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Kathy Fry

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Karen Brahmayer
Joyce Wheeler
1.0 EXECUTIVE SUMMARY

1.1 Goals of the Bond Measure
1.2 Intent of the Concept Phase
1.1 GOALS OF THE BOND MEASURE

Deschutes County residents passed a significant bond measure in the fall of 2020 supporting renovations to existing library branches, centralized operations and the construction of new library facilities in Redmond and Bend. Taken as a whole, these bond measures represent a once-in-a-lifetime opportunity to affect the role of libraries—and the experience of them county-wide.

The expectation is that these libraries will become dynamic reflections of their community as social, intellectual, and technological hubs. They will welcome a diversity of users; each person seeking something different and being greeted with respect, equity and inclusivity. To truly serve all, a wide variety of activities need to live amicably under one roof: quiet reading, animated story-time sessions, focused afterschool homework sessions, training classes, technology access, and popular community events.

As significant long-term community investments, these buildings are expected to bring decades of use to the evolving communities of Deschutes County. Decisions made regarding space, building systems, and operations should reflect this long-term ownership goal. The renovated branches will provide expanded space and services within the existing structures—already well-loved in their individual communities. The Redmond Library will make a civic contribution to the downtown core, while the new Central Library will serve as a notable county-wide destination, with unique amenities and specialty programming.
1.2 INTENT OF THE CONCEPT PHASE

This deliverable builds upon work done by others in advance of the bond measure and is intended to describe initial goals and concepts for all four work packages. The findings and recommendations captured herein are the result of initial public engagement including conversations with DPL staff and management, local community advisors and the DPL Board. It also reflects the collaborative work of the entire design team (engineers, consultants and technical experts).

Concept plans, imagery, narratives and building programs are included to describe the work packages in more detail, capturing this preliminary phase of work and providing background for the soon-to-be-onboarded contracting partner. This should serve as the basis for further development in the following phases of design.
2.0 PUBLIC ENGAGEMENT

2.1 Overall Summary
2.2 Staff and Management
2.3 Community and Board
2.4 Future Engagement
2.0 PUBLIC ENGAGEMENT

2.1 OVERALL SUMMARY

Outreach is essential in developing a vision for a new public library, one that meets the hopes and dreams of all Deschutes County residents. Gathering input from critical stakeholders can help steer design recommendations and help build supportive champions for the project along the way. To accomplish this, the team has begun a robust public outreach plan that will build upon outreach conducted during earlier phases of work leading up to the Bond Measure vote and continue through the forthcoming design phases, informing the development of the projects.
2.0 PUBLIC ENGAGEMENT

2.2 STAFF AND MANAGEMENT

During the Concept Phase, staff and management were engaged to provide feedback on all of the bond projects. The management team was included in bi-weekly design meetings to obtain regular feedback on progress. A virtual presentation for all staff was held with opportunity for live dialogue. Afterward a Miro board was open for comment for the following week. Nearly 500 comments from staff were collected with detailed notations relative to all project locations. Detailed summaries per branch can be found in the Appendix, with comments ranging across a few common themes including:

- Thermal comfort
- Acoustics
- Flexibility
- Outdoor spaces
- Operational efficiency
- Adjacencies
2.0 PUBLIC ENGAGEMENT

2.3 COMMUNITY AND DPL BOARD

A Community Advisory Committee (CAC) has been assembled by DPL, consisting of a wide range of community partners intended to inform all bond work, but primarily the new Central Library. The DPL board, consisting of five members, represents the entire county and branch locations. The team met with the CAC and the Board virtually to obtain feedback during the Concept Phase. Discussion questions included transit, accessibility, and outdoor amenities as well as more detailed questions surrounding the particulars of each branch location. Detailed meeting minutes can be found in the Appendix.
2.0 PUBLIC ENGAGEMENT

2.4 FUTURE ENGAGEMENT

Community engagement will continue over the coming months via a few key strategies:

- Online: recorded summary presentations describing the concept ideas for each location will be uploaded to the DPL website to reach more participants. Questions pertinent to the next phase of design work will also be available for participants on the website.

- Targeted: DPL has identified a series of community groups that will be engaged to obtain feedback from a more diverse group of residents, as these projects strive to create an inclusive and accessible experience. These sessions are just beginning to be scheduled and will begin to occur in October 2021.

- Interactive: physical pop-up displays will be placed at key locations in the community to obtain more organic, open-ended community feedback.

- Virtual/in person: regular design progress sessions will continue with DPL staff and management, the CAC and Board over the coming months and likely widen to include specific engineering and facilities experts and the CMGC.
3.0 BUILDING PERFORMANCE

3.1 Sustainability
3.2 Acoustics
3.0 BUILDING PERFORMANCE

3.1 SUSTAINABILITY

LEED Silver Goals

The Deschutes Public Library projects intend to pursue sustainability performance and goals consistent with a LEED Silver rating at minimum. However, at this time, the projects do not intend to officially document nor submit for LEED certification through a formal GBCI review.
3.0 BUILDING PERFORMANCE

3.1 SUSTAINABILITY

Summary

The following is a high-level summary of sustainability strategies pursued on these projects:

Energy
- The overall energy goal is to reduce greenhouse gas (GHG) emissions that stem from operational and embodied energy as much as feasibly possible. The new construction libraries will have a significantly greater opportunity to make GHG reductions compared to renovation scope projects.
- Reduction of whole-building energy consumption to meet or exceed the Architecture 2030 Challenge (80% savings vs CBECS) and a minimum of 50% savings compared to 90.1-2019 baseline. Consideration of possible on-site photovoltaics will aim the new construction projects to achieve net zero energy.
- Central Library proposes to meet an EUI of approximately 29. Redmond library proposes to meet an EUI of approximately 31. These values will be further refined as design progresses.
- For new construction library buildings: efficient HVAC equipment that is all-electric and operates without combustion. The feasibility of a geoechange system will be investigated. Existing libraries with renovation-only scopes will evaluate the feasibility of eliminating combustion-based water and space heating equipment where possible.
- Designing the new construction library projects with on-site photovoltaics (PV) and to be ready to accept energy storage complete with conduit, pathways, wiring and designating a location for required inverter and related equipment.
- Inclusion of energy metering equipment for all projects.
- LED lighting will be provided for all new and upgraded fixtures with appropriate photosensors, vacancy sensors and timeclock-controlled circuits as required by code to reduce energy use.
- Roofs will consist of high albedo, non-PVC materials to mitigate heat gain.
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- Roofs will consist of high albedo, non-PVC materials to mitigate heat gain.
- The team will evaluate opportunities for utilizing the state of Oregon’s 1.5% for Green Energy Technology fund for various building performance strategies including photovoltaics.

Landscape
- Effort will be made to reduce cut and fill and reduce the disturbance of the site as much as possible.
- Landscape will utilize native and natural species to reduce irrigation demand and support biodiversity.
- Irrigation demand will be reduced by at least 50% and zoned irrigation with a combination of temporary establishment and long-term irrigation will be used.
- The use of rainwater, stormwater or greywater for irrigation will be studied as design progresses.
- Design landscape to shade parking surfaces to reduce urban heat island effect.

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3.0 BUILDING PERFORMANCE

3.1 SUSTAINABILITY

Summary

Water
• Stormwater will be treated and infiltrated onsite to the greatest extent possible
• Reduction of outdoor potable water consumption to 50% below UPC baseline through landscaping design. The use of no potable water for irrigation will be evaluated
• Reduction of indoor potable water consumption to 35% below UPC baseline through a combination of efficient, low-flow and flush fixtures
• Efficient flush and flow fixtures with WaterSense or better performance
• The use of all-electric equipment for any water heating needs wherever possible
• The design team will investigate the use of reclaimed water (rain or grey water) for irrigation or flushing demand
• Inclusion of separate water metering equipment for indoor and outdoor demand uses

Materials
• Procurement of local and sustainable project materials through deliberate collection of Environmental Product Declarations (EPDs) and Health Product Declarations (HPDs)
• A preference for materials and products that demonstrate at least a 20% reduction of global warming potential (GWP) from an appropriate category baseline
• Diversion of a minimum of 65% of construction & demolition waste from landfills
• For Central and Redmond Libraries, the team is evaluating the use of sustainably harvested wood as the primary building structure and utilizing efficient engineered wood systems such as glue-laminated beams and dowel laminated timber
• Preference for wood from sustainably managed forests with certifications from Forest Stewardship Council. It is the intent that the general contractor will provide comparative pricing with FSC-certified wood from their suppliers for the team’s consideration
• Process excess rock in on-site rock crusher for use as structural fill

Occupant Health
• Development of an Indoor Air Quality Management Plan, exceeding ASHRAE 62.1-2010 guidelines for ventilation rates by 30% including MERV-13 filters at a minimum
• Design of regularly occupied spaces with access to natural daylight, views, and operable windows from a majority of these spaces. The use of glare and solar-control interior window shades is anticipated
• The use of materials and wet-applied products with no or low VOC’s and compliance with CDPH for low emissivity whenever possible
• Inclusion of wellness and lactation rooms
• All primary entrances will include permanent entryway systems or approved walk-off mats the length of at least ten feet in the primary direction of travel
• The team will investigate the feasibility of providing all-gender restrooms

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3.0 BUILDING PERFORMANCE

3.1 SUSTAINABILITY

Summary

Site & Transportation
- Provide a minimum 5% of total parking spaces as preferred parking for carpools / green vehicles
- Provide 2% of all parking spaces with electric vehicle chargers. Pre-wire, with associated conduit and pathways, a minimum 5% of total parking to be ready for electric vehicle charging
- Reduce parking surface area (at Central site) by reducing stall length form 20’ to 18’ where sidewalks are a minimum of 7’ wide and landscape allows for bumper overhang
- Reduce overall parking requirement (at Central Site) by 10% by doing any two of the following: providing a shower, doubling the required bike parking, providing a transit stop within 600’
- Consider high albedo (concrete) parking surfaces in lieu of low albedo asphalt to mitigate urban heat island effect

Zero Energy
- Exploration for Zero Energy feasibility for the Redmond and Central Library projects

Site Demolition
- Reference LEED requirements for salvage and waste diversion landfill
- The design team will evaluate the opportunity for materials reuse from the Redmond Library prior to demolition
3.0 BUILDING PERFORMANCE

3.2 ACOUSTICS

Summary

This report is a summary of the acoustical performance goals and preliminary design plan to optimize the experience for library patrons and staff.

The acoustical design plan will focus on the efficient design of partitions for speech privacy, sound absorptive finishes for noise control and speech intelligibility, and noise control for building systems and exterior traffic.

The design criteria for sound isolation, reverberation time, interior background noise, and environmental noise impact are based on the American National Standard Acoustical Performance Criteria, Design Requirements and Guidelines for Schools (ANSI S12.60-2010), the acoustic control section (801.3.3) of the 2018 International Green Construction Code (IgCC), and the Oregon state Department of Environmental Quality Division 35 Noise Control Regulations.

Drone photo of Central Library site near Highway 20
3.0 BUILDING PERFORMANCE

3.2 ACOUSTICS

Background Noise

The building envelope, interior spaces within the building, and building support systems, including mechanical, electrical, and plumbing systems, shall be designed and constructed such that the interior sound pressure levels created by the combination of building systems noise and exterior sound sources, under normal operation with windows closed and no active sound masking systems, do not exceed the values specified in Table 1.

ANSI S12.60 notes that for core learning space with enclosed volumes not greater than 20,000 ft³ the noise level shall not exceed 40 dBA for more than 10% of the noisiest hour, and shall not exceed 45 dBA for ancillary spaces or core learning spaces greater than 20,000 ft³. The steady background noise level from HVAC systems and other building utilities shall conform for all operating modes (for example: cooling, heating, ventilation) at maximum operating conditions, and all systems operating simultaneously (for example: lights on and maximum fan speed). Unsteady background noise levels from plumbing systems operating at their noisiest condition shall also conform to the limits, taking into consideration their normally limited operating time within any one hour. These performances apply for the childcare, meeting, and community spaces.

Table 1: Maximum Interior Background Sound Pressure Levels from Building Systems and Exterior Sound Sources

<table>
<thead>
<tr>
<th>Room Type</th>
<th>Hourly Average Sound Pressure Level (Leq)</th>
<th>Maximum Sound Pressure Level (LMAX - slow time weighting)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dBA</td>
<td>dBC</td>
</tr>
<tr>
<td>Corridors and lobbies</td>
<td>45</td>
<td>65</td>
</tr>
<tr>
<td>Open-plan offices &amp; collaborative/active spaces</td>
<td>45</td>
<td>65</td>
</tr>
<tr>
<td>Service and support areas</td>
<td>45</td>
<td>65</td>
</tr>
<tr>
<td>Enclosed offices</td>
<td>35</td>
<td>60</td>
</tr>
<tr>
<td>Conference rooms, Meeting and Banquet Rooms</td>
<td>35</td>
<td>60</td>
</tr>
<tr>
<td>Library study and reading areas</td>
<td>35</td>
<td>60</td>
</tr>
<tr>
<td>Event/Auditorium</td>
<td>30</td>
<td>55</td>
</tr>
<tr>
<td>Classrooms* with enclosed volume &lt;20,000 ft³</td>
<td>35</td>
<td>60</td>
</tr>
<tr>
<td>Classrooms* with enclosed volume &gt;20,000 ft³</td>
<td>40⁺</td>
<td>60</td>
</tr>
<tr>
<td>and all ancillary learning spaces</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Adopted from ANSI S12.60, and values not noted in that standard are adopted from similar commercial space uses.
b. The interior noise level due to buses and airplanes can be 5 dB louder than the noted hourly average sound pressure level (Leq) and the maximum sound pressure level can be 10 dB louder than the values noted above.
c. 2019 ASHRAE HVAC Applications Handbook, Chapter 49, Table 1 – Design Guidelines for HVAC-Related Background Sound in Rooms notes Noise Criteria (NC) levels that are 5 points less than the dBA levels noted above. This table notes the above LEQ dBA and dBC values for each room type.
3.2 ACOUSTICS

Reverberation Time

Reverberation Time (RT) is the time it takes for reflected sound to be absorbed in a space. This value has a direct effect on speech intelligibility, the ANSI guidelines defines the maximum reverberation times recommended based on the volume of the core learning space at the 500 Hz, 1 kHz and 2 kHz octave bands: the maximum time for core learning spaces less than 10,000 cubic feet is 0.6 seconds and for core learning spaces between 10,000 and 20,000 cubic feet is 0.7 seconds. The design criteria for volumes greater than 20,000 cubic feet is dependent on the use and ceiling height of the space; the criteria are outlined with the recommendations for larger spaces.

<table>
<thead>
<tr>
<th>Room Type</th>
<th>Maximum Reverberation Time in octave bands 500, 1000, and 2000 Hz (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom</td>
<td></td>
</tr>
<tr>
<td>with enclosed volume &lt;10,000 ft³</td>
<td>0.6</td>
</tr>
<tr>
<td>Classroom</td>
<td></td>
</tr>
<tr>
<td>with enclosed volume &gt;10,000 ft³ and &lt;20,000 ft³</td>
<td>0.7</td>
</tr>
<tr>
<td>Classroom</td>
<td></td>
</tr>
<tr>
<td>with enclosed volume &gt;20,000 ft³</td>
<td>0.8</td>
</tr>
<tr>
<td>Library study and reading areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>Event / Auditorium</td>
<td></td>
</tr>
<tr>
<td>Enclosed offices</td>
<td>0.6</td>
</tr>
<tr>
<td>Conference rooms</td>
<td>0.6</td>
</tr>
<tr>
<td>Open-plan office</td>
<td>0.6</td>
</tr>
<tr>
<td>Common Areas &amp; Lobby</td>
<td>1.0</td>
</tr>
</tbody>
</table>
3.0 BUILDING PERFORMANCE

3.2 ACOUSTICS

Sound Isolation

Wall and floor assemblies serve as barriers to sound from adjacent spaces, environmental noise, and noise generated within a space. The performance of each assembly differs based on the source of the noise and the sensitivity of the receiver. Both the source and the receiver vary with each project, and for each space in the building. Designing walls that separate classroom and lecture spaces does require a higher performance assembly for sound isolation.

The following table outlines the minimum sound transmission class (STC) ratings per the ANSI S12.60 school guidelines based on room adjacencies and ASHRAE 189.1 for commercial occupancies. STC or Sound Transmission Class is a single number rating that represents the decibel reduction provided by the separating assembly; the non-normalized field-tested performance is Noise Isolation Class (NIC). IIC or Impact Insulation Class is a single number rating that represents the non-normalized field-tested performance is Noise Isolation Class (NIC). IIC or Impact Insulation Class is a single number rating that represents the footfall sound transmission through a floor-ceiling assembly; the non-normalized field-tested performance is Impact Sound Rating (ISR). The non-normalized measurements represent the occupants’ perception of airborne and structure-borne sound transmission within the finished spaces.

Interior wall and floor-ceiling assemblies separating adjacent interior spaces shall be designed and constructed to provide airborne sound isolation that complies with the minimum cSTC (composite Sound Transmission Class – rating of all components of the total assembly as a whole) values specified in Table 3. For wall and floor-ceiling assemblies separating different room types, the greater of the two cSTC values shall apply. For floor-ceiling assemblies separating different room types, the IIC value associated with the room on the story below shall apply.

Notes on Entry Doors for Core Learning Spaces (ANSI S12.60: 4.5.5)
To conform to the STC requirements for composite walls, entrance doors into classrooms or other core learning spaces would be expected to have laboratory STC ratings of 30 or more in their operable condition. Provisions should be made to ensure that the perimeter seals of sound rated doors are well maintained. Seals for entrance doors should be inspected and adjusted, as necessary, every six months. The gaskets of door seals should never be painted.

### Table 3: Minimum Sound and Impact Sound Ratings

<table>
<thead>
<tr>
<th>Room Type</th>
<th>cSTC&lt;sup&gt;d&lt;/sup&gt;</th>
<th>IIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference Rooms</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Enclosed Offices</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Classroom to Classroom</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>Classroom/Office/Conference Room to Restroom</td>
<td>53</td>
<td>-</td>
</tr>
<tr>
<td>Classroom/Conference Room to Corridor (no door)</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Restroom to Classroom/Conference Room/Office</td>
<td>53</td>
<td>50</td>
</tr>
<tr>
<td>Classroom/Office/Conference to Mechanical Room</td>
<td>60</td>
<td>-</td>
</tr>
</tbody>
</table>

<sup>c</sup> For operable partitions and walls containing doors, windows, or both, the minimum cSTC ratings shall be 5 less than the values listed in Table 3.
<sup>d</sup> The minimum composite STC values shall be 15 less than the cSTC values specified in Table 3 for walls having doors that open to corridors or open offices.
3.2 ACOUSTICS

Sound Isolation

Chapter 340-035-0035 Noise Control Regulations for Industry and Commerce Standards

Existing Noise Sources. No person owning or controlling an existing industrial or commercial noise source shall cause or permit the operation of that noise source if the statistical noise levels generated by that source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 7, except as otherwise provided in these rules.

(b) New Noise Sources:
  • (A) New Sources Located on Previously Used Sites. No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies.
  • (B) New Sources Located on Previously Unused Site:
    ° (i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, except as otherwise provided in these rules.
    ° (ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b)–(f), (j), and (k) of this rule, shall not be excluded from this ambient measurement.

Table 7 relates to new or altered equipment for the Redmond, Downtown, La Pine, East Bend, Sisters, and Sun River. Table 8 relates to new HVAC equipment on the property and the impacts to adjacent neighbors for the Central Library location.

<table>
<thead>
<tr>
<th>OAR 340-035-0035</th>
<th>Table 7</th>
<th>Existing Industrial and Commercial Noise Source Standards Allowable Statistical Noise Levels in Any One Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7:00 a.m. – 10:00 p.m.</td>
<td>10:00 p.m. – 7:00 a.m.</td>
</tr>
<tr>
<td>L10 – 55 dBA</td>
<td>L10 – 60 dBA</td>
<td></td>
</tr>
<tr>
<td>L10 – 60 dBA</td>
<td>L12 – 55 dBA</td>
<td></td>
</tr>
<tr>
<td>L10 – 75 dBA</td>
<td>L1 – 60 dBA</td>
<td></td>
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<tr>
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<tr>
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<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>L10 – 75 dBA</td>
<td>L1 – 60 dBA</td>
<td></td>
</tr>
</tbody>
</table>
4.0 PROJECT SCHEDULE
4.0 PROJECT SCHEDULE

Project Schedule

The Master Development Schedule prioritizes work on the new Central and Redmond libraries. As new structures, the design, permitting and construction will have longer durations than the renovations. Design on both new libraries will begin immediately with Schematic Design completing at the end of 2021.

The Central Library has an aggressive schedule and is planned to begin construction in fall of 2022 with completion in mid 2024. The Central Library will require a Text Amendment process with the City of Bend and coordination with ODOT roundabout construction. The Central Library must be complete before work begins on the Downtown Bend Library so that central library district functions currently housed in the Downtown Bend Library can be relocated prior to closing for construction.

The Redmond Library design phases will be concurrent with the Central Library. With a smaller, less complex building, construction is anticipated to begin in spring of 2023 and complete mid-2024.

Design and construction on the branches will be spread out to reduce the impact of multiple branches being closed simultaneously. The current schedule shows completion of all the branches, except for Downtown Bend, by mid-2024. Construction on Downtown Bend will follow completion of the Central Library with completion of construction of this final part of the DPL Bond Program in early 2025.

Deschutes Public Library Project Schedule
4.0 PROJECT SCHEDULE

Project Schedule

Concept Design
- Identify design goals per location
- Locate new buildings and site elements on the site
- Collect functional criteria
- Organize functional areas within buildings
- Develop intent for look and feel of new building size and shape
- Identify scope of work for each location
4.0 PROJECT SCHEDULE

Project Schedule

Deschutes Public Library Project Schedule: Schematic Design

SCHEMATIC DESIGN

Depict walls, doors and rooms!
Determine building systems (structural, mechanical electrical, skin)
Lay out collection and work areas
Develop look and feel of interior and exterior
Submit for site development permits
4.0 PROJECT SCHEDULE

Project Schedule

Deschutes Public Library Project Schedule: Design Development

- Develop technical aspects of the building systems
- Select interior materials
- Begin furniture, shelving and equipment selection
- Finish gathering major input
4.0 PROJECT SCHEDULE

Deschutes Public Library Project Schedule: Construction Documents

CONSTRUCTION DOCUMENTS
Document the building such that it can be built
Finish furniture, shelving and equipment selection and placement
Submit for building permit
### Project Schedule

**Deschutes Public Library Project Schedule: Construction**

#### Key Dates:
- **September 2021:** CAC & BOARD PRESENTATION (CEN / RED / DTB / BRN)

#### Schedule:
- **2021:**
  - Concept Design
  - Schematic Design
  - Design Development
  - Construction Documents
- **2022:**
  - Design Development
  - Construction Documents
- **2023:**
  - Construction
- **2024:**
  - Project Completion

**Tasks:**
- Order furniture, shelving and equipment
- Answer questions from the contractor
5.0 COST ESTIMATE / BUDGET
5 COST ESTIMATE / BUDGET

5.1 BOND / PREDESIGN ASSUMPTIONS

An estimate has not yet been prepared to reflect the scope of work defined in the Concept Design Document. An updated estimate that reflects the conceptual designs and confirms that the current scope aligns with the total program budget will be completed based on this document and published separately.

The Program Budget Document, published on 6/25/2020 was used as a guide to develop the Concept Design with a few amendments. Since the Program Budget document was published, DPL was able to add $2 million to the branch construction budgets as a result of how the bond was structured. That additional amount will be distributed among the small branch renovations. A renovation to the East Bend branch has been added to the program. Escalation figures, particularly for the smaller branches, do not reflect the current Master Development Schedule and actual completion dates will result in larger escalation numbers in the Concept Design estimate that will follow.

See Appendix 7.2 for Master Development Schedule.

### SUMMARY PROGRAM BUDGET

Deschutes Public Library

6/25/2020

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Deschutes Public Library Summary Program Budget
6.0 WORK PACKAGES

6.1 Central Library
6.2 Redmond Library
6.3 Downtown Bend Library
6.4 Branch Libraries
6.1 CENTRAL LIBRARY

A  Project Description
B  Site Analysis
C  Building Analysis
D  Building Systems
E  Sustainability
A. PROJECT DESCRIPTION

Site and Context

The site selected for the new Central Library is an undeveloped parcel at the north edge of Bend, OR. It is an undeveloped 13-acre parcel, just west of Highway 20 at the intersection of NW Robal Lane. Its central location with easy access to Highway 20 will provide the entire Deschutes County with convenient access to this flagship project for the library system.
A. PROJECT DESCRIPTION

Building Project & Goals

The new Central Library will be the county-wide destination for library services as well as system operations. A wide variety of indoor and outdoor spaces will be provided to serve residents now and for decades to come, including the following: expanded collection and seating areas, flexible creative and coworking spaces, youth program and collections areas, event spaces and outdoor seating and convening areas. Centralized staff areas and an Automated Materials Handling (AMH) system will enable staff to operate more efficiently as they provide increased services to users of this growing county.

The size of the building will continue to be refined over the coming design phases and meet the criteria established by the goals of the bond measure, approved by voters in the Fall of 2020.

The Deschutes Public Library System plans to use this new facility to centralize library services that are currently spread out over several locations.
B. SITE ANALYSIS

Site Character

The site includes some low-slope hills covered with vegetation. The existing trees are mostly small-to medium-sized Junipers. There is a relatively small rise in elevation near the middle of the portion of the site south of Robal Lane which provides prospect over the surrounding landscape.

The proximity to Highway 20 gives the region easy access to the site, however it also brings with it the road noise and particulates associated with highways, a challenge that the concept design responds to.
B. SITE ANALYSIS

Site Goals

The site purchased by DPL for the Central Library sits directly west of Highway 20 and bisected by the future extension of Robal Lane. Both Britta Street and Jamison Street will be extended to provide access to the site on all sides. Currently, the undeveloped site has a high point in the southwest corner, and a low point on the east side. The community feels strongly that some of the site should retain a landscaped character (visually and functionally) as the surrounding area is already—or soon to be—developed.

The portion of the site south of Robal is larger and has more vehicular access potential, so it is being considered for the new building and required parking. The area north of Robal may remain undeveloped or provide overflow parking as needed.
On the east side of Highway 20, there are currently large scale (“Big Box”) retail destinations. To the south is a Fire training Center, and to the west is a residential community. There are plans for a large commercial and multi-family development on the northeast side of the future roundabout. Bike trails are planned on both sides of Highway 20 to serve this area and beyond.
B. SITE ANALYSIS

Mountain Views

The Central Library site affords the project with the opportunity to take advantage of amazing views, especially mountaintops to the northwest, and especially from the upper levels of the building.
B. SITE ANALYSIS

Site Analysis Diagram

The illustrative analysis shown at right describes the site influences and informed the team’s placement of usages on the site. Surrounding vehicular access, with future road extensions bound the site. Large scale retail lives on the east side of the highway, with lower-scale civic and residential structures to the south and west. Mountain views are possible to the west and northwest, as well as toward Pilot Butte to the southeast. Solar orientation will be an important consideration in order to maintain access to daylight and views while mitigating heat gain and glare.
B. SITE ANALYSIS

Site Context Section Diagram

The contextual section shown below highlights the potential for the new library to accomplish several things through its orientation. It could buffer traffic noise from the highway creating a more protected zone on the west side of the building. This orientation could also provide high visibility of the library’s expression to drivers passing by, and give views to the mountains from the interior.
B. SITE ANALYSIS

Site Concept Plan

The triangular site will be bisected by the extension Robal Lane. The portion of the site north of Robal is not large enough for the program requirements of the Central Library. It is therefore proposed to be the location for overflow parking for peak times, leaving the portion of the site south of Robal for the main programmatic elements such as the library building, main visitor parking, and staff parking.

The site program elements have been located in order to create an intuitive and cohesive experience for the user, take advantage of views and solar orientation, and also comply with City of Bend requirements.

Building Location
The City of Bend Development Code requires one of the building facades to be located between 10ft and 80ft from Highway 20, which necessitates the building to be in the vicinity of the eastern edge of the site.

Access
Visitor parking is located in the northwest area of the site, close to where vehicles will enter from Britta St. The main entry to the building will be visible from the visitor parking.

South of the building is the ideal location for the more utilitarian access to the building: staff parking, loading dock, as well as the proposed visitors library service drive-up window. This area can be accessed from Jamison Street.

Outdoor Room
The southwest area of the site is envisaged as an outdoor room. It will provide outdoor space separated from vehicles for the library as well as for the surrounding community.
6.1 CENTRAL LIBRARY

B. SITE ANALYSIS

Illustrative Site Plan

The illustrative site plan shown here further describes the previous site usage diagram. Required parking is shown on the northwest portion of the site, heavily landscaped and configured to minimize its appearance from the interior and exterior. Vehicular access is from Britta to the west, located at a logical elevation in the road grading, and far enough from the intersection with Robal.

A portion of the building is located within the required 10’/80’ foot setback from the highway and consists of one building mass. Upper floors are rotated to capture the views and provide covered invitation at the main entry and drive-up book window. Outdoor program space is located directly adjacent to the library entry and event space inside—allowing for spill out connection.

The higher point of the site’s topography is located on the southwest portion of the site, allowing the building to nestle into grade, partially earth sheltered, creating the opportunity for multiple levels of site access and enjoyment. On the east side of the site is the required bike trail, running parallel to Highway 20.

Staff, deliveries, services and drive-up patrons will enter the site from the south.
B. SITE ANALYSIS

Civil Narrative

General
The project site consists of a 13-acre, triangular-shaped piece of property at the intersection of US Highway 20 and Robal Lane in Bend, Oregon. The site is further identified as Deschutes County tax lot 17 12 17A-200. The property is undeveloped and is covered with a mix of native juniper trees and scrub brush. Soil conditions consist of a shallow layer of silty sands (typically 0-36" thick) underlain by basalt bedrock. There is roughly 15 feet of topographic relief from top of an outcropping in the SW quadrant of the site to a low point in the SE quadrant of the site.

Access
The eastern edge of the site fronts on US Highway 20 but no direct access to the highway will be permitted by ODOT (Oregon Dept. of Transportation). ODOT is preparing to construct a new roundabout at the intersection of Highway 20 and Robal Lane within the next two years and it is planned that Robal Lane will separately be extended west from the roundabout through the DPL property as part of the Central Library project. This extension of Robal Lane is identified as an arterial roadway on the City of Bend’s TSP (Transportation System Plan). The western edge of the site will take frontage onto a planned extension of Britta Street by the Central Library project. This extension of Britta Street is identified as a collector roadway on the City’s TSP. The southern edge of the site fronts on the existing undeveloped 40-foot right of way of Jamison Street. Jamison Street is identified as a local street on the City’s TSP and will require dedication of an additional 20 feet of right of way by DPL.

In the Central Library concept design, a total of four connections are proposed from the DPL parcel to adjacent streets. A single access onto Robal Lane from the overflow parking lot and a single access onto Britta Street for the primary parking and main building entry. Two accesses onto Jamison Street are proposed for staff parking, drive-through service window, and delivery vehicles. This is consistent with the City of Bend’s policy that access be taken from the lower-order streets as much as practical.
6.1 CENTRAL LIBRARY

B. SITE ANALYSIS

Civil Narrative

Grading and Drainage
The concept grading plan places the building’s main level finish floor elevation (FFE) approximately 1.0 foot below the existing grade of the adjacent highway. This proposed FFE will be roughly 4.0 feet above the finish grade of Robal Lane and will be very close to the finish grade of the Jamison Street improvements. The mass grading to accomplish this will require that approximately 34,000 CY of native material be excavated from the high areas and then crushed, processed, and placed as engineered fill in the low areas. It is anticipated that the earthwork will “balance” with no net import or export of soil material needed aside from topsoil.

The City of Bend has no municipal storm sewer system and all properties are required to contain and dispose of storm water on site. This will be accomplished with a proposed system of “drywells” throughout the site that will infiltrate all storm water into the ground. Such systems are common throughout Central Oregon and have been used for decades with great success. Although the shallow basalt bedrock requires drilling and blasting to construct such drywells, the brittle basalt fractures and typically drains well. The drywells will be permitted by the Oregon Department of Environmental Quality (DEQ).
B. SITE ANALYSIS

Site Utility Plan

Utilities
There are two existing City of Bend water mains stubbed to the site, a 12-inch main at the SE corner of the site and an 8-inch water main at the SW corner of the site. Per City of Bend requirements, it is proposed that the project will connect these two water mains with a new 12-inch main within the Jamison Street right of way. This will be used to provide both domestic and fire service to the building. Additionally, the project will be required to construct an extension of the 8-inch water main within Britta Street per the city’s “to and through” policy.

There is an existing City of Bend 8-inch gravity sewer main stubbed to the SW corner of the site. However, the existing sewer is too shallow to provide gravity service to the proposed Central Library. A temporary, on-site sewage lift station will be constructed in the NW corner of the site to serve the library which will pump south through a force main within Britta Street to the existing gravity main. As City sewer becomes available within the properties to the north and they are developed in the future, a gravity sewer connection will then be possible and the on-site lift station can then be eliminated.

Dry utilities are currently stubbed to the SW corner of the site within the existing Britta Street right of way.

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<td>Telephone</td>
<td>Lumen</td>
</tr>
<tr>
<td>Cable TV</td>
<td>Bend Broadband</td>
</tr>
</tbody>
</table>
B. SITE ANALYSIS

Landscape Narrative

Site Design
The Central Library will be located on an undeveloped parcel at the north end of Bend on Highway 20. This portion of Bend is rapidly developing and is likely to see a significant increase in residential development in addition to the large retail stores that already occupy the area. The site itself has gently rolling topography and is predominantly occupied by juniper trees - a native species that has been spreading invasively and taking over the sagebrush steppe.

Given the site’s immediate context on Highway 20, it is important that the entire site be thoughtfully designed to support the library’s purpose as a place of learning, study, rest, and exploration. The building is intentionally sited so that it will be visible from Highway 20 but oriented to the natural environment and mountain views to the west.

As a significant community destination, the Central Library site is designed to welcome people by all means of arrival (car, bus, bicycle, or foot.) Local connections will be made with the extension of Robal Lane and NW Britta Street, as well as the ODOT multi use trail which will run through the east side of the site. Parking areas will prioritize safe pedestrian and bicycle circulation to the library’s front door, and will include numerous trees, plants, and natural materials in order to establish an environment appropriate for a library.
B. SITE ANALYSIS

Landscape Narrative

The site is also designed to support the library by providing outdoor spaces for visitors to use, extending the use of the site and keeping it active throughout the day. Multiple flexible use-spaces can be used for community events, outdoor classes, and areas for eating, play and exploration. All programmed areas of the site will be accessible and designed to support multi-generational families and library visitors as well as staff. Outdoor spaces are sited to maximize environmental comfort throughout the year - the main Library entry is covered and sheltered from southern winter winds. The majority of other outdoor gathering areas are located west of the building where they will receive ample sun, are shielded from highway noise and particulates, and can be used throughout the year.

Because much of the site will be heavily impacted by construction, the project will prioritize sustainable site development practices and aims to establish a resilient and predominantly native landscape on the impacted portions of the site. This approach will create a meaningful sense of place and connect visitors to the regional landscape, while also providing a resilient and low maintenance approach. Areas close to the building may include learning gardens with ecologically and culturally significant plants. Outer areas of the site will be less intensive and will include native plants known to be successful in urban settings. Site restoration may also provide a unique opportunity to partner with community groups with knowledge and interest in the topic and could help build community and support stewardship of the site.
B. SITE ANALYSIS

Landscape Narrative

PROGRAM LEGEND

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<td>BD</td>
<td>BOOK DROP</td>
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- Primary Ped. Access
- Optional Ped. Access
- ODOT Multi Use Trail


**B. SITE ANALYSIS**

**Landscape Narrative**

**Parking and Arrival**

Parking is divided into three lots. The main visitor lot north of the library has access off NW Britta Street while staff parking is south of the library, with access off NE Jamison Street. Overflow parking is north of Robal Lane and connected by a crosswalk. With parking exemptions allocated for bike parking, bike commuting, carpool spaces and a 1:1 trade for street parking along NE Jamison street, 231 parking spaces are required for the library, which has 95,000 square feet of gross floor area.

The parking lots are designed to be curbless, with curb stops along planted medians that break the lots into smaller bays. This will allow stormwater to flow directly into planted areas and infiltrate into the ground. A 15’ wide pedestrian promenade made of specialty pavement runs down the center of the main visitor parking lot, connecting paved walkways from the medians and guiding visitor arrival to the main entry. Drive aisles are vehicular-grade asphalt or concrete, with regional and natural materials integrated into the parking spaces of the visitor parking lot. Pedestrians can also access the site directly off the NW Britta Street sidewalk. This 12’ wide concrete path may incorporate a protected bike lane that extends to the drop off zone where bicyclists will then dismount. A drive-up library service window is provided on the south side of the building with access from NE Jamison street. Signage along NW Britta and NE Jamison streets will guide vehicles to the drop off.

All parking lots include pole lighting, with pedestrian scale lighting along the pedestrian promenade and the entry from Britta.

A proposed 12’ wide ODOT multi use trail runs along the eastern side of the site with three trail connections. This trail will be directly connected to the front door of the library where a large bike parking area is covered by the building overhead. At NE Jamison Street, a connection from the trail to the sidewalk will allow Library staff direct access to the back of the building. This area includes a small staff bike parking area.

Bus stop(s) are being considered along NW Britta Street just south of the main entry drive and within the main visitor parking lot at the end of the drop off lane. A covered bus shelter would be provided on NW Britta Street. The station along the main entry drive could be covered by the building above.

**Covered Entry Plaza**

The main entry plaza provides open and accessible circulation to the front entry of the library and book drop. The plaza is covered by the building overhead and includes a flexible area for rotating public installations. Plaza is pedestrian-grade specialty pavement such as concrete unit pavers, special finish concrete, or stone pavers. Bollards, signage and outdoor furnishings with integrated lighting support plaza circulation and gathering, and help make the space feel welcoming throughout the day.

**Outdoor Amphitheater and Event Space**

The outdoor amphitheater and event space act as an extension of the adjacent indoor event space. This area includes stepped seating made of regional stone or textured concrete, as well as a large and flexible event space at the bottom that can be partitioned off for various sizes. Paving will match the entry plaza and may be an extension of paving found inside the building. Amphitheater seating is made of natural stone. A low stone or concrete retaining wall retains the hill south of the entry walk, and supports the northern edge of the amphitheater along with a planted side slope. A paved, accessible walkway leads up alongside the amphitheater to the outdoor classroom and picnic area above.

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Deschutes Public Library Concept Document

The Miller Hull Partnership | Steele Associates

56
B. SITE ANALYSIS

Landscape Narrative

Outdoor Classroom and Picnic Area
Multiple gathering areas sit west of the library at the naturally occurring highpoint of the site. Low seat walls made of regional stone retain the slope as needed and accessible paths connect the outdoor spaces and invite visitors to explore areas of restored native planting. Picnic benches, natural play elements and learning gardens can be found in these areas. Concrete and aggregate paths are integrated with natural stone boulders or inlaid stone. There may be potential to repurpose any available large trees that would otherwise be removed from the site, as interactive play structures or site features.

Staff Break Area
Located adjacent to the staff entrance, the outdoor staff break area will include multiple picnic benches, bike racks and pedestrian-grade concrete pavement. The area is buffered from the surrounding loading dock and parking lot with evergreen planting, which screens views out.

Xeriscape Vegetated Roof
The xeriscape vegetated roof will use a Hydrotech or similar system. For planning purposes, 50% of the vegetated roof can be considered “extensive”, with 4-6” of soil and groundcover planting. The other 50% can be considered “intensive”, with 6-18” of soil in support of native meadow, shrubs or perennials near occupiable spaces. Planting includes sedum and native drought tolerant plants with lava rock and gravel integrated throughout.

Maintenance of the vegetated roof may include irrigation, hand weeding, fertilizing, pruning and replanting. Watering and weeding will be especially important during the first two years of the xeriscape vegetated roof. Inspection of drains and waterproofing membrane should be done on an annual or semi-annual basis. This includes removal of debris and inspection of joints, borders and other vertical components penetrating the roof.

Planting and Irrigation
Areas adjacent to the building will be more heavily planted. Outer areas and parking lot medians will be planted with native trees, shrubs, and groundcovers that can withstand urban conditions. Any restoration of the undisturbed site west of the library and north of Robal Lane will include selective preservation of significant existing trees.

The developed areas of the site will have a full irrigation system, with particular focus on providing irrigation to trees and planting near the building. Zoned irrigation will allow for areas to be turned off after establishment. The xeriscape vegetated roof will also have a full irrigation system, to support establishment and times of extreme drought. Either overhead spray heads or drip irrigation will be used, based on growing medium characteristics and plant needs.

Rooftop Open Spaces
Rooftop terraces and paths will have a pedestal paver system or poured concrete paving depending on the building’s waterproofing. Required railings are integrated with planter boxes and lean rails and either align with the edge of the occupiable spaces or are set back within the xeriscape vegetated roof and away from the roof’s edge. Integrated seating and furnishings frame the terraces.
6.1 CENTRAL LIBRARY

B. SITE ANALYSIS

Development Code

Applicable Code
City of Bend Development Code
August 4, 2021

Zoning
When annexation, zoning change, and lot line adjustment processes are complete, the Central Library parcel is anticipated to have a zoning designation of CG (General Commercial District). The following requirements are from the Bend Development Code dated August 4, 2021.

Permitted Use
The proposed land use (main library) is specifically noted as a permitted use in a CG zone.

Development Standards, CG Zone
All street frontages of the parcel will have a Minimum Front Yard Setback of 10 feet.

The primary street frontage (the property line at the Highway 20 Right-of-Way) will have a Maximum Front Yard Setback of 80 feet.

The Maximum Building Height is 55 feet, measured above average finish grade.

Within a CG zone, there are no requirements for: Minimum Rear Yard Setback, Minimum Side Yard Setback, Maximum Lot Coverage, Minimum Floor Area Ratio, or Maximum Building Footprint.

Parking Requirement
The basic parking requirement for the Central Library is 1 space per 350 square feet of gross floor area. (Public and Institutional Uses – Government – point of service intended to serve the entire City). At 95,000 sf, the project would be required to provide 271 spaces.

In addition, 27 bike covered spaces will be required (1 bike parking per 10 vehicle parking spots) The Bend Development Code does allow for parking count reductions, to a maximum of 10% total reduction. Those options are being explored and include: designating carpool spaces, increasing bike parking, and providing showers and lockers for employees.

DPL is also in the process of commissioning a parking and traffic study for this site.

Drive-up Window
The space layout and programming effort of this concept design will form the basis of determining with the City the trip rate anticipated for the proposed library service drive-up window.
C. BUILDING ANALYSIS

Massing Concept

The building opens up a large portion of the public spaces to maximize the view opportunities west of the site. The building splits the program into two volumes and orients each according to its programmatic needs.

The lower volume is nestled into the sloped site and contains the main entry space, the large gathering spaces for events, as well as staff and support area.

The upper volume is similar in size and shape to the lower volume, however it has been rotated counterclockwise to take maximum advantage of the views. This rotation also creates generous covered outdoor space below at the main entry as well as the drive-up library service window. The upper volume houses the collections as well as creative spaces, study spaces, etc.

The building massing successfully complies with Development Code by ensuring that one building facade is between 10 and 80 feet from the east property line running parallel with Highway 29.
C. BUILDING ANALYSIS

**Floor Plans - Level 1**

At Level 1, visitors are welcomed to the main entry of the building via a large covered outdoor space. The entry will be a large dynamic space where people can get excited about their visit. It will include display areas, a clear route to other areas of the library, Holds, Book Drop, and much more.

Near the center of the building will be the stair and elevator core that extends up through all levels of the building. The restrooms will always be near this area, giving visitors easy wayfinding as they move through the building.

West of the entry will be the event spaces. Currently the design calls for two flat-floor event spaces that can be combined into one space for larger events. In addition, this area will have a foyer zone to accommodate groups of people as they gather before and after events. A catering kitchen will be nearby.

East and south of the entry, Level 1 is dedicated to Staff and Support. This includes spaces such as: workspace for sorting, the automatic materials handler, enclosed offices, open work stations, meeting spaces, the drive-up library service window, access to the service elevator, staff break room, staff restrooms and showers, facilities and maintenance areas, mechanical/electrical/plumbing spaces.

Due to the ceiling height required for the event spaces and main entry, the staff area is able to have a mezzanine allowing that program to be distributed over two floor levels.
C. BUILDING ANALYSIS

Floor Plan - Level 2

Level 2 enjoys attributes of both the upper volume and the lower volume. It has the orientation to great views of the upper volume and also has adjacency to roof terrace and xeriscape green roof that will cover the top of the lower volume.

North of the central core area will be the Childrens collection, including a dedicated storytime area.

Close to the central core will be a display area and Teens.

A creative zone is planned south of the core housing space for classes, maker space, tech spaces, etc.
C. BUILDING ANALYSIS

Floor Plan - Level 3

Level 3 will get the visitor up to a height above grade to maximize the great views that the upper volume is oriented towards (Refer to Section B Site Analysis - Mountain Views) Level 3 is planned to be a quieter floor for reading, study, and contemplation.

North of the central core area will be Nonfiction and study areas.

Wrapping the central core will be a display area and Fiction.
This building section shows preliminary opportunities for interconnectivity within the future library via a central open stair. A tall ground floor program allows for event space and staff mezzanine option. Outdoor terraces are shown on top of the ground floor, for expanded programming or quiet reading. This section indicates three stories of library program to fit below the required building height limit with the option for mechanical equipment above on the roof.
This view, taken from Highway 20 driving north, shows the future library. The lower portion of the building nestles into the topography, and the upper floors will put library activities and energy on display for all who travel this busy route.
C. BUILDING ANALYSIS

Exterior Perspective from Bike Path

This view, taken from the future roundabout, shows the library’s upper and lower forms; the lower nestled into the topography and the upper angled toward the views creating a dynamic presence at this important intersection. Landscaped parking and bike trail are in the foreground.
As library visitors head from the parking lot toward the building entry they will see the outdoor gathering space and gently terraced amphitheater to the right. The dramatic covered porch provides respite from the weather as well as another potential gathering space. Library activities are visible within on both the ground and upper levels.
The new Central Library represents a long-term investment as a destination building bounded by residential, large scale commercial uses situated along a state highway. As such, the building needs to be legible for fast-moving vehicles who pass the site, while also being welcoming at a pedestrian scale. The high desert region of Central Oregon has a distinct earthy palette of vegetation and geology, with expansive views to surrounding rugged topography. The new Central Library, as the flagship for the DPL system, wants to convey a modern, forward-thinking expression: iconic and distinct, yet at home in the high desert context. The following exterior materials are being considered to accomplish this:

- Concrete or stone ground floor enclosure, with texture and durability at the pedestrian level
- Aluminum or fiberglass window systems
- Wood soffits
- Areas of metal panel to meet required window to wall ratio on the upper 2 floors and mechanical enclosure
The interior of modern libraries needs to be durable and easy to maintain, withstanding daily public traffic. At the same time the interior environments need to address the variety of experiences living together under one roof. To allow this to occur successfully, acoustic control will be essential, as well as the desired adjacencies described within.

The following finishes will be incorporated to support the program uses:

- Polished concrete topping slab at radiant flooring areas (there may be select areas of carpet over radiant floor, if deemed to be thermally appropriate for radiant heating/cooling)
- Resilient floor will be used at the staff work areas to address ergonomic support and acoustics
- Carpet tile will be incorporated at raised access floor areas
- Universal restrooms will utilize ceramic tile at walls and floor, trough sinks, and full-height partitions to maximize privacy
- Typical wall finish to be painted drywall, with wall protection provided at the staff work areas
- Aluminum window systems will be provided for interior glazing applications including operable walls

- If the deck is constructed of mass timber, it is intended that the wood structural deck will be exposed as much as possible, with the exception of acoustic clouds or required systems concealment
- The central connecting stair will be constructed of exposed steel frame and custom decorative railing
- Wood acoustic paneling will be used at large event spaces, as well as fabric wrapped or felt acoustic treatment
- Areas of acoustic ceiling tile (ACT) may be required in smaller meeting/tutoring rooms as well as the staff areas
- Some specialty, higher quality wall finishes may be incorporated at certain collection areas (i.e. teen, children or adult) to create identity and enhance placemaking
This building code analysis is based on the 2019 Oregon Structural Specialty Code with revised Chapter One. This building code analysis is preliminary only and has not yet been reviewed, vetted or approved by the City of Bend. Coordination with the Bend Building Department will begin with a Preapplication Conference during the Schematic Design phase beginning in October 2021.

Use and Occupancy
The proposed library building will be primarily an Assembly Occupancy.

- A-3 occupancy for library 303.4
- Non-separated occupancies will include 508.3
- B occupancy at administration areas 304.1
- S-1 occupancy at storage areas 311.2

Construction Type
The concept design for the Central Library calls for Type II-B construction, fully sprinklered.

II-B assumes steel structure and metal + concrete composite deck.

(If instead, steel structure is combined with wood + concrete composite deck, then III-B would be appropriate with height / story / area requirements similar to those for II-B as noted below)

Type II-B limits the project to:
- 75 feet max. height above grade 504.3
- 3 stories maximum 504.4
- Total allowable area = 106,875 sf 506.2
- Allowable area per story = 35,625 sf 506.2

Mezzanine
Because Type II-B allows a maximum of 3 stories, Level 1.5 with staff spaces will be designed as a ‘true’ mezzanine, complying with section 505.2 of the OSSC.

- The area of the mezzanine is limited to 1/3 of the floor area of the room or space below in which it is located. 505.2.1
- Level 1.5 will have access to two exits, allowing spaces at that level to be enclosed. 505.2.3.2

Fire Resistance Rating Requirements
For Type II-B, no fire rating is required for Primary Structural Frame, Bearing Walls, Nonbearing Walls, Floor Construction, nor Roof Construction. 601 Designing this building as Construction Type II-B will significantly reduce complexity (and cost) of fire rating building elements as opposed to other options considered.
C. BUILDING ANALYSIS

Building Code

Construction Type Notes
- At this early stage of design, some aspects of the project will need to be discussed with the City’s building code official. One of those is how they regard covered outdoor space. If the outdoor areas below the cantilevers of the upper building volume is counted towards allowable area for the construction type designation, then the approach to Construction Type may need to be reconsidered.
- Several alternate Construction Type strategies have been explored. For example:
  - Type III-B (steel structure with wood + concrete composite deck) would allow wood deck to be visible from the space below. However, it would require any load-bearing structural members within exterior walls, or on the outside of the building, to have a 2-hour fire-resistance rating.
  - Type II-A and III-A allow a maximum of 4 stories for A-3 occupancy, which would give more design freedom to develop Level 1.5. However, these options would also require increased fire resistance to building elements:
    - Type II-A would require 1-hour fire-resistance rating at Primary Structural Frame, Interior Bearing Walls, and Floor Construction.
    - Type III-A would require 1-hour fire-resistance rating at Primary Structural Frame, Interior Bearing Walls, and Floor Construction. And a 2-hour fire-resistance rating at Exterior Bearing Walls.
  - Finally, hybrid options were considered, such as Type II-B next to Type II-B using a fire wall. Or Type II-B over Type I using a horizontal fire separation. However, these hybrid approaches also increase complexity (and cost) of fire rating building elements as well as limit design flexibility with items such as the feature stair and access to the Level 2 terrace.
  - As the design develops, the appropriateness of all of these alternates will be considered.
- Per code, a small basement could be added to any of the Construction Type strategies, should that become necessary as the Level 1 floor plan is further developed in Schematic Design. A basement could be used to locate some of the required utility spaces (Mechanical/ Electrical / Plumbing).

Exit Access Stairs
Two exit access stairs with a fire-rated enclosure will connect Levels 2 and 3 down to grade. This limits the occupant load to 500 people maximum per Level. The exit access stairs will be separated to comply with 1007.1.

Feature Stair
In addition, a feature stair is planned near the central core of the building that would atmospherically connect Levels 1, 2, and 3. Per 1019.3.4, the area of the floor opening will be less than 2x the projected area of the stair, draft curtains, and closely spaced sprinklers will be provided.

Elevators
Three elevators will be provided for public use. They are centrally located, directly accessible from the main entry, and are sized for ADA accessibility. They connect Levels 1, 2, and 3. One elevator will be provided for staff-only use, connecting Levels 1, 1.5, 2, and 3. If needed for accessibility, an additional elevator may be included at the west end of the Level 1 event space. Refer Vertical Transportation narrative for more detailed elevator requirements.

Restrooms
Restrooms will be provided near the central core at Levels 1, 2, and 3. The staff area will include restrooms as well as showers for staff use. Additional restrooms will be included as needed as the design develops.
C. BUILDING ANALYSIS

Building Program Description

A proposed program for the new Central Library has been developed through preliminary public comment, staff input, collection data and professional expertise. For each of the spaces and amenities listed in the proposed program, design criteria, trends and public input have been summarized as guidelines for the design of the future library. Indoor and outdoor spaces have been identified, as well as their envisioned use and recommended design criteria.
C. BUILDING ANALYSIS

Building Program: Description of Spaces

Collections (General)
There are a number of collection types in the building. Library shelving (metal or custom) will be provided by owner. Some will be on casters, and some will be anchored to the floor/wall structure to meet seismic criteria. It is not anticipated at this time that there is any high-density or compact shelving.

Typical lighting fixtures to be stack-mounted or ceiling-mounted linears to achieve appropriate light levels 12” AFF on the vertical face of shelf. Power and data will be provided throughout these areas (perhaps integrated with shelving) to provide immersive connection with online and downloadable portions of the collection.

Seating in a variety of types is essential. Ideally, seating is sprinkled around and within the collection areas and includes options that consider a variety of body types, abilities, ages, and tasks. Seating should be selected and organized to provide accommodations for the breadth of library users: easy to clean and disinfect, fabrics that do not keep odors, and upright to discourage sleeping. Spacing should provide users the ability to sit together and converse or enjoy solitary time.

Service points - and the personal connections they make with users - is a big reason many people frequent libraries today. Staff will provide mobile service and can touch down at movable kiosk-like elements placed in multiple prominent locations throughout the library.

The Fiction Collection is currently located on Level 2 and the Non-Fiction Collection on Level 3. Both will be browser-friendly with some lower shelving units for unobstructed sightlines and ample display surfaces.

- Media: In general this is a collection that is reducing over time in response to the availability of streaming platforms. It is not anticipated to be a large program area at this time.
- Hot Reads: This section refers to a small but expertly curated selection of popular reads. To get the most traffic, it is recommended to locate this collection on level 1 near the entry or in the display areas shown on levels 2 and 3 shelved in face out format. Owner provided shelving will have a more custom appearance and be placed on casters to allow for frequent reconfiguration to accent it as a unique destination.
- Holds: This collection will be located proximate to the entry on Level 1 for easy access to patrons as well as the drive-up window. It will consist of open metal shelving and/or Self-serve lockers. As people have gotten accustomed to convenience and immediacy in other aspects of life, placing books on hold and having them delivered or held on-site will be an important service for the library to provide.
- Reference Collections: They have been decreasing over the years and are anticipated to continue doing so. For the new facility, it is assumed that this collection will be interfiled, and not require dedicated collection space.
- International Collection: The diversity of Deschutes County continues to grow, and this collection will serve users of all ages who are English language learners (ELL or ESL), as well as intergenerational users who use the area together as a family. Signage and other indicators should include multiple languages and be readily visible. It will likely be located on Level 2 or 3.
- Specialty Collections: DPL has a number of unique collections such as The Library of Things, Curriculum Kits, and Book Club Kits. These may want to be available on Level 1 and may require unique shelving units.
C. BUILDING ANALYSIS

Building Program: Description of Spaces

Youth Areas
Spaces for children are some of the most heavily used areas in public libraries. Parents, siblings, and caregivers join their young ones to gather books, read together or attend programs. Circulation space should be ample to allow for strollers or personal carriers. Subtle delineations in finishes or shelving organization can help denote space for the 0-5 age group (early literacy users), the 5-8 age group, and the 8-12 age group. This helps separate behavior as well as collection as is developmentally appropriate. Acoustic treatment will be especially critical in these areas.

- **Early Learning:** An iconic interactive early literacy installation is envisioned to be a destination amenity for Level 2—attracting and engaging the youngest visitors and their caregivers. This space is anticipated to be adjacent to the Children’s collection for convenient parental supervision.

- **Childrens:** Childrens programs are varied and dynamic: story time, crafts, and puppet shows to name a few! As such, an enclosed/semi-enclosed program space will be included with ample storage and durable, easy to clean finishes. In the collection area, finishes should assume more users will be sitting on the floor/crawling and be able to withstand the typical spills that come with childhood use. Custom casework may augment typical metal library shelving to create more opportunities for display of face out picture books and younger users.

- **Teens:** This is currently located on Level 3 and will express a clear identity and “place” that teens can call their own. Teen activities could include gathering, gaming, technology use, or doing homework – and are most heavily used mid-afternoon and evening. The space may include some amount of enclosure to manage noise and will incorporate technology, some collection, decorative lighting and unique finishes. Adjacencies include Creative Space or study areas.
C. BUILDING ANALYSIS

Building Program: Description of Spaces

Creative + Collaboration Spaces
Community feedback indicated that spaces to convene, share, teach, and celebrate were highly desired; so, a significant increase in these types of spaces is reflected in the proposed building program for the new library. This is in keeping with a trend seen over the past 10+ years of these types of spaces being in extremely high demand. The ability to gather in groups from 2 people in a small tutoring session to a community program of 100 or more - at no cost - is an essential community resource.

- **Tutoring Rooms:** Acoustically enclosed spaces for someone to take a phone call, 2-4 people to meet, or teams to work on a project are included. They may include a computer monitor or other AV elements.

- **Technology access:** Access in the new facility should be provided in the following formats in order to reach a diversity and quantity of users:
  - Fixed computer stations, organized in small groupings for easy assistance by staff
  - Fixed technology provided within select collaboration spaces

- **Creative Spaces:** These spaces may support a range of community programming from art to emerging technology access to hands on programming. Finishes should be durable and easy to clean an exhaust hood may be required for 3D printers or soldering.

- **Coworking Areas:** With the increase of remote work, the library will include a coworking space with a variety of furniture configurations. Acoustic control may be important.

- **Event Space:** The ability to host a variety of events is key to this new facility. The proposed program includes two flat floor event spaces, each to accommodate approximately 150p, and AV/IT to support distance connections or streaming of live events. These spaces will be available for after hours and/or rental use. A higher level of finish is required to provide a desired environment, support frequent furniture movement, manage acoustics during simultaneous events and enable lighting control. These spaces are currently showing operable walls to join the spaces, or open up to the larger library.

- **Catering Kitchen:** This will support rental use in the event spaces and also serve as a space for food programming in the library. It is not anticipated to require commercial kitchen amenities, grease interceptor or Type 2 hood.
C. BUILDING ANALYSIS

Building Program: Description of Spaces

Staff + Operations
The Central Library will be the new operations center for the entire DPL system, in addition to the management of the Central Library.

The proposed program anticipates a combination of enclosed offices, open/shared workstations, and meeting spaces. These areas will include carpeting, acoustic control, and glass enclosures.

A large workspace for circulation-sorting tasks will be required, needing resilient cushioned flooring and acoustic enclosure. An Automated Materials Handling (AMH) system will be incorporated along with ample area around the sorter to allow for book truck activity. The amount of categorization (as well as the selected manufacturer) will confirm the space needs and layout for this system (including power and data requirements). To achieve the most benefit from the investment, interior and exterior book returns should connect directly to the AMH system in the work area. This minimizes unnecessary staff touch points as well as ergonomic issues from repetitive motion.

The program also includes areas for a loading dock, shipping/receiving, a drive-up window, break room and staff lockers/showers.

Outdoor Areas
There are a number of outdoor areas included in the program including on grade areas as well as occupied roofs.

Refer to landscape narrative for a description of the proposed outdoor areas.
C. BUILDING ANALYSIS

Preliminary Space Needs Summary

This preliminary space needs summary will continue to evolve over the coming phases of design as conceptual layouts, code analyses, cost, functionality, workflow, and collection configurations inform square footage.

The additive alternate for a community auditorium is a preliminary estimate of space needs. The team has not done a detailed space needs analysis or consulted with a theater consultant in this phase. At this time, there does not look to be sufficient site area south of Robal to incorporate this facility, and there would be code implications if incorporated into the current concept design. It may be that this potential facility could be located on Library property north of Robal. Pursuit of this alternate may be continued in Schematic Design pending further discussion.

Refer to Appendix 7.3 for a more detailed list of space needs.

<table>
<thead>
<tr>
<th>BUILDING PROGRAM</th>
<th>BUILDING GSF</th>
<th>OUTDOOR GSF</th>
<th>INDOOR + OUTDOOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth</td>
<td>16,570</td>
<td>0</td>
<td>16,570</td>
</tr>
<tr>
<td>Adult Collection</td>
<td>23,900</td>
<td>0</td>
<td>23,900</td>
</tr>
<tr>
<td>Creative Collaboration</td>
<td>14,260</td>
<td>13,600</td>
<td>27,860</td>
</tr>
<tr>
<td>Staff + Operations</td>
<td>19,085</td>
<td>400</td>
<td>19,485</td>
</tr>
<tr>
<td>Building Support</td>
<td>18,454</td>
<td>0</td>
<td>18,454</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>92,269</strong></td>
<td><strong>14,000</strong></td>
<td><strong>106,269</strong></td>
</tr>
</tbody>
</table>

Add Alternate: Auditorium 23,970

Preliminary Space Needs Summary for Central Library
Based on our understanding of the geotechnical properties of the area and the recommendations in the draft geotechnical report dated September 27, 2021, we recommend that the building structure be supported on shallow concrete foundations. Below-grade perimeter walls will be concrete and supported by continuous foundations. The building columns will be supported on isolated spread foundations. The shear walls will be supported by concrete mat foundations. Level 1 is anticipated to be partially below-grade.

The ground floor will be a traditional slab on grade with a topping slab which would carry radiant heating piping.
D. BUILDING SYSTEMS: STRUCTURAL

Superstructure Framing

The upper volume of the building will be steel framed with steel wide flange columns and beams supporting a composite concrete floor slab. The floor slabs will be supported by wood cross-laminated timber (CLT) or dowel laminated timber (DLT) panels spanning between beams. Alternatively, the floor slabs may be formed with a concrete slab on metal deck. Deck with integral acoustic properties is being considered such as: acoustic DLT or perforated metal deck. The framing will be based on a grid with the largest bay at 30’ x 36’.

The lower volume of the building may be steel framed like the upper levels. It may also be framed with post-tensioned flat concrete slabs supported by concrete columns (also on a grid of approximately 30’ x 30’). The west end of the lower bar is intended to be used as an event space, thus columns will be minimized. Assume the largest structural bay in this zone to be 50’ x 60’.
D. BUILDING SYSTEMS: STRUCTURAL

Truss Framing

The upper volume of the building (which is rotated relative to the lower portion and cantilevers beyond its footprint) consisting of the second, third, and roof levels will be supported primarily by large steel trusses extending down the two sides of the longitudinal axis of the upper portion of the building. The trusses will be constructed of steel wide flanges and extend between the roof and second floor. Diagonal wide flange web members will be included in each panel of the truss. These two longitudinal trusses will have an approximately 60’ cantilever and a 120’ backspan.

Near the northeast end, the two longitudinal trusses will be supported by either a large central concrete core, or a pair of concrete cores at the perimeter of the building. The central core option will require a 2-story tall steel transverse truss to carry the loading from the longitudinal trusses to the central core. The option with the pair of concrete cores located under each longitudinal truss will carry the load from the longitudinal truss more directly and not require the transverse truss.

Transverse trusses will be required above the roof level and will span across the upper volume to achieve a diagonal-free space within the floorplate of the upper volume. These roof transverse trusses will be spaced at 30’ o.c. and aligned with hanging columns below.

Refer to the accompanying framing diagrams for additional information on the floor and truss construction.
D. BUILDING SYSTEMS: STRUCTURAL

Truss Framing Continued

Section at Transverse "Blue Truss" Option 1

Section at Transverse "Blue Truss" Option 2

Section at Roof Truss
D. BUILDING SYSTEMS: STRUCTURAL

Lateral Force Resisting System

The lateral force resisting system for the building is specially reinforced concrete shear walls. A building’s lateral system resists horizontal loading from wind or seismic events. The shear walls will be located at the intersection of the upper and lower portions of the building as well as at each end of the lower portion. The shear walls will extend continuously between the roof and the foundation and typically house the stair and elevator circulation for the building.
D. BUILDING SYSTEMS: MEP

Heating, Ventilating and Air Conditioning Systems

Codes
Systems shall be designed in accordance with the 2019 Oregon Mechanical Specialty code.

Design Criteria
• **Outdoors Design Conditions**
  - Summer: 90°F DB/62°F WB
  - Winter: -3°F

• **Indoor Design Conditions**
  - (TABLE 1 at right)

• **Internal Air Conditioning Load Assumptions**
  - **Lighting:** All lighting is assumed to be 30% below ASHRAE 90.1-2019. At Construction Documents stage, actual lighting load will be based on the lighting design
  - **Miscellaneous Office Equipment:** 1.0 Watts/S.F. for Office Areas, 0.5 Watts/S.F. for Conference Rooms, 0.25 Watts/S.F. at stacks
  - **People:**
    - 255 BTUH Sensible/150 BTUH Latent for offices, conference rooms, and stacks
    - 255 BTUH Sensible/245 BTUH Latent elsewhere
    - Number of people shall be based on ASHRAE standard 62.1-2019 and/or planned quantity of occupants
  - **Ventilation Rate:** ASHRAE 62.1-2019

<table>
<thead>
<tr>
<th>SPACE</th>
<th>COOLING (° F)</th>
<th>HEATING (° F)</th>
<th>RELATIVE HUMIDITY (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Occupied Zones</td>
<td>74 ±2</td>
<td>70 ±2</td>
<td>No Control</td>
</tr>
<tr>
<td>Office</td>
<td>74±2</td>
<td>70±2</td>
<td>No Control</td>
</tr>
<tr>
<td>Server Room/ IDF/MDF</td>
<td>80 ± 5</td>
<td>No Heating</td>
<td>No Control</td>
</tr>
<tr>
<td>Unoccupied Areas (Elec. Closets, Mechanical Rooms, etc.)</td>
<td>90</td>
<td>55</td>
<td>No Control</td>
</tr>
<tr>
<td>General Support Area (Restroom, Janitor Closets)</td>
<td>76±2</td>
<td>70±2</td>
<td>No Control</td>
</tr>
<tr>
<td>Elevator Machine Room</td>
<td>90±2</td>
<td>No Heating</td>
<td>No Control</td>
</tr>
<tr>
<td>Entry Lobby</td>
<td>76±2</td>
<td>68±2</td>
<td>No Control</td>
</tr>
<tr>
<td>Event Areas</td>
<td>74±2</td>
<td>70±2</td>
<td>No Control</td>
</tr>
<tr>
<td>Activated Radiant Floors</td>
<td>76±2</td>
<td>68±2</td>
<td>No Control</td>
</tr>
</tbody>
</table>

TABLE 1: Indoor Design Conditions

Envelope Load Assumptions
• **Walls:** Composite U-Value will be determined based on actual building design conditions. We are anticipating an overall U-Value of 0.048
• **Glazing:** We are anticipating an overall U-Value of 0.36 including framing and glazing SHGC of 0.38 maximum
• **Roof:** Composite U-Value will be determined based on actual building design conditions. An assembly equivalent to or greater than R-30 insulation is anticipated
Central Plant
The central heating/cooling plant will be located on the roof and is anticipated to be approximately 240 tons of cooling capacity.

The central plant is proposed to be a high efficiency air-water heat pump array capable of producing hydronic heating and chilled water with variable primary/secondary pumping. The arrays will be either:

- **Option 1:** (4) 70-ton simultaneous heating/cooling heat pumps (Multistack or Climacool)
- **Option 2:** (10) 24-ton VRF heat pumps (LG, Mitsubishi, or Daikin)

The overall efficiency of the system is less than a ground coupled heat pump system but greater than a conventional gas boiler/chiller system.

HVAC Distribution
The ventilation system will consist of two 30,000 CFM rooftop dedicated outdoor air units (DOAS) with heat wheels, bypass dampers and heating/cooling coils. The units will include MERV 8 prefilters and MERV 13 final filters. Provisions for carbon filters will be considered to help with wildfire smoke mitigation. These units will supply conditioned air between 60°F and 70°F to the raised floor plenum at the upper floors and low wall displacement grilles at the lower levels. The raised floor areas will have displacement type floor grilles with automatic dampers.

Trench type recessed four pipe fan coils (jaga clima canal or SoHo Airfixture) will be located at the perimeter of the raised floors as well as staff and event spaces.

The entry area will be heated and cooled via a radiant slab system with embedded PEX tubing connected to individual zones with circulation pumps. Wall mounted manifolds will be dedicated to serve each zone.

The event space will be provided with a separate 5000 CFM DOAS air handler with low wall displacement ventilation air and supplemental recessed trench heaters. This unit may be located below grade adjacent to the event space with outdoor/exhaust air delivered from landscape features.

Electrical, Elevator Machine and IDF Rooms will be provided with separate dedicated split systems.

**Equipment and Component Selection**

- **Air-Water Heat Pump Modules:** Operation down to 10°F. A supplemental electric boiler (500 KW) and glycol will be required with this option
- **VRF Air Cooled Heat Pump Modules:** Air cooled type, heat pumps, inverter driven for modulation. High heat, rotational defrost control for heating operation down to –22°F
- **VRF Hydro Kits:** LG, Daikin, Mitsubishi

**Piping:** Sized at a friction pressure drop of three feet H2O per one hundred feet of piping. Maximum water velocity in piping systems will not exceed 7 feet per minute

**Ductwork Mains:** Constant volume system supply air and return/exhaust air main and branch ductwork will be sized for a friction pressure drop of 0.08” H2O per hundred feet of ductwork

**Diffusers:** Diffusers will be selected at 5 NC lower than Room Maximum NC values noted for the project

**Return and Transfer Grilles:** Transfer grilles will not exceed 250 FPM in ductwork used for transfer or 250 FPM in face of grille

**Vibration Isolation:** All motor operated equipment (except that located on slab on grade) will be provided with vibration isolation mounting to prevent transmission of vibration or noise to the building

**Seismic Restraints:** Piping, ductwork, and equipment will be provided with adequate restraints

**Testing, Adjusting, and Balancing:** An independent testing and balancing contractor will be required (as a sub-contractor to the general contractor), AABC certified to balance all air and water systems and heating and cooling equipment to the required quantities; and to verify the capacity and operating conditions of each piece of equipment.
D. BUILDING SYSTEMS: MEP

Heating, Ventiliating and Air Conditioning Systems

Acceptable Noise Levels
(ASHRAE Chapter 46, Table 34)

<table>
<thead>
<tr>
<th>ROOM TYPE</th>
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<td>Corridors/Lobby</td>
<td>40</td>
</tr>
<tr>
<td>Server Room</td>
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</tbody>
</table>

Any additional acoustical criterion will be adhered to as dictated by project acoustical consultant.

Temperature Controls and Zoning

Temperature Control Systems:
The temperature control system will control all primary equipment as well as all distribution equipment. Significant energy management strategies will be included such as night setback controls, evening purge sequences, demand limiting, etc. All third-party controllers will be provided with BACnet interface to speak directly to the central BMS system.

- Individual temperature controls will be based on functions, exposure, and Owner request.
- Preliminary zoning to be shown on the mechanical drawings at Design Development. Final zoning will be discussed with the Owner during future phases of design.
- The controls contractor will provide all wiring per Division 26 requirements.
- The controls contractor will provide all required interface devices.
- All HVAC systems will be controlled and monitored.
- Controls will be provided for measurement and verification:
  - Metering of each domestic water end use (i.e. domestic water, irrigation)
  - Metering of domestic hot water end use
  - Metering of fan energy
  - Metering of pump energy use
  - Metering of lighting energy use
  - Metering of receptacle energy use
  - Metering of heat pump(s) energy use
  - Solar PV energy generation
D. BUILDING SYSTEMS: MEP

Heating, Ventiliating and Air Conditioning Systems

Airborne Infectious Disease Mitigation Strategies
The following strategies were developed in part from ASHRAE’s Position Document on Infectious Aerosols, WHO Position papers, and the CDC. Research regarding effective disease mitigation for COVID-19 is ongoing, and new findings will require updated recommendations. It is important to note that no single strategy can eliminate exposure to disease transmission. However, the following strategies will assist in lowering transmission rates.

Airflow Strategies:
• Utilize minimum MERV 13 filtration at each air handler with recirculation
• Utilize DOAS systems and displacement ventilation as much as possible and reduce recirculation
• Provide dedicated exhaust grilles per water closet to help reduce mixing of air throughout the restroom

Plumbing Strategies:
• Utilize automatic flush fixtures to encourage a touch free restroom and reduce aerosolization within restrooms while users are in the stall

Controls Strategies:
• Reset Demand Controlled Ventilation Algorithms from 1000 PPM CO2 to 800 PPM CO2 to increase outside air flowrates during “COVID season”
• Implement pre and post occupancy flushouts with outside air

Commissioning
• HVAC, domestic hot water, generators, transfer switches, solar PV and lighting controls will be commissioned
D. BUILDING SYSTEMS: MEP

Plumbing Systems

Codes
Systems shall be designed in accordance with the 2017 Oregon Plumbing Specialty code.

Sanitary Sewer and Vent System
The sanitary sewer and vent system will be provided to convey waste from the plumbing fixtures by gravity through soil, waste, and vent piping connected to the building waste line under the floor slab. Sanitary sewer service exiting the building will be shown up to 5 feet outside the building.

An alternate will be provided to provide a greywater treatment system for non-potable reuse for flush fixtures, irrigation, and green roofs. The system will capture rainwater, HVAC condensate, water from showers, lavatories, and sinks. The system will include a first flush diverter, a 50,000 gallon below grade cistern with a pump and a media/UV treatment system to treat water to non-potable standards. The piping system and fixtures will be separated from the potable water supply and will be labeled “non-potable water - do not drink”.

All floor drains or floor sinks will be provided with automatic trap primers or ASSE 1072 trap protection. Access panels will be provided for the trap primers. Access panels will be consistent with the architectural specifications.

Sanitary waste below grade and above grade will be no-hub cast iron (PVC in acidic soil), service weight with heavy duty coupling. Vent piping may be ABS/DWV except in plenums.

Grease Waste and Vent System
The grease waste and vent system will be provided to convey grease waste from the kitchen fixtures, floor drain and floor sinks. Grease waste exiting the building will flow through a passive in-ground grease interceptor with a minimum capacity of 1500 gallons and sampling port prior to connecting to the sanitary sewer system.

Grease waste piping below grade will be no-hub cast iron, service weight with heavy duty couplings.

Storm Water Drainage System
Building rainwater to be routed to the site storm drainage.

An alternate will be provided to capture building rainwater and HVAC condensate for non-potable reuse for flush fixtures, irrigation, and green roofs. The system will include a first flush diverter, a 30,000 gallon below grade cistern with a pump skid and a media/UV treatment system to treat water to non-potable standards. The piping system and fixtures will be separated from the potable water supply and will be labeled “non-potable water - do not drink”. Secondary (overflow) drainage piping will be provided where required by the architectural layout.

Domestic Cold Water System
A new domestic water service to be tied-in to the site domestic water distribution system. Water service will be provided with code-required backflow preventer and water meter.

The domestic cold water system will be distributed through branch piping connected to the building mains. Each branch pipe shall be provided with a branch shut-off valve (ball valve).

Piping mains will be designed to maintain a maximum velocity of 6 fps at design flow conditions. Smaller diameter branch lines will be designed to a maximum of 5 fps.

Design will ensure that no fixture has a pressure lower than 35 psi or higher than 75 psi.

System will be designed to prevent water hammer conditions by providing air chambers/shock arrestors for fixtures, and shock arrestors for quick closing valves.

Hose bibbs with lockable boxes will be provided with vacuum breakers. Hose bibbs exposed to weather or in locations where ambient temperatures will fall below 40 degrees will have freeze protection.

Domestic water piping will be copper type K (for underground installations) and type L (for above ground installations) hard drawn copper, 125 psi maximum service pressure.
D. BUILDING SYSTEMS: MEP

Plumbing Systems

Domestic Hot Water System
The domestic hot water system will provide 120 degrees F hot water to all lavatories, shower stalls, and sinks, with scald protection.

Domestic hot water will be provided by a centralized heat pump water heater with electric backup and recirculation.

Drain Systems
The condensate drain system will drain all clean water drainage from any mechanical cooling equipment. All equipment requiring condensate removal will be equipped with a secondary drain pan and visible overflow piping where required by code. The primary condensate will be tied into the sanitary sewer system as an indirect waste with an air gap fitting. Condensate is planned to be insulated.

Plumbing Fixtures and Equipment
Water conserving fixtures will be used throughout, and meet ADA requirements, as follows:

- Public lavatories will be equipped with sensor operated faucets with 0.35 gpm aerators per use
- The water closets will be low-flow, 1.28 gal per flush valve type. Wall hung in public areas
- The urinals will be low flow 0.125 gal/flush type
- The shower valves will be low flow 1.5 gpm
- Drinking fountains will be provided and its location coordinated with architect
- Hose bibbs will be provided around perimeter of each building at 100-foot intervals
Automatic Fire Sprinkler System

The buildings will be provided with new wet pipe, hydraulically calculated fire sprinkler systems per NFPA 13 and the requirements of the state and local fire marshal. Areas subject to 40 degrees Fahrenheit, or less, will be protected with a dry pipe sprinkler system. The riser room will require a heater to prevent the system from freezing.

Pending the evaluation of the site water supply data, and direction from the stakeholders either a new underground fire water main will be connected to the existing public water system or a fire pump shall be provided in between the connection of the sprinkler system and public water system to supplement the potential low water pressure provided by the water supply.

All piping, fittings and valves up to and including the backflow preventer to be NSF rated for potable duty. Backflow prevention shall be provided between fire protection systems and public water supply connection and located in an exterior vault. If required by the local Authority Having Jurisdiction, the double check valve assembly will be provided with a detector meter. A fire department connection (FDC) connected to the fire sprinkler system will be located within fire department acceptable distance from a fire hydrant. A method of draining fire department connection will be provided. A check valve will be installed between the fire department connection and the point of connection to the fire sprinkler systems.

Floor control stations, consisting of supervised control valve, check valve, flow switch, gauge, drawing and inspector’s test connection will be installed at each floor to allow one floor to be shut down for maintenance while maintaining fire protection on other floors.

The design of the fire protection system will be based on a hydraulic design that utilizes 90 percent of available pressure and shall include interior and underground pipe to the location of the hydrant flow test.

Piping will be concealed above finished ceilings and within walls except for areas exposed to structure which will be closely coordinated with the architect.

Sprinklers will be located in the center or quarter point of ceiling tiles and symmetrically with other ceiling features. Ceiling features include, but are not limited to, walls, lights, air diffusers, and other architectural features.

Complete sprinkler coverage for all rooms, concealed spaces and overhangs will be provided.

Quick response sprinklers will be provided in all Light Hazard Occupancy areas. Quick response or standard response sprinklers will be provided in Ordinary Hazard Occupancy areas.

Main and auxiliary drains will be provided to drain the entire system. These will be connected to the sanitary sewer with a gravity drain sized to accommodate flow from pressure pipe or will discharge to the exterior of the building. Electrical connections and wiring as required will be provided for a complete and operable fire protection system, including, but not limited to flow switches, supervisory switches, and the like. Audible electric sprinkler flow alarms on the exterior of the building will be provided.

MDF and IDF rooms will be protected by a wet pipe system unless the owner desires a single interlock pre-action system.

All sprinkler system submittals shall be provided to the architect for review. Insurer requirements will be coordinated with the owner and architect.

All visible piping shall be coordinated with the architect prior to installation or contractor will be required to remove and relocate per architect’s direction. Painting of visible piping shall be coordinated with the architect.
D. BUILDING SYSTEMS: MEP

Fire Suppression Systems

Materials
Materials to be UL listed or FM approved for the intended fire protection use, new, free of defects, of current manufacture and identified.
Piping will be as follows:

• **Underground piping**: will be Class 52 ductile iron

• **Aboveground**:  
  - 2-inches and smaller: Black Steel, Schedule 40 black steel threaded  
  - 2-1/2 inches and larger: Black Steel schedule 10 black grooved.

• **Fire sprinkler heads**:  
**D. BUILDING SYSTEMS: MEP**

**Electrical Systems**

**Code**
Systems will be designed in accordance with the 2020 Oregon Electrical Specialty code and 2021 Oregon Energy Efficiency Specialty Code.

**Electrical Utility Service**
The electric utility service will be provided by PacificCorp. The contractor will be responsible for all trenching, backfill, and conduit for both primary and secondary feeders. Underground primary conduits are assumed to be (2) 4” conduits but actual sizes will be confirmed with CEC during design.

The primary feed will be routed from the nearest utility vault or power to a new pad mounted utility transformer (provided by CEC). Secondary conduit and conductors will then be extended to an exterior, service entrance rated, main distribution switchboard that will contain a utility pull section, termination section, current transformer (CT) section, and main service disconnect. Incoming service will be rated for 277/480 volts, 3-phase, and 1,600 amperes.

**Electrical Distribution System**
Incoming main distribution switchboard will be centrally located in electrical room on ground level. A 1,600-amp main distribution switchboard will provide distribution breakers to serve branch panelboards throughout the building.

Separate branch panelboards will be provided for lighting, receptacles, and HVAC equipment. Branch panels will be located in the main electrical room and in a satellite electrical room on all other floors. Lighting and HVAC will mainly be served with 480/277V branch power. Receptacles will be served by 208/120V branch power. Distribution transformers will be provided in each electrical room to step down voltage as required.

Owner demand metering will be provided in the main distribution board to monitor branch power loads and overall energy consumption.

It is assumed that MC Cable will be acceptable for branch circuit routing in non-exposed spaces. Single runs of MC Cable will not exceed 50’-0” in length and will not go from room to room. MC Cable will not be allowed for homeruns and/or feeders.

**Emergency Power Supply System**
The emergency power supply system will distribute power to emergency branch panelboards located in satellite electrical rooms and supply backup power to the egress lighting in the corridors, elevator lobbies, staircases, and exterior, as well as the fire alarm system and security systems.

Additional emergency distribution equipment may be provided to serve elevators and building telecommunications equipment.

- **Central Battery Inverter – Base Option**
  - Central Battery Inverters (approximately 15kVA) with integral branch breakers will be provided to serve emergency lighting loads and fire alarm/security panels.
  - Telecommunications equipment would require dedicated UPS systems for soft shutdowns in the event of power loss. Elevators would require battery lowering equipment.

- **Backup Generator – Alternate**
  - An alternate option is provided for a single, 300kVA (240 kW @ 0.8 power factor) diesel driven emergency generator to be located onsite to supply backup power for the fire and life safety systems including the building emergency egress lighting, fire alarm systems, security systems, building telecommunication systems, and elevator(s).
  - A sub-base will be required to provide a minimum 2 hour run time to emergency loads as required by code. The generator will consume approximately 22.5 gallons per hour at 100% load. Peak fuel consumption for 2 hours will require 45 gallons. With a maximum fuel tank fill of 90% and a 33% buffer a 60-gallon tank will be required.
  - The generator would be located exterior to the building in a weatherproof, sound-attenuated enclosure.

Under both options, an exterior docking station will be provided for connection of a portable generator.
D. BUILDING SYSTEMS: MEP

Electrical Systems

Photovoltaic Systems
A solar photovoltaic system will be provided with a size and location to be determined during the design to meet the State of Oregon 1.5% Green Energy Technology requirements.

Lighting
The illumination levels for the project will comply with IESNA (Illuminating Engineering Society of North America). All LED light fixtures will comply with UL Standard 8750, with IESNA Standards LM-79 and LM-80. Project will be designed within all applicable building codes. Our goal is to exceed minimum energy requirements.

All luminaires will have an LED light source with highest efficiency performance specifications possible for each area. Color temperatures will be 3000 Kelvin and fixtures will allow for dimming of the luminaires based on activities in the space. The lighting design will provide an atmosphere that reinforces the architecture and landscape.

- **Emergency Egress Lighting and Exit Signs**
  - Emergency and egress illumination will be incorporated into the design meeting all life safety code requirements. All emergency paths of egress will be illuminated, included exterior areas. Emergency lighting will be programmed on upon loss of power. An average of 1 foot-candle level of illumination will be provided. Exterior areas of discharge will be designed with emergency lighting extending no more than 10 feet.

- **Site Lighting**
  - Site lighting will be provided via pole mounted luminaires in parking areas, pedestrian post-top style fixtures along walkways, and bollards/building mounted lights at building entrances.
  - Parking lot lighting will be provided with integral motion sensors to dim lights to 50% during periods of inactivity.
  - All site lights will be controlled via time clock or photocell for automatic control. All fixtures to be full-cutoff for dark sky compliance.

- **Back of House Lighting**
  - In back of house areas such as electrical and mechanical rooms, elevator machine rooms, elevator pits, trash, and storage areas, 4” lensed LED striplights will be utilized to provide the required light levels of each area. Target light levels of 20-25 footcandles.

- **Lighting Control Systems**
  - All lighting will be automatically controlled via a networkable distributed lighting control system to meet the energy code requirements.
  - Automatic lighting controls are not required for the following areas:
    - Designated security or emergency areas that are required to be continuously illuminated.
    - Interior exit stairways and ramps and exit passageways.
    - Emergency egress lighting that is normally off.
  - Occupancy sensors with maximum 30-minute delay will be provided in all conference/meeting/multipurpose, restrooms, storage and support spaces. Occupancy sensors will be of the passive infrared or combination infrared/ultrasonic type. Manual ‘ON’ override will be provided in all spaces containing occupancy sensors.
  - Daylighting/dimming controls will be provided in areas with skylights or exterior windows, where natural light is available.
Fire Alarm Systems

An automatic, addressable, fire alarm system will be provided to meet code requirements.

The fire alarm systems will provide system alarm, supervisory and trouble signal monitoring, and alarm notification for the building. A digital alarm communicating transmitter will facilitate off-premises monitoring of the individual signals to an off-site receiving station. Any power supplies will have batteries to provide a secondary power source in case of primary power loss to the control panel or any remote power supply.

All building fire alarm systems will be networked together, via site fiber fire alarm network.

Automatic smoke detection and manual pull stations will be provided as required by code, including but not limited to, elevator recall service, HVAC systems' monitoring, smoke damper monitoring, and fire door control. Heat detection will be provided to operate elevator shunt trips.

Activation of automatic fire detectors, manual pull stations, sprinkler water flow switches and suppression systems will initiate alarm signals on the master fire alarm control panel (FACP). Activation of sprinkler tamper switches and HVAC duct smoke detectors will initiate supervisory signals, which will annunciate on the master FACP and the FAA.

Manual pull stations and automatic fire detection will be provided where required by Code. Audible and visible alarm signals will be provided throughout the buildings, when required by Code.

Control outputs will be provided for fire safety functions, such as air handler shut down, elevator control, fire smoke damper closure, and fire door release.

Fire alarm equipment will be UL listed for fire protection.

The fire alarm panel will be an analog, addressable system with point identification.

Strobes will have multi-candela settings for field adjustment to achieve ADA and NFPA 72 visual requirements for the protected spaces. Strobes will be provided as combination horn/strobes or standalone strobes. Finishes will be white.

Manual pull stations will be single action type with red finish.

Smoke detectors will be photoelectric type. Where installed for monitoring HVAC systems and control of fire smoke dampers, detectors will be either duct-mounted or in-duct mounted.
D. BUILDING SYSTEMS: MEP

Telecommunications Systems

- **Telecommunications Rooms (TR)**
  - Telecom Rooms will be located on each level. The ground level will have three rooms, one of which will be the entrance facility for the telephone and CATV service providers. This room will be approximately 10-feet by 15-feet in size.
  - There will be one telecom room on the second level.
  - 3/4-inch fire resistant plywood backing will be installed on one full wall in each TR. Mounted 4 inches above finished floor and extending to 8 feet minimum. Telecom equipment and cabling will be mounted to the plywood.
  - The rooms will also house free standing racks for the backbone and horizontal cabling as well as active equipment – network switches, UPS, etc.
  - There will be an overhead ladder rack around the room to route cables within the room.

- **Backbone Distribution**
  - A CATV backbone, consisting of RG-11 coax cable will be installed from the Entrance Facility to each Telecom Room.
  - A copper 25 pair Category 3 cable backbone will be installed from the Entrance Facility to each Telecom Room.
  - A 12-strand single mode fiber will be installed from the entrance facility to each Telecom Room.

- **Horizontal Distribution**
  - Cat6 cabling will be used throughout the project.
  - There will be a Cat6 cable to wireless locations for full coverage.

- **Telecommunications Pathway**
  - Conduit will be provided from the service provider’s location to the EF.
  - Conduit/Sleeves will be provided from the EF to the TR locations on the floors above. Pathway routing must be coordinated for each of the floors where the TR locations are not stacked. Conduit sleeves will be provided from the closets up to the roof for the option of satellite TV service.

Audio Video Systems

- **Conference rooms**
  - All conference rooms will have video and audio-conferencing capabilities, audio reinforcement and program distribution equipment.

- **Paging System**
  - There will be an overall paging system for the building with zones as determined by the owner in future coordination

- **Specialty Spaces**
  - Any spaces that require special AV systems will be addressed in the design as well. This could include: multimedia rooms, gaming rooms, VR or immersive technology rooms, as well as collaboration spaces.

Building Security

- **Access Control**
  - Card readers will be located at all exterior entrances.
  - Additional card readers can be installed in locations as determined during design development.

- **Intrusion detection**
  - An intrusion detection system will be indicated that secures the facility after working hours.
  - The system will consist of motion detectors, door contacts, glass break sensors, and arm/disarm keypads.
  - The system will be integrated with the access control and video surveillance so the security management system can be used to operate all systems together.

- **Video Surveillance**
  - Cameras will be located at all public entry points, the parking areas, stairwells, and the exterior. A network video recorder and IP video surveillance cameras will be utilized.
  - Additional cameras can be installed in locations as determined during design development.
D. BUILDING SYSTEMS: MEP

Building Technologies

Two Way Communication System
The two-way communication system shall be designed and installed per requirements of 2015 IBC Section 1007.6.3. The system should include control panel, UPS, Call boxes in each Elevator Lobby and low voltage cable per manufacturer recommended installation instructions.

Emergency Responder Radio Coverage
The Emergency Responder Radio Coverage System will be indicated with performance specifications and will be designed by the installing contractor.
D. BUILDING SYSTEMS: ACOUSTICS

Sound Privacy & Distraction Control

The design of partitions, assemblies, details, and door assemblies will be based on the sound isolation needs for specific rooms and the adjacencies. Note the performance goals outlined in the criteria section. The following conditions represent increased risk of acoustical impacts:

- To control the noise from book carts and footfalls on the proposed raised floor, select panels that are cementitious or have a weight of at least 5.0 psf. The basis of design flooring should be either carpet tile or a smooth hard-surfaced finished floor over a topical acoustical underlayment (such as 1/8” thick recycled crumb rubber underlayment).

- Operable partitions should have a field-tested performance of not less than a Noise Isolation Class (NIC) 42 between similar use spaces. To allow dissimilar concurrent events the operable partition should have a field-tested performance of not less than a NIC 48.

  ° Basis of Design: Skyfold Zenith 55 (STC 55 – vertical operable partition)
6.1 CENTRAL LIBRARY

D. BUILDING SYSTEMS: ACOUSTICS

Acoustic Control & Room Finishes

Enclosed Rooms such as tutoring rooms, meeting spaces, and offices will need a sound absorptive ceiling (basis of design is NRC 0.70 or greater finish). If these rooms will support a hybrid use with microphones and speakers the room should include sound absorptive wall treatment(s) with a minimum NRC 0.70 between 3'-0" and 7'-0" aff on at least one wall.

Open to Structure such book stacks, open seating, amenities, corridors, and open-plan workspaces will require sound absorptive finishes which can be challenging, and the quantity and options will depend on the room volume and function. There are some structural integrated sound absorptive finishes such as the Structurecraft Acoustic Square DLT and composite perforated metal decks; the goal for these types of materials is a NRC 0.70 or greater, which is comparable to acoustical ceiling tile. In general, the added cost for sound absorptive structural products is usually 50% of the cost of surface installed sound absorptive treatments that are equivalent in performance and coverage.

To control noise for the multi-floor open staircase, sound absorptive treatments should be planned for the adjacent core wall and underside of the stair treads.

The Event Spaces and/or Auditorium will require a more nuanced approach to sound absorption and sound diffusive surfaces to support the variety of uses from lectures, readings, and small music concerts. The extent and material selections will be based on the desired versatility of the space and the room volume; the design will consider adjustable acoustical performance options to give the staff and users flexibility over the sound of the space.

To control the noise from the automated book/media sorter (BOD: FE Technologies) this equipment should have a ceiling with sound absorptive ceiling treatments with an NRC 0.85 or greater, acoustical barriers between sorter and workstations, and include lower noise options, such as FE’s Premium Spring-Loaded Sorter Bin.

Structural Integrated sound absorptive options: Acoustic Dowel-Laminated Timber (DLT) (top) and perforated metal deck (bottom)
The design will focus on controlling noise and vibration from building systems to meet the background noise goals from air systems and vertical transportation. Though to meet the goal of “quiet” spaces for reading, studying, and browsing, the mechanical systems will not provide consistent ambient noise and the background noise could be too quiet. This means conversations and incidental noises travel longer distances, which is a common issue for open-plan spaces with high-efficiency mechanical cooling and heating systems. To improve sound and speech privacy, reduce distractions, and increase the perception of “quiet” the open-plan stacks and reading areas should include sound masking systems to create a controlled and constant background sound level.
Environmental noise monitoring is planned to quantify the noise impact from Highway 20, departing emergency vehicles, and exterior building systems. The design of the north, east, and south facing windows and façade will be engineered to provide adequate noise control for interior background noise.

These sources and the design of the exterior amenity areas at ground level and on the mezzanine roof will be designed to provide quiet repose. The geometry of the building design for the Level 2 terraces reduce the noise impact from Highway 20 due to the topography, visual screening, and principles of sound diffraction by 35% for the east terrace and 60% for the west terrace.
D. BUILDING SYSTEMS: SIGNAGE

Sign Standards
This project will establish new building and wayfinding signage standards to be implemented in the new and renovated libraries. It is assumed that signage updates may extend beyond renovated areas in the branch libraries to complete a full implementation of the new sign standards for consistency in user experience across the library system.

- Building signage will comply with local, state, federal building and ADA code.
- When applicable, signs will comply with Deschutes Library brand standards and logo use.
- Custom designed sign system to compliment architectural finishes.
- Graphics will utilize durable and environmentally sustainable materials appropriate for a public space.

Exterior Sign Types are anticipated to include:
- Identity
  - Monument Sign
  - Building Mounted ID
  - Building Address
- Directional
  - Vehicular
  - Pedestrian
- Regulatory
  - Reserved Parking
  - Accessible Route / Access

Interior Sign Types are anticipated to include:
- Wayfinding
  - Directional
  - Special Area Identification
  - Amenity Identification
- Room Identification
  - ADA code compliant room identification for various room types including restrooms, offices, amenity and utility spaces

Accessible and Fire Life Safety Signage
- Evacuation maps
- Tactile exit route
- Room occupancy
- Regulatory Messages

Digital Signage
Digital information systems offer the opportunity for library staff to communicate current events and programs in an engaging way. This may be most useful in lobby or gathering spaces. It is not anticipated that a robust digital wayfinding and information system is needed.

Graphics
Placemaking graphics provide wayfinding landmarks and context for users. Graphic content may be an expression of the mission, community values, or physical place. Graphic opportunities include:
- Building Circulation (stairs or elevators)
- Service Areas
- Teen and Children’s Spaces
- Gathering spaces
D. BUILDING SYSTEMS: VERTICAL TRANSPORTATION

The Central Library Concept Design includes five total elevators:

Three passenger elevators are grouped for public use in a central location, visible from the main entry.

- They will have center opening doors
- Three stops: Level 1, 2, and 3 which are the main public floors of the library
- Travel distance: ~38 feet
- ~35 lb capacity
- Clear inside hoist way dimensions: ~9’-10” wide x ~8’-6” deep

One passenger elevator for public use will be located at the west edge of the Level 1 event space. This will provide ADA access from within the building to the landscaped outdoor areas just west of the event space.

- Center opening doors
- Two stops: Level 1 and 1.5
- Travel distance: ~14 feet
- 3500 lb capacity
- Clear inside hoist way dimensions: ~9’-10” wide x ~8’-6” deep
- As the design of the event space develops, this elevator may become unnecessary

One Service Elevator for staff-only use will be centrally located to access all levels.

- Side-opening doors
- Four stops: Levels 1, 1.5, 2, and 3
- Travel distance: ~38 feet
- 4000 lb capacity
- Clear inside hoist way dimensions: ~8’-10” wide x ~11’-2” deep
- Cab size to accommodate book carts
- Cab interior finishes to be durable
D. BUILDING SYSTEMS: AUTOMATED HANDLING SYSTEM AND LIBRARY SHELVING

- An Automated Materials Handling (AMH) system will be installed at the Central branch to facilitate collection sorting and staff ergonomics. Coordination with DPL’s preferred vendor will begin in SD, to determine configuration, sort types and quantities.

- Other owner-provided equipment may include “smart” book drops, RFID gates at building entry, self-check stations, and book trucks/bins.

- Owner-provided library shelving will be typical metal cantilever shelving, with custom end panels and movable display units. Coordination with preferred shelving vendor will begin in SD. Shelving over 66” tall will be required to be engineered to withstand over turning (and require structural attachment to the slab or raised access floor tiles).
E. SUSTAINABILITY

Overview

A holistic framework of sustainability goals and performance features designed to theoretically achieve LEED Silver will create a library that is a community asset for years to come. The Central Library’s size means that focusing on emissions and water efficiency will be paramount issues to address. A better-than-code building envelope will help Central reduce the energy demand and provide comfort for occupants for decades to come. The use of exterior shading will help reduce unwanted heat gain while complementing the desire to provide views to the landscape. All-electric and efficient equipment will reduce operational energy use and support occupant comfort. The team will take efforts to reduce the embodied carbon of the building by using concrete efficiently, utilizing sustainably-managed wood and making meaningful choices for both exterior cladding and interior materials. Water efficiency and demand reduction are critical components of design and the team will investigate other opportunities for rainwater use or greywater reuse. Interior design will endeavor to improve occupant health and wellness through daylit spaces with natural ventilation, enhanced mechanical filtration and reduced chemicals of concern.
E. SUSTAINABILITY

LEED Silver Pinwheel

The intent of the design is to meet LEED Silver goals by targeting only design credits on the scorecard. Because the project is not actually going through the certification process, it cannot claim achievement of construction phase credits that would have to be verified by GBCI to ensure compliance.

The project is well positioned to demonstrate LEED Silver equivalence at 52 points by including robust energy efficiency measures, a strong water efficiency presence and an ecologically sensitive site design, all proximately located to walkable amenities. Should the project want to invest in a water reuse strategy and on-site renewables, it could demonstrate a LEED Gold equivalency by adding another 9 available points.
# E. SUSTAINABILITY

## LEED Silver Scorecard Table

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### 6.1 CENTRAL LIBRARY

#### Energy & Atmosphere

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6.2 REDMOND LIBRARY

A  Project Description
B  Site Analysis
C  Building Analysis
D  Building Systems
E  Sustainability
A. PROJECT DESCRIPTION

Site and Context

The current Redmond Library building on the corner of W Deschutes Ave and SW 9th Street is conveniently situated just east of the Redmond downtown core. SW Cascade Ave to the north and W Deschutes Ave to the south of the site are local streets while SW 9th Street to the west of the site is a collector street. The east property line of the site abuts the adjacent Redmond Police Department and is separated by a pedestrian access sidewalk that connects SW 8th Ave Street from the north with SW 8th Ave Street to the south. The site currently has a generous front lawn with mature street trees that line W Deschutes Ave.

Within walking distances are many public amenities such as the Historic Redmond City Hall to the southwest of the library site, Redmond Police department, Centennial Park and Street Plaza, and the Chamber of Commerce. Various commercial amenities such as restaurants, shops and a movie theater are also within walking distance of the library. On street and off-street parking is ample and a future bike lane is planned along SW 9th Street.

The downtown overlay district is pedestrian friendly, with ample seating and shops spilling out onto the sidewalk. A splash pad that is popular in summer months is in Centennial Park where mature trees proved shading.

The current Redmond Library is the only public library in the city of Redmond and occupies the original Jessie Hill school which was the first modern grade school in Redmond built in 1929. Like many structures built in Redmond during the 1920s and 1930s, the use of brick masonry and wood construction is prominent within the downtown core of Redmond and is an architecture feature of the Redmond Library.
6.2 REDMOND LIBRARY

A. PROJECT DESCRIPTION

Building Project

Since 1996, when the library first opened its doors, the 21,210 square foot library has been the hub for community gatherings, extensive English and Spanish language programs and a welcoming environment for the many families it serves. As the City of Redmond expands and the number of library patrons increase, Deschutes Public Library system has identified the need for a larger Redmond Library that can serve the needs of the community for the next fifty plus years.

The proposed Redmond library will occupy the existing library site and the current library will be demolished. Elements such as the brick façade and interior wood paneling have been identified as architecturally significant elements that will be retained and incorporated into the design of the new library. The new library will double the square footage and is projected to be approximately 40,000 square feet and two stories in height. With City Hall adjacent to the site, the library holds a significant civic presence and is a destination within the community.

Major Program Elements
To keep up with the evolving needs of the Redmond Community, the proposed program will increase the size of current library spaces as well as create new programed space. As the Redmond library looks towards the future and assesses its role in lives of Redmond residents, the proposed design offers ample flexibility of spatial elements that can be reprogrammed overtime.
A. PROJECT DESCRIPTION

Project Goals

As the City of Redmond’s population grows and the needs of the community become more diverse, the Deschutes Public Library system has identified the following project goals for the new Redmond Library:

- Be a destination for the community of Redmond
- Increase building square footage and book/material circulation
- Create a flexible event space that can be used by the library and community
- Be an incubator space that hosts creative, coworking, DIY and immersive spaces
- Preserve elements such as the existing brick and wood cabinetry from the existing Library (Jessie Hill School) and incorporate it into the new library design
A. PROJECT DESCRIPTION

History of Redmond Library (Jessie Hill School)

At the turn of the century, Bend was becoming a vibrant hub for education and aviation. The 1920s saw construction of many of Redmond’s largest buildings, with many remaining on the historic registrar today. During this time, there was an extensive rebuild of downtown Redmond as wood constructed buildings were targets of fires and there was a need to create buildings that would be protected from the spread of fires. Building materials such as masonry and heavy timber became popular and are seen throughout downtown and neighboring civic buildings.

In 1929, the Redmond Grade School was constructed to replace the 1908 two-story wood framed school that was located on the same site. The name of the school was changed in 1948 to honor Jessie Hill, one of the first teachers at the school. Similar to other buildings built during this time, the Jessie Hill school utilizes masonry construction, and its brick patterning is similar to other brick buildings built during 1920s.

In 1996, the Deschutes Library System opened the Redmond Library in the former Jessie Hill School.

Side entrance into the existing library

Redmond Library dedication plaque

Orignal millwork from Jessie Hill school
B. SITE ANALYSIS

Site Context

The existing site is relatively flat with minimal grade change. The existing mature street trees line W Deschutes Ave and SW 9th Street.

To the southwest of the site, Redmond City Hall creates a civic anchor.

Directly to the west of the site is a residential neighborhood.

To the south of the site, a pedestrian pathway leads to Centennial Park.

To the east of the site, a pedestrian sidewalk linking SW 8th Street and visually separates the site from the police station.
The library site is located as an anchor between the downtown core to the east and a residential neighborhood to the west of the site. Its civic presence creates a duality between the public (downtown core) and the private (residential neighborhoods). The current library sits back from W Deschutes Ave with extensive off-street parking that wraps three sides of the building. There are four vehicular entrances into the site. With the building set back, an extensive green space is created off W Deschutes Ave with a public transportation drop-off and pick up.

The new library design will emphasize and create a more civic library presence by locating the two-story building closer to W Deschutes Ave. This design move is informed by the edges created by City Hall that faces Centennial Park. This allows for a stronger visual connection between the library and Centennial Park and creates an inviting presence into the library. Existing mature street trees along W Deschutes Ave and SW 9th St will be preserved. Parking will be located at the rear of the building, near SW Cascade Ave and be accessed from and be accessed from SW 9th St and SW Cascade Ave. There is a desire for a drive thru book window to the east of the building that will allow library patrons to quickly drop off and pick up holds. The one-way drive thru book drop will be accessed off W Deschutes Ave. This drive aisle will need to work with the vacated 8th Ave Easement that separates the library site from the police station site. There are future plans for the Police Station to be relocated.
B. SITE ANALYSIS

Site Analysis Diagram
B. SITE ANALYSIS

Illustrative Site Plan

The new library building will be located on the current site but its building location within the site as well as vehicular access will be changed. The site program elements have been arranged to create an intuitive and cohesive experience for the user that takes advantage of views, solar orientation, adjacencies to other prominent surrounding buildings and complies with city requirements.

Access
Visitor parking is in the north area of the site, and can be accessed from existing two curb cuts off of SW Cascade Ave. There will be a new curb cut along SW 9th Ave. A one-way vehicle access aisle will be located to on the east part of the site and be accessed from W Deschutes Ave. This two-way vehicle access drive will serve vehicles that are dropping off and picking up library materials.

Entries
There will be two entries into the library. The primary entry will be accessed from the South and will be visible from W Deschutes Ave and the civic patio. A secondary entry will be located on the north side of the building, serving patrons entering from the parking lot. A small, designated loading area will be located near the building in the parking lot that will have separate entry into the building.
6.2 REDMOND LIBRARY

B. SITE ANALYSIS

Civil Narrative

General
The project site consists of a 1.7-acre piece of property on the at the intersection of Deschutes Avenue and 9th Street in downtown Redmond, Oregon. The site is further identified as Deschutes County tax lots 15 13 16AB-12500 and 12502 (Parcels 1 and 2 of Partition Plat 1995-51). The property is developed with DPL’s existing Redmond Library. Soil conditions in the part of Redmond typically consist of silty sands (typically 0-36" thick) underlain by basalt bedrock. The site is roughly level with only 1 foot of topographic relief from the south edge of the site down to the north edge of the site.

Access
The western edge of the site fronts on 9th Street which is designated as a minor on the City of Redmond’s TSP (Transportation System Plan). The southern edge of the site fronts on Deschutes Avenue and the northern edge of the site fronts on Cascade Avenue, both of which are designated as local streets on the City’s TSP. The eastern edge of the site adjoins property currently developed with the City of Redmond’s police station. There are currently four site accesses- one from Deschutes Avenue (shared access with the police station), one from 9th Street, and two onto Cascade Avenue.

The proposed redevelopment will eliminate the Cascade Avenue access at the NW corner of the site and will relocate the 9th Street access toward the center of the frontage. The Deschutes Avenue access and the Cascade Avenue access at the NE corner of the site will remain. Each of the three adjacent public roadways has an existing 60-foot wide right of way which is consistent with City of Redmond standards. No dedications of additional right of way are proposed by this project.
B. SITE ANALYSIS

Civil Narrative

Utilities
There are existing City of Redmond water mains adjacent to the site. A 6-inch PVC main within 9th Street to the west, a 4-inch steel water line within Deschutes Avenue to the south, and a 6-inch steel water main within an easement along the eastern edge of the site. Domestic and fire service to the building will likely come from the water main within 9th Street. No new water mains or replacement of existing water mains are proposed by the project.

There is an existing City of Redmond 8-inch gravity sewer main with terminal manhole within Cascade Avenue, centered on the site frontage which provide sewer service for the existing library. There is also an existing 8-inch gravity sewer main within an easement along the eastern edge of the site.

Power and telecom services from the following providers are available to the north edge of the site from existing overhead lines along the south side of Cascade Avenue. There is an existing natural gas main within an easement along the eastern edge of the site.

Electric Pacific Power
Natural Gas Cascade Natural Gas
Telephone Lumen
Cable TV Bend Broadband
6.2 REDMOND LIBRARY

B. SITE ANALYSIS

Civil Narrative

Grading and Drainage
The new library’s main level FFE (finish floor elevation) will likely be just 1-2 feet higher than the existing grade of 2994.0 along the W Deschutes Avenue frontage. It is anticipated there will only be minimal earthwork and grading necessary to develop the site.

The City of Redmond has a very limited municipal storm sewer system and most properties are required to contain and dispose of storm water on site. This will be accomplished with a proposed system of “drywells” throughout the site that will infiltrate all storm water into the ground. Such systems are common throughout Central Oregon and have been used for decades with great success. Although the shallow basalt bedrock requires drilling and blasting to construct such drywells, the brittle basalt fractures and typically drains well. The drywells will be permitted by the Oregon DEQ (Department of Environmental Quality).

There are three existing drywells on the site, one of which falls within the proposed footprint of the new library and will have to be abandoned per DEQ requirements. It is possible that the other two existing drywells can remain in place and continue to be used for storm water disposal. One or two new drywells will need to be constructed.
6.2 REDMOND LIBRARY

B. SITE ANALYSIS

Landscape Narrative

Site Design
The Redmond Library will be rebuilt on its current site in the heart of downtown. As a complete rebuild, this is a wonderful opportunity to improve site for people arriving on foot, and to embed the library in part of a civic center that includes Centennial Park and City Hall.

The site is designed to prioritize pedestrian arrival at the south and west sides of site and to create a gracious and lively front door to the library. A sunny, civic patio welcomes visitors walking up SW 8th and 9th Streets, and is sized to provide outdoor space that can support small library and community events and café seating. A new book drop is provided via a one-way drive and on-site parking is tucked to the north of the building.

The site will be designed to support the intimate and charming character of downtown Redmond, while remaining grounded in the region with the creative use of local materials. Landscape areas will be developed to be lower water use and more drought tolerant than they are today. Where possible, existing trees will be protected and retained on site, providing shade and grounding the new library building in its immediate context. Protected landscape areas include the off-site, park-like median near the police station that provides a shaded pedestrian walkway along the site’s east side.
6.2 REDMOND LIBRARY

B. SITE ANALYSIS

Landscape Narrative

PROGRAM LEGEND

BD  BOOK DROP
BR  BIKE RACK  10 BIKES
CIVIC PATIO  CIVIC PATIO  #SF
CC  NEW CURB CUT  2
LOAD  LOADING
PARKING  OFFSTREET PARKING  17
        STREET PARKING  47 TO 55 CARS
   •  APPROX. EXISTING TREES
   •  TO REMAIN  25 TO 30
   +  APPROX. PROPOSED TREES  20 TO 40

Site Landscape Plan
6.2 REDMOND LIBRARY

B. SITE ANALYSIS

Landscape Narrative

Parking and Arrival
On-site parking is provided in a parking lot north of the library with driveway access off SW 9th Street, SW Cascade Avenue, and drive-through book drop-off and passing lane from W Deschutes Avenue. With parking exemptions allocated for bike parking and a 1:1 trade for street parking along SW 9th Street and SW Cascade Avenue, 64 parking spaces are required for the proposed building, which assumes 32,000 net square feet of building area. The parking islands and perimeter includes trees, planting, and areas for on-site stormwater management. All drive aisles and parking lot are vehicular-grade asphalt or concrete.

Bike parking is provided at a small entry plaza adjacent to the northern building entrance, accessible from the parking lot or from the concrete pedestrian path that connects to the sidewalk at SW 9th Street. The northern entry plaza and southern entry path are made of pedestrian-grade specialty pavement and are flanked by fixed site furnishings and Library signage. A 16’ wide pedestrian entrance path provides building access from W Deschutes Avenue to the south.

The parking lot includes pole lighting and may include pedestrian scale lighting at the north and south building entrances.

Civic Patio
The civic patio wraps the SW corner of the building with direct access off SW 9th Street and the southern entry path. The patio, which is covered by the building’s roof canopy overhead, provides a flexible space for community events and café style seating. The patio will be made of pedestrian-grade specialty pavement with integrated regional materials and outdoor furnishings or built-in seat walls.

Planting and Irrigation
Planting areas around the building may include drought tolerant eco-lawns as well as native and adapted plants and trees. Parking lot medians will be planted with trees, shrubs, and groundcovers hardy to urban conditions.

The site will have a full irrigation system. Zoned irrigation will allow for areas to be turned off after establishment.

Tree Preservation
Healthy existing shade trees along the perimeter of the site will be protected and preserved as possible.
B. SITE ANALYSIS

Development Code

Development Code
This zoning code analysis is preliminary only and has not yet been reviewed, vetted or approved by the City of Redmond. Coordination with the City will begin with a Preapplication and Presubmittal Conference during the Schematic Design phase in October 2021. The following developmental code analysis is based on the City of Redmond Developmental Code, dated January 2003.

Property Information
Parcel 151316AB12502
Address 827 SW Deschutes Ave
Redmond, OR 97756
Land Area 28,749.6 square feet
Acres 0.66
Zoning Public Facility (PF), Downtown Overlay Zone

Conditional Use
A library is considered a Public Facility and is permitted in a Public Facility Zone

Minimum Lot Size
N/A* The minimum lot size shall be determined based on demonstration of the ability to develop the site in accordance with the zone standards, off-street parking standards, Site and Design Review Standards, landscaping requirements and other applicable Development Code provisions without adverse impact to water and land resource quality and adjoining properties

Minimum Setbacks & Height Requirements
Table 8.0225 Table F
Front (Local Street) 25’
Interior Side (Standard) 10’ (2 story building)
Street Side (Collector Street) 25’
Rear (Local Street) 10’
Maximum Building Height 60’
Minimum Street Frontage 50’
Minimum Landscaping 15%
B. SITE ANALYSIS

Parking Requirements

Section 8.0500
Of the amended Section 8.0505 by Ord. #2020-15 passed November 10, 2020 the required off-street parking for PF zoning with the Downtown Overlay District is 1 space per 500 net square feet of building. The building is approx. 32,000 net square feet which results in approx. 64 required off-street parking spaces. The off-street parking lot currently allows for 55 parking stalls.

Section 8.0505.11
Off-street parking spaces may be reduced by number of on-street parking spaces that are allowed and constructed along the street frontage of the proposed development subject to approval by the City Engineer. Currently, 17 additional spaces are being proposed for on-street parking.

Section 8.0505.8
In any zone, every building having a gross floor area of 10,000 sf or more with a use requiring the receipt or distribution by vehicles or materials or merchandise, shall provide one off-street loading berth, plus one additional loading berth for each additional 20,000 sf of gross floor area. Each loading berth shall have paved access and each space shall be 10 feet wide and 22 feet long. Currently the design is proposing two loading stalls.

Section 8.0510.D
A securable parking space shall be provided for bicycles for each new commercial use. Credit for 1 vehicular parking space shall be given for each 5 bicycle parking spaces. Cannot replace more than 20% of the required parking under any circumstances. The current design proposes 10 securable bike parking spots with no reduction to number of required parking stalls.
6.2 REDMOND LIBRARY

C. BUILDING ANALYSIS

Massing Concept

Below are the site considerations that informed the massing concept and building layout.

1. Site Response
The massing concept for the new Redmond Library takes cues from the existing library and adjacent civic buildings such as the City Hall. To maintain a civic presence, axial and visual connections to Centennial Park the massing for the new library is shifted to be closer to W Deschutes Ave. This allows for a stronger visual connection from adjacent sites and creates a more activated front entry. By shifting the building closer to W Deschutes Ave, off-street parking is able to be located towards the north of the site, limiting it’s visual impact and utilizing the two existing curb cuts off of SW Cascade Ave.

2. Entries
The library has two public entries. The main entry is located on the south side of the building and is adjacent to the patio. The second entrance is located on the north side of the building and creates direct access from the parking lot into the building. Both entries are connected to the main lobby.
6.2 REDMOND LIBRARY

C. BUILDING ANALYSIS

Massing Concept

3. Hall
The massing is broken down into two volumes. The main volume is an open pavilion like hall with tall ceilings, unobstructed views and atmospherically connects levels 1 and 2. The north masonry bar volume is attached to the hall and creates an anchor to the hall.

4. Open Patio + Warm Roof
With the elimination of the existing generous front lawn created on the site, the new library design creates a large civic front patio to the south and west of building that welcomes patrons, creates an active entry into the library and can be programed for a multitude of uses throughout the year. Imagine taking a good book and coffee outside to the patio on a sunny day! While pulling back the massing on the SW corner, the importance of the patio is emphasized with Levels 1 and 2 looking onto the outdoors space. The existing street trees along W Deschutes Ave and SW 9th Street are proposed to remain.

To bring these massing moves together, an expansive roof with overhangs over the patio is being proposed. This roof will create a warm, wood ceiling on Level 2 and create a pavilion like space.
The program layout of Level 1 is intended to be an active and vibrant space that offers a small taste of the many programs, activities and spaces the library offers. The Redmond Library is a destination for multigenerational families, and it is important that all feel welcome upon arrive. The building layout is designed with a central pavilion like hall that incorporates a tall ceiling, open sightlines and expansive views onto the patio and beyond.

As patrons enter through either the north or south entries, they will be greeted with a feature stair that is atmospherically open to Level 2. The main lobby will serve as the connecting spine between programs on Levels 1 and 2. Connected to the hall are three masonry volumes that are differentiated by a change in material on the exterior but on the interior, these spaces will feel connected to the adjacent hall.

On the north, the event space and administration program are located. A small masonry volume is located on the south façade and will be part of the childrens space.
C. BUILDING ANALYSIS

Floor Plan Diagram - Level 2

The program layout for Level 2 is intended to invoke a more traditional library setting with a mixture of collection/stacks and seating with tables and chairs.

There will also be small study rooms which can accommodate up to 6 people. Upon arrival from either the feature stair or elevator, patrons will enter a pavilion like hall, similar to Level 1 but the ceiling will be taller, and a horizontal ban of skylights will run in the east-west axis. In the southwest corner, expansive glazing will overlook the exterior patio with views towards City Hall and the mountains.

Similar to Level 1, three masonry volumes connected to the hall will be located on the north and south facades. The masonry volume to the south will be an exterior reading terrace that can be programmed for multiple functions.
C. BUILDING ANALYSIS

Building Section

This diagram begins to convey major architectural features throughout the building. As library patrons arrive at the primary entry off Deschutes, they are greeted under a generous two-story overhang with a warm wooden soffit that appears continuous from inside to outside. The entry doors are located along an extensively glazed wall that gives patrons a sneak peak into the bustling library. Upon entering the library, patrons who entered from both the north and south entries will be greeted in a double-height space with a feature stair that connects Levels 1 and 2. The pavilion like hall on either side of the lobby will be flushed with natural light from the south and west and will have long uninterrupted spans due to steel beams and a cross laminated timber (CLT) ceiling. These large spans will create added flexibility for spaces to serve a variety of functions. A more solid two-story volume has been added to the north of the Hall. As patrons ascend the stairs or ride the elevator to the second floor, they will enter a hall like space with a generous ceiling height that is also flushed with natural light. The ceiling will be constructed from CLT and the structural system will be glue laminated wood beams with a delicate queen post truss that gives a sense of lightness to the roof as well as creates long spans with limited columns. Skylights along the east-west axis separate the Hall from the two-story north masonry volume adding visual separation. Mechanical units on the north masonry volume are screened and the possible use of photovoltaic panels and vegetated roof on the low slopped roof over the Hall are being explored.
C. BUILDING ANALYSIS

Exterior Pedestrian Experience

These perspective views, taken from the southeast and northeast corners of the site, shows the open and transparent views into the library, bracketed by masonry forms. The civic patio in the foreground will provide flexible covered outdoor space for library programming.
C. BUILDING ANALYSIS

Exterior Materiality

The new Redmond Library represents a long-term investment in the downtown civic campus, near the historic City Hall and commercial buildings. To sit gracefully within this context—yet convey a sense of innovation and energy within—the expression of the new library will incorporate the following:

- Simple grounded massing with a clear entry facing Deschutes Avenue.
- Brick masonry parapet forms surrounding glazed views to the interior
- Expressed wood and steel structure, with a cantilevered roof providing expansive cover for a
C. BUILDING ANALYSIS

Interior Design

The interior of modern libraries needs to be durable and easy to maintain, withstanding daily public traffic. At the same time, the interior environments need to address the variety of experiences living together under one roof. To allow this to occur successfully, acoustic control will be essential, as well as the desired adjacencies described within.

The following finishes will be incorporated to support the program uses:

- Polished concrete topping slab at radiant flooring areas (there may be select areas of carpet over radiant floor, if deemed to be thermally appropriate for radiant heating/cooling)
- Resilient floor will be used at the staff work areas to address ergonomic support and acoustics.
- Carpet tile will be incorporated at raised access floor areas.
- Universal restrooms will utilize ceramic tile at walls and floor, trough sinks, and taller all-gender partitions.
- Typical wall finish to be painted drywall, with wall protection provided at the staff work areas.
- Aluminum window systems will be provided for interior glazing applications including operable walls.
- It is intended that the wood structural deck will be exposed as much as possible, with the exception of acoustic clouds or required systems concealment.
6.2 REDMOND LIBRARY

C. BUILDING ANALYSIS

Existing Interior Character

Original building exterior brick used in library entry

Original school casework built into existing library

Original school casework built into existing library
6.2 REDMOND LIBRARY

C. BUILDING ANALYSIS

Building Code

This building code analysis is based on the 2019 Oregon Structural Specialty Code with revised Chapter One. This building code analysis is preliminary only and has not yet been reviewed, vetted or approved by the City of Redmond. Coordination with the Redmond Building Department will begin with a Preapplication and Preshubmittal Conference during the Schematic Design phase beginning in October 2021.

Use and Occupancy per OSSC Chapter 3
The proposed library building will be primarily an Assembly Occupancy.

- 303.4: A-3 – occupancy for library
- Accessory non-separated occupancies will include
  - 304.1: B occupancy at administration areas
  - 311.2: S-1 occupancy – storage

Construction Type & Building Configuration
The concept design calls for Type VB construction, fully sprinklered.

Type VB limits the project to:
- 504.3: 60 feet max above grade plane
- 504.4: 2 stories maximum
- 506.2: Total allowable area: 18,000sf
- 506.2.3 & 506.3.2 Frontage Increase: 0.58
- Total allowable area per story: 21,480sf
- Total allowable area: 42,960 sf

Notes: At this early stage of design aspects of the project need to be discussed with the City’s building code official. Several construction types have been explored and are viable options and frontage increases will be reviewed with the City.

Building Construction & Fire Rating

- **Table 601**: Construction Type VB exterior walls, interior building elements, including primary structural frame, interior walls, floors and roof are permitted to be constructed from any material permitted by code with no fire rating restrictions.

Stairs

- **Section 1006.2.1.1**: Three egress stairs are required due to the occupant load being higher than 500 persons. Two of the three stairs will be enclosed and designed as exit access stairs. The third stair is a feature stair and is atmospherically connects Level 1 to Level 2. Per 1007.1.2, when access to three or more exits is required, not less than two exit or exit access doorways shall be arranged in accordance with the provisions of Section 1007.1.1. Additional required exit or exit doorways shall be arranged a reasonable distance apart so that if one becomes blocked, the other will be available.
- **Section 1009.3 Exception 4**: The feature stair that is designed exclusively for circulation is not required to be enclosed provided that the building is equipped throughout with an automatic sprinkler system and does not connect more than four stories.

Elevators

There is one elevator provided on the project. The elevator is centrally located and directly accessible from the Main Lobby and is sized for ADA accessibility. The elevator will service Levels 1 and 2. The elevator will have an elevator machine room located to the north of the proposed elevator and have a rooftop overrun which will accessible via the egress stair for maintenance purposes only.

Restrooms

Three main clusters of restrooms are provided in the building.
- **Level 1 Northeast**: restrooms, single-user restroom
- **Level 1 Meeting Rooms**: single-user restrooms that can be accessed when the meeting rooms are rented during after library hours
- **Level 1 Staff**: single-user restroom with shower
- **Level 2 Northeast**: restrooms, single-user restroom

Lobby

The building lobby is a double-height space; it extends up to the ceiling of Level 2 where skylights will be located on the roof. The feature stair, which is also an exit access stair is in the lobby. Level 1 and Level 2 are atmospherically and visually connected at the lobby.
C. BUILDING ANALYSIS

Building Program Description

A proposed program for the new Redmond Library has been developed through preliminary public comment, staff input, collection data and professional expertise. For each of the spaces and amenities listed in the proposed program, design criteria, trends and public input have been summarized as guidelines for the design of the future library. Indoor and outdoor spaces have been identified, as well as their envisioned use and recommended design criteria.
C. BUILDING ANALYSIS

Building Program: Description of Spaces

Collections (general)
There are a number of collection types in the building. Library shelving (metal or custom) will be provided by owner. Some will be on casters, and some will be anchored to the floor/wall structure to meet seismic criteria. It is not anticipated at this time that there is any high-density or compact shelving.

Typical lighting fixtures to be stack-mounted or ceiling-mounted linears to achieve appropriate light levels 12” AFF on the vertical face of shelf. Power and data will be provided throughout these areas (perhaps integrated with shelving) to provide immersive connection with online and downloadable portions of the collection.

Seating in a variety of types is essential. Ideally, seating is sprinkled around and within the collection areas and includes options that consider a variety of body types, abilities, ages, and tasks. Seating should be selected and organized to provide accommodations for the breadth of library users: easy to clean and disinfect, fabrics that do not keep odors, and upright to discourage sleeping. Spacing should provide users the ability to sit together and converse or enjoy solitary time.

Service points— and the personal connections they make with users - is a big reason many people frequent libraries today. Staff will provide mobile service and can touch down at movable kiosk-like elements placed in multiple prominent locations throughout the library.

- **The Fiction and the Non-Fiction Collection:** are currently located on Level 2. Both will be browser-friendly with some lower shelving units for unobstructed sightlines and ample display surfaces. These areas will also have seating distributed throughout the collection areas.

- **Media:** In general, this is a collection that is reducing over time in response to the availability of streaming platforms. It is not anticipated to be a large program area at this time.

- **Hot Reads:** This section refers to a small but expertly curated selection of popular reads. To get the most traffic, it is recommended to locate this collection on level 1 near the entry. Owner provided shelving will have a more custom appearance and be placed on casters to allow for frequent reconfiguration to accent it as a unique destination

- **Holds:** this collection will be located proximate to the entry on Level 1 for easy access to patrons as well as the drive-up window. It will consist of open metal shelving and/or Self-serve lockers. As people have gotten accustomed to convenience and immediacy in other aspects of life, placing books on hold and having them delivered or held on-site will be an important service for the library to provide

- **Reference Collections:** have been decreasing over the years and are anticipated to continue doing so. For the new facility, it is assumed that this collection will be interfiled, and not require dedicated collection space

- **International Collection:** The diversity of Deschutes County continues to grow, and this collection will serve users of all ages who are English language learners (ELL or ESL), as well as intergenerational users who use the area together as a family. Signage and other indicators should include multiple languages and be readily visible. It will likely be located on Level 2

- **Specialty Collections:** DPL has a number of unique collections such as The Library of Things, Curriculum Kits, and Book Club Kits. These may want to be available on Level 1 and may require unique shelving units
C. BUILDING ANALYSIS

Building Program: Description of Spaces

Youth Areas
Spaces for children are some of the most heavily used areas in public libraries. Parents, siblings, and caregivers join their young ones to gather books, read together or attend programs. Circulation space should be ample to allow for strollers or personal carriers. Subtle delineations in finishes or shelving organization can help denote space for the 0-5 age group (early literacy users), the 5-8 age group, and the 8-12 age group. This helps separate behavior as well as collection as is developmentally appropriate. Acoustic treatment will be especially critical in these areas.

- **Early Learning:** an iconic interactive early literacy installation is envisioned to be a destination amenity for Level 2—attracting and engaging the youngest visitors and their caregivers. This space is anticipated to be adjacent to the Childrens collection for convenient parental supervision.

- **Childrens:** Children’s programs are varied and dynamic: storytime, crafts, and puppet shows to name a few! As such, an enclosed/semi-enclosed program space will be included with ample storage and durable, easy to clean finishes. In the collection area, finishes should assume more users will be sitting on the floor/crawling and be able to withstand the typical spills that come with childhood use. Custom casework may augment typical metal library shelving to create more opportunities for display of face out picture books and younger users.

- **Teens:** This is currently located on Level 2 and will express a clear identity and “place” that teens can call their own. Teen activities could include gathering, gaming, technology use, or doing homework – and are most heavily used mid-afternoon and evening. The space may include some amount of enclosure to manage noise and will incorporate study rooms, some collection, decorative lighting and unique finishes. There is the possibility of a smaller teen space located on Level 1 with adjacencies to the Creative and Collab spaces.
C. BUILDING ANALYSIS

Building Program: Description of Spaces

Creative + Collaboration Space: Community feedback indicated that spaces to convene, share, teach, and celebrate were highly desired; so, a significant increase in these types of spaces is reflected in the proposed building program for the new library. This is in keeping with a trend seen over the past 10+ years of these types of spaces being in extremely high demand. The ability to gather in groups from 2 people in a small tutoring session to a community program of 100 or more - at no cost - is an essential community resource.

- Tutoring Rooms: Acoustically enclosed spaces for someone to take a phone call, 2-4 people to meet, or teams to work on a project are included. They may include a computer monitor or other AV elements.

- Technology: Access in the new facility should be provided in the following formats in order to reach a diversity and quantity of users:
  - Fixed computer stations, organized in small groupings for easy assistance by staff
  - Fixed technology provided within select collaboration spaces

- Creative Spaces: These spaces may support a range of community programming from art to emerging technology access to hands on programming. Finishes should be durable and easy to clean an exhaust hood may be required for 3D printers or soldering.

- Co-working Areas: With the increase of remote work, the library will include a co-working space with a variety of furniture configurations. Acoustic control may be important.

- Event Space: The ability to host a variety of events is key to this new facility. The proposed program includes one large event space that can accommodate approximately 200 people with AV/IT capabilities to provide to stream live events. This space(s) will be available for after hours and/or rental use. A higher level of finish is required to provide a desired environment, support frequent furniture movement, manage acoustics during simultaneous events and enable lighting control. This space is currently showing operable walls to subdivide the space or open to the larger library. The event space will have a small kitchenette with sink, fridge and microwave.
6.2 REDMOND LIBRARY

C. BUILDING ANALYSIS

Building Program: Description of Spaces

Staff + Operations: The proposed program anticipates a combination of enclosed offices, open/shared workstations, and meeting spaces. These areas will include carpeting, acoustic control, and glass enclosures.

- A large workspace for circulation-sorting tasks will be required, needing resilient cushioned flooring and acoustic enclosure. An AMH (Automated Materials Handling) system will be incorporated along with ample area around the sorter to allow for book truck activity. The amount of categorization (as well as the selected manufacturer) will confirm the space needs and layout for this system (including power and data requirements). To achieve the most benefit from the investment, interior and exterior book returns should connect directly to the AMH system in the work area. This minimizes unnecessary staff touch points as well as ergonomic issues from repetitive motion.

- The program also includes areas for a loading, shipping/receiving, a drive-up window, break room and staff lockers/showers.

Drive-thru book drop and pick up: Utilizing the existing curb cut on W Deschutes Ave, the design allows for a covered drive thru book drop and pick up on the east side of the proposed building. To help serve the needs of more patrons, the drive thru book-drop and pick up will eliminate often cumbersome walk of carrying books into the library to drop off or pick up. In addition to the drive-thru drop off, there will be an additional book drop off on the north façade of the building.

Outdoor Areas: There are two designated outdoor areas, a generous front patio on Level 1 and a small reading terrace on Level 2.
C. BUILDING ANALYSIS

Preliminary Space Needs Summary

This preliminary space needs summary will continue to evolve over the coming phases of design as conceptual layouts, cod analyses, cost, functionality, workflow and collection configurations inform square footage.

Refer to Appendix 7.3 for a more detailed list of space needs.

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<th>OUTDOOR GSF</th>
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6.2 REDMOND LIBRARY

D. BUILDING SYSTEMS: STRUCTURAL

Narrative

**Basement and Foundations**
A geotechnical investigation of the site has not been performed and therefore the following recommendations are preliminary. Based on our understanding of the geotechnical properties of the area, we recommend that the building structure be supported on shallow concrete foundations. The building columns will be supported on isolated spread foundations. The shear walls will be supported by continuous concrete foundations.

The ground floor will be a traditional slab on grade with a topping slab which would carry radiant heating piping.

**Superstructure Framing**
The superstructure will be primarily framed with wood and steel. Glulam columns will be used to support the second floor and roof. Steel wide flange beams will span between the columns at the second floor. GL beams will be used to span between columns at the roof level. Cross laminated timber (CLT) or dowel laminated timber (DLT) decking will be used to span between the steel or wood beams. A concrete topping will be used above the panels which will be composite with the steel beams at the second level.

**Hall Framing**
The main hall of the building is being called the Nave. It is approximately 60’ in width with no interior columns. Large steel WF beams will clear span across the space at the second floor. A queen post truss consisting of glulam beams, steel HSS queen posts and steel tension ties will be used at the roof to span across the 60’ column free Hall space.

**Lateral Force Resisting System**
The lateral force resisting system for the building is specially reinforced concrete or masonry shear walls. A building’s lateral system resists horizontal loading from wind or seismic events. The shear walls will generally be located near the perimeter of the building. The shear walls will be in areas where they do not interfere with exterior glazing or architectural systems.
D. BUILDING SYSTEMS: STRUCTURAL

Foundation Plan
D. BUILDING SYSTEMS: STRUCTURAL

Second Floor Framing Plan
D. BUILDING SYSTEMS: STRUCTURAL

Roof Framing Plan
D. BUILDING SYSTEMS: MEP

Heating, Ventilating and Air Conditioning Systems

Codes
Systems shall be designed in accordance with the 2019 Oregon Mechanical Specialty code.

Design Criteria
• **Outdoors Design Conditions**
  ◦ Summer: 90°F DB/62°F WB
  ◦ Winter: -3°F

• **Indoor Design Conditions**
  ◦ (TABLE 1 at right)

• **Internal Air Conditioning Load Assumptions**
  ◦ **Lighting:** All lighting is assumed to be 30% below ASHRAE 90.1-2019. At Construction Documents stage, actual lighting load will be based on the lighting design
  ◦ **Miscellaneous Office Equipment:** 1.0 Watts/S.F. for Office Areas, 0.5 Watts/S.F. for Conference Rooms, 0.25 Watts/S.F. at stacks
  ◦ **People:**
    - 255 BTUH Sensible/150 BTUH Latent for offices, conference rooms, and stacks
    - 255 BTUH Sensible/245 BTUH Latent elsewhere
    - Number of people shall be based on ASHRAE standard 62.1-2019 and/or planned quantity of occupants.
  ◦ **Ventilation Rate:** ASHRAE 62.1-2019.

<table>
<thead>
<tr>
<th>SPACE</th>
<th>COOLING (° F)</th>
<th>HEATING (° F)</th>
<th>RELATIVE HUMIDITY (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Occupied Zones</td>
<td>74 ± 2</td>
<td>70 ± 2</td>
<td>No Control</td>
</tr>
<tr>
<td>Office</td>
<td>74 ± 2</td>
<td>70 ± 2</td>
<td>No Control</td>
</tr>
<tr>
<td>Server Room/ IDF/MDF</td>
<td>80 ± 5</td>
<td>No Heating</td>
<td>No Control</td>
</tr>
<tr>
<td>Unoccupied Areas (Elec. Closets,</td>
<td>90</td>
<td>55</td>
<td>No Control</td>
</tr>
<tr>
<td>Mechanical Rooms, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Support Area (Restroom, Janitor Closets)</td>
<td>76 ± 2</td>
<td>70 ± 2</td>
<td>No Control</td>
</tr>
<tr>
<td>Elevator Machine Room</td>
<td>90 ± 2</td>
<td>No Heating</td>
<td>No Control</td>
</tr>
<tr>
<td>Entry Lobby</td>
<td>76 ± 2</td>
<td>68 ± 2</td>
<td>No Control</td>
</tr>
<tr>
<td>Event Areas</td>
<td>74 ± 2</td>
<td>70 ± 2</td>
<td>No Control</td>
</tr>
<tr>
<td>Activated Radiant Floors</td>
<td>76 ± 2</td>
<td>68 ± 2</td>
<td>No Control</td>
</tr>
</tbody>
</table>

TABLE 1: Indoor Design Conditions

Envelope Load Assumptions
• **Walls:** Composite U-Value will be determined based on actual building design conditions. We are anticipating an overall U-Value of 0.048.
• **Glazing:** We are anticipating an overall U-Value of 0.36 including framing and glazing SHGC of 0.38 maximum.
• **Roof:** Composite U-Value will be determined based on actual building design conditions. An assembly equivalent to or greater than R-30 insulation is anticipated.
D. BUILDING SYSTEMS: MEP

Heating, Ventilating and Air Conditioning Systems

Central Plant
The central heating/cooling plant will be located on the roof and is anticipated to be approximately 100 tons of cooling capacity.

The central plant is proposed to be a high efficiency air-water heat pump array capable of producing hydronic heating and chilled water with variable primary/secondary pumping. The arrays will be either:

- **Option 1**: (2) 50-ton simultaneous heating/cooling heat pumps (Multistack or Climacool).
- **Option 2**: (4) 24-ton VRF heat pumps (LG, Mitsubishi, or Daikin).
- The overall efficiency of the system is less than a ground coupled heat pump system but greater than a conventional gas boiler/chiller system.

HVAC Distribution
The ventilation system will consist of one 12,000 CFM rooftop dedicated outdoor air units (DOAS) with heat wheels, bypass dampers and heating/cooling coils. The units will include MERV 8 prefilters and MERV 13 final filters. Provisions for carbon filters will be considered to help with wildfire smoke mitigation. These units will supply conditioned air between 60F and 70F to the raised floor plenum at the upper floor and low wall displacement grilles at the lower levels. The raised floor areas will have displacement type floor grilles with automatic dampers.

Trench type recessed four pipe fan coils (jaga clima canal or SoHo Airfixture) will be located at the perimeter of the raised floors as well as children’s and collab.

The entry area will be heated and cooled via a radiant slab system with imbedded PEX tubing connected to individual zones with circulation pumps. Wall mounted manifolds will be dedicated to serve each zone.

The staff and flex zones will be provided with fan coils above the ceilings with DOAS air supplied to low wall displacement grilles. The flex space fan coils will also have separate exterior wall louveres for outside air and exhaust for after hour use when the DOAS unit is off.

Electrical, Elevator Machine and IDF Rooms will be provided with separate dedicated split systems.

EQUIPMENT AND COMPONENT SELECTION

- **Air-Water Heat Pump Modules**: Operation down to 10F. A supplemental electric boiler (200 KW) and glycol will be required with this option.
- **VRF Air Cooled Heat Pump Modules**: Air cooled type, heat pumps, inverter driven for modulation. High heat, rotational defrost control for heating operation down to –22F.
- **VRF Hydro Kits**: LG, Daikin, Mitsubishi.
- **Piping**: Sized at a friction pressure drop of three feet H2O per one hundred feet of piping. Maximum water velocity in piping systems will not exceed 7 feet per minute.
- **Ductwork Mains**: Constant volume system supply air and return/exhaust main and branch ductwork will be sized for a friction pressure drop of 0.08” H2O per hundred feet of ductwork.
- **Diffusers**: Diffusers will be selected at 5 NC lower than Room Maximum NC values noted for the project.
- **Return and Transfer Grilles**: Transfer grilles will not exceed 250 FPM in ductwork used for transfer or 250 FPM in face of grille.
- **Vibration Isolation**: All motor operated equipment (except that located on slab on grade) will be provided with vibration isolation mounting to prevent transmission of vibration or noise to the building.
- **Seismic Restraints**: Piping, ductwork, and equipment will be provided with adequate restraints.
- **Testing, Adjusting, and Balancing**: An independent testing and balancing contractor will be required (as a sub-contractor to the general contractor), AABC certified to balance all air and water systems and heating and cooling equipment to the required quantities; and to verify the capacity and operating conditions of each piece of equipment.
D. BUILDING SYSTEMS: MEP

Heating, Ventilating and Air Conditioning Systems

Acceptable Noise Levels
(ASHRAE Chapter 46, Table 34)

<table>
<thead>
<tr>
<th>ROOM TYPE</th>
<th>MAXIMUM NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices</td>
<td>30</td>
</tr>
<tr>
<td>Conference Rooms/Classrooms</td>
<td>25-30</td>
</tr>
<tr>
<td>Stacks</td>
<td>25</td>
</tr>
<tr>
<td>Corridors/Lobby</td>
<td>40</td>
</tr>
<tr>
<td>Server Room</td>
<td>50</td>
</tr>
</tbody>
</table>

TABLE 2: Acceptable Noise Levels

Any additional acoustical criterion will be adhered to as dictated by project acoustical consultant.

Temperature Control Systems and Zoning

The temperature control system will control all primary equipment as well as all distribution equipment. Significant energy management strategies will be included such as night setback controls, evening purge sequences, demand limiting, etc. All third-party controllers will be provided with BACnet interface to speak directly to the central BMS system.

- Individual temperature controls will be based on functions, exposure, and Owner request. Preliminary zoning to be shown on the mechanical drawings at Design Development. Final zoning will be discussed with the Owner during future phases of design.
- The controls contractor will provide all wiring per Division 26 requirements.
- The controls contractor will provide all required interface devices.
- All HVAC systems will be controlled and monitored.
- Controls will be provided for measurement and verification:
  - Metering of each domestic water end use (i.e. domestic water, irrigation)
  - Metering of domestic hot water end use
  - Metering of fan energy
  - Metering of pump energy use
  - Metering of lighting energy use
  - Metering of receptacle energy use
  - Metering of heat pump(s) energy use
  - Solar PV energy generation
6.2 REDMOND LIBRARY

D. BUILDING SYSTEMS: MEP

Heating, Ventilating and Air Conditioning Systems

Airborne Infectious Disease Mitigation Strategies
The following strategies were developed in part from ASHRAE’s Position Document on Infectious Aerosols, WHO Position papers, and the CDC. Research regarding effective disease mitigation for COVID 19 is ongoing, and new findings will require updated recommendations. It is important to note that no single strategy can eliminate exposure to disease transmission. However, the following strategies will assist in lowering transmission rates.

Airflow Strategies
• Utilize minimum MERV 13 filtration at each air handler with recirculation
• Utilize DOAS systems and displacement ventilation as much as possible and reduce recirculation.
• Provide dedicated exhaust grilles per water closet to help reduce mixing of air throughout the restroom

Plumbing Strategies
• Utilize automatic flush fixtures to encourage a touch free restroom and reduce aerosolization within restrooms while users are in the stall

Controls Strategies
• Reset Demand Controlled Ventilation Algorithms from 1000 PPM CO2 to 800 PPM CO2 to increase outside air flowrates during “COVID season”
• Implement pre and post occupancy flush outs with outside air

Commissioning
• HVAC, domestic hot water, generators, transfer switches, solar PV and lighting controls will be commissioned
6.2 REDMOND LIBRARY

D. BUILDING SYSTEMS: MEP

Plumbing Systems

Codes
Systems shall be designed in accordance with the 2017 Oregon Plumbing Specialty code.

Sanitary Sewer and Vent System
The sanitary sewer and vent system will be provided to convey waste from the plumbing fixtures by gravity through soil, waste, and vent piping connected to the building waste line under the floor slab. Sanitary sewer service exiting the building will be shown up to 5 feet outside the building.

An alternate will be provided to provide a greywater treatment system for non-potable reuse for flush fixtures, irrigation, and green roofs. The system will capture rainwater, HVAC condensate, water from showers, lavatories, and sinks. The system will include a first flush diverter, a 30,000 gallon below grade cistern with a pump and a media/UV treatment system to treat water to non-potable standards. The piping system and fixtures will be separated from the potable water supply and will be labeled “non-potable water - do not drink”.

Secondary (overflow) drainage piping will be provided where required by the architectural layout.

Sanitary waste below grade and above grade will be no-hub cast iron (PVC in acidic soil), service weight with heavy duty coupling. Vent piping may be ABS/DWV except in plenums.

Storm Water Drainage System
Building rainwater to be routed to the site storm drainage.

An alternate will be provided to capture building rainwater and HVAC condensate for non-potable reuse for flush fixtures, irrigation, and green roofs. The system will include a first flush diverter, a 20,000 gallon below grade cistern with a pump skid and a media/UV treatment system to treat water to non-potable standards. The piping system and fixtures will be separated from the potable water supply and will be labeled “non-potable water - do not drink”.

Secondary (overflow) drainage piping will be provided where required by the architectural layout.

Domestic Cold Water System
A new domestic water service to be tied-in to the site domestic water distribution system. Water service will be provided with code-required backflow preventer and water meter.

The domestic cold water system will be distributed through branch piping connected to the building mains. Each branch pipe shall be provided with a branch shut-off valve (ball valve).

Piping mains will be designed to maintain a maximum velocity of 6 fps at design flow conditions. Smaller diameter branch lines will be designed to a maximum of 5 fps.

Design will ensure that no fixture has a pressure lower than 35 psi or higher than 75 psi.

System will be designed to prevent water hammer conditions by providing air chambers/shock arrestors for fixtures, and shock arrestors for quick closing valves.

Hose bibbs with lockable boxes will be provided with vacuum breakers. Hose bibbs exposed to weather or in locations where ambient temperatures will fall below 40 degrees will have freeze protection.

Domestic water piping will be copper type K (for underground installations) and type L (for above ground installations) hard drawn copper, 125 psi maximum service pressure.
6.2 REDMOND LIBRARY

D. BUILDING SYSTEMS: MEP

Plumbing Systems

Domestic Hot Water System
The domestic hot water system will provide 120 degrees F hot water to all lavatories, shower stalls, and sinks, with scald protection.

Domestic hot water will be provided by a centralized heat pump water heater with electric backup and recirculation.

Drain Systems
The condensate drain system will drain all clean water drainage from any mechanical cooling equipment. All equipment requiring condensate removal will be equipped with a secondary drain pan and visible overflow piping where required by code. The primary condensate will be tied into the sanitary sewer system as an indirect waste with an air gap fitting. Condensate is planned to be insulated.

Plumbing Fixtures and Equipment
Water conserving fixtures will be used throughout, and meet ADA requirements, as follows:

- Public lavatories will be equipped with sensor operated faucets with 0.35 gpm aerators per use
- The water closets will be low-flow, 1.28 gal per flush valve type. Wall hung in public areas
- The urinals will be low flow 0.125 gal/flush type
- The shower valves will be low flow 1.5 gpm
- Drinking fountains will be provided and its location coordinated with architect
- Hose bibbs will be provided around perimeter of each building at 100-foot intervals
Automatic Fire Sprinkler System
The buildings will be provided with new wet pipe, hydraulically calculated fire sprinkler systems per NFPA 13 and the requirements of the state and local fire marshal. Areas subject to 40 degrees Fahrenheit, or less, will be protected with a dry pipe sprinkler system. The riser room will require a heater to prevent the system from freezing.

Pending the evaluation of the site water supply data, and direction from the stakeholders either a new underground fire water main will be connected to the existing public water system or a fire pump shall be provided in between the connection of the sprinkler system and public water system to supplement the potential low water pressure provided by the water supply.

All piping, fittings and valves up to and including the backflow preventer to be NSF rated for potable duty. Backflow prevention shall be provided between fire protection systems and public water supply connection and located in an exterior vault. If required by the local Authority Having Jurisdiction, the double check valve assembly will be provided with a detector meter. A fire department connection (FDC) connected to the fire sprinkler system will be located within fire department acceptable distance from a fire hydrant. A method of draining fire department connection will be provided. A check valve will be installed between the fire department connection and the point of connection to the fire sprinkler systems.

Floor control stations, consisting of supervised control valve, check valve, flow switch, gauge, drawing and inspector’s test connection will be installed at each floor to allow one floor to be shut down for maintenance while maintaining fire protection on other floors.

The design of the fire protection system will be based on a hydraulic design that utilizes 90 percent of available pressure and shall include interior and underground pipe to the location of the hydrant flow test.

Piping will be concealed above finished ceilings and within walls except for areas exposed to structure which will be closely coordinated with the architect.

Sprinklers will be located in the center or quarter point of ceiling tiles and symmetrically with other ceiling features. Ceiling features include, but are not limited to, walls, lights, air diffusers, and other architectural features.

Complete sprinkler coverage for all rooms, concealed spaces and overhangs will be provided.

Quick response sprinklers will be provided in all Light Hazard Occupancy areas. Quick response or standard response sprinklers will be provided in Ordinary Hazard Occupancy areas.

Main and auxiliary drains will be provided to drain the entire system. These will be connected to the sanitary sewer with a gravity drain sized to accommodate flow from pressure pipe or will discharge to the exterior of the building.

Electrical connections and wiring as required will be provided for a complete and operable fire protection system, including, but not limited to flow switches, supervisory switches, and the like. Audible electric sprinkler flow alarms on the exterior of the building will be provided.

MDF and IDF rooms will be protected by a wet pipe system unless the owner desires a single interlock pre-action system.

All sprinkler system submittals shall be provided to the architect for review. Insurer requirements will be coordinated with the owner and architect.

All visible piping shall be coordinated with the architect prior to installation or contractor will be required to remove and relocate per architect’s direction. Painting of visible piping shall be coordinated with the architect.
D. BUILDING SYSTEMS: MEP

Fire Suppression Systems

Materials
Materials to be UL listed or FM approved for the intended fire protection use, new, free of defects, of current manufacture and identified.
Piping will be as follows:

• **Underground piping**: will be Class 52 ductile iron
• **Aboveground**:
  ° 2-inches and smaller: Black Steel, Schedule 40 black steel threaded
  ° 2-1/2 inches and larger: Black Steel schedule 10 black grooved
• **Fire sprinkler heads**:
  ° Sidewall Style: Quick Response. Finish: Coordinate with Architect
  ° Unfinished Ceiling Spaces: Upright style, Quick Response. Finish: Coordinate with Architect
D. BUILDING SYSTEMS: MEP

Electrical Systems

Code
Systems will be designed in accordance with the 2020 Oregon Electrical Specialty code and 2021 Oregon Energy Efficiency Specialty Code.

Electrical Utility Service
The electric utility service will be provided by Central Electric Cooperative. The contractor will be responsible for all trenching, backfill, and conduit for both primary and secondary feeders. Underground primary conduits are assumed to be (2) 4” conduits but actual sizes will be confirmed with CEC during design.

The primary feed will be routed from the nearest utility vault or power to a new pad mounted utility transformer (provided by CEC). Secondary conduit and conductors will then be extended to an exterior, service entrance rated, main distribution switchboard that will contain a utility pull section, termination section, current transformer (CT) section, and main service disconnect. Incoming service will be rated for 277/480 volts, 3-phase, and 1,200 amperes.

Electrical Distribution System
Incoming main distribution switchboard will be centrally located in electrical room on ground level. A 1,200-amp main distribution switchboard will provide distribution breakers to serve branch panelboards throughout the building.

Separate branch panelboards will be provided for lighting, receptacles, and HVAC equipment. Branch panels will be located in the main electrical room and in a satellite electrical room on the 2nd floor. Lighting and HVAC will mainly be served with 480/277V branch power. Receptacles will be served by 208/120V branch power. Distribution transformers will be provided in each electrical room to step down voltage as required.

Owner demand metering will be provided in the main distribution board to monitor branch power loads and overall energy consumption.

It is assumed that MC Cable will be acceptable for branch circuit routing in non-exposed spaces. Single runs of MC Cable will not exceed 50'-0” in length and will not go from room to room. MC Cable will not be allowed for homeruns and/or feeders.

Emergency Power Supply System
The emergency power supply system will distribute power to emergency branch panelboards located in satellite electrical rooms and supply backup power to the egress lighting in the corridors, elevator lobbies, staircases, and exterior, as well as the fire alarm system and security systems.

Additional emergency distribution equipment may be provided to serve elevators and building telecommunications equipment.

- **Central Battery Inverter – Base Option**
  - Central Battery Inverters (approximately 10kVA) with integral branch breakers will be provided to serve emergency lighting loads and fire alarm/security panels.
  - Telecommunications equipment would require dedicated UPS systems for soft shutdowns in the event of power loss. Elevators would require battery lowering equipment.

- **Backup Generator – Alternate**
  - An alternate option is provided for a single, 200kVA (160 kW @ 0.8 power factor) diesel driven emergency generator to be located onsite to supply backup power for the fire and life safety systems including the building emergency egress lighting, fire alarm systems, security systems, building telecommunication systems, and elevator(s).
  - A sub-base will be required to provide a minimum 2 hour run time to emergency loads as required by code. The generator will consume approximately 12.5 gallons per hour at 100% load. Peak fuel consumption for 2 hours will require 25 gallons. With a maximum fuel tank fill of 90% and a 33% buffer a 35-gallon tank will be required.
  - The generator would be located exterior to the building in a weatherproof, sound-attenuated enclosure.
  - Under both options, an exterior docking station will be provided for connection of a portable generator.
D. BUILDING SYSTEMS: MEP

Electrical Systems

Photovoltaic Systems
A solar photovoltaic system will be provided with a size and location to be determined during the design to meet the State of Oregon 1.5% Green Energy Technology requirements.

Lighting
The illumination levels for the project will comply with IESNA (Illuminating Engineering Society of North America). All LED light fixtures will comply with UL Standard 8750, with IESNA Standards LM-79 and LM-80. Project will be designed within all applicable building codes. Our goal is to exceed minimum energy requirements.

All luminaires will have an LED light source with highest efficiency performance specifications possible for each area. Color temperatures will be 3000 Kelvin and fixtures will allow for dimming of the luminaires based on activities in the space. The lighting design will provide an atmosphere that reinforces the architecture and landscape.

• Emergency Egress Lighting and Exit Signs
  ◦ Emergency and egress illumination will be incorporated into the design meeting all life safety code requirements. All emergency paths of egress will be illuminated, included exterior areas. Emergency lighting will be programmed on upon loss of power. An average of 1 foot-candle level of illumination will be provided. Exterior areas of discharge will be designed with emergency lighting extending no more than 10 feet.

• Site Lighting
  ◦ Site lighting will be provided via pole mounted luminaires in parking areas, pedestrian post-top style fixtures along walkways, and bollards/building mounted lights at building entrances. All fixtures to be full-cutoff for dark sky compliance.
  ◦ Parking lot lighting will be provided with integral motion sensors to dim lights to 50% during periods of inactivity.
  ◦ All site lights will be controlled via time clock or photocell for automatic control.

• Back of House Lighting
  ◦ In back of house areas such as electrical and mechanical rooms, elevator machine rooms, elevator pits, trash, and storage areas, 4” lensed LED striplights will be utilized to provide the required light levels of each area. Target light levels of 20-25 footcandles.

• Lighting Control Systems
  ◦ All lighting will be automatically controlled via a networkable distributed lighting control system to meet the energy code requirements.
  ◦ Automatic lighting controls are not required for the following areas:
    - Designated security or emergency areas that are required to be continuously illuminated.
    - Interior exit stairways and ramps and exit passageways.
    - Emergency egress lighting that is normally off.
  ◦ Occupancy sensors with maximum 30-minute delay will be provided in all conference/meeting/multipurpose, restrooms, storage and support spaces. Occupancy sensors will be of the passive infrared or combination infrared/ultrasonic type. Manual ‘ON’ override will be provided in all spaces containing occupancy sensors.
  ◦ Daylighting/dimming controls will be provided in areas with skylights or exterior windows, where natural light is available.
D. BUILDING SYSTEMS: MEP

Fire Alarm Systems

An automatic, addressable, fire alarm system will be provided to meet code requirements.

The fire alarm systems will provide system alarm, supervisory and trouble signal monitoring, and alarm notification for the building. A digital alarm communicating transmitter will facilitate off-premises monitoring of the individual signals to an off-site receiving station. Any power supplies will have batteries to provide a secondary power source in case of primary power loss to the control panel or any remote power supply.

All building fire alarm systems will be networked together, via site fiber fire alarm network.

Automatic smoke detection and manual pull stations will be provided as required by code, including but not limited to, elevator recall service, HVAC systems’ monitoring, smoke damper monitoring, and fire door control. Heat detection will be provided to operate elevator shunt trips.

Activation of automatic fire detectors, manual pull stations, sprinkler water flow switches and suppression systems will initiate alarm signals on the master fire alarm control panel (FACP). Activation of sprinkler tamper switches and HVAC duct smoke detectors will initiate supervisory signals, which will annunciate on the master FACP and the FAA.

Manual pull stations and automatic fire detection will be provided where required by Code. Audible and visible alarm signals will be provided throughout the buildings, when required by Code.

Control outputs will be provided for fire safety functions, such as air handler shut down, elevator control, fire smoke damper closure, and fire door release.

Fire alarm equipment will be UL listed for fire protection.

The fire alarm panel will be an analog, addressable system with point identification.

Strobes will have multi-candela settings for field adjustment to achieve ADA and NFPA 72 visual requirements for the protected spaces. Strobes will be provided as combination horn/strobes or standalone strobes. Finishes will be white.

Manual pull stations will be single action type with red finish.

Smoke detectors will be photoelectric type. Where installed for monitoring HVAC systems and control of fire smoke dampers, detectors will be either duct-mounted or in-duct mounted.
D. BUILDING SYSTEMS: MEP

Building Technologies

Telecommunications Systems

• **Telecommunications Rooms (TR)**
  - Telecom Rooms will be located on each level. The ground level will have three rooms, one of which will be the entrance facility for the telephone and CATV service providers. This room will be approximately 10-feet by 15-feet in size.
  - There will be one telecom room on the second level.
  - 3/4-inch fire resistant plywood backing will be installed on one full wall in each TR. Mounted 4 inches above finished floor and extending to 8 feet minimum. Telecom equipment and cabling will be mounted to the plywood.
  - The rooms will also house free standing racks for the backbone and horizontal cabling as well as active equipment – network switches, UPS, etc.
  - There will be an overhead ladder rack around the room to route cables within the room.

• **Backbone Distribution**
  - A CATV backbone, consisting of RG-11 coax cable will be installed from the Entrance Facility to each Telecom Room.
  - A copper 25 pair Category 3 cable backbone will be installed from the Entrance Facility to each Telecom Room.
  - A 12-strand single mode fiber will be installed from the entrance facility to each Telecom Room.

• **Horizontal Distribution**
  - Cat6 cabling will be used throughout the project.
  - There will be a Cat6 cable to wireless locations for full coverage.

• **Telecommunications Pathway**
  - Conduit will be provided from the service provider’s location to the EF.
  - Conduit/Sleeves will be provided from the EF to the TR locations on the floors above. Pathway routing must be coordinated for each of the floors where the TR locations are not stacked. Conduit sleeves will be provided from the closets up to the roof for the option of satellite TV service.

Audio Video Systems

• **Conference rooms**
  - All conference rooms will have video and audio-conferencing capabilities, audio reinforcement and program distribution equipment.

• **Paging System**
  - There will be an overall paging system for the building with zones as determined by the owner in future coordination.

• **Specialty Spaces**
  - Any spaces that require special AV systems will be addressed in the design as well. This could include: multimedia rooms, gaming rooms, VR or immersive technology rooms, as well as collaboration spaces.

Building Security

• **Access Control**
  - Card readers will be located at all exterior entrances.
  - Additional card readers can be installed in locations as determined during design development.

• **Intrusion detection**
  - An intrusion detection system will be indicated that secures the facility after working hours.
  - The system will consist of motion detectors, door contacts, glass break sensors, and arm/disarm keypads.
  - The system will be integrated with the access control and video surveillance so the security management system can be used to operate all systems together.

• **Video Surveillance**
  - Cameras will be located at all public entry points, the parking areas, stairwells, and the exterior. A network video recorder and IP video surveillance cameras will be utilized.
  - Additional cameras can be installed in locations as determined during design development.
D. BUILDING SYSTEMS: MEP

Building Technologies

Two Way Communication System
The two-way communication system shall be designed and installed per requirements of 2015 IBC Section 1007.6.3. The system should include control panel, UPS, Call boxes in each Elevator Lobby and low voltage cable per manufacturer recommended installation instructions.

Emergency Responder Radio Coverage
The Emergency Responder Radio Coverage System will be indicated with performance specifications and will be designed by the installing contractor.
D. BUILDING SYSTEMS: ACOUSTICS

Sound Privacy & Distraction Control

The design of partitions, assemblies, details, and door assemblies will be based on the sound isolation needs for specific rooms and the adjacencies. Note the performance goals outlined in the criteria section.

The following conditions represent increased risk of acoustical impacts:

- To control the noise from book carts and footfalls on the proposed raised floor, select panels that are cementitious or have a weight of at least 5.0 psf. The basis of design flooring should be either carpet tile or a smooth hard-surfaced finished floor over a topical acoustical underlayment (such as 1/8" thick recycled crumb rubber underlayment).

- Operable partitions for flexible meeting spaces should have a field-tested performance of not less than a Noise Isolation Class (NIC) 42 between similar use spaces. To allow dissimilar concurrent meetings/uses the operable partition should have a field-tested performance of not less than a NIC 47.

  ° Basis of Design: Skyfold Classic 51 (STC 51 – vertical operable partition)

Music Rooms and Maker Spaces should have high sound transmission performance partition (STC 60 with transmission loss greater than 25 dB at 63 Hz and 35 dB at 125 Hz) for full fidelity and performance flexibility, and the doors should have full seals with an equivalent performance to a field-tested Noise Isolation Class (NIC) 40.

Acoustic Control

Enclosed Rooms such as tutoring rooms, meeting spaces, and offices will need a sound absorptive ceiling (basis of design is NRC 0.70 or greater finish). If these rooms have a hybrid use with microphones and speakers the design should integrate sound absorptive wall treatment(s) between 3’-0” and 7’-0” aff on at least one wall.

Open to Structure conditions will require sound absorptive finishes which can be challenging, and the quantity and options will depend on the room volume, use, and aesthetic goals. There are some structural integrated sound absorptive finishes such as the Structurecraft Acoustic Square DLT and composite perforated metal decks are the most common; the goal for these types of materials is a NRC 0.70 or greater, which is comparable to acoustical ceiling tile. In general, the added cost for sound absorptive structural products

Creative Collaboration should integrate a sound absorptive finish ceiling, such as backlit acoustic stretched fabric ceiling – Clipso SO LIGHT, and sound absorption panels on walls near seating or benches.

Music Rooms & Maker Spaces will require highly sound absorptive ceilings with a minimum NRC 0.85 and 2” thick panels on 50% of three walls between 3’-0” and 7’-0” and at least one bass trap (manufactured or field fabricated).

To control the noise from the automated book/media sorter (BOD: FE Technologies) this equipment should have a ceiling with sound absorptive ceiling treatments with an NRC 0.85 or greater, acoustical barriers between sorter and workstations, and include lower noise options, such as FE’s Premium Spring-Loaded Sorter Bin.
D. BUILDING SYSTEMS: ACOUSTICS

**Interior Background Sound**

The design will focus on controlling noise and vibration from building systems to meet the background noise goals from air systems and vertical transportation. Though to meet the goal of “quiet” spaces for reading, studying, and browsing, the mechanical systems will not provide consistent noise and the background noise could be too quiet, which means conversations and incidental noises travel longer distances, which is a common issue for open-plan spaces with high-efficiency mechanical cooling and heating systems. To improve sound and speech privacy, reduce distractions, and increase the perception of “quiet” the open-plan stacks and reading areas should include sound masking systems to create a controlled and constant background sound level.

**Exterior Noise / Exterior Soundscapes**

Short-term environmental noise testing is planned to quantify the noise at the site from arterial traffic. Collaborate on exterior amenity design to optimize areas of respite.
D. BUILDING SYSTEMS: SIGNAGE

Sign Standards
Signage will be developed for Central and Redmond (see Section 6.1.D.Signage). Similar signage will be implemented throughout the DPL system for the Redmond project.
D. BUILDING SYSTEMS: VERTICAL TRANSPORTATION

Elevator

The Redmond Library Concept Design includes two total elevators. Both passenger elevators are centrally located in the lobby and intended for public use. Elevators will be visible from the main entries:

• **Elevator One:** Passenger use
  - The elevator will have center opening doors
  - Two stops: Level 1 & Level 2
  - Travel Distance: Approx. 15'
  - 3500lb capacity
  - Inside Clear Dimensions: 6’-8" x 5’-5"
  - Provide ADA access

• **Elevator Two:** Passenger and Staff use:
  - The elevator will have center opening doors
  - Two stops: Level 1 & Level 2
  - Travel Distance: Approx. 15'
  - 4000lb capacity
  - Inside Clear Dimensions: 7’-8" x 5’-5"
  - Cab size to accommodate book carts
  - Cab interior finishes to be durable
  - Provide ADA access
D. BUILDING SYSTEMS: AUTOMATED HANDLING SYSTEM AND LIBRARY SHELVING

- An AMH system will be installed at the Redmond branch to facilitate collection sorting and staff ergonomics. Coordination with DPL's preferred vendor will begin in SD, to determine configuration, sort types and quantities.

- Other owner-provided equipment may include "smart" book drops, RFID gates at building entry, self-check stations, and book trucks/bins.

- Owner-provided library shelving will be typical metal cantilever shelving, with custom end panels and movable display units. Coordination with preferred shelving vendor will begin in SD. Shelving over 66" tall will be required to be engineered to withstand over turning (and require structural attachment to the slab or raised access floor tiles).
E. SUSTAINABILITY

Overview

A holistic framework of sustainability goals and performance features designed to theoretically achieve LEED Silver will create a library that is a community asset for years to come. A better-than-code building envelope will help Redmond reduce the energy demand and provide comfort for occupants for decades to come. The use of exterior shading will help reduce unwanted heat gain while complementing the desire to provide views to the landscape. All-electric and efficient equipment will reduce operational energy use and support occupant comfort. The team will take efforts to reduce the embodied carbon of the building by using concrete efficiently, utilizing sustainably-managed wood and making meaningful choices for exterior cladding and interior materials. Water efficiency and demand reduction are critical components of design and the team will investigate other opportunities for rainwater use or greywater reuse. Interior design will endeavor to improve occupant health and wellness through daylit spaces with natural ventilation, enhanced mechanical filtration and reduced chemicals of concern.
E. SUSTAINABILITY

LEED Silver Pinwheel

The intent of the design is to meet LEED Silver goals by targeting only design credits on the scorecard. Because the project is not actually going through the certification process, it cannot claim achievement of construction phase credits that would have to be verified by GBCI to ensure compliance.

The project is well positioned to demonstrate LEED Silver equivalence at 52 points by including robust energy efficiency measures, a strong water efficiency presence and an ecologically sensitive site design, all proximately located to walkable amenities. Should the project want to invest in a water reuse strategy and on-site renewables, it could demonstrate a LEED Gold equivalency by adding another 9 available points.
## E. SUSTAINABILITY

### LEED Scorecard

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### LEED Scorecard Details

#### Certified 40-49 points  Silver 50-59 points  Gold 60-79 points  Platinum 80 or more points

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6.3 DOWNTOWN BEND LIBRARY

A  Project Description
B  Site Analysis
C  Building Analysis
D  Building Systems
E  Sustainability
A. PROJECT DESCRIPTION

The existing Downtown Bend Library was designed by Thomas Hacker and opened in 1998. Over the past twenty plus years it has been a well-loved and heavily used branch that also houses DPL central operations. Even with the opening of the new Central Library, this branch is intended to continue being an important branch for serving Bend’s population.
B. SITE ANALYSIS

Site and Context

Located across the street from the civic square and within the walkable downtown core, the library is a community anchor for Bend. To the west is the DPL administration building, housing functions that will also relocate to the new Central Library. Parking is provided adjacent to this facility, as well as on the surrounding streets and alley.
The brick masonry two-story structure anchors the city block with large windows facing east and west. Areas of stone veneer and exposed wood soffits give the building a warm and civic appeal. Narrow windows face the sidewalk giving limited views to the interior, while generous clerestory windows on the upper floor provide a pleasant daylit atmosphere.
B. SITE ANALYSIS

Existing Building - Interior

The nearly 40,000 square foot building is split onto two floors with varying character. The ground floor entry is somewhat dark and noisy due to existing finishes and lack of views to the exterior. There is also noticeable glare as a result of the slate flooring and stair glazing. The childrens area is accented with bright colors, with a large window to the west.

Currently this branch houses the operations center for DPL—functions and staff that will move to the new Central library with the exception of some IT staff and infrastructure. This will allow a significant amount of square footage to be transformed into space for public use on both floors—an exciting opportunity to impact the user experience. It will also allow for better sightlines and access to daylight on the ground floor in particular, a welcome improvement.

The second level has exposed wood structure and generous glazing providing lovely areas to explore the collection or linger to read. It is expected that the character of the second floor will remain fairly similar, with the exception of carpet, paint and new functional areas as shown in plan.
C. BUILDING ANALYSIS

Floor Plan - Level 1

1. Renovate Staff Area
2. Renovate Entry Area
3. Expand Community Meeting Rooms
4. Expand Childrens Area
5. Add Coworking Area
6. NOC Remains Operational

See following pages for descriptions of each number.
See Building Systems Narratives for additional information and scope.
C. BUILDING ANALYSIS

Floor Plan - Level 2

7 Add Creative Space
8 Repurpose / Add Small Meeting Rooms
9 Add Teens Area
10 Add Legal Area

See following pages for descriptions of each number.

See Building Systems Narratives for additional information and scope.
C. BUILDING ANALYSIS

Renovate Staff Area

- With some staff functions being relocated to the new Central library, the Downtown Bend staff area will be reconfigured to be more efficient and include more spatial definition.
- Book drops will connect to a new Automated Materials Handling (AMH) system.
- Typical to the branch locations, the staff suite of spaces will include a supervisor office, staff break room and bathroom, open workstations, and ample sorting/courier staging area. Contractor to assume plumbing work will be required for relocating break room and staff bathroom.
6.3 DOWNTOWN BEND LIBRARY

C. BUILDING ANALYSIS

2. Renovate Entry Lobby

- The current arrival space will be opened up to create sightlines throughout the building. Wall, floor and ceiling finishes will be replaced to improve acoustics and minimize glare.
- New display shelving will be provided to inhabit this area and energize the arrival to the library.
- Expanded seating and collection area will occupy the new center of the building on level one, vacated by DPL operations space to the Central Library.
C. BUILDING ANALYSIS

3 Expand Community Meeting Rooms

- The new, enlarged meeting room will be expanded and will have operable walls. The flexible meeting room will be divisible into three spaces, each accessible from the library space during the day.
- After hours, the meeting room will be accessed through the main entrance and new and improved access control.
- A new required egress connection will be added through the adjacent south egress stair.

Existing meeting room
C. BUILDING ANALYSIS

4 Expand Childrens Area

- The childrens area will be expanded and will be a place of both fun and learning! All age groups will be considered in redesign and alternative layouts will be studied with DPL
- A mix of both new and old FFE will be reviewed
6.3 DOWNTOWN BEND LIBRARY

C. BUILDING ANALYSIS

5 Add Coworking Area

- The coworking area will provide opportunity to focus as well as meet in small groups. Furniture and technology will be implemented accordingly.

Level 1 staff area
C. BUILDING ANALYSIS

6. NOC Remains Operational

- Critical to the county wide library system, the Network Operations Center (NOC) will remain operational throughout construction. Note that the NOC will not be relocated to the Central location.
6.3 DOWNTOWN BEND LIBRARY

C. BUILDING ANALYSIS

7 Add Creative Space

- A divisible creative space will occupy space formerly occupied by staff, and provide a flexible home for library programs involving art, technology, making, etc. Resilient flooring and ample built-in storage will be essential as well as an interior glazed connection to the rest of the library.

Level 1 staff area
C. BUILDING ANALYSIS

8 Repurpose/Add Small Meeting Room

- New small meetings rooms will allow for small public meetings, Zoom calls, tutor rooms, etc.
- Additional interior glazing will be added to existing meeting rooms to allow for more visibility into the meeting rooms, and for more daylight to extend into the library

Seating area to be reconfigured for Partnership programs
6.3 DOWNTOWN BEND LIBRARY

C. BUILDING ANALYSIS

9 Add Teens Area

• A dedicated teen space will be created in area formerly occupied by staff workspace
• A gaming space, and other technology focused areas, will be provided
C. BUILDING ANALYSIS

10 Legal Area Second Floor

- The legal collection will be relocated and have a more identifiable “place” with consultation rooms for the Lawyer in the Library resource
- The small meeting rooms off of this space will provide a private space to meet as necessary
To provide added convenience for DPL users, a drive-up book drop and transaction window was studied in the existing alley. This would necessitate relocating the staff work areas to the northwest corner of the building. While technically possible to create a drive-up in this location, it would require the loss of approximately 10 parking stalls as well as some existing infrastructure such as lighting and hardscape. Signage, striping and customer training would also be critical to allow this function to exist safely next to the existing one-way alley traffic.
C. BUILDING ANALYSIS

Meeting Room Size and Egress

In addition to being too small to accommodate the desired programs for larger groups, the existing meeting room does not have two means of egress directly to the exterior of the building making after hour programs not feasible. The concept design includes enlarging the meeting room space and addressing the code egress issue. Three meeting rooms can be combined into one larger meeting room with 2 operables.
C. BUILDING ANALYSIS

Building Envelope Issues

DPL has noted that the south curtainwall window bay experiences water leaks coming through the aluminum window mullion system. The design team inspected the roof and parapet above the window system and noted gaps in the parapet flashing as well as areas that needed recaulking.

Water damage was also noted on Level 2 in the northwest corner of the enclosed staff area. The design team will document and address these issues in the project construction documentation.
6.3 DOWNTOWN BEND LIBRARY

D. BUILDING SYSTEMS: STRUCTURAL

Existing Structural Systems
The original existing two-story building was constructed in 1998. The upper and lower roof framing consist of 5/8" plywood sheathing that spans over wood I-joists that are supported by glulam beams. The beams are supported by glulam columns that bear on the Level 2 floor deck, located immediately above WF steel girders. Level 2 consists of a 3" concrete topping on 3"-20ga composite metal floor deck that is supported by structural steel framing. The steel framing bears on 12"-diameter concrete columns on the building interior, and reinforced concrete masonry (CMU) walls and pilasters at the building perimeter. The columns and walls bear on reinforced concrete foundations. The lateral force resisting system consists of reinforced concrete masonry shear walls.

Proposed Modifications
Interior metal stud partition walls will be demolished at Level 1 to allow for programming rearrangement. These partitions appear to be nonstructural and can be removed. We also understand that mechanical louvers in the exterior wall will be expanded. They are currently between the perimeter CMU walls. We recommend that these louvers be enlarged vertically to avoid removing portions of the adjacent CMU walls, which may require significant structural strengthening. Two new operable partitions will be added to divide meeting space at Level 1. These partitions will each require a support beam that spans between the existing interior girder line and the existing exterior CMU wall.

Also, during our site visit on August 16, 2021, we observed horizontal splitting in some glulam roof beams that are visible from Level 2. It appeared that remediation had been performed at some of these beams, in the form of epoxy injections. The crack sizes in beams that were not remediated with epoxy should be evaluated to determine if the same solution is necessary.

Due to the relatively minor nature of the proposed modifications, our assumption is that a seismic upgrade will not be triggered. Further, we understand that there is no intention of performing a voluntary seismic upgrade, and that one will not be a part of this renovation.
6.3 DOWNTOWN BEND LIBRARY

D. BUILDING SYSTEMS: MEP

Heating, Ventilating and Air Conditioning Systems

Existing System
- Two water cooled self-contained VAV air conditioning units with economizers for free cooling provide preheat, cooling and ventilation to zone terminal units with reheat. The majority of the terminal units are reheat type with several parallel fan powered terminal units and one series terminal unit. Mechanical cooling is provided by water cooled condensing units (R-22) with matched cooling coils. These units are original and 24 years old and are nearing the end of their life. There have been problems with control board failures. The units have MERV 8 filters. Building exhaust flows thru the mechanical room to exterior louvers
- The terminal units have iWave Bipolar Ionization air purification for each zone
- AC unit heat rejection occurs at the 125 Ton forced draft, centrifugal fan, counter flow cooling tower. This unit appears to be in good shape for its age. A water treatment system appears to be fully operational
- Heating is provided by six 1000 MBH 78% efficient cast iron boilers with 180F/140F supply/return temperatures
- There have been some maintenance challenges with leaking valves and fittings due to the age of the system
- The control system is an older vintage direct digital Johnson Controls N2 protocol system.
- The existing electrical room is getting hot due to the installed transformers

Proposed Upgrades
- Add two new terminal units for added first floor meeting rooms
- Add two new terminal units for added second floor creative space
- Add a 2 Ton split system for the electrical room
- Replace 78% boilers with condensing boilers. Expect at least a 10% heating system efficiency gain depending on how low the return water is able to be reduced to with the existing coils
- Replace the cooling tower (alternate)
- Upgrade controls from JCI N2 to BACNET or match new control system to that of Central and Redmond
- Replace the control valves, circuit setters, shutoff valves and unions on the heating and condenser water systems
- Replace the two self-contained AC units by demolishing each of the unit modules and bringing in new modules thru the existing exterior louvers and reassembling the units. This may require the existing louvers to be enlarged in one dimension (Option 1)
- Rebuild each of the two self-contained AC units with new components as follows: (Option 2)
  - Replace AC unit controls
  - Replace cooling coil/condensing units and provide new refrigerant lines unless existing lines are adequate for the new refrigerant and lines are properly cleaned
  - Replace refrigerant specialties including expansion valves
  - Replace cooling coil rack and drain pan with stainless steel types.
  - Replace fans and motors
- Provide cooling to two electrical rooms
D. BUILDING SYSTEMS: MEP

Plumbing Systems

Existing System

- A 6” waste, 4” fire and 2-12” domestic water service is provided to the facility. There are no known issues with the existing water piping or fixtures. The plumbing fixtures are not of the water conserving type
- A natural gas service is provided for the heating system
- Electric water heaters are provided for domestic hot water with recirculation

Proposed Upgrades

- None are anticipated
D. BUILDING SYSTEMS: MEP

Fire Sprinkler System

Existing System
• The facility is sprinkled

Proposed Upgrades
• Extend sprinkler coverage to six new enclosed rooms
D. BUILDING SYSTEMS: MEP

Electrical Systems

Existing System

- Electrical distribution equipment is approximately 20 years old. Normal life expectancy is 20-30 years. With proper routine maintenance, life expectancy of electrical equipment could possibly be extended to 30-40 years. No major deficiencies were observed.
- The building is served by an exterior pad mounted transformer. The serving utility company is PacificCorp (Meter #81146380). Utilization voltage is 480Y/277V.
- The CT cabinet is located in the main service switchboard within the building with an exterior meter recessed into the exterior of the generator/trash enclosure.
- The main service feeds a 1,000-amp main switchboard with approximately (12) branch panelboards located throughout the building. Low-voltage, dry-type transformers step the voltage from 480/277V to 208/120V.
- The main electrical room only has one entry. For a service of this size, two entries are required or double clearance. Neither requirement has been met (see FIG 1-2).
- The building has an emergency diesel generator. Generator feeds a single transfer switch with both emergency lighting and server room equipment on the same branch which does not meet code.
- Lighting is all fluorescent. The main entrance/lobby requires supplemental lighting to provide an inviting space. Outdated parabolic troffers are abundant throughout the office spaces. The stack lighting throughout the library is integral to the bookcases and insufficient (see FIG 3-4).

FIG 1: Main Electrical Room Clearances

FIG 2: Main Electrical Room Clearances
D. BUILDING SYSTEMS: MEP

Electrical Systems

Proposed Upgrades

- Recommend pricing of one-for-one replacement of all electrical distribution equipment
- Recommend two entries to main electrical room or double clearance for service equipment
- Provide new electrical outlets and circuiting as necessary to accommodate renovated spaces
- Replace all lighting and controls with new LED lights and a networked lighting control system consisting of localized room controllers, low-voltage switches, occupancy sensors, and photocells. Energy Trust of Oregon incentives may be available
- Provide two branches for the emergency systems, emergency and optional standby, to comply with current code. Verify if server room will remain or be relocated to the new Central Library
6.3 DOWNTOWN BEND LIBRARY

D. BUILDING SYSTEMS: MEP

Building Technologies

Existing System
- The main server room for the library district is located with the building. The space appeared adequate and dedicated cooling was provided
- The building is served by several wall mounted racks in back-of-house spaces
- A 1,500kVA rack mounted UPS is provided for backup power. There is no backup emergency generator. Runtime is limited to the runtime of the UPS batteries (estimated 15 min)
- The building is cabled with CAT-5E cabling
- The IT room requires additional HVAC cooling to the space. The current transfer duct does not provide adequate cooling to the space
- There is an existing projector and motorized screen in the meeting room

 Proposed Upgrades
- Provide dedicated and centralized IT rooms on each floor to serve building needs
- Provide new data cabling and jacks as necessary to accommodate renovated spaces
- Provide new pathways for A/V connections as necessary in renovated spaces
6.3 DOWNTOWN BEND LIBRARY

D. BUILDING SYSTEMS: MEP

Electronic Safety and Security

Existing System

• The building is protected by a Siemens fire alarm system. Model #FHD2002-U1. The system was last inspected in August of 2021 and noted to be in good condition
• Smoke detectors and notification appliances are located throughout the building
• There is an existing Altronix access control system in the building. The number of doors with card reader access is limited
• No video surveillance cameras were observed

Proposed Upgrades

• Revise existing fire alarm system as necessary to accommodate renovated spaces
• Expand access control system as necessary to accommodate renovated spaces
• Provide intrusion detection at all building entrances and motion detection in the main library through security system
• Provide digital IP video cameras and network video recorder (NVR) at all building entries and at the main circulation desks
D. BUILDING SYSTEMS: ACOUSTICS

Based on comments that focus on noise and acoustics. We should plan an acoustical performance audit to identify the factors, opportunities, limitations, and construction conditions that will guide the acoustical design decisions. This will include a review of finishes with respect to reflected sound control, evaluating partitions and assemblies that are expected to remain with respect to speech privacy and distraction control, and overall acoustical comfort metrics.

This could include updates to finishes, improvements for partitions and doors, balancing background noise (HVAC systems, exterior noise, etc.) and guidance on furniture and spatial layouts.
D. BUILDING SYSTEMS: AUTOMATED HANDLING SYSTEM

The incorporation of an Automated Materials Handling (AMH) system at this branch will be confirmed in the next phase of design, upon coordination with DPL’s referred vendor. At minimum, the library design will incorporate multiple interior and exterior “smart” book drops, RFID gates and self-check stations.
Often, the best sustainability interventions we can make are to rehabilitate and improve our existing buildings. Minor modifications to the building envelope will help ensure a comfortable and long-lasting operations. Some mechanical equipment will be replaced for greater comfort and efficiency. Interior improvements that will help to reduce embodied carbon, improve acoustics and reduce chemicals of concern will all be implemented for a better library experience.
6.4 BRANCH LIBRARIES

i  EAST BEND LIBRARY
    A  Project Description
    B  Site Analysis
    C  Building Analysis
    D  Building Systems
    E  Sustainability

ii  LA PINE LIBRARY
    A  Project Description
    B  Site Analysis
    C  Building Analysis
    D  Building Systems
    E  Sustainability

iii  SISTERS LIBRARY
    A  Project Description
    B  Site Analysis
    C  Building Analysis
    D  Building Systems
    E  Sustainability

iv  SUN RIVER LIBRARY
    A  Project Description
    B  Site Analysis
    C  Building Analysis
    D  Building Systems
    E  Sustainability
A. PROJECT DESCRIPTION

The existing East Bend Branch exists in a leased space that is conveniently located on the east side of the Bend community. The library has a high use of holds and returns. While not currently able to expand the size of this branch, there are several improvements that can be made to improve functionality of this heavily used location.
B. SITE ANALYSIS

Site Character

The branch is located within a commercial development that is very convenient for users. As such it is a very heavily used branch in terms of holds and returns, especially unique considering the relatively smaller square footage. Ample parking—and building entry is available on both the south and north sides of the library space.
B. SITE ANALYSIS

The interior of the space has tall ceilings and large windows facing the parking lot, providing ample daylight for the interior. The childrens area is notable for its large colorful art installation on two of the walls. The meeting room functions well for during and after hours use (although its proximity to the childrens area is sometimes problematic). In general these two areas are nice spaces to be in, and aside from new finishes and furniture may not warrant significant rework. One exception may be to modulate the ceiling plane to create the perception of more distinct program zones.

The current configuration of the north entry and staff area, however, are problematic. The entry vestibule, service point desk, holds shelving and staff area partition walls create a tight space immediately upon entering the library. The staff area is also inefficient and insufficient to adequately serve this busy branch. These areas will be reworked as shown in plan.

Adult reading area

Children’s area with early learning center

Staff area
C. BUILDING ANALYSIS

Existing and Proposed Floor Plans

1. Relocate Staff Area
2. Renovate North Vestibule
3. Expand Community Meeting Room
4. Enhance Interiors
5. Expand Small Meeting Rooms
6. Relocate Book Drops
7. New Staff Entry

See following pages for descriptions of each number.

See Building Systems Narratives for additional information and scope.
C. BUILDING ANALYSIS

**1 Relocate Staff Area**

The staff area will be relocated to the west side of the library. Currently housed in an angled space at the SE corner of the building, the existing staff space is inadequate and contributes to the “traffic jam” that occurs near the entry. Moving the suite of staff space will improve the customer experience and enable staff to provide more value to the users of this branch.

A supervisor office with acoustic separation will allow for private conversations.

A staff break room will provide a place to step away, rejuvenate, eat, etc. Contractor to assume plumbing work required.

Open workstations with ample sorting/courier staging space will be provided for staff.
C. BUILDING ANALYSIS

2 Renovate North Vestibule

Currently, when entering the library through the north vestibule entrance, visitors are greeted with a view towards the restroom doors. The new north vestibule will direct visitors south into the Welcome and Display area, letting patrons peruse the latest hot reads and displays.

The updated vestibule will direct patrons from both entries into the same welcome zone.
C. BUILDING ANALYSIS

3 Expand Community Meeting Room

The community room will retain after hours accessibility through the NW door. Door hardware and ADA access to be updated accordingly.

An operable wall on the south side of the meeting room will allow for better connection to the adjacent library space. The operable wall may have a mix of glass and opacity and will meet acoustic separation requirements between the two spaces. Solid door to be considered to eliminate distractions.

Storage areas will be relocated, allowing the meeting room to grow in size to the east. The sink and will be relocated to the east nook of the meeting room, requiring plumbing work.
C. BUILDING ANALYSIS

4. Enhance Interiors
Collections, seating and technology will be updated. New finishes and furniture will help with placemaking, comfort and efficiency in the remainder of the library: carpet, painted drywall, and acoustic clouds.

5. Expand Small Meeting Rooms
New small meetings rooms will allow for small public meetings, Zoom calls, tutor rooms, etc.

6. Relocate Book Drops
Both the north and south exterior book drops will be relocated for direct deposit into the new staff area.
D. BUILDING SYSTEMS: STRUCTURAL

Existing Structural Systems

The current library space is part of a larger one-story building with multiple tenants. Currently, the original construction documents have not been made available to the design team. Based on our site visit on August 16, 2021, the existing roof consists of plywood sheathing supported by wood chord open-web joists. The joists appear to bear on structural steel beams that are supported by structural steel columns. The floor consists of a concrete slab on grade. We understand that the lateral force resisting system consists of plywood-sheathed metal stud shear walls.

Proposed Modifications

An operable partition will be added to help divide the interior space. We understand that the partition will run parallel to the existing roof joists and between exterior walls. Due to the relatively lightly designed nature of the roof joists, they will not be able to support a hanging partition. As such, the partition should be either bottom bearing on the slab on grade, or added framing will be required to support a hanging partition (i.e. a beam supported at each end by columns).

Due to the relatively minor nature of the proposed modifications, our assumption is that a seismic upgrade will not be triggered. Further, we understand that there is no intention of performing a voluntary seismic upgrade, and that one will not be a part of this renovation.
D. BUILDING SYSTEMS: MEP

Building Technologies

Existing System

- Seven split system units provide heating and cooling. The heating is provided by 80% efficient gas furnaces. The cooling is provided by outdoor condensing units. It's not clear if the split units are provided with economizers. The units are 11 years old and will likely need to be replaced in 5 to 10 years.
- The furnace units have MERV 8 filters and iWave Bipolar Ionization air purification.
- Programmable thermostats provide temperature control.
- Destratification fans are provided.
- DPL pays for their energy use via each of the 5 suite meters.

Proposed Upgrades

- Replacing the units with 90% efficient furnaces and economizers with relief may be desired to be pursued during future extended lease agreement negotiations.
- Extend supply and return ducts and grilles to new enclosed tutor rooms and staff area.
- Add dedicated split system cooling to telecom closet.

Plumbing Systems

Existing System

- Waste is connected to a 4" main.
- Fire and domestic water connect to the building mains. There are no known issues with the existing water piping or fixtures. The plumbing fixtures are not of the water conserving type.
- A natural gas service is provided for the gas furnace heating system.
- Electric water heaters are provided for domestic hot water. It appears that there is a recirculation loop.

Proposed Upgrades

- None are anticipated.

Fire Sprinkler System

Existing System

- The facility is sprinkled.

Proposed Upgrades

- Extend sprinkler coverage to new enclosed tutor rooms and staff area.
D. BUILDING SYSTEMS: MEP

Electrical Systems

Existing System

- Electrical distribution equipment is approximately 10 years old. Normal life expectancy is 20-30 years. With proper routine maintenance, life expectancy of electrical equipment could possibly be extended to 30-40 years. No major deficiencies were observed.

- The space is located in a commercial strip mall and is served by (3) separate utility meters. The serving utility company is PacificCorp (Meter #’s 84521121, 84520602, 84520604. Utilization voltage is 208Y/120V.

- The main service feeds (3) commercial load centers located in (2) separate spaces (see FIG 10)
  - Panel “130” – 100 amps
  - Panel “140” – 100 amps
  - Panel “150” – 100 amps

- Main service disconnects were not observed and no mains are provided in the panel. It is assumed main disconnects are located in the main service switchboard located outside which is not locked.

- Lighting is all fluorescent.

- No emergency egress lighting was observed

Proposed upgrades

- Recommend, as allowed under tenant lease agreement, replacement of all electrical load centers with branch panel boards. Centrally locate all panels in a single room.

- Provide new electrical outlets and circuiting as necessary to accommodate renovated spaces.

- Replace all lighting and controls with new LED lights and a networked lighting control system consisting of localized room controllers, low-voltage switches, occupancy sensors, and photocells.

- Provide a 2kW central battery inverter to power emergency egress lighting, fire alarm, and security systems.

FIGURE 10: Load Centers
D. BUILDING SYSTEMS: MEP

Building Technologies

Existing System

- The space is served by a single centralized telecom room. The room has a single rack and is adequately sized for the existing equipment. There is ample spare capacity in the racks.

- A 1,500kVA rack mounted UPS is provided for backup power. There is no backup emergency generator. Runtime is limited to the runtime of the UPS batteries (estimated 15 min).

- The building is cabled with CAT-5E cabling.

- The IT room requires additional HVAC cooling to the space.

Proposed Upgrades

- Provide new data cabling and jacks as necessary to accommodate renovated spaces.

- Provide new pathways for A/V connections as necessary in renovated spaces.

Electronic Safety and security

Existing System

- There is no fire alarm in the building.

- There is no access control or video surveillance in the space.

Proposed Upgrades

- Provide code minimum fire alarm system with pull stations and notification appliances as required. If fire sprinklers are not provided, provide detection through fire alarm system.

- Provide access control system to cover main entry vestibule. Door hardware upgrades will also be required.

- Provide digital IP video cameras and network video recorder (NVR) at all building entries and at the main circulation desk.
D. BUILDING SYSTEMS: ACOUSTICS

Coordinate any design changes to ensure speech privacy for tutor rooms and conference/meeting spaces. Collaborate on design options with respect to acoustics, soundscapes, and storytelling to complement the experiential narrative.

This could include coordinating unique soundscapes, AV solutions, and acoustical control measures to support the desired experience.
D. BUILDING SYSTEMS: SIGNAGE

Signage will be developed for Central and Redmond libraries (see Section 6.1.D.Signage). Similar signage will be implemented throughout the DPL system for the renovation project. Scope to be determined for each branch location.
6.4.i EAST BEND LIBRARY

D. BUILDING SYSTEMS: AMH AND LIBRARY SHELVING

No Automatic Materials Handler (AMH) system is anticipated at this location. Scope of new shelving, end panels, and displays to be determined.
E. SUSTAINABILITY

With a renovation scope focused primarily on interior improvements, our team’s sustainability efforts will consist largely of materials interventions. To reduce embodied carbon, product selections will be evaluated on global warming potential as we make an effort to install materials with below industry averages for each product category. We will use low and no-emitting materials and make an effort to reduce chemicals of concern all in support of better indoor air quality.
6.4.ii LA PINE LIBRARY

6.4.i LA PINE LIBRARY
A. PROJECT DESCRIPTION

The existing La Pine Branch is a single-story structure that is centrally located and near schools. As a result of its proximity, it is a very popular destination for school age youth after school! While the exterior of the branch library is to remain in its current condition, there are several interior improvements envisioned to enhance the interior experience of the library, delivering upon the aspirations of the bond measure for its community.

La Pine Library main entrance
B. SITE ANALYSIS

Site Character

The branch is located just southeast of southeast of the La Pine schools and immediately west of the highway. Off street parking is available on site, with visibility to the main entry of the library. On the south side of the site is an enclosed play area—a popular destination for caregivers and children.
B. PROJECT DESCRIPTION

Existing Building - Exterior

The current building, while a bit unassuming from the highway, is in relatively good shape and no major changes are expected at the exterior. One exception is the existing exterior book drop, which will be relocated to be more visible/convenient as users approach the building. After hours entry to the meeting room will be provided through the existing door on the north side.
B. PROJECT DESCRIPTION

Existing Building - Interior

Morning hours bring lovely daylight into the building, but the interior can feel dark later in the day. The tall volume at the center of the building has the potential to be an energetic arrival zone, filled with display and increased collection with the removal of the large, monolithic service desk. New meeting rooms will allow for increased tutoring use along the east windows. Staff space will be reconfigured as some tasks are relocated to the Central library; and incorporate more separation between functions.
C. BUILDING ANALYSIS

Existing and Proposed Floor Plans

1. Open Up Entry Lobby
2. Open Up Community Meeting Room
3. Renovate Staff Area
4. Add Welcome + Display
5. Renovate W/C Entry
6. Relocate Book Drops
7. Relocate Childrens Area
8. Relocate Fiction and Non-Fiction
9. Add Small Meeting Rooms

See following pages for descriptions of each number.

See Building Systems Narratives for additional information and scope.
C. BUILDING ANALYSIS

1. Open Up Entry Lobby

The existing entry area will be opened up to allow views straight ahead into the library. Interior walls will be demolished to allow for these open views.

The entry vestibule will be reduced in size, requiring vestibule glazing to either be re-purposed and/or built new.

New displays and shelving will excite new and repeat visitors alike.

A new feature wall will provide an inviting backdrop for the Welcome + Display area.
C. BUILDING ANALYSIS

2 Open Up Community Meeting Area

The community room will retain after hours accessibility. Door hardware and ADA access will need to be updated accordingly.

An operable wall on the east side of the meeting room will allow for better connection to the adjacent library. The operable wall will have a mix of glass and opacity and will meet acoustic separation requirements between the two spaces.

This may also allow the meeting room to convert to a teen/homework space after school to better serve the school age population.

The sink and storage area will be relocated, requiring plumbing work.
C. BUILDING ANALYSIS

3. Renovate Staff Area

With some staff functions being relocated to the new Central library, the staff area will be reconfigured to be more efficient and include more spatial definition.

A supervisor office with acoustic separation will allow for private conversations.

A staff break room will provide a place to step away, rejuvenate, eat, etc. Contractor to assume plumbing work required.

A dedicated staff restroom will be provided near the break room. Contractor to assume plumbing work required.

Open workstations with ample sorting/courier staging space will be provided for staff.
C. BUILDING ANALYSIS

4 Add Welcome + Display
A portion of the library is intended to receive movable display shelving on casters, movable furniture, such that it can be pushed aside to create flexible display areas. This area will be flexible for updated displays and hot-reads. A feature wall and rotating displays will draw visitors into the library.

5 Renovate W/C Entry
The existing restroom entrances have blind-spots, less than ideal for visitors. The restroom entrance wall will be framed flush with the entry area and a new restroom door will eliminate the blind spots and provide for safer travel both in and out of the building.

6 Relocate Book Drops
The indoor book drop will be relocated to provide direct connection to the staff area. The indoor book drop will replace the existing Janitors closet, which will need to be relocated and will require plumbing work.

The outdoor book drop will be relocated closer to the main entrance, meeting the community’s desire for a more convenient location. The old book drop will be abandoned and will be reconfigured as part of the updated staff area.

7 Relocate Childrens Area
The childrens area will be a place of both fun and learning! All age groups will be considered in redesign and alternative layouts will be studied with DPL. A mix of both new and old FFE will be reviewed.

8 Relocate Fiction and Non-Fiction
The existing restroom entrances have blind-spots, less than ideal for visitors. The restroom entrance wall will be framed flush with the entry area and a new restroom door will eliminate the blind spots and provide for safer travel both in and out of the building.

9 Add Small Meeting Room
New small meetings rooms will allow for small public meetings, Zoom calls, tutor rooms, etc. New walls and doors will be required.
D. BUILDING SYSTEMS: STRUCTURAL

Existing Structural Systems

The original existing one-story building was constructed in 2000. The roof consists of 5/8” plywood sheathing that spans over pre-manufactured wood trusses, wood I-joists, and solid-sawn lumber. The roof framing is supported by wood beams, wood posts, and light-framed wood bearing walls. The floor framing consists of 1 1/8” plywood sheathing that spans over 11 7/8” wood I-joists. The I-joists are supported by light-framed wood cripple walls located within a crawl space below the floor. The posts and walls bear on concrete stem walls with continuous reinforced concrete foundations. The lateral force resisting system consists of plywood-sheathed light-framed wood shear walls.

Proposed Modifications

We understand that the main entry vestibule will be revised. The existing interior walls separating the vestibule from the main interior space are to be removed. The wall and posts separating the children’s area from the rest of the main library space are also scheduled for removal. Based on the original existing drawings, these walls and posts appear to be non-bearing and do not support the roof framing. As such, they could be removed with minimal modifications. There will also be a large opening added in the existing wall between the teen area and the meeting room. The existing wall does not appear to support the roof framing, so the opening is possible without significant modifications. If an operable partition is to be added in the opening, it should not hang from the existing roof framing. Rather, it would need to bear on the floor, or hang from an added beam and support posts.

Due to the relatively minor nature of the proposed modifications, our assumption is that a seismic upgrade will not be triggered. Further, we understand that there is no intention of performing a voluntary seismic upgrade, and that one will not be a part of this renovation.
**D. BUILDING SYSTEMS: MEP**

### Heating, Ventilation and Air Conditioning

**Existing System**
- Four split system units located in the mezzanine provide heating and cooling. The heating is provided by 80% efficient gas furnaces. The cooling is provided by outdoor condensing units. Some of the units have economizers for “free cooling”. The units are 21 years old and are at the end of their life. Gravity and powered relief are provided.
- The furnace units have MERV 8 filters and iWave Bipolar Ionization air purification.
- A 500 watt electric duct heater provides supplemental heating for the eastern enclosed room.
- Programmable thermostats with a BACNET interface and remote sensors provide temperature control and monitoring.
- A timed override switch is proved for the multipurpose room.

**Proposed Upgrades**
- Replace the four split systems with 90% condensing furnaces and energy compliant condensing units. Reinstall the existing iWave bipolar ionization system, duct smoke detectors and control system.
- Relocate grille higher in vertical duct at book drop.
- Provide ceiling exhaust fan for new toilet room.
- Add dedicated split system cooling to telecom closet.

### Plumbing Systems

**Existing System**
- A 4” waste pipe is routed to a 1500 gallon septic tank before collecting to the utility.
- A 6” water service splits to a 4” fire water supply to building and a 2” domestic water service. There are no known issues with the existing water piping or fixtures. The plumbing fixtures are not of the water conserving type.
- A natural gas service is provided for the gas furnace heating system.
- Electric water heaters are provided for domestic hot water. Heat tracing of the hot water piping is installed rather than a recirculation loop.

**Proposed Upgrades**
- Extend waste, water, and vent to new fixtures at toilet room.
D. BUILDING SYSTEMS: MEP

Fire Sprinkler System

Existing System

- The facility is sprinkled. The fire riser froze and since then a wall heater was added to the riser room.

Proposed Upgrades

- Extend fire sprinklers to new enclosed toilet room.

Electrical Systems

Existing System

- Electrical distribution equipment is approximately 20 years old. Normal life expectancy is 20-30 years. With proper routine maintenance, life expectancy of electrical equipment could possibly be extended to 30-40 years. No major deficiencies were observed.
- The building is served by an exterior pad mounted transformer with an exterior 400A disconnect switch and CT cabinet. The serving utility company is Midstate Electric Cooperative (Meter #15504900). Utilization voltage is 208Y/120V.
- The main service feeds a bussed gutter that feeds (3) branch panel boards each with a main breaker.
  - Panel “L” – 100 amps
  - Panel “R” – 100 amps
  - Panel “M” – 200 amps
- Lighting is all fluorescent and HID.
- Pendants in main library require 5-min warm up time to reach full output (see FIG 6).
- No emergency egress lighting was observed.
- Exterior site lighting utilizes HID style pole lights.

Proposed Upgrades

- Recommend pricing of one-for-one replacement of all electrical distribution equipment.
- Provide new electrical outlets and circuiting as necessary to accommodate renovated spaces.
- Replace all lighting and controls with new LED lights and a networked lighting control system consisting of localized room controllers, low-voltage switches, occupancy sensors, and photocells.
- Provide a 2kW central battery inverter to power emergency egress lighting, fire alarm, and security systems.
- Replace site lighting with new pole mounted LED fixtures.
D. BUILDING SYSTEMS: MEP

Building Technologies

Existing System

• The building is served by a single centralized telecom room. The room has two racks and is adequately sized for the existing equipment. There is ample spare capacity in the racks.
• A 1,500kVA rack mounted UPS is provided for backup power. There is no backup emergency generator. Runtime is limited to the runtime of the UPS batteries (estimated 15 min).
• The building is cabled with CAT-5E cabling.
• The IT room requires additional HVAC cooling to the space. The current transfer duct does not provide adequate cooling to the space.
• There is a manual screen in the meeting room for projection. No permanent projector is installed.

Proposed Upgrades

• Provide new data cabling and jacks as necessary to accommodate renovated spaces.
• Provide new pathways for A/V connections as necessary in renovated spaces.
D. BUILDING SYSTEMS: MEP

Electronic Safety and Security

Existing System

- The building is protected by a Silent Knight fire alarm system. Model #SK-4224. The system was last inspected in August of 2021 and noted to be in good condition. Fire alarm control panel is located in the fire riser room. Adequate access is not provided to the panel (see FIG 7 - 9).
- Fire alarm notification appliances were observed in the library but complete coverage did not appear to be provided. Recommend further investigation.
- There is an existing Altronix access control system in the building. The number of doors with card reader access is limited.
- No video surveillance cameras were observed.

Proposed Upgrades

- Expand existing fire alarm system as necessary to provide adequate coverage and accommodate renovated spaces.
- Expand access control system to cover main entry vestibule. Door hardware upgrades will also be required.
- Provide digital IP video cameras and network video recorder (NVR) at all building entries and at the main circulation desk.
D. BUILDING SYSTEMS: ACOUSTICS

Based on comments from the staff about acoustical performance concerns a full facility audit should be planned to identify the factors, opportunities, limitations, and construction conditions affecting the staff and patrons acoustical experience. This will include a review of finishes with respect to reflected sound control, evaluating partitions and assemblies with respect to speech privacy and distraction control, and overall acoustical comfort metrics.

This could include updates to finishes, improvements for partitions and doors, balancing background noise (HVAC systems, exterior noise, etc.) and guidance on furniture and spatial layouts.
D. BUILDING SYSTEMS: SIGNAGE

Signage will be developed for Central and Redmond libraries (see Section 6.1.D.Signage). Similar signage will be implemented throughout the DPL system for the renovation project. Scope to be determined for each branch location.
D. BUILDING SYSTEMS: AMH AND LIBRARY SHELVING

No Automatic Materials Handler (AMH) is anticipated at this location. Scope of new shelving, end panels, and displays to be determined.
With a renovation scope focused primarily on interior improvements, our team’s sustainability efforts will consist largely of materials interventions. To reduce embodied carbon, product selections will be evaluated on global warming potential as we make an effort to install materials with below industry averages for each product category. We will use low and no-emitting materials and make an effort to reduce chemicals of concern all in support of better indoor air quality.
6.4.iii SISTERS LIBRARY
The Sisters community is known for its proclivity for events of all kinds! Whether it is an art fair, a quilt show, the folk festival, or the car show, the town enjoys gathering together. The renovation of Sisters Library will re-imagine the branch’s ability to host a variety of simultaneous events and center them at the heart of the library experience. This will be achieved through continued during/after-hours use of the enclosable meeting room as well as open flexible areas of the building that can easily host a pop-up event.

Similar to other branches, the staff area will be reconfigured to address better functionality and the centralization of operating tasks.
B. SITE ANALYSIS

Site Character

The existing library is surrounded by parking on the south and west and shares the site with the City Hall to the east. The library is set back from the main highway to the north which provides for a generous green space.

Sisters City Hall next door

Aerial site photo
B. PROJECT DESCRIPTION

Existing Building - Exterior

The exterior of the building is in relatively good shape—with the exception of the roof. It is expected to be replaced soon, outside the scope of this project. Aside from that, there are no significant exterior renovations planned.

The exterior, semi-covered patio to the south may be explored as an area for enhanced library use as it is directly adjacent to the meeting room and childrens area.
B. PROJECT DESCRIPTION

Existing Building - Interior

Similar to the La Pine branch in layout, the central vaulted ceiling area has the potential to be an energetic welcome to the library, especially with an opened-up entry and removal of the monolithic staff desk. Part of this improvement will require mitigating glare from the skylights in this area.

The overall layout of the library is generally good, and much will remain as organized today. The quiet seating around the fireplace is very popular and tall windows at the perimeter provide well-lit places to linger. The exceptions being the revitalized entry and welcome zone—as well as the flexible nature of the new “flex” area for events.
C. BUILDING ANALYSIS

Existing and Proposed Floor Plans

1. Open Up Entry Lobby
2. Open Up Community Meeting Room
3. Renovate Staff Area
4. Add Exterior Egress Path
5. Enhance Teens Area
6. Enhance Fiction and Non-Fiction
7. Add Display and Flex
8. Add Small Meeting Rooms
9. Renovate W/C Entry
10. Relocate Book Drop
11. Enhance Tech Room
12. Enhance Childrens Area

See following pages for descriptions of each number.

See Building Systems Narratives for additional information and scope.
C. BUILDING ANALYSIS

1. Open Up Entry Lobby

The existing entry area will be opened up to allow views straight ahead into the library. Interior walls will be demolished to allow for these open views.

The vestibule will be reduced in size, requiring vestibule glazing to either be repurposed and/or built new.

New displays and shelving will excite new and repeat visitors alike.

A new feature wall will provide an inviting backdrop for the Welcome + Display area.
C. BUILDING ANALYSIS

2 Open Up Community Meeting Room

The community room will retain after hours accessibility through the south pair of double doors.

Door hardware and ADA access to be updated accordingly.

An operable wall on the east side of the meeting room will allow for better connection to the adjacent library spaces. The operable wall will have a mix of glass and opacity and will meet acoustic separation requirements between the two spaces. The sink and storage area will be relocated to the north wall of the meeting room, requiring plumbing work.
C. BUILDING ANALYSIS

3 Renovate Staff Area

With some staff functions being relocated to the new Central library, the staff area will be reconfigured to be more efficient and include more spatial definition.

A supervisor office with acoustic separation will allow for private conversations.

A staff break room will provide a place to step away, rejuvenate, eat, etc. Contractor to assume plumbing work required.

A dedicated staff restroom will be provided near the break room. Contractor to assume plumbing work required.

Open workstations with ample sorting/courier staging space will be provided for staff.
C. BUILDING ANALYSIS

4 Add Exterior Egress Path

A concrete path will be added to the exterior to allow for a continuous ADA compliant egress path to the right-of-way.

Modify door hardware and door threshold as necessary to meet current ADA requirements.
C. BUILDING ANALYSIS

5  Enhance Teens Area
The teens areas will remain in the same location but will be transformed, responding to the needs and wants of today’s teens. Technology updates will be included in this transformation.

6  Enhance Fiction and Non-Fiction
Alternative layouts will be studied for the Fiction and Non-Fiction areas. A mix of both new and old Furniture, Fixtures and Equipment (FFE) will be reviewed.

7  Add Display and Flex
The Sisters community tends to have more unique program potential. A portion of the library is intended to receive movable display shelving on casters, movable furniture, such that it can be pushed aside to create flexible “pop-up” program space in the heart of the library.

8  Add Small Meeting Rooms
New small meeting rooms will allow for small public meetings and Zoom calls.

9  Renovate W/C Entry
The existing restroom entrances have blind-spots, less than ideal for visitors. The restroom entrance wall will be framed flush with the entry area and a new restroom door will eliminate the blind spots and provide for safer travel both in and out of the building.

10  Relocate Book Drops
The indoor book drop will be relocated to provide direct connection to the staff area. The indoor book drop will replace the existing Janitors closet, which will need to be relocated and will require plumbing work.

The outdoor book drop will be relocated closer to the main entrance, meeting the community’s desire for a more convenient location. The old book drop space will be incorporated into the staff area. A new exterior wall will be evaluated as part of potential layouts for the staff area.
C. BUILDING ANALYSIS

11 Enhance Tech Room
The technology area will remain in its current location but will be updated and future-proofed, allowing for technology upgrades well into the future.

12 Enhance Childrens Area
The childrens area will be a place of both fun and learning! All age groups will be considered in redesign and alternative layouts will be studied with DPL. A mix of both new and old FFE will be reviewed.
D. BUILDING SYSTEMS: STRUCTURAL

Existing Structural Systems

The original existing one-story building was constructed in 2005. The roof consists of 5/8" plywood sheathing that spans over pre-manufactured wood trusses, wood I-joists, and solid-sawn lumber. The roof framing is supported by wood beams, wood posts, and light-framed wood bearing walls. The floor framing consists of 1 1/8" plywood sheathing that spans over 11 7/8" wood I-joists. The I-joists are supported by light-framed wood cripple walls located within a crawl space below the floor. The posts and walls bear on concrete stem walls with continuous reinforced concrete foundations. The lateral force resisting system consists of plywood-sheathed light-framed wood shear walls.

Proposed Modifications

We understand that the main entry vestibule will be revised. The existing interior walls separating the vestibule from the main interior space are to be removed. Based on the original existing drawings, it appears that this wall runs continuous from the floor to the underside of the roof framing above. The wall and posts separating the children’s area from the rest of the main library space are also scheduled for removal. While these walls and posts do not appear to support the roof framing, their tall height will likely require added support to allow for openings in their lower half. As such, added header beams will be needed required above the opening created by removing these walls and posts. A post at each end of the beam will be needed. The east post should occur in the existing east wall, and the west post will be at the bend in the diagonal vestibule wall. There will also be a large opening added in the existing wall between the children’s area and the meeting room. The existing wall does not appear to support the roof framing, so the opening is possible without significant modifications. If an operable partition is to be added in the opening, it should not hang from the existing roof framing. Rather, it would need to bear on the floor, or hang from an added beam and support posts.

Due to the relatively minor nature of the proposed modifications, our assumption is that a seismic upgrade will not be triggered. Further, we understand that there is no intention of performing a voluntary seismic upgrade, and that one will not be a part of this renovation.
6.4.iii SISTERS LIBRARY

D. BUILDING SYSTEMS: MEP

Heating, Ventilation And Air Conditioning

Existing System

- Six split system units located in the mezzanine provide heating and cooling. The heating is provided by 90% efficient propane furnaces. The cooling is provided by outdoor condensing units (R-22). Some of the units have economizers for “free cooling”. The units are 16 years old and are nearing the end of their life. Gravity and powered relief are provided.

- The furnace units have MERV 8 filters and iWave Bipolar Ionization air purification.

- A 500 watt electric duct heater provides supplemental heating for the Tutor room.

- Programmable thermostats with a BACNET interface and remote sensors provide temperature control and monitoring.

- A timed override switch is proved for the multipurpose room.

- Carbon filters have been installed during smoke events with some success.

Proposed Upgrades

- Replace the six split systems with 90% condensing furnace and energy compliant condensing units. Reinstall the existing iWave bipolar ionization system, duct smoke detectors and control system.

- Add toilet room radiant cove or fan forced electric heaters to reduce cold complaints.

- Increase air to the Tutor room to reduce hot complaints. Ensure duct heater is not accidentally being turned on during the cooling mode.

- Modify supply and return ducts to new break room and add 1 kw duct heater.

- Add ceiling exhaust fan for new break room.

- Add dedicated split system cooling to telecom closet.

Plumbing Systems

Existing System

- A 4” waste, 2” domestic water service is provided to the facility. There are no known issues with the existing water piping or fixtures. The plumbing fixtures are not of the water conserving type.

- A below grade propane tank is provided in a vault in the landscape area which services the heating system and fireplace.

- Electric water heaters are provided for domestic hot water.

Proposed Upgrades

- Extend waste, water, and vent piping to fixtures at break room

- Extend waste, water, and vent to fixtures at new toilet room.
D. BUILDING SYSTEMS: MEP

Fire Sprinkling System

Existing System

• The facility is not sprinkled.

Proposed Upgrades

• None anticipated

Electrical System

Existing System

• Electrical distribution equipment is approximately 15 years old. Normal life expectancy is 20-30 years. With proper routine maintenance, life expectancy of electrical equipment could possibly be extended to 30-40 years. No major deficiencies were observed.

• The building is served by an exterior pad mounted transformer with an exterior 400A disconnect switch and CT cabinet. The serving utility company is Central Electric Cooperative (Meter #12861012). Utilization voltage is 208Y/120V.

• The main service feeds a bussed gutter that feeds (3) branch panel boards each with a main breaker.
  ° Panel “L” – 100 amps
  ° Panel “R” – 100 amps
  ° Panel “M” – 200 amps

• Lighting is all fluorescent with a few upgrades to LED.

• Lighting in the main library space needs to be reconfigured and improved. The circulation desk was noted to have periods where the space is too dim and will need to be augmented with additional lighting (see FIG 1)

• Address sunlight glare issues from southern clerestory windows during morning hours.

• Emergency egress lighting utilizes battery backup ballasts. Only a few locations were observed to have battery ballasts. Emergency egress lighting appears to be inadequate per code.

• Exterior site lighting utilizes HID style pole lights.

Proposed Upgrades

• Recommend pricing of one-for-one replacement of all electrical distribution equipment.

• Provide new electrical outlets and circuiting as necessary to accommodate renovated spaces.

• Replace all lighting and controls with new LED lights and a networked lighting control system consisting of localized room controllers, low-voltage switches, occupancy sensors, and photocells.

• Provide a 2kW central battery inverter to power emergency egress lighting, fire alarm, and security systems.

• Replace of site lighting with new pole mounted LED fixtures.
D. BUILDING SYSTEMS: MEP

Building Technology

Existing System

- The building is served by a single centralized telecom room. The room has two racks and is adequately sized for the existing equipment. There is ample spare capacity in the racks.

- A 1,500kVA rack mounted UPS is provided for backup power. There is no backup emergency generator. Runtime is limited to the runtime of the UPS batteries (estimated 15 min).

- The building is cabled with CAT-5E cabling.

- The IT room requires additional HVAC cooling to the space. The current transfer duct does not provide adequate cooling to the space.

- There is an existing projector and motorized screen in the meeting room.

Proposed Upgrades

- Provide new data cabling and jacks as necessary to accommodate renovated spaces.

- Provide new pathways for A/V connections as necessary in renovated spaces.

Electronic Safety and Security

Existing System

- The building is protected by a Siemens fire alarm system. Model #FHD2002-U1. The system was last inspected in August of 2021 and noted to be in good condition.

- Smoke detectors and notification appliances are located throughout the building.

- There is an existing Altronix access control system in the building. The number of doors with card reader access is limited.

- There is an existing plug-in intrusion detection alarm at the main entry.

- The meeting rooms are available for reservation from 7am to 10pm that fall outside normal operating hours. Users must check out a key to access the main lobby and meeting room. Staff would prefer an electronic system that would simplify the logistics.

- No video surveillance cameras were observed.

Proposed Upgrades

- Revise existing fire alarm system as necessary to accommodate renovated spaces.

- Expand access control system to cover main entry vestibule. Door hardware upgrades will also be required.

- Provide intrusion detection at all building entrances and motion detection in the main library through security system.

- Provide digital IP video cameras and network video recorder (NVR) at all building entries and at the main circulation desk.
D. BUILDING SYSTEMS: ACOUSTICS

Based on comments from the staff about acoustical performance concerns a full facility audit should be planned to identify the factors, opportunities, limitations, and construction conditions affecting the staff and patrons acoustical experience. This will include a review of finishes with respect to reflected sound control, evaluating partitions and assemblies with respect to speech privacy and distraction control, and overall acoustical comfort metrics.

This could include updates to finishes, improvements for partitions and doors, balancing background noise (HVAC systems, exterior noise, etc.) and guidance on furniture and spatial layouts.
D. BUILDING SYSTEMS: SIGNAGE

Signage will be developed for Central and Redmond libraries (see Section 6.1.D.Signage). Similar signage will be implemented throughout the DPL system for the renovation project. Scope to be determined for each branch location.
D. BUILDING SYSTEMS: AMH AND LIBRARY SHELVING

No Automatic Materials Handler (AMH) is anticipated at this location. Scope of new shelving, end panels, and displays to be determined.
With a renovation scope focused primarily on interior improvements, our team’s sustainability efforts will consist largely of materials interventions. To reduce embodied carbon, product selections will be evaluated on global warming potential as we make an effort to install materials with below industry averages for each product category. We will use low and no-emitting materials and make an effort to reduce chemicals of concern all in support of better indoor air quality.
A. PROJECT DESCRIPTION

Sunriver is known for being a planned residential community characterized to a certain extent by resort visitors and retired residents (built upon the former site of Camp Abbott). It is also an area of the county that can get heavy snowfall in the winter. To better serve this area now and into the future, the renovation of the Sunriver Library will focus on providing meeting space that is better connected to the rest of the library, increased 24-hour access and a right-sized staff area.
B. SITE ANALYSIS

Site Character

The existing library building is located on Venture Lane within the Sunriver commercial loop with retail and the post office located nearby. The surrounding trees give a semi-wooded feel inside and outside the library. Parking is ample and located on-site. A drive-up book drop is located in the parking lot for convenient (winter weather) use by library patrons. The existing building entry is partially visible and located at the inside corner of the L-shape building.
B. PROJECT DESCRIPTION

Existing Building - Exterior

The L-shaped building has dynamic sloped roof forms, with multiple eaves and ridge lines. This gives the building a tall generous volume at the interior, but contributes to snow management issues in the winter, especially at the entry. The proposed expanded entry concept should alleviate some of these concerns, while providing a more visible welcome and added public space.

Large windows at the east and west fill the main library space with nice daylight. The current outdoor covered area near the east side will remain.

Some exterior hardscape work is anticipated to serve the relocated staff area courier traffic; and the exterior book drop will be relocated so that returned materials can be deposited directly into the staff workroom.
B. PROJECT DESCRIPTION

**Existing Building - Interior**

The interior of the library has exposed wood structure and a tall volume with natural light - great “bones” to retain, as this is the public space! However, the current meeting room location is disconnected from the library and difficult to monitor, and the staff space is insufficient to serve the community’s needs. The entry is large, with tall ceilings, but challenging to program in its current configuration.

The renovation proposes to amend these elements to create more public space, better able to serve this unique community.
C. BUILDING ANALYSIS

Existing and Proposed Floor Plans

1. Enlarge Entry Area
2. Relocate Community Meeting Room
3. Relocate Staff Area
4. Relocate Childrens Area
5. Relocate Book Drop
6. Rework Landscape
7. Additional Windows
8. Add Small Meeting Rooms
9. Relocate Drive Through Book Drop

See following pages for descriptions of each number.

See Building Systems Narratives for additional information and scope.
C. BUILDING ANALYSIS

1 Enlarge Entry Area

The existing entry area will be expanded to simplify the roof forms, address snow buildup in winter, and improve visibility from the parking lot. The new entry area will require relocating exterior walls and modifying the existing roof line.

Reconfiguring the entry area will allow visitors to feel like they have “arrived” at the library directly upon entrance.

A new entry vestibule will be added as part of the new entry area.

This enlarged lobby will also provide enhanced 24-hour access for patrons.
C. BUILDING ANALYSIS

2 Relocate Community Meeting Room

The community room will be relocated to better connect to the main space of the library.

Large operable doors will allow for better connection from the community room to the adjacent library. The operable wall will have a mix of glass and opacity and will meet acoustic separation requirements between the two spaces.

The sink and storage areas will be relocated, requiring plumbing work.
C. BUILDING ANALYSIS

3 Relocated Staff Area

The staff area will be relocated to the north side of the building, taking the place of the old meeting room.

A supervisor office with acoustic separation will allow for private conversations.

A staff break room will provide the staff with a place to step away, rejuvenate, eat, etc. Contractor to assume plumbing work required.

A dedicated staff restroom will be provided near the break room. Contractor to assume plumbing work required.

Open workstations with ample sorting/courier staging space will be provided for staff.
6.4.iv SUNRIVER LIBRARY

C. BUILDING ANALYSIS

4. Relocate Childrens Area
The childrens area will be relocated to the current staff area. The lower ceilings will make it a place “just for kids!”

See following description for new windows in the childrens area, which will provide daylight into the interior and provide a hint of visible activity inside for people approaching the main entrance.

Exterior door will be removed from east wall and the extra space will be utilized for childrens area.

7. Add Additional Windows
On approaching the building, it is currently difficult to see the activities happening within the library. In addition, some areas within will benefit from additional natural daylight.

New windows will be added to both sides of the fireplace, to the north side of the new childrens area, and to the east side of the new staff area.

8. Add Small Meeting Rooms
New small meeting rooms will provide users a place for community meetings, virtual meetings, tutoring sessions, etc.

9. Relocate Drive Through Book Drop
The drive-up book drop will be relocated north of the building (exact location, TBD). Inclement weather makes a book drop essential for patrons, while locating close to the new staff area will allow for easier access by staff.

5. Relocate Book Drops
Not shown on the plan, but a new indoor book drop will be provided with direct connection to the staff area.

The outdoor book drop will be relocated closer to the main entrance.

6. Add Landscape
Some new visitors to the library have difficulty finding the front door. In addition to reworking the entire entry area of the building (see previous description), landscaping will be used to shield secondary entrances from view.

For example, reduced path size and plantings will clearly demarcate the courier entrance as back of house, not the primary entrance.
D. BUILDING SYSTEMS: STRUCTURAL

Existing Structural Systems

The original existing one-story building was constructed in 1997. The roof consists of 15/32" plywood sheathing that spans over 2x wood framing. The 2x framing spans between glulam purlins that bear on top of custom trusses over most of the roof. The custom trusses consist of glulam members and a combination of bolted cover plate connections (glulam to glulam) and hidden knife plate connections (glulam to column). The trusses are supported by 6"-diameter steel pipe columns. Some low portions of roof are supported by light-framed wood bearing walls. The walls bear on concrete stem walls and continuous reinforced concrete foundations. The floor consists of a concrete slab on grade. A unique feature of this building is that the north face of the south wing is clerestory window that is braced at the top by the underside of the upper roof framing, and at the bottom by the low shed roof framing.

Proposed Modifications

We understand that the current main entry, located at the interior corner between the north and south wings, will be modified. The existing walls are to be removed and reconfigured, and the roof line modified, to allow for a transformed entry. A new operable partition will be added to separate the meeting room from the fiction/non-fiction area. This partition will require an added support beam that spans between existing steel columns.

Also, during the August 16, 2021 site visit, one of the library staff noted that a roof cantilever, at the northeast corner of the south wing, displays visually noticeable vertical deflection during snow events. The framing in this area should be investigated further to determine if remediation is required.

Due to the relatively minor nature of the proposed modifications, our assumption is that a seismic upgrade will not be triggered. Further, we understand that there is no intention of performing a voluntary seismic upgrade, and that one will not be a part of this renovation.
D. BUILDING SYSTEMS: MEP

Heating, Ventilation And Air Conditioning

Existing System

- Two split system units located in the mezzanine provide heating and cooling. The heating is provided by 80% efficient gas furnaces. The cooling is provided by outdoor condensing units (R-22). Some of the units have economizers for “free cooling”. The units are 24 years old and are at the end of their life. Gravity and powered relief are provided. These units are very hard to access and maintain.

- The furnace units have MERV 8 filters and iWave Bipolar Ionization air purification.

- Programmable thermostats with a BACNET interface provide temperature control and monitoring.

- A timed override switch is provided for the multipurpose room.

- Hot and cold complaints are noted throughout the library.

Proposed Upgrades

- Replace the two existing 80% efficient split systems with four smaller 90% condensing furnace units with economizers, relief and energy compliant condensing units to improve zone temperature control and access. Reinstall the existing iWave bipolar ionization system, duct smoke detectors and control system and provide additional ionization and control for two of the new units. Two units would be installed in the existing mechanical mezzanine and two units in the garage area mezzanine. The revised zoning would be a separate thermostatic zone for the staff meeting room, children’s collection, fiction/non-fiction open library area and west facing small meeting rooms/office/toilet rooms/entry (see FIG 2).

- Add ceiling exhaust fan for new toilet room.

FIGURE 2: Revised HVAC zoning, Sunriver
D. BUILDING SYSTEMS: MEP

Plumbing Systems

Existing System

- 4" waste, 2" domestic water service is provided to the facility. There are no known issues with the existing water piping or fixtures. The plumbing fixtures are not of the water conserving type.
- A natural gas service is provided for the heating system.
- Electric water heaters are provided for domestic hot water. One water heater (EWH-1) is very hard to access for maintenance as it is located in the mechanical mezzanine.

Proposed Upgrades

- Improve access to EWH-1.
- Extend waste, water and vent to fixtures at new toilet room.

Fire Sprinkler Systems

Existing System

- The facility is not sprinkled.

Proposed Upgrades

- None anticipated.
D. BUILDING SYSTEMS: MEP

Electrical Systems

Existing System

- Electrical distribution equipment is approximately 25 years old. Normal life expectancy is 20-30 years. With proper routine maintenance, life expectancy of electrical equipment could possibly be extended to 30-40 years. The equipment is manufactured by Challenger which is no longer in existence. Challenger was bought out by Eaton and known deficiencies have been reported for this manufacturer.
- There is an isolated power system installed in the facility. Request further information regarding the need for this system. Isolated ground systems are somewhat obsolete in modern commercial type buildings.
- The building is served by an exterior pad mounted transformer with an CT cabinet. The serving utility company is Midstate Electric Cooperative (Meter #06212827). Utilization voltage is 208V/120V.
- The main service feeds a branch circuit panel board with main disconnect. This panel feeds a sub-panel that in turn feeds the isolated power panel.
  - Panel “2SLA” – 400 amps
  - Panel “2SLB” – 200 amps
  - Panel “2IG” – 200 amps
- Lighting is all fluorescent (see FIG 3).
- There is a walker floor duct system in the floor of the main library that is currently in use. The system will remain but reuse should be limited (see FIG 4)
- Emergency egress lighting utilizes battery backup ballasts. Emergency egress lighting is on 24/7 with no ability to turn off.
- Exterior site lighting utilizes HID style pole lights and HID bollards.

FIGURE 3: Fluorescent lighting

FIGURE 4: Walker duct
D. BUILDING SYSTEMS: MEP

Electrical Systems

Proposed Upgrades

• Replace all electrical distribution equipment one-for-one.
• Recommend separate room to house electrical equipment. Electrical and IT should not share the same space (see FIG 5).
• Provide new electrical outlets and circuiting as necessary to accommodate renovated spaces.
• Replace all lighting and controls with new LED lights and a networked lighting control system consisting of localized room controllers, low-voltage switches, occupancy sensors, and photocells. Provide local control (with UL 924 bypass) of emergency egress lighting.
• Provide a 2kW central battery inverter to power emergency egress lighting, fire alarm, and security systems.
• Replace site lighting with new pole mounted LED fixtures and LED bollards.

FIGURE 5: Electrical/IT room
D. BUILDING SYSTEMS: MEP

Building Technologies

Existing System

- The IT room is shared with the main electrical room. The room has two racks and is adequately sized for the existing equipment. There is ample spare capacity in the racks.
- A 1,500kVA rack mounted UPS is provided for backup power. There is no backup emergency generator. Runtime is limited to the runtime of the UPS batteries (estimated 15 min).
- The building is cabled with CAT-5E cabling.
- There is an existing projector and motorized screen in the meeting room.

Proposed Upgrades

- Provide new data cabling and jacks as necessary to accommodate renovated spaces.
- Provide new pathways for A/V connections as necessary in renovated spaces.
- Provide cooling if dedicated IT room is provided.

Electronic Safety and Security

Existing System

- There is no fire alarm in the building. Staff indicated fire department notification is through the security system.
- There is an existing Altronix access control system in the building. The number of doors with card reader access is limited.
- There is a standalone security system installed in the building.
- No video surveillance cameras were observed.
- Provide code minimum fire alarm system with pull stations and notification appliances as required. If fire sprinklers are not provided, provide detection through fire alarm system.
- Expand access control system to cover main entry vestibule and meeting room. Door hardware upgrades will also be required.
- Provide intrusion detection at all building entrances and motion detection in the main library through security system.
- Provide digital IP video cameras and network video recorder (NVR) at all building entries and at the main circulation desk.

Proposed Upgrades

- Provide code minimum fire alarm system with pull stations and notification appliances as required. If fire sprinklers are not provided, provide detection through fire alarm system.
- Expand access control system to cover main entry vestibule and meeting room. Door hardware upgrades will also be required.
- Provide intrusion detection at all building entrances and motion detection in the main library through security system.
- Provide digital IP video cameras and network video recorder (NVR) at all building entries and at the main circulation desk.
D. BUILDING SYSTEMS: ACOUSTICS

The renovation of Sunriver Library will require acoustical design consideration to control noise and disruptions from conversations to optimize the use and function of the multipurpose zones. This could include design decisions to optimize sound absorptive performance with new finishes, sound control and privacy through layout and furniture selections, and selection of assemblies to meet the overall goals for the patrons and staff.

This could include updates to finishes, improvements for partitions and doors, balancing background noise (HVAC systems, exterior noise, etc.) and guidance on furniture and spatial layouts.
D. BUILDING SYSTEMS: SIGNAGE

Signage will be developed for Central and Redmond libraries (see Section 6.1.D.Signage). Similar signage will be implemented throughout the DPL system for the renovation project. Scope to be determined for each branch location.
D. BUILDING SYSTEMS: AMH AND LIBRARY SHELVING

No Automatic Materials Handler (AMH) is anticipated at this location. Scope of new shelving, end panels, and displays to be determined.
E. SUSTAINABILITY

With a renovation scope focused primarily on interior improvements, our team’s sustainability efforts will consist largely of materials interventions. To reduce embodied carbon, product selections will be evaluated on global warming potential as we make an effort to install materials with below industry averages for each product category. We will use low and no-emitting materials and make an effort to reduce chemicals of concern all in support of better indoor air quality.
7.0 APPENDIX

7.1 Summary of Staff Feedback
7.2 Master Development Schedule
7.3 Preliminary Building Program
7.1 SUMMARY OF STAFF FEEDBACK

**DPL Libraries Design Goals**

<table>
<thead>
<tr>
<th>Goals</th>
<th>Staff Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Invigorate/open up entry experience</td>
<td>• Thermal comfort</td>
</tr>
<tr>
<td>• Reconfigure staff space</td>
<td>• Acoustics</td>
</tr>
<tr>
<td>• Create connection between meeting room and library</td>
<td>• Flexibility</td>
</tr>
<tr>
<td>• Create better acoustics</td>
<td>• Outdoor spaces</td>
</tr>
<tr>
<td>• Incorporate creative spaces and co-working spaces</td>
<td>• Operations efficiency</td>
</tr>
<tr>
<td>• Create ability to host more programs</td>
<td>• Program adjacencies</td>
</tr>
</tbody>
</table>
7.1 SUMMARY OF STAFF FEEDBACK

East Bend Library Design Goals

Goals

• Find space efficient ways to improve service at high-use “hold and drop off” branch
• Create areas to feel comfortable staying for while
• Allow meeting space to operate without disruption from childrens area
• Reconfigure staff space

Staff Feedback

• Easy to browse displays are crucial here!
• Improved staging and processing area are necessary based on pick up/drop off traffic
• Provide tutoring rooms or small meeting rooms?
• Currently the children next to the meeting room is problematic
7.0 APPENDIX

7.1 SUMMARY OF STAFF FEEDBACK

La Pine Design Goals

Goals
• Invigorate / open up entry experience
• Cater to youth after school use
• Create better connection between meeting room and library
• Place quieter spaces near meeting room
• Reconfigure staff space

Staff Feedback
• Improve acoustics! Conversations from staff area are heard in the library and noise from the teen area migrates into the meeting room
• Since it caters to after-school use – space for computers and wifi recommended for public
• Make adult space more inviting and engaging.
• Relocate computers from the center of the building
• Moving childrens to the south side of the building is a good idea—overlooks the park
• Teens should have their own designated space
7.1 SUMMARY OF STAFF FEEDBACK

Sisters Design Goals

Goals

• Invigorate / open up entry experience
• Create better connection between meeting room and library
• Create ability to host more programs
• Place quieter spaces near meeting room
• Reconfigure staff space

Staff Feedback

• Could there be a window in the staff break room?
• Locating the book drop closer to the main entrance and workroom area is a plus
• Ensure thermal comfort in small tutoring rooms
• Computers are well used—make sure that area is not reduced compared to the current space
• Do childrens and adult collection want to flip? Would give more space for adult seating when meeting room not in use
• The fireplace is popular
• Provide patron lockers?
### 7.1 SUMMARY OF STAFF FEEDBACK

#### Sunriver Design Goals

<table>
<thead>
<tr>
<th>Goals</th>
<th>Staff Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improve legibility (and snow management) of current entry</td>
<td>• I like utilizing the open empty space in the entry lobby and making the outside entry more visible and safe</td>
</tr>
<tr>
<td>• Allow 24hr access for holds pickup</td>
<td>• Snow on the walkway and against the building is often an issue</td>
</tr>
<tr>
<td>• Create connection between meeting room and library</td>
<td>• Love the idea of 24 access to materials!</td>
</tr>
<tr>
<td>• Right size staff space</td>
<td>• Where do we imagine teens hanging out?</td>
</tr>
<tr>
<td></td>
<td>• Could we provide wifi/outlets on the exterior patio?</td>
</tr>
</tbody>
</table>
7.1 SUMMARY OF STAFF FEEDBACK

Downtown Bend Design Goals

Goals
- Transform former operations areas into public space
- Improve functionality of central entry/circulation area
- Incorporate creative spaces and co-working spaces

Staff Feedback
- The sound from the book drops is LOUD! They need to be enclosed
- Goodbye slate tile! Your time is up!
- Could we move all the adult stuff upstairs where it might be more quiet?
- Is there enough staff space?
- What is envisioned for co-working? Bend has a large remote work population
- Yes to gaming space for teens/tweens. Enclosed would be good
- Do we want teens near childrens downstairs?
- Any chance we could go up a level for a roof terrace?
7.1 SUMMARY OF STAFF FEEDBACK

Redmond Design Goals

**Goals**

- Create a civic contribution that feels at home in downtown Redmond
- Provide family-friendly spaces for all ages
- Incorporate creative spaces and co-working spaces
- Provide pedestrian and visual connections to Civic Park and City Hall

**Staff Feedback**

- Quiet study areas throughout the building would be good—lots of use by RPA
- I love the idea of creative/DIY spaces where people could practice or pursue what they are passionate about
- A tech room? Ready for VR?
- Self-service storage lockers—inside and out?
- Redmond loves programs, so a room for 50+ is a must
- I like to see lots of windows!
- I would like to see fiction and non-fiction together
- Outdoor space would be very useful
- The community has lots of feelings about the existing building and its history
7.0 APPENDIX

7.1 SUMMARY OF STAFF FEEDBACK

Central Design Goals

<table>
<thead>
<tr>
<th>Goals</th>
<th>Staff Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Create a signature destination library for all county residents</td>
<td>• Central is going to be a true landmark! Very exciting times for DPL! Taxpayers will be impressed!</td>
</tr>
<tr>
<td>• Craft the building expression and spaces to feel true to the community</td>
<td>• I like the ability to have indoor and outdoor programs</td>
</tr>
<tr>
<td>• Design a flexible home for evolving community use over many decades</td>
<td>• Providing space for large community events is important</td>
</tr>
<tr>
<td>• Centralize system operations functions</td>
<td>• The drive through book drops should be popular, but book drop at the front door is also essential.</td>
</tr>
<tr>
<td>• Capitalize on incredible local views!</td>
<td>• Could we use native flora in the landscape?</td>
</tr>
<tr>
<td>• Provide the ability to host large events for DPL and the community</td>
<td>• External/afterhours access is important</td>
</tr>
<tr>
<td>II</td>
<td>• Lots of potential for art</td>
</tr>
<tr>
<td></td>
<td>• I enjoy how the building seems like it belongs or like it is growing out of the land</td>
</tr>
<tr>
<td></td>
<td>• Enclosed teen spaces, and areas for DIY are great ways to keep young adults engaged</td>
</tr>
<tr>
<td></td>
<td>• The staff mezzanine is a smart way to have space for staff while being more open and less boxed in</td>
</tr>
</tbody>
</table>
7.2 MASTER DEVELOPMENT SCHEDULE
### 7.3 PRELIMINARY BUILDING PROGRAMS

#### Central Library Space Need Summary

<table>
<thead>
<tr>
<th>NAME</th>
<th>QTY</th>
<th>SPACE AREA (PER EACH)</th>
<th>NSF</th>
<th>GROSSING FACTOR</th>
<th>BUILDING GSF</th>
<th>OUTDOOR GSF</th>
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<tbody>
<tr>
<td><strong>Youth</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Teen Collection + Seating</td>
<td>1</td>
<td>1,400</td>
<td>1,400</td>
<td>100%</td>
<td>1,400</td>
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<tr>
<td>Group gaming area</td>
<td>1</td>
<td>200</td>
<td>200</td>
<td>100%</td>
<td>200</td>
<td></td>
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<tr>
<td>Dynamic interactive wall/floor</td>
<td></td>
<td></td>
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<tr>
<td><strong>Teen Subtotal</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Childrens Technology</strong></td>
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<td>150</td>
<td>150</td>
<td>100%</td>
<td>150</td>
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<tr>
<td><strong>Childrens Collection</strong></td>
<td>1</td>
<td>10,000</td>
<td>10,000</td>
<td>100%</td>
<td>10,000</td>
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<tr>
<td>Curriculum crates</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storytime kits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Childrens Subtotal</strong></td>
<td></td>
<td></td>
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### 7.3 PRELIMINARY BUILDING PROGRAMS

#### Central Library Space Need Summary

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### 7.3 PRELIMINARY BUILDING PROGRAMS

#### Central Library Space Need Summary

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**Creative Collaboration Subtotal**  14,260  13,600
## 7.3 PRELIMINARY BUILDING PROGRAMS

**Central Library Space Need Summary**

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<th>OUTDOOR GSF</th>
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7.3 PRELIMINARY BUILDING PROGRAMS

Central Library Space Need Summary

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**Add Alternate: Auditorium**

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### 7.3 PRELIMINARY BUILDING PROGRAMS

#### Redmond Library Space Need Summary

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### 7.3 PRELIMINARY BUILDING PROGRAMS

#### Redmond Library Space Need Summary

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<th>GROSSING FACTOR</th>
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<th>OUTDOOR GSF</th>
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<tbody>
<tr>
<td>Adult Collection</td>
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## 7.3 PRELIMINARY BUILDING PROGRAMS

### Redmond Library Space Need Summary

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<thead>
<tr>
<th>NAME</th>
<th>QTY</th>
<th>SPACE AREA (PER EACH)</th>
<th>NSF</th>
<th>GROSSING FACTOR</th>
<th>GSF</th>
<th>OUTDOOR GSF</th>
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</thead>
<tbody>
<tr>
<td>Creative + Collaboration</td>
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<td>Roof Terrace/Outdoor program space</td>
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## 7.3 PRELIMINARY BUILDING PROGRAMS

### Redmond Library Space Need Summary

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<tr>
<th>NAME</th>
<th>QTY</th>
<th>SPACE AREA (PER EACH)</th>
<th>NSF</th>
<th>GROSSING FACTOR</th>
<th>GSF</th>
<th>OUTDOOR GSF</th>
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**Notes:**
- Updated: 9.30.2021
- All numbers are in square feet (SF) unless noted otherwise.
### 7.3 PRELIMINARY BUILDING PROGRAMS

**Redmond Library Space Need Summary**

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<th>Qty</th>
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| Total                         |     |                       |     |                 | 39,973| 3,500      |