In this document, we provide the LSST Solar System Science Collaboration's (SSSC's) feedback on the released draft report of the SCOC Phase 3 recommendations.

Extra u-band observing time to account for the throughput losses due to the new silver coating: the SCOC recommends an identical decrease of 0.8 second exposure time per visit in all other bands to compensate for the added time in u-band. - We ask the SCOC to please specify in the final version of their report what aspects of this recommendation are subject to feasibility studies by Rubin Data Management.

29.2s exposures in grizy- We ask the SCOC to charge the next iteration of the SCOC to explore the exposure time issue further if the switch to 1 snap is made. We ask that in Phase 4, the SCOC examine whether it is possible to keep the canonical 30s exposures per visit with the increased u-band exposure time and visits taken from the expected ~8% gain in on-sky observing time from the switch to 1 snap per visit in years 2 and onward.

TOOs- The SCOC recommends that the solar system and neutrino ToOs should start as soon as suitable templates are available. - In our proposal to the SCOC (https://lssttooworkshop.github.io/images/Rubin_2024_ToO_workshop_final_report.pdf), we recommended that the small PHA (Potentially Hazardous Asteroid) potential impactor TOO program only commence after the first three months of Rubin science operations (or in reality three months after there is sufficient template coverage such that the Rubin Solar System Processing pipeline is discovering a significant number of objects nightly) in order to assess both the small PHA impactor false positive rate and event rate when the influx of Rubin discoveries begin to populate the JPL Sentry Earth impact monitoring table. Wagg et al (submitted;https://arxiv.org/abs/2408.12517) find that in the first ~2 years of the LSST, the JPL Near Earth Object confirmation page will be highly contaminated at the rate of ~90% of the LSST entries coming from Main-belt asteroids (MBAs) mimicking NEO orbital velocities. It is worth understanding if there will be any impact on trigger selection for the PHA regime like the NEOs will in the first two years of the LSST. Therefore, we ask that the requested delay in the start of the approved Solar System TOO program be formally included in the SCOC's recommendation to allow the planetary community time to better design the trigger criteria in order to not waste precious observing time on something that did not require Rubin follow-up. We ask that SCOC recommend a similar meeting to the Gravitational Wave planning meeting for the small PHA potential impactor TOO during the first year of operations with the aim to refine the TOO trigger criteria based on the Observatory's performance.

Uniform Rolling – Preliminary work by SSSC members suggests that the new proposed uniform rolling scheme may have a positive impact on interstellar objects (ISOs). The changes may enable the earlier detection of some ISO discoveries. Further work is needed to explore the full impact of the new rolling cadence scheme implemented in the v3.6 simulation. In the coming months, the SSSC will provide separate feedback to the SCOC on the new proposed uniform rolling cadence if there are significant positive or negative impacts to Solar System science.

Early Science - Releasing some alerts in Y1 is an important goal to enable the time domain science community to prepare for the full-volume full-fidelity alert streams to come in subsequent years, as well as increasing the discovery potential of LSST in early operation. - There are other communities beyond the astrophysical time domain science that will benefit from incremental templates in the first Year of the LSST. Incremental template production in Year 1 will enable alert generation as well as nightly Solar System discoveries through the Rubin Solar System Processing pipelines. These discoveries will be reported to the Minor Planet Center and LSST Solar System prompt products tables, but they are not sent out to the alert stream unless the object is observed again post-discovery. One of the top priorities of the SSSC is to ensure there are sufficient Solar System discoveries in Year 1 to prepare the planetary astronomy community for Year 2 when alert generation and the prompt products data processing will be at full power. Alert generation/transient source detection in Year 1 will also ensure that the capabilities of the Rubin Solar System Processing pipelines are sufficiently exercised in the LSST's first year. We also note that the nightly Solar System discoveries flowing in Year 1 will expand the discovery potential for high impact Rubin early science (Schwamb et al 2021; https://iopscience.iop.org/article/10.3847/2515-5172/ac090f; Section 5.1 of Schwamb et al 2023;https://iopscience.iop.org/article/10.3847/1538-4365/acc173). We ask that the early science recommendation text be modified to also highlight the Solar System science cases and needs.

Near-Sun Twilight microsurvey - The airmass limits for the Near-Sun Twilight microsurvey, introduced with baseline v3.0, were increased from X = 2.5 to X = 3.0 in v3.2, corresponding to decreasing the minimum solar elongation reached for this microsurvey from 60 degrees to 45 degrees. This improves the likelihood of discovery of objects with interior-to-Earth orbits, increasing the survey sensitivity to this niche of discovery space. The recovered population of objects interior to Venus at magnitude $H \leq 20$ goes from ~4% to ~40% in v3.2 and later. The impacts outside the microsurvey are negligible. - The SSSC is very pleased to see that it is possible to push to smaller solar elongation angles, increasing the potential science returns from this microsurvey. The v3.4 description of the microsurvey states that the "Visits are focused on an area within 20 degrees of the ecliptic plane, and at solar elongations between 35 and 47 degrees" (https://survey-strategy.lsst.io/baseline/micros.html). It may be that instead of "minimum", the word "maximum" was intended to be used in the report recommendation. We ask the SCOC to double check and clarify in their recommendation what the planned solar elongation range for the Near-Sun twilight microsurvey is in the v3.6/v4.0 baseline.

"Topics that the SCOC should focus on in the next round of deliberations, including the process of interaction with the community and iterative optimization of the LSST during Operations follow in [TBD]." - As of September 23, the text for this section was not available. We provide our collaboration's priorities instead:

- **"Nanosurveys" -** We encourage the SCOC and Rubin Operations to officially develop and announce the process for the user community to apply for "nanosurveys", time requests for niche observing projects requiring much less than 0.3% of observing time

(less time than the microsurveys) in years 2 and onward. We highlight one such example that the SSSC supports, the Solar System “Deep Drilling Fields” using 40 hours over the ten year LSST baseline (see Trilling et al. 2018; https://arxiv.org/abs/1812.09705). The SCOC has currently not focused on time requests this small. We note that requests of this size do not necessarily require being fully simulated with rubin_sim and the rubin_scheduler since the time taken away from the baseline observing strategy is equivalent to an extra night or two worth of bad weather.

- **Redistributing visits in Year 1 to maximize early science and incremental template production** - We ask the SCOC in the next phase to prioritize exploration of the Year 1 observing strategy to maximize incremental template production and early science while balancing the needs to fully calibrate the system by the end of Year 1.

- **Accommodating for the required extra u-band observing time** -Currently the single snap v3.6 simulation, uses the ~8% gain in observing time distributed in Year 2+ for extra visits across the footprint distributed across all filters with a u-band exposure time of 38s and 29.2s exposures in grizy. If the decision is made during LSSTCam commissioning to move to single snaps per visit, we ask that the SCOC explore options for preserving the originally planned 30s (rather than 29.2s) exposure time in grizy by using a portion of the observing time gained from the readout overheads in Years 2 and onward to provide the extra u-band on-sky observing time needed to account for the loss in throughput due to the silver mirror coatings.

- **SCOC Community Workshop on the Year 1 Observing Strategy** - We ask that the SCOC commit to a dedicated community workshop focused on optimizing the Year 1 observing strategy in 2025.