

**September 24, 2021**

**Memo: SAG Review of CDPR “Draft2021Oceano Dunes ARWP\_09142021” (dated September 14, 2021)**

**From:** Scientific Advisory Group (SAG)

**To:** Gary Willey, San Luis Obispo Air Pollution Control District (SLOAPCD)  
Jon O’Brien, California Department of Parks and Recreation (CDPR)

**Cc:** Sarah Miggins, California Department of Parks and Recreation (CDPR)  
Liz McGuirk, California Department of Parks and Recreation (CDPR)

### **Summary Statement**

The Scientific Advisory Group (SAG) is generally pleased with the second draft 2021 Annual Report and Work Plan (ARWP). The second draft ARWP substantively addresses most of the SAG’s comments on the first draft ARWP, though a few points remain to be resolved. Therefore, the SAG recommends approval of this second draft ARWP, conditional on some minor but significant revisions, as listed below:

**UCSB Report on UAS Foredune Restoration Monitoring.** The second draft ARWP does not yet include the UCSB-ASU 2020-2021 ODSVRA Foredune Restoration Monitoring report (Attachment 08). This report should be included, and its results infused into the ARWP (i.e., Secs. 2.3.3 and 2.3.5.1), before the 2021 ARWP is approved.

**Soil Stabilizers.** The ARWP text should include wording (and as necessary so too should the caption of the related Fig. 3-1) to clarify that the SAG has yet to review or approve the usage of soil stabilizer treatments as a viable option for dust emissions mitigation at ODSVRA. One option is to present the initial use of stabilizers as a “demonstration” to be discussed in the future with the SAG (see SAG comment below, “Proposed 90 Acre Treatments”).

**Historical Vegetation Study.** The SAG recommends that a statement be added in Secs. 2.4.3 and 3.1.8.1 (bullet 2) acknowledging that an analysis of historical vegetation cover by UCSB is underway that will examine historical trends in vegetation cover and inform further discussions on how Impact 2 (decreased dune-stabilizing features, i.e., plants) can be addressed toward revisiting the Stipulated Order of Abatement (SOA) target. This would be consistent with the acknowledgement of the foredune UAS monitoring report results in Secs. 2.3.3 and 2.3.5.1 (see SAG comment below, “Historical Vegetation Study”).

**Public Relations Campaign (Sec. 3.1.10).** In its comments on the first draft ARWP, the SAG encouraged CDPR to define more actionable and time-bound goals for the PR campaign. The SAG appreciates that Table 5-8 now includes target dates for PR campaign tasks defined in Attachment 15. However, as currently framed within the main text of the ARWP (Sec. 3.1.10), these plans are easily overlooked. The main text of the ARWP should be revised to call further

attention to planned PR campaign activities in 2021-22, including by directly referencing Table 5-8 and Attachment 15.

**Other Minor but Critical Corrections.** Small typos and misplaced section references exist throughout the second draft ARWP (e.g., multiple references to Sec. 3.1.7 should instead point to 3.1.8). The document should be carefully reviewed and these items corrected. Below are some critical corrections that should be made as a condition for 2021 ARWP approval:

- *Table 2-1:* The time period in the header is incorrect. Please correct as per the bold text: “from August 1, **2020**, and July 31, 2021”
- *p. 2-16:* The statement at the top of the page is incorrect. For accuracy, please add the text in bold: “In total, the DRI model estimates the cumulative reduction in mass emissions **from the Open Riding and Camping Area** achieved by the 322.5 acres of dust control measures in the ground at Oceano Dunes SVRA as of July 31, 2021, is 37.6 metric tons per day, which equals a 20.6% reduction in baseline mass emissions.” It would also be reasonable to add a sentence here noting the additional 4.1 metric tons per day of modeled reduction in mass emissions outside the Riding Area (i.e., Table 2-4, footnote E).

In addition to these critical revisions to the second draft ARWP, the SAG provides further comments on the ARWP below. These comments are organized to generally correspond with the previous SAG comments on the first draft ARWP. The ARWP does not necessarily need to be revised to address all of these further SAG comments, but the SAG encourages careful consideration of these comments to inform future activities toward achieving the goals of the SOA.

Among its below comments, the SAG wishes to highlight its comment on terminology around “permanent” vegetation (see SAG comment, “Dust Control Terminology”). If possible, the SAG suggests that ARWP avoid (or at least clarify) the potentially misleading use of “permanent” to describe dust mitigation treatments. A simple fix would be to remove the language of “permanent” vegetation throughout and instead use the language presented elsewhere (e.g., Table 2-2), such as “vegetation dust control measures,” which doesn’t necessarily imply 100% cover or full establishment.

### **SAG Comments on Annual Report (Chapter 2)**

Below, the SAG offers comments on aspects of the Annual Report (Chapter 2) of the second draft 2021 ARWP relative to each of our previous comments on the first draft Annual Report:

**UCSB Report on UAS Foredune Restoration Monitoring.** The second draft ARWP does not yet include the UCSB-ASU 2020-2021 ODSVRA Foredune Restoration Monitoring report (Attachment 08). This report should be included, and its results infused into the ARWP (i.e., Secs. 2.3.3 and 2.3.5.1) before the 2021 ARWP is approved.

**DRI Reports on Influence of OHV and Increments of Progress (Sec. 2.3.5).** The SAG appreciates that Section 2.3.5 and Attachment 10 of the second draft ARWP now provide a

unified description of the two recent Desert Research Institute (DRI) reports (“Examining Dust Emissions and OHV Activity at the ODSVRA” and “Increments of Progress Towards Air Quality Objectives - ODSVRA Dust Controls”). These reports are appropriately described in the context of long-term PI-SWRL monitoring efforts (upon which these reports are based) and alongside a related CDP staff report (“Dust Emissions and OHV Activity at ODSVRA”) and California Geological Survey (CGS) report (“California Geological Survey Analysis of May and June Wind Strength Year to Year and State PM10 Exceedances with and without OHV Recreation, ODSVRA”).

Overall, the SAG affirms that Section of 2.3.5 of the second draft ARWP appropriately frames and describes the referenced reports, though the SAG wishes to emphasize a few points. First, the SAG again emphasizes that the DRI “Examining Dust Emissions and OHV Activity at the ODSVRA” report provides compelling evidence for the substantial and unambiguous impact of OHV activity on increasing PM10 mass emissions at the ODSVRA, as well as airborne PM10 concentrations downwind of the ODSVRA, relative to undisturbed natural conditions. Notably, this DRI report addresses not only the effect of the 2020 COVID-19 closure (as described in Sec. 2.3.5.1 of this ARWP) but also longer-term impacts of OHV activity that are revealed by comparing differences in PM10 emissivity between Riding and Non-Riding Areas. Finally, the SAG wishes to reiterate its concerns about fundamental methodological flaws in the referenced CGS report, which are further described in Attachment 12 (“Memorandum: SAG Critique of W. Harris Memorandum of 08-05-2020”).

**Dust Control Terminology.** Comprehensive tables (i.e., Table 2-2) and maps (i.e., Fig. 2-2) included in this revised draft ARWP are extremely useful for understanding and visualizing the cumulative 322.5 acres of dust control measures undertaken to date at the ODSVRA, including both annual and cumulative maps of dust control treatments that are now included in Attachment 01. The SAG also appreciates wording changes that more consistently describe the type and extent of dust control measures, including more consistent language on straw treatments.

However, the SAG does have one significant concern regarding the language currently used to describe “permanent” dust control treatments. Fig. 2-2 (and related text) indicates 216.5 acres of vegetation (green polygons) that, to the layperson, interest group, or manager, could be interpreted as 100% “permanent vegetation” (to quote from Secs. 2.1.1.1 and 2.1.1.3). In turn, this could suggest zero emissivity and a fully stabilized surface, which is not the case for many of these areas (yet). For example, at the foredune restoration site, the maximum plant coverage as of March 2021 is only 4.9% in treatment 6 (“Parks Classic”), which is far from fully vegetated, not yet permanent, and arguably limited in terms of its emissivity mitigation. It is possible the effects of winnowing and surface armor development might be having as much or more impact on emissivity reductions in the treatment zones. Beyond the foredune, other recently planted areas are also not fully vegetated and much of the surface consists of temporary straw cover. This might seem like an insignificant point, but there are two reasons why it may not be:

1. Planted areas with remaining open sand surfaces (e.g., new foredune) can still be emissive, although we have yet to quantify this. Technically, any patch of open sand that experiences saltation could emit dust. For all of the treatment areas, unless the vegetation plantings have survived a couple years of establishment and have started to

spread/increase % cover, one would not classify them as “permanent.” Furthermore, some sites like the new foredune will most likely never reach 100% emissivity reduction due to the expected result of a more open foredune morphology with active sand transport corridors. This said, the benefits of the downwind secondary sheltering effects and related reductions in emissivity should offset some/all of this.

2. The optics of “permanent” vegetation coverage, as conveyed in the current draft, could be misleading to the public and interest groups. As noted above, most of these areas are not all fully vegetated and stabilized surfaces. Riding advocates could see these as permanently off limits and, though they currently are, there is a possibility that some pathways/corridors could be opened up for more controlled access and recreation. Air quality advocates could view these areas with the expectation of immediate 100% emissivity reductions and improved air quality, yet it could take some time for them to establish and become “permanently” viable mitigation sites.

The SAG therefore recommends that C DPR partition the mapping of vegetation cover into:

- a) “Established” vegetation, which would presumably be(come) permanent, based on some criteria to be determined, and;
- b) “Newly planted” vegetation treatments, which will take some time to establish and become viable. Ideally, the ARWP would report %cover for the vegetated areas in the ARWP. This could be determined fairly easily from UAS campaigns, although it could be tricky to distinguish plants from straw cover at certain times of the year.

Alternatively, a simpler fix would be to remove the language of “permanent” vegetation throughout and instead use the language presented elsewhere (e.g., Table 2-2), such as “vegetation dust control measures,” which doesn't necessarily imply 100% cover or full establishment.

**“CDPR” vs. “State Parks” Terminology.** With one exception on p. 3-4, the term “State Parks” is now used uniformly throughout the ARWP (instead of “CDPR”). However, the SAG does notice that the synonymous “OHMVR Division” sometimes appears in the ARWP (e.g., p. 2-13), and this should be replaced with “State Parks” for consistency.

**Accounting for Dust Control Acreage.** The SAG appreciates that the ARWP now uses consistent terminology when accounting for the acreage of dust control measures, including appropriate explanation for the role of supplemental planting (p. 2-8).

**Reporting on Air Quality Progress.** The SAG appreciates SLOAPCD’s recommendation (in response to the first draft 2021 ARWP) that calculations of PM10 mass emissions reductions may account for dust control measures undertaken both within and outside the Riding Area. This accounting methodology is clearly explained in the footnotes B, C, and D of Table 2-4, but such values are not yet the officially reported values in Table 2-4. As per the SLOAPCD suggestion, future accounting would retain the 182.8 metric tons/day modeled baseline emissions, but modeled PM10 mass emissions changes both within (37.6 metric tons/day as of 2021) and outside (4.1 metric tons/day as of 2021) the Riding Area would be counted toward the total reduction from this baseline. Thus, as of July 31, 2021, the modeled cumulative effect of the dust

control measures is a PM10 mass emissions reduction of 41.7 metric tons per day (22.8%) relative to the baseline. Going forward, the SAG endorses this updated approach to reporting of values for PM10 mass emissions reductions. The SAG notes that the existing accounting methodology is not clearly defined in Attachment 6 of the 2020 ARWP (“Defining the 10 baseline days”), so it may be prudent to codify these changes to the accounting methodology via revisions to this document. Alternatively, changes to the accounting methodology could be wrapped into broader efforts to revisit the SOA target (i.e., ARWP Secs. 2.4.3 and 3.1.8.1).

**Accounting for Field Monitoring.** The SAG appreciates that the ARWP now consistently reports values for mass emissions in metric tons.

### **SAG Comments on Work Plan (Chapter 3)**

Below, the SAG offers comments on aspects of the Work Plan (Chapter 3) of the second draft 2021 ARWP relative to each of our previous comments on the first draft Work Plan:

**Proposed 90 Acre Treatments (Secs. 3.1.1 and 3.2.1).** The SAG approves of the proposed placement of the 90 acres of new dust mitigation treatments in the 2021-22 work year. These proposed treatments keep pace with the deployment of new treatments in previous years, and they appropriately balance progress both toward reductions in PM10 mass emissions and toward reductions in PM10 mass concentrations at the CDF and Mesa2 receptor sites. Modeling of estimated PM10 mass emissions reductions indicates substantial continuing progress toward meeting the SOA Condition 2.c goal of reducing PM10 mass emissions by 50% relative to the 2013 baseline and toward achieving the CAAQS (50 µg/m<sup>3</sup>) PM10 ambient air quality standard at the CDF and Mesa2 receptor sites. As per the current methodology that accounts only for the effects of dust controls within the Riding Area, the modeled cumulative effect of the planned dust control measures through July 31, 2022, would be a 51.6 metric tons per day (28.2%) reduction in PM10 mass emissions relative to the 2013 baseline. As per the new proposed accounting methodology that also includes previous dust controls outside the Riding Area (see “Reporting on Air Quality Progress” above), the modeled cumulative effect of the planned dust control measures through July 31, 2022, would be a 55.7 metric tons per day (30.6%) reduction in PM10 mass emissions.

Though the DRI model predicts that the proposed dust controls would provide slightly less reduction in PM10 mass emissions and PM10 concentration at CDF than the alternative option considered, the differences are very small relative to model uncertainty and are therefore acceptable (see Attachment 17). The SAG notes that the proposed 90 acre treatment, in tandem with existing treatments, would create a line of dust mitigation treatments along the eastern edge of the ODSVRA, which could potentially offer additional indirect benefits for dust mitigation via downwind boundary layer dynamics (beyond direct effects currently modeled in the DRI model.)

Though the SAG approves of the overall placement of new dust control treatments, the SAG questions the appropriateness of soil stabilizers as a specific dust mitigation measure (i.e., Sec. 3.1.1.3, Fig. 3-1). The SAG does not recall previous consultation on the idea of using a “new test stabilizer” or on locating this test site as indicated in Fig. 3-1. It is the understanding of the SAG

that we had agreed to use a combination of established treatments (e.g., straw treatments, plantings) to reduce PM10 emissions. Furthermore, the SAG is not aware of existing examples that demonstrate the effectiveness of soil stabilizers for mitigating dust emissions within sand dunes. Regarding soil stabilizers, several questions arise:

- What is this stabilizer?
- Has the SAG evaluated its use and performance?
- Is this the best location for a test site?
- How will CDPR evaluate its efficacy?
- Is this an effective long-term solution or will it be used as a short-term stabilization that will eventually be planted?

Finally, the SAG is concerned that the use of stabilizers would require further amendment of the Coastal Development Permit and would thus lead to further delays. Therefore, the SAG advises that established measures be used instead of soil stabilizers. However, if there is an interest in testing the effectiveness of soil stabilizers for future use, then this should be done on a demonstration basis and in consultation with the SAG.

Therefore, the SAG advises that the ARWP text should include wording (and as necessary so too should the caption of the related Fig. 3-1) to clarify that the SAG has yet to review or approve the usage of soil stabilizer treatments as a viable option for dust emissions mitigation at ODSVRA. One option is to present the initial use of stabilizers as a “demonstration” to be discussed in the future with the SAG.

**Proposed Conversion of Temporary to “Permanent” Measures (Sec. 3.1.2).** The SAG approves of the proposed plan for conversion of temporary to “permanent” dust control measures. Though the locations are adequately specified in the ARWP text, it would be helpful to provide a single map specifying the locations for all of these conversion activities with associated Project IDs (i.e., adapted from Fig. 3-2).

**PI-SWERL Campaign Plans (Sec. 3.1.7.2).** The SAG appreciates that the ARWP now describes tentative plans for PI-SWERL sampling in 2021-22.

**SOA Progress and Requirements (Sec. 3.1.8.2).** The SAG appreciates the updated framing of the work plan for determination of scientifically-justified alternatives to the current Stipulated Order of Abatement (SOA) 50% PM10 mass emissions reduction target. The SAG notes that further SAG work on revisiting the SOA target awaits publication of the UCSB report on historical dune-stabilizing vegetation coverage.

The SAG also notes that ARWP Section 3.2.3 (“Additional Dust Controls Needed to Achieve SOA Goals”) contains a newly expanded section, which revisits the preliminary PMRP (Particulate Matter Reduction Plan) modeling that indicated the need for approximately 500 acres of total dust control measures to achieve SOA air quality objectives. For comparison to this existing 500 acre goal, a total of 412.7 acres of dust controls are proposed as of July 31, 2022. The new DRI sensitivity analysis (Attachment 18) indicates the need for an additional 189.6 acres of dust control measures relative to July 31, 2022, or a new goal of approximately 602

acres of total dust controls, to achieve the current SOA 50% mass emissions reduction target. The SAG agrees that this 602 acre estimate is preliminary and notes the ongoing efforts both to revisit the current SOA target and to better account for the full effect of existing dust mitigation treatments on reducing PM10 emissions. In the coming year, a major focus of efforts to revisit the SOA should be to clearly define a final target for total dust control acreage consistent with the PM10 air quality goals of the SOA.

**Public Relations Campaign (Sec. 3.1.10).** In its comments on the first draft ARWP, the SAG encouraged CDPR to define more actionable and time-bound goals for the PR campaign. The SAG appreciates that Table 5-8 now includes target dates for PR campaign tasks defined in Attachment 15. However, as currently framed within the main text of the ARWP (Sec. 3.1.10), these plans are easily overlooked. The main text of the ARWP should be revised to call further attention to planned PR campaign activities in 2021-22, including by directly referencing Table 5-8 and Attachment 15.

**Coastal Commission Decision (Sec. 3.1.11).** The SAG appreciates that the ARWP now includes a footnote acknowledging the March 2021 Coastal Commission decision to close the ODSVRA to OHVs by 2024. Despite uncertainty around ongoing lawsuits, the SAG continues to urge CDPR to immediately begin planning for how a closure to OHVs would affect ongoing dust control efforts.

### **SAG Comments on Other Elements of ARWP (Chapters 4, 5, Attachments, and Omitted Elements)**

Below, the SAG offers comments on other elements of the second draft 2021 ARWP relative to each of our previous comments on the first draft ARWP:

**Accounting for Restoration Projects (Attachment 03).** The SAG appreciates that the ARWP now includes a detailed description of supplemental vegetation plantings (Sec. 2.1.1.4) that provides appropriate context for table in Attachment 03 (previously Attachment 02).

**Evaluation Metrics (Attachment 02).** The SAG appreciates that a complete set of values are now provided for the Evaluation Metrics. It is now possible in one place to quickly reference and track progress toward the goals of the SOA and PMRP. The SAG accepts the Evaluation Metrics in their current form, though it notes that “TBD” values remain for 2013 back dune stabilization area. In the future, please confirm whether “7e. Stabilized vegetation surface area” excludes foredune areas or whether it applies to the full ODSVRA.

**Historical Vegetation Study.** The SAG accepts that CDPR review of the historical vegetation study remains ongoing and may not be complete in time for inclusion in the 2021 ARWP. As for how the historical vegetation study informs activities on revisiting the SOA target (i.e., Secs. 2.4.3 and 3.1.8.1), the SAG notes that the current characterization of vegetation change (i.e., “...significantly changed vegetation coverage within the SVRA’s open riding and camping area in the 2013 baseline scenario than in historical aerial surveys.” p. 2-40), may need to be clarified once the historical vegetation study is complete. The SAG recommends that a statement be

added in Secs. 2.4.3 and 3.1.8.1 (bullet 2) acknowledging that an analysis of historical vegetation cover by UCSB is underway that will examine historical trends in vegetation cover and inform further discussions on how Impact 2 (decreased dune-stabilizing features, i.e., plants ) can be addressed toward revisiting the SOA target. This would be consistent with the acknowledgement of the foredune UAS monitoring report results in Secs. 2.3.3. and 2.3.5.1.

Respectfully,  
The Scientific Advisory Group

Dr. Raleigh Martin (Acting chair of SAG); Dr. William Nickling; Dr. Ian Walker; Ms. Carla Scheidlinger; Mr. Earl Withycombe; Mr. Mike Bush, Dr. John A. Gillies