County of Sonoma

New County Government Center

CONCEPT DESIGN REPORT

APRIL 30, 2025 - FINAL

ZGF | IN ASSOCIATION WITH coar DESIGN GROUP

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1 PROJECT OVERVIEW

1.1 Executive Summary

BACKGROUND

In November 2024, following a seven-month RFQ and RFP selection process, Sonoma County Public Infrastructure selected ZGF Architects LLP in association with the COAR Design Group (ZGF+COAR) for Architectural / Engineering Design services for the new County Government Center (CGC) project.

Pursuant to Board of Supervisors approval and direction on January 31, 2023:

- The existing County Administration Center site as the tentative location for a new County Government Center, for purposes of conducting further analysis and other pre-project planning, feasibility, and development plan efforts.
- Conceptual approval of a phasing approach and configuration of the new County Government Center.
- 170 useable square feet per full time employee as the general space standard.
- Received financial funding and directed staff to investigate funding options.
- Directed staff to issue Requests for Proposals for any needed pre-development services including all consultant services for environmental studies, land use entitlements, and preparation of plans and specifications.

As a part of the overall County vision, a long-term plan for the County Government Center has been established with the following goals:

- Provide a strong public identity and improved access for the County Seat and core County government functions.
- Right-size the new County Government Center to bring the best long-term value to the County, Its constituents, and the public.
- Consolidate selected government located throughout the County to provide better operational efficiency and financial benefits.
- Create flexible state-of-the-art government and workplace environments to serve the County and its Constituents' needs for the next 30 plus years.
- Maximize opportunities for renewable energy such as incorporation of a microgrid.

The new County Government Center Project aligns with the County's long-term plan to enhance the operational efficiency, service delivery, and financial benefits. The Project should effectively reflect the County's vision, mission, legacy, culture, and ideals.

NEW COUNTY GOVERNMENT CENTER

Basic Scope and Character of Project

- The Project will be located on the existing County Administration Center campus. The newly proposed phase one County Government Center is intended to be approximately 200,000 gross square feet with six (6) above-grade levels. The CGC will be designed to

accommodate offices and workspace for approximately 800 employees plus the Board of Supervisor's public hearing chamber.

- Parking to support the new County Government Center will be surface-level parking ultimately incorporating solar canopies creating a micro-grid for renewable energy production. The parking areas will be located directly south of the Project on parcel where the County Administration and Fiscal buildings currently are situated.
- The Project will be developed such that no employees will be displaced during construction. Existing buildings will be demolished after employees have transferred to the new County Government Center or other county facilities in Northwest Santa Rosa area.

Map produced by: Sonoma Public Infrastructure GIS
Map creation date: April 10, 2023

1.2 Goals, Vision & Guiding Principles

GOALS

ZGF+COAR conducted several Programming and Concept Design Workshops with Sonoma County staff to develop high level vision, goals, and objectives for the project. What immediately surfaced in the initial meetings was a strong desire for the CGC to be a unique representation of Sonoma County – to have a civic presence that isn't 'showy'.

An initial goal set by the project team was to outline a set of Guiding Principles to carry through the entire design and construction process as a means of iteratively holding the design to account, beyond adhering to schedule and budget. The County's vision for the CGC was reviewed together and, taking into account how success would be measured, the project team developed the following Guiding Principles:

GUIDING PRINCIPLES

1. The CGC should be a good steward of County resources by representing Sonoma culture, civic pride and presence in a humble and modest manner.
2. The CGC will walk the talk by meeting or exceeding the County's sustainability goals including zero net energy and zero net carbon (ZNE/ZNC).
3. The CGC will provide an aesthetically pleasing, warm, comfortable workplace environment, that is connected to nature, is Sonoma appropriate to staff and constituents such that they feel good about being there.
4. The CGC will provide clear wayfinding and a welcoming experience for visitors.
5. Public safety aspects will be seamlessly integrated into the design.

1.3 Process – Workshops & Participants

PROJECT SCHEDULE

ZGF+COAR and their consultants commenced a 14-week Programming and Concept Phase in January 2025, culminating in this Concept Design Report. This phase included:

- Research and informational deep dives
- Development of project vision, goals, and objectives
- Programming sessions and departmental interviews to ascertain space, square footages and program needs
- Understanding of spatial adjacency requirements
- Development of appropriate design ideas and options
- Delineate needs and objectives of building systems and specialized equipment

WORKSHOPS

Four (4) Programming and Concept Phase Design Workshops were conducted roughly every three weeks and focused heavily on site design, project phasing, and building orientation. It became evident that decisions on proper siting of the CGC were contingent on understanding the future potential development of the larger County Administration Center site. ZGF+COAR explored multiple building location options with County staff during the initial workshops and included high-level brainstorming on the future of the County campus. As space programming information and adjacencies were developed, more specific building orientation and layout studies were reviewed in tandem with further site and landscape options.

DEPARTMENTAL INTERVIEWS

Concurrent with the Design Workshops, ZGF+COAR conducted multiple departmental interviews with prospective agencies that may be located in the future CGC. The goal of each session was to receive Departmental feedback on workplace space needs, growth forecast, critical adjacencies, security and privacy requirements, and any special functions that would affect space planning. Departments interviewed included:

- Human Services Department (HSD)
- Office of Equity
- Board of Supervisors
- County Counsel
- Law Library
- Information Systems Department (ISD)
- Human Resources Department
- Congressman Thompson
- Independent Office of Law Enforcement Review & Outreach (IOLERO)
- Public Defender
- District Attorney
- Probation Department
- County Administrator's Office (forthcoming)
- SPI Fac/Ops

STAKEHOLDERS

ZGF+COAR conducted several listening sessions with key County agencies and stakeholders on their vision, input, and guidance on the development of the CGC project.

- Energy & Sustainability
- Office of Equity
- Zero Waste
- Facility Operations
- CGC Security

TOURS

ZGF+COAR, with the Owner's representatives, visited several local buildings with similar typologies to observe what program elements, features, materials, and building systems may be applicable to the CGC and what decisions and lessons learned (good and bad) could influence the design and construction.

- May Lee State Office Complex, Sacramento – 1.25m SF state government (DGS) administrative building completed in 2024
- Clifford L. Allenby State Office Building, Sacramento – 350k SF state government (DGS) administrative building completed in 2021
- County Office Building (COB3), San Mateo – 200k SF county administrative building completed in 2023
- Sonoma County Central Mechanical Facility, Santa Rosa

1.4 High Performance Design

GOALS

The CGC aims to be a good steward of County resources. The project team has been tasked with seeking the highest value and best efficiencies in all aspects of planning throughout the design and construction process. Design decisions will be weighed against short-term (first cost), long-term (operational cost) implications, as well as County personnel and visitor well-being considerations.

STRATEGIES

Throughout the Programming and Concept Phase, the project team has listened to County departmental leads and stakeholders to help inform priorities that build a solid business case for the new County Government Center endeavor.

- By locating the CGC in the northwest corner of the identified site, it not only provides efficiencies to a majority of the potential departments with close proximity to the courts, it frees up additional acreage on the County campus for a future mixed-use/residential use. Whether County developed, long-term leased, or sold, the increased available land could provide significant revenue to the County.
- Numerous departments conveyed significant concerns with staff morale and employee retainage in current facility conditions. Providing their workforce with modern, reasonably healthy workspace was a consistent goal and ask of the project team in order to increase staff efficiency, lower absenteeism, and for increased ability to recruit and retain highly qualified and motivated staff.
- By implementing the County of Sonoma Climate Resilience Comprehensive Action Plan at the new County Government Center, not only does the County walk the talk in demonstrating the health, wellness, and employee productivity values of building sustainably, the long-term operational energy savings on the physical building systems, and reduction of deferred maintenance through the replacement of decaying buildings will also provide lasting cost benefits. By adhering to the Action Plan and targeting zero net energy and zero net carbon (ZNE/ZNC), the project team will maximize passive design strategies first to lower the required energy use, thus reducing the size and power draw of mechanical systems.

NEXT STEPS

Following acceptance of the Concept Design Report and direction of a preferred design option, the project team will continue developing the CGC in the Schematic Design phase. Additional design workshops will be held with County staff and stakeholders and further meetings with department leads will refine the space program needs of the building. A 7-week 50% Schematic Design effort will provide a pricing package for a Construction Manager at Risk (CMAR) to estimate and a formal presentation to the Board of Supervisors.

2 SUSTAINABILITY

2.1 Overview

This chapter summarizes the sustainability vision for the County of Sonoma New County Government Center at the end of concept design. The vision was formulated based on a sustainability charrette at the start of the concept design phase, a meeting with Zero Waste Sonoma, and internal design team meetings throughout the phase. The vision will be used as a guidepost throughout the design process and will be refined based on analysis.

The sustainability charrette included representatives from Sonoma County, Sonoma Energy & Sustainability, ZGF+COAR and their consultants Atelier Ten, OJB, COAR, PAE, Thornton Tomasetti, and Sherwood. The team identified the following sustainability topics as priorities: resiliency, carbon, water, and health & wellness. The team noted that more information is needed about how sustainability goals translate into building-level strategies for waste and transportation. Other sustainability topics include site & ecology and benchmarking.

The meeting with Zero Waste Sonoma included ZGF, COAR and Atelier Ten. Zero Waste Sonoma is a joint powers authority that represents ten jurisdictions: the county itself and the nine cities and towns in Sonoma County. The entity writes local policy, manages zero waste programs and projects, and provides education and outreach.

For each of the topics identified during the sustainability charrette, this chapter discusses the following:

- GOAL: What is the overall goal for the topic; what do we want to achieve with the project.
- TARGETS: How do we quantify whether the goal has been achieved.
- STRATEGIES: What are some of the strategies that will be considered to achieve the goal.
- NEXT STEPS: What do the owner and design team need to do next to study the strategies and ultimately achieve the goal.

While each sustainability topic has its own goal, the overall sustainability vision statement for the project is as follows:

The building is designed to minimize the environmental impact from construction through operations while ensuring responsible use of public funds. The building reflects the values of the community and is a source of pride.

This document contains several references to the County of Sonoma Climate Resilience Comprehensive Action Plan (“Climate Plan”), which was published in August 2024. The Climate Plan recommends measures and actions to reduce carbon emissions from County operations. For easy cross-reference with the Climate Plan, this document follows the same labeling structure for the measures. The first letter of the measure label refers to the topic: energy (E), zero waste (ZW), water (W), or wildfires (WF). The first letter is followed by “-CO-“ for “County operations”, followed by a number. An example of a measure label is “E-CO-6”. Additionally, this chapter contains a climate analysis for Santa Rosa to inform passive strategies. The last section provides guidance on massing and programming in function of natural ventilation and daylight.

2.2 Resilience

GOAL

Withstand and recover from shock events.

TARGETS

The level of resiliency can be defined through the following questions:

- What will the building be resilient to? Wildfires, smoke events, earthquakes, excessive heat, and power outages (both shock events and planned PSPS).
- What functions and whom will the building be resilient for? Basic life safety for employees and basic resource distribution for the community. The building will be open to visitors on a daily basis but will NOT function as an Emergency Operations Center.

STRATEGIES

1. The project will be designed to operate in two modes, closed and open.
    a. Closed mode: Smoke events and wildfires mean the building needs to close up tight, so the inside stays safe. Filtered mechanical ventilation is used (with minimum outside air, to reduce the need for filtration). If ground-source heat pumps prove feasible, they will provide heating and cooling efficiently. Operable windows are closed using actuators.
    b. Open mode: Power outages and earthquakes mean the building needs to open to the outside. Natural ventilation, ceiling fans, daylight, and shaded outdoor spaces will keep the building habitable even if electrical and mechanical systems are down.
2. Select design strategies with co-benefits for other sustainability topics:
    a. Passive design ensures the building is comfortable without HVAC or lighting during a power outage and also saves energy day-to-day.
    b. Battery storage provides backup power for critical needs during a power outage or wildfire, and reduces carbon emissions day-to-day.
    c. Mass timber is seismically safe because of its high strength-to-weight ratio and has a high fire resistance because of its charring properties. It reduces embodied carbon.
    d. A resilient landscape provides defensible space through fire-wise landscape design during wildfires and saves water day to day.
    e. Water reuse allows for toilet flushing even if water lines are disrupted during an earthquake and lessens strain on community water supplies.
3. Develop a phased wildfire risk reduction and structure hardening plan (WF-CO-2). The Sonoma CGC could be a pilot project.

NEXT STEPS

1. Determine if the building will be a resilience hub for short periods of time. If so, determine for whom: campus residents, neighborhood residents, and /or neighborhood businesses.
2. Determine if the building will include multi-functional spaces that serve as cooling areas during excessive heat.
3. Determine which functions should be on back-up power, on a day-to-day basis and during an emergency.

2.3 Carbon

GOAL

Zero carbon, including operational carbon (from energy use) and embodied carbon (from materials and construction).

TARGETS

OPERATIONAL

- All-electric (no combustion).
- Reduce energy use by 20% beyond ASHRAE 90.1-2019.
- Meet 100% of energy use with on-site renewable energy.
- Create a maintenance plan to monitor and reduce fugitive refrigerant emissions (aligns with E-CO-7).

EMBODIED

For life cycle stages A1-A5:

- Primary and exterior materials: Reduce embodied carbon by 20% (aligns with E-CO-5).
- Interior materials: Select products with a lower than industry average embodied carbon (aligns with E-CO-5).
- Primary, exterior, and interior materials: Achieve 350 kgCO2e/m2. Potentially, offset 100% of embodied carbon.
- Other physical elements (MEP, FF&E, sitework): Quantify and reduce embodied carbon.

STRATEGIES

OPERATIONAL

1. Passive design strategies. The massing is no more than 30’ from skin to core, to allow for natural ventilation and optimal daylighting. The center of the building massing has connecting stairs and a light shaft, allowing light and air into the center of the building. The main building orientations (north & south) make solar shading easier. The facades will be designed for optimal shading, insulation, and glazing. Ceiling fans may be used.
2. Active systems. The project team will evaluate hydronic systems such as passive chilled beams with underfloor ventilation. These systems are compatible with mass timber and use water for heating and cooling, which helps minimize the need for additional air handling. The project will also feature high-performance building systems and controls.
3. Plant systems. The project plans to include an all-electric heating and cooling plant. Ground-source heat pumps will be studied since they take advantage of the heat and cool stored in the ground to efficiently exchange heating and cooling into the building. There is an aging central plant elsewhere on the civic campus, which uses natural gas and will not meet current energy efficiency standards. The project does not currently plan to connect to this plant but may be designed to connect to a future upgraded central plant.
4. PV parking canopies. On-site renewables provide a clean source of energy and support resilience when combined with battery storage. PVs may be located over parking and/or on roofs, depending on how much PV is needed and how much parking area is available to cover.

5. Battery storage. In combination with on-site renewables, battery storage reduces carbon emissions and energy cost.
6. Refrigerant management. Refrigerants in HVAC&R will be selected to have a low ozone depletion potential and global warming potential. Refrigerant leakage will be minimized.

EMBODIED

1. Mass timber. Mass timber reduces embodied carbon and supports biophilia. The team is treating mass timber as our basis of design.
2. Embodied carbon reduction strategies. The building will be right sized and designed with efficient massing and structural design. The project will include low-carbon materials (e.g. wood), low-carbon products (e.g. low-carbon concrete mixes), and local materials where low-carbon options are available. Building materials will be evaluated based on durability, reusability, and recyclability. The building will be designed for flexibility, adaptation, and easy disassembly at the end of its service life. The embodied carbon of assemblies such as MEP, FF&E, and sitework will be considered as part of the design process.
3. Reuse of on-site demolition materials. Concrete, soil, asphalt, and other materials are currently present on the site and will be disturbed as part of the demolition. Based on material testing, on-site reuse will be considered where possible.

NEXT STEPS

OPERATIONAL

- The County is interested in either a microgrid or an on-site PV array. The project team will study options for this project (a campus-wide microgrid is not in scope for this project currently but could be considered).
- Model the energy use of the building and test energy efficiency measures.
- Determine the amount of PV needed to meet 100% of energy use. Determine the amount of energy generated if PV parking canopies are maximized.

EMBODIED

- Rhianna Frank will share information on the county’s construction and demolition waste policy.
- Develop mass timber design.
- Quantify and reduce the embodied carbon associated with primary, exterior, and interior materials.
- Evaluate purchasing offsets for the embodied carbon of the elements above.
- Quantify and reduce the embodied carbon associated with MEP, FF&E, and sitework.

2.4 Water

GOAL

Meet non-potable water demand with non-potable water supply.

TARGETS

- 40% indoor water use reduction (aligns with W-CO-5).
- 50% outdoor water use reduction.
- 100% of flushing and irrigation demand met by recycled water (aligns with W-CO-6).

STRATEGIES

INDOOR

If the target reduction cannot be achieved through CALGreen-compliant fixtures, the following flush and flow rates may be considered:

- Water closets: 1.1 gpf (CALGreen: 1.28)
- Lavatory faucets: 0.35 gpm (CALGreen: 0.5)
- Showerheads: 1.25 gpm (CALGreen: 1.8)
- Kitchen faucets: 1.75 gpm (CALGreen: 1.8)

OUTDOOR

If the target reduction cannot be achieved through the Model Water Efficient Landscape Ordinance, the project team may consider further waterwise plant selection and efficient irrigation. For maintenance reasons, the project is planning only moderate areas of green space and will prioritize native and adapted plantings that require less irrigation.

REUSE

- On-site water reuse can include blackwater, graywater, rainwater, and condensate.
- Purple pipes in Sonoma County carry recycled water that is separate from drinking water.
- There is probably no opportunity to tap into the wastewater generated by neighboring residential developments due to differences in schedule and ownership. However, if other areas on the civic campus are planned (e.g., the courthouse), it may make sense to centralize water reuse.

NEXT STEPS

1. Conduct a feasibility study for using grey water for County landscaping and new construction scenarios (W-CO-6).
2. Evaluate the possibility of connecting to future purple pipe build-outs.
3. Study other types of on-site water reuse.
4. Propose low-flow fixtures and fittings to meet the indoor water use target.
5. Propose waterwise plant selection and efficient irrigation to meet the outdoor water use target.

2.5 Health and Wellness

GOAL

Design a quality space that the county can be proud of and that employees enjoy coming to.

TARGETS

Support the health and wellness of employees through visual and thermal comfort & delight, air quality, healthy materials, biophilic design, and active design. Reduce circulation of airborne viruses and wildfire smoke.

STRATEGIES

1. Provide occupants with visual and thermal comfort & delight through:
    a. natural ventilation, as discussed in the carbon and resilience sections above
    b. lighting and comfort controls for visual and thermal comfort
    c. glare mitigation for visual comfort, which will include high performance façade design and shading
    d. daylight for energy savings, resilience, connection to the outdoors, and circadian support.
    e. excellent view quality
    f. high-quality lighting for visual comfort

2. Ensure excellent air quality and address occupant concerns about smoke, allergens, mold, and viruses through:
    a. air filtration
    b. air quality monitoring
    c. natural ventilation
    d. contamination prevention measures

3. Select healthy materials based on:
    a. low-VOC content and low-VOC emissions
    b. transparency about building material ingredients
    c. social equity in the supply chain

4. Incorporate biophilic design elements such as views and daylight, natural shapes and patterns, bio-based materials and plants.

5. Incorporate active design elements such as visible stairs, pedestrian walkways, and active furniture.

NEXT STEPS

Incorporate the strategies described above into the building design.

2.6 Site and Ecology

GOAL

The landscape will support:

- the planet, by providing habitat, improving groundwater recharge through stormwater management, and sequestering carbon
- people, by creating conditions that are thermally comfortable, encourage physical movement, and connect occupants to nature
- prosperity, by supporting resilience. During a wildfire, the landscape can provide defensible space. During a power outage or earthquake, the landscape can serve as a community hub for distributing power, supplies, and information

TARGET

For this topic, the strategies below are more relevant than quantitative targets.

STRATEGIES

1. Green space will include pollinator gardens and other habitat areas.
2. The landscape will include low-impact rainwater management systems (aligns with W-CO-1).
3. Plant species will be selected with carbon sequestration in mind.
4. Paving will be reduced as much as possible and permeable paving will be used where possible.
5. The heat island effect will be reduced through cool roofs, cool coatings, and the utilization of green space cover (shade trees, green roofs, etc.) (E-CO-5).
6. PV canopies will be combined with landscape underneath to provide cooling for occupants.
7. Pedestrian pathways will encourage walking.
8. The landscape design will be fire-wise and provide defensible space.

NEXT STEPS

1. Determine the amount of parking needed for the project.
2. Incorporate the strategies described above into the landscape design.

2.7 Waste

GOAL

Manage and reduce construction and operational waste.

TARGET

- Establish facility-specific near-term actions to increase waste diversion by 50% (ZW-CO-2).
- Increase diversion of organic waste from landfills by 100% (ZW-CO-4).
- Divert at least 75% of construction and demolition waste. Diverted materials must include 4 material streams.

STRATEGIES

1. Provide public-facing waste collection stations with clear signage for compost, recycling, and trash. Provide collection infrastructure for pickup.
    a. Provide paper recycling infrastructure and organic waste disposal infrastructure (ZW-CO-2).
    b. Increase employee access to simple, clean composting infrastructure (ZW-CO-4).
    c. Develop centralized universal waste collection stations (ZW-CO-7).

    Zero Waste Sonoma mentioned that their current contractor for waste collection is Bigbelly Waste Management, which provides bins with a compacting function to reduce maintenance and staffing. The current contractor for waste pickup is Recology.
2. Provide water refill stations to encourage reusable waste bottles (endorsed by Zero Waste Sonoma).
3. Manage and reduce construction, demolition, and deconstruction waste.

    Zero Waste Sonoma is working on an ordinance that would require projects to use Green Halo Systems to track construction, demolition, and deconstruction waste. According to Zero Waste Sonoma, Green Halo Systems is already being used by 200 companies in Sonoma County. Green Halo Systems collects waste tickets and translates them into project statistics on waste diversion. Projects still need to meet CALGreen thresholds for waste diversion, but the ordinance would strengthen tracking.

    This project has the opportunity to tell a great story on reuse and waste diversion related to the demolition and deconstruction of the existing buildings and hardscape on the site. The project team can identify which materials are currently present on the site and what the opportunities are for a new life. Sonoma County has local deconstructors. Marble from the existing buildings could be reused. Lumber can be turned into usable lumber by a local company. Fixtures for lighting, doors, and windows can have a high reuse value. Concrete from the existing buildings can be turned into aggregate for new hardscape.

NEXT STEPS

1. Conduct a site walk to create an inventory of materials and identify opportunities for reuse.

2.8 Transportation

GOAL

- Encourage public transportation and micromobility.
- Reduce single-occupant vehicles trips and parking.

TARGET

Reduce emissions from employee commute by 50% by 2030 (T-CO-9).

STRATEGIES

1. Provide EV-ready parking lot projects and EV capable-parking spaces consistent with CALGreen Tier 2 requirements (E-CO-5).
2. Seek public-private partnerships to develop onsite charging infrastructure at County facilities (T-CO-9).
3. Evaluate opportunities to expand subsidized charging at County charging infrastructure (T-CO-9).
4. Develop a feasibility study and plan to expand active transportation infrastructure, e.g. bike lockers, fix-it stations, and shower facilities (T-CO-9).

NEXT STEPS

1. County to conduct an employee commuting survey.
2. County to conduct a traffic analysis study.
3. Study site connections to infrastructure and the opportunity for micro transit to SMART (Sonoma-Marin Area Rail Transit). The Santa Rosa North SMART stop is a 30-minute walk from the site.
4. Connect with the County's Clean Commute program for data on transit connections, bike locker locations, fix-it stations, e-Bike share, etc.

2.9 Benchmarking

GOAL

- Communicate sustainability strategies to occupants and the community.
- Ensure the teams meets the project goals by making a public commitment.
- Support sustainability in the building industry by serving as a demonstration project and market catalyzer.

TARGETS

- Potentially - pursue LEED certification, if it is necessary to meet measure E-CO-6 in the Climate Plan. Sonoma County to confirm whether this is a project requirement.
- Potentially - pursue ILFI Zero Carbon certification as an alternative to LEED, which highlights the project's focus on carbon emissions.

STRATEGIES

The strategies discussed in the sections on Carbon, Water, Health & Wellness, Site & Ecology, Waste, and Transportation would contribute to LEED certification.

The strategies discussed in the section on Carbon will contribute to ILFI Zero Carbon certification.

NEXT STEPS

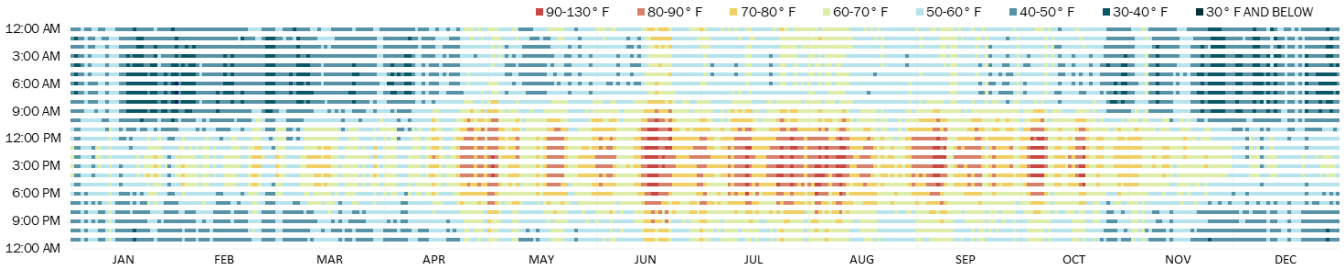
1. Warren Sattler to talk to Strategic Initiatives to confirm if the project is required to pursue LEED certification.
2. Evaluate ILFI Zero Carbon.

2.10 Climate Analysis

Atelier Ten conducted a climate analysis of Santa Rosa to inform passive strategies.

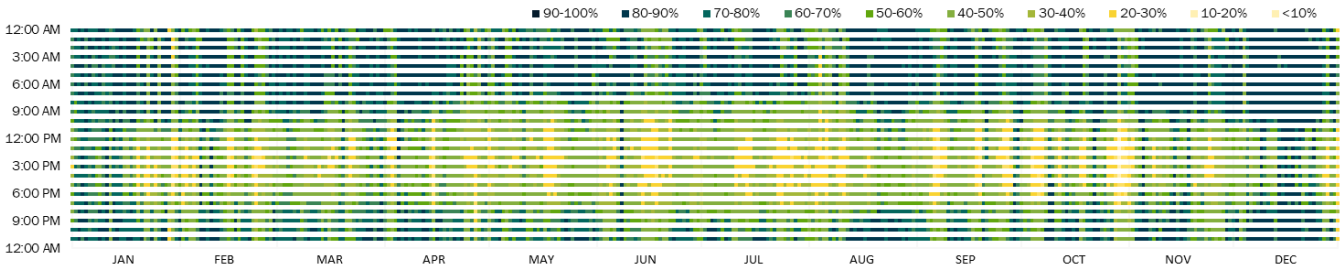
DRY BULB TEMPERATURE

The dry bulb temperature is between 50 and 70 °F for over 50% of the time, showing that natural ventilation and economizer moder will be effective for a large number of hours per year. During summer afternoons, temperatures regularly exceed 70 °F but rarely exceed 90 °F (<2% of the time). This means that summer will require cooling, but extreme temperatures are rare and indoor-outdoor connections can still be enjoyed for most of summer. During winter nights, temperatures regularly drop below 50 °F and rarely drop below 40 °F (<5% of the time), showing that only mild heating will be required.



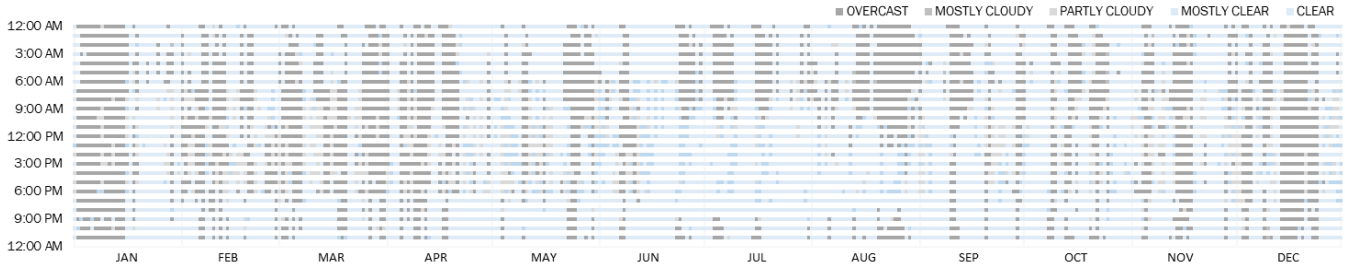
RELATIVE HUMIDITY

Relative humidity is high during the night and low during the afternoon. Low daytime humidity means that natural ventilation will be more effective and will avoid moisture concerns. Winters are wet and summers are dry, as is typical in Northern California.



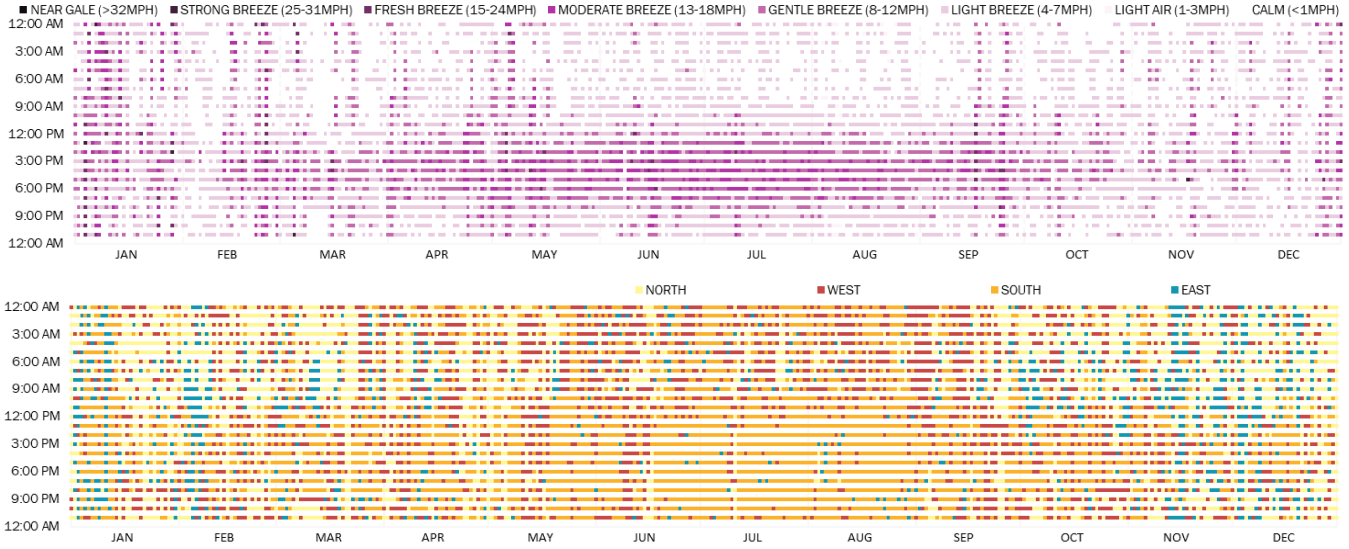
CLOUD COVER

Santa Rosa skies tend to be either completely clear or completely overcast. Summer afternoons are the clearest while December and January are the cloudiest. The scattered pattern of cloud cover means that PV can be effective year round (i.e., there isn't a cloudy season where PVs will be hindered for long periods). Summer afternoon PV exposure, coupled with batteries to store this energy production for a few hours, could be ideal for dealing with the spike in carbon emissions that happens just after sundown. The scattered cloud cover also means that external shading will be useful year round.



WIND SPEED AND DIRECTION

Wind is measured 10 meters above the ground at the weather station, in this case at the airport. The wind at the site is dependent on several factors including topography. Actual wind speed and direction vary more than hourly averages in weather files. The wind speed tends to be the highest during summer afternoons. The prevailing wind direction is south during summer afternoons and north during winter nights.



NATURAL VENTILATION POTENTIAL

If the indoor conditions are set at maximum 60% relative humidity and 78 °F, natural ventilation for cooling purposes is possible 90% of the year. The natural ventilation might be limited during some summer afternoons when the outdoor dry bulb temperature is too hot to be used for cooling.

2.11 Programming for Natural Ventilation

Throughout the concept design phase, Atelier Ten has worked with ZGF to study the building massing to allow a maximum benefit from daylight and natural ventilation while responding to the programmatic needs for enclosed offices. (see diagrams on next page).

Atelier Ten also recommended the following metrics to compare different programmatic layouts in terms of daylight and natural ventilation potential:

- # desks with direct access to daylight and natural ventilation
- # desks with indirect daylight
- # closed offices with high traffic near glass wall
- % of floor area NOT naturally ventilated

When comparing layouts, the team should aim for high numbers for the top two metrics and low numbers for the bottom two metrics.

Framework Assumptions
Floor-to-floor height
= 15' (from section)

Floor-to-ceiling height
= 14' (assuming 12" slab)

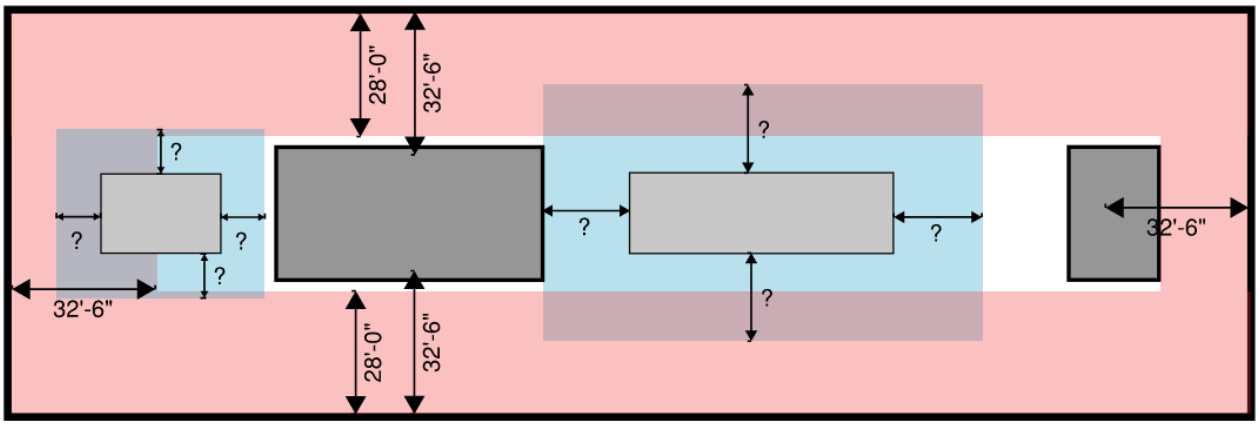
Window head height
= 13' (assuming 8" deep beams + 4" buffer)

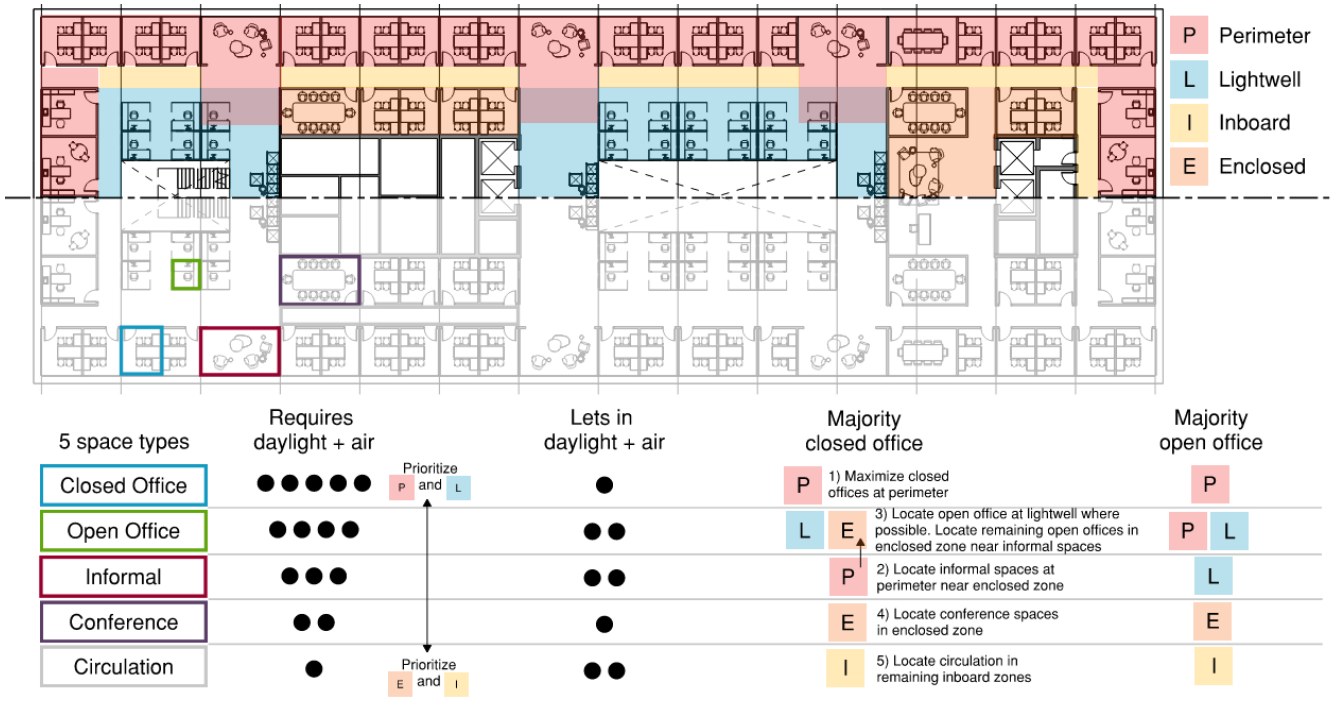
Perimeter daylight depth
= 2.5 x window head height
= 32'-6"

Perimeter natural ventilation depth
= 2 x floor-to-ceiling height
= 28'

Atrium daylight depth
To be calculated

Atrium natural ventilation depth
No natural ventilation assumed from the atrium





Adjacency consideration:
Avoid locating closed offices in high-traffic circulation zones, since this reduces privacy and makes occupants more likely to reduce the transparency of their office walls.

3 SITE CIVIL & INFRASTRUCTURE

3.1 Existing Conditions, Environmental Influences, Codes

EXISTING CONDITIONS

Parcels

The proposed development site, bounded by Areas 1, 2 and 3 as shown on ***Exhibit 1- Proposed Project Areas,*** includes approximately 18.2 acres within existing Parcels 1, 2 and 3 of the overall County-owned property comprising of 6 total parcels within the City of Santa Rosa. All parcels are contained within APN 180-030-012 which total approximately 47.66 acres.

The parcels contain a number of easements of various types, which are depicted along with the parcels listed above, on the attached survey provided by BKF, dated April 2025.

Land Coverage

Within the Phase 1 boundary and only considering the area within back of sidewalk, the following is a breakdown of land coverage:

- Total: 7.90 ac
  - Buildings: 2.16 ac (27%)
  - Hardscape: 2.62 ac (33%)
  - Landscape: 3.12 ac (40%)

Soil Type

Soils on site will be further defined by the pending Geotechnical Engineering report, however the Natural Resources Conservation Service (NRCS) indicates that the majority of the Phase 1 site falls within the Class C rated Hydrologic Soil Group (HSG) as described in the table below and mapped in *Figure A*.

Map Symbol	Soil Description	Hydrologic	Area Description
ZaA	Zamora silty clay loam, moist, 0 to 2 percent slopes, MLRA 14	C	Almost the entire Phase 1 site
AeA	Alluvial land, clayey	Not Rated (D assumed)	SE corner of the site under parking / road.

Figure A- NRCS Hydrologic Soil Group

Soil Contamination

According to the California Department of Toxic Substances' "EnviroStor" mapping tool, there are no known contaminants within the vicinity of the Phase 1 project area (*see **Figure B** below*). There was reportedly some contamination discovered in one of the County sites on

the North side of the campus, however the location and nature of this should be provided to the Design Team by the County if deemed relevant to the project.

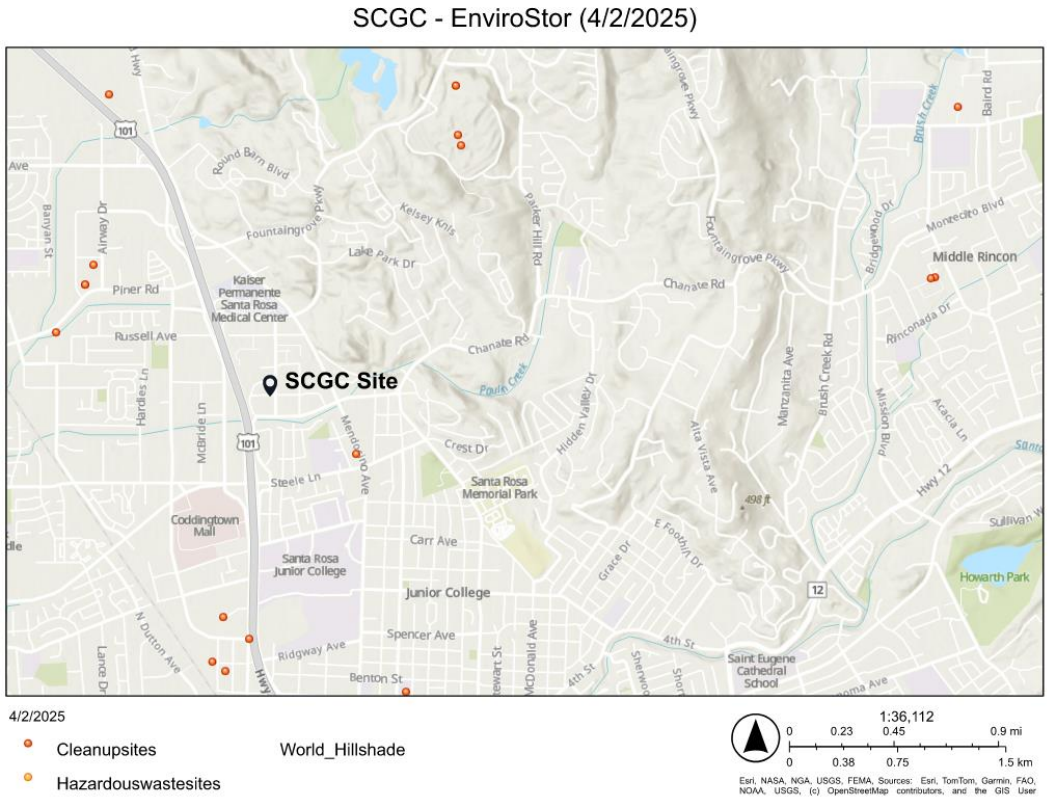


Figure B- Soil Contamination Sites

Site Hydrology

The site is located within the Monroe Watershed, with the closest open water body being Paulin Creek, south of Administration Drive. The flow sequence is as follows:

> Paulin Creek -> Piner Creek -> Santa Rosa Creek -> Laguna de Santa Rosa -> Mark West Creek -> Russian River -> Pacific Ocean

Precipitation frequency and intensities will be determined from the Santa Rosa rain gauge located 2 miles Southwest of the project site.

ENVIRONMENTAL INFLUENCES

Flooding Risk:

The project area is located outside the 100-yr and 500-yr flood boundaries per County Flood Prone Urban Area Mapping. The Project is also located outside FEMA Flood boundary as shown in ***Figure C*** *below*. ***Figure D*** shows a 75ft creek buffer along Paulin Creek.

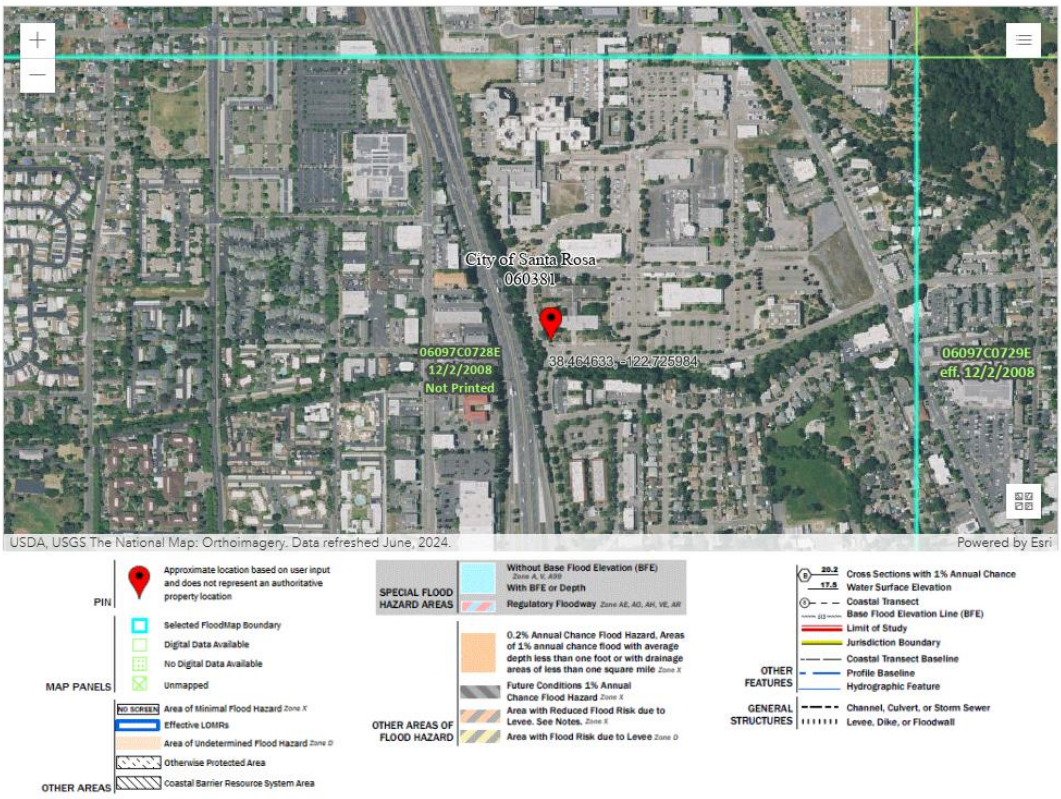
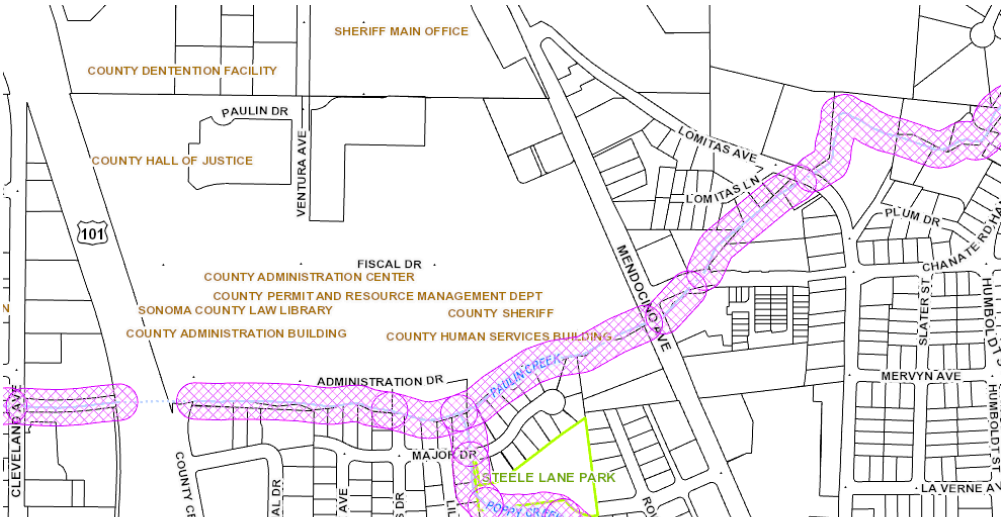


Figure C- FEMA Special Flood Hazard Zones



Geological Risk:

The nearest fault zone is 0.5 miles away, which will be further described and quantified in the forthcoming Geotechnical Report. No other mapped geologic hazards are documented per Sonoma GIS, and the site is outside of the County's Geologic Hazard Area Combining District.

Fire hazard risk

Outside of the Fire Wildland-Urban Interface boundary however fire resiliency will be considered of utmost importance and will be integrated into all pertinent aspects of design.

Air quality

The site falls within the Bay Area Air Quality Management District, which should be consulted for documentation of CEQA

Pertinent Regional Context

- Santa Rosa Capital Improvement Projects- none in immediate vicinity according to Santa Rosa GIS, however Sewer main improvements will be need to be further discussed with City staff to understand the capacity of the sewer system within the Laguna Wastewater Treatment Plant
- Santa Rosa Specific and General Plans
    - Not within sphere of influence, however further discussions with the City regarding future connectivity of infrastructure, multimodal transit, or community engagement are recommended.
    - Outside current planned developments per city of Santa Rosa
    - Outside Resilient City Zone Areas
    - Within "All Priority Development Boundary" (Mendocino Avenue Corridor)
    - General Plan Land Use: Public/Institutional
- County General Plan
    - County staff to provide additional context on relevancy of the forthcoming Countywide General Plan

Existing Utility Infrastructure

All required utility services appear to be available for direct connection, however further analysis will be required to determine full extents of connections or improvements. See Section 3.03 for more information.

CODES & STANDARDS

Site Improvements Design

1. 2025 CA Building Code – Title 24
2. 2025 CA Fire Code
3. Sonoma County Code Chapter 13 – Fire Safety
4. Sonoma County Code Chapter 26 – Zoning Regulation

5. CSS-019 Minimum Standard Site Plan Requirements for Building & Engineering Applications
6. Sonoma County Public Infrastructure Roads Division – Construction Standards

Stormwater Design

1. Sonoma County Code Chapter 11A – Storm Water Quality
2. Sonoma County Water Agency Flood Management Design Manual- Guidance on Drainage Report
3. RWQCB (North Coast) Construction General Permit (SWPPP & Temporary Construction Erosion Control)

Utility Design

1. 2025 CA Building Code – Title 24
2. 2025 CA Plumbing Code
3. 2025 California Fire Code, Appendix D
4. Sonoma County Code Chapter 13 – Fire Safety
5. Santa Rosa Water Construction Standards
6. Santa Rosa Sewer Design Standards

3.2 Site Fire Access

GENERAL

The proposed building will be required to meet CA Building and Fire Code requirements, with review and confirmation of compliance required by the Santa Rosa Fire Department. A meeting was conducted with the Fire Marshal at the early stages of design to confirm approach and site accommodation.

FIRE APPARATUS ACCESS

1. Per Chapter 18 of NFPA 1, the maximum distance between a fire access road and a building can be increased to 450ft when equipped with an automatic sprinkler system. It should be noted that the proposed building does not exceed 150ft currently.
2. Per California Fire Code, Appendix D, Section D105, an approved Aerial Fire Apparatus Access Road (AFAAR) is required if a building exceeds 30ft in height. However, an exception is granted as indicated below:

   Exception: Where *approved* by the *fire code official* , buildings of Type IA, Type IB or Type IIA construction equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and having fire fighter access through an enclosed *stairway* with a Class I standpipe from the lowest level of fire department vehicle access to all roof surfaces.

3. One or more locations along the AFAAR must have a minimum unobstructed width of 26ft, and be within 15 and 30 ft from the building and shall be positioned parallel to the entire side of the building, as approved by the fire code official. See Figure E below:

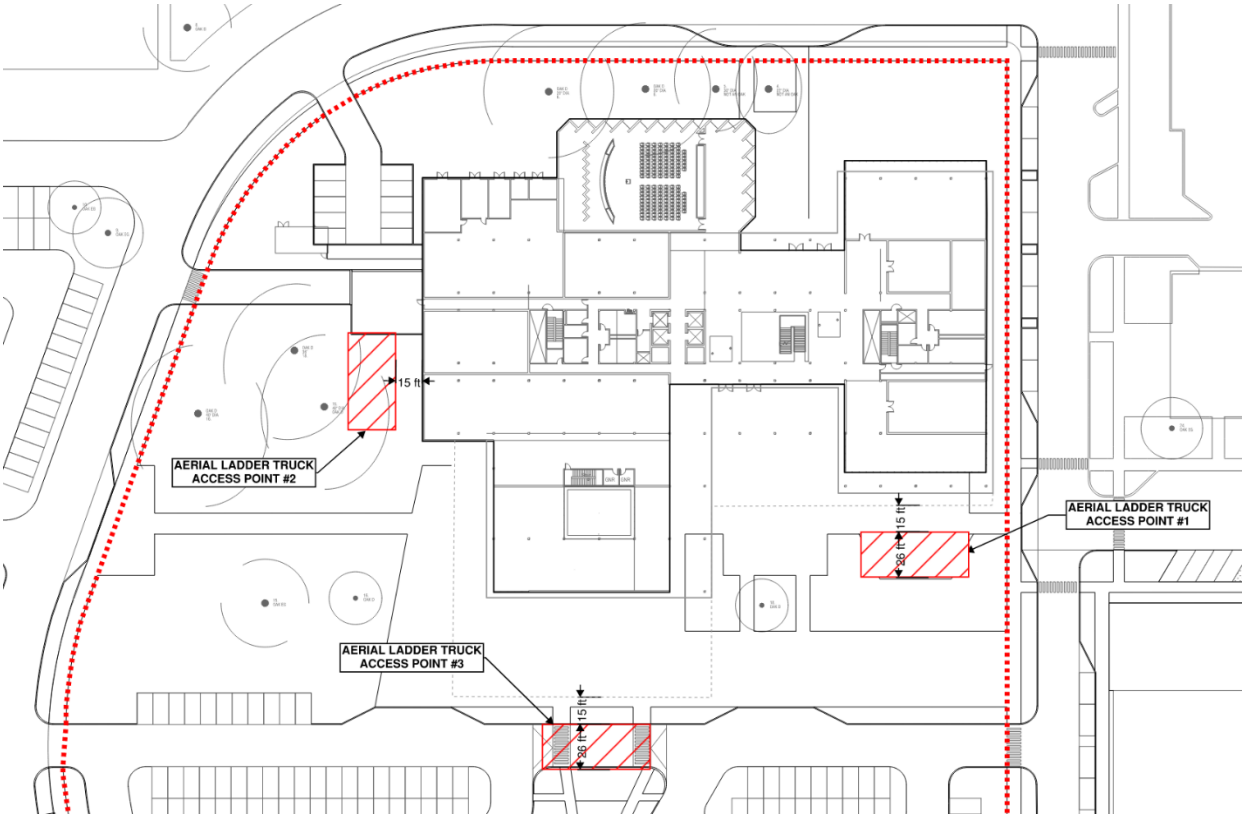


Figure E- Aerial Truck Access

FIRE HYDRANTS

There are currently 4 fire hydrants on Administration Dr and Ventura Ave, surrounding the proposed building. It is not anticipated that additional hydrants will be required, however further confirmation will be conducted in coordination with the fire sprinkler engineer. See Figure F below for guidance on distances between fire hydrants based on calculated fire flows:

TABLE CC105.1

NUMBER AND DISTRIBUTION OF FIRE HYDRANTS

FIRE-FLOW REQUIREMENT (gpm)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS[a, b, c] (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT[d]
1,750 or less	1	500	250
2,000-2,250	2	450	225
2,500	3	450	225
3,000	3	400	225
3,500-4,000	4	350	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more[e]	200	120

For SI: 1 foot = 304.8 mm, 1 gallon per minute = 3.785 L/m.

a. Reduce by 100 feet for dead-end streets or roads.

b. Where streets are provided with median dividers which can be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis up to a fire-flow requirement of 7,000 gallons per minute and 400 feet for higher fire-flow requirements.

c. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.

Figure G- Fire Hydrants Spacing

3.3 Utility Infrastructure

EXISTING UTILITY SYSTEMS

Below is a summary of all identified utilities current serving the existing buildings, including known main sizes and general locations as documents in record documents from 1991 and as compiled by BKF. The condition and age of the existing infrastructure has not yet been confirmed, which in some cases will require further information from the County and Utility Service Providers. See Exhibit 3- Existing Utilities for depiction of utilities and potential proposed connection points for the proposed development.

Water

- 8” Potable Water Main along Ventura Ave and the Northern leg of Administration Dr ending at Fiscal Drive. Existing fire hydrants connect directly to main.
- Existing buildings/site services are 8” fire sprinkler, 4” domestic and 3” irrigation
- City of Santa Rosa, Department of Utilities

Sewer

- 4” laterals from existing buildings connect to collector main (presumably County-owned) along Ventura Ave
- Collector main upsizes from 4” to 8” at intersection with Fiscal Dr, heading South and crossing Administration Dr. to 15” City-owned main running from East to West between Paulin creek and Administration Drive within a public sewer easement
- City main continues North-NW along HWY 101 as 21” off site.

Power

- Combination of site electrical and High Voltage (HV) electrical, presumably owned by the County throughout campus due to an absence of easements
- 2” Transite conduits were used for site lighting in parking lots

Communication & Data

- Conduits are documented in 1991 as-builts from Fiscal Drive to the E, some along heat exchange joint trenching
- Admin bldg serviced from lines near intersection of Ventura and Administration dr S side, however the extent of service types and connectivity to the rest of the campus is to be determined.

Gas

- 3” service line from Ventura Drive to the North

Storm Drain

- West half of existing buildings and site drain via collector lines, connecting to a junction on the East side of Administration Dr, where an 18” line crosses the street to the East side and connects to a dual 15” pipes and then a 24” before reaching County Center Dr. and out falling into Paulin Creek
- The Northeast portion of Area A (see *Exhibit 1- Project Areas* for area delineation) drains to a 12” collector that crosses Ventura Dr. and turns South, upsizing to an 18” (while picking up most of Area 3) then connecting to a structure at Administration Dr that drains to Paulin Creek via a 24” pipe.

- The Southeast portion of Area A is routed to an 18” pipe that crosses Administration drive and outlets to Paulin Creek.
- Precise existing watersheds will be determined in the following phases of design.

PROPOSED UTILITY SYSTEMS

It is not currently expected to require significant campus-wide utility infrastructure upgrades at this time, however further studies will be conducted in the forthcoming design phases to confirm condition and capacity, in coordination with County Facility Management staff. See Exhibit 3- Existing Utilities for depiction of existing utilities and potential proposed connection points for the proposed development plans, focusing primarily of the new CGC building in Area 1 (see Exhibit 1- Project Areas). See below for brief descriptions of proposed site utility systems, including recommendations on removal or relocations.

Water

1. Pending confirmation of all water service sizes and existing pipe conditions, proposed building and site water services are anticipated to require new connections to the 8” potable water main, likely in the same location at existing.
2. Existing water services feeding buildings and irrigation services within Area 1 are anticipated to be removed and decommissioned, however connections to street irrigation systems will require re-connected where landscaping is to remain.
3. Area 3 building water services are also to be removed and decommissioned, however irrigation services are to remain to provide irrigation to landscaping within the parking lots that will potentially be utilized for interim parking.
4. Irrigation should be constructed with purple pipe with separate main connections in anticipation of future availability of recycled water.
5. One new fire hydrant may be required to the south side of the proposed CGC building, pending confirmation on required building fire flows and further discussions with Fire Chief.

6. It is recommended that the water main, which appears to dead-end to the West of the site mid-way on Administration Dr, is looped across the site to connect back to Ventura Ave. Further investigation will be required to determine as-built extent of water main and confirm this line does in fact dead-end. See Figure G below.

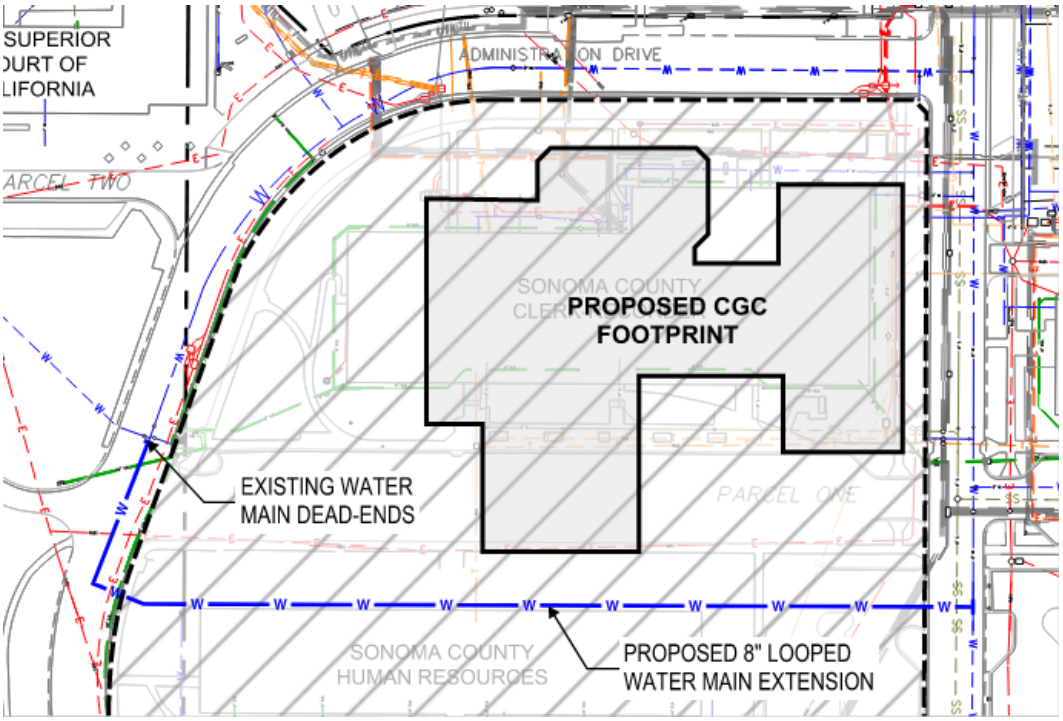


Figure H- Water Loop Extension

Sewer

1. Building sewer connections shall be placed to the East or South side of the building, which will be routed to the Southeast into the 8" sewer main in Ventura @ Fiscal. No invert depth issues are anticipated.

2. Although **not currently part of the project scope**, it is possible that significant future residential development may trigger the need to upgrade the sanitary sewer main along Administration Dr and downstream. In order to mitigate this capital improvement expense, and to provide added resiliency to the campus by reducing potable water use, it may be possible to propose a wastewater treatment facility which could be approached in multiple ways that would require additional assessment:

    a. Option 1- Size treatment system to handle flows of only the proposed CGC and future housing programming, with reuse limited to irrigation of project site and potentially nearby Steel Lane Park to the Southeast, requiring approximately 1,400 LF of recycled water main extensions from the intersection of Mendocino Ave and Administration Dr.

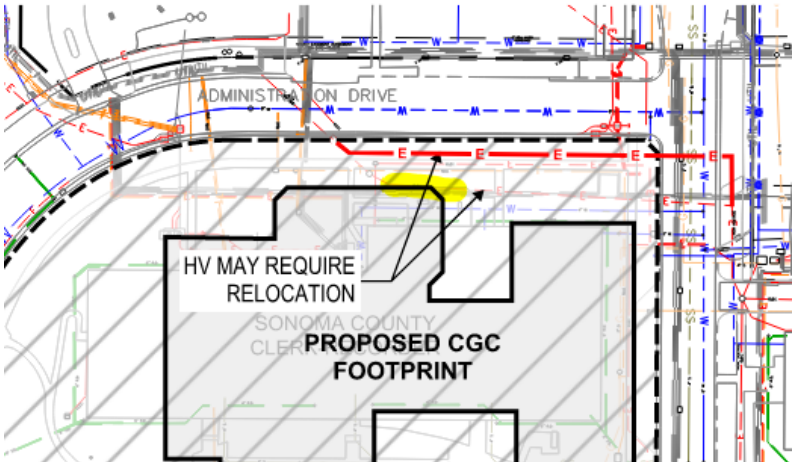
b. Option 2- Conduct “sewer mining” at 21” sewer main prior to crossing Hwy 101, and size treatment system for flows that would produce treated recycled water adequate to an extended radius of users, including Santa Rosa Junior College, Santa Rosa High School, Franklin Park and Santa Rosa Memorial Park, requiring approximately 7,500LF of recycled water main extensions from the intersection of Mendocino Ave. and Administration Dr.

c. Both options would require pumps to divert raw sewage or blackwater to a new treatment plant at an undetermined location, with significant storage of treated effluent that depends on the incoming flows. The footprint of such a facility could range from 10,000sf to 50,000sf.

d. These options could be a major benefit to the efforts of Sonoma Water to both reduce water use and limit expansions of the existing sewer network and treatment plant.

Power

1. It is assumed that a new service will be required, connecting to the existing County Campus high voltage line.
2. The proposed building improvements also may conflict with a portion of the existing high voltage line, which is depicted in Figure H below.



Communication & Data

1. Is it assumed that all new infrastructure will be required and existing systems will be removed or abandoned. See Data/IT Section.

Gas

1. Gas is not currently proposed to be used for new development, see Mechanical/Plumbing Section.

Storm Drain

1. It is assumed that the full extent of storm drain piping systems within the proposed site improvements in Area A are to be removed, however connections to existing structures at the boundaries are likely to be maintained without increasing flows to each one. See Exhibit 4- Existing Utilities for connection point locations

3.4 Stormwater Management

STORMWATER QUALITY

Area 1- CGC Site

Per Sonoma County requirements, new developments are required to provide water quality treatment for all new or replaced impervious surfaces constructed. As such, there are a number of potential options for providing treatment, which are summarized below and depicted on Exhibit 4- Stormwater Management Concept.

1. Pervious Paving- utilizing pervious paving accomplishes multiple stormwater management and sustainability goals simultaneously:
    a. Reduction of impervious surfaces
    b. Reduction of overall site runoff (see STORMWATER QUANTITY)
    c. If stabilized gravel system, then significant reduction in carbon footprint
    d. Achieves water quality treatment of its own area plus up to 2X its footprint of adjacent impervious surfaces
    e. Promotion of groundwater recharge
    f. Reduction in sizing and length of piped storm drain systems
2. Self-retaining Landscaping- depressed landscaping that allows for the catchment and infiltration of surrounding impervious and pervious areas, achieving the following goals:
    a. Can allow up to 3” of ponding depth where a flat, level depression is possible, with overflow into drainage system either overland or via inlet and piping where appropriate
    b. Achieves water quality treatment of its own area plus up to 2X its footprint of adjacent impervious surfaces
    c. Promotion of groundwater recharge and improved / prolonged vegetation health during the dry season.
    d. Reduces site runoff flows significantly
3. Bioretention- utilized mainly for roof areas drained via downspouts and for other impervious surfaces which cannot feasibly drain to a pervious paving or self-retaining landscaped area.

Area 2- Administration Drive

Requirements for stormwater quality treatment of runoff within public roads will need to be coordinated with the County and Regional Water Quality Control Board. It is, however, recommended to provide bioretention planters within proposed bumpouts or planter strips to filter runoff and overflow back into the street gutter or storm drain system. Further options and feasibility will be coordinated further in subsequent design phases.

STORMWATER QUANTITY

Area 1- CGC Site

Per Sonoma County requirements, runoff for post-development conditions must be limited to pre-development conditions. Runoff is currently all directed into Paulin Creek, which is a hardened-edge creek with limited capacity. Further hydrologic and hydraulic analysis will be performed in subsequent phases, however in reviewing the comparison between the total impervious and pervious areas of the pre- vs post-development conditions (based on preliminary Site Concept design), there is a net increase in impervious areas as indicated in the table below in red:

	Impervious (SF)	Impervious %	Pervious (SF)	Pervious %
Pre-Development	208,308	61%	135,891	39%
Post-Development	247,358	72%	96,841	28%
Net Difference	(39,050)			

As such, the proposed strategy will require either a reduction of impervious surface or hydromodification techniques (i.e. detention basins or storage chambers) to mitigate. It is therefore proposed that a minimum of 39,050sf of pervious paving be used within the parking lots, which will not only reduce impervious but capture surrounding contributing impervious areas and provide treatment and runoff flow reduction. More detailed calculations will be required to confirm this strategy is adequate.

4 SITE DESIGN AND LANDSCAPE

4.1 Existing Conditions, Baseline Assumptions, Codes

EXISTING CONDITIONS

Site

The Sonoma County Government Center (CGC) site is situated across three blocks at the Sonoma County Campus in Santa Rosa. The campus currently houses several departments and agencies and includes other state government functions. Relocating existing departments to the CGC or other county buildings allows for demolition of existing buildings, creating large parcels of developable land.

The site is largely flat and is characterized by low density commercial buildings, on street parking and surface lots. The County campus also includes the Main Adult Detention Center and the Sherifs department - these buildings and functions will remain.

Existing site features include many large trees, views of adjacent hills and the Paulin Creek which runs along the southern edge. Site trees include a mix of non-native ornamentals and a large stock of native trees including Coast live oak (*Quercus agrifolia*) and Coast redwoods (*Sequoia sempervirens*). Existing large, healthy trees are considered a key site asset.

Adjacencies

The county campus is bounded by the 101 Freeway to the West, Paulin Creek to the South, Mendocino Avenue to the East and Bicentennial Way to the north. Adjacent land use is predominantly a mix of low density residential and commercial with some retail. While partially mitigated by a planting buffer - the 101 freeway has major visual and acoustic impacts. Opportunities exist for additional mitigation.

BASELINE ASSUMPTIONS

1. Large, existing trees will be preserved as a key site asset whenever feasible.
2. The road network will largely remain as-is to minimize costs associated with new infrastructure, however Fiscal Drive will be removed between Administration Dr and Ventura Dr. Further studies will be conducted to determine the extents of roadway improvements along Administration Dr and at the intersection with County Center Dr.
3. Code analysis indicates an estimated parking requirement of between 367 stalls (low) and 545 stalls (high). Until requirements are confirmed, the upper estimate is targeted.
4. Surface parking will be partially or fully covered by solar canopies.

CODES

The project will comply with the following code requirements:

1. County Code Chapter 7D3 – Water Efficient Landscape
2. County Code Chapter 11A – Storm Water Quality (See section 3.1 for additional storm water compliance information)
3. County Code Chapter 13 – Fire Safety
4. County Code Chapter 26 – Zoning Regulation

5. County Code Chapter 26D – Heritage or Landmark Trees
6. Sonoma Public Infrastructure Roads Division – Construction Standards
7. California Building Code – Title 24
8. California Green Building Standards – CALGreen

4.2 Site Analysis

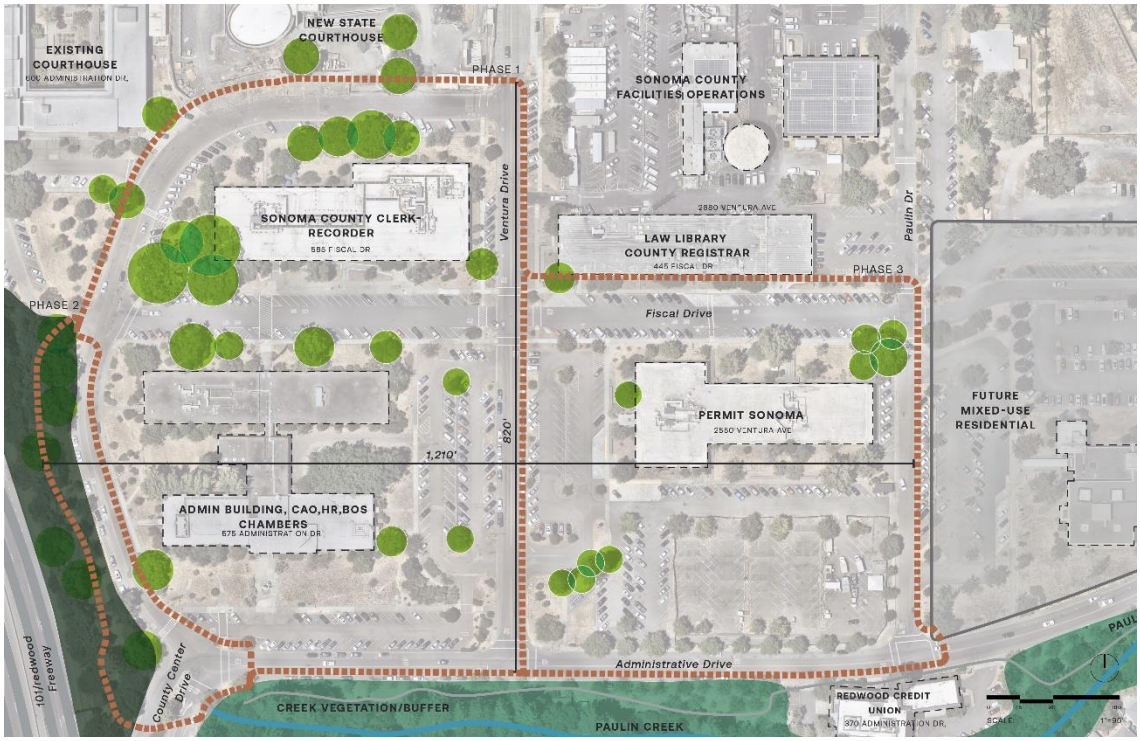
COUNTY GOVERNMENT CENTER SITE

The county campus currently houses various departments and services in low-rise, mid-century buildings. Many of these are in disrepair and uneconomical to renovate and modernize. Some functions and buildings will remain on adjacent sites, while others are also under development including the Hall of Justice and possible future court buildings. All buildings on the proposed CGC site will be removed. Existing road alignments will be utilized to minimize the cost of new infrastructure.

Residential development is proposed on adjacent parcels. While not in scope for this project, the layout and density of this development may influence circulation, open space and shared program on the CGC parcels.

Access is mostly via the adjacent 101 freeway, Ventura Avenue as the main entrance from the north, and County Center Drive from the south. Additional access is via Mendocino Avenue from the East. The area is served by Sonoma-Marin Area Rail Transit (SMART), the station is ~1.5miles away connected via bus service. Opportunities exist to better connect the campus to public transit and nearby bicycle networks, especially along the Paulin and Santa Rosa Creeks.

Environmental assets include large existing trees across the site and the Paulin Creek to the south. Both offer a strong foundation for a landscape response. Additional planting along the freeway corridor provides noise and visual mitigation.



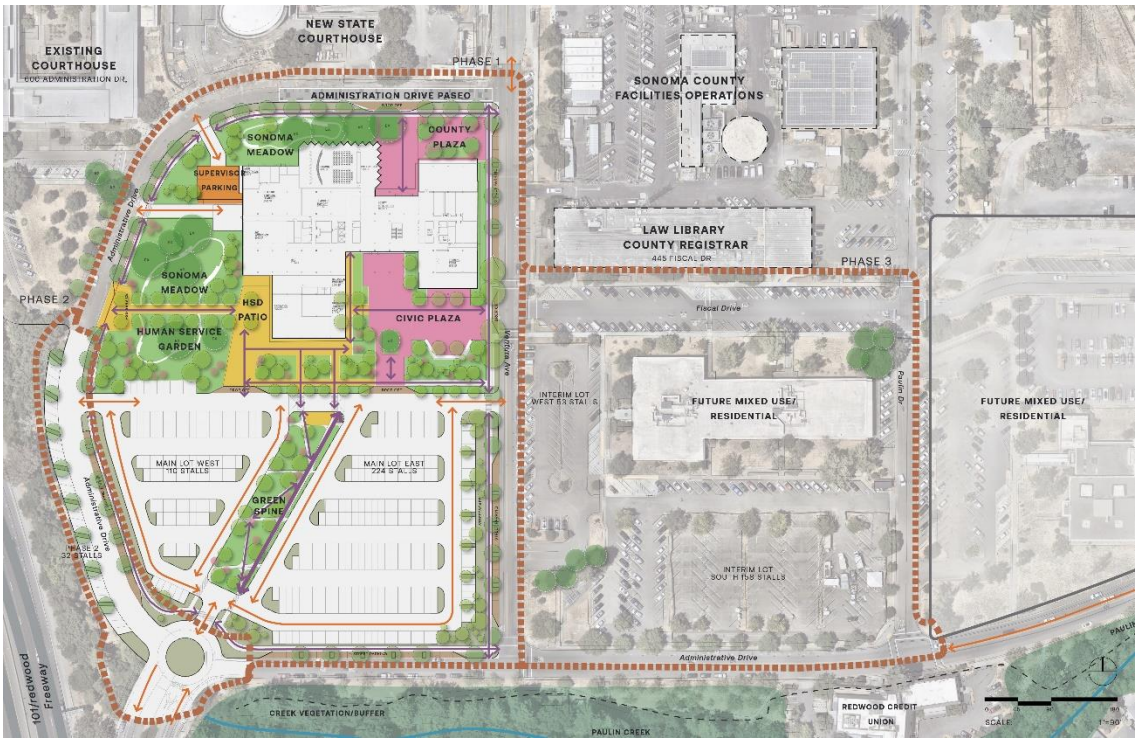
Site Analysis Diagram

4.3 Building placement and orientation

A number of locations were studied for the main CGC building location with the northwest parcel selected. This location offers the following benefits:

1. Proximity to the new State Courthouse and future Hall of Justice replacement project. Clustering density increases overall activation and creates a critical mass of staff and visitors.
2. The Public Defender, District Attorney and Probation departments will be housed in the CGC, proximity to the new State Courthouse increases productivity and overall activation.
3. Improved solar exposure for the southern façade and south facing open spaces.
4. More available space for future residential development. The County has plans to develop residential units on adjacent land. By focusing government functions together, more land is available for development and offers flexibility land use separation they may appeal to developers.
5. Maximum flexibility for futures phases by efficient land use. The county may develop additional parcels in the future, the proposed placement offers many options and parcels for future buildings.

4.4 Landscape Program



Site Program Diagram

COUNTY PLAZA

Approximately 15,000 sq.ft The County Plaza is the formal entrance to the CGC. Official county functions including ceremonies occur at this location, with direct access to the supervisor chambers and the main lobby and supporting services. County Plaza abuts the Administration Drive Paseo and faces the new State Courthouse, creating a civic core for the broader campus.

CIVIC PLAZA

Approximately 12,000 sq.ft The Civic Plaza is adjacent to the café and community rooms. This space functions as a breakout space and overflow for official county meetings as well as formal and informal community gatherings and events.

This vibrant public space will host events, cultural gatherings, and everyday interactions, fostering a strong sense of belonging and unity. Rooted in inclusivity and community spirit, the plaza will be a place where people come together to engage and celebrate Sonoma County.

SONOMA MEADOW

Approximately 42,000 sq.ft. The northeast corner of the site houses service functions including the loading dock, utility rooms and a separate supervisor lot. These functions are mitigated by verdant planting and canopy trees. These planting areas offer opportunities for passive recreation, screening of the adjacent freeway and create views from upper-level offices, leveraging the benefits of biophilia. The Sonoma Meadow is anchored by large, existing oak trees.

ADMINISTRATION DRIVE PASEO

Approximately 10,000 sq.ft. North Administration Drive between the new State Courthouse and the CGC will remain open to traffic, however it will be narrowed, street parking removed and a portion enhanced with custom paving – creating a shared space that prioritizes pedestrians and connections between the two buildings. The Paseo can be closed for larger events and market days. Dedicated drop-off areas will be included.

HUMAN SERVICES GARDEN

Approximately 12,000 sq ft. As many as 150 people interact with the Human Services Department daily and may include family groups and children. The Human Services garden provides a comfortable space for waiting with ample shade and seating. Adjacent drop off allows for food bank truck service. Proximity to the Sonoma Meadow offer opportunities for relaxation and activities for kids.

GREEN SPINE

Approximately 16,000 sq ft. Surface parking is divided into two main areas, divided by the Green Spine. The spine offers safe, accessible pedestrian circulation and clear wayfinding to the CGC and Civic Plaza and allows for programmatic separation of the parking if desired. The spine greens surface parking and balances the need for solar canopies with nature and human comfort.

GREEN STREETS

All streets balance traffic and on street parking, with planting, street trees and sidewalks. Priority is given to the pedestrian experience creating an attractive, walkable site. While still in development, the project aims to collect and treat stormwater close to the source, increasing available water for plants and trees, and reducing the need for large, centralized stormwater treatment basins. Accessibility and inclusiveness are a priority, with all streets and paths designed for all.

PARKING LOTS

The project targets the upper estimated code requirement of 545 stalls. This will mostly be met on the main lot, immediately south of the CGC. This provides good access to the 101 freeway and clear and safe pedestrian circulation through the Green Spine. Additional interim parking will be accommodated using existing, off-street parking east of Ventura Drive. Adjacent streets offer additional parking.

Phase 1

- Main Lot West – 110 Stalls
- Main Lot East – 224 Stalls

Phase 2

- On-street – 32 Stalls

Phase 3

- Interim Lot West – 53 Stalls
- Interim Low South – 158 Stalls

Surface parking areas have been designed to support solar canopies and the microgrid while still providing safe and comfortable circulation. Planting areas throughout green where possible and create areas for stormwater treatment. Parking areas are connected directly to the green spine. Natural materials are used to lower embedded carbon and increase opportunities for infiltration, reducing stormwater runoff requiring treatment.

4.5 Site Circulation

Vehicular access remains consistent with the current campus, with entrances off the 101 Freeway from the north and south, with additional access via Mendocino Avenue. The South entrance is enhanced by the addition of a traffic circle, creating a gateway moment and clear wayfinding for vehicles and pedestrians.

Visitors arriving from the north are greeted by the Sonoma Plaza and Administration Drive Paseo. Most visitors will enter the site through the southern parking lots, with the green spine acting as wayfinding and separated pedestrian circulation to the Civic Plaza, Human Services Garden and the main CGC lobby.

4.6 Landscape Strategies

THE SONOMA LANDSCAPE

As the new county seat, the CGC celebrates the historical and natural context of Sonoma. Local materials, color and textures are used to ground the landscape response in context. Plant species native to Sonoma are used wherever possible. Planting and materials work together to create a unique landscape response, representative of the County.

CARBON REDUCTION

Strategies to reduce carbon may include:

1. Protecting large existing trees that store and absorb carbon.
2. Plant new trees to further remove carbon.
3. The possible use of wood materials to store carbon.
4. Use locally sourced plants and materials to reduce carbon miles.
5. Use low carbon materials such as stone and gravel.
6. Reduce high carbon materials like concrete and steel.
7. Encourage public and active transportation by providing high quality infrastructure to support these modes.
8. Explore reuse of materials from the demolition of existing buildings for paving, site walls and seating to reduce waste and carbon.

HEALTH AND WELLNESS

Human comfort is prioritized across the site. Ample shade and planting provide comfortable spaces for walking, resting and outdoor collaboration. Fitness loops of various lengths encourage activity before, during and after work. Public transport and cycling infrastructure is prioritized to encourage alternative means of arriving at the campus. Large trees are preserved and new trees planted to leverage the benefits of biophilia, providing comfortable spaces on the ground floor, and verdant views from upper-level offices.

RESILIENCE

Open space and planting design acknowledges a changing climate, with species selected to adapt and thrive in hotter and drier conditions. Stormwater is infiltrated where possible to recharge groundwater. Irrigation is designed for maximum efficiency, reducing the overall water burden and reclaimed or gray water will be used if available. Canopy shade is maximized to ensure comfortable spaces into the future and provide natural cooling to open spaces.

Fuel load and buffer zones reduce the impact of possible wildfires and create defensible spaces within proximity of buildings and infrastructure. Planting design considers fuel load and fire-retardant plant properties to further reduce fire risks.

4.7 Landscape Palette

The landscape palette aims to represent the rich ecological diversity of Sonoma County by featuring distinct zones representing local biomes, including oak woodlands, coastal redwood groves, and native grassland meadows. Each zone reflects the unique character and natural heritage of the region. Key tree species include coast live oak (*Quercus agrifolia*) for the woodlands, coast redwood (*Sequoia sempervirens*) in shaded grove areas. This ecologically grounded approach offers beauty, shade, habitat, and a living connection to Sonoma's diverse landscapes.

5 SPACE PROGRAM & BUILDING DESIGN

5.1 Program

OVERVIEW

Over the course of several visits to the county campus, the design team met with representatives from departments currently housed in various buildings. These departments have been considered potentially eligible to move to the new Sonoma County Government Center based on considerations such as whether the departments need to be relocated due to upcoming lease termination dates, substandard building conditions, or phasing of new construction and future development. The chart on the following page indicates a first draft of the requested space needs. The space program will need to be validated against overall building capacity, budget, and colocation of services.

SPACE PROGRAM

		Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
Sonoma County Government Center				**133,650**		**205,615**
Total FTE		879				
1.0	**Human Services Department - Economic Assistance Division**			**18,845**	**23,556**	
1.1	**Public Lobby**					
1.1.1	Kiosk	2	35	70		
1.1.2	Waiting	85	20	1,700		
1.1.3	Service Window	9	45	405		
1.1.4	Navigation Station	2	45	90		
1.1.5	Public Restrooms	2	300			
1.2	**Secure Service Area**					
1.2.1	Social Worker Office	3	120	360		
1.2.2	Interview Cubicle	24	95	2,280		
1.2.3	Staff Restroom	2	300			
1.3	**Staff Unit**					
1.3.1	Office	44	120	5,280		
1.3.2	Workstation	140	49	6,860		
1.4	**Support**					
1.4.1	Pantry/Break Room	1	600	600		
1.4.2	IT Office	1	120	120		
1.4.3	Server Room	2	120	240		
1.4.4	Mail Room	1	120	120		
1.4.5	Packet/Form Room	1	120	120		
1.4.6	Storage	1	600	600		
2.0	**Office of Equity**			**2,020**	**2,525**	
2.1	**Welcome Area**					
2.1.1	Reception	1	300	300		
2.1.2	Conference	1	300	300		
2.1.3	Library Wall	1	10	10		
2.1.4	Living Room / Pantry	1	450	450		
2.2	**Staff Unit**					
2.2.1	Shared Office	3	120	360		
2.2.2	Private Office	5	120	600		

		Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
3.0 Board of Supervisor's Public Hearing Chambers				**5,573**	**6,966**	
3.1 Prefunction						
3.1.1	Public Lobby	1	400	400		
3.1.2	Security	1	120	120		
3.1.3	Vestibule	1	120	120		
3.1.4	AV Booth	1	80	80		
3.2 Chamber						
3.2.1	Spectator Seating	1	2,000	2,000		
3.2.2	Podium	1	20	20		
3.2.3	Clerk	2	49	98		
3.2.4	Staff	5	49	245		
3.2.5	Dais	1	1,000	1,000		
3.3 Chamber Support						
3.3.1	Tech Support Booth	1	80	80		
3.3.2	Coffee Bar	1	20	20		
3.3.3	Secure Entry	1	100	100		
3.3.4	Closed Session Safe Room	1	350	350		
3.3.5	Phone Room	1	120	120		
3.3.6	Green Room	1	500	500		
3.3.7	Press Room	1	200	200		
3.3.8	Storage	1	120	120		
4.0 Board of Supervisors-Clerk of the Board				**3,513**	**4,391**	
4.1 Welcome Area						
4.1.1	Reception	1	120	120		
4.1.2	Waiting	10	15	150		
4.1.3	Kiosk	1	10	10		
4.2 District Unit						
4.2.1	District Supervisor Office	5	240	1,200		
4.2.2	District Director Office	5	120	600		
4.2.3	Staff Workstation	5	49	245		
4.3 Staff Unit						
4.3.1	Clerk Office	1	120	120		
4.3.2	Management Staff Workstation	7	49	343		
4.3.3	Hotel Workstation	5	49	245		
4.4 Support						
4.4.1	Copy/Print	1	120	120		
4.4.2	Storage	1	360	360		

			Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
5.0	**County Counsel**				**6,970**	**8,713**	
	5.1	**Office**					
	5.1.1	Attorney	31	120	3,720		
	5.1.2	Management	7	120	840		
	5.1.3	Administrative Services Officer	1	120	120		
	5.1.4	Hotel	1	120	120		
	5.1.5	Visitor	1	120	120		
	5.1.6	Payroll/HR	2	120	240		
	5.1.7	Flex/Huddle Office	2	120	240		
	5.2	**Workstation**					
	5.2.2	Paralegal	8	49	392		
	5.2.3	Admin Support	2	49	98		
	5.3	**Reading room**	1	600	600		
	5.4	**Support**					
	5.4.1	Copy/Print	1	120	120		
	5.4.2	Storage	1	360	360		
6.0	**Law Library**				**4,447**	**5,559**	
	6.1	**Welcome Area**					
	6.1.1	Lobby	1	240	240		
	6.1.2	Circulation Desk	3	49	147		
	6.1.3	Director Office	1	120	120		
	6.2	**Equipment for Public Use**					
	6.2.1	Passport Photo Booth	1	30	30		
	6.2.2	Floor Copier	1	10	10		
	6.2.3	Computer Terminals	5	20	100		
	6.3	**Reading Room**					
	6.3.1	Active Room	1	3,200	3,200		
	6.3.2	Quiet Room	1	600	600		

		Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
7.0 Information Systems Department				**6,513**	**8,141**	
7.1 Secure Entry		1	120	120		
7.2 Workspaces (GIS, Web, Electronic Data Management Systems, Innovation)						
7.1.1	Office	11	120	1,320		
7.1.2	Workstation	20	49	980		
7.3 Applications Team (confidential data)						
7.2.1	Office	2	120	240		
7.2.2	Workstation	9	49	441		
7.4 Justice Team (confidential data)						
7.3.1	Office	2	120	240		
7.3.2	Workstation	10	49	490		
7.5 Administrative Team						
7.4.1	Office	4	120	480		
7.4.2	Workstation	10	49	490		
7.6 Desktop Team						
7.5.1	Paired Workstations	8	49	392		
7.7 Support						
7.7.1	Receiving/Staging Workshop	1	1,200	1,200		
7.7.2	Storage	1	120	120		
7.7.3	Private Meeting Space	1	400	400		
8.0 Human Resources				**7,940**	**9,925**	
8.1 Office						
8.1.1	Manager/Analyst	49	120	5,880		
8.1.2	Hotel	5	120	600		
8.2 Workstation						
8.2.1	Technical Support Staff	20	49	980		
8.3 Support						
8.3.1	Copy/Print	1	120	120		
8.3.2	Storage	1	360	360		

		Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
9.0	**Congressman Mike Thompson**			**867**	**1,084**	
9.1	**Congressional Office**					
9.1.1	Ceremonial Office	1	240	240		
9.1.2	Staff Office	3	120	360		
9.2.1	Intern Workstation	2	49	98		
9.3	**Support**					
9.3.1	Copy/Print	1	60	60		
9.3.2	Storage	1	60	60		
9.3.3	Layout Space	1	49	49		
10.0	**Independent Office of Law Enforcement Review and Outreach**			**1,456**	**1,820**	
10.1	**Welcome Area**					
10.1.1	Reception	1	120	120		
10.1.2	Interview Room	1	240	240		
10.2	**Workstation**					
10.2.1	Executive Assistant	1	49	49		
10.2.2	Internal Project Manager	1	49	49		
10.2.3	External Project Manager	1	49	49		
10.2.4	Future Growth	1	49	49		
10.3	**Office**					
10.3.1	Director Office	1	180	180		
10.3.2	Law Enforcement Auditor	4	120	480		
10.3.3	Future Growth	1	120	120		
10.4	**Support**					
10.4.1	Copy/Print	1	60	60		
10.4.2	Storage	1	60	60		

			Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
11.0	**Public Defender**				**10,687**	**13,359**	
	11.1	**Welcome Area**					
	11.1.1	Reception	1	240	240		
	11.1.2	Front Counter Stations	5	49	245		
	11.1.2	Interview	1	120	120		
	11.2	**Workstation**					
	11.2.1	Secretaries/Processors	7	49	343		
	11.2.2	DMV Liason	1	49	49		
	11.2.3	Case Manager	1	49	49		
	11.3.4	Law Clerks/Interns	4	49	196		
	11.3.5	Future Growth	5	49	245		
	11.3	**Offices**					
	11.3.1	District Attorney Office	1	180	180		
	11.3.2	Attorney	35	120	4,200		
	11.3.3	Investigator	8	120	960		
	11.3.4	Manager	8	120	960		
	11.3.5	Future Growth	15	120	1,800		
	11.4	**Support**					
	10.4.1	Copy/Print	1	120	120		
	10.4.2	Storage	1	120	120		
	10.4.3	Coffee Bar	1	20	20		
	10.4.4	Clothing Room	1	120	120		
	10.4.5	Conference Room	1	240	240		
	10.4.6	Library/Conference Room	1	480	480		

		Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
12.0	**District Attorney**			**14,456**	**18,070**	
12.1	**Welcome Area**					
12.1.1	Reception Desk	1	120	120		
12.1.2	Waiting	1	150	150		
12.1.3	Interview Room	2	120	240		
12.1.4	Family Room	1	120	120		
12.1.5	Drop Zone	1	120	120		
12.2	**District Attorney Management Staff**					
12.2.1	Offices	12	120	1,440		
12.3	**Attorney Staff**					
12.3.1	Offices	37	120	4,440		
12.4	**Support Staff**					
12.4.1	Offices	2	120	240		
12.4.2	Workstation	24	49	1,176		
12.5	**ECLD**					
12.5.1	Office	8	120	960		
12.5.2	Workstation	3	49	147		
12.6	**Investigations**					
12.6.1	Office	2	120	240		
12.6.2	Workstation	17	49	833		
12.7	**Victim Services**					
12.6.1	Office	2	120	240		
12.6.2	Workstation	12	49	588		
12.8	**Restitution**					
12.8.1	Workstation	3	49	147		
12.9	**Admin Team**					
12.9.1	Office	5	120	600		
12.11	**Law Clerks**					
12.11.1	Workstation	3	49	147		
12.12	**Fast Fax**					
12.12.1	Workstation	12	49	588		
12.13	**Information Systems**					
12.13.1	Office	3	120	360		
12.14	**Support**					
12.14.1	Copy/Print	1	120	120		
12.14.2	Storage	1	120	120		
12.14.3	Evidence / Gun Storage	1	120	120		
12.14.4	Conference	2	120	240		
12.14.5	Conference	2	150	300		
12.14.4	Conference	1	300	300		
12.14.5	Floater Office	2	120	240		
12.14.5	Comfort Dog Space	1	120	120		

		Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
13.0 Probation				**12,648**	**15,810**	
13.1 Welcome Area						
13.1.1	Secure Entry	1	120	120		
13.1.2	Chem Testing	2	60	120		
13.1.3	Lockers	12	4	48		
13.1.4	Interview Room	14	120	1,680		
13.2 Admin Team						
13.2.1	Office	16	120	1,920		
13.2.2	Workstation	20	49	980		
13.3 Investigations						
13.3.1	Office	2	120	240		
13.3.2	Workstation	14	49	686		
13.4 Pretrial						
13.4.1	Office	2	120	240		
13.4.2	Workstation	12	49	588		
13.5 Hall of Justice						
13.5.1	Office	13	120	1,560		
13.5.2	Workstation	64	49	3,136		
13.6 Work Release						
13.6.1	Office	5	120	600		
13.6.2	Workstation	10	49	490		
13.7 Support						
13.7.1	Storage	1	120	120		
13.7.2	Evidence Room	1	120	120		
14.0 County Administrator's Office		45		**7,650**	**9,563**	
15.0 Ancillary						
15.1 Lobby		1	4000	**4,000**	**5,000**	
15.2 Café				**2,275**	**2,844**	
15.2.1	Queuing	1	600	600		
15.2.2	Serving Area	1	200	200		
15.2.3	Prep and Storage	1	275	275		
15.2.4	Dining	1	1200	1,200		
15.3 Conference Center				**5,350**	**6,688**	
15.3.1	Prefunction	1	1000	1,000		
15.3.2	Multipurpose Flexible Space	1	2400	2,400		
15.3.3	Training Room	1	600	600		
15.3.4	Meeting Room	1	450	450		
15.3.5	Computer Lab	1	600	600		
15.3.6	Pantry	1	100	100		
15.3.7	AV	1	100	100		
15.3.8	Furniture Storage	1	100	100		
15.3.9	Restrooms (See Appendix E - CPC Plumbing Fixture Counts - Concept)					

		Qty	Assign-able SF / Qty	Total Usable SF	Depart-mental Gross SF @1.25	Building GSF @ 65% efficient
15.4	**Upper Floor Amenities**			**14,160**	**17,700**	
15.4.1	Large Meeting Room	4	600	2,400		
15.4.2	Medium Meeting Room	8	450	3,600		
15.4.3	Small Meeting Room	8	300	2,400		
15.4.4	Huddle	16	120	1,920		
15.4.5	Pantry/Break Room	4	600	2,400		
15.4.6	Reception	4	120	480		
15.4.7	Storage	4	120	480		
15.4.8	Lactation / Wellness	4	120	480		
15.5	**Gym**			**2,240**	**2,800**	
15.5.1	Weight Room	1	1000	1,000		
15.5.2	Shower / Toilet	4	120	480		
15.5.3	Flex Room	1	400	400		
15.5.4	Lockers	1	240	240		
15.5.5	Bike Storage	1	120	120		
15.6	**Support**			**2,040**	**2,550**	
15.6.1	Receiving	1	1200	1,200		
15.6.2	Storage	1	600	600		
15.6.3	Building Manager Workroom	1	120	120		
15.6.4	Bike Storage	1	120	120		

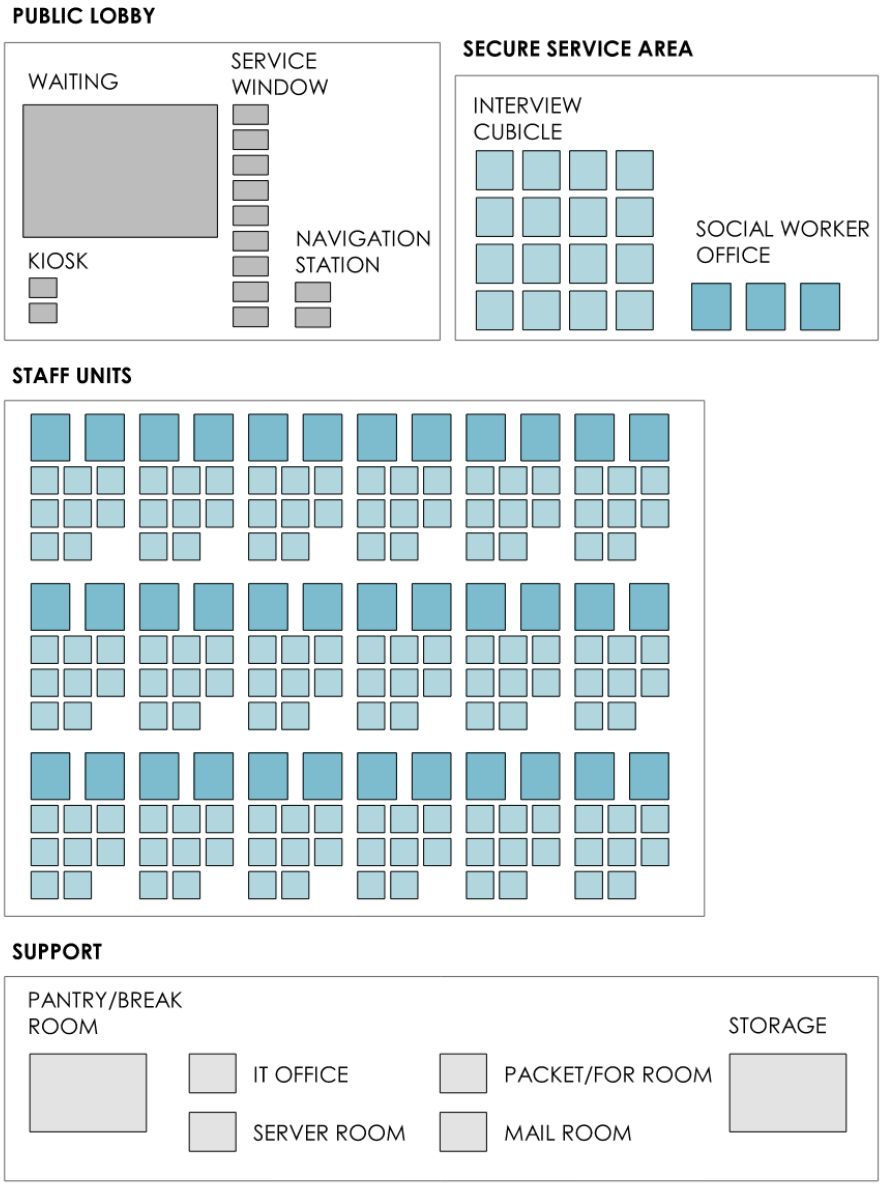
PROGRAM BY DEPARTMENT

5.1.0 Human Services Department

The Economic Assistance Division of the Human Services Department helps provide access to food, medical and dental care, shelter, and other supportive services for families and individuals with low incomes, people who are unemployed or who have disabilities, and children in foster care. The division's public counter should be safe and easily accessible to the clients it serves with security screening and clear sight lines to a comfortable waiting space (indoor or outdoor) for up to 100 Human Services Department clients. Clients will be called up to one of nine service windows before being escorted to an interview bay or office to determine eligibility for services. The staff work areas may support the division from another floor in a combination of offices for supervisors and managers and workstations for unit staff. Access to daylight and a common breakroom pantry are desirable for the recruitment and retention of staff.

Graphic Program

5.1.0 Human Services Department



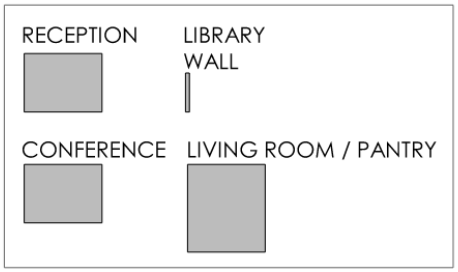
5.2.0 Office of Equity

The Office of Equity works to recognize and celebrate the County's powerful role in unseating racial inequity in our communities. The Office should provide a safe space that is accessible to the community with the ability to achieve visual privacy and anonymity when needed. A small reception area should be welcoming with a place to display a small library of reference materials to highlight the importance of continued self-education around issues of equity. The staff prefer to organize themselves around a common table offering food and hospitality to any guests they may host in their space. The staff tend to have sensitive conversations that are best suited to enclosed offices for up to two personnel.

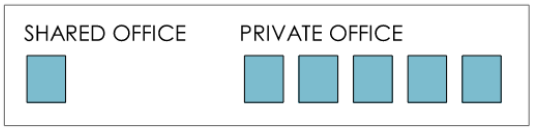
Graphic Program

5.2.0 Office of Equity

WELCOME AREA



STAFF UNIT

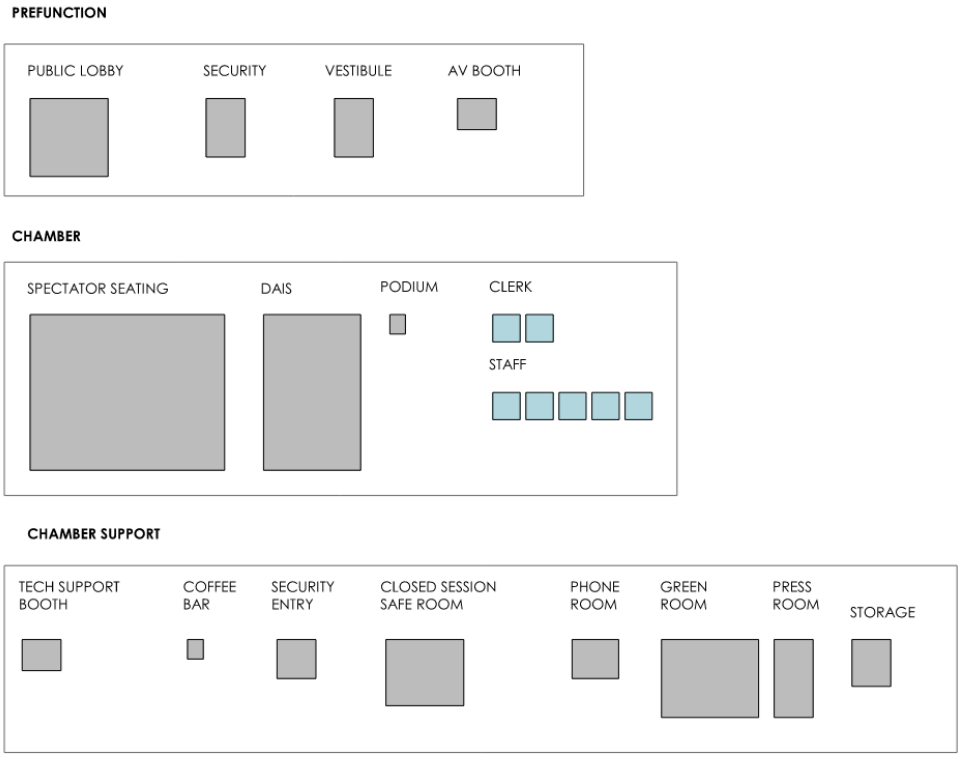


5.3.0 Board of Supervisor's Public Hearing Chambers

The Board of Supervisors meets in the Board of Supervisors Chambers. Members of the public may attend the meeting in person in the Board of Supervisors Chambers. Public interest is encouraged and appreciated. To facilitate public participation, provisions should be made for posting agendas, providing assistive listening technology and secure entry and queuing. Seating for up to 100-200 people should be provided within the chambers with overflow space for higher attendance meetings. The board should be supported with a dais for up to seven positions, plus stations for clerks and staff. A tech support booth, press room, and green room should be provided for broadcasting events. A closed session meeting space should be designated as a safe room and concessions should be made for a phone room and coffee offstage of the chambers. The district supervisors and designated staff should have a secure ingress/egress point of access to the chambers for their offices located on an upper floor.

Graphic Program

5.3.0 Public Hearing Chambers

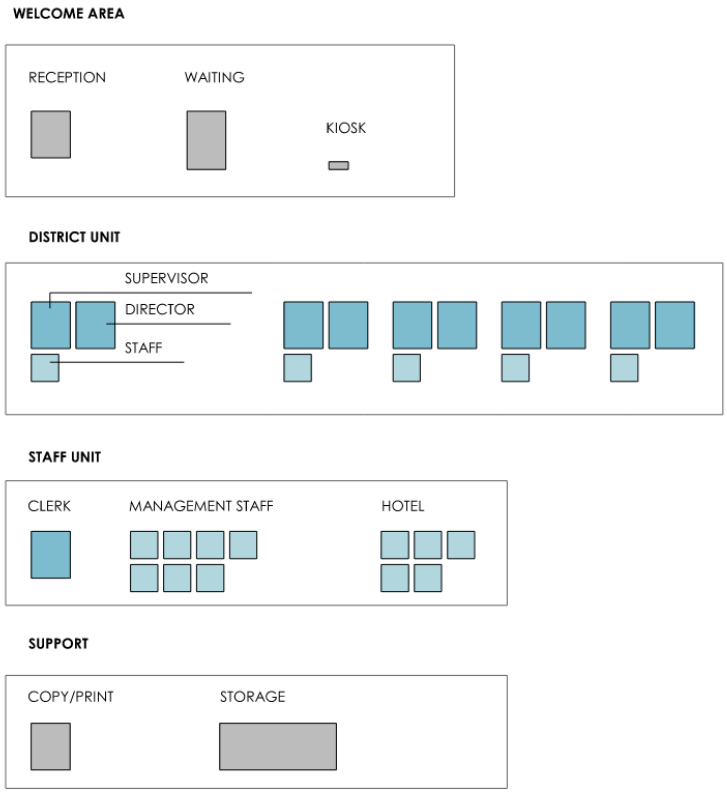


5.4.0 Board of Supervisor's Clerk of the Board

Sonoma County Board of Supervisors and Clerk of the Board sits as the governing board of Sonoma County and of various special jurisdictions. The Board is composed of five supervisors elected from supervisorial districts. Each district is given space for a supervisor office, district director office, and staff workstation. The support staff should be accommodated at workstations and an office for the clerk of the board.

Graphic Program

5.4.0 Clerk of the Board

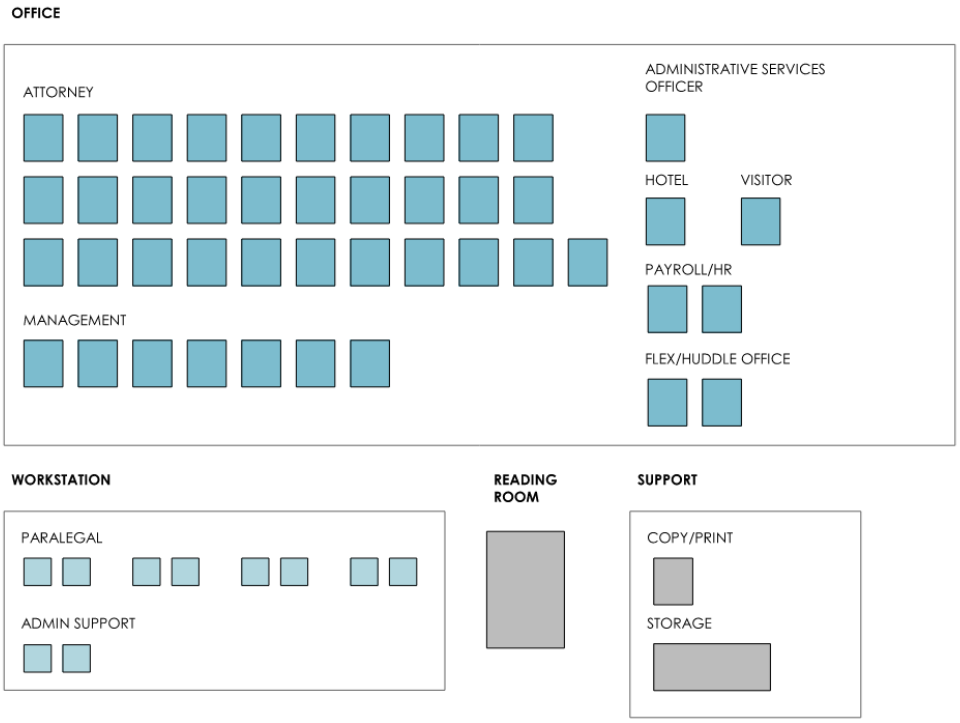


5.5.0 County Counsel

The Counsel's Office is committed to providing the highest quality legal representation and advice, in a timely and responsive manner, to assist the County, its governing Board of Supervisors and other clients to promote the public interest, achieve programmatic and strategic goals and protect financial resources. Generally, the office represents the County in litigation and provides legal representation and advice to the Board of Supervisors, County departments, and authorized programs. Administrative services officer should be provided with private offices, with paralegal and administrative support in workstations.

Graphic Program

5.5.0 County Counsel

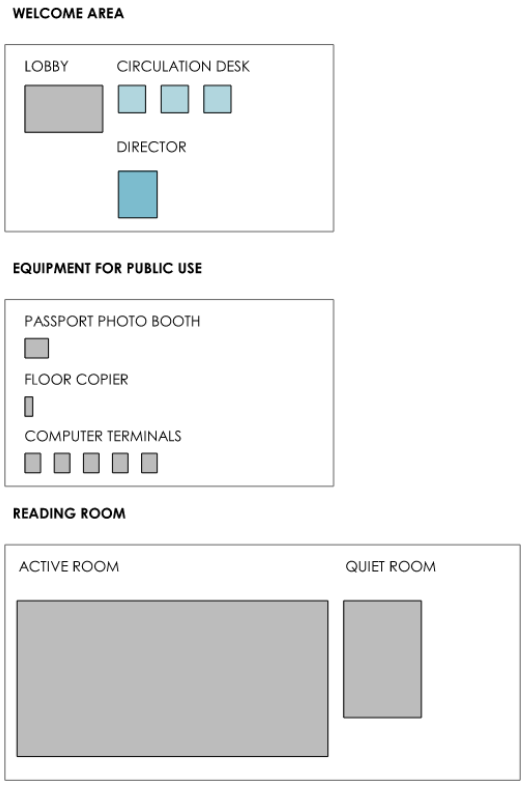


5.6.0 Law Library

The Sonoma County Public Law Library provides the local legal professionals and general public access to legal information, practice guides, and other resources to assist them with the conduct of matters pertaining to the law. Stacks should accommodate volumes of legal references in an active reading room with a second reading room designated as quiet space. As a passport application site, space should be provided for a photo booth and photocopier for public use. A circulation desk and director's office should accommodate up to four employees.

Graphic Program

5.6.0 Law Library

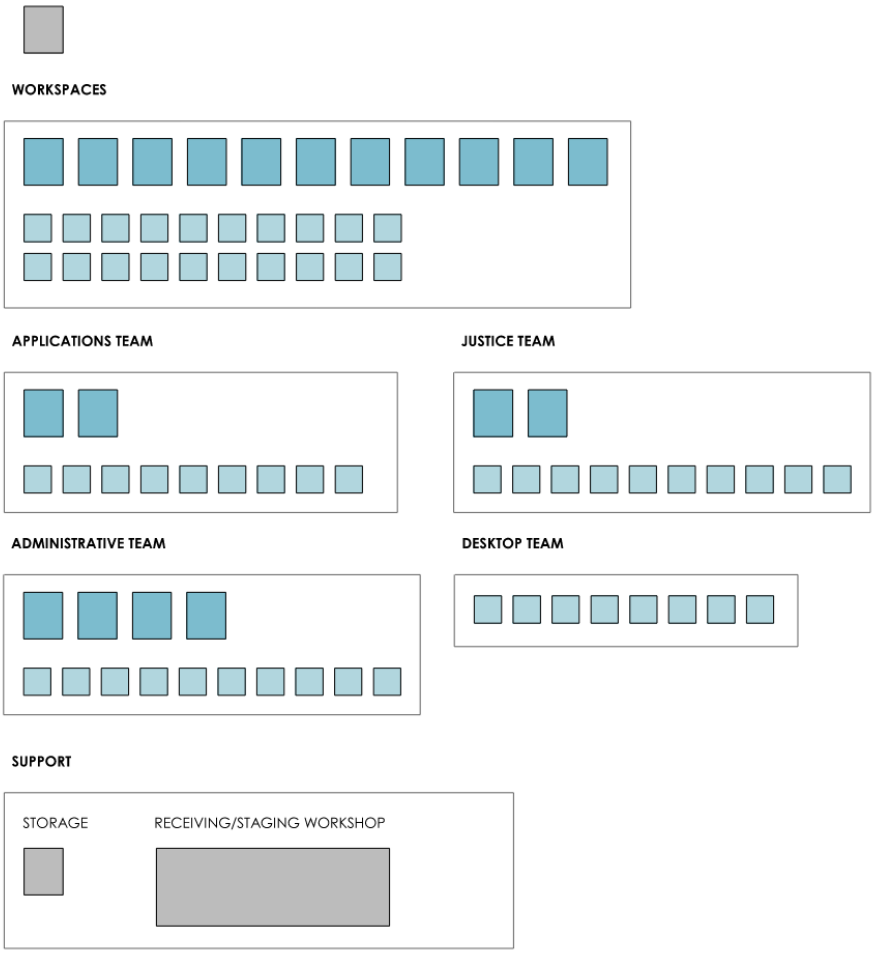


5.7.0 Information Systems Department

As an internal service provider to all County departments and agencies, Information Systems team members help define and implement technology tools and related services to amplify the work of County staff in service to our community Organized in teams, the department should be accommodated within offices and workstations. As the nature of the work involves sensitive data and expensive equipment, the department should be secure from other departments. Adequate space should be provided for the receiving, processing, and storage of hardware.

Graphic Program

5.7.0 ISD



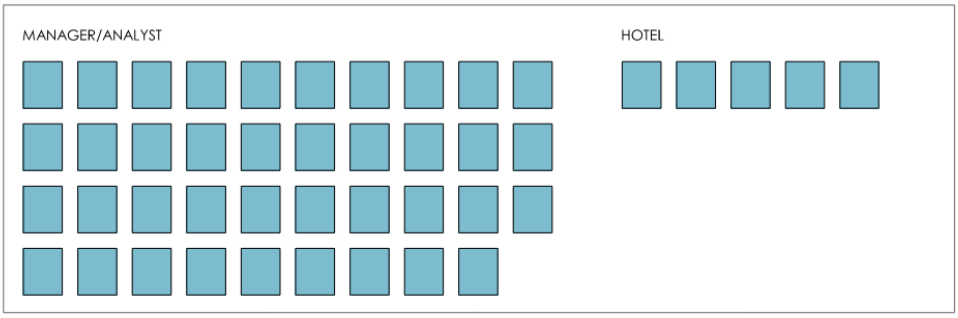
5.8.0 Human Resources

The Human Resources Department provides comprehensive human resources and risk management services, leadership, and guidance that support organizational effectiveness for an outstanding workforce. For the purposes of workforce training, entrance examination, and interviews, there is a heavy need for flexible, multipurpose meeting space. The human resources managers and analysts should be accommodated in enclosed offices due to the sensitive nature of conversations, and technical support staff should be accommodated in workstations.

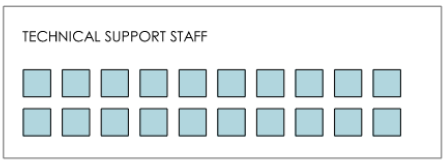
Graphic Program

5.8.0 Human Resources

OFFICE



WORKSTATION



SUPPORT

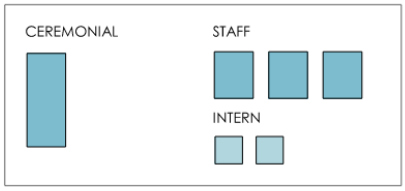
5.9.0 Congressman Mike Thompson

United States Congressman Mike Thompson represents California's 4th Congressional District. The Sonoma County Government Center will be home to the congressman’s Santa Rosa district office. The district office accommodates community visits primarily by appointment and should be outfitted with a ceremonial office, which requires two means of egress, staff offices and a couple of intern workstations.

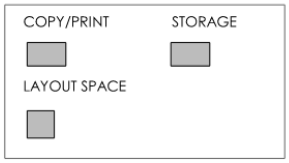
Graphic Program

5.9.0 Congressman

CONGRESSIONAL OFFICE



SUPPORT



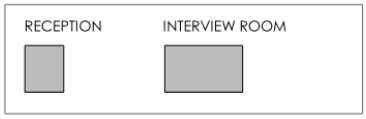
5.10.0 Independent Office of Law Enforcement Review and Outreach

IOLERO is an independent, non-police county agency whose mission is to strengthen the relationship between the Sheriff's Office and the community it serves. IOLERO's primary functions include reviewing complaints against the Sheriff's Office, community outreach, and making policy recommendations to the Sheriff's Office. Best practice suggests that the office should have ground floor storefront, easily accessible from the courts. At the reception, there should be an interview room where staff can meet with clients and review body camera footage at a computer with a video conference capable monitor. A mix of offices and workstations should accommodate the IOLERO functions, with a conference space for all staff meetings. These Justice partners requested secure lobbies (protective glass) and paths of access that separates District Attorney, Public Defender, and Probation clients and from each other and protects County staff.

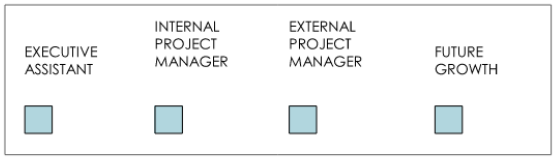
Graphic Program

5.10.0 IOLERO

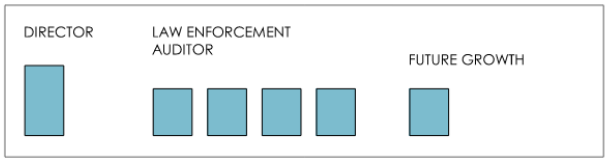
WELCOME AREA



WORKSTATION



OFFICE



SUPPORT

5.11.0 Public Defender

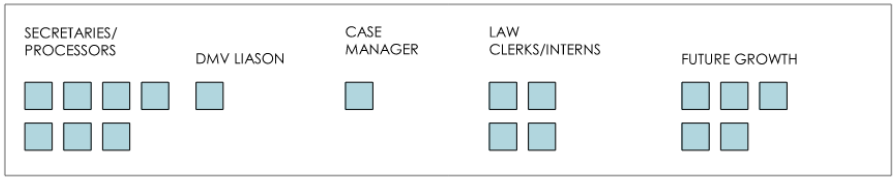
The Public Defender's Office is part of the Sonoma County justice system and serves the community by ensuring that all individuals have access to legal counsel, regardless of their financial situation. A welcoming yet secure (protective glass) reception area should accommodate up to fifteen clients, where they may be offered charging capabilities, snacks, and warm clothing. There should be an interview room where staff can meet with clients and review body camera footage at a computer with video conference capable monitor. Clients will be escorted deeper into the suite to meet with attorneys. Due to the sensitive nature of materials and conversations, attorneys and investigators should be provided enclosed offices. Workstations should accommodate secretaries, processors, liaisons, case managers, law clerks, and interns. A law library should double as a meeting staff meeting room for collaboration and all staff gatherings. Provide paths of access that separates District Attorney, Public Defender, and Probation clients and from each other and protects County staff.

Graphic Program

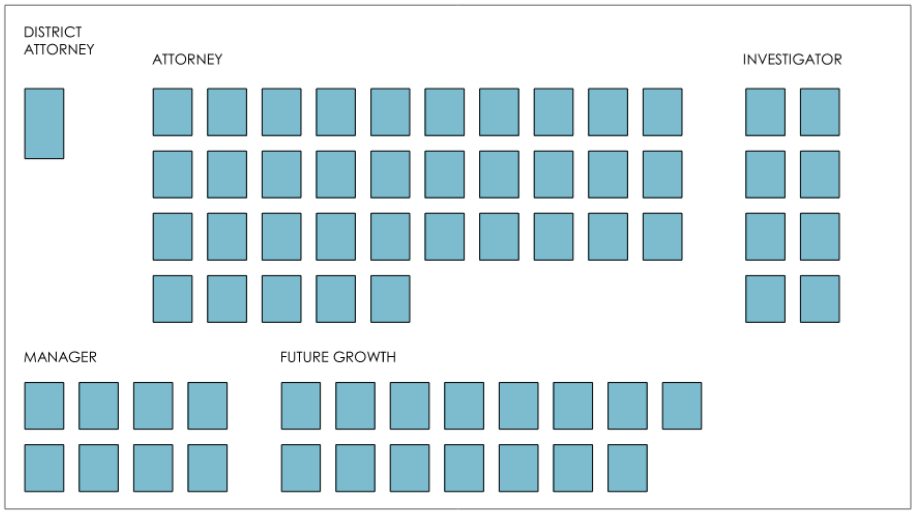
5.11.0 Public Defender

WELCOME AREA

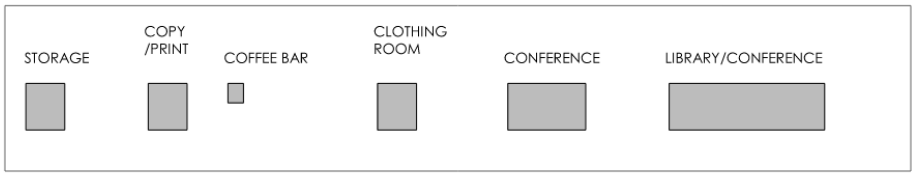
WORKSTATION



OFFICE



SUPPORT

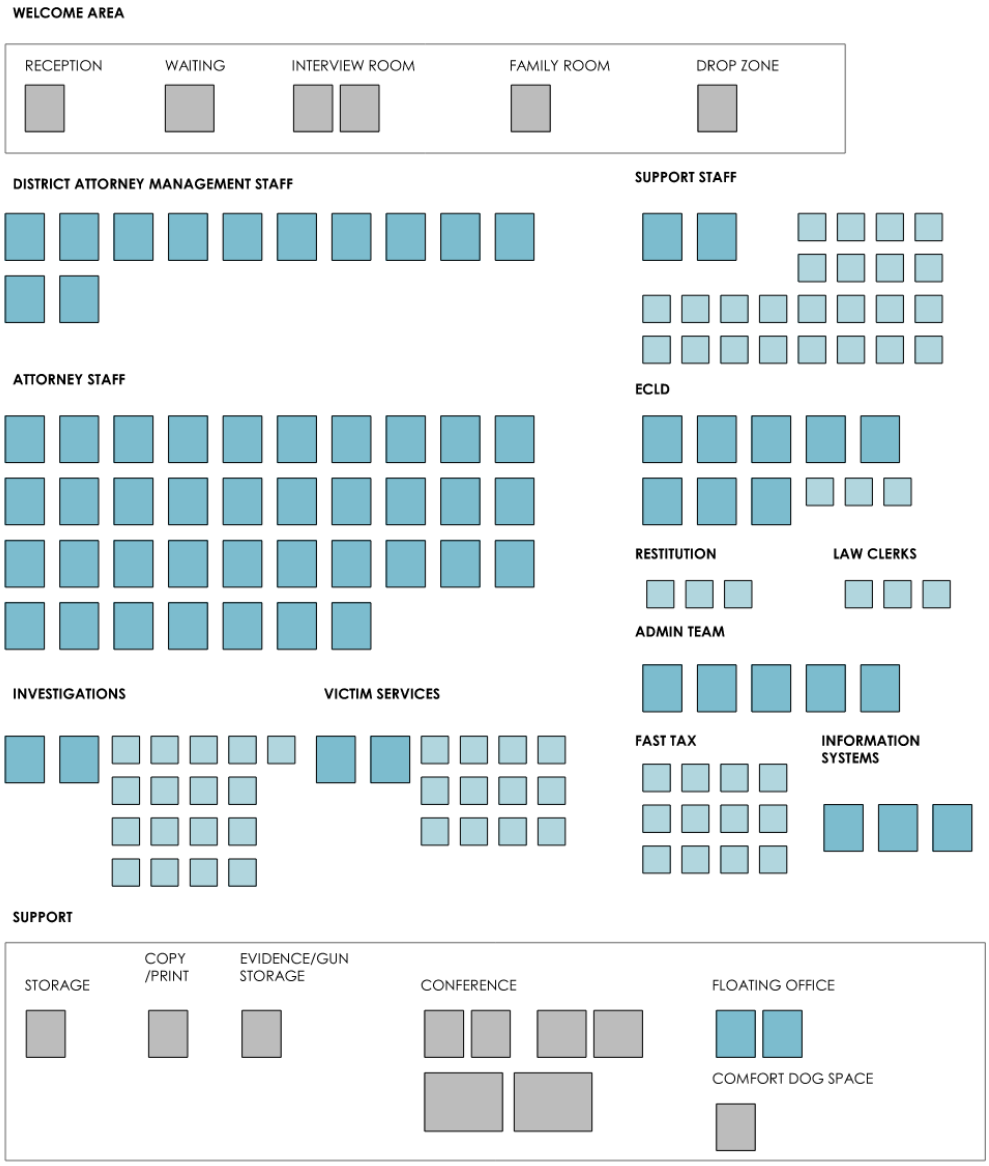


5.12.0 District Attorney

As a representative of the People of the State of California, the District Attorney's Office has the responsibility to prosecute all criminal matters in the County of Sonoma. At the secure reception, there should be a waiting area for clients and a drop zone for complaint or data entry drop off/pick up, as well as interview rooms where staff can meet with clients, with nearby investigator presence to intervene with any potential disturbance. A mix of offices and workstations should accommodate the District Attorney functions, with several conference rooms, ranging in size, to support collaboration on cases. Provide paths of access that separates District Attorney, Public Defender, and Probation clients and from each other and protects County staff.

Graphic Program

5.12.0 District Attorney



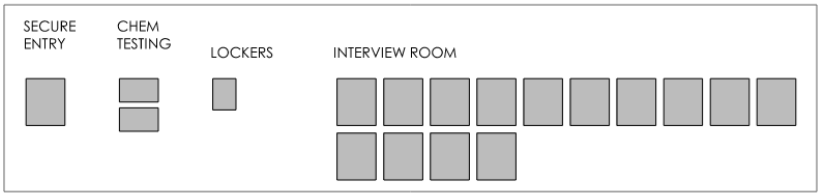
5.13.0 Probation

The Sonoma County Probation Department is responsible for holding individuals accountable for their actions, enforcing court orders, and monitoring conduct in the community. They serve as a neutral arm of the court, providing detailed information and reports to help judges make decisions in criminal cases. Access for clients should be direct from the outside and with security at the lobby. Interview rooms should be provided for staff to meet with clients near the entry. Offices and workstations should be provided for investigation, supervision, work release, pretrial, clerical staff, and admin team. Support spaces should include secure rooms for evidence processing and gun lockers. Provide paths of access that separates District Attorney, Public Defender, and Probation clients and from each other and protects County staff.

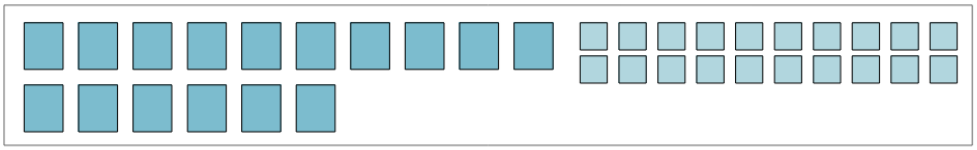
Graphic Program

5.13.0 Probation

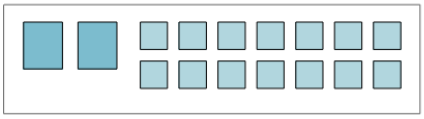
WELCOME AREA



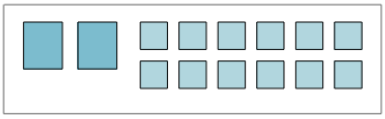
ADMIN TEAM



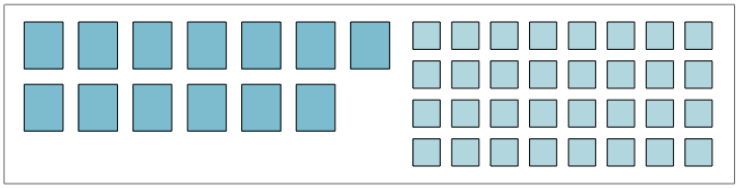
INVESTIGATIONS



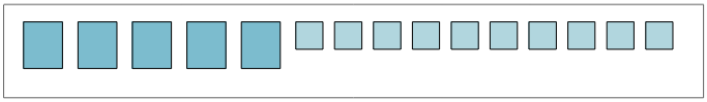
PRETRIAL



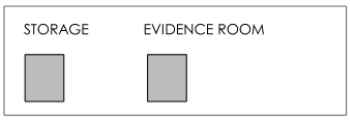
HALL OF JUSTICE



WORK RELEASE



SUPPORT



5.14.0 County Administrator’s Office

The County Administrator's Office assists the Board of Supervisors in managing, directing and coordinating the operation of all departments over which the Board exercises control. The programming session with the County Administrator’s Office has not yet occurred. This report will be updated when further information is gathered regarding the space needs and planning criteria.

Graphic Program

5.14.0 County Administrator's Office

15.0 Ancillary

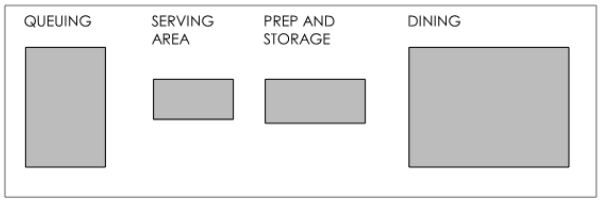
Ancillary spaces are ones that support the function of primary space programs, including shared lobbies, reception areas, conference rooms and flexible meetings spaces. The ancillary programs also act as amenities offering food service or promoting fitness to the staff and/or visitors who use the building.

Room Data Sheets and Diagrams

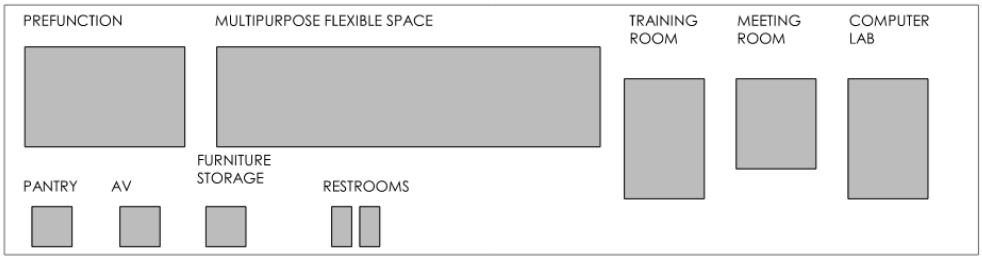
5.15.0 Ancillary

LOBBY

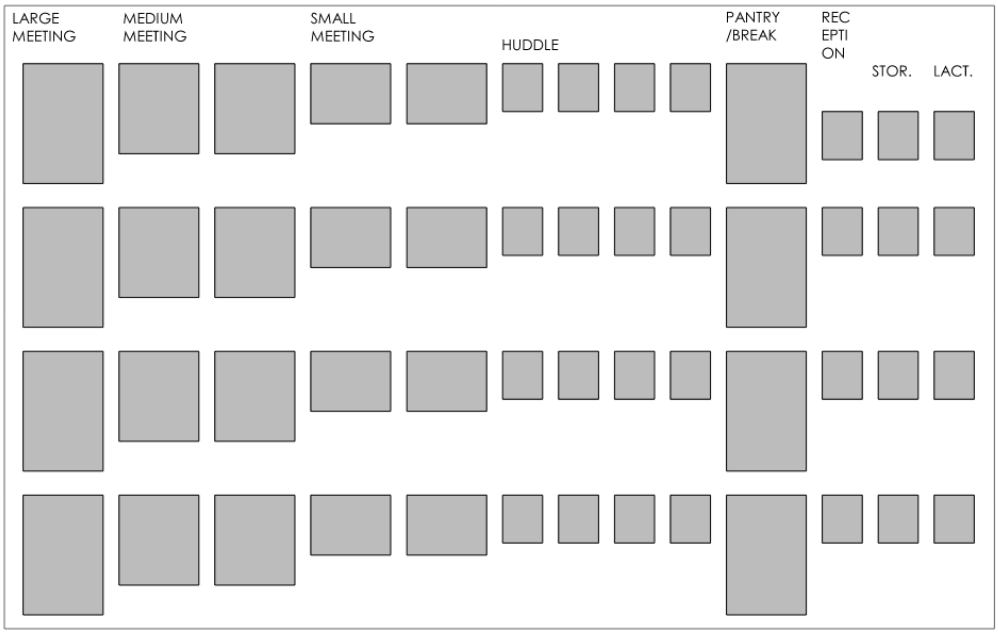
CAFE



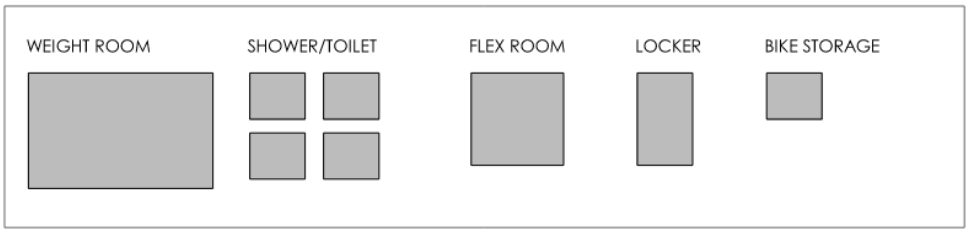
CONFERENCE CENTER



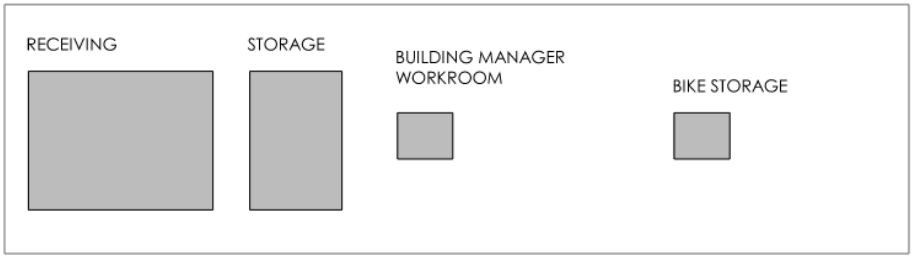
UPPER FLOOR AMENITIES



GYM


WEIGHT ROOM
SHOWER/TOILET
FLEX ROOM
LOCKER
BIKE STORAGE

SUPPORT


RECEIVING
STORAGE
BUILDING MANAGER
WORKROOM
BIKE STORAGE

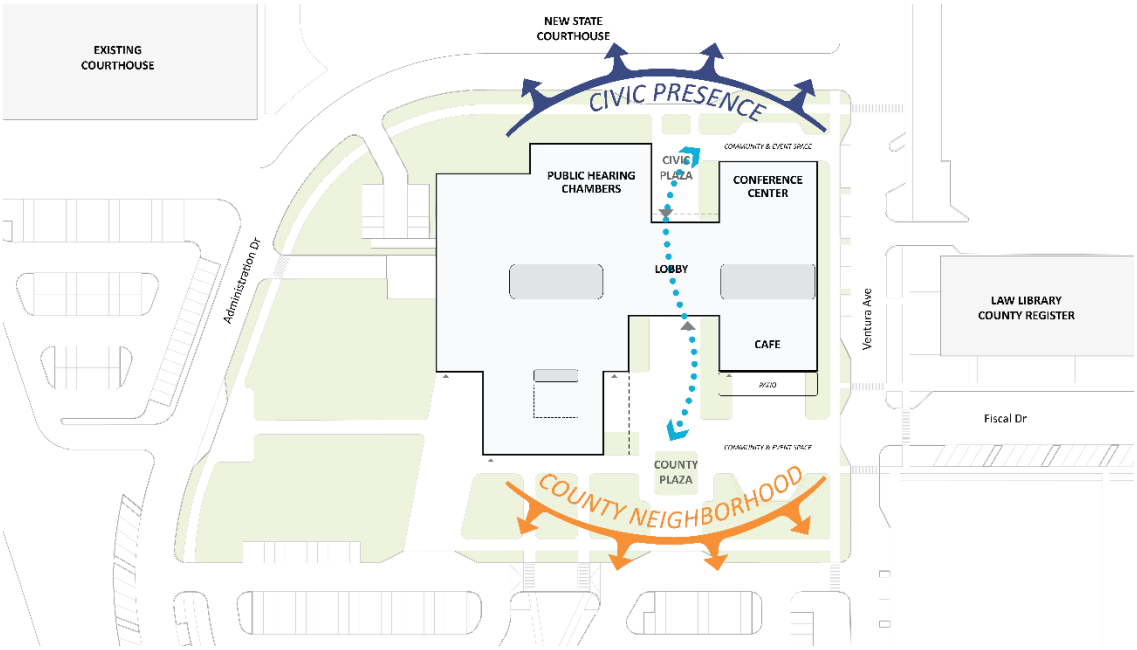
PROCESS, ANALYSIS AND OPTIONS

Ground Floor Studies

The team has explored various layouts for the ground floor to optimize the site and meet the county's program requirements. As we have gained more insight into these requirements, the design of the ground floor has evolved.

BUILDING ORIENTATION AND SITE PRESENCE

The site features two distinct "front door" conditions based on its orientation. The northern side is adjacent to the new State Court House, while the southern side faces the parking area and garden spaces.



Building Edges Diagram

NORTH EDGE

Given its direct connection to the new State Court House, the northern side and entrance of the building are designed to convey a more civic presence and appearance. This entrance features a formal yet welcoming façade, complemented by paved hardscapes and plazas. We envision this area becoming the iconic "face" of the new County Government Center, where press conferences can occur against the backdrop of the chambers and where people gather. The solar orientation allows for a more open and transparent façade, promoting a true "transparency in government" by allowing ample daylight in and providing views out to the county.

SOUTH EDGE

The southern entrance serves as the primary access point for most employees and county residents visiting the County Government Center. This façade aims to be welcoming and clearly marked, facilitating wayfinding. The design incorporates a scale that reduces the building's height, making it less imposing and more in harmony with the surrounding area. The southern exposure creates opportunities for inviting outdoor spaces that can support the interior program while also requiring careful attention to mitigation measures for user comfort. We plan to include larger overhangs and usable exterior areas to provide shaded gathering spots and enhance openness through extensive glazing.

GROUND FLOOR PROGRAM AND MAIN PUBLIC SPACE:

The placement of the main public lobby, council chambers, community meeting rooms, and café was crucial for organizing the spaces on the ground floor. Special attention was given to ensuring that all visitors, whether arriving from the "civic edge" on the north or the "neighborhood" parking area to the south, would have a equitable and intuitive wayfinding experience.

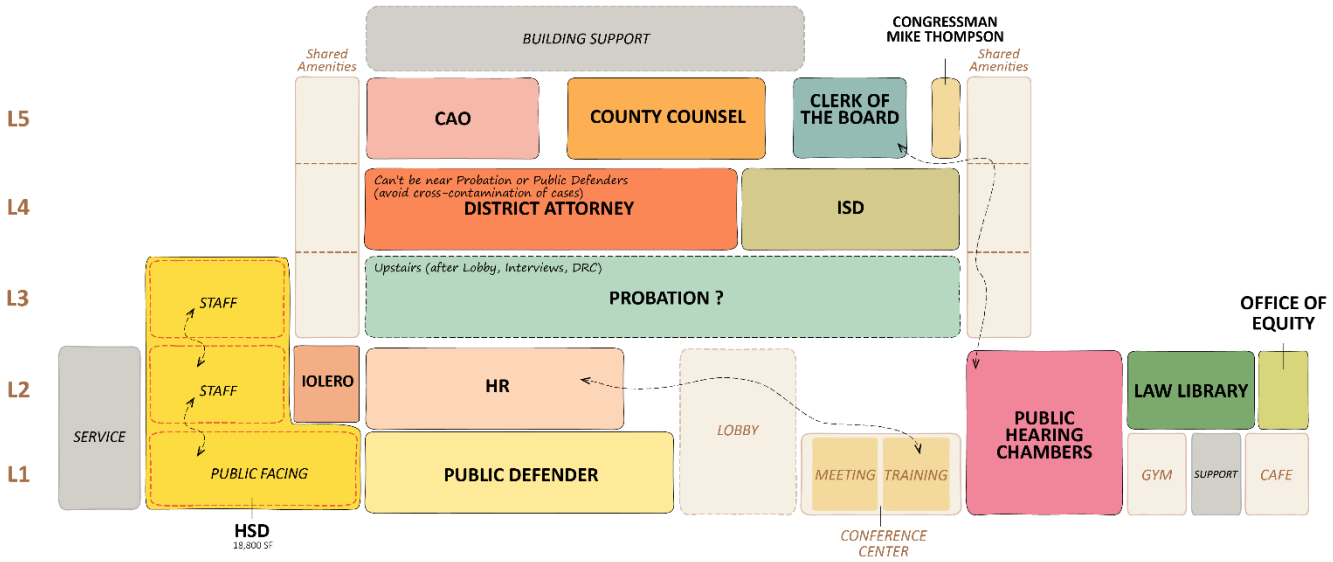
Ground Floor Program Studies: Options were looked at as to where the council chambers wanted to be located.

Building Circulation and Floor Layout

The flow of movement into and through the building was analyzed to achieve the right balance between welcoming public access and maintaining the necessary security and privacy for certain occupants of the County Government Center.

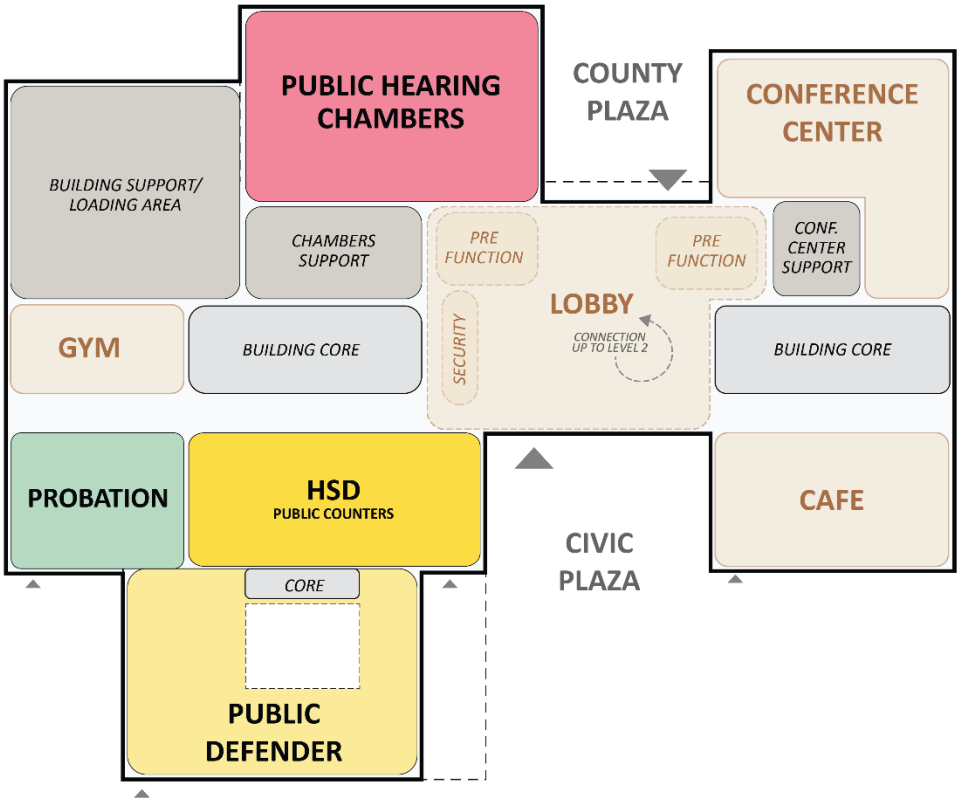
PROGRAM ORGANIZATION AND ADJACENCIES

We have met with all the departments to understand their requirements for space allocation, as well as how they operate. This understanding also involved examining which other departments they collaborate with closely and would prefer to be located near, as well as identifying the necessary separations from other departments. The diagram below illustrates how the departments would be organized vertically within the building.



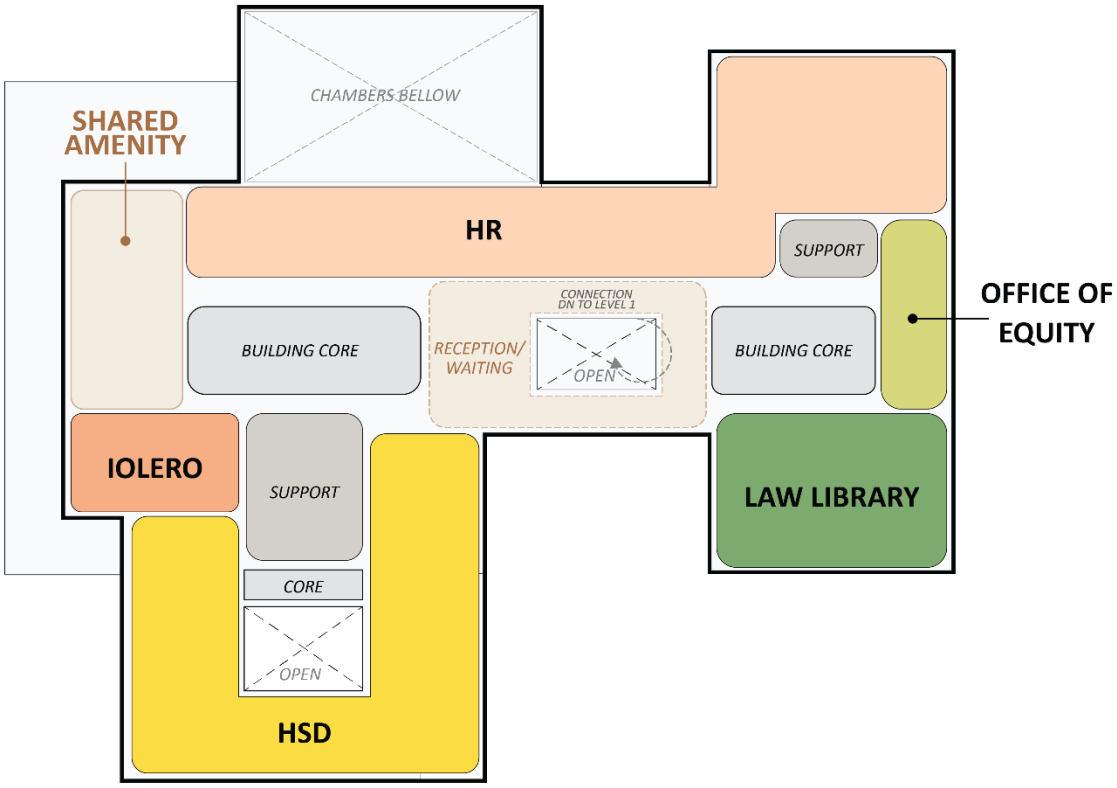
PROGRAM STACKING DIAGRAM

The location of departments are organized in the building based on their needed adjacencies, amount of public interaction and security requirements



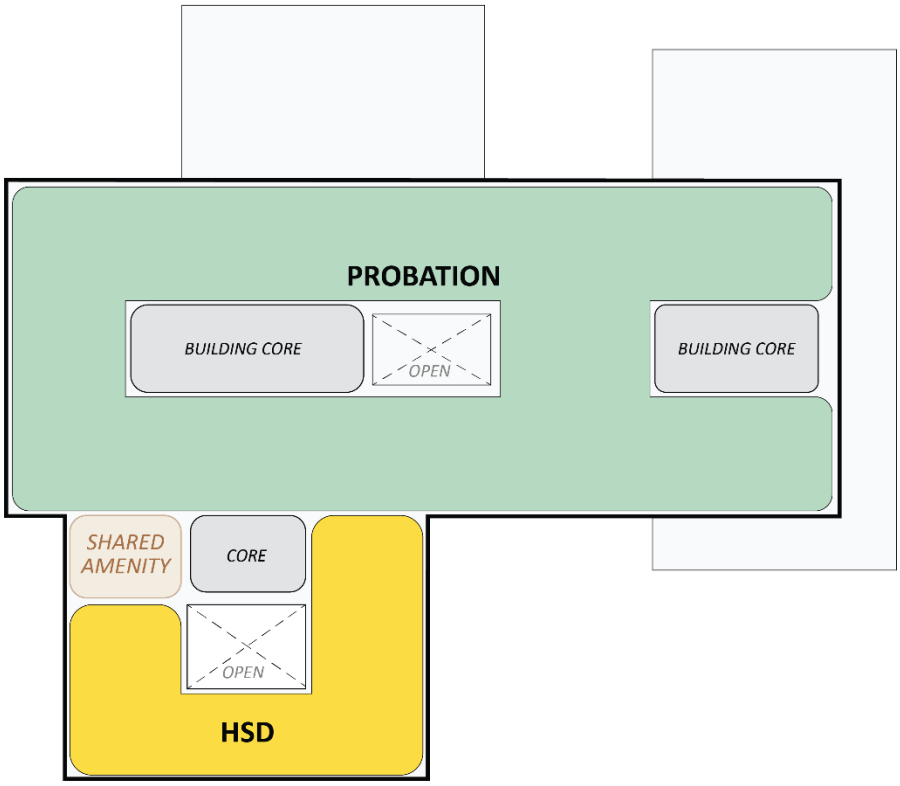
LEVEL 1

The ground floor is organized around a central lobby, which serves as the main circulation point for the building and provides access from both sides to the Public Hearing Chambers and conference center to the north that reflects the civic nature of the justice programs across the Administration Drive Paseo.



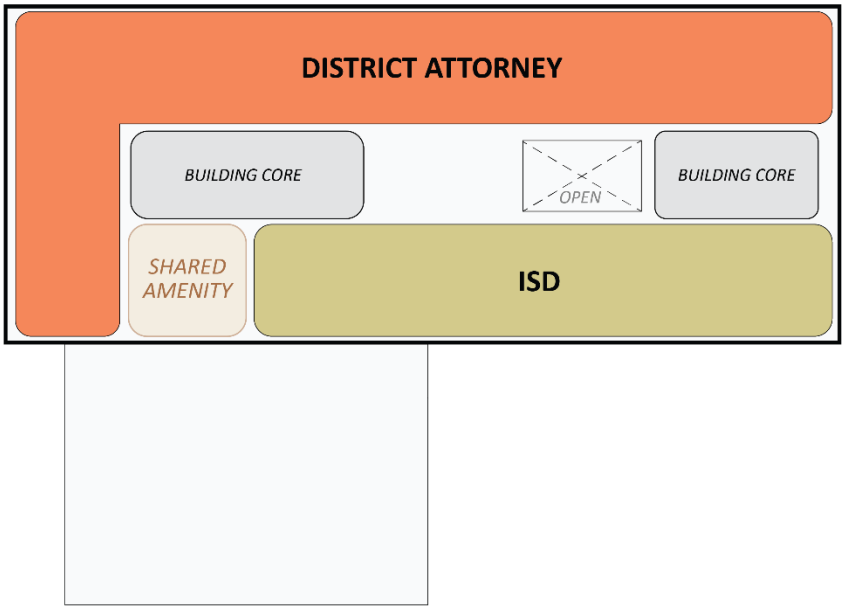
LEVEL 2

Connected to the ground floor by an atrium and public stair, the second floor serves as a hub for secondary public functions. The Law Library is prominently located at the top of the stairs, along with areas of Human Resources accessible to County employees. This level also offers space, with the potential to vertically stack the larger HSD department and provide a direct connection to their public counters on Level 1.



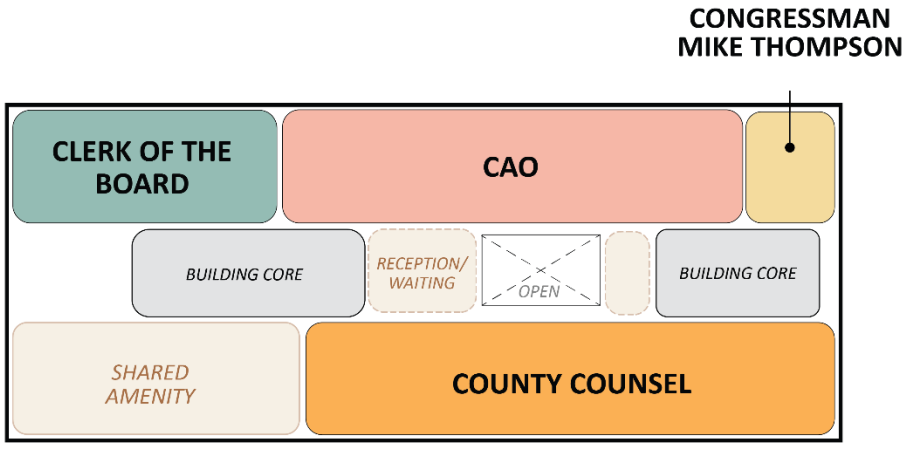
LEVEL 3

A flexible floor plate that can accommodate a number of different departments. HSD is located in the southern portion, stacked above its other departmental floors, and connected through internal circulation.



LEVEL 4

A flexible floor plate currently houses the District Attorney on the north edge and ISD on the south, with direct connection to their workshop on Level 1.



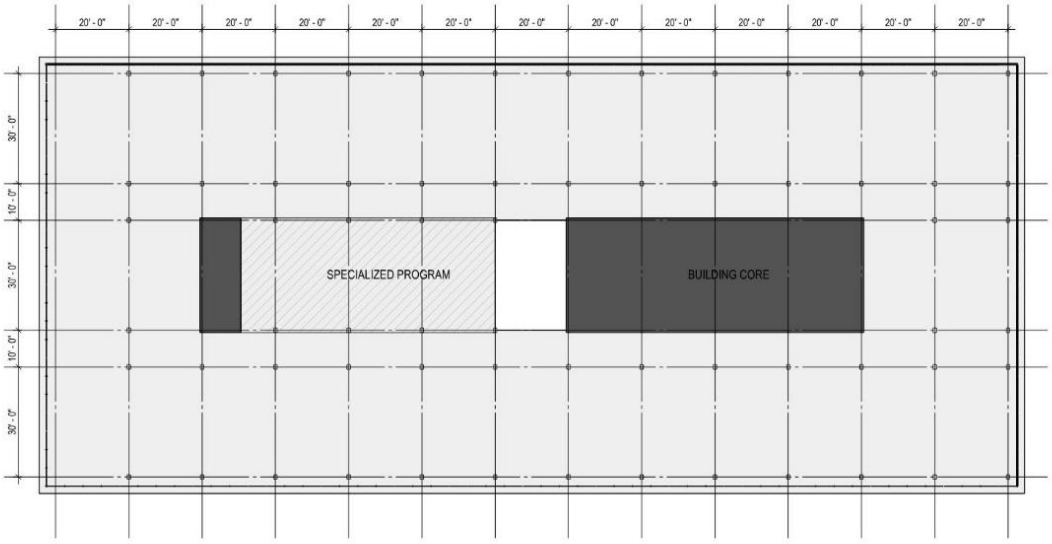
LEVEL 5

The top floor features a flexible floor plate and may house the CAO, County Counsel, Congressman Mike Thompson, and the Clerk of the Board. A dedicated circulation path connects this level to the Chambers on Level 1, with additional security measures in place to control access to this level.

WORKPLACE AND FLEXIBILITY

Flexible Floor Plates

Adopting a modular approach to workspace layout enables a versatile range of configurations while preserving a consistent plan structure. This strategy allows workstations to be tailored to the specific tasks of their occupants, reducing the variety of sizes and dimensions needed. As a result, it enhances space efficiency and simplifies furniture inventory.

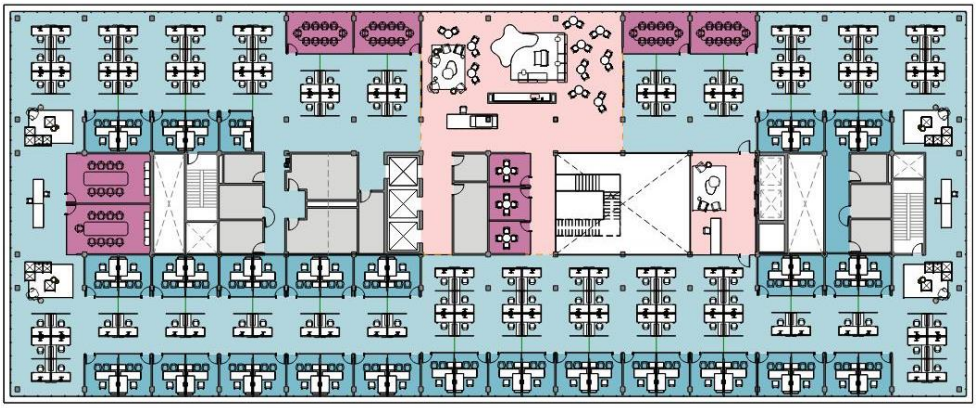


Base Floor Plate Diagram

Modular Layouts

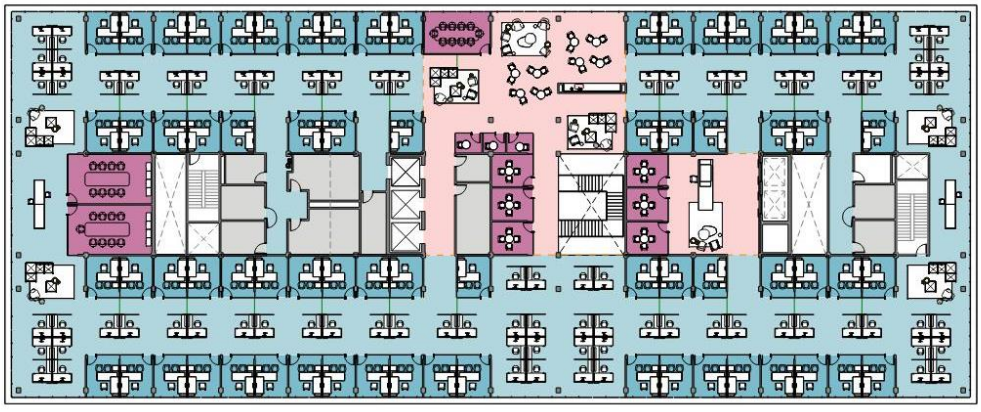
We have designed flexible program blocks that can be inserted to the floor plan to meet the needs of various departments. This modularity not only provides the necessary adaptability but also allows for the programs to evolve over time.

Each floor plate will be studied and programmed to respond to the specific needs of the departments located there. Some departments will require more enclosed offices and private spaces, while others may be more heavily focused on open workstations. Below are two layout studies that explore different configurations and balances of space types.



Mixed Floor Plate:

A floor plate study with a more balanced ratio of offices to private offices



Heavy Office Floor Plate:

A floor plate with a more private offices and fewer workstations.

CODE ANALYSIS

Applicable Codes

The CGC shall be designed and constructed in accordance with the most recent editions of applicable local, county, state, and federal codes and standards in this report, including, but not limited to:

1. California Building Code (CBC), 2025 edition
2. California Electrical Code (CEC), 2025 edition
3. California Mechanical Code (CMC), 2025 edition
4. California Plumbing Code (CPC), 2025 edition
5. California Green Building Standards Code (CGBC), 2025 edition
6. California Fire Code (CFC), 2025 edition, as amended by the City of Santa Rosa
7. Standards on the Installation of Sprinkler Systems (NFPA 13), 2025 edition, as amended by CBC
8. Standards on the Installation of Standpipe and Hose systems (NFPA 14), 2025 edition, as amended by CBC
9. National Fire Alarm and Signaling Code (NFPA 72), 2025 edition, as amended by the CBC
10. Standard for Emergency and Standby Power Systems (NFPA 110), 2025 Edition, as amended by the CBC

Authority Having Jurisdiction

Contract Documents shall be submitted to Permit Sonoma for review and approval.

City of Santa Rosa for Fire.

Occupancy Classifications and Use

The CGC concept study has established a program that is primarily a mix of offices on the upper floors and public services and back of house support on the ground floor. The appropriate use classification are:

1. Business Group B – Office: Open and enclosed workstations, meeting spaces, breakrooms, accessory support spaces
2. Assembly Group A-3:
    a. Chambers and Prefunction: Dias & spectator seating
    b. Conference Center: Community meeting rooms
    c. Main Lobby/Prefunction: Available for public events
3. Assembly Group A-2 – Café: Food service for staff and visitors
4. Low Hazard Storage Group S-2: Building services, loading dock, storage

The building will be a separated mixed-use facility configured as follows (CBC Table 508.4):

1. Chambers & Conference Center (Group A-3): Level 1, single-story volume, with a 1-hour vertical separation from the remainder of building.
2. Café (Group A-2): Level 1, single-story volume, with a 1-hour vertical separation from the remainder of building.
3. Remainder of Building (Groups B, A-3, & S-2): Levels 1-5, non-separated mixed occupancy, with the sum of accessory occupancies not exceeding 10% of the gross building square footage.

General Building Heights and Areas

The tabular values for allowable height, stories, and area for the single occupancy (Group B) and the non-separated portion of the building are as follows:

TABLE 504.3

ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE [a, i]

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION												
	See Footnotes	Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
B, F, M, S, U	NS[b]	UL	160	65	55	65	55	65	65	65	65	50	40
	S	UL	180	85	75	85	75	270	180	85	85	70	60

CBC Allowable Building Heights_Table 504.3

TABLE 504.4

ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE[a, b, n]

OCCUPANCY CLASSIFICATION	See Footnotes	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A-1	NS	UL	5	3	2	3	2	3	3	3	3	2	1
	S *(without area increase)*	UL	6	4	3	4	3	9	6	4	4	3	2
	S (with area increase)	*UL*	*5*	*3*	*2*	*3*	*2*	*8*	*5*	*3*	*3*	*2*	*1*
A-2	NS	UL	11	3	2	3	2	3	3	3	3	2	1
	S *(without area increase)*	UL	12	4	3	4	3	18	12	6	4	3	2
	S *(with area increase)*	*UL*	*11*	*3*	*2*	*3*	*2*	*17*	*11*	*5*	*3*	*2*	*1*
A-3	NS	UL	11	3	2	3	2	3	3	3	3	2	1
	S *(without area increase)*	UL	12	4	3	4	3	18	12	6	4	3	2
	S (with area increase)	*UL*	*11*	*3*	*2*	*3*	*2*	*17*	*11*	*5*	*3*	*2*	*1*
A-4	NS	UL	11	3	2	3	2	3	3	3	3	2	1
	S *(without area increase)*	UL	12	4	3	4	3	18	12	6	4	3	2
	S (with area increase)	*UL*	*11*	*3*	*2*	*3*	*2*	*17*	*11*	*5*	*3*	*2*	*1*
A-5	NS	UL	UL	UL	UL	UL	UL	*1*	*1*	*1*	UL	UL	UL
	S	UL	UL	UL	UL	UL	UL	*UL*	*UL*	*UL*	UL	UL	UL
B	NS	UL	11	5	3	5	3	5	5	5	5	3	2
	S	UL	12	6	4	6	4	18	12	9	6	4	3
	NS	UL	5	3	2	3	2	3	3	3	3	1	1

CBC Allowable Number of Stories_Table 504.4

TABLE 506.2

ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET[a, b, j]

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV				Type V	
		A	B	A	B	A	B	A	B	C	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	45,000	30,000	18,750	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	180,000	120,000	75,000	60,000	46,000	22,000
	SM *(without height increase)*	UL	UL	46,500	25,500	42,000	25,500	135,000	90,000	56,250	45,000	34,500	16,500
	SM (with height increase)	*UL*	*UL*	*15,500*	*8,500*	*14,000*	*8,500*	*45,000*	*30,000*	*18,750*	*15,000*	*11,500*	*5,500*
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	45,000	30,000	18,750	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	180,000	120,000	75,000	60,000	46,000	24,000
	SM *(without height increase)*	UL	UL	46,500	28,500	42,000	28,500	135,000	90,000	56,250	45,000	34,500	18,000
	SM (with height increase)	*UL*	*UL*	*15,500*	*9,500*	*14,000*	*9,500*	*45,000*	*30,000*	*18,750*	*15,000*	*11,500*	*6,000*
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	45,000	30,000	18,750	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	180,000	120,000	75,000	60,000	46,000	24,000
	SM *(without height increase)*	UL	UL	46,500	28,500	42,000	28,500	135,000	90,000	56,250	45,000	34,500	18,000
	SM (with height increase)	*UL*	*UL*	*15,500*	*9,500*	*14,000*	*9,500*	*45,000*	*30,000*	*18,750*	*15,000*	*11,500*	*6,000*
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	45,000	30,000	18,750	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	180,000	120,000	75,000	60,000	46,000	24,000
	SM *(without height increase)*	UL	UL	46,500	28,500	42,000	28,500	135,000	90,000	56,250	45,000	34,500	18,000
	SM (with height increase)	*UL*	*UL*	*15,500*	*9,500*	*14,000*	*9,500*	*45,000*	*30,000*	*18,750*	*15,000*	*11,500*	*6,000*
A-5	NS	UL	UL	UL	UL	UL	UL	*UL*	*UL*	*UL*	UL	UL	UL
	S1												
	SM												
B	NS	UL	UL	37,500	23,000	28,500	19,000	108,000	72,000	45,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	432,000	288,000	180,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	324,000	216,000	135,000	108,000	54,000	27,000

CBC Allowable Area_Table 506.2

Types of Construction

Based on the requirements for building heights, number of stories, and areas, this facility will be classified under the Building Code as follows:

- Construction Type IV-HT

Fire Resistance Rating Requirements for Building Elements

Per Construction Type IV-HT, the required ratings of building elements are as listed in spreadsheet below:

Primary Occupancy Type: Business (B)

CBC 2022

Primary Occupancy Type: Business (B)

Fully Sprinklered (S, SM)
5 Stories
(Floor to Floor Spacing: Ground Lvl =18ft, Upper Lvls=15ft)

Construction Type	IV-HT
Maximum Building Height (CBC 504.3) in feet	85
Allowable Number of Stories (CBC 504.4) with frontage area increase	6
Allowable Area (At) (CBC 506.2) in sf	108,000
$A_a = A_t + (NS \times I_f)$	Aa = 108,000 + (36,000 x .5) Aa (per floor) = 126,000 sf
Total Allowable Area for Single-Occupancy Bldg w/ More Than 3 Stories Above Grade (CBC 506.2.1) $A_a = [A_t + (NS \times I_f)] \times S_a$ **Frontage Increase Factor** (CBC 506.3.3) (Open Space 20ft -25ft for 75% to 100% of bldg perimeter) If = .5 NS = non sprinklered value Sa = 3 (B Occ bldgs over 3 stories & fully sprinlered)	Aa = [108,000 + (36,000 x .5)] x 3 Aa (building total) = 378,000 sf
Fire Resistance Ratings (CBC 601)	
Primary Structural Frame	HT
Exterior Bearing Walls	2
Interior Bearing Walls	1 / HT
Exterior Non-Bearing Walls/Partitions (separation distance < 30ft)	0
Interior Non-Bearing Walls/Partitions	See CBC 2304.11.2.2
Floor Construction & Assoc Secondary Members	HT
Roof Construction & Assoc Secondary Members	HT

Notes:

1. Accessory occupancies are permitted in single occupancy buildings, so long as the gross area of accessory occupanies are 10% or less of the gross building square footage (CBC 508.2)
2. Sum of Accessory occupancies shall not occupy more than 10% of the floor area of the level in which they are located and shall not exceed the tabular values for non sprinklered buildings per Table 506.2 for each such accessory occupancy (CBC 508.2.3)
3. Accessory occupancies are not required to be classified as Assembly occupancy when establishing bldg construction, height/area, & fire protection, even if the occ load exceeds 50. However, such spaces still must meet egress requirements of an A occupancy, such as door swing panic hardware, exit signs, emergency lighting, etc. (CBC 508.2.1)
4. No separation is required between accessory occupancies and the main occupancy (CBC 508.2.4)
5. Rooftop structures shall not be used for habitation or storage. These structures shall be unlimited in height where of noncombustible materials (CBC 504.3)
6. Avoid locating occupied floors more than 75 feet above the lowest level of fire department vehicle access per CBC 403.1. Otherwise, the building is considered a high-rise, which would result in added restrictions and cost
7. The actual area of any individual floor shall not exceed the allowable area per story (CBC 506.2.1)
8. A room or space used for assembly purposes that is less than 750 sf in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy (CBC 303.1.2.2)

2022 CBC Code Matrix Primary Occupancy Type B

Fire Resistance Rating Requirements for Exterior Walls Based on Fire Separation Distance

The CGC building will be separated from adjacent buildings and the nearest lot line by 30 feet or greater. According to CBC Table 705.5, the fire-resistance rating for exterior walls is as follows:

TABLE 705.5
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, d, g]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H[e], L	OCCUPANCY GROUP F-1, M, S-1[f]	OCCUPANCY GROUP A, B, E, F-2, I, R[i], S-2, U[h]
X < 5[b]	All	3	2	1
5 ≤ X < 10	IA, IVA	3	2	1
	Others	2	1	1
10 ≤ X < 30	IA, IB, IVA, IVB	2	1	1[c]
	IIB, VB	1	0	0
	Others	1	1	1[c]
X ≥ 30	All	0	0	0

CBC Fire-Resistance Rating for Ext Walls Table 705.5

Maximum Area of Exterior Wall Openings

Based on the construction type and fire separation distance, the maximum area for unprotected exterior wall openings is specified in Table 705.8:

TABLE 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

FIRE SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA[a]
0 to less than 3[b, c, k]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted[k]
	Unprotected, Sprinklered (UP, S)[i]	Not Permitted[k]
	Protected (P)	Not Permitted[k]
3 to less than 5[d, e]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S)[i]	15%
	Protected (P)	15%
5 to less than 10[e, f, j]	Unprotected, Nonsprinklered (UP, NS)	10%[h]
	Unprotected, Sprinklered (UP, S)[i]	25%
	Protected (P)	25%
10 to less than 15[e, f, g, j]	Unprotected, Nonsprinklered (UP, NS)	15%[h]
	Unprotected, Sprinklered (UP, S)[i]	45%
	Protected (P)	45%
15 to less than 20[f, g, j]	Unprotected, Nonsprinklered (UP, NS)	25%
	Unprotected, Sprinklered (UP, S)[i]	75%
	Protected (P)	75%
20 to less than 25[f, g, j]	Unprotected, Nonsprinklered (UP, NS)	45%
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit
25 to less than 30[f, g, j]	Unprotected, Nonsprinklered (UP, NS)	70%
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, Sprinklered (UP, S)[i]	No Limit
	Protected (P)	No Limit

CBC Max Area of Ext Openings_Table 705.8

Occupant Load

As a primarily Business Group Occupancy with some Assembly areas, most design occupant loads will be calculated as follows:

- Business areas: 150 gross
- Assembly without fixed seats, Concentrated: 7 net
- Assembly without fixed seats, Unconcentrated: 15 net

TABLE 1004.5

MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Exhibit gallery and museum	30 net
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats	
Concentrated (chairs only—not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	150 gross
Concentrated business use areas	See Section 1004.8
Courtrooms—other than fixed seating areas	40 net

CBC Max Floor Area Allowances per Occupant_Table 1004.5

Minimum Number of Exits

Based on the primary design occupant loads and the anticipated occupancy per floor, the minimum number of separate and distinct exits or access to exits are as follows:

- Level 1: 3 Exits
- Levels 2-5: 2 Exits

TABLE 1006.3.3

MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY

OCCUPANT LOAD PER STORY	MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY
1-500	2
501-1,000	3
More than 1,000	4

CBC Min Number of Exits per Story_Table 1006.3.3

EV Charging Parking

Sonoma County Strategic plan requires Tier 2 electric vehicle parking. Based on the project target of 545 parking stalls, CGC is required to provide 246 EV capable spaces and 82 EVCS:

CalGreen Nonresidential EV Parking Spaces_Table A5.106.5.3.3 Tier 2

TABLE A5.106.5.3.3 Tier 2

TOTAL NUMBER OF ACTUAL PARKING SPACES	TIER 2 NUMBER OF REQUIRED EV CAPABLE SPACES	TIER 2 NUMBER OF EVCS (EV CAPABLE SPACES PROVIDED WITH EVSE)[2, 3]
0—9	3	0
10—25	8	3
26—50	17	6
51—75	28	9
76—100	40	13
101—150	57	19
151—200	79	26
201 and over	45 percent of actual parking spaces[1]	33 percent of EV capable spaces[1]

Accessible EVCS shall be provided in accordance with CBC 11B-228.3.1:

TABLE 11B-228.3.2.1

ELECTRIC VEHICLE CHARGING STATIONS FOR PUBLIC USE AND COMMON USE

TOTAL NUMBER OF EVCS AT A FACILITY[1]	MINIMUM NUMBER (by type) OF EVCS REQUIRED TO COMPLY WITH SECTION 11B-812[1]		
	Van Accessible	Standard Accessible	Ambulatory
1 to 4	1	0	0
5 to 25	1	1	0
26 to 50	1	1	1
51 to 75	1	2	2
76 to 100	1	3	3
101 and over	1, plus 1 for each 300, or fraction thereof, over 100	3, plus 1 for each 60, or fraction thereof, over 100	3, plus 1 for each 50, or fraction thereof, over 100

CBC Elec Vehicle Charging Stations for Public & Common Use_Table 11B.228.3.2.1

Bicycle Parking

- Short-Term: Provide permanently anchored bicycle racks within 200 feet of a Visitors' entrance for 5 percent of new visitor motorized vehicle parking spaces, with a minimum of one two-bike capacity rack (CalGreen 5.106.4.1.1)
- Long-Term: Provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces, with a minimum of one bicycle parking facility (CalGreen 5.106.4.1.2). Acceptable bicycle parking facilities shall meet one of the following criteria:
  - Covered, lockable enclosures with permanently anchored racks for bicycles
  - Lockable bicycle room with permanently anchored racks
  - Lockable, permanently anchored bicycle lockers

Plumbing Fixture Count

Based on anticipated occupant loads and California Plumbing Code Tables 4.1 and 422.1, ZGF conducted a preliminary calculation of the plumbing fixtures required for CGC, See Appendix E – CPC Plumbing Fixture Counts – Concept.

SUSTAINABLE DESIGN GOALS

The CGC project team is dedicated to optimizing sustainable design opportunities, including but not limited to net-zero energy use, thermal envelope, passive ventilation, daylighting, graywater systems, and biophilia, all while adhering to budget constraints. Sustainable architectural design often results in cost benefits, as outlined below.

COST BENEFITS

1. Building Massing: The depth and configuration of each floor plate are designed to maximize access to daylight and natural ventilation, ultimately reducing electrical and mechanical costs
2. Building Envelope:
    a. Thermal Performance: Exterior wall and roof assemblies designed with proper thermal resistance (R-value) and minimized thermal breaks reduce building EUI and peak cooling loads
    b. Glazing: Thoughtfully placed exterior glazing increases daylighting and reduces the demand for artificial lighting
    c. Exterior Shading and Interior Shades: Proper shading on south and west facades reduces solar heat gain and mechanical cooling loads
3. Operable Windows: Controlled passive ventilation reduces mechanical equipment needs and energy loads
4. PV Canopies over Parking: Canopies over surface parking are cost-effective as they provide shade for cars and parking surfaces while generating renewable energy, contributing to our net-zero energy goals
5. Biophilic Design – Incorporating daylighting, natural ventilation, natural materials, and views to nature are a few methods to enhance physical health and wellbeing of building occupants, potentially improving staff retention

6 STRUCTURAL

6.1 Structural Design Criteria

The governing building code is anticipated to be the 2025 California Building Code (CBC), including all referenced standards.

Risk Category III (Risk Category will be finalized as spaces become more defined and final occupancies determined)

LIVE LOADS

Floors will be designed to the uniformly distributed live loads or the concentrated loads noted below, whichever produces the greater stresses:

- Level 1: 100 psf non-reduceable (including corridors), 2,000 lbs concentrated
- Upper Occupied Levels: 80 psf, including partition loads, reducible, 2,000 lbs concentrated
- Stairs: 100 psf , non-reduceable, 2,000 lbs concentrated
- Roofs: 20 psf (weight of equipment and solar panels are in addition to this live load), 300 lbs concentrated

SEISMIC LOADS

The following seismic factors are determined using standard mapped tools. It is anticipated that we will use a site specific seismic hazard analysis, performed by the geotechnical engineer – and therefore these are subject to change when a final geotechnical report is completed.

- Seismic Importance Factor, Ie: 1.25
- Ss: 2.47
- S1: 0.94
- SDS: 1.74
- SD1: 1.37
- Site Class: Default (until site class is known from geotechnical investigation)
- Seismic Design Category: E

WIND LOADS

The following parameters will be used, along with ASCE7, for wind pressures as required for exposed roof top equipment anchorage.

- Basic Wind Speed: 99 mph
- Exposure: C

VIBRATION

All levels will be reviewed using the AISC Design Guide 11 for standard occupant comfort.

DEFLECTION

- Live load deflection less than L/360
- Long-term deflection less than L/240
- Exterior spandrels are designed to the above or a maximum of 1/2", whichever is less
- Wall deflections will be held to L/360 for walls with significantly brittle finishes (plaster, stucco, tile, etc., L/240 for other brittle finishes, and L/120 for flexible finishes.

6.2 Materials

The following are current assumptions on material properties. Final properties will be determined as design progresses

CONCRETE

Minimum Concrete properties:

	Minimum Strength	Water/Cement Ratio	Other
Matslab, Foundations, Grade Beams, Pits	4,000 psi	0.5	40% fly ash or slag, minimum
Slab-on-Grade	3,500 psi	0.45	shrinkage reducing admixture of 1 gal / cubic yard to limit shrinkage to 0.04%
Fill-on-Deck, Topping Slabs	3,500 psi	0.45	shrinkage reducing admixture of 1 gal / cubic yard to limit shrinkage to 0.04%

- Below grade waterproofing or a crystalline admixture are required for all below-grade structures.
- Embodied Carbon to be 20% less than typical concrete mix designs. Achieve 350kgCO2e/m2.

STEEL

- All steel exposed to weather or moisture shall be galvanized. Any steel elements exposed to below grade conditions shall be stainless steel.
- Steel Grades
  - Rolled Shapes and Channels ASTM A992 or A572 Gr. 50
  - HSS Round ASTM A500 Gr C 46ksi
  - HSS Rect. ASTM A500 Gr C 50ksi
  - Angles ASTM A36
  - Plates ASTM A36 or A572 Gr. 50

– Buckling Restrained Braces (BRB) to be provided by CoreBrace (Yield Strength 38ksi-46ksi)

TIMBER

Timber Properties:

Element		Grade	Reference
CLT Deck		V1M2	ESR-4733
Mass Plywood Panel (MPP/MPL)		F10	ESR-4760
Glulam Columns		N1D14	Table 5B/NDS 2018 Supplement
Glulam Beams	Typical	24F-V4	Table 5A/NDS 2018 Supplement
	Continuous and Cantilever	24F-V8	Table 5A/NDS 2018 Supplement

METAL STUD

- Exterior metal studs to be 4” minimum.
- Interior metal studs to be 3 5/8” minimum 20 ga minimum. Special detailing is expected for sound rating pending further coordination.
- Studs to be grade 33ksi or grade 50ksi.

6.3 Foundation

Based on preliminary coordination with Geotechnical Engineer, the current proposed site in the north-west corner is suitable for a mat slab foundation system. Liquefaction induced settlement is predicted to be less than ASCE 7 triggers mandating deep foundation systems. Note, other portions of site, particularly the south-east quadrant have higher liquefaction potential that would trigger a deep foundation or ground improvement solution. Small misc. site structures like trash enclosures etc. are expected to be supported on shallow spread foot with non-structural slab on grade.

Mat slab foundation is expected to be reinforced with mild steel reinforcing ranging from 60ksi or 80ksi to reduce reinforcing congestion. Mat slab will be locally deepened at perimeter and areas of heavy loading (braced frames, column reactions, core shear walls, etc.). Special detailing will be provided at elevator pits and exterior curtain wall systems.

6.4 Superstructure

This structure is envisioned to mostly consist of a Mass Timber gravity system – utilizing timber decks, beams, and columns to support most of the structure. To achieve this, simplicity in the overall building grid layout is paramount – namely, limiting deck spans to 20’ maximum and beam spans to 20’ to 30’ maximum. It is anticipated that the deck will span one way, with beams only spanning in the other direction - supported by timber columns. Again, to

lend to the simplicity of the main building structure, transfers (ie, locations where a column cannot extend all the way to the foundation and needs to be supported by a longer beam member to transfer it's load) will be avoided where possible.

The specific timber used on this project is still being reviewed – but the project intent is to use as local of sources as possible. The project is currently reviewing both Cross Laminated Timber (CLT) decks as well as Mass Plywood Panel (MPP) decks – as it appears from initial research that we will be able to locally source MPP decks – and MPP decks provide better structural and sustainability performance.

Similarly, the beams and girders can utilize either Glulaminated (GL) or Mass Plywood (P) timber material – again, something that the design team as a whole will continue to study in future phases of the project design.

The current project program requires some larger, column free spaces. The current design for these spaces is to locate them at the first floor and to allow them to extend to the exterior of the building to avoid the transfers, as discussed earlier in the section. As these longer spans will only include roof loading, either timber beams or possibly steel will be used to span these areas. The design team will evaluate the best material for this support once the require free-span of these areas have been determined.

The lateral system for the building is anticipated to utilize Buckling Restrained Braced Frames (BRBFs) located in areas near building core services, where possible, so that they can be enclosed in walls in these areas. This lateral system will be detailed with some steel elements to connect into the main timber lateral system. These BRBFs will continue from the roof level all the way to the foundations of the project. BRBFs have been chosen for their ability to easily be detailed within a timber gravity system, as well as the fact that they provide for a highly seismically resilient building. The BRBFs themselves will yield in a very ductile manner during a seismic event – and they will not cause additional damage to surrounding non-structural systems, such as the surrounding walls.

7 MECHANICAL

7.1 Design Criteria

The following tables illustrate the design criteria that will be utilized to design the facility systems.

Table 1: Outdoor Conditions – CA Climate Zone 2: Sonoma County Airport

Operation	Reference	Temperature
Cooling	ASHRAE 0.4% (Dry Bulb/Mean Coincident Wet Bulb)	95°F/67°F
Evaporation	ASHRAE 0.4% (Wet Bulb/Mean Coincident Dry Bulb)	69°F/90°F
Dehumidification	ASHRAE 0.4% (Dew Point/Mean Coincident Dry Bulb)	61°F/75°F
Humidification	ASHRAE 99.6% (Dew Point/Mean Coincident Dry Bulb)	19°F/57°F
Heating	ASHRAE 99.6% (Dry Bulb)	32°F

Table 2: Indoor Climate Conditions

Occupancy	Relative Humidity	Cooling	Heating
Occupied Perimeter	0% – 65%	75°F ±2°F	70°F ±2°F
Occupied Interior	0% – 65%	73°F ±2°F	70°F ±2°F
Restrooms	N/A	78°F ±2°F	68°F ±2°F
Mechanical Rooms	N/A	80°F ±2°F	60°F ±2°F
Electrical Rooms	N/A	80°F ±2°F	60°F ±2°F
MDF/IDF Spaces	N/A	80°F ±2°F	60°F ±2°F

Table 3: Minimum Ventilation (OSA & Exahust) Airflow Rates

Occupancy	Outside Air (OSA)	Exhaust Air (EA)
Occupied	Greater of T24 or CMC	N/A
Restrooms	N/A	Min 70 CFM/Fixture
Janitor Closet	N/A	1 CFM/SF

Table 4: Acoustical Design Preliminary Guidelines

Occupancy	Room Criterion
Offices	40
Conference Rooms	30
Corridors	40
Restrooms	45
Storage	50
Mechanical Spaces	50
Electrical Spaces	50
MDF/IDF Spaces	50

*Note: Acoustic Consultant to provide final performance requirements.

Table 5: Internal Loads

Occupancy	Occupant Density	Plug Load	Lighting Load
Occupied	Per Space Type	Per Space Type	Prescriptive Code
MDF/IDF Spaces	N/A	Per Rack Layout	1 W/SF

Table 6: Duct and Pipe Sizing Criteria

Low-Pressure Ductwork	
Static Pressure Loss	Maximum 0.10 inches water column per 100 feet
Main Velocity	Maximum 1,500 feet per minute
Branch Velocity	Maximum 1,200 feet per minute
Flexible Ducts	Maximum length 8 feet, minimize total 90 degree bends
Medium-Pressure Ductwork	
Static Pressure Loss	Maximum 0.28 inches water column per 100 feet
Main Velocity	Maximum 2,400 feet per minute
Branch Velocity	Maximum 2,000 feet per minute
Hydronic Piping	
Static Pressure Loss	Maximum 4 feet water column per 100 feet
Velocity	Maximum 7 feet per second

7.2 Central Heating and Cooling Systems

EXISTING CONDITIONS

An existing central mechanical plant (CMP) currently provides heating and cooling via water cooled chillers and gas fired boilers to multiple buildings on the County campus. The central cooling equipment consists of four water-cooled chillers, four cooling towers and a 450,000-gallon chilled water thermal energy storage system. Heating from the central plant is provided by four natural gas boilers. While the equipment appears to be in good condition the piping distributing heating and chilled water throughout the campus is direct- buried piping and the condition is unknown (approximately 40-45 years old).

The project is targeting net-zero carbon emissions so use of the natural gas boilers for heat is not consistent with the goals of project and the age of the systems exposes the project to reliability risk. Upgrading the central plant was discussed and phasing and timing the replacement of systems will result in significant disruption to existing buildings and the project schedule. It is PAE's understanding that the project direction is to provide stand-alone heating and cooling systems and study the expandability of this system to serve beyond the CGC at some point in the future.

PROPOSED NEW CENTRAL PLANT SYSTEMS

The primary source of heating and cooling will be a geo-exchange system consisting of a closed loop vertical bore field located on site. 6-in diameter bores will be approximately 350-ft deep, spaced 15-ft on center, each containing 1-in diameter "U-tube" piping. The bore field will be sized to meet some portion of the peak cooling (30-50%) which will capture all of the baseload and the significant majority of the total annual load, while saving significant first cost compared to sizing the bore field for the full peak load.

The geo-exchange field will be coupled to a modular water source heat pump sized for the same capacity as the bore field. Variable speed pumps will circulate condenser water from the geothermal wells to the water source heat pumps.

The remaining required heating and cooling capacity will be met with air source heat pumps. A supplemental electric boiler may be provided for back-up heating.

Both heating and chilled water will operate as variable primary, variable secondary systems. A tertiary loop for higher temperature CHW will be included for distribution options that include non-condensing cooling coils located at the zone level. Buffer tanks on chilled and heating water loops will prevent short cycling of heat pump compressors.

The following equipment is included in the design

- Geothermal bores – 350-ft deep
- Modular Water source heat pumps
- Modular Air Source Heat Pumps
- Electric Boiler
- Condenser water pumps
- Primary Chilled water pumps
- Secondary Chilled water pumps

- Tertiary Chilled water pumps
- Primary Heating water pumps
- Secondary Heating water pumps
- Chilled water buffer tank
- Heating water buffer tank

7.3 HVAC Distribution Systems

VARIABLE DEDICATED OUTSIDE AIR VENTILATION SYSTEM WITH RADIANT – HYDRONIC

Central air handlers deliver dedicated outside (ventilation) air (DOAS) to every zone. It is expected the total airflow requirement is ~40% of the total airflow in the all air VAV option. Distribution ductwork is smaller accordingly and will be distributed via a raised access floor plenum. Zone terminal units are located within the raised access floor and include integral fans, where necessary, to pull air from the plenum and deliver the required flow to each zone to meet ventilation demand.

Heating water and low temperature chilled water is distributed throughout the building via insulated copper piping. Zone distribution devices provide heating and cooling at the perimeter of the building. Several variants of cooling and heating devices can be used depending on needs of the space. Different zone devices can easily be used within the same building served by the same heating and chilled water distribution piping. In order of increasing of cooling capacity, the zone device options include:

- Radiant Ceiling Panel
- Radiant Sail
  - Similar to panel, though each sail consists of distinct bars
  - Slightly higher capacity than panel
- Passive Chilled Beam
  - Heating and cooling coils only, ventilation air delivered through other means
- Active Chilled Beams
  - Ventilation air is ducted to and delivered through each beam

The Central DOAS Units will be equipped with the following components:

- Mixing box with air side economizer
- Pre-filters (MERV 8) – supply air
- Final filters (MERV 13) – supply air
- Heat recovery with face/bypass dampers
- Hydronic heating coils with circulation pumps
- Hydronic cooling coils
- Variable speed supply fans
- Variable speed return fans
- Supply air acoustic silencers

- Return air acoustic silencers

Zoning of air handling units will be based on environmental requirements and operating schedules.

Heat recovery will transfer energy from the return airstream to the supply air stream when the unit is operating outside the airside economizer mode.

During economizer mode face/bypass dampers will position for free cooling.

Supply and Return fan speeds will vary speed to maintain the minimum airflow required to maintain space temperature setpoints.

Heating coil valves will modulate to maintain supply air temperature between 80 and 95 degrees F.

Cooling coil valves will modulate to maintain supply air temperature between 63 and 75 degrees F.

Variable volume air handling units: QTY (2) @ 70,000 CFM.

7.4 Natural Ventilation

The team has discussed ASHRAE standard 55 extended temperature and humidity ranges for naturally ventilated systems to help establish the users comfort zone.

This system can be combined with a mechanical system and operate in “mixed mode”. Operable windows will be provided with switches to shut-off the HVAC systems to spaces that have their windows open.

The natural ventilation system is capable of operating when outside temperatures permit. The mechanical heating and cooling system will operate when the outside air temperatures are at their extremes and the windows are closed.

7.5 Controls

A direct digital control (DDC) system will be provided to control and monitor all HVAC equipment and systems. Valve and damper actuation will be electric type. The control system will be integrated into the existing campus system to allow full control and monitoring from the existing operator’s terminal. The control system will perform all required control functions, including optimization of equipment and system performance, reliability, equipment life and energy consumption.

7.6 Measurement and Verification

A measurement and verification system is recommended to monitor the building’s energy use. The building’s energy and water use will be compared to solar and water (rainfall) budgets along with the building’s CO2 emissions.

This system can be used to share several different trends with the building's occupants.

PRELIMINARY RECOMMENDATION

Our recommendation is to proceed with the non-utility metering strategy in accordance with LEED M&V, described below.

Monitoring building energy use at this level provides the following benefits:

- Continuous optimization of building performance.
- Education of tenants and building occupants and local constituents.
- Serves as a case study for other building designs, helping the greater community of the built environment.

LEED 2009 MEASUREMENT AND VERIFICATION REQUIREMENTS

Separate monitoring of the following end use loads:

- Building Electricity
- Lighting
- Receptacles
- Heating
- Fans
- Cooling
- Pumps
- Elevator
- Water – total building use
- Domestic hot water

In addition, a measurement and verification plan will be developed to analyze the building energy and water use after occupancy to optimize the building performance.

8 PLUMBING SYSTEMS

8.1 Overview

The following Plumbing design criteria and system descriptions apply to the design of the project, unless specifically stated otherwise.

PROPOSED SYSTEMS

Based on the conceptual plans shared with our team and design coordination meetings, the proposed Plumbing systems are being considered for the project:

- Domestic hot water system:
  - Centralized air source heat pumps (refrigerant R513a).
  - Distribution of hot water and hot water return mains.
  - Stacked restroom served by vertical hot water/hot water return risers.
  - Shutoff valves will be provided for each restroom and where system isolation benefits maintenance of the piping. A hot water recirculation system will be provided to minimize wait time to hot water at plumbing fixtures.
  - Major equipment to be located on Level 1 and the building roof penthouse/exterior.
- Domestic cold water system:
  - Cold water domestic water supply and booster pump.
  - Distribution of cold-water mains.
  - Vertical riser with shut off valve on distribution floor, controlling unit stacks.
- Storm drainage system:
  - Storm drainage piping to architectural roof drains. Optional routing to rainwater harvesting system, blackwater reuse system, and civil utility connections are all under consideration. Additional information can be found on the options in the report to follow.
  - Gravity system for all storm drainage
- Waste and vent system:
  - Cast iron waste and vent gravity system for all fixtures is assumed.
  - Alternate option of providing a vacuum waste system for all water closets is also being considered for this project, additional information included in the report to follow.
  - Sanitary sewer service shall have the option of routing to civil utility connections, or routing to a blackwater reuse system for a sustainable water reduction solution.

8.2 Design Criteria

Table 1: Plumbing Piping Sizing Criteria

Domestic and Non-Potable Water Piping	
Minimum Pressure	40 PSI at most remote outlet
Maximum Pressure	75 PSI
Friction Loss	Maximum 3 PSI per 100 feet
Velocity	Maximum 6 feet per second (Cold & Non-potable Water) Maximum 5 feet per second (Hot Water) Maximum 3 feet per second (Hot Water Return)
Sizing	Per Code (CPC Appendix A)
Below Grade Material	4 inch and smaller, Type K, Hard drawn copper tubing, Wrought\brazed fittings 6 inch and larger, Type L or Schedule 10 Stainless Steel, brazed fittings
Above Grade Material	3 inch and smaller, Type L, Hard drawn copper tubing, Soldered/brazed fittings 4 inch and larger, Ductile iron, brazed fittings
Domestic Hot Water Supply/Return, Above Grade Insulation	3/4 inch and smaller, 1 inch thick fiberglass, all-purpose jacket or elastomeric 1 inch -1-1/2”, 1-1/2 inch thick fiberglass or all-purpose jacket 2 inches and larger, 2-inch thick fiberglass or all-purpose jacket.
Storm Drainage Piping	
Rainfall Rate (extract local rainfall for project location)	1.5 inches per hour 3.0 inches per hour (combined)
Piping Slope	Minimum 1/8 inch per foot
Sizing	Per Code (CPC)
Material	Service weight cast iron with no-hub couplings
Insulation	Drain bodies and first 10 feet of pipe connected to the drain body 1/2 inch, Fiberglass, All-purpose jacket

Waste and Vent Piping	
Piping Slope	Minimum 1/4 inch per foot for piping less than 4 inches, 1/8 inch per foot for 4 inches and larger
Sizing	Per Code (CPC)
Material	Service weight cast iron with no-hub couplings

8.3 Plumbing Fixtures

Provide commercial grade low flow fixtures as indicated on the Plumbing drawings. The flush and flowrates at a minimum shall meet the flowrates listed in the latest version of CALGreen but shall target indoor water use reductions that exceed CAL Green.

Table 2: Fixture Options and Alternates

Fixture Type	Code Flow (Cal Green)	Ultra-Low Flow	Proposed
Water Closet	1.28 GPF	1.1 GPF	1.1 GPF
Urinal	0.125 GPF	0.125 GPF	0.125 GPF
Lavatory–Commercial	0.5 GPM	0.35 GPM	0.35 GPM
Shower	2.0 GPM	1.5 GPM	1.5 GPM
Kitchen Faucet	1.8 GPM	1.5 GPM	1.5 GPM

8.4 Domestic Cold-Water System

A new 3” water main shall be provided to serve the domestic water system. Final service location shall be verified with the civil engineer, but current assumption is that service is fed from an existing 8” water main at Administration Drive. The domestic water system will be provided with positive means to control backflow, with appropriate backflow preventers at sources of possible contamination within the building, such as mechanical equipment or industrial cold/hot water systems. The domestic water service shall be provided with a reduced pressure type backflow preventer by Civil at the building exterior. Backflow preventers must be listed in the Foundation for Cross Connection Control and Hydraulic Research, a Division of the University of Southern California.

Cold water will be distributed to the plumbing fixtures, landscaping, and mechanical make up, water supply. Plumbing fixtures and room locations to be documented in the architectural drawings. Freeze-proof hose bibs to be distributed around perimeter of building at every 100 feet and be provided for water treatment areas and trash room wash outs if included in final design.

Incoming water service will require a domestic water booster pump to increase the street water pressure to serve floors 1-5. The residual pressure available is 53 psi which will be boosted to 75 psi via a multi-pump domestic booster pump package in order to provide 40 psi of pressure at the most remote outlet.

Vertical domestic water risers will be provided which will serve horizontal distribution piping at each floor. Water hammer arrestors shall be provided at top of risers, on the outlet side of pressure regulator valves, inlet and outlet sides of reduced pressure zone type backflow preventers, and at the washer wall box supplies to control water hammer. Lifetime warranted piston type water hammer arrestors shall be provided to minimize maintenance. Water hammer arrestors shall also be provided wherever quick closing valves or solenoid valves are used with any equipment.

DOMESTIC WATER CONDITIONING EQUIPMENT

The most recent water quality report from the County of Sonoma has been reviewed and found that the incoming water supply will either have a water hardness of 3.8 grains per gallon or 7.9 grains per gallon. Source of our incoming water supply shall be confirmed with the civil engineer and local water department.

Should the source with lower water hardness be serving our site, water softening may not be required. Should the water supply be sourced from the service with a higher water hardness, water softening may be recommended, but not required.

IRRIGATION

A backflow device will be provided for the irrigation system within the water service room. Irrigation piping will be stubbed out of the building for the landscape use.

This assumption is based on a preliminary site layout showing an approximate landscaping area of 140,000 square feet.

8.5 Domestic Hot Water System

Domestic hot water will be provided from an air source heat pump (ASHP) system with storage tanks located on the building roof and distributed through a hot water recirculating system. The domestic hot water system may be located on the roof at the exterior or within a mechanical penthouse. The ASHPs shall have a minimum heat pump water heater compressor cut-off temperature of less than 27 deg. F ambient air temperature (the design heating temperature for the project). The domestic hot water will be heated from an assumed 60 deg. F inlet water temperature to 140 deg. F outlet water temperature. The hot water will be tempered down to 120 deg, F by an ASSE 1017 digital mixing valve prior to distribution. Constant recirculation will be applied to the system to maintain the design temperature of the water. During off peak hours, an electric resistance swing tank will be provided to maintain the tank temperatures and prevent short cycling of the centralized ASHP system.

The domestic hot water system components will be controlled by the building management system.

Expansion tanks will be provided on hot water systems at water heaters to eliminate pressure buildup when the system is not being used.

An alternate solution that may be considered is providing an electrically powered tank type hot water system that can be separated to serve each stack of restrooms.

COMPARISON OF OPTIONS

1 = Highest Cost 5 = Lowest Cost

Table 3: Domestic Hot Water System Options

System	A	B
System Description	Air Source Heat Pump	Electrical storage type domestic hot water system
Capital Cost	2	5
Annual Energy Savings	High	Mid - Low
Service Life	15 - 20 Years	15 - 20 Years
Advantages	· Most sustainable option that provides energy savings. · Electrical backup. · Can be installed outdoors with some protection.	· Simple maintenance and installation. · Lowest first cost.
Disadvantages	· Higher first installation costs. · More equipment and weight on roof.	· Cannot be installed outdoors. · Additional equipment that will require maintenance.

8.6 Storm Drain System

A roof and overflow drain system will be provided as required by code. Overflow storm drain system will daylight utilizing downspout nozzles at the floor level above grade.

The storm water piping can be routed to the main storm drain within Administration Drive or can be routed to a storm water reclamation system. In the case of routing the storm system to the storm main, multiple points of connection can be made to the system around the building, allowing storm piping to have smaller pipe sizing. With this method, the storm water would not all be retained for reuse.

An alternate option may be explored to route the storm drainage from all building roof areas to a rainwater treatment system. See the sections on “Rainwater Reclamation” and “On-Site Non-Potable Water” of this report for additional information.

8.7 Sanitary Sewer System

Sanitary waste and vent piping will be provided in toilet rooms and other spaces as required.

Sanitary waste piping leaving the site will connect to a sanitary sewer main within Administration Drive. Sanitary waste piping will run parallel to the storm water and be connected to piping provided by Civil near the curb line.

Sump pumps will be provided for elevator shafts and connected to the gravity sanitary system within the building.

ALTERNATE OPTION – VACUUM WASTE

An optional vacuum waste plumbing system may be considered to serve water closets and help achieve the project's water efficiency goals. Typical commercial flush valves have a flush rate of 1.28 gallons per flush (GPF) with low flow options ranging down to 1.1 GPF. Vacuum water closets can achieve 60-80% water savings compared to a standard flush valve with flush rates of 0.50 GPF for wall mounted water closets and 0.26 GPF for floor mounted water closets. Water closets typically account for the most water use within a commercial building, therefore the water savings is greatly improved by utilizing vacuum flush water closets.

Table 4: Flush Valve vs Vacuum Flush Water Savings Comparison

Fixture	Code Comparison	Flush Rate (GPF)	Water Savings over Code Minimum Flush Valve
Flush Valve Water Closet	Code Minimum	1.28	0%
Flush Valve Water Closet	Better	1.1	14%
Vacuum Flush Water Closet (Wall Mount)	Much Better	0.5	60%
Vacuum Flush Water Closet (Floor Mount)	Best	0.26	80%
GPF = Gallons per Flush			

Providing an acorn flush system would require locating a centralized vacuum waste plumbing system consisting of waste grinders, collection tanks, controls, and vacuum pumps. This equipment could require between 600 – 1,000 square feet approximately, depending on the overall size of the system and building served. Ideally, the vacuum center is located on the ground floor of the building adjacent to the exterior gravity sanitary sewer main. Vibration isolation and acoustical treatment of the mechanical room is required to mitigate noise. The vacuum center, flush fixtures, and control systems will be on emergency power per code requirements. All plumbing fixtures served by the vacuum system will be operational with loss of normal power. The vacuum center control panel can be connected to the building automation system to alert the facilities team to any alarm conditions.

8.8 Natural Gas System

The building will be designed as all-electric and gas service will not be provided.

8.9 Rainwater Reclamation System

A rainwater reclamation system can be provided to reduce the storm water impact and to provide opportunities to reduce the storm and or sewer charges. The system will collect the rain that falls on the roof and pipe it to a below grade storage tank. The water will then be utilized to flush toilets, urinals, mechanical make-up, and for irrigation needs. The plumbing code requires fixtures served from the rainwater system to be on opposite walls from those served with potable water (lavatories and drinking fountains).

This system is not recommended, as it may not be practical due to the expected rainfall at the project site and the cost to condition and store that rainwater. Any overflow that cannot be stored in the below grade storm water reclamation storage tank will be piped to the storm water main.

A rainwater reclamation system would require an underground storage tank and a room dedicated to the filtration equipment to treat and condition the rainwater for building use. More information can be provided on the estimated cost and space requirements for this system, but the added benefit is not likely to outweigh the equipment and maintenance cost.

For additional information and options, see the section on On-Site Non-Potable Water to follow.

8.10 Fuel Oil System

A fuel oil system is not expected to be needed for this building as there will be no emergency generators to serve the building.

8.11 On-Site Non-Potable Water System

In an effort to reduce water usage at this building, an on-site treatment system to recycle building water and use it as a non-potable source for toilet and urinal flushing, as well as landscaping efforts is recommended.

This system will treat and reuse the available blackwater onsite for all non-potable demands, including toilet and urinal flushing and irrigation.

The building is currently estimated to require 4,400 gallons per day of water to flush the toilets and urinals, assuming ultra-low flush fixture options. The water requirement for landscaping has not yet been finalized with the irrigation consultant, but this system is scalable for flexible sizing as the design develops.

Estimating a 5,000 GPD Blackwater System, approximately 1,000 square feet of space will be required for the treatment system. The equipment required consists of a solids collection station, equalization pre-treatment tank, (possible) pre-anoxic tank, process skid, aerobic tank, reclaimed water tank, heat recovery unit, and booster pump for the reclaimed water.

COMPARISON OF OPTIONS

1 = Highest Cost/Savings 5 = Lowest Cost/Savings

Table 5: Water Reclamation System Options

System	A – Blackwater System (Recommended)	B – Rainwater System (Not Recommended)
System Description	On-site black water treatment system	Rainwater reuse system
Capital Cost	2	4
Annual Water Savings	High Tier	Mid-Low Tier
Advantages	· Meets 100% of the non-potable water demand	· Lower equipment costs
Disadvantages	· High cost and maintenance	· Limited rainwater availability · Continuous filtration and agitation required for stored water. · Very limited overall water savings for the project.

8.12 Pricing Alternate Design Options

The following options are detailed in the previous sections of this report. The below summary provides context for the contractors to provide design pricing alternate options based on the list below.

Table 6: Design Pricing Alternate Options

Pricing Alternate	Modification Required
Water Savings Options	
Non-potable (recycled) water system	Non-potable water is water that is treated from various building sources (rainwater, greywater, or blackwater) to an acceptable quality and supplied to toilets,urinals, trap primers, and irrigation. The indoor water use demand would be reduced by utilizing non-potable water for flush fixtures and irrigation.
Vacuum flush system	All water closets would be specified as vacuum style fixtures which would then flush via a vacuumwaste system. The vacuum waste uses a centralized vacuum to route waste to a tank and and route by gravity to the building drain. The system reduces the amount of water from 1.1 GPF to **X GPF**, **p**

Pricing Alternate	Modification Required
Rainwater treatment and reuse system	Rainwater would be harvested only from the rooftop receptors of this building and stored in a cistern for reuse. The collected rainwater is then routed to the non-potable demand fixtures which includes water closets, urinals, and irrigation.
Domestic Water Heating	
Domestic Hot Water System (Alternate Equipment)	An alternate design to provide electric storage type water heaters that could be separated to serve the distributed loads of the restroom stacks separately as well as any additional café or shower hot water needs. Electric water heaters cannot be typically installed outdoors, so spaces would need to be allocated for their addition or a mechanical penthouse would need to be constructed on the roof to protect them from the elements. The size and quantity of these water heaters will vary with the quantity and location of hot water plumbing fixtures and equipment.

9 FIRE PROTECTION

9.1 Design Criteria

The project fire protection system will be designed in accordance with the following standards, State Fire Code, and local Fire Marshal requirements.

- NFPA 13: Standard for the Installation of Sprinkler Systems
- NFPA 14: Standard for the Installation of Standpipe and Hose Systems
- NFPA 20: Standard for the Installation of Stationary Pumps for Fire Protection
- NFPA 24: Standard for the Installation of Private Fire Service Mains and Their Appurtenances
- NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
- NFPA 70: National Electrical Code
- NFPA 72: National Fire Alarm Code

9.2 General

SYSTEM DESCRIPTION

A new automatic fire protection sprinkler system will be provided to meet the requirements of the adopted editions of the building codes, as well as national standards and current local codes.

FIRE PROTECTION WATER UTILITY SERVICE

A new 8” fire line at the North side of the building shall be used to connect to the city water main at Administration Drive N.

FIRE DEPARTMENT CONNECTION (FDC)

The Fire Department Connection (FDC) location will be coordinated with the Authority Having Jurisdiction for the location. FDC will be sized in accordance with NFPA 13. The FDC will be sized for the fire sprinkler demand or standpipe demand, whichever is greater.

DOMESTIC MANUFACTURER REQUIREMENTS

Fire protection system materials to be of a domestic manufacturer.

HYDRAULIC CALCULATIONS

Water supply data provided by either Authority Having Jurisdiction Hydraulic Model or by test using a minimum of two hydrants as close to the point of connection as possible. Hydraulic calculations will commence at the gauge hydrant used in the waterflow test and include the backflow prevention device as well as all fire protection system valves and include fittings with a 10 psi safety factor. Water data will be confirmed at the project location.

MINIMUM DESIGN DENSITY

Light Hazard is the minimum accepted system design occupancy classification. The minimum design will be 0.10 gpm/SF for the hydraulically most remote 1,500 SF; increase the system remote area by 30% when dry-pipe systems are provided.

When quick-response sprinklers are used the hydraulically most remote area may be reduced in accordance with the provisions of NFPA 13.

Table 1: Design Requirements for Hydraulically Calculated System

Occupancy Classification	Design Density (GPM/ft2)	Design Area	Hose Stream Allowance (GPM)	Duration of Supply (Minutes)
Light Hazard	0.10	1500	Inside Hose: 0, 50, or 100 Total Combined Inside/Outside: 100	30
Ordinary Hazard Group 1	0.15	1500	Inside Hose: 0, 50, or 100 Total Combined Inside/Outside: 250	60-90
Ordinary Hazard Group 2	0.20	1500	Inside Hose: 0, 50, or 100 Total Combined Inside/Outside: 250	60-90
Extra Hazard Group 1	0.30	2500	Inside Hose: 0, 50, or 100 Total Combined Inside/Outside: 500	90-120
Extra Hazard Group 2	0.40	2500	Inside Hose: 0, 50, or 100 Total Combined Inside/Outside: 500	90-120

EXTENT OF SPRINKLER COVERAGE

The building will be fully sprinklered in accordance with the building codes and current local codes. Ordinary electrical equipment rooms, telephones closets, housekeeping closets and similar areas will be provided with sprinklers. Areas where sprinkler protection is permitted to be omitted per NFPA 13 will be presented to the Authority Having Jurisdiction for final acceptance.

SYSTEM ZONING REQUIREMENTS

Coordination of the building sprinkler zone boundaries with the provided smoke and/or fire partitions.

MULTIPLE RISER DESIGN

Multiple riser designs that require the operation of more than one floor cutoff valve to isolate any portion of the system are not permitted.

FIRE PUMP, WATER SUPPLY, THROTTLING, AND METERING

The water supply to the fire protection system must provide a minimum 150% of pump rated capacity at a positive pressure and also meet the system demand at 20 psi. The water supply test must have been performed within the most recent twelve-month period. A water supply of 200% of pump capacity is recommended whenever possible.

Provide an automatic pilot-operated throttling valve on the output side of the fire pump in order to maintain required minimum pressure; suction side control is not permitted due to the risk of cavitation.

If the pump location does not permit for convenient flow testing from the fire pump test header, the Authority Having Jurisdiction will determine if permanently installed meters for net pump performance testing without water streams is allowable. When provided, meter outlet will discharge to a drain, suction tank, or to the suction side of the pump.

9.3 Materials and Components

All fire protection system materials and associated components must be listed and/or approved and installed in strict conformance to the conditions of their manufacturer listing.

SPRINKLER PIPING

Only steel pipe with a Corrosion Resistance Ratio (CRR) of one or greater will be used.

Schedule 5 pipe will not be accepted in any size.

Schedule 10 steel pipe are permitted to be used only with listed roll groove end fittings.

Schedule 40 steel pipe are permitted to be used only with threaded end fittings.

All dry-pipe, deluge, and pre-action system piping must be galvanized, including any fittings exposed to weather, except when a nitrogen system is used. Listed flexible stainless-steel piping systems are also permitted.

FITTINGS AND JOINTS

All fittings must be listed or approved for the specific pipe and type of system they are used on. Gasketed fittings will be installed only with the lubricant used by the manufacturer to obtain its listing.

The following joining methods are approved for steel pipe, except that threading or cut groove fittings are accepted for use only on fully compliant Schedule 40 and heavier pipe:

- Threading
- Shop Welding
- Cut Groove with Gasket Fitting
- Roll Groove with Gasket Fitting

Plain end, hooker, press-on, or slip type metal fittings are not permitted. As mixing different brands may cause problems due to variations in design dimensions and tolerances, all grooved metal products on a job must be provided by the same manufacturer.

VALVES

An outside post indicator type control valve (PIV) will be provided for all systems. All indoor cutoff valves in the 2-inch through 8-inch range will be butterfly type, with integral tamper switch and position indicator.

Valves on each side of any fire pump are to be OS&Y type. This does not apply to the fire pump bypass valves which are permitted to be either butterfly or OS&Y type.

SPRINKLER HEADS

Finished areas will be provided with chrome plated semi-recessed pendant type with polished chrome escutcheons.

Unfinished areas will be provided with upright rough brass finish type heads.

Institutional type sprinklers will be provided throughout all detention areas.

Overhangs less than 4 feet in depth, loading docks, and other perimeter areas subject to freezing will be provided with horizontal dry sidewall sprinkler heads.

Light hazard occupancies will be provided with Quick-Response heads.

BACKFLOW PREVENTION DEVICES

Provide a cutoff valve on both sides of the backflow prevention device in the water supply connection to facilitate inspection, testing, and maintenance.

When a fire pump is provided the backflow prevention device will be installed as far from the fire pump as possible with a minimum distance of 10 pipe diameters in accordance with NFPA 20 requirements.

9.4 Wet Pipe Sprinkler System

The fire sprinkler system will consist of main flow alarm station, zone control valves and flow indicators, alarm bell, fire sprinkler piping and heads.

Accessories related to the system will be provided. Tamper, flow, and pressure switches will be coordinated with the fire alarm system. Electrical supervision per NFPA 72 is required for monitoring the fire protection systems.

Required system isolation valves will be provided with tamper switches.

Each floor will be provided with a zone isolation valve with tamper switches, flow switches, and fire department test stations.

The fire department test drains will terminate outside of the building.

Dry Pipe Sprinkler System

FREEZE PROTECTION

A dry pipe sprinkler system will be used where sprinklers are subject to freezing (exterior overhangs exceeding 4 feet in depth, parking areas, etc.).

Piping will be galvanized inside and out, threaded or with cut grooves. It is acceptable to use black steel pipe when a nitrogen system is used.

[Air compressors/Nitrogen generators] will provide system air pressure. Heat tracing is not acceptable for dry pipe or pre-action valve freeze protection. A heated room or closet must be provided to protect these components.

PREACTION SYSTEM

A potential need for a single interlock pre-action fire sprinkler system will be utilized for MDF spaces to protect the space from accidental flow of water from the sprinklers. Heat tracing is not acceptable for dry pipe or pre-action valve freeze protection. A heated room or closet must be provided to protect these components. Pending Client approval and confirmation.

9.5 Clean Agent Fire Extinguishing System

A potential need for a clean agent system will be utilized for MDF spaces to protect equipment from damage that may occur from activation of the water-based sprinkler system. Pending Client approval and confirmation.

9.6 Standpipe System

MANUAL WET SYSTEM

A Class I wet standpipe system will be provided in interior stairwells

The standpipe will be combined with the sprinkler system.

Each floor will be provided with hose valves.

Hose valve locations will be coordinated in secure areas.

Hose connections will be located at exit stairways and in the exit enclosure having direct access from the firefighter elevator lobby. Each hose outlet will be provided with a gauge.

Valves, supervised by the fire alarm system, will be provided to allow isolation of a standpipe without interrupting the supply to other standpipes. Hose, hose racks, and nozzles are not required. Signage will be provided. Where system pressures exceed 175 psi, pressure-reducing valves will be provided. Where pressure-reducing valves are provided, a minimum 3-inch test drain will be provided. Standpipes will be provided during construction.

FIRE DEPARTMENT CONNECTION (FDC)

A dedicated fire department connection (FDC) will be provided for combination sprinkler/standpipe system.

9.7 Fire Pump System

A 750 GPM horizontal split-case electric, 75psi, motor-driven fire pump will be provided.

The fire pump room location will be coordinated and approved by the authority having jurisdiction and will comply with the requirements of NFPA 13 and NFPA 20. The location of and access to the fire pump room will be pre-planned with the fire department. Fire pump rooms must be free from storage, equipment, and penetrations not essential to the operation of the fire pump and associated equipment. Equipment that increases or creates an additional

fire hazard and is unrelated to the fire protection system is not to be located within the fire pump room. The fire pump serves the entire fire protection system.

The fire pump will be provided with a dedicated jockey pump, and fire pump controllers.

A single electric fire pump will be provided to supply the automatic sprinkler system demand. The fire pump will be installed with a bypass sized at least as large as the pump discharge pipe. Positive supply pressure will be maintained through alarms that will be arranged for audio and visual annunciation at the fire alarm control panel and in the fire pump room if the water supply drops below 5 psi. A low-suction throttling valve will be installed. A jockey pump will be provided. Both a test header and a flow meter will be provided. Valves will be supervised by both the fire alarm system and by locking in the open position.

The final location and rating requirements for the new fire pump room have not been determined but will be sized so that there is adequate workspace on all sides of the pump and associated equipment. The floor will be sloped to drain. The fire pump room must have a direct exterior door or a rated egress path that leads directly to the exterior. Drains will be coordinated with the plumbing system.

10 ELECTRICAL

10.1 Standards and References

Codes and Standards:

- Comply with applicable sections of the most recent editions and addenda of following for interior and exterior installations.
- Codes include latest adopted editions, including current amendments, supplements and local jurisdiction requirements in effect as of the date of the Contract Documents, of/from:
  - IBC - International Building Code
  - NEC/NFPA 70 - National Electrical Code
  - ANSI/IEEE C2 - National Electrical Safety Code
  - ANSI - American National Standards Institute
  - NEMA - National Electrical Manufacturers Association
  - NFPA - National Fire Protection Association
  - NECA - National Electrical Contractor Association
  - NETA - National Electrical Testing Association
  - IEEE - Institute of Electrical and Electronic Engineers
  - UL - Underwriters Laboratories
- State of California:
  - CBC - California Building Code
  - CEC - California Electrical Code
  - CEC T24 - California Energy Code Title 24
  - CFC - California Fire Code
  - CSFM - California State Fire Marshal
  - DSA - Division of State Architect Regulations and Requirements
  -

10.2 Design Criteria

Preliminary building demand loads are summarized as noted below. These load summaries are calculated according to the California Electrical Code to determine the electrical service size for the building. These loads are not representative of utility expected demand loads.

Table 1: Lighting and Power Load Densities

Area	Lighting Systems (VA/SF)	Power Systems (VA/SF)	System Totals
Conference	0.6	2.0	
Circulation/Transition	0.4	0.5	
Lobby	0.7	1.0	
Lounge	0.6	2.0	
Mechanical/Electrical Areas	0.4	0.5	
Office Spaces	0.7	3.0	
Restrooms	0.7	0.5	
Stairs	0.5	0.5	
Storage	0.6	0.5	
Building Total Load			

10.3 Service and Distribution

EXISTING SITE ELECTRICAL DISTRIBUTION

The existing building campus is served from a PG&E 12.5kV utility service at a utility switch house located at the south end of the campus. The utility power is transformed down from 12.5kV to 4160V and distributed via conduit duct banks and utility boxes around the site. Three 400A medium voltage (4160V) loops (A, B, and C) serve the existing campus buildings, street lights, and site power transformers. Each building is served by an owner provided step-down transformer providing 277/480V or 120/208V to each building.

SITE ELECTRICAL DISTRIBUTION MODIFICATIONS

Feeders to Administration building to be demolished back to manhole #1 to maintain a continuous loop. Feeders to Fiscal building to be demolished back to manhole #4.

New taps from medium voltage loop will be provided to serve new building and electric vehicle (EV) infrastructure.

A load study will be performed to determine there is adequate capacity on the existing 4160V circuits to support the new building and loads.

BUILDING NEW ELECTRICAL SERVICE

The new building will be provided with two new unit substations 4160-V to 480/277V (exact size will be determined as the design progresses). The unit substations will be freestanding, front accessible, with rear connected, fixed mounted, 100% rated main circuit breakers. Ground fault protection will be provided for main devices. Smaller branch devices will utilize group mounted fusible switches or molded case circuit breakers.

Unit substations will be constructed with either silver plated copper or aluminum bussing.

MAIN ELECTRICAL ROOM

The main electrical room will be located at ground level. This main electrical room will house the following equipment:

- (2) Unit Substations
- Branch panelboards for electrical loads, lighting control panel, and step-down transformers
- Closet for emergency equipment containing batteries (Lighting Inverter, Elevator Backup)

SWITCHBOARDS

Main switchboards will be free standing, front accessible, with rear connected, fixed mounted 100% rated main circuit breakers. Feeder breakers shall utilize group mounted fusible switches or molded case circuit breakers. Where breakers are used, provide LSI type adjustable trip units. The fire pump taps shall be located in a separate switchboard section. Main switchboards shall be constructed with either silver-plated copper or aluminum bussing.

Surge protective devices (SPD) will be provided at each main service switchboard and as required for CEC 700 systems to limit potential damage from overvoltage and other transients.

The switchboards shall contain an integral utility meter and CT cabinet for each of the systems described above.

SUB-METERING

Sub-metering will be provided for the project to meet the requirements of Title-24 and other Owner requirements. Sub-metering may include but not limited to total lighting loads, plug loads, elevators, and HVAC.

SECONDARY DISTRIBUTION

Electrical power shall be distributed via conduit and wire at 480/277V and 208/120V, 3-phase, 4-wire via 480-208/120V step down transformers. Dedicated lighting, plug load, mechanical, and plumbing panelboards will be provided to comply with California Title 24 disaggregation requirements.

Panelboard and sub-distribution panelboard overcurrent protection devices shall be molded case circuit breakers.

Electrical closets will be provided, stacked vertically through the buildings for busway and conduit routing, and miscellaneous distribution equipment.

ELECTRIC VEHICLE (EV) CHARGING INFRASTRUCTURE

A minimum quantity of Electrical Vehicle charging stations will be provided in accordance with California Green Building Code requirements based on final quantity of parking spaces. Final quantity of EV chargers to be confirmed in a future design phase.

Single and Dual port chargers will be located to minimize infrastructure to individual ports. Infrastructure is based upon the ChargePoint CT4000 series charging stations with single and dual port heads, each having dedicated circuits. A 1” conduit will also be provided for communications at each charging station locations. Should a load management system be deployed cell coverage will be required within the garage level.

FIGURE 1: EV CHARGER

EMERGENCY POWER SYSTEMS

Emergency power will be provided via a Central Battery Lighting Inverter sized to accommodate egress lighting only. The lighting inverter will be located within the main electrical room in a separate 2-hour fire-rated closet as required by code.

The elevator will utilize a regenerative backup system for a minimum of a 2-Hour runtime. Elevator backup will be located within the main electrical room in a separate 2-hour fire-rated closet as required by code. Infrastructure will be based on Online Power - Power Wave Elevate or Crucial Power Products - Wave Rider Ascent.

Central UPS to be provided for backup of IDF and MDF rooms.

The fire alarm system will have local battery back up to support the equipment under emergency power conditions.

If a fire pump is deemed required for the project, an on-site standby alternative power source shall be provided in accordance with CEC Article 695. Per project team discussions with the County and local Fire Department, we do not anticipate a generator to be required.

RENEWABLE POWER

The project will require a minimum amount of photovoltaics (PV) to comply with Title 24 Energy Code. In accordance with Title 24 section 140.10(a), the minimum required PV capacity shall be the lessor of the result from the equation 140.10(a) or the total available Solar Access Roof Areas (SARA) multiplied by 14w/sf Final SARA value and thus PV capacity will be determined in future design phase after finalization of usable carport roof and building rooftop areas.
Though rooftop areas are required to calculate minimum PV capacity required, PV Arrays may be placed on various surfaces on site such as car park canopies to meet minimum capacity requirements.

BATTERY ENERGY STORAGE SYSTEM (BESS)

Buildings required by Title 24 Section 140.10(a) to install a PV system, also need to have a battery storage system.

The rated energy capacity and rated power capacity required is determined by the PV size and will be determined in future design phase after finalization of the PV system.

In the State of California, BESS must be separated by at least 10 feet from any of the following listed exposures.

1. Lot Lines
2. Public Ways
3. Buildings
4. Stored Combustible Materials
5. Hazardous Materials
6. High-Piled Stock

7. Other Exposure Hazards

Additionally, California requires 10 feet of “defensible space” surrounding a BESS enclosure to ensure that surrounding vegetation will not be a means of readily transmitting a fire to or from a BESS.

EQUIPMENT CONNECTIONS

Electrical power connections will be made to mechanical, plumbing, elevator, and owner furnished equipment, to include providing all electrically associated devices such as disconnect switches, contactors, magnetic or manual starters, lock-out switches, etc. VFD’s furnished as part of mechanical work will be installed as part of electrical work.

Electrical power connections will be made to support miscellaneous equipment. Connections include security equipment, technology equipment, building management system, trash equipment, window washing, electric vehicle charging stations, motorized doors, etc.

Ground fault circuit interrupter receptacles will be provided at sinks, roof, outdoor and wet areas.

GROUNDING AND BONDING

A grounding system will be provided consisting of a combination of driven ground rods, cold water pipe ground plates, and building foundation (Ufer) grounding. A ground distribution system will be extended through the building electrical and telecom rooms.

System and equipment grounding will be provided.

Switchboards, motor starters, branch panels, wiring systems, telecom systems, etc., will be effectively grounded using green insulated copper ground conductor. Feeders and branch circuits shall be provided with an insulated grounding conductor run with the circuit conductors.

Grounding for telecommunication and CATV services will be grounded in accordance with the serving utility’s standards.

LOW VOLTAGE POWER CONDUCTORS AND CABLES

Power wiring will be copper conductors in conduit. Aluminum conductors may be utilized for feeders containing rated 100A and above. Aluminum conductors are not permitted for branch circuits. Minimum insulation rating shall be 600V.

RACEWAYS AND BOXES

Provide EMT conduit for all non-unit power wiring within building, GRC conduit where exposed to physical damage, and schedule 40 PVC conduit within concrete or buried installations.

MC cable for branch circuits are acceptable where concealed within walls and floors. MC cable shall not be utilized for branch circuit.

FIRE ALARM

The fire alarm system will be the addressable type with each initiating device annunciated as an individual zone. The Fire Alarm and Control Panel (FACP) will be located within the main electrical room and will provide centralized control and annunciation of fire alarm zones. Area smoke detectors will be analog type to permit monitoring and calibration of smoke detector sensitivity from the FACP.

The fire alarm system will be fully supervised and include automatically actuated alarms consisting of:

- Connections to fire sprinkler system water flow and tamper switches.
- Area smoke detectors in each mechanical, electrical, telephone, and elevator machine room, at each stair and elevator lobby door fitted with magnetic hold open devices, and in each elevator lobby for elevator recall.
- Duct type smoke detectors at the inlet of all return air duct stub outs, at main return air plenums, and at the discharge of each supply air fan.
- A manual pull station will be required adjacent to the main entrance doors or as otherwise located by the Authority Having Jurisdiction.

The activation of any sprinkler flow switch, smoke detection device or manual pull station will operate the audible (horns) and visual annunciation throughout. The fire alarm LED annunciator will provide indication of the floor of an alarm and the type of alarm, i.e., manual, sprinkler flow, or smoke. The fire alarm system will be connected to an approved central monitoring service.

A Two-Way Communications System will be provided to allow two-way communications between the front desk and call stations. Call stations will be located in each elevator cab and at each elevator lobby and stairwell location.

Fire alarm horns shall be located to be audible in all areas of the building.

Provide smoke detectors at the top of the hoist way to be accessed from the exterior of the shaft, or provide very early smoke detection apparatus (VESDA) to comply with this requirement.

11 TELECOMMUNICATIONS

11.1 Design Criteria

Technology systems provide flexible flow of information, dynamic content exchange, efficient end user communications, and maximizes building managers' oversight and support of building usage.

11.2 Structured Cabling

TELECOMMUNICATIONS SPACES

Because the new building will require communications services throughout, several telecom rooms will be programmed for construction throughout the project. As outlined by communications industry best practices, one telecom room will be provided for every 10,000 SF of usable floor area.

Spaces will be established in the following locations:

- One Main Telecom Room on Level 1, which will also act as the building's Telecommunications Entrance Facility for Service Providers.
- Additional Telecom Rooms: a minimum of one on each level (NOTE: The Ground Floor will require two telecom rooms).
- Total quantity of Telecom Rooms will be provided to ensure all areas of the building are within 295 cabling feet or less from a Telecom Room due to distance limitations of Category cabling.
- Wherever practical, Telecom Rooms on different levels will stack/align vertically.

Exact size and location of Telecom Rooms will be coordinate with the Architect, meeting industry and/or owner standards.

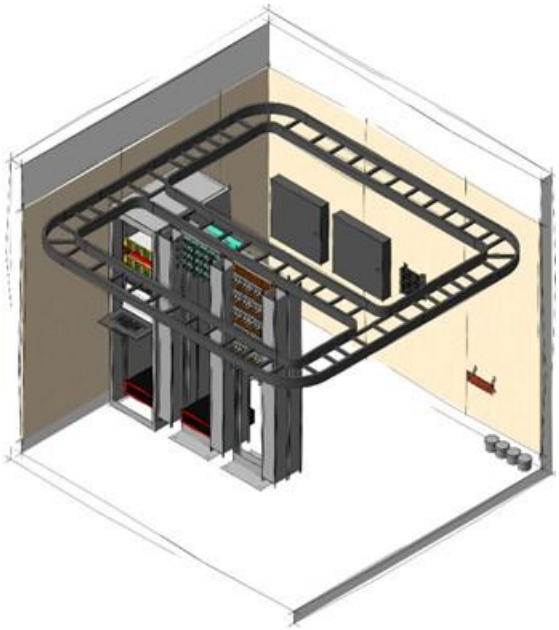


Figure 1: Example Main Telecom Room

EQUIPMENT

- Telecom Rooms will be fitted with fire-rated plywood backboards on three walls. (Security: 4’x8’ minimum plywood space at all MDF/IDF rooms.)
- Emergency Responder Communications Enhancement System - ERCES
  - Pathway for Roof Antenna
  - 4’x8’ minimum plywood space
  - 2-rated shaft/stacked riser room with vertical pathways
  - Design and specifications by ERCES installer
- Third party (wireless carriers, access providers, etc.) equipment will also be installed in the Main Telecom Room.
- Wire management rings will be utilized to route cabling from different pieces of wall mount equipment.
- Rack-mounted patch panels will be provided for cross-connecting copper cabling.
- 2-post racks, floor enclosures, and 4-post openbay racks will be provided where required for the installation of copper patch panels and fiber optic distribution units. Racks/enclosures will have standard 19 inch compliant mounting rails, with vertical and horizontal cable management systems.
- Where telecom racks and enclosures are provided, cable runways will be provided above and around the walls of the Telecom Room to route ceiling device cabling to/from racks. The main cable pathway and will be routed via underfloor basket tray within the raised floor.

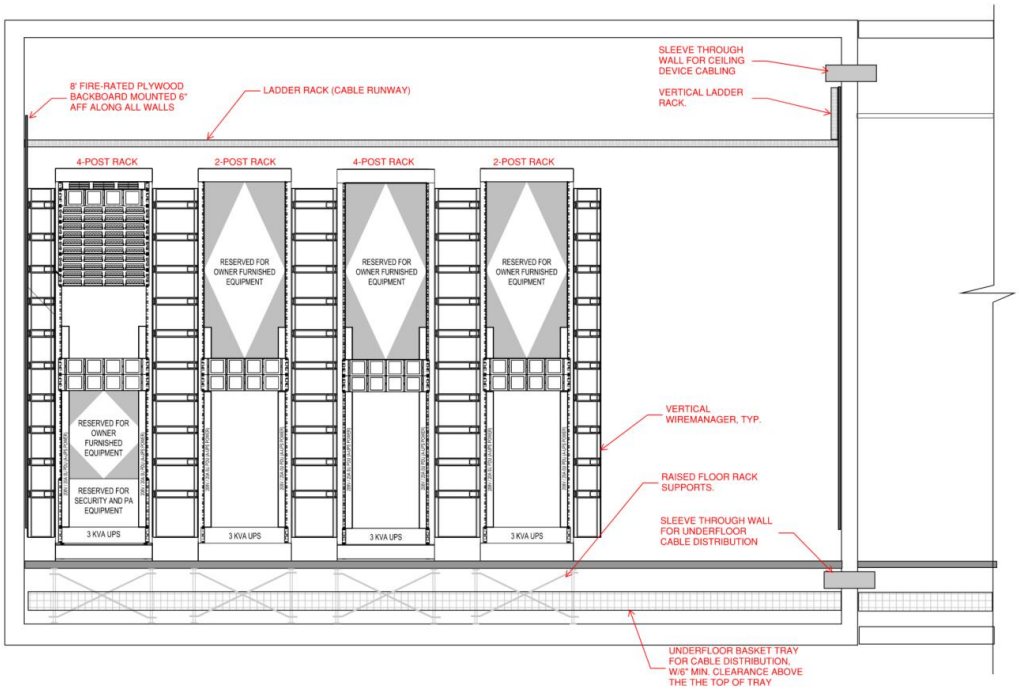


Figure 2: Example Section with Equipment

CLEARANCES

To maintain proper working clearances to the front and back of equipment, gross square footage alone as a guideline is insufficient for the proper space allocation of telecom rooms. Telecom Rooms will be designed such that angled walls and other configurations that limit usable floor area are avoided.

Typical dimensions and equipment types are shown below for reference, with final equipment layouts and room sizes to be detailed later in the contract documents, independent of this narrative.

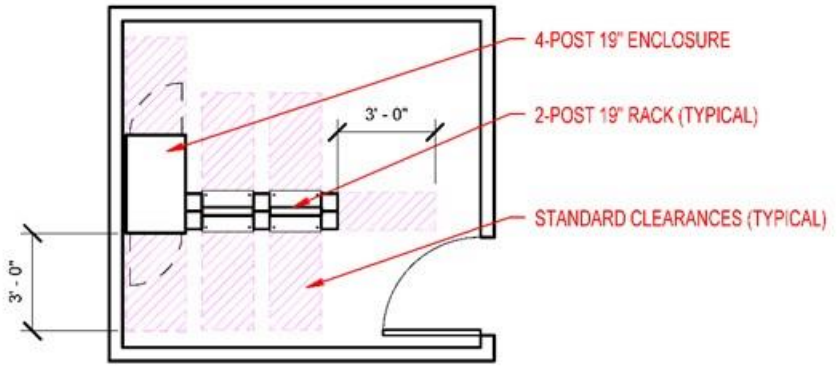


Figure 3: Typical Equipment Clearance

POWER REQUIREMENTS

- MDF: Two (2) dedicated circuits (L6-30Rs) above each Rack (One (1) UPS Power & One (1) House Power)
- IDF: Two (2) dedicated circuits (L6-20Rs) above each Rack (One (1) UPS Power & One (1) House Power).
- UPS Requirements- Battery back-up: Central UPS with runtime suitable for evac (Elemental rack-mounted UPSs are not required).
- Security Plywood: Two dedicated 20a circuits (one 5-20R & one hardwired for access control panel.
- ERCES (Reserved Space): Two dedicated 20a circuits (Design of ERRCS system by others)

BACKBONE CABLING – MAIN TELECOM ROOM TO TELECOM ROOMS

Fiber optic and balanced twisted pair backbone cabling will be provided between the main telecom rooms to telecom rooms/enclosures. Fiber optic distribution units and patch panels will be provided for cross connecting services between rooms. The cabling will consist of the following types:

- Backbone Optical – Single Mode (OS2), 24 strands
- Backbone Copper – CAT6A (If Required)

HORIZONTAL CABLING

Horizontal cabling will be provided from patch panels in Telecom Rooms, to work are outlets and other devices throughout the building. Cabling will be installed, terminated, labeled, tested and administered by the contractor. The cabling plant will consist of the following cable types:

- Horizontal Data/Voice – Category 6A
- Horizontal Data (for WAPs) – Category 6A
- A minimum number of two cables will be extended to each telecom outlet location.

Wireless access points (WAPs) and other active equipment will be owner furnished, contractor installed. Pricing for contractor to receive and install owner furnished wireless access points will be requested as and add/alternate for cost comparison. Approximate spacing between adjacent WAPs will be in a grid pattern approximately 25-35 feet, unless alternate locations are dictated by the owner.

Additional Work Area Outlet Requirements:

- White jacks at Outlet end
- Color Coded Jacks at Patch panel end
- 20'-25’ (Distance Permitting) service loop for WAPs

GROUNDING AND BONDING

A telecom grounding and bonding system will be provided for all telecom rooms and spaces throughout the building.

PATHWAYS

To provide a flexible and scalable communications system, the design of the pathways which transport, protect and support the cables must be designed with easy access and growth in mind. Telecom pathways will be designed and constructed in accordance with the most current ANSI/TIA standard, including minimum bend radii on telecom conduits.

Conduits will be sized for 40 percent fill, with cable trays sized for 25 percent fill. In areas with greater accessibility and those which may need frequent cable changes the preferred method of cabling support will be cable tray.

Ladder-type tray will be installed in the telecom rooms where equipment racks are located, as a means for routing cabling and to help seismically secure the equipment racks. Wire-mesh cable tray (under-floor) will be used throughout corridors for horizontal cabling.

Where accessible ceilings are available, J-hooks may be used for organizing and routing smaller amounts of cables (under 50 total quantity) need to be routed to work area outlets.

In areas with no accessible ceiling and when cabling is routed below-grade, conduits and duct banks will be used for cable distribution.

Fire-rated sleeves will be provided through any fire-rated walls where cabling needs to be routed.

For stacked Telecom Rooms, fire-rated sleeves will be provided in the slab between rooms in lieu of conduits.

A 4 inch conduit will be provided to a weather head on the roof for ERRCS. (NOTE: ERRCS Design by others)

OUTSIDE PLANT

Service to the building will be provided via new underground pathways from existing infrastructure located at the nearby right-of-way. Third party access providers as well as owner provided systems will be brought to the building using this underground pathway.

A total of eight 4 inch conduits will be provided:

- Two 4 inch for Service Provider 1 – From 1 foot beyond the property line – Two diverse paths
- Two 4 inch for Service Provider 2 – From 1 foot beyond the property line – Two diverse paths
- Four 4 inch for Other/Owner System – From Data Center – Two diverse paths

A 4 feet wide by 8 feet tall area of plywood backboard will be provided for demarcation for each service provider.

ENTRANCE FACILITY/MDF TO TELECOM ROOMS

Conduits will be provided from the entrance facility/MDF room to the various telecom rooms to support building systems.

- Two 4 inch from the main telecom room (MPOE/MDF) to the ground floor plan east IDF room for Structured Cabling Backbone.
- One 4 inch from the (MPOE/MDF) to the chamber broadcast/production support room.
- One 4 inch from the (MPOE/MDF) to the ground floor plan east IDF room for security cabling.
- One 4 inch from the (MPOE/MDF) to the ground floor plan east IDF room for spare/future capacity.

RISER

At stacked telecom rooms (MPOE/MDF/IDFs), provide the five 4 inch conduit sleeves between floors.

12 AUDIO-VISUAL SYSTEMS

12.1 General

Audio-video (AV) systems are operationally driven systems which require individual consideration and specialized design attention. Unlike other building systems which for all intents and purposes are “invisible” to the building occupants – care must be taken when coordinating AV systems.

PUBLIC ADDRESS/PAGING [AND/OR SOUNDMASKING] SYSTEM

A public-address/paging system will be provided so that announcements and notifications will be heard in all public areas. The system will be capable of basic zoning of message delivery and be centrally controlled by a software application loaded onto an owner’s PC or via a password-protected web interface.

DIGITAL SIGNAGE

Digital signage displays will be provided at each floor in common areas such as entry vestibules and lobbies. The digital signage system will provide a platform for communicating daily events, upcoming events in the form of a schedule as well as any custom video content playback. A web-based software system will be provided for the authoring of digital signage content to provide maximum flexibility of managing the system.

ASSISTIVE LISTENING SYSTEMS

Included with all multimedia presentation systems where instruction will take place a code-compliant assistive listening system will be provided. Assistive listening systems are required by the ADA Standard and are included in current revision of the IBC. These systems allow people with difficulty hearing to be able to hear the program content of the system in the form of wireless transmitters and wireless receivers worn on the individual.

MULTIMEDIA PRESENTATION

Multimedia presentation systems enhance communication by amplifying sound and allowing the use of multiple sources of visual data, be it video playback, spreadsheets – the goal of a multimedia presentation system is to enhance learning. The audio-visual system should not get in the way of the user or instructor, so care must be taken to design a system that is as easy to use as functionally possible with technology available.

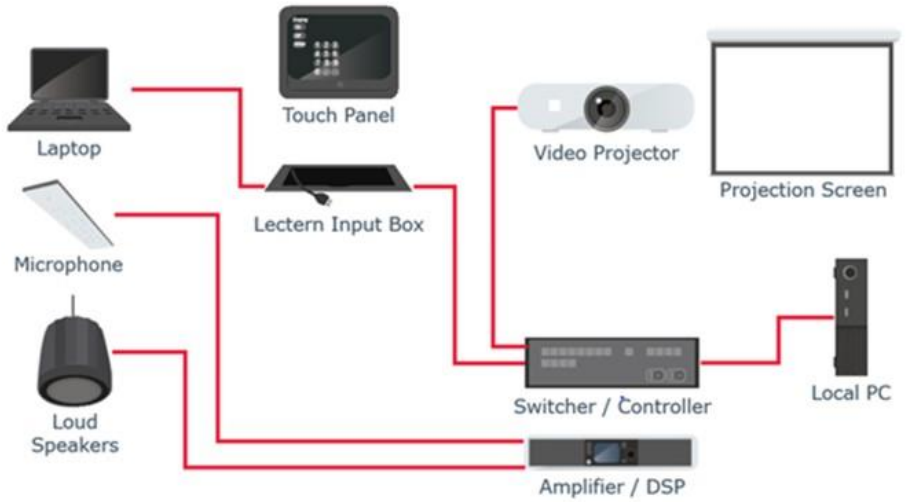


Figure 1: Typical Multimedia Presentation System Diagram

Spaces

Training Rooms, Multipurpose Rooms, Conference Rooms and other AV spaces will be outfitted with multi-media presentation systems. The spaces will feature a form of video display, audio program and voice reinforcement, source input and system control. Exact quantity and size of displays in other spaces to be determined based on final room size and specific function/use. For larger rooms, projection systems are to be considered to accommodate legibility/image size requirements.

Typical Training Rooms will include a dedicated podium/lectern for instruction with integrated AV cable input/outputs and system control panel. Data infrastructure will be designed to accommodate maximum flexibility.

Large, Medium, Small Conference (Huddle) Room System

Where designated, conference rooms will be outfitted for media-rich presentations and soft-codec videoconferencing. The Room AV systems will be designed to limit required interaction from users, sensing and switching inputs automatically.

Rooms will be equipped with large format displays (sizes will be customized for room conditions) with built-in loudspeakers, video teleconferencing cameras, and interfaces for portable user devices.

Portable user devices will interface with the system via HDMI or wirelessly. Connection of a source will cause the display to power up and switch to the appropriate input. Volume controls will be provided in the space. After a set amount of idle time the system will power down.

Platform-agnostic equipment will be provided.

Current AV Conferencing standards include:

- Currently a Teams (Microsoft) House (Replacing Zoom)
- Teams room with Neat hardware is the current standard
- Video-Conferencing Bar with integrated Camera and Microphone Extension

CONTROL SYSTEMS

Integrated control systems will be part of all audiovisual spaces and will control AV systems. Room lighting and shade scene and preset controls can be integrated at select areas as required. All control systems user interfaces will be network-based, and either by wall mounted, or integrated into countertop presentation workstations and other presentation devices. Interfaces with identical functions to other existing presentation spaces are to mimic existing control interfaces.

AUDIO-VIDEO SYSTEMS EQUIPMENT

LCD/LED Televisions

All flat panel displays will be commercial/professional grade. Flat panel display mounts will feature wall extension as required to accommodate any rear of display mounted AV equipment. Mounts will feature pan and tilt capability where required to direct displays toward intended viewers. The combined depth of the mount and display will be no greater than 4 inches to meet ADA requirements.

Large capacity multi-service electrical boxes will be provided behind displays for integrating power, data, and audio-visual extender cabling in a single enclosure. Screen brightness and longevity will be considered based on the application. For areas exposed to high levels of ambient light, screens will be provided with a minimum brightness of 350 nits.

Projectors

Projectors will be designed to provide a minimum of 2500 lumens for small projection surfaces and areas with low ambient light. Larger screens and areas with higher ambient light will have a minimum of 8000 lumens.

Projectors will use network for auditing bulb life and integrate into the control system for on/off and video source control. Smaller spaces will use lower lumen output projectors and can either be the ultra-short throw type or standard middle of room installation depending on owner requirements. Larger spaces will require projectors capable of higher lumen output and flexible lens options.

Projection Surfaces

A combination of projection surfaces will be used based on the application. For small spaces, and ultra-short throw applications, a whiteboard with a low-gloss finish (to reduce glare) will be utilized as the projection surface. For medium and larger spaces requiring increased screen size for readability, motorized projection screens will be used. All projection surfaces will be designed to provide a minimum of 45 footlamberts in screen brightness, with higher screen brightness in spaces with high ambient lighting.

Loudspeakers

Loudspeaker performance characteristics vary widely based on application and must be selected based on the intended use of the space. To provide reinforcement of vocal content, a distributed speaker design will be provided which evenly spaces loudspeakers in the ceiling of the assembly area to provide the most even distribution of this kind of content. For spaces with open ceilings or high ceilings requiring higher output loudspeakers pendant mounted speakers may be utilized. (NOTE: Medium/Small Conference room will utilize a neat sound bar only).

13 SECURITY SYSTEMS & THREAT ANALYSIS

13.1 Electronic Security Systems

Electronic Security systems provided in this project will be an integrated system of video surveillance, intrusion detection and electronic access control system, and will be an expansion of the owner's existing systems.

VIDEO SURVEILLANCE

The system is IP-based and utilizes the Owner's Power-over-Ethernet switches and Local Area Network to route signals to a video management system and network video recorder/server located in the MDF room. Minimum archival requirements are 1080p-resolution, 8 frames-per-second, 24-hour recording, and 30 day retention.

Cameras

All cameras will be IP-based and ONVIF compliant, allowing them to be used with a variety of Video Management System (VMS) software platforms and accessible through the local network and remotely. Cameras will include Wide Dynamic Range (WDR) capabilities to allow more detailed capture of images in areas where natural or artificial lighting presents scenes with high contrast. The cameras will also include automatic day-night functionality, allowing full color capture during daylight hours, and blank-and white capture during the night. The resolution will be 2 Megapixels at a minimum, allowing greater detail image capture. Higher resolution and specialty 360-degree and multi-sensor cameras will be provided where appropriate.

Coverage

Surveillance Cameras will be placed where necessary to provide the best safety coverage for the building occupants.

Typical locations include:

- Entry vestibules
- Service entrances
- Stairwells
- Elevators
- Building perimeter
- Parking lots

Integration

Camera, cabling, licenses, network video recorders (with additional storage servers), graphical mapping of camera locations, integration with access control system, and integration with the existing system will be included in the project under the General Contractor's scope.

INTRUSION DETECTION

An Intrusion Detection system will be deployed to provide the ability to monitor the building. The system will be capable of connecting with real-time monitoring companies. Real-time monitoring companies will be owner-provided.

Devices and Coverage

Detection devices will be placed throughout the facility. These device locations and types include, but are not limited to:

- Motion or Glass break sensors in all ground floor rooms with exterior wall glazing/windows
- Motion sensors in primary corridors
- Motion sensors in areas with roof-hatch access
- Duress Alarm/Panic Buttons
- Door contacts on all exterior doors, exterior roll-up doors, and exterior access hatches.

In addition, communications modules such as dialers and/or Ethernet cards will be provided for connecting to 3rd party monitoring agencies or local command centers. Control devices (such as keypads) will be located at primary entry points to provide for arming and disarming the system.

ACCESS CONTROL

Electronic Access Control system will be provided based on owner's existing system to control access to the building during off-hours, or between back-of-house and secured spaces where the public or non-credentialed personnel are not allowed.

Devices

A variety of devices are required for an effective electronic access control system. These include, but are not limited to:

- Credential readers
- Door position switches
- Request to exit sensors
- Request to exit manual push buttons
- Electronic locks (specified by Division 08, Doors and Windows)
- Electronic strikes (specified by Division 08, Doors and Windows)
- Electromagnetic locks (specified by Division 08, Doors and Windows)

- Panic hardware (specified by Division 08, Doors and Windows)
- Power transfer hinges (specified by Division 08, Doors and Windows)
- Automatic door operators and buttons (specified by Division 08, Doors and Windows)

Credential readers will be provided at appropriate and coordinated locations.

Each access-controlled door will include a door contact, which reports the position (propped open, forced, closed etc.) of the door back to the Access Control management system. Unauthorized openings will report an alarm through the integrated Intrusion Detection System.

Request-to-exit sensors and buttons (or integral to panic hardware) will report an approved opening of the controlled door. These devices are typically located on the secure side of the door to allow free egress to the non-secure side of the door.

Automatic door operators will integrate with the system so that the door motor will not activate without an approved opening credential.

Other components of designated doors work in conjunction with the access control systems and are included as part of the Division 08 Door Hardware groups.

Integration

Cabling, devices, panels, integration (including graphical mapping of device locations), and new credentials (cards/fobs) will be included in the project as part of the Contractor's scope.

INTERCOM ENTRY SYSTEM

A video/audio intercom entry system will be located at select door(s) and site vehicle gate(s) to allow two-way communication with the reception desk and/or security office and other designated locations in the building a cloud-based service with smartphone applications for iOS and Android devices. The system will be IP-based and utilize Power-over-Ethernet switches and Local Area Network. The device at the door/gate will call the master station(s). The system will also be integrated with the local door/gate access control hardware and system, such that a button on the master station can temporarily unlock the associated door/gate/elevator and grant access.

13.2 THREAT ANALYSIS

INTRODUCTION

This narrative describes the threat determination process for the Sonoma County Government Center. Threats are developed considering the threat environment, facility type, historical data, and intelligence/emerging threats. These are used to determine the design basis threats. Design basis threats (DBT) are detailed, standardized descriptions of the potential threats, including the type, tactics, capabilities, and objectives of adversaries that a facility or system must be protected against. At this stage of design, mitigation options are proposed for the DBTs in the Section 13.3 narrative.

The New County Government Center is to be a single building primarily composed of office space for various county government agencies. The building is to be located at the northern portion of the overall site bound by Ventura Avenue and Administration Drive. Primary access to the site is likely to be by way of Ventura Avenue (Southbound). Landscaping is to be provided along the perimeter of the site as well as around the envelope of the new building. The current design shows all parking to be surface parking.

The current design shows county staff are to be primarily housed at the upper levels of the CGC, with Human Services, Supervisor/Council chambers, and Community Room at the ground level to receive county constituents. A ground level lobby with access from the north and south sides of the building serves is positioned to filter building access. A loading dock and secure parking lot are also planned with vehicle entrances along Administration Drive.

Threat Determination

As Sonoma County does not possess facilities standards for building and site security at government facilities, Thornton Tomasetti (TT) has conducted an assessment based on industry best practices, as well as previous project experience with facilities of a similar program and size. The threat determination process considers the threat environment, historical data, target attractiveness, and intelligence/emerging threats.

As shown in Figure 1 below, crime statistics capture the threat environment and the historical data, while industry best practices capture the target's attractiveness and emerging threats (See Section 13.3). Together, crime statistics and industry best practices determine the design basis threats (DBT).

Figure 1. Threat determination Flow Chart

Crime Statistics

Crime statistics capture both the current threat environment and historical data relevant to the area. TT has acquired the crime statistics for Sonoma County as an annual average of incidents separated by type (See Figure 2 below) and compared these numbers to the overall state averages per incident type. As shown in Figure 3, simple assault and aggravated assault are both higher than the state average while other notable crime categories such as vandalism, larceny, burglary, etc. fall below the state averages. Though these crimes less frequently occur in Sonoma County when compared to the state, these incidents are present.

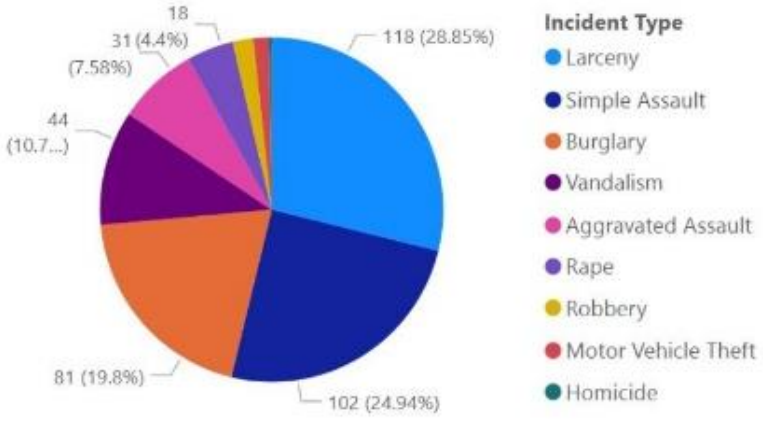


Figure 2. Sonoma County Crime Statistics

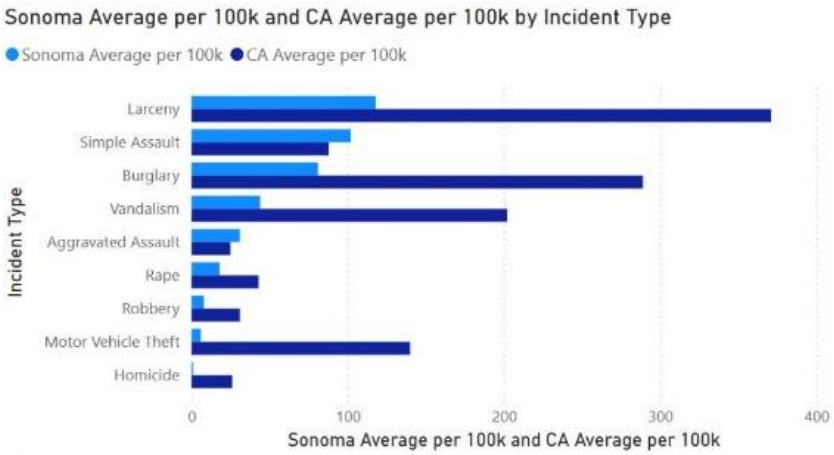


Figure 3. Sonoma County Averages Weighted Against CA State Averages

Industry Best Practices

Industry best practices capture both a given target's attractiveness and the emerging/intelligence threats toward that target. In addition to best practices, these are used to capture and address those threats that are lower in frequency but higher in consequence. Some of the threats addressed here may not appear in local crime statistics, but due to the nature of the facility, must be considered.

The primary reference used for this process is the ISC's (Interagency Security Committee) standard "The Risk Management Process," a Homeland Security document that serves to rank the security level required for federal facilities. Through the Facility Security Level Matrix (FSL), five facility components are considered to build the assessment including: mission criticality, symbolism, population, size (sq-ft), and threat to tenant agency. Each of these factors contribute equally to the overall security level score (See Figure 4).

Mission criticality evaluates the criticality of activities performed within the facility. The facility's mission criticality is measured as Minimum, Low, Medium, or High (On a scale of 1 to 4). A facility's symbolism is evaluated based on its attractiveness as a target and the consequences of an event. The facility's symbolism is measured in the same fashion as mission criticality (Minimum – High). The new CGC measures between 1 and 3 for each of the preceding components. The facility can be classified between a minimum and medium security level.

Both the facility population and the facility size are project metric based. Smaller facilities with lower occupancies fall into the "minimum" category, while larger facilities with higher occupancies fall into the "High" category (See FSL Table – Figure 4). The new CGC's typical occupancy is expected to be greater than 750 people (metric includes visitors) and therefore scores "High" on the matrix. The building square footage (gross) is expected to fall between 100,000 – 250,000ft²) and therefore scores "Medium" on the FSL matrix.

Threat to tenant agencies accounts for the nature of the facility's activities, current and past credible threats, and crime statistics. This component is measured in the same fashion as mission criticality and symbolism.

The sum of the 5 components provides the overall Facility Security Level score. The new CGC for Sonoma County scores between an FSL II and FSL III. An FSL II is typical of a Human Resource Operations facility, and an FSL III is typical of a Federal Courthouse. The ISC standards establish threats and mitigations pinned to these security levels including but not limited to blast, ballistic, and hostile vehicle.

Factor	Points				Score
	1	2	3	4	
Mission Criticality	MINIMUM	LOW	MEDIUM	HIGH	1-3
Symbolism	MINIMUM	LOW	MEDIUM	HIGH	1-3
Facility Population	<100	101-250	251-750	>750*	4
Facility Size	<10,000 Sq. ft.	10,001-100,000 sq. ft.	100,001 – 250,000 sq. ft.	>250,000 sq. ft	3
Threat to Tenant Agency	MINIMUM	LOW	MEDIUM	HIGH	1-3
					Sum of Above 10-16
Facility Security Level	I: 5-7 Points	II: 8-12 Points	III: 13-17 Points	IV: 18-20 Points	**Preliminary FSL**
Intangible Adjustment					**+/- 1 FSL**
					Final FSL
* Facilities with a child-care center (CCC) receives a facility population value of "high."					

Figure 4. Ineragency Security Committee Standard – Facility Security Level table for Sonoma County Government Center

Considered Threats

Based on the threat assessment in the preceding sections the following threat categories and design basis threats are under consideration.

ACTIVE SHOOTER

The risk or danger associated with an individual or individuals who are actively engaged in a shooting incident, typically in a public place or within an organization.

Design Threat: An assailant with a handgun (9mm) attempts to enter the building through publicly accessible unscreened spaces or is present in outdoor areas.

UNAUTHORIZED ENTRY / TRESPASSING

A situation in which an individual or individuals gain access to a property, facility, or area without proper authorization, consent, or permission. This unauthorized entry can raise concerns about security, safety, and the protection of property or assets, as it may pose risks to the occupants, the property itself, or the information contained within.

Design Threat: Fake Credentials / ID, Lock Picking Tools, Bolt Cutters

VANDALISM

A “vandalism threat” refers to the risk or danger associated with intentional and malicious acts of defacement, destruction, or damage to property, public infrastructure, or personal belongings. Vandalism typically involves actions that mar the appearance, function, or value of the targeted objects or locations, often with no other purpose than to cause harm or express discontent.

Design Threat: Spray Paint, Rocks / Brick, Sledgehammers, Bolt Cutters

CRIMINAL ACTIVITY

A “general criminal activity threat” refers to the potential risk or danger associated with various types of criminal activities that may occur within a particular area or community. This threat encompasses a wide range of criminal behaviors, including but not limited to assault, rape, larceny and other illegal acts that can jeopardize public safety, security, and well-being.

Design Threat: Assault, Rape, Larceny and other Illegal Acts Jeopardizing Public Safety, Security, and Well-Being

HOSTILE VEHICLE ATTACK

The deliberate and aggressive use of a motor vehicle as a weapon to cause harm, injury, or damage to people, structures, or property.

Design Threat: A full-sized sedan (4000lbs) travelling at up to 30mph

VBIED

A “vehicle-borne improvised explosive device” (VBIED) is a type of explosive device that is constructed and concealed within a motor vehicle, typically with the intent to cause destruction, casualties, or damage when the vehicle is detonated.

Design Threat: 55lbs TNT equivalent explosive device is concealed in a vehicle in a legal parking space

PBIED

A person-borne IED is a device that is worn, carried, or concealed by an individual, often with the intent to cause harm, destruction or casualties.

Design Threat: 10lbs TNT equivalent explosive device is brought into publicly accessible unscreened spaces

PEID

A parcel-based IED refers to a device concealed within a parcel, package, or other container often with the intent to cause harm, injury or damage when the parcel is opened or handled.

Design Threat: 100g TNT equivalent in unscreened locations receiving packages or is left behind outdoors or inside the lobby.

CBRN

A “CBRN threat” is a term used to describe a threat posed by hazardous materials or substances that have the potential to cause significant harm or damage to people, the environment, or infrastructure. CBRN threats are typically airborne agents.

Design Threat: Biological, Chemical, Radiological Agents are introduced in unscreened locations receiving packages, in the lobby or other unscreened public spaces. Examples may

include receiving an envelope in the loading dock with an unknown powder substance or a chemical agent such as chlorine intentionally spilled in the unscreened lobby.

CIVIL DISTURBANCE

A “civil unrest threat” refers to a situation in which a community or society experiences disturbances, demonstrations, protests, or other forms of public unrest that escalate into unlawful disruptive or potentially violent actions.

Design Threat: Mob forced entry attack, Molotov Cocktails, Rocks / Bricks, Blunt Instruments, Spray Paint, Fireworks

UNCHARACTERISTIC THREATS

The threats listed below are uncharacteristic of Sonoma County according to available crime statistics. These threats are also under lesser consideration than those enumerated in the preceding sections due to the threat profile provided by the risk management ISC Standard FSL.

- High Angle Shooter
- Drone / UAS
- Hostile Surveillance
- Threatening Communications
- Arson
- Insider Threat / Sabotage
- Social Engineering
- Complex Coordinated Attack

NEXT STEPS

This narrative has been prepared with the intent of documenting and outlining the steps and results of the threat assessment. Owner comments and feedback received will be incorporated in the following submission. Design basis threats presented will form the basis for future protective design strategies.

Note it is expected that TT will meet with stakeholders at future stages of design. Additional feedback from stakeholders may result in amendments or additions to the currently presented.

13.3 Mitigation Strategies

INTRODUCTION

Summary

The intent of this narrative is to outline the physical security design measures recommended for the new County Government Center (CGC) for Sonoma County. These recommendations are based on the threats outlined in Section 13.2. The threats listed therein are those evaluated as relevant for mitigation based on the most recent concept design documents for the new County Government Center. Note the mitigation strategies provided in this narrative are not exhaustive. Other strategies applicable to the new CGC are to be developed in future design phases. The mitigation strategies included in this narrative are those that may significantly impact space planning and cost and are therefore appropriate to consider at this stage.

Design Approach

As Sonoma County does not possess facilities standards for building and site security at government facilities, Thornton Tomasetti (TT) has conducted an assessment based on industry best practices as well as previous project experience with facilities of a similar program and size. The Interagency Security Committee furnishes a standard and risk management process to provide guidance and criteria for new and existing facilities. Factoring in local crime statistics along with the new facility's size, population, and use, TT has conducted a preliminary risk assessment. The following design considerations and strategies have been selected as those most appropriate to mitigate against these threats.

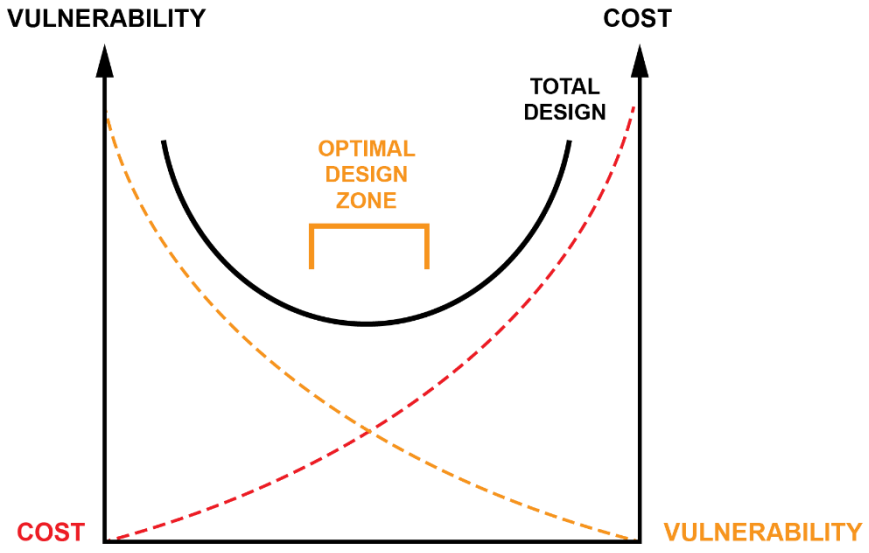


Figure 1. Cost Benefit Graph (Vulnerability)

The mitigation strategies in the following sections are provided based on a balance between cost and the reduction in vulnerabilities. The chart above illustrates the optimal zone for implementing mitigation strategies. This "balance zone" around the intersection of cost and

vulnerability mitigation represents the point where the benefits of vulnerabilities reduction are proportionate to the associated cost. Providing levels of protection beyond the optimized threshold does not effectively reduce vulnerability and risk. Sonoma County officials have noted that one of the project goals is to achieve a welcoming environment and to provide ease of employee access. With respect to risk mitigation, these requirements are to be balanced with respect to risk mitigation strategies and cost. As such, TT has provided design recommendations for the new County Government Center as well as mitigation options that would increase the level of protection for each of the categories outlined in the following sections.

Crime Prevention Through Environmental Design

Crime Prevention Through Environmental Design (CPTED) will serve as the primary baseline mitigation strategy for this project, as it effectively leverages natural features, strategic planning, and thoughtful design to enhance safety and deter criminal behavior. CPTED is a multidisciplinary approach that focuses on reducing opportunities for crime by influencing the physical environment. When integrated early in design, CPTED is a cost-effective mitigation strategy. The three core CPTED principles that will directly inform the design of this project are Natural Surveillance, Natural Access Control, and Territorial Reinforcement. The following mitigation strategies will be implemented in alignment with these principles:

- Natural Surveillance:
  - Maintain clear sight lines from the lobby to outdoor spaces
  - Provide adequate and consistent lighting throughout the site, including entrances, pathways, and parking areas
  - Incorporate benches and other hardscaping elements to promote active use of space
  - Limit blind spots created by landscaping and building layout
  - Orient windows and common areas to overlook high-traffic zones and vulnerable areas
- Natural Access Control:
  - Deliberate separation of private and public spaces to guide movement and discourage unauthorized access
  - Utilize strategic landscaping, signs, and man-made barriers to direct pedestrian flow
  - Design entry points to be easily observable and monitored
  - Limit the number of entry and exit points to reduce uncontrolled access
  - Use gates, bollards, or other barriers to restrict vehicular access where necessary
- Territorial Reinforcement:
  - Clearly delineate the site perimeter using natural and man-made elements (e.g., hedges, fencing, pavement changes)
  - Define clear, visible paths leading to building entrances to communicate intended use
  - Install signage to convey ownership and appropriate use of spaces
  - Use design features (e.g., entry plazas, distinct paving patterns) to reinforce the transition from public to private space
  - Integrate community-focused elements like gathering areas or public art to foster a sense of place and ownership

CPTED strategies will continue to be coordinated with the design team as the design progresses.

SITE ACCESS

General Vehicle Site Access

Applicable Threats – Active Shooter, Unauthorized Entry / Trespassing, Vandalism, Criminal Activity, Hostile Vehicle Attack, Civil Disturbance

According to the most recent concept design, the majority of the public parking for the new Sonoma County Government Center will be located at the southern portion of the site with some spaces provided to the north and east of the county building. The loading dock and secure parking are located to the northwest along the building's envelope. Landscaping is continuous through the site perimeter. As a baseline, landscaping, along with curbs and wayfinding should remain present along the site perimeter. Throughout the site, planting should be a maximum of 2'-0" in height and site tree canopies should fall no lower than 6'-0" in height as to avoid areas of concealment.

RECOMMENDATIONS

- Provide access control (electronic or operational) at entry to secure parking with secure barrier.
- Provide a physical perimeter around secure parking.

INCREASED MEASURES

- Provide crash-rated barrier around secure vehicle parking.
- Provide crash-rated barriers at site perimeter

Pedestrian Entrances

Applicable Threats – Hostile Vehicle Attack

Per the current concept design, the building has two ground level entrances to the north and south. The site plan provides a clear formal procession and plaza at the south entrance and a similar foreshortened version at the north. Landscaping is present along the building's perimeter and should be further developed to provide accidental vehicle impact deterrence and protection. These concepts should remain along with the baseline strategies of providing unbroken views from within the building to the site parking and other exterior open spaces, as well as clear wayfinding and pedestrian scale signage (See Figure 3 below).

RECOMMENDATIONS

- Provide crash-rated barriers at pedestrian main entrances (See Figure 2 below)

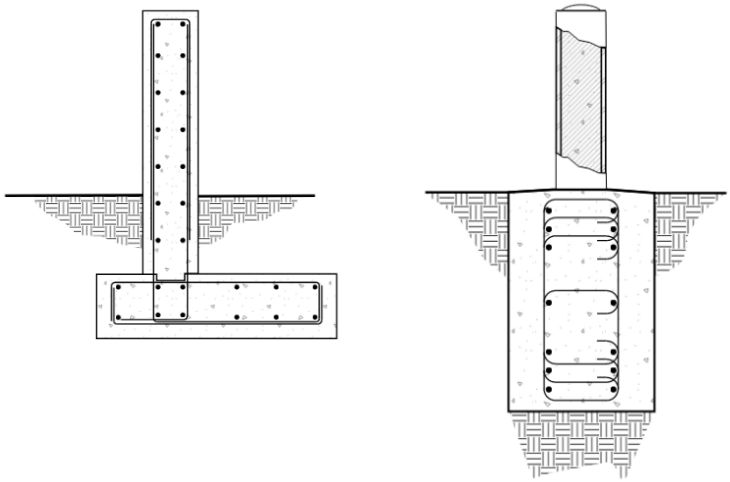


Figure 2. Sections at Crash-rated barriers – Site Wall (Left) Bollard (Right)

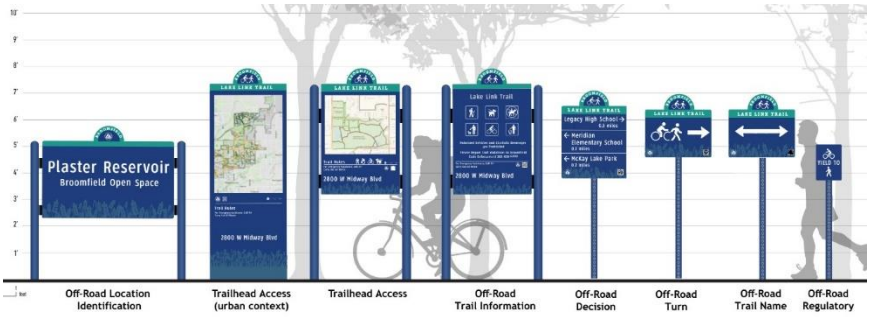


Figure 3. Examples of Pedestrian-scale Signage

INCREASED MEASURES

- Provide crash-rated barriers around entirety of the building perimeter

Loading Dock Approach

Applicable Threats – Unauthorized Entry, Hostile Vehicle Attack, VBIED, PEID, CBRN

The current concept design shows the loading dock and driveway to the west of the building. As a baseline measure, a separate driveway for the loading dock should be maintained.

RECOMMENDATIONS

- Card reader access and intercom system at loading dock access point is recommended. The access point should host a vehicle barrier (i.e. vehicle gate or drop-arm)

INCREASED MEASURES

- Crash rated gate or drop arm at loading dock entry

Figure 4. Crash-rated vehicle drop-arm – Ameristar M530 Barrier

Loading Dock Interior

Applicable Threats – Unauthorized Entry, VBIED, PBIED, PEID, CBRN

As a baseline measure, the loading dock should remain isolated from other programs other than access to circulation. Operational procedures should be established to maintain regular logistical checks for receptions at the loading dock.

RECOMMENDATIONS

- Visual and Manual inspection at loading dock entry and loading / unloading areas
- Electronic Access Control for access from loading dock to building circulation areas.
- Separated HVAC Zone and equipment (Lobby to be separated as well)

INCREASED MEASURES

- Provide restroom within loading dock area.
- Provide electronic package screening within loading dock for all shipments.
- Provide electronic human screening within loading dock
- Provide / allocate space for vehicle inspection zone within loading dock.
- Hardened partitions and openings separating loading dock from other program.

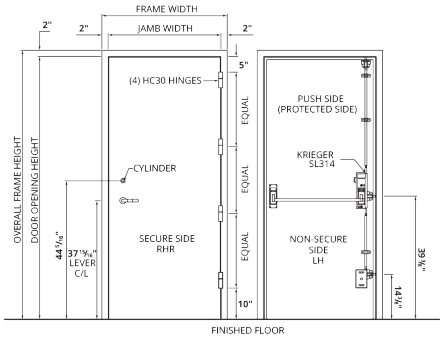


Figure 5. Elevation - Kreiger Hardened Opening

Figure 6. Package X-ray Screening

BLAST

General

Applicable Threats – VBIED, PBIED, PEID

Blast protection is not traditionally inherent to any site design. The recommended mitigations below can be seen as a “prescriptive” approach to blast protection, in line with industry standard documents. An increased security approach entails the direct design and analysis of the blast enclosure.

Mitigations

RECOMMENDATIONS

- Provide a fixed standoff distance of 75’-0” from parking to building exterior. Increasing the standoff distance provides some protection against vehicle-born explosives. The most recent concept design shows standoffs to public parking (See Figure 7).
- Utilize ductile materials
- Provide 4” min architectural finish around interior structural elements exposed to blast threats (Lobby and Loading dock)

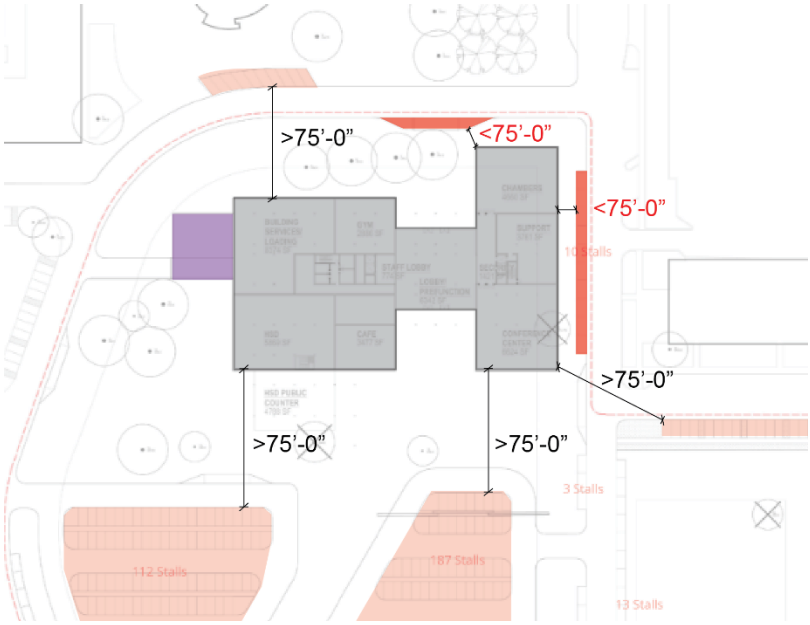


Figure 7. Current standoff distances to parking at Site Plan

INCREASED SECURITY OPTIONS

- Provide blast analysis at critical areas both interior and exterior.
- Provide a blast resistant facade with glazing, framing and anchorage designed for a specific blast loading

- Provide disproportionate collapse mitigation design using UFC 4-023-03 or other relevant standard
- Provide guard booth and UVIS screening at secure parking area.

ENVELOPE

Applicable Threats

Applicable Threats – Active Shooter

Treating the building's envelope for a ballistic threat involves targeted applications at critical spaces, namely those offices housing high priority and public personnel. Some form of envelope treatment, consideration, or hardening is an industry standard for facilities of this kind.

Mitigations

RECOMMENDATIONS

- Provide shading devices to allow for visual privacy when needed.
- Provide tinted glazing at exterior windows of county and federal officials to conceal activity from the exterior.
- Provide debris mitigating glass (i.e. laminated glass in inboard pane of IGU)

INCREASED SECURITY OPTIONS

- Locate private offices of high priority officials toward the interior, negating the need for exterior ballistic glazing (See Figure 8).

  [or]

- Provide ballistic glazing at exterior windows at offices of county and federal officials.
- Provide ballistic glazing up to 8'-0" above the finished floor for sufficient protection (See Figure 9).

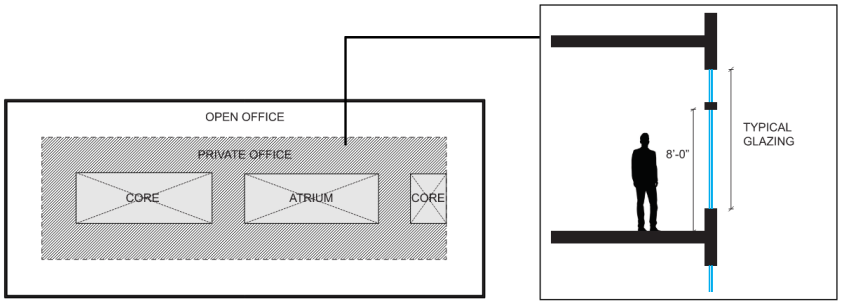


Figure 8. Diagram - Locate Private Offices at Building Interior

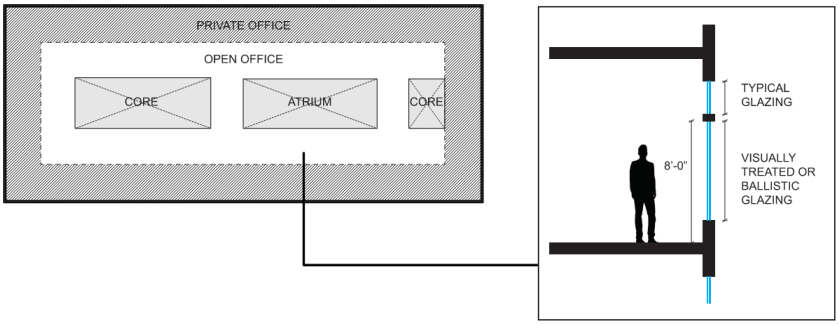


Figure 9. Diagram - Locate Private Offices at Building Exterior

INTERIOR ACCESS

Lobby Layout

Applicable Threats – Unauthorized Entry, Vandalism, Criminal Activity, Active Shooter, PBIED

As a baseline measure, a lobby desk should be provided for building administrative staff and/or building security personnel. The lobby desk(s) should be oriented / positioned as to provide a visual of main entries, circulation spaces, and immediate building exterior (i.e. plaza). Interior furnishings should not provide areas of concealment within the lobby.

Justice Partners have requested that the District Attorney's office, Public Defender's office, and Probation office have separate secure lobbies, with protective glazing, and access paths to keep clients seeking these services separate. This request is reflected in the mitigations for the design team to consider in future stages of design.

RECOMMENDATIONS

- Provide Lobby Desk with sufficient work space and data connection to functionally monitor surveillance systems throughout the site.
- Provide lockdown capabilities and panic buttons at lobby desk.
- Provide ballistic paneling within lobby desk millwork to provide duck and cover protection for lobby staff.

Public Entry

Applicable Threats – Active Shooter, Unauthorized Entry, Vandalism, Criminal Activity, PBIED, PBIED, CBRN, Civil Disturbance

As a baseline, for access to staff spaces, visitors to the County Government Center should be required to check in at the lobby desk. Expectant staff, regardless of department, should confirm visitor access. Develop operational procedures to require visitor badges or staff as needed.

RECOMMENDATIONS

- Provide Screening lanes for non-staff entering County Council Chambers. Plan for space to include queueing, screening operations and an exiting pathway in the lobby design.

- Require screening and visitor check-in to access community room.

INCREASED SECURITY OPTIONS

- Funnel all visitors to screening queue. Disallow unscreened access to lobby interior.

Staff Entry

Applicable Threats – Active Shooter, Unauthorized Entry, Vandalism, Criminal Activity, PBIED, CBRN, Civil Disturbance

As a baseline, electronic access control should be provided at all elevators. Floor access should be tied to staff issued badges. For staff at ground level, all doors leading to staff areas should be equipped with electronic access control. Electronic access control should also be provided at doors within the egress stairwells. Readers should be on the stair-side only and does not apply for the ground-level access floor.

RECOMMENDATIONS

- Provide optical turnstiles (electronic access control) anterior to vertical circulation spaces.

INCREASED SECURITY OPTIONS

[Basis for increased measures]

- Funnel all building staff / tenants to screening queue. Disallow unscreened access to lobby interior.
- Require multi-factor authentication for access to staff areas.

NEXT STEPS

The mitigations provided in the preceding sections is not an exhaustive list of those applicable to the new Sonoma County CGC. The mitigations listed in this narrative are those critical for consideration at this stage of the design process. As the design progresses, additional mitigation strategies will require development.

TT will also meet with stakeholders to more robustly capture the security needs and operations of each department slated to occupy the new CGC.

14 ACOUSTICAL DESIGN

14.1 Noise Criteria

The following sections discuss our recommended noise criteria for the sensitive spaces within the new County Government Center (CGC), based on our current understanding of the project.

Table 14-1 lists typical noise criteria (NC) for some common room functions as recommended by CGA.

Table 14-1 Typical Room Noise Criteria (NC)[1]

Room Function	NC
Computer/server rooms	55
Corridors and public circulation areas	45
Open-plan offices	40
Private offices	35
Executive offices	30
Conference Rooms	30
Dedicated Teleconference rooms	25
Auditoria	25

The project background noise criteria are given in terms of the traditional Noise Criterion (NC) curves described in ANSI/ASA S12.2-2019.[2] The NC curves are based on the average frequency response of human hearing. Calculated or measured octave band sound pressure levels can then be compared with these curves allowing for the data as a function of frequency to be expressed as a single number. The NC level is determined by the highest of these curves that is reached by any of the ten octave band levels between 16 Hz and 8000 Hz.

These criteria may be used to evaluate the steady-state background noise level of an existing space, or they may be used as design criteria to establish maximum allowable octave band sound pressure levels. Early in the project it must be clarified where and how the noise criteria will be applied with respect to people and equipment. For field evaluations of rooms, we usually compare these criteria to space- and time-averaged measurements to represent the entire space rather than any particular location such as near an HVAC diffuser.

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[1] This compilation is based on our experience on previous projects as well as the following references, and others: *ASHRAE HVAC Applications* Chapter 49 Sound and Vibration Control (2023); Howard F. Kingsbury "Review and Revision of Room Noise Criteria" *Noise Control Engineering Journal* 43-3 May-June 1995; American National Standards Institute *Criteria for Evaluating Room Noise* ANSI S12.2-2019; Robin M. Towne et al. "The Changing Sound of Education" *Sound and Vibration* January 1997.

[2] American National Standards Institute *Criteria for Evaluating Room Noise*, ANSI /ASA S12.2-2019.

While NC criteria are intended to apply to building HVAC systems noise sources they can, on occasion, be applied to other sources such as the room noise level due to external sources (aircraft, traffic, etc.) or known equipment in the room. These cases are exceptional and will not be evaluated without a specific request from the architect or owner.

Occasionally we modify the NC curves to provide more stringent requirements at low frequencies. There is, however, a limit to the amount of laboratory test information available on the acoustical properties of materials (e.g., sound transmission loss, absorptive qualities, etc.), HVAC equipment (AHUS, FFUs, diffusers, etc.), and noise control devices (e.g., silencers, absorptive treatments, wall designs, etc.) below 125 Hz.

The NC values shown in **Table 14-1** are presented as design criteria, rather than acceptable limits for the as-built conditions. This takes into account the differences in manufacturer's noise ratings versus the performance in actual field conditions, the accuracy of the noise prediction process, and the fact that the mechanical systems installations often vary significantly from the contract documents. In addition, the actual noise measurements of the as-built conditions may exhibit a variability of approximately ±2 decibels.[3]

14.2 Site Ambient Conditions

BASELINE SITE SURVEY

A survey of ambient noise was conducted on the proposed site on March 5th, 2025. The proposed building site is currently occupied by an existing building located at 585 Fiscal Drive and Ventura Avenue in Santa Rosa. The building is approximately 340 feet from the 101 Freeway which had almost constant traffic during our visits. There was no sound wall present along 101 thus allowing noise to propagate directly to the building site.

Four noise monitors were left in place to log noise levels as overall A-weighted decibels, dBA, versus time over a three-day period. Details of our survey were provided in a separate report. Noise levels on the site are typical of an urban area in daytime, with the primary source of noise being the constant traffic on the 101 Freeway. On the west side of the site next to 101, hourly average sound pressure levels, Leq, varied from 59 dBA to 72 dBA. The minimum ambient level was 46 dBA.

CALGREEN 5.507.4

Depending on the local noise level, especially when under the influence of high traffic noise, facades/windows may need to comply with Section 5.507.4 of the 2022 California Green Building Standards Code. CalGreen includes requirements for minimum sound isolation performance for sites in noisy areas. This requirement comes into effect when the hourly equivalent-continuous noise levels, Leq-1Hr, exceed 65 dBA over any hour of operation.

The survey results suggest that exterior walls, roof-ceiling assemblies, and exterior windows on some areas may need to meet minimums specified in CalGreen 5.507.4. CalGreen

[3] This is the maximum accuracy given for standard measurements with a Type 1 Sound Level Meter in Appendix A of American National Standards Institute ANSI S1.4, *Specification for Sound Level Meters*, 1983.

requirements depend on whether the Prescriptive Method or Performance Method is used. For the former method, the CalGreen acoustical standards call for a composite STC-45 (OITC 35) for building facades and STC-40 (OITC 30) for the exterior windows since the site noise levels on the west side do, at times, exceed the CalGreen's threshold of 65 dBA.

For the Performance Method, section 5.507.4.2 calls for wall and roof-ceiling assemblies exposed to the noise be constructed to provide an interior noise environment that does not exceed an hourly equivalent noise level (Leq-1Hr) of 50 dBA in occupied areas of the building.

14.3 Layout

SITE LAYOUT

Although there is likely to be limited flexibility in the building's location or orientation on the site, as a general good practice, we recommend noise-sensitive spaces such as private offices and conference rooms along the perimeter of the building not be within line of sight from external sources whenever possible as an effective way to attenuate sound.

BUILDING LAYOUT

1. The layout of the facility is important insofar as the placement of major mechanical systems relative to noise- sensitive areas is concerned.
2. We recommend that mechanical rooms, generators, and transformers (200 KVA and above) lie at a horizontal distance no closer than 20m (65 ft) (if possible, further) from the nearest noise- or vibration-sensitive floor.
3. Horizontal separation should be maximized as reasonably possible between sensitive areas and major mechanical equipment such as exhaust fans and air handling units.
4. Emergency equipment that must be periodically exercised (such as emergency generators) should also be separated horizontally.
5. Building layout also influences sound insulation requirements between spaces of various occupancy. A carefully chosen layout reduces the need for complex and expensive noise control materials between spaces. In general, rooms containing noise sources (i.e., mechanical rooms, kitchens, HVAC shafts) should not be located adjacent (horizontally or vertically) to noise sensitive rooms (i.e., conference and teleconference rooms, and private offices). In cases where these adjacencies are unavoidable the walls (or ceilings) separating the two should receive special attention with regard to acoustical separation. In some cases, this may require multiple layers of massive partitions.
6. Kitchens, break rooms, drinking fountains, copy machines, and vending machines should not be located in direct line-of-sight of open occupied spaces, such as open plan offices.
7. Incorporating multiple small meeting /teleconference rooms within or adjacent to open office areas will provide a location for conversations that may require privacy or could otherwise be distracting to others, provided such rooms are sufficiently sound isolated from the open office.
8. Cooling towers, air intakes, exhaust fans, etc. should be located away from outdoor sitting areas and windows of occupied spaces. Placement of these items on roofs may also require additional measures or analysis.
9. Loading docks, trash bins, chemical delivery, utility access, and other outdoor "back-of-house" activities should be located as far as possible from sensitive noise receivers such

as residences, dormitories, hotel rooms, executive office windows, etc. Further, direct line-of-sight between these noise sources and sensitive receivers should be avoided in all cases.

10. As far as possible, the levels underneath and above suspended noise-sensitive areas should be kept clear of mechanical systems, or the walls (or ceilings) separating the two should receive special attention with regard to acoustical separation. In some cases, this may require multiple layers of massive partitions.

The above points are only some of the layout considerations. Others will emerge when we start reviewing early concepts.

14.4 Architectural Acoustics

Careful selection of relevant architectural details can improve communications, speech privacy, and the general condition of work environments, and reduce long term work-related hearing damage, fatigue, and general annoyance.

The following are some general comments related to acoustics:

SOUND ISOLATION AND ACOUSTIC PRIVACY

Sound isolation between spaces will predominantly be controlled by the acoustical performance of the partitions, windows, doors, floor/ceiling assembly, flanking paths, etc. separating different areas.

Wall Type Recommendations

The performance of walls in acoustical separation is a function of their configuration, including the types and spacing of studs, the thickness and weight of wall board, and the insulation in cavities.

A typical criterion for room separation is Sound Transmission Class or STC. The required STC will obviously be high between noisy rooms and quiet rooms, but a high STC wall is also required between two quiet rooms to achieve speech privacy.

Table 14-2 provides our initial recommendations for the configuration of walls separating various spaces. These recommendations will be refined as the project progresses.

Table 14-2: Recommended Partitions for Typical Room Adjacencies[a]

	Mech/Elec/Server Rooms	Mechanical Shafts	Toilet Rooms	Copy / Break Rooms	Corridors[d], Lobbies	Reception	Open-Plan Offices	Private Offices	Meeting/Conf	Auditoria
Auditoria	NR[b]	NR[b]	D	C	C	C	C	C	C	C
Meeting/Conf	E	D	C	B	B	B	B	C	C	
Private Offices	D	D	B	B	B	B	B	B		
Open-plan offices	C/D	C	B	A	A	A	A			
Reception Areas	C	C	B	A	A	A				
Corridors[d], Lobbies	C	B	B	A	A					
Copy/Break rooms	B	B	A	--[c]						
Toilet Rooms	A	A	A							
Mechanical Shafts	--[c]	--[c]								
Mech/Elec/Server Rooms	--[c]									

NR – Adjacency not recommended.

(a) This chart is intended to provide general recommendations only. Partitions should be reviewed by acoustical consultant prior to the issue of final documents. Not all of the spaces noted above may occur in this project.

(b) Partitions for this adjacency require further review by acoustical consultant, and special construction details.

(c) "-- " Indicates adjacencies with no particular sound isolation requirement.

(d) See comments below regarding doors and glazing.

DEFINITION OF PARTITION TYPES

Typical STC ratings refer to laboratory tests conducted in accordance with ASTM E90 for partitions with 20 gauge (30 mil) studs, 600mm (24 inches) o.c.

Type A (Typical STC: 39 to 44)

Steel studs, one layer 16mm (5/8 inch) gypsum board on each side, insulation in stud cavities

Type B (Typical STC: 42 to 46)

Steel studs, one layer 16mm (5/8 inch) gypsum board on one side, two layers on the other side, insulation in stud cavities

Type C (Typical STC: 46 to 52)

Steel studs, two layers 16mm (5/8 inch) gypsum board on each side, insulation in stud cavities

Type D (Typical STC: 55 to 62)

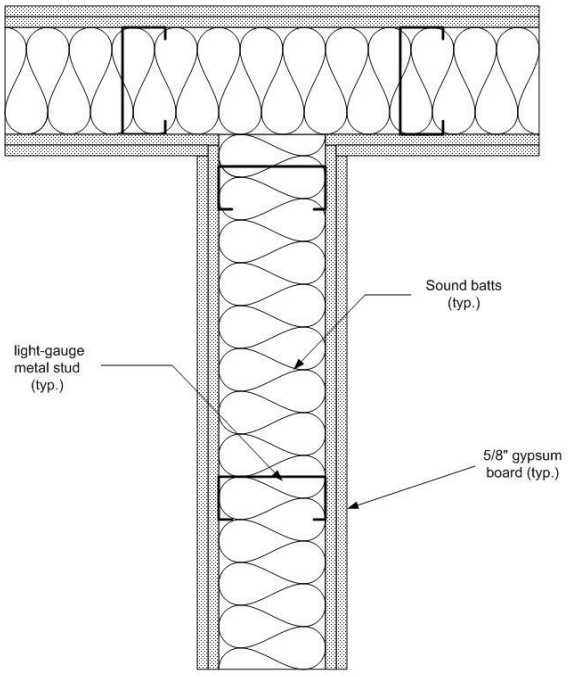
Double row of steel studs, two layers 16mm (5/8 inch) gypsum board on face side of each stud row, insulation in stud cavities of both rows

The following are some additional notes regarding partitions:

1. Alternative assemblies to those described above that achieve similar STC ratings may also be acceptable. Staggered studs, resilient channels, resilient clips, specialty steel studs, and/or specialty acoustical gypsum board can be used to increase the STC performance in many cases.
2. While the STC ratings provide a good guide for initial partition selection, a single STC rating can describe multiple walls with significantly different isolation performance at different frequencies. Therefore, any proposed alternative assemblies should be reviewed by the acoustical consultant.
3. The acoustical consultant should also review and provide input into the construction details for the wall, doors, windows, mullions, etc. to ensure that the full assembly will provide the necessary sound isolation.
4. Doors, glazing, gaps, cracks, holes, back-to-back outlets, etc. will reduce the overall partition rating unless the transmission loss of these is equal to that of the partition. The amount of reduction is dependent on the relative surface areas. The actual field performance of a partition will be further reduced by flanking paths.
5. The size, thickness (gauge), and spacing of the steel studs can have a significant impact on the sound isolation performance of a partition. Shallower studs, tighter spacing, and heavier gauge studs will tend to degrade the sound isolation performance.
6. Unless specifically noted in our partition recommendations, note that all drywall should be 5/8-inch normal weight gypsum board. Thinner or lightweight gypsum board will degrade the acoustical performance.
7. Fully seal all partition head, base, and junction interfaces with non-hardening, resilient acoustical caulk. When sealing to the underside of a fluted metal deck, provide a mineral wool plug and solid metal cover plate as necessary to fill the voids between the deck flutes and top of the wall, and to provide a surface on which the partition can seal.
8. Gypsum wall board should be interrupted at all partition intersections, so that no drywall layers are continuous between two adjacent rooms where sound isolation is critical. An example detail is shown in **Figure 14-1** below.

9. When installing multiple layers of gypsum board, the edges or joints should be staggered from the ones below with all seams taped and mudded.
10. All sound batt material used within partition cavities should be unfaced.
11. The connection of interior partitions, columns, and the edges of floor slabs to the exterior curtain wall needs to be properly detailed to limit flanking noise between adjoining spaces. For example, because of the poor sound isolation provided by hollow (usually aluminum) mullions, it is likely that any acoustically critical wall will need some supplemental treatment where it intersects with the curtain wall. Prefabricated acoustical mullion trim caps such as Mull-It-Over are available that significantly improve the sound isolation performance at the mullion. Alternatively, a field-fabricated assembly using multiple layers of gypsum board adhered to both sides of the mullion could be used. The specific requirements will depend upon the required sound isolation performance of the wall and the area of the wall relative to the area of the mullion.
12. If resilient channels are to be used to improve the sound isolation performance of a partition, they should be a “single leg” design with long slotted holes, such as the Clark Dietrich RC-Deluxe. The resilient channel should be installed carefully per the manufacturer’s instructions. The channel should be attached directly to the studs via the pre-drilled holes located at the midpoint of each slotted opening, with the mounting flange oriented down. Gypsum panels should be attached to the resilient channels only, using a screw length that ensures that the screw does not contact the framing members. Shorting out the resilient channel by screwing it into the framing – a common mistake — significantly negates the benefit of the resilient channel.
13. Above-ceiling openings for open return systems should be placed in the wall containing the door to the space if possible. Return openings in acoustically critical walls should utilize internally lined Z or U-shaped acoustical transfer ducts as in **Figure 14-2**. Our recommendations assume that all return grilles will have 90-degree “duct boots” connected, fabricated from acoustical flexible duct or internally lined rigid ductwork.
14. Outlet and utility boxes should not be placed back-to-back in the same stud cavity. All boxes in acoustically critical walls should have acoustical putty pads applied over the back and sides of the box. These pads should be Lowry’s Putty Pads, Kinetics IsoBacker, or similar.
15. If back-to-back penetrations cannot be avoided, they should be boxed-in with a minimum of one layer of gypsum board and well-sealed with acoustical caulk. Larger components embedded into the wall, such as recessed cabinets, should be boxed in similarly using the same number of gypsum layers as the surrounding wall.
16. Cabling raceways penetrating acoustically critical walls should be avoided. If necessary, specialty acoustical passthroughs for cable penetrations can be used, such as the EZ Path 33NEZ or Roxtec R Transit. If a prefabricated product is not utilized, the cable tray penetration openings should be packed with dense mineral wool or putty and sealed airtight after cabling has been installed.
17. For spaces with lay-in ceilings, at least one layer of gypsum board on each side must be taken up to the structure above, except for Type A which only requires one layer to extend to the structure. For spaces with gypsum board ceilings or other “hard lids,” the partition may stop at the ceiling line. If either side of the wall has no ceiling, all layers should extend full height. Where penetrations are required in full-height walls with sound isolation requirements they should be sealed airtight with resilient acoustic sealant. Oversized penetrations should be covered with a layer of gypsum board leaving only a ¼-inch gap around the utilities to be sealed with acoustical caulk. See **Figure 14-3** through **Figure 14-5** for example details.

18. Exterior noise should be taken into consideration with regard to the building envelope and its impact on interior perimeter rooms with noise sensitivity. As the project progresses, it is recommended that the building envelope's architectural elements be reviewed to ensure that the interior noise requirements are met. Usually, it is the number, design, and area of the exterior windows that determine the sound isolation provided by the façade.
19. All doors in Type A partitions or better, and any doors in partitions where acoustical privacy is important, should be solid-core wood or hollow metal with stiffened, insulated cores, with full perimeter gasketing. Compression bulb-style rubber seals should be used, not brush-type nylon seals. As part of the perimeter gasketing, the door bottom should be sealed. An undercut or gap at the bottom of the door will severely limit the sound isolation provided by the door. This can be achieved using a threshold, cam lift hinges, or a plunger-actuated bottom seal such as a Pemko type 434. A smooth, flat surface should be provided along the door threshold in order to achieve an airtight seal.
20. Unsealed sliding or frameless glass doors should be avoided at any space where sound isolation or speech privacy is required, as the gaps around these types of doors significantly degrade the sound isolation performance. Specialty sliding door assemblies are available that seal on all sides, including the door bottom, which could be adequate in some cases.



Perpendicular Acoustical Walls (Plan View, Not to Scale)

Figure 14-1: Partition Intersection

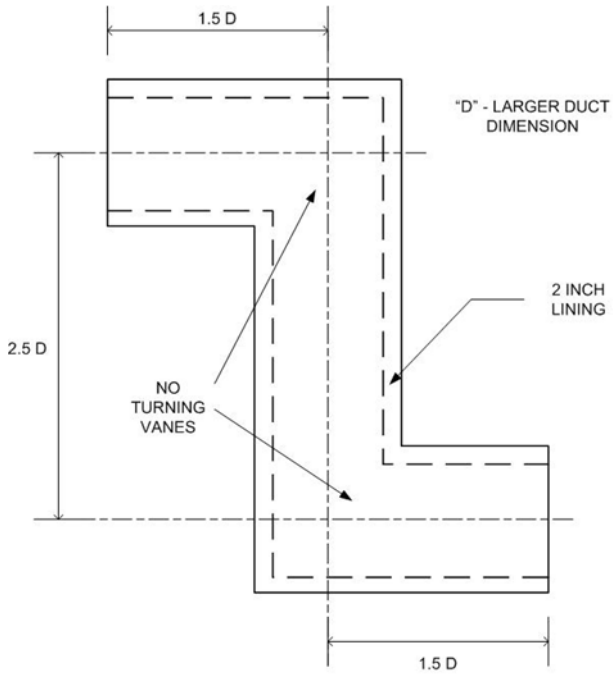


Figure 14-2: Typical Transfer Duct Detail

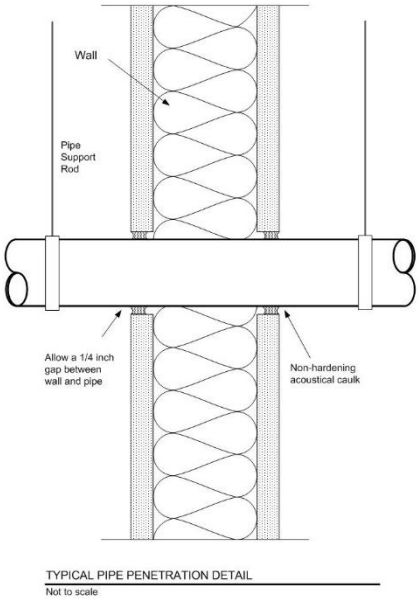


Figure 14-3: Typical Piping Penetration

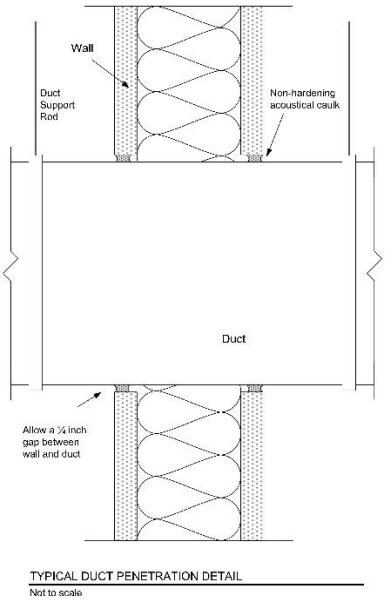


Figure 14-4: Typical Duct Penetration

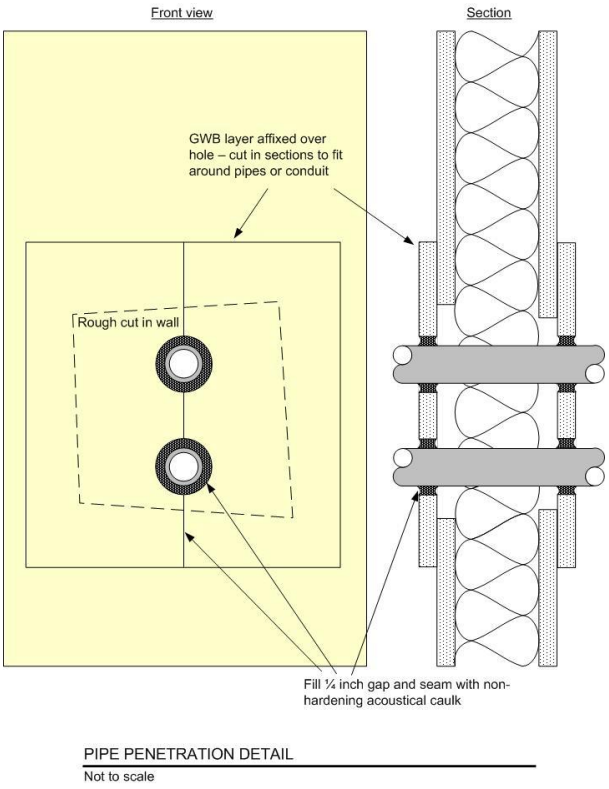


Figure 14-5: Typical Penetration through Rough Opening

BUILDING ENVELOPE/CURTAIN WALL

Exterior noise should be taken into consideration with regard to the building envelope and its impact on interior perimeter rooms with noise sensitivity. As the project progresses, it is recommended that the building envelope's architectural elements be reviewed to ensure that the interior noise requirements are met. Usually, it is the number, design, and area of the exterior windows that determine the sound isolation provided by the façade.

Per the California Green Building Standards Code (CalGreen), when noise levels exceed 65 dB (L_{eq}) over any hour period, one of the following two requirements will need to be met:

1. The overall building envelope will need to meet a minimum composite STC rating of 45 (or OITC 35) while exterior windows need to at least meet a STC-40 rating (or OITC 30).
2. The building envelope should be constructed to provide an interior noise environment that meets an hourly equivalent noise level (L_{eq}) of 50 dBA.

It has generally been Colin Gordon Associates' experience that the second option is not as stringent for design. Based on the measured sound levels, in order to meet 50 dBA within the interior of the building, the composite OITC rating will need to be 25 for the west façade that has direct line of sight with Highway 101. Note, however, that 50 dBA is only the minimum required by CalGreen. Higher OITC ratings should be considered to attenuate noise from traffic if one wants to meet the NC recommendations within the spaces, especially conference rooms. The recommended NC levels are summarized in Error! Reference source not found.**.** A summary of the minimum OITC rating based on NC requirements as well as the 50 dBA requirement can be summarized in **Table 14-3** below. (Note, these recommendations may change as the project progresses.)

Table 14-3: Minimum OITC Rating

Room Background Noise Criterion	**Minimum OITC**
NC-30	35
NC-35	32
NC-40	28
50 dBA (Minimum Code Requirement)	25

It is worth noting that OITC is a simplified metric that can describe a number of assemblies that perform somewhat differently as a function of frequency. Therefore, it is possible that assemblies that provide OITC ratings that are slightly lower than those shown in the above table could be utilized while still maintaining the criteria noted above. Alternative proposed assemblies can be reviewed by CGA for conformance with the CalGreen Performance requirements and our room background noise recommendations.

ROOM FINISHES

The following are some comments regarding finishes in acoustically critical spaces:

1. Floor, wall, and ceiling finishes are critical in determining the overall acoustical quality of a space. Absorptive finishes should be applied in areas where noise control and speech

intelligibility are critical, such as Supervisor Chambers, meeting/training rooms, private offices, interview rooms, reception/lobby areas, and open offices. The extent and required acoustical performance will be determined based on the geometry, use, and requirements of each space.

2. Highly absorptive ceilings should be used in any open-plan office areas, reception areas, and conference/meeting rooms.
3. Ceiling tiles should have an NRC[4] of at least 0.85.
4. Carpeting and padded underlayment should be used on floors above spaces having a criterion of NC-30 or less, in order to reduce noise from footfall. Where this is not feasible, a combination of a resilient underlayment and augmented ceiling construction may be required to reduce impact from above.

SPEECH PRIVACY

Acoustic privacy is a function of the sound isolation and room finishes as well as the level of background noise. A room that is too quiet makes it easier to hear private conversations. In addition to following the sound isolation and room finish guidelines described above, acoustic privacy can be improved by raising the overall background noise level in the receiving room. The background noise level in a room is usually determined by the HVAC system. However, one may also add a commercial pink noise generating system (sometimes referred to as a “sound masking system”) to specific areas if the background level is too low. Such a system works by unobtrusively increasing the background level. It is important to install such systems covertly before move-in and to make sure they are properly tuned for the space. Once occupants are cognizant of the system it loses much of its effectiveness.

14.5 Environmental Noise

Facilities are often required to show proof of compliance with state or local environmental noise regulations. The following are some general comments regarding environmental noise.

1. Applicable federal, state, and local noise regulations should be identified at project startup, as these may have some influence on building layout and mechanical equipment selection.
2. It is best to consider noise control for exterior equipment, and equipment that is exposed to the exterior via louvers, intakes, etc. if necessary, during the design stage rather than to have to apply, as a retrofit, potentially more costly noise control measures later.
3. Noise control measures often require a combination of equipment-specific mitigation as well as additional architectural features such as screen walls, revised building layout, etc. and therefore require coordination between disciplines.
4. Emergency generators are often an environmental noise concern, as they are typically quite loud and located on the exterior of the building. The conditions under which the

[4] NRC – Noise Reduction Coefficient is a single number description of the ability of a material to absorb sound and thereby reduce acoustical reflections.

environmental noise regulations apply to emergency generators should be clarified, as noise ordinances will often contain exceptions for emergency operations but may still apply to periodic testing of the unit.

5. The environmental noise impact from the facility on other buildings will be dependent, in part, on the existing conditions discussed in **Paragraph 1.2.**
6. Where environmental noise is a concern, we normally construct a computer-based noise model of the facility and surrounding areas, which includes all important buildings, noise sources, and ground contour details as these strongly affect the propagation of noise to outlying areas. This model can then be used to determine if the operating facility will comply with the noise regulations, and to test various noise control options if necessary.

14.6 Mechanical Design

MECHANICAL NOISE CONTROL

Noise can affect both personnel and instruments within the facility, and if projected in excess into the environment, the attitudes of the neighboring community. Control of HVAC noise and the careful selection of relevant architectural details can improve communications, speech privacy, and the general condition of work environments, and reduce long term work-related hearing damage, fatigue, and general annoyance.

The following are additional notes regarding our recommended approach to mechanical noise control in the design:

1. The HVAC system should be designed to meet the background noise criteria shown in **Table 14-1** of these guidelines.
2. Project specifications should include maximum octave band sound power levels for air handlers, exhaust fans, terminal units, and other air moving devices.
3. Air handler, exhaust fan, and fan-filter unit submittals must be consistent with the project noise requirements. Vendors will work with the noise consultant to determine sound power level limits for individual air handlers.
4. For each air handler, exhaust fan, and fan-filter unit, the vendor should provide inlet, outlet, and casing-radiated sound power data in octave bands of frequency, from 63 to 8000 Hz, for the expected operating condition(s) as per project requirements.
5. If necessary, additional noise control in the form of duct lining, silencers, etc. may be recommended by the noise consultant.
6. The HVAC duct layout should allow adequate room for silencers downstream of the air handling units and upstream of the exhaust fans, as well as downstream of individual terminal units if internal duct lining is not to be used. Insertion loss and self-noise requirements for these noise control devices will be established as necessary during design, based on a detailed analysis of the predicted HVAC noise.
7. Silencer manufacturers must be approved by the acoustical consultant prior to finalization of purchase contract. Approved vendors must be able to provide current certified test data for their product based on tests in an approved test laboratory.

8. Large main ducts and trunk lines should pass over corridors, mechanical areas, storage rooms and other non-sensitive areas wherever possible, rather than passing over conference rooms, offices, etc. Duct and piping penetrations in acoustically critical walls should be kept to a minimum.
9. HVAC breakout noise is the noise that is transmitted into a space through the walls of the ducts. This is most commonly a problem when a particular system has large ducts that pass over an acoustically sensitive space on the way to a space with a much less stringent design criterion. Breakout noise may be reduced with the use of round duct.
10. Terminal units and VAV boxes must be selected so that the noise they generate meets the recommended Noise Criterion (NC) levels of the rooms they serve. The equipment manufacturer's NC rating may not apply to many rooms within the facility, as these ratings are usually computed for rooms with a high amount of sound absorption and large amount of attenuation in the duct path from duct lining, etc. For this reason, terminal units shall be selected based on the manufacturer's certified laboratory octave band sound power levels.
11. Terminal units and VAVs serving spaces with a noise criterion of NC-35 or lower should be located outside of the room in the corridor or other less noise-sensitive space.
12. In-duct air velocities: To control diffuser and grille noise, we recommend that HVAC duct systems be designed such that the air velocities in **Table 14-4** are not exceeded in each final branch before the grille or diffuser. Further, we recommend that these maximum velocities be incorporated into the Mechanical Specifications.

Table 14-4: Maximum In-duct Air Velocities in Final Branch Before Grille or Diffuser

Room noise criterion	Supply	Return/Exhaust
NC-45	4.0 m/s (800 fpm)	4.5 m/s (900 fpm)
NC-40	3.5 m/s (700 fpm)	4.0 m/s (800 fpm)
NC-35	3.0 m/s (600 fpm)	3.5 m/s (700 fpm)
NC-30	2.5 m/s (500 fpm)	3.0 m/s (600 fpm)
NC-25	2.3 m/s (425 fpm)	2.5 m/s (500 fpm)

13. Diffusers should be selected for an NC requirement 10 points lower than the stated room design criterion.

14. Duct and piping penetrations in acoustically critical walls should be kept to a minimum. Where penetrations are required in full-height walls they should be well sealed with resilient acoustic sealant.
15. We strongly discourage the use of door undercuts for exhausting return air as these can severely compromise the sound transmission loss provided by the wall and door for noise sensitive rooms. Dedicated return ducting or acoustical transfer ducts are preferred.
16. Open return systems should utilize internally lined Z or U-shaped acoustical transfer ducts where openings are required in acoustically critical walls. See **Figure 14-2** for an example detail. Such openings should be placed in the wall containing the door to the space if possible.
17. Steps should be taken to ensure that sound is not transmitted between spaces where sound isolation and speech privacy is critical via the HVAC ducts. If duct lining is not allowed on the project, this will need to be done by using circuitous branch ducts from the main HVAC trunks.

15 VERTICAL TRANSPORTATION

15.1 Introduction

PURPOSE

The purpose of this Section is to provide criteria and configuration of the elevator systems required for the Sonoma County Government Center.

CODES

The vertical transportation system design shall comply with the following codes and standards.

1. California Code of Regulations, Title 8, Elevator Safety Orders.
2. American Society of Mechanical Engineers, Safety Code for Elevators and Escalators (ASME A17.1–2004).
3. California Building Code (CBC).
4. Department of Health Care Access and Information (HCAI).
5. American Disabilities Act–ADAAG published in 28 CFR Part 36 Federal Register.
6. National Electrical Code–NFPA 70.
7. National Fire Protection Association–NFPA 72.
8. National Electrical Code (NEC).
9. Fire Test of Door Assemblies–NFPA 252
10. American Welding Society (AWS) D1.1–Structural Welding Code–Steel.
11. American National Standard for Accessible and Usable Buildings and Facilities (ANSI A117.1).

15.2 Summary

ELEVATOR CONFIGURATION

The recommendations are based on the current architectural plans dated April 7th, 2025, which also provide populations on each floor. Estimated elevator capacity requirements are based on this population during periods of peak usage.

Two passenger elevators will be located on the East Wing. Three passenger elevators will be located on the West Wing. One of the passenger elevators in the West Wing will be a swing elevator serving building support functions, and secure access to upper floors for senior government officials. The remaining four elevators will provide access to upper floors for government staff and members of the public. Public access to upper floors will be restricted to HSD and HR functions.

The elevators will be Machine Room Less (MRL), each with a capacity of 4,000 pounds and speed of 200 fpm. They are sized to comply with stretcher accommodation requirements.

EQUIPMENT CHARACTERISTICS

Capacity: 4000 pounds
Speed: 200 fpm
Clear Car Inside: 7’-8” wide by 5’-5” deep

Doors: Single speed, center opening
Door Size: 3’-6” wide by 7’-0” high
Controls: Group Automatic (west bank), Duplex Selective Collective (east bank)

15.3 Vertical Circulation

PUBLIC AND STAFF

Vertical transportation for visitors and staff will be provided using a combination of public passenger elevators, open staircase, enclosed staircase and a secure elevator lobby. The elevator systems serve all levels of the building. A dedicated service elevator is not included in the design. The passenger elevators are designed to provide access to all floors for maintenance and logistical functions.

VALIDATION

The elevators are designed based on architectural considerations. Validation was achieved using simulation-based traffic analysis.

15.4 Elevator Analysis

PEAK TRAFFIC

Peaks will occur throughout the day and are especially heavy during morning peak hours or during a 60-minute period spanning the lunch hour.

The main entrance area is located on the Ground Floor. Arrival of staff will account for the bulk of morning peak traffic, with the heaviest traffic occurring between the hours of 8:00am and 9:30am. Moderate two-way traffic would continue through morning activity with maximum occupancy in the building occurring before noon. Heavy two-way traffic will persist throughout the noon period and then reduce to moderate levels. After 3:00 p.m. official and public activity will begin to move out of the building so that by 5:00 p.m., the final staff departures will essentially clear the building of normal daytime activity.

ANALYSIS CRITERIA

Elevator service is measured and evaluated using standards of performance that relate to the frequency of elevator service (Average Waiting Times and Time to Destination) and the ability of the system to carry passengers (Handling Capacities).

Average Wait Times (AWT)

AWT is the actual time a prospective passenger waits after registering a hall call at any level (or entering the queue if a call has already been registered) until the responding elevator doors begin to open. In courthouse environments, the Average Waiting Time should be between 30 to 35 seconds.

Average Time to Destination (ATD)

This is the average journey time of all passengers. Passenger journey time begins when the waiting time begins and ends when passenger has exited the elevator. The Level of Service for ATD should be less than 90 seconds for the passenger elevators.

Handling Capacities

Handling capacities are defined as the amount of passenger traffic an elevator group can transport during peak five-minute periods. In courthouse environments, the Handling Capacity should be 15% of the expected building population served.

Stair Use

Approximately fifteen percent of visitors and staff accessing the second floor are expected to use the staircase located in the lobby. All visitors and staff accessing the third through fifth floors are expected to use the elevators.

Elevator Population

Population is fundamental to the analysis. As explained below a total of 778 persons over a heavy one-hour peak period will require elevator service.

The West Wing bank of three elevators has an elevator population of 568 persons. Assuming that the swing elevator will be employed for building support functions during peak hours, the two remaining elevators will serve the entire west bank population. Morning Up Peak Average Wait Times (AWT) are expected to exceed 209 seconds during morning up peak, and Average Times to Destination (ATD) to exceed 263 seconds. Midday two-way peaks indicate AWT of 89 seconds and ATD of 105 seconds.

Table One – WEST WING Population Calculations

Floor	Total Population	Elevator Use	West Bank Crossover	Absentee Factor	Elevator Population	Peak Factor
5	150	100%	70%	85%	89	112
4	150	100%	70%	85%	89	112
3	250	100%	70%	85%	149	186
2	250	85%	70%	85%	126	158
1	0	0%	0%	0	0	0
Total	800				453	568

The East Wing of two elevators has an elevator population of 324 persons. Morning Up Peak Average Wait Times (AWT) are expected to be 20 seconds during morning up peak, and Average Times to Destination (ATD) to be 70 seconds. Midday two-way peaks indicate AWT of 28 seconds and ATD of 69 seconds.

Table Two – EAST WING Population Calculations

Floor	Total Population	Elevator Use	East Bank Crossover	Absentee Factor	Elevator Population	Peak Factor
5	150	100%	40%	85%	51	64
4	150	100%	40%	85%	51	64

3	250	100%	40%	85%	85	106
2	250	85%	40%	85%	72	90
1	0	0%	0%	0	0	0
Total	800				259	324

It should be noted that scientific traffic studies indicate that passengers notice wait times exceeding 35 seconds and times to destination exceeding 90 seconds. The current configuration in the west bank does not meet these criteria. The conclusion is that the west bank requires three elevators during peak periods to meet the criteria.

16 SIGNAGE AND WAYFINDING

The wayfinding and signage system for the new County Government Center (CGC) will deliver a seamless navigation experience and a welcoming atmosphere for all visitors. Thoughtfully designed and highly intuitive, the system will guide users effortlessly from arrival to their destination. By balancing functionality, accessibility, and formal aesthetics, this comprehensive approach will enhance the environment, inspire users, and reinforce the building's identity as a vital community resource. The system will address both exterior and interior navigation needs, adapt to evolving tenant requirements, and meet all accessibility standards. A particular focus will be placed on creating clear and prominent public entries, ensuring an inviting and easily recognizable access point for visitors.

Exterior (Site) Signage

A seamless wayfinding signage system is important to ensure effortless navigation, saving time and reducing frustration for visitors and staff. By providing clear, intuitive directions, the system will enhance operational efficiency, meet ADA, CBC, local codes, and ensure inclusivity for all users. Moreover, a well-executed exterior wayfinding system will reinforce public trust and confidence in the County.

SITE / BUILDING MONUMENT

A site monument sign will anchor the wayfinding system, serving as a primary landmark that establishes immediate recognition, reinforces the county's identity, and provides critical orientation. Positioned at the main entry point near the roundabout where County Center Drive and Administration Drive meet, it will play a crucial role in establishing the building's identity and aiding first-time visitors.

BUILDING ENTRANCE

Signage for Main Lobby, Council Chambers, Community Room, Probation Office, Human Services Department (HSD), and Café is crucial to provide clear differentiation of entry points, ensuring that visitors can easily locate their intended destinations. Each entry point serves specific functions, and appropriate signage enhances the visitor experience by reducing confusion and improving navigation efficiency.

BUILDING ADDRESS

The building address signage will ensure immediate identification while being compliant with the CBC and local requirements. Designed for optimal visibility day and night, the signage will be high-contrast and consistent typeface to maintain cohesiveness with the remaining wayfinding system.

VEHICULAR DIRECTIONALS

Vehicular directional signage will provide clear guidance for navigating the site's multiple entry points. These signs will direct vehicles from public roads to parking areas and drop-off zones while distinguishing between secure staff parking and public visitor parking for enhanced clarity.

PEDESTRIAN DIRECTIONALS

Pedestrian directional signage will ensure safe and clear pathways for visitors arriving on foot or by transit. These signs will be strategically placed to support intuitive navigation and accessibility.

Interior Signage

The interior wayfinding system will provide clear navigation through carefully positioned, highly visible signage that guides both staff and visitors effortlessly. Featuring an intuitive hierarchy of directional cues, room identification, and full ADA compliance (including tactile elements and high-contrast visuals), the system will ensure accessibility at all critical decision points. The design harmonizes with the building's architecture while maintaining uncompromising clarity—eliminating confusion in busy public spaces and restricted areas with a professional, cohesive aesthetic.

INTERIOR WAYFINDING STRATEGY

The interior wayfinding strategy will focus on providing clear directional signage to improve navigation efficiency and minimize confusion for visitors locating specific offices or departments.

BUILDING DIRECTORY

A well-designed building directory, whether static or digital, is the foundation of effective navigation. It will ensure visitors, employees, and tenants can easily locate offices, departments, and amenities while maintaining clarity, accessibility, and aesthetic harmony with the building's design.

MAIN LOBBY AND RECEPTION

The main lobby and reception area of CGC will feature a prominent signage that establishes immediate identity and authority. Designed as a visual anchor, this primary sign will display the building name and possibly the official county seal in a clean, durable, and architecturally integrated format.

TENANT IDENTITY

The tenant identity signage program establishes clarity and professionalism at each occupied entry point within the building. These custom signs will feature a modular and scalable system to accommodate each tenant name and/or logos, while maintaining cohesive aesthetics. A flexible configuration will be considered for efficient tenant updates.

TYPICAL ADA SIGNAGE (PROTOTYPE)

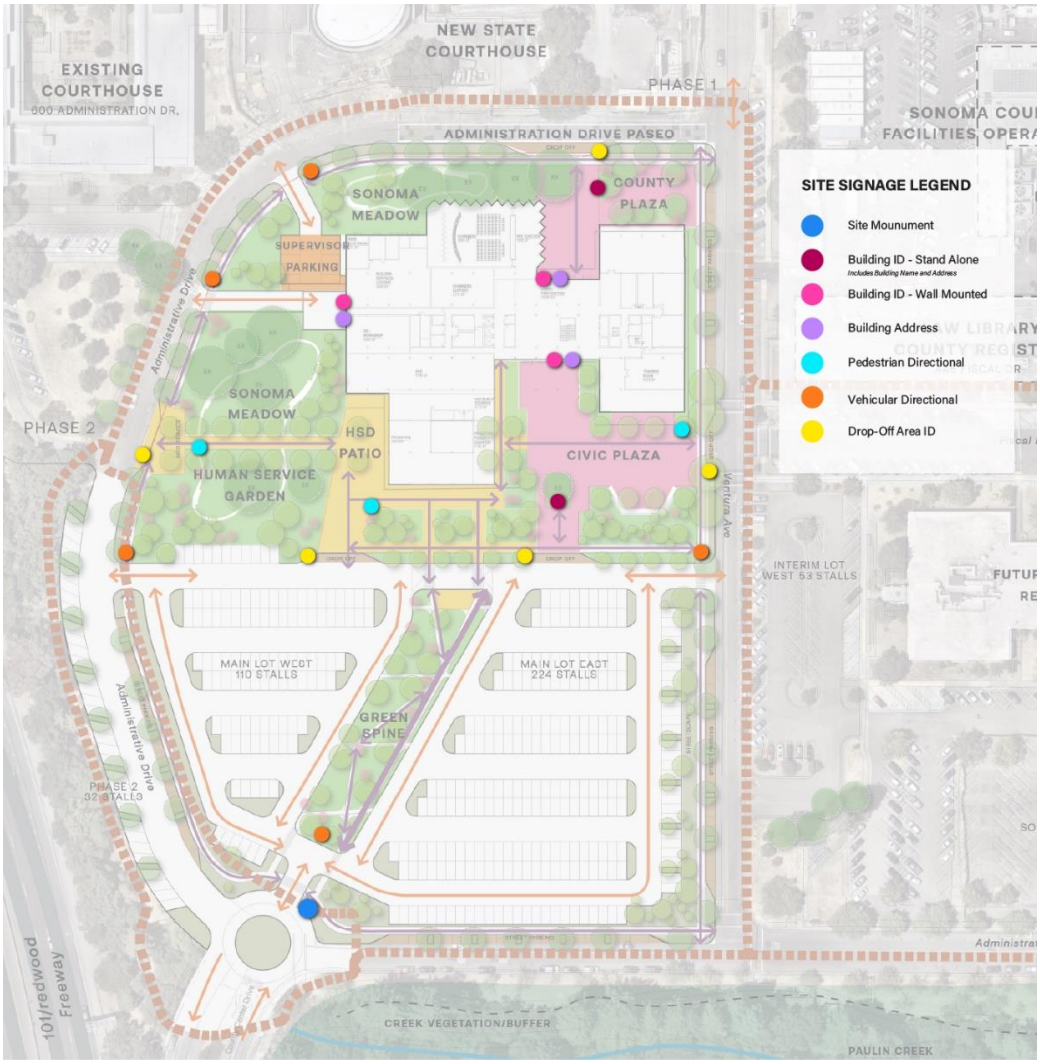
The code-required ADA signage system will deliver full compliance while maintaining aesthetic cohesion with the building's design language. The prototype package will provide vendors with the necessary templates for expanding and finalizing the full message schedule before production.

BACKDROP FOR PRESS EVENTS

This will serve as a dynamic visual anchor, reinforcing the client's brand identity while ensuring clear messaging for media coverage. Designed for high-impact visibility, the backdrop will consider materials and finishes that are optimized for camera capture.

BULLETIN BOARDS FOR PUBLIC NOTICES

This architectural bulletin board should blend with the building's finishes while providing a secure, easily updatable display for public notices.



Site Signage and Wayfinding Location Diagram

17 PROJECT SEQUENCING

17.1 Project Sequence Overview

IMPLEMENTATION STEPS

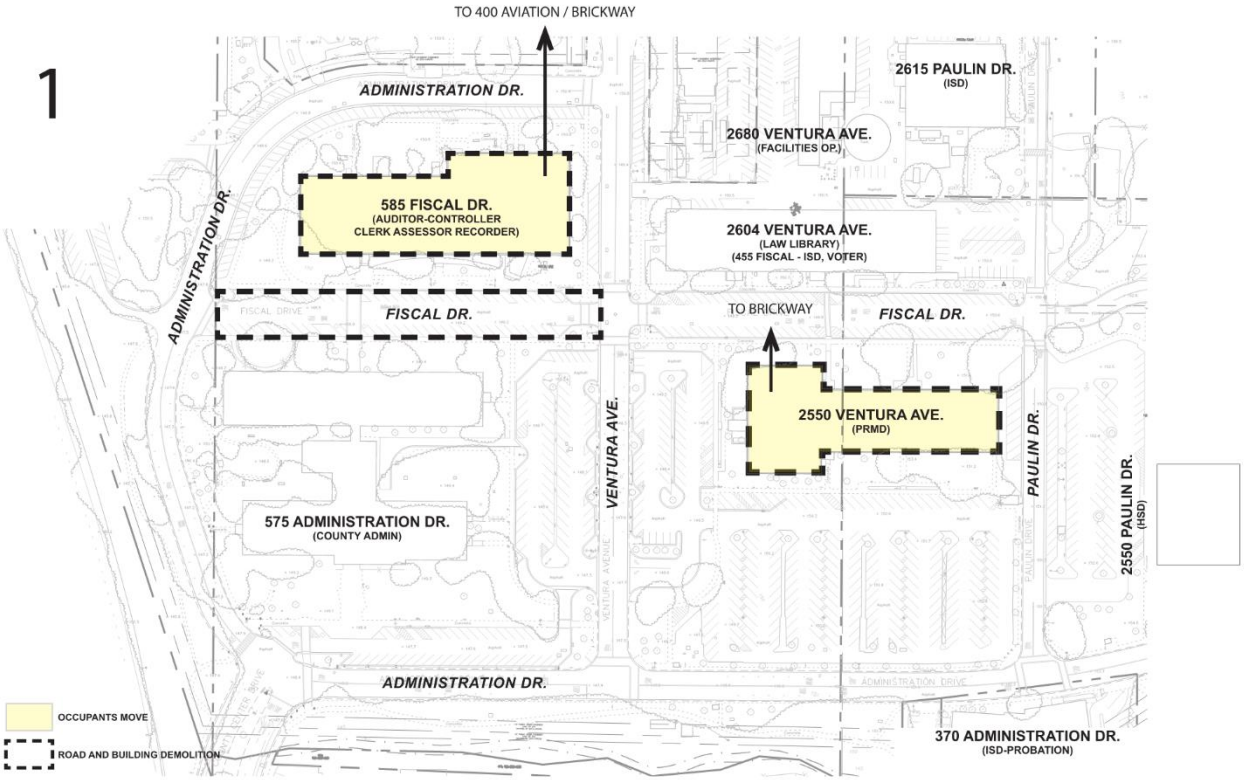
A number of steps need to happen to bring the new County Government Center to fruition. As part of the site planning exercises, the project team is recommending that the CGC be located in the northwest quadrant of the project site as delineated in the Architectural / Engineering Design services RFP. The advantages and reasons for this choice are outlined in Chapter 4 Site Design & Landscape.

COUNTY CAMPUS

The CGC project team recognized that some level of County Campus Master Planning was necessary to understand the sequence of required staffing relocations to enable certain aging facilities at the end of their useful lives to be demolished. By removing these inefficient and outdated structures, the County Campus frees up valuable real estate for higher and better uses in the future.

1. DEMO 585 FISCAL DRIVE

The CGC project team recommends the CGC be located on the site where 585 Fiscal Drive currently sits. This location creates synergies with the new State Criminal Court and a potential future State Civil Court, and frees up the maximum acreage of the County Campus for higher uses. To facilitate demolition of 585 Fiscal, the occupants (auditor-controller, clerk, recorder, assessor) need to relocate to another facility.

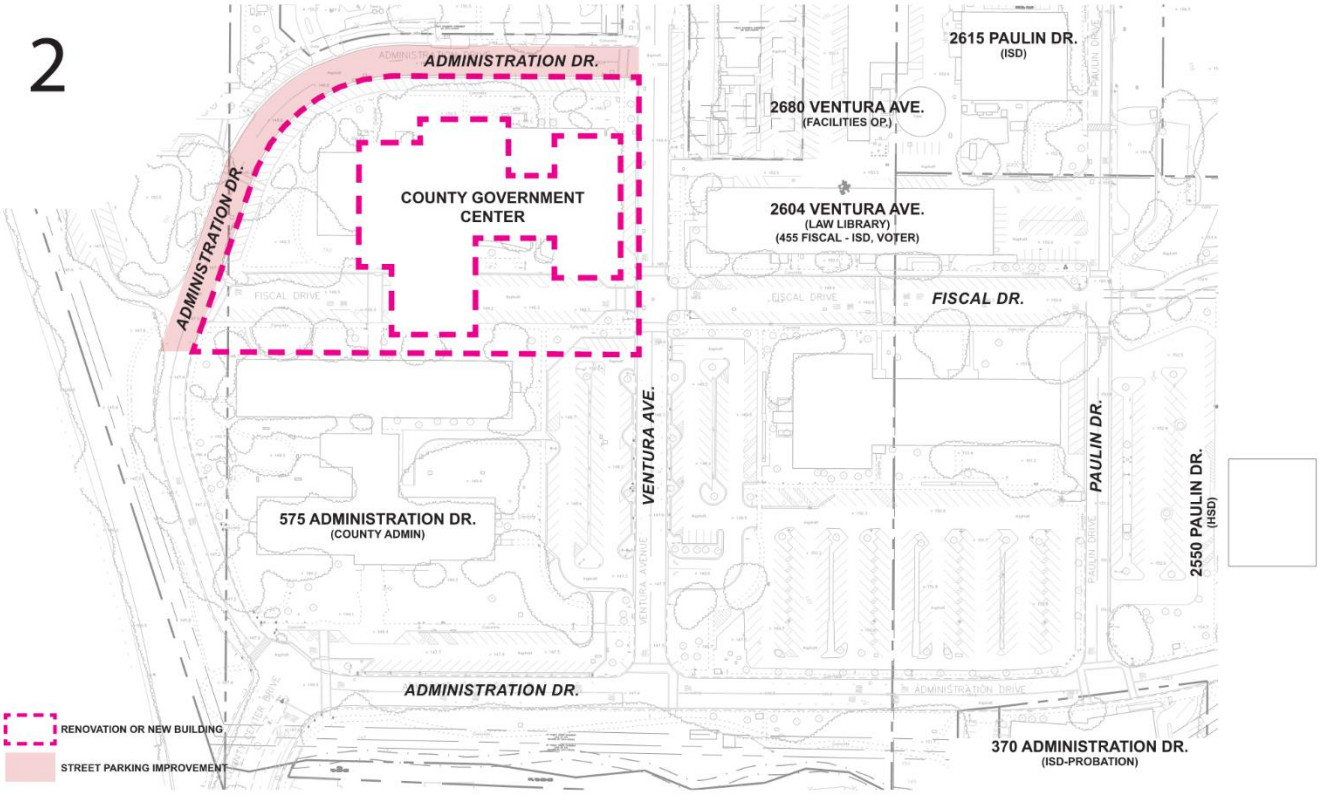


1.0 MOVE 585 FISCAL OCCUPANTS TO 400 AVIATION / BRICKWAY
1.1 DEMO 585 FISCAL, ABANDON FISCAL DR.

1.2 MOVE 2550 VENTURA OCCUPANTS TO BRICKWAY
1.3 DEMO 2550 VENTURA & FISCAL DR. WEST OF VENTURA

2. BUILD THE CGC

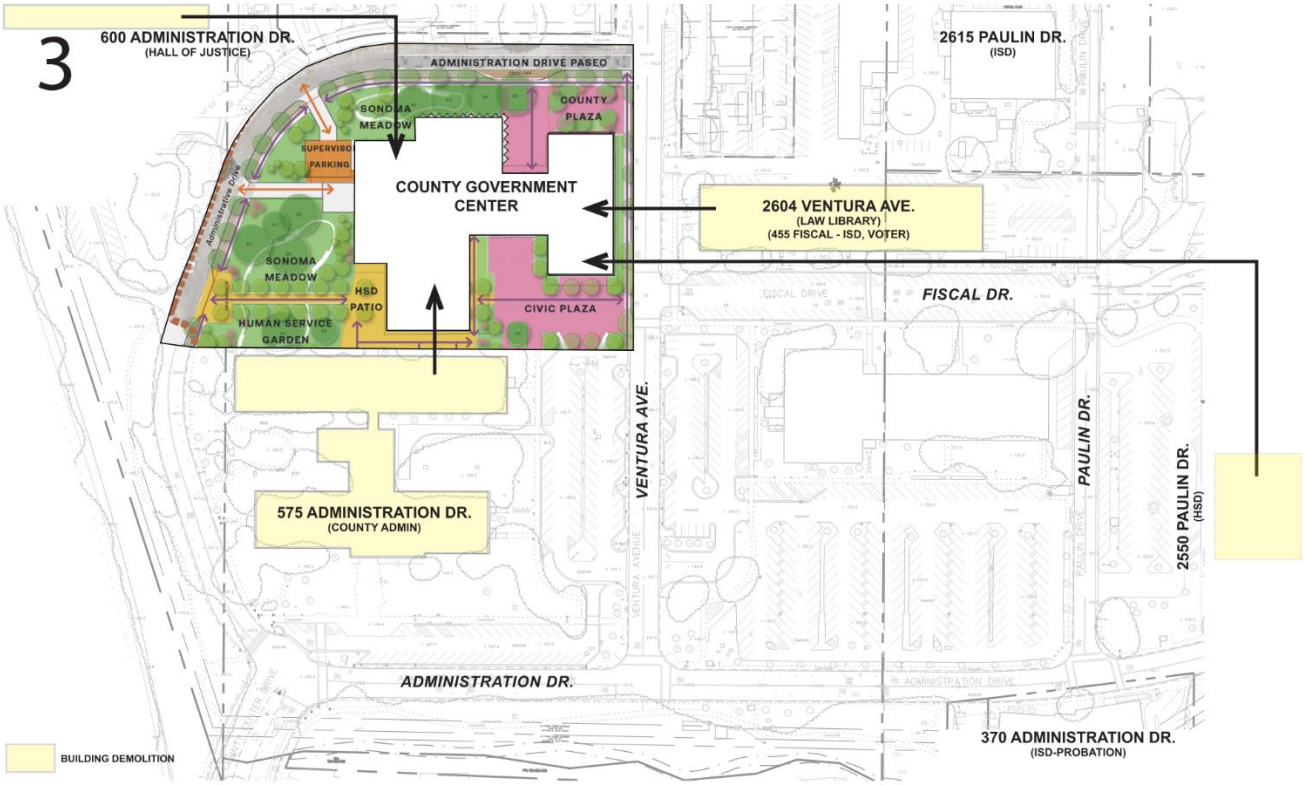
The CGC project team recommends abandoning the portion of Fiscal Drive west of Ventura Ave., creating a more walkable area surrounding the new building. Once the occupants of 585 Fiscal are re-located, the building may be demolished and construction of the CGC may begin. The CGC project team is recommending some improvements to Administration Dr. to create a civic focused zone with the new State Courthouse and de-emphasizing vehicular traffic (slower speeds) for pedestrian safety.



2.0 BUILD CGC
2.1 REWORK ADMINISTRATION DR.

3. MOVE REMAINING OCCUPANTS

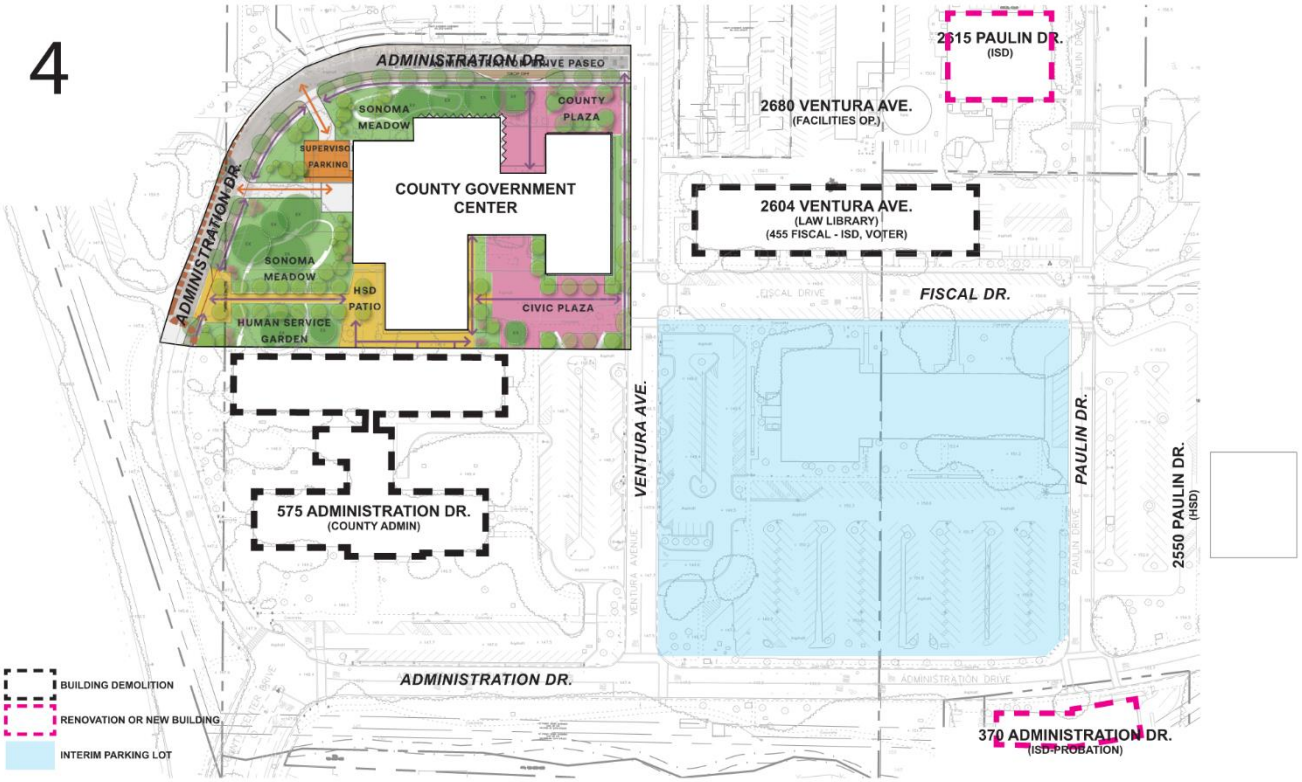
Once the CGC project is complete, the remaining occupants in the 575 Administration, 2604 Ventura (Law Library, ISD and Voter), and 2550 Paulin (HSD) designated to go into the CGC may move. The occupants of 2550 Ventura (PRMD) will move to Brickway.



3.0 MOVE 575 ADMINISTRATION DRIVE OCCUPANTS TO THE NEW CGC
3.1 MOVE 600 ADMINISTRATION DR. OCCUPANTS TO THE NEW CGC
3.2 MOVE 2604 VENTURA OCCUPANTS TO THE NEW CGC
3.3 MOVE 2550 PAULIN OCCUPANTS TO THE NEW CGC

4. DEMO 575 ADMINISTRATION DRIVE

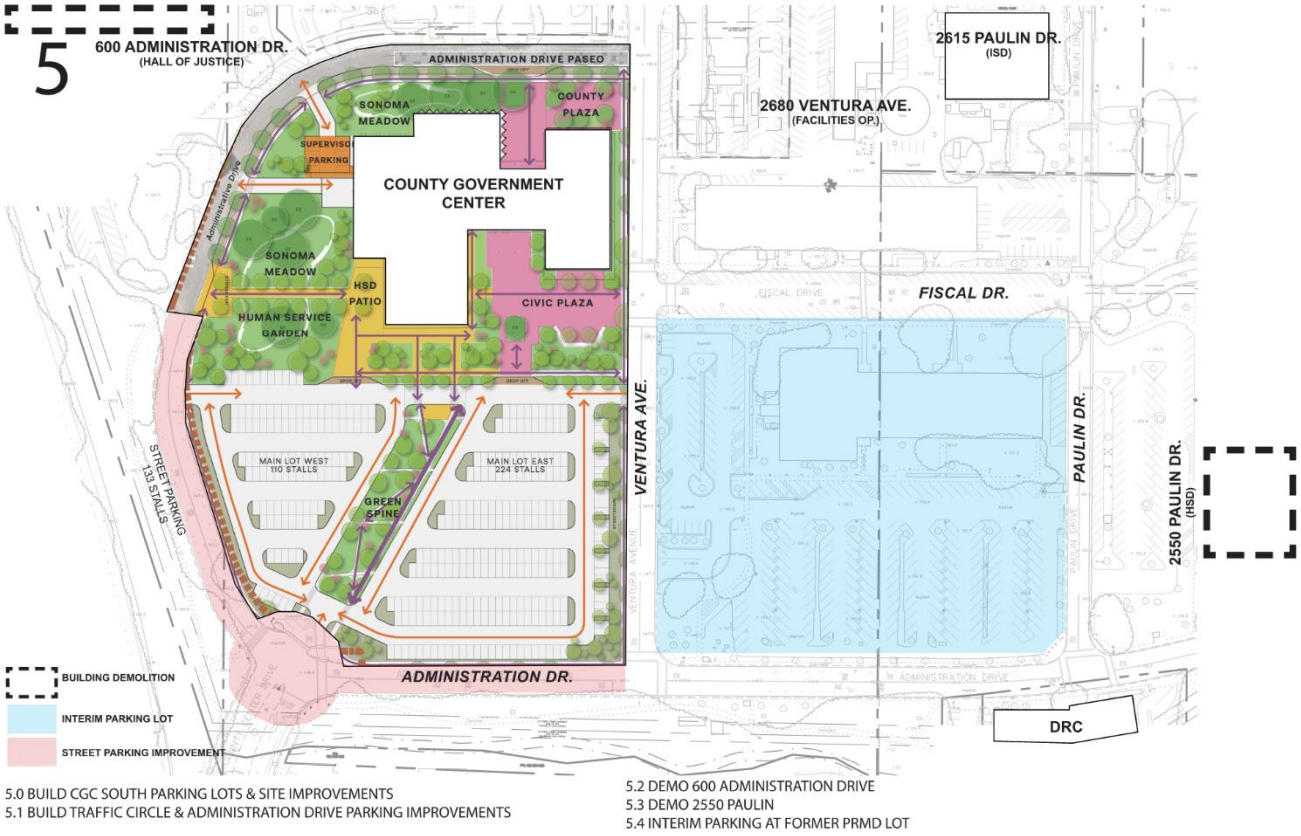
With occupants fully moved into the CGC, 575 Administration Drive (County Admin) may be demolished. Other campus projects that may need attention during or after the CGC is built include backfill work at 2615 Paulin (ISD) and 370 Administration Drive. Probation's Day Reporting Center (DRC) has been suggested to move from their undersized lease space at 2400 County Center Drive to 370 Administration.



4.0 DEMO 575 ADMINISTRATION DRIVE & 2604 VENTURA (LAW LIBRARY)
4.1 INTERIM PARKING AT FORMER PRMD LOT
4.2 RENOVATE 2615 PAULIN
4.3 RENOVATE 370 ADMINISTRATION FOR NEW DRC

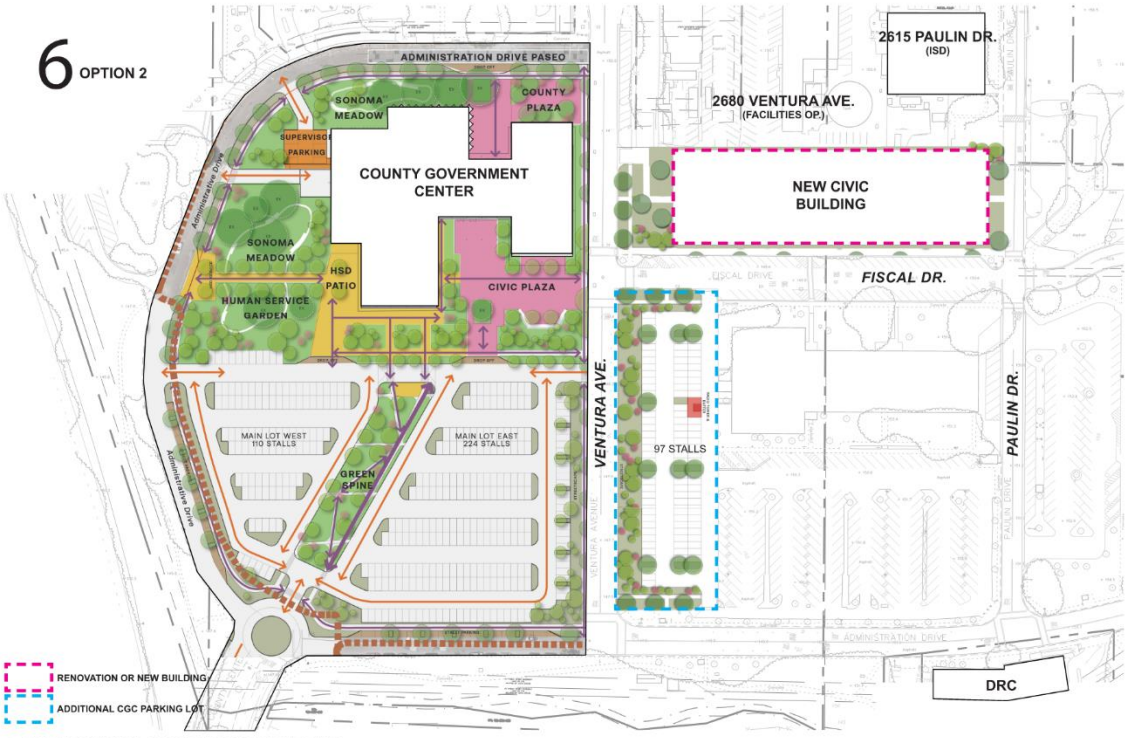
5. BUILD CGC'S SOUTH PARKING LOTS

Following demolition of the 575 Administration Drive building, the south parking lots (staff and visitor) and site improvements can be implemented. This will include construction of solar canopies over the surface parking lots. The CGC project team suggests a two-step process, whereby site improvements including a traffic circle at the intersection of Administration Drive and County Center Drive and increase street parking along Administration Drive happen separately from the CGC surface parking lots. This would prevent too many parking spaces from being taken offline at the same time.



6. DEMO REMAINING OLD CAMPUS STRUCTURES

The final step would demolish any remaining campus buildings at the end of their useful life expectancies: 2550 Ventura Avenue (PRMD), 2604 Ventura Avenue (Law Library, etc), and 2550 Paulin Drive (HSD). These sites would then be prepared for future development. Approximately 180-200 parking spaces will need to be provided for the CGC in the final configuration. This could either be accommodated with a portion of the old PRMD parcel east of Ventura Avenue along its western edge or at the 2604 Law Library site. Finally, the County may consider a traffic circle at the intersection of Paulin Drive and Administration Drive to provide a cohesive campus design and clear wayfinding from the east.



6.0 BUILD ADDITIONAL CGC PARKING EAST OF VENTURA
6.1 NEW CIVIC BUILDING AT 2604 VENTURA

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