Operations Support Services Division

Memorandum

May 16, 2023

To: Doug Hoffner
Chief Operating Officer
Operations and Technology

From: Dallas Stone, Chief
Operations Support Services Division

Subject: CalPERS 2022 Sustainability Highlights

The Operations Support Services Division (OSSD) is pleased to present the annual Sustainability Highlights Memo, providing a detailed look at CalPERS' green operations' performance and achievements for the prior calendar year. These achievements are based on the Governor's sustainability mandates and are the foundation of measuring the facility's performance and compliance. Complying with the mandates not only aligns CalPERS with the Governor's sustainability goals, but also serves to improve CalPERS' green performance as a state agency and contribute to environmental preservation.

In March 2022, team members returned to the office on a hybrid schedule. This resulted in certain key performance indicators to fluctuate due to the readjustment of the onsite population. As the organization settles into the hybrid schedule, the numbers are expected to stabilize and reflect the operations performance based on the new onsite schedule. Despite the changes, CalPERS has maintained and improved its high-efficiency operations, developed plans to upgrade Lincoln Plaza's water efficiency, and become decarbonized. The below sustainability categories outline the associated mandates and actions taken by CalPERS to meet or surpass all sustainability legislative requirements for both Lincoln Plaza North (LPN) and Lincoln Plaza East/West (LPEW).

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED®)

Executive Order (EO) B-18-12* and *Management Memo (MM) 15-04 *– Requires buildings over 50,000 square feet to obtain and maintain a LEED® Existing Building Operations and Maintenance certification.*

- The LEED® Green Building Certification Program, administered through the United States Green Building Council and Green Building Certification Institute, was designed to

help develop highly efficient sustainable buildings. The LEED® green building rating system is the most widely used globally and its certifications symbolize that a building is sustainable.

- Lincoln Plaza (LP) recertified under LEED® Existing Buildings: Operations and Maintenance. version 3 in 2018. The Certification levels are: Platinum, Gold, Silver, and Certified. LPN earned LEED Gold® and LPEW earned LEED Platinum®.

- CalPERS will recertify LP for LEED® in 2023. Based on preliminary data, the LEED® consultant expects that LP will achieve or exceed the current certification levels.

ENERGY STAR

MM 15-04 *– Requires that all existing state buildings meet or exceed an Energy Star rating of 75.*

- Energy Star Portfolio Manager is an energy and water benchmarking program for existing buildings led by the United States Environmental Protection Agency to provide a snapshot of a building's energy performance. Annually, buildings receive an Energy Star score based on its energy performance in comparison with buildings nationwide of similar construction and size.

- In 2022, LP continued to be Energy Star certified and exceeded the mandated Energy Star score of 75. LPEW received a score of 85 and LPN received a score of 80.

- These scores mean that LPEW is more energy efficient than 85% of similar properties nationwide and that LPN is more energy efficient than 80% of similar properties nationwide.

WELL HEALTH-SAFETY RATING FOR FACILITES AND OPERATIONS

- In 2023, CalPERS began the process to renew their application for the WELL Health-Safety rating for LP. CalPERS first rating was received in January 2022. CalPERS has retained our WELL Health-Safety certification for 2023.

- The WELL Health-Safety Rating consists of a subset of relevant features from the WELL Building Standard™ (WELL™) adapted for facility operations and management. This certification serves as a symbol of CalPERS' extensive preparation and confidence for not only reopening the buildings, but providing a healthy and safe workspace for its team members.

- The third-party review process ensures integrity and consistency, and results in a WELL Health-Safety seal, communicating leadership and a commitment to health and well-being.

ENERGY CONSERVATION

Grid-based Energy

EO B-18-12 *– Requires a 20% grid-based energy reduction by 2018 with 2003 as the energy baseline. To date, Governor Newsom's administration has not released a future target.*

- Grid-based energy includes electrical and natural gas utilities. The water heaters and boilers use natural gas to produce hot water and heat the buildings. Although this goal has passed, CalPERS continues to strive for energy efficiency. The 2003 baseline did not allow for CalPERS to meet the 2018 goal due to the total building area having increase substantially when LPEW was added in 2005.

- In 2022, CalPERS' total grid-based energy was 24% greater than the 2003 baseline. There was a 17% increase from 2021 to 2022, largely due to CalPERS employees returning to a hybrid work schedule. Despite an increase from 2021, the total grid-based energy is 15% lower than before the mandatory telework schedule.

- The average site energy usage intensity (EUI), which measures energy per square foot based on the amount of energy produced onsite, was reduced by 41% in 2022 compared to 2003. From 2019 to 2022, LP used 7 kBtu/ft2 less energy per square foot.

- In October 2022, CalPERS contracted with a third-party consultant to develop a Decarbonization Plan. This Plan was developed based on interviews, background documents review, and onsite assessment. It also included a carbon assessment, an ASHRAE Level II energy audit, energy end use breakdown, a list of energy efficiency measures (EEMs), and costs associated with construction, labor, and equipment upgrades. This plan would increase energy efficiency of the LPNEW buildings and electrify it so that CalPERS would be net-zero, therefore using 100% renewable energy and eliminating almost all carbon emissions on site.

Zero Net Energy

EO B-18-12 *– Requires source Zero Net Energy (ZNE) for 50% of total existing building area by 2025.*

- Site ZNE consists of a building consuming only the amount of energy that it produces onsite. Source ZNE includes energy used onsite, plus energy consumed while extracting, processing, and transporting fuel, as well as energy lost during transportation and distribution to the site.

- Sacramento Municipal Utility District's (SMUD) SolarShares program continues to offset at least 50% of LP's electric energy from a local solar field. In 2022, 59% of the source energy was from SolarShares. This is 9% higher than the mandate. This accomplishment

is partly caused by the reduced load on the building due to the team members switching to a hybrid schedule.

- In 2022, the source EUI with SolarShares was 56 kilo British thermal units per square foot (kBtu/ft2), which is 53% more efficient than the pre-2020 average nationwide source EUI, which was 116kBtu/ft2. This achievement is also influenced by the decreased building occupancy.

LPW Data Center

MM 14-09 *– Requires efficiency in Data Centers and Server Rooms that exceed 1,000 square feet to achieve energy efficiency. Also requires that Data Centers and Server Rooms measure and report the annual power usage effectiveness (PUE) ratio which should not exceed 1.5. Data centers that exceed a PUE of 1.5 shall reduce their PUE by a minimum of 10% per year until they achieve a 1.5 or lower PUE.*

- The PUE ratio measures the efficiency of a data center. A high PUE indicates a less efficient data center.

- The 2022 PUE is 1.83. This is higher than both the 2021 PUE of 1.81 and the MM 14-09 mandated PUE of 1.5.

- As the Information Technology (IT) equipment is removed, its information migrated to the cloud, and then replaced with newer more efficient equipment, the PUE will continue to increase. From 2021 to 2022 the IT load dropped 25%. Since 2018, the IT load has dropped 52% and the PUE has increased 17%. Past studies have shown that it is not economically feasible to significantly reduce the PUE of the data center.

- CalPERS' Property Management team continues to maximize the energy efficiency of the data center through no cost measures, including monthly inspections, temperature monitoring, and efficiency air flow management. Additionally, the migration of equipment allowed some equipment to be turned off, thereby saving energy.

- Without significant capital improvement projects, it will be difficult for CalPERS to meet the 1.5 PUE ratio due to the overall size of the data center and the energy consumed to run and cool the area. Unless the overall hardware utilized by CalPERS is reduced and IT infrastructure is migrated to the cloud, there are limitations to what CalPERS can do to limit the PUE ratio.

GREENHOUSE GAS EMISSIONS

EO B-18-12 *- Requires all state agencies to reduce their greenhouse gas (GHG) emissions 20% by 2020 based on a 2010 baseline.*

- The sources of GHG that CalPERS reports on are electricity, natural gas, gasoline, diesel, propane, and refrigerant. These sources come from the LP buildings, Emergency Operations Center, parking lots, regional offices, warehouses, and vehicles.

- Carbon offsets are purchased to zero out LP's non-electricity created carbon including natural gas, diesel, propane, and refrigerant.

- In 2022, CalPERS completed the GHG inventory for the 2021 emissions year and achieved an emissions reduction of 86%, or 5,586 metric tons, of carbon dioxide equivalent, when measured against the 2010 baseline.

- CalPERS reports our GHG inventory to the Climate Registry and was awarded the Climate Registered Gold status for reporting and verifying our 2021 GHG inventory. We exceeded the reporting requirements by voluntarily having a third-party verify the 2021 inventory to an accuracy of within 5%.

- CalPERS was awarded Climate Registry Gold status for reporting and verifying our 2022 GHG inventory. CalPERS has reported to the Climate Registry since 2012 and plans on continuing its commitment to sustainability.

- CalPERS covers 50% of the GHG associated with LP's electric energy consumption with the SolarShares program and the remaining 50% with SMUD's Greenergy program by purchasing renewable energy certificates. Beginning January 1, 2020, Greenergy began providing LP with a mix of wind, hydropower, and solar RECs from California.

- Since 2018, CalPERS' landscapers have been using mostly zero-emission battery powered landscape maintenance equipment for the LP complex, further reducing GHG emissions.

CLIMATE ADAPTATION

EO B-30-15 *– Requires integration of climate change initiatives into all planning and investment decisions.*

CalPERS used a third-party contractor, Det Norske Veritas Germanischer Lloyd (DN VGL), to perform a B-READY Building Resilience Assessment for LP which identified the frequency and scale of climatic events.

The B-READY assessment covered a wide range of climatic events such as extreme heat, drought, precipitation, air pollution, flooding, wildfires, and earthquakes. The results showed that drought and heatwaves are the climatic events most likely to affect the CalPERS facilities. DN VGL provided a findings report which facilitated internal discussions to determine the actions that can be taken to mitigate damage or disruption and enhance the well-being of team members. The mitigation measures in the report raised additional questions and did not

provide sufficient information for implementation since a majority of the measures were regarding flooding and critical equipment locations.

- In recent years, as a follow up to the B-READY assessment, the Cooling and Heating Systems Temperature Risk Assessment and Base Flood Elevation was conducted. The study allowed the mitigation measures to be further evaluated and determine the ability of the heating, ventilation, and air conditioning systems to provide occupant comfort under extreme climate conditions including flooding.

- The below Flood Evaluation and Temperature Extreme Evaluations results were provided:

    - Flood Evaluation –

        - The LPN electrical room located in the below grade garage was identified as most vulnerable to flooding. There are measures in place, such as drains and supplies for a weir, to block waterflow if a major event were to occur. The recommendations are being evaluated to determine feasibility.

        - LPEW central cooling plant, located on garage level 2, was identified as the most vulnerable to flooding. There are provisions to install weirs to the parking garage entrances to block water in the case of a major event. It has been determined as impractical to move the existing equipment to a higher level.

    - Temperature Extreme Evaluation –

        - LPN had sufficient excess heating and cooling capacity to handle extreme cooling or heating events.

        - LPEW had the heating and cooling capacity to handle typical peak temperatures, but may struggle with extreme temperatures over 105ºF or below 30ºF. As the current equipment reaches end of life, replacement equipment and capacity will be further evaluated.

WATER CONSERVATION

EO B-18-12 *– Requires a 20% water reduction by 2020 with a 2010 baseline.*

- Although the 2020 water reduction goal has passed, CalPERS continues to realize water savings and devise plans to advance LP's water efficiency.

- In 2022, CalPERS used 50% less water compared to the 2010 baseline, exceeding the 2020 target by 30%.

- CalPERS applied for the WaterCAT Grant presented by the Department of General Services (DGS) and received $700,000 of funding to upgrade and install new irrigation

water sensors as well develop a Water Master Plan. However, due to budget restrictions the disbursement of this grant money is on hold until the next budget year.

New Drought Order

EO N-10-21 *– To preserve the State's surface and groundwater supplies, to better prepare for the potential for continued dry conditions next year, and to join existing efforts by agricultural water users, public water systems, and governmental agencies to respond to water shortages, the Governor called on all Californians to voluntarily reduce their water use by 15% from their 2020 levels.*

Governor Newsom signed this EO on July 8, 2021. This EO's language does not indicate that this is a mandatory curtailment, although it alludes to the fact that state agencies have been mandated to help with this effort.

- In 2022, CalPERS' water consumption was voluntarily reduced by 18% as compared to 2020 in support of the drought efforts. This was possible due to the majority of CalPERS employees working remotely. However, after March 2022 the facility operations resumed as usual to support the hybrid schedule. This resulted in an 11% increase of water consumption from the 2020 baseline. CalPERS is committed to continued efforts to reduce water consumption and has researched infrastructure investments such as upgrading irrigation sensors and conducting a facility wide Water Masterplan.

- CalPERS' Property Management team monitors CalPERS' monthly water conservation percentage status and notifies CalPERS of any significant variations.

- Water savings measures implemented since the last drought are listed below:

    - Waterless Carpet Cleaning – The Janitorial team performs carpet cleanings using equipment that does not require water.

    - Water Feature Shutoff – The day care center's water spray feature was turned off to prevent the unnecessary water expenditure.

    - Irrigation – Efficient drip irrigation systems were installed while a modified schedule following the City's guidelines and best practices was implemented and all drip lines are regularly monitored for leaks.

    - Window Washing – The window washing schedule was reduced down to once a year.

    - Exterior Maintenance – All miscellaneous pressure washing was eliminated except on an as-needed basis.

    - Interior Maintenance – The Janitorial team will only perform spot cleaning through office space upon request.

ELECTRIC VEHICLES AND CHARGING STATIONS

MM 16-07 *– Requires an increase in annual light-duty Zero Emission Vehicles (ZEV) purchasing by 5% each year through fiscal year (FY) 2024-25, along with Electric Vehicle Infrastructure Requirements.*

- There are four main types of electric vehicles: pure electric, hybrid, plug-in hybrid, and hydrogen fuel cell. Pure electric vehicles run only on an electric battery. Plug-in hybrid vehicles require that a plug is inserted to charge the battery and still offer a gas option. Hybrid vehicles charge the electric battery while idle and do not require a plug to charge. Hydrogen fuel cell vehicles run only on hydrogen gas, which is converted into electricity. Electric vehicles are also called zero-emission vehicles because they do not produce any direct exhaust or tailpipe emissions.

- CalPERS currently has 30 light-duty fleet vehicles, including one pure electric vehicle and six hybrid vehicles. Additionally, we have one internal combustion medium-duty fleet vehicle which is used by CalPERS' Property Management team. CalPERS did not purchase any in FY 2022-23 due to budgetary constraints and travel restrictions related to COVID-19; CalPERS has not purchased any new vehicles since 2019.

- With budget approval and feasible vehicle options, the Legal Division will replace two vehicles with vehicles of the same category by FY 2023-24. Based on DGS' California Air Resources Board Original Equipment Manufacturer Purchasing Policy, available replacement vehicles both include internal combustion engines, the Honda Odyssey and Ford T-Connect. Currently, the Policy doesn't have any light-duty zero emission or hybrid passenger vans available.

MM 16-07 *– Requires 5% of workplace parking spaces be designated for Electric Vehicle Supply Equipment (EVSE) through FY 2020-21.*

- CalPERS surpassed this goal in 2019 by installing a total of 70 Level 1 and Level 2 charging stations, five charging stations above the requirement.

- CalPERS also provides infrastructure for ChargePoint® to offer Level 2 charging stations. These charging stations are equipped with charging cords that take approximately 3.5 hours to charge an 80-mile battery and eight hours to charge a 200-mile battery. The permitted charging time for Level 2 stations is four hours.

- Level 1 EVSE provides outlets for team members to plug in their own charging cord and takes approximately 16 hours to charge an 80-mile battery and 40 hours for a 200-mile battery. The permitted charging time for Level 1 stations is unlimited.

ENVIRONMENTAL PREFERABLE PURCHASING

The State Agency Buy Recycled Campaign (SABRC) *is a joint effort between the California Department of Resources and Recovery and the Department of General Services, requiring state agencies to purchase and track recycled-content product purchases. Effective January 1, 2020, at least 75% of reportable purchases in each reportable category must have post-consumer recycled content and recycled products, a 25% increase.*

- CalPERS reports on four categories: Metal, Paper, Printing and Writing Paper, and Plastic.

- For FY 2020-21, CalPERS continued to exceed the requirement. Total purchases for recycled content products were: 100% of Metal Products, 98% of Paper Products, 96% of Printing and Writing Paper, and 78% of Plastic Products.

- In 2022, the SABRC Coordinator continued to monitor, educate, and encourage purchasing compliant items to ensure the goal is achieved.

WASTE MANAGEMENT

Organic Waste

Assembly Bill (AB) 1826 *requires businesses that generate organic waste to arrange for recycling services. The requirements were expanded in January 2017 and 2019, becoming more stringent by changing the required amount from businesses that produce eight cubic yards or more to businesses that generate four cubic yards or more of organic waste or commercial solid waste per week to be recycled. The Bill also requires a statewide organic waste disposal reduction of 50% by 2020, compared to 2014.*

Examples of organic waste are: food, landscape trimmings, and food-soiled paper.

- In 2022, CalPERS headquarters created an average of 3.2 cubic yards (cy) of organic waste per week, which is recycled through Atlas Disposal and Carson Landscaping.

- Atlas Disposal hauled 18 cy of organic waste to an organics facility for composting into soil that can be used to improve plant growth. The Atlas Disposal organic waste pickups were changed to as-needed only in 2021. Since returning to the office on hybrid schedule Atlas pickups on a weekly basis. Additionally, 153 cy was composted by Carson Landscaping and used for soil repurposing.

Commercial Solid Waste

Commercial solid waste includes all types of solid waste: organic and non-organic.

- In 2022, CalPERS created 4.3 tons of commercial solid waste per week, 61% of this was diverted from the landfill through recycling and composting.

Food Waste Rescue

- The Café vendor, Compass Group USA, continues their partnership with The Imperfectly Delicious Produce Program, which utilizes fruits and vegetables that are usually discarded due to slight cosmetic imperfections, but are suitable for consumption.

- Since 2019, due to weather and labor issues, a significant number of farmers have shifted their priorities and pushed their perfect produce to the market before the imperfectly delicious produce. This change caused a decline in the supply and demand of imperfect produce.

- In 2022, CalPERS saved 1,550 gallons of fresh water and 60 pounds of produce that would have otherwise gone to waste had the produce been discarded.

Mandatory Recycling

AB 341 *– Declares a statewide goal of increasing waste diversion by 75% by 2020 and requires a waste management program to be in place.*

- In 2022, CalPERS' waste diversion from landfill was approximately 61%.

AB 2812 *– Outlines guidance for the collection and recycling of materials in state office buildings of state agencies and large facilities.*

- CalPERS continues to have a waste management program throughout the enterprise. The Café's recycling program was in place and waste disposal education is always available for team members on CalPERS' internal website. Additionally, new recycling in the enterprise breakrooms includes compost waste.

Senate Bill 1106 *– Requires the designation of at least one solid waste reduction and recycling coordinator.*

- CalPERS has a designated Sustainability Specialist, who continues to annually review the waste disposal process, including recycling materials, signage, education, and receptacles.

Overall, even with the working environment changes, CalPERS has maintained awareness and action of the latest green technology and opportunities. Providing educational engagement and sharing CalPERS' globally recognized sustainability initiatives and accomplishments empowers team members to practice green habits at work, home, and the community. The Sustainability Team will remain engaged with employees, stakeholders, as well as internal and external parties to do our part in protecting and preserving the environment.

For any questions regarding the initiatives and projects covered in this Sustainability Highlights Memo, please reach out to the CalPERS Sustainability Operations Program.

Thank you.

Attachment: CalPERS' 2022 Sustainability Fun Facts

Attachment 1 (see next page) was added this year and provides fun facts related to CalPERS' green operations performance and initiatives mentioned in this Memo.

Attachment 1

CalPERS' 2022 Sustainability Fun Facts

Annually, CalPERS' Sustainable Operations Program, part of the Operations Support Service Division, presents the Sustainability Highlights Memo. The Memo highlights CalPERS' sustainability related accomplishments, performance, and projects for the prior year. This year, the Sustainable Operations Program is introducing an addition to the Sustainability Highlights Memo, 12 fun facts about CalPERS' 2022 operations performance.

The below 12 sustainability fun facts tie directly to information stated in the 2022 Sustainability Highlight Memo. They offer insight about CalPERS' sustainable efforts and how our contributions help to preserve the environment.

1. **CalPERS' Lincoln Plaza headquarters are LEED® certified. Lincoln Plaza East/West (LPEW) earned Platinum and Lincoln Plaza North (LPN) earned Gold**.

   LEED® certified buildings have 25% lower energy use and reduce operational costs by 19% compared to the national average.

2. **LPEW received an Energy Star score of 85. This means that LPEW is more energy efficient than 85% of similar buildings nationwide.**

   Energy Star certified buildings, compared to buildings that are not Energy Star Certified, **use 35% less energy.**

3. **LPN received an Energy Star score of 80. This means that LPN is more energy efficient than 80% of similar buildings nationwide.**

   Energy Star certified buildings, compared to buildings that are not Energy Star Certified, cost $0.54 less per square foot to operate.

4. **LPN and LPEW recertified for WELL and achieved the Health-Safety Rating for the second consecutive year. This shows CalPERS commitment to providing a healthy and safe environment for their team members.**

   According to survey findings, a WELL certified building showed nearly a 30% improvement in overall satisfaction in the workplace.

5. **CalPERS received a WELL Health-Safety Rating in 21 features that promote human health and safety, three more features than the previous year!**

   A WELL certified building results in a 10% increase in improved mental health and 2% increase in better overall physical health.

6. **Lincoln Plaza used 50% less water compared to the 2010 baseline.**

That's enough water to fill 653 average sized residential swimming pools.

7. **Over 8.7 million kilowatt-hours, 59% of Lincoln Plaza's electricity, came from a local field through SMUD's SolarShares program.**

   A Tesla Model Y could drive approximately 34.8 million miles on 8.7 million kilowatt-hours.

8. **LPEW and LPN have a total of 69 Level 1 and Level 2 electric vehicle charging stations.**

   An electric vehicle driver can save on average $700 per year on gasoline compared to combustion engine vehicle drivers.

9. **CalPERS' Greenhouse Gas (GHG) emissions were reduced by 5,586 metric tons or 86% when compared against the 2010 baseline.**

   The reduction is equal to 1,243 cars driven 11,500 miles annually. In another example, the reduction is equal to 1,087 homes' electricity use for one year.

10. **Lincoln Plaza created an average of 3.2 cubic yards of organic waste per week, which is recycled through Atlas Disposal and Carson Landscaping.**

    Over a year's time, this is equivalent to 31,023 gallons of organic waste. GHG emissions from organic waste are reduced by more than 50% when properly composted.

11. **CalPERS created 223.6 tons of solid waste in 2022 and diverted 61% or 136.4 tons of solid waste from the landfill through recycling and composting.**

    This reduced carbon dioxide emissions by 477 tons which is equal to GHG emissions from 53,674 gallons of gasoline consumed.

12. **There were 18 cubic yards of organic waste hauled to an organics facility for composting soil that can be used to improve plant growth.**

    Food and other organic materials sent to the landfill decompose and produce methane. Composting reduces the production of methane which is over 70 times more potent than carbon dioxide over a 20-year span.