Ben Gould, President
EcoDataLab
1950 Addison St #723
Berkeley, CA 94704

March 18, 2022

Anya Spear, AICP, LEED AP
CSUMB Office of the President
100 Campus Center, building 1
Seaside, CA 93955

Dear Anya Spear and the CSUMB Master Plan team,

On behalf of LandWatch Monterey County, EcoDataLab has reviewed the CSUMB Draft EIR (DEIR). EcoDataLab provides data and analysis to help communities better track, analyze, and act on greenhouse gas emissions.

The DEIR makes a critical error in its greenhouse gas (GHG) analysis. Two different estimates of baseline emissions are used: one estimate (a larger amount) is used to determine the threshold of significance, and a second estimate (a smaller amount) is used to actually analyze impacts. In addition, the DEIR makes other errors, provides unsupported estimates, relies on inconsistent data, and/or fails to provide specific enforceable mitigation in connection with 1) setting GHG reduction targets, 2) calculating GHG emissions from vehicle miles travelled (VMT), 3) identifying waste mitigation strategies (and associated GHG reductions), and 4) analyzing consistency with applicable plans and policies.

Given the extent of these errors and omissions, the DEIR should be revised and recirculated to provide an opportunity for public comment and agency response on an adequate and corrected GHG analysis.

<u>Different Estimates of Existing Conditions in GHG Threshold of Significance Calculation and Impact Analysis (DEIR §§ 4.6.3.1 and 4.6.3.3)</u>

In connection with Threshold A for determining the significance of GHG impacts, the DEIR (p. 4.6-33, pdf p. 439) lays out the approach for developing a *Campus-Specific Mass Emissions Threshold*.

The approach begins with adopting statewide GHG emission reduction goals established for 2030 in SB 32 and for 2050 in EO S-3-05. Based upon these reduction goals and a selection of certain economic sectors from the statewide 2018 GHG inventory, the DEIR calculates, by “applying a straight-line regression between the 2030 and 2050 emissions reduction targets,” that a 47% reduction would be required in 2035, relative to a 2018 baseline. (As discussed in the next section, it is unclear how the 47% reduction target was actually determined; and the DEIR improperly ignores more stringent long-term emissions reduction targets.)

The threshold of significance calculation then applies this 47% reduction to the CSUMB 2018 Sustainability Tracking, Assessment & Rating System (STARS) GHG inventory of 13,399 MT CO_2e. It calculates a 2035 target of 7,153 MT CO_2e, establishes a per-capita emissions target of 0.45 MT CO_2e/yr, and then uses that per-capita target to calculate the allowable emissions associated with the Project. **The DEIR uses the STARS estimate of existing emissions to establish the threshold of significance for the Project at 3,334 MT CO_2e/yr.**

However, the DEIR’s analysis of Impact GHG-1 does *not* use the STARS estimate of existing emissions when calculating incremental emissions from the Project. Instead, the DEIR uses CalEEMod (p. 4.6-37 to 4.6-40, pdf p. 443-446). CalEEMod provides a baseline 2018 emissions of only 7,742.55 MT CO_2e.

The DEIR has selected two different GHG inventories for existing emissions: one for calculating the emissions target, and a different one for calculating the incremental emissions. This disparity means that the calculated “threshold of significance,” i.e., the incremental emissions the Project could produce before mitigation is required, is roughly *double* what it would be if a consistent estimate of exiting emissions were used throughout.

For example, if CalEEMod’s estimate of 7,742.55 MT CO_2e was used for the 2018 baseline, using the stated 47% reduction target above, the 2035 target would be 4,103 MT CO_2e, for a per-capita value of 0.26 MT CO_2e. Multiplying by the 7,359 increase in service population would leave the project with **a threshold of significance of only 1,912.47 MT CO_2e – just over half the current threshold.**

Similarly, using the STARS methodology to calculate future project emissions will likely result in the projected emissions to be nearly double the current projections.

The STARS calculations and CalEEMod calculations are incompatible, and result in substantially different estimates of existing emissions. Under STARS, direct energy emissions (electricity and natural gas, including losses from transmission and distribution) made up 7,125.42 MT CO_2e in 2018; CalEEMod only estimates 4,044.2 MT CO_2e from energy (a difference of 3,081.22, or 43%). In STARS, faculty, staff, and student commuting, plus direct campus transportation, was estimated at 6,272.19 MT CO_2e; CalEEMod only estimated 1,854.96 MT CO_2e (a difference of 4,417.23, or 70%). STARS does not estimate emissions from waste, area, or water and wastewater; those categories are included in CalEEMod, for a total of 1,844.34 MT CO_2e. Given these severe discrepancies in the calculations of existing emissions, it is impossible for the public to adequately evaluate the potential impact of the project.

Using one existing emissions inventory to calculate the baseline emissions reduction threshold and the other to calculate project impacts is comparing apples to oranges. The same inventory *must* be used in determining both baseline emissions to the threshold of significance and the incremental emissions resulting from the project.

GHG Reduction Target-Setting (DEIR § 4.6.3.1, pdf p. 437-440)

The selection of different inventories for the baseline and project impacts is not the only issue in the threshold of significance determination. Two other errors are identified in the current approach for setting the emissions reduction target.

In calculating the GHG reduction target, the DEIR chose EO S-3-05 as the long-term statewide target, which is a target of 80% below 1990 levels by 2050. However, EO S-3-05 is itself incompatible with EO B-55-18, which sets a statewide *carbon neutrality* target by 2045. **Use of EO S-3-05 as the emissions reduction target is the first error.**

The DEIR (p. 4.6-31, pdf p.437) defines two thresholds for determining significant GHG impacts. Under Threshold A, the DEIR identifies a significant impact if the project would "Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment," for which the DEIR develops a numeric mass emissions threshold. Under Threshold B, the DEIR identifies a significant impact if the project would "Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases." EO B-55-18 was adopted for the purpose of reducing the emissions of greenhouse gases. **The DEIR provides no justification for choosing**

the more lenient EO S-3-05 reduction target over the more recent EO B-55-18 in developing the numeric mass emissions threshold.

If EO B-55-18 were adopted as the long-term reduction target and the DEIR continued to determine the 2035 reduction target by "applying a straight-line regression between the 2030 and [long-term] emissions reduction targets," a substantially greater emissions reduction by 2035 would be necessary because greater emissions reductions would be required (net zero under EO-55-18 vs 80 percent less than the 1990 baseline under EO-S-05) and the long-term reduction target would arrive sooner (2045 vs 2050). As discussed below, the DEIR does not provide an adequate explanation of its emissions reduction target calculations, so we are unable to determine precisely how much greater the emissions reduction would be using the EO-55-18 long-term target. However, a linear interpolation from a 2030 level, which is 40% below 2018 levels, to a net zero target by 2045 would require achieving a net 60% reduction by 2035. A linear interpolation from a 2018 baseline year to a 2045 net zero target would require achieving a net 63% reduction by 2035.

Furthermore, even EO B-55-18 itself is *still* in conflict with "an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases" – namely, CSUMB's own Sustainability Plan, which sets the goal of achieving carbon neutrality by 2030. As a result, **the threshold of significance for net GHG emissions in the 2035 build-out year should be set at 0**. Achieving a reduction of this magnitude this quickly would likely require the purchase of carbon offsets, which are not addressed in the DEIR. (The DEIR's claim that the project presently does not conflict with CSUMB's sustainability plan is discussed later).

Even if EO S-3-05 were retained, the baseline statewide emissions estimate of 316 MMT CO_2e, and projected 2050 target of 67 MMT CO_2e, are incorrect. The DEIR states, "When calculating the state's estimated emissions target, sources applicable to CSUMB were used; therefore, sources such as industrial and high GWP sources were not included." **The second error is including agriculture emissions in this estimate of 316 MMT.** Both the STARS and CalEEMod inventories show there are no agriculture emissions attributable to CSUMB, and as such it should be excluded under the same rationale for excluding industrial and high GWP Emissions. In 2018, agriculture comprised 32.7 MMT CO_2e of the statewide emissions. In the 2017 ARB Scoping Plan Update, table 3 (page 31) projects agriculture to remain at just 4 to 8% below 1990 levels in 2030, at 24-25 MMT CO_2e. Energy and transportation, however, see reductions of roughly 60% and 30% (even in 2050, agriculture will not see reductions as large as in transportation or energy). By including agriculture in the 2050 and 2035 statewide targets, the DEIR likely understates how much emission reductions will need to be achieved by CSUMB.

The DEIR should also be updated to include additional details on how these calculations were made. Firstly, there is simply not enough information in the DEIR to determine how the 2035 emissions reduction target was calculated. The DEIR fails to lay out the calculations supporting the 2050 and 2035 reduction targets of 67 MMT and 169 MMT, respectively, which apparently include only certain emissions sectors. The DEIR should be revised to provide the source of these data and should specify which sectors were included (not merely a selection of those which were excluded).

In addition, the DEIR implies that the SB 32 emissions reduction target for 2030 (40% below 1990 levels) was somehow used in calculating the 47% reduction target for 2035, i.e., by "applying a straight-line regression between the 2030 and 2050 emissions reduction targets." However, while the DEIR states that the 2050 emissions target is 67 MMT, it fails to specify the 2030 target. If the 2030 target is in fact used in calculating the 2035 target, the DEIR should be revised to provide the source of these data and should specify which sectors were included.

<u>GHG Emissions Calculated from VMT</u>

The DEIR Appendix D provides detailed CalEEMod model outputs for both baseline emissions and the project build-out in 2035. PDF page 139 of the DEIR appendices provides the CalEEMod run for the project build-out, while page 171 provides the CalEEMod run for the existing conditions.

There is a small error here – both these runs provide inaccurate calculations for energy on an annual basis, compared to the data provided in the DEIR. The DEIR (p. 4.6-43, pdf p. 449) lists energy emissions of 8011.98 and 4044.20 MT CO_2e for the project and baseline, respectively; but PDF pages 142 and 173 of the DEIR appendices list energy emissions of 8010.94 and 4054.22 MT CO_2e. Appendices PDF page 189 describes a base project CalEEMod run with revised energy usage based upon data provided by CSUMB; annual runs using this revised data may have simply been omitted from the appendices.

More critically, however, all of these runs reveal substantial errors and inconsistencies in the VMT emissions calculations. On appendices PDF page 139, table 1.1 Land Usage describes base assumptions of 12,700 students and

9,020 apartments (mid-rise). Appendices PDF page 145, table 4.2 Trip Summary Information, provides the resulting outputs of this land use: annual VMT of 7,185,152 resulting from the students, and 458,721 resulting from the apartments.

There appear to be *three* errors present here.

Firstly, **these estimates omit the 2,446 faculty and staff expected at project build-out**. Roughly 1,590 of these are expected to live in 1,220 campus apartments; there are still at least 856 faculty and staff completely unaccounted for.

Secondly, **these estimates double-count students living on-campus.** The 12,700 university students total includes 7,800 already counted living in on-campus apartments.

Finally, appendices PDF page 145, Table 4.3, shows **average one-way trip lengths of 0.2 miles and 1 mile for the apartments and students, respectively, without regard for the VMT analysis conducted by Fehr & Peers**. Table 4.2 implies an average of 1.55 daily VMT per student[1]; in contrast, in Appendix G of the DEIR's Appendix H (DEIR appendices pdf p. 786), Fehr & Peers estimates an average of 20.24 daily VMT per service population, a 13-fold difference. **There is no basis provided for only assuming 1.55 daily VMT per student, and completely neglecting faculty and staff VMT.**

<u>**Waste Mitigation Strategies**</u>

PDF page 141 of the DEIR Appendices shows "unmitigated" project emissions from waste estimated at 3,252 MT CO2e. However, on page 142, a "mitigated" version estimates only 422.8 MT CO_2e, an 87% reduction.

PDF page 445 of the DEIR (p. 4.6-39) describes the assumptions used for waste: CalEEMod default values for solid waste generation were assumed, and then "For the Project, it was estimated that there would be a 90 percent solid waste diversion rate for [operational] waste per the CSUMB Campus Sustainability Plan."

CSUMB does not presently achieve 90% solid waste diversion. **No actual strategies for reducing operational waste generation or achieving improved diversion rates are identified or described in the DEIR.**

[1] 7,185,873 VMT divided by 365 days per year, divided by 12,700 students

PDF page 823 of the DEIR (p. 4.14-53) describes potential impacts related to solid waste. As stated, “approximately 2,123 tons of waste was generated at the CSUMB campus in 2017 (CSUMB 2019). Based on the CSUMB population of 7,658 FTE for the 2016/2017 academic year, approximately 0.28 tons per FTE person were generated that year… Using the generation rate of 0.28 tons per FTE person per year, a net increase of approximately 1,909 tons per year of solid waste would be generated during Project operation.”

Based on these data, the existing conditions plus project at buildout would be expected to generate a total of 4,032 tons of solid waste through ongoing operational activities. However, the next page of the DEIR states, “As per the CSU Sustainability Policy (see Table 4.14-5), CSUMB shall also seek to [achieve] solid waste diversion [of] 80 percent by 2020 and then continue toward zero waste by 2040. The Campus Sustainability Plan provides an interim objective of diverting 90 percent of waste from the landfill by 2030. Compliance with the CSU Sustainability Policy and the Campus Sustainability Plan over time will increase CSUMB’s diversion rate over existing conditions.”

The DEIR assumes that the CSUMB Sustainability Plan will achieve its targeted reductions in waste generation and associated GHG emissions. However, the DEIR does not identify specific, enforceable mitigation measures that would ensure the reductions are met.

The Campus Sustainability Plan cannot be assumed to achieve its waste reduction targets without mitigations identified in the DEIR.

The DEIR (p. 4.14-54, pdf p.824) also states: “Additionally, as of February 2018, MRWMD’s [Monterey Regional Waste Management District’s] MRF [Materials Recovery Facility] began recovering up to 75 percent or more of [recyclable] materials from commercial and residential trash, thus reducing the solid waste tons sent to the landfill.”

“Up to 75%” and “75% or more” are inherently contradictory statements – the former suggests a ceiling of 75%, the latter a floor of 75%. Furthermore, this is recovering 75% of *recyclable* material, not *all* material. In other words, if there are 4,000 tons of solid waste sent to landfill, and 1,000 tons of that are recyclable material, then the MRF would recover only 750 tons for recycling (75% of 1,000).

Nowhere in DEIR Impact UTL-4 or Impact GHG-1 are actual operational waste reduction measures identified. There appears to be no basis for achieving the 2,830 MT CO_2e in "mitigated" waste reductions, and as such, **these cannot be excluded from the project impacts unless specific mitigations are identified**.

<u>Conflict with an Applicable Greenhouse Gas Reduction Plan (Threshold B)</u>
As noted, the DEIR identifies "Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases" as a distinct threshold for determining a significant impact related to GHG emissions.

As stated above, the CSUMB Sustainability Plan sets a target of carbon neutrality by 2030. The DEIR (p. 4.6-48, pdf p. 454) claims that *increasing* emissions by a net of 3,312.44 MT CO_2e annually "would support progress towards meeting carbon neutrality."

This is an entirely unreasonable claim. The only way for the project to support the campus' overall goal of achieving carbon neutrality by 2030 would be for the project itself to be carbon neutral. At a minimum, the Master Plan should not plan long-term facilities that are not carbon neutral, e.g., structures using natural gas. Once such a structure is built, the likelihood that it would be retrofitted to attain carbon neutrality by 2030 would be vanishingly small. If any investment is made in a facility that is not immediately operated on a net-zero basis, the DEIR must explain what steps CSUMB will take to ensure that the Project will in fact attain carbon neutrality by 2030 (and beyond).

Furthermore, another critical applicable policy was overlooked, with which the Project is also out of compliance. As acknowledged (DEIR p. 4.6-29, pdf p. 435), CSU Executive Order 0987 "provides a policy statement on energy conservation, sustainable building practices, and physical plant management for the CSU."

CSU Executive Order 987, section V.1.1 states "All CSU buildings and facilities, regardless of the source of funding for their operation, will be operated in the most energy efficient manner without endangering public health and safety and without diminishing the quality of education."

Section V.2.1 also states "All future CSU new construction, remodeling, renovation, and repair projects will be designed with consideration of optimum energy utilization, low life cycle operating costs, and compliance with all applicable energy codes (enhanced Title 24 energy codes) and regulations."

These regulations are codified in the Integrated CSU Administrative Manual, Section IX. As described in the DEIR on page 435, “The Integrated California State University Administrative Manual (ICSUAM; Section IX) provides that all CSU buildings and facilities will be operated in the most energy efficient manner without endangering public health and safety. The policy also indicates that all future CSU new construction, remodeling, renovation and repair projects will be designed for optimum energy utilization, lowest life-cycle operating costs, and in compliance with all applicable energy codes (Enhanced Title 24 Energy Codes) and regulations. Incorporation of energy efficient design features in the project plans and specifications will receive a high priority.”

However, the project as proposed – even with mitigation measures – would increase the use of natural gas on campus by 93,223.77 MMBTU/yr.

Natural gas is among the *least* energy-efficient heating and cooking fuels available. Modern gas furnaces achieve, at best, close to 100% efficiency. In contrast, all-electric heat pumps easily achieve 200% to 300% efficiency (and in some cases even higher). Rather than using energy to heat air or water directly, as in a traditional furnace, heat pumps use small amounts of electrical energy to transfer large amounts of existing ambient heat energy from the outdoor environment into the water or forced air heating system – like an air conditioner running in reverse, all while achieving zero greenhouse gas emissions. Heat pump technology is available for building HVAC and water heating. Gas stoves, meanwhile, typically achieve roughly 40% efficiency; induction cooktops (which use an electromagnetic field to directly transfer energy into cookware) achieve up to 90% efficiency[2].

Since 2020, Title 24 has made all-electric new construction feasible. Over 50 cities and counties across the country (the vast majority in California) have adopted building codes or local ordinances barring natural gas in new construction, and the University of California system has committed to no new buildings with natural gas heating systems[3].

The use of natural gas in the project for heating, water heating, or cooking is inefficient and, as such, conflicts with CSU Executive Order 987 and the Integrated California State University Administrative Manual.

[2] https://www.aceee.org/files/proceedings/2014/data/papers/9-702.pdf

[3] https://www.universityofcalifornia.edu/about-us/sustainability

Recommended Mitigations

We recognize that the issues identified mean that the project should meet a much more stringent emissions threshold and include substantially more emissions from transportation and waste. We hope the following proposed mitigation measures can help ensure the project is still able to move forward without significant impacts:

Energy

1. <u>Eliminate natural gas in all new construction</u> to the maximum extent feasible. This should include all residential, dining, and lecture hall spaces. Limited natural gas usage may be deemed necessary for certain laboratory environments, but otherwise should be avoided.
2. <u>Commit to procuring 100% carbon-free electricity</u>. Both PG&E and Central Coast Community Energy offer carbon-free power options, and renewable energy credits can also be purchased and retired from other private sources.
3. <u>Purchase biogenic methane or carbon credits</u> to offset any remaining natural gas usage. When burned, biogenic methane (from landfills or wastewater treatment) is a carbon neutral source, though methane leakage still has the potential for significant warming impacts. Carbon credits can help offset, but are often hard to verify and of little real-world impact. Direct emission reductions through the elimination of natural gas usage should be achieved wherever feasible.

Transportation

1. <u>Restrict the use of ICE (internal combustion engine) vehicles on campus</u>. Either designate parking spaces for ZEVs (zero-emission vehicles) only, or only issue parking permits for ZEVs. This can be implemented in a phased approach, with the share of parking permits going to ZEVs increasing from 2023 to 2035. To accommodate this increased use of ZEVs by the campus community, also expand EV charging on campus. Restricting ICE usage by students, faculty, and staff for their daily commutes to campus will shift the community's vehicle fleet towards more ZEVs, allowing for an overall reduced estimate of mobile emissions.
2. <u>Identify opportunities to further reduce VMT</u>, either by expanding transit service and further improving walking and biking facilities, and/or building more on-campus housing along with services and amenities (e.g. groceries).

Waste

1. <u>Identify and require effective campus practices for reducing waste generation and improving diversion rates</u>. Best practices include consistent

signage and bin availability, information for campus residents on move-in, information for faculty and staff, as well as training, equipment, and staffing levels for janitorial staff to maintain diversion rates (eg not requiring every bin be emptied into the same trash container, providing separate compactors for different waste materials, etc). Given the large fraction of modeled emissions coming from methane, collection and composting of organic materials is especially critical, along with recycling of paper and cardboard.

In support of this measure, the DEIR should identify accurate waste diversion estimates from the MRWMD's MRF. Using waste characterization data from either the campus or the County as a whole, the DEIR should estimate what share of the 4,032 tons of solid waste are likely to be recoverable at the MRF as a basis for downstream recovery.

The DEIR should also validate the CalEEMod emissions estimates. Most of the emissions from waste are anticipated to come from methane, a result of anaerobic decomposition of biological material (typically in landfills). CalEEMod appears to assume only 85% of methane produced in a landfill is captured. This may be an outdated estimate, as the CalEEMod documentation references AP-42 section 2.4, which was drafted in 2009. In 2010, California implemented its own Landfill Methane Regulation which is generally more stringent than EPA's requirements. In addition, EPA's WARM model substantially disagrees with CalEEMod and could provide additional references for improved emissions estimates.

With these relatively inexpensive and highly feasible mitigations, we anticipate the project can realistically achieve close to zero emissions, with only a small number of offsets required to meet the campus sustainability plan target of net zero.

We look forward to a revised discussion of GHG impacts that addresses the issues identified above.

Sincerely,

Ben Gould

Ben Gould, MPP, MS
President, EcoDataLab