

Attachment C – Sustainability Objectives and Cost Estimates

In December 2019, the Board of Supervisors identified goals and objectives for the new County administration buildings. These included achieving sustainability objectives of net zero buildings, with consideration for energy, water, and waste. Specifically, resilient infrastructure utilizing renewable energy and battery storage was described as a key objective given Sonoma County’s frequent disasters and power grid interruptions. In addition, in March 2021, the Board adopted their five-year Strategic Plan which contains the climate action and resiliency goal, “make all County facilities carbon free, zero waste and resilient.” This includes designing or retrofitting County facilities to be carbon neutral, zero waste and incorporate resilient construction techniques and materials as well as establishing carbon eliminating microgrid technology and improving energy grid resilience to reduce the impact of power loss during power shutdowns and natural disasters. In subsequent analysis and cost modeling, staff and PFAL have considered the broad objectives outlined by the Board and identified three potential design and operational standards for consideration which include:

- Good – Base case model standard assuming LEED Gold
- Better – Base case model standard assuming LEED Platinum
- Best – Base case model standard assuming LEED Platinum and a Living Building Standard or similar

This report will identify the differences between each of the three standards, the cost estimates for each, and describe example projects elsewhere in California where jurisdictions have achieved each standard. Finally, staff will recommend a sustainability objective for the Board’s consideration.

A Brief Note on Standards

As the understanding of how the built environment impacts climate change and resource use (energy and water) has grown so have sustainability standards. Whereas at one time the US Green Building Council’s Leadership in Energy and Environmental Design (LEED) introduced in 2000 was the early adopter, there are now other popular standards that in a manner similar to LEED have been updated since they were originally established: Living Building Challenge (2006), Well (2014), Fitwel (2017). There are extensive articles on the differences between each of the standards but quite simply: Living Building Challenge focuses on actual measured results, and Well and Fitwell focus on the health of building occupants in addition to the design and operations focus of LEED. Examples of buildings meeting each of these standards can be found in the United States and internationally. Some public entities design and construct to the standards but do not elect to fully certify due to the cost and time involved. In addition to the standards described above, the State of California has long established building code standards mandating resource efficiency that apply to new construction of all types.

Other Bay Area jurisdictions have adopted standards for all capital construction projects. For example, on April 29, 2003, the Alameda County Board of Supervisors adopted Ordinance 2003-63, adding Chapter 4.38 to Title 4 of the Alameda County Administrative Code, requiring that all county projects initiated after July 1, 2003 must achieve a minimum of LEED Silver rating or county approved equivalent. In December 2017, the San Mateo Board of Supervisors approved an update to the County's 2001 Sustainable Green Building Policy. The new policy describes the LEED Certified requirement for all county-owned new construction over 10,000 sq. ft., but county projects are also required to earn at

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minimum 50% of the Energy & Atmosphere credits and achieve ZNE with generation from on-site or adjacent renewable energy resources.

California Building Code Standards

The California energy code mandates energy conservation measures as defined in the Building Energy Efficiency Standards Title 24, Parts 6 and 11. The code is updated every three years. If the new County Government Center permits are applied for after December 31, 2022, then the 2022 CA Building Code requirements under Title 24 will apply. In addition to mandatory elements include in Part 6, the 2022 Energy Code encourages use of electric heat pumps, and defines and expands solar PV, battery storage, ventilation, lighting systems controls, and other requirements. Regardless of the Board adopted sustainability target, the new County Government Center must comply with the California Building Code standards defined in Title 24.

What is LEED?

LEED stands for Leadership in Energy and Environmental Design, and the U.S. Green Building Council (USGBC) uses it to certify the sustainability of a structure at construction completion or on an ongoing basis. The USGBC offers LEED certification for a building as a whole and for a number of different building systems, basing the rating on points. The more sustainable the building and its systems, the more points it scores. To attain the various levels of LEED certification (Silver, Gold, or Platinum), a building has to earn a certain number of these points, and the points can come from within several categories. They can range from the use of green materials in construction and furnishings, indoor environments and workspaces, renewable energy, energy-efficient building systems, and water-efficiency features, sustainable building sites, access to public or bicycle transportation, and other innovations that are specific to the project under consideration.

Ongoing Maintenance & Sustainability Beyond Design

Sustainability does not stop at design and construction. Buildings must be maintained and continuously “commissioned” in order to ensure that they continue to operate with the sustainability credentials as designed. The LEED and Living Building Challenge standards have requirements for ongoing maintenance. As a result, a higher level of ongoing maintenance has been included in the base model assumptions for the operational period. For the New Construction LEED certification, the program requires that projects share energy and water data for 5 years. If a project elects to pursue the Enhanced Commissioning credit, the commissioning agent will be required to review building operations 10 months after substantial completion. Projects can elect to pursue O&M certification after they achieve the new construction certification. All Living Building Challenge projects have a twelve-month performance period and are audited by a third party before they can receive certification.

New County Government Center Potential Sustainability Targets

PFAL has updated the base cost model to include anticipated cost premiums for various sustainability standards. This analysis drew upon industry experience across multiple completed projects familiar to the consulting team. The cost model describes generalized estimated costs and does not identify a

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specific design or attributes. If the County selects a sustainability standard beyond the California building code requirements, then the recommended standard will be described in the solicitation phase and the P3 entity will have responsibility for designing and constructing, and then maintaining the facility to the standard.

Staff recommend at minimum the Board consider the “Good” or LEED Gold standard.

Good – LEED Gold: Includes the following assumptions and cost-dependent design and performance targets:

- Premium of approximately \$16/sq.ft for the base case or approximately 3% capital cost premium over LEED Silver or no LEED standard
- CA public entities have completed 151 projects certified LEED Gold. See Alameda County’s Juvenile Justice Center <https://www.acgov.org/sustain/what/greenbuilding/>
- Includes the following assumptions and cost-dependent design and performance targets:
 - LEED BD+C Gold
 - May include design criteria similar to: Fitwel 1-Star, cost dependent
 - Target Net-zero waste or Net-zero energy, cost dependent
 - Items generally included within this option which impact construction costs
 - More efficient equipment
 - Change in spec of AHUs to reduce static pressure
 - Coils with lower pressure drop
 - Changes to duct design
 - Hydronic system with condensing boiler
 - Plug controls at 50% workstations

Better - LEED Platinum: Includes “Good” and the following assumptions and cost-dependent design and performance targets:

- Premium of approximately \$39/sq.ft for the base case or approximately 7% capital cost premium over LEED Silver or no LEED standard.
- CA public entities have completed 36 projects certified LEED Platinum. See San Diego County’s Northcoast Livewell Health Center and Library projects <https://www.usgbc.org/articles/san-diego-county-s-energy-saving-strategies-led-leed-platinum>
- Includes the following assumptions and cost-dependent design and performance targets:
 - LEED BD+C Platinum
 - May include design criteria similar to: WELL Silver or Fitwell 2-Star, cost dependent
 - Target Net-zero waste and choose either: Net-zero energy or Net-zero water, cost dependent
 - May include measurement standards to meet: LEED Existing Buildings: Operations & Maintenance
 - Items generally included within this option which impact construction costs
 - Plug controls at 75% workstations

Best – LEED Platinum and Living Building Challenge: Includes “Better” and the following assumptions and cost-dependent design and performance targets:

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- Premium of approximately \$87 /sf for the base case or approximately 15% capital cost premium over LEED Silver or no LEED standard.
- There are 390 worldwide LBC projects in process with 15 completed and fully certified. One California public entity's building is fully certified LBC: Santa Monica City Hall East.
<https://trimtab.living-future.org/living-building-challenge/sustaining-a-city-sustaining-hope-water-and-the-santa-monica-city-hall-east/>
- Includes the following assumptions and cost-dependent design and performance targets:
 - May include design criteria similar to: Living Building Challenge (Petal certification with at least energy and water petal achieved) , cost dependent
 - May include design criteria similar to: WELL Gold or Fitwell 3-Star, cost dependent
 - Target Full triple Net-zero goal (Energy, Water and Waste), cost dependent
 - May include measurement standards to meet: LEED Existing Buildings: Operations & Maintenance
 - Items generally included within this option which impact construction costs
 - Electric heat pumps and heaters
 - More efficient chillers
 - Further reduction in total static pressure
 - Plug controls at all workstations
 - Upgrade windows to triple glazing
 - Reduced glazed area to 50% of façade
 - Realign building to suit movement of sun
 - Concrete to have 50% cement replacement
 - Structural steel with over 90% recycled content
 - Waste Management Plans
 - Red listed materials - change of material specifications and additional costs for managing material process
 - Soft cost increases due to more stringent guidelines
 - Biophilic design reports
 - Lighting power densities can be reduced, together with building equipment power density