Public Library

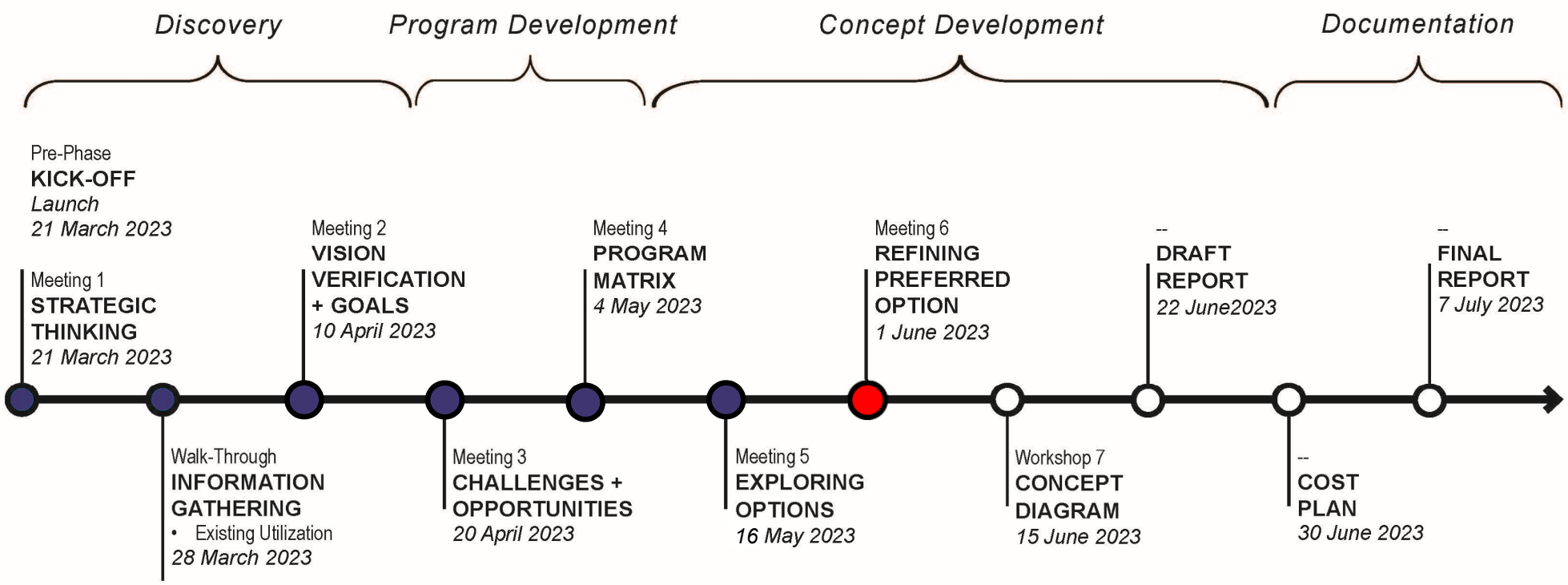
**Refining Options | June 1, 2023**

pfeiffer
A PERKINS EASTMAN STUDIO

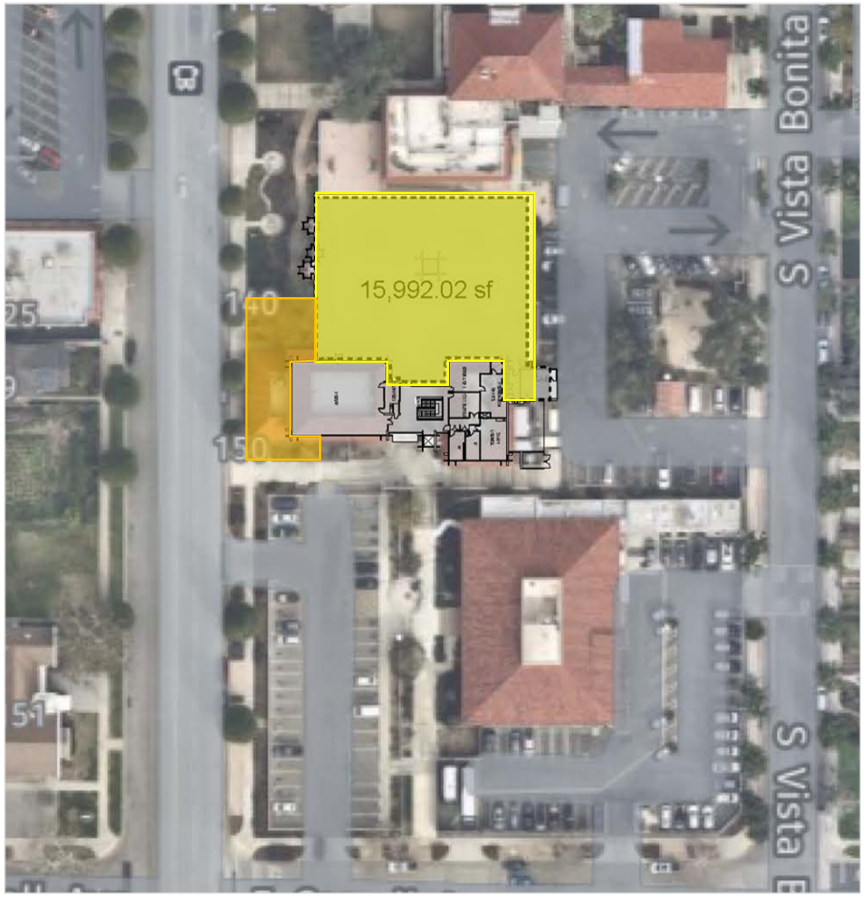
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7 July 2023

# Refining the Options

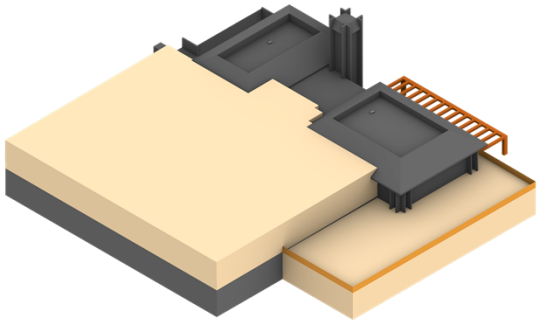



Option 1 - over the deck



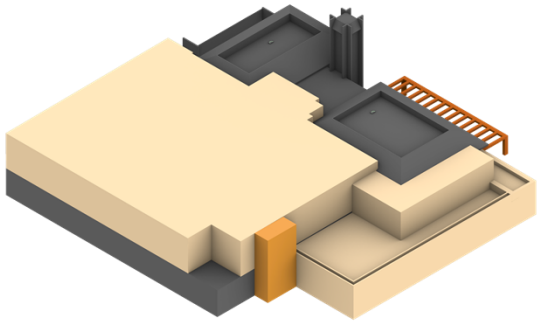

Option 2 – towards Glendora Ave

# Option 1 studies at-a-glance



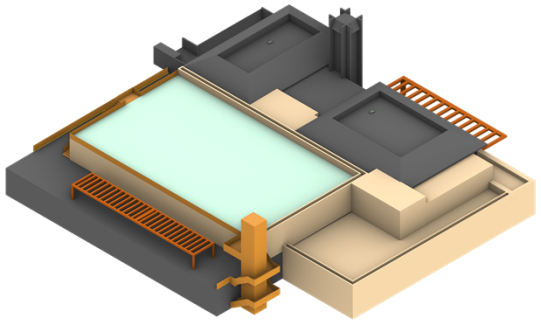
**Base**

48,924 SF



**Terrace**

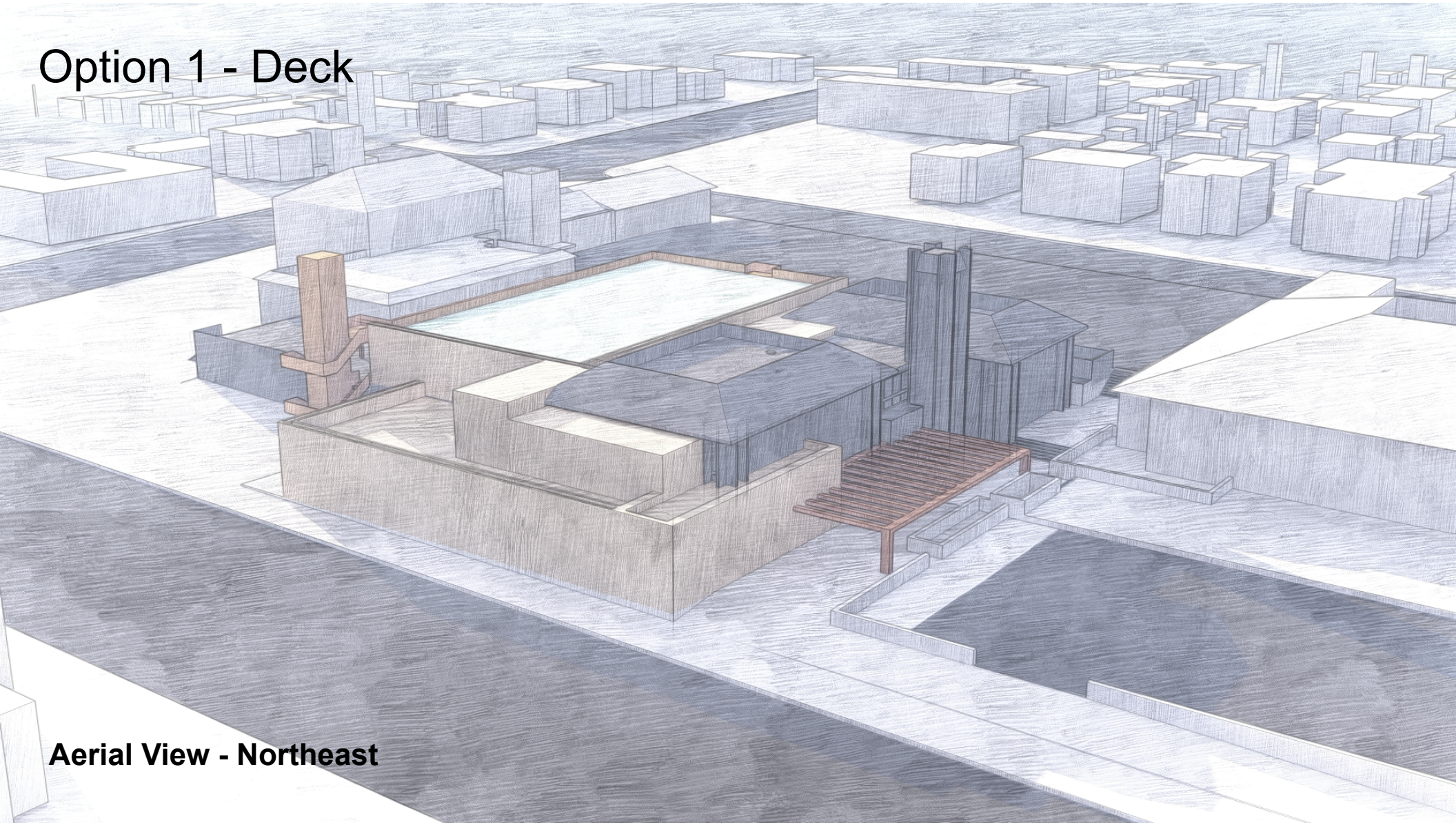
49,570 SF



**Deck**

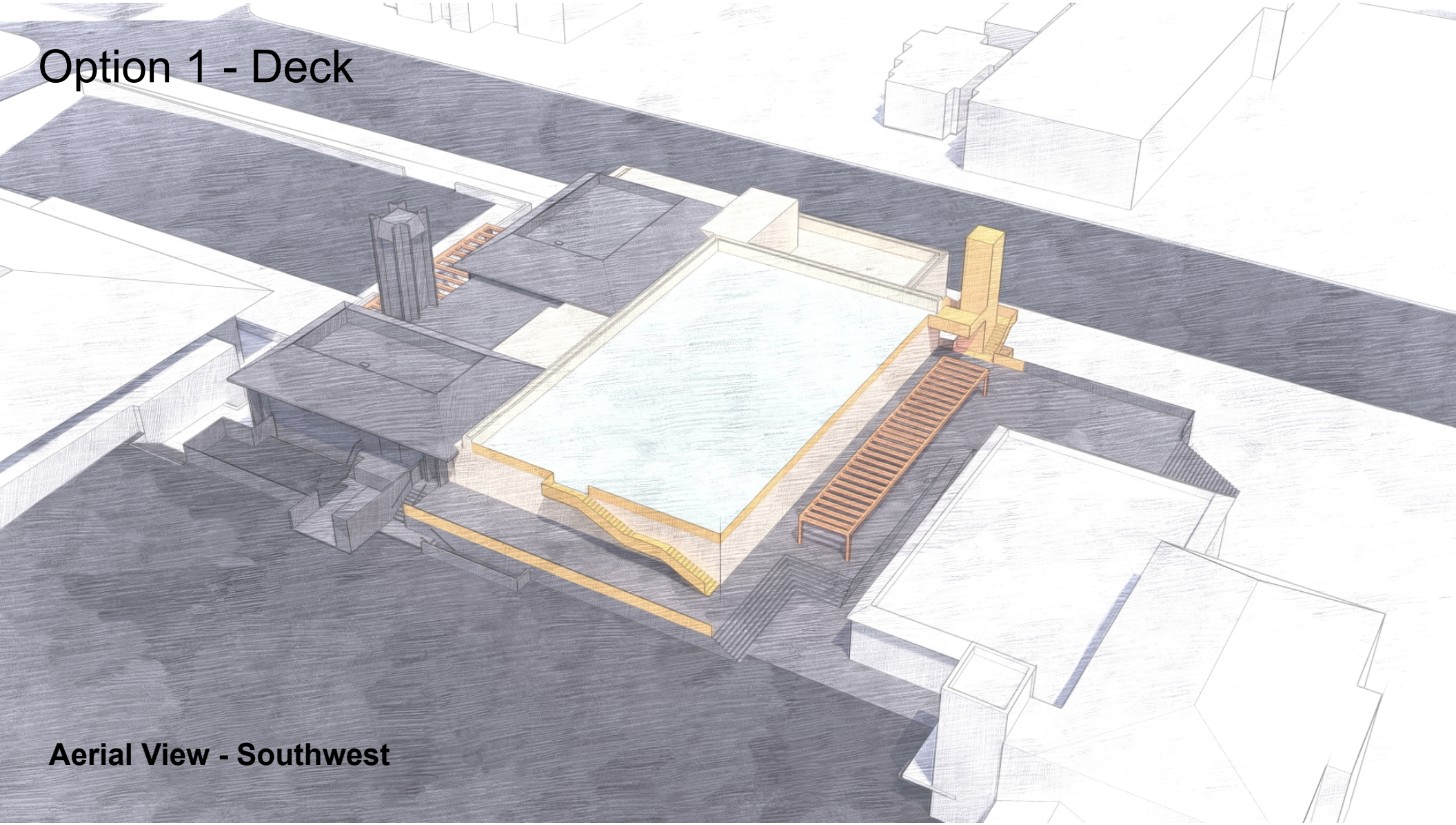
45,091 GSF

# Option 1 - Deck



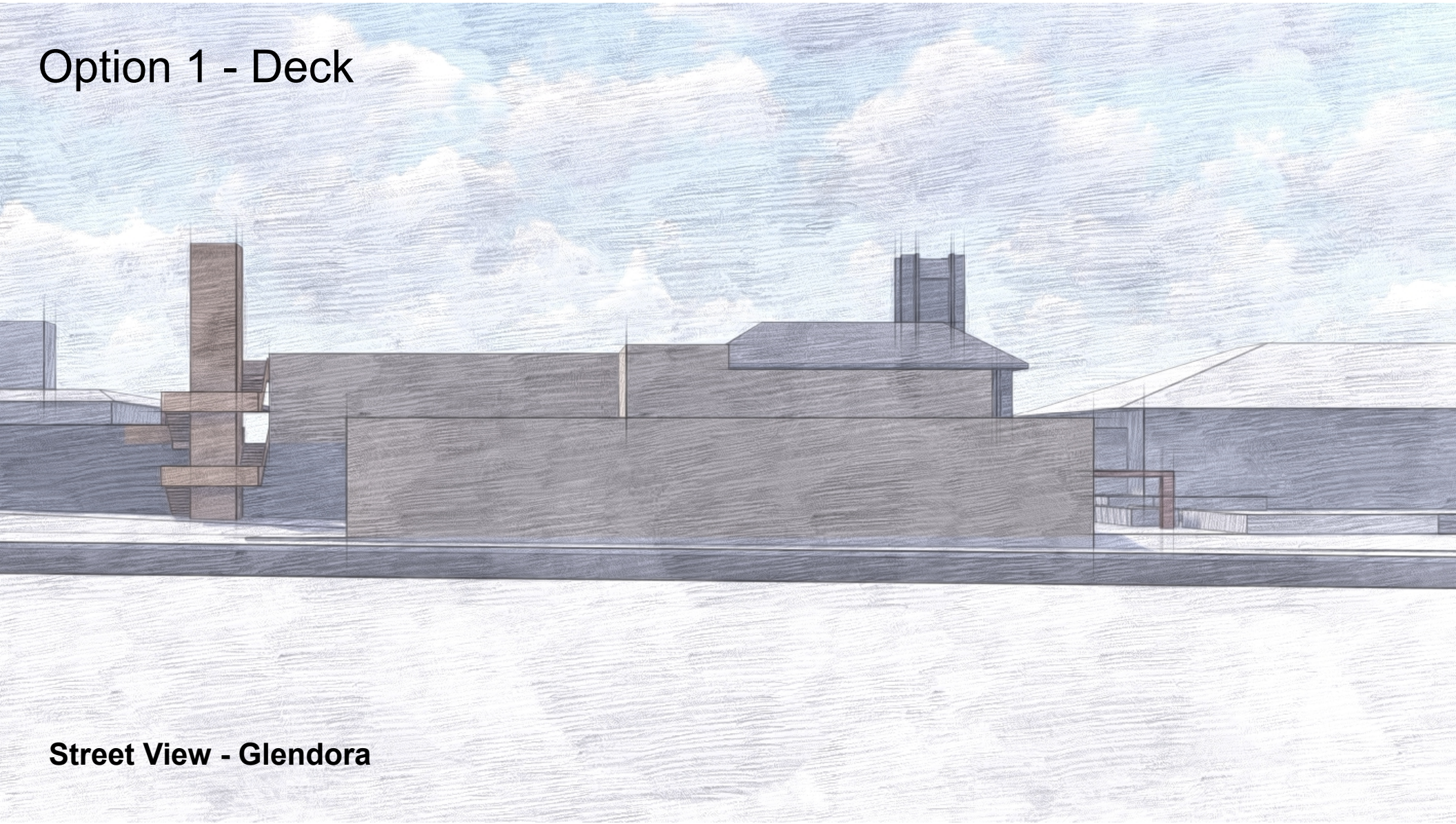
**Aerial View - Northeast**

# Option 1 - Deck



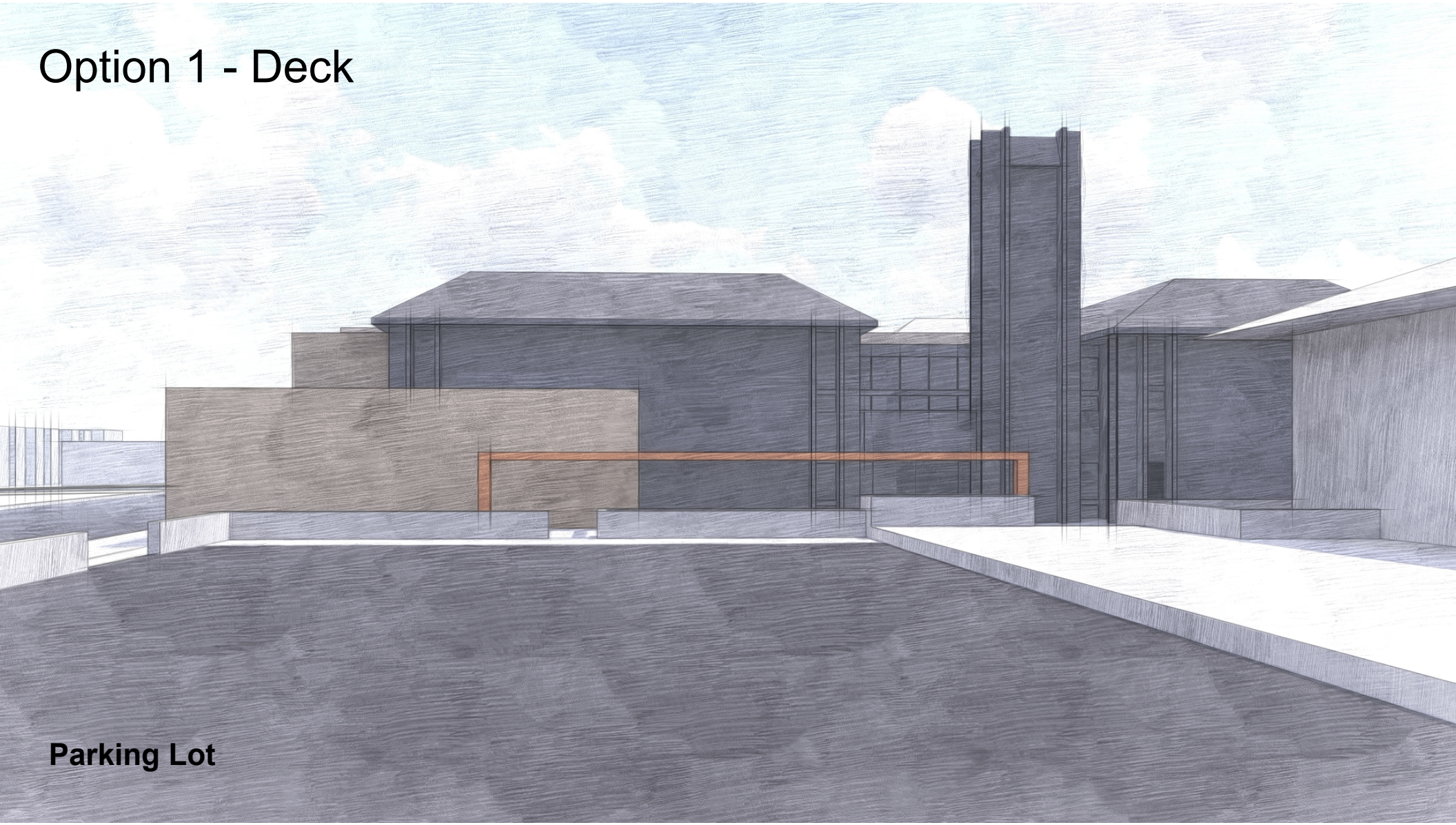
**Aerial View - Southwest**

# Option 1 - Deck

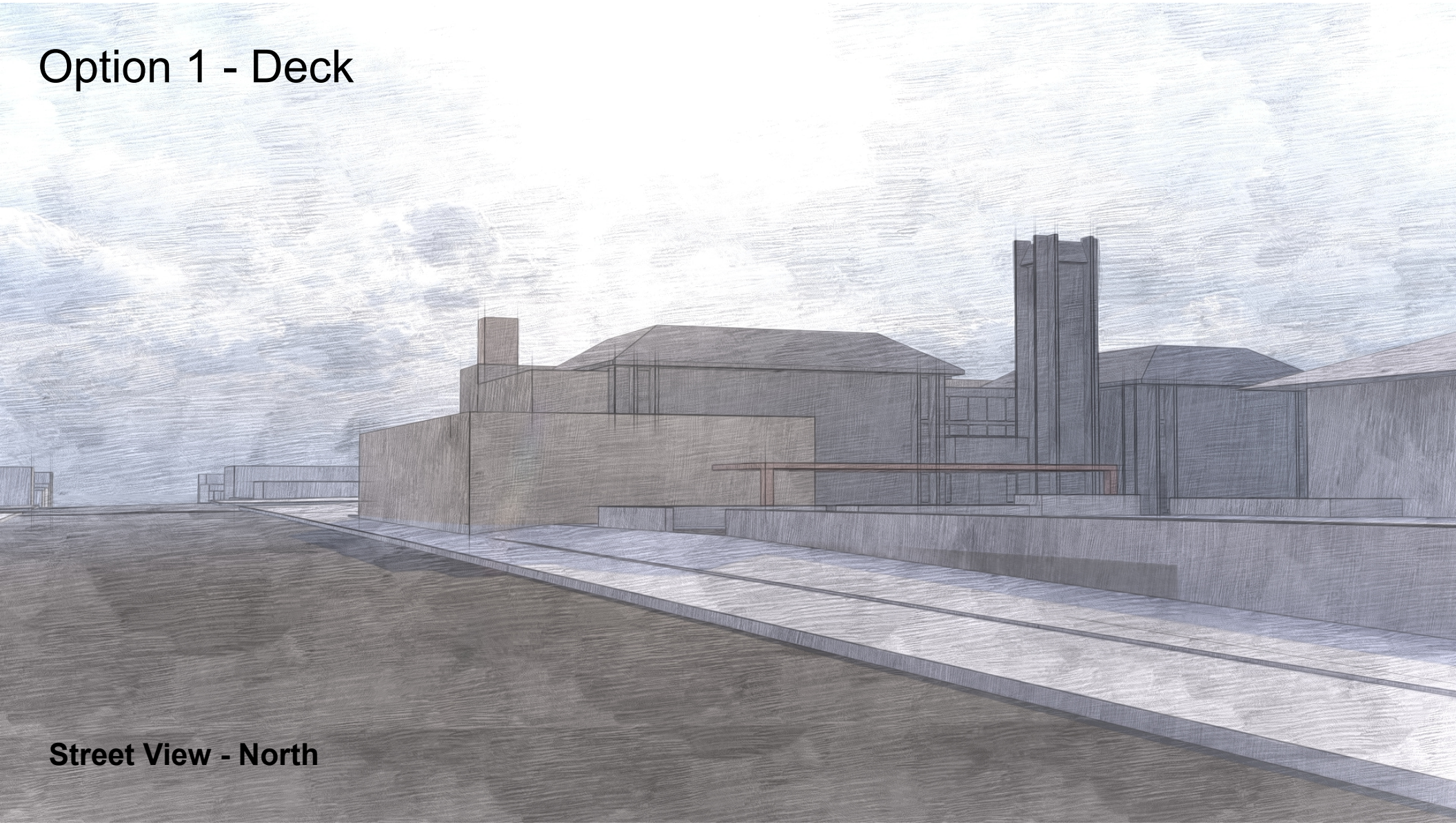


**Street View - Glendora**

# Option 1 - Deck

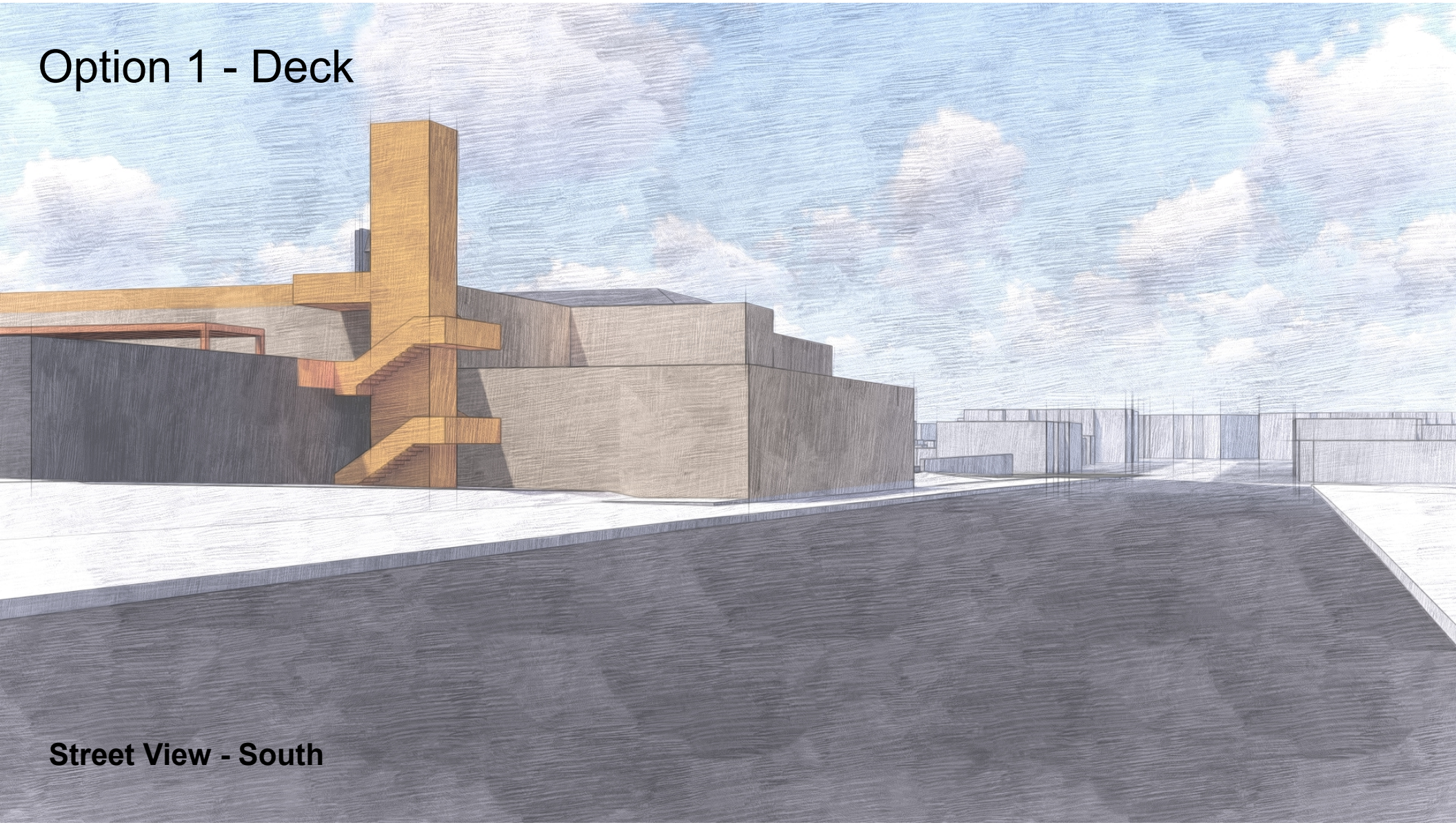


# Option 1 - Deck



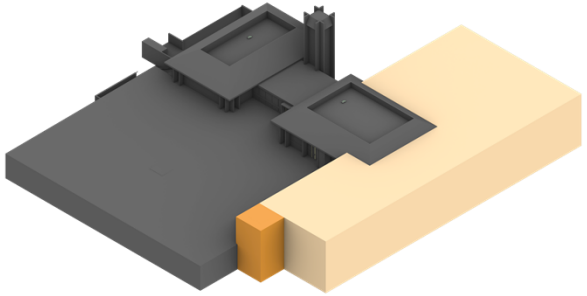
**Street View - North**

# Option 1 - Deck



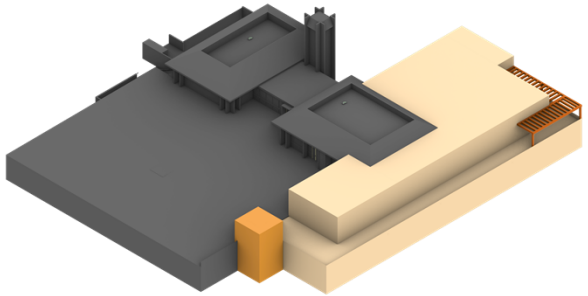
**Street View - South**

# Option 2 studies at-a-glance



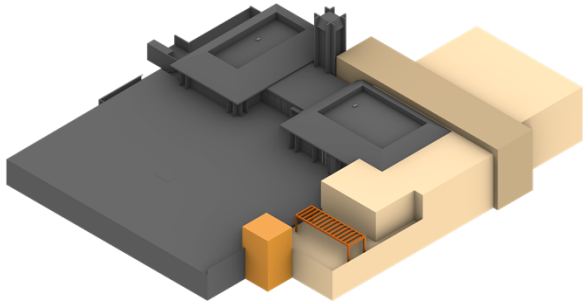
**Base**

49,495 SF



**Terraces**

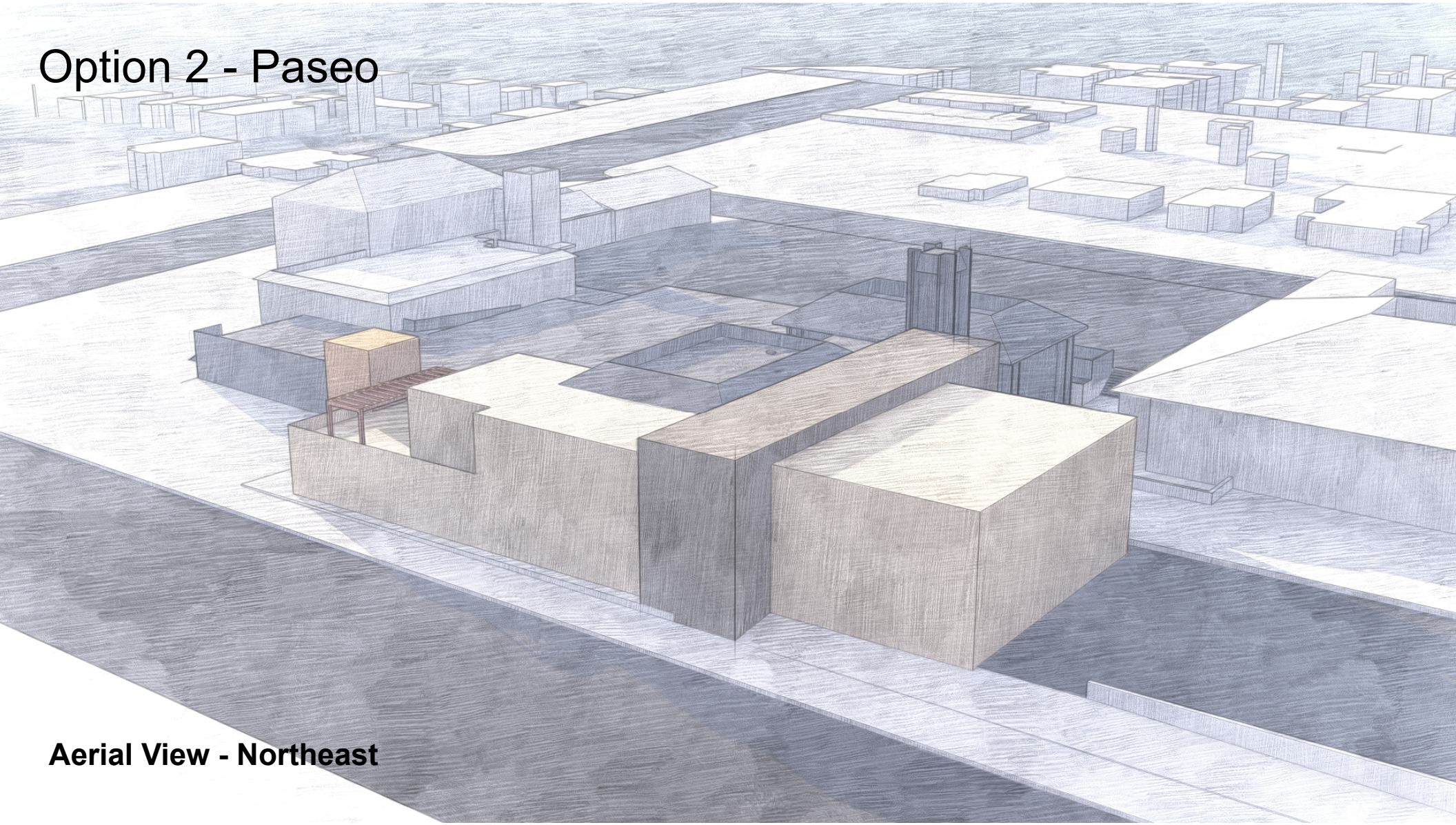
47,770 SF



**Paseo**

50,949 GSF

# Option 2 - Paseo



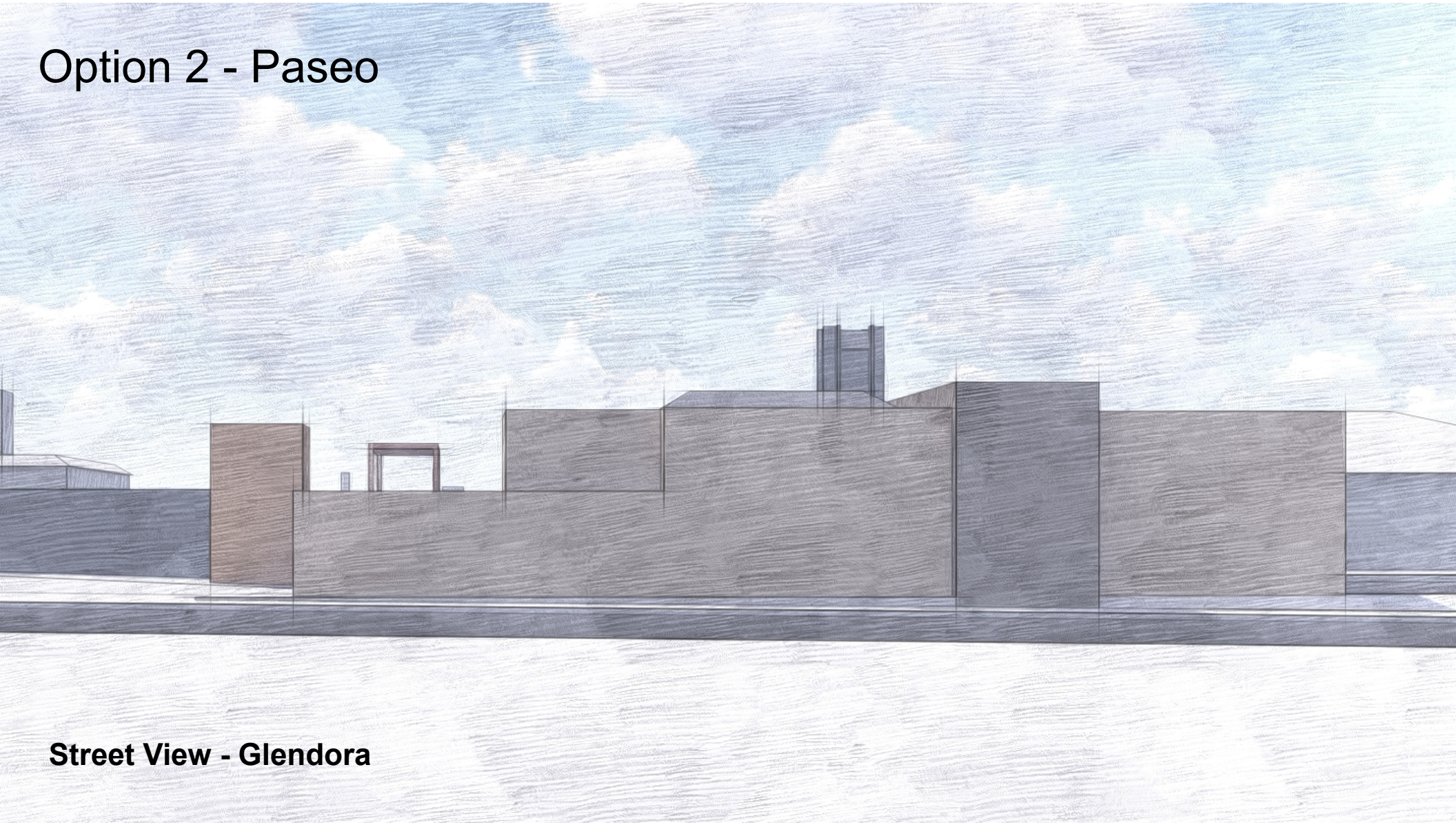
**Aerial View - Northeast**

# Option 2 - Paseo



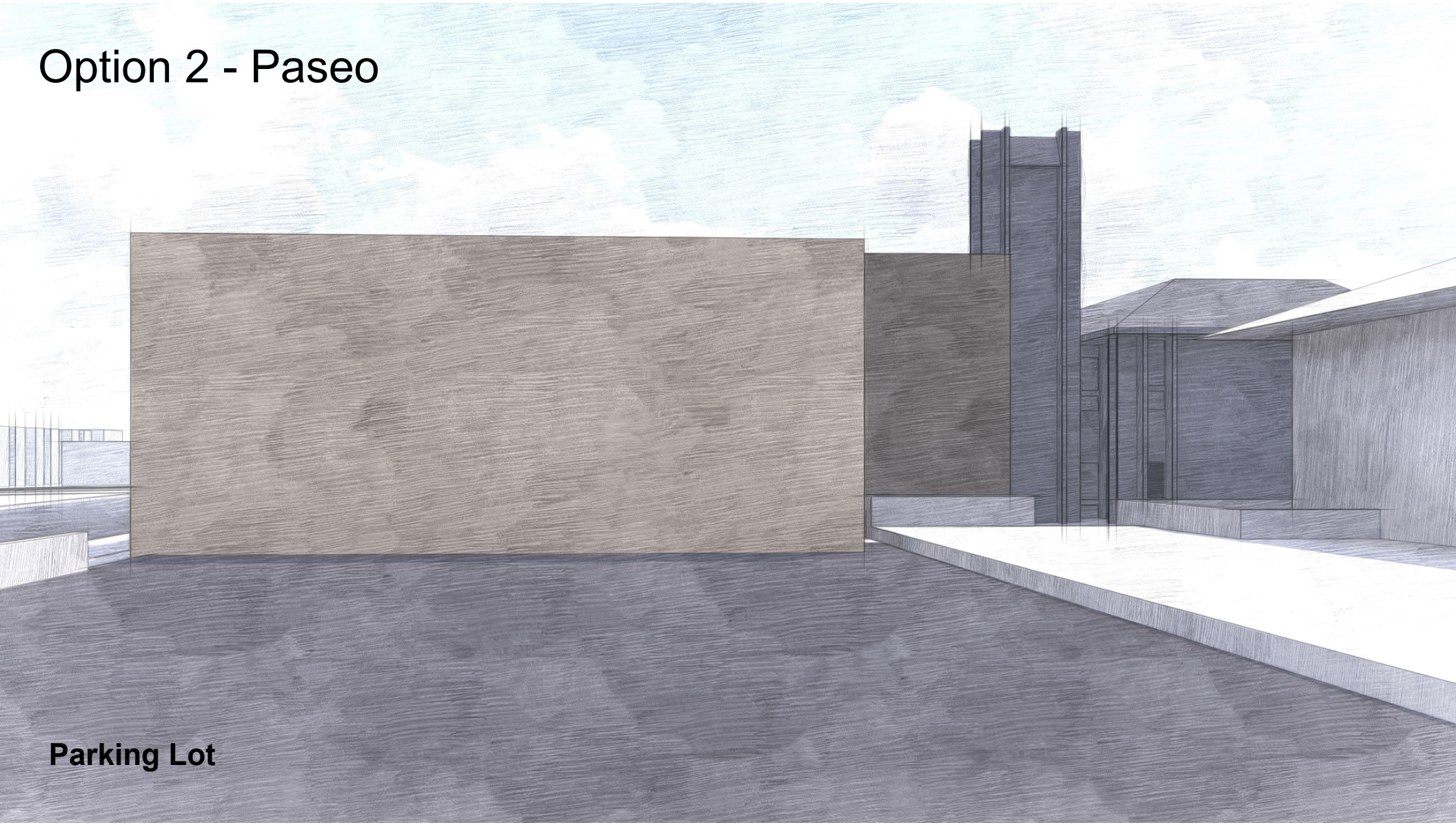
**Aerial View - Southwest**

# Option 2 - Paseo

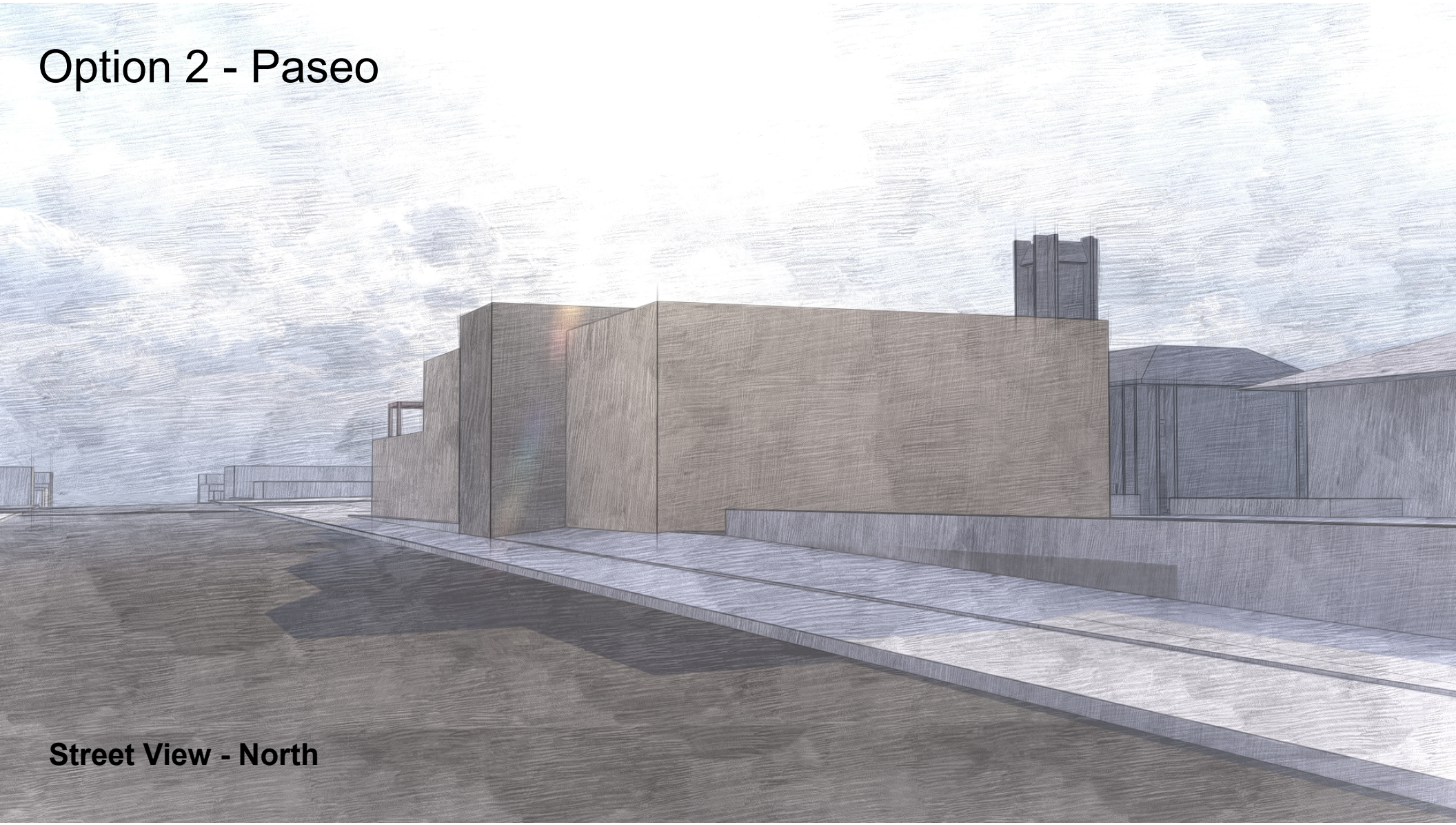


**Street View - Glendora**

# Option 2 - Paseo



# Option 2 - Paseo



**Street View - North**

# Option 2 - Paseo



**Street View - South**

# Precedent Imagery - Deck


Colorado College Tutt Library, Colorado Springs, CO

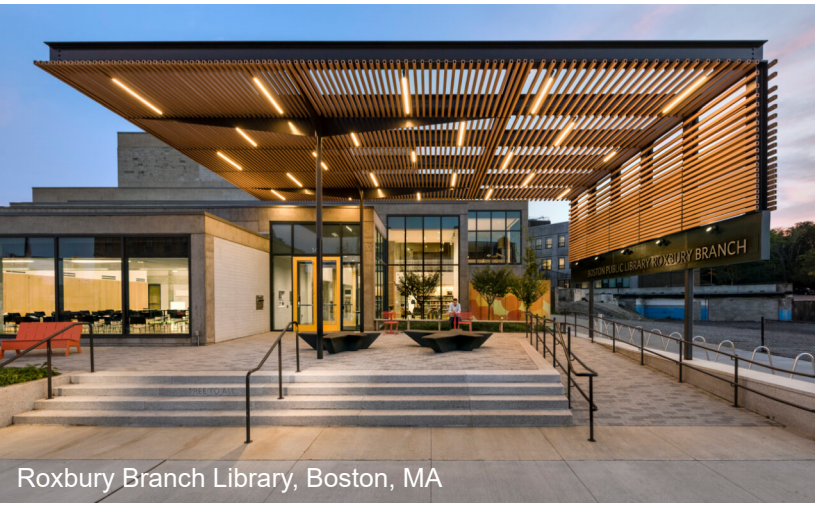

Austin Central Library, Austin, TX


Facebook Seattle, Seattle, WA


MLK Library, Chicago, IL


Cherie Flores Garden, Huston, TX

# Precedent Imagery - Entry



Roxbury Branch Library, Boston, MA


Santa Monica Library, Santa Monica, CA


Brooklyn College, NY



Oregon City Library, Oregon City, OR


Gilead Wellbeing Center, Foster City, CA



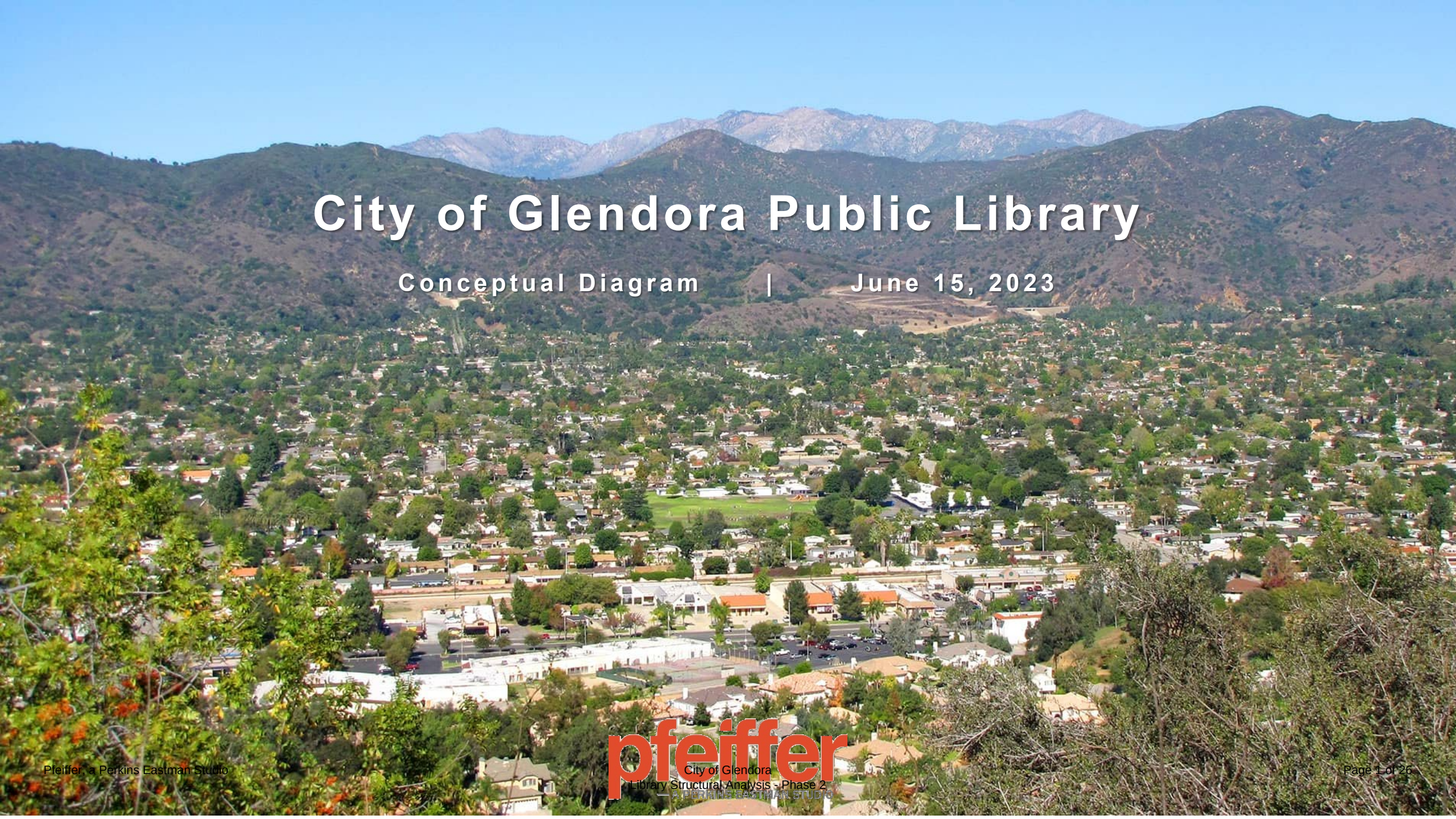
Davidson Library, Santa Barbara, CA

# Precedent Imagery - Entry


Stoughton Public Library, MA


Stoughton Public Library, MA


Davidson Library, Santa Barbara, CA



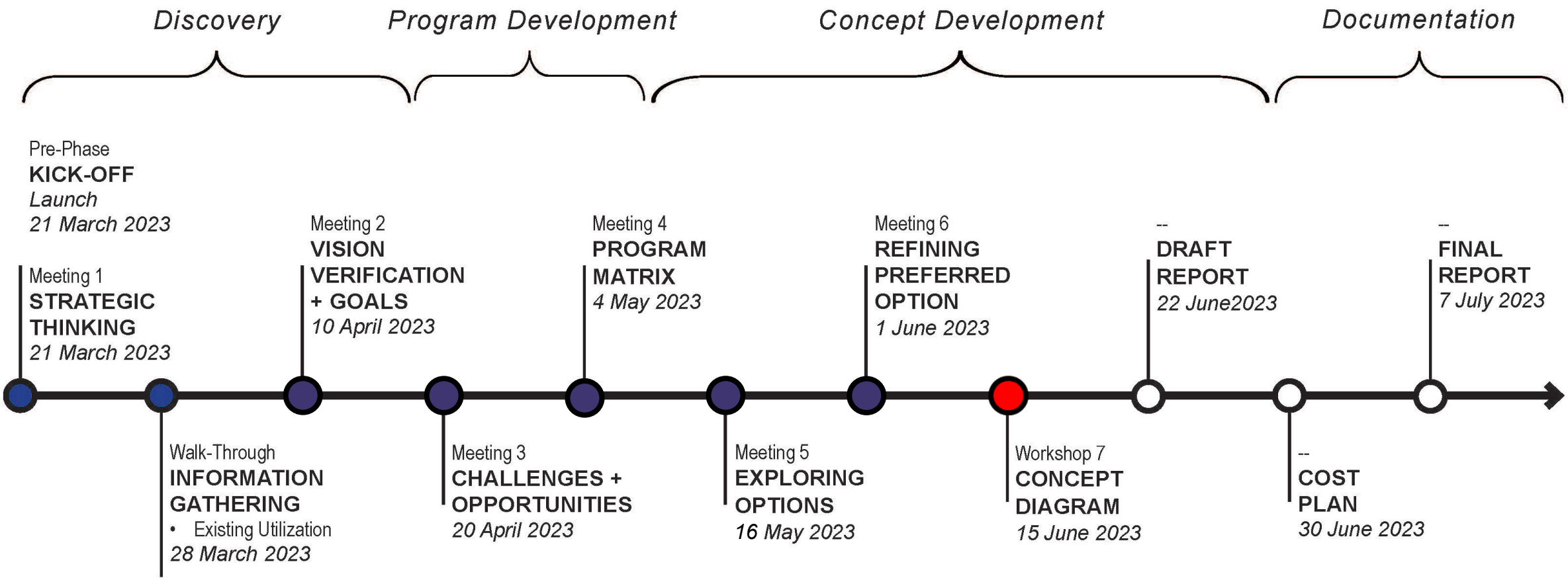
# City of Glendora Public Library

## Conceptual Diagram | June 15, 2023

# Today

- Welcome / Process
- Concept Diagram
- Discussion
- Next Steps

# Process

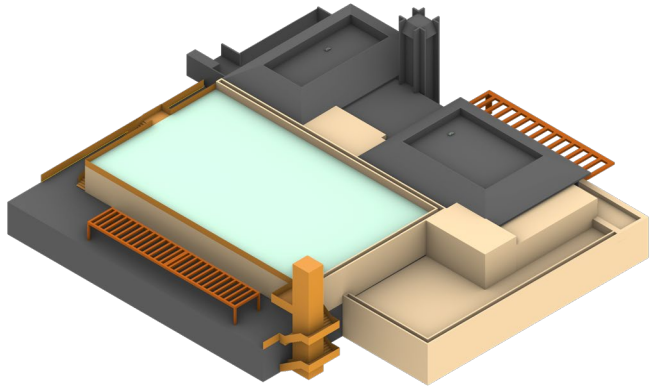

Discovery
Program Development
Concept Development
Documentation
Pre-Phase
KICK-OFF
Launch
21 March 2023
Meeting 1
STRATEGIC THINKING
21 March 2023
Walk-Through
INFORMATION GATHERING
• Existing Utilization
28 March 2023
Meeting 2
VISION VERIFICATION + GOALS
10 April 2023
Meeting 3
CHALLENGES + OPPORTUNITIES
20 April 2023
Meeting 4
PROGRAM MATRIX
4 May 2023
Meeting 5
EXPLORING OPTIONS
16 May 2023
Meeting 6
REFINING PREFERRED OPTION
1 June 2023
Workshop 7
CONCEPT DIAGRAM
15 June 2023
--
DRAFT REPORT
22 June2023
--
COST PLAN
30 June 2023
--
FINAL REPORT
7 July 2023

# Option 1 – Deck - feedback

- Explore additional views within the trellis area:
  - South (between the library and Police Station)
  - North (between the library and City Hall)

- New elevator/stair tower
  - moderate height
  - enclosed structure

- Maximize connectivity between the roof decks.

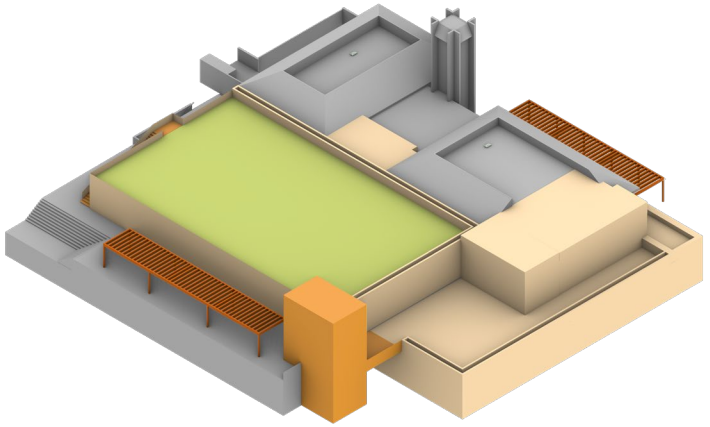


**Deck**

45,091

Presented June 1, 2023

# Option 1 – Deck



**Deck**

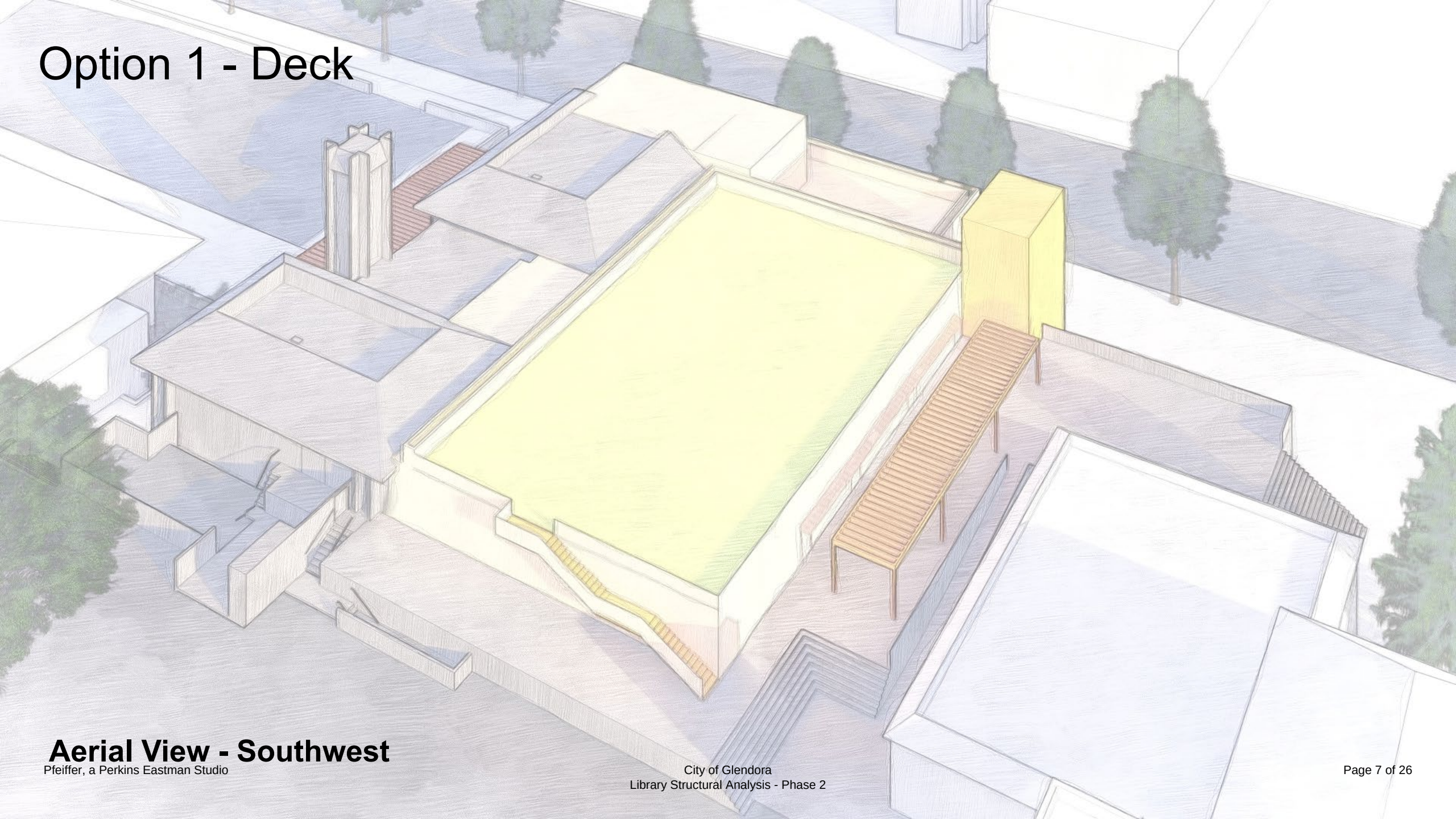
± 45,000 GSF

# Option 1 - Deck



**Aerial View - Northeast**

# Option 1 - Deck



## Aerial View - Southwest

# Option 1 - Deck



**Paseo**

# Option 1 - Deck



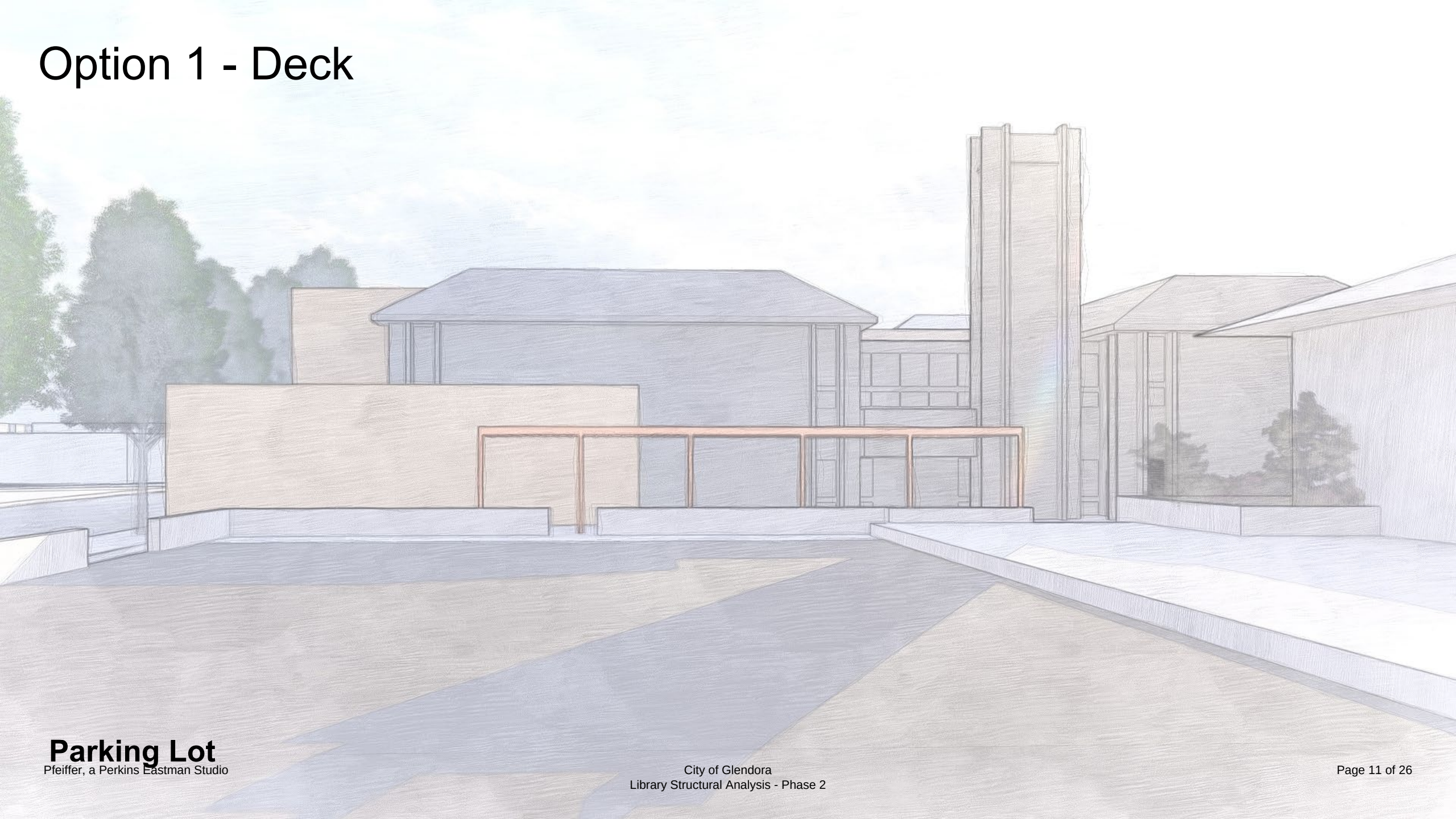
**Street View – Vista Bonita**

# Option 1 - Deck



## Street View - Glendora

# Option 1 - Deck



# Option 1 - Deck



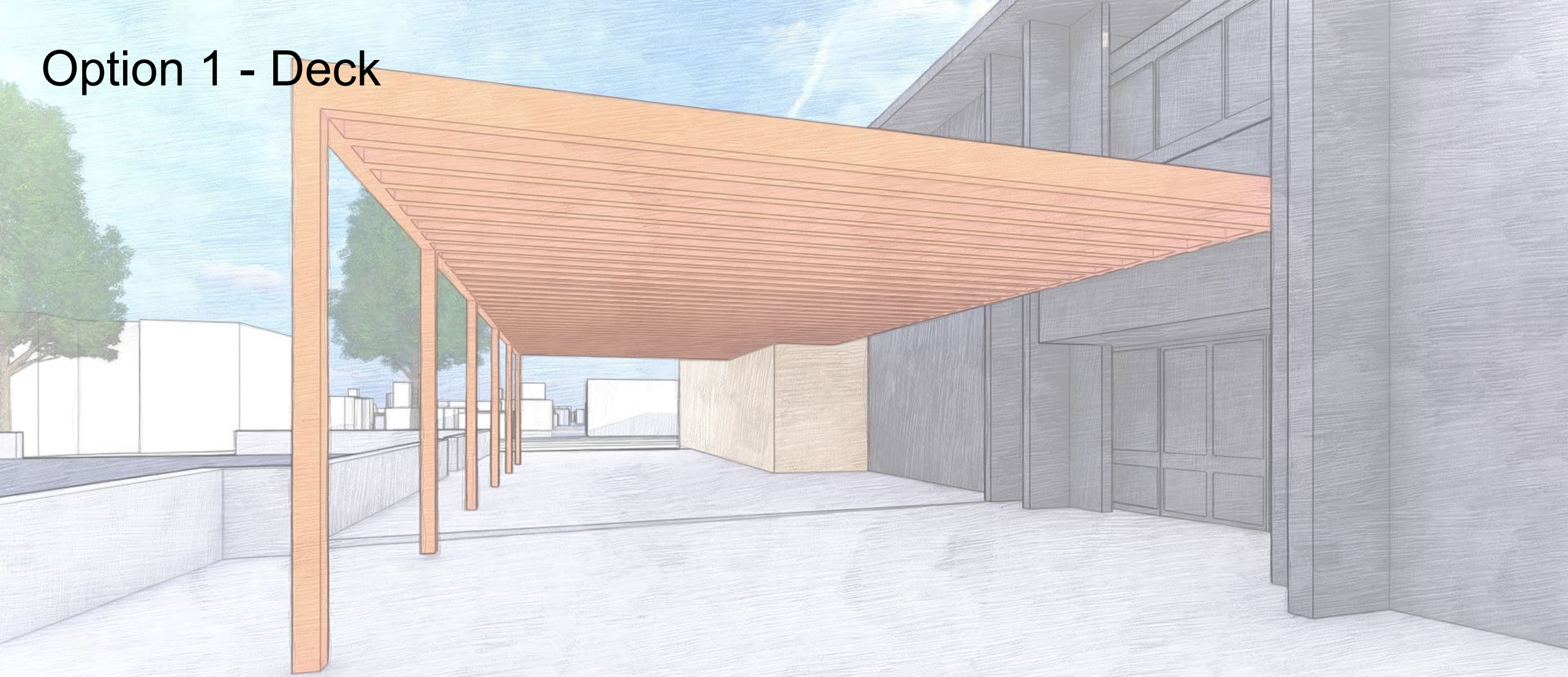
**Police Station- North**

# Option 1 - Deck



**Police Station - West**

# Option 1 - Deck



**Ground Entry**

# Option 1 - Deck



**Street View - North**

# Option 1 - Deck



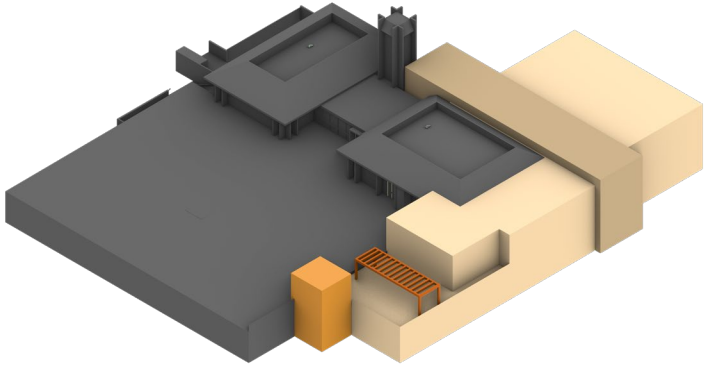
**Street View - South**

# Option 2 – Paseo - feedback

- Minimize the visual impact of the addition
  Suggestions include:
  - Setting the addition away from the sidewalk
  - Stepping back the 2nd floor on all sides

- Explore additional camera views
  - in the space between the addition and the Police Station (East elevation)

- Maximize connectivity between the roof decks.

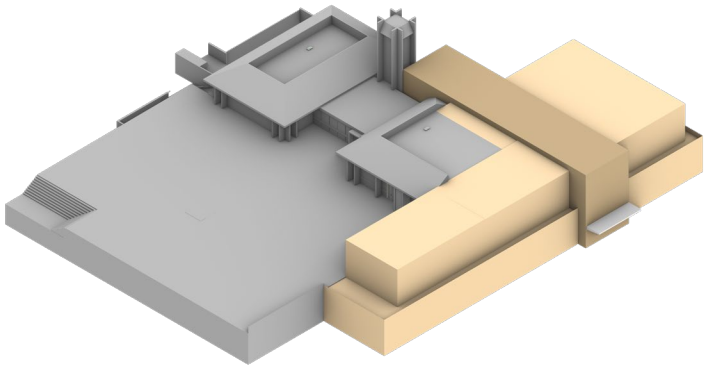


**Paseo**

50,949

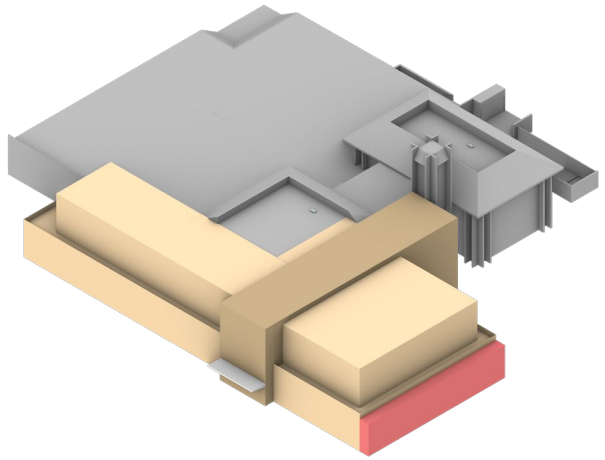
Presented June 1, 2023

# Option 2 – Paseo



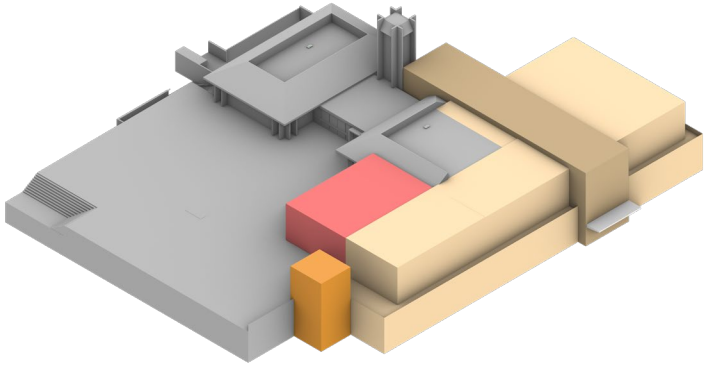
**Base**

45,000 GSF



***Parking Lot Expansion**

45,356 GSF



*** Deck Expansion**

46,686 GSF

# Option 2 - Paseo



## Aerial View - Northeast

# Option 2 - Paseo



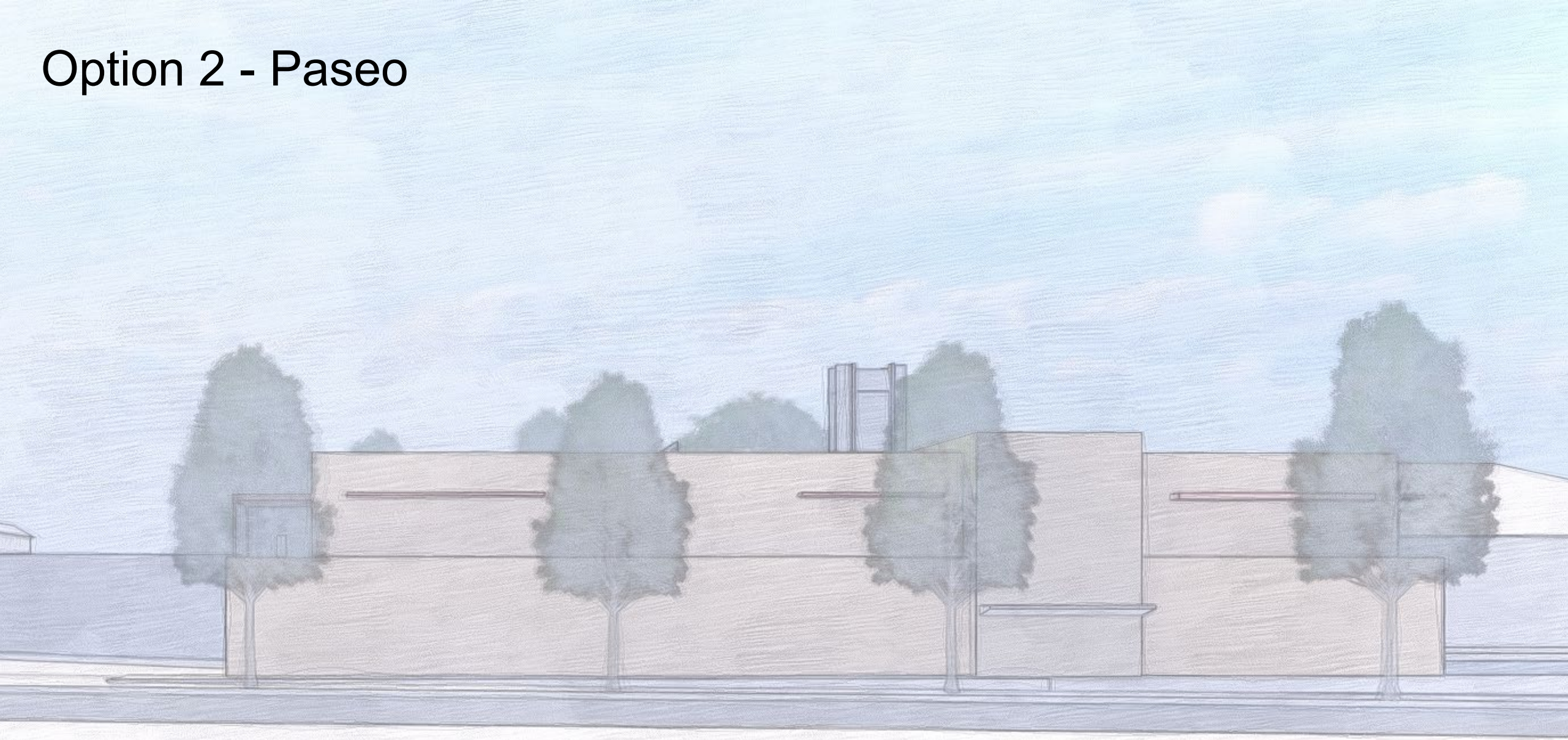
## Aerial View - Southwest

# Option 2 - Paseo



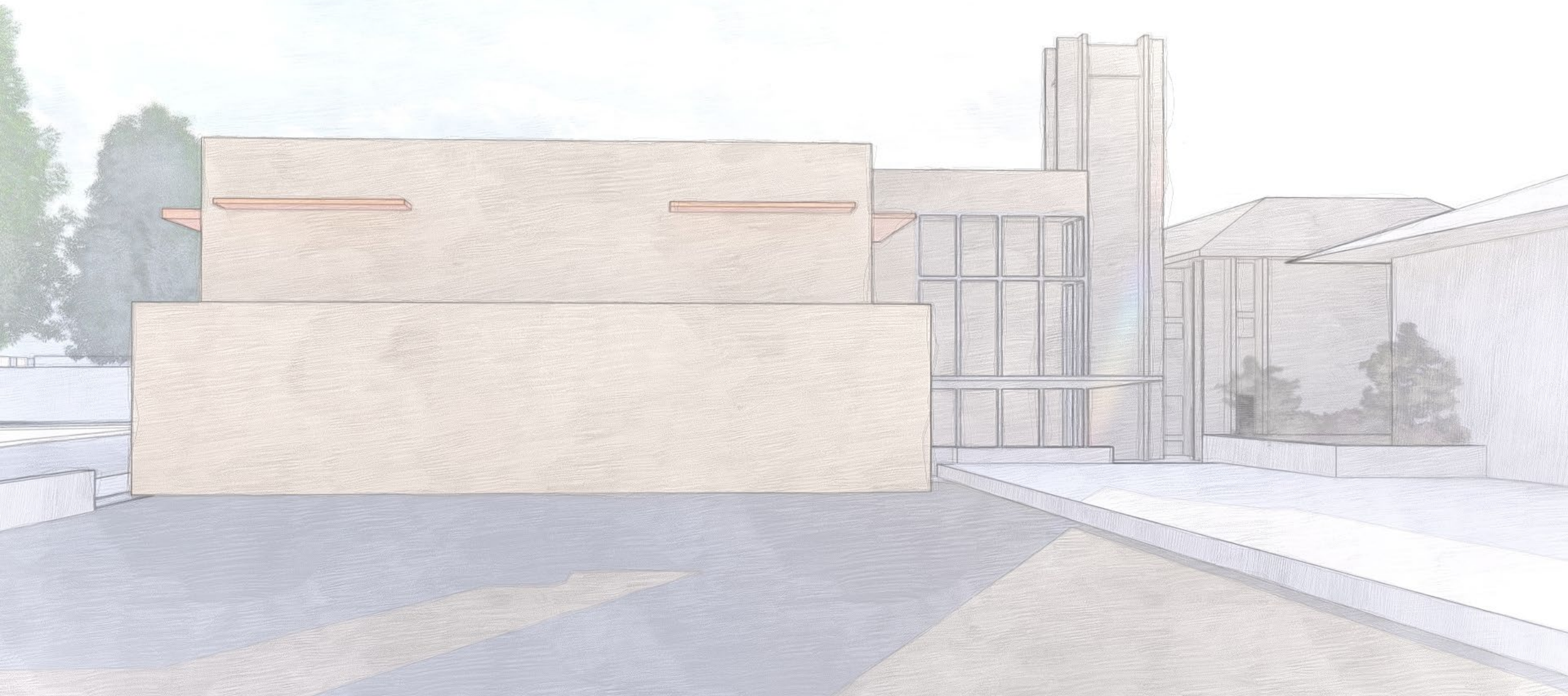
**Street View – Vista Bonita**

# Option 2 - Paseo



## Street View - Glendora

# Option 2 - Paseo



**Parking Lot**

# Option 2 - Paseo



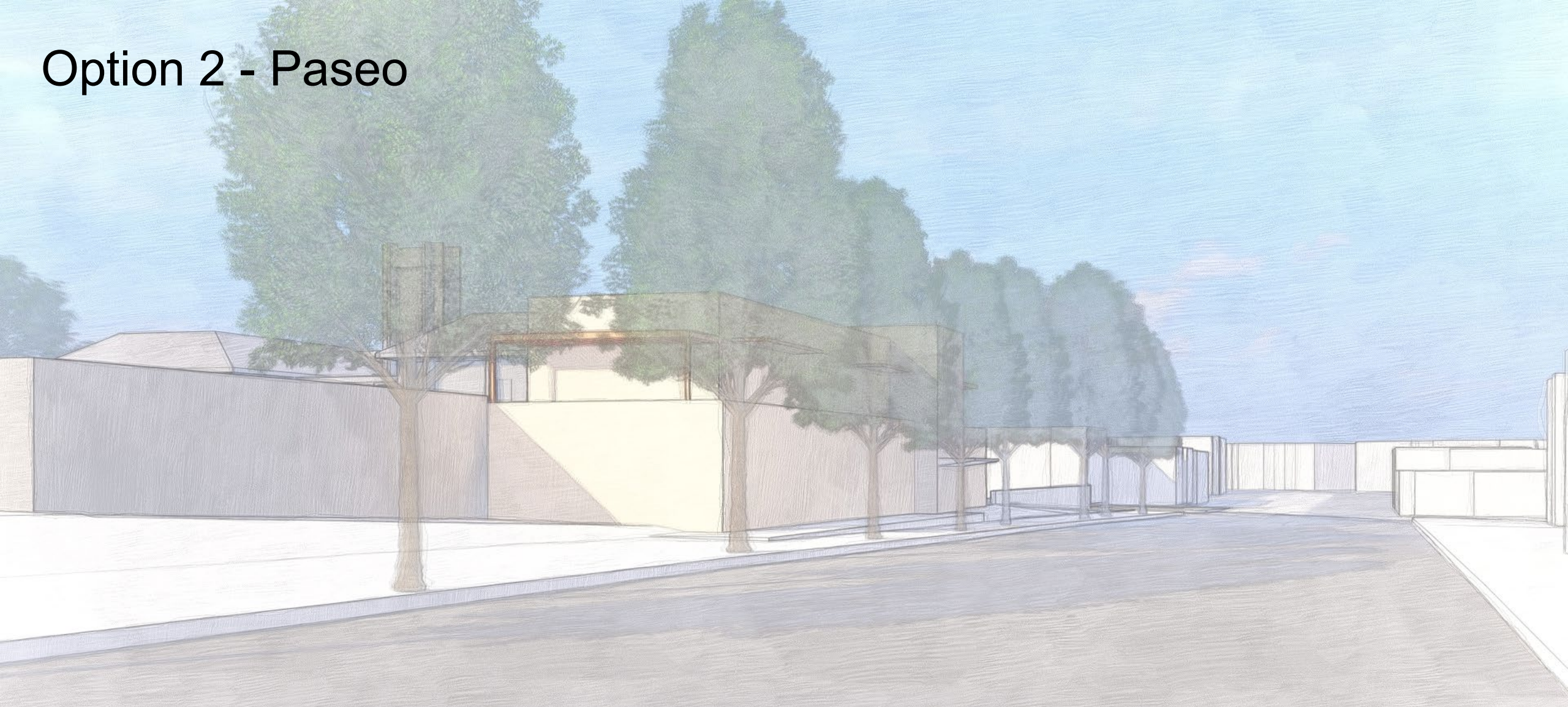
**Police Station- North**

# Option 2 - Paseo



**Street View - North**

# Option 2 - Paseo



## Street View - South