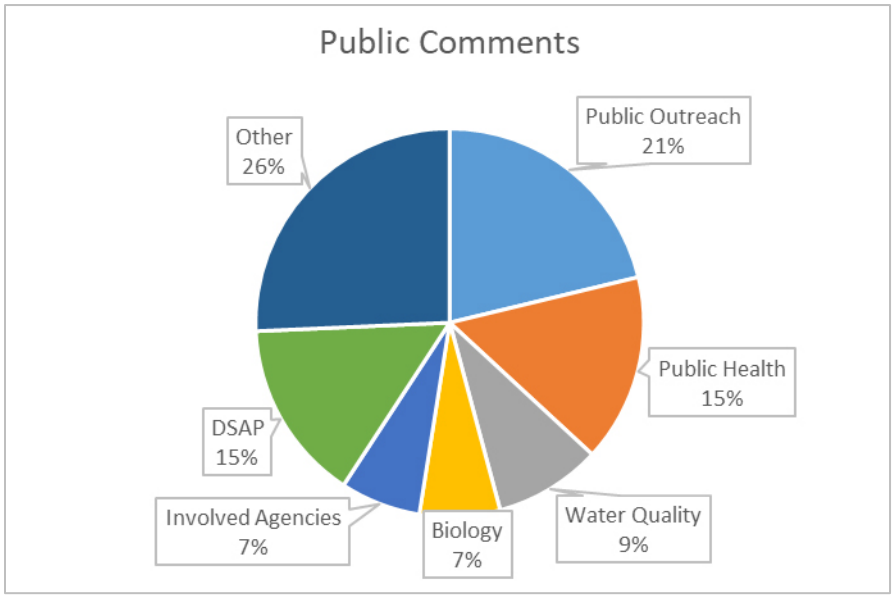
Appendix B Draft DSAP Comments

Public Draft Review

Public comments on the draft DSAP (dated February 2020) were received from the public meetings, described in Appendix A, as well as submitted through the CNRA website. A compilation of all public comments received is provided electronically in Appendix B-1. These comments were categorized into the following categories and the percent of comments in each category is shown in **Figure 27**. This represents all comments from all 5 public meetings, including written comments and verbal comments that were transcribed by the DSAP team. A total of 179 public comments were received.

- Biology
- DSAP
- Involved Agencies
- Public Health
- Public Outreach
- Water Quality
- Other

Figure 27. Percent of Public Comments in Each Category, Based on 179 Written and Verbal Comments at Five Public Meetings



Comprehensive responses to public comments are provided by category below.

DSAP
Comments received in the DSAP category were specific comments on the document and/or dust suppression. The majority of these were questions related to why and how surface roughening will be used, selection of sites for dust suppression, and the schedule and cost for the dust suppression projects. These comments were considered and are largely addressed in the revised DSAP. Information about costs and funding for dust suppression is provided in the 2020 Annual Report on the Salton Sea Management Plan and will also be included in future annual reports.

Involved Agencies
Comments received in the Involved Agencies category were related to concerns about whether and how different agencies are working together. Throughout the DSAP process, the State has and will continue to coordinate with ICAPCD, IID, CARB, and SCAQMD and engage with community residents, academic researchers, and tribal governments. Coordination and outreach efforts are described in Section 1.5 and elsewhere throughout this document

Public Health
Comments related to Public Health are outside the purview of the agencies responsible for developing and implementing the DSAP. More information about public health is found on the CARB website: https://ww2.arb.ca.gov/about.

Public Outreach
Comments received in the Public Outreach category were related to the public outreach process for the DSAP and other Salton Sea Programs. More information about outreach related to the DSAP is provided in Appendix A. The comments included suggestions on how meetings should be advertised and the presentation of the materials at the meetings, the availability of documents, and the schedule for upcoming meetings. The State will take these comments into consideration when scheduling and preparing for upcoming community meetings and outreach. All information related to future meetings will be posted on the Salton Sea program website (www.saltonsea.ca.gov).

Biology, Water Quality, and Other
Comments categorized as Biology, Water Quality and Other are generally outside the scope of the DSAP. Biology questions were related to the types of vegetation to be used and the status of other species populations. The revised DSAP discusses proposed vegetation as part of dust suppression activities in Section 2 and 4. Other biology comments are outside the scope of the DSAP. Water quality comments included questions about the water quality of the Salton Sea and about importing water to restore the Salton Sea. Other comments related to the Salton Sea program in general. Information about these subjects can be found in the Salton Sea Management Plan and other resources available on the Salton Sea program website (www.saltonsea.ca.gov).

In addition to the above responses, the program website also contains a list of answers to **Frequently Asked Questions** or FAQs, that put the DSAP within the larger context of Salton Sea restoration.

Collaborating Agency Comments

In addition to public comments received during the public meetings, several public and collaborating agency comments were received through the CNRA Salton Sea website (www.saltonsea.ca.gov) in response to the close of public comments on March 27, 2020. These comment letters were summarized into a table and responses to each comment were provided, as well as where in the revised report the comment was incorporated, if applicable. Both the original comments and summary table are provided in electronic appendices.

Administrative Draft Review

Comments on the first Administrative Draft (dated June 4, 2020) were received from agencies that would be involved in permitting and regulating the proposed dust control projects. These included: ICAPCD, IID, SCAQMD, USACE, and the BOR. Full copies of these comments are included in the electronic appendices. This revision of the DSAP addresses these comments.

Electronic Appendices

Electronic appendices available on the Salton Sea website (www.saltonsea.ca.gov) contain supporting materials as follows:

Appendix B-1: Table of Public Comments

Appendix B-2: Original Comments Submitted Electronically to CNRA

Appendix B-3: Table of Summarized CNRA Comments and Responses

Appendix B-4: Administrative Draft and comments received from agencies involved in permitting and regulating projects

APPENDIX B-1: Table of Public Comments

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	Thermal/N. Shore/not provided	Written in English	Public Outreach	When is next meeting?
12/17/2019 & 12/18/2019	Mecca & Salton City	North Shore/Thermal	Written in English	Public Outreach	Make forms and information easily accessible.
12/17/2019 & 12/18/2019	Mecca & Salton City	North Shore/Thermal	Written in English	Public Outreach	Use community-oriented vocabulary for farm workers.
12/17/2019 & 12/18/2019	Mecca & Salton City	North Shore/Thermal	Written in English	Public Outreach	Mail for community information.
12/17/2019 & 12/18/2019	Mecca & Salton City	North Shore/not provided	Written in English	Public Outreach	Presentation was given in Spanish speaking community in English. Better idea - give the presentation in Spanish to facilitate conversation.
12/17/2019 & 12/18/2019	Mecca & Salton City	ECV/not provided	Written in English	Other	How is the Salton Sea going to be fixed? How will it affect the residents? Will any improvements enable gentrification?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written in English	Water Quality	Clean the water, don't bring in more dirty water! I talked about saving water, what does dust have to do with my question?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Loma Linda University	Written in English	Public Health	Summertime winds from the Salton Sea blow north to the northern communities. Can CARB begin addressing this data gap to include the health risk to communities on the northern side of the lake?

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Geothermal World Wide	Written in English	Other	All problems with formation of toxic dust storms will be solved by importing sea water to the level of the 1950's and 1960's. Would be glad to make a one hour presentation. Go to www.geothermalworldwide.com for information on our technology and the presentation at El Centro regarding a long-term solution. See video or 5 segments summary.
12/17/2019 & 12/18/2019	Mecca & Salton City	Mecca, North Shore/not provided	Written in English	Other	1. How does the LA Times article inform further dialogue on plans for Salton Sea Restoration?
12/17/2019 & 12/18/2019	Mecca & Salton City	Mecca, North Shore/not provided	Written in English	Other	2. What does the information in the LA Times article offer as argument against over reacting to existing conditions (playa, dust, odors, etc.)?
12/17/2019 & 12/18/2019	Mecca & Salton City	Mecca, North Shore/not provided	Written in English	Other	3. Why can some of the naturally occurring phenomena not be replicated? Or is it possible?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Salton Sea Coalition	Written in English	Other	State needs to endorse Imperial County's Declarations of Emergency to speed up work at the sea.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Comite Civico Del Valle	Written in English	Other	Earl W. (CARB) Ongoing dust suppression projects

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Comite Civico Del Valle	English	Public Outreach	Wants more talk on what mitigation has been attempted/what mitigation is currently going on/and more information on what projects to expect in the future.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Comite Civico Del Valle	English	Public Outreach	Presentation was not community friendly. Graphs may have intimidated people.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Sierra Club	Written in English	Public Outreach	Keep local community members at forefront of this effort with regular substantive communications seeking and insisting that actions fully integrate local community input. A community steering committee with adequate support and funding is critical.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written in English	Water Quality	Import ocean water from Pacific Ocean or Sea of Cortez
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Imperial County APCD	Written in English	Other	1. Explain difference between existing IID Salton Sea air quality mitigation plan and new plan being designed by CNRA & CARB
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Imperial County APCD	Written in English	DSAP	2. How is state going to plan and monitor surface roughening, and meet existing IID standards?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Salton Sea Coalition	Written in English	DSAP	Is the SSMP plan for the exposed playa that will be left after all the projects are completed to cover it with gravel? Our coalition thinks importing ocean water is the best way to control dust from exposed playa.

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	North Shore/not provided	Written in English	Public Outreach	How do I get involved with the Committees? Based on the SSMP Committees structure and charge, I would like to be a part and get involved with the following Committees: 10- year Plan, Air Quality, Long-range, Water Quality, Community Engagement.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/ECU Queers	Written in English	Public Outreach	Speakers not engaging. No examples of how community input is shaping plan.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/ECU Queers	Written in English	Other	Who owns the land?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/ECU Queers	Written in English	Other	How do we make sure landowners aren't also manipulating politics and policy to their benefit?
12/17/2019 & 12/18/2019	Mecca & Salton City	Coachella/AVID Coachella Valley High School	Written in English	Biology	Any specific vegetation?
12/17/2019 & 12/18/2019	Mecca & Salton City	Coachella/AVID Coachella Valley High School	Written in English	Public Health	What side will be started first?
12/17/2019 & 12/18/2019	Mecca & Salton City	Coachella/AVID Coachella Valley High School	Written in English	Public Health	How contaminated is the Salton Sea? Is it safe?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/AVID Coachella Valley High School	Written in English	Biology	What kind of vegetation will there be?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/AVID Coachella Valley High School	Written in English	Public Health	When will plans take place?

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/AVID Coachella Valley High School	Written in English	Other	80% of emissions come from 20% of the playa. Dust Suppression Project Action Plan - phases, surface roughening, mow and row, ground cover to keep soil in place
12/17/2019 & 12/18/2019	Mecca & Salton City	Coachella/AVID Coachella Valley High School	Written in English	Other	Let's do it!
12/17/2019 & 12/18/2019	Mecca & Salton City	Coachella/AVID Coachella Valley High School	Written in English	Public Outreach	When will we be able to help?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Alianza	Written in English	Other	How far behind is the water/dust project?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Alianza	Written in English	Water Quality	Will the water be cleaned before it is put over the soil?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Alianza	Written in English	DSAP	Is the air quality only being controlled near the Salton Sea or the community in general?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Comite Civico Del Valle	Written in English	Public Outreach	Presented material terminology is heavy and hard to process for community who understand that the air quality is worsening.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Comite Civico Del Valle	Written in English	Other	What are the specific projects?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Comite Civico Del Valle	Written in English	Other	What are the reductions seen from the strategies previously imposed?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Comite Civico Del Valle	Written in English	Public Outreach	Information should be easy to find at meetings like this.

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	Alianza/Indio/not provided	Written in English	Public Health	Why has the project taken so long? What has gotten done in the last 5 years?
12/17/2019 & 12/18/2019	Mecca & Salton City	Alianza/Indio/not provided	Written in English	Public Health	Why is the first thing mentioned "the birds"?
12/17/2019 & 12/18/2019	Mecca & Salton City	Alianza/Indio/not provided	Written in English	Public Outreach	Is there a community vote on the actions taken?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/ICAPCO	Written in English	Public Outreach	Who at the Southcoast AQMD is the point person for these activities?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/ABBES&E	Written in English	Public Health	Based on the analyses already conducted, what are the critical dust components that can be harmful for residents living closer to the critical detected areas?
12/17/2019 & 12/18/2019	Mecca & Salton City	Sky Valley/not provided	Written in English	DSAP	Owens Lake is the largest dust control project in California. Water is used for dust control - 70% of water is used for dust control on 30% of the lakebed. Why is there no provision to use water in a similar way on the Salton Sea playa?
12/17/2019 & 12/18/2019	Mecca & Salton City	Sky Valley/not provided	Written in English	Other	Will the state be writing its own plan or will it just copy IIDs flawed plan?
12/17/2019 & 12/18/2019	Mecca & Salton City	Sky Valley/not provided	Written in English	Water Quality	What have you done to secure a company to review the water import plans? Have the plans been sent yet? If not, when?
12/17/2019 & 12/18/2019	Mecca & Salton City	El Centro/not provided	Written in English	Public Outreach	Where is information available to the public? Please provide links to make available to others who cannot make the meetings. This is of utter most importance.

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	Desert Shores/not provided	Written in English	DSAP	Is IID going to do any dust suppression on their own properties in the residential area of the West Shore communities?
12/17/2019 & 12/18/2019	Mecca & Salton City	Coachella/not provided	0 in English	Other	Salton Sea restoration is not for amateurs. The solution is scientific. Enforcement of clean air State Health & Safety code. Human health impacts in the entire southern California region. Sea of Cortez water importation to increase volume of the Salton Sea to cover the heavily polluted exposed sediment.
12/17/2019 & 12/18/2019	Mecca & Salton City	Sky Valley/not provided	Written in English	DSAP	Directed to Arturo, what is your personal position on water import for dust suppression versus the perimeter lake for dust suppression?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/Sea Advocates	Written in English	Public Health	Sea import and state of emergency
12/17/2019 & 12/18/2019	Mecca & Salton City	Salton City/not provided	Written in English	Public Health	Program should: a) provide special allergy specialist health; b) tree plan to suppress flying sand; c) send information to all residents around Sea; d) need filling more water; e) improper evaluation with respect to region; f) nothing to prevent dirt from the most affected area like Salton City. I have been suffering for 5 years.
12/17/2019 & 12/18/2019	Mecca & Salton City	Resident/not provided	Written in English	Public Health	It may be a small concern in general, but for me, it means not being able to go outside in my garden, open windows or stay in my front yard for any length of time. ATVs are driving on any road, desert, and creating dust clouds that look like a sandstorm. Constantly day and night. I suffer from severe asthma. Please help.

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	Salton City/not provided	Written in English	Public Health	Soil surface roughening will only be temporary solution. Sea water import needs to happen sooner rather than long term.
12/17/2019 & 12/18/2019	Mecca & Salton City	Sky Valley/not provided	Written in English	Public Outreach	What date will the next long-term planning committee meeting be held?
12/17/2019 & 12/18/2019	Mecca & Salton City	San Diego/EnviroMine	Written in English	Other	The cost stated for using gravel mulch as a dust control methods is in the range of $50,000/ac. What is the basis for this estimate? Have any trials been attempted to better understand these costs? Before large scale methods commence will the various methods be tested for effectiveness and long-term cost benefits?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/EnviroMine	Written in English	Other	What are the performance standards that apply for non-BACM dust control measures? How/when will it be decided that moat and row is acceptable? What is the predicted 50 year cost to maintain moat and row? Is there a financial assurance for continued maintenance for all surface roughening?
12/17/2019 & 12/18/2019	Mecca & Salton City	Mecca/Alianza	Written in English	Public Outreach	How can the project be better at working together?
12/17/2019 & 12/18/2019	Mecca & Salton City	Coachella/not provided	Written in English	Water Quality	How is the Salton Sea contaminated and when did it start?
12/17/2019 & 12/18/2019	Mecca & Salton City	North Shore/not provided	Written Translated in Spanish	Public Health	We want to see the cleaning of the lagoon/playa become real.

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Public Outreach	Create more experiments quickly. Make more calls to the community. I think maybe planting trees, grasses, rocks, etc. and what types.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Public Outreach	I agree that farmers, like me, that have exposure to contaminated dust and have suffered lung problems similar to those from 9-11 should work on this project.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Public Health	How will you control the dirt and dust.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Water Quality	My questions are 1. What will happen with the salty water? 2. What agreement is there between the Imperial Valley and Coachella Valley? 3. What will happen with the surface once the area is alone?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Other	My questions is why don't we have an air filtration plant like in Palm Desert? Also we would like to be participants in meetings and let us know about the projects you do.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Public Outreach	Please do not ignore us, hear the public, we are humble farmers and hear the the voice.
12/17/2019 & 12/18/2019	Mecca & Salton City	Thermal/not provided	Written Translated in Spanish	Other	What plans do you have long term?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Public Health	How do you plan to end the Boatmen bug plague?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Water Quality	What way will you clean the contaminated water of Salton Sea?

Date	Location	Area of Residence/Affiliation	Comment Type	Comment Category	Specific Comment
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Public Health	We need to put more water to calm the dust, this will also calm down the allergies and lung illneses.
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	Other	What will you do with the salty water? What agreement do you have with Imperial Valley and Coachella Valley? And what do you plan to do with the area of the lagoon? And how long will this work go on for?
12/17/2019 & 12/18/2019	Mecca & Salton City	not provided/not provided	Written Translated in Spanish	DSAP	Something must be done soon because the water from the Salton Sea is drying and the dust is blowing and causing a lot of illness. For me I think bringing a lot of dirt from somewhere else and putting it where the water is drying. A meter of dirt on top of the dust and then planting trees.
12/17/2019 & 12/18/2019	Mecca & Salton City	Thermal/not provided	Written Translated in Spanish	Water Quality	How will you prevent contamination from the farm lands? All the agricultural lands drain contaminated water from the farms into the lagoon.

APPENDIX B-2: Original Comments Submitted Electronically to CNRA

DSAP Public Comment Log & Table of Contents

	Name/ Organization	Date Received	Page Number(s)
1	Art Gertz	3/10/2020	1
2	Linda Joy Salas	3/16/2020	2
3	Chris Cockroft	3/27/2020	3 - 5
4	Alexander Ramia	3/27/2020	6 - 7
5	Jasmyn Phillips	3/27/2020	8 - 9
6	San Diego County Water Authority	3/27/2020	10 - 11
7	Imperial County Air Pollution Control District	3/27/2020	12 - 14
8	South Coast Air Quality Management District	3/27/2020	15 - 16
9	Imperial Irrigation District	3/27/2020	17 - 23
10	Chris Cockroft	3/30/2020	24
11	Joint NGO Letter: Alianza, Audubon, EDF, KDI, Leadership Counsel, Pacific Institute, Sierra Club California	3/27/2020	25 - 183

From: agertz1.external@infineon.com
To: CNRA Salton Sea
Subject: dust suppression at Salton Sea
Date: Tuesday, March 10, 2020 11:05:01 AM

We the inhabitants, fully recognize we are being led in a wrong and expensive direction. Contour plowing at $2,000/acre, and will go up, is wasteful spending and is not fully effective. It also needs redoing every 3-5 years.

You need to support living windbreaks, as proposed by Ryan Kelly. These to be fed by aqua fir water. Far more effective and provide some carbon sequestration.

Basic problem is State is a monopoly with little to no responsiveness to those in the basin, who HAVE viable solutions.

Art Gertz, Vice Mayor West Shores.

From:	Linda Joy Salas
To:	CNRA Salton Sea
Subject:	Salton Sea
Date:	Monday, March 16, 2020 10:31:43 AM

For nearly many years, I've been following the progress (or lack thereof) with regard to the mitigation of the damage done by the dehydration of the water in the Salton Sea.

For more than a decade organizations like yours (Natural Resources Agency) have received funds that have never quite made it to solving the problem. The problem has and still is clearly solved by Water Import.

You've had meetings excluding those of us who support Water Import and every time the residents of Salton Sea approach you and your political partners, plans excluding water import are made, throwing our tax dollars away.

I urge you to once and for all make history. Be bold and include those of us who will suffer the consequences of your inept policies to finally resolve a problem that can and should be fixed with water import. We have so many reports that clearly prove this is the only BEST solution to put our tax dollars into.

Thank you

Linda Joy Salas (CalBRE: 01192416)
Bennion Deville Homes (Office Lic.: 01325548)
Primary: 760-625-5129
ljoysalas@gmail.com

Arturo Delgado

Assistant Secretary for Salton Sea Policy

California Department of Natural Resources

Dear Assistant Secretary Delgado,

Thank you for this chance to comment on the Draft Dust Suppression Plan (DDSP).

1): State Statutes require restoration the Salton Sea to its condition at the date of the Quantification Settlement Agreement in 2003 (Ducheney; Fish and Game). Instead of being a blueprint for actualizing these Statutes, the current iteration of the DDSP is a bald attempt to play catch-up with State Water Resources Control Board Order WR 2017-01134, which sets yearly targets for dust suppression and habitat.

When the Salton Sea first started drying up ten years ago, IID chose tillage as a defensive measure against rapid sea level decline, which made sense at the time, since the State was doing nothing. It cost little and used no water. And, when IID began writing its dust report it looked to Owens Lake for solutions. At Owens Lake the Great Basin Air Pollution Control District allowed tillage only when a fully functioning, companion plumbing system was also installed over the same ground to provide immediate remediation water when tilled soil started emitting dust.

At the Salton Sea, shallow flood backup was left out due to its higher cost and greater use of water.

The current DDSAP parrots and amplifies IID's mistake by making tillage the long term solution for the entire 8,200 acres, despite the fact that tillage alone has never been approved as a Best Available Control Measure (BACM) by the Imperial County Air Pollution Control District. Approved BACMS are much more rigorous. They include: 1) Shallow flooding; 2) Tillage with shallow flood backup; 3) Brine flooding; 4) Managed vegetation; and 5) Gravel blankets.

The use of BACMs is an uncompromisable absolute for this project at this point in the planning process.

At the March 3, 2020 Public Meeting to discuss the DDSP Steven Garcia, a Department of Water Resources engineer on the Salton Sea project and Jennifer Scholl, (who authored the DDSAP draft) told me tillage is just a temporary step, to get something started on the ground as soon as possible to make up for lost time and acreage. The DDSAP needs rewriting to explicitly say so.

2): The Species Conservation Habitat Project was planned and developed before WR 2017-0134. Prior to the vote by the State Water Resources Control Board to implement WR 2017-0134, the State and NGOs (Audubon; Defenders of Wildlife; Pacific Institute) stipulated that the Species Conservation Habitat Project would not be counted as restoration acreage by the Order. Yet it represents fully half the acreage (1800 acres) included in the first half of the plan. It must be left out.

3): The DDSP completely leaves out discussion of other alternatives that can solve the problem. For example, Levers, Story and Schwabe's "Boons or Boondoggles: An Assessment of Salton Sea Water Importation Proposals", (currently in press at California Agriculture, but currently findable via Google) argues that it would be easiest to resume fallowing and restart water transfers immediately from "…agricultural uses to the Salton Sea…all the infrastructure for leasing water currently exists which means, physically, water transfers could begin immediately, an increasingly important characteristic given the present and increasing environmental and human health damages." Another possibility exists, as well. If the sea-to-sea canal is built, it would obviate the need for any of these dust suppression projects in the first place, saving hundreds of millions of dollars. There are others, as well.

4): The current DDSP is only eleven pages long. It was obviously hurriedly written. It runs out of gas. And, it dies abruptly. Of the eleven pages, only two contain important content. The rest is filler. For example, the "Operations and Maintenance" section should contain detailed cost estimates; the "Monitoring and Data Collection" is vague; and the "Ongoing Air and Water Quality, Soils and Groundwater Data Collection" is riddled with generalities, the kind consultants frequently add when fudging issues. All need to be considerably strengthened. Also, the report should have a good select annotated bibliography, to help readers learn more about the issues.

Thanks for this chance to comment.

Sincerely,

Christopher W. Cockroft

1020 Palm Ave.

South Pasadena, California

The DDSP touts 8,200 acres of tillage without water.

From: Alex R
To: CNRA Salton Sea
Subject: Draft Dust Suppression Action Plan (DSAP)
Date: Friday, March 27, 2020 10:57:41 AM

Thank you for the opportunity to comment on the DSAP. The goal to complete 8200 acres of dust suppression by end of 2022 is admirable.
However, this is not a community-driven plan. The priority in the DSAP is to implement surface roughening on **IID and USBR land** to avoid a citation for violating air quality standards.
The DSAP is inadequate, as it offers no advantage, benefit, or hope to Salton Sea shoreline communities. It is playing catch up on the acreage goals set out in WR 2017-0134. Surface roughening/vegetation provides no recreational, economical or habitat value.
Our communities have been promised shovel-ready projects and on the ground action for many years. Yet the Species Conservation Habitat and Red Hill Bay restoration are still far from complete. Instead, waterless dust suppression takes precedence.
Salton Sea communities know that water is 100% effective at controlling emissive dust on the exposed playa. The community has lessons learned from **Tulare Lake, Owens Lake, Mono Lake, and the Kesterson Reservoir** that:

1) Water stops dust.
2) Don't let the water dry up
3) It is more expensive to reduce dust
4) It is cost-effective to add water

The State's responsibility is to "protect public health and the environment. SB 615 in 2017 gave birth to The Salton Sea Restoration Act, California Fish & Game Code section 2931(a), it states that "it is the intent of the Legislature that the **State of California undertake the restoration of the Salton Sea ecosystem** and the permanent protection of the wildlife dependent on the ecosystem".

In the DSAP any funds for revitalization purposes will be used to pay the IID to plow **their own exposed land** but has **no money** for other stakeholders such as residents or the tribes who face direct health and economic penalties from the QSA. This falls far short of any QSA restoration objective in the 10-year plan. Salton Sea communities take the **50% habitat requirement** in the 10 Year Plan seriously. But based on the actions of the state we are unconvinced suitable wetlands will be completed as **voter health** and **environmental protection** has taken a back seat to utility surface roughening and adding water back the land requires study.

The most effective method to control emissions is to return water to the Salton Sea playa.
The DSAP primary concern should be to restore essential flow to stabilize shoreline elevation until there is a **REAL PLAN**. Why not purchase fallowed agricultural land water rights from farmers, invest in water harvesting upriver, improve water efficiency in coastal cities perhaps, support recycling programs that allow offsets to be taken from the river, utilize more sustainable coastal desalination technology, these savings would provide more water for use in the sea for shoreline stabilization, water quality, recreation and habitat purposes.

The current DSAP as written benefits government and public agencies and disenfranchises

Salton Sea residents, tribes, stakeholders, and the surrounding public.
Our shoreline towns want a DSAP to reflect 100% proven dust suppression that also revitalizes our communities as **promised in both SB615 and the 2003 QSA**. This includes refilling and reopening the marinas to invigorate their recreational, economical and habitat value.

Our communities believe we are worth it and that the solutions used elsewhere in the nation and the state are worthy of deployment at the sea. We strongly urge the state to commit to a DSAP that is truly a community-driven action plan.

Sincerely,

Alexander Ramia

From:	Jasmyn Phillips
To:	CNRA Salton Sea
Subject:	Salton Sea DSAP Comment Letter
Date:	Friday, March 27, 2020 10:10:24 AM

Thank you for the opportunity to comment on the DSAP.

The goal to complete 8200 acres of dust suppression by end of 2022 is admirable.

However, this is not a community-driven plan. The priority in the DSAP is to implement surface roughening on IID and USBR land to avoid citation for violating air quality standards.

The DSAP is inadequate as it offers no advantage, benefit or hope to Salton Sea shoreline communities. It is playing catch up on the acreage goals set out in WR 2017-0134. Surface roughening/vegetation provides no recreational, economical or habitat value.

Our communities have been promised shovel-ready projects and on the ground action for many years. Yet the Species Conservation Habitat and Red Hill Bay restoration are still far from complete. Instead inexpensive, waterless dust suppression takes precedence.

Salton Sea communities know that water is 100% effective at controlling emissive dust on exposed playa.

The State's responsibility is to
"protect public health and the environment. The Salton Sea Restoration Act, California Fish & Game Code section 2931(a) states that “it is the intent of the Legislature that the State of California undertake the restoration of the Salton Sea ecosystem and the permanent protection of the wildlife dependent on the ecosystem".

In the DSAP any funds for revitalization purposes will be used to pay the IID to plow their own land. This falls short of the restoration objective. Groundwater wells for vegetation is not enough. Salton Sea communities take the 50% habitat requirement in the 10 Year Plan seriously. But we are unconvinced suitable wetlands will be completed as public health and environmental protection takes a back seat to surface roughening in the DSAP.

The most effective method to control emissions is to return water to the Salton Sea playa. The primary concern should be to restore essential flow to stabilize shoreline elevation. Why not fallow agricultural land and purchase water rights from farmers, improve water efficiency in coastal cities and utilize desalination technology for use in recreational and habitat purposes at the Sea.

The current DSAP was written to benefit government and public agencies but not the most important Salton Sea stakeholders, the Public. Our shoreline towns want a DSAP to reflect 100% proven dust suppression that also revitalizes our communities. This includes refilling and reopening the marinas to invigorate their recreational, economical and habitat value.

Our communities believe we are worth it and that the solutions are within reach. We strongly urge the state to commit to a DSAP that is truly a community-driven action plan.

Sincerely,
J. Phillips

Our Region's Trusted Water Leader
San Diego County Water Authority

March 27, 2020

MEMBER AGENCIES

Carlsbad Municipal Water District
City of Del Mar
City of Escondido
City of National City
City of Oceanside
City of Poway
City of San Diego
Fallbrook Public Utility District
Helix Water District
Lakeside Water District
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San Dieguito Water District
Santa Fe Irrigation District
South Bay Irrigation District
Vallecitos Water District
Valley Center Municipal Water District
Vista Irrigation District
Yuima Municipal Water District

OTHER REPRESENTATIVE

County of San Diego

Arturo Delgado
Assistant Secretary for Salton Sea Policy
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
cnra-saltonsea@resources.ca.gov

Re: Draft Salton Sea Management Program Dust Suppression Action Plan

Dear Mr. Delgado:

The San Diego County Water Authority appreciates the opportunity to provide comments on the Draft Salton Sea Management Program's (SSMP) Dust Suppression Action Plan (Plan). The Plan represents a positive step toward what we hope will be a stepped-up response by the state to immediately address exposed playa, in particular playa that is found to be emissive. We recognize and support the state's effort to address public concern by targeting not only areas found to be emissive, as per studies conducted under the Quantification Settlement Agreement (QSA) Joint Powers Authority (JPA) environmental mitigation program, but also targeting playa in areas close to the communities located around the Salton Sea. While the Water Authority supports critical habitat projects, like Species Conservation Habitat, there is a need to get air quality projects on the ground now, which is what your Plan aims to accomplish though a two-phased approach that includes projects in 2020 and 2021. While the state is two years behind on implementing projects, the Plan is a positive step forward to get back on track for meeting the annual milestones established in Water Order 2017-0134.

The Water Authority further supports the Plan's call for working with the Imperial Irrigation District (IID) on testing dust control measures to prevent the migration of sand from the desert near the Salton Sea onto the exposed lakebed. It is a key step to not only prevent the playa from becoming emissive but also to address dust concerns in the area. Additionally, the Water Authority supports the Plan's goal of studying groundwater availability through test wells as one more critical step that could potentially provide another source for vegetation development and shallow habitat development without compromising current water sources.

The Water Authority recommends the following issues be addressed in the Final SSMP Dust Suppression Action Plan.

- Cost Analysis: The current Plan does not address the development or long-term operations and maintenance costs of or funding sources for the 8,200 acres of air quality projects outlined in the Plan. While the Plan indicates Phase B projects will be selected based on soil testing, it should be possible to evaluate the potential spectrum of projects and develop a range of costs for both development and long-term operations and maintenance. Table 1 should include an estimated cost for (1) development and (2) operations and maintenance, by phase and project.

- Schedule: The Plan currently includes text regarding a general schedule for implementing Phase A and B projects. The Plan should include additional schedule details such as a summary schedule for each project with estimated pre-construction, construction, and post-construction critical path activities by project and phase. At a minimum, project start and end dates should be added to Table 1.

- Distinction of QSA JPA versus SSMP Projects: The Plan in its current form, when outlining project areas, co-mingles SSMP dust suppression projects and QSA JPA air quality mitigation projects. The Plan should distinguish between the 8,200 acres of planned SSMP projects and the QSA JPA's separate but complimentary 2,000 acres of completed and 4,000 acre of planned surface roughening projects.

- Fund Accounting: Any financial analysis should not include QSA JPA funding. The Plan should clarify that the funding for the SSMP projects is separate and distinct from the funding for QSA JPA mitigation projects. While the QSA JPA and SSMP projects may work hand-in-hand in addressing exposed playa and ensuring the sea does not add to the region's already challenged air quality resulting from other sources, the two remain separate and should be accounted for as such.

- Operation and Maintenance: While the Plan references operations and maintenance, it indicates that additional analysis is needed to quantify augmentation work required post-construction. However, there is already existing information on completed surface roughening projects that can be used in such an analysis and should be discussed in this Plan. The Plan should identify potential funding sources and other resources for completing such work. If funding has not yet been identified, please indicate as such. The Plan should also include additional detail on the frequency of post-construction operations and maintenance activities and how such work would be accomplished.

- Other: While the Plan does have an introduction, it would benefit from the addition of an executive summary at the beginning and a conclusion to summarize the key elements of the Plan as well as next steps.

In summary, the Water Authority is pleased to see the leadership shown by the state and looks forward to continued momentum on advancing the SSMP Dust Suppression Action Plan. We appreciate your consideration of the aforementioned recommendations to provide greater public transparency and clarification of roles and responsibilities.

Sincerely,

Dan Denham
Deputy General Manager

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

AIR POLLUTION CONTROL DISTRICT

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

March 27, 2020

Mr. Arturo Delgado
Assistant Secretary for Salton Sea Policy
California Natural Resources Agency

Subject: Imperial County Air Pollution Control District's Comments on the Draft Dust Suppression Action Plan

Dear Mr. Delgado:

The California Natural Resources Agency has made available for public review and comment the draft Dust Suppression Action Plan (DSAP). The Imperial County Air Pollution Control District (ICAPCD), the air quality authority for Imperial County and the Salton Sea Air Basin, acknowledges the importance of these efforts and envision this DSAP to be utilized as a feasible tool to expedite the implementation of air quality mitigation projects on the exposed playa of the Salton Sea.

The California State Legislation declared that local and regional authorities, such as ICAPCD, "have the primary responsibility for control of air pollution from all sources, other than emissions from motor vehicles." (Health & Saf. Code, § 40000.) The local districts are mandated by the State Legislature to "adopt and enforce rules and regulations to achieve and maintain the state and federal ambient air quality standards in all areas affected by emission sources under their jurisdiction, and shall enforce all applicable provisions of state and federal law." (Health & Saf. Code, § 40001, subd. (a).) Despite these clear Legislative mandates and in contravene of ICAPCD's clear authority over air quality impacts at the Salton Sea, the State's staff failed to include ICAPCD in the decision-making process of their DSAP. The ICAPCD recommends those involved in projects mentioned in the DSAP assess all Rules and Regulations of the ICAPCD and demonstrate compliance with these rules. In addition, the footprint of some projects are within jurisdiction of South Coast Air Quality Management District (SCAQMD), which is not listed as a stakeholder in the DSAP. SCAQMD has their own unique adopted set of rules and regulations, just as ICAPCD.

The DSAP identifies the primary mitigation measure as surface roughening, which is not considered by ICAPCD and U.S. Environmental Protection Agency (EPA) to be a long-term viable and effective Best Available Control Measure (BACM) without supporting technical analyses and related monitoring/maintenance provisions accepted by the ICAPCD. The Great Basin Unified Air Pollution Control District experiments with surface roughening at Owen's

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

Lake, but because degradation is a problem with all types of surface roughing, it is requiring surface flooding as a backup and is closely monitoring their related projects. In addition, state funding to pay for the necessary maintenance and monitoring to these alternative BACM are not addressed. It will be imperative, among other things, for the State to demonstrate an enforceable commitment to continuous maintenance and monitoring.

Any man-made condition, such as the exposed playa of the Salton Sea, within Imperial County is required to abide by ICAPCD's Rule 804 which requires the responsible entities to comply with the conditions of a Stabilized Surface at all times and limit Visible Dust Emissions (VDE) to 20% opacity in accordance with U.S. EPA Test Method 9 at all times. Surface roughing is not recognized as an approved BACM under Rule 804. Any implementation of alternative BACM is required by Rule 804 to obtain ICAPCD and EPA approval prior to implementation. Approval cannot be granted unless the alternative BACM is proven to the satisfaction of ICAPCD and EPA that the measure will achieve a stabilized surface (as defined in Rule 800) and meet the 20% opacity requirement in accordance with EPA Test Method 9. It is unfortunate that the State did not engage with ICAPCD before issuing its draft DSAP so that these requirements could have been addressed.

ICAPCD is also concerned that the proposed surface roughing mitigation in the draft DSAP will interfere with the PM10 attainment plan that the State of California submitted to EPA for approval as part of the State's State Implementation Plan (SIP). To that end, an updated emissions inventory that addresses the impacts from surface roughing will need to be submitted to ICAPCD for review and approval, and federal landowners will be required to comply with Rule 925, conformity.

ICAPCD Rule 925, General Conformity, which adheres the requirements of U.S. EPA General Conformity Rule, applies to federal actions that result in emissions of "nonattainment pollutants," or their precursors, in federally designated nonattainment areas. Imperial County is currently classified as a nonattainment area for the PM10 NAAQS. This rule establishes a process to demonstrate that federal actions clearly demonstrate that the total direct and indirect emissions from the type of activities which would be presumed to conform would not: a) interfere with provisions in the applicable SIP; b) cause or contribute to new violations of NAAQS in the area; c) increase the frequency or severity of any existing violations of NAAQS; and d) delay timely attainment of the NAAQS or any required interim emission reductions equal to or greater than the total of direct and indirect emissions from the project so that there is no net increase in emissions.

The main goal of the DSAP should not be solely focused on achieving acreage milestones that do not ensure real emissions savings. Rather, scientifically based strategies for the proper placement of these projects on already identified highly emissive soil types should be the standard. Both ICAPCD and Imperial Irrigation District (IID) concur on this strategy as outlined in IID's Salton Sea Air Quality Mitigation Program.

In closing, ICAPCD feels that the current draft Plan falls short in demonstrating effective control measures that abide by the rules and regulations adopted by ICAPCD. ICAPCD appreciates the opportunity to comment on this draft Dust Suppression Action Plan. Should you have any questions regarding this letter, please contact Reyes Romero or Katie Burnworth of my staff at (442) 265-1800.

Sincerely,

Matt Dessert
Air Pollution Control Officer

cc:

Imperial County Air Pollution Control Board
Tony Rouhotas, CEO, Imperial County
Henry Martinez, General Manager, IID
Tina Shields, Water Dept, Manager, IID
Assemblyman Eduardo Garcia
Thomas Gibson, Deputy Secretary and Special Counsel for Water, CNRA
Wade Crowfoot, Secretary, CNRA
Richard Corey, Executive Director, CARB

From:	Jennifer Scholl
To:	Willhoff, Evon@DWR
Subject:	Fwd: Comment"s from South Coast AQMD on Dust Suppression Action Plan
Date:	Friday, March 27, 2020 7:00:20 PM

Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

From: Scott Epstein <sepstein@aqmd.gov>
Sent: Friday, March 27, 2020 6:40:12 PM
To: Jennifer Scholl <jennifer.scholl@cardno.com>
Cc: Jo Kay Ghosh <jghosh@aqmd.gov>; Diana Thai <dthai@aqmd.gov>; Arlene Farol <AFarol@aqmd.gov>
Subject: Comment's from South Coast AQMD on Dust Suppression Action Plan

Dear Ms. Scholl,

Thank you for the opportunity to comment on the Dust Suppression Action Plan (subsequently referred to as the "DSAP"). We are in full support of projects that will minimize exposure to airborne dust within the South Coast AQMD jurisdiction. South Coast AQMD staff from the Planning, Rule Development, and Area Sources Division along with Staff from the Monitoring and Analysis group and staff from the Compliance and Enforcement Division have reviewed the report and have the following concerns.

- There is no mention of compliance with South Coast AQMD Rule 403 (Fugitive Dust) and Rule 403.1 (Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources) for projects in the DSAP in Riverside county.
    - We recommend adding a discussion of how the DSAP will ensure compliance with Rule 403 and 403.1
    - The size of the project will qualify the site as a large operation per Rule 403. In order to comply with our rules, the contractor will need to apply for a Rule 403.1 Site Specific Dust Control Plan and will need to follow the Best Available Control Measures detailed in Rule 403.
- The Draft DSAP should specify or quantify emission reduction metrics or any air quality related benefits
    - We recommend quantifying benefits (i.e., emission reductions, etc.) for each location, if possible
    - If emissions reductions cannot be quantified, we recommend a future update (e.g., status report, annual report)
- The Draft DSAP should define major deadlines and target metrics
    - We recommend providing a general timeline to understand deadlines, and metrics/targets
- The Draft DSAP should provide the overall criteria that was used to determine projects in Phase A or B
    - We recommend specifying how emissivity was determined or taken into account when projects were prioritized (e.g., soil composition, wind speed/direction, or

other meteorological conditions)

- The Draft DSAP specifies that it is a "living document", but it should provide details on how changes will be made in the future
    - We recommend providing a description on the public process to make changes to the document (e.g., will changes have to go through the Natural Resources Agency's board before they can be made?)

- The Draft DSAP should address the major challenges in the western side of the Salton Sea (sand intrusion from the upwind desert, soil suitability and limited water resources). See https://saltonseaprogram.com/aqm/docs/2019_Stakeholder_Brochure.pdf
    - We recommend providing a thorough description on how these challenges will be addressed, given that, the western side of the Salton Sea is responsible for the majority (63%) of playa emissions.

- The Draft DSAP should specify whether the data collected will be available for the public or where data can be found
    - We recommend providing information on public accessibility to DSAP monitoring data (e.g. LiDAR, field survey, PM10 measurements, camera footage…etc.) and where to find it

- The Draft DSAP should reference any existing literature looking at future dust emissions across the exposed playa
    - We recommend that the authors consider the results of Parajulia and Zender, 2017 (Projected changes in dust emissions and regional air quality due to the shrinking Salton Sea), and Parajulia and Zender, 2018 (Connecting geomorphology to dust emission through high-resolution mapping of global land cover and sediment supply) if not already evaluated.

Feel free to contact me with any questions,

Scott Epstein

Scott A. Epstein, Ph.D.
Program Supervisor, Air Quality Assessment
Planning, Rule Development, and Area Sources
South Coast Air Quality Management District
Office Phone: (909)-396-3754

March 27, 2020

Mr. Arturo Delgado
Assistant Secretary for Salton Sea Policy
California Natural Resources Agency
78078 Country Club Drive, Suite 109
Bermuda Dunes, CA 92203

Subject: IID Comments on the State's Salton Sea Management Program – Draft Dust Suppression Action Plan

Dear Mr. Delgado:

The Imperial Irrigation District has reviewed the State of California's Draft Dust Suppression Action Plan prepared as part of its Salton Sea Management Program. This letter provides comments from IID on the DSAP, including two overarching comments and 10 specific comments.

Our first overarching comment relates to coordination between the state's DSAP and IID's 2019/2020 Proactive Dust Control Plan. Whereas the DSAP addresses the state's dust suppression acreage requirements set forth in the stipulated order (Exhibit A of the State Water Resources Control Board Order WR 2017-0134), the IID 2019/2020 Proactive Dust Control Plan addresses IID's air quality mitigation responsibilities related to the transfer of conserved water under the Quantification Settlement Agreement. The state and IID plans identify Salton Sea dust suppression activities and strategies. There is a significant need for these plans to be thoroughly coordinated to ensure they are complementary and implemented to maximize the potential for emissions reductions. Although the State and IID have been working together to develop joint projects, the details regarding integration of the DSAP and the 2019/2020 Proactive Dust Control Plan at the planning level are still under development. Once the 2019/2020 Proactive Dust Control Plan is finalized, this information should inform and be reflected in the final DSAP.

Our second overarching comment relates to incorporation of IID's Salton Sea Air Quality Mitigation Program as the framework to guide the DSAP. The SS AQMP was developed by IID in 2016, in cooperation with the Imperial County Air Pollution Control District, to provide a comprehensive, science-based, adaptive approach to proactively address the potential for increased dust emissions. It has three main components conducted on an on-going annual basis: 1) an annual Emissions Monitoring Program to estimate emissions

and to identify high priority areas of exposed playa for proactive dust control, 2) an annual Proactive Dust Control Plan with recommendations and design for site-specific dust control measures, and 3) implementation and monitoring of DCMs to mitigate potential PM10[1] dust source areas proactively as playa becomes exposed. The annual Emissions Monitoring Program is designed to work hand-in-hand with the development of the annual Proactive Dust Control Plan and subsequent implementation and monitoring of DCMs.

The Emissions Monitoring Program is comprehensive and calculated based on the best available datasets and scientific methodology. Annual Emissions Estimates are based on several lines of evidence, including mapping exposed playa, monitoring surface characteristics, mapping soil/surface properties, identifying dust source areas, documenting dust plumes, and estimating high wind event emissions. Results are used to inform the location, timing, and magnitude of emissive surfaces and their priority for proactive dust control planning and subsequent implementation as a part of the Proactive Dust Control Plans.

Proactive dust control planning is based on results of the Annual Emissions Estimates and key findings from a series of plot- and field-scale pilot studies implemented and monitored by IID to inform best practices for dust control implementation as playa exposure accelerates. These multi-purpose studies provided (and will continue to provide) critical information on dust control effectiveness and implementability; DCM scaling techniques; techniques for monitoring performance; criteria for management, augmentation, or replacement of DCMs; and data to adaptively refine the proactive dust control planning and design process. The annual Proactive Dust Control Plans also provide IID and stakeholders with basic data, analysis, and information to facilitate broader playa-wide dust control planning efforts.

Accordingly, the SS AQMP provides the essential framework for identifying, prioritizing, and implementing dust mitigation efforts at the Sea. This framework provides the basis for identifying and developing IID projects, including those identified in the 2019/2020 Proactive Dust Control Plan, and should also be the framework for plans and projects by the State and other stakeholders, including the DSAP.

Specific comments on the DSAP are provided below:

1. **Identification of joint dust suppression projects with IID**. As mentioned previously, the State and IID have been working together to develop joint dust suppression projects. The DSAP mentions it was developed in collaboration with IID, but should clarify that several of the recommended projects include joint efforts

[1]Particulate matter less than 10 microns in diameter.

between IID and the State. IID and the State are currently working to define those joint efforts, which should be incorporated into the DSAP.

2. **Identification and prioritization of dust control areas.** The DSAP prioritizes and identifies approximately 8,200 acres of dust suppression projects at locations around the Salton Sea based on soil emissivity, prevailing wind patterns, threat to populated areas, and information obtained from community engagement. IID understands the need to incorporate information obtained from the community engagement process into the DSAP, however, the identification and prioritization of dust suppression projects should be based primarily on emissions data from the playa. IID has compiled and processed a significant amount of emissions data as shown in IID's Annual Report and Emissions Estimates. IID encourages the state to review and refer to IID's 2018/2019 Annual Report and Emissions Estimates (available at the following: https://saltonseaprogram.com/aqm/team-documents.php). This will ensure dust suppression projects are located in high priority playa areas with the greatest potential to achieve emissions reductions and prevention, thereby gaining the maximum public health benefit possible. Further, to site dust suppression projects on lands that are not currently emissive not only fails to provide a public health benefit, but may also cause those areas to *become emissive* with the implementation of unnecessary or inappropriate DCMs.

3. **Implementation schedule and acreage targets**. The DSAP describes a concerted effort to complete approximately 8,200 acres of dust suppression projects by the end of 2022. While the DSAP implementation schedule and acreage targets are intended to achieve the acreage requirements specified in the State Water Resources Control Board Order WR 2017-0134, the implementation of 12.8 square miles of dust control measures by the end of 2022 is very aggressive. The DSAP should consider implementation prioritization based on the actual emissions estimates prepared by IID (which were not available in 2017 when the order was adopted with acreage requirements), and not focus solely on achieving acreage milestones that are likely unrealistic. While this might not satisfy the state's acreage requirements, at least it would maximize the potential for emissions reductions during this interim period until such time that the state is able to catch up to its acreage requirements. It would also serve the state well to set realistic goals it can achieve, and focus its resources on the higher priority playa (as it is exposed) that best protects the public health.

   This is especially important because the results from IID's 2018/2019 Annual Report and Emissions Estimates demonstrate approximately 10 percent of the playa is responsible for over 50 percent of playa emissions, and approximately 20 percent of the playa is responsible for nearly 80 percent of playa emissions. These data demonstrate the importance of quality over quantity in terms of dust control

and habitat implementation, and underscores the need to implement the most effective emissions control projects first if the state is already behind its implementation target. These high priority playa areas are critical to the air quality at and near the Salton Sea as not all playa is equally emissive.

Furthermore, the DSAP should clarify the 980-acre proposed project in the Coachella playa area is based primarily on information obtained from community engagement and/or provide the data upon which this project's prioritization is based. IID's 2018/2019 Annual Report and Emissions Estimates demonstrate the playa in this area currently contributes less than 1 percent to the total playa emissions.

4. **Soil suitability for surface roughening**. The DSAP states that Phase A Projects include areas that contain soils that are suitable for surface roughening, and Phase B Projects include areas where surface roughening has previously been implemented and vegetation is needed to stabilize the furrows. However, the DSAP does not identify the soil suitability threshold for surface roughening or vegetation of the furrows. As part of IID's SS AQMP, soil suitability for surface roughening was initially defined as greater than 35 percent fine soil particles ("fines"). Based on performance monitoring, this value was confirmed and the soil suitability threshold was further defined as a minimum of 35-45 percent fines. This soil suitability threshold should be used for any surface roughening to be implemented as part of the DSAP. Soils in the 20-35 percent fines range can still be roughened, but will need vegetation enhancement within one to two years due to degradation of ridges. Design and water supply for vegetation enhancement should be taken into account prior to initial roughening for these soil types. As a result, the DSAP should clarify that surface roughening implemented during Phase A on soils in the 20-35 percent fines range should only be used to provide interim control while irrigation water supply is developed for vegetation of the furrows.

5. **Vegetation establishment techniques**. The DSAP describes vegetation establishment for several Phase B project areas. Vegetation establishment at the Salton Sea is challenging for several reasons, including the desert climate and soil salinity. IID has completed extensive field studies to inform vegetation establishment techniques at the Salton Sea. This includes, but is not limited to, species selection, seeding methods, transplant methods, implementation timeframes, cultivation inputs, minimization of sand burial risk during vegetation establishment, and irrigation methods. State efforts to implement vegetation at the Salton Sea should consider the findings from these field studies.

6. **Data needs for Phase B projects**. The DSAP states that more soil and air quality data are necessary to inform the most effective dust control methods for Phase B projects. There are extensive data available from the SS AQMP. Any additional data collection proposed by the State should be closely coordinated with IID to avoid duplication of efforts. In general, Phase B projects do not need more soil or site characterization data, but more efforts for water supply development from drains, surface water runoff, shallow groundwater, and deep groundwater.

7. **Monitoring/operations and maintenance**. The DSAP states maintenance of dust suppression projects will include monitoring of dust control effectiveness at project sites and redesign of methods for areas failing to meet dust control standards. As described in IID's Proactive Dust Control Plans, effective performance monitoring includes multiple lines of evidence to balance the strengths and weaknesses of individual methodologies. By pursuing multiple lines of evidence, a clear and readily interpretable assessment of dust control performance can be achieved. Lines of evidence include visual surveillance, sand motion monitoring (with ground-based sensors), and saltation flux mapping (with remote sensing and process-based modeling). When combined, these complimentary methods provide a sound monitoring program that is quantitative, continuous, spatially comprehensive, and easy to interpret. These techniques guide operations and maintenance activities including management, augmentation, or replacement of DCMs in order to maintain a stabilized surface. Monitoring approaches for DSAP projects should use methodologies consistent with IID's 2019/2020 PDCP.

8. **Shallow groundwater monitoring**. The state is evaluating installation of groundwater monitoring wells at 14 locations around the Salton Sea. The proposed wells would be located at or near dust suppression project areas to support future revegetation efforts.

   IID agrees that groundwater investigation and monitoring is needed to characterize shallow groundwater occurrence, depth and quality, and trends over time. Additional information regarding these factors is critical to 1) understanding conditions that may promote or inhibit the establishment of vegetation on the playa, 2) understanding conditions that may control shallow groundwater supply development, 3) assessing potential future changes in conditions as groundwater levels fall over time, and 4) assessing the potential impact of groundwater supply development on groundwater dependent ecosystems. IID has conducted an extensive assessment of shallow groundwater conditions and data needs, and is implementing a shallow groundwater monitoring program to address these needs at nine locations around the Salton Sea. The scope of this program should be considered when DWR designs its monitoring program, so that the programs

complement each other and provide a more comprehensive dataset. We note that the installation of individual monitoring wells at locations above the 2003 shoreline will provide important data, but will not be sufficient to characterize shallow groundwater conditions and trends beneath the playa itself.

9. **Water supply for vegetation.** The DSAP states a water supply is needed to establish long-term vegetation, and that once established, alternative water supplies will be evaluated. However, water supplies will need to be established before the planting of vegetation in order to provide sufficient water for vegetation hedgerows to become established and to a lesser extent for long-term maintenance. IID is undertaking an analysis of the projected water demand associated with development of vegetation-based dust control and available water supplies, including drain water, surface water runoff, groundwater, and reclaimed wastewater. Groundwater is an especially important water supply source along the western shore of the Sea, where water supplies are scarce and the soils are not conducive to surface roughing DCMs. IID is in the process of implementing a shallow groundwater supply investigation including Electrical Resistance Tomography profiling at several locations to assess the shallow hydrostratigraphy and water quality distribution, and the installation and testing of shallow supply wells that will provide water to two vegetation test plots to be established in late 2020. Based on findings, IID may expand this program in 2021 for the second phase of vegetation-based dust control. The results of these investigations, pilot programs and supply development activities should be considered in the DSAP for the establishment of a coordinated regional groundwater supply development program between DWR and IID.

10. Other minor comments include the following:

    a. **Development of DSAP with SCAQMD.** The DSAP states it is being developed in collaboration with IID, California Air Resources Board, ICAPCD, and other stakeholders. The DSAP should also reference the South Coast Air Quality Management District. Proposed projects in the Coachella Playa area are located within the SCAQMD.
    b. **2016 Salton Sea Air Quality Mitigation Program.** The DSAP states, "In 2006, IID developed the Salton Sea Air Quality Management Program…" Correct to "In 2016, IID developed the Salton Sea Air Quality Mitigation Program…"
    c. **Sand stabilization.** The DSAP states "Vegetated dust suppression projects include establishment of hedgerows and dune stabilization." Clarify that vegetated dust suppression projects may include establishment of hedgerows for sand stabilization. It is not limited to dune stabilization.

If you have any additional questions, please contact Jessica Humes at (760) 339-9703. Thank you for your time and review.

Sincerely,

Tina Shields, P.E.
Water Manager

cc: Enrique Martinez, IID
Jessica Humes, IID
Matt Desert, ICAPCD

From:	Salton Sea Project
To:	CNRA Salton Sea
Cc:	Besenty, Chris@CNRA
Subject:	Salton Sea Project "DDSAP comments"
Date:	Monday, March 30, 2020 10:58:34 AM

From: Chris Cockroft reply to cockroft@graffiti.net
Subject: DDSAP comments

Message Body:
Now that the comment period for the DraftDust SuppressionPlan is past, I'd like to ask that you post all of them on this webpage. The State Water Resources Control Board routinely does this already. I find them helpful to stay informed of recent developm nuts. I'm sure others would, too.

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This e-mail was sent from a contact form on the Salton Sea Project webpage (http://saltonsea.ca.gov)

March 27, 2020

Arturo Delgado
Assistant Secretary of Salton Sea Policy
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
cnra-saltonsea@resources.ca.gov

RE: Comments on the Draft Dust Suppression Action Plan

Dear Assistant Secretary Delgado,

On behalf of the undersigned members of the Salton Sea Partnership, we offer this comment letter in response to the 2020 draft Dust Suppression Action Plan (the DSAP) released on February 24th.

As stated in our comment letters on the 2020 Annual Report on the Salton Sea Management Program (SSMP) submitted by the Partnership and an independent letter by Leadership Counsel for Justice and Accountability on March 12th, we appreciate the work of CNRA and the State team in developing the DSAP and timeline for dust suppression projects and long-term proposals. Our comment letter touches on the different components that went into the development of the DSAP, community engagement, and project implementation. It is our intent that these comments are helpful for the State team to update and improve the plan.

We recognize that the current global health issues may delay agency action or completion of plans or construction of projects; however, we strongly encourage CNRA to prioritize completion of this plan and to advance all necessary planning components (permits, etc.) so that

dust suppression projects are "shovel ready" for when current work and travel restrictions are lifted. The COVID-19 pandemic further highlights the importance of mitigating and controlling hazardous dust emissions from the Salton Sea since the dust contributes to the overall respiratory burden of the local communities making them more vulnerable to COVID-19 infection, among other health issues.

Community Engagement

The Partnership, and in particular our member community-based organizations in the Coachella and Imperial valleys, has continuously advocated for meaningful and effective community outreach and engagement to support the SSMP and other Salton Sea related work. As an issue that's impacting numerous communities that have been historically disadvantaged and environmentally overburdened, the Salton Sea needs a solution that's inclusionary and holistic in order to address the habitat, air quality, and public health concerns of the region.

Since the SWRCB Salton Sea update in 2019, we have seen a renewed commitment to community engagement from the State. The Partnership will also submit comments on the updated community engagement plan developed by CNRA, but would like to offer a few suggestions and lessons learned as they relate to the development of the DSAP. The following recommendations should be adopted to ensure that meetings are accessible and effective:

- Time allocated for public comment and Q&A.
- Conduct meetings in Spanish, if that is the primary language of the community and those in attendance, and provide English translation.
- Collaborate with community based organizations to develop content and agendas to ensure effective discussions and meaningful participation, including the SSMP Community Engagement Committee.
- Hold meetings at accessible times and locations, based on community feedback.
- Ensure that meetings are equitably distributed throughout the region.

One deficiency we see within the DSAP substantively is that though community feedback has been given there has not been a transparent way in which these comments have been or will be documented or incorporated into the DSAP. The Agency should develop and implement a process and protocol immediately for collecting, documenting, responding to, and incorporating feedback into the DSAP and its implementation, and should explain that process and protocol in the DSAP itself. Not only will this improve the DSAP and improve and expedite its implementation, but it will also lay out a transparent methodology that demonstrates the extent to which the State has or will incorporate feedback into the plan and plan implementation, including project selection and implementation. We recommend including an Appendix of

community feedback as part of the DSAP to create a transparent database of community needs, suggestions, and responses that explain which recommendations were included and which were not (and why).

For more detail on what the Partnership expects for community engagement and recommendations we've made to the State team in the past, please review the attached documents titled: *Guiding Principles for Effective and Meaningful Community Engagement, Key Objectives for Advancing Community Engagement and Salton Sea Restoration,* and *Community Engagement Strategies and Recommendations for the Salton Sea Management Program.*

Draft Dust Suppression Action Plan

The release of the DSAP is a step in the right direction toward addressing the Salton's Sea severe and growing air quality and public health impacts on nearby communities. However, the DSAP lacks a comprehensive list of projects (or plans to implement them) that will directly benefit all of the communities in closest proximity to and most impacted by the Salton Sea. This is an issue that we have consistently raised regarding the SSMP and are disappointed that our input was not sufficiently incorporated into the DSAP. We remain hopeful that a revised draft DSAP will in fact address this concern and incorporate our suggestions.

1. **Project Identification:**

As an initial matter, we remain concerned that there are insufficient dust suppression projects identified for the northern end of the Sea, and those projects that are identified trail others in the implementation timeline. Both of these deficiencies concern Eastern Coachella Valley (ECV) residents. Of particular concern is the lack of identified, adequate dust suppression projects in closer proximity to the unincorporated community of North Shore. The shoreline next to the North Shore Yacht Club should be selected for dust mitigation projects. This site has a flat area of new playa land that has extended 150 feet from the 2018 lake shoreline level. Accordingly, we recommend that a revised draft DSAP identify projects near to and benefiting the unincorporated community of North Shore in Phase A. Given the need to expand the number and size of projects to address the public health and air quality impacts of the Sea on nearby communities, CNRA should increase the overall acreage that will be addressed through implementation of the DSAP and, we further request that the DSAP increase the number of projects and relevant acreage in phase A of Plan implementation.

The draft DASP lacks information as to the extent to which different stakeholders and experts have been engaged in Plan development and the role of the State in project identification. The DSAP states that it is based on extensive data collected and analyzed by IID but also notes that

it was developed in collaboration with the California Air Resources Board and the Imperial Valley Air Pollution Control District. There are several other stakeholders with extensive expertise in air quality and dust emissivity that should also be consulted in this process, including Torres Martinez Band of Desert Cahuilla Indians, South Coast Air Quality Management District, academic institutions like Loma Linda University - School of Public Health. Additionally, it's critical that the State be ultimately responsible for a comprehensive analysis of soil emissivity, prevailing wind patterns, and other factors that inform dust suppression efforts to ensure that the DSAP addresses dust suppression from the Sea equitably and comprehensively.

We are concerned with the lack of clarity and data as to how project sites are identified, prioritized, scheduled, and implemented as well as how data and evidence supports the factors (soil emissivity, prevailing wind patterns, threat to populated areas, and information obtained from community engagement, and land ownership) that the State relies on to identify, prioritize and schedule project implementation.

Soil Emissivity and Prevailing Wind Patterns

The assumptions of soil emissivity and prevailing wind lack data from a variety of sources and relies on outdated data.

Information gathered by Dr. Ryan Sinclair of Loma Linda University - School of Public Health, reported that there are four air quality contaminants that are monitored by a network of regulatory sensors near the Salton Sea: on Torres Martinez Indian Reservation land, in North Shore, Mecca, Indio,and Palm Springs. Those contaminants are PM10, PM 2.5, H2S and Ozone. A summary of these measurements and the real-time air quality indicator for the entire valley is on the South Coast AQMD website[1]. The source of PM10 non-compliance in most of the Coachella Valley is from blow-sand caught in the general southeastern wind and reported on four of the five regulatory sensors of the valley (Figure 1). Additionally, while CAB has stated previously that wind in the region blows only southeast away from the sensors, Figure 2 illustrates that during the months of July and August the winds reverse direction and blow into the ECV from the Salton Sea.

[1] South Coast Air Quality Management District. Current Air Quality Index [Internet]. 2019. Available from: https://www.arcgis.com/apps/webappviewer/index.html?id=dd4a15deed8647edacb14f140ca83d05

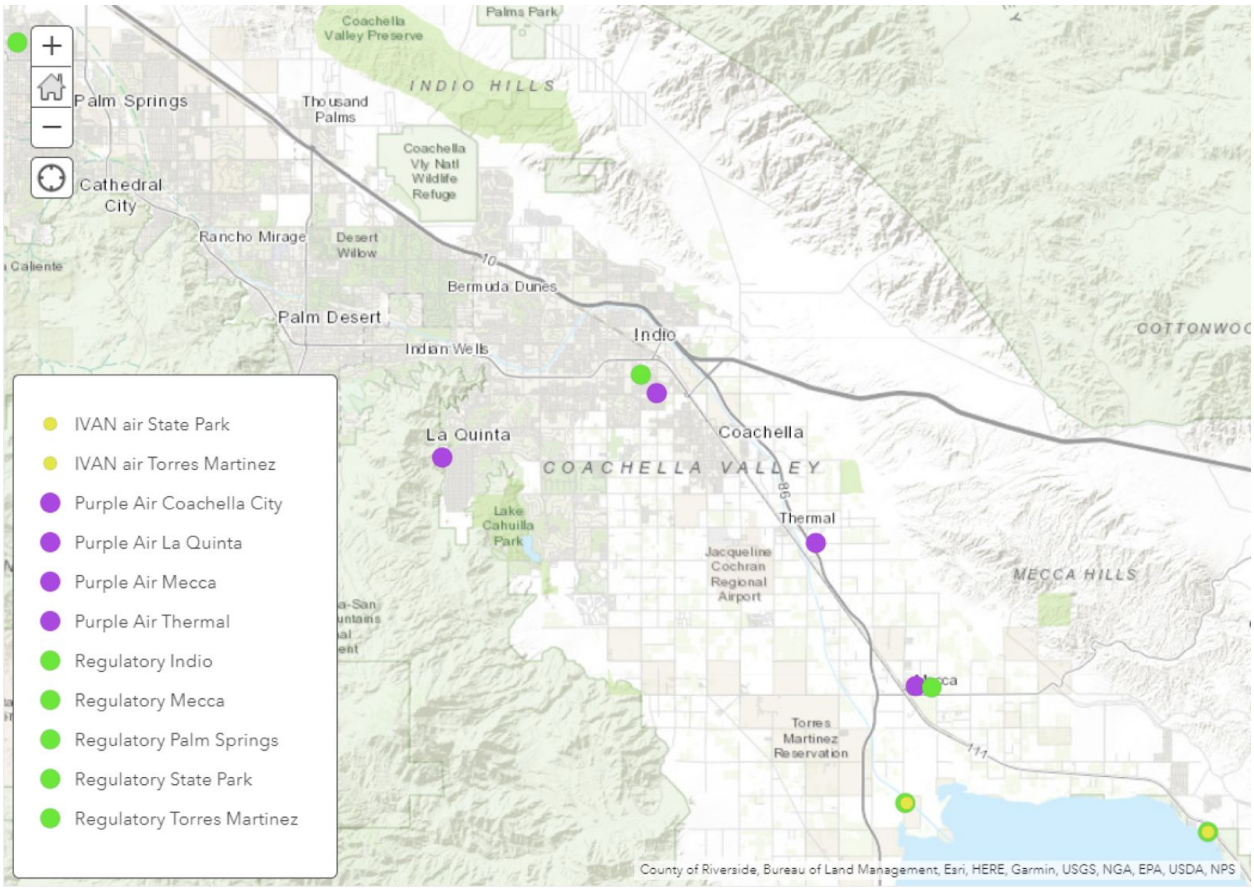

Figure 1. Map of publically accessible air quality sensors in the Coachella Valley as of January 2019. Two Co-located sensors by the Salton Sea show two colors[2].

It's also important to clarify how additional air monitoring will be conducted. We understand that IID may have more extensive resources to do air monitoring within their jurisdiction, but it would be helpful to know how the State team plans on conducting air monitoring on the remaining exposed playa. Such a program should detail staffing, resources, financing, and other tools that will be used to complete this, including how monitoring will be done on land with different land ownership. This should be coordinated with the development of the AB 617 Community Air Monitoring Plan for the Eastern Coachella Valley (more detail in the following sections).

[2] California Air Resources Board. Air Monitoring Sites - Interactive Map [Internet]. California Air Resources Board. 2018. Available from: https://www.arb.ca.gov/qaweb/mapdemo/map_module.php and the IVAN Air Monitoring Network. Online at: https://ivan-coachella.org/air/map

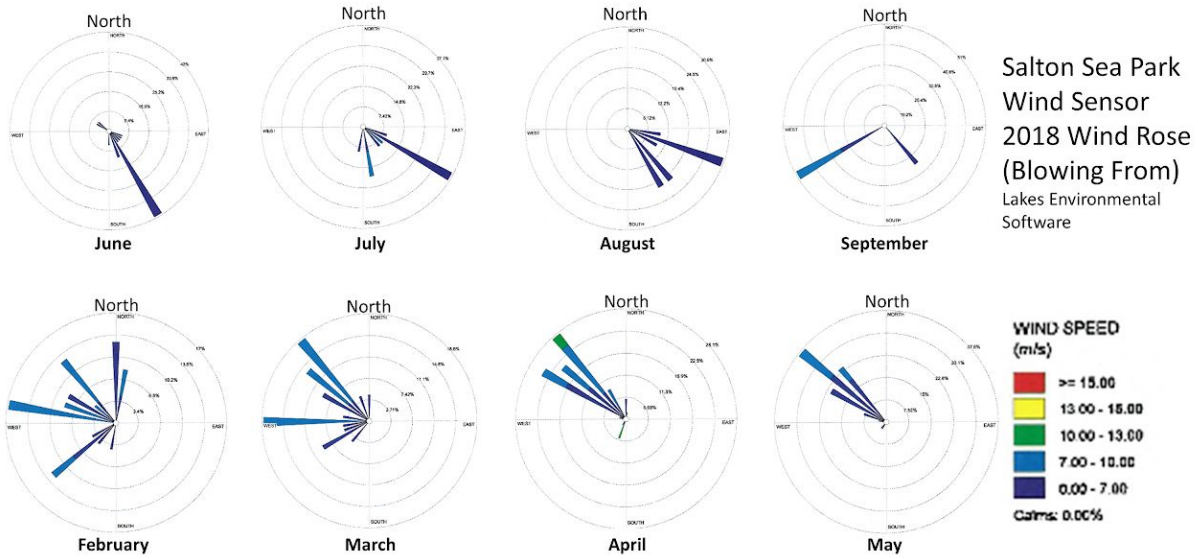

Figure 2. Salton Sea Park Wind Sensor 2018 Wind Rose, Lakes Environmental Software.

Finally it is unclear what data sources and / or agency actions informed half of the identified 8,200 acres in the draft DSAP. IID's March 10 Board Agenda (Action Item 15) states "As of the end of the 2019 calendar year, data shows that 23,910 acres of Salton Sea playa that were previously under water have been exposed. IID has implemented over 2,000 acres of air quality mitigation projects on these lands, in both the Imperial and Coachella Valleys, and has identified another 4,000 acres of playa for additional dust mitigation project design and implementation within the next three years."

<u>Threats to Populated Areas and Information Obtained from Community Engagement</u>

Though listed with equal importance as a factor for consideration in determining project sites, threats to populated areas and information obtained from community engagement are not properly explained within the DSAP, and appear to not have a significant impact on the location of Phase A and B projects. As noted above, the on-going and expanding coronavirus pandemic - which disproportionately affects those with underlying respiratory ailments - underscores the critical importance of expediting the implementation of dust suppression projects upwind of affected communities.

As an additional and vital resource, the State team should also acknowledge community narratives and other anecdotal information provided with more seriousness to inform project identification and prioritization. We recommend the State team to rely and give more weight to

the collective advocacy and anecdotes provided by community residents. It is unclear how - and even if - community input will be incorporated into a revised draft DSAP.

To help us better understand and comment on the State's process, we request a graphic that shows the different parameters as layers, showing where the different considerations overlap to determine sites of key importance. This type of explanation of the decisions being made will not only serve as a method of interfacing with community members and stakeholders, but also as a tool to help prioritize project phasing and give a clear rationale as to why some community feedback is practical and included, and why other recommendations could not be integrated.

2. **Project Development and Design Process:**

IID's 2018/2019 Proactive Dust Control Plan Table 4 (attached) is a good example of how the DSAP projects should be categorized and described. Please include a similar table in the revised Plan for all DSAP projects, including information on project size, location, status, emissivity, and projected costs.

Figure 1 of the DSAP shows preliminary project locations by phase. Some of the Phase A areas in the image are currently under water, or at least saturated and not feasible for dust suppression efforts at the present time. The DSAP does not identify how much of the land designated for Phase A projects is currently available for such efforts.

It is not clear how habitat and dust suppression projects will interact with one another during the construction planned for 2020. The DSAP does not describe how the eventual design-build contractor will prioritize or lay out SCH habitat cells or phases in the presence of 1,800 acres of surface-roughening on that same project site. The DSAP indicates that the 1,800 acres of surface roughening will be constructed this summer, presumably at the same time that the SCH design/build project is awarded and the new contractor begins to mobilize for project construction. An updated plan should include responses to the following:

- How will these two types of projects be reconciled and coordinated?
- How will access to the site be prioritized?
- What criteria will the SSMP use to determine when to convert a dust suppression project into a habitat project?
- How will future annual reports and performance evaluation in general account for this changing acreage?

It is our understanding that the North Lake project, a priority for Riverside County and the Salton Sea Authority and which has now been included in the SSMP, is expected to move forward with the necessary environmental compliance and permitting processes which will be led by CNRA. While we appreciate that the State will be leading these efforts as well as the community engagement for this project, it should be well understood that the communities within the Eastern Coachella Valley have not been properly informed about the North Lake project nor of the funding mechanism (the Enhanced Infrastructure Financing District) intended for this and other dust suppression and infrastructure projects within Riverside County. As we've explained before, ensuring that the community is well informed and engaged in every step of the way is crucial. Projects should be developed to prioritize the health and wellbeing of the existing residents of the surrounding area, while also providing sufficient habitat for the wildlife that rely on the Salton Sea.

3. **Project Implementation and Success Metrics:**

Our Partnership holds concerns over equitable distribution of projects as noted above. Project identification and timeline for implementation of the DSAP reinforces our concern that the DSAP and SSMP more generally marginalize the northern region of the Salton Sea. As identified on Figure 1 of the DSAP (Draft Dust Suppression Action Plan Preliminary Project Locations and Acres by Phase**)** all northern projects, including those around Salton City, have been slated for Phase B of the DSAP, with not a single project identified for the community of North Shore or Desert Shores in either Phase A or Phase B.

The DSAP also lacks clarity on different aspects of implementation. These include the responsible entity for implementing the plan as a whole, conducting community engagement for individual projects, and conducting additional air monitoring and research needed in the different newly identified dust suppression sites. This lack of clarity and vagueness renders the DSAP merely a conceptual plan describing the intentions of undefined agencies and staff and does not provide an actionable roadmap for success. The DSAP must clearly identify the people and agencies responsible for implementing and expediting projects. For example, "dust control efficiency testing will be performed using sand flux data" (p. 11) should be rewritten as "the (Resources Agency/DWR/CARB/or other) will conduct dust control efficiency testing using sand flux data and will include relevant timelines".

As these projects have been in development, we've also inquired as to how the State Team plans on defining and measuring their effectiveness. What is the reach of benefits that a dust suppression project can have and how will that be measured? It's important for the State Team to provide clear answers and metrics that they intend to follow after the completion of a project in order to measure its success in terms of public health improvements.

The State should look to projects of similar complexity to learn from their management, science, engagement and outcome measurement frameworks. We encourage CNRA to consider adaptive management structures such as those used in the San Francisco South Bay Salt Ponds Program or the Owens Lake Master Plan.

4. **Content, Administration, Funding, and Staffing:**

This DSAP omits many key elements of a functional plan, notably any identification of who will perform the work, as well as cost projections, specific schedules, critical path elements, budgets, staffing, funding sources, or subsequent reporting. We look forward to receiving a revised draft that includes each of these elements along with other suggestions included in this correspondence.

The DSAP must include foundational items such as cost projections, annual and multi-year budgets, monitoring, funding sources, community engagement staffing and frameworks, organizational structure and staffing, and reporting mechanisms. This is all for the benefit of presenting a clear and concise plan that will be useful for community members and stakeholders to better understand the complexities and process for restoring the Salton Sea.

We ask that the State add an executive summary outlining and describing the goals and objectives of the DSAP. The following sentences, from page 2 of the text, provide a good introduction and could be reflected in the Executive Summary.

> To expedite the implementation of dust control projects, the State is developing a Dust Suppression Action Plan (DSAP) in collaboration with IID, California Air Resources Board (CARB), ICAPCD, and other stakeholders. The DSAP prioritizes and identifies approximately 8,200 acres of dust suppression projects at locations around the Salton Sea based on soil emissivity, prevailing wind patterns, threat to populated areas, and information obtained from community engagement (Figure 1). The DSAP is based on extensive data collected and analyzed by IID. The plan intends to expedite delivery of dust suppression projects through a streamlined planning and permitting process.

Chapter 10 (attached) of the state's 2006 Salton Sea Ecosystem Restoration PEIR, along with several of the appendices in the PEIR, provide relevant information that should be included in the DSAP. Chapter 10 describes the project scope and existing conditions, and generally provides context. The state should summarize some of the PEIR information in the DSAP, including information on the study area, regional districts with permitting authority and their existing standards, federal PM_{10} and $PM_{2.5}$ standards, state and federal air quality

designations, data sources and limitations, and historic, existing, and projected conditions. It's important for the DSAP to describe the context in which it will operate.

5. **Plan Timeline:**

The DSAP timeline, while beneficial to understand the process for project completion, should be expanded to include more detail and additional timelines and milestones that demonstrate more than target construction dates. Gantt charts can be extremely helpful in this task by showing critical path elements such as permitting, easements and land access, site suitability, outreach and engagement, and projected monthly Salton Sea elevations and playa exposure.

Moreover, the State should include a timeline that captures all of the following:

- All work outlined in the SSMP and DSAP that needs to be completed
- Dates for the development and updating of plans
- Public comment periods
- Final plan completion
- Community engagement meetings and outreach periods
- Permit processes
- Funding processes, like State and Federal budget advocacy or bond development, and
- other tasks needed to be completed by the State

We also recommend inclusion of an analysis of contingencies and variables that could delay each process and DSAP implementation overall along with strategies to address or avoid those contingencies and variables.

6. **Habitat Action Plan:**

In our March 12th letter to the SWRCB, we recommended that the State also develop a Habitat Action Plan before the end of 2020. We look forward to engaging in the development and distribution of a Habitat Action Plan this year. Where possible, dust suppression and habitat projects should be coordinated and relevant committees, outreach, and planning efforts should be in close coordination.

7. **Interagency and Community Collaboration:**

As previously stated, a restoration effort of this scale requires a broad and significant amount of support and collaboration among different local, state, and federal stakeholders. This collaboration must be reflected and communicated in the DSAP and, furthermore, broad collaboration should support and engage community members in project selection and development.

a. Local, State, and Federal Coordination:

The DSAP should describe the Bureau of Reclamation's and Bureau of Land Management's planned dust control project(s), including their location, methods, schedule, estimated effectiveness, and cost. It is unclear if and to what extent CNRA or DWR are coordinating with the U.S. EPA or other federal agencies. The DSAP only mentions CARB once. The State needs to better describe the extent of CARB and South Coast AQMD's participation in the development of the DSAP. One of the programs that the State should be aware of and monitoring closely is AB 617, which both CARB and South Coast AQMD are significantly engaged in. This is a program that actively engages with community residents in the ECV and has the potential to bring additional resources and strategies for emission reduction in the Salton Sea region. With the agencies specific to air quality concerns, the DSAP should detail how CNRA intends to solicit the technical expertise of CARB and others for prioritization, design, air monitoring, and other information necessary for the development of DSAP projects.

Additionally, in support of the Torres Martinez Band of Cahuilla Indians who have land jurisdiction at the Sea as well, we ask that early coordination happen with the Tribe in terms of identifying projects on tribal land and including those in the DSAP or any future plans that the State creates.

b. Quantification Settlement Agreement Joint Powers Authority Coordination:

Page 2 of the DSAP states, "To meet these milestones, the State has collaborated with key stakeholders, including Imperial Irrigation District (IID), to ensure coordinated efforts to implement dust control consistent with the Quantification Settlement Agreement (QSA) Joint Powers Authority (JPA), which was created to fund mitigation activities to address impacts of agricultural-to-urban water transfers." To comply with this statement, we request that the State team describe and map current and planned QSA JPA dust suppression projects. Again, we note that the DSAP occurs within the broader context of other existing activities. IID, for example, has constructed more than 2,000 acres of dust suppression projects around the Salton Sea, which should be referenced in the DSAP. Once created, the map should include a description of how the State team expects the DSAP project to complement (vs. supplant) JPA projects that would have occurred regardless.

c. Community Coordination:

Our recent letters and public advocacy highlight the importance of conducting better and stronger coordination with the community. Not only does this mean enhancing and diversifying community outreach and engagement efforts, but it also means identifying the different

advocacy, research, and policy work that community residents have been leading for years on air quality and environmental justice in the region and supporting this by incorporating and implementing successful strategies into the DSAP.. This work is very important and can provide significant insight to complement the work that you are doing to maximize dust suppression. Two very specific programs and projects that we've mentioned are the AB 617 Community Air Protection Program in the ECV and the UCR 5-Year Asthma Study for the northern region of the Salton Sea.

Key Recommendations

Below are key recommendations taken from the letter. Suggestions and other recommendations within the correspondence but not included below should still be addressed.

- Improve the facilitation of community meetings by providing adequate time for public comment, translated material and interpretation, and accessible times and venues.
- Develop a clear process for how you are documenting, considering, incorporating and responding to public input.
- Add an appendix to the DSAP that documents all public input and feedback received.
- Utilize the attached community engagement documents to improve the Community Engagement Plan and the outreach and engagement moving forward.
- Create and publish a rubric and list of resources and data used for identifying project sites, including weight granted for each factor.
- Identify projects at the North Shore Beach and Yacht Club area and near the community of Desert Shores for Phase A, as well as transition more Phase B projects into Phase A.
- Increase the collaboration between other relevant agencies like CARB, South Coast AQMD, academic institutions, and others.
- Monitor and collaborate on the AB 617 process as ECV Community Steering Committee develops the Air Monitoring Plan and the Emission Reduction Plan. Point of contact for this is Rebecca Zaragoza with Leadership Counsel.
- Identify the additional sources used to identify 4,200 acres of emissive playa, since only 4,000 of 8,200 used IID data while expanding the overall number of acres in the DSAP in conformity with suggestions of this correspondence.
- Rely on anecdotal data provided by community residents to identify additional critical dust suppression projects in line with the commitment to rely on information obtained from community engagement.
- Develop a graphic with the necessary layers to showcase how project sites were identified and selected, reflecting the factors that were used and listed in the DSAP.
- Provide responses to the specific questions and suggestions listed or referenced in sections 2, 4, and 5.
- Hire and dedicate additional staff to lead the outreach and engagement work for CNRA.

- Conduct outreach and engagement on the North Lake Project to determine whether it's a community priority and responds to their needs, and also work with the County of Riverside to include information on the EIFD. In the meantime, any existing information or studies conducted on the North Lake project should be made public.
- Clearly map out the responsible agencies for the implementation of each project.
- Develop a mechanism for measuring the success of a completed project.
- Research best practices and lessons learned from successful projects across the State, like the San Francisco South Bay Salt Ponds Program and the Owens Lake Master Plan.
- Adjust the total amount of acreage as new projects are identified that reflect the project recommendations in this letter.
- Ensure that the PEIR process is reflected and summarized in the DSAP to communicate the process in which it will operate.
- Develop a Habitat Action Plan by the end of 2020 to be coordinated with the implementation of the DSAP.
- Increase the level of inter-agency coordination and collaboration, including: local, state, federal, and tribal governments and agencies; academic institutions and researchers, the QSA JPA, and community residents that live around the Salton Sea.
- Include a list of references made in the DSAP and identify how to access the referenced materials.
- Include an executive summary for all CNRA plans and ask that, at least, the executive summary be translated to Spanish, if it is not possible to translate the full plan at this time. We can gladly support the State in expanding its language access efforts with respect to the Salton Sea and other projects and programs.
- The State Team should address and integrate the comments and suggestions included in this correspondence and *recirculate a revised draft DSAP for another round of review and comments,* prior to finalizing the document.
- Be transparent about what funding opportunities you are pursuing, as well as what budget requests or other policy steps you're taking at the state level to secure funding for Salton Sea work.
- For letters of support from the Partnership, email Michael Cohen (Pacific Institute) with your request and he will distribute the request among Partnership organizations, including those not identified in this letter.
- Correct the following errata:
    - Please have a copy-editor review the next draft before circulating it for public review. For example, please rewrite the second sentence on page 1: "The Sea is thirty-five miles long and fifteen miles wide, the desert lake extends from the Imperial Valley into the Coachella Valley."
    - Rewrite "The flat terrain of the region and strong temperature differentials created by intense solar heating, producing winds and thermal inversions" (p. 1).

- Rewrite and clarify "The prevailing winds from the west and northwest occur seasonally from fall through spring and blow from the north" (p. 1). Does this mean winds that blow from the north or from the west?
- Label, update, and use a higher resolution of the Salton Sea map on page 1.
- The last section, on page 11, states "The following discussion describes the current IID air and water quality, soils and groundwater data collection." This sentence apparently describes a previous section, since the text that follows it only describes monitoring.

Conclusion

The Partnership recognizes the progress that the State has made in recent months regarding dust suppression projects to mitigate the poor air quality exacerbated by the Salton Sea. We firmly believe that the State Team should adopt and integrate the many comments and suggestions described above and *recirculate a revised draft DSAP for another round of review and comments,* prior to finalizing the document. The DSAP currently excludes a lot of the input that our member organizations and most importantly, community residents living around the Sea, have been consistently advocating for. We hope that our comments and continued partnership will be helpful as you work to improve and update the DSAP. As always, we look forward to continuing our work to restore the Salton Sea for the protection of wildlife and public health. Should you have any questions, concerns, or requests for further discussions regarding this letter, please do not hesitate to contact Rebecca Zaragoza at (760) 774-3528 or email rzaragoza@leadershipcounsel.org

Sincerely,

Rebecca Zaragoza
Senior Policy Advocate
Leadership Counsel for Justice and Accountability

Frank Ruiz
Salton Sea Program Director
Audubon California

Brandon Dawson
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Ryan G. Sinclair
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Pablo Garza
CA Political Director, Ecosystems
Environmental Defense Fund

Michael Cohen
Senior Associate
Pacific Institute

Lauren Elachi
Senior Design Coordinator
Kounkuey Design Initiative

Silvia Paz
Executive Director
Alianza Coachella Valley

Attachments

1. Guiding Principles for Effective and Meaningful Community Engagement
2. Key Objectives for Advancing Community Engagement and Salton Sea Restoration
3. Community Engagement Strategies and Recommendations for the Salton Sea Management Program
4. Comment letter on the 2020 Annual Report on the Salton Sea Management Program, submitted to the State Water Resources Control Board by the Salton Sea Partnership.
5. Comment letter on the 2020 Annual Report on the Salton Sea Management Program, submitted to the State Water Resources Control Board by Leadership Counsel for Justice on March 12, 2020.
6. Chapter 10: Climate and Air Quality from the 2006 Salton Sea Ecosystem Restoration Programmatic Environmental Impact Report.
7. IID's 2018/2019 Proactive Dust Control Plan Table 4

GUIDING PRINCIPLES FOR EFFECTIVE AND MEANINGFUL COMMUNITY ENGAGEMENT

CREATE PARTNERSHIPS WITH COMMUNITY RESIDENTS AND STAKEHOLDERS.

A cross-sector collaboration is necessary to advance community priorities and improve public health in the Salton Sea region. The state should work to build relationships with residents and enhance its presence in the community. Collaborative efforts should be centered around community priorities, health, ecology, and must include partners with a more localized approach on environmental impacts, restoration, and conservation. This also includes technical experts and academic institutions that can help translate scientific discovery into action.

BE INCLUSIVE OF A DIVERSE GROUP OF PEOPLE.

The Coachella and Imperial Valleys are home to a diverse population, all with a different perspective on the Salton Sea. Effective outreach includes engaging those of a different age, ethnicity, occupation, educational-background, gender, community, immigration and socioeconomic status.

PRIORITIZE ACCESSIBILITY AND CULTURAL COMPETENCY.

The State must acknowledge that residents have diverse backgrounds and each face unique challenges. Meetings, workshops, and events must be tailored to the community in which all residents are able to easily access them by public transit and held at convenient times. Adequate interpretation and translation of materials must be provided at every meeting. Facilitation is also key in running a meeting, and the state should employ a third-party facilitator for every meeting or event that they host.

ESTABLISH A BUDGET FOR COMMUNITY ENGAGEMENT, A RESPONSE PROTOCOL FOR COMMUNITY INPUT, AND A TIMELINE FOR INDIVIDUAL PROJECTS.

In order to validate and be inclusive of the impacted communities, the state must (1) establish a budget for community outreach and engagement, (2) a response protocol for the State to be able to consider and respond to feedback, proposals, requests, and general inquiries, and (3) attach a timeline to each identified project. The appropriate follow-ups must be conducted after an outreach event to ensure that residents are included in the process every step of the way and so they see their input being taken into consideration.

SUPPORT THE COMMUNITY WITH ONGOING TECHNICAL INFORMATION AND EDUCATIONAL OPPORTUNITIES.

Educational opportunities are an important part in cultivating meaningful community engagement. Such opportunities must be provided to the community in order for residents and other participants to be able to fully and effectively participate and engage with the state. Accessible language and illustrations can better communicate

UTILIZE SOCIAL MEDIA AND NEWS OUTLETS TO REACH THE COMMUNITY.

With support from local CBO's and NGO's, the state should utilize a number of social media outlets, news outlets, radio, and other sources to communicate events, meetings, and updates on the Salton Sea to the community, and to better explain the SSMP to residents and provide clear pathways for their involvement.

KEY OBJECTIVES FOR ADVANCING COMMUNITY ENGAGEMENT AND SALTON SEA RESTORATION

SECURE ADEQUATE FUNDING FOR LOCAL PERSONNEL TO LEAD THE COMMUNITY ENGAGEMENT STRATEGY.

To better focus on developing and implementing a strong community engagement strategy, CNRA should hire 2-3 full-time individuals to be staffed in the Salton Sea region, preferably an experienced, bilingual community organizer that will be tasked with leading and managing all community outreach and engagement efforts and will serve as a local resource for Salton Sea inquiries.

INCORPORATE PUBLIC HEALTH IN ALL ASPECTS OF PLANNING, DEVELOPMENT, AND IMPLEMENTATION OF PROJECTS.

Plans and projects designed to help restore the Salton Sea must, moving forward, include public health as a main priority and metric for success, in addition to dust suppression and habitat conservation.

PROVIDE MULTI-BENEFIT INFRASTRUCTURE IN PROJECT PLANNING AND DESIGN THAT WILL ADDRESS CLIMATE RESILIENCY.

The Salton Sea is a unique challenge in the region. We believe that any solutions that help restore the Salton Sea should also bring about direct benefits to the surrounding communities to be better suited to combat the impacts of climate change. Multi-benefit infrastructure will help bring about dust suppression, increase habitat conservation, provide recreational spaces and opportunities, and help create more climate resilient communities.

UPDATE THE SSMP TO INCLUDE COMMUNITY-IDENTIFIED DUST SUPPRESSION PROJECTS THAT BETTER ADDRESS THEIR CONCERNS.

The state's 10-Year Plan was developed with limited community input and thus does not reflect much of what the community envisions for the Salton Sea. One of the main issues with the Plan is that there are very few projects located in the northern part of the Sea. As the Dust Suppression Plan develops, the state should conduct a simultaneous planning process to identify new projects and mitigation strategies to be included in an updated SSMP.

SUPPORT COMMUNITY SCIENCE INITIATIVES IN THE REGION.

CNRA should work in partnership with communities around the Sea to further community science initiatives to allow residents that live nearby to learn more about the Sea and contribute to the data.

ENGAGE IN THE AB 617 IMPLEMENTATION PROCESS TO ENSURE THAT SALTON SEA ISSUES ARE ADDRESSED IN THE CAMP AND CERP.

With the selection of the ECV in 2019, AB 617 provides a significant opportunity for better air monitoring and emission reduction strategies at the Sea. In 2020, South Coast AQMD will develop a Community Air Monitoring Plan and an Emission Reduction Plan for the ECV. To ensure that both plans address Salton Sea emissions, the state must engage and support the community in advocating for such measures and regulations.

DEVELOP A PLAN FOR SHORT-TERM SOLUTIONS AND MITIGATION MEASURES.

Long-term planning is essential to restoring the Salton Sea and will take a significant amount of time to see results. Community members have been advocating to see solutions in the near-term and the state should therefore develop a plan for implementing short term solutions and mitigation measures that will help reduce exposure and improve public health.

COMMUNITY ENGAGEMENT STRATEGIES AND RECOMMENDATIONS FOR THE SALTON SEA MANAGEMENT PROGRAM

December 2018

ALIANZA
COACHELLA VALLEY

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Executive Summary

This report on Community Engagement Strategies and Recommendations for the Salton Sea Management Program (SSMP) aims to create a clear framework through which the State of California can effectively engage communities around the Salton Sea, with an emphasis on environmental justice (EJ) communities, and gather input on the Phase I 10-Year Plan. Because of our expertise working with residents in the Eastern Coachella Valley (ECV), the Alianza team was asked by the California Natural Resources Agency (CNRA) and the Salton Sea Authority (SSA) to advise on how to move beyond traditional outreach to effectively engage "hard to reach" residents as partners in the SSMP design and decision making process.

The goals of this report are to:

- Provide engagement best practices that can be applicable to a variety of projects and scales
- Provide concrete suggestions for how to best engage the communities around the Salton Sea, formulated in conjunction with local residents
- Give recommendations on how to institutionalize engagement within the Department of Water Resources (DWR) and CNRA
- Provide a clear pathway forward for developing a more holistic engagement strategy for the SSMP
- Illustrate a broad cross-section of case studies and tactics that have been used successfully in other projects around the country

To achieve these goals, this report proposes an accountable, clear, and transparent process that emphasizes community input and needs alongside biological and infrastructural parameters.

There is no one recipe for community engagement. Even in one community, different types of projects require different engagement approaches, and the project team needs to be flexible enough to evaluate what typologies are successful and which need improvement. However, we can provide some key recommendations to move this process forward in a productive direction that integrates community input without hindering the design of the SSMP projects. A summary of recommendations are below, and are further refined throughout the report.

- Create an **engagement strategy for each existing SSMP project**, developed in conjunction with local organizations, that can serve as a roadmap for outreach and engagement decisions over the long-term.
- Develop **community design parameters** alongside biological and infrastructural parameters, giving equal weight to these three facets of resiliency.
- Include **community amenities upfront**, and in the first phase of any built project. These amenities should be included throughout the design concept and planning process.
- Construct community **pilot projects**, as a way to provide amenities to residents in the short-term while refining the larger design.
- Create opportunities for **participatory budgeting**.
- Amend RFP language to specifically require design-build contractors to **continue with community engagement** throughout the design and construction of the built works.
- Designate **engagement budgets** at both the 10-Year Plan level, and for each individual project.

This report envisions a Salton Sea that is shaped by **community input** and the needs of the residents that live around the Lake. To achieve this vision, this report aims to **provide tools** to create **community buy-in** and **long-term resident involvement**, resulting in projects that **prioritize public health and well-being** in conjunction with habitat restoration and dust mitigation.

I. Checklist

The below checklist summarizes the recommendations from this report, and provides a list by project phase of recommended actions to take in the preparation and implementation of a successful engagement strategy.

Structural Changes for Success (all projects)

- ☐ Identify a lead Project Manager within DWR responsible for creating a detailed engagement strategy for each project
- ☐ Develop a workplan for transparent decision making and approving/denying resident priorities
- ☐ Establish an overall engagement budget for the coming three years
- ☐ Establish an evaluation framework to learn from successes and failures throughout the process
- ☐ Establish project must-haves and a method for accomplishing them that includes:
  - ☐ Engagement transparency
  - ☐ Providing community amenities upfront
  - ☐ Specific community design parameters
  - ☐ Community Pilot Projects
  - ☐ Participatory Budgeting

Project Changes:

Planning Stage

- ☐ Create a dedicated budget for all engagement activities for the project
- ☐ Establish a core group of youth or interested residents that can serve as ambassadors for the project and key points of contact
- ☐ Learn about community identity and the needs that each different community has
- ☐ Conduct educational outreach on the regional scale to familiarize residents with the project and purpose
- ☐ Complete Engagement Framework provided in this report in conjunction with a community organization

Concept Stage

- ☐ Determine the strengths and challenges of the community, and how the project design can help to address these needs
- ☐ Define areas of projects budgets that can be turned over to participatory budgeting
- ☐ Review the overall budget with residents, and workshop what should be prioritized first or what elements could potentially be constructed as a pilot project
- ☐ Begin data-collection work with residents
- ☐ Create a specific Community Advisory Committee (CAC) for the project

Development of Design Criteria

- ☐ Create community design criteria and public health design criteria for all projects in consultation with residents
- ☐ Develop a list of "must-haves" and "wishlist" criteria
- ☐ Provide a clear roadmap for how these parameters will be implemented in the future

Bid Process

- ☐ Require that contractors continue community engagement efforts with specific RFP language

Project Design

- ☐ Undergo site mapping to determine what amenities would be best suited for the community
- ☐ Provide points of follow-up with residents to show how their requests are being implemented in the projects
- ☐ Establish a feedback loop where residents can influence the design development through charrettes with the contractor
- ☐ At junctions of budget evaluation and design changes, revisit the community design parameters with residents to help prioritize decisions

Construction

- ☐ Provide regular status updates to residents
- ☐ Continue community education on regional efforts at the Salton Sea

Long-term Maintenance

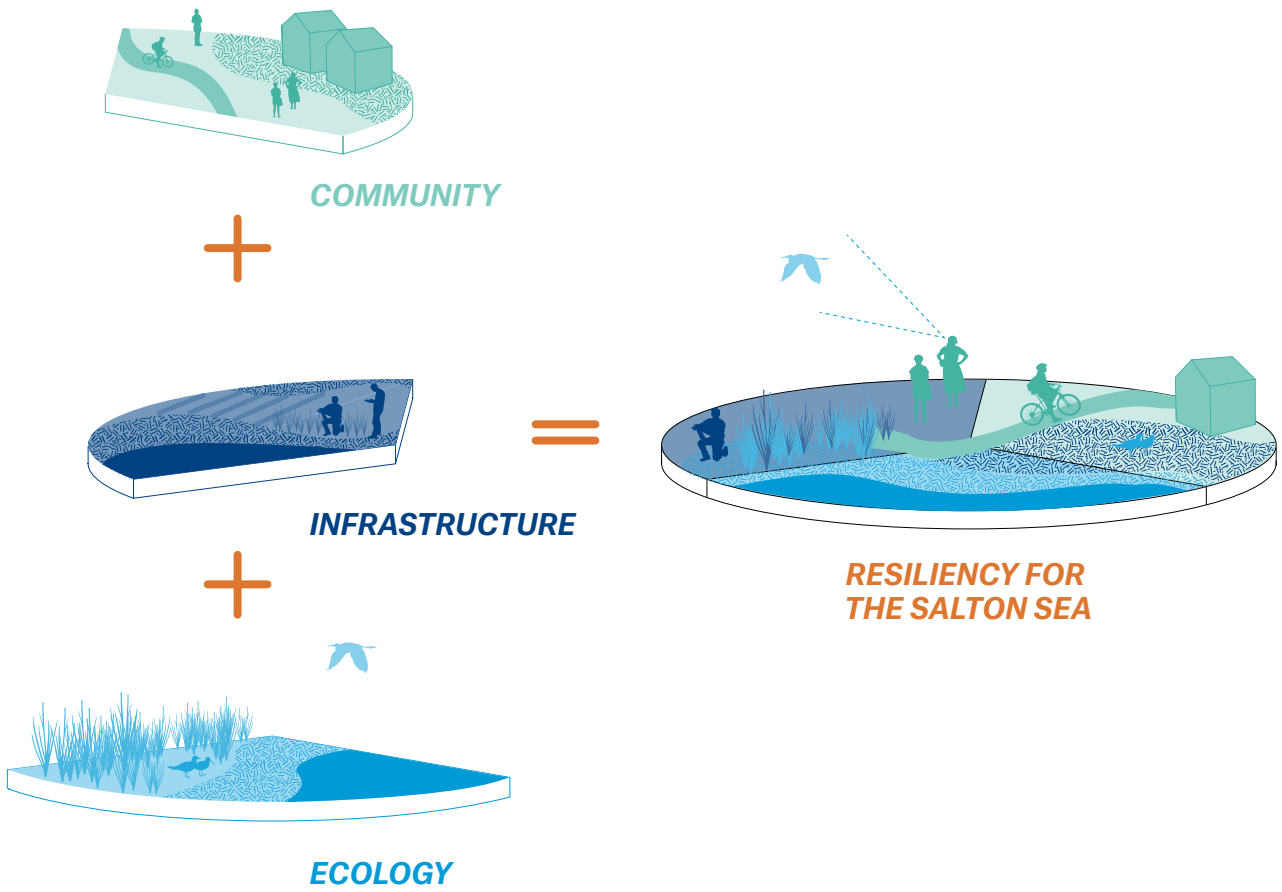
- ☐ Evaluate the efficacy and success of the different engagement techniques used
- ☐ Continue community data collection to understand the effectiveness of the projects to feed into the adaptive management plan

The Alianza Environmental Justice (EJ) Youth Cohort brings together young people from the Eastern Coachella Valley to learn about the Salton Sea and share their stories.

II. Community Engagement Principles & Analysis of Current Efforts

Alianza was asked to create this report as part of our pro bono work for the California Natural Resources Agency and the Salton Sea Authority, in order to present recommendations for equitable community engagement and a roadmap for successful inclusion of community. These recommendations will be of benefit to the State, creating a more informed resident base, projects that serve the community, and potentially long-term resident buy-in for the long-range work at the Sea. It is important to understand that resiliency cannot only be infrastructural or ecological in nature—it must also include community members and social resiliency to create strong stewards that will support and utilize the projects in the future, as illustrated in the graphic below.

Our first major recommendation is to create a detailed, project-by-project SSMP Engagement Strategy for the next three years. A Lead Project Manager that is locally based should be established within DWR to craft and implement an updated engagement strategy, in conjunction with a contracted local engagement entity, communications or marketing firm, DWR, and CNRA. A specific engagement strategy is necessary to adequately budget and plan for upcoming events, and streamline outreach efforts in service of a more holistic narrative.



Community Context

It is a priority of this report to identify the State's unique opportunity to benefit from ongoing work and community organizing accomplished by local organizations. These groups are working on-the-ground to identify community needs and to understand how multi-beneficial infrastructure can serve as a tool to build a more equitable region.

The needs of this region have already been identified by the many residents and the on-the-ground NGOs working with them. In 2012, Alianza, formerly known as Building Healthy Communities Coachella Valley (BHC CV), commissioned UC Davis through the partnership of California Institute for Rural Studies (CIRS) to produce a report on environmental justice in the ECV. The resulting *Revealing the Invisible Coachella Valley: Putting Cumulative Environmental Vulnerabilities on the Map*, identified both environmental hazards and social vulnerability in the region.

One of the major takeaways from the report is that the Coachella Valley is in dire need of improved air quality. Riverside County is currently considered a non-attainment county for PM10, PM 2.5, and ozone, and the Salton Sea exacerbates this. The list of identified needs in the report also includes the lack of infrastructure, community amenities, and recreation areas, low accessibility to health clinics, and an overall need to increase improve public health.

It is necessary to understand who lives in communities where SSMP projects are proposed. It is essential to base choices on scientific data. In addition, data and personal experiences from within the local communities provide valuable insight for informing projects that mitigate exposure to pollutants contributing to the current environment at the Salton Sea.

Current SSMP Engagement Goals

Within the Salton Sea Management Program Phase I: 10-Year Plan, released in August 2018, it is stated that the State is committed to an outreach process that is transparent and open. To this end, the State has developed an outreach strategy that includes workshops, the creation of advisory committees, and contracting with Comite Civico del Valle (CCV) to bolster educational outreach to communities around the Sea. However, the majority of CCV's current contract focuses on outreach materials, educational events, and social media announcements. While these efforts are vital and necessary to having successful turnout at workshops and events, there are no additional steps described as to how communities will have sustained input into the shaping of the projects described. The development of an explicit engagement plan which spells out how and when community knowledge can influence the State's plans is critical. The long-term success and stewardship of the built projects, as well as the long-range development depends on this plan.

Overall Engagement Principles

The SSMP has been designed with dust suppression and habitat creation as the areas of main priority because of the State's obligation through the Quantitative Settlement Agreement (QSA). Through the process of interviewing stakeholders for the purpose of writing this report, it has been made clear that resident participation and real community engagement has been lacking in the State's process of formulating the SSMP. It has also been affirmed by those who participated in our interview process that resident engagement still has an opportunity to be added to the process of project design within the SSMP. This report identifies the unique opportunity that the State of California has to adapt current processes and introduce new methods to authentically engage the communities around the Sea. In doing so, the State can create an engagement process that leads to a more robust and holistic design of the SSMP projects so that these include beneficial amenities for the communities where they will be built.

An engagement process that has community participation as a core tenet will be advantageous to the State moving forward with the 10-Year and Long-Range planning efforts. It will:

- Inform residents about what's at stake
- Establish a core base of engaged residents and increase community support
- Reveal new opportunities for design improvements and efficiencies

Our proposal is that, through a vibrant engagement process, the State will produce projects that will target the original priorities of dust suppression and habitat creation while adding a new equally important priority of public health and well-being.

Roadmap for Engagement

The recommendations listed below are aimed to provide a roadmap for crafting an engagement strategy that results in a robust and equitable engagement framework from the outset. Further examples and descriptions of specific engagement and outreach tactics can be found in the Appendix of this report.

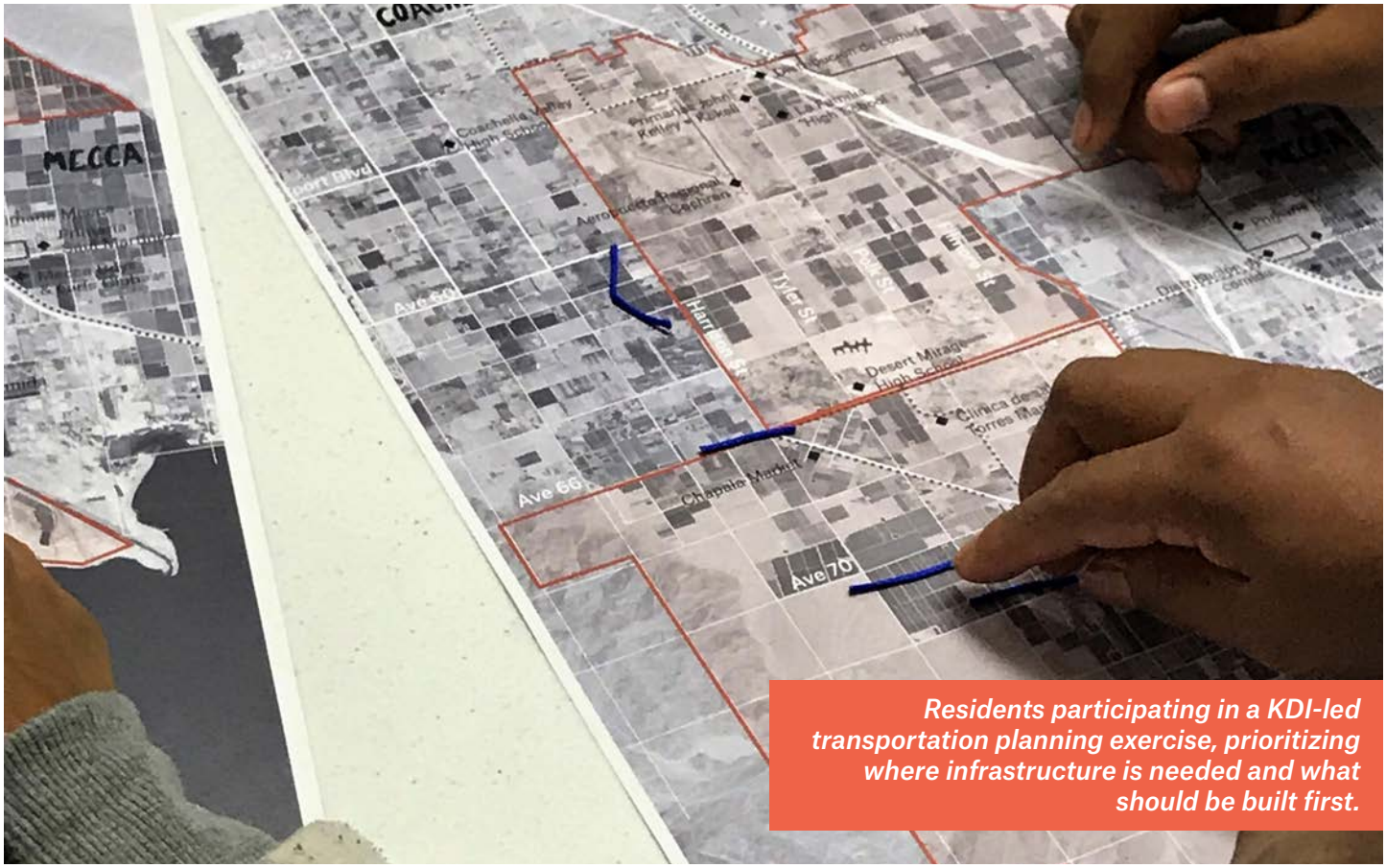
1. Create Partnerships

It is vital that the engagement strategy is not used as a top-down method to inform residents about the SSMP projects but as an opportunity to create long-lasting community partnerships that will lead to a collaborative effort with equally weighted input from all sides. When there is true partnership, the communities engaged will have the opportunity to define the information needed and the conversations that should take place during meetings and workshops.

We recommend that during the first interactions with the communities, the facilitators take the opportunity to learn more about community needs and understand why people to want to be part of the conversation. So, rather than disseminate information on the projects and current standing plans, the community engagement should seek education from community members on their expertise and learn firsthand their needs and priorities. Once those needs are identified, the facilitators will be able to determine the structure their subsequent meetings or workshops and enrich their outreach by learning who are the harder to reach members of the communities.

<u>Steps for Creating Partnerships:</u>

- Listen to residents
- Value community expertise
- Understand community priorities
- Create a power map of stakeholders
- Determine who is not at the table
- Identify community needs



Residents participating in a KDI-led transportation planning exercise, prioritizing where infrastructure is needed and what should be built first.

During the design of a public park in Oasis, CA, KDI created a youth Street Team that lead efforts to collect community stories and needs that ultimately were integrated into the park design.

2. *Delegate Responsibility*

It is necessary that CNRA and DWR delegates authority to the communities, first by identifying the areas where the community can have direct input in decision making, and second by being upfront about the limitations within these. The SSMP projects cannot move forward in planning, design, and construction without the inclusion of identified community amenities. If the input that is being gathered by the engagement facilitators is not considered an integral part of the planning and design process, the engagement strategy will be in danger of setting itself up to tokenize the communities it has set out to engage, and perpetuate the sentiment of exclusion that these communities currently experience. A good example of how to delegate power is to host participatory budgeting workshops where the community understands how the project budget is structured and can make decisions on how to spend that money on amenities. Participatory budgeting is a democratic process through which community members are able to decide how to spend part of a public budget. This requires skilled facilitators that can marry the priorities on both sides—the State's obligation to suppress dust, and the needs of the community around recreation and public health.

Steps for Delegating Responsibility:

- Identify portions of projects that require information dissemination and/or consultation
- Decide on most effective steps in the strategy to delegate responsibility
- Define opportunities for participatory budgeting

3. *Find Opportunities for Empowerment*

The engagement strategy must ensure that CNRA and DWR will work with existing networks of grassroots groups, NGOs, and major stakeholders. It needs be acknowledged that these networks in the Coachella Imperial Valleys have the ability to mobilize their communities to express desires, wishes, discontent, and project ideas. The State must recognize that it does not have the capacity to do it all—evaluating what portions of a project, such as a small-scale restoration project or data collection effort, can be community managed. This will help the State build relationships with community leaders and lead to regular use of the newly added amenities. If this is done successfully, these projects will be seen as positive additions to the communities and, more importantly, the projects will be seen as a successful response to the communities' concern that the SSMP is not being planned with their direct input.

Steps for Finding Opportunities for Empowerment:

- Determine opportunities where the recommendations from the community can be incorporated into the Engagement Strategy
- Acknowledge the State limited capacity
- Identify ways for local organizations fill these gaps and complement the process

Desired Stakeholder Goals

To inform this report, the Alianza team interviewed three groups of stakeholders that have been part of the SSMP advisory committees to further understand their suggestions and thoughts on opportunities for community engagement. Though the questions asked of each group were different based on their expertise, all three meetings resulted in similar ideas about the types of engagement as well as structural changes most needed in the delivery of the SSMP projects. The groups interviewed were:

- Air Quality and Science: Imperial Irrigation District (IID), Imperial County, Pacific Institute, CA Air Resources Board (ARB), US Fish and Wildlife
- On-the-Ground Organizations: FIELD, CCV
- Implementation Agencies: CNRA, DWR, Tetratech, Salton Sea Authority (SSA), Burke Rix Communications

Within these conversations, a few common themes emerged as key suggestions for how to craft a robust engagement strategy for the Coachella and Imperial Valleys, listed below.

Recommendations

1. Emphasize Community-led Data Collection

Multiple participants emphasized the need for sustained and thorough data collection and the translation of that data into easy-to-understand information for residents living around the Sea. Within

The Alianza Youth EJ Cohort has begun balloon-mapping the shoreline of the Sea, thinking of more engaging ways for residents to understand how changes to the Sea will affect their everyday lives.

a larger definition of engagement, a community-driven data collection initiative could help to bolster community involvement in decision making while simultaneously creating an informed base. These suggestions largely focused on air quality.

2. Focus on Education

There has been an absence of clear and frank conversations with residents around the changing future of the Sea. Environmental education was emphasized, particularly by IID, as a necessary step towards engaging residents and school children. Suggestions of setting up educational events, both now while projects are in their design stages and in perpetuity once projects are built, were common across the groups. These ideas ranged from environmental educational signage, to creating Salton Sea curricula for school children, to tours of IID dust mitigation projects.

3. Develop Clear Graphics

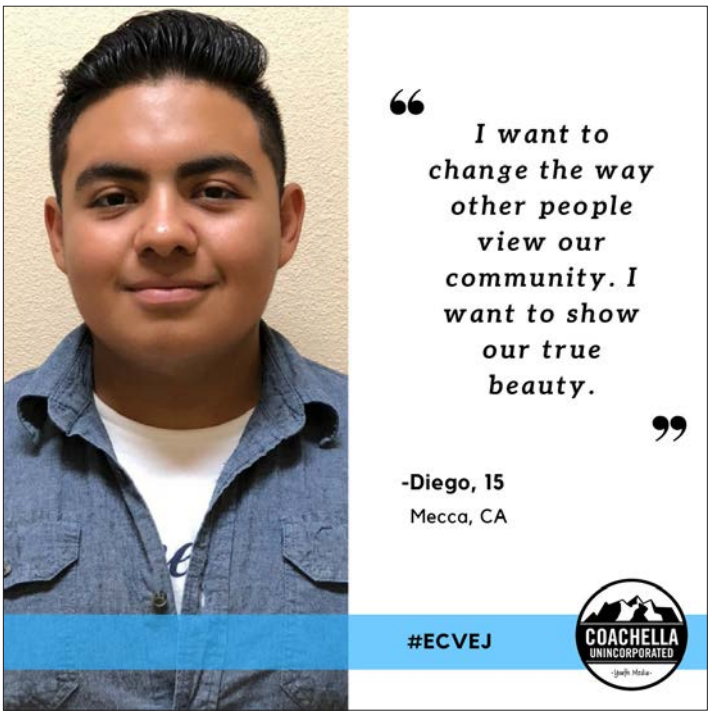
Throughout these conversations, many stakeholders noted the lack of a clear narrative that could be communicated to residents. Clear graphics were suggested as a means to alleviate this, particularly for residents who primarily speak Spanish or have low educational attainment. Further suggestions for the type of graphics necessary for SSMP engagement are listed in the following section on developing an Engagement Strategy Framework.

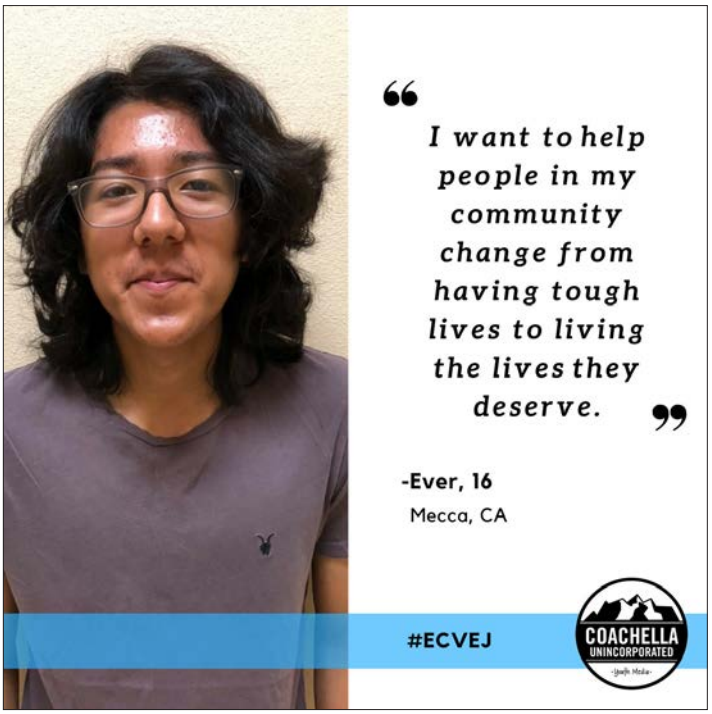
4. Dedicate Engagement Funding

One note that is important to highlight is that a dedicated budget for community engagement was brought up in these conversations by NGOs and agencies alike. Not only was there confusion around if there was an explicit budget for engagement writ large, but also if there was an engagement budget for each planned SSMP project. Many felt that both were needed in order to have specific and relevant conversations about how each project could be molded to meet community needs. This also includes the creation of a resourcing plan that projects what staff are necessary for project design and implementation, as well as logistics such as providing food and childcare at meetings. Without a clear budget, developing a long-term and sustainable engagement workplan is impossible.

5. Incorporate Community Design Parameters

Developing community informed design parameters and criteria was suggested by DWR, and supported by conversations with CCV and FIELD. With the design-build structure that is being utilized for the construction of the SSMP projects, this method seems to be the clearest roadmap for integrating community priorities into the realization of the different projects.





Members of the Alianza EJ Youth Cohort took to social media to express their hopes for the Salton Sea, and how they want to help their communities.

III. How to Build an Engagement Framework

Building on the recommendations from SSMP stakeholders, this chapter further details the "Do's" and "Don'ts" of creating a successful engagement strategy, as well as the tools for planning for an overall engagement timeline and specific logistics for individual events. This section includes general guiding principles for the tone of engagement, a framework matrix for determining the appropriate engagement tactics to use for a meeting, and lastly a table of logistical suggestions developed in conjunction with a group of local ECV youth.

The Nuts & Bolts of Engagement: Developing Best Practices

The Alianza team and five ECV college youth collaborated in creating a guiding engagement tactics table, shown on the following page, that the State can use when planning engagement. The five youth selected to participate where part of our EJ Youth Cohort summer program and have been involved as volunteers and/or organizers with one of the organizations in Alianza for at least one year. A total of four sessions where conducted with the youth to identify and refine overall engagement tactics that should be part of all engagement events. Our goal was to combine our institutional and professional expertise with that of the youth to present something that is specifically designed for the Coachella Valley.

The first session consisted of creating a work plan and introducing the report outline so that the youth could understand their contribution. The youth were asked to act as a focus group and to think about their own experience and expertise in organizing and as active members in their community when working through this process. In the second session the group brainstormed overall tactics based on target age demographics. The third session was spent further developing the tactics and creating a comprehensive list that could be translated into a practical graphic. In the last session the youth worked directly with KDI to create a concept design for the graphic and workshopping the draft of this report.

Determining the Appropriate Tone and Type of Engagement

The tone of engagement and outreach needs to be one of acknowledgment of community expertise, and the willingness to listen to residents and their needs. In collaboration with our youth team, described above, a list of “Do’s” and “Don’ts” for conducting a meeting or workshop was created. While some of the suggestions may seem basic on the surface, they are in fact the key to building community trust and are of the utmost importance. These recommendations are as follows:

Do:

- Use first person language
- Use simple, non-technical language
- Use humor
- Employ a community organizer or facilitator that is from the community where the meeting is taking place
- Educate the audience on why the issue is important and relevant
- Use community residents as group leaders within smaller discussions
- Acknowledge community expertise and experience

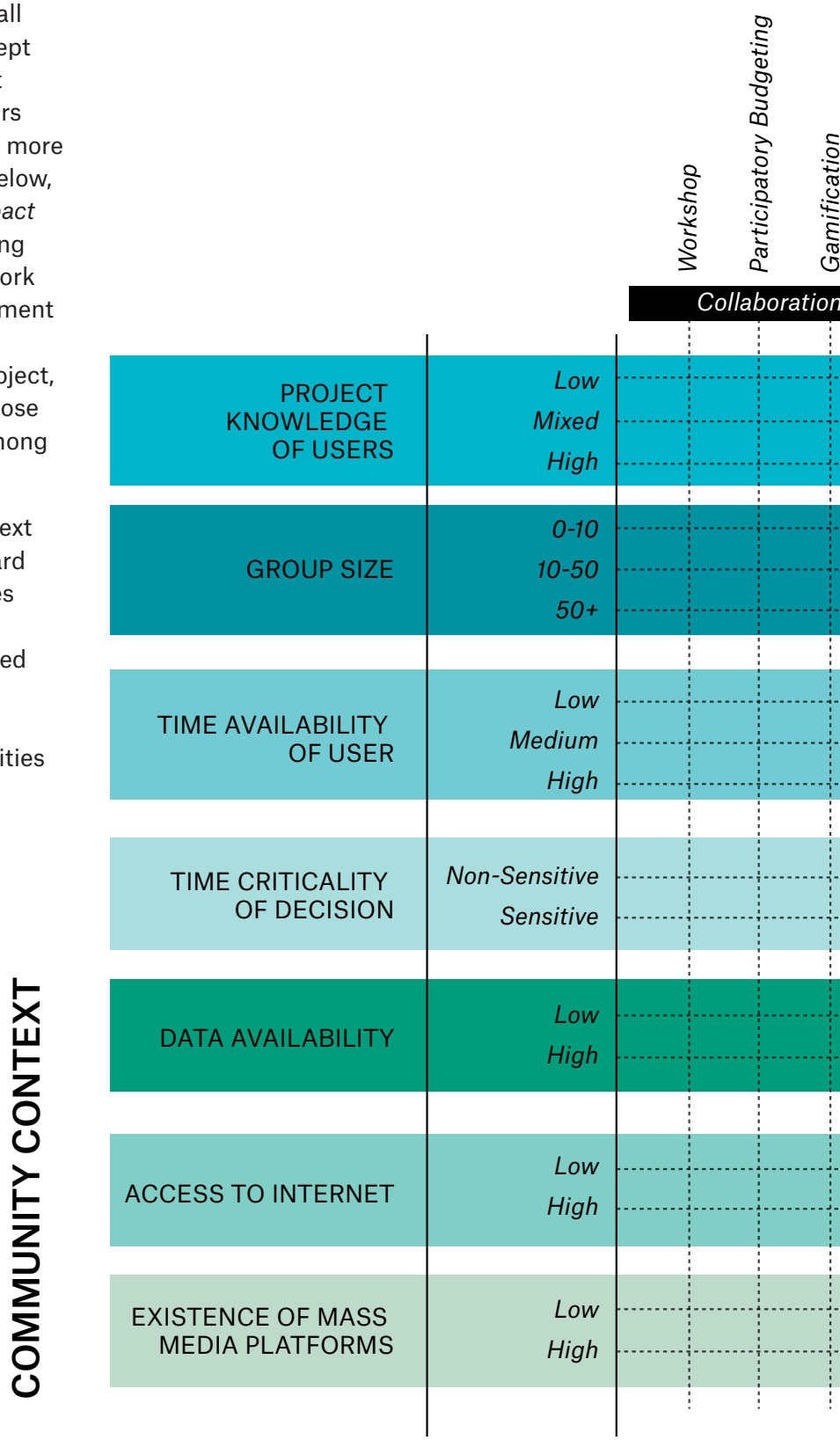
Don't:

- Belittle any comment or lose patience with residents
- Have law enforcement present
- Leave questions unanswered until the end of a presentation or meeting
- Limit the amount of time people can speak unless legally mandated
- Have presenters that don't speak the primary language of the community or have adequate translation services

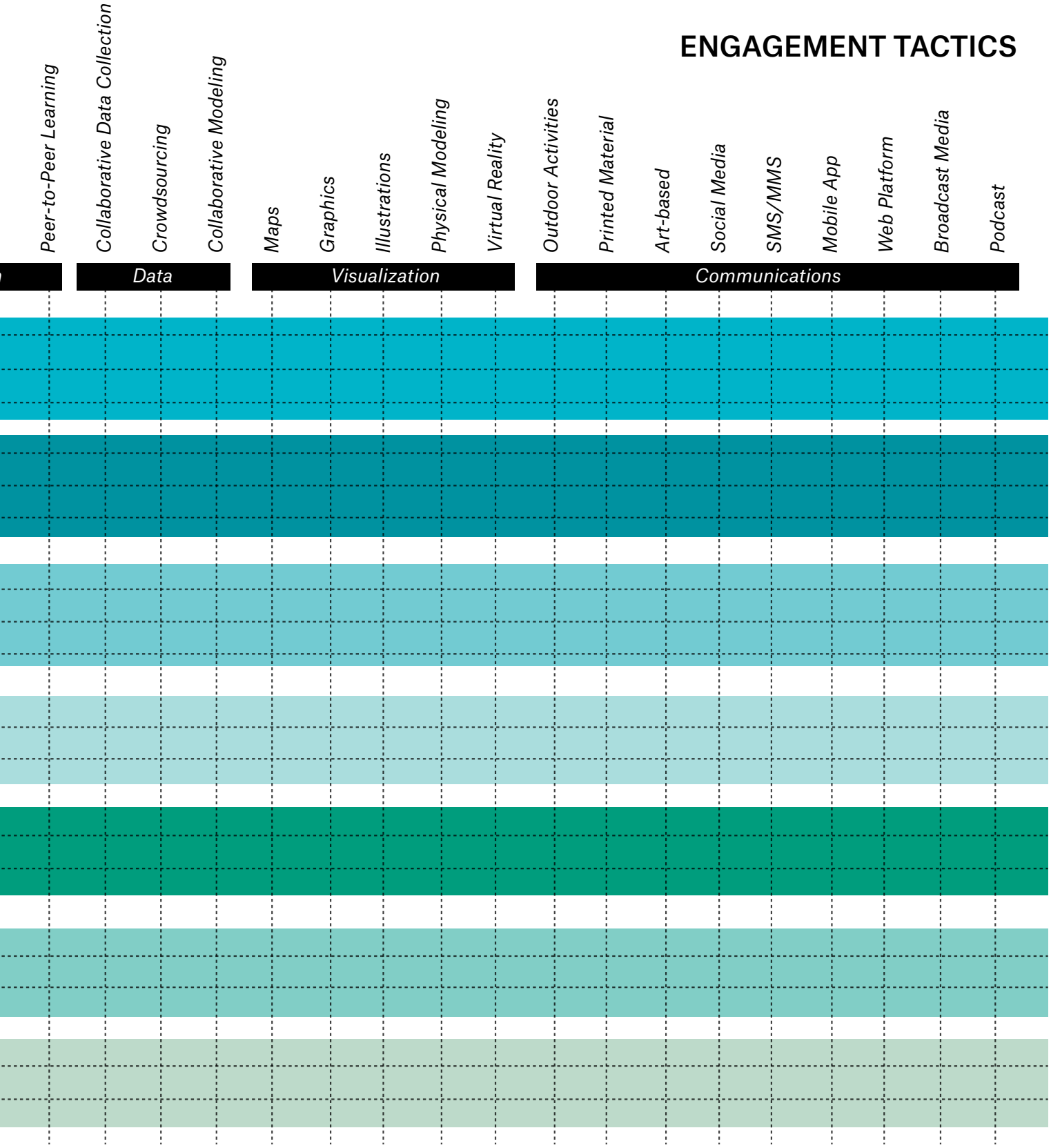
How to Find Appropriate Engagement Tactics

There are two scales at which to evaluate what type of engagement is appropriate to use. First and foremost, the State needs to plan out the overall engagement workplan for a project from concept through implementation and maintenance. At different phases of the design of the parameters and physical site, some engagement types are more appropriate to use than others. The graphic below, adapted from the World Bank's *Design for Impact Framework,* is a starting point for understanding the applicability of these tactics. This framework should be filled out by the designated Engagement Lead from DWR in conjunction with local community organizations at the outset of a project, and reevaluated on a regular basis as the purpose of workshops shifts and level of knowledge among residents increases.

If done correctly, conversations about the context and compromise that is needed to move forward can be had in a productive way that establishes a common framework around which both agencies and residents can agree. This nuanced understanding must be a two-way street, with residents identifying what compromises are appropriate as well as what elements or amenities are "must-haves".



ENGAGEMENT TACTICS



Creation of a Graphic Narrative

Graphics are an important engagement tool for community workshops and events to create a cohesive narrative and clear vision. The first graphic that should be produced for the SSMP, and one that is currently lacking, is an illustrative vision of what the Sea will look like in ten years should all the SSMP projects be implemented. This graphic should illustrate not only what the projects would look like and their associated elements, but where the projected shoreline will be in 2028. People should be included in this graphic as well, helping residents understand how they and their families fit into the overall narrative being proposed by the State.

Additionally, a set of on-the-ground perspectives are necessary to help illustrate what these projects will look like to the people that live there. Additional notation of recreational possibilities overlaid on these perspectives will help give more life and context to them. These drawings help people to place themselves in the space or along the shoreline, and give concrete form to a vision even if the details of each project are not known yet. These graphics can also help to combat other visions such as water importation, as it brings a sense of reality to the SSMP projects and takes the guesswork out of equation.

Further graphics that should be developed are illustrative sections and plans for each project, conceptual zoning diagrams for programming, and visual timelines for the design and implementation of the Phase 1 and Long-Range plans.

<u>Summary of Graphics Needs:</u>

- Illustrative vision of the Salton Sea
- On-the-ground illustrative perspectives
- Sections for each project
- Plans for each project
- Conceptual programmatic zoning
- Timelines for design and implementation

Creating graphics that depict what an equitable Salton Sea could look like in 2028 will help give clear vision and narrative to the SSMP, while simultaneously combating other narratives such as water importation.

Outreach to Youth

According to 2012-2016 ACS data, over 30% of the ECV population is under the age of 18. This age group not only will inherit the work at the Salton Sea in coming years, but also could serve as a strong engagement force for the State in reaching larger portions of the population. By explicitly engaging youth through the strategies suggested below, a youth-led initiative could be developed that would help open the door to engaging their parents, family members, and communities at large. We recommend having a specific and separate engagement strategy for youth work, and allowing them to have responsibility for engagement leadership throughout the design process. Involvement of local non-profit organizations that already have established youth organizing efforts in place will be key in the success of this work.

	6-11 YEAR OLD AUDIENCE	*12-18 YEAR OLD AUDIENCE*
TIMEFRAME OF MEETING		
Weekends	X	
Mornings	X	X
Afternoons		
Evenings		X
TYPE OF INFORMATION PRESENTED		
Technical information		
Detailed information		
Ecological information	X	X
Public Health information		X
PRESENTATION STYLE		
One speaker only		
Powerpoint presentation		
Visual-heavy presentation	X	X
Conversational tone		X
Workshop setting		X
ACTIVITIES		
Use of “ice-breakers”	X	X
Small groups	X	X
Arts-based activities	X	X
Use of games	X	X
Use of virtual reality		X
Collaborative data collection		X
LOGISTICS		
Outdoor presentation	X	X
Name tags	X	
Shorter meetings	X	
Well-known community location		X
Childcare		X
Food	X	X
Language translation		X
Carpool / transportation provided	X	X

IV. Recommendations for Implementation

In addition to a more robust and planned out engagement strategy, there are some structural suggestions that could be implemented to institutionalize this effort within the SSMP process. These tactics will build good will within the communities, serve as testing grounds for methods of blending community amenities with infrastructural work, and integrate community members into the design making process itself.

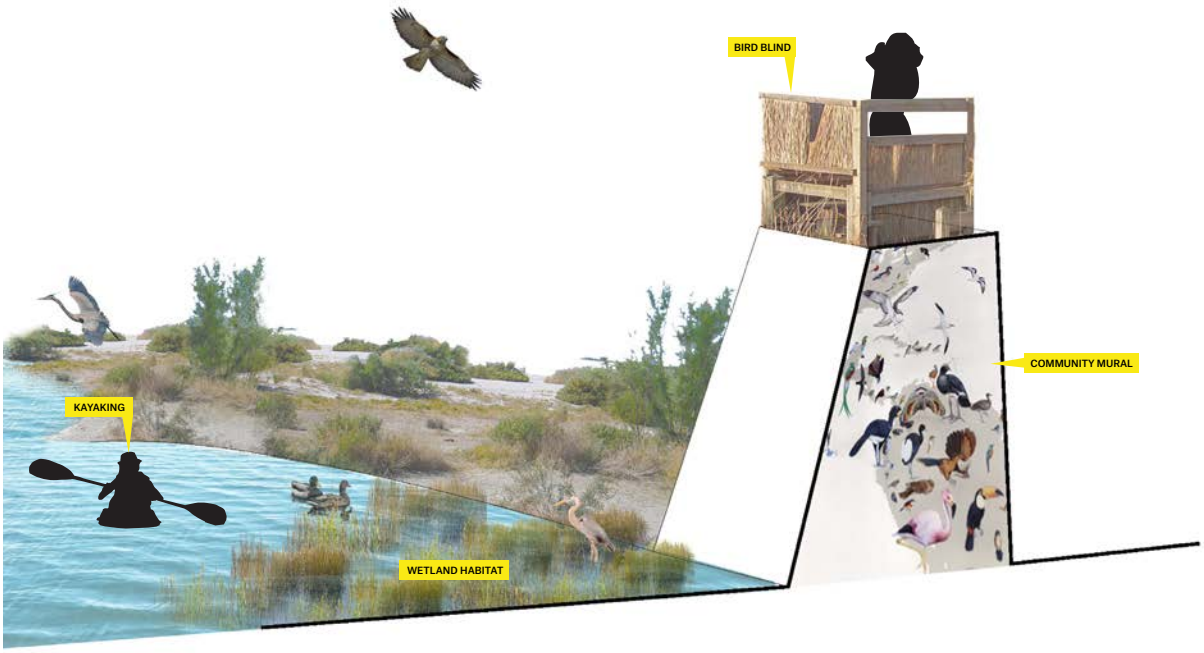
Institutionalizing Engagement

The SSMP Engagement Strategy, once drafted, should become integral to the 10-Year Plan and Long-Range work that follows. To achieve success with the state-mandated milestones and financial sustainability, below are ways to embed a foundation of systemic practices and measures to monitor the success of the SSMP engagement process.

A transparent and clear decision-making process amongst stakeholders that sets clear parameters for the SSMP design process to intake community recommendations is needed, including criteria on what is feasible and what is not. This should also include a transparent decision-making process for approving or denying resident priorities and project proposals.

Accountability is key, and will be necessary to build trust at the local level. Establishing ongoing engagement with the community and local NGOs will help to bolster this process and create a long-term solution-seeking process for the Salton Sea that incorporates community residents as key stakeholders.

Birdwatching overlook and platform



Setting a strong framework for evaluation will give the State the ability to understand when and how engagement efforts have been successful and where they could be improved upon in the future. Designing pre- and post-engagement surveys for the SSMP will enable this to happen more effectively, and should be prioritized prior to any community engagement workshops moving forward.

Internal Engagement Structures

All stakeholders related to the success of the SSMP projects should shift their current practices of engagement to align according to the definition and guidance of this report.

The Assistant Secretary of Salton Sea Policy and DWR need to communicate a clear understanding of the impact the contracted individuals will make in the larger scope of the SSMP to the SSMP committees.

Adequate Internal Funding and Local Personnel

Securing adequate funding within DWR will be needed to ensure that the steps outlined in this report can be undertaken in a timely and efficient manner. Specific funding to contract an entity for engagement and public relations, outreach materials, meeting expenses, food, interpreters and translators, and mileage expenses will be necessary for each workshop.

Additionally, having "boots on the ground" that can build key relationships with local stakeholders and residents will help to promote better and faster implementation of the projects and the engagement strategy.

Measuring Success

Measuring success throughout the process can help elucidate successes and failures more accurately than solely at the end of an implementation process. Developing a clear engagement timeline and evaluation process is needed in order to do this. Steps to reach

Raised berm with shared pedestrian and bike trail

Examples of community benefit typologies

this goal include:

- SSMP alignment with staff, partners, and community members for civic engagement
- Investment in community surveys for baseline data to track progress through mid-surveys
- Continually evaluate the engagement process during roll-out and produce an annual evaluation report outlining the efforts and lessons learned

Achieving a truly effective SSMP requires ongoing and robust implementation beyond the planning process. A jurisdictional commitment to seeing recommendations through to action is critical. Thus, it is imperative to evaluate the process with community stakeholders and build in opportunities for periodic review and evaluation. This can be accomplished through annual or biannual committees or task forces who can evaluate progress.

Below are our major recommendations for changing the implementation process to align with the engagement strategy outlined in previous sections.

1. Include Community Amenities

It is essential that some community amenities are included in the first phase of each project built around the Sea. These amenities should be planned for from the concept phase through the development of design parameters in order to have an accurate cost estimate and integration of community design with the necessary biological and engineering criteria. This will illustrate to community partners that their needs are valued. Treating these features as "add-ons" signals that they are not important to the State, particularly if their funding is not secured upfront. The best way to do this is by including community amenities within the design parameters given to the design-build contractor.

2. Construct Community Pilot Projects

Even before the SSMP projects are built, community pilot projects should be constructed around the Sea. These could be projects such as boat docks, environmental education placards, or shade structures. Fast-tracking these smaller efforts will start to build ground support and excitement. Ideally, these community pilots would be multi-beneficial, serving to mitigate dust while also building habitat and providing amenities now for the communities that need them.

3. Create Opportunities for Participatory Budgeting

Participatory budgeting is a powerful engagement tool, and could be easily implemented within the SSMP projects. This democratic process sets aside a portion of the total budget and allows community members full design control within the parameters set, giving them real power over real money. This truly speaks to the State's listed goals of transparency and accountability, and leads to a deeper understanding of the complex processes at play.

4. Amend RFP Language

Clear RFP language should be included that requires the selected contractor to continue engaging the community throughout the design-build process. Because this method of implementation allows the contractor to have more flexibility to shape the project's design, it is necessary for them to give regular updates and receive feedback from the communities in closest proximity to the site to stay true to the original project intention and identified resident needs.

5. Designate an Engagement Budget

For any of these changes to be implemented, a clear and designated engagement budget is necessary. The ability to internally create a clear annual engagement workplan vetted by the SSMP Engagement Committee should be the first step in creating a comprehensive strategy, and without a budget this is not efficient nor feasible. Additionally, a budget for each SSMP project should be established for workshops, events, and charrettes that engage specific communities or regions.

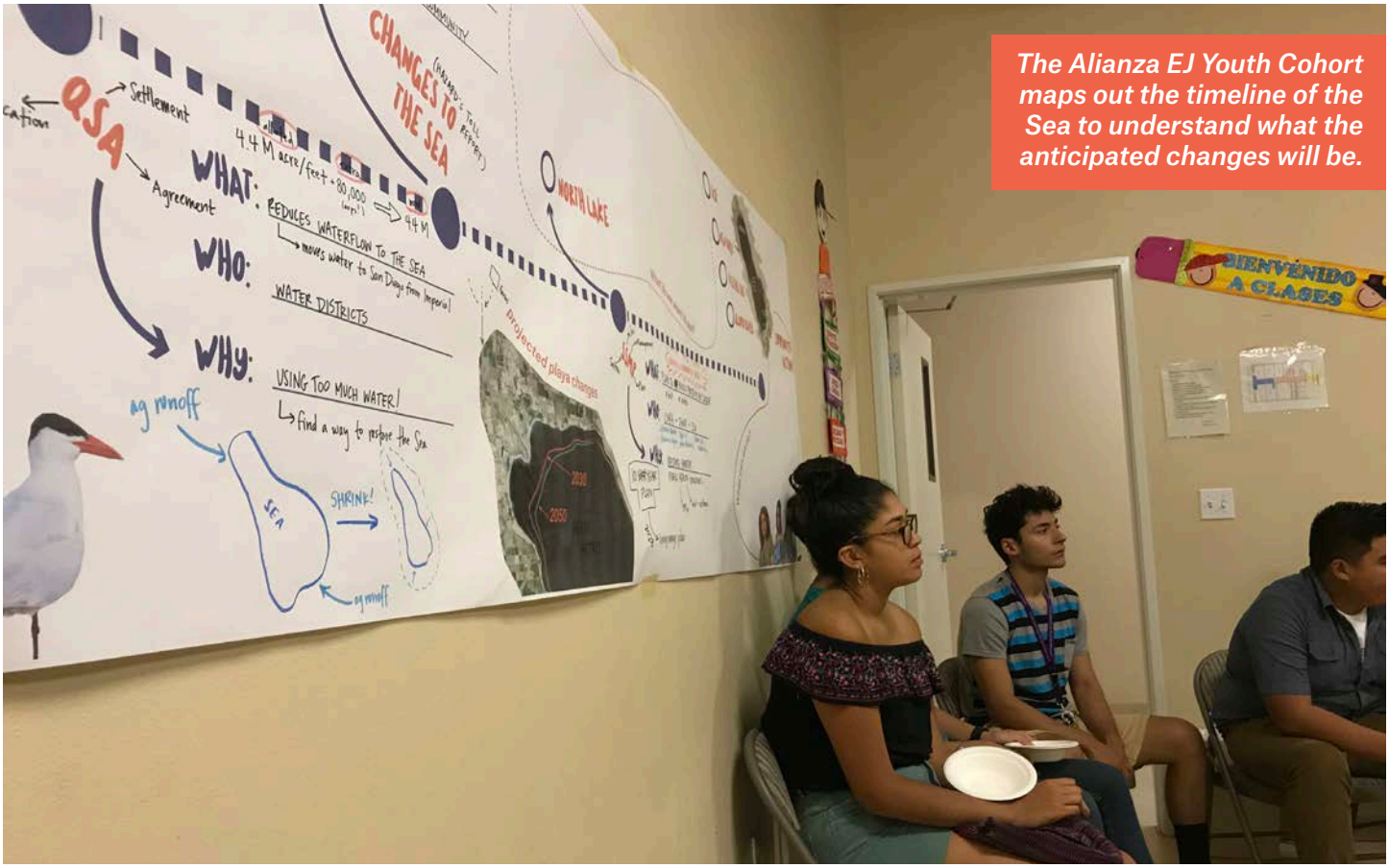
6. Encourage Local Job Creation

Community benefits, such as local job creation, will further help in creating sustainable SSMP projects around the Sea. While the building of the projects will inherently create jobs within the construction industry, working with local organizations such as FIELD to institute job training programs will be vital in employing local residents. However, there are

opportunities at a smaller scale as well, such as training and employing local communities in on-the-ground biological monitoring and data collection to further bolster maintenance efforts.

Conclusion

The mission and intention of the California Natural Resources Agency to "restore, protect and manage the State's natural, historical and cultural resources for current and future generations using creative approaches and solutions based on science, collaboration, and respect for all the communities and interests involved" should be reflected in the SSMP. The Salton Sea offers a unique opportunity to leverage a convergence of support from federal, state, and local stakeholders to address public health and ecosystem restoration. Currently, there is a clear need in the SSMP to improve engagement in communities that will be affected the most by SSMP projects and the need to address public health as a key priority. We strongly recommend community resident and local organization participation in the CA Natural Resource Committees working on the Salton Sea Ten-Year Plan, and believe that this report gives a roadmap to how to begin this process.



The Alianza EJ Youth Cohort maps out the timeline of the Sea to understand what the anticipated changes will be.

Appendix

This section highlights case studies and tactics for outreach and engagement that have been successfully used at a variety of scales. These precedents show the need for and the employment of community engagement strategies in multiple contexts—from large infrastructure projects requiring complicated permitting structures, to local Coachella Valley examples. However, each has in common the emphasis on a three-faceted approach of weighting community amenities and needs equally with ecological restoration goals and infrastructural design. It is important to understand that resiliency cannot only be infrastructural or ecological in nature—it must also include community members and social resiliency to create strong stewards that will support and utilize the projects in the future. The tactics illustrated in this section speak to the variety of methods that can be used to achieve this goal and could potentially be applied in the SSMP engagement strategy.

Case Studies

Project Name: Living Breakwaters

Location: Staten Island, New York

Client: US Department of Housing and Urban Development (HUD), New York Governor's Office for Storm Recovery

Date: 2014 - ongoing

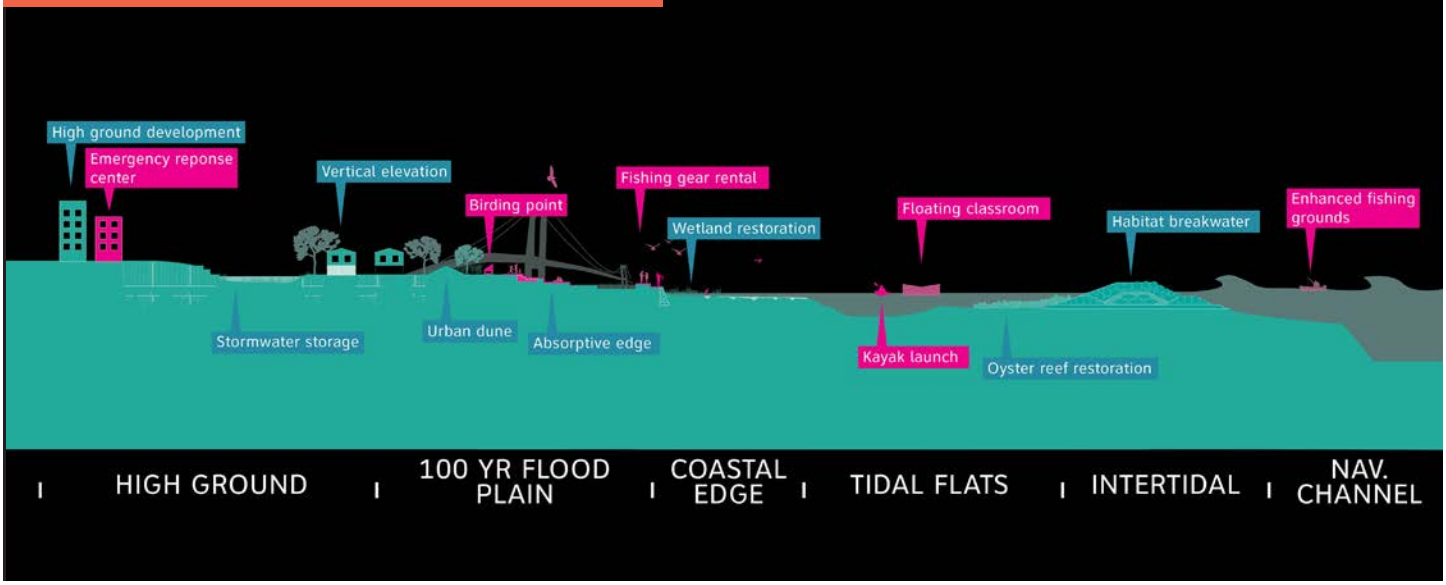
Stated Project Goals: protect against storm surge; restore ecological diversity; provide recreational access to the shoreline

The Living Breakwaters project, designed and implemented through a HUD-led initiative aimed to rebuild New York's shorelines in the wake of Superstorm Sandy, is an innovative large-scale infrastructure project designed to reduce erosion and damage from storm waves, improve the ecosystem health of New York Harbor, and encourage stewardship through youth education and shoreline access. Funded through Community Development Block Grants for Disaster Recovery, this system of offshore breakwaters not only is designed to reduce risk, but also have active oyster restoration and a "Water Hub" which will house educational activities and workforce training programs.

Throughout the design and development of this project, regular community workshops were held to understand what types of programming residents wanted to see, how their houses were affected by the storm, and what compromises they were willing to make in order to stay in a community that they loved and valued. Breakwaters do not keep houses from flooding, which was clearly explained to residents, but even so they decided this to be the best option because of the increase in the quality of life they would have from ecological restoration and education programming.

The three part project goal was explicitly written into the Purpose and Need statement of the project's Environmental Impact Statement, which was ultimately approved and permitted by the USACE.

The Living Breakwaters project brings together social resiliency, risk reduction, and ecological revitalization to create a layered approach to resiliency.



Project Name: South Bay Salt Pond Restoration Project

Location: South Bay, San Francisco, California

Client: n/a

Date: 2003 - ongoing

Stated Project Goals: restore and enhance a mix of wetland habitats; provide wildlife-oriented public access and recreation; provide flood management in the South Bay

The South Bay Salt Pond Restoration Project is the largest tidal wetland restoration project on the West Coast. Though a restoration project in name, it serves a three purpose goal of increasing resiliency to increasing flooding events and providing more amenities to residents and tourists visiting this area through environmental education, a trail system, and kayak launches. These components of public access were included as part of the Phase 1 efforts of restoration. This mix of public amenities while still maintaining clear ecological goals could serve as an example for the Salton Sea process, underlining the importance of planning for public access and recreational opportunities upfront in the stated project goals instead of as an afterthought.

A four-year public process was undertaken to design the restoration plan, including monthly stakeholder forums, and even now after the first phase has been completed ongoing public meetings are held to give updates on the long-term restoration efforts being undertaken. The Center for Collaborative Research was contracted to create and oversee the project's community engagement efforts.

Additionally, a dedicated website portal to the South Bay Restoration efforts was established with clear project descriptions and a FAQ section that gives further information on the projects and their current status. Notices on meetings can be found here, and a quarterly newsletter giving an update on project planning is also distributed.

Community amenities and recreational opportunities were a clear stated goal of the South Bay restoration work upfront.

Project Name: Coachella Valley Disadvantaged Communities Water Infrastructure

Location: Eastern Coachella Valley, CA

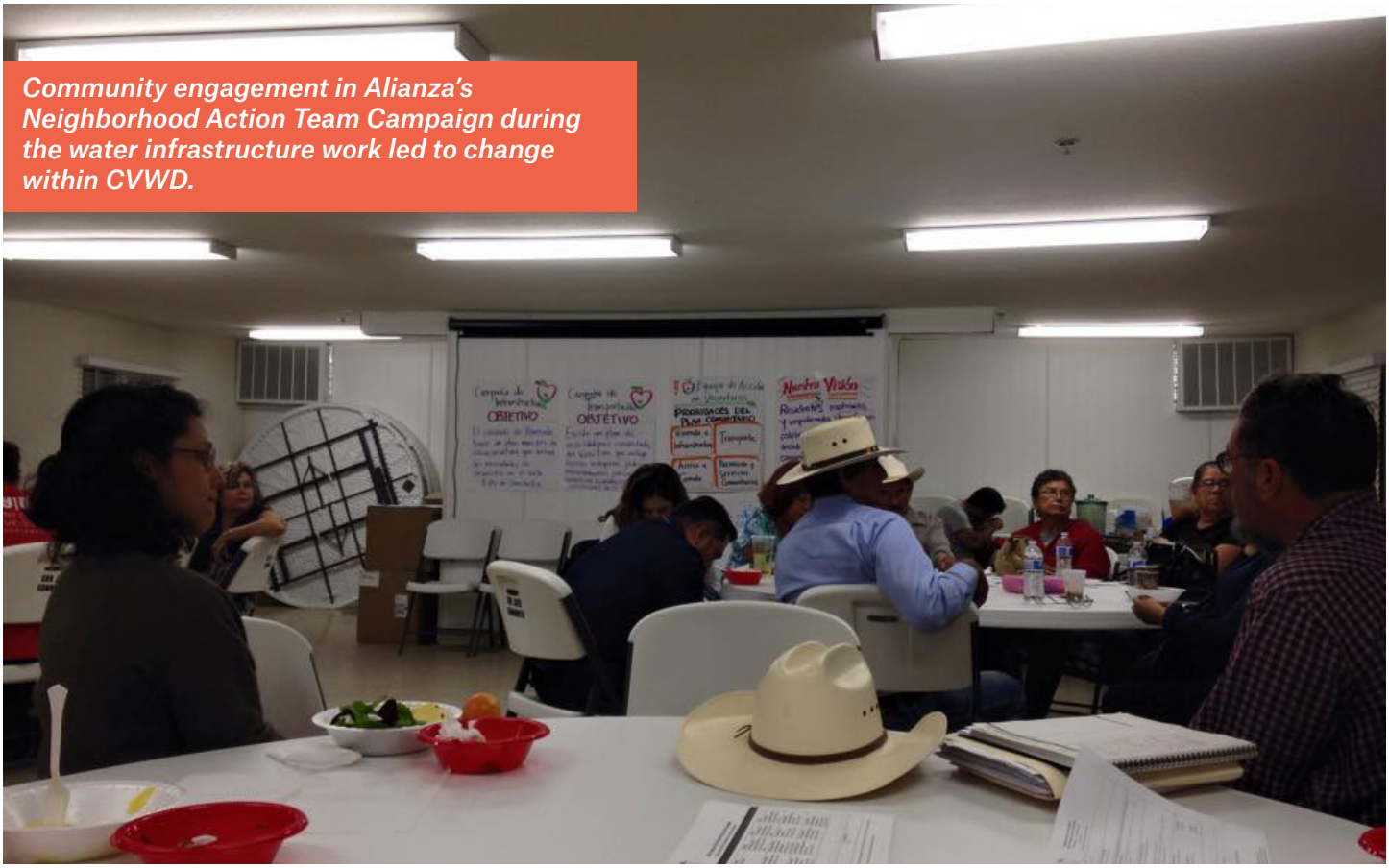
Client: n/a

Date: 2003 - ongoing

Stated Project Goals: to secure access to safe affordable drinking water, wastewater and flood control services in historically disadvantaged Coachella Valley regions through strategic planning, funding procurement, needs assessment, and reporting – all in collaboration with community members and stakeholders

The Disadvantaged Communities Infrastructure Task Force is the first and only Task Force of it's kind in the state of California. The Task Force is comprised of representatives from local disadvantaged communities, government agencies, and nonprofit organizations committed to working on both short-term and long-term solutions to ensure that all Coachella Valley regional disadvantaged communities benefit from clean and accessible water to their homes. An estimated 10,000 Coachella Valley residents, primarily in the east valley, rely on private wells for drinking water and many of them do not meet all the state and federal drinking water standards. This task force is working to connect more than 80 small, rural water systems to the district's services to bring affordable, reliable and safe drinking water to more than 4,000 people.

Alianza Coachella Valley is the only alliance in the Coachella Valley bringing together community members, non-profits, and government to lead efforts needed for a thriving region. Therefore, Alianza's Neighborhood Action Team Campaign was able to accomplish the creation of the Task Force by achieving a historic change in the Coachella Valley Water District's electoral system when the district's board agreed to change from an all at-large to a district system, which should better ensure Latino representation. In addition, a board seat was added to the Coachella Valley Water District Board and represented by a board member who is spearheading the Task Force in collaboration with many stakeholders.



Community engagement in Alianza's Neighborhood Action Team Campaign during the water infrastructure work led to change within CVWD.

Examples of Outreach Tactics

Outreach is defined as efforts that aim to initially engage audiences and expand the exposure of a project to residents. Outreach is particularly useful where a population does not have an in depth understanding or background of an issue, and therefore outreach materials can provide this necessary base knowledge to prepare residents to engage more thoroughly with the topics at hand. Having an informed base, though more work upfront, creates a more streamlined and efficient engagement strategy. This knowledge will build leaders within the community, and lead to meaningful and practical input into the projects that fit the context and parameters of the SSMP. It can also serve as a key logistical tool to improve meeting attendance. However, outreach is inherently one-way, and it is necessary to compliment these efforts with a robust community engagement strategy. Below are examples of different outreach tactics, and how they have been deployed in a number of varied precedents.

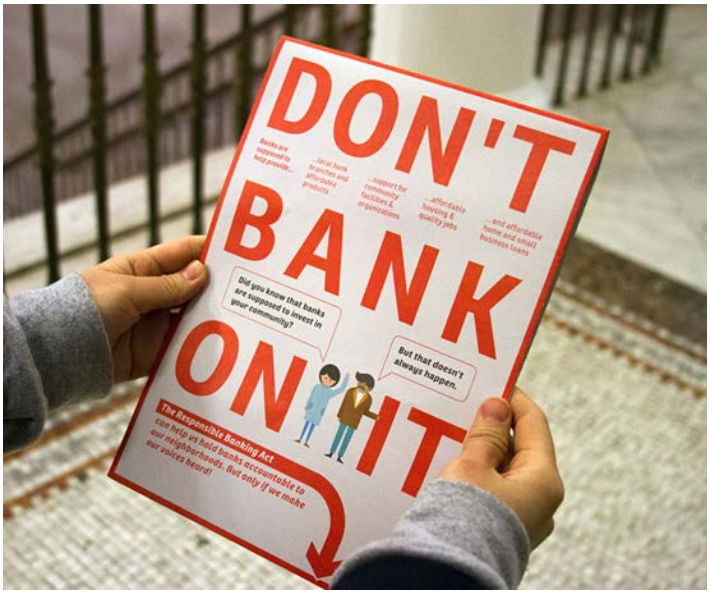
Interactive Toolkit

Project Name: The Affordable Housing Toolkit

Client: Center for Urban Pedagogy

Location: New York City

This kit is an interactive workshop in a box, complete with tools to break down what affordable housing means in a simple and graphic way. A fold-out map illustrates changes in demographics and rents, and an accompanying guidebook provides step-by-step instructions for how to run a workshop, allowing for a diversity of organizations to confidently inform residents on the issue. This type of mobile toolkit could help bring the SSMP workshops out into the community.



Self-Explanatory

Project Name: Don't Bank On It

Client: Association for Neighborhood & Housing Development

Location: New York City

In response to a 2012 New York City Act passed on responsible banking, this guidebook works to make the policy more public and transparent. The material explains the policy with easy to understand graphics, making it an effective tool for residents to understand complicated policies and how they can become more involved in the process. A series of "Salton Sea 101" pamphlets could follow this model.

Arts-Based

Project Name: Connect the Dots

Client: n/a

Location: Boulder, Colorado

Sometimes a more playful piece of educational outreach an be as informative as a pamphlet. These dots throughout the City of Boulder map the 100-year flood line of Boulder Creek, drawing attention to how natural ecologies could have very real impacts on residents' everyday lives even if it is not constantly evident. Arts-based outreach also has the potential of engaging locally-based artists in the conversation. A shoreline installation at the Salton Sea could serve as a destination and conversation starter in this manner.

Meeting People Where They Are

Project Name: Sponge Hub

Client: Housing and Urban Development

Location: San Mateo County, California

When dealing with a project or issue that affects an entire region, it is necessary to meet people where they are by traveling from community to community. The Sponge Hub does just that, traveling between farmers markets, classrooms, and community events to provide educational materials on potential future parks projects in the South Bay and collect community ideas and feedback on the proposed designs. Having a flexible and mobile space is key in the Coachella and Imperial Valleys where populations are not very dense.

Presence Building

Project Name: EJ Postcard Distribution

Client: none

Location: Eastern Coachella Valley

As part of building the Environmental Justice Youth Cohort, Alianza produced a series of postcards in Spanish and English to distribute at school events to encourage students to come to the meetings. Mailers, flyers, and printed materials are particularly helpful in the Eastern Coachella Valley where not all residents have internet or social media access as a means of learning about community events.

Examples of Engagement Tactics

This report outlines both outreach and engagement efforts, as each is vital to a successful strategy of resident involvement in the SSMP. Engagement goes a step beyond outreach, moving from planning "for" a community to planning "with" one. It is rooted in relationship building and allows for residents or stakeholders to be at the center of a two-way conversation instead of purely the recipients of information. Though there are many situations where a town-hall style meeting or a community workshop are necessary and functional, there are many opportunities to go above and beyond these more traditional engagement techniques to help residents fully understand the complexities of a project. Below are examples of creative and innovative engagement tools that have been successfully used before, on both large and small scale projects.

Arts-Based

Project Name: Boogie Down Booth

Client: NYC Department of Transportation

Location: The Bronx, New York

This booth was a temporary installation, paying tribute to the musical legacy of jazz in the Bronx. With seating, solar-powered lighting, and music, this kiosk provided space for a "community bulletin" where residents could give ideas for neighborhood development. Additionally, a rotating mural provided space for students to illustrate the changes they imagine for their community. Providing a meeting space that sparks conversation could foster further engagement around the Sea.

Science-Based

Project Name: Billion Oyster Project

Client: New York Harbor School

Location: New York Harbor

The Billion Oyster Project is an initiative to help restore a natural oyster population to the New York Harbor, using public school students as citizen scientists. Involving residents in the actual construction or restoration work planned provides a deeper understanding and sense of pride in the planned projects, creating stewards for years to come. There are multiple data collection or community-led restoration efforts that could follow this model around the Salton Sea.

Virtual Reality / Mixed Media

Project Name: Buoyant

Client: Center for NYC Neighborhoods

Location: New York City

There are many cheap and lo-fi ways of using virtual reality (VR) as an engagement tool, such as the use of Google Cardboard. This project projected flood risk maps on to the streets that residents live on, providing a visceral way of understanding what a project could look like, or potential effects of a no-action scenario. An accompanying website provided a living platform to further help residents how to take action. Simple VR techniques could help residents more fully visualize the proposed outcomes of the 10-year Plan.

Games

Project Name: Popuptown Social

Client: Housing and Urban Development

Location: Long Beach, California

Having fun at a community workshop doesn't mean that it isn't serious! This zoning card game uses a deck of cards that allows residents to select their preferences for building types, amenities, and accessibility needs. Whereas this type of exercise is usually done with post-its on a board, simply reinventing it as a more fun and visual activity helps to engage people of different ages and help people open up in a formal setting. Gamification could be used to reach younger populations for their input as well.

Participatory Budgeting

Project Name: Oasis Productive Public Space (PPS)

Client: Desert Recreation District (DRD)

Location: Eastern Coachella Valley (ECV)

Participatory budgeting is an incredibly potent and strong engagement tool that gives direct power to residents and the decisions they are making for their community. Used as part of KDI's work in developing a park in Oasis, CA, this exercise cedes a portion of the budget to community control, creating a democratic process that results in programs that are directly prioritized by residents.

March 12, 2020

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I St., 24th Floor
Sacramento, CA 95814
commentletters@waterboards.ca.gov

RE: Salton Sea

Dear Members of the State Water Resources Control Board:

On behalf of the undersigned organizations, we offer comments regarding the progress of Phase 1 of the Salton Sea Management Program (SSMP) and on the California Natural Resources Agency's (Agency's) 2020 Annual Report on the SSMP itself, pursuant to the Board's Notice of Public Workshop released on February 26, 2020.

We commend the Agency's SSMP efforts over the past year and the dramatic improvement in the quality of its annual report. Since the 2019 Annual report, the SSMP has:

- completed land-use easements with the Imperial Irrigation District (IID);
- executed an agreement with IID to use up to 60,000 acre-feet of New River water to satisfy the Species Conservation Habitat (SCH) project's water demand;
- hired a new Assistant Secretary for Salton Sea Policy;

- hired five additional staff at DWR and replaced one at DFW (and are in the process of replacing another existing position at DFW);
- renewed its commitment to increase and improve community engagement efforts;
- requested bids for a design/build firm to start the SCH project;
- improved its financial reporting;
- in January of this year, implemented its first project, a 112-acre dust suppression project constructed by IID;
- outlined a request for $220 million in additional Salton Sea funding in a proposed bond;
- submitted an application for $7 million in federal funding;
- launched a new website and e-newsletter;
- requested proposals for a consultant to organize and implement a review of water import proposals and other potential long-range Salton Sea plans;
- drafted and distributed a Dust Suppression Action Plan;
- begun consideration of a temporary project office at the Salton Sea; and
- developed a project delivery timeline.

We appreciate the Agency's 2020 Annual Report, which provides a high-level, summary overview of SSMP progress and activities and highlights the Newsom administration's commitment to the Salton Sea. The Report illustrates how this commitment is translating into increased capacity and planning, and shows that SSMP planning efforts over the past year have been, and are currently, identifying and developing the tools necessary to expedite the completion of habitat and dust suppression projects required by statute.

However, we do have concerns that SSMP implementation efforts and the Annual Report have fallen short in certain areas. Specifically:

- the SSMP and Annual Report lack defined goals and measurable objectives;
- SSMP project delivery reporting and planning is unclear and not articulated in the Annual Report, leaving us with several questions about how the state plans to adhere to reporting requirements, cure deficiencies, and implement certain projects such as those identified in the draft Dust Suppression Action Plan;
- the SSMP suffers from the absence of a clear governance structure that would respond to and rectify issues relating to capacity, program management/planning, finances, communications, and community outreach/partnerships; and
- the Report does not provide a sufficient assessment of current conditions.

These issues, and recommendations to resolve these issues, are detailed below. The Annual Report promises unprecedented progress at the Salton Sea. We remain fully supportive of the state's efforts to meet its broad statutory and contractual obligations at the Salton Sea and offer the following comments and suggestions based on our collective experience since the late 1990s and our strong and continuing interest in expediting project implementation.

Goals

The SSMP and Report should include clear goals and objectives to guide and direct implementation efforts. We again ask that the Agency memorialize and publicize clear and defined goals and objectives that provide the public with an attainable vision and plan for the Salton Sea.

The new SSMP website only mentions "goal" or "goals" once: a message from Secretary Wade Crowfoot reiterating the Agency's commitment to the Salton Sea, states in part: "We support a transparent process with clearly defined goals and measurable objectives aligned with available fiscal and hydrological resources." Unfortunately, that's the only mention of "goal" or "goals" on the website. Only two "goals" are actually defined in the Annual Report: a "goal" of completing NEPA in 2021 (pg. 20) and, on pg. 21, an excellent example of the clarity and transparency that should characterize each of the goals:

> The goal is to develop and actively maintain an engagement program that enables consistent two-way communication, creates opportunities for community members to share concerns and provide input, and ultimately contributes to delivery of projects that improve conditions for communities around the Salton Sea.

While the Annual Report states and defines its "Report Goals" and "acreage goals" (the milestones), SSMP goals, strategic goals, performance goals, project goals, and restoration goals are not defined.

We *still* do not know the state's programmatic goals for the SSMP, despite repeated requests that these be clarified and despite providing state officials with a detailed, referenced list of California's statutory Salton Sea goals. The most recent 10-Year Plan states that habitat goals will be developed, but otherwise conflates "goals" with the acreage milestones memorialized by the Board's water order.

Simply put, we remain concerned that running a $500+ million state program without transparent, "clearly defined goals and measurable objectives" will not be successful if it is not clear exactly what the program is trying to achieve. The state also neglects to reference the long list of statutory authorities and contractual obligations under which it currently operates. The implication here is that the Resources Agency has undertaken the SSMP solely in response to Order WR 2017-0134, ignoring a legislative history stretching back 15 years before that order. Referencing the long history and list of statutory and contractual authorities and obligations would further legitimize the SSMP and place it in the broader context of the QSA and California water resiliency. We look forward to seeing this list of statutory and contractual obligations on the state's new website and summarized in next year's Annual Report.

Key Takeaways and Asks

- A list of clear and defined strategic goals, performance goals, and restoration goals drawn from existing statutes and QSA-related obligations
- A clear vision for the Sea that reflects the state's SSMP goals

Activities Identified in the Stipulated Order

Table 1 in the Annual Report (reproduced below for your convenience) is the heart of the response to Order WR 2017-0134. We suggest that in future years the summary table be more responsive to the Board's direct requests for information, as shown in our version (Table 2).

Table 1. Activities Identified in Stipulated Order

Item	Reporting Requirement	SSMP Activity
(i)	Completed projects and milestones achieved in the prior year.	Though the State Team did not complete projects and acreage identified in the Stipulated Order in 2019, it significantly improved its capacity to deliver projects. The team completed the 112-acre Bruchard Road Dust Suppression Project in January 2020 and expects to complete up to 3,800 acres of additional dust suppression projects by the end of 2020.
(ii)	Amount of acreage of completed projects that provide dust suppression and habitat, broken down by habitat type.	Following resolution of site access issues in 2019, the State Team expects to award a design-build contract in summer 2020 for the Species Conservation Habitat (SCH) project, which will transform 3,770 acres of exposed lakebed in the New River area into a brackish shallow- and deep-water fish and bird habitat that will include bird islands for roosting and nesting. Construction will begin as soon as possible once the contract is awarded. In addition, a 112-acre Bruchard Road Dust Suppression Project was completed in an emissive area along the western delta of the New River.
(iii)	Upcoming projects to be completed and milestones to be achieved prior to the next annual progress report.	The following activities are expected to be completed in 2020: Award of design-build contract for SCH and implementation of project; programmatic environmental analysis of the planned Phase I projects (NEPA and permits for 10-Year Plan); implementation of Dust Suppression Action Plan projects covering up to 3,800 acres; completion of programmatic land use and water agreements; and securing of additional federal and state funding for SSMP implementation.
(iv)	Status of financial resources and permits that have not been secured for future projects.	Additional funding will be required to complete all the acreage requirements in the Stipulated Order. Funding needs will be identified as habitat and dust suppression projects are implemented in 2020. The financial status of the SSMP is presented in Chapter 3.
(v)	Any anticipated departures from the dates and acreages identified in condition 24 of the Stipulated Order.	Based on current understanding of the steps required to implement large-scale projects at the Salton Sea, Chapter 6 presents proposed targets to achieve the acreage schedules.
(vi)	Progress toward development of the long-range plan described in condition 26.	Requests for information or RFIs for water importation proposals were solicited in 2017 and received in 2018. CNRA issued a request for proposals in February 2020 to develop an independent panel of technical experts to review water importation proposals. Chapter 3 describes the status of the long-term plans.
(vii)	Should an annual milestone shortfall exceed 20 percent of a year's annual obligation, the report will also include a plan that will cure the deficiency within 12 months.	The State's vision for project delivery is described throughout this report and is summarized in Chapter 6.

Table 2. SSMP Activities in 2019

Item	Reporting Requirement	SSMP Activity
i	Completed projects and milestones achieved in the prior year.	The SSMP did complete any projects or achieve any milestones in 2019.
ii	Amount of acreage of completed projects that provide dust suppression and habitat, broken down by habitat type.	0 acres of habitat 0 acres of dust suppression
iii	Upcoming projects to be completed and milestones to be achieved prior to the next annual progress report.	The 112-acre Bruchard Road Dust Suppression Project was completed in January, 2020. Dust Suppression Action Plan projects covering up to 3,800 acres may be completed in 2020. Construction will begin in late 2020 on the SCH project, for 3,770 acres of brackish shallow- and deep-water fish and bird habitat, to be completed by 2023.
iv	Status of financial resources and permits that have not been secured for future projects.	Additional funding will be required to complete all the acreage requirements in the Stipulated Order. Funding needs will be identified as habitat and dust suppression projects are implemented in 2020. Annual operations, maintenance, energy, replacement, and monitoring costs and sources to be identified.
v	Any anticipated departures from the dates and acreages identified in condition 24 of the Stipulated Order.	See Table 3, below
vi	Progress toward development of the long- range plan described in condition 26.	CNRA issued a request for proposals in February 2020 to develop an independent panel of technical experts to review water importation proposals. Goals and objectives of a long-range plan will be drafted and reviewed in coming years.

vii	Should an annual milestone shortfall exceed 20 percent of a year's annual obligation, the report will also include a plan that will cure the deficiency within 12 months.	Per Table 3, the SSMP plan to construct 3,800 acres of dust suppression projects in 2020 will cure the existing dust suppression project deficiency. To date, the SSMP lacks a plan to cure the habitat project deficiency.

Curing the Deficiency

Table 3 (below) disaggregates the annual dust suppression and habitat project milestones listed in Condition 24 of Order WR 2017-0134 and the SSMP's current and projected achievement of those milestones, derived from information in the Annual Report. We assume that some amount of habitat acreage will be constructed as part of the SCH prior to 2023, but the Annual Report does not provide a project construction schedule. The Annual Report states that the SSMP plans to construct up to 3,800 acres of dust suppression projects this year and that "a concerted effort would be made to complete" (pg. 6) an additional 4,200 acres by 2022. If the SSMP satisfies these objectives, the SSMP will exceed the dust suppression milestones through 2023. However, the Annual Report does not include a plan that will cure the habitat acreage deficiency, *ever*, nor does it include a plan to cure the overall deficiency within 12 months, as required by Order WR 2017-0134. Note that the annual milestones listed in the table, per Condition 25, are for each project type: the actual annual milestone is double the value listed under "annual."

Table 3. Dust Suppression & Habitat Project Annual Milestones

Milestones (for each)			Dust Suppression				Habitat			
Year	**Annual**	**Cumulative**	**Constructed**	**Planned**	**Total**	**Deficit**	**Constr.**	**Planned**	**Total**	**Deficit**
2018	250	250	0			250	0			250
2019	650	900	0			900	0			900
2020	850	1750	112	3800	3912	-2162			0	1750
2021	1750	3500		0	3912	-412			0	3500
2022	875	4375		4200	8112	-3737			0	4375
2023	1375	5750		-1912	6200	-450		3770	3770	1980
2024	1350	7100								

*1,800 acres of surface roughening at SCH, plus 112 acre Bruchard Rd project, presumably would be eliminated once SCH is constructed.

The highlighted note above raises an important question for the Board's consideration: **how will the Board account for temporary project acreage towards achieving annual milestones**? Figure 1 in the annual report shows that 1,800 acres of Phase A dust suppression activities – along with the recently completed 112-acre Bruchard Road dust suppression project – occur within the 3,770-acre species conservation habitat project footprint. Presumably, that dust suppression acreage will be reduced and eliminated as the construction of SCH proceeds. **The Board should provide clear guidance to the Agency so that the SSMP does not double-count project acreage**, as the SSMP appears to do in the Annual Report.

We strongly support the expedited implementation of critically-important dust suppression activities, to protect public health. Habitat projects, including SCH, also suppress dust. But it is not clear how habitat and dust suppression projects will interact with one another during the 2020 planned construction.

Neither the Annual Report nor the draft Dust Suppression Action Plan describes how the eventual design-build contractor will prioritize or lay out SCH habitat cells or phases in the presence of 1,800 acres of surface-roughening on that same project site. The Annual Report indicates that the 1,800 acres of surface roughening will be constructed this summer, presumably at the same time that the SCH design/build project is awarded and the new contractor begins to mobilize for project construction. How will these conflicting projects be reconciled? How will access to the site be prioritized? What criteria will the SSMP use to determine when to convert a dust suppression project to a habitat project? How will future annual reports account for this changing acreage?

Key Takeaways and Asks

- The SSMP did not complete any projects or achieve any milestones in 2019.
- Proposed activities in 2020 would achieve the 2020 dust suppression milestone and cure the existing dust suppression acreage deficiency, if constructed by year's end.
- Proposed activities in 2020 will not achieve the 2020 habitat acreage milestone and will not cure the existing deficiency.
- The project timeline indicates that the SSMP will not achieve any habitat acreage milestones through at least 2023, and gives no indication that future projects will be sufficient to cure the current or future deficiencies.
- **The Board should provide clear guidance to the Agency so that the SSMP does not double-count project acreage.**
- The Annual Report is unclear how conflicting habitat and dust suppression projects will be prioritized or reconciled.

SSMP Project Delivery

We commend the development of a draft Dust Suppression Action Plan (DSAP) and will submit comments on that document directly to the Resources Agency. We look forward to being actively engaged with the development and distribution of a Habitat Action Plan this year.

We ask that the state provide more detailed information on how the proposed Phase A dust suppression projects will account for wet soils during the summer of 2020, and that the state reconsider the northern part of the Sea, and particularly the community of North Shore, as a location of dust suppression projects that are adequate to the soil type in Phase A of the work.

The SSMP identifies up to 3,800 acres of dust suppression projects this year. The Bruchard Road project is encouraging in this regard: IID plowed 112 acres there in less than a day, suggesting that construction of 3,800 acres – once sites have been identified and equipment mobilized – could take less than a month. However, one of the lessons learned at the Bruchard Road site was that saturated soils limit site accessibility and feasibility for large-scale plowing: the initial plan at Bruchard Road was to plow as much as 160 acres of playa, but soils were too saturated, limiting the project's size. Figure 1 in the Annual Report places roughly half of the proposed 2020 dust suppression projects at the south end of the Salton Sea. The images below suggest that some or many of these project sites might not be suitable for plowing this year, and certainly not this summer when Salton Sea levels are higher.

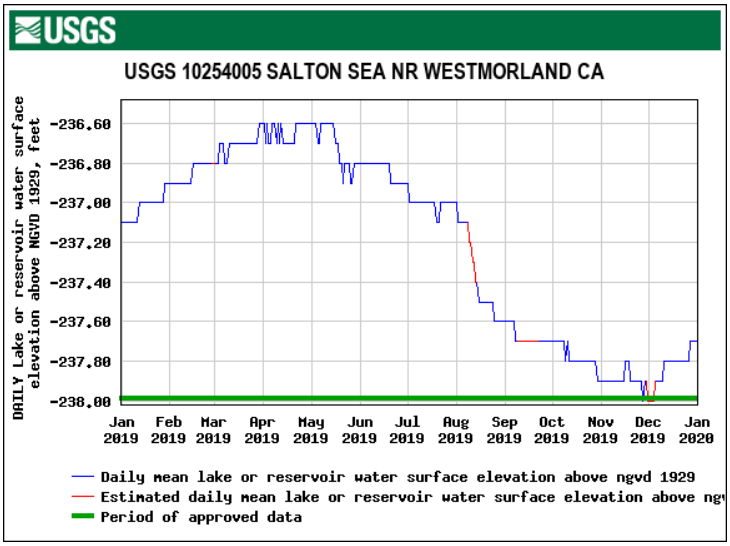
The SSMP classifies these as Phase A areas, shown in purple on the following image (cropped from Figure 1 in the Annual Report). Note that some of the purple areas in the image are currently under water, or at least saturated and not feasible for dust suppression efforts. Neither the Annual Report nor the draft Dust Suppression Action Plan identifies how much of the land designated for Phase A projects is currently available for such efforts. Some of the land identified currently benefits from natural revegetation, as agricultural drains have extended to reach the receding shoreline.

Does the SSMP plan to remove existing vegetation, and then to roughen the surface? Does the SSMP plan to remove wetlands that have appeared as the Sea has receded, to roughen the surface? As you may know, state and federally-listed species are likely present in some of these wetlands. The likely presence of these listed species is definitely a positive feature of the wetlands, but it could delay efforts to remove vegetation or otherwise disturb these areas. The presence of water and vegetation also indicates that surface roughening is likely not indicated at the current time. It would be helpful and informative for the Agency to develop and post a map on its website, showing the location of these emergent wetlands and open water areas atop the playa.

Image cropped from Annual Report Figure 1.

Google image of same area.

Pg. 3 of the draft Dust Suppression Action Plan states, “Approximately 1,800 acres of surface roughening on exposed lakebed within the SCH area are expected to be constructed in Summer 2020.” As shown in the USGS graph below, Salton Sea elevations are lowest in late fall and winter, so groundwater elevations are also lower and playa soils are less saturated and more suitable for surface roughening. In short, we do not expect 1,800 acres of surface roughening will be constructed in the summer, though it may occur later in the year.



In addition, it is unclear within the report why the listed parameters of dust emissivity, land ownership, proximity to population areas, community feedback, and prevailing wind patterns have resulted in the locations and phasing in Figure 1. Community feedback has, in part, advocated that dust suppression projects in the northern part of the Sea be implemented quickly, and specifically around the community of North Shore. Though this community is mentioned within the report (pg. vi), it is not considered within the phased plan. A visual that layers these different considerations on one another would help to explain the process and rationale of the State in how these locations were determined. Community feedback should be shown and documented as well. We suggest a second revision of the phasing plan to take these concerns around the northern portion of the Sea, and the community members there, into more careful consideration.

Key Takeaways and Asks

- More detailed information on how the proposed Phase A dust suppression projects will account for wet soils during the summer of 2020
- A clear list and visual depiction of the parameters used in determining dust suppression locations and phasing
- A reconsideration of the northern part of the Sea, and particularly the community of North Shore, as a location of dust suppression projects that are adequate to the soil type in Phase A of the work

Planning

The highest priority for siting dust suppression projects should be controlling the emissive playa soils that adversely affect public health. According to the annual report, the State team is relying heavily on data collected by IID to identify and prioritize sites for dust suppression projects. Much like the projects identified in the SSMP, the sites in the Dust Suppression Action Plan are primarily located on the southern end of the Salton Sea. It is understandable to prioritize sites based on emissivity and soil type, but in order to better respond to the acute and ongoing health impacts of residents in the Eastern Coachella Valley, and North Shore in particular, the plan must identify alternative solutions that can be

planned for the northern end of the Salton Sea in a timely fashion. Through continued engagement and advocacy, Eastern Coachella Valley residents have raised their biggest complementary concerns: the acute and long term health impacts from dust emissions and that the northern region is continuously left for the second or third phases of plans. The reasoning behind these decisions should be clearly detailed and explained in the report as well as a discussion as to how to address the public health impacts equitably and expeditiously throughout the planning area.

The discussion of project planning on pg. 11 suggests that the SSMP's highest priority is land access and ease of permitting, although this may reflect a lack of clarity in the report text on pg. 11 rather than actual project criteria. To improve transparency, we recommend that both the final dust suppression action plan and next year's annual report include a prioritized list of criteria to determine site selection. Please also include a map showing the different criteria layered on top of one another, to improve understanding of site prioritization and phasing considerations.

Capacity

The Annual Report relies more on assurances than specifics: "the State Team has significantly improved its capacity to deliver projects at the Salton Sea" (pg. v). Even with planning chart on pg. 16, it is unclear how this increased capacity and staff will translate into expedited action. What are the tasks assigned to new and existing staff? What additional staffing may be required? How does the "State Team" coordinate with staff at other state agencies, such as those at the State Water Board and the Regional Water Quality Control Board? As we noted in a recent meeting with SSMP staff, we encourage the Agency to hire additional, local staff dedicated to community engagement and outreach, rather than relying on partial time from existing staff in Sacramento.

Program Management Tool

We commend the development of the Program Management Tool and see its potential as a consistent way to provide information to stakeholders and community members on a regular basis. A clear organizational structure would strengthen the Tool. Appendix B describes the "four major SSMP elements: planning and permitting, project delivery, engagement and outreach, and administration and budget planning." We appreciate the inclusion of engagement and outreach as a main category within this framework.

We encourage the state to elevate "monitoring and management" from a sub-element of "planning and permitting" to become its own, separate, major element. Monitoring the performance of habitat and dust suppression projects will be critical to their success and should be highlighted as a major program element, with dedicated budgets, staff and annual reporting. Managing such projects will rely on such monitoring data, but will also require clear, measurable goals and objectives so that the projects can be managed toward some desired outcome.

Financial Status and Planning

Table 4 in the Annual Report provides a helpful breakdown of funding available for Salton Sea mitigation and restoration by project source. It appears to be identical to the table dated 10/2/2019 that was distributed at the Salton Sea Roundtable Meeting held at the North Shore Yacht Club on October 3,

suggesting it does not reflect funding or expenditures or authorizations through the end of 2019. Next year's report should show accounting through the end of the calendar year and should include additional tables showing:

- funding available for each project;
- annual expenditures for each funding source, to date, by line item;
- projected future expenditures, by year and by line item, through 2028;
- community engagement budget projections and expenditures;
- projected annual operations & maintenance costs, and funding sources for these; and
- estimated long-term funding costs.

Additionally, we ask that the SSMP better allocate the limited resources available for Salton Sea issues. Table 3 notes that DFW has spent $15.8 million from the Salton Sea Restoration Fund on "Annual surveys to monitor bird and fish populations at the Sea, including state and federal endangered species, staff development of various implementation and monitoring plans, issuance of Section 1600 permits, CEQA review, QSA Implementation Team staffing, etc." However, pg. 28 indicates that DFW did not conduct any fish monitoring between 2008 and 2017. PG. 29 states, "In late 2018, aerial survey efforts were paused because of resource constraints." QSA Implementation Team staffing appears to refer to a quarterly 45-minute conference call, and one annual in-person meeting. DFW's renewed fish monitoring efforts is a welcome step: please post the results of these fish surveys on the SSMP website and update these at least quarterly. The Restoration Fund may offer the single best source of funding for operations & maintenance activities; it should be managed carefully.

Key Takeaways and Asks:

- A prioritized list of site criteria within the future Habitat and current Dust Suppression Action Plans
- Inclusion of "monitoring and management" as a key theme within the Project Management Tool
- Breakdown of the following accounting information:
    - funding available for each project;
    - annual expenditures for each funding source, to date, by line item;
    - projected future expenditures, by year and by line item, through 2028;
    - projected annual operations & maintenance costs, and funding sources for these; and
    - estimated long-term funding costs.

Partnerships, Community Engagement, and Transparency

We commend the SSMP for developing partnerships and improving communications and relationships with key stakeholders. The breakdown of the advisory committees concerns us, however. To our knowledge, neither the science nor the project committee met in 2019, depriving the SSMP of important expertise and input. Additionally, the annual report claims that the State reinvigorated the Community Engagement Committee since last year's report (pg. 21). We believe this messaging to be misleading and inaccurate. Member organizations of the Committee continue to voice the lack of agency and leadership that the Committee can have. Meetings are irregular, held at inaccessible times for the public, and there is no clear path forward on goals or objectives that the Committee should be working towards in and

outside of their official meetings. In the past, the State has expressed their interest in restructuring the committees. We ask that this be addressed and done in a timely manner.

In our advocacy, we have also identified the need for the State to improve its engagement in the air quality and research work that is happening on the ground throughout the region, including the Eastern Coachella and Imperial valleys. The work being done with AB 617 and the UCR 5-year study on asthma are critically connected to the Salton Sea. The State team should be engaged and ready to identify ways to support and expand these efforts. Waiting for results is simply not acceptable.

Communication Tools

The newly revamped website, at www.saltonsea.ca.gov, and the new SSMP e-newsletter are positive steps toward transparency. We acknowledge that some start-up time is necessary to bring the information on the website up to date. Pg. 21 states that it will "provide a single, one-stop-shop site where the public can find information on SSMP projects, status of state funding, and opportunities to provide input." The website offers an excellent location for the SSMP to provide more frequent updates on a range of topics, including many identified in this letter. Quarterly updates on project timelines, staffing, current conditions (including air quality and monitoring efforts), posted prominently on the website, would be an important step toward improving transparency and public understanding of SSMP activities. These updates could then be compiled and summarized in future annual reports to the board, reducing the overall time required by staff.

We are hopeful that the website will also include links to all of the state's Salton Sea planning documents since the QSA was signed, including SCH project documentation and the 2007 PEIR. These historic documents contain a wealth of relevant information on hydrology, ecology, air quality, and public health that could and should inform current discussions and planning. The state's Salton Sea efforts did not just begin in 2017; older documents must be made available to the public.

Community Engagement Plan

At this time last year, the State had been resistant to understanding how community engagement could be integrated into the process of the SSMP. With the new administration, the local community organizations and non-profits have seen a marked shift in the commitment and follow through from the State in engaging with these issues. We appreciate this new and clear dedication to involving the non-profit sector and local community members. We hope that this is further memorialized in the Community Engagement Plan. We provided feedback on this plan in October 2019, but are not aware of the progress or edits that have been made yet to finalize and flesh out this document with further detail. What is the timeline for refinement and implementation of this plan? The local community organizations offer ourselves as resources that can help to expedite this process and give context on how well different tactics and strategies can work within the Eastern Coachella Valley.

In the original *Community Engagement Strategies and Recommendations for the Salton Sea Management Program*, authored by Alianza in December 2018, the main goal was to give a framework for the types of goals and considerations that provided the ingredients to the State to move community engagement forward. While we have seen some movement here, we are waiting to see a crystallized

approach within the new Engagement Plan. It is our firm belief that community engagement does not need to slow down the design and implementation process for the SSMP; however, in order for this to be true, urgency needs to be given to the timeline of creating this Engagement Plan.

One deficiency that we see, that is shown within the draft Dust Suppression Action Plan, is that though community feedback has been given there has not been a transparent way in which these comments have been documented. In order to have a comprehensive understanding of what feedback community members are giving, this process needs to be established immediately. Not only will this streamline the analysis that is done for project planning, but will be a clear way in which the State can communicate to the community how any resulting plans have or have not incorporated their feedback and why.

Our partnership has consistently communicated the importance of strong and meaningful community engagement and outreach for Salton Sea restoration. We acknowledge and appreciate the renewed attention that the State team has given to this issue and we look forward to working with CNRA and other agencies to develop and implement meaningful community engagement that informs short and long term Salton Sea management. While we are hopeful and confident that recent momentum toward greater community outreach and engagement will continue, we are concerned that we collectively missed opportunities to ensure ongoing engagement. In 2019, the State committed to developing a Community Engagement Plan that would help guide them in the process of developing and implementing projects. Our input was sought, but there was never any follow up or final plan presented to the committee for approval. Still, the State moved forward with planning and coordinating the community meetings and workshops from December 2019 to March 2020. In order to develop strong relationships with community residents throughout the region, we ask that this process not be taken lightly and planned for accordingly and in partnership with the Community Engagement Committee.

Community Engagement Staffing and Capacity

We appreciate the Assistant Secretary's willingness to meet with residents, and are sympathetic to the insufficient capacity to run the many engagement meetings that would be required to have a robust process. However, the answer to this is not that we should settle for four public meetings a year as is shown within the proposed timeline, but rather that it is necessary for the State to hire a person or entity that is responsible for engagement around the Sea, and can commit time to having monthly meetings with each community or region. This person or entity should be well acquainted with the communities around the Sea, has an organizing or community liaison background, be bilingual, and should have a proven record of understanding environmental justice needs in underprivileged communities. For this reason, we also encourage the State to dedicate specific funding and budget line items to community engagement work, so that this staffing issue and demand is well understood and accounted for.

Key Takeaways and Asks:

- More sustained engagement of the SSMP committees
- Inclusion of historic documents on the updated Salton Sea webpage
- Fast turnaround of a revised Community Engagement Plan

- An organized and transparent method of tracking community feedback, and how it is or is not influencing the project planning process
- Additional / Dedicated staff for community engagement

Current Conditions

We commend the Resources Agency's inclusion of "Appendix A. Salton Sea Current Conditions" in the Annual Report. This appendix provides useful background information on the Sea's changing conditions, providing much-needed context for the SSMP and proposed projects.

In next year's report and in quarterly website updates, we encourage the Agency to include precise and clear assessments. For example, desert pupfish populations "appear to be doing relatively well" (pg. 28) but does not provide specifics on recent populations, historic populations, a reference to the desert pupfish's endangered status and the federal recovery plan for the species, or the results of the Desert Pupfish Conservation Strategy required by the Board in WR2002-0013 (revised).

The statement "It is not yet clear how the [tilapia] population will respond to increasing saline conditions in the Sea" (pg. 28) is very puzzling: it is clear that increasing salinity has diminished tilapia recruitment and will soon eliminate tilapia from most of the Salton Sea, if it hasn't already. The discussion of "catch per unit effort" (CPUE) needs context: how does CPUE translate into estimates of total numbers of tilapia currently in the Salton Sea? The text on Figure 5 that states that "Tilapia dominant, but abundance lower" in 2017-2019 is very misleading: the figure itself shows that tilapia populations have declined by *an order of magnitude* from a decade earlier; their population is not just "lower." Nor is it clear from the brief description whether two sampling sites are sufficient to characterize total populations in the lake, or merely reflect populations closer to tributaries. Is DFW's CPUE methodology comparable to that described in Caskey et al., 2007? How do current tilapia populations compare to those in 1999? How much longer are tilapia expected to persist in the Salton Sea?

Water Quality

Water quality is a key factor affecting constructed Salton Sea habitats and should be described in greater detail. **A.2.4 Salinity** (pg. 30) should be renamed "Water Quality" and include more than one paragraph. What is the source of Figure 7? What do the various data points reflect, for each sampling date on that figure? The text of the paragraph implies that the Regional Water Quality Control Board is currently monitoring Salton Sea salinity, but CEDEN data suggest that the last sample date was in April 2016, when salinity was reported as 51.7 ppt.

The Annual Report states "selenium concentrations in the Sea continue to be lower than in the river inflows" (pg. 30). What does this mean? Are selenium concentrations in the New River at levels of concern, a serious consideration for the construction of SCH? Have they been increasing or decreasing? What are the selenium concentrations in the drains that discharge into the SCH project site? Are the selenium loadings from these drains high enough to pose a risk to the success of SCH?

There are a number of water sources entering the Sea that are also contributing to its poor water quality and lakebed contamination. One of the community's main concerns is what is being done about the

agricultural runoff being directed to the Sea and the wastewater entering through the New River. We have raised concerns specifically on the agricultural runoff and inquired about potential solutions for treatment or redirection, but were met with opposition only. It is critical, as we work to build habitat and increase dust suppression projects, that we also address the existing problems that currently continue to pollute the Sea. We ask the Board to direct the State team to engage with the Regional Water Quality Control Board - Region 7 to assess the problem and work with the community to identify a path forward in which no more contaminated water enters the Sea.

A.2.5 Elevation and Shoreline Exposure, Historical and Projected

Pg. 31 of the Annual Report includes the following paragraph:

> Since 2003, there has been a steady decline in the surface water elevation of the Salton Sea. That decline continued in 2019, with approximately 5,200 acres of lakebed exposed by the receding Sea (**Figure 8**). Some of the exposed lakebed has developed a vegetation cover or is covered by agricultural drainage, making it less likely to be emissive.

This summary is too general. Rather than stating "a steady decline," the report should note that the Salton Sea's surface water elevation has fallen by almost 9.6 feet in the past 17 years. Curiously, Figure 8 shows less than 4,000 acres of lakebed exposed in 2019. In fact, the USGS 10254005 Salton Sea Nr Westmorland CA station reports Jan. 1, 2019 elevation as -237.1' (NGVD 1929) and the December 31, 2019 elevation as -237.7' (equivalent to -235.6' (NAVD88)). Comparing the elevation-area relationship of the Sea for these two dates indicates that the shrinking Sea exposed an additional 1,670 acres of lakebed, not 5,200. The Annual Report should quantify the amount of lakebed that "has developed a vegetation cover or is covered by agricultural drainage," rather than describing it as "some," and subtract this total from the amount shown in Figure 8, since "some" of that lakebed is covered.

Additional Questions

As we did for previous workshops, we request that the Board ask the state agencies the following questions at the March 18th workshop:

What tasks have been assigned to SSMP consultants and where is the timeline for their completion? When will the hydrological model be produced? What is the source of delays?

Public confidence in the SSMP is further eroded because mission critical key products, such as a hydrological model for the Salton Sea, have not yet been produced despite years of promises. The model is a foundational piece for progress on projects. Overall, it is unclear what tasks have been assigned to consultants and what are their deadlines. We ask that the Board request an update on the hydrological model and a list of other tasks and timelines assigned to the SSMP's consultant. We further ask that the Board set deadlines, within the next three months, for the finalization of the hydrological model.

What is the plan for the management of SSMP projects, once they have been constructed?

As noted below, SSMP planning efforts do not provide for the monitoring, continued operation or adaptive management of projects once they have been constructed. The August 2018 draft of the SSMP

Phase I: 10-Year Plan (posted at http://resources.ca.gov/wp-content/uploads/2018/10/SSMP-Phase-1-10-Year-Plan.pdf) does not describe the entity responsible for ensuring that the constructed projects function as designed. Given the uncertainty of how these projects will perform to address the impacts to air quality and wildlife from the receding Sea, it is essential that the SSMP projects have a robust and fully funded adaptive management program. The Board should set a deadline for the State to complete an adaptive management plan before the completion of the first SSMP project.

What is the status of funding sources and for planning for ongoing operations and maintenance?

The Salton Sea Management Plan appears to have adequate funding to initiate construction of projects. Proposition 1 provided more than $80 million and the recently-passed Proposition 68 will provide $200 million once appropriated. The California Legislative Analyst's Office recently estimated that over the past 18 years more than $700 million in public funds has been committed to the Salton Sea, of which approximately $500 million remain including more than $50 million of Salton Sea Restoration Limit funds from the QSA parties that could be used for operations and maintenance and other annual costs. Yet, despite a considerable operating budget, the SSMP struggles to get funding out the door to projects or contractors. To our knowledge, only $3 million of Proposition 1 funding have been spent so far and there appears to be no plan for distribution of the Proposition 68 funds. Ongoing operations, monitoring, and maintenance will likely require an estimated $10 million annually, which cannot be sourced from bond funds. We ask that the Board request an update on the SSMP's finances and a detailed response of how the State will secure the necessary ongoing funding for long-term monitoring, operations, and maintenance.

What is the status of the Salton Sea Task Force?

Does the Salton Sea Task Force still meet? To what extent do the Natural Resources Agency, DWR, and DFW coordinate with other state agencies such as CalEPA, California Air Resources Board, California Energy Commission, Public Utilities Commission, and the Colorado River Regional Water Quality Control Board?

Conclusion

The SWRCB, along with the State of California and a host of stakeholders, have been grappling with the challenges posed by the Salton Sea for the better part of two decades. The past several years have brought hundreds of millions of dollars to the table, along with initial draft plans and the beginnings of a dedicated staff sufficient to tackle the problem. The SWRCB's Order WR2017-0134, in November, 2017, was an important marker in this slow process, setting much-needed milestones to establish accountability. The 2020 Annual Report describes how the Newsom Administration's demonstrated interest in the Salton Sea is translating into increased capacity and planning. However, the continued absence of defined goals and objectives, annual funding, staff dedicated to incorporating the results of community engagement into planning efforts, short-term dust suppression projects to benefit the north end of the lake, or a plan to cure the habitat acreage deficiency all combine to render the 2020 Annual Report insufficient.

We stand ready to assist the State and the SWRCB in any way we can to assist and improve these efforts.

Thank you for your continuing oversight.

Sincerely,

Michael Cohen
Senior Associate
Pacific Institute

Brandon Dawson
Policy Advocate
Sierra Club California

Lauren Elachi
Senior Design Coordinator
Kounkuey Design Initiative

Pamela Flick
California Program Director
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Cc: Arturo Delgado, Natural Resources Agency
Genevieve Johnson, Bureau of Reclamation

March 12, 2020

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State Water Resources Control Board 1001 I St., 24th Floor
Sacramento, CA 95814
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RE: Comments on the 2020 Annual Report on the Salton Sea Management Program

Dear Members of the State Water Resources Control Board:

On behalf of Leadership Counsel for Justice and Accountability (Leadership Counsel) and the Eastern Coachella Valley (ECV) residents that we work with, we thank you for the opportunity to provide comments on the 2020 Annual Report on the Salton Sea Management Program (SSMP).

Leadership Counsel has been engaging in the Eastern Coachella Valley for over 6 years, working alongside community residents on social and environmental justice issues like affordable housing, transportation, water and wastewater infrastructure, air quality, land-use, and climate. One of the main priorities that residents have included in this advocacy is the restoration of the Salton Sea to protect public health, the environment, and a beautiful landmark that is a significant part of the region's identity.

First, we'd like to thank the new Assistant Secretary of Salton Sea Policy with the California Natural Resources Agency (CNRA), Arturo Delgado, for his growing efforts to meet with several community-based and environmental organizations working to advance work at the Salton Sea. We are especially grateful that there has been additional attention given to community engagement and how it is being incorporated into project development and implementation. The slow movement of projects at the Sea, however, has continued to damage the hope of the community for the revitalization of the Salton Sea. Below, we provide our comments, concerns, and recommendations for the State Water Resources Control Board's (SWRCB) consideration.

Connecting the Salton Sea to Climate Resilience

A crucial aspect of our work is how disadvantaged, low-income communities, and communities of color are able to combat the impacts of climate change. In our advocacy with community residents, we have elevated climate resilience as a major part of Salton Sea rehabilitation.

While the State's responsibility lies in producing dust suppression and habitat conservation projects, we believe that these should be complemented with other climate resilience projects that can help improve the public health of the Eastern Coachella Valley. Throughout the past few years, we have led and supported the development of plans that elevate active transportation infrastructure, affordable housing, urban greening, and other necessary infrastructure that's needed in the ECV. If done in conjunction with dust suppression, vegetation, and habitat projects, the ECV, and other regions around the Salton Sea, will be able to see more work being done and simultaneously have more access to climate resilient and recreational spaces. We look forward to the State increasing its efforts to collaborate with us and other community-based organizations on effectively mitigating the impacts of climate change and those of the receding Salton Sea.

Dust Suppression Action Plan

We appreciate the State Team's work on the recently released draft Dust Suppression Action Plan (draft DSAP) along with a supplemental timeline. We plan to submit comments specifically on the draft DSAP by the deadline of March 27th, but would like to raise a few high level concerns with it for the Board's review. The additional projects identified in the draft plan are an acknowledgment of the need for additional dust suppression projects that the communities have continuously advocated for. However, much of our concerns with the SSMP have now transferred over to the draft DSAP. Projects on the northern end of the Salton Sea continue to be on the back end of implementation, which is a great concern for the residents that we work with in the ECV. Of particular concern, is the lack of dust suppression projects in closer proximity to the unincorporated community of North Shore. We understand that sites may need more air monitoring and data to be collected, but the advocacy and narrative, anecdotal or otherwise, that residents have led for years surely merits increased attention and resources to better protect one of the communities nearest to the Salton Sea.

While this plan addresses our concerns with the SSMP having minimal priority projects on dust suppression, there is still an underlying issue with how project sites are identified, prioritized and

scheduled. Our community nomination for the AB 617 Community Air Protection Program[1] includes significant data, both scientific and anecdotal, that should strongly encourage the State Team to develop additional projects that will directly benefit the community of North Shore. Waiting for additional data to be collected is not acceptable for the community of North Shore or the rest of the region who has historically advocated and provided extensive testimony regarding the impacts they've felt in their community from the emissive dust and odors coming from the Salton Sea.

As these projects have been in development, we've also inquired as to how the State Team plans on measuring their effectiveness. What is the reach of benefits that a dust suppression project can have and how will that be measured? It's important for the State Team to provide clear answers and metrics that they intend to follow after the completion of a project, and we ask the Board to request that this information be incorporated into future reports.

Addressing Salton Sea Water Tributaries

The Salton Sea is rapidly continuing to shrink. No reliable sources of water longer flow into the Sea. The ones that do, are heavily contaminated and only further contaminate the Salton Sea and its lakebed. Of particular concern is the agricultural runoff that's flowing into the Salton Sea through the Coachella Valley Stormwater Channel and the Imperial Valley Drains. We ask the State to please identify which agency is responsible for the regulation of these bodies and for such agency to develop a plan with the community to find solutions to either further regulate or completely treat these water tributaries before they enter the Sea. We greatly appreciate and acknowledge the work that the State is doing to mitigate dust suppression and provide better habitat, but it's important for community residents to know that the State is also doing its due diligence to ensure the Sea isn't further contaminated.

Community Engagement

Since the SWRCB Salton Sea update in 2019, we have seen a renewed commitment to community engagement from the State Team. However, there has been inconsistent movement on the development of the State's Community Engagement plan as well as ineffective and infrequent meetings of each of the SSMP Committees.

We provided comments on the draft Community Engagement Plan in October 2019, and have yet to see an updated plan that incorporates the feedback that a number of community-based

[1] AB 617: Eastern Coachella Valley Community Nomination for Year 2 (2019). Document is attached to this letter. (Attachment 1)

organizations provided. While an effort to create such a plan had never been done before, we want to highlight that it should have been finalized well in advance of the community workshops held on the draft DSAP between December 2019 and March 2020.. For future plans and updates, we urge the State Team to meet faster delivery times to not hinder progress on community engagement, project development and implementation. This should also include a proper protocol for requesting, receiving, recording, and responding to public comments, as well as how the State Team plans on reflecting such input into the actual plans.

An additional hindrance to the work has been the inconsistency and leadership abilities of the SSMP committees, particularly the Community Engagement Committee. The reports claim that the "State Team reinvigorated the SSMP Engagement Committee" is misleading and inaccurate (p.vii). This committee, while more than others, convenes quite inconsistently and lacks agency to move things forward, the authority to make decisions or to direct the State, and has little oversight of agendas and other administrative and logistical aspects. We strongly urge the State Team to (1) work with the committee to formally develop goals and objectives as well as roles and responsibilities for each of its members, (2) establish the right for the committee to make decisions and oversee the logistics of the committee, (3) and increase accessibility for the public to actively participate in committee meetings. These efforts in particular, require additional capacity and we expect CNRA to promptly meet its commitment to hire additional staff that will focus on community organizing and engagement.

Partnership and Collaboration

As initially stated, we'd like to thank the new leadership of Arturo Delgado and his team for frequently meeting with local and statewide community-based and nonprofit organizations to better understand and elevate community priorities in the State Team's Salton Sea work.

Residents have consistently asked the State Team to make a concerted effort to increase their collaboration with other relevant agencies, stakeholders, and the community. It's important that the State recognize the important work that is happening on the ground to both improve the local air quality and public health. For the past several years, residents have been leading advocacy efforts to further reduce emissions in the region, as well as advance academic research projects to prove the impacts that the emissive Salton Sea playa is having on nearby residents related to respiratory illnesses. Two of these efforts include the AB 617 Community Air Protection Program and the selection of the ECV in 2019, and a 5-year health study that's being conducted by the University of California, Riverside in partnership with community residents from the northern region of the Salton Sea. As we've mentioned to the State Team, we believe it is crucial for them to be engaged in these processes to better understand the community leadership that

exists, but to also identify pathways to collaborate with other agencies and organizations and complement the work that they are doing regarding dust suppression and habitat conservation.

For a closer look into Leadership Counsel's vision and advocacy efforts for the Salton Sea and beyond, please read *Salton Sea: A Guide for the Advancement of Public Health, Climate Resilience, and Community Engagement*[2]. This is a guide that we co-created with community residents from the ECV that identifies 5 high level objectives for engagement, dust suppression, climate resilience, investment, and inter-agency collaboration as priorities that residents envision for the Salton Sea and for improving public health. It also further describes our efforts to elevate and integrate environmental justice and climate resilience into Salton Sea work. We welcome future opportunities for the State Team to support community residents in their own work to improve public health in the region as well as offer our help to support the State Team in ways that can help improve and implement the SSMP and DSAP.

Conclusion

Again, we thank you for the opportunity to provide comments on the 2020 Annual Report on the Salton Sea Management Program. We hope that our comments are useful and can help improve the plans and community engagement efforts that are being led by the State Team. We reiterate that restoration of the Salton Sea needs to include effective and meaningful community engagement in order to equitably identify and implement projects that will first and foremost provide dust suppression and help improve the health and quality of life of the surrounding communities in the entire Salton Sea region, and include habitat and conservation benefits to the environment and species that also rely on the Sea. Should you have any questions or wish to discuss our comments further, please do not hesitate to contact Rebecca Zaragoza at (760) 774-3528 or email rzaragoza@leadershipcounsel.org.

Sincerely,

Rebecca Zaragoza
Senior Policy Advocate
Leadership Counsel for Justice and Accountability

CC: Arturo Delgado, California Natural Resources Agency

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[2] The Salton Sea: A Guide for the Advancement of Public Health, Climate Resilience, and Community Engagement (https://leadershipcounsel.org/the-salton-sea/). (Attachment 2)

2019

The Salton Sea

A Guide for the Advancement of Public Health, Climate Resilience, and Community Engagement

PREPARED BY

Leadership Counsel for Justice and Accountability

Objectives for Salton Sea Rehabilitation and Climate Resilience in the Eastern Coachella Valley:

- Ensure meaningful community engagement in Salton Sea management, mitigation, and planning and implementation of programs and projects.
- Ensure effective and fair implementation of the Salton Sea Management Plan (SSMP), including strong dust mitigation projects and vegetation/habitat projects that provide dust suppression and further public health.
- Implement and invest in programs and projects that fall beyond the SSMP but respond to the needs, opportunities, and priorities of Eastern Coachella Valley (ECV) communities.
- Build on air quality and other climate resilient efforts to drive investments to the Eastern Coachella Valley (Coachella, Thermal, Oasis, Mecca, and North Shore) that will provide public health benefits and further climate resilience.
- Ensure that all Salton Sea investments (local and regional, including tax increment financing and bonds) further fairness and equitable access to investments and community benefits.
- Increase collaboration with local, regional, and statewide partners working on Salton Sea rehabilitation. Elevate community engagement work and help guide better inter-agency and cross-sector engagement at the community level.

Priorities and Objectives:

OBJECTIVE 1: Establish an enhanced community engagement process.

- Sustain meaningful community engagement in Salton Sea management planning and implementation efforts. Not only must residents living in the Eastern Coachella Valley be updated regularly (on SSMP modifications, SSMP implementation, investment opportunities, and other Salton Sea mitigation and management decisions and activities), but community leaders and community-based organizations must also inform and help drive Salton Sea planning and implementation efforts and priorities.

OBJECTIVE 2: Implement effective dust mitigation and public health enhancing projects through Salton Sea management activities including and beyond effective SSMP implementation.

- Ensure SSMP implementation includes significant investments in projects and programs designed to provide a direct, meaningful, and assured benefit to existing communities. Currently, the projects identified in the SSMP are primarily focused on providing sustainable habitat to endangered fish and bird species that rely on the Salton Sea to survive. While many vegetation and habitat projects will provide dust mitigation, such benefits are largely secondary. Public health goals should be a primary focus of SSMP implementation. ECV residents deserve a plan that prioritizes their health and well-being.

- Develop and implement a suite of projects and programs that address community public health priorities and fall beyond the scope of the SSMP. Projects and programs should include projects on the northern end of the Sea.
    - Implement an expansive regulatory air monitoring system across the Coachella Valley and around the Salton Sea. Work with a diverse group of stakeholders working on air monitoring to create a broad network that can monitor pollutants emitting from the Sea and Playa. AB 617 implementation can support this work.
    - Work with community organizations, agencies, and academic institutions to advance research initiatives on asthma and other respiratory illnesses in the ECV.
    - Implement TCC projects that can provide urban greening and vegetation near the Sea, and other mitigation projects in the communities most impacted by Salton Sea emissions.
    - Prioritize implementation projects that have been identified by community residents in the Regional and Neighborhood Mobility Plan for the Eastern Coachella Valley and the Climate Resilience Action Plan for the Eastern Coachella Valley.

OBJECTIVE 3: Integrate Salton Sea programs and projects that further public health climate resilience, air quality, and environmental justice programs and investment projects in the Eastern Coachella Valley.

- Funds allocated for Salton Sea restoration and mitigation should be flexible and available to deliver climate resilient projects that community members have identified and recommended.
- State, regional and local agencies should implement programs and projects identified in mobility plans, TCC, AB 617, and other efforts designed to further climate resilience and public health that also address Salton Sea mitigation and restoration. This includes projects and programs that can help improve air quality, public health, and provide urban greening around the Sea. Projects at the Sea should provide climate resilient infrastructure, recreational opportunities intended for local residents, and other amenities that residents need.
- Opportunity areas and programs include:
    - AB 617 Implementation:
        - Status: SCAQMD recommended ECV for year 2 selection for both an air monitoring system and an emission reduction plan. Final selections will be made by CARB in December 2019.
        - This program will help increase our data supply for air pollution in the ECV. A CERP will help plan for and identify emission reduction projects at the local level.

- Transformative Climate Communities:
    - Status: The Climate Resilience Action Plan was finalized in September 2019. This Plan provides a blueprint and will guide investments in the ECV designed to further climate resilience. Priority projects include affordable housing, renewable energy, and urban greening.
    - SB 351 was signed by Governor Newsom in October 2019 which expands eligibility to unincorporated communities for TCC implementation grants.

Objective 4: Salton Sea investments (local and regional, including tax increment and bonds) must further fairness and equitable access to investments for community benefits.

- North Lake Project:
    - Identify project goals, public health benefits, funding mechanism, and timeline for implementation. This information should be shared with community residents. Ensure that these processes include community input, prioritization, and a transparent community engagement strategy.
    - North Lake Project implementation and investments should secure meaningful benefits for existing communities
- Bonds:
    - Proposition 64:
        - $5.3 million in marijuana tax revenues are available for a new Youth Community Access Grant Program. Program can support youth access to natural or cultural resources, with a focus on low-income and disadvantaged communities for positive programming and discourage substance use. This includes but is not limited to community education and recreational amenities.
    - Proposition 68:
        - Proposition 68 authorized $4 billion in general obligation funds for state and local parks, environmental protection and restoration projects, water infrastructure projects, and flood protection projects.
        - $200 million bond allocation for Salton Sea. $30M budgeted for 2018- 19.
        - Proposition 68 funding that's specifically allocated for the Salton Sea should be made flexible and available for projects that can help advance community benefits and mitigation measures from Salton Sea pollution.
    - Current Bond Negotiations
        - Current negotiations are underway for a climate resilience bond. Bond language should include Salton Sea investments that support community engaged planning and projects and programs that further public health and align with community-identified priorities.

- Enhanced Infrastructure Financing District
    - Agencies responsible for developing and implementing the EIFD should establish a clear direction and timeline that allows for community engagement and ensures full transparency.
    - Revenue procured should be directed to projects and programs that advance public health and climate resilience for existing communities in the ECV and impacted by the Salton Sea.
    - The Public Financing Authority should include at least two board positions for residents of the ECV.
    - EIFD hearings and workshops should be held during accessible times for the community and noticed appropriately and extensively to the community.

Objective 5: Increase collaboration with local, regional, and statewide partners and agencies.

- We should all work to increase our collaboration with stakeholder agencies and organizations to maintain the momentum of the SSMP implementation and complementary projects in the surrounding communities.
- Local partnerships should include non-profit and community-based organizations, including those working outside environmental justice issues that can contribute; technical experts and academic institutions that can help translate scientific discovery into action; and community residents as an integral partner in all of these coalition conversations.
- Regional partnerships should include Riverside County, Imperial Irrigation District, South Coast AQMD, Public Health, CVWD, Torres Martinez, and other entities that have a stake in the Sea and, collectively, power to help propel informed initiatives and priorities.
- Local stakeholders should continue to build and strengthen partnerships with state representatives and state agencies committed to creating a health Salton Sea and resilient region, including CNRA, DWR, SWRCB, CARB, and EPA.
- Collaborative efforts should be centered around community benefits, health, and development and must include partners with a more localized approach on environmental impacts, restoration, and conservation. Our collective approach shall be holistic and intersectional aimed at achieving the community's vision of a healthy and vibrant Salton Sea region.

CHAPTER 10
CLIMATE AND AIR QUALITY

This chapter describes the regional climate and air quality of the Salton Sea watershed. This chapter is based upon readily available information at the time of preparation. In addition to a description of existing climate and air quality conditions in the study area, applicable regulatory requirements, significance criteria, sources of data, and data limitations are discussed. This chapter describes the methods used for assessment of the climate and air quality related environmental consequences associated with the alternatives. The results of those assessments and the significance of the identified impacts are discussed, and applicable control and mitigation measures are listed. Issues that would need to be further analyzed in project-level analyses are discussed, and recommended "Next Steps" are listed. Appendix E, Attachments E1 through E12, and Appendix H-3 provide supporting documentation.

STUDY AREA

In California, regional air pollution control districts have been established to oversee the attainment of air quality standards within air basins, as defined by the State. The districts have permitting authority over all stationary sources of air pollutants within their district boundaries, and provide the primary review of environmental documents prepared for projects with air quality issues.

Each district has developed its own program and regulations to attain and maintain air quality standards, while integrating federal and State requirements. The following is a list of the air basins and the air districts associated with the geographic areas in the Salton Sea watershed:

- Air Basins in the U.S. Portion of the Salton Sea watershed are under the jurisdiction of several local agencies: Imperial County Air Pollution Control District (ICAPCD), South Coast Air Quality Management District (SCAQMD), San Diego Air Pollution Control District (SDAPCD), and Mojave Desert Air Quality Management District (MDAQMD); and
- The Mexico portion of the Salton Sea watershed is under the jurisdiction of the Secretaría del Medio Ambiente y Recursos Naturales (SEMARNAT), the Mexican environmental agency (DOE and BLM, 2004).

The primary air quality impacts associated with construction and operations and maintenance of the ecosystem restoration alternatives would occur in the Salton Sea Air Basin. The Salton Sea Air Basin portion of the Salton Sea watershed consists of the Riverside County (Coachella Valley) area at the north end of the Salton Sea, which is under SCAQMD jurisdiction, and to the south, Imperial County, under ICAPCD jurisdiction. The remainder of this chapter will focus on the Salton Sea Air Basin, with much less discussion of climate, air quality, or impacts for the peripheral areas under MDAQMD, SDAPCD, and Mexican jurisdiction.

Figure 10-1 shows the location of each geographic subregion with respect to air basin, air district, and political boundaries.

REGULATORY REQUIREMENTS

Federal Regulations and Standards

National air quality policies are regulated through the federal Clean Air Act (CAA) of 1970 and the 1977 and 1990 amendments. Pursuant to the CAA, the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for six air pollutants: carbon monoxide

(CO), ozone, oxides of nitrogen as nitrogen dioxide (NO_2), oxides of sulfur as sulfur dioxide (SO_2), particulate matter (PM), and lead. These pollutants are referred to as criteria pollutants because numerical health based criteria have been established for each pollutant, which define acceptable levels of exposure. USEPA has revised the NAAQS several times since their original implementation and will continue to do so as the health effects of exposure to pollution are better understood. The current NAAQS, and the California ambient air quality standards (CAAQS), are summarized in Table 10-1. CAAQS are established by the California Air Resources Board (ARB).

Table 10-1
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
			Primary[c]	Secondary[d]
Ozone	8 hour 1 hour	0.07 ppm 0.09 ppm	0.08 ppm	0.08 ppm
Carbon monoxide	8 hour 1 hour	9.0 ppm 20 ppm	9 ppm 35 ppm	— —
Nitrogen dioxide	Annual arithmetic mean 1 hour	— 0.25 ppm	0.053 ppm —	0.053 ppm —
Sulfur dioxide	Annual arithmetic mean 24 hour 3 hour 1 hour	— 0.04 ppm — 0.25 ppm	0.030 ppm 0.14 ppm — —	— — 0.5 ppm —
PM_{10}	Annual arithmetic mean 24 hour	20 µg/m^3 50 µg/m^3	50 µg/m^3 150 µg/m^3	50 µg/m^3 150 µg/m^3
$PM_{2.5}$	Annual arithmetic mean 24 hour	12 µg/m^3 —	15 µg/m^3 65 µg/m^3	15 µg/m^3 65 µg/m^3
Sulfates	24 hour	25 µg/m^3	—	—
Lead	30-day average calendar quarter	1.5 µg/m^3 —	— 1.5 µg/m^3	— 1.5 µg/m^3
Hydrogen sulfide	1 hour	0.03 ppm	—	—
Vinyl chloride	24 hour	0.01 ppm	—	—
Visibility reducing particles	8 hour	See note[e]	—	—

Source: ARB, 2005.

[a] California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] National standards, other than ozone, particulate matter, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days/calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[e] Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

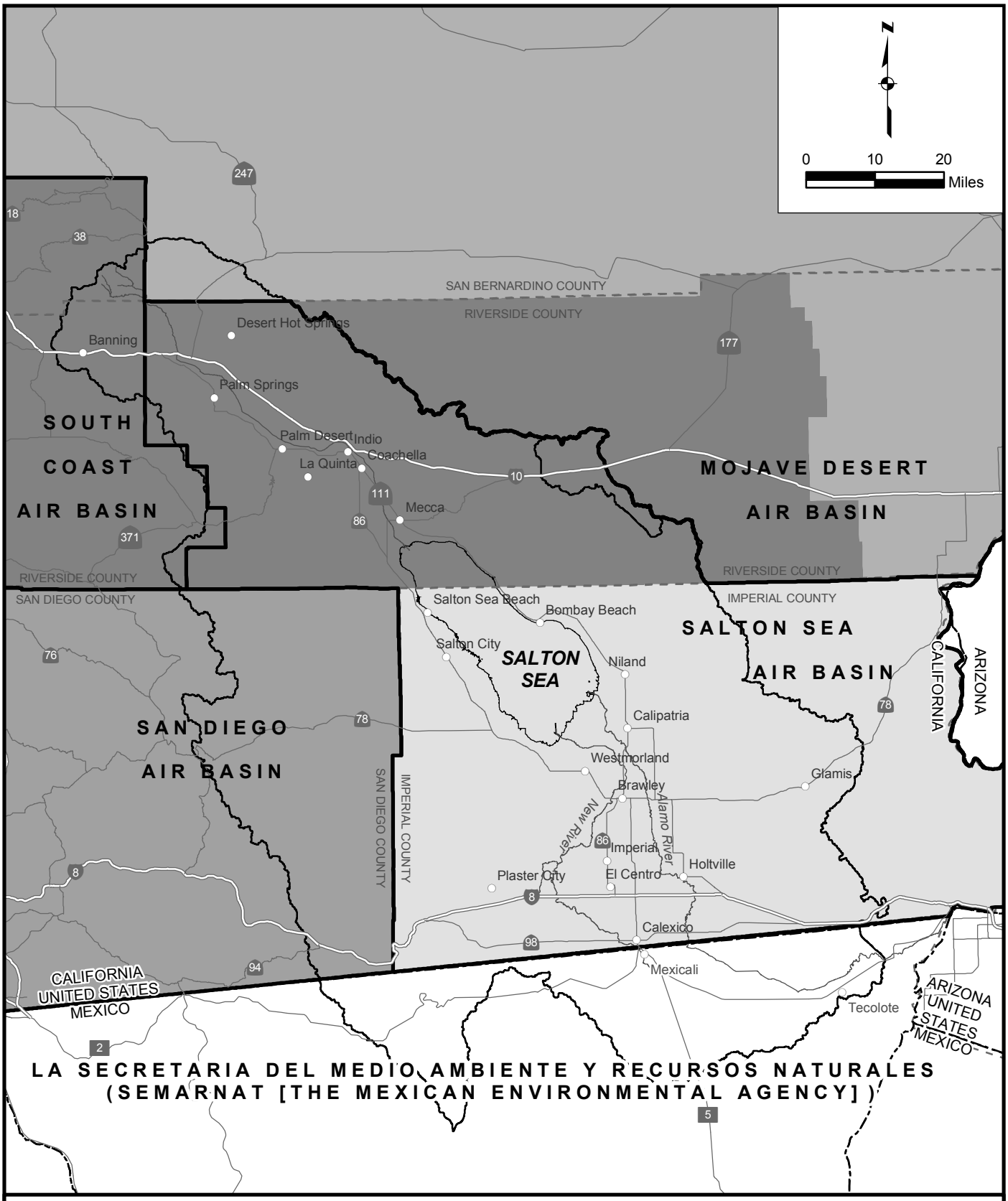
µg/m^3 = micrograms/cubic meter

ppm = parts per million (by volume).

The standards in Table 10-1 reflect recent changes to the ozone and PM_{10} standards, and the new $PM_{2.5}$ standard (ARB, 2005). The existing federal 1-hour ozone standard was formally revoked in June 2005 (USEPA, 2005a).

Federal Air Quality Designations

Under the 1977 amendments to the CAA, states with air quality that did not achieve the NAAQS were required to develop and maintain state implementation plans (SIPs). These plans constitute a federally



LEGEND

Air Districts
- Imperial County APCD
- Mojave Desert AQMD
- San Diego APCD
- South Coast AQMD
- Air Basin Boundary
- Salton Sea
- Salton Sea Watershed
- Towns and Cities
- County Boundary
- Interstate Highway
- Regional Highway

FIGURE 10-1
AIR BASIN BOUNDARIES AND REGULATORY AGENCY JURISDICTIONS IN THE SALTON SEA AREA

enforceable definition of the state's approach (or "plan") and schedule for the attainment of the NAAQS. Air quality management areas are designated as attainment, nonattainment, or unclassified for individual pollutants depending on whether they achieve the applicable NAAQS and CAAQS for each pollutant. In addition, California can also designate areas as transitional. It is important to note that because the NAAQS and CAAQS differ in many cases, it is possible for an area to be designated as attainment by USEPA (meets the NAAQS) and nonattainment by the ARB (does not meet the CAAQS) for the same pollutant. Also, an area can be designated as attainment for one pollutant (for example, NO_2) and nonattainment for others (for example, ozone and PM_{10}).

Areas that were designated as nonattainment in the past, but have since achieved the NAAQS, are further classified as attainment-maintenance. The maintenance classification remains in effect for 20 years from the date that the area is determined by USEPA to meet the NAAQS. There are numerous classifications of the nonattainment designation, depending on the severity of nonattainment. For example, the ozone nonattainment designation has seven subclasses: basic, transitional, marginal, moderate, serious, severe-15, severe-17, and extreme. Areas that lack monitoring data are designated as unclassified areas. Unclassified areas are treated as attainment areas for regulatory purposes. Current air quality attainment status designations for each county composing the study area are listed and discussed in a later subsection.

Federal General Conformity Requirements

The CAA (1977 amendments) (42 USC 7401 et seq.) state that the federal government is prohibited from engaging in, supporting, providing financial assistance for, licensing, permitting, or approving any activity that does not conform to an applicable SIP.

In the 1990 CAA amendments, USEPA included provisions requiring federal agencies to ensure that actions undertaken in nonattainment or attainment-maintenance areas are consistent with applicable SIPs. The process of determining whether a federal action is consistent with applicable SIPs is called conformity.

These conformity provisions were put in place to ensure that federal agencies would contribute to efforts to attain the NAAQS. The USEPA has issued two conformity guidelines: (1) transportation conformity rules that apply to transportation plans and projects and (2) general conformity rules that apply to all other federal actions. A conformity determination[1] is only required for the alternative that is ultimately selected and approved. The general conformity determination is submitted in the form of a written finding, issued after a minimum 30-day public comment period on the draft determination.

The USEPA General Conformity Rule applies only to federal actions that result in emissions of "nonattainment or maintenance pollutants," or their precursors, in federally designated nonattainment or maintenance areas. The General Conformity Rule establishes a process to demonstrate that federal actions would be consistent with applicable SIPs and would not cause or contribute to new violations of the NAAQS, increase the frequency or severity of existing violations of the NAAQS, or delay the timely attainment of the NAAQS. The emission thresholds that trigger requirements of the conformity rule for federal actions emitting nonattainment or maintenance pollutants, or their precursors, are called *de minimis* levels. The general conformity *de minimis* thresholds are defined in 40 Code of Federal Regulations (CFR) 93.153(b).

The federal General Conformity Rule does not apply to federal actions in areas designated as nonattainment of only the CAAQS.

[1] A conformity determination is a process that demonstrates how an action would conform to the applicable implementation plan. If the emissions cannot be reduced sufficiently, and if air dispersion modeling cannot demonstrate conformity, then either a plan for mitigating or a plan for offsetting the emissions would need to be pursued.

Federal Prevention of Significant Deterioration and New Source Performance Standards

The CAA and amendments also include regulations intended to "prevent significant deterioration" (PSD) of air quality and to establish emissions performance standards for new stationary sources or New Source Performance Standards (NSPSs). Federal PSD and NSPS regulations generally apply to major (very large) stationary sources of emissions, and would not likely apply to the alternatives.

California Standards and Regulations

ARB administers the air quality policy in California. CAAQS were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 10-1, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility-reducing particulates, hydrogen sulfide, and sulfates. The California Clean Air Act (CCAA), which was approved in 1988, requires each local air district in the State to prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for preparation of the SIP for the State of California. The California Ozone SIP (ARB, 1994) was approved by the USEPA in September 1996 and codified as law in 40 CFR 52, Subpart F.

ARB establishes policy and statewide standards and administers the State's mobile source emissions control program. In addition, ARB oversees air quality programs established by State statute.

Local Regulations and Requirements

In California, regional air pollution control districts have been established to oversee the attainment of air quality standards within air basins, as defined by the State. The districts have permitting authority over all stationary sources of air pollutants within their district boundaries, and act as the primary reviewer of environmental documents associated with air quality issues.

The Salton Sea Air Basin consists of the Riverside County (Coachella Valley) area at the north end of the Salton Sea, which is under SCAQMD jurisdiction, and to the south, Imperial County, under ICAPCD jurisdiction. Each district has developed its own program and regulations to attain and maintain air quality standards, while integrating federal and State requirements. For example, as serious nonattainment areas for national PM_{10} standards, SCAQMD and ICAPCD have adopted regulations that represent Best Available Control Measures, or most stringent measures, for significant sources of fugitive dust. In addition, the air districts in the Salton Sea Air Basin have developed specific air quality guidelines and criteria for compliance with the California Environmental Quality Act (CEQA) (SCAQMD, 1993; ICAPCD, 2005d).

HISTORICAL PERSPECTIVE

In 1917, George Kennan published a book titled, *The Salton Sea, An Account of Harriman's Fight with the Colorado River*. In it, Mr. Kennan provides valuable perspective on the climate and air quality of the Salton Sea area, prior to the Colorado River flood that filled the Salton Sink in 1905 and 1906, forming the Salton Sea.

> "…Sixteen years ago, the region whose productivity now rivals that of the lower Nile was the dried-up bottom of an ancient sea. It was seldom sprinkled by rain; it was scorched by sunshine of almost equatorial intensity, and during the summer months its mirage-haunted air was frequently heated to a temperature of 120 degrees. The greater part of it lay far below the level of the sea; nearly all of it was destitute of water and vegetation; furious dust and sand storms swept across it, and it was regarded, by all the

> early explorers of the Southwest, as perhaps the dreariest and most forbidding desert on the North American continent…"

The flood that formed the Salton Sea was stopped, and the Colorado River returned to its natural channel, in 1906. The irrigation and development of the Imperial Valley recovered, and the irrigated areas expanded, while the newly formed Salton Sea began to evaporate. Irrigated agriculture transformed the desert, and influenced the climate and microclimate of the areas immediately adjacent to the irrigated areas and the Salton Sea, affecting humidity and temperature. Air pollutant emissions from sources such as internal combustion engines and agricultural operations increased as the area underwent development, and cities grew. Dust storms from surrounding desert areas also continued to occur from time to time.

DATA SOURCES

Ambient air quality data used in the air quality impact assessment were obtained from ICAPCD, SCAQMD, USEPA Air Quality System (AQS), and the U.S. Department of the Interior, Geological Survey (USGS). Meteorological data were obtained from the above agencies, as well as the National Weather Service, the National Climatic Data Center, and the California Department of Water Resources' California Irrigation Management Information System (CIMIS). Preliminary draft wind tunnel test results and other data from sampling of sites at the Salton Sea were obtained from Desert Research Institute (DRI) (see Appendix E, Attachment E3). A summary of the data collected to support this effort is provided in Appendix E, Attachment E8.

DATA LIMITATIONS

While data are available at a number of aerometric monitoring locations in the Salton Sea area, limited data are available from the immediate vicinity of Salton Sea. The only stations along the shore are CIMIS stations, where only meteorological data are collected. Because the CIMIS program is operated to support the agricultural irrigation system, data are collected close to the surface, with the wind measurements taken at a height of 2 meters.[2] Wind data used to assist in the evaluation of air quality impacts are generally taken at a height of 10 meters, to avoid surface influences. Additional limitations include the availability of consistent and complete data sets and quality control information. Use of these data requires careful evaluation to make sure that the information is available, complete, and accurate. Other limitations of the data used in this study are discussed later in this chapter, in the subsection on Environmental Consequences.

EXISTING CONDITIONS

The Existing Conditions described in the PEIR are based on data available through 2005, because complete data for 2006 are not yet available. The pollutants of greatest concern in the Salton Sea Air Basin are ozone and the ozone precursors, nitrogen oxides (NO_x) and volatile organic compounds (VOCs)[3], primarily from vehicle and equipment exhaust, and particulate matter (PM_{10} and $PM_{2.5}$) from soil disturbance and wind erosion (fugitive dust). Agricultural operations and transport of pollutants from Mexico also contribute to air quality issues in the area.

[2] The height of meteorological monitoring stations above ground surface is designated in metric units. Two meters is about 6.6 feet and 10 meters is about 32.8 feet.

[3] The terms VOC (volatile organic compounds), hydrocarbons (HC), and ROG (reactive organic gases) are used synonymously in this document.

Climate and Meteorological Conditions

The climate of the Salton Sea Air Basin area is typical of a desert regime, with large daily and seasonal fluctuations in temperature and relatively high annual average temperatures. High temperatures frequently exceed 100 degrees Fahrenheit (°F) for the summer months. During the winter, temperatures can drop to near freezing (and below freezing at higher elevations). Throughout the year, average daily relative humidity is low, as are average rainfall values. These meteorological data are listed in Table 10-2, which provides data for 2005 for the CIMIS meteorological stations overseen in the Imperial/Coachella Valley region by the Office of Water Use Efficiency (OWUE), California Department of Water Resources (DWR).

Table 10-2
Meteorological Data for the Imperial/Coachella Valley Region (2005)

Station		Temperature (°F)			Relative Humidity (%)			Rain (inches)	Wind (mph)	
CIMIS Number	Name	Max	Min	Avg	Max	Min	Avg		Avg	Max
41	Calipatria/Mulberry	117.1	25.4	70.8	100	0	53.0	13.89	4.55	28.1
68	Seeley	116.9	28.5	73.4	100	6	50.8	4.15	5.08	25.3
87	Meloland	116.2	31.6	72.6	97	9	49.3	3.02	5.19	25.1
118	Cathedral City	112.3	37.4	71.7	100	8	47.5	0.0	6.07	24.9
127	Salton Sea West	112.7	37.4	75.5	100	0	44.3	NA	5.63	26
128	Salton Sea East	116.5	30.5	73.3	100	9	62.1	NA	5.78	32.9
135	Blythe NE	115.8	33.3	72.9	99	6	46.8	0	3.20	14.1
136	Oasis	116.7	38.1	74.3	100	7	49.8	5.64	4.50	24
151	Ripley	115.8	33.3	72.9	99	6	46.79	0	3.20	14.1
162	Indio	120.3	35.8	74.6	95	4	36.7	NA	6.88	22
175	Palo Verde II	112.8	20.5	69.1	100	10	56.8	3.06	4.34	20.3
176	La Quinta	115.8	33.3	72.9	99	6	46.8	0	3.20	14.1
186	UC San Luise	115.8	33.3	72.9	99	6	46.8	0	3.20	14.1

Source: California Irrigation Management Information System (CIMIS) meteorological stations overseen in the Imperial/Coachella Valley region by DWR, http://wwwcimis.water.ca.gov/cimis/.

Note: Period of Record – January 2005 through December 2005.

Avg = average
Max = maximum
Min = minimum
NA = not available

Discussion of meteorological conditions for the Salton Sea Air Basin was obtained from the Imperial County General Plan (County of Imperial, 1993a). Temperature patterns are similar throughout the Salton Sea Air Basin. The climatic condition of the area is governed by large scale warming and sinking of air in the semi-permanent subtropical high-pressure center over the Pacific Ocean. The high-pressure ridge blocks most mid-latitude storms, except in the winter when the high-pressure ridge is weakest and farthest south. The coastal mountains prevent the intrusion of the cool, damp air found in the California coastal regions (IID, 1994).

The flat terrain and strong temperature differentials created by intense heating and cooling patterns produce moderate winds and deep thermal circulation systems. Thus, even though the summers are hot, the general dispersion of local air pollution is greater than in the coastal basins where polluted inversion layers may remain for long periods (IID, 1994).

Daily temperature fluctuations and seasonal variations are generally extreme. Clear skies and rapid heating and cooling of desert soils create high temperatures by day and quick cooling by night. Daily temperatures range from the mid-40s to low-70 °F during winter, and from the low-70s to mid-100s degrees F during summer. The average annual rainfall is about 3 inches, and the average annual air temperature is about 72 °F (IID, 1994).

Microclimate

Near the shore of the Salton Sea, the large body of water moderates the extreme desert climate by creating its own local climate or microclimate. The most notable features of the local microclimate is the Salton Sea's moderating effect on temperature and the creation of localized wind patterns, or lake breezes, caused by the differential heating of the land and water surface.

The Salton Sea also has a seasonal effect on local temperature. Large lakes such as the Salton Sea can retain heat during the cooler months of the year, and influence near shore temperatures. Conversely, the Salton Sea causes a slight cooling effect near shore during warmer months. This moderating effect on temperature occurs even without the aid of the more noticeable lake breeze effect. Productive farmland nearest the shoreline can benefit from the moderating effects of temperature, which can extend growing seasons.

Lake breezes are produced from the differential heating of land and water surfaces and are more pronounced near large water bodies, such as the Salton Sea, that have marked temperature differences compared to the adjacent land. Onshore breezes are created during the day when the land heats more quickly than the adjacent water surface, causing the air over the land to rise and cooler air over the water to move in over the land. At night, the circulation is reversed as the water retains heat while the land cools quickly. Because the temperature differences between the water and land surfaces are what drive the lake breeze circulation, winds are typically strongest during the day close to the shoreline and diminish with distance inland. Through the diurnal lake breeze circulation, a pronounced effect on temperatures near the shoreline can be experienced as cooler air moves onshore during the day.

Local meteorological parameters other than temperature and wind are also affected by the Salton Sea, although their effect on the local climate is less evident.

Regional Wind Patterns

Wind patterns in the Salton Sea area are strongly influenced by topographic features. The Salton Sea is oriented northwest to southeast as a result of major terrain features. The Santa Rosa Mountains to the west run northwest to southeast along and beyond the western side of Salton Sea. The Chocolate Mountains to the east run northwest to southeast on the eastern side of the lake about halfway down the length of Salton Sea. Lesser mountains continue on the eastern edge of the Salton Sea. These terrain features form barriers to air flow and affect the climate and the winds in the area.

Consistent with these terrain features, the Coachella Valley to the northwest and the Imperial Valley to the southeast have an influence on winds in the area as well as the Salton Sea itself. In the absence of strong frontal systems or strong gradients between high and low pressure areas, which would generate a regionally dominant wind direction, winds from the Coachella Valley and Imperial Valley are likely to converge in the vicinity of the Salton Sea, creating complex airflow patterns. As a consequence, winds over the southeastern part of Salton Sea tend to differ from those over the northern part of the Salton Sea.

Because of the dynamics established by the various mountains, valleys, and the water surface, and in response to intense summer time heating, wind conditions vary significantly over short distances at the Salton Sea. Consequently, those stations closest to the Salton Sea were used in this evaluation.

Figures 10-2 and 10-3 present composite annual wind roses for the Indio and Niland stations, respectively. The locations of these stations are illustrated in Figure 10-4.

Meteorological Monitoring Stations

Meteorological monitoring stations in the vicinity of the Salton Sea are operated by the SCAQMD in Riverside County to the north of the Salton Sea, and by the ICAPCD to the south of the Salton Sea. The air districts operate monitoring stations to support the management of air quality in their districts. As such, monitoring stations in these networks are sited and operated consistent with stringent quality guidelines developed by the USEPA.

Meteorological stations are operated at a measurement height of 10 meters to measure unobstructed wind flow, consistent with USEPA requirements. Additional meteorological monitoring stations in the Salton Sea Air Basin are operated by DWR through CIMIS. Because the CIMIS stations are operated for purposes related to irrigation and agriculture, data are collected at a height of 2 meters to better measure evaporation rates. Data collected at 2 meters are not consistent with USEPA monitoring requirements and may reflect surface influences. Data from the existing 10-meter stations are preferred for use in air quality impact analyses, to be consistent with USEPA guidelines. In addition, DWR has recently installed and is currently operating 10-meter stations at two of the CIMIS locations. The desired outcome is to establish a relationship between the 2- and 10-meter measurements, which would allow better use of the data collected at other CIMIS locations.

As indicated previously, Figure 10-4 shows the monitoring stations in the Salton Sea area. For purposes of characterizing conditions near the Salton Sea, wind data from the air districts collected at Indio to the north, and Niland to the south, are considered most representative of the study area. However, the air districts do not collect precipitation and other hydrologic data. The CIMIS stations do not all collect precipitation data. Consequently, precipitation data from the Oasis station to the north, the Westmorland West (through 2003) and Westmorland North (after 2003) stations to the south, and the Calipatria station to the southeast are considered part of the most relevant available data set.

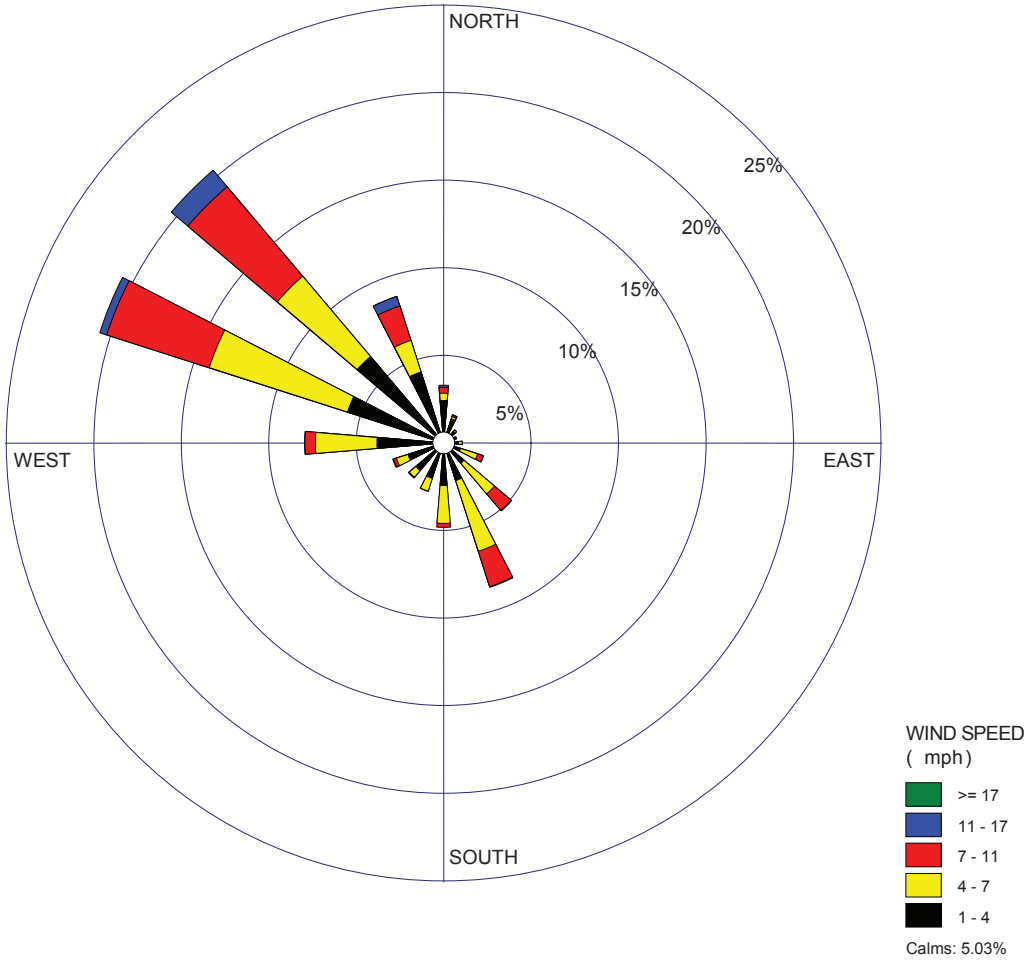
Ambient Air Quality Monitoring Data

Numerous air quality monitoring stations are located throughout the study area region of influence. Monitoring stations are operated and maintained by local air districts. Imperial County operates and maintains air quality monitoring stations in Brawley, Calexico (3), El Centro, Niland, and Westmorland. Riverside County operates and maintains air quality monitoring stations in the Coachella Valley in Indio and Palm Springs (see Figure 10-4).

Ozone

Ozone air quality monitoring data from 1998 through 2005 for monitoring stations in Imperial and Riverside Counties are summarized in Table 10-3. There are several monitoring stations located within Imperial County. Three ICAPCD stations near the Salton Sea, El Centro – 9th Street, Niland – English Road, and Westmorland – West 1st Street, were chosen to represent ambient ozone air quality conditions in the study area. Two monitoring stations located northwest of the Salton Sea in Riverside County were chosen to represent the background air conditions: the Indio – Jackson Street and the Palm Springs – Fire Station monitoring stations. Although the Palm Springs monitoring station is located at the northwest end of the Salton Sea Air Basin, air is channeled from the area surrounding the monitoring station through the mountains into the immediate Salton Sea vicinity.

WIND ROSE PLOT:	DISPLAY:
Indio Composite Windrose Year 2001, 2002, 2003 and 2004	Wind Speed Direction (blowing from)



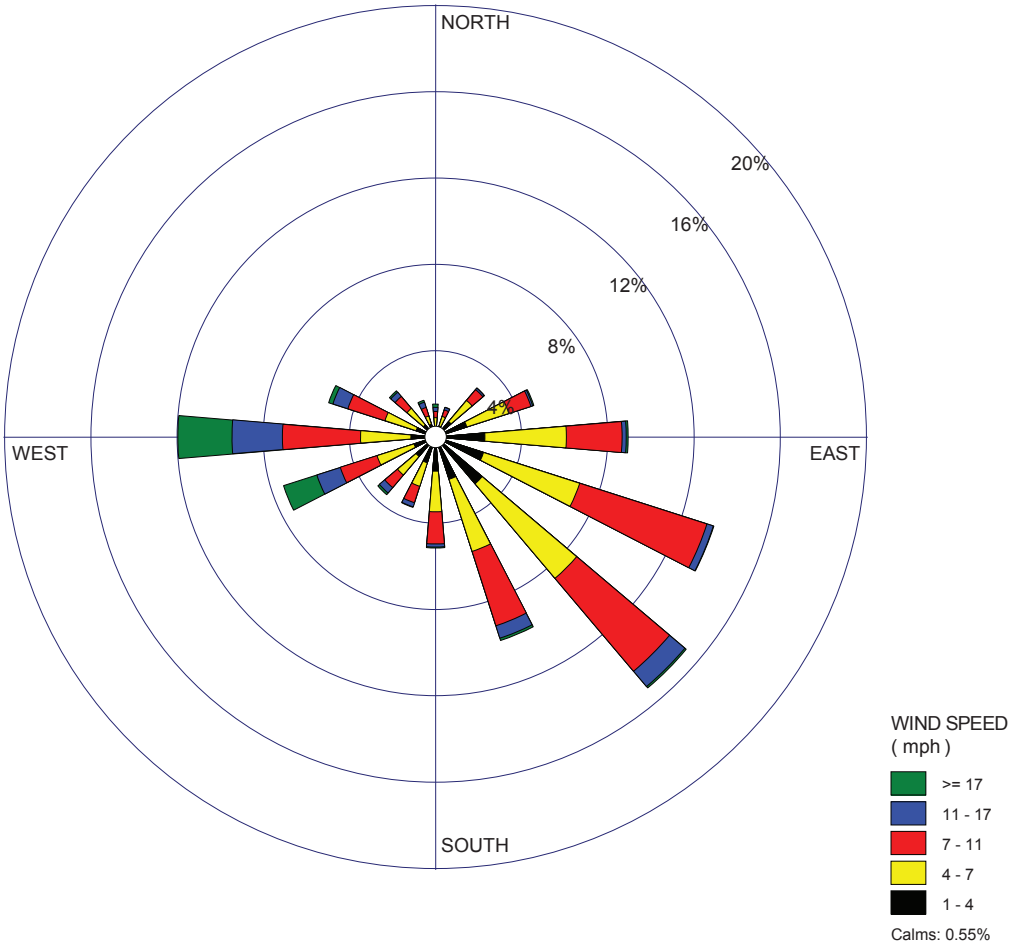
COMMENTS:	DATA PERIOD:	
	2001 2001 2002 2004 Jan 1 - Dec 31 00:00 - 23:00	
	CALM WINDS:	TOTAL COUNT:
	5.03%	32307 hrs.
	AVG. WIND SPEED:	DATE:
	4.50 mph	7/3/2006

WRPLOT View - Lakes Environmental Software

FIGURE 10-2
COMPOSITE ANNUAL WIND ROSE FOR INDIO 10-METER METEROLOGICAL DATA

ES112005003SAC figure_10_2.ai 07/05/06 tdaus

WIND ROSE PLOT:	DISPLAY:
Niland Composite Windrose Year 2001, 2002 and 2004	Wind Speed Direction (blowing from)

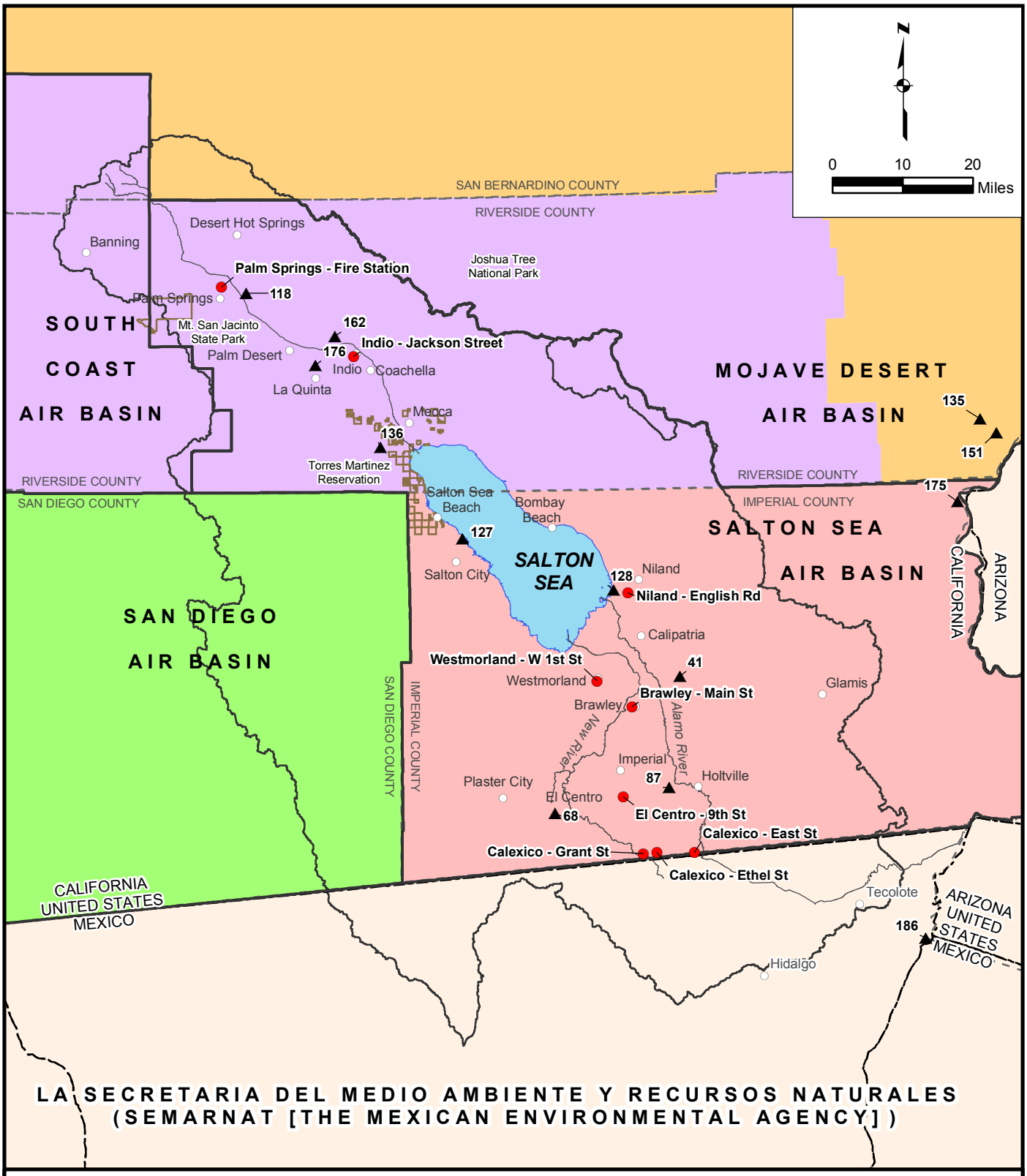


COMMENTS:	DATA PERIOD:	
	2001 2002 2004 Jan 1 - Dec 31 00:00 - 23:00	
	CALM WINDS:	TOTAL COUNT:
	0.55%	25338 hrs.
	AVG. WIND SPEED:	DATE:
	7.06 mph	7/3/2006

WRPLOT View - Lakes Environmental Software

FIGURE 10-3
COMPOSITE ANNUAL WIND ROSE FOR NILAND 10-METER METEROLOGICAL DATA

ES112005003SAC figure_10_3.ai 07/05/06 tdaus



LEGEND

- CARB Monitoring Stations
- CIMIS Monitoring Stations

Air Districts

- Imperial County APCD
- Mojave Desert AQMD
- San Diego APCD
- South Coast AQMD
- Air Basin Boundary
- National and State Park Service Boundaries
- Salton Sea
- Salton Sea Watershed
- Towns and Cities
- County Boundary
- Interstate Highway
- Regional Highway

FIGURE 10-4
MONITORING STATION LOCATIONS IN THE SALTON SEA AREA

Table 10-3
Ozone Data Summary for Monitoring Stations in Imperial and Riverside Counties, 1998-2005

Year	Number of Days Standard Exceeded			Ozone Concentrations in ppm				
				1-hour			8-hour	
	State 1-hour	Federal 1-hour	Federal 8-hour	Maximum	3-Year 4th High	EPDC	Maximum	3-Year Average 4th High
CAAQS	—	—	—	—	—	—	0.090	—
NAAQS	—	—	—	—	0.120	—	—	0.080
Imperial County								
2005	11	0	10	0.122	0.121	0.097	0.084	0.115
2004	6	0	0	0.109	0.118	0.083	0.085	0.119
2003	19	2	8	0.144	0.127	0.092	0.087	0.125
2002	19	0	9	0.122	0.116	0.098	0.086	0.121
2001	13	2	2	0.135	0.142	0.086	NA	0.123
2000	NA	NA	NA	NA	NA	NA	NA	NA
1999	24	10	7	0.145	0.142	0.107	0.092	0.129
1998	12	1	8	0.13	0.13	0.100	0.092	0.135
Riverside County								
2005	41	4	35	0.139	0.13	0.116	0.104	0.13
2004	36	1	32	0.125	0.131	0.106	0.104	0.131
2003	54	4	43	0.141	0.133	0.11	0.108	0.135
2002	49	2	46	0.136	0.132	0.124	0.105	0.134
2001	53	6	39	0.137	0.128	0.113	0.1	0.13
2000	40	0	28	0.124	0.133	0.104	0.099	0.138
1999	27	1	20	0.126	0.143	0.107	0.1	0.143
1998	40	8	30	0.173	0.155	0.136	0.107	0.153

Source: ARB, 2006b.
Note:
Data for Imperial County is the maximum value from the El Centro, Niland, and Westmorland monitoring stations.
Data for Riverside County is the maximum value for the Indio and Palm Springs monitoring stations.
EPDC = expected peak day concentration
NA = data not available

Imperial County is a federal and State nonattainment area for ozone. As previously indicated, the new federal 8-hour ozone standards were promulgated by USEPA on July 18, 1997. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The increased stringency of the new 8-hour federal ozone standard is shown by the increased number of days during which this standard would have been exceeded relative to the 1-hour ozone standard. The State ozone standard, which is more stringent, was exceeded more frequently than the federal 8-hour standard. The State standard was violated most frequently in Riverside County at the Palm Springs monitoring station. Violations in Imperial County are less frequent, and most often occur at the El Centro station.

PM_{10}

PM_{10} air quality monitoring data from 1998 through 2005 are summarized in Table 10-4. There are several PM_{10} monitoring stations located within the Imperial County. Located near the Salton Sea, the El Centro – 9th Street Station, Niland – English Road Station, Westmorland – West 1st Street Station, and the Brawley – Main Street Station were chosen to represent ambient PM_{10} air quality conditions in the Salton Sea Air Basin study area. Only part of the Salton Sea Air Basin is located in Riverside County; again, two stations located northwest of the Salton Sea were chosen to represent the background air conditions, the Indio – Jackson Street Station and the Palm Springs – Fire Station monitoring station. The maximum values from any station within the county are reported in Table 10-4 for Imperial and Riverside counties. Violations of both the State and federal 24-hour PM_{10} standards occurred several times from 1998 to 2005 in both counties. In Imperial County, the Westmorland monitoring station, located directly south of the Salton Sea, typically had the largest annual averages; whereas, in Riverside County, the Indio monitoring station had annual averages two times greater than at the Palm Springs monitoring station. The Indio and Westmorland monitoring stations are two of the three monitoring stations closest to the Salton Sea.

Table 10-4
PM_{10} Data Summary for Monitoring Stations in Imperial and Riverside Counties, 1998-2005

Year	Estimated Days Above 24-hour Standard		PM_{10} Concentration in $\mu g/m^3$						
	Federal > 150 $\mu g/m^3$	State > 50 $\mu g/m^3$	Annual Average		3-Year Average		High 24-Hr Average		EPDC
			Nat'l	State	Nat'l	State	Nat'l	State	
Imperial County									
2005	NA	NA	NA	NA	NA	74	77	75	NA
2004	NA	NA	NA	NA	56	74	201	195	NA
2003	19.1	188.4	74.7	73.8	63	74	840	848	524.5
2002	18.3	124.8	57.3	57.5	56	57	297	301	393.3
2001	6.6	81.3	57.5	42.7	52	54	647	634	291.2
2000	13.2	129.8	54.1	53.6	44	54	250	249	174.1
1999	0	122.5	44	44.3	44	44	130	126	NA
1998	0	60.3	38.7	38.7	45	39	90	87	NA
Riverside County (Salton Sea Air Basin portion)									
2005	NA	NA	NA	NA	NA	NA	106	NA	206.1
2004	2.9	74.1	40.2	40.6	50	56	161	161	236
2003	9.1	158.2	56.7	56.1	57	56	309	302	315.4
2002	9	174.1	53.8	53.9	56	54	276	276	308.5
2001	17.6	170.6	59.5	59	56	59	604	604	308.4
2000	8.6	183.2	55.2	55.4	52	55	201	201	171.8
1999	0	19.3	52.7	NA	52	48	119	119	174.3
1998	3.3	146.2	48.1	48.4	53	55	158	158	205.9

Source: ARB (California Almanac of Emissions and Air Quality) www.arb.ca.gov

Notes:

Data for Imperial County is the maximum value from the El Centro, Niland, Westmorland, and Brawley monitoring stations.
Data for Riverside County is the maximum value for the Indio and Palm Springs monitoring stations.
$\mu g/m^3$ = micrograms/cubic meter
NA = data not available

Carbon Monoxide, Nitrites (as NO_2), and Sulfites (as SO_2)

CO, NO_2, and SO_2 air quality monitoring data from 1998 through 2005 are summarized in Table 10-5. CO concentrations are monitored at the El Centro – 9th Street Station in Imperial County and at the Palm Springs – Fire Station monitoring station in Riverside County. In both counties, neither the State nor the national 8-hour CO standards have been exceeded from 1998 through 2005. Concentrations of NO_2 were also measured at the El Centro and Palm Springs monitoring stations. Annual and 1-hour NO_2 concentrations remain below State and federal standards. SO_2 is not measured at any of the monitoring stations in Riverside County in the Salton Sea Air Basin. The closest SO_2 monitoring station in Imperial Valley is located in Calexico at Ethel Street. Both the 24-hour and the annual SO_2 measurements at the Calexico station are below the State and federal standards. Measured ambient concentrations of CO, NO_2, and SO_2 remain well below all standards in the Salton Sea Air Basin portion of Riverside County and at all monitoring stations in Imperial County.

Table 10-5
Ambient SO_2, NO_2, and CO Concentrations in Imperial and Riverside Counties, 1998-2005

Year	Concentrations in ppm						
	SO_2		NO_2		CO		
	Maximum 24-hour	Maximum Annual Average	Maximum 1-hour	AAM	Maximum 8-hour	Days > State 8-Hour Standard	Days > National 8-hour Standard
CAAQS[a]	0.04	—	0.25	—	9	—	—
NAAQS[b]	0.14	0.03	—	0.053	9	—	—
Imperial County							
2005	0.002	NA	0.065	0.011	NA	NA	NA
2004	0.003	NA	0.067	0.013	NA	NA	NA
2003	0.001	NA	0.071	0.012	2.38	0	0
2002	0.001	NA	0.096	NA	2.93	0	0
2001	0.002	0.001	0.082	NA	7.14	0	0
2000	0.009	0.002	NA	NA	NA	0	0
1999	0.018	0.002	NA	NA	NA	0	0
1998	0.019	0.003	NA	NA	3.5	0	0
Riverside County (Salton Sea Air Basin)							
2005	NA	NA	0.059	0.011	0.65	0	0
2004	NA	NA	0.066	0.013	0.8	0	0
2003	NA	NA	0.067	0.016	1.29	0	0
2002	NA	NA	0.068	0.016	1.14	0	0
2001	NA	NA	0.081	0.017	1.6	0	0
2000	NA	NA	0.064	0.016	1.59	0	0
1999	NA	NA	0.068	0.018	1.75	0	0
1998	NA	NA	0.07	0.016	1.66	0	0

Source: ARB (California Almanac of Emissions and Air Quality) www.arb.ca.gov

[a] CAAQS are not to be exceeded.

[b] NAAQS are not to be exceeded more than once per year (except for annual standards).

AAM = annual arithmetic mean

NA = not available

ppm = parts per million

Current Attainment Status Designations

Current California and federal attainment status designations are listed in Table 10-6 for Imperial and Riverside Counties.

Table 10-6
Federal and California Air Quality Attainment Status Designations by County and Area

County	Area	Pollutant	Federal Status	California Status
Imperial	Calexico	Carbon monoxide	Unclassifiable/attainment	Nonattainment
	All other areas		Unclassifiable/attainment	Unclassified
	All areas	Ozone (1-hour)		Nonattainment
	All areas	Ozone (8-hour)	Subpart 2 – marginal nonattainment	Not applicable
	Imperial Valley[a]	PM_{10}	Nonattainment (serious)	Nonattainment
	All areas	$PM_{2.5}$	Unclassifiable/attainment	Unclassified
	All areas	Nitrogen dioxide	Unclassifiable/attainment	Attainment
	All areas	Sulfur dioxide	Attainment	Attainment
Riverside	Salton Sea Air Basin	Carbon monoxide	Unclassifiable/attainment	Attainment
	Salton Sea Air Basin – Coachella Valley[b]	Ozone (1-hour)		Nonattainment
	All areas	Ozone (8-hour)	Subpart 2 – serious nonattainment	Not applicable
	Salton Sea Air Basin	PM_{10}	Nonattainment (serious)	Nonattainment
	Salton Sea Air Basin – Coachella Valley[b]	$PM_{2.5}$	Unclassifiable/attainment	Unclassified
	All areas	Nitrogen dioxide	Unclassifiable/attainment	Attainment
	All areas	Sulfur dioxide	Unclassifiable/attainment	Attainment

Source: ARB, 2006a.

Notes:

[a] The Imperial Valley covers the western two-thirds of Imperial County.

[b] The Coachella Valley is located immediately north of the Salton Sea and is within the Salton Sea Air Basin in western Riverside County.

The ICAPCD and the SCAQMD have jurisdiction over portions of the Salton Sea Air Basin. The ICAPCD oversees Calexico, Imperial County, and the Imperial Valley in the southeast portion of the Salton Sea Air Basin. The SCAQMD oversees the Riverside County and Coachella Valley portions of the Salton Sea Air Basin, which correspond to the northern portion of the Salton Sea Air Basin. Each district develops its own program to attain and maintain air quality standards while integrating federal and State requirements.

Imperial County Attainment Status and Applicable Plans

Imperial County is designated as a marginal nonattainment area for the federal 8-hour ozone NAAQS. The Imperial Valley (which is the Imperial County portion of the Salton Sea Air Basin) is designated as a federal serious nonattainment area for PM_{10}. All areas of the county are designated as attainment for NAAQS for $PM_{2.5}$, CO, NO_2, and SO_2.

The Salton Sea Air Basin has elevated concentrations of ground-level ozone, which is transported into the basin from urban areas to the west and northwest. Mobile sources, such as vehicles, trains, and

construction and farming equipment, are the primary source of ozone precursor emissions (NO_x and ROG[4]) in the air basin (ARB, 2006b).

In 2003, the United States Court of Appeals for the Ninth Circuit stated that the USEPA's conclusion that PM_{10} attainment would be achieved, except for the negative effects of transborder emissions from Mexico, is unsupported. The Court mandated that the USEPA reclassify Imperial Valley from a moderate to a serious nonattainment area (Opinion No. 01-71902, October 9, 2003) (DOE and BLM, 2004). In addition to emissions transported from Mexico, particulate matter emissions in Imperial County come from agricultural and other local sources. The predominant sources include windblown dust from natural and disturbed land areas and dust associated with vehicle travel on paved and unpaved roads. Construction and agriculture also contribute to ambient particulate levels.

Imperial County is designated as a State nonattainment area for ozone and PM_{10}. In addition, the City of Calexico is designated as nonattainment for the State CO standard. The remainder of the county is designated as unclassified for the State CO standard, and the entire county is designated as attainment or unclassified for the remaining CAAQS.

As a result of the area's designation as a federal serious nonattainment area for PM_{10}, the ICAPCD has prepared a number of documents and regulations to support an update of the existing SIP for PM_{10} in the Imperial Valley. In May 2004, ICAPCD published *Development of a Wind Blown Fugitive Dust Model and Inventory for Imperial County, California*, Final Report (ICAPCD, 2004). In August 2005, ICAPCD released their *Imperial County Natural Events Action Plan*, to allow exclusion of certain qualifying natural events from attainment determinations (ICAPCD, 2005a).

The *Draft Final Technical Memorandum Regulation VIII Best Available Control Measures Analysis* was published in October 2005, and used as the basis for rulemaking for regulations to control particulate matter (ICAPCD 2005b). In November 2005, the ICAPCD Board adopted a new series of Regulation VIII rules for dust control (general requirements, construction and earthmoving activities, bulk materials, open areas, and conservation management practices) (ICAPCD, 2005c).

Based on USEPA and ARB comments on the 2004 dust inventory, a revised emissions inventory was published as an Appendix to the October best available control measures analysis: *Appendix A Technical Memorandum: Latest Revisions of the Windblown Dust Study* (ICAPCD, 2005b). ICAPCD has prepared their emissions inventory and best available control measures rulemakings in advance of the development and approval of a SIP, in order to expedite best available control measures emissions reductions.

Riverside County Attainment Status and Applicable Plans

The western Riverside County portion of the Salton Sea Air Basin is designated as a federal serious nonattainment area for the 8-hour ozone NAAQS, and a serious nonattainment area for the PM_{10} NAAQS. All areas of Riverside County are in attainment of the NAAQS for CO, NO_2, and SO_2, and the Coachella Valley is in attainment of the $PM_{2.5}$ NAAQS.

The entire county is designated as a State nonattainment area for ozone and PM_{10}. The Coachella Valley is unclassified for the State $PM_{2.5}$ standard. All areas of the county are designated as being in attainment for the remaining CAAQS.

Every 3 years, SCAQMD prepares an overall plan for air quality improvement. Each iteration of the plan is an update of the previous plan and has a 20-year horizon. The SCAQMD adopted the Final 2003 AQMP on August 1, 2003. The 2003 AQMP updates the attainment demonstration for the federal standards for ozone and PM_{10}; replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a

[4] The terms VOC (volatile organic compounds), hydrocarbons (HC), and ROG (reactive organic gases) are used synonymously in this document.

maintenance plan for CO for the future; and updates the maintenance plan for the federal NO_2 standard. This revision to the AQMP also addresses several State and federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2003 AQMP is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 Amendments to the Ozone SIP for the South Coast Air Basin for the attainment of the federal ozone air quality standard. However, this revision points to the urgent need for additional emission reductions (beyond those incorporated in the 1997/99 Plan) from all sources, specifically those under the jurisdiction of the ARB and the USEPA (SCAQMD, 2003a). Preparation of the 2007 AQMP is currently underway (SCAQMD, 2005).

The Coachella Valley, located in the Salton Sea Air Basin and under SCAQMD's jurisdiction, has been designated as a serious nonattainment area for PM_{10}. The Coachella Valley PM_{10} SIP (CVSIP), adopted on June 21, 2002, establishes additional controls needed to demonstrate expeditious attainment of the PM_{10} standards. The 2002 CVSIP included a request for extension of the PM_{10} deadline and met all applicable federal CAA requirements, including a Most Stringent Measures analysis, control measures, and attainment demonstration. USEPA approved the 2002 CVSIP on April 18, 2003. At the time of adoption, the SCAQMD committed to revising the 2002 CVSIP with the latest approved mobile source emissions estimates, planning assumptions, and fugitive dust source emission estimates, when they became available. The 2003 CVSIP updates those elements of the 2002 CVSIP; the control strategies and control measure commitments have not been revised and remain the same as in the 2002 CVSIP. The 2003 CVSIP contains updated emissions inventories, emission budgets, and attainment modeling (SCAQMD, 2003b).

Regional Emissions Inventory

Criteria Pollutants

In the Salton Sea Air Basin, ozone and PM_{10} are the primary pollutants of concern, because concentrations of these pollutants have been found to exceed ambient air quality standards. Ozone is a seasonal problem derived from photo-chemical reactions of ROG and NO_x in the presence of sunlight, occurring predominantly from May through October.

Table 10-7 presents the annual average daily emissions rates that represent the estimated 2005 regional emissions inventory for the Salton Sea Air Basin, as compiled by the ARB. Emissions estimates were obtained by querying by year and air basin (ARB, 2006b).

Table 10-7
Estimated 2005 Regional Emissions Inventory
Annual Average Daily Emissions Rates for All Sources in Air Basin (tons/day)

Air Basin	Criteria Pollutant				
	NO_x	PM_{10}	CO	ROG	SO_2
Salton Sea Air Basin	55.4	262.3	200.2	56.5	1.8

Source: ARB, 2006b.

The most prevalent airborne pollutant in the Salton Sea Air Basin is PM in the form of fugitive dust (IID, 1994). In the Salton Sea Air Basin, fugitive windblown dust, wind erosion of exposed soil (from agricultural fields and the desert), and vehicle travel over unpaved roads are the major sources of PM_{10}.

Table 10-8 summarizes the 2005 estimated annual average emissions (in tons/day) for the Salton Sea Air Basin for each of the major PM_{10} emission source categories. Imperial County and Riverside County contributions are shown (ARB, 2006b).

Table 10-8
Estimated 2005 Annual Average Daily PM_{10} Emissions in the Salton Sea Air Basin (tons/day)

PM_{10} Emission Source	Imperial County	Riverside County	Total Salton Sea Air Basin
Farming operations	17.7	1.1	18.8
Construction and demolition	2.0	6.5	8.5
Paved road dust	4.2	5.8	10.0
Unpaved road dust	33.7	1.9	35.6
Fugitive windblown dust	172.8	7.3	180.1
Other sources	6.4	2.9	9.3
Total all sources in basinwide inventory	236.8*	25.5	262.3

Source: ARB, 2006b.

* In the revised 2004 emissions inventory published as an Appendix to the October 2005 ICAPCD best available control measures analysis, emissions estimated for fugitive windblown dust and unpaved road dust in Imperial County were higher than the values in the above ARB estimates. Emissions would not otherwise be expected to vary greatly between years, so these differences are worth noting. According to the revised 2004 estimates, unpaved road dust resulted in about 61 tons/day of PM_{10} and fugitive windblown dust was estimated at 200.9 tons/day. The total 2004 annual average PM_{10} emissions rate reported for Imperial County was 284.2 tons/day (ICAPCD, 2005b).

Toxic Air Contaminants and Sensitive Receptors

In addition to the criteria pollutants, concern about noncriteria pollutants, or toxic air contaminants (TACs) and hazardous air pollutants (HAPs), has increased in recent years. TACs include airborne inorganic and organic compounds that can have both short term (acute) and long term (carcinogenic, chronic, and mutagenic) effects on human health. Exposure to these pollutants may cause or contribute to cancer, birth defects, genetic damage, and other adverse health effects.

Sensitive populations, such as children or the elderly, are more susceptible to the effects of air pollution than are populations at large. Local agencies, such as air districts, have responsibility for evaluating and controlling TAC emissions, especially when these emissions are released from projects located near sensitive receptors. For example, AB 3205 (Health and Safety Code, Section 42301.6 through 42301.9) requires that new or modified sources of toxic air contaminants near schools provide public notice to the parents of school children before a permit to emit air pollutants is issued.

In the Salton Sea Air Basin, TACs or HAPs are generated as a result of various processes, including fuel combustion, windblown dust, mining, farming, pesticide use, and industrial processes. Sensitive receptors are located throughout the air basin.

The California Toxics Inventory (CTI) provides emissions estimates by stationary, areawide, mobile, and natural sources for 33 toxic air contaminants. These compounds were selected based on a list of air toxics used by the USEPA in development of the National Air Toxics Assessment (NATA). In developing the NATA list, the USEPA considered a number of factors, including toxicity-weighted emissions, monitoring data, past air quality modeling analysis, and a review of existing risk assessment literature.

The CTI is developed by speciating ARB estimates of total organic gas (TOG) and PM for area, mobile, and natural sources using the most recent speciation profiles. Speciated emissions for each source category are then reconciled with reported stationary point sources toxics data to establish a complete inventory including stationary, areawide, mobile, and natural sources.

Information on air toxics and the CTI can be found on the ARB web site: http://www.arb.ca.gov/toxics/cti/cti.htm (ARB, 2006c). Table 10-9 presents the air toxics emissions inventory for the entire State, side by side with the inventory for the Salton Sea Air Basin. When compared to the statewide emissions inventory, the Salton Sea Air Basin contributes between 9 and

21 percent of the statewide emissions of several pollutants: 1,3-dichloropropene, arsenic, cadmium, chromium, lead, manganese, mercury, and nickel. Most of the emissions of these substances are reported to come from "areawide sources" in Imperial and Riverside counties. "Areawide" sources are those that do not have specific locations and are spread out over large areas such as paved or unpaved roads, fugitive dust, pesticides, and consumer products.

Table 10-9
2004 California Air Toxics Inventory

Pollutant	Statewide (tons/year)	Salton Sea Air Basin	
		Tons/year	Percentage of Statewide
1,3-Butadiene	3,032	55.3	2
1,3-Dichloropropene	2,243	208.8	9
Acetaldehyde	7,376	136.5	2
Acrolein	2,242	69	3
Acrylonitrile	48	0.06	0
Arsenic	40	3.5	9
Benzene	13,185	225.9	2
Beryllium	1	0	0
Cadmium	22	3.6	17
Carbon tetrachloride	2	0	0
Chloroform	39	0.2	1
Chromium	161	33.3	21
Chromium, hexavalent	1	0.003	1
Diesel engine exhaust, particulate matter	24,498	432.6	2
Dioxins/benzofurans	0.041	0	0
Ethylene dibromide	1	0	0
Ethylene dichloride	7	0	0
Ethylene oxide	39	0.3	1
Formaldehyde	20,251	397	2
Hexachlorobenzene	0	0	0
Hydrazine	1	0	0
Lead	274	58	21
Manganese	1,055	170	16
Mercury	18	2.2	12
Methylene chloride (dichloromethane)	7,637	84.8	1
Nickel	108	10.1	9
Polycyclic aromatic hydrocarbons	2,317	43.3	2
p-Dichlorobenzene	1,880	26.9	1
Perchloroethylene (tetrachloroethene)	6,245	70	1
Polychlorinated biphenyls	0	0	0
Styrene	1,773	11.7	1
Trichloroethylene	370	3.2	1
Vinyl chloride	55	0.06	0

Source: ARB, 2006b.

Odorous Emissions

The presence of odors at the Salton Sea currently affects both visitor and resident populations in the area. Factors contributing to odors at the Salton Sea include water quality, high nutrient levels, and biological factors such as fish, algal, and bird die-offs. Water quality at the Salton Sea is affected by a high concentration of sulfates and other compounds present in the saline Sea, as well as inputs of agricultural drainage. Nutrient-rich runoff entering the Salton Sea produces eutrophic conditions that result in phytoplankton blooms. These microscopic plants float close to the Salton Sea's surface, and offensive odors are created when large numbers of plants die and decompose. Odors resulting from algal bloom die-offs are most prevalent during the summer months, when inputs of freshwater to the Salton Sea are low and temperatures are high (Salton Sea Authority and Reclamation, 2000).

Fish and bird die-offs at the Salton Sea also contribute to the odor problem. Several large die-offs in the past two decades have produced unpleasant odors as fish and birds decompose along the shoreline (Salton Sea Authority and Reclamation, 2000).

Odors produced by decaying algal blooms, and fish and bird die-offs occur predominantly in the southern and eastern portions of the Salton Sea, although all areas of the Salton Sea are subject to these occurrences. The most prevalent odors exist during the summer months when temperatures are high and winds from the southeast are predominant. High winds in the Salton Sea area are most frequent during the months of April and May (Salton Sea Authority and Reclamation, 2000).

ENVIRONMENTAL IMPACTS

Analysis Methodology

The goal of this analysis was to develop information on climate and air quality impacts associated with the alternatives, using documented emissions factors and estimation approaches, the MacDougall Method for estimation of fugitive dust emissions from Exposed Playa areas, and qualitative evaluations. Tables and discussions have been developed to provide screening level results and impacts analysis for the alternatives. The screening level impacts and analysis are based on the emissions estimates and other effects predicted for each alternative, the relevant significance criteria, and assumptions and approaches developed to support the Draft Programmatic Environmental Impact Report (PEIR). The primary purpose of the screening level analysis was to allow comparisons between Existing Conditions, the No Action Alternative, and the alternatives.

For the purposes of the PEIR, priority was placed on analysis of impacts associated with the nonattainment pollutants: PM_{10} and the ozone precursor, NO_x. In any project-level analyses, impacts associated with other criteria pollutants, and in some cases, HAPs, would need to be analyzed.

Additional description of the methodologies for emissions estimation and impact analysis are provided in Appendix E and the associated attachments. Tables to summarize the results of emissions estimation, comparison to relevant significance thresholds, and predicted air quality impacts are provided in Appendix E, Attachment E1. Details of the emissions calculations conducted for construction, operations, and general conformity applicability analysis are presented in Attachment E2. A description of the MacDougall Method approach, assumptions, and results from prediction of playa dust (as PM_{10}) emissions is provided in Attachment E3. Constituents of potential concern in sediments and soils sampled at the Salton Sea, discussion of their potential to affect human health, and recommendations for future study are provided in Attachment E4. Attachment E5 provides additional discussion of potential mitigation measures and applicable regulatory requirements.

Other attachments in Appendix E provide memoranda prepared in support of the PEIR. Attachment E6 is the Executive Summary from the Final Draft Technical Memorandum, *Identify and Outline Measures to*

Control Playa Emissions. For more information, the entire memorandum is included as part of Appendix H-3.

Attachment E7 of Appendix E provides the Draft Technical Memorandum, *Continued Evaluation of Playa Dust Emissions Models*. Results from use of the selected model are further described in Attachment E3, mentioned previously. The Draft Technical Memorandum, *Ongoing Data Management and Air Quality Modeling Preparation*, is provided as Attachment E8.

The Draft Technical Memorandum, *Salton Sea Playa Salt Efflorescence Potential*, is provided as Appendix E, Attachment E9. Attachment E10 is the Draft Technical Memorandum, *Brief Literature Search: the Effects of Dust/Saline Dust on Crops*. The Draft Technical Memorandum, *Description of Microclimate at the Salton Sea*, is provided as Attachment E11.

Attachment E12 of Appendix E is a list of prior air quality technical reports prepared as part of the PEIR effort. Copies of these documents are available at http://www.saltonsea.water.ca.gov/.

Methodology for Estimation of Emissions from Construction

Construction activities would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. A screening level analysis of construction emissions was used to estimate the impacts of the alternatives. This means that construction emissions were only calculated for the major components of the alternatives, and that emission calculations were focused on two pollutants, NO_x and PM_{10}. PM_{10} emissions estimates include both particulate emissions from diesel-fueled engines (termed diesel PM_{10}) and fugitive dust (fugitive PM_{10}). Project-level analyses would be required to include more detailed information to estimate emissions and would need to include emissions of CO, SO_x, VOCs, and HAPs.

Emissions from construction were estimated for the following components of the alternatives (not all components apply to each alternative):

- Earthmoving to construct canals and Saline Habitat Complex;
- Rock transported and placed for Barriers, Perimeter Dikes, and Saline Habitat Complex;
- Gravel transported and placed for Barriers, Perimeter Dikes, Saline Habitat Complex, and roads;
- Dredging for construction of Barriers and Perimeter Dikes;
- Disturbance of dry land to construct Saline Habitat Complex and roadways; and
- Disturbance of dry land for Air Quality Management.

Chapter 3 and Appendix H-7 of the PEIR summarize material quantities and acreages for these components for each of the alternatives. These material quantities and acreages served as the basis for the emission calculations. NO_x and diesel PM_{10} emissions were estimated for exhaust from construction equipment (such as bulldozers and excavators), marine vessels (tugboats, barges, and dredges), and diesel-fueled trucks (haul trucks and water trucks). In some cases, emissions were estimated for sources without control measures (referred to as uncontrolled emissions) and for the same sources after implementation of recommended controls (referred to as controlled emissions, or emissions after control). For example, uncontrolled and controlled fugitive PM_{10} emissions were calculated for soil disturbance and truck travel on unpaved roads.

Emissions were calculated for construction of Saline Habitat Complex cells as Early Start Habitat, and for a Peak Construction Year, which was assumed to occur between project initiation and the year 2020 (in Phase I). Emission factors from the SCAQMD CEQA Handbook, ARB, and the USEPA were used to estimate emissions. As indicated previously, Appendix E, Attachment E2, provides a more detailed description of the methodology used for the construction emission calculations and the limitations of the analysis. As stated above, the construction emissions reported in this chapter and Appendix E provide a

means to compare the impacts of the alternatives, and should not be considered comprehensive. Emissions from construction of these components were only calculated for NO_x, diesel PM_{10}, and fugitive PM_{10}.

Methodology for Estimation of Emissions from Operations and Maintenance

For each alternative, operations and maintenance emissions were estimated for a Peak Operations Year, assumed to occur in Phase IV (2040 to 2078). The Peak Operations Year is assumed to occur after construction of the components is completed. For the purposes of the PEIR, an emissions level equivalent to 10 percent of Peak Construction Year emissions estimates was assumed to be representative of annual emissions associated with operations and maintenance for components in Phase IV (Peak Operations Year). This estimate was based on the assumption that the Peak Operations Year would occur in the later phases of the program, when periodically greater levels of operations and maintenance would be required for some of the large components, such as seepage control measures, repair of slumps in Berms, or rock and gravel replenishment for Barriers and Perimeter Dikes.

In Phase I, an emissions level equivalent to 1 percent of the Peak Construction Year emissions estimates were assumed to be representative of annual emissions associated with operations and maintenance.

Methodology for Estimation of PM_{10} Emissions from Exposed Playa Areas

Under the alternatives being considered for restoration at the Salton Sea, currently wet or flooded areas could become dry and exposed, and thereby become sources of windblown dust. Emissions during high wind events are of particular concern. To support the PEIR, a tool and modeling process were developed to estimate dust emissions in the form of PM_{10} from future Exposed Playa areas at the Salton Sea.

The tool selected was based on the "Empirical Method for Determining Fugitive Dust Emissions from Wind Erosion of Vacant Land," commonly referred to as the "MacDougall Method" (MacDougall and Uhl, 2003). The MacDougall Method is a tool used to estimate particulate matter emissions that relies heavily on emission factors developed through use of wind tunnel and/or Portable In-Situ Wind Erosion Laboratory (PI-SWERL) study results. The method relies on actual field measurements of soil with and without crust to estimate PM_{10} emissions. Soils with varying crust strengths or stabilities may also be studied.

PI-SWERL and portable wind tunnel testing were conducted at the Salton Sea in September 2005, and the PI-SWERL has since been used to take measurements at the same study locations in January and March 2006 to evaluate seasonal effects.

Preliminary draft PI-SWERL data collected during the September 2005 and January 2006 test periods were used in the current analysis (Etymezian, 2006). Finalized results for the September and January tests were not available at the time of emissions estimation for the PEIR, nor were the finalized March 2006 results available. The draft PI-SWERL data included PM_{10} emission factors (milligrams/square meter second [mg/m^2-s]) at measured shear velocities (meters/second [m/s]). The measured shear velocities were converted to equivalent 10-meter wind speeds. Organized by the converted wind speeds, the emission factors in mg/m^2-s were converted to tons/acre-hour (ton/ac-hr). Organizing the data in this fashion allowed the calculation of the mean emission factor and standard deviation for each wind speed.

The formation of a salt crust on the Exposed Playa can significantly affect wind erosion emission rates, as observed at Owens Lake (Nickling and Brown, 2001). When the crust is relatively hard, as observed in summer and fall months, the crust protects the underlying surface of soil, and remains intact, preventing particles from becoming airborne until very high wind velocities occur. During the winter and early spring months, the crust across the playa is generally softened by more frequent rains, or by lower temperatures and higher humidity. The softer crust can no longer protect the underlying surface to the same degree as the more stable crust, and particles become airborne under relatively lower wind speeds.

Similar seasonal effects on Salton Sea playa were reflected in preliminary DRI September 2005 and January 2006 PI-SWERL data (Etyemezian, 2006), as well as observations by local residents of the area, who reported differences in the appearance of the salt crust during the early winter and early spring, and photographed windborne white dust emanating from Exposed Playa areas on windy days (Kalin, 2006). Visitors to the Salton Sea in January reported that the salt crust appeared "soft" and "puffy," indicating that the playa was in an unstable condition (Dickey, 2006).

The terms "stable crust" or "stable playa" are used to describe conditions when windblown dust would be least likely to occur. The terms "unstable crust" or "unstable playa" are used to describe conditions when the salt crust becomes softened, and windblown dust would be more likely to occur. For purposes of estimating particulate emissions to support the PEIR, it was assumed that during the months April through November, Exposed Playa at the Salton Sea is in a stable crust condition. For the remaining four months (December, January, February, and March), the Exposed Playa was assumed to be in an unstable crust condition.

Particles become airborne when the wind speed at the land surface reaches a velocity that allows the particles to become loosened from the underlying materials. This is referred to as the "threshold wind velocity." Based on review of the DRI PI-SWERL data, for stable crust conditions, it was assumed that playa became emissive at wind speeds of 25 miles/hour (mph). For unstable crust conditions, it was assumed that playa became emissive at wind speeds of 15 mph.

A meteorological data set (hourly wind speeds, precipitation, and relative humidity) was developed for the Salton Sea watershed using year 2002 data from two 10-meter surface meteorological stations, the Indio and Niland Stations, within the Salton Sea study area. The Indio Station is located in the north portion of the study area, and the Niland Station is located in the south portion of the study area.

Using the 2002 meteorological data set, the total number of wind event hours for the Indio and Niland meteorological stations were calculated for measured wind speeds in increments of 5 mph. The total number of event hours for a given wind speed increment was then multiplied by the calculated emission factor for that wind speed increment. The total emission factor (tons/acre) is the sum of the individual incremental emission factors.

Results from modeling of the water resources available under each alternative were used to predict acres of Exposed Playa area under the various alternatives and phases analyzed in the PEIR. To support the emissions calculations, the maximum total Exposed Playa area predicted for each alternative was hypothetically divided into north and south portions, by estimating the area north or south of a line corresponding to the Universal Transverse Mercator (UTM) northing coordinate of 3690572 meters. (From the eastern Salton Sea shoreline at Bombay Beach, this line runs east to a point midway between Desert Shores and Salton City on the western shoreline.) The meteorological data from Indio in the north and Niland in the south were used to support the calculations for the north and south portions of the Exposed Playa, respectively. Acres of Exposed Playa estimated for each alternative were classified as either stable or unstable based on the months of the year during which wind events occurred. Once the emission factors were developed, and the total number of event hours calculated from the respective meteorological data, the number of acres in each stability category was multiplied by the appropriate emissions factor and by the number of emissive event hours.

The number of acres of Exposed Playa was evaluated for each of the alternatives during two future phases: Phase I (ending in 2020) and Phase IV (2040-2078). Phases II and III were not analyzed at this time, because analysis of the early and late phases provided "book ends", or upper and lower bounds, to the range of playa emissions that might be expected over time, under each alternative.

The following assumptions were applied to the calculation of emissions for each alternative and each phase:

- Indio meteorological station wind data are representative of the northern Salton Sea area;
- Niland meteorological station wind data are representative of the southern Salton Sea area;
- Playa exhibits stable crust conditions eight months of the year (April through November);
- Playa exhibits unstable crust conditions four months of the year (December, January, February, and March);
- Stable playa becomes emissive at a threshold wind velocity of 25 mph; and
- Unstable playa becomes emissive at a threshold wind velocity of 15 mph.

No wind speeds reported for the Indio meteorological station exceeded the 15 mph threshold during months when playa have been assumed to be unstable, and no reported data exceeded the 25 mph threshold during the months when the playa have been assumed to be under stable conditions. Therefore, under these assumptions, no emissions were predicted for the northern portions of the Salton Sea represented by Indio meteorological station data. As a result, all predicted emissions would result from exposed acres in the southern portion of the Salton Sea, represented by the Niland meteorological station data, where higher and more frequent winds were reported.

Emissions were first estimated for Exposed Playa assuming no control measures were applied. Then, to estimate fugitive dust emissions associated with Exposed Playa areas after implementation of Air Quality Management, the following control measures were assumed:

- 30 percent of the Exposed Playa area would not be emissive (nonemissive);
- 50 percent of Exposed Playa area would use Air Quality Management methods, such as water efficient vegetation; and
- 20 percent of the Exposed Playa area would use other Air Quality Management measures.

For each alternative except 4 and 7, the total acres were divided into these three categories: nonemissive, water efficient vegetation, and other Air Quality Management measures. For Alternatives 4 and 7, where there would be large areas of Exposed Playa without any long term control measures identified, it was assumed 30 percent of these areas would be nonemissive and 70 percent would be uncontrolled. Alternative 7 also has an area designated as Protective Salt Flat.

Assumptions were also made for the control efficiencies that might be achieved for the various types of control measures. These assumptions include many sources of uncertainty, and project-level analyses would need to develop additional information on the actual control efficiencies that would be achieved in practice. For the purposes of the PEIR, the assumed efficiencies were used consistently in analysis of the alternatives to allow comparison and evaluation of the resulting emission estimates.

Nonemissive area was assumed to be 100 percent controlled, water efficient vegetation was assumed to have a control efficiency of 95 percent, and Other Air Quality Management measures were assumed to have a control efficiency of 85 percent. Protective Salt Flat was also assumed to have a control efficiency of 85 percent. For areas with no identified long term control measures, emissions were assumed to be uncontrolled (0 percent control efficiency).

A detailed description of the approach, assumptions, and results from prediction of playa dust (as PM_{10}) emissions is provided in Appendix E, Attachment E3.

Methodology for General Conformity Applicability Analysis

For the purposes of the PEIR, the alternatives for ecosystem restoration were assumed to require some form of federal action or approval, and were therefore potentially subject to general conformity requirements. For example, federal approvals such as permits related to management of endangered species may be required. The general conformity rule prohibits any federal action that does not conform to the applicable air quality attainment plan or SIP. It is applicable only in areas designed as nonattainment or maintenance for NAAQS. General conformity applicability analysis requires quantification of direct and indirect construction and operations and maintenance emissions for the project, and comparison of these emission levels to baseline emission levels.

A project is exempt from the conformity rule (presumed to conform) if the total net project related emissions increases pass two tests: they are less than the *de minimis* thresholds established by the conformity rule, and they are not regionally significant (emissions are regionally significant if they exceed 10 percent of the total regional emission inventory). A project that produces emissions that exceed conformity thresholds, or that is regionally significant, is required to demonstrate conformity with the SIP through mitigation or other accepted practices, such as dispersion modeling, comparison to SIP requirements, and possibly emission offsetting or revisions to the SIP to accommodate emissions.

The sum of construction and operations and maintenance emissions was developed for each alternative for both the Peak Construction Year and the Peak Operations Year and compared to the comparable emissions estimated for the No Action Alternative. The differences, or "net" emissions increases, were then compared to the applicable significance criteria (that is, the general conformity *de minimis* thresholds and regionally significant emissions levels).

Other Analyses

In addition to the above analyses, a qualitative evaluation of the potential for odorous emissions was conducted. Sources of odorous emissions at the Salton Sea in each alternative would include the following:

- Water quality and stratification. The Salton Sea is a hypereutrophic water body characterized by high nutrient concentrations, high algal biomass, low clarity, frequent very low dissolved oxygen, fish kills, and noxious odors. High levels of nutrients from agricultural drainage and municipal discharges, combined with warm temperatures, would continue to contribute to extremely high levels of biological productivity in the Salton Sea. The high productivity would continue to impair water quality, resulting in nuisance algal blooms, anoxia, and production of hydrogen sulfide and ammonia; and

- Fish and algal die-offs. Large die-offs would produce unpleasant odors as fish decompose along the shoreline. Odors would also result from algal bloom die-offs. Odors resulting from algal bloom die-offs would continue to be most prevalent during the summer months, when inputs of freshwater to the Salton Sea would be low and ambient temperatures would be high. Odors from algal and fish die-offs would be expected to occur predominantly in the southern and eastern portions of the Salton Sea, although all areas would potentially be subject to these occurrences.

Concerns associated with some of the alternatives include the potential for increased stratification, combined with continual sediment release of odorous, oxygen-depleting compounds, such as hydrogen sulfide and ammonia. A severely stratified Salton Sea would allow for prolonged periods of hypolimnetic anoxia and build up of high hydrogen sulfide and ammonia concentrations below the thermocline. Upon mixing, the high concentrations of hydrogen sulfide and ammonia would severely deplete the water column of dissolved oxygen, increase surface water concentrations of these odorous compounds, and result in odor incidents. Depleted levels of dissolved oxygen and anoxic conditions in surface waters would also result in fish die-offs.

Hydrogen sulfide and ammonia production and subsequent build-up are proportional to the duration and strength of thermal stratification and the extent of algal growth. The alternatives include different sizes of lakes or water bodies, levels of wind fetch, and water depths, and, hence, differ with regard to their stratification and algal growth potential. Re-aeration, as caused by wind mixing, is key to the avoidance of anoxic conditions in surface water, even under conditions of eutrophication.

The results of water quality modeling (see Chapter 6) indicate that alternatives that include shallower water bodies would result in better mixing of the water column, decrease the summer stratification periods, and generally weaken the stratification potential compared to Existing Conditions. Alternatives with deeper water bodies are predicted to result in a significant increase in the number of days when the water bodies are stratified, allowing concentrations of hydrogen sulfide and ammonia to build up over longer periods of time. Mixing events would be less frequent than under Existing Conditions, but the concentrations of hydrogen sulfide and ammonia released to surface waters and air would be much higher. Furthermore, alternatives with deeper water bodies in the north are predicted to experience more stratification (both stronger and for a greater duration) than alternatives with water bodies in the south, due to greater average depths and lower winds in the north. Water bodies in the south would tend to be shallower, and the higher winds in the south would provide more energetic mixing and aeration.

In summary, all alternatives are predicted to result in changes in water quality, and may result in odorous emissions, such as hydrogen sulfide and ammonia. Water bodies in all alternatives would remain eutrophic. Alternatives with deeper water bodies in the northern part of the basin would become thermally stratified and produce substantial amounts of anoxic water. Mixing of those waters to the surface would occur and result in localized fish and invertebrate die-offs.

In addition to the qualitative evaluation of potential odor impacts, potential impacts on microclimate near the shoreline of the Salton Sea were described on a qualitative basis. More information on microclimate is provided in Appendix E, Attachment E11.

Significance Criteria

The following significance criteria were based on CEQA and air quality regulatory agency guidance and used to determine if changes as compared to Existing Conditions and the No Action Alternative would:

- Conflict with or obstruct implementation of an applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase in any criteria pollutant for which the alternative's region of influence is nonattainment under an applicable federal or State ambient air standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

An additional issue of concern was raised in the scoping comments. Therefore, the following significance criterion was added:

- Substantially modify the existing microclimate characteristics adjacent to the Salton Sea.

In addition to local significance thresholds, the local air districts have adopted general conformity regulations. The general conformity process, including comparison of net emissions increases to *de minimis* thresholds, is intended to demonstrate that the alternatives:

- Will not cause or contribute to new violations of federal air quality standards;
- Will not increase the frequency or severity of existing violations of federal air quality standards; or
- Will not delay the timely attainment of federal air quality standards.

Significance thresholds for toxic air contaminants or health effects are also defined by some air districts. Emissions of toxic air contaminants would be significant if the emissions exceeded acceptable levels or contributed significantly to the area's excess lifetime cancer risk values, cancer burden, or health hazard indices.

The significance criteria for each area used in this PEIR are presented below. To determine the significance of impacts, when more than one threshold was listed, this analysis used the more stringent significance threshold established by the SCAQMD or the ICAPCD for any given pollutant. Further, the general conformity *de minimis* levels were used as thresholds of significance for annual emissions estimates in tons/year, in addition to their use in determining the applicability of general conformity requirements.

SCAQMD

The SCAQMD has established construction related thresholds of significance for the portion of Riverside County that is in the SCAQMD. This portion includes Coachella Valley, part of the Salton Sea Air Basin. Construction related emissions in excess of any of the criteria listed in Table 10-10 are considered significant in this area.

Table 10-10
Construction Emissions Thresholds of Significance for the Portion of the Salton Sea Air Basin within the South Coast Air Quality Management District (Riverside County, Coachella Valley)

Pollutant	Daily Threshold (pound)
ROC	75
NO_x	100
CO	550
PM_{10}	150
SO_x	150

In addition to the thresholds listed above, the SCAQMD requires that some of the significance criteria established for stationary sources be used to evaluate the potential impacts of construction sites. The significance criteria for the impacts of air toxics released at construction sites are listed in Table 10-11 below. The significance thresholds for allowable changes in ambient air quality concentrations at construction sites are the same as those listed in the last column of Table 10-12, except for PM_{10}, where the second number listed is the allowable change in 24-hour PM_{10} concentration for construction sites, that is, 10.4 $\mu g/m^3$.

The SCAQMD has also established operational significance criteria for alternatives located in the Riverside County portion of the Salton Sea Air Basin. There are three types of operational significance criteria. Projects with peak operations related emissions or impacts that exceed any of the criteria listed in Table 10-11 would be considered significant. Projects with net emissions increases (operations and construction)

greater than the *de minimis* thresholds listed in the general conformity column in Table 10-11 would be considered significant and would require a general conformity demonstration.

Table 10-11
Operational Significance Thresholds for the Riverside County Portion of the Salton Sea Air Basin

Pollutant	SCAQMD NSR[a] (Rules 1303 and 1401)	Local Significance Thresholds[b] (pounds/day)	General Conformity[c] (tons/year)
ROC	NA	55	50
NO_x	40 tons/year	55	50
CO	NA	550	NA
PM_{10}	15 tons/year	150	70
SO_x	NA	150	NA
Cancer risk with TBACT without TBACT	 10^{-5} or 10 in 1 million 10^{-6} or 1 in 1 million	NA	NA
Cancer burden	0.5	NA	NA
Acute HHI	1.0	NA	NA
Chronic HHI	1.0	NA	NA

[a] SCAQMD Rule 1303, Section (b)5(C)(I); Rule 1401, Section (d)
[b] SCAQMD, CEQA Air Quality Handbook, November 1993
[c] SCAQMD Rule 1901; 40 CFR 51, General Conformity
HHI = Health Hazard Index
NA = not applicable
NSR = New Source Review (applicable to stationary sources only)
ROC = reactive organic compound
TBACT = Toxics Best Available Control Technology

In addition to the criteria presented in Table 10-11, the listed allowable changes in pollutant concentrations listed in Table 10-12 also constitute significance criteria for projects in the Salton Sea Air Basin.

Table 10-12
Most Stringent Ambient Air Quality Standard and Allowable Change in Concentration*

Air Contaminant	Averaging Time	Most Stringent Air Quality Standard	Significant Change in Air Quality Concentration
NO_2	1-hour Annual	25 pphm (500 $\mu g/m^3$) 5.3 pphm (100 $\mu g/m^3$)	1 pphm (20 $\mu g/m^3$) 0.05 pphm (1 $\mu g/m^3$)
CO	1-hour 8-hour	20 ppm (23 mg/m^3) 9.0 ppm (10 mg/m^3)	1 ppm (1.1 mg/m^3) 0.45 ppm (0.50 mg/m^3)
PM_{10}	24-hour Annual arithmetic mean/annual geometric average	50 $\mu g/m^3$ 20 $\mu g/m^3$ (annual arithmetic mean)	2.5 $\mu g/m^3$ (operation) 10.4 $\mu g/m^3$ (construction sites) 1 $\mu g/m^3$ (annual geometric average)
Sulfate	24-hour	25 $\mu g/m^3$	1 $\mu g/m^3$

* SCAQMD Rule 1303 and SCAQMD Air Quality Significance Thresholds (http://www.aqmd.gov/ceqa/hdbk.html)
pphm = parts per hundred million

ICAPCD

The study area is located in a federally designated nonattainment area for PM_{10} and ozone. Therefore, the general conformity rule is applicable in the study area for project related emissions of PM_{10}, and for

emissions of ROC (or ROG) and NO_x as precursors to ozone. Table 10-13 presents *de minimis* thresholds for the Imperial Valley contained in ICAPCD Rule 925, General Conformity. Exceedance of *de minimis* thresholds would require that a general conformity demonstration be performed.

In addition, the ICAPCD has established CEQA guidelines and recommended threshold criteria for determining the significance of impacts (ICAPCD, 2005d). Therefore, there are two types of operational significance criteria in the Imperial Valley. The local significance thresholds in the guidelines relate primarily to operations, whereas general conformity criteria apply to both operations and construction emissions from mobile and stationary sources. Both types of significance criteria are listed in Table 10-13. ICAPCD has not established significance criteria for toxic air contaminant emissions or associated health effects.

With regard to construction related impacts, PM_{10} is the pollutant of greatest concern. ICAPCD recommends that CEQA analyses of construction impacts should emphasize implementation of effective and comprehensive control measures. Standard mitigation measures listed in the guidelines for construction equipment and fugitive PM_{10} control should be implemented at all sites. In addition, all discretionary mitigation measures listed in the guidelines should be implemented at construction sites greater than 4 acres in size.

Table 10-13
Local Significance Thresholds for the ICAPCD

Pollutant	Local Tier I Thresholds (pounds/day)[a]	Local Tier II Thresholds (pounds/day)[a]	General Conformity[b] (tons/year)
ROG	Less than 55	55 and greater	100 (VOC)
NO_x	Less than 55	55 and greater	100
CO	Less than 550	550 and greater	NA
PM_{10}	Less than 150	150 and greater	70
SO_x	Less than 150	150 and greater	NA
Significance finding	Potentially significant impact	Significant impact	If exceeded, require general conformity demonstration

[a] ICAPCD CEQA Air Quality Handbook, 2005
[b] ICAPCD Rule 925, General Conformity
NA = not applicable because Imperial County is in attainment of the NAAQS standard for CO

Application of Significance Criteria

The following significance criteria have been applied to the alternatives:

- Fugitive dust (PM_{10}) emissions from construction would exceed local air district significance thresholds;
- HAPs in fugitive dust associated with construction would expose sensitive receptors to substantial pollutant concentrations;
- Exhaust (NO_x) emissions from construction would exceed local air district significance thresholds;
- Exhaust (diesel PM_{10}) emissions from construction would expose sensitive receptors to substantial pollutant concentrations;
- Fugitive dust (PM_{10}) emissions from operations and maintenance would exceed local air district CEQA significance thresholds;

- Exhaust (NO_x) emissions from operations and maintenance would exceed local air district significance thresholds;
- Fugitive dust (PM_{10}) emissions from Exposed Playa, after implementation of planned Air Quality Management, would exceed local air district significance thresholds;
- HAPs associated with fugitive dust emissions from Exposed Playa, after implementation of planned Air Quality Management, would expose sensitive receptors to substantial pollutant concentrations;
- Net emissions increase of nonattainment pollutants (PM_{10}, NO_x) would exceed general conformity *de minimis* thresholds or regional significance levels;
- Odorous emissions associated with changes in water quality would affect a substantial number of people; and
- Changes would substantially modify the existing microclimate characteristics adjacent to the shoreline.

Summary of Assumptions

The assumptions related to the descriptions of the alternatives are described in Chapter 3. The general assumptions used in the climate and air quality impact analyses are summarized in Table 10-14.

The analysis summarized in this chapter and Appendix E is programmatic in nature. Additional analyses would be completed during project-level studies. Emissions were only estimated for construction of the large components of the alternatives and estimates of emissions associated with operations and maintenance were based on assumptions. Therefore, project-level analyses would need to consider a more extensive list of emissions and sources. For example, the following types of emissions and sources were not included as part of this programmatic analysis, but would be considered for project-level analyses:

- Emissions generated during construction of less major facilities, such as Sedimentation/Distribution Basins and pipelines, were not estimated.
- Emissions generated by water trucks traveling on unpaved roads to refilling locations were not included in calculations of construction fugitive dust. In addition, exhaust emissions for this water truck travel were not estimated;
- Emissions of entrained road dust generated by trucks traveling on paved roads to transport construction materials (e.g., rock, gravel) from quarries to the Salton Sea were not included in calculations of construction fugitive dust;
- Emissions of fugitive dust from storage piles and material handling were not estimated;
- Emissions of fugitive dust generated by land-based construction equipment traveling on unpaved roads were not estimated;
- Exhaust and fugitive dust emissions generated by trucks used to haul miscellaneous construction related materials, supplies, and resources, such as fencing and fuels, to the Salton Sea and construction sites were not estimated;
- Exhaust emissions from water trucks to control unpaved road dust for placement of materials were not estimated; and
- Emissions generated by employee commute vehicles were not included.

Table 10-14
Summary of Assumptions for Climate and Air Quality

Assumptions Common to All Alternatives
1. All proposed and adopted air quality plans would be implemented as currently proposed and adopted. No further projections beyond the timeframes included in existing proposed and adopted plans were included.
2. The following control measures for fugitive dust emissions during construction were assumed: • To control fugitive dust emissions from dry land disturbed to construct Saline Habitat Complex cells and roads, a 2-hour surface watering interval would be implemented, with an estimated control efficiency of 74 percent (WRAP, 2004); • To control fugitive dust emissions associated with truck and vehicle travel on unpaved roads, watering twice a day would be implemented, with an estimated control efficiency of 55 percent (WRAP, 2004); • To be conservative, no control was assumed for dry land disturbed to construct water efficient vegetation for Air Quality Management. The nature of this construction may preclude use of watering trucks in the constructable areas for at least some portion of the construction period, for example, after areas have been prepared for planting; and • Use of chemical stabilizers for control of fugitive dust from construction has not been proposed at this time, because impacts of chemicals on Habitat and Air Quality Management areas are unknown, and may represent unacceptable conditions.
3. To estimate exhaust emissions generated during construction of each alternative, the following assumptions were made: • Land-based construction equipment would be required to meet Tier 4 emissions standards; • Diesel engines used on marine vessels would be required to meet Tier 2 emissions standards; and, • For the diesel-fueled haul trucks, the emission factors used are from the model EMFAC2002 and represent model year trucks from 1965-2012 in the South Coast Air Basin (SCAQMD, 2006, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html).
4. For construction of components, the impact analysis assumed that the transport distance for rock and gravel by truck would be 10 miles one way on paved roads from a quarry or staging site. Placement of rock and gravel by truck assumed an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site. If these travel distances are increased in project-level analyses, emissions associated with transport and placement of construction materials would increase proportionally.
5. To estimate emissions associated with operations and maintenance for each alternative, an emissions level equivalent to 10 percent of Peak Construction Year emissions estimates was assumed to be representative of annual emissions associated with operations and maintenance for components in Phase IV (Peak Operations Year). In Phase I, an emissions level equivalent to 1 percent of the Peak Construction Year emissions estimates were assumed to be representative of annual emissions associated with operations and maintenance.
6. To estimate fugitive dust emissions associated with Exposed Playa areas after implementation of Air Quality Management, the following control measures were assumed, as described in Appendix H-3: • 30 percent of the Exposed Playa would not be emissive (nonemissive); • 50 percent of the Exposed Playa would use Air Quality Management, such as water efficient vegetation (assumed 95 percent control efficiency); and • 20 percent of the Exposed Playa would use other Air Quality Management measures (assumed 85 percent control efficiency).
7. The calculations conducted to support these air quality impact analyses involved many interim calculation values, as presented in spreadsheets in Appendix E. The resulting emissions estimates used in evaluations of impacts have been rounded to reflect significant figures that are similar to the number of significant figures in the thresholds used in these evaluations.

Table 10-14
Summary of Assumptions for Climate and Air Quality

	Assumptions Specific to the Alternatives
No Action Alternative	1. The four-step air quality mitigation and monitoring plan outlined in the 2003 Imperial Irrigation District (IID) Water Conservation and Transfer Project Mitigation, Monitoring, and Reporting Program would be implemented under the No Action Alternative, and should be considered for any alternative. 2. As required under local air district regulations and requirements, landowners would implement dust control for any exposed areas outside of the study area that should become emissive (e.g., any areas above -235 feet mean sea level (msl) or below -248 feet msl in the No Action Alternative). Dust control measures implemented by landowners would not likely be 100 percent effective in reducing fugitive dust emissions from these exposed areas, resulting in additional emissions not covered by the 4-step plan or the restoration program. In Appendix E, Attachment E3, "uncontrolled" emissions estimated for those areas designated as "landowner responsible" represent emissions before control, and therefore do not reflect emissions reductions that would be achieved with implementation of dust control measures. "Controlled" emissions have also been estimated for these areas, assuming a level of control similar to those assumed for the alternatives. The emissions associated with these landowner responsible areas are not included in the values used in comparisons of the alternatives to the No Action Alternative.
Alternatives 1, 2, 3, 4, 5, 6, 7, and 8	1. For the Early Start Habitat that would be implemented as part of each alternative, the following construction activities were assumed to occur: • Up to 2,100 acres of dry land would be disturbed per year; • Up to 2,000 acres of Saline Habitat Complex under construction per year; • Up to 100 acres of roadways and canals under construction per year; • Transport and placement of rock and gravel and grading of material would occur at the same rates and travel distances described for the Alternative 1 Peak Construction Year; and • The Early Start Habitat would not be implemented as part of the No Action Alternative.

In addition to the nonattainment pollutants that were evaluated in this analysis (PM_{10} and the ozone precursor, NO_x), project-level analysis would evaluate impacts associated with other criteria pollutants, and in some cases, HAPs.

The emissions predicted for the Exposed Playa areas under each alternative are estimates based on a set of conservative assumptions about the variability of future inflows, the future emissivity of Exposed Playa, meteorological conditions, and control efficiencies for the placeholder technologies. Further, the emissions estimates are based on preliminary data from limited studies of playa stability and emissivity conducted to date at the Salton Sea, a predictive model, and currently proven control measures. Additional research is recommended to further study the amount and composition of the fugitive dust emitted from playa at the Salton Sea, and the conditions (meteorological, crustal, and others) that result in stable versus emissive conditions. Additional studies are needed to better characterize playa conditions and emissions and identify the best control measures.

Analysis of soil and sediment samples taken at the Salton Sea indicates potentially significant levels of constituents of concern. Therefore, fugitive dust generated at the Salton Sea may contain levels of compounds of potential concern that are higher than the natural background levels. Human and animal exposure and health effects could occur through inhalation, dermal contact, or ingestion of dust. Likewise, alternatives would result in particulate emissions from diesel-fueled engines (diesel PM_{10}), hydrogen

sulfide, ammonia, and other pollutants of concern identified in the programmatic study. Available information was not sufficient to conduct human exposure or health effects studies for these pollutants in the timeframe of the PEIR.

Summary of Impact Assessment

Table 10-15 summarizes the assessment of the alternatives as compared to the Existing Conditions and the No Action Alternative.

No Action Alternative

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Pupfish Channels, and Salton Sea. The construction activities would be identical under the No Action Alternative-CEQA Conditions and the No Action Alternative-Variability Conditions. Defining the future air quality in the Salton Sea Air Basin under the No Action Alternative is an inherently challenging task. There are several major variables at play, each with varying degrees of uncertainty. These variables include future population growth in the region, the extent of various emissions sources, emissivity of each source, and the success of the local jurisdictions and others in implementing effective air emissions control measures over the coming decades. Pollutant transport from Mexico also influences air quality compliance in the region.

An understanding of the potential future air quality conditions is essential to evaluating the impacts and benefits of alternatives. Therefore, emissions and conditions that may affect future air quality in the basin have been projected. The two most substantial changes are related to implementation of the Quantification Settlement Agreement (QSA), as described in Chapter 4, and the ongoing development and implementation of AQMPs and SIPs.

QSA Implementation

Implementation of the QSA and the related IID Water Conservation and Transfer Project would reduce inflows to the Salton Sea, resulting in an increase in the amount of playa exposed over the next 75 years. The IID Water Conservation and Transfer Project EIR/EIS and addendum projected an increase in exposed playa of about 45,000 acres over the 75-year period compared to the Future Baseline for that project (IID and Reclamation, 2002b).

To mitigate the potential air quality impacts from Exposed Playa, the IID Water Conservation and Transfer Project Mitigation Monitoring and Reporting Plan included a four-step air quality mitigation and monitoring plan (four-step air quality plan), as summarized below:

1. **Restrict Access**. Public access, especially off-highway vehicle access, would be limited, to the extent legally and practicably feasible, to minimize disturbance of natural crusts and soils surfaces in future exposed shoreline areas. Prevention of crust and soil disturbance is viewed as the most important and cost-effective measure available to avoid future dust impacts. IID or other governmental entities own or control most of the lands adjacent to and under the Salton Sea. Fencing and posting would be installed on these lands in areas adjacent to private lands or public areas to limit access.

2. **Research and Monitor**. A research and monitoring program would be implemented incrementally as the Salton Sea recedes. The research phase would focus on development of information to help define the potential for problems to occur in the future as the Salton Sea elevation is reduced slowly over time. Research would accomplish the following:

    a. Study historical information on dust emissions from exposed shoreline areas.

    b. Determine how much land would be exposed over time and who owns it.

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Criterion: Construction fugitive dust (PM_{10}) emissions exceed local significance thresholds of 150 pounds/day (daily threshold) or 70 tons/year (annual threshold).							
No Action Alternative	Existing Conditions	L	L	L	L	Construction PM10 emissions well below thresholds in Peak Construction Year (Phase I).	Project-level analyses would need to do more detailed emissions estimation, impact analysis, and mitigation planning.
	No Action Alternative	NA	NA	NA	NA		
Alternative 1	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in Peak Construction Year, even with aggressive dust control (watering) schedule. Annual construction PM10 emissions more than 5 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Alternative 2	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in Peak Construction Year, even with aggressive dust control (watering) schedule. Annual construction PM10 emissions more than 10 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Alternative 3	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in Peak Construction Year, even with aggressive dust control (watering) schedule. Annual construction PM10 emissions more than 20 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Alternative 4	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions below thresholds in Peak Construction Year. However, if summed with diesel PM10 emissions, would exceed daily threshold. Annual construction PM10 emissions more than 5 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Alternative 5	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in Peak Construction Year, even with aggressive dust control (watering) schedule. Annual construction PM10 emissions more than 30 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Alternative 6	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions greatly exceed thresholds in Peak Construction Year, even with aggressive dust control (watering) schedule. Annual construction PM_{10} emissions more than 150 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Alternative 7	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions greatly exceed thresholds in Peak Construction Year, even with aggressive dust control (watering) schedule. Annual construction PM_{10} emissions more than 200 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Alternative 8	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions greatly exceed thresholds in Peak Construction Year, even with aggressive dust control (watering) schedule. Annual construction PM_{10} emissions more than 150 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Criterion: Hazardous air pollutants (HAPs) in fugitive dust (PM_{10}) emissions associated with construction expose sensitive receptors to substantial pollutant concentrations.							
No Action Alternative	Existing Conditions	S	S	S	S	The No Action Alternative would result in fugitive dust emissions during construction. Analytical results indicate potentially significant levels of constituents of concern in the sediment and soil samples taken at the Salton Sea. Additional study recommended, as described in Appendix E, Attachment E4.	Project-level analyses would need to do more detailed emissions estimation, exposure and health impact analysis, and mitigation planning. Control of fugitive dust would reduce human exposures.
	No Action Alternative	NA	NA	NA	NA		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Alternatives 1 - 8	Existing Conditions	S	N	N	N	All alternatives result in fugitive dust emissions during construction. Analytical results indicate potentially significant levels of constituents of concern in the sediment and soil samples taken at the Salton Sea. Additional study recommended - see Appendix E, Attachment E4.	Same as No Action Alternative.
	No Action Alternative	U	U	U	U		
Criterion: Construction exhaust (NO_x) emissions exceed local significance thresholds of 100 pounds/day or 50 tons/year.							
No Action Alternative	Existing Conditions	L	L	L	L	Construction NOx emissions well below thresholds in Peak Construction Year (Phase I).	Project-level analyses would need to do more detailed emissions estimation, impact analysis, and mitigation planning.
	No Action Alternative	NA	NA	NA	NA		
Alternative 1	Existing Conditions	L	L	L	L	Greater impacts than under No Action Alternative and Existing Conditions. Emissions below thresholds in Peak Construction Year. Annual construction NOx emissions about 2 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	L	L	L	L		
Alternative 2	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed daily thresholds in Peak Construction Year. Annual construction NOx emissions about 4 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Alternatives 3, 5, and 7	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions greatly exceed thresholds in Peak Construction Year. Annual construction NOx emissions more than 100 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Alternative 4	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in Peak Construction Year. Annual construction NOx emissions more than 20 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Alternatives 6 and 8	Existing Conditions	S	N	N	N	Greater impacts than under No Action Alternative and Existing Conditions. Emissions greatly exceed thresholds in Peak Construction Year. Annual construction NOx emissions more than 200 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Criterion: Diesel PM_{10} emissions associated with construction expose sensitive receptors to substantial pollutant concentrations.							
No Action Alternative	Existing Conditions	S	S	S	S	The No Action Alternative would result in diesel PM10 emissions during construction. The State lists particulate emissions from diesel-fueled engines as air toxics with carcinogenic impacts in exposed human populations. Additional study recommended - see Appendix E, Attachment E4.	Project-level analyses would need to do more detailed emissions estimation, exposure and health impact analysis, and mitigation planning.
	No Action Alternative	NA	NA	NA	NA		
Alternatives 1 - 8	Existing Conditions	S	N	N	N	All alternatives result in diesel PM10 emissions during construction. The State lists particulate emissions from diesel-fueled engines as air toxics with carcinogenic impacts in exposed human populations. Additional study recommended - see Appendix E, Attachment E4.	Same as No Action Alternative.
	No Action Alternative	S	N	N	N		
Criterion: Operations and maintenance related fugitive dust (PM_{10}) emissions exceed local significance thresholds of 150 pounds/day or 70 tons/year.							
No Action Alternative	Existing Conditions	L	L	L	L	Operations PM10 emissions well below thresholds in all phases, including the Peak Operations Year.	Project-level analyses would need to do more detailed emissions estimation, impact analysis, and mitigation planning.
	No Action Alternative	NA	NA	NA	NA		
Alternative 1	Existing Conditions	L	L	L	L	Greater impacts than under No Action Alternative and Existing Conditions. Emissions well below thresholds in all phases, including the Peak Operations Year. Annual operations PM10 emissions more than 5 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	L	L	L	L		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Alternative 2	Existing Conditions	L	L	L	L	Greater impacts than under No Action Alternative and Existing Conditions. Emissions below thresholds in all phases, including the Peak Operations Year. Annual operations PM10 emissions more than 10 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	L	L	L	L		
Alternative 3	Existing Conditions	L	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions under thresholds in Phase I, but exceed daily thresholds in Peak Operations Year. Annual operations PM10 emissions more than 20 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	L	N	N	S		
Alternative 4	Existing Conditions	L	L	L	L	Greater impacts than under No Action Alternative and Existing Conditions. Emissions well below thresholds in all phases, including the Peak Operations Year because long term Air Quality Management actions are not included in this alternative.	Same as No Action Alternative.
	No Action Alternative	L	L	L	L		
Alternative 5	Existing Conditions	L	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions under thresholds in Phase I, but exceed daily thresholds in Peak Operations Year. Annual operations PM10 emissions more than 30 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	L	N	N	S		
Alternatives 6 and 8	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in all phases, including the Peak Operations Year. Annual operations PM10 emissions more than 150 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Alternative 7	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in all phases, including the Peak Operations Year based upon the type of Air Quality Management methods used in this alternative. Annual operations PM10 emissions more than 200 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Criterion: Operations and maintenance related exhaust (NO_x) emissions exceed local significance thresholds of 55 pounds/day or 50 tons/year.							
No Action Alternative	Existing Conditions	L	L	L	L	Operations NOx emissions well below thresholds in all phases, including the Peak Operations Year (Phase IV).	Project-level analyses would need to do more detailed emissions estimation, impact analysis, and mitigation planning.
	No Action Alternative	NA	NA	NA	NA		
Alternative 1	Existing Conditions	L	L	L	L	Greater impacts than under No Action Alternative and Existing Conditions. Emissions well below thresholds in all phases, including the Peak Operations Year. Annual operations NOx emissions similar to, but slightly higher than, No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	L	L	L	L		
Alternative 2	Existing Conditions	L	L	L	L	Greater impacts than under No Action Alternative and Existing Conditions. Emissions well below thresholds in all phases, including the Peak Operations Year. Annual operations NOx emissions more than 3 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	L	L	L	L		
Alternative 3	Existing Conditions	S	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed daily threshold in Phase I, and exceed both thresholds in Peak Operations Year. Annual operations NOx emissions more than 100 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	N	N	S		
Alternative 4	Existing Conditions	L	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions under thresholds in Phase I, but exceed daily thresholds in Peak Operations Year. Annual operations NOx emissions more than 15 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	L	N	N	S		
Alternatives 5 and 7	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in all phases, including the Peak Operations Year. Annual operations NOx emissions more than 100 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Alternatives 6 and 8	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in all phases, including the Peak Operations Year. Annual operations NOx emissions more than 200 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Criterion: Fugitive dust (PM_{10}) emissions associated with exposed playa, after air quality management and control measures, exceed local significance thresholds of 150 pounds/day or 70 tons/year.							
No Action Alternative	Existing Conditions	L	L	L	L	Playa PM10 emissions well below thresholds in Phase I, but over thresholds in Phases III and Iv. Did not analyze Phase II.	Project-level analyses would need to do more detailed emissions studies and estimation, control measure identification, impact analysis, and mitigation planning.
	No Action Alternative	NA	NA	NA	NA		
Alternatives 1 and 2	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in all phases, even with assumption of aggressive Air Quality Management and control measures. In Phase I, annual playa PM_{10} emissions up to 5 times greater than No Action Alternative. In Phase IV, annual emissions similar to, but greater than, No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Alternative 3	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed daily threshold in Phase I, and exceed both thresholds in Phase IV, even with assumption of aggressive Air Quality Management and control measures. In both phases, annual playa PM_{10} emissions up to 2 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Alternative 4	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in all phases, and greatly exceed thresholds in Phase IV, due to the lack of aggressive Air Quality Management and control measures. In both phases, annual playa PM_{10} emissions more than 25 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Alternatives 5 and 6	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in all phases, even with assumption of aggressive Air Quality Management and control measures. In Phase I, annual playa PM_{10} emissions more than 5 times greater than No Action Alternative. In Phase IV, annual emissions more than 2 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Alternative 7	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed thresholds in all phases, and greatly exceed thresholds in Phase IV, even with assumption of limited Air Quality Management and control measures. In Phase I, annual playa PM_{10} emissions more than 90 times greater than No Action Alternative. In Phase IV, annual emissions more than 15 times greater than No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Alternative 8	Existing Conditions	S	S	S	S	Greater impacts than under No Action Alternative and Existing Conditions. Emissions exceed daily threshold in Phase I, and exceed both thresholds in Phase IV, even with assumption of aggressive Air Quality Management and control measures. In Phase I, annual playa PM_{10} emissions more than 3 times greater than No Action Alternative. In Phase IV, annual emissions similar to, but greater than, No Action Alternative.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Criterion: Hazardous air pollutants (HAPs) in fugitive dust (PM_{10}) emissions associated with playa expose sensitive receptors to substantial pollutant concentrations.							
No Action Alternative	Existing Conditions	S	S	S	S	The No Action Alternative is predicted to result in fugitive dust emissions from Exposed Playa areas, even after aggressive Air Quality Management and control measures are implemented. Analytical results indicate potentially significant levels of constituents of concern in the sediment and soil samples taken at the Salton Sea.	Project-level analyses would need to do more detailed emissions estimation, exposure and health impact analysis, and mitigation planning. Control of fugitive dust would reduce human exposures.
	No Action Alternative	NA	NA	NA	NA		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Alternatives 1 - 8	Existing Conditions	S	S	S	S	All alternatives are predicted to result in fugitive dust emissions from Exposed Playa areas, even after aggressive Air Quality Management and control measures are implemented. Analytical results indicate potentially significant levels of constituents of concern in the sediment and soil samples taken at the Salton Sea.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Criterion: Net Emissions increase of nonattainment pollutants exceed General Conformity *de minimis* thresholds of 70 tons/year (PM_{10}) and 50 tons/year (NO_x).							
No Action Alternative	Existing Conditions	NA	NA	NA	NA	Not Applicable.	Not Applicable.
	No Action Alternative	NA	NA	NA	NA		
Alternative 1	Existing Conditions	S	L	L	L	Greater impacts than under No Action Alternative and Existing Conditions. NO_x emissions below the threshold in Peak Construction Year and Peak Operations Year. PM_{10} emissions above threshold in Peak Construction Year, but slightly below the threshold in the Peak Operations Year.	Project-level analyses would need to do more detailed emissions estimation, impact analysis, and mitigation planning.
	No Action Alternative	S	L	L	L		
Alternative 2	Existing Conditions	S	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. NO_x emissions below the threshold in Peak Construction Year and Peak Operations Year. PM_{10} emissions above threshold in Peak Construction Year and the Peak Operations Year, even with aggressive dust control measures.	Same as Alternative 1.
	No Action Alternative	S	N	N	S		
Alternative 3	Existing Conditions	S	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. NO_x emissions exceed thresholds in Peak Construction Year, even with requirements for low emission equipment. PM_{10} emissions exceed threshold even with aggressive dust control. Exceedances of thresholds are not as great in Peak Operations Year.	Same as Alternative 1.
	No Action Alternative	S	N	N	S		

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Alternative 4	Existing Conditions	S	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. NO_x emissions above the threshold in Peak Construction Year and below in the Peak Operations Year. PM_{10} emissions above threshold in Peak Construction Year and greatly exceed the threshold in the Peak Operations Year, primarily due to the lack of designated Air Quality Management for Exposed Playa.	Same as Alternative 1.
	No Action Alternative	S	N	N	S		
Alternative 5	Existing Conditions	S	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. NO_x emissions greatly exceed thresholds in Peak Construction Year, even with requirements for low emission equipment. PM_{10} emissions exceed threshold even with aggressive dust control. Exceedances of thresholds are not as great in Peak Operations Year.	Same as Alternative 1.
	No Action Alternative	S	N	N	S		
Alternatives 6 and 8	Existing Conditions	S	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. NO_x and PM_{10} emissions greatly exceed thresholds in Peak Construction Year, even with requirements for low emission equipment and aggressive dust control. Exceedances of thresholds are not as great in Peak Operations Year.	Same as Alternative 1.
	No Action Alternative	S	N	N	S		
Alternative 7	Existing Conditions	S	N	N	S	Greater impacts than under No Action Alternative and Existing Conditions. NO_x and PM_{10} emissions greatly exceed thresholds in Peak Construction Year, even with requirements for low emission equipment and aggressive dust control. Exceedances of thresholds are not as great in Peak Operations Year, but PM_{10} emissions still greatly exceed the threshold.	Same as Alternative 1.
	No Action Alternative	S	N	N	S		
Criterion: Net emissions increase of nonattainment pollutants exceed General Conformity *de minimis* thresholds of 70 tons/year (PM_{10}) and 50 tons/year (NO_x).							

Table 10-15
Summary of Benefit and Impact Assessments to Climate and Air Quality

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
No Action Alternative	Existing Conditions	S	S	S	S	Odorous emissions, such as hydrogen sulfide and ammonia, may occur. In early phases, impacts similar to Existing Conditions. In later phases, after fish are no longer present, impacts may be less than under Existing Conditions.	Project-level analyses would need to do more detailed emissions estimation, exposure and health impact analysis, and mitigation planning.
	No Action Alternative	NA	NA	NA	NA		
Alternatives 1 - 4	Existing Conditions	S	B	B	B	Impacts associated with Brine Sink similar to those associated with the No Action Alternative. Impacts associated with shallower water bodies would be less than those associated with the No Action Alternative and Existing Conditions.	Same as No Action Alternative.
	No Action Alternative	S	B	B	B		
Alternatives 5 - 8	Existing Conditions	S	S	S	S	Impacts associated with Brine Sink similar to those associated with the No Action Alternative. Impacts associated with deeper water bodies would be similar or greater than those associated with the No Action Alternative and Existing Conditions.	Same as No Action Alternative.
	No Action Alternative	S	S	S	S		
Criterion: Changes substantially modify the existing microclimate characteristics adjacent to the Salton Sea.							
No Action Alternative	Existing Conditions	S	S	S	S	The No Action Alternative is predicted to result in potentially significant changes in microclimate of shoreline areas where water levels are predicted to recede. Larger scale climatic impacts are not predicted to occur as a result of the alternatives.	Project-level analyses would need to do more detailed microclimatic impact analysis and mitigation planning.
	No Action Alternative	NA	NA	NA	NA		
Alternatives 1 - 8	Existing Conditions	S	S	S	S	All alternatives are predicted to result in potentially significant changes in microclimate of shoreline areas where water levels are predicted to recede, with lesser impacts on shoreline areas that will remain adjacent to water bodies. Larger scale climatic impacts are not predicted to occur as a result of the alternatives.	Same as No Action Alternative.
	No Action Alternative	U	U	U	U		

Legend for Types of Benefits or Impacts in Each Phase:
S = Significant Impact
O = No Impact
L = Less Than Significant
B = Beneficial Impact
NA = Not Analyzed and U= Unknown

c. Conduct sampling to determine the composition of "representative" shoreline sediments and the concentrations of ions and minerals in salt mixtures at the Salton Sea. Review results from prior sampling efforts. Identify areas of future exposed shoreline with elevated concentrations of toxic substances relative to background.

d. Analyze to predict response of Salton Sea salt crusts and sediments to environmental conditions, such as rainfall, humidity, temperature, and wind.

e. Implement a meteorological, PM_{10}, and toxic air contaminant monitoring program to begin under existing conditions and continue as the IID Water Conservation and Transfer Project is implemented. Monitoring would take place both near the sources (exposed shoreline caused by the Project) and near the receptors (populated areas) in order to assess the source-receptor relationship. The goal of the monitoring program would be to observe PM_{10} problems or incremental increases in toxic air contaminant concentrations associated with the increased exposure of seabed to provide a basis for mitigation efforts.

f. If incremental increases in toxic air contaminants (such as arsenic or selenium, for example) are observed at the receptors and linked to emissions from exposed shoreline, conduct a health risk assessment to determine whether the increases exceed acceptable thresholds established by the governing air districts and represent a significant impact.

g. If potential PM_{10} or health effects problem areas are identified through research and monitoring and the conditions leading to PM_{10} emissions are defined, study potential dust control measures specific to the identified problems and the conditions at the Salton Sea.

3. **Create or Purchase Offsetting Emission Reduction Credits.** This step would require negotiations with the local air pollution control districts to develop a long term program for creating or purchasing offsetting PM_{10} emission reduction credits. Credits would be used to offset emissions caused by the IID Water Conservation and Transfer Project, as determined by monitoring (see Step 2, above).

4. **Direct Emission Reductions at the Salton Sea**. If sufficient offsetting emission reduction credits are not available or feasible, Step 4 of this mitigation plan would be implemented. It would include either one, or a combination of the following:

   a. Implementing feasible dust mitigation measures. This includes the potential implementation of new (and as yet unknown or unproven) dust control technologies that may be developed at any time during the term of the IID Water Conservation and Transfer Project Proposed Project.

   b. If feasible, supplying water to the Salton Sea to re-wet emissive areas exposed by the IID Water Conservation and Transfer Project, based on the research and monitoring program (Step 2 of this plan). This approach could use and extend the duration of the Salton Sea Habitat Conservation Strategy. If, at any time during the Project term, feasible dust mitigation measures are identified, these could be implemented in lieu of other dust mitigation measures or the provision of mitigation water to the Salton Sea. Thus, it is anticipated that the method or combination of methods could change from time to time over the Project term.

The No Action Alternative includes implementation of this four-step air quality plan.

The enforcement, monitoring, and funding of implementation of the four-step air quality plan is established under a set of related documents, permits, agreements, and laws as described below.

IID Water Conservation and Transfer Project EIR/EIS, Addendum, and Mitigation, Monitoring, and Reporting Program

These documents, prepared by IID, describe the four-step air quality plan as mitigation for the impacts of exposing playa due to the reduction of inflows to the Salton Sea incidental to the transfer of water. However, it should be noted that even with implementation of this plan, the EIR/EIS for the IID Water Conservation and Transfer Project concluded that the air quality impact resulting from this project would be potentially significant and unavoidable.

State Water Resources Control Board Order

As a responsible agency for the IID Water Conservation and Transfer Project, the State Water Resources Control Board (SWRCB) acknowledged and accepted the incremental implementation of the four-step air quality plan to mitigate potential air quality impacts from the Exposed Playa through SWRCB Order 2002-0013 (SWRCB, 2002). To develop an adequate baseline, the SWRCB Order requires that Step 2 of the plan, research and monitoring, be implemented within six months of the effective date of the approval – December 20, 2002. Further, the SWRCB Order stated that the ICAPCD and the SCAQMD have jurisdiction over different parts of the Salton Sea geographical region. The SWRCB Order delegated to the Chief of the Division of Water Rights the authority to determine, in consultation with the ICAPCD, the SCAQMD, and the ARB, whether any mitigation measure identified as part of the four-step plan is feasible. With implementation of the feasible mitigation measures, the SWRCB stated that they believe that the impacts to air quality due to exposed shoreline would be less than significant. Nonetheless, the Final EIR/EIS states that dust emissions from shoreline exposure are a potentially significant, unavoidable impact. The SWRCB Order concludes that IID could mitigate the air quality impacts to less than significant levels. However, to the extent that impacts are unmitigable and unavoidable, the SWRCB found that the critical importance of a reliable Colorado River water supply outweighs the impacts. The SWRCB Order also specified that IID must comply with all applicable requirements of the ICAPCD and the SCAQMD SIPs and PM_{10} rules.

QSA Agreements and Legislation

As part of the QSA, an Environmental Cost Sharing Agreement (ECSA) was executed between the Coachella Valley Water District (CVWD), IID, and the San Diego County Water Authority (SDCWA) to apportion the costs of implementing mitigation measures required under the EIR/EIS for that Project, including implementation of the four-step air quality plan. In September 2003, the California Legislature passed three bills related to the QSA and restoration of the Salton Sea as identified in Chapter 1. Collectively, these bills create funding mechanisms for mitigation of the QSA's impacts on the Salton Sea, assure that implementation of the QSA will be consistent with Salton Sea restoration, and provide significant funding for Salton Sea restoration planning.

The QSA implementing legislation allocates environmental responsibility among the water agencies and the State for environmental mitigation requirements related to implementation of the QSA, including the IID Water Conservation and Transfer Project. The legislation provides a mechanism to implement funding of mitigation costs by authorizing the California Department of Fish and Game to enter into a joint powers agreement (JPA) with CVWD, IID, and SDCWA for the purpose of financing environmental mitigation costs. The legislation also limits the costs for environmental mitigation (including air quality mitigation) to be paid by IID, CVWD, and SDCWA to a total of $133,000,000.

Under a separate agreement forming a JPA between the State of California acting by and through the Department of Fish and Game, CVWD, IID, and SDCWA, the State of California has accepted responsibility for mitigation costs associated with the IID Water Conservation and Transfer Project, including mitigation for air quality and biological resources that exceed the $133,000,000.

> SB 654 established a mechanism to implement and allocate environmental mitigation cost responsibility among IID, CVWD, SDCWA, and the State for the implementation of the 1998 IID/SDCWA Transfer Agreement and the IID/CVWD Acquisition Agreement. Costs for environmental mitigation requirements up to and not to exceed a present value of $133,000,000 shall be borne by IID, CVWD and SDCWA, with the balance to be borne by the State. (QSA JPA Creation and Funding Agreement, Recital F, 2003)

Mitigation requirements for emissions resulting from exposed acres under the IID Water Conservation and Transfer Project were not for a specific number of acres, any specific location(s), or a specific Salton Sea elevation.

Adoption and Implementation of AQMPs and SIPs

Under existing conditions, ambient air quality standards for several air pollutants are not being achieved in portions of the Salton Sea watershed, as presented earlier in this chapter. In the Salton Sea Air Basin, the air pollutants of greatest concern are ozone and the ozone precursors, NO_x, VOCs, and PM_{10}. Ozone and ozone precursors are primarily generated from vehicle and equipment exhaust. PM_{10} is generated primarily from soil disturbance and wind erosion (fugitive dust). Agricultural operations and transport of pollutants from Mexico also affect air quality in the area.

For areas not meeting standards, the responsible air districts must prepare plans with control measures sufficient to attain national standards by predetermined attainment dates. Once standards are achieved, plans are required to ensure compliance with standards is maintained. Air quality agencies must quantify emissions from existing sources and forecast future emissions to support development of AQMPs and SIPs. These plans must be consistent with population forecasts and growth assumptions in the applicable county and local general plans. The schedule for air quality plans is established by the federal CAA; for example, SIPs for the new 8-hour ozone standard and the $PM_{2.5}$ standard are due in 2007.

As noted previously, under the No Action Alternative, emissions from playa under the baseline for the IID Water Conservation and Transfer Project (to -235 feet msl), plus emissions from the playa exposed due to projects approved after the QSA approval, would not fall under the QSA related mitigation responsibilities of the State of California. These uncontrolled emissions would be the responsibility of the land owners, and may add to air quality issues in Salton Sea Air Basin. As a result, the AQMPs and SIPs under development would need to include these emissions in the emissions inventories used to support attainment planning in the future. This analysis of air quality conditions under the No Action Alternative assumes that SIPs will be developed and implemented to evaluate and control significant sources of emissions. It is further assumed that local jurisdictions will be in compliance with their SIPs and that the air basins within the study area will reach attainment for the applicable standards by the legislated deadlines.

Among air pollutants, PM_{10} is a possible exception to the general assumption of long term attainment. While it is subject to the SIP process, fugitive windblown dust emissions from vacant lands pose challenges. Unlike concentrated sources of pollutants that are more readily identified and controlled, fugitive dust emissions are difficult to detect, locate, regulate, and control. However, it is anticipated that the SIP process will reduce PM concentrations to lower levels, and maintain these levels, by identifying and addressing significant PM sources.

It should also be noted that forecasts of future air quality conditions under the No Action Alternative rely upon available air quality planning documents, which typically have a planning horizon of about 5 to 20 years. The study period for the PEIR is 75 years. While consistency with air quality planning documents is critical, they may have limited value when trying to predict actual air quality conditions in 75 years. In the absence of long term air quality planning documents, the pollutants and emissions sources described above are expected to continue, and air emissions will very likely increase in the future, along

with the forecasted population growth and increased development in the study area. Likewise, air quality planning documents may be expected to evolve as growth and development occur.

Description of the No Action Alternative

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Pupfish Channels, and Brine Sink. The construction activities would be identical under the No Action Alternative–CEQA Conditions and the No Action Alternative–Variability Conditions.

Under the No Action Alternative, it is assumed that the IID Water Conservation and Transfer Program four-step air quality plan to identify and control emissions from the Exposed Playa resulting from the QSA projects would be implemented. Impacts to air quality resulting from the IID Water Conservation and Transfer Project (below -235 feet msl and above -248 feet msl) would be mitigated in accordance with the JPA Agreement.

Emissions from the playa exposed by projects approved before the IID Water Conservation and Transfer Project, plus emissions from the playa that may be exposed due to projects approved after the QSA approval (above -235 feet msl and below -248 feet msl), are not included in the analysis of impacts of the No Action Alternative, nor would they be included in the QSA related air quality mitigation. These uncontrolled emissions would be the responsibility of the land owners, and may add to air quality issues in the Salton Sea Air Basin. It is assumed that the land owners would comply with all applicable air quality management requirements. Under the No Action Alternative–CEQA Conditions, the area that is the responsibility of the landowners is located above the elevation -235 feet msl. Under the No Action Alternative–Variability Conditions, the area which is the responsibility of the landowners is located above the elevation -235 feet msl and below -248 feet msl. The area of Exposed Playa predicted to result from the IID Water Conservation and Transfer Project would be located between -235 feet msl and -248 feet msl under both the No Action Alternative–CEQA Conditions and the No Action Alternative–Variability Conditions; therefore, the area to be analyzed under the No Action Alternative would be the same for both sets of conditions.

The following analyses for air quality describe impacts of facility construction, facility operations and maintenance, fugitive dust emissions associated with Exposed Playa areas, general conformity, odorous emissions, and microclimate.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For the No Action Alternative, emissions from construction were estimated for the following:

- Earthmoving to construct canals and roads;
- Gravel transported and placed for roads; and
- Disturbance of dry land for construction of Air Quality Management, such as water efficient vegetation.

Under the No Action Alternative, most of the construction activity is associated with building Air Quality Management areas. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for an estimated Peak Year of Construction, assumed to occur in Phase I for each alternative. Under the No Action Alternative, construction of facilities, primarily for Air Quality Management, would continue as needed to mitigate air quality impacts in Phases II, III, and IV.

For the No Action Alternative, the following activities were assumed to occur during the Peak Construction Year:

- Up to 3,100 acres of dry land would be disturbed;
- Up to 2,000 acres of water efficient vegetation for Air Quality Management under construction;
- Up to 1,100 acres of roadways and canals under construction;
- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways (based on the assumed construction of 1/30 of the total roadways each year for 30 years). Transport distance for gravel would be 10 miles one way on paved roads, and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site; and
- Grading and/or movement of one-half of the total material (cubic yards) estimated to construct canals (based on the assumed construction of one-half of the canals each year for 2 years). Construction completed using a mix of land-based construction equipment.

Emissions estimated for construction and operations and maintenance of each alternative are summarized in Appendix E, Attachment E1. Figures 10-5, 10-6, and 10-7 present bar graphs of the annual average (tons/year) PM_{10} and NO_x emissions for each alternative in Phase I and Phase IV. These figures serve the following functions:

- Provide a tool for comparing the emissions from the alternatives to the No Action Alternative;
- Illustrate the relative contributions of emissions from construction to the total emissions estimated for each alternative; and
- Compare the estimated emissions to annual significance thresholds (the more stringent general conformity *de minimis* levels for the Riverside County portion of the Salton Sea Air Basin were used as thresholds of significance for annual emissions estimates in tons/year).

Construction Fugitive Dust Emissions

For the No Action Alternative, fugitive dust emissions (PM_{10}) from construction were estimated for activities that would disturb dry land, and for truck travel on unpaved roadways. Impacts associated with fugitive dust from construction of the components in the No Action Alternative would be greater than under Existing Conditions. However, even under the Peak Construction Year (Phase I), fugitive dust emissions from construction of components would not exceed the local significance threshold for PM_{10} from construction, 150 pounds/day, nor would they exceed the annual threshold, 70 tons/year. Construction fugitive dust emissions would continue in Phases II through IV, but would lessen over time, as Air Quality Management areas are completed. These impacts would be identical under the No Action Alternative–CEQA Conditions and No Action Alternative–Variability Conditions.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

For the No Action Alternative, emissions rates for NO_x and diesel PM_{10} were estimated for exhaust from construction equipment (such as bulldozers and excavators) and diesel-fueled trucks. Impacts associated with NO_x and diesel PM_{10} emissions from construction of the components in the No Action Alternative would be greater than emissions under Existing Conditions. However, the NO_x emissions would be below the applicable local significance thresholds, 100 pounds/day or 50 tons/year, even in the Peak Construction Year (Phase I).

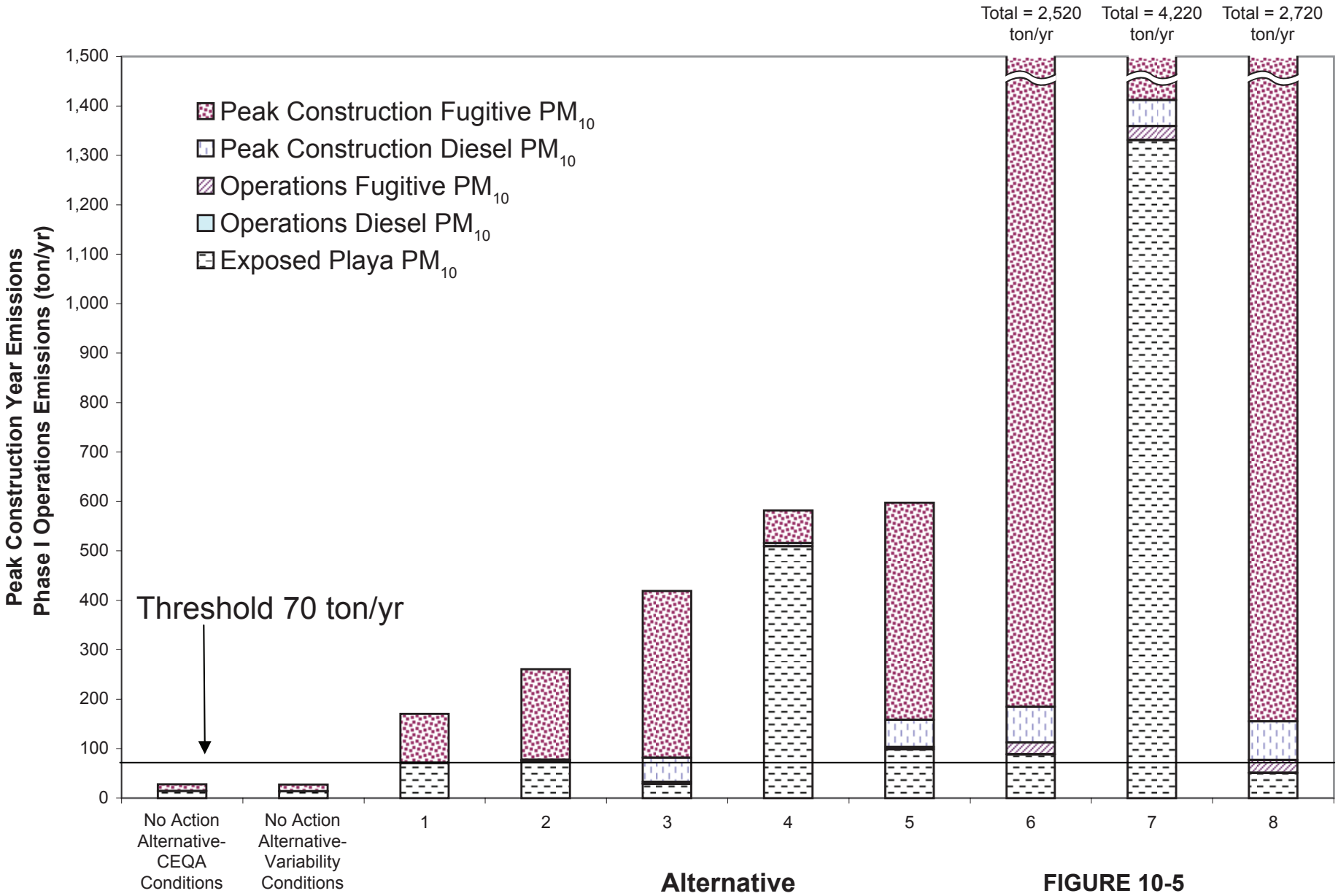


FIGURE 10-5
PHASE I (INITIATION TO 2020)
PM_{10} EMISSIONS

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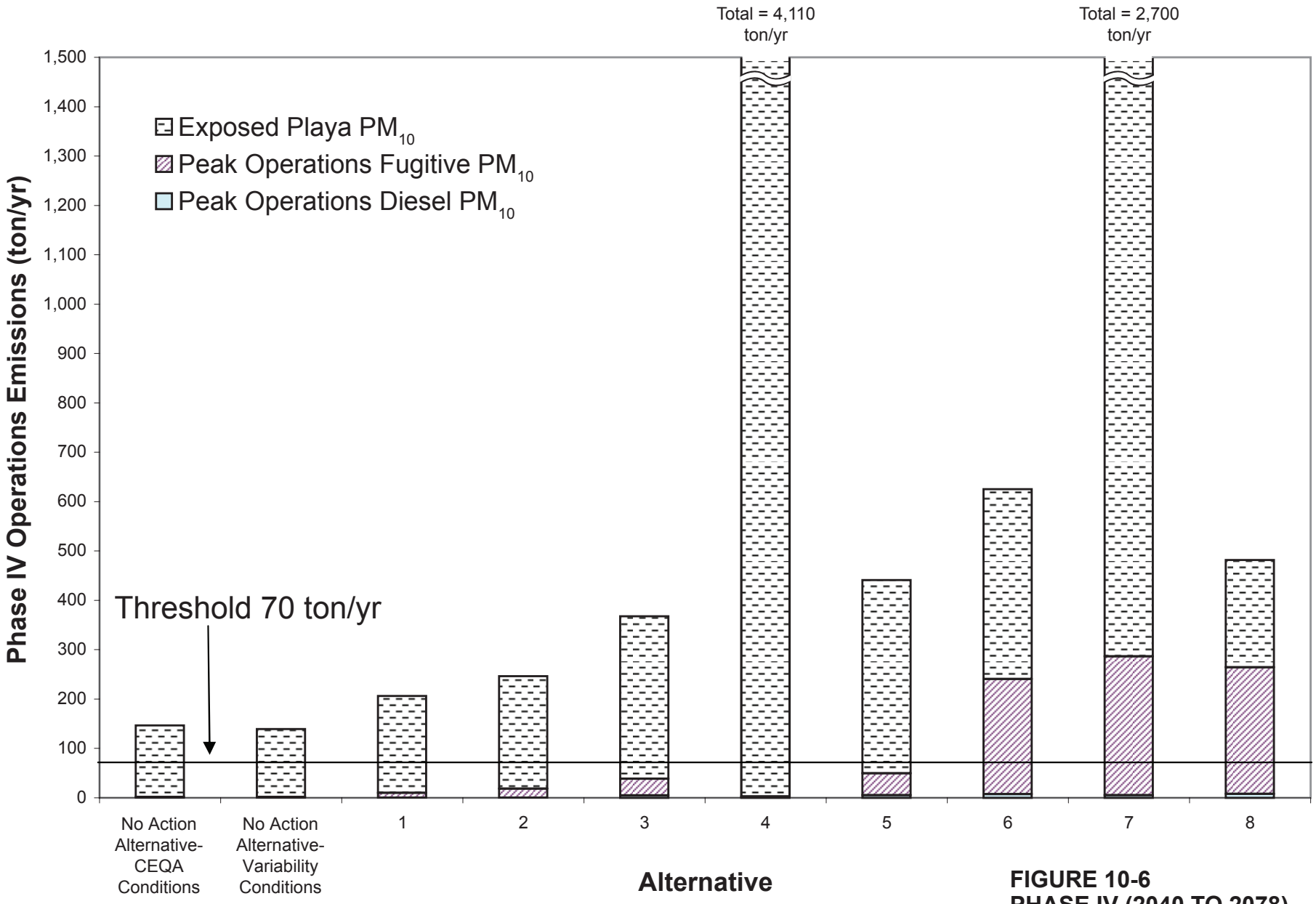

FIGURE 10-6
PHASE IV (2040 TO 2078)
PM_{10} EMISSIONS

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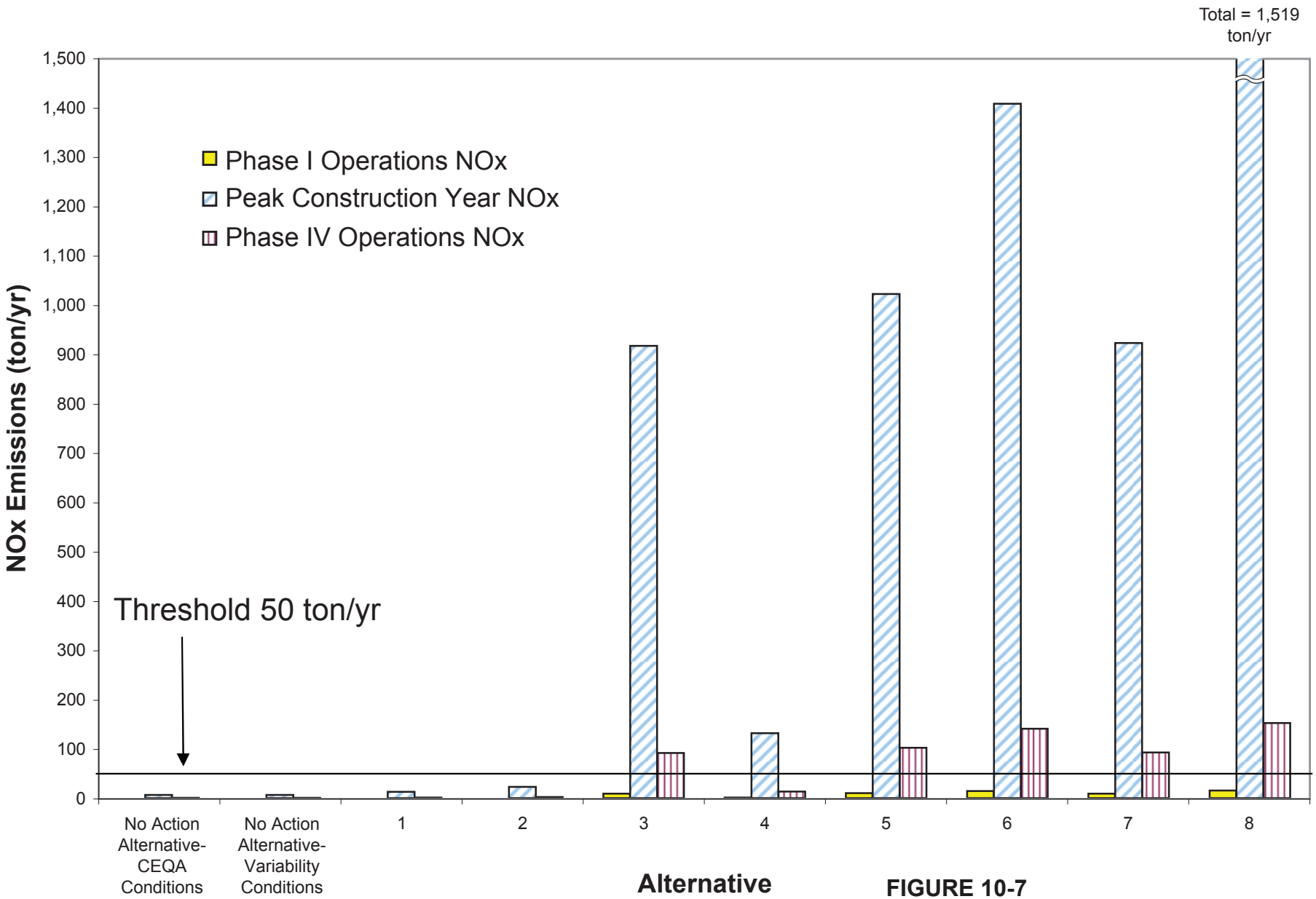

FIGURE 10-7
PHASE I (INITIATION TO 2020) AND PHASE IV (2040 TO 2078) NOx EMISSIONS

ES112005003SAC figure_10_7.ai 10/03/06 tdaus

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, roads, canals, and Air Quality Management). Appendix E, Attachment E2 contains the operations and maintenance emission calculations.

Operations and Maintenance Related Fugitive Dust Emissions

Operations and maintenance of the components would result in air emissions in the form of fugitive PM_{10} from earthmoving activities, material and equipment transport, and travel on unpaved roadways. Assumptions used to estimate emissions and impacts are discussed in Table 10-14.

Impacts associated with fugitive dust emissions from operations and maintenance of the components in the No Action Alternative would be greater than impacts under Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as canals, roads, and Air Quality Management areas are completed, and maintenance requirements increase. The PM_{10} emissions would be below the applicable local significance thresholds, 150 pounds/day or 70 tons/year, even in the Peak Operations Year (Phase IV).

Operations and Maintenance Related Exhaust (NO_x) Emissions

Impacts associated with NO_x emissions from operations and maintenance of the components in the No Action Alternative would be greater than impacts under Existing Conditions. NO_x emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as canals, roads, and Air Quality Management areas are completed, and maintenance requirements increase. The NO_x emissions would be below the applicable local significance thresholds, 55 pounds/day or 50 tons/year, even in the Peak Operations Year (Phase IV).

Fugitive Dust Emissions Associated with Exposed Playa Areas

To support the PEIR, the MacDougall Method was used to estimate fugitive dust (PM_{10}) emissions from future Exposed Playa areas at the Salton Sea. The results provide preliminary estimates of playa dust emissions before and after implementation of control measures.

The limitations, assumptions, and approaches used in this dust emissions estimation process are further described in the subsection on Analysis Methodology. Appendix E, Attachment E3 provides the detailed evaluation of Exposed Playa dust emissions.

Impacts associated with fugitive dust from Exposed Playa in the No Action Alternative would be greater than impacts under Existing Conditions. Fugitive dust emissions from Exposed Playa in Phase I are not predicted to exceed the local significance thresholds for PM_{10}, 150 pounds/day or 70 tons/year. However, these types of emissions are predicted to continue in Phases II through IV, and would become even more significant over time, as greater areas of playa are exposed. Even with the implementation of an aggressive Air Quality Management program for dust control, fugitive dust emissions from Exposed Playa in Phase IV are predicted to exceed the local significance thresholds, as shown in Figure 10-6. This represents a significant impact as compared to the Existing Conditions. The Salton Sea level would recede more quickly under Variability Conditions than under CEQA Conditions. Ultimately, the exposed area assigned to the ecosystem restoration program is the same under both sets of conditions, because responsibility for mitigation of any emissive areas exposed below -248 feet msl are assigned to the landowners. As a result, the impacts predicted for Phase IV would be very similar under the No Action Alternative–CEQA Conditions and No Action Alternative–Variability Conditions.

General Conformity Applicability Analysis

General conformity requirements would not be applicable to the No Action Alternative unless the activities associated with Air Quality Management or other mitigation activities involve federal funding or some other federal action.

Odorous Emissions

In earlier phases, the No Action Alternative would not be greatly different than Existing Conditions, with regard to water column stratification and build up of hydrogen sulfide, ammonia, and other eutrophication byproducts that may be released during mixing events. In later phases, the No Action Alternative would result in shallower water bodies, slightly better mixing, and reduction in the amount of anoxic water produced. In addition, when fish are no longer present in the Salton Sea, odor impacts associated with stratification, followed by summer and fall mixing, would be less than impacts under Existing Conditions.

Microclimate

There are several meteorological and physical parameters that have been found to have effects on the weather and climate in the area near a large body of water. These localized effects are referred to as the local microclimate. The microclimate of an area includes evapotranspiration, relative humidity, temperature, precipitable water, rainfall, wind speed and direction, vegetation, and the interaction of these parameters.

Microclimate impacts associated with the No Action Alternative would be greater than impacts under Existing Conditions.

Under the No Action Alternative, shallower depths, smaller water surfaces, and higher salinity would affect all of the microclimate parameters near the existing shoreline, and in particular, evapotranspiration. Also, changes in vegetation would likely result from the construction of components and dust control measures. Changes in vegetative cover would also affect evapotranspiration. Existing native and agricultural vegetation immediately adjacent to the existing Salton Sea may also be affected.

By reducing water surfaces, less water is available for microclimatic interactions in the atmosphere. The change in interaction between the water surface and sunlight would result in changes to the microclimate parameters, including reductions in relative humidity, evapotranspiration, precipitable water, and rainfall.

Temperature effects would vary because water acts as an insulator, and reduced inflow results in less water to cover the ground. Dry ground absorbs heat from sunlight faster than water surfaces, thereby increasing air temperatures during daylight hours. Because the ground does not insulate as well as water, temperatures would drop faster at night. This would result in larger diurnal temperature swings, with higher temperatures during the day and potentially lower temperatures at night.

Vegetation would increase under the alternatives in areas where plants are used in Air Quality Management, or where native vegetation or agricultural crops are encouraged to grow. However, native vegetation in some areas immediately adjacent to the Salton Sea may decrease, because less moisture would be available to sustain plant growth.

The No Action Alternative would have an undetermined effect on wind speed and direction. In some cases, wind speed would be reduced in areas where more vegetation is planted. Conversely, wind speed would increase in areas where existing vegetation dies due to decreased water or water vapor availability. As changes in total surface area occur, the local wind patterns could change significantly if the lake breeze circulation is weakened or is no longer driven by the differential heating of the land surface and water surface.

Alternative 1 – Saline Habitat Complex I

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Pupfish Channels, Saline Habitat Complex, and Brine Sink.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For Alternative 1, emissions from construction were estimated for the following:

- Earthmoving to construct canals and Saline Habitat Complex;
- Rock transported and placed for the Saline Habitat Complex;
- Gravel transported and placed for the Saline Habitat Complex and roads;
- Disturbance of dry land to construct Saline Habitat Complex cells and roads; and
- Disturbance of dry land for Air Quality Management, such as water efficient vegetation.

Under Alternative 1, most of the construction activity is associated with building Saline Habitat Complex cells and Air Quality Management areas. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for the Early Start Habitat and for an estimated peak year of construction, assumed to occur in Phase I. Under Alternative 1, construction of facilities would continue in Phases II, III, and IV, but at lower levels of activity.

For Alternative 1, the following activities were assumed to occur during the Peak Construction Year:

- Up to 6,600 acres of dry land would be disturbed;
- Up to 4,000 acres of water efficient vegetation for Air Quality Management under construction;
- Up to 2,500 acres of Saline Habitat Complex under construction;
- Up to 100 acres of roadways under construction;
- Transport and placement of 1/20 of the total rock and gravel (cubic yards) estimated for Saline Habitat Complex (based on the assumed construction of 1/20 of the total habitat area each year for 20 years). Transport distance for rock and gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to placement location at construction site;
- Grading and/or movement of 1/20 of the total material (cubic yards) estimated to construct Saline Habitat Complex (based on the assumed construction of 1/20 of the total habitat area each year for 20 years). Construction completed using a mix of land-based construction equipment; and
- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways (based on the assumed construction of 1/30 of the total roadways each year for 30 years). Transport distance for gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site.

Construction Fugitive Dust Emissions

Impacts associated with fugitive dust from construction of the components in Alternative 1 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with an aggressive watering schedule for dust control, fugitive dust emissions from construction of components in Phase I

would exceed the local significance thresholds for PM_{10} from construction, 150 pounds/day or 70 tons/year. Based on screening level analysis, the primary contributor to construction fugitive dust emissions would be truck travel on unpaved roads.

The local significance thresholds are predicted to be exceeded during both the Early Start Habitat and the Peak Construction Year (Phase I). Figure 10-5 shows that construction fugitive dust emissions would contribute about half of the total PM_{10} emissions for Alternative 1 in Phase I. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Construction fugitive dust emissions would continue in Phases II through IV, but would become less than significant over time, as Saline Habitat Complex cells and Air Quality Management areas are completed.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

Impacts associated with NO_x and diesel PM_{10} emissions from construction of the components in Alternative 1 would be greater than impacts under the No Action Alternative and Existing Conditions. The NO_x emissions would be below the applicable local significance thresholds, 100 pounds/day or 50 tons/year, even in the Peak Construction Year. The diesel PM_{10} emissions alone (without including fugitive dust) would not exceed the applicable local significance thresholds for PM_{10}, 150 pounds/day or 70 tons/year. Construction exhaust emissions would continue in Phases II through IV, but would lessen over time, as Saline Habitat Complex cells and Air Quality Management areas are completed.

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, Saline Habitat Complex, canals, and Air Quality Management).

Operations and Maintenance Related Fugitive Dust Emissions

Impacts associated with fugitive dust emissions from operations and maintenance of the components in Alternative 1 would be greater than impacts under the No Action Alternative and Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as Saline Habitat Complex cells and Air Quality Management areas are completed, and maintenance requirements increase. The PM_{10} emissions would be below the applicable local significance thresholds, 150 pounds/day or 70 tons/year, even in the Peak Operations Year (Phase IV).

Operations and Maintenance Related Exhaust (NO_x) Emissions

Impacts associated with NO_x emissions from operations and maintenance of the components in Alternative 1 would be greater than impacts under the No Action Alternative and Existing Conditions. NO_x emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as Saline Habitat Complex cells and Air Quality Management areas are completed, and maintenance requirements increase. The NO_x emissions would be below the applicable local significance thresholds, 55 pounds/day or 50 tons/year, even in the Peak Operations Year (Phase IV).

Fugitive Dust Emissions Associated with Exposed Playa Areas

Impacts associated with fugitive dust from Exposed Playa in Alternative 1 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with the implementation of an aggressive Air Quality Management program for dust control, fugitive dust emissions from Exposed Playa in Phase I would be predicted to exceed the local significance thresholds for PM_{10}, 150 pounds/day or 70 tons/year. This represents a significant impact as compared to the Existing Conditions and the No Action

Alternative. Figure 10-5 shows that playa emissions would contribute about half of the total PM_{10} emissions for Phase I. As shown in Figure 10-6, playa emissions would continue in Phases II through IV, and would become even more significant over time, as greater areas of playa are exposed.

General Conformity Applicability Analysis

The net emissions increase estimated for the nonattainment pollutant NO_x in Alternative 1 would be less than the applicable *de minimis* thresholds for both the Peak Construction Year (Phase I) and the Peak Operations Year (Phase IV). Likewise, these emissions are not regionally significant. The net emissions increase estimated for the nonattainment pollutant PM_{10} in Alternative 1 would be slightly less than the applicable *de minimis* thresholds in the Peak Operations Year (Phase IV). However, the net increase is estimated to be greater than the applicable *de minimis* thresholds in the Peak Construction Year (Phase I). This represents a significant impact as compared to the No Action Alternative.

Odorous Emissions

Impacts associated with odorous emissions from the Brine Sink are predicted to be similar to those described for the No Action Alternative. Odorous conditions from the Saline Habitat Complex cells, however, would be reduced relative to the No Action Alternative and Existing Conditions, because wind mixing would reduce stratification and the build up of odorous eutrophication byproducts.

As the Saline Habitat Complex cells are completed, odorous emissions associated with Alternative 1 would be less than those under Existing Conditions and the No Action Alternative. This would represent a beneficial effect.

Microclimate

Microclimate impacts associated with Alternative 1 would be greater than impacts under Existing Conditions. Available information is not sufficient to allow comparison of the microclimatic impacts of Alternative 1 to the No Action Alternative.

Alternative 2 – Saline Habitat Complex II

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Saline Habitat Complex, Shoreline Waterway, Saltwater Conveyance, and Brine Sink.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For Alternative 2, emissions from construction were estimated for the following:

- Earthmoving to construct canals and Saline Habitat Complex;
- Rock transported and placed for the Saline Habitat Complex;
- Gravel transported and placed for the Saline Habitat Complex and roads;
- Disturbance of dry land to construct Saline Habitat Complex and roads; and
- Disturbance of dry land for Air Quality Management, such as water efficient vegetation.

Under Alternative 2, most of the construction activity is associated with building Saline Habitat Complex cells and Air Quality Management areas. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for the Early Start Habitat and for an estimated Peak Year of Construction, assumed to occur in Phase I for each alternative. Under Alternative 2, construction of facilities would continue in Phases II, III, and IV, but at lower levels of activity.

For Alternative 2, the following activities were assumed to occur during the Peak Construction Year:

- Up to 9,100 acres of dry land would be disturbed;
- Up to 4,000 acres of water efficient vegetation for Air Quality Management under construction;
- Up to 5,000 acres of Saline Habitat Complex under construction;
- Up to 100 acres of roadways under construction;
- Transport and placement of 1/20 of the total rock and gravel (cubic yards) estimated for Saline Habitat Complex (based on the assumed construction of 1/20 of the total habitat area each year for 20 years). Transport distance for rock and gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site;
- Grading and/or movement of 1/20 of the total material (cubic yards) estimated to construct Saline Habitat Complex (based on the assumed construction of 1/20 of the total habitat area each year for 20 years). Construction completed using a mix of land-based construction equipment; and
- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways (based on the assumed construction of 1/30 of the total roadways each year for 30 years). Transport distance for gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site.

Construction Fugitive Dust Emissions

Impacts associated with fugitive dust from construction of the components in Alternative 2 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with an aggressive watering schedule for dust control, fugitive dust emissions from construction of components in Phase I would exceed the local significance thresholds for PM_{10} from construction. Based on screening level analysis, the main contributor to construction fugitive dust emissions would be truck travel on unpaved roads.

The local significance thresholds for PM_{10} are predicted to be exceeded during both the Early Start Habitat and the Peak Construction Year (Phase I), with the emissions in the Peak Construction Year (Phase I) estimated to be more than twice those estimated for the Early Start Habitat. Figure 10-5 shows that fugitive dust emissions would contribute more than half of the total PM_{10} emissions for Alternative 2 in Phase I. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Construction fugitive dust emissions would continue in Phases II through IV, but would become less than significant over time, as Saline Habitat Complex cells and Air Quality Management areas are completed.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

Impacts associated with NO_x and diesel PM_{10} emissions from fuel combustion in construction equipment in Alternative 2 would be greater than impacts under the No Action Alternative and Existing Conditions. The NO_x emissions would exceed the applicable local daily significance threshold of 100 pounds/day in the Peak Construction Year. The diesel PM_{10} emissions alone (without including fugitive dust) would not exceed the applicable local significance thresholds, 150 pounds/day or 70 tons/year for PM_{10}.

Construction exhaust emissions would continue in Phases II through IV, but would lessen over time, as Saline Habitat Complex cells and Air Quality Management areas are completed.

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, Saline Habitat Complex, canals, and Air Quality Management).

Operations and Maintenance Related Fugitive Dust Emissions

Impacts associated with fugitive dust emissions from operations and maintenance of the components in Alternative 2 would be greater than impacts under the No Action Alternative and Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as Saline Habitat Complex cells and Air Quality Management areas are completed, and maintenance requirements increase. The PM_{10} emissions would be below the applicable local significance thresholds, 150 pounds/day or 70 tons/year, even in the Peak Operations Year (Phase IV).

Operations and Maintenance Related Exhaust (NO_x) Emissions

NO_x emissions would result from combustion of fuels in construction equipment (such as bulldozers and excavators) and vehicles. Impacts associated with NO_x emissions from operations and maintenance of the components in Alternative 2 would be greater than impacts under the No Action Alternative and Existing Conditions. NO_x emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as Saline Habitat Complex cells and Air Quality Management areas are completed, and maintenance requirements increase. The NO_x emissions would be below the applicable local significance thresholds, even in the Peak Operations Year (Phase IV).

Fugitive Dust Emissions Associated with Exposed Playa Areas

Impacts associated with fugitive dust from Exposed Playa in Alternative 2 would be greater than impacts under No Action Alternative and Existing Conditions. Even with the implementation of an aggressive Air Quality Management program for dust control, fugitive dust emissions from Exposed Playa in Phase I would be predicted to exceed the local significance thresholds for PM_{10}. This represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Figure 10-5 shows that Exposed Playa emissions would contribute about one-third of the total PM_{10} emissions for Phase I. As shown in Figure 10-6, Exposed Playa emissions would continue in Phases II through IV, and would become even more significant over time, as greater areas of playa are exposed.

General Conformity Applicability Analysis

The net emissions increase estimated for the nonattainment pollutant NO_x in Alternative 2 would be less than the applicable *de minimis* thresholds for both the Peak Construction Year (Phase I) and the Peak Operations Year (Phase IV). Likewise, these emissions are not regionally significant.

The net emissions increase estimated for the nonattainment pollutant PM_{10} in Alternative 2 would be greater than the applicable *de minimis* thresholds in both the Peak Construction and Operations Years. This represents a significant impact as compared to the No Action Alternative.

Odorous Emissions

Impacts associated with odorous emissions from Alternative 2 are predicted to be similar to those described for Alternative 1.

Microclimate

Microclimatic impacts associated with Alternative 2 would be greater than impacts under Existing Conditions. Available information is not sufficient to allow comparison of the microclimatic impacts of Alternative 2 to the No Action Alternative.

Alternative 3 – Concentric Rings

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, First and Second rings, and Brine Sink.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For Alternative 3, emissions from construction were estimated for the following:

- Earthmoving to construct canals;
- Rock transported and placed for the Perimeter Dikes;
- Gravel transported and placed for the Perimeter Dikes and roads;
- Dredging for construction of the Perimeter Dikes;
- Disturbance of dry land for Air Quality Management, such as water efficient vegetation;
- Disturbance of dry land to construct roads; and
- Disturbance of dry land to construct Saline Habitat Complex under the Early Start Habitat.

Under Alternative 3, most of the construction activity is associated with building the First and Second rings and the Air Quality Management areas. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for the Early Start Habitat and for an estimated peak year of construction, assumed to occur in Phase I for each alternative. Under Alternative 3, construction of the Second Ring would occur in Phase II, but after this, construction levels would decrease.

For Alternative 3, the following activities were assumed to occur during the Peak Construction Year:

- Up to 4,100 acres of dry land would be disturbed;
- Up to 4,000 acres of water efficient vegetation for Air Quality Management under construction;
- Up to 100 acres of roadways under construction;
- Transport and placement of 1/10 of the total rock and gravel (cubic yards) estimated for construction of the Perimeter Dikes for the First and Second rings (based on the assumed construction of 1/10 of the initial Ring each year for 5 years of Phase I, the remaining Ring would be constructed in Phase II). Transport distance for rock and gravel by truck would be 10 miles one way on paved roads. Placement of rock and gravel by truck assumes an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site. About 10 percent of the rock and 20 percent of the gravel would be placed by truck. Barges would be used to place 90 percent of the rock, and 80 percent of the gravel;

- Dredging of 1/4 of the amount of sediment estimated for construction of the Perimeter Dikes for the First and Second rings (based on the assumed removal of 1/4 of the required sediment/year for 4 years); and
- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways (based on the assumed construction of 1/30 of the total roadways each year for 30 years). Transport distance for gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site.

Construction Fugitive Dust Emissions

Impacts associated with fugitive dust from construction of the components in Alternative 3 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with an aggressive watering schedule for dust control, fugitive dust emissions from construction of components in Phase I would exceed the local significance thresholds for PM_{10} from construction. Based on the screening level analysis, the main contributor to construction fugitive dust emissions would be truck travel on unpaved roads.

The local significance thresholds for PM_{10} are predicted to be exceeded during both the Early Start Habitat and the Peak Construction Year (Phase I), with the emissions in the Peak Construction Year (Phase I) estimated to be four times those estimated for the Early Start Habitat. Figure 10-5 shows that fugitive dust emissions from construction would contribute the majority of the total PM_{10} emissions for Alternative 3 in Phase I. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Construction fugitive dust emissions would again be high in Phase II during construction of the Perimeter Dikes for the Second Ring, but would become less than significant over time, as facilities are completed.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

Impacts associated with NO_x and diesel PM_{10} emissions from fuel combustion in construction equipment in Alternative 3 would be greater than impacts under the No Action Alternative and Existing Conditions. In addition to land-based construction equipment and trucks, this alternative includes use of marine equipment, such as tugboats, barges, and dredges. Even with requirements for low-emission equipment, exhaust emissions from construction of components in Phase I would greatly exceed the local significance thresholds for NO_x. Figure 10-7 shows the magnitude of the NO_x exceedance as compared to the threshold. Diesel PM_{10} emissions would exceed the daily PM_{10} threshold, and are potentially significant for this reason alone, even without taking into account the toxicity of these emissions. Based on screening level analysis, the primary contributors to construction diesel PM_{10} and NO_x emissions would be diesel-fueled marine vessels used to place rock and gravel and construct the First and Second rings.

Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Construction exhaust emissions would again be high in Phase II during construction of the Second Ring, but would become less than significant over time, as facilities are completed.

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, Saline Habitat Complex, canals, and Air Quality Management).

Operations and Maintenance Related Fugitive Dust Emissions

Impacts associated with fugitive dust emissions from operations and maintenance of the components in Alternative 3 would be greater than impacts under the No Action Alternative and Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as First and Second rings and Air Quality Management areas are completed, and maintenance requirements increase. The PM_{10} emissions would exceed the applicable daily local significance threshold, but would fall below the annual threshold, in the Peak Operations Year (Phase IV).

Operations and Maintenance Related Exhaust (NO_x) Emissions

NO_x emissions would result from combustion of fuels in construction equipment (such as bulldozers and excavators) and vehicles.

Impacts associated with NO_x emissions from operations and maintenance of the components in Alternative 3 would be greater than impacts under the No Action Alternative and Existing Conditions. NO_x emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as Saline Habitat Complex cells and Air Quality Management areas are completed, and maintenance requirements increase. The NO_x emissions would exceed the applicable local significance thresholds, in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Fugitive Dust Emissions Associated with Exposed Playa Areas

Impacts associated with fugitive dust from Exposed Playa in Alternative 3 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with the implementation of an aggressive Air Quality Management program for dust control, fugitive dust emissions from Exposed Playa in Phase I would be predicted to exceed the local significance thresholds for PM_{10}. This represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Figures 10-5 and 10-6 show that emissions from Exposed Playa would contribute a small portion of the total PM_{10} emissions in Phase I but would contribute the majority of the total PM_{10} emissions in Phase IV. Exposed Playa emissions would continue in Phases II through IV, and would become even more significant over time, as greater areas of playa are exposed.

General Conformity Applicability Analysis

The net emissions increase estimated for the nonattainment pollutant NO_x in Alternative 3 would greatly exceed the applicable *de minimis* thresholds in the Peak Construction Year, and would also exceed the threshold in the Peak Operations Year, but to a lesser extent.

The net emissions increase estimated for the nonattainment pollutant PM_{10} in Alternative 3 would be greater than the applicable *de minimis* threshold in the Peak Construction Year (Phase I) and the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact.

Odorous Emissions

Impacts associated with odorous emissions from the Brine Sink in Alternative 3 are predicted to be similar to those described for the No Action Alternative. Impacts would generally be similar to those described for Alternative 1. However, with regard to the Concentric Rings, the greater depth of the circular water bodies, as compared to Saline Habitat Complex cells, would increase the probability of stratification and buildup of odorous eutrophication byproducts, such as hydrogen sulfide and ammonia. When compared to Existing Conditions or the No Action Alternative, the Concentric Ring water bodies would have improved water quality and would be less likely to develop anoxic waters that would result in substantial odorous emissions.

Microclimate

Microclimatic impacts associated with Alternative 3 would be greater than impacts under Existing Conditions. Available information is not sufficient to allow comparison of the microclimatic impacts of Alternative 3 to the No Action Alternative.

Alternative 4 – Concentric Lakes

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins; First, Second, Third, and Fourth lakes; and Brine Sink.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For Alternative 4, emissions from construction were estimated for the following:

- Earthmoving to construct canals and the First through Fourth lakes;
- Rock transported and placed for formation of the First through Fourth lakes with Geotube® Berms;
- Gravel transported and placed for roads and other facilities;
- Dredging for construction of the First through Fourth lakes;
- Disturbance of dry land to construct Saline Habitat Complex under the Early Start Habitat; and
- Disturbance of dry land to construct roads.

Under Alternative 4, most of the construction activity is associated with building the Geotube® Berms and First through Fourth lakes. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for the Early Start Habitat and for an estimated peak year of construction, assumed to occur in Phase I for each alternative. Under Alternative 4, construction of facilities would continue in Phases II, III, and IV.

For Alternative 4, the following activities were assumed to occur during the Peak Construction Year:

- Up to 100 acres of dry land would be disturbed;
- Up to 100 acres of roadways under construction;
- Transport and placement of 1/8 of the total rock (cubic yards) and 1/8 of the dredging (cubic yards) estimated for construction of the Geotube® Berms to form the Concentric Lakes (based on the assumed construction and installation of 1/8 of the Geotube® Berms/year for 8 construction years in the project timeframe, as the water recedes). Transport distance for rock by truck would be 10 miles one way on paved roads. Placement of rock by truck assumes an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site. About 10 percent of the rock would be placed by truck, and 90 percent of the rock would be placed by barge; and
- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways and other facilities (based on the assumed construction of 1/30 of the total roadways and other facilities each year for 30 years). Transport distance for gravel would be 10 miles one way on

paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site.

Construction Fugitive Dust Emissions

Impacts associated with fugitive dust from construction of the components in Alternative 4 would be greater than impacts under the No Action Alternative and Existing Conditions. This alternative is unique in that the fugitive PM_{10} emissions associated with construction of the Early Start Habitat are actually higher than the fugitive PM_{10} emissions estimated for the Peak Construction Year, primarily because more of the construction under the Early Start Habitat occurs on dry land. The local significance thresholds for PM_{10} would be exceeded during the Early Start Habitat. Fugitive dust emissions from construction of components in the Peak Construction Year would also be greater than the local significance thresholds for PM_{10} from construction, 150 pounds/day or 70 tons/year. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Based on screening level analysis, the primary contributor to the fugitive dust emissions would be truck travel on unpaved roads.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

Impacts associated with NO_x and diesel PM_{10} emissions from fuel combustion in construction equipment in Alternative 4 would be greater than impacts under the No Action Alternative and Existing Conditions. In addition to land-based construction equipment and trucks, this alternative includes use of marine equipment, such as tugboats, barges, and dredges. Even with requirements for low-emission equipment, exhaust emissions from construction of components in Phase I would exceed the local significance thresholds for NO_x. The sum of the diesel PM_{10} emissions and fugitive PM_{10} emissions would exceed the daily and annual local significance thresholds for PM_{10}. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Under Alternative 4, construction exhaust emissions would continue in Phases II, III, and IV. The primary contributors to NO_x and diesel PM_{10} emissions would be marine vessels used for dredging and material movement.

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, Saline Habitat Complex, canals, and Geotube® Berms).

Operations and Maintenance Related Fugitive Dust Emissions

Impacts associated with fugitive dust emissions from operations and maintenance of the components in Alternative 4 would be greater than impacts under the No Action Alternative and Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as First through Fourth lakes are completed, and maintenance requirements increase. The PM_{10} emissions would be below the applicable local air district significance thresholds, even in the Peak Operations Year (Phase IV).

Operations and Maintenance Related Exhaust (NO_x) Emissions

Impacts associated with NO_x emissions from operations and maintenance of the components in Alternative 4 would be greater than impacts under the No Action Alternative and Existing Conditions. NO_x emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as Saline Habitat Complex cells and Air Quality Management areas are completed,

and maintenance requirements increase. In the Peak Operations Year (Phase IV), the NO_x emissions would exceed the applicable daily local significance threshold, but would be below the annual threshold.

Fugitive Dust Emissions Associated with Exposed Playa Areas

Impacts associated with fugitive dust from Exposed Playa in Alternative 4 would be greater than impacts under the No Action Alternative and Existing Conditions. This alternative includes an irrigation water supply of 60,000 acre-feet/year and irrigation canals to provide water for two years to the Exposed Playa following construction. However, the information provided by the Imperial Group, as included in Appendix I, did not define long term irrigation facilities, such as the use of water efficient vegetation. Therefore, this alternative does not include a long term program for air quality management. Thirty percent of the Exposed Playa has been assumed to be non-emissive, and 70 percent has been assumed to be potentially emissive and uncontrolled. Fugitive dust emissions from Exposed Playa in Phase I are predicted to exceed the local significance thresholds for PM_{10}. Figures 10-5 and 10-6 show that the majority of the PM_{10} emissions from Alternative 4 would be from Exposed Playa. This represents a significant impact as compared to the Existing Conditions and the No Action Alternative. These conditions would continue in Phases II through IV, and would become more significant over time, as greater areas of playa are exposed. If a long term air quality management program were included in this alternative, the emissions would be reduced.

General Conformity Applicability Analysis

The net emissions increase estimated for the nonattainment pollutant NO_x in Alternative 4 would exceed the applicable *de minimis* thresholds in the Peak Construction Year.

The net emissions increase estimated for the nonattainment pollutant PM_{10} in Alternative 4 would be much greater than the applicable *de minimis* threshold in the Peak Construction Year (Phase I) and would be even higher in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact.

Odorous Emissions

Impacts associated with odorous emissions from the Brine Sink in Alternative 4 are predicted to be similar to those described for the No Action Alternative. The Concentric Lakes would have a similar depth as the Saline Habitat Complex cells in Alternatives 1 and 2, and would have the same low probability of stratification and buildup of odorous eutrophication byproducts. As a result, Alternative 4 would be expected to have impacts that are less than those under Existing Conditions and the No Action Alternative.

Microclimate

Microclimatic impacts associated with Alternative 4 would be greater than impacts under Existing Conditions. Available information is not sufficient to allow comparison of the microclimatic impacts of Alternative 4 to the No Action Alternative.

Alternative 5 – North Sea

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Saline Habitat Complex, Shoreline Waterway, Saltwater Conveyance, Marine Sea, Marine Sea Recirculation Canal, and Brine Sink.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For Alternative 5, emissions from construction were estimated for the following:

- Earthmoving to construct canals and Saline Habitat Complex;
- Rock transported and placed for Barriers and Saline Habitat Complex;
- Gravel transported and placed for Barriers, Saline Habitat Complex, and roads;
- Dredging for construction of Barriers;
- Disturbance of dry land to construct Saline Habitat Complex and roads; and
- Disturbance of dry land for Air Quality Management, such as water efficient vegetation.

Under Alternative 5, most of the construction activity is associated with building Barriers, Saline Habitat Complex, and Air Quality Management. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for the Early Start Habitat and for an estimated peak year of construction, assumed to occur in Phase I for each alternative. Under Alternative 5, construction of facilities would continue in Phases II, III, and IV, but at lower levels of activity.

For Alternative 5, the following activities were assumed to occur during the Peak Construction Year:

- Up to 6,600 acres of dry land would be disturbed;
- Up to 4,000 acres of water efficient vegetation for Air Quality Management under construction;
- Up to 2,500 acres of Saline Habitat Complex under construction;
- Up to 100 acres of roadways under construction;
- Transport and placement of 1/5 of the total rock and gravel (cubic yards) estimated for construction of the Barriers (based on the assumed construction of 1/5 of the Barriers each year for 5 years). Transport distance for rock and gravel by truck would be 10 miles one way on paved roads. Placement of rock and gravel by truck assumes an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site. About 10 percent of the rock and 20 percent of the gravel would be placed by truck. Barges would be used to place 90 percent of the rock, and 80 percent of the gravel;
- Dredging of one-half of the amount of sediment estimated for construction of the Barriers (based on the assumed removal of one-half of the required sediment/year for 2 years);
- Transport and placement of 1/20 of the total rock and gravel (cubic yards) estimated for Saline Habitat Complex (based on the assumed construction of 1/20 of the total Saline Habitat Complex each year for 20 years). Transport distance for rock and gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site;
- Grading and/or movement of 1/20 of the total material (cubic yards) estimated to construct Saline Habitat Complex (based on the assumed construction of 1/20 of the total habitat area each year for 20 years). Construction completed using a mix of land-based construction equipment; and
- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways (based on the assumed construction of 1/30 of the total roadways each year for 30 years). Transport

distance for gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site.

Construction Fugitive Dust Emissions

Impacts associated with fugitive dust from construction of the components in Alternative 5 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with an aggressive watering schedule for dust control, fugitive dust emissions from construction of components in Phase I would exceed the local significance thresholds for PM_{10} from construction. Based on screening level analysis, the main contributor to construction fugitive dust emissions would be truck travel on unpaved roads.

The local significance thresholds for PM_{10} are predicted to be exceeded during both the Early Start Habitat and the Peak Construction Year (Phase I), with the emissions in the Peak Construction Year (Phase I) estimated to be five times those estimated for the Early Start Habitat. Figure 10-5 shows that fugitive dust emissions from construction would contribute more than half of the total PM_{10} emissions for Alternative 5 in Phase I. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Construction fugitive dust emissions would become less than significant over time, as the Barriers, Saline Habitat Complex cells, and Air Quality Management areas are completed.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

Impacts associated with NO_x and diesel PM_{10} emissions from fuel combustion in construction equipment in Alternative 5 would be greater than impacts under the No Action Alternative and Existing Conditions. In addition to land based construction equipment and trucks, this alternative includes use of marine equipment, such as tugboats, barges, and dredges. Even with requirements for low-emission equipment, exhaust emissions from construction of components in Phase I would greatly exceed the local significance thresholds for NO_x. Figure 10-7 shows the magnitude of the exceedance. Diesel PM_{10} emissions would exceed the daily PM_{10} threshold and are potentially significant for this reason alone, even without taking into account the toxicity of these emissions. The main contributor to both the NO_x emissions and diesel PM_{10} emissions would be the use of barges to place rock and gravel for the Barrier. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, Saline Habitat Complex, canals, and Air Quality Management).

Operations and Maintenance Related Fugitive Dust Emissions

Impacts associated with fugitive dust emissions from operations and maintenance of the components in Alternative 5 would be greater than impacts under the No Action Alternative and Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as facilities are completed, and maintenance requirements increase. The PM_{10} emissions would exceed the applicable daily local significance threshold of 150 pounds/day, but would be below the annual threshold of 70 tons/year in the Peak Operations Year (Phase IV).

Operations and Maintenance Related Exhaust (NO_x) Emissions

Impacts associated with NO_x emissions from operations and maintenance of the components in Alternative 5 would be greater than impacts under the No Action Alternative and Existing Conditions. NO_x emissions

associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as maintenance requirements increase. The NO_x emissions would exceed the applicable local air district significance thresholds in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Fugitive Dust Emissions Associated with Exposed Playa Areas

Impacts associated with fugitive dust from Exposed Playa in Alternative 5 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with the implementation of an aggressive Air Quality Management program for dust control, fugitive dust emissions from Exposed Playa in Phase I are predicted to exceed the local significance thresholds for PM_{10}. This represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Figure 10-5 shows that Exposed Playa emissions would contribute about one-fourth of the total PM_{10} emissions for Phase I. As shown in Figure 10-6, Exposed Playa emissions would continue in Phases II through IV, and would become even more significant over time, as greater areas of playa are exposed.

General Conformity Applicability Analysis

The net emissions increase estimated for the nonattainment pollutants NO_x and PM_{10} in Alternative 5 would greatly exceed the applicable *de minimis* thresholds in the Peak Construction Year (Phase I), and would also exceed the thresholds in the Peak Operations Year (Phase IV). Exceedances of these emissions thresholds represent significant impacts.

Odorous Emissions

Impacts associated with odorous emissions from the Brine Sink are predicted to be similar to those described for the No Action Alternative. In the Saline Habitat Complex cells, odorous conditions related to stratification, build up of eutrophication byproducts, and mixing would be much improved over those that occur in the Salton Sea under Existing Conditions. However, in later phases, the number of days that the remnant sea would be stratified is expected to increase, resulting in increased build up of hydrogen sulfide and ammonia below the thermocline. Less frequent mixing events are predicted, but impacts from mixing are predicted to be much more severe, resulting in anoxic conditions, high concentrations of odorous compounds in surface water that may be released to ambient air, and dead fish.

As a result, odor impacts associated with Alternative 5 would be greater than impacts under No Action Alternative and Existing Conditions. This would be a potentially significant impact, and may be unavoidable.

Microclimate

Microclimatic impacts associated with Alternative 5 would be greater than impacts under Existing Conditions. Only minimal changes would be expected in areas bordered by the Marine Sea. In the areas not bordered by the Marine Sea, impacts would be expected to be similar to those described previously for Alternative 1. Available information is not sufficient to allow comparison of the microclimatic impacts of Alternative 5 to the No Action Alternative.

Alternative 6 – North Sea Combined

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Pupfish Channels, Saline Habitat Complex, Shoreline Waterway, Saltwater Conveyance, Marine Sea, Marine Sea Mixing Zone, Marine Sea Recirculation Canal, and Brine Sink.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For Alternative 6, emissions from construction were estimated for the following:

- Earthmoving to construct canals, Saline Habitat Complex, and habitat contours;
- Rock transported and placed for the Barriers, Perimeter Dikes, and Saline Habitat Complex;
- Gravel transported and placed for the Barriers, Perimeter Dikes, Saline Habitat Complex, and roads;
- Dredging for construction of the Barriers and Perimeter Dikes;
- Disturbance of dry land to construct Saline Habitat Complex cells and roads; and
- Disturbance of dry land for Air Quality Management, such as water efficient vegetation.

Under Alternative 6, most of the construction activity is associated with building the Barriers, Perimeter Dikes, Saline Habitat Complex, and Air Quality Management. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for the Early Start Habitat and for an estimated peak year of construction, assumed to occur in Phase I for each alternative. Under Alternative 6, construction of facilities would continue in Phases II, III, and IV, but at lower levels of activity.

For Alternative 6, the following activities were assumed to occur during the Peak Construction Year:

- Up to 6,600 acres of dry land would be disturbed;
- Up to 4,000 acres of water efficient vegetation for Air Quality Management under construction;
- Up to 2,500 acres of Saline Habitat Complex under construction;
- Up to 100 acres of roadways under construction;
- Transport and placement of 1/5 of the total rock and gravel (cubic yards) estimated for construction of the Barriers and Perimeter Dikes (based on the assumed construction of 1/5 of the Barriers and Perimeter Dikes each year for 5 years). Transport distance for rock and gravel by truck would be 10 miles one way on paved roads. Placement of rock and gravel by truck assumes an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site. For the Barriers, about 10 percent of the rock would be placed by truck, and 20 percent of the gravel. Barges would be used to place 90 percent of the rock, and 80 percent of the gravel for the Barriers. For the Perimeter Dikes, about 80 percent of the rock would be placed by truck, and 100 percent of the gravel. Barges would be used to place 20 percent of the rock for the Perimeter Dikes;
- Dredging of one-half of the amount of sediment estimated for construction of the Barriers and Perimeter Dikes (based on the assumed removal of one-half of the required sediment/year for 2 years);
- Transport and placement of 1/20 of the total rock and gravel (cubic yards) estimated for Saline Habitat Complex (based on the assumed construction of 1/20 of the total Saline Habitat Complex each year for 20 years). Transport distance for rock and gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to placement location at construction site;
- Grading and/or movement of 1/20 of the total material (cubic yards) estimated to construct Saline Habitat Complex (based on the assumed construction of 1/20 of the total habitat area each year for 20 years). Construction completed using a mix of land based construction equipment; and

- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways (based on the assumed construction of 1/30 of the total roadways each year for 30 years). Transport distance for gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site.

Construction Fugitive Dust Emissions

Impacts associated with fugitive dust from construction of the components in Alternative 6 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with an aggressive watering schedule for dust control, fugitive dust emissions from construction of components in Phase I would greatly exceed the local significance thresholds for PM_{10} from construction. Based on screening level analysis, the main contributor to construction fugitive dust emissions would be truck travel on unpaved roads.

The local significance thresholds for PM_{10} are predicted to be exceeded during both the Early Start Habitat and the Peak Construction Year (Phase I), with the emissions in the Peak Construction Year (Phase I) estimated to be more than 25 times those estimated for the Early Start Habitat. Figure 10-5 shows that fugitive dust emissions would contribute the majority of the total PM_{10} emissions for Alternative 6 in Phase I. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Construction fugitive dust emissions would become less than significant over time, as the Barriers, Perimeter Dikes, Saline Habitat Complex cells, and Air Quality Management areas are completed.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

Impacts associated with NO_x and diesel PM_{10} emissions from fuel combustion in construction equipment in Alternative 6 would be greater than impacts under the No Action Alternative and Existing Conditions. In addition to land based construction equipment and trucks, this alternative includes use of marine equipment, such as tugboats, barges, and dredges. Even with requirements for low-emission equipment, exhaust emissions from construction of components in Phase I would greatly exceed the local significance thresholds for NO_x. Figure 10-7 shows the magnitude of the NO_x exceedance as compared to the threshold. Similarly, diesel PM_{10} emissions would greatly exceed the local significance PM_{10} thresholds, and are potentially significant for this reason alone, even without taking into account the toxicity of these emissions. Based on screening level analysis, the main contributor to construction NO_x and diesel PM_{10} emissions would be diesel-fueled marine vessels used to place rock and gravel. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, Saline Habitat Complex, canals, and Air Quality Management).

Operations and Maintenance Related Fugitive Dust Emissions

Impacts associated with fugitive dust emissions from operations and maintenance of the components in Alternative 6 would be greater than impacts under the No Action Alternative and Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as facilities are completed, and maintenance requirements increase. The PM_{10} emissions would exceed the local air district significance thresholds in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Operations and Maintenance Related Exhaust (NO_x) Emissions

Impacts associated with NO_x emissions from operations and maintenance of the components in Alternative 6 would be greater than impacts under the No Action Alternative and Existing Conditions. NO_x emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as maintenance requirements increase. The NO_x emissions would exceed the applicable local air district significance thresholds in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Fugitive Dust Emissions Associated with Exposed Playa Areas

Impacts associated with fugitive dust from Exposed Playa in Alternative 6 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with the implementation of an aggressive Air Quality Management program for dust control, fugitive dust emissions from Exposed Playa in Phase I are predicted to exceed the local significance thresholds for PM_{10}. This represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Exposed playa conditions would continue in Phases II through IV, and would become even more significant over time, as greater areas of playa are exposed. Figure 10-6 shows that Exposed Playa emissions contribute to the majority of the Phase IV PM_{10} emissions.

General Conformity Applicability Analysis

The net emissions increase estimated for the nonattainment pollutants NO_x and PM_{10} in Alternative 6 would greatly exceed the applicable *de minimis* thresholds in the Peak Construction Year (Phase I), and would also exceed the thresholds in the Peak Operations Year (Phase IV). Exceedances of these emissions thresholds represent significant impacts.

Odorous Emissions

Similar to Alternative 5, odor impacts associated with Alternative 6 would be greater than impacts under No Action Alternative and Existing Conditions. This would be a potentially significant impact, and may be unavoidable.

Microclimate

Microclimatic impacts associated with Alternative 6 would be greater than impacts under Existing Conditions. Only minimal changes would be expected in areas bordered by the Marine Sea or Marine Sea Mixing Zone. In the areas not bordered by the Marine Sea or Marine Sea Mixing Zone, impacts would be expected to be similar to those described previously for Alternative 1. Available information is not sufficient to allow comparison of the microclimatic impacts of Alternative 6 to the No Action Alternative.

Alternative 7 – Combined North and South Lakes

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management using Protective Salt Flat on Exposed Playa below -255 feet msl, Exposed Playa without Air Quality Management above -255 feet msl, Saline Habitat Complex, Recreational Saltwater Lake, Recreational Estuary Lake, Marine Sea Recirculation Canal, IID Freshwater Reservoir, two treatment plants, and Brine Sink.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For Alternative 7, emissions from construction were estimated for the following:

- Earthmoving to construct canals and Saline Habitat Complex;
- Rock transported and placed for the Barriers, Perimeter Dikes, and Saline Habitat Complex;
- Gravel transported and placed for the Barriers, Perimeter Dikes, Saline Habitat Complex, and roads; and
- Disturbance of dry land to construct Saline Habitat Complex cells and roads.

Under Alternative 7, most of the construction activity is associated with building the Barriers, Perimeter Dikes, and Saline Habitat Complex. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for the Early Start Habitat and for an estimated peak year of construction, assumed to occur in Phase I for each alternative. Under Alternative 7, construction of facilities would continue in Phases II, III, and IV, but at lower levels of activity.

For Alternative 7, the following activities were assumed to occur during the Peak Construction Year:

- Up to 2,600 acres of dry land would be disturbed;
- No acres of water efficient vegetation for Air Quality Management;
- Up to 2,500 acres of Saline Habitat Complex under construction;
- Up to 100 acres of roadways under construction;
- Transport and placement of 1/5 of the total rock and gravel (cubic yards) estimated for construction of the Barriers and Perimeter Dikes (based on the assumed construction of 1/5 of the Barriers and Perimeter Dikes each year for 5 years). Transport distance for rock and gravel by truck would be 10 miles one way on paved roads. Placement of rock and gravel by truck assumes an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site. For the Barriers, about 10 percent of the rock and 20 percent of the gravel would be placed by truck. Barges would be used to place 90 percent of the rock, and 80 percent of the gravel for the Barriers. For the Perimeter Dikes, about 80 percent of the rock and 100 percent of the gravel would be placed by truck. Barges would be used to place 20 percent of the rock for the Perimeter Dikes;
- Transport and placement of 1/20 of the total rock and gravel (cubic yards) estimated for Saline Habitat Complex (based on the assumed construction of 1/20 of the total Saline Habitat Complex each year for 20 years). Transport distance for rock and gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site;
- Grading and/or movement of 1/20 of the total material (cubic yards) estimated to construct Saline Habitat Complex (based on the assumed construction of 1/20 of the total habitat area each year for 20 years). Construction completed using a mix of land based construction equipment; and
- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways (based on the assumed construction of 1/30 of the total roadways each year for 30 years). Transport distance for gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site.

Construction Fugitive Dust Emissions

Impacts associated with fugitive dust from construction of the components in Alternative 7 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with an aggressive watering schedule for dust control, fugitive dust emissions from construction of components in Phase I would greatly exceed the local significance thresholds for PM_{10} from construction. Based on screening

level analysis, the main contributor to construction fugitive dust emissions would be truck travel on unpaved roads.

The local significance thresholds for PM_{10} are predicted to be exceeded during both the Early Start Habitat and the Peak Construction Year (Phase I), with the emissions in the Peak Construction Year (Phase I) estimated to be more than 30 times those estimated for the Early Start Habitat. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Construction fugitive dust emissions would become less than significant over time, as the Barriers, Perimeter Dikes, Saline Habitat Complex cells, and Air Quality Management areas are completed.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

Impacts associated with NO_x and diesel PM_{10} emissions from fuel combustion in construction equipment in Alternative 7 would be greater than impacts under the No Action Alternative and Existing Conditions. In addition to land based construction equipment and trucks, this alternative includes use of marine equipment, such as tugboats and barges. Even with requirements for low-emission equipment, exhaust emissions from construction of components in Phase I would greatly exceed the local significance thresholds for NO_x. Figure 10-7 shows the magnitude of the exceedance in comparison to the annual threshold. Diesel PM_{10} emissions would exceed the daily local significance threshold for PM_{10}, and are potentially significant for this reason alone, even without taking into account the toxicity of these emissions. The main contributor to both the NO_x emissions and diesel PM_{10} emissions would be the use of barges to place rock and gravel for the Barrier. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, Saline Habitat Complex, canals, Barriers, and Perimeter Dikes).

Operations and Maintenance Related Fugitive Dust Emissions

Impacts associated with fugitive dust emissions from operations and maintenance of the components in Alternative 7 would be greater than impacts under the No Action Alternative and Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as facilities are completed, and maintenance requirements increase. The PM_{10} emissions would exceed the local air district significance thresholds in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Operations and Maintenance Related Exhaust (NO_x) Emissions

Impacts associated with NO_x emissions from operations and maintenance of the components in Alternative 7 would be greater than impacts under the No Action Alternative and Existing Conditions. NO_x emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as maintenance requirements increase. The NO_x emissions would exceed the applicable local air district significance thresholds in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Fugitive Dust Emissions Associated with Exposed Playa Areas

Impacts associated with fugitive dust from Exposed Playa in Alternative 7 would be greater than impacts under the No Action Alternative and Existing Conditions. This alternative includes about 63,000 acres of

Protective Salt Flat, with an estimated control efficiency of 85 percent, and also includes about 40,000 acres of Exposed Playa area with no identified long term program for air quality management. Of this 40,000 acres of Exposed Playa, 30 percent have been assumed to be non-emissive, and up to 70 percent have been assumed to be potentially emissive. An additional 11,000 acres with no identified long term program for air quality management would need to be evaluated if the IID reservoir is not built (emissions were not estimated for this area in the PEIR). Fugitive dust emissions from Exposed Playa in Phase I are predicted to greatly exceed the local significance thresholds for PM_{10}. This represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Figure 10-5 shows that Exposed Playa emissions would contribute a large portion of the total PM_{10} emissions for Phase I. As shown in Figure 10-6, Exposed Playa emissions would continue in Phases II through IV, and would become even more significant over time, as greater areas of playa are exposed.

General Conformity Applicability Analysis

The net emissions increase estimated for the nonattainment pollutants NO_x and PM_{10} in Alternative 7 would greatly exceed the applicable *de minimis* thresholds in the Peak Construction Year (Phase I), and would also exceed the thresholds in the Peak Operations Year (Phase IV). Exceedances of these emissions thresholds represent significant impacts.

Odorous Emissions

Similar to Alternative 5, odor impacts associated with Alternative 7 would be greater than impacts under No Action Alternative and Existing Conditions. This would be a potentially significant impact, and may be unavoidable.

Microclimate

Microclimatic impacts associated with Alternative 7 would be greater than impacts under Existing Conditions. Only minimal changes would be expected in areas bordered by the Recreational Saltwater and Recreational Estuary Lakes and Saline Habitat Complex. In the areas not bordered by water bodies, impacts would be expected to be similar to those described previously for Alternative 1. Available information is not sufficient to allow comparison of the microclimatic impacts of Alternative 7 to the No Action Alternative.

Alternative 8 – South Sea Combined

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Saline Habitat Complex, Shoreline Waterway, Marine Sea, Marine Sea Recirculation Canal, and Brine Sink.

Construction Emissions

Construction of components in this alternative would result in air emissions such as fugitive dust, and exhaust from the combustion of fossil fuels in equipment and vehicles. For Alternative 8, emissions from construction were estimated for the following:

- Earthmoving to construct canals and Saline Habitat Complex;
- Rock transported and placed for the Barriers, Perimeter Dikes, and Saline Habitat Complex;
- Gravel transported and placed for the Barriers, Perimeter Dikes, Saline Habitat Complex, and roads;
- Dredging for construction of the Barriers and Perimeter Dikes;
- Disturbance of dry land to construct Saline Habitat Complex cells and roads; and
- Disturbance of dry land for Air Quality Management, such as water efficient vegetation.

Under Alternative 8, most of the construction activity is associated with building the Barriers, Perimeter Dikes, Saline Habitat Complex, and Air Quality Management. Lesser levels of activity are associated with building canals, roads, and other associated facilities.

Construction related emissions have been analyzed for the Early Start Habitat and for an estimated peak year of construction, assumed to occur in Phase I for each alternative. Under Alternative 8, construction of facilities would continue in Phases II, III, and IV, but at lower levels of activity.

For Alternative 8, the following activities were assumed to occur during the Peak Construction Year:

- Up to 6,600 acres of dry land would be disturbed;
- Up to 4,000 acres of water efficient vegetation for Air Quality Management under construction;
- Up to 2,500 acres of Saline Habitat Complex under construction;
- Up to 100 acres of roadways under construction;
- Transport and placement of 1/5 of the total rock and gravel (cubic yards) estimated for construction of the Barriers and Perimeter Dikes (based on the assumed construction of 1/5 of the Barriers and Perimeter Dikes each year for 5 years). Transport distance for rock and gravel by truck would be 10 miles one way on paved roads. Placement of rock and gravel by truck assumes an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site. For the Barriers, about 10 percent of the rock and 20 percent of the gravel would be placed by truck. Barges would be used to place 90 percent of the rock, and 80 percent of the gravel for the Barriers. For the Perimeter Dikes, about 80 percent of the rock and 100 percent of the gravel would be placed by truck. Barges would be used to place 20 percent of the rock for the Perimeter Dikes;
- Dredging of one-half of the amount of sediment estimated for construction of the Barriers and Perimeter Dikes (based on the assumed removal of one-half of the required sediment/year for 2 years);
- Transport and placement of 1/20 of the total rock and gravel (cubic yards) estimated for Saline Habitat Complex Berms (based on the assumed construction of 1/20 of the total Saline Habitat Complex each year for 20 years). Transport distance for rock and gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site;
- Grading and/or movement of 1/20 of the total material (cubic yards) estimated to construct Saline Habitat Complex (based on the assumed construction of 1/20 of the total habitat area each year for 20 years). Construction completed using a mix of land based construction equipment; and
- Transport and placement of 1/30 of the total gravel (cubic yards) estimated for roadways (based on the assumed construction of 1/30 of the total roadways each year for 30 years). Transport distance for gravel would be 10 miles one way on paved roads and an additional 5 miles of travel one way on unpaved roads to a placement location at the construction site.

Construction Fugitive Dust Emissions

Impacts associated with fugitive dust from construction of the components in Alternative 8 would be greater than impacts under the No Action Alternative and Existing Conditions. Even with an aggressive watering schedule for dust control, fugitive dust emissions from construction of components in Phase I would greatly exceed the local significance thresholds for PM_{10} from construction. Based on screening

level analysis, the main contributor to construction fugitive dust emissions would be truck travel on unpaved roads.

The local significance thresholds for PM_{10} are predicted to be exceeded during both the Early Start Habitat and the Peak Construction Year (Phase I), with the emissions in the Peak Construction Year (Phase I) estimated to be more than 30 times those estimated for the Early Start Habitat. Figure 10-5 shows that fugitive dust emissions from construction would contribute the majority of the total PM_{10} emissions for Alternative 8 in Phase I. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Construction fugitive dust emissions would become less than significant over time, as the Barriers, Perimeter Dikes, Saline Habitat Complex cells, and Air Quality Management areas are completed.

Construction Exhaust (NO_x and diesel PM_{10}) Emissions

Impacts associated with NO_x and diesel PM_{10} emissions from fuel combustion in construction equipment in Alternative 8 would be greater than impacts under the No Action Alternative and Existing Conditions. In addition to land based construction equipment and trucks, this alternative includes use of marine equipment, such as tugboats, barges, and dredges. Even with requirements for low-emission equipment, exhaust emissions from construction of components in Phase I would greatly exceed the local significance thresholds for NO_x. Figure 10-7 shows the magnitude of the exceedance. Diesel PM_{10} emissions would exceed the local significance PM_{10} thresholds and are potentially significant for this reason alone, even without taking into account the toxicity of these emissions. The main contributor to both the NO_x emissions and diesel PM_{10} emissions would be the use of barges to place rock and gravel for the Barrier. Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Operations and Maintenance Related Emissions

Operations and maintenance activities have the potential to contribute air emissions such as fugitive dust and exhaust from the combustion of fossil fuels in equipment and vehicles. Emissions were estimated for activities used to operate and maintain the components (for example, Saline Habitat Complex, canals, and Air Quality Management).

Operations and Maintenance Related Fugitive Dust Emissions

Impacts associated with fugitive dust emissions from operations and maintenance of the components in Alternative 8 would be greater than impacts under the No Action Alternative and Existing Conditions. PM_{10} emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as facilities are completed, and maintenance requirements increase. The PM_{10} emissions would exceed the local air district significance thresholds in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Operations and Maintenance Related Exhaust (NO_x) Emissions

Impacts associated with NO_x emissions from operations and maintenance of the components in Alternative 8 would be greater than impacts under the No Action Alternative and Existing Conditions. NO_x emissions associated with operations and maintenance would be the lowest in Phase I, but would increase over time, as maintenance requirements increase. The NO_x emissions would exceed the applicable local air district significance thresholds in the Peak Operations Year (Phase IV). Exceedance of these thresholds represents a significant impact as compared to the Existing Conditions and the No Action Alternative.

Fugitive Dust Emissions Associated with Exposed Playa Areas

Impacts associated with fugitive dust from Exposed Playa in Alternative 8 would be greater than impacts under No Action Alternative and Existing Conditions. Even with the implementation of an aggressive Air Quality Management program for dust control, fugitive dust emissions from Exposed Playa in Phase I are predicted to exceed the local significance thresholds for PM_{10}. This represents a significant impact as compared to the Existing Conditions and the No Action Alternative. Figure 10-5 shows that Exposed Playa emissions would contribute a small portion of the total PM_{10} emissions for Phase I. As shown in Figure 10-6, Exposed Playa emissions would continue in Phases II through IV, and would become even more significant over time, as greater areas of playa are exposed.

General Conformity Applicability Analysis

The net emissions increase estimated for the nonattainment pollutants NO_x and PM_{10} in Alternative 8 would greatly exceed the applicable *de minimis* thresholds in the Peak Construction Year (Phase I), and would also exceed the thresholds in the Peak Operations Year (Phase IV). Exceedances of these emissions thresholds represent significant impacts.

Odorous Emissions

Odor impacts associated with Alternative 8 would be greater than impacts under the No Action Alternative and Existing Conditions. This would be a potentially significant impact, and may be unavoidable.

However, odor impacts associated with Alternative 8 would be less than impacts under Alternatives 5, 6, or 7. Alternatives with deeper water bodies in the north are predicted to experience more stratification (both stronger and for a greater duration) than alternatives with water bodies in the south, due to greater average depths and lower winds in the north. Water bodies in the south would tend to be shallower, and the higher winds in the south would provide more energetic mixing and aeration.

Microclimate

Microclimatic impacts associated with Alternative 8 would be greater than impacts under Existing Conditions. Only minimal changes would be expected in areas bordered by the Marine Sea. In the areas not bordered by the Marine Sea, impacts would be expected to be similar to those described previously for Alternative 1. Available information is not sufficient to allow comparison of the microclimatic impacts of Alternative 8 to the No Action Alternative.

NEXT STEPS

During project-level analyses, proposed projects must require implementation of current best available control measures and most stringent measures, and all feasible PM_{10} mitigation measures. Recommended measures are described in ICAPCD and SCAQMD regulations and handbooks, as summarized in Appendix E, Attachment E5. Other considerations would be to use methods other than haul trucks to deliver materials to construction sites (for example, trains or conveyors), or to even further increase watering frequency during construction, pave gravel roads on site, or use chemical stabilizers that may provide higher control efficiencies. Methods for control of dust during construction of Air Quality Management areas should be identified.

Additional research is recommended to further study the amount and composition of the fugitive dust emitted during construction activities at the Salton Sea. Project-level analyses would need to include detailed emissions estimation, exposure assessment, and health impact analyses. Potential impacts of fugitive dust on agricultural productivity should also be analyzed. Control of fugitive dust from

construction would reduce human and agricultural exposures to PM_{10} and constituents of potential concern.

Additional study is recommended to further analyze the amount of diesel PM_{10} that would be emitted during construction activities, and the location of these emissions relative to sensitive receptors. To reduce emissions of NO_x and PM_{10}, further consideration may be given to use of other transportation methods to deliver materials to the construction sites (for example, trains or conveyors). Project-level analyses would need to do more detailed emissions estimation, exposure assessment, and health impact analyses for diesel PM_{10} and other HAPs.

Emissions estimates for Exposed Playa areas are based on the limited studies of playa stability and emissivity conducted to date at the Salton Sea, a predictive model, and currently proven control measures. Additional research is recommended to further study the amount and composition of the fugitive dust emitted from playa at the Salton Sea, and the conditions (meteorological, crustal, and others) that result in stable versus emissive conditions. Project-level analyses would need to do more detailed emissions estimation, exposure assessment, and health impact analyses. Potential impacts of dust on agricultural productivity should also be analyzed.

Project-level analyses must require implementation of current best available control measures and most stringent measures on all exposed emissive areas, and should include all feasible PM_{10} mitigation measures. Additional site-specific studies are needed to better characterize playa conditions and emissions and identify the best control measures. The results from these studies should be included with any recommended action, even if emission controls were not evaluated in the specific PEIR alternative. In Alternatives 4 and 7, some of the Exposed Playa areas had no identified long term program for air quality management. With identification and implementation of control measures, the fugitive dust emissions predicted for these areas would be substantially reduced, and the benefits of such measures should be quantified in project-level studies.

To comply with general conformity regulations, prior to implementation, alternatives would be required to demonstrate conformity with the applicable SIP through mitigation or other accepted practices.

With regard to odorous emissions, project-level analyses would need to do more detailed emissions estimation, exposure and health impact analysis, and mitigation planning. Measures to reduce the incoming nutrient loading, or remove or bind nutrients from Salton Sea water, may assist in reducing odorous air emissions and fish die-offs.

Project level analyses would need to do more detailed evaluation of microclimatic conditions and effects of the alternatives on agricultural lands adjacent to the Salton Sea.

TABLE 4. PROJECT STATUS AT EACH FIELD STUDY AREA

Field Study Area	Area (acres)*	Total Annual Emissions (tons) Prior to Implementation	% Contribution to Total Playa Emissions	Identification	Study Area Characterization	Conceptual Layout	Final Layout	Implementation
Implemented								
Alamo North	205	0.62	0.14	X	X	X	X	X
Alamo South	220	1.76	0.39	X	X	X	X	X
Poe Road	330	8.49	1.90	X	X	X	X	X
Coachella Playa	245	0.02	0.00	X	X	X	X	X
New River West	350	1.96	0.44	X	X	X	X	X
Conceptual Layout Complete								
Vail Drain	500	18.20	4.07	X	X	X		
Tule Wash	345	31.18	6.97	X	X	X		
Red Hill Bay West	295	4.85	1.09	X	X	X		
Study Area Characterization Complete								
Clubhouse	570	60.89	13.62	X	X			
Poe Road Extension	805	8.54	1.91	X	X			
Study Area Identified								
San Felipe Fan	780	40.59	9.08	X				
Wister-Frink	700	15.12	3.38	X				
Subtotal IID Projects	5,345	192.22	42.99					
Stakeholder Projects								
Red Hill Bay Habitat Project	618	10.96	2.45	X	X	X	X	
Species Conservation Habitat	1,780**	24.46**	5.47**	X				
Subtotal Stakeholder Projects	2,398**	35.42**	7.92**					
Total for All Projects	7,743	227.64	50.91					

*Actual acreage of dust control implementation may vary based on site conditions at the time of construction. As an example, saturated soil conditions near the shoreline may limit the extent of surface roughening during construction. As these areas dry and become trafficable, the dust control measures will be extended to the original extent.
**Acres, Emissions and % Contribution after subtraction of overlapping study areas: Poe Rd., Poe Rd. Extension, New River West, and Vail Drain.

APPENDIX B-3: Table of Summarized CNRA Comments and Responses

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	Imperial County Air Pollution Control District (ICAPCD)	2-1	The State has not included ICAPCD in the decision-making process of the DSAP. The ICAPCD recommends the DSAP assess all Rules and Regulations of the ICAPCD and demonstrate compliance with these rules. Some of the projects are also within the jurisdiction of the SCAQMD which is not listed as a stakeholder in the DSAP. SCAQMD has their own unique set of adopted rules and regulations as well.	Agency and Project/Plan Coordination	The State intends to comply with all applicable ICAPCD and SCAQMD rules, is committed to working with ICAPCD and SCAQMD, and acknowledges the roles of ICAPCD and SCAQMD in approving any dust control projects within their jurisdictions. The State is holding ongoing meetings with ICAPCD.	Yes	Section 3.2.8 and 3.2.9 discuss applicable ICAPCD and SCAQMD rules, respectively, and the State's commitment to compliance with these rules.
3/27/2020	Imperial County Air Pollution Control District (ICAPCD)	2-3	Surface roughing is not an approved Best Available Control Measure (BACM) under Rule 804 and thus requires ICAPCD and EPA approval prior to implementation.	Agency and Project/Plan Coordination	The State intends to comply with all applicable ICAPCD rules, including Rule 804, and acknowledges the roles of ICAPCD and EPA in approving any dust control projects as required.	Yes	Section 3.2.8 discusses applicable ICAPCD rules and the State's commitment to compliance with these rules.
3/27/2020	Imperial County Air Pollution Control District (ICAPCD)	2-4	ICAPCD Rule 925, General Conformity, applies to federal actions that result in emissions of "nonattainment pollutants," or their precursors, in federally designated nonattainment areas. ICAPCD is concerned that surface roughing will interfere with the PM10 Attainment Plan. An updated emissions inventory that addresses these impacts will need to be submitted to ICAPCD for review and approval.	Agency and Project/Plan Coordination	The State Team will work with ICAPCD to obtain the necessary review and approval for planned dust control activities, including updates to the emission inventory that may result from these activities.	Yes	Section 3.2.8 discusses applicable ICAPCD rules, including Rule 925, and the State's commitment to compliance with these rules.
3/27/2020	Imperial Irrigation District (IID)	3-1	There needs to be coordination between the State's DSAP and the IID's 2019/2020 Proactive Dust Control Plan. These plans need to be complementary and integrated with each other so the implementation of both plans maximizes the potential for emissions reductions. Once the 2019/2020 Proactive Dust Control Plan is finalized, it should inform and be reflected in the final DSAP.	Agency and Project/Plan Coordination	The State has been and will continue to coordinate with IID and use IID's relevant studies to inform the DSAP. This effort is described throughout the revised DSAP. Several project areas identified in the 2019/2020 Proactive Dust Control Plan are planned for further implementation in the DSAP. The source of these project areas from the PDCP is clearly stated.	Yes	Effort is described throughout document, in particular in Chapter 1 and Chapter 4.
3/27/2020	Imperial Irrigation District (IID)	3-2	The IID's Salton Sea Air Quality Mitigation Program (SS AQMP) should be used to guide the DSAP. The three main components of the SS AQMP are an annual Emissions Monitoring Program, an annual Proactive Dust Control Plan, and implementation of DCMs. It provides an essential framework for identifying, prioritizing, and implementing dust mitigation efforts at the Sea. Therefore, it needs to be a guiding framework for the DSAP and any other plans or projects.	Agency and Project/Plan Coordination	The State has been and will continue to coordinate with IID and use IID's relevant studies, including the SSAQMP, to inform the DSAP. This effort is described throughout the revised DSAP, such as the reference to the PDCP as the source for seven of the nine project areas, and the use of IID analysis to report the emissions inventory for the project sites.	Yes	Effort is described throughout document, in particular in Chapter 1 and Chapter 4.
3/27/2020	Imperial Irrigation District (IID)	3-3	Identification of joint dust suppression projects with IID.	Agency and Project/Plan Coordination	Section 1.3 was added to the revised DSAP to describe ongoing joint dust suppression projects.	Yes	Section 1.3 discusses ongoing joint dust suppression projects

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	Imperial Irrigation District (IID)	3-7	The vegetation establishment described in Phase B should consider the findings from the IID's field studies as vegetation establishment at the Salton Sea is challenging.	Agency and Project/Plan Coordination	The State considered the findings from IID's field studies in developing the approach for vegetation establishment, which is described in detail in Section 2.4 of the revised DSAP.	Yes	Section 2.4 discusses the vegetation establishment approach.
3/27/2020	Imperial Irrigation District (IID)	3-8	Many of the data needs for Phase B projects can be available from the SS AQMP. Additional data collection should be coordinated with IID to avoid duplication. Phase B projects generally need more efforts for water supply development from drains, surface water runoff, shallow groundwater, and deep groundwater.	Agency and Project/Plan Coordination	The State will review data from the SSAQMP and coordinate with IID on the development and implementation of Phase B projects.	N/A	N/A
3/27/2020	Salton Sea Partnership	4-2	Develop a clear process for how you are documenting, considering, incorporating, and responding to public input.	Agency and Project/Plan Coordination	The State has developed a process for public outreach which is described in Section 1.5 and Appendix A of the revised DSAP. Appendix B in the DSAP and the Response to Comments Package location on the State's Salton Sea webpage includes the information requested.	Yes	Section 1.5 and Appendix A describe the public outreach process.
3/27/2020	Salton Sea Partnership	4-7	Increase the collaboration between other relevant agencies like CARB, South Coast AQMD, academic institutions (like UCR), and others.	Agency and Project/Plan Coordination	The State has increased collaboration with CARB and regional air districts and established ongoing meetings with ICAPCD and SCAQMD in review of the draft DSAP and updates to the DSAP. The State also worked with the Engagement Committee to involve stakeholder participation.	Yes	Section 1.5.2 describes involvement of other agencies and language was added throughout to identify specific agencies that were engaged in different aspects of this work.
3/27/2020	Salton Sea Partnership	4-8	Monitor and collaborate on the AB 617 process as ECV Community Steering committee develops the Air Monitoring Plan and the Emission Reduction Plan. Point of contact for this is Rebecca Zaragoza with Leadership Counsel.	Agency and Project/Plan Coordination	Point noted for future project implementation.	No	N/A
3/27/2020	Salton Sea Partnership	4-17	Clearly map out the responsible agencies for the implementation of the each project.	Agency and Project/Plan Coordination	This will be done in future documents related to project implementation	No	N/A
3/27/2020	Salton Sea Partnership	4-21	Ensure the PEIR process is reflected and summarized in the DSAP to communicate the process in which it will operate. Some of the information that should be included is information on the study area, regional districts with permitting authority and their existing standards, federal PM10 and PM2.5 standards, state and federal air quality designations, data sources and limitations, and historic, existing, and projected conditions.	Agency and Project/Plan Coordination	The DSAP has been revised to include more information on the study area (Section 1.1), permitting authority and standards for regional districts (Section 3.2), and past and future data sources for site characterization, monitoring and evaluating project performance (Section 5).	Yes	Sections 1.1, 3.2, and 5 provide the requested additional information.
3/27/2020	Salton Sea Partnership	4-23	Increase the level of inter-agency coordination and collaboration, including: local, state, federal, and tribal governments and agencies; academic institutions and researchers, the QSA JPA, and community residents that live around the Salton Sea.	Agency and Project/Plan Coordination	Throughout this DSAP process, the State has and will continue to coordinate with ICAPCD, IID, and SCAQMD and engage with community residents, academic researchers, and tribal governments.	Yes	Coordination and outreach efforts are described in Section 1.5 and elsewhere throughout document

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	Salton Sea Partnership	4-26	The State Team should address and integrate the comments and suggestions included in this correspondence and recirculate a revised draft DSAP for another round of review and comments, prior to finalizing the document.	Agency and Project/Plan Coordination	The State has addressed and integrated comments. The document will be a living document that will be updated periodically.	No	N/A
3/27/2020	Salton Sea Partnership	4-28	For letters of support from the Partnership, email Michael Cohen (Pacific Institute) with your request and he will distribute the request among Partnership organizations, including those not identified in this letter.	Agency and Project/Plan Coordination	The State appreciates the support. This will be requested as needed during future implementation phases.	No	N/A
3/27/2020	South Coast Air Quality Management District (SCAQMD)	5-1	The DSAP should mention compliance with SCAQMD Rule 403 (Fugitive Dust) and Rule 403.1 (Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources) for the projects in Riverside County. Given the size of the project the contractor will need to apply for a Rule 403.1 Site Specific Dust Control Plan and will need to follow the BACM detailed in Rule 403.	Agency and Project/Plan Coordination	The State intends to comply with all applicable SCAQMD rules, is committed to working with SCAQMD, and acknowledges the role of SCAQMD in approving any dust control projects within its jurisdiction. This information, including compliance with rules 403 and 403.1, is presented in Section 3.2.9 of the revised DSAP.	Yes	Section 3.2.9 discusses applicable SCAQMD rules and the State's commitment to compliance with these rules.
3/27/2020	South Coast Air Quality Management District (SCAQMD)	5-5	The DSAP should specify how changes will be made to the document in the future and what specifically the public process will be. (e.g. Will the changes have to go through the NRA board before they can be made?)	Agency and Project/Plan Coordination	Section 7.3 of the revised DSAP discusses the plans for updating the DSAP and engaging the public. The review process will be further defined in the future.	Yes	Section 7.3 presents future DSAP updates and outreach
3/27/2020	San Diego County Water Authority (SDCWA)	6-3	The Plan in its current form, when outlining project areas, co-mingles SSMP dust suppression projects and QSA JPA air quality mitigation projects. The Plan should distinguish between the 8,200 acres of planned SSMP projects and the QSA JPA's separate but complimentary 2,000 acres of completed and 4,000 acre of planned surface roughening projects.	Agency and Project/Plan Coordination	Clarification on the role of QSA JPA has been provided in the final draft.	Yes	Section 1 and 5.
3/23/2020	Cockroft, Christopher W	7-2	The SCH was developed before WR 2017-0134. Prior to the vote by the State Water Resources Control Board to implement the Order, the State and NGOs stipulated that the SCH project would not be counted as restoration acreage by the Order. Therefore, the SCH needs to be left out.	Agency and Project/Plan Coordination	This is not part of the discussion in the DSAP	No	N/A
3/27/2020	Ramina, Alexander	10-2	Per SB 615 the State of California has undertaken the restoration of the Salton Sea ecosystem and the permanent protection of the wildlife dependent on the ecosystem. In the DSAP any funds for the revitalization purposes will be used to pay the IID to plow their own exposed land but has no money for other stakeholders such as residents or tribes who face direct health and economic penalties from the QSA. This falls short of any QSA restoration objective in the 10-year plan. Salton Sea communities take the 50% habitat requirement in the 10 Year Plan seriously.	Agency and Project/Plan Coordination	Point noted; the state is committed to habitat development as part of the restoration of the Sea.	No	N/A
3/27/2020	Ramina, Alexander	10-4	The DSAP should reflect 100% proven dust suppression that also revitalizes our community as promised in both SB615 and the 2003 QSA. The DSAP as written benefits the government and public agencies and disenfranchises Salton Sea residents, tribes, stakeholders, and the surrounding public.	Agency and Project/Plan Coordination	The DSAP goals of managing dust suppression in the most effective and sustainable manner possible will also benefit the communities around the Salton Sea.	Yes	See discussion of dust suppression approaches in Section 2.
3/27/2020	Salton Sea Partnership	4-1	Improve the facilitation of community meetings by providing adequate time for public comment, translated material and interpretation, and accessible times and venues.	Community Outreach	The State will take this into consideration when scheduling and preparing for upcoming community meetings and outreach.	N/A	N/A

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	Salton Sea Partnership	4-4	Utilize the attached community engagement documents to improve the Community Engagement Plan and the outreach and engagement moving forward.	Community Outreach	The State will take this into consideration when scheduling and preparing for upcoming community meetings and outreach.	N/A	N/A
3/27/2020	Salton Sea Partnership	4-15	Hire and dedicate additional staff to lead the outreach and engagement work for CNRA.	Community Outreach	The State is in the process of authorizing additional staff to focus on outreach and engagement work.	N/A	N/A
3/27/2020	Salton Sea Partnership	4-16	Conduct outreach and engagement on the North Lake Project to determine whether it's a community priority and responds to their needs, and also work with the County of Riverside to include information on the EIFD. In the meantime, any existing information or studies conducted on the North Lake Project should be made public.	Community Outreach	North Lake Project Concept outreach will be part of the SSMP NEPA Programmatic Environmental Assessment Public Meetings. The NEPA EA includes the North Lake Project and a general project description. Public meetings to solicit feedback and input are tenatively anticipated for August/September 2020.	N/A	N/A
3/27/2020	Salton Sea Partnership	4-25	Include an executive summary for all CNRA plans and ask that, at least, the executive summary be translated to Spanish, if it is not possible to translate the full plan at this time.	Community Outreach	An executive summary has been incorporated into the DSAP. The State plans to translate the revised DSAP into Spanish.	Yes	Executive Summary included
3/27/2020	South Coast Air Quality Management District (SCAQMD)	5-7	The DSAP should specify whether the data collected will be available for the public or where data can be found.	Community Outreach	The State intends to make the data collected publicly available and will provide information on how to access these data on the Salton Sea website once it becomes available.	No	This is described in Chapter 6 of the revised DSAP.
3/27/2020	Salton Sea Partnership	4-13	The DSAP must include foundational items such as cost projections, annual and multi-year budgets, monitoring, funding sources, community engagement staffing and frameworks, organizational structure and staffing, and reporting mechanisms. Also, the DSAP should include an executive summary outlining and describing the goals and objectives of the DSAP.	Implementation – Cost/Funding/Schedule	Funding is not a focus of the DSAP. The 2020 Annual Report on the Salton Sea Management Plan includes a discussion about funding for implementation for dust suppression projects. An executive summary was added.	Yes	Executive Summary included
3/27/2020	Salton Sea Partnership	4-14	The DSAP should be expanded with additional details such as, all work outlined in the SSMP and DSAP that needs to be completed, dates for the development and updating of plans, public comment periods, final plan completion, community engagement meetings and outreach periods, permitting processes, funding processes, like State and Federal budget advocacy or bond development, and other tasks that need to be completed by the State.	Implementation – Cost/Funding/Schedule	The DSAP is intended to be a high-level summary of the project areas and the steps to be taken to implement these projects. Funding needs will be discussed in future documents as project specific designs are developed.	No	N/A
3/27/2020	Salton Sea Partnership	4-27	Be transparent about what funding opportunities you are pursuing, as well as what budget requests or the other policy steps you're taking at the state level to secure funding for Salton Sea work.	Implementation – Cost/Funding/Schedule	Funding is not a focus of the DSAP. The 2020 Annual Report on the Salton Sea Management Plan includes a discussion about funding for implementation for dust suppression projects.	No	N/A
3/27/2020	South Coast Air Quality Management District (SCAQMD)	5-3	The DSAP should provide a general timeline which outlines major deadlines and target metrics.	Implementation – Cost/Funding/Schedule	A preliminary timeline for each project and an overall timeline with milestones were developed and are provided in the revised DSAP.	Yes	Preliminary timeline added to each project in Section 4 and overall timeline for dust control program is in Appendix C

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	San Diego County Water Authority (SDCWA)	6-1	The DSAP does not address the development or long-term operations and maintenance costs of or funding sources for the 8,200 acres of air quality projects outlined in the Plan. While the Plan indicates Phase B projects will be selected based on soil testing, it should be possible to evaluate the potential spectrum of projects and develop a range of costs for both development and long-term operations and maintenance. Table 1 should include an estimated cost for (1) development and (2) operations and maintenance, by phase and project.	Implementation – Cost/Funding/Schedule	Funding is not a focus of the DSAP. The 2020 Annual Report on the Salton Sea Management Plan includes a discussion about funding for implementation for dust suppression projects and future annual reports will include funding and cost information.	No	N/A
3/27/2020	San Diego County Water Authority (SDCWA)	6-2	The DSAP should include additional schedule details for implementing Phase A and B, such as a summary schedule for each project with estimated pre-construction, construction, and post-construction critical path activities by project and phase. At a minimum, project start and end dates should be added to Table 1.	Implementation – Cost/Funding/Schedule	A preliminary timeline for each project and an overall timeline with milestones were developed and are provided in the revised DSAP.	Yes	Preliminary timeline added to each project in Section 4 and overall timeline for dust control program is in Appendix C
3/27/2020	San Diego County Water Authority (SDCWA)	6-4	Any financial analysis should not include QSA JPA funding. The Plan should clarify that the funding for the SSMP projects is separate and distinct from the funding for QSA JPA mitigation projects.	Implementation – Cost/Funding/Schedule	This is true, and the funding streams are separate. As noted in prior comments, funding is not a focus of the DSAP.	No	N/A
3/27/2020	Imperial County Air Pollution Control District (ICAPCD)	2-5	The main goal of the DSAP should not be solely focused on achieving acreage milestones that do not ensure real emissions savings. Instead the DSAP should employ scientifically based strategies for the proper placement of these projects on already identified highly emissive soil types.	Implementation – Design/Prioritization	Available scientific data from around the Salton Sea (air and water quality, soil properties, wind direction and extreme wind events, and sand-related dust emissions) were used to prioritize projects in the most emissive areas.	Yes	Section 1.4 describes project prioritization
3/27/2020	Imperial Irrigation District (IID)	3-4	Identification and prioritization of dust control areas. Dust suppression should be prioritized based primarily on emissions data from the playa. This will ensure that projects have the greatest potential to achieve emissions reductions and prevention, thereby gaining maximum public health benefit. To site projects on lands that are not currently emissive may cause those areas to become emissive. Please refer to: https://saltonseaprogram.com/aqm/docs/2018_2019_Annual_Report_and_Emissions_Estimates_w_attachments.pdf	Implementation – Design/Prioritization	Available scientific data from around the Salton Sea (air and water quality, soil properties, wind direction and extreme wind events, and sand-related dust emissions) were used to prioritize projects in the most emissive areas, including information from the 2019-2020 IID PDCP. The citations are included in the text. Emissions data from the IID data portal are used to compute inventories from the nine project areas.	Yes	Section 4 describes the source of the project areas and also presents the emission inventory from IID data.

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	Imperial Irrigation District (IID)	3-5	Implementation schedule and acreage targets are not realistic. The focus should not be on achieving the aggressive targets in the State Water Resources Control Board Order but instead prioritizing projects based on emissions data to achieve maximum reductions and benefit. Data shows that about 10% of the playa is responsible for nearly 80% of playa emissions. The DSAP should clarify that the 980-acre Coachella playa project is prioritized based on community engagement or provide data to support this prioritization. The IID 2018/2019 Annual Report and Emissions Estimates shows that this area contributes less than 1 percent of total playa emissions.	Implementation – Design/Prioritization	Available scientific data from around the Salton Sea (air and water quality, soil properties, wind direction and extreme wind events, and sand-related dust emissions) were used to prioritize projects in the most emissive areas. Two projects on the list, including Coachella Exposed Lakebed, are based on community input and require additional evaluation to determine the suitability of specific dust suppression approaches, and are therefore Phase B projects. This is clarified in the revised DSAP.	Yes	Section 4 describes proposed approach for the Coachella Lakebed.
3/27/2020	Imperial Irrigation District (IID)	3-6	The DSAP should identify the soil suitability threshold for surface roughening used in Phase A and B. Performance monitoring has shown that the soil suitability threshold for surface roughening is defined as a minimum of 35-45 percent fines. Soils that are 20-35 percent fines can still be roughened but will require vegetation enhancement within one to two years. Some Phase A soils fall into this category and the DSAP should clarify that this is an interim control measure while irrigation water supply is developed for vegetation of the furrows.	Implementation – Design/Prioritization	Surface roughening where planned is intended to be a temporary dust control measure until a more permanent solution can be implemented. Site-specific plans for dust control solutions are described in Section 4 of the revised DSAP.	Yes	Section 2 describes surface roughening as a temporary measure and Section 4 describes planned site-specific dust control solutions.
3/27/2020	Imperial Irrigation District (IID)	3-11	The DSAP states that a water supply is needed to establish long-term vegetation, and that once established, alternative water supplies will be evaluated. However, water supplies will need to be established before planting vegetation in order to provide sufficient water for vegetation hedgerows to become established and to a lesser extent for long-term maintenance. IID is currently working to project the water demand associated with vegetation-based dust control and available water supplies. IID is also investigating shallow groundwater supply. The results of these studies should be considered in the DSAP.	Implementation – Design/Prioritization	The State will determine a plan for a long-term water supply prior to implementing any dust control project that requires it and plans to consider the results of the IID studies. This has been clarified in the revised DSAP.	Yes	Section 4 provides site-specific water supply information
3/27/2020	Salton Sea Partnership	4-5	Create and publish a rubric and list of resources and data used for identifying project sites, including weight granted for each factor.	Implementation – Design/Prioritization	More narrative detail is provided in Section 1. A significant number of the project areas are defined based on prior IID field data and analysis.	Yes	Section 1 provides a narrative of the approach.
3/27/2020	Salton Sea Partnership	4-6	Identify projects at the North Shore Beach and Yacht Club area and near the community of Desert Shores for Phase A, as well as transition more Phase B projects into Phase A.	Implementation – Design/Prioritization	Projects near the Desert Shores community did not meet the initial project prioritization criteria (see Section 1.4). These areas will be considered for future projects. Phase A includes projects in emissive areas where permitting, access, planning, implementation, and infrastructure requirements are expected to be low and can therefore begin implementation in 2020. No Phase B projects identified meet those expectations and therefore cannot be moved to Phase A. A North Shore project was added.	N/A	N/A

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	Salton Sea Partnership	4-9	Identify the additional sources used to identify 4,200 acres of emissive playa, since only 4,000 of 8,200 used IID data while expanding the overall number of acres in the DSAP in conformity with suggestions of this correspondence.	Implementation – Design/Prioritization	All areas except the Coachella Lakebed and the North Shore are based on IID data in the 2019-2020 PDCP. These two areas constitute approximately 1,400 acres. All the remaining area is based on IID information.	Yes	Section 4.
3/27/2020	Salton Sea Partnership	4-10	Rely on anecdotal data provided by community residents to identify additional critical dust suppression projects in line with the commitment to rely on information obtained from community engagement.	Implementation – Design/Prioritization	Two projects on the list, Coachella Exposed Lakebed and North Shore Area, are based on community input. Continued engagement with the community is planned and additional projects based on this input will be considered in the future.	No	N/A
3/27/2020	Salton Sea Partnership	4-11	Develop a graphic with the necessary layer to showcase how project sites were identified and selected, reflecting the factors that were used and listed in the DSAP.	Implementation – Design/Prioritization	Additional language has been added to the revised plan. Seven of the 9 project areas were based on site characterization performed by IID, as documented in some detail in the 2019-2020 PDCP, which is cited in the report.	No	N/A
3/27/2020	Salton Sea Partnership	4-12	The DSAP should include a table like Table 4 in the 2018/2019 Proactive Dust Control Plan. This includes information on project size, location, status, emissivity, and projected costs. It is not clear how habitat and dust suppression projects will interact with one another during the construction planned for 2020. How will these two types of projects be reconciled and coordinated? How will access to the site be prioritized? What criteria will the SSPM use to determine when to convert a dust suppression project into a habitat project? How will future annual reports and performance evaluation in general account for this changing future acreage?	Implementation – Design/Prioritization	Additional language has been added to the revised plan. Some of these requests will be incorporated into the planning and investigation process as the site-specific plans are further developed and refined. Relevant to this question, we have developed Gantt Charts for project implementation as shown in Appendix C.	Yes, partial	Appendix C
3/27/2020	Salton Sea Partnership	4-20	Adjust the total amount of acreage as new projects are identified that reflect the project recommendations in this letter.	Implementation – Design/Prioritization	This has been done in the revised draft.	Yes	Section 1 and Section 4 present these revised acreages.
3/27/2020	Salton Sea Partnership	4-22	Develop a Habitat Action Plan by the end of 2020 to be coordinated with the implementation of the DSAP.	Implementation – Design/Prioritization	Current workload and timeframes will not allow for this to be done in 2020 but this will be considered for the future.	No	N/A
3/27/2020	Salton Sea Partnership	4-34	The assumptions of soil emissivity and prevailing wind lack data from a variety of sources and relies on outdated data.	Implementation – Design/Prioritization	IID, ICAPCD, SCAQMD, and CARB have been conducting extensive data collection in the region which includes wind and soil emissivity data. This data collection is ongoing and up to date. This has resulted in a statistically valid dataset, where the large sample size shows calibration, quality control and assurance, key factors for the State to accept and use as the foundation for the DSAP. More information is provided in Section 4 and 5 of the revised DSAP.	Yes	Section 5.1 describes the data sets used in the DSAP.

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	South Coast Air Quality Management District (SCAQMD)	5-4	The DSAP should provide the overall criteria that was used to determine projects in Phase A or B and specify how emissivity was determined or taken into account for prioritization.	Implementation – Design/Prioritization	Section 1.4 and 4 in the revised DSAP describe how projects were prioritized, including how soil emissivity was taken into account.	Yes	Sections 1.4 and 4 describes project prioritization
3/27/2020	South Coast Air Quality Management District (SCAQMD)	5-6	The DSAP should describe the major challenges in the western side of the Salton Sea (sand intrusion from the upwind desert, soil suitability and limited water resources) and detail how the challenges will be addressed. https://saltonseaprogram.com/aqm/docs/2019_Stakeholder_Brochure.pdf	Implementation – Design/Prioritization	The revised DSAP includes planned test pilot studies to evaluate dust suppression options in challenging areas like the west shore.	Yes	Section 5.5 discusses use of pilot studies in challenging areas
3/27/2020	South Coast Air Quality Management District (SCAQMD)	5-8	The DSAP should reference any existing literature looking at future dust emissions across the exposed playa. We recommend that the authors consider the results of Parajulia and Zender, 2017 (Projected changes in dust emissions and regional air quality due to the shrinking Salton Sea), and Parajulia and Zender, 2018 (Connecting geomorphology to dust emission through high-resolution mapping of global land cover and sediment supply) if not already evaluated.	Implementation – Design/Prioritization	We have reviewed these modeling studies. In our review, this information is not pertinent at this stage of the DSAP, and is superseded by the extensive field data collection and related emissions modeling reported in the IID data portal.	No	N/A
3/23/2020	Cockroft, Christopher W	7-1	The DSAP makes tillage a long-term solution for 8,200 acres despite it not being an approved BACM by the ICAPCD. The approved BACMs include more rigorous measures such as shallow flooding, tillage with shallow flood backup, brine flooding, managed vegetation and gravel blankets. If tillage is just a temporary step please explicitly state this in the DSAP.	Implementation – Design/Prioritization	Surface roughening/tillage is intended to be a temporary dust control measure until more permanent solutions can be implemented. Site-specific plans for dust control solutions are described in Section 4 of the revised DSAP.	Yes	Section 2 describes surface roughening as a temporary measure and Section 4 describes planned site-specific dust control solutions.
3/10/2020	Gertz, Art	8-1	Contour plowing is expensive and not fully effective as it needs to be redone every 3-5 years.	Implementation – Design/Prioritization	Surface roughening where planned is intended to be a temporary dust control measure until a more permanent solution can be implemented. Site-specific plans for dust control solutions are described in Section 4 of the revised DSAP.	Yes	Section 2 describes surface roughening as a temporary measure and Section 4 describes planned site-specific dust control solutions.
3/27/2020	Phillips, Jasmyn	9-1	The DSAP is not a community driven plan. Surface roughening/vegetation provides no recreational, economical, or habitat value.	Implementation – Design/Prioritization	There will be recreational components (observation areas) incorporated. Community input has been considered and incorporated as appropriate. The purpose of the plan is dust suppression.	No	N/A
3/27/2020	Imperial County Air Pollution Control District (ICAPCD)	2-2	The DSAP identifies surface roughening as the primary mitigation measure, which is not considered by the ICAPCD and the US EPA to be a long-term viable and effective BACM without supported technical analyses and related monitoring/maintenance provisions accepted by the ICAPCD. The State needs to demonstrate an enforceable commitment for maintenance and monitoring of these surface roughing projects.	Implementation – O&M/Performance Measures/Monitoring	Surface roughening is intended to be a temporary dust control measure until more permanent solutions can be implemented. Site-specific plans for dust control solutions are described in Section 4 of the revised DSAP. The State will work with ICAPCD on all methods.	Yes	Section 2 describes surface roughening as a temporary measure and Section 4 describes planned site-specific dust control solutions.

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	Imperial Irrigation District (IID)	3-9	The DSAP monitoring of projects for dust control effectiveness should follow the IID's performance monitoring described in the Proactive Dust Control Plans. This utilizes multiple forms of monitoring including visual surveillance, sand motion monitoring, and saltation flux mapping.	Implementation – O&M/Performance Measures/Monitoring	The State intends to use the performance monitoring methods from IID's plan, which are described in Section 5 of the revised DSAP.	Yes	Section 5 describes planned performance monitoring methods
3/27/2020	Imperial Irrigation District (IID)	3-10	The State needs to look at IID's shallow groundwater monitoring program and coordinate their efforts with IID's program. The installation of individual monitoring wells at locations above 2003 shoreline will provide important data, but will not be sufficient to characterize shallow groundwater conditions and trends beneath the playa itself.	Implementation – O&M/Performance Measures/Monitoring	The State believes that the intervals between the proposed wells along the 2003 shoreline (2-3 miles) and distance to the 2019 shoreline (1 mile) is sufficient to characterize the spatial variation of groundwater conditions. However, when the Salton Sea recedes further, additional wells may be needed and will be proposed accordingly in the future. Discussion of this and IID's groundwater monitoring program are provided in Section 5.5.	Yes	Section 5.4 discusses groundwater monitoring plans
3/27/2020	Salton Sea Partnership	4-18	Develop a mechanism for measuring the success of a completed project.	Implementation – O&M/Performance Measures/Monitoring	The revised DSAP includes information about how project performance will be evaluated (Section 5).	Yes	Section 5 addresses evaluation of project performance
3/27/2020	Salton Sea Partnership	4-35	How will additional air monitoring be conducted? Details should be included such as staffing resources, financing, and other tools that will be used to complete this, including how monitoring will be done on land with different ownership.	Implementation – O&M/Performance Measures/Monitoring	The revised DSAP includes information about plans for additional air monitoring (Section 5). Funding is not a focus of the DSAP. The 2020 Annual Report on the Salton Sea Management Plan includes a discussion about funding for dust suppression projects and future annual reports will provide ongoing information on funding and costs.	Yes	Section 5 includes plans for air monitoring
3/27/2020	South Coast Air Quality Management District (SCAQMD)	5-2	The DSAP should specify or quantify emission reduction metrics or any air quality related benefit. If possible this should be done for each location and if reductions cannot be quantified then SCAQMD recommends a future update like status report or annual report.	Implementation – O&M/Performance Measures/Monitoring	The revised DSAP includes information about emission reduction metrics and planned monitoring to evaluate performance (Section 5) and future reports (Section 7).	Yes	Section 5 contains performance evaluation information and Section 7 discusses future reports.
3/27/2020	San Diego County Water Authority (SDCWA)	6-5	While the Plan references operations and maintenance, it indicates that additional analysis is needed to quantify augmentation work required post-construction. However, there is already existing information on completed surface roughening projects that can be used in such an analysis and should be discussed in this Plan. The Plan should identify potential funding sources and other resources for completing such work. If funding has not yet been identified, please indicate as such. The Plan should also include additional detail on the frequency of post-construction operations and maintenance activities and how such work would be accomplished.	Implementation – O&M/Performance Measures/Monitoring	The revised DSAP contains significantly more detail on post-construction monitoring, operation and maintenance activities, including use of information from existing projects. Funding is not a focus of the DSAP. The 2020 Annual Report on the Salton Sea Management Plan includes a discussion about funding for implementation for dust suppression projects.	Yes	Sections 5 and 6 provide details on planned monitoring and operation/maintenance activities, respectively.

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/23/2020	Cockroft, Christopher W	7-4	The report is too short and leaves out key details. For example, the "Operations and Maintenance" section should contain detailed cost estimates; the "Monitoring and Data Collection" is vague; and the "Ongoing Air and Water Quality, Soils and Groundwater Data Collection" is riddled with generalities, the kind consultants frequently add when fudging issues. All need to be considerably strengthened. Also, the report should have a good select annotated bibliography, to help readers learn more about the issues.	Implementation – O&M/Performance Measures/Monitoring	The revised DSAP has been significantly expanded to provide more details about the dust suppression techniques, plan for each site, and plans for monitoring and data collection. A reference list has also been added.	Yes	Much more detail was added to the DSAP in all areas.
3/27/2020	Salton Sea Partnership	4-19	Research best practices and lessons learned from successful projects across the State, like the San Francisco South Bay Salt Ponds Program and the Owens Lake Master Plan.	Plan Alternatives	The State has used Information about best practices and lessons learned from the application of different dust suppression methods as part of work performed at the Salton Sea, Owens Lake, Oceano Dunes and other areas. This information is provided in Section 2 of the revised DSAP. The South Bay Salt Ponds are not directly relevant to the DSAP projects.	Yes	Section 2 summarizes the different methods that have demonstrated success in controlling dust emissions from dry surfaces
3/23/2020	Cockroft, Christopher W	7-3	The DSAP leaves out a discussion of alternatives such as water import. Water transfers could begin immediately, a sea-to-sea canal could be built, or other alternatives.	Plan Alternatives	Water import is a long-term option that is under separate evaluation and not part of the timeframe of the DSAP, which is 2020-2023.	No	N/A
3/10/2020	Gertz, Art	8-2	Living windbreaks need to be supported. They can be fed by aquifer water. Far more effective than contour plowing and provides for some carbon sequestration.	Plan Alternatives	The State plans to use dust suppression methods most suited to site-specific conditions. A discussion of the alternatives considered and their general applicability is provided in Section 2 and Section 4 contains site-specific information on why specific dust suppression methods were selected.	Yes	Section 2 discusses general applicability of dust suppression alternatives and Section 4 discusses site-specific applicability.
3/27/2020	Phillips, Jasmyn	9-2	The most effective methods to control emissions is to return water to the Sea. Why not fallow agricultural land and purchase water rights from farmers, improve water efficiency in coastal cities and utilize desalination technology for use in recreation and habitat purposes at the Sea.	Plan Alternatives	Long-term options are considered under separate evaluation and not part of the timeframe of the DSAP, which is 2020-2023.	No	N/A
3/27/2020	Ramina, Alexander	10-1	Water is 100% effective at controlling dust see examples from Tulare Lake, Owens Lake, Mono Lake, and the Kesterson Reservoir. It is more expensive to reduce dust than to add water. The DSAP primary concern should be to restore flow to stabilize shoreline elevations.	Plan Alternatives	Long-term options are considered under separate evaluation and not part of the timeframe of the DSAP, which is 2020-2023.	No	N/A
3/27/2020	Ramina, Alexander	10-3	The most effective methods to control emissions is to return water to the Sea so this should be the focus of the DSAP. Why not purchase fallowed agricultural land water rights from farmers, invest in water harvesting upriver, improve water efficiency in coastal cities, support recycling programs that allow offsets to be taken from the river, utilize more sustainable coastal desalination technology, these savings would provide more water for use in the Sea for shoreline stabilization, water quality, recreation and habitat purposes.	Plan Alternatives	These concepts are being addressed through a separate process on long-term alternatives.	No	N/A
3/16/2020	Salas, Linda Joy	11-1	Water import is the best solution. Urges agencies to put money towards this and solve the problem.	Plan Alternatives	This is being addressed through a separate process being undertaken by the State to evaluate long term alternatives.	No	N/A

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/26/2020	California Air Resources Board (CARB)	1-1	(p. 1, last paragraph) "These inversions are random in coverage and may scatter pollutants into the air." The strongest inversions in the Imperial Valley occur during winter months and tend to concentrate pollutants as these periods are characterized by very low wind speeds and very little vertical dispersion of pollutants.	Specific DSAP Comments	More specific information about weather patterns has been added to the report, including information about the effects of thermal inversions.	Yes	Section 1.1 includes more detailed information about weather patterns.
3/26/2020	California Air Resources Board (CARB)	1-2	(p. 2, 3rd paragraph) "In 2006, IID developed the Salton Sea Air Quality Management Program …." IID's Salton Sea Air Quality Management Program was established in 2016.	Specific DSAP Comments	This sentence has been removed from the revised draft.	Yes	Sentence removed
3/26/2020	California Air Resources Board (CARB)	1-3	(p. 5, Phase B, Bombay Beach) "550 acres may be vegetated with natives and/or become shallow water habitat." For clarification, this would read better as "550 acres may be vegetated with native species and/or become shallow water habitat."	Specific DSAP Comments	This has been removed from revised draft; no use of "natives" included in new draft	Yes	Sentence removed
3/26/2020	California Air Resources Board (CARB)	1-4	(p. 8, 2nd paragraph) "The RWQCB would issue 401 certification if the project were with Corps jurisdiction ……..." This statement appears to conflict with the last bulleted statement at the bottom of p. 6 which states "If possible, areas determined to be within Corps jurisdiction [for a 404 permit] will be eliminated from the project area." It would be useful to clarify the difference between a 401 certification and a 404 permit as it appears that areas under the Corps jurisdiction would be avoided (with respect to a 404 permit) and built upon (with respect to a 401 certification).	Specific DSAP Comments	The State intends to eliminate areas within Corps jurisdiction if possible. Additional language to explain this process has been added to the revised DSAP.	Yes	Sections 3.2.1 and 3.2.3 discuss 404 and 401 permitting respectively
3/26/2020	California Air Resources Board (CARB)	1-5	(p. 8, last paragraph) "Vegetated dust suppression projects include establishment of hedgerows and dune stabilization." Heretofore, CNRA's dust control focus has been on exposed playa, which do not currently harbor sand dunes. Sand has accumulated in surface roughened furrows, and against on-playa vegetation, but I am not aware of active dunes yet on the playa. The discussion of dust stabilization should be clarified to identify the locations of these dunes (on-shore vs. on-playa).	Specific DSAP Comments	This text has been rewritten.	Yes	Text rewritten
3/26/2020	California Air Resources Board (CARB)	1-6	(p. 9, 3rd paragraph) "IID is currently designing dust suppression projects to meet an estimated 95 percent reduction in sand motion set by ICAPCD." As indicated by ICAPCD staff during the March 25 conference call, IID has not determined Best Available Control Measure controls for exposed playa nor a specific control efficiency.	Specific DSAP Comments	This sentence has been modified as follows: "IID is currently designing dust suppression projects using surface roughening to meet an estimated 95 percent reduction in sand motion. The State will also apply this design approach to DSAP projects, in consultation with ICAPCD and SCAQMD."	Yes	Section 5.3
3/27/2020	Imperial Irrigation District (IID)	3-12	The DSAP states it is being developed in collaboration with IID, CARB, ICAPCD, and other stakeholders. The DSAP should also reference the SCAQMD as proposed projects in the Coachella Playa area are located in their jurisdiction.	Specific DSAP Comments	The State is committed to collaborating with SCAQMD, and has described that effort in the revised DSAP.	Yes	Section 1.5.2 discusses collaboration with all stakeholders including SCAQMD and Section 3.2.9 discusses applicable SCAQMD rules and the State's commitment to compliance with these rules.

Date	Commenter	#	Comment Summary	Category	Response to Comment	Incorporated into DSAP	How and Where incorporated?
3/27/2020	Imperial Irrigation District (IID)	3-13	The DSAP states, "In 2006, IID developed the SS AQMP…" This should be corrected to be "In 2016…"	Specific DSAP Comments	This sentence has been removed from the revised draft.	Yes	Sentence removed
3/27/2020	Imperial Irrigation District (IID)	3-14	The DSAP states "Vegetated dust suppression projects include establishment of hedgerows and dune stabilization." Clarify that vegetated dust suppression projects may include establishment of hedgerows for sand stabilization. It is not limited to dune stabilization.	Specific DSAP Comments	This section has been entirely re-written	Yes	Section 2
3/27/2020	Salton Sea Partnership	4-3	Add an appendix to the DSAP that documents all public input and feedback received.	Specific DSAP Comments	In the revised DSAP, Appendix B contains all comments received on the DSAP and responses to those comments.	Yes	Appendix B contains all comments received on the DSAP and responses to those comments.
3/27/2020	Salton Sea Partnership	4-24	Include a list of references made in the DSAP and identify how to access the referenced materials.	Specific DSAP Comments	References were added to the revised DSAP as Section 8 and hyperlinks to documents are provided when available.	Yes	Section 8 contains references and links.
3/27/2020	Salton Sea Partnership	4-29	Please rewrite the second sentence on page 1: "The Sea is thirty-five miles long and fifteen miles wide, the desert lake extends from the Imperial Valley into the Coachella Valley."	Specific DSAP Comments	Much of this section has been re-written.	Yes	Section 1 is a rewrite of the Introduction.
3/27/2020	Salton Sea Partnership	4-30	Rewrite "The flat terrain of the region and strong temperature differentials created by intense solar heating, producing winds and thermal inversions" (pg 1)	Specific DSAP Comments	Sentence has been rewritten.	Yes	Section 1.1 contains the revised sentence
3/27/2020	Salton Sea Partnership	4-31	Rewrite and clarify "The prevailing winds from the west and northwest occur seasonally from fall through spring and blow from the north" (pg 1) Does this mean winds that blow from the north or from the west?	Specific DSAP Comments	The prevailing high winds in the Salton Sea region are from the northwest through the southwest. This has been clarified in the revised DSAP.	Yes	Section 1.1 contains the revised wind information.
3/27/2020	Salton Sea Partnership	4-32	Label, update, and use a higher resolution of the Salton Sea map on page 1.	Specific DSAP Comments	A higher resolution map is used in the revised DSAP that shows the Salton Sea Setting, historical exposed lakebed from 2003–2020, and communities in the region.	Yes	Figure 1 contains the revised figure.
3/27/2020	Salton Sea Partnership	4-33	The last section, on page 11, states "The following discussion describes the current IID air and water quality, soils and groundwater data collection." This sentence apparently describes a previous section, since the text that follows it only describes monitoring.	Specific DSAP Comments	The DSAP has been reorganized to address this comment.	Yes	Report reorganized
3/27/2020	San Diego County Water Authority (SDCWA)	6-6	The DSAP would benefit from the addition of an executive summary at the beginning and a conclusion to summarize the key elements of the DSAP as well as next steps.	Specific DSAP Comments	An executive summary and a Summary and Next Steps section were added to the revised DSAP.	Yes	An executive summary and a Summary and Next Steps (Section 7) were added to the revised DSAP.

APPENDIX B-4: Administrative Draft DSAP

Salton Sea Management Program:

Dust Suppression Action Plan

Administrative Review Draft: June 4, 2020

Project Team

This plan was prepared by staff from the California Natural Resources Agency, the California Department of Fish and Wildlife, the California Department of Water Resources, the California Air Resources Board, and the following consultants supporting the Salton Sea Management Program: Cardno, the Desert Research Institute, and Tetra Tech.

Acknowledgements

We acknowledge data, maps, and photographs provided by the various organizations working in the Salton Sea, in particular the Imperial Irrigation District and its consultants.

Additional Information

An electronic copy of this report and additional information about the Salton Sea Management Program (SSMP) can be found at www.saltonsea.ca.gov. To receive periodic updates on SSMP implementation, sign up at www.saltonsea.ca.gov or send an email to cnra-saltonsea@resources.ca.gov.

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Executive Summary

Improving air quality and creating wildlife habitat at the Salton Sea are key priorities for Governor Gavin Newsom and the California Natural Resources Agency (CNRA). The Sea's continuing decline in elevation and resulting exposure of lakebed are negatively impacting surrounding communities and reducing remaining habitat for fish and wildlife. To address these concerns, the Salton Sea Management Program (SSMP) was established in 2017. As a component of the SSMP's Phase I 10-Year Plan, the Dust Suppression Action Plan (DSAP) is a guide to expediting the implementation of dust suppression projects. These projects are intended to meet the goals of the SSMP and specific annual acreage targets outlined in State Water Resources Control Board Order WR 2017-0134. The DSAP identifies and prioritizes a planning area of approximately 9,800 acres of dust suppression projects at locations of exposed lakebed around the Salton Sea. CNRA, in collaboration with the California Department of Water Resources (DWR) and the California Department of Fish and Wildlife (CDFW), and with the support of the California Air Resources Board (CARB), is focused on implementing these projects. In this document, participating staff from these agencies are referred to as the *State Team*.

Dust is emitted from the exposed dry lakebed of the Salton Sea by the action of wind through a process termed *saltation*. Dust suppression methods often rely on increasing surface roughness to reduce wind speeds near the surface. This may be done by adding surface features through tillage of the ground, encouraging the growth of vegetation, or creating structures such as sand fences that act as wind breaks. Other methods include using moisture to increase adhesion of surface particles that limits their movement by wind directly by the application of water or through the addition of surfactants and soil binders with water. Dust emissions may also be controlled by covering an area with water, although this is challenging because of the limited availability of water in the desert environment.

The DSAP proposes to use a variety of methods to implement dust suppression across eight defined project areas around the perimeter of the Salton Sea to be constructed between 2020 and 2022. These project areas include the Species Conservation Habitat (SCH) Dust Project (to be constructed in 2020 within the footprint of the SCH Project); Wister-Frink; Kane Spring; Bombay Beach; San Felipe Fan; Tule Wash; the Clubhouse Area; Coachella Exposed Lakebed; and the North Shore Area. These areas were selected

based on four factors: an evaluation of soil emissivity, potential for timely environmental permitting authorizations and access, sites with potential availability of short- and long-term water supplies, and sites with proximity to residential populations. Additional sites were selected based on public input, with additional soil characterization data to be collected. Project concepts have been developed using a variety of dust suppression methods, including some that use water and some that do not. This diverse portfolio of approaches allows for exploring different methods that are best suited to different parts of the exposed lakebed.

Overall schedules for these projects are estimated based on the State Team's experience with planning, permitting, design, and contracting to develop realistic timelines for different project areas. Many of the activities in individual project areas can be initiated concurrently, allowing the overall program to proceed in the most expeditious manner possible. The State Team envisions this DSAP as a flexible program to meet the time-critical needs of protecting local communities from the adverse effects of lakebed exposure in the coming years and of implementing the acreage requirements of State Board Order WR 2017-0134.

Surface Roughening Near the Salton Sea (Photo Credit: IID).

Acronyms and Glossary

Term	Definition
BACM	Best Available Control Measure, approved measures for controlling dust emissions
BBCSD	Bombay Beach Community Services District
BLM	U.S. Bureau of Land Management
CAAQS	California Ambient Air Quality Standards
CALMET	California Meteorological Model
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CDPR	California Department of Parks and Recreation
CEQA	California Environmental Quality Act
CIMIS	California Irrigation Management Information System
CNRA	California Natural Resources Agency
CVWD	Coachella Valley Water District
DCM	dust control measure
DEM	digital elevation model
DRI	Desert Research Institute
DSAP	Dust Suppression Action Plan
DWR	California Department of Water Resources
ICAPCD	Imperial County Air Pollution Control District
IID	Imperial Irrigation District

Term	Definition
JPA	Joint Powers Authority
LiDAR	light detection and ranging, a tool for getting precise data on ground elevations
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGO	nongovernment organization
O&M	operations and maintenance
PI-SWERL®	Portable In-Situ Wind Erosion Laboratory, a device used to obtain estimates of soil emissivity in a standard manner across large areas
PM	particulate matter, in this context refers to suspended dust in the air
$PM_{2.5}$	fine suspended particulate matter, less than 2.5 microns
PM_{10}	coarse suspended particulate matter, less than 10 microns
QSA	Quantification Settlement Agreement, an agreement among state, federal, and local agencies allowing the transfer of irrigation water from IID to the San Diego County Water Authority, Coachella Valley Water District, and Metropolitan Water District of Southern California for urban use
QSA JPA	Joint Powers Authority created to fund mitigation activities to address impacts of agricultural-to-urban water transfers from the QSA
RWQCB	Regional Water Quality Control Board
saltation	wind‐driven, hopping motion of sand-sized particles across a surface
SANTRI	Standalone AeoliaN Transport Real-time Instrument
SCAQMD	South Coast Air Quality Management District
SCCSD	Salton City Community Services District
SCH	Species Conservation Habitat
soil emissivity	characteristic of soil surface to generate fine particulate emissions when subject to wind shear
TMDCI	Torres Martinez Desert Cahuilla Indians
UAV	unmanned aerial vehicle, also termed a *drone*, used for aerial imaging of project sites
USBR	U. S. Bureau of Reclamation
wind shear	Forces on surface created by wind that result in saltation and subsequent release of fine particulate material

1 Introduction

Improving air quality and creating wildlife habitat at the Salton Sea are key priorities for Governor Gavin Newsom and the California Natural Resources Agency (CNRA). The Sea's continuing decline in elevation and resulting exposure of lakebed negatively impact surrounding communities and reduce remaining habitat for fish and wildlife. To address these concerns, the Salton Sea Management Program (SSMP) was established in 2017. CNRA, in collaboration with the California Department of Water Resources (DWR) and the California Department of Fish and Wildlife (CDFW), and with the support of the California Air Resources Board (CARB), is focused on implementing multiple habitat and dust suppression projects around the Sea. In this document, participating staff from these agencies are referred to as the *State Team*.

The SSMP is focused on restoration of the Sea as a result of 2003 Quantification Settlement Agreement (QSA) among multiple federal, State, and local agencies, that allowed water transfers from agricultural to urban users in southern California. The SSMP released the Phase I: 10-Year Plan in 2017 and updated it in 2018 to guide state projects at the Salton Sea over the next decade (2018-2028). The plan lays out a high-level schedule for target project locations and identifies habitat and dust suppression acreage goals to meet the requirements of State Water Resources Control Board Order WR 2017-0134. This order, adopted in 2017, outlined the State Water Board's oversight role in monitoring and ensuring progress toward the goals of the SSMP, and sets annual milestones for habitat restoration and dust-suppression projects. As a component of the broader Phase I: 10-Year Plan, the Dust Suppression Action Plan (DSAP) is a guide to expedite the implementation of dust suppression projects. Figure 1 shows the geograpic setting of the Sea and the exposed lakebed area over 2003–2020, with further declines in lake level expected in the coming decades.

The DSAP identifies and prioritizes a planning area of approximately 9,800 acres for dust suppression projects at locations of exposed lakebed around the Salton Sea based on the best available scientific data, proximity to populated areas, ease of securing landowner access and environmental permitting, sites with potential availability of short- and long-term water supplies, and information obtained through public input. The DSAP is a working plan and will serve as a *living document* to be refined over time through monitoring and adaptive management, as well as continued engagement with the

community, stakeholders, and collaborating agencies (the Imperial Irrigation District [IID], Imperial County Air Pollution Control District [ICAPCD], and South Coast Air Quality Management District [SCAQMD]). The DSAP is not intended to be a regulatory or binding document.

Figure 1. Salton Sea Setting, Historical Exposed Lakebed from 2003–2020, and Communities in the Region.

1.1 Salton Sea Regional Climate and Setting

The Salton Sea, in the southeastern part of the state, is California's largest lake in terms of surface area. Climatic conditions in the Salton Sea region are dominated by atmospheric changes associated with warm air from the high-pressure center of the Pacific Ocean. The coastal mountains prevent the intrusion of cool, damp air from California coastal areas into the region. As a result, the region experiences clear skies, extremely hot summers, mild winters, and little rainfall. The climate in the Salton Sea region is one of great extremes. The local rainfall is about 2.5 inches per year while the temperatures can often reach above 110 degrees Fahrenheit (°F) in the summer and below freezing in the winter. The flat terrain of the region and strong temperature differentials created by intense solar heating produces winds and air stagnation conditions during winter nights from thermal inversions.

The prevailing high winds in the Salton Sea region are from the northwest through the southwest. Winds greater than 25 mph are recorded on the central and southern shores of the Sea on about 1.4% of annual hours, and about 0.01% of annual hours on the northern shore. Peak hourly wind speeds reach 47 mph on the central and southern shores, and 28 mph on the northern shore. Periods of high winds occur most frequently during April and May.

The unique geographic and weather conditions in the Salton Sea region create daily patterns that differ by season. In the winter months, a layer of air at the ground surface cools after daily solar radiation diminishes before the air above cools, creating an inversion. The strongest inversions in the Imperial Valley occur at night during winter months and tend to concentrate pollutants as these periods are characterized by very low wind speeds and very little dispersion of pollutants (ICAPCD, 2018a). In valleys and low-lying areas, this condition increases as a result of cold air flowing toward the Sea from the surrounding mountains and pooling on the valley floor. During summer months, the air at ground level is heated in the morning and rises as surface temperatures increase. This allows marine air on the west side of the Peninsular Range to begin flowing over the mountain crest, down the eastern slope, and across the Imperial Valley (Evan, 2019). The rush of marine air produces wind gusts at ground level that have the potential to entrain loose soil particles, producing windblown dust.

1.2 Dust Emissions from Lakebed and Management

Dust is emitted from the exposed dry lakebed of the Salton Sea by the action of wind, through a process termed *saltation*. Saltation is the wind-driven, hopping motion of sand-sized particles across a surface. This motion not only transports sand-sized particles but through bombardment of the surface, may also initiate the entrainment and subsequent transport by suspension of smaller dust particles (see **Figure 2.** Processes of Dust Emission from a Dry Lakebed.) (Shao et al., 1993; Rice 1999). Since the emission of dust from dry surfaces is caused by the action of wind close to the ground surface, dust suppression methods often rely on increasing surface roughness to reduce wind speeds near the surface. This may be done by adding surface features through tillage of the

ground, encouraging the growth of vegetation, or creating structures such as sand fences that act as wind breaks. Other methods include the use of moisture to increase adhesion of surface particles that limits their movement by wind, directly by the application of water, or through the addition of surfactants and soil binders with water.

Dust emissions may also be controlled by covering an area with water, although this is challenging because of the limited availability of water in a desert environment and by the cost of transporting it to where it may be needed for dust suppression.

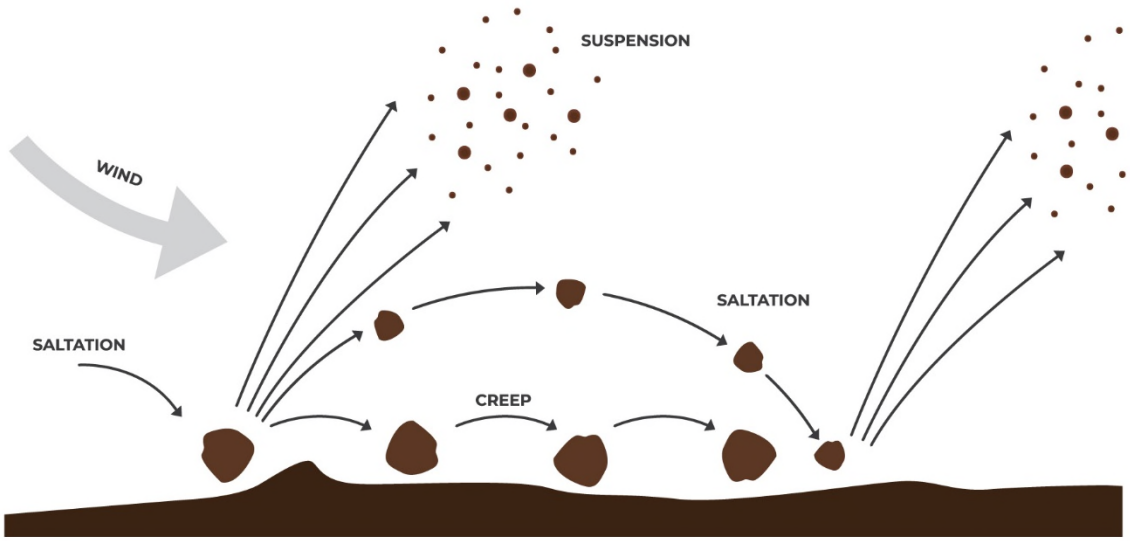


Figure 2. Processes of Dust Emission from a Dry Lakebed. (Modified from Presley and Tatarko, 2009)

1.3 Ongoing Dust Suppression Projects

The 2003 Quantification Settlement Agreement (QSA) among multiple federal, State, and local agencies created a mechanism through which the environmental impacts of water transfers from IID to urban users outside the Salton Sea basin (to the San Diego County Water Authority, the Coachella Valley Water District, and the Metropolitan Water District of Southern California) can be mitigated. A Joint Powers Authority (JPA) was formed to fund and implement these mitigation efforts. Funding from the JPA to IID and its consultants has supported studies, data collection, and dust suppression projects around the Salton Sea. Key information collected through the QSA-JPA work includes data on soil conditions and soil emissivity around the perimeter of the Salton Sea, from field studies testing different dust suppression methods, from monitoring of air quality around the Salton Sea, and from modeling the role lakebed emissions play on regional air quality. In addition, this work has identified specific project areas and concepts for future implementation around the perimeter of the Sea (IID, 2020c).

1.4 DSAP Project Prioritization

The air quality-related work performed by the QSA-JPA, described in greater detail in the following chapters, provides the foundation for the projects defined in this DSAP. The State used the following process to prioritize dust control sites:

- Available scientific data from around the Salton Sea (air and water quality, soil properties, meteorological data—notably wind direction and extreme wind events, and sand-related dust emissions) were used to locate projects in the most emissive areas.
- Sites were selected where it is envisioned that environmental permitting and access authorizations could be secured in a timely manner.
- Sites with potential availability of short- and long-term water supplies were selected to allow implementation of a wider array of dust suppression methods.
- Sites close to residential populations were identified to benefit communities from reduced emissions from exposed lakebed.

Recognizing the urgency to implement dust control projects on the exposed lakebed of the Salton Sea, the State Team organized the projects in this plan into two groups: Phase A projects are anticipated to be able to be implemented without delay and are proposed to be constructed first during 2020, and Phase B projects might require additional planning and preparation before they can be implemented. Phase B projects are envisioned to be initiated in 2020 and implemented in the field during 2021–2022.

1.4.1 Phase A Project Approach

Phase A projects are intended to be implemented in 2020. These projects meet the criteria of being implemented on emissive areas and are anticipated to have less complex permitting and access requirements. These projects will incorporate dust suppression methods that can be implemented expeditiously and have fewer planning and infrastructure requirements.

1.4.2 Phase B Project Approach

Phase B projects are to be implemented from 2020 to the end of 2022 and may entail more complex permitting, access, and infrastructure requirements than Phase A projects. Additional data may need to be collected at some of these sites to determine emissivity, soil properties, and other related factors to help design the most suitable dust suppression approach. Projects in this group require application of water in some form such as for vegetation growth or shallow flooding, additional analysis steps, and/or possibly dedicated conveyance infrastructure to be implemented. Because of the time needed to complete these steps, these projects are generally grouped in Phase B.

1.5 Outreach and Engagement in Development of this Plan

Initial concepts related to DSAP elements were presented at different communities around the Salton Sea (see **Figure 1.** Salton Sea Setting, Historical Exposed Lakebed from 2003–2020, and Communities in the Region.) and to the primary agencies involved in air

quality management. A draft of this DSAP was shared with the community and with air quality stakeholders, and feedback received was used to develop this final draft DSAP. The outreach and engagement process is described below.

1.5.1 Outreach

In November 2019, the State met with the SSMP Community Engagement Committee to discuss a plan for effective and meaningful public outreach. Based upon the Committee's feedback, the State Team held public meetings in December 2019 in Mecca and Salton City to seek input about how dust affects residents and potential locations and methods for dust suppression projects. These meetings were specifically held prior to development of the draft DSAP to solicit early public input to help shape the plan. Feedback received during these meetings was incorporated into the criteria used to select projects identified in the draft DSAP.

After the release of the draft DSAP in February 2020, three more meetings were held in late February and early March to gather additional community input to help refine the DSAP. Meetings were held in Westmorland and Bombay Beach, and on the Torres Martinez Desert Cahuilla Indian reservation in Thermal (**Figure 3**). Appendix A presents a summary of the methodology, approach, and outreach efforts conducted in support of the DSAP public meetings.

Figure 3. Public Meetings Held at Tameka Gym on the Torres Martinez Desert Cahuilla Indians Reservation, Thermal, (*left*) and Bombay Beach (*right*).

1.5.2 Air Quality Stakeholder Coordination

The State is committed to working with IID, ICAPCD, and SCAQMD to ensure that the DSAP meets all regulatory requirements related to dust control. Beginning in December 2019, the State initiated DSAP-focused coordination with air quality-related stakeholders. This effort included conducting regular meetings and conference calls with IID; coordinating with ICAPCD; involving IID and CARB staff in the December 2019 public presentations; and having individual calls with ICAPCD, IID, CARB, and SCAQMD to review their comments on the draft DSAP.

The technical team members from both the State and IID collaborated regularly to share and understand the applicability of data collected and processed by IID and their consultants over the last 5 years under the QSA-JPA. The meetings allowed sharing of insight from IID's implementation of dust control projects on the exposed lakebed and of

information regarding proposed project sites that have been developed by IID in consultation with ICAPCD.

1.5.3 Comments and Responses on Draft DSAP

In addition to the public and agency meetings, the State accepted written comments on the draft DSAP through March 27, 2020. Appendix B provides a summary of public and agency comments and responses. All public, stakeholder, and collaborating agency comments and input received during the meetings in December 2019 and February/March 2020 and submitted electronically, are posted on the CNRA Salton Sea website at www.saltonsea.ca.gov.

1.6 Proposed Project Areas

Based on the priorities established for the projects utilizing QSA-JPA analyses and data, feedback from the community and other stakeholders, and the required dust suppression goals of State Board Order WR 2017-0134, this plan identifies a set of discrete projects for implementation. The project planning areas constitute a total of 9,800 acres, with 4,600 acres to be considered for implementation during Phase A and 5,200 acres to be considered for implementation during Phase B. It is anticipated that during the planning process some areas will be determined not suitable for implementation and that not all 9,800 acres will be implemented. **Table 1** summarizes the named project area acreages to be completed during Phase A and Phase B. The first seven of the project areas are adopted from IID's planning process, and the last two are based on community input and require additional data collection to determine emissivity and suitability of specific dust suppression approaches. Actual acreages of implemented projects may be smaller because of exclusions on areas where dust suppression actions cannot be performed. The project planning areas are located around the perimeter of the Sea, as shown in **Figure 4**. The subsequent chapters in the DSAP provide additional detail on the steps necessary to implement and monitor dust suppression projects across these project areas.

Table 1. DSAP Project Areas and Acreages

Project area	Phase A (acres)	Phase B (acres)	Total acreage
Species Conservation Habitat	1,900		1,900
Wister-Frink (WF-1 and 2)	340	660	1,000
Kane Spring (KS-1–4)	1,100		1,100
Bombay Beach (BB-1 and 2)	400	480	880
San Felipe Fan (SFF-1 and 2)	860	860[a]	860
Tule Wash (TW-1 and 2)		1,850	1,850
Club House (CH-1)		780	780
Coachella Exposed Lakebed (CP-1–6)		1,340	1,340

North Shore		90	90
Approximate Total Acres	4,600	5,200	9,800

(*Source*: DWR, 2020)
Note:
a Vegetated area will be the same as surface roughening and, therefore, is not included in the Phase B total to avoid double counting.

Figure 4. Proposed Project Locations for Phase A and B.

1.7 Use of this Plan

This document serves as the State's roadmap for implementing dust suppression projects around the Salton Sea, in fulfillment of its planned obligations through the SSMP. This document provides a high-level summary of the project areas and the steps to be taken to implement these projects. This plan conveys the State Team's current working plan and commitment to manage dust emissions from exposed lakebed, and is meant to serve multiple audiences.

1.8 Report Organization

Chapter 2 of this report describes the range of dust suppression methods that have been applied with success, notably in other parts of southern California, where similar dry soil conditions are encountered. It is envisioned that future projects in this DSAP will apply one or a combination of these methods at different project sites. Chapter 3 presents a summary of the project implementation approach, which involves making agreements for land ownership and site access, obtaining the necessary permits and compliance documents, and an overview of the steps involved in contracting for construction. Chapter 4 describes specific project areas around the Sea where the Phase A and Phase B projects are to be implemented, including a general outline of the schedule for major steps. The planned performance monitoring of projects to document their effectiveness in reducing dust emissions is described in Chapter 5. A summary of this report and planned future steps is presented in Chapter 6. Additional detailed information is included in appendices, including the approach used for outreach (Appendix A), a summary of comments and responses to the draft DSAP (Appendix B), and detailed timelines for the implementation of selected projects (Appendix C).

2 Dust Suppression Methods

This chapter summarizes the different methods that have demonstrated success in controlling dust emissions from dry surfaces, as part of work performed at the Salton Sea, Owens Lake, Oceano Dunes, and other areas. These methods, individually or in combination, are expected to be used for the majority of the Phase A and Phase B projects described in this DSAP.

2.1 Initial Site Preparation

Regardless of the dust suppression methodology to be used, some initial site preparation will be required. Clearing and grubbing of the project area might be necessary to remove dead vegetation, abandoned duck blinds, large rocks, tires, pieces of concrete, vegetative/industrial debris, and other materials. Living, established native vegetation would be avoided to the maximum extent possible. A skid steer and/or backhoe equipped with tracks (or similar equipment) will be used to clear and grub the areas. Temporary routes may need to be established to access project areas. Table 2 lists typical equipment that would be used for clearing and grubbing.

Table 2. Typical Construction Equipment for Clearing, Grubbing, and Roughening

Equipment Use	Implement Name	Example Implement Model	Anticipated Use Rating
Deep Tillage	Bullplow–Ditchplow	Yonkers and Johnson Model 400	Frequent
Shallow Tillage	Switchplow–Reversible Plow	Maschio Micro Model	Occasional
Land Leveling	Pull-Type Ejector Scraper	John Deere Model 2412DE	Infrequent
Ripping/Grubbing	Deep Ripper	Agrowplow Model AP91	Rare
Clearing	Track Bulldozer–Crawler Dozer	John Deere Model 750L Dozer	Rare
Minor Cleaning	Crawler Backhoe Loader	JCB Model 1CXT	Rare
Water or Surfactant Spreading	Water Truck–Water Tender	Ford Model F-750 2,000 Gallon	Occasional

2.2 Temporary Surface Roughening

Example of Temporary Surface Roughening at Salton Sea (Photo Credit: IID)

Temporary surface roughening is achieved by constructing 2–4-foot-deep furrows perpendicular to the prevailing wind. Furrows can also be constructed to follow the natural contour of the land where ephemeral streams exist to maximize the lateral spread of water and infiltration. Alternatively, furrows might be used to redirect storm flows away from the project area to avoid damage to it. A belted tractor similar to a Challenger MT775E will be used to pull the selected implement. The tractor will be equipped with Trimble EZ-Guide® 250 or similar global positioning system to allow accurate positioning of surface roughness features. A bull plow with cab-adjustable pitch (e.g., Yonkers and Johnson Model-400 or a similar model) will be used to create the furrows. Table 2 lists typical equipment that would be used to construct furrows. Phase A temporary surface roughening projects are expected to be constructed in 2020.

2.3 Vegetation Establishment—Post Surface Roughening

Vegetation establishment is a roughness-based dust control measure (DCM) in which plants are used as porous, 3-dimensional barriers. The barriers induce friction on the air flow, reducing the applied shear force at the soil surface and, subsequently, reducing saltation and the resulting release of particulate matter of 10 microns or less in diameter (PM_{10}) emissions. Additionally, plants that tolerate abrasion and burial can actively trap and store saltating sands.

Vegetation establishment should be prioritized for soils that are suitable for supporting their growth and sustenance. These soils are broadly characterized as coarse textured and with favorable internal drainage. The aim of selecting areas for vegetation planting based on soil suitability is to minimize the need for large-scale infrastructure to supply irrigation water to plants. The direction of planting of hedgerows may be adapted based on prevailing wind directions at a site.

Along the transitional area from the desert to the lakebed, there is a change in the composition of natural vegetation, which suggests two distinct zones: One zone higher in elevation in which areas away from washes and drains are dominated by creosote bush (*Larrea tridentata*) and a second zone lower in elevation in which areas away from drain spills are dominated by iodine bush (*Allenrolfea occidentalis*). The hydrologic difference between the two zones most likely can be explained by the variation in depth to groundwater and the subsequent concentration of salts at the soil surface.

Example of Vegetation Establishment after Surface roughening at Salton Sea (Photo Credit: IID)

It is recommended that creosote bush be the target species for the upslope zone. Additionally, the presence of honey mesquite (*Prosopis glandulosa*) in that zone suggests it might be able to support this small tree, which has the potential to grow taller than other upslope species and therefore affect airflow to a greater degree. It is recommended that iodine bush be the target species for the downslope zone. In addition, the presence of four-wing saltbush (*Atriplex canescens* var. *macilenta*) and big saltbush (*Atriplex lentiformis*) suggests that the zone can support those species, which when co-planted could provide a hedgerow that is resilient to stressful environmental conditions.

Several agronomically sound lessons were learned from a series of vegetation tests, conducted by IID, including plot and field studies on the Salton Sea lakebed (IID 2017, 2019e, 2020c):

- Plant during the cool months of October through February.
- Grow plants as large as possible by spring.
- Buffer plants from environmental stressors when practical.

Establishing the vegetation requires that water resources be available. Because of the limited water supply infrastructure along the exposed lakebed, water will most likely be supplied to project areas by a combination of water quantity, quality, and timing. To address the uncertainty, simple water resource investigations will need to be performed so that practical irrigation systems can be designed.

In general, linear and point water applications are more effective than broadcast application on hypersaline soils with favorable internal drainage. Linear application includes widely spaced furrow flooding and linear systems with mobile precision drip applicators. Furrow flooding can occur passively under the force of gravity or actively using a pump and 8–12-inch pipe conveyance. Point applicators include conventional drip, subsurface drip, and micro-drip irrigation.

Associated infrastructure might include piped conveyance, open-channel conveyance, water applicators, sheet flow capture systems, surface water diversions, outflow drainage, tailwater recirculation systems, pump stations, power supplies, access routes, containment berms, and stormwater routing (Smesrud et al. 2004).

2.4 Stormwater Spreading

Stormwater spreading is a method by which stormwater is spread laterally across the landscape and retained long enough to meet project objectives. This project type is to be used in conjunction with the vegetation establishment DCM. At a few locations around the Salton Sea lakebed, the right combination of environmental conditions has yielded natural stormwater spreading events. These conditions consisted of low-velocity stormwater or drain water intersecting shallow on-contour wave action berms. The natural stormwater spreading events have yielded near-continuous hedgerows of iodine bush. Fortunately, at one of the locations, a set of near-surface piezometers were positioned and data from these instruments revealed the unconfined aquifer was recharged by the spreading (IID, unpublished data). The goal of a stormwater spreading project is to mimic this natural process and optimize the use of ephemeral surface water runoff.

Stormwater spreading provides the opportunity for deep infiltration (more than 1 foot of water), which is much larger than a heavy rain event (typically no greater than 0.2 feet of water) in the region. Stormwater runoff events have the highest probability of occurrence during the cool months of mid-November–March. The timing is critical as evaporation is low, which enables the surface soil moisture to persist for a longer duration than the flood event, which may pass within hours. The coupling of deep infiltration and low evaporation can also result in salts being leached from the soil surface. As the stormwater slows, suspended seed and fine sediment settle out, typically yielding favorable soil-seed contact. In this dry environment, these processes yield a favorable zone in which the water potential at the seed lasts for several months, long enough for seeds to take root.

A quantitative assessment of the watershed's hydrology and local hydraulics will need to be performed to optimize a stormwater spreading event. Once the assessment has been completed, diversion points and alignments can be identified, structures developed, and an array of linear infiltration basins specified so the system will operate passively for a range of infrequent but large discharge events. Diversion structures will be fit to the range of anticipated discharges and could consist of simple grading, earthen berms, sandbag weirs, rock gabions, Arizona crossings, or concrete structures. Sedimentation basins might also be used. Open-channel or piped conveyance may be needed to conduct water into the infiltration basins. Linear basin depth could be shallow (less than 1 foot),

moderate (1–3 feet), or deep (more than 3 feet). In the array of linear infiltration basins, the amount of inadvertent breaching can range from zero to an acceptable level of random breaching. Assuming some random breaching, the infiltration arrays could be oriented on near-contour positions to enable a cascading effect.

This method can be applied to distribute water from a range of discharge events. It should be noted, however, that for any given year in these arid watersheds, based on regional rainfall patterns, it is probable that no appreciable discharge will occur (few of these creeks are gauged to provide historical data). Conversely, it is probable that a large discharge might prove unmanageable using a modest infrastructure. Nonetheless, this method of water distribution provides a means to slow the flow of high-quality stormwater, enabling it to contribute to establishing and/or enhancing upland vegetation on the exposed lakebed. This technology will be especially valuable in locations with few water source options such as along the western shore. To ensure a reliable irrigation water supply during drought periods, it is recommended that this technology be coupled with an on-demand water source.

2.5 Surfactants

Surfactants are used to control fugitive dust originating from unpaved surfaces by improving the adhesion of particles. These products are used effectively for large-scale projects that require PM_{10} control. Typical application uses water with one or a combination of surfactant materials (e.g., organic, mineral, or engineered polymers). They control dust by keeping the soil surfaces wet or wet longer, drawing moisture from the air, encapsulating dirt particles, or by binding dust particles together. Depending on the type of surfactant used, balancing potential environmental concerns with the longevity of a particular application might be necessary.

Because most surfactants are water-soluble, rainwater can dissolve them. While transport from a dust suppression area to the Sea is a limited concern because of minimal rainfall and runoff, to avoid water quality concerns surfactant selection should nonetheless focus on organically based and ecosystem-friendly options. Surfactant application is planned with the use of trucks or aerially depending on access to specific locations.

Soil binders are similar to surfactants except that they are designed to bind with soils upon application and create a hardened surface that can withstand higher volumes of vehicle traffic, are water resistant, last longer, and can hold up under harsh conditions. Commercially available options include polymer emulsions manufactured from recycled products, for which the environmental properties are understood, and which may be suitable for application in the Salton Sea environment. Under harsh conditions, binders can be more effective in managing both PM_{10} and $PM_{2.5}$ particles. In addition, soil binders have a minimally higher water-to-product ratio for initial and O&M applications.

Some surfactant and binder manufacturers offer technical services to create a site-specific/application-specific product. Selecting a project-specific product can consider the following factors:

- Soil type such as clay, sand, or silt

- Water requirements
- Durability and longevity
- Ecosystem needs
- Magnitude and frequency of operations and maintenance

The use of surfactants and binders within the dust control areas may be a suitable dust control measure (DCM) for areas where surface roughening or other methods are not feasible. These products may also be suitable to apply to roadways and construction laydown/staging areas during construction activities. The State will evaluate the use of these products as part of the ongoing performance monitoring and data collection during implementation of Phase A and Phase B projects.

2.6 Shallow-Water Habitat

Audubon California developed a proposal for an integrated habitat and dust control project that could enhance an existing wetland near Bombay Beach (Audubon California 2019). The proposal is based on the knowledge that invasive tamarisk uses large amounts of water and continues to encroach upon wetted areas, choking out native vegetation. Applying active water management in this case can result in the associated water infrastructure serving a dual purpose: supplying water to the wetland and partially diverting the irrigation water to upland species in the dust control areas adjacent to the wetland. By making water source-specific adjustments, this concept of dual-purpose water infrastructure could be applied to other areas around the lakebed.

The amount of water consumed by tamarisk in this region has been estimated at up to 7 acre-feet per acre per year. The removal of the invasive, non-native, and water-intensive tamarisk from the creeks and drain channels will likely yield more discharge into these wetted areas. Additionally, the removal of tamarisk within the wetted area will prevent its further encroachment, providing a greater opportunity for water-efficient native plants to establish. Wetland vegetation management could also include planting native plants in these wetted areas.

The strategic placement of new berms and reinforcement of existing berms will increase the residence time of surface water within these systems. This increase in residence time can translate into a larger managed wetted footprint. The benefits of expanding the wetted footprint include an increase of food supply and availability of various habitat types for migrating and resident bird species (e.g., foraging, nesting, and refugia). Berm construction may include reworking exposed lakebed by grading and excavating. Depending on the site conditions, berm construction could occur in wetted areas.

Water diversion, conveyance, and supply systems will likely need to be developed and adapted to the local water sources. Adjacent to the wetted area, water-efficient DCMs such as hedgerows of native upland vegetation could be implemented. The water diversion, conveyance, and supply infrastructure can be designed to provide controlled flows into the wetland during most of the year and provide infrequent flows to the adjacent dust control areas during the cool season.

Substantial effort has gone into defining the lower end of the water demand for hedgerows and upland vegetation to minimize the need for water diversion (IID, 2020c). Available data suggest that the water requirement is about 0.1 acre-foot of water per acre per year (IID, 2020c). Additional research is proposed, however, to further define the water requirements for establishing and maintaining long-term persistence of upland vegetation. Additional management can be used to minimize the impact on the wetland. One example includes timing the irrigation diversion event to occur during a large discharge event such as fall sowing in agricultural drainsheds and stormwater runoff in unmanaged watersheds.

Several habitat types within these wetland areas could be targeted for management efforts, including habitat islands, permanent vegetated wetlands, and shallow-water habitat. Proposed habitat enhancements would vary by habitat type:

- Habitat islands: Increase vegetation structure and topographic diversity; provide habitat for roosting, foraging, and nesting; and enhance adjacent channels and open-water features.
- Permanent vegetated wetlands: Increase edge vegetation coverage and density; enhance emergent vegetation establishment; and improve hydrologic connectivity, water residence times, and depth of channels and shallow pond areas.
- Shallow-water habitat: Improve hydrologic connectivity by creating small drainage channels and shoreline-fringe habitat; and increase habitat diversity to support nesting, foraging, and resting sites.

Adaptive management and ongoing maintenance are proposed for these wetland areas. Ongoing maintenance of these habitat systems will likely include the development of features that influence the consistency of flooding, extending the life of features that hold water, cleaning water infrastructure and removing non-native invasive species. As conditions change at the Sea, there is potential for additional marsh areas to form and develop around existing drains and creeks. The locations for restoration projects would be within the exposed lakebed of the Sea and in the vicinity of agricultural drains and perennial creeks.

2.7 Sand Fencing

Example of Sand Fencing at Oceano Dunes (Photo Credit : DRI)

Fences of various construction materials and design are used to control the location and rate of erosion and deposition of sand and snow. By extension, the control of saltation of sand-sized particles moving across sediments containing silt and clay-sized particles will also affect the dust emission process driven by the ballistic impact of these grains on the surface. The drifting and settling of sand behind and in front of a porous fence occurs because the wind speed on both the upwind and downwind sides is less than that far upwind of a fence, and particles are slowed as they pass through the openings in the fence material. The slowing of the wind and particles allows deposition to occur, mainly in the lee of the fence. In areas of abundant sand supply, fences become buried over time, requiring either the removal of accumulated sand or the installation of additional sand fences on top, upwind, or downwind of the buried fences. Typical sand fencing construction methods include the following:

- Attaching perforated plastic fence material of specified porosity (40%-50%) to stakes at prescribed intervals.
- Weaving cedar or other lightweight wood strips into the holes of a wire fence, which is then attached to metal stakes.
- For a permanent sand fence, large wooden posts are set deeply into the ground, with large wooden planks running horizontally between the posts.

The depth and spacing of posts and the orientation of the installed fences to prevailing winds depends on site-specific conditions. The California Department of Parks and Recreation has been implementing a complex sand fencing system at the Oceano Dunes State Vehicular Recreation Area to control dust emissions from the off-highway vehicle riding area. This system is being used to capture and sequester saltating sand particles to reduce emissions of PM_{10} to improve air quality downwind of the Park. An underlying assumption is that the dust emission decreases at the same percent reduction as the observed decrease in sand flux.

Prior to large scale installation at the Park a pilot project was undertaken to quantify the effectiveness of the fence arrays to modulate sand flux (Gillies et al., 2017). The pilot project determined that 4-foot-high fences spaced 7 fence-heights apart reduced sand flux for the entire array area by 78%, and 86% for the area greater than 27 fence heights

into the array. Fence arrays at Oceano Dunes have been installed and removed on a seasonal basis and for some areas where temporary fences were emplaced vegetation has been established to provide permanent control.

The placement of arrays of sand fences in areas of Oceano Dunes have been guided by emissivity measurements made with the PI-SWERL device (Etyemezian et al., 2007, 2014) and modeling to identify source areas impacting key receptor sites (Mejia et al., 2018). Once in place, the effectiveness of sand control reduction is monitored using sand traps (Fryrear, 1986) installed outside of the array on the upwind edge and at locations through the array. Upwind and downwind PM monitors have also been used to examine the change in PM concentration across the fetch of the array (Gillies et al., 2017) that has indicated PM levels are lower on the downwind side indicating dust emissions have been reduced by the presence of the fences. The Oceano Dunes sand fencing project is currently being implemented on approximately 65 acres of state property, a very labor-intensive and costly effort. The relevance of this project to the Salton Sea is the potential for aspects of it to be used in areas at the Sea where methods of effective sand stabilization and dust control are still being evaluated. Combining this type of DCM with other methods under consideration in the DSAP might support vegetation enhancement in the most emissive areas of the exposed lakebed where only limited water sources are available (California Department of Parks and Recreation, 2019).

2.8 Engineered Roughness

The method of engineered roughness (Etyemezian and Gillies, 2016) for wind erosion control involves the placement of large roughness elements of prescribed size and distribution on a surface susceptible to dust emissions. The roughness elements modulate the threshold friction speed on the surface by absorbing momentum from the wind and reduce the sand flux and saltation (Gillies et al., 2015, 2018). The size and spatial distribution of the roughness elements determines the sand control effectiveness, and this is determined with the use of an empirical model (Gillies et al., 2018). The amount of sand flux reduction to be attained is based on the management objective of the project under consideration. The roughness elements can be manufactured, or assembled using available agricultural byproduct material, such as straw bales, if it can be processed into large and stable forms.

Examples of Engineered Roughness Elements at Owens Lake (Straw Bales and Manufactured), Photo Credit: DRI

Engineered roughness can be a temporary control method that applies immediate control of sand flux and dust emissions or it can be used to create conditions of reduced sand flux and moisture loss to provide a more suitable environment to support vegetation establishment and growth. The vegetation can eventually replace the roughness elements to control the sand flux and dust emissions.

2.9 Gravel Coverage

The use of a gravel blanket (cover) to control PM_{10} has been successful for roadways, construction laydown/staging areas and open areas on large projects throughout the United States. Gravel cover as a dust control measure involves placing a layer of gravel, or gravel over a geotextile base, on emissive exposed lakebed surfaces to protect them from the wind, thereby reducing dust emissions. Gravel blanket coverage is very effective at controlling dust during periods of high wind velocity, capturing saltating sand particles

within the interstitial spaces in the gravel. At Owens Lake, gravel blankets have been effective on essentially any type of soil surface. Gravel test plots on Owens Lake that have been in place for approximately 17 years continue to protect emissive surfaces beneath. These areas are maintained to ensure adequate gravel coverage and address repairs from water erosion. Employing the following steps to install gravel coverage will ensure that the gravel blanket will remain an effective PM_{10} control measure. These steps include:

1. Identify and secure a suitable gravel source near the treatment area.
2. Confirm that gravel composition will not react with existing soil and water types at the treatment site (leaching and erosion resistant).
3. Select gravel larger than three-eighths of an inch in diameter.
4. Identify the haul route and use traffic control measures, as needed, to ensure safe transport of the aggregate material to the treatment area (comply with local air quality district rules related to transporting aggregate from mining operations).
5. Grade/blade area for treatment to direct water runoff and drainage.
6. If the application area is susceptible to high-volume surface water flows (i.e., flash flooding), then other features such as dissipaters and desiltation/retention areas might be needed to slow the downstream water flow and potential siltation from upstream flows to minimize the erosion and burying of gravel.
7. Incorporate drains and channels, as needed, in the exposed lakebed to direct drainage.
8. Install a permanent permeable geotextile fabric over the treatment area.
9. Cover area with a layer of gravel (required thicknesses at Owens Lake are four inches without a geotextile base or two inches with a base).

At Owens Lake, the installed gravel coverage was able to withstand wind speeds of 90 miles per hour. While this high level of wind rarely occurs at Owens Lake, the gravel coverage was found to withstand typical sustained wind speeds of 50 miles per hour. Areas at Owens Lake with gravel coverage were found to control nearly all PM_{10} emissions.

Once the gravel cover has been applied to the exposed lakebed, limited maintenance is required. Ongoing site inspection for erosion and presence of fine sands, however, are required. Fine particles covering or significantly infilling the gravel can render the method ineffective. Typical O&M requirements include the following actions:

1. Visual monitoring to ensure that the gravel blanket has not filled with saltating sand particles eroded by flooding or filled with flood-borne silt.
2. Harrow the gravel to limit the amount of fine particles by settling out the fines that deposit in between the gravel spaces and bringing clean gravel back to the surface.

3. If the gravel blanket requires maintenance due to in-filling, apply additional gravel to the exposed lakebed so that the original blanket performance standard is maintained.

At Owens Lake, ongoing maintenance staffing requires one full-time employee per 5 square miles of gravel coverage and an average ongoing maintenance amount of gravel of 7,000 cubic yards per square mile per year (allowing for complete gravel replacement once every 50 years). While this method has proven to be very effective, it is also very costly compared to other dust control methods. The State will continue to consider this method for dust control in conjunction with other methods, especially in areas where no other options are feasible because of topography, soil type, and water supply. At the Salton Sea, as noted above, the use of gravel cover may be effective for higher traffic areas or access roads or in combination with other methods in smaller areas for highly emissive areas.

2.10 Shallow Flooding

Wet surfaces are resistant to windblown dust emissions (Hardebeck et al., 1996). This is because the saturated soil particles at the ground surface are heavier than dry particles and because the surface tension of interstitial water tends to hold soil particles together in agglomerates that are too heavy to be entrained by wind shear forces. When the surface soil particles dry, the bonds between particles left by evaporated moisture cause the particles to form a weak crust that, in the absence of physical disturbance, is sufficient to resist wind shear and particle entrainment. The shallow flooding DCM has been demonstrated to provide dust control over large areas at Owens Lake (GBUAPCPD, 2008). For this to work enough water has to be applied to maintain surface moisture levels over a minimum of 75% of the treated area (GBUAPCD, 2016). This is achieved at Owens Lake with large volumes of clean water and associated conveyance, drainage, and recirculation infrastructure.

The water demand for shallow flooding is approximately 3 to 4 acre-feet of water per year to suppress dust from an acre of lakebed. This water is pulse-flowed in monthly applications between October and June of each year. To apply the shallow flooding control method at Salton Sea, water use agreements and substantial infrastructure would be needed in order to supply enough water at specific areas. The relationship between wetted extent and PM_{10} control efficiency is known and straightforward to monitor for performance using openly available satellite imagery (Groeneveld and Barz, 2013).

Shallow flooding can be applied using different techniques. These techniques can be grouped into two categories: sheet flooding and pond flooding. Sheet flooding is similar to surface irrigation in agriculture (Walker and Skogerboe, 1987). Sheet flooding may consist of preparing a subarea by leveling the land and bounding it by shallow earthen banks. Water may then be applied at the top end of a cell and be permitted to advance over the length of the cell in the form of a thin sheet. Pond flooding is similar to constructed ponds. Pond flooding consists of preparing a near-level cell by bounding it with deep rock-faced water containment berms. Large volumes of water are applied submerging the cell with enough water to counter the water loss processes.

Associated infrastructure for shallow flooding may include piped or open channel conveyance, water applicators, outflow drainage, tailwater recirculation systems, pump stations, power supply, access routes, containment berms, and stormwater routing (Smesrud et al., 2004). The infrastructure, power, water, and time cost of this DCM may be substantial, and may need to be quantified on a site-specific basis. Additionally, the adverse environmental impacts of the management of these systems should be considered, which might include further soil salinization, concentration of selenium in the pond water, and the water balance of the Salton Sea.

2.11 Enhancing Soil Crusting Using Biocementation or Soil Amendments

The presence of a surface crust on soils, in the absence of disturbance, has been observed to create a condition that is highly resistive to wind erosion (Gillette, 1974; Gillies, 2013). Crusts can be formed by biotic or abiotic processes. Crusting or soil aggregation arising from either process can be enhanced through the addition of amendments, which make the surface more resistant to wind erosion processes. A potential biotic-based crust enhancement technique is biocementation, which utilizes soil microbes to, for example, precipitate the mineral calcite to enhance inter-particle bonding. Enhancement of calcite precipitation requires the presence of microbes capable of performing urea hydrolysis (Gomez et al., 2014, 2017). This process potentially requires laboratory cultivation, transportation, and seeding of non-native bacterial species into the soils to be amended. Using a process known as bio-stimulation (e.g., Fujita et al., 2008) it has been demonstrated that native soil microorganisms may also be encouraged to increase their cementation capacity.

Abiotic amendments have also been demonstrated to enhance soil crusting and aggregation thus improving their ability to resist erosion, but they have not been widely applied and are still in the development phase. For example, the addition of biochar (from pyrolysis of biomass materials) in arid areas has been used to promote fertility and soil aggregate stability (e.g., Jian and Wang, 2013). In addition to biochar as a soil amendment for wind erosion control Feizi et al. (2019) investigated the feasibility of using the clay mineral bentonite and polyvinyl acetate for reducing the wind erosion in desert areas outside cities in Iran. Their wind tunnel experiments demonstrated bentonite amended soils to be the most effective soil erosion control measure for reducing soil loss. This control method does require a thorough characterization of soil properties to allow an appropriate amendment mixture to be developed.

3 Project Implementation Approach

Project implementation involves three key steps prior to design and construction: site access from land owners, permitting and environmental compliance, and contracting for construction. Project boundaries are subject to adjustment due to access, environmental compliance, or other factors. This section provides an overview of these steps.

3.1 Land Ownership and Site Access

A key factor influencing the implementation of projects in the DSAP is landownership. The State owns very little property around the Salton Sea. Major landowners include IID, U.S. Bureau of Reclamation (USBR), U.S. Bureau of Land Management (BLM), and the Torres Martinez Desert Cahuilla Indians (TMDCI). Table 3 summarizes landownership of project areas. Figure 4 shows the current landownership at project areas. A first step in implementation will therefore involve obtaining site access agreements. Inclusion of areas in this plan does not infer that access agreements have or will be reached. Any access agreements will be reached voluntarily. A description of the status of access agreements for the major landowners is summarized below.

Currently, DWR has an easement agreement with IID, for specific IID-owned parcels within and around the SCH project area. The easement allows the State access to implement dust suppression projects on the covered IID parcels as part of Phase A of this plan. The State will be required to enter into separate access agreements for the dust suppression projects presented in other areas around the Salton Sea, with IID and other landowners.

DWR has entered into a grant agreement with USBR to implement dust suppression projects around the Salton Sea and to conduct related research. The State has shared potential project areas with USBR to begin the right-of-way agreement process.

DWR and BLM have entered into a right-of-way agreement for parcels within the SCH area. The agreement allows the State access to implement dust suppression projects on

BLM parcels at the SCH site as part of Phase A of this plan. The State will be required to enter into separate easement agreements for the dust suppression projects planned for other BLM-owned parcels around the Salton Sea.

The State is in the beginning stages of engagement with the TMDCI about implementing dust suppression projects on their properties. Moving forward, the State will work collaboratively with the Tribe regarding planning dust suppression projects on any tribal lands and protection of cultural resources in project areas around the Salton Sea.

Access agreements for other landowners in **Table 3.** Land Ownership by Project Area and Subarea will be sought as projects are initiated.

Table 3. Land Ownership by Project Area and Subarea

Project Area and Subarea	Landowners
Coachella Playa (CP-1)	CVWD/IID
CP-2	TMDCI
CP-3	IID/TMDCI
CP-4	TMDCI/IID
CP-5	IID/USBR
CP-6	TMDCI/Private/CVWD
Bombay Beach (BB-1)	IID/BLM/ USBR /Private
BB-2	IID/BLM/ USBR
Wister-Frink (WF-1)	IID
WF-2	IID/City of Los Angeles/BLM
Club House (CH-1)	IID/ USBR /TMDCI/Private
Kane Spring (KS-1)	IID
KS-2	IID
KS-3	IID/ USBR
KS-4	IID/ USBR
Species Conservation Habitat (SCH-1)	IID/BLM
SCH-2	IID/BLM
SCH-3	IID
SCH-4	IID
SCH-5	IID/BLM

Project Area and Subarea	Landowners
SCH-6	IID/BLM
San Felipe Fan (SFF-1)	IID/ USBR
SFF-2	IID/ USBR
Tule Wash (TW-1)	USBR /IID/Private/Federal
TW-2	Private/Federal/ USBR

Source: DWR 2020.

Figure 5. Land Ownership Overlaid on Proposed Dust Suppression Project Areas.

3.2 Permitting and Environmental Compliance

Initial evaluation of projects has taken place to identify anticipated compliance needs for each project and schedule projects accordingly. Compliance-related criteria for identifying projects for Phase A and B included projects anticipated to be outside the jurisdiction of the U.S. Army Corps of Engineers (USACE), to not have endangered species concerns, and with minimal or no environmental compliance issues. If during environmental permitting, projects are found to have these constraints, they will be adjusted to avoid constraints or will be included in the forthcoming programmatic NEPA planning and permitting process for the 10 Year Plan as described below.

3.2.1 U.S. Army Corps of Engineers 404 Permitting

The USACE is working closely with the State on a programmatic approach to NEPA coverage for the SSMP Phase I 10-year Plan and as such has been working closely with the State on data collection and compilation. The State and the USACE have entered into an agreement under the Water Resources Development Act that will streamline permitting. The State worked with the USACE on the Bruchard Road project and developed a mutually acceptable approach for USACE permitting. As indicated above, Phase A and B projects will be projects that avoid impacts to areas under USACE jurisdiction. Projects in the DSAP will be permitted using the same approach used for the Bruchard Road project, which includes:

- A desktop review for potential aquatic resources under USACE jurisdiction;
- A field review to verify/augment the desktop review to determine if any areas of USACE jurisdiction are within the project footprint; and
- If possible, elimination of areas within the proposed project footprint determined to be within USACE jurisdiction or carried out as part of a later phase.

IID has begun the process of conducting aquatic resources delineations (ARDs) for projects within selected project areas and State consultants are also available. The USACE will complete a “Verification” process for each ARD to identify any jurisdictional areas for avoidance.

3.2.2 CDFW Lake and Streambed Alteration Agreement

The desktop and field reviews, along with pre-notification consultation, will provide the necessary information for submittal of Lake and Streambed notification(s) to CDFW. Dedicated CDFW staff on the SSMP team will assist with preparation of notification(s) to facilitate expedited review and issuance of any required Lake and Streambed Alteration Agreement (LSAA). Preparation of the notification(s), including fieldwork, could take up to 30 days. It is anticipated that a LSAA could be issued within 90 days of submittal of a notification, so up to 120 days from initiation to execution of the agreement is allotted, although it could take less time.

3.2.3 Colorado River RWQCB 401 Certification / Waste Discharge Requirements

The Regional Water Quality Control Board (RWQCB) would issue a Waste Discharge Requirement permit for projects outside of USACE jurisdiction. These are typically issued

within 60 days of receiving a complete application. The process is anticipated to take up to 90 days, including data collection and permit processing.

3.2.4 California Environmental Quality Act (CEQA)

Any discretionary action that would be implemented under the SSMP by the California Natural Resources Agency (CNRA) which may cause either "a direct physical change in the environment, or a reasonably foreseeable indirect change in the environment" are considered a project under CEQA and would require analysis relative to this law. CEQA analysis for the State's Salton Sea Management Program – Phase I: 10-Year Plan (10-Year Plan) was completed in the Species Conservation Habitat (SCH) Project Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR), finalized in August 2013, and the September 2017 Addendum to the SCH EIS/EIR (State Clearinghouse No. 2010061062). Among other things, these documents analyzed the impacts of the 10-Year Plan dust control projects around the perimeter of the Salton Sea. The State Team will evaluate each project prior to implementation to determine whether any of the conditions described in Title 14 of the California Code of Regulations, sections 15162 or 15164, have occurred to trigger the need for additional CEQA analysis.

3.2.5 National Environmental Protection Act (NEPA)

As described above, the State is currently working with the USACE on a programmatic approach to NEPA for the SSMP Phase I 10-year Plan. Projects within the DSAP that are not anticipated to be subject to NEPA or that may potentially qualify for categorical exclusions have been identified for Phase A and Phase B. If during environmental analysis it is determined that they are subject to NEPA and do not qualify for a categorical exclusions, they will be evaluated to see if they can be redesigned for avoidance, or they would be included for NEPA coverage under the programmatic NEPA document for the SSMP Phase I 10-year Plan. For projects on federal land that are not subject to a categorical exclusion, the USACE would include the landowner as a cooperating agency under the programmatic NEPA document.

3.2.6 Federal Endangered Species Act and California Endangered Species Act

Projects or project areas found to require ESA consultation or potential CESA impacts would not be carried out as part of the DSAP projects and would be subsumed under the Programmatic NEPA planning and permitting process described above.

3.2.7 Groundwater Well Permitting

Groundwater will be evaluated a water source for sustaining vegetation at certain project locations. A series of monitoring wells is proposed around the perimeter of the Sea, as described in Chapter 5. Prior to well construction, the State will investigate the proposed well sites. DWR geologists will coordinate with the drilling contractor to obtain clearance to drill and construct wells at each site from the appropriate county permitting agency. DWR will also obtain any permits for groundwater use that may be required under new regulations being developed by local groundwater sustainability agencies under California's Sustainable Groundwater Management Act.

3.2.8 Imperial County Air Pollution Control District (ICAPCD)

ICAPCD has regulatory authority over the contribution or control of any potentially airborne dust particles in Imperial County. Any dust control projects located within ICAPCD's jurisdiction are subject to applicable Air District Rules and Regulations. ICAPCD's jurisdiction covers the majority of the Salton Sea region except for the northern extent of the Salton Sea, which falls under the jurisdiction of SCAQMD.

The intent of Regulation VIII of ICAPCD's Rules and Regulations "is to reduce the amount of PM_{10} entrained in the ambient air as a result of anthropogenic fugitive sources generated from within Imperial County. The rules of Regulation VIII require that landholders and other responsible parties take specific actions in order to prevent, reduce, or mitigate PM_{10} emissions. The rules apply to human activities or human-caused conditions capable of generating fugitive dust" (ICAPCD, 2018). The specific rules that apply to the implementation of dust control measures in Imperial County include Rule 801 for construction projects, Rule 804 addressing open areas, and Rule 805 covering paved and unpaved roads.

The provisions of Rule 801 apply to each dust control project that includes the disturbance of soil for the installation of infrastructure or for surface roughening. These provisions include limits on visible dust emissions of 20 percent opacity from mechanical soil disturbance activities, and compliance with Stabilized Surface requirements for inactive disturbed surfaces. Dust control plans must be submitted to and approved by ICAPCD prior to commencement of project construction for each project larger than five acres in size.

As described in the ICAPCD State Implementation Plan for PM_{10}, "The purpose of Rule 804 is to reduce the amount of PM_{10} that is emitted from non-agricultural open areas…" (ICAPCD, 2018). This rule applies to the control of windblown dust from the exposed Salton Sea lakebed. In addition, the rule also identifies the best available control measures (BACMs) for surface stabilization that include applications of water or dust suppressant, application of gravel, and establishment of vegetation.

Rule 805 applies to the portions of dust control projects that involve vehicular travel over unpaved surfaces. The intent of the rule is to control PM_{10} emissions from unpaved road travel and windblown dust emissions from unpaved roads used to access project sites.

In addition, Rule 925 (General Conformity) applies to the control of dust from dust control projects that are implemented on federal land or which depend in whole or part on federal funding or permits for implementation. Dust control projects that emit less than 70 tons of PM_{10} per year in Serious PM_{10} nonattainment areas, and projects that emit less than 100 tons of PM_{10} per year in PM_{10} maintenance areas, are exempt from the requirements of this Rule. As of April 2, 2020, the U.S. Environmental Protection Agency (USEPA) has proposed to redesignate Imperial County from "Serious nonattainment" to "attainment" for the PM_{10} ambient air quality standard. Upon final approval of redesignation by USEPA, dust control projects emitting less than 100 tons of PM_{10} per year will be exempt from Rule 925.

In order to ensure compliance with ICAPCD rules, the State is committed to working with ICAPCD and acknowledges the role of ICAPCD in approving any dust control projects within its jurisdiction and the factors used to determine the locations of future dust control projects directly implemented by the State. This commitment also applies to addressing fugitive dust generated from construction activities associated with implementation of these projects. Through ongoing coordination with IID regarding the implementation of projects, the State Team recognizes that IID projects have already been accepted by ICAPCD.

3.2.9 South Coast Air Quality Management District (SCAQMD)

SCAQMD has regulatory authority over the contribution or control of any potentially airborne dust particles in the Salton Sea region within Riverside County. Similar to ICAPCD, any dust control projects located within SCAQMD's jurisdiction are subject to applicable Air District Rules and Regulations.

Rule 403 requires actions to prevent, reduce, or mitigate human-made fugitive dust emissions. This Rule requires use of BACMs to mitigate fugitive dust and sets limits on visible dust and monitoring PM_{10} measurements. Rule 403.1 is supplemental to Rule 403 and only applies to activities in the Coachella Valley. Rule 403.1 is intended to reduce or prevent the PM_{10} emissions from human-made fugitive dust sources.

The State is committed to collaborating with SCAQMD staff and recognizes the role of SCAQMD in approving dust control. This coordination has already started and the State will continue to involve the SCAQMD in the planning associated with DSAP projects within the jurisdiction of the SCAQMD. This commitment also applies to addressing fugitive dust generated from construction activities associated with implementation of these projects.

3.2.10 Compliance with Construction and Operations Permitting Requirements

Implementation of DCMs will require compliance with measures and conditions of approval intended to limit construction impacts. The types of construction-related measures could include:

- Addressing fugitive dust from roads and open areas;
- Installation of traffic controls for the transit of heavy equipment and worker vehicles to project sites;
- Notifications to adjacent landowners of pending construction activities;
- Consideration of the use of a construction hotline for the public to contact the State to express construction activity-related concerns; and
- Use of onsite safety/security measures, such as exclusionary fencing, worker safety programs, and use of and onsite security.

3.3 Overview of Construction Contracting

Project implementation in the field will require specialized contractors. The timeline for construction contracting involves three phases: a competitive bid and contractor

selection, an interagency agreement between DWR and CDFW, and an agreement between DWR and IID. An example of the time frames needed for the different tasks in contracting is shown in Appendix C.

4 Site-Specific Project Implementation Plans

The DSAP has selected project areas based on four factors: an evaluation of soil emissivity, potential for timely environmental permitting and land access authorizations, sites with potential availability of short- and long-term water supplies, and sites with proximity to residential populations. Nine areas have been identified for project implementation, as introduced in Chapter 1. A site-specific project implementation plan has been developed for each area. The project implementation areas are as follows:

- SCH Dust Project
- Wister-Frink
- Kane Spring
- Bombay Beach
- San Felipe Fan
- Tule Wash
- Clubhouse Area
- Coachella Exposed Lakebed Area
- North Shore Area

Project-specific plans for each area are discussed below.

4.1 SCH Dust Project

This area is the site of the future creation of 3,770 acres of habitat ponds that will act as a fishery for tilapia that will provide habitat for piscivorous birds. This project is set to begin construction in the fall of 2020 and be completed by the end 2023. The land that the project will be constructed on is primarily exposed lakebed and contains areas that have become very emissive. Since the area will ultimately be a wetted habitat area, only temporary dust suppression methods are proposed.

The total SCH area can be divided into four areas for dust suppression purposes:

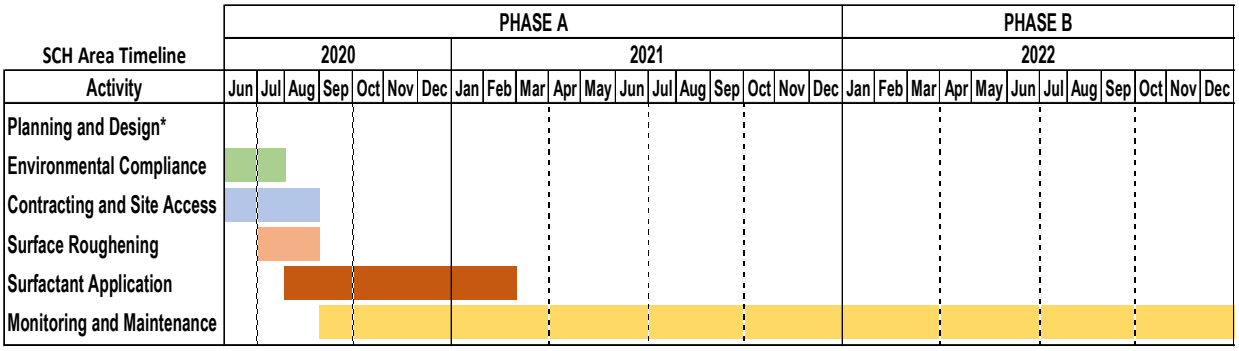
- Areas of low emissivity, consisting mostly of locations that are wetted by drain outlets or are adjacent to the New River.
- Areas where dust suppression is complete. These are areas where surface roughening has been accomplished by IID and by the State's Bruchard Road Dust Suppression Project, which was completed in January 2020.
- Areas targeted for additional surface roughening, totaling 950 acres.
- Areas targeted for aerial spraying of surfactants, totaling 810 acres.

The State intends to implement additional dust control projects at this site this summer, starting in July 2020. The timeline for implementation of the SCH plan is shown in **Figure 6**. A detailed plan of project implementation is shown in Appendix C.

Acreage: Approximately 1,900 acres planned

Landowners: IID and BLM

Dust Control Methods: Dust control measures need to be implemented quickly and in a manner that will not affect construction of the SCH. As discussed above, temporary surface roughening will be implemented in areas that are not expected to be graded as part of the SCH project and surfactants will be applied on the remainder of the emissive areas. A map illustrating the planned methods of dust suppression to be implemented in the SCH area is provided in **Figure 7**.



* Complete

Figure 6. Timeline for Implementation of the SCH Dust Suppression Project.

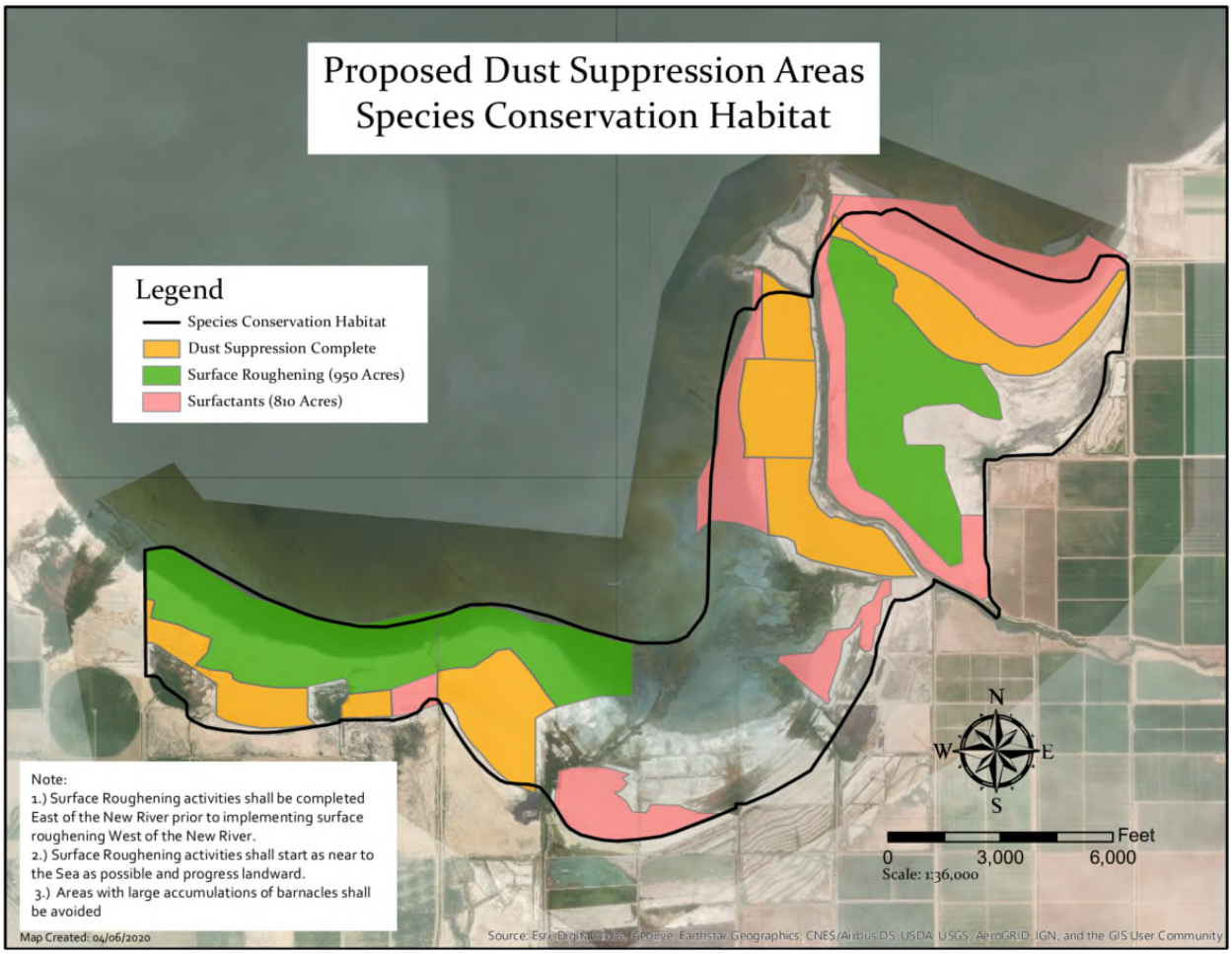


Figure 7. Planned SCH Dust Suppression Areas and Methods.

4.2 Wister-Frink Area

The Wister Frink area is split into two project areas WF-1 and WF-2. The WF-1 project area is roughly 340 acres and positioned downslope of the Wister Wildlife Refuge. WF-1 is characterized as moderate to high emissivity and is almost completely bounded by vegetation supported by agricultural run-off. The approach for WF-1 is to implement temporary surface roughening in Phase A. In Phase B for the same area agricultural run-off water during the cool season will be redirected into select furrows as to establish repeating sets of hedgerows consisting of salt tolerant shrubs.

The WF-2 area is roughly 660 acres and is positioned just to the northwest of the northern extent of IID's agricultural water supply and drainage infrastructure. The southeastern portion of the WF-2 project area is bounded by vegetation supported by run-off from IID drains. The soil in WF-2 is fine textured across the site which makes this area suitable for surface roughening due to substantial soil cohesion as well as suitable for shallow water habitat due to a low vertical hydraulic conductivity resulting in an efficient ponding potential. Additionally, there is an impeding layer present in the top meter of the soil profiles across the Wister Frink #2 site which will increase the site's capacity for ponding water and likely limit the rooting depth of salt tolerant vegetation. Given the site characteristics a shallow one-foot surface roughening treatment is proposed for Phase A as to provide immediate dust suppression but limit the disturbance of the impeding layer. Due to proximity to water supply infrastructure and the site potential for ponding, shallow water habitat is proposed for Phase B. This would require water agreements with IID and some minor water infrastructure to supply water to the shallow water habitat. A preliminary timeline for implementing the Wister-Frink area project is illustrated in **Figure 8**.

Acreage: WF-1: Phase A-190 acres for surface roughening converted to vegetation establishment in Phase B. WF–2: Phase A-780 acres of surface roughening converted to shallow water habitat in Phase B.

Landowners: IID, City of Los Angeles, and BLM

Dust Control Methods: WF-1: Phase A 340 acres for surface roughening converted to vegetation in Phase B. WF–2: Phase A 660 acres of shallow surface roughening converted to shallow water habitat in Phase B.

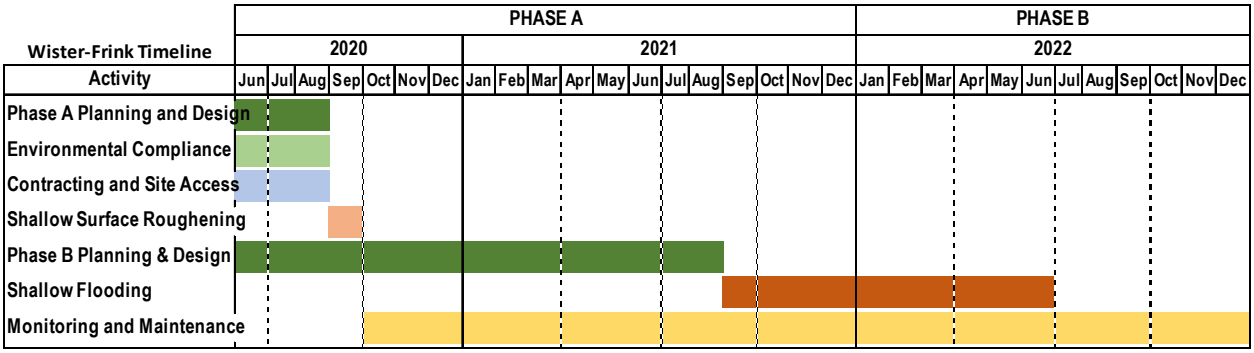


Figure 8. Preliminary Timeline for Implementation of the Wister-Frink Dust Suppression Project.

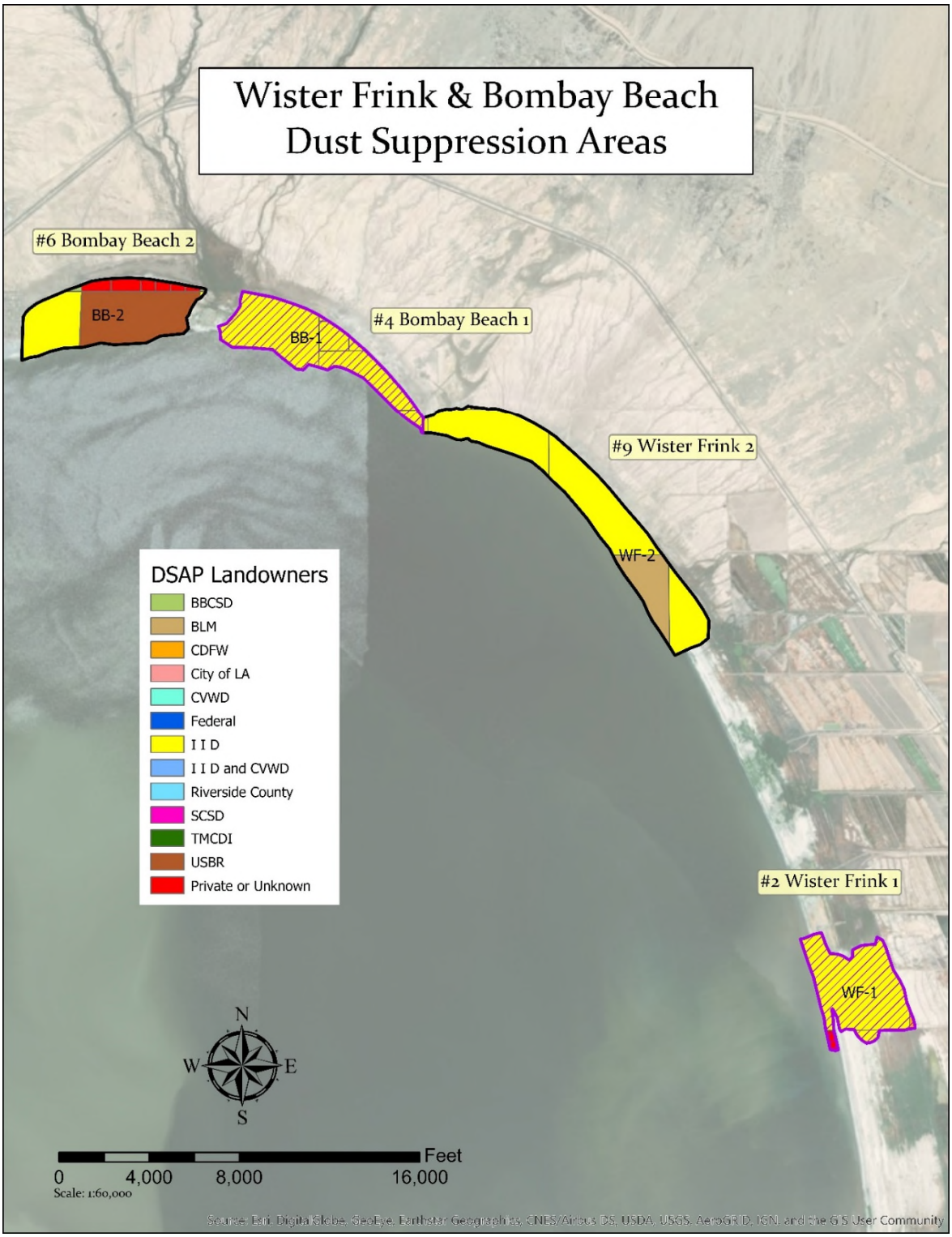


Figure 9. Wister-Frink and Bombay Beach Dust Suppression Areas. Hatched Areas Represent Phase A Projects.

4.3 Kane Spring

The Kane Spring dust suppression area is located downstream of several agricultural fields. The irrigation tailwater from these fields drains to three ditches: San Felipe Wash in the north, Drain Twenty-two in the middle, and Drain Twenty in the south. The dust suppression plan for this project area will be a combination of surface roughening and vegetation establishment using the water from the three drainage ditches. The geometry of the surface roughening area will be designed to have the capacity to contain the drainage water in order to help vegetation growth. **Figure 10** shows the preliminary timeline for the Kane Spring dust suppression project and **Figure 11** provides a map of the area.

Acreage: 1,100 acres

Landowners: IID and USBR

Dust Control Methods: Surface roughening and vegetation establishment.

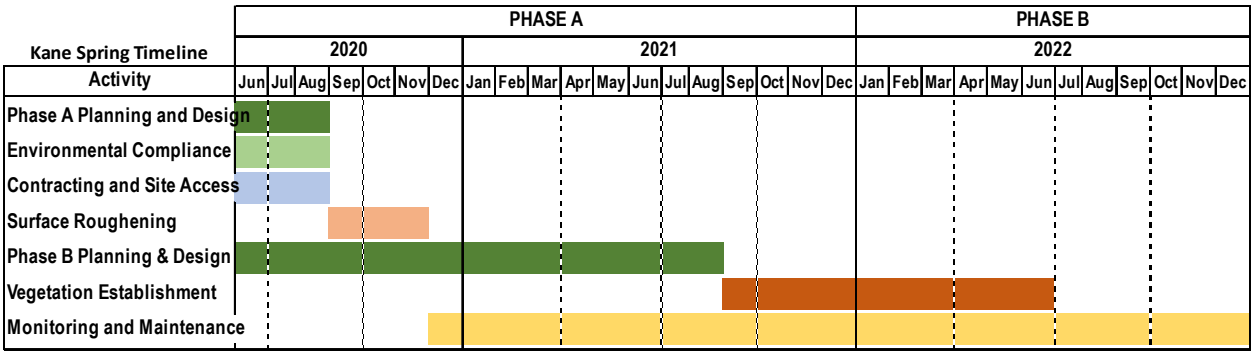


Figure 10. Preliminary Timeline for Implementation of the Kane Spring Dust Suppression Project.

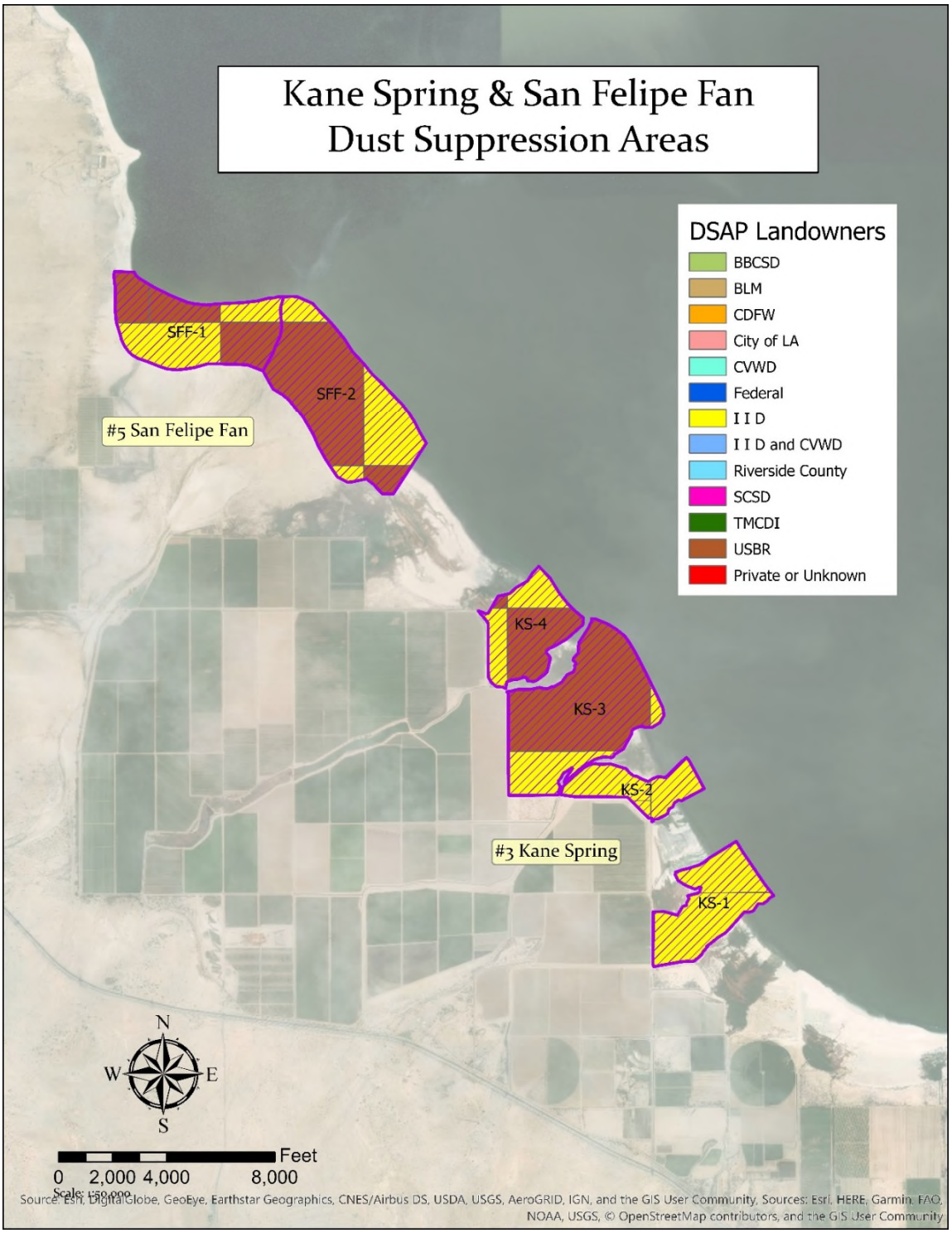


Figure 11. Kane Spring and San Felipe Fan Dust Suppression Areas. Hatched Areas Represent Phase A Projects.

4.4 Bombay Beach

Bombay Beach is an emissive area on the Salton Sea exposed lakebed and is adjacent to the Bombay Beach populated area. Natural springs drain down the area and, at times, create shallow water habitat by pooling behind naturally occurring barnacle berms. Some years, large storms will add to the flow of water draining into the area, which can cause it to blow out the naturally occurring berms and the shallow pool will drain out. This results in exposed lakebed and subsequent dust emissions become an issue. Controlling dust in this area will be done initially by surface roughening where soils are suitable. The rest of the emissive area will either be vegetated, have a berm created to facilitate shallow habitat creation, or utilize stormwater spreading. **Figure 12** illustrates the preliminary timeline for the Bombay Beach area and the preceding **Figure 9** includes a map of the Bombay Beach dust suppression area.

Acreage: 880 acres

Landowners: IID, BLM, USBR, and Private

Dust Control Methods: 400 acres are suitable for temporary surface roughening and will be constructed as part of Phase A. An additional 555 acres may be vegetated with native vegetation and/or become shallow water habitat, including the area constructed in Phase A. Stormwater spreading is also being considered as a possible dust control method in this area.

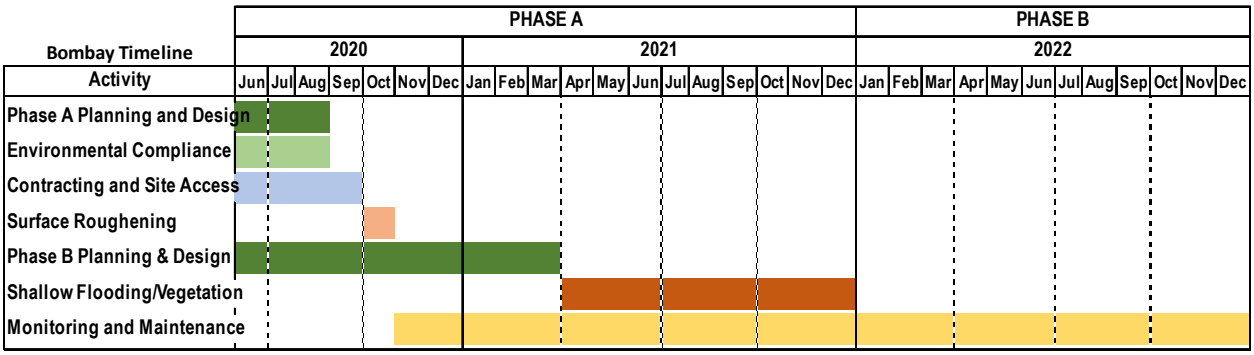


Figure 12. Preliminary Timeline for Implementation of the Bombay Beach Dust Suppression Project.

4.5 San Felipe Fan

The San Felipe Fan dust suppression area is at the downstream delta of the San Felipe Creek, which is the largest creek in the west Salton Sea area. The Creek's flow rate is highly dependent on the storm runoff from the watershed, which varies between years. From 1961 to 1990, San Felipe Creek had annual flow volumes ranging from 1,000 acre-ft to 410,000 acre-ft. This project would utilize stormwater from San Felipe Creek by letting it spread to the exposed lakebed to help vegetation establishment. The plan is to construct lateral ditches along the contours so the stormwater can be retained in the ditches and infiltrate to the soil for vegetation uptake. Beside the benefit of helping vegetation growth, the lateral ditches can also serve as surface roughening units that can slow down wind speed to reduce soil emissivity from the project areas. **Figure 13** shows

the preliminary timeline for the San Felipe Fan Dust Suppression Project and the preceding **Figure 11** provides a map of the area.

The 1988 annual peak storm event for the San Felipe Creek watershed was used to evaluate the effectiveness of stormwater spreading. **Figure 14** shows the simulation of stormwater spreading in the project area. As shown in **Figure 14**, the stormwater fills in the lateral ditches sequentially from upstream to downstream when it progresses toward the Salton Sea. The water depth in the spreading system is maintained at 0 to 3 feet. The simulation results indicate that the proposed stormwater spreading system would retain 42% of the 330 acre-feet of stormwater (i.e. 139 acre-ft) during a major 1988 storm event. As Salton Sea continues to recede, more ditches may be constructed on the exposed lakebed to further utilize the stormwater for dust suppression.

Acreage: 860 acres.

Landowners: IID and USBR

Dust Control Methods: Surface roughening and shallow flooding with vegetation. The DWR team has performed HEC-RAS hydraulic modeling for the stormwater spreading by proposing 38 miles of 20-feet-wide, 3-feet-deep ditches on the San Felipe Fan exposed lakebed. The 38-mile lateral ditches are designed following the contours from -229 feet to -234 feet with an increment of 0.25 ft to 0.5 ft, depending on the topography of the exposed lakebed. Six weirs are proposed along the Creek at different locations to make stormwater fill in the lateral ditches and to maintain the water in ditches to be no more than 3 feet deep.

The 1988 annual peak storm event for the San Felipe Creek watershed was used to evaluate the effectiveness of stormwater spreading. **Figure 14** shows the simulation of stormwater spreading in the project area. As shown in **Figure 14**, the stormwater fills in the lateral ditches sequentially from upstream to downstream when it progresses toward the Salton Sea. The water depth in the spreading system is maintained at 0 to 3 feet. The simulation results indicate that the proposed stormwater spreading system would retain 42% of the 330 acre-feet of stormwater (i.e. 139 acre-ft) during a storm equivalent to a major 1988 storm event. As Salton Sea continues to recede, more ditches may be constructed on the exposed lakebed to further utilize the stormwater for dust suppression.

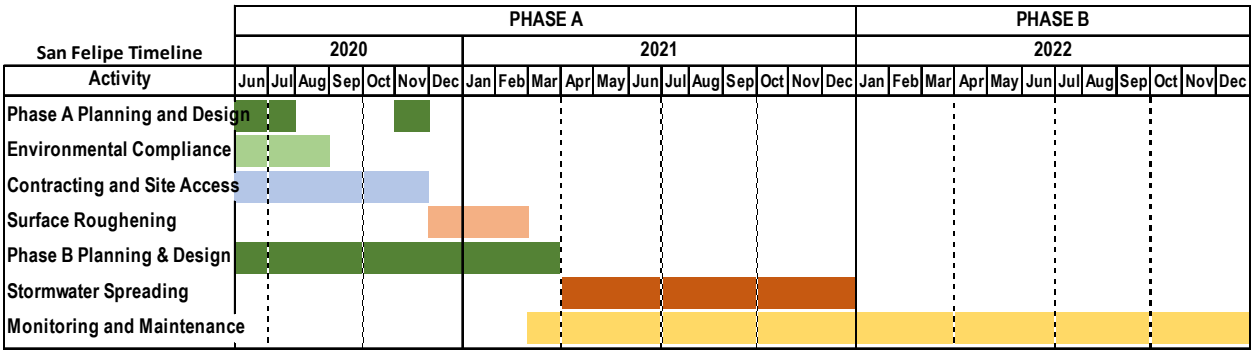


Figure 13. Preliminary Timeline for Implementation of the San Felipe Fan Area Dust Suppression Project.

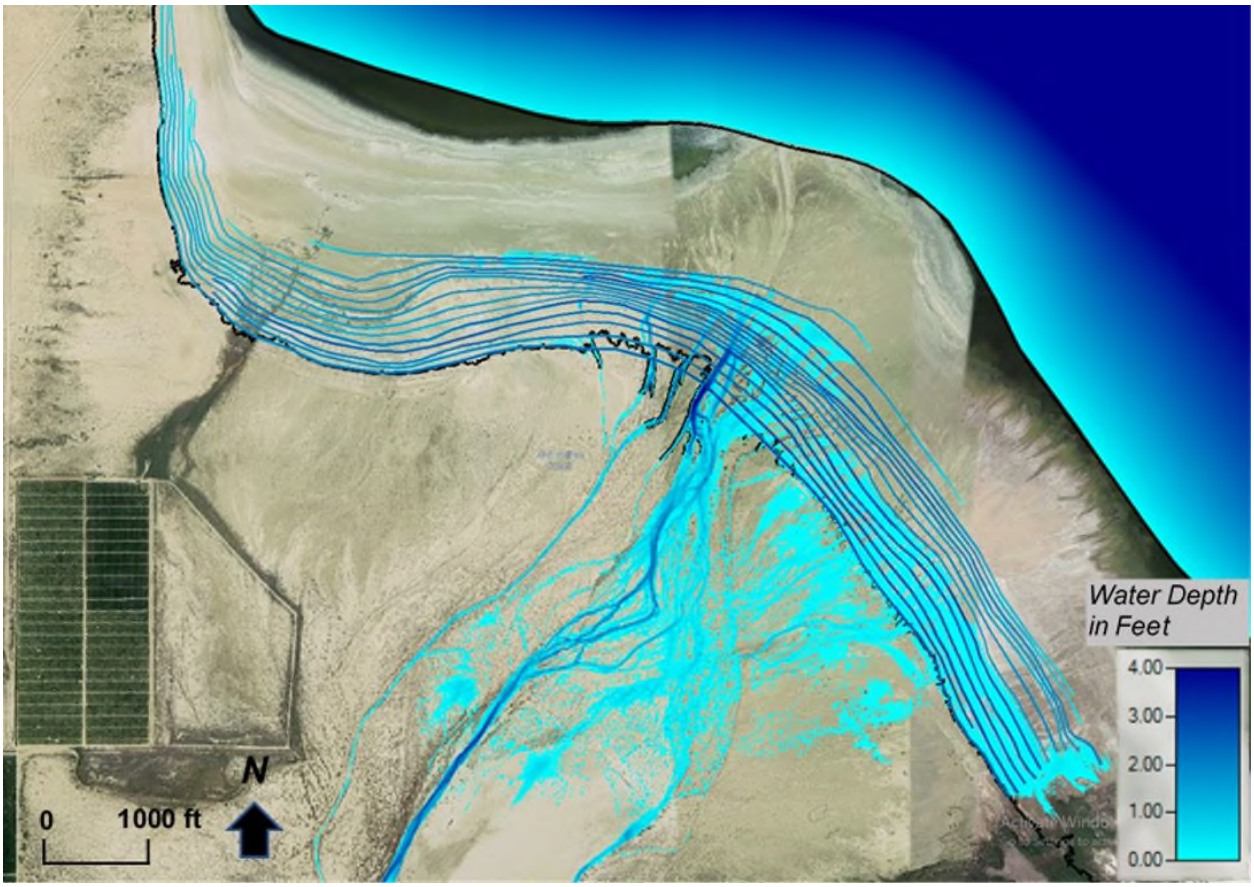


Figure 14. Map of San Felipe Fan Area Dust Suppression Project Showing Simulation of Stormwater Spreading on the San Felipe Fan.

4.6 Tule Wash

The Tule Wash area has high emissivity likely a result of prevailing winds, smooth surface and the presence loose sand on the surface as deposited by ephemeral flows across a broad alluvial fan. The Tule Fan formed by Tule Wash has formed a broad and shallow sloped landform that extends into the current Salton Sea resulting in vast exposure of lakebed in this area. The soils are variable yet generally coarse which limits the suitability of surface roughening, point towards to need to irrigation water resources. This area is far from agricultural water supply and any perennial water course making water supply challenging. On the bright side, the presence and apparent health of natural near-continuous shrubs positioned along contours position along the upslope site boundary suggests a potential for stormwater spreading. The presence of these natural hedgerows is likely due to slow stormwater velocities, ponding behind shallow wave actions berms, and coarse textured soils which create a favorable rooting environment during discharge events. Given these uncertainties and opportunities this site is placed in phase B. A pre-design step is proposed in which stormwater is to be characterized, water supply investigation performed, vegetation establishment techniques vetted, and waterless dust control measures assessed. Once the pre-design step is complete, a design will be generated and then implemented in 2022. Figure 15 shows the preliminary timeline for the Tule Wash project area and Figure 16 provides a map of the area.

Acreage: Approximately 1,850 acres – Phase B

Landowners: USBR, Private, and other Federal

Dust Control Methods: To be determined by end of year 2021.

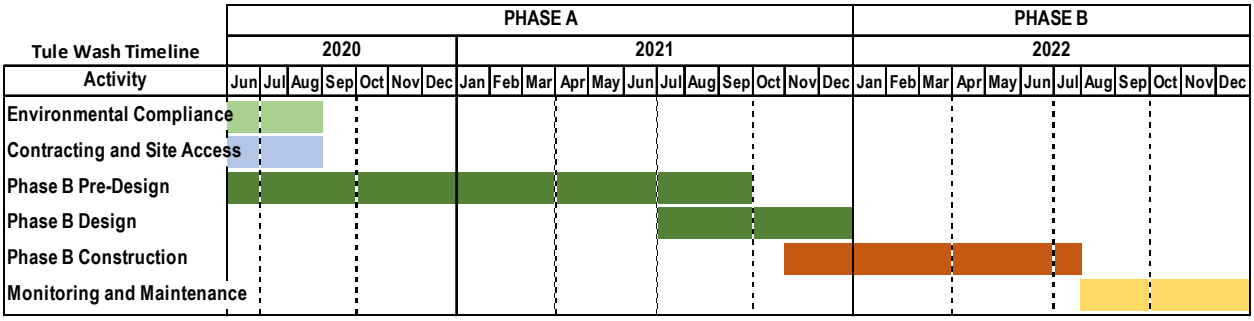


Figure 15. Preliminary Timeline for Implementation of the Tule Wash Area Dust Suppression Project.

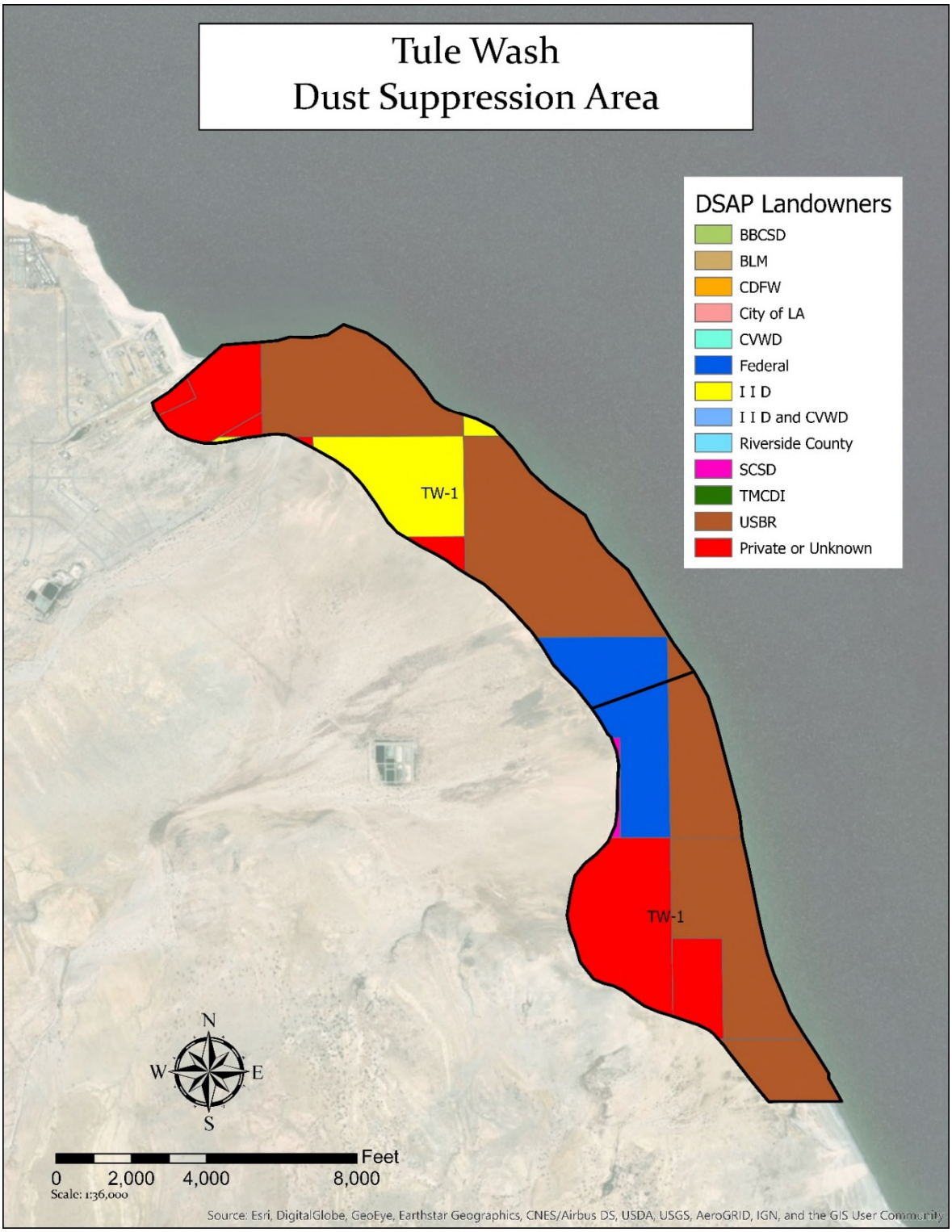


Figure 16. Tule Wash Dust Suppression Area.

4.7 Clubhouse Area

This area has the highest emissivity of all individual dust control sites on the exposed Salton Sea lakebed and is close to residential populations (Salton City). This is also one of the most challenging dust control sites. This site is comprised of coarse soil textures, high occurrence of barnacle beds, heaved surface crusts, and subject to uncontrolled seasonal flows that make this site unsuitable for surface roughening (IID, 2020c).

There are low-density areas of naturally established vegetation in this area. The most effective dust control opportunity will be to enhance vegetation and create stands and hedgerows of vegetation, planted with salt-tolerant species. Managing surface water run-off is an opportunity being explored to provide a seasonal water source for this area. This will require securing water rights, groundwater regulatory compliance, design, and ongoing application. However, there may be other opportunities for water sources such as reclaiming water from residential areas, creating detention basins (with or without tankage) to store surface flows, using an overland conduit to pump a water source from another location, most likely from the southern part of the Salton Sea, and to continue to explore options using existing groundwater.

Due to these complex factors, the State has identified that this site could benefit from additional studies and data collection to define a method for effective vegetation enhancement. Plot studies on areas of 40 or more-acre plots are currently under consideration. For these reasons, this site is scheduled for implementation in Phase B. **Figure 17** shows the preliminary timeline for the Clubhouse Dust Suppression Project and **Figure 18** provides a map of the area.

Acreage: 780 acres

Landowners: USBR, Torres Martinez Desert Cahuilla Indians, Private, and IID

Dust Control Methods: Due to challenges associated with securing water for implementation, potential methods include: 1) grading to create berms and islands with spots with lower wind exposure suitable for vegetation; 2) creating shallow detention basins to catch seasonal flows to create small islands of wetter areas that could sustain establishing vegetation with limited water needs during the dry season; 3) amending soils with organic matter to enhance establishment of vegetation; 4) gravel cover; 5) vegetation enhancement; and 6) installing physical barriers (e.g. sand fence, straw bales/waddles, boulders, or other barriers that can serve to create a berm/dune and exclude off-road vehicle transit.

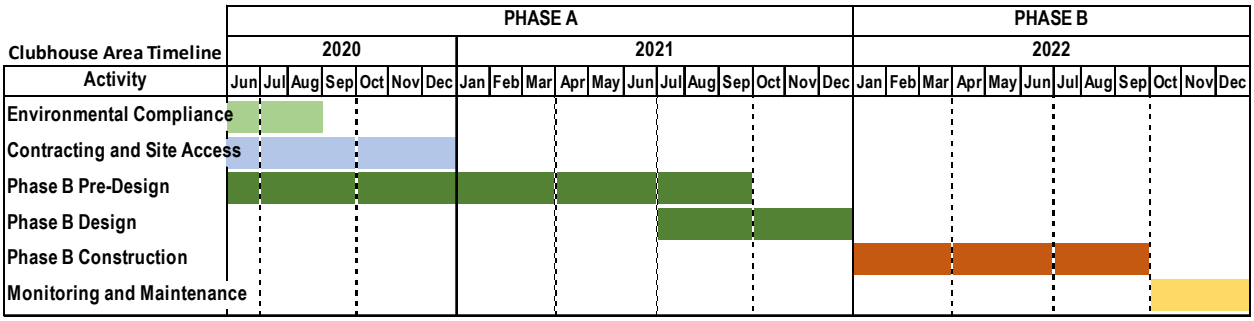


Figure 17. Preliminary Timeline for Implementation of the Clubhouse Area Dust Suppression Project.

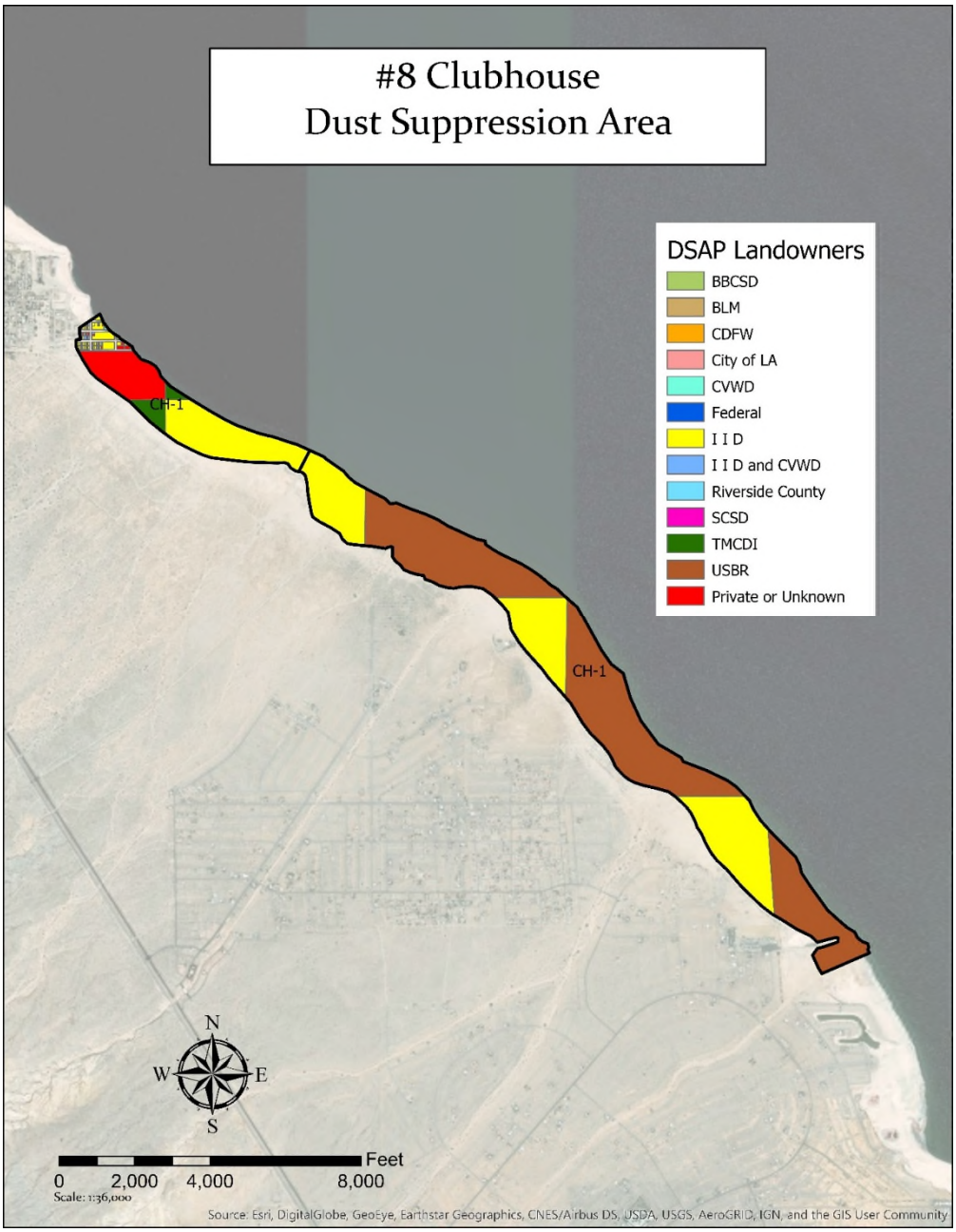


Figure 18. Clubhouse Dust Suppression Area

4.8 Coachella Exposed Lakebed

Community interest has been expressed for implementation of a project at this site. This area does not have IID data to confirm emissivity. Concerns have been raised regarding the emissivity of this area because of its proximity to residential populations. There are some low-density areas of naturally established vegetation in this area. Based upon soil suitability, surface roughening followed by vegetation enhancement (planted with salt-tolerant species) has been identified as the most effective dust control measures. Confirming a water supply may require securing water rights, groundwater regulatory compliance, design, and ongoing performance monitoring. However, due to the proximity to public infrastructure, including CVWD facilities and easements, there may be other opportunities for water supplies at this location that are not available at other project areas. These opportunities include reclaimed wastewater, creating detention basins to store surface flows, and using an overland conduit to pump a water source from a CVWD facility.

Due to uncertainty of the water supply issues, the State has identified that this site could benefit from additional data collection to confirm the most effective method for effective vegetation enhancement. For these reasons, this site is scheduled for implementation in Phase B.

Acreage: 1,340 acres

Landowners: Torres-Martinez Tribe, IID, CVWD, USBR, and Private

Dust Control Method: These projects will have a community benefit, but more data is needed for design and implementation. It is expected that there will be areas suitable for surface roughening and vegetation establishment that can be completed as part of Phase B.

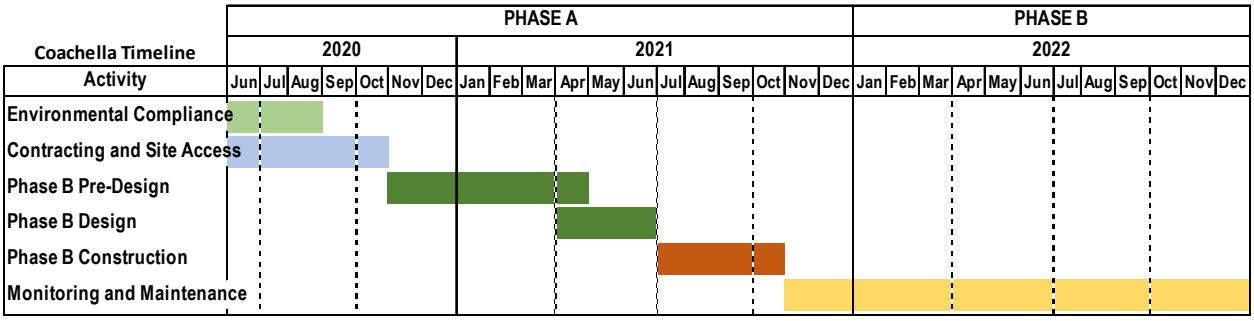


Figure 19. Preliminary Timeline for Implementation of the Coachella Exposed Lakebed Dust Suppression Project.

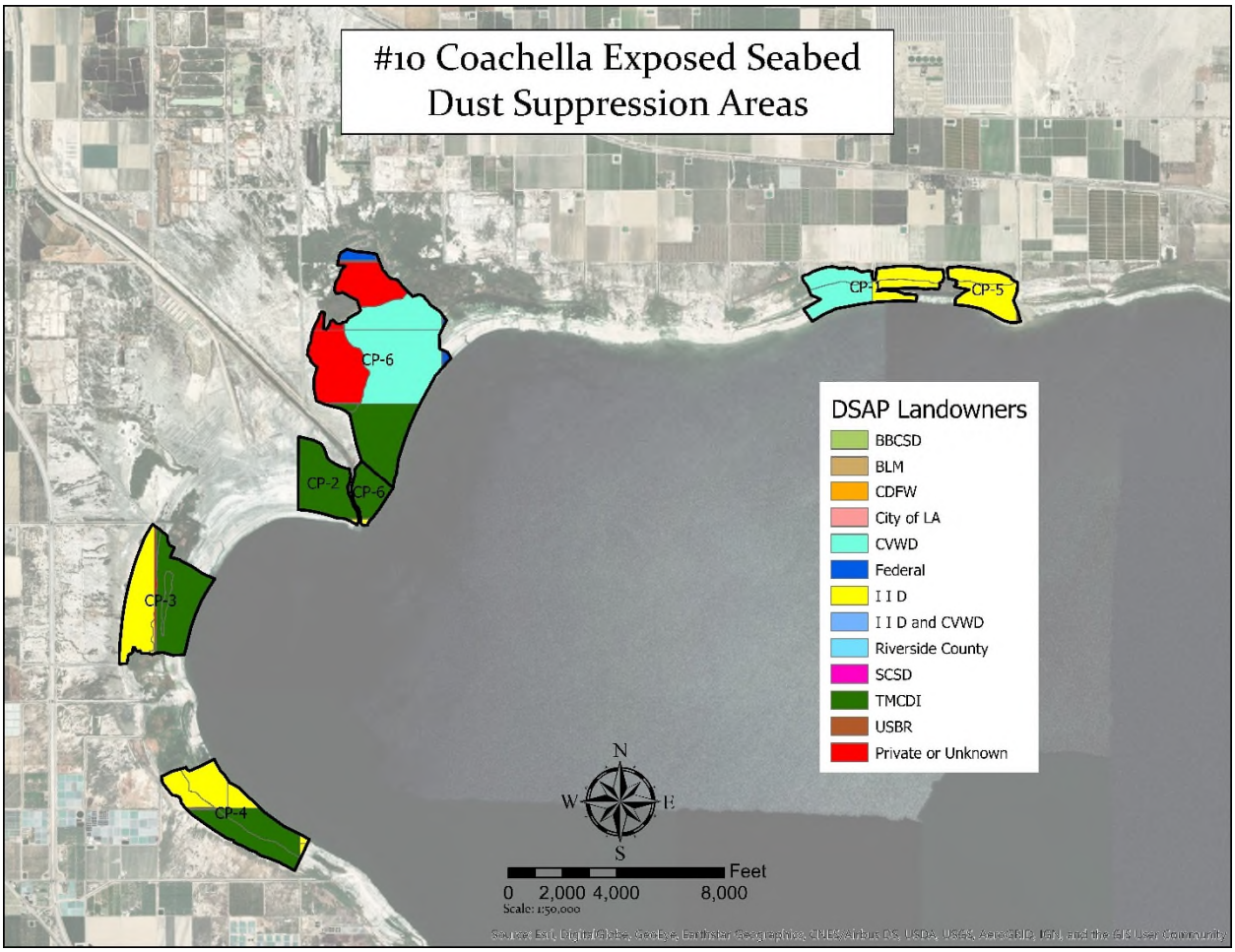


Figure 20. Coachella Exposed Lakebed Dust Suppression Project.

4.9 North Shore Area

Community interest has been expressed for implementation of a project at this site. Concerns have been raised regarding the emissivity of this area because of its proximity to residential populations. However, the area does not have field data to confirm emissivity. Additional emissivity testing will be performed at this location prior to project implementation and selection of a suitable project design. **Figure 21** shows the preliminary timeline for the North Shore Dust Suppression Project and **Figure 22** provides a map of the area.

Acreage: 93 acres

Landowners: IID, Federal, and Private

Dust Control Methods: There are some low-density areas of naturally established vegetation in this area. Based upon soil suitability evaluation, surface roughening followed by vegetation enhancement may be an effective DCM at this site.

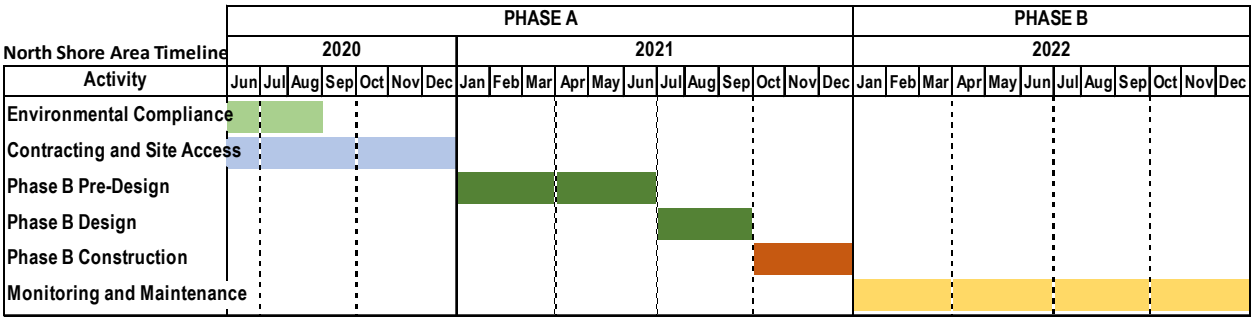


Figure 21. Preliminary Timeline for Implementation of the North Shore Area Dust Suppression Project.

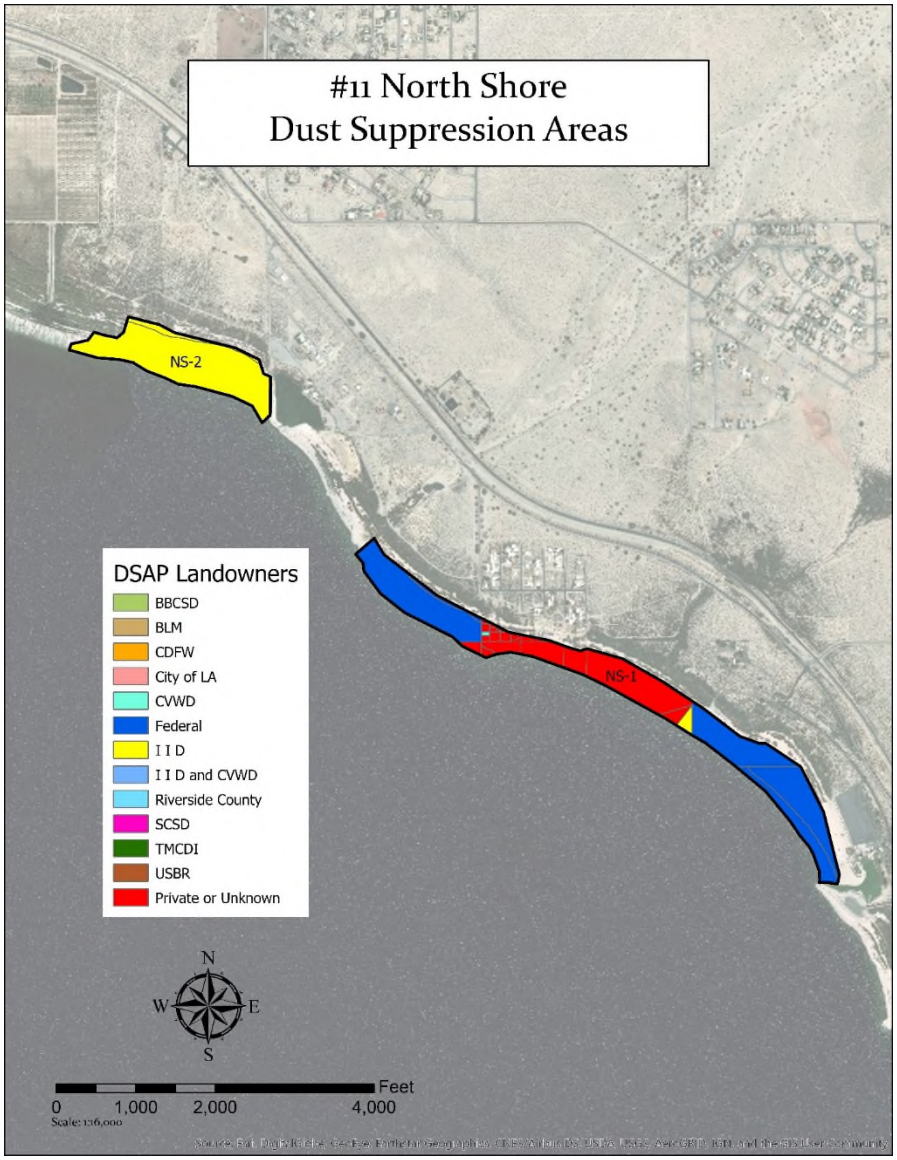


Figure 22. North Shore Dust Suppression Area.

5 Site Characterization and Performance Monitoring

Site characterization and performance monitoring is needed from the early conceptual phases until after the completion of project construction. In the early phases of moving from project concept to design, there is a need for data collection to adequately characterize project sites for implementation with a view to understanding the dust emission potential and the suitability of various dust suppression methods. Some of this work has already been accomplished through the QSA-JPA activities as described in prior chapters, and the project area selections are based on these foundational data. However site-specific data will need to be collected as projects advance from concept to detailed design.

Similarly, monitoring of air quality in the Salton Sea region has been performed for over a decade (CARB, 2019) and provides a useful baseline for comparison with future conditions. As projects begin construction, there is a need for evaluating and documenting their performance in reducing dust emissions, through additional spatially refined monitoring and modeling. This chapter presents an overview of these ongoing and planned monitoring activities.

5.1 Air and Water Quality, Soils, and Groundwater Data Collection

The following discussion describes the current IID air and water quality, soils, and groundwater data collection. The State will collaborate with IID on data collection to support studies associated with emissivity and Salton Sea ecosystem health.

5.1.1 Meteorological Data and Air Emissions

As described in this plan, IID has been collecting scientific data to inform the methods and locations for implementation of dust control projects. In addition, ICAPCD, SCAQMD, and CARB also perform air quality monitoring within the region (Withycombe, 2019b). This extensive data collection effort continues to support development of joint IID/State projects and assist in improving the performance of existing dust control projects. This

data collection effort has created a statistically valid dataset, where the large sample size shows calibration, quality control and assurance, key factors for the State to accept and use as the foundation for the DSAP. This robust dataset includes data collected by the following monitoring systems:

- Meteorological stations that track wind speed, wind direction, temperature, and relative humidity;
- Visual surveillance 365-degree camera that document the development and direction of dust emissions and captures dust movement during extreme events;
- Sand motion monitoring, collected using ground-based monitors; and
- Saltation flux mapping using remote sensing and process-based modelling (IID, 2020).

5.1.2 Regional Air Quality Monitoring

One of the air quality mitigation measures required by the approval of the Water Transfer Agreement of 2003 is:

> "2.e. Implement a meteorological, PM10, and toxic air contaminant monitoring program to begin under existing conditions and continue as the Proposed Project is implemented. Monitoring would take place both near the sources (exposed shoreline caused by the Project) and near the receptors (populated areas) in order to assess the source-receptor relationship. The goal of the monitoring program would be to observe PM10 problems or incremental increases in toxic air contaminant concentrations associated with the Proposed Project and to provide a basis for mitigation efforts. (IID, 2002)"

To satisfy this requirement, the Quantification Settlement Agreement Joint Power Authority has funded the construction in 2010 and continuous operation of a network of six shoreline air quality monitoring stations at the Salton Sea. These stations continuously monitor concentrations of PM10, PM2.5, and meteorological parameters. The locations of these monitoring stations are shown in **Figure 23**.

These stations were sited as close to the shoreline as practicable in order to (1) maximize measurement of dust emissions from exposed lakebed, and (2) serve as early warning systems for dust emission increases that would impact near-shore communities. The stations were distributed so that pairs of stations were located on the north shore, central shore, and south shore of the Sea. Moreover, sites were chosen so that equal numbers of stations were located on the western and eastern shores. In conformance with air quality mitigation measure 2.e., three stations were located adjacent to or near populated areas on the western, northern, and eastern shores, and three were sited near areas of extensive future exposed lakebed on the south and north shores.

Operation of these stations since February 2010 has revealed several important findings:

- Levels of PM10, the pollutant most closely associated with dust emissions, are low during most hours of the year, but increase to very high levels during high wind events;

Figure 23. Existing Air Quality Monitoring Stations and Proposed Dust Suppression Project Areas.

- During high wind events, wind at the Salton City, Naval Test Base, and Sonny Bono stations blow almost exclusively from the west-southwest over the Peninsular Range and across the Imperial Valley. High winds at the Torres Martinez and Salton Sea Park stations blow primarily from the north-northeast down the Coachella Valley with secondary flows from west. At the Bombay Beach station, high winds approach primarily from the west-southwest and secondarily from the northeast.

- Based on predominant wind directions analysis, many dust sources in addition to exposed lakebed contribute to high PM10 concentrations at shoreline stations with the exception of Bombay Beach. These major sources include disturbed desert soils, desert soils downwind of sand dunes and sand sheets, unpaved roads, and freshly tilled agricultural fields.

At community meetings held to receive input on the design of the Dust Suppression Action Plan, the California Natural Resources Agency (CNRA) team received a number of requests for air quality monitoring to be conducted in communities not served by IID's shoreline network. These requests came primarily from residents of communities on the west shore north of Salton City, and from communities on the north shore. Currently, CNRA is exploring options with the California Air Resources Board for responding to these concerns with expanded air quality monitoring in unserved communities. CARB will coordinate any mutually approved monitoring designs with Imperial County Air Pollution Control District and South Coast Air Quality Management District. CNRA desires to begin the expansion of air quality monitoring by the end of 2020.

5.1.3 Associated Environmental Characterization

In addition to air quality monitoring, there is a suite of environmental components that could beneficially or adversely affect project areas. Currently surficial soils characterization and fine scale meteorological monitoring are ongoing. In an effort to reduce the risk of damage and to quantify site-specific opportunities a suite of complementary environmental characterization is proposed. These components include stormwater, near-surface-groundwater, soil-water, and vegetation cover.

Stormwater considerations will need to be made for most project areas. Stormwater can both act against and in favor of the objective of these projects. Negative impacts might include the washing out of infrastructure and the fluvial deposition of sediment on top of control measures. Positive impacts might include a natural wetting of the soil profile and localized groundwater recharge. Currently there are very few direct observations of discharge and fluvial sedimentation where projects have been prioritized. This is punctuated by the need for observations at the base of alluvial fans and the end of ephemeral dry washes. A coupled monitoring network and modeling exercise is recommended in order to quantify the uncertainty in these stormwater components.

Near-surface groundwater refers to the aquifer closest to the ground surface; this is the aquifer that plants can potentially access. If this aquifer changes dramatically it can affect the plants that depend on it. Early data suggests that there is substantial spatial variability in groundwater conditions around the Salton Sea. To be able to monitor the

spatial variability and temporal change of groundwater depth and salinity of the near-surface aquifer, a network of near-surface wells proposed for installation construction in 2020.

Soil-water refers to the unsaturated water in the pore spaces between the ground surface and the capillary fringe just above the groundwater table. This soil-water provides a volume of water for plants to use. The intent of typical irrigation infrastructure is to manage both the water content and potential in the root zone. Additionally, soil-water near the surface can aid in soil particles resisting applied wind shear forces. A network of continuous soil-water content and potential sensors would provide valuable data for irrigation management and emissions estimation and is recommended for this plan.

Vegetation acts as living roughness elements. Even sparse upland vegetation adds structural complexity to barren areas, which can also provide some minor habitat value. A major advantage of certain plant species that can handle minor burial is that they can store substantial volumes of wind-transported sediment. These barriers are living, and there is a risk is that they can die. To reduce this risk, routine field visits, tissue sampling, root distribution observations, and leaf water potential measurements are recommended. These data will be utilized to diagnose issues of poor plant health. These data can aid in ensuring long-term vegetation barrier performance.

5.2 Air Quality Modeling

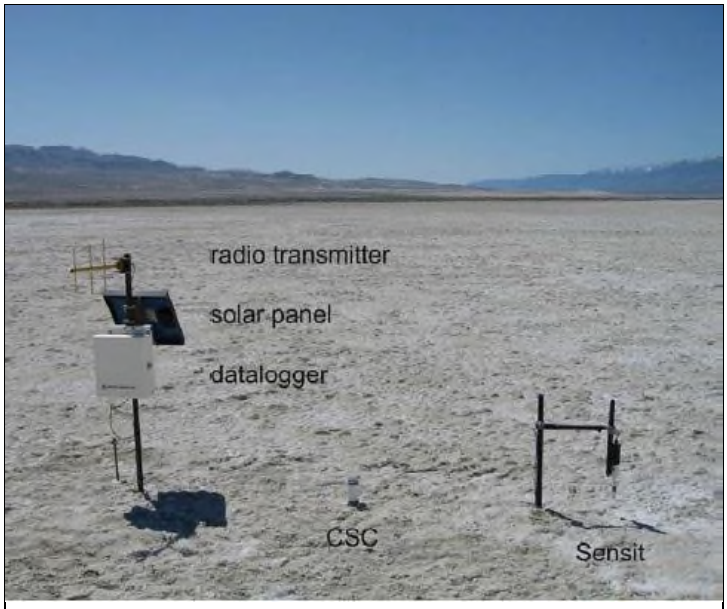
The use of models that characterize the wind and dust emission and transport systems in the vicinity of the Salton Sea offer a means to assist in evaluating the efficacy of mitigation efforts carried out at sites where dust controls are implemented relative to background PM contributions. IID uses the SWEEP model (for Single-event Wind Erosion Evaluation Program) to estimate saltation flux, by coupling with fine-scale data on the soil surface and soil texture. The modeling allows estimation of emission fluxes from a defined area. Modeling systems such as that described by Mejia et al. (2019) use direct measurements of source emissivity and wind-flow fields generated by models such as CALMET or WRF, which provide input to a dust dispersion model and estimate transport over greater distances. Output from the dispersion modeling provides insight into the relative contributions of the identified source areas to varied sites of impingement, and using sensitivity analyses, can assist project managers in optimizing a dust reduction plan.

5.3 Dry Dust Suppression Projects

5.3.1 Monitoring for Surface Roughening

Surface roughening is proposed for Phase A projects. CARB has provided guidance for evaluating the dust suppression performance of surface roughening areas (Withycombe 2019a). It is recommended in this guidance to measure sand flux and PM_{10} concentrations upwind and downwind of the project area. If the sand flux and PM_{10} concentrations measured in the downwind area show no significant changes compared to the upwind area, it indicates that the wind speed has been slowed down enough to reduce sand movement and dust emissions in the project area. IID has successfully used this methodology to confirm the effectiveness of surface roughening in pilot studies at the Salton Sea (IID, 2019f).

For the DSAP Phase A projects, Sensits and a Cox Sand Catchers (CSC), or SANTRIs (for Standalone AeoliaN Transport Real-time Instrument), will be installed to measure sand flux. MetOne Particulate Profilers will be installed to measure PM_{10} concentrations. The Sensit quantifies saltation in terms of kinetic energy and particle count while the CSC captures windblown, sand-sized particles. MetOne Particulate Profiler samples PM_{10} on a real time basis with telemetering capability.



Tillage Compliance Monitoring (Photo Credit: CARB)

The dust control effectiveness in a surface roughening area can decrease over time due to wind erosion on the furrowed surface. It is important to maintain ridge height (RH) and ridge spacing (RS) as the change of RH/RS ratio will affect aerodynamic parameters such as surface roughness and threshold friction speed in the furrowed surface. A reduction in threshold friction speed will allow sand movement and increase of dust emissions at lower wind speeds. For each Phase A project, a raster digital elevation model (DEM) and digital aerial images will be developed based on high resolution surveying using unmanned aerial vehicles (UAVs) or drones. The survey will be performed annually. The results will inform the need for maintenance of the surface roughening sites.

5.3.2 Vegetated Dust Suppression Projects

Vegetated dust suppression projects include establishment of hedgerows and dune stabilization. Vegetated dust suppression projects will be monitored for plant establishment, water use, and ability to reduce emissions. Monitoring of plant establishment within hedgerows will be based on plant percent cover and can be determined using aerial light detection and ranging (LiDAR) methods, unmanned aerial vehicle- or field-based surveys. Hedgerows will be dense enough that they are effective at slowing down wind speeds at the ground surface, but not so dense that the plants compete for resources and compromise plant development. Plantings intended for dune stabilization will be studied to determine appropriate plant densities and monitoring needs. Vegetated projects will also be monitored for dust control effectiveness similarly to dry dust suppression projects.

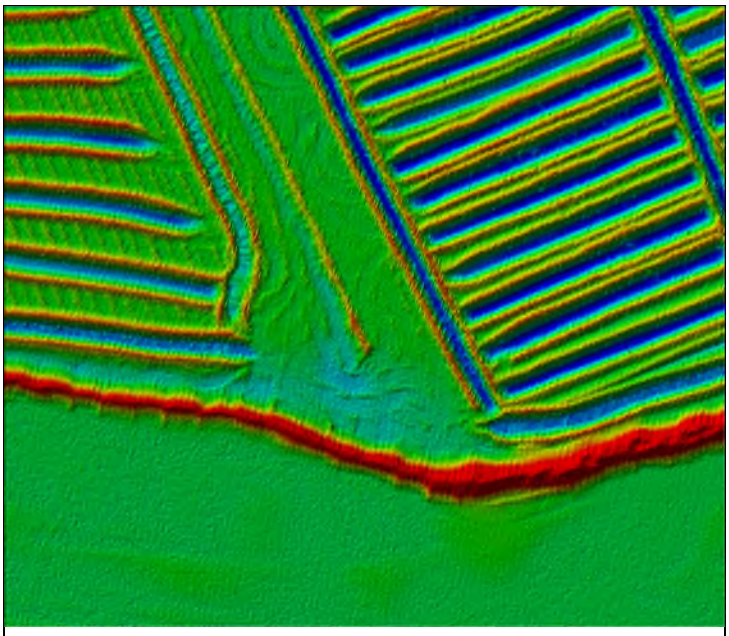
5.3.3 Water Supply for Vegetation

A water supply is needed to establish long-term vegetation. When water is supplied for vegetation, flowmeters will be used to measure the amount of water applied. Hedgerows

and dune stabilization plantings use water to germinate seeds for successful establishment. Once established, alternative water supplies will be evaluated.

5.4 Site Maintenance

Maintenance of dust suppression projects will include monitoring of dust control effectiveness at project sites and redesign of methods for areas failing to meet dust control standards. IID is currently designing dust suppression projects to meet an estimated 95 percent reduction in sand motion criteria set by ICAPCD. The State will also apply this design threshold standard. IID is using multiple monitoring techniques to identify when a project site requires dust control maintenance activities (augmentation or replacement). Monitoring includes aerial LiDAR, high wind event upwind/downwind PM_{10} monitoring, targeted sand motion monitoring, and visual (video camera) evidence. Monitoring will assist in determination of required maintenance.



Example of LiDAR Image of Tillage Area (Photo Credit: Tetra Tech)

5.5 Groundwater Monitoring

Monitoring is needed to determine whether groundwater salinity and depth are adequate to support vegetation growth. Groundwater monitoring wells will be constructed in the dust suppression areas where vegetation establishment is proposed. As the Salton Sea continues to recede, groundwater conditions will change. Groundwater monitoring can provide information on the long-term trend of the groundwater conditions, which is essential for dust suppression planning in future phases.

Dust suppression areas that need groundwater monitoring include Tule Wash, Club House, Bombay Beach, and San Felipe Fan. Monitoring wells will be constructed at the upstream boundary for these areas, which is the 2003 shoreline. The downstream boundary for these areas is the 2019 shoreline, in which the groundwater elevation and salinity can be approximated by water surface elevation and salinity in the Salton Sea. The groundwater elevation and salinity within the dust suppression area can be estimated based on data from the monitoring wells and Salton Sea, and other known hydraulic stresses in the area such as groundwater recharge from storm runoff or groundwater depletion from nearby pumping wells.

A total of 11 monitoring wells are proposed along the 2003 shoreline within proposed dust suppression areas as shown in Figure 21. The intervals between wells are about 2 to 3 miles in order to characterize the spatial variation of groundwater conditions. Since the horizontal distance from the 2003 shoreline to 2019 shoreline is approximately 1 mile,

there is no need for additional monitoring wells between the shorelines since groundwater conditions are not expected to change drastically within 1 mile. However, when the Salton Sea recedes further, additional wells may be needed and will be proposed accordingly in the future.

Figure 21 also shows the locations of IID's existing wells in which the wells are installed along transect lines perpendicular to the shoreline. The well data can be found on IID's website at www.saltonseaprogram.com. Based on IID's data from 2016 to 2018, the groundwater elevations around the Salton Sea decreased about 2 to 5 feet, depending on the locations, within this three-year period. IID planned to add more monitoring wells to support its test plots studied in the exposed lakebed (IID, 2019).

The monitoring wells will be constructed to the shallow aquifer at a depth of approximately 30 feet. During the construction, a borehole will be created for the well site using appropriate drilling methods. A 4-inch side-slotted PVC pipe will be installed to the borehole with filter pack placed around the PVC to prevent sediment from getting into the PVC pipe. On the ground surface, low permeability material will be applied outside the well casing to prevent stormwater infiltration, which can affect the groundwater conditions. Soil samples will be collected from the borehole at different depths and sent to a qualified lab to analyze engineering characteristics such as soil composition, permeability, salinity, and constituents or metals that can affect vegetation's ability to utilize groundwater. After the wells are constructed, a groundwater yield test will be performed to evaluate the feasibility of developing groundwater supply from the monitoring well sites.

The State will coordinate groundwater data collection for the 11 monitoring wells. Data sensors and well equipment will be serviced and calibrated periodically to ensure the quality of data. DWR will conduct data analysis to inform the suitability of groundwater conditions for vegetation growth and also predict the seasonal and long-term trends of groundwater conditions.

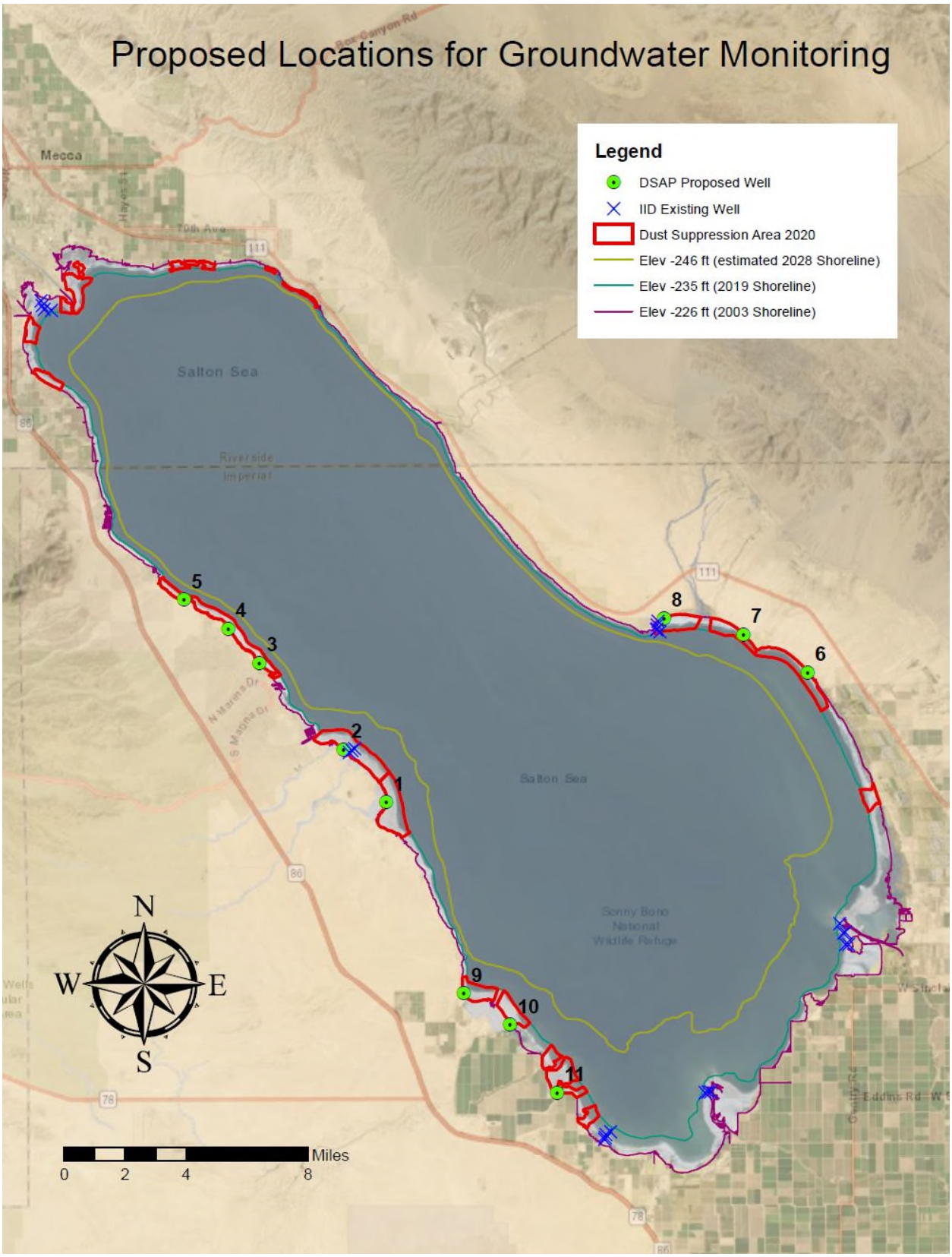


Figure 24. Proposed Locations of Groundwater Monitoring Wells in Proximity to Proposed Dust Suppression Areas.

5.6 Test Plot Studies

The efficacy of some dust suppression methods is best evaluated under site specific soil and meteorological conditions. Instead of constructing a full-scale project, it is more typical in these cases to implement a smaller test plot to evaluate different methods. In cooperation with IID, the State plans to design and construct a series of plot-scale (smaller study area) studies to test methods for controlling sand migration on the west shore. Plot studies will evaluate dust control options designed to remediate exposed lakebed and reduce dust emissions, protect or reinforce existing vegetated sand dunes and linear vegetated beach ridges. These plot studies are intended to inform the types of projects feasible at larger scales.

6 Operations and Maintenance

Operations and maintenance encompass a broad spectrum of services, processes, and tools required to assure the built environment will perform the functions for which the facilities were designed and constructed (WBDG, 2016). The built environment of large-scale dust control consists of several site-scale dust control measures and associated infrastructure. Generally, predictive maintenance strategies are proposed for site-scale dust control measures in which performance monitoring data will be used to determine when and where maintenance is scheduled. Initially, preventative maintenance strategies are proposed for associated infrastructure that are critical for conveying equipment, water and materials.

An annual performance report is proposed for release shortly after the end of the dust season, near the end of quarter two. This report will compile the performance data from the most recent dust season and make recommendations as to where dust control measure maintenance should occur prior to the next dust season. Due to the high level of effort of dust control project maintenance, a straightforward maintenance plan design and implementation approach is proposed. The target pace to progress through this process is that maintenance activities are anticipated to be completed prior to the subsequent dust season, near mid quarter one, while accounting for seasonal variability that can affect the timing to safely deploy crews and equipment (**Table 4**). Maintenance of dust control measures may consist of repeating the same treatment or converting the area into an alternative method. Entire sites or portions therein may be identified and scheduled for maintenance.

Associated infrastructure also requires operation and maintenance that includes: access routes, water conveyance, pump stations, etc. Each of these infrastructure components is made up of multiple sub-components, which might require specific maintenance tasks on varying time intervals. The environmental setting on the lakebed is extremely harsh characterized by intense direct shortwave radiation, large diurnal temperature swings, frequent seismic activity, and high salt concentrations, which can increase the rate of oxidation and corrosion of metals. This harsh setting points to the need for a strong commitment to maintenance. As we progress into developing and maintaining these facilities a detailed and annual operations and maintenance plan that will be subject to revision is proposed. Initially a preventative strategy with conservative maintenance

intervals is proposed. An example shortlist can be found in **Table 5**. As the operations and maintenance personnel gain knowledge working in this environment, setup inspection protocols, and deploy in-situ sensors to better characterize the environment and evaluate performance metrics the team can adopt a predictive maintenance strategy and/or a more accurate maintenance interval.

Table 4. Preliminary Annual Maintenance Timeline

Quarter of Year	Q1			Q2			Q3			Q4		
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
DCM Performance Data Analysis					X							
DCM Annual Performance Report						X						
DCM Maintenance Plans							X					
DCM Maintenance Window	X	X						X	X	X	X	X
Associated Infrastructure Maintenance.		X			X			X			X	

Table 5. Example Maintenance Schedule for Associated Infrastructure

Feature	Maintenance Item	Initial Maintenance Strategy	Initial Inspection or Maintenance Interval
Access Route	Regrade	Preventative	Annually
	Surfactant	Preventative	Annually
	Water crossings	Preventative	Annually
Water Conveyance	Vegetation management	Preventative	Bi-annual
	Sedimentation	Preventative	Annually
	Pressurized connections	Preventative	Quarterly
	Thrust blocking	Preventative	Annually
Pump Stations	Filters	Preventative	Quarterly
	Power supply	Preventative	Quarterly
	Pressurized connections	Preventative	Quarterly

7 Summary and Future Steps

7.1 Highlights of Plan

The DSAP has evaluated available data on dust emissions and dust suppression methodologies to prioritize a set of projects around the Salton Sea, with the goal of completing projects within the 9,800-acre planning area from 2020 to 2022. Toward this goal, this plan has identified discrete project areas and subareas, with information on landownership and environmental permits for implementation. Timeframes for these early steps are estimated based on the State Team's experience with other projects. Many of the tasks in individual project areas can be initiated concurrently, allowing the overall program to proceed in the most expeditious manner possible.

Project concepts are envisioned using a variety of dust suppression methods, including some that use water and some that do not. This diverse portfolio of approaches allows for exploring different methods that are best suited to different parts of the exposed lakebed. The DSAP is envisioned as a flexible program to meet the time-critical needs of implementing the acreage requirements of State Board Order WR 2017-0134 and the broader SSMP goal of protecting local communities from the adverse effects of lakebed exposure in the coming years.

7.2 Adaptive Management

Adaptive management is a structured process for taking action under uncertain conditions based on the best available science, and re-evaluating and adjusting decisions based on additional information as it is acquired (Ballard et al., 2014). Despite the availability of data on dust emission processes in the Salton Sea region and information on dust suppression approaches in the region and elsewhere, the implementation and subsequent success of a large-scale program in controlling dust emissions over time is not a certainty. To acknowledge this uncertainty, an adaptive management framework has been proposed throughout this plan as noted in prior chapters. The DSAP is a living document that will be updated over time. In summary, the following adaptive approaches are incorporated in this plan:

Adaptation for site selection: The project areas proposed in this document are based on the best available current data and assumptions of the ability to secure access and permits for construction. Should additional work identify that any of these assumptions are not entirely valid, project areas and boundaries can be modified to meet conditions on the ground.

Adaptation for project design: Upon additional analysis, each project area may have variations in soil conditions, wind speeds, local meteorological characteristics, water flows and availability that will influence the performance of dust suppression measures. Additional data may also be obtained through experimental test plots. With the availability of this additional information, project designs can be altered to best meet the dust suppression needs in a cost effective and sustainable manner.

Adaptation in dust suppression program: With the development of the DSAP projects over time, there will be an increase in the availability of data and performance evaluation of larger scale projects. This will lead to a better understanding of project performance in controlling dust emissions under a range of wind conditions and over an extended period of time. Other factors, such as lessons learned from construction, project maintenance requirements, and community feedback will serve as the basis for adaptive changes to new project designs in future phases of the DSAP.

7.3 Future DSAP Updates and Outreach

The DSAP is a living document, an iterative plan, that will be updated on an annual basis as more information and data are gathered to ensure the Plan uses the best information available. To complement the information gleaned from the implementation of projects, new studies, and data collection, public meetings will be held at least once a year to provide updates on the status of work, share information, and receive feedback and input from the public, stakeholders, and collaborating agencies. Throughout the year, the State will provide updates on the progression of DSAP work through the *CNRA Salton Sea Management Program Update* monthly eNewsletter, the CNRA Salton Sea website (www.saltonsea.ca.gov), social media, and work with the SSMP Community Engagement Committee.

8 References

Ballard, A., H. Birss, R. Botta, S. Cantrell, A. Gonzales, B. Johnson, H. Spautz, S. Torres, and J. Yamamoto. 2014. Incorporation of Adaptive Management into Conservation Planning and Resource Management. California Department of Fish and Wildlife. July 2. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=86989&inline.

California Department of Parks and Recreation. 2019. Oceano Dunes State Vehicular Recreation Area Particulate Matter Reduction Plan. 2019 Annual Report and Work Plan. December 31.

California Department of Parks and Recreation. 2020. Revised Proposal for 2020 Dust Control Projects. January 31.

California Natural Resources Agency (CNRA). 2020. Annual Report on the Salton Sea Management Program. March.

Coachella Valley Water District (CVWD). 2019. 2019-2020 Engineer's Report on Water Supply and Replenishment Assessment. WEI. April.

Ecosolution. Sales Representative and Owner. https://www.ecosolutiondistributing.com/ 2020. Conversation with Jennifer Scholl, Senior Consultant-NEPA/CEQA Permitting Specialist, Cardno. March 23.

Etyemezian, V., J.A. Gillies. 2016. Engineered Roughness Elements, Arrays Thereof, and Their Method of Use. United States Patent No.: 9,435,093, September 6.

Etyemezian, V., G. Nikolich, S. Ahonen, M. Pitchford, M. Sweeney, J. Gillies, H. Kuhns. 2007. The Portable In-Situ Wind Erosion Laboratory (PI-SWERL): a new method to measure PM_{10} windblown dust properties and potential for emissions. Atmospheric Environment 41: 3789-3796.

Etyemezian, V., J.A. Gillies, M. Shinoda, G. Nikolich, J. King, A.R. Bardis. 2014. Accounting for surface roughness on measurements conducted with PI-SWERL: Evaluation of a subjective visual approach and a photogrammetric technique. Aeolian Research 13: 35-50, doi: 10.1016/j.aeolia.2014.003.002.

Evan, A.T. 2019. Downslope winds and dust Storms in the Salton Basin. Mon. Wea. Rev., 147, 2387–2402, https://doi.org/10.1175/MWR-D-18-0357.1.

Feizi, Z., S. Ayoubi, M.R. Mosaddeghi, A.A. Besalatpour, M. Zeraatpisheh, and J. Rodrigo-Comino. 2019. A wind tunnel experiment to investigate the effect of polyvinyl acetate, biochar, and bentonite on wind erosion control. Archives of Agronomy and Soil Science 65 (8): 1049-1062.

Fujita, Y., J. Taylor, T. Gresham, M. Delwiche, F. Colwell, T. McLing, L. Petzke, and R. Smith. 2008. Stimulation of microbial urea hydrolysis in groundwater to enhance calcite precipitation. Environmental Science and Technology 42: 3025–3032.

Gillette, D.A., J. Adams, D. Muhs, and R. Kihl. 1982. Threshold friction velocities and rupture moduli for crusted desert soils for the input of soil particles into the air. Journal of Geophysical Research 87(C11): 9003-9015.

Gillette, D., D. Ono, and K. Richmond. 2004. A combined modeling and measurement technique for estimating windblown dust emissions at Owens (dry) Lake, California. Journal of Geophysical Research 109, F01003. doi:10.1029/2003JF000025.

Gillies, J.A. 2013. Fundamentals of aeolian sediment transport | dust emissions and transport – near surface. In Treatise on Geomorphology, Shroder, J. (ed. in chief) and Lancaster, N. (ed.), Vol. 11: 43-63, doi: 10.1016/B978-0-12-374739-6.00297-9, Academic Press, San Diego, CA.

Gillies, J.A., H. Green, G. McCarley-Holder, S. Grimm, C. Howard, N. Barbieri, D. Ono, and T. Schade. 2015. Using solid element roughness to control sand movement: Keeler Dunes, Keeler, California. Aeolian Research 18: 35-46, doi: 10.1016/j.aeolia2015.05.004.

Gillies, J.A., V. Etyemezian, G. Nikolich, W.G. Nickling, and J. Kok. 2018. Changes in the saltation flux following a step-change in macro-roughness. Earth Surface Processes and Landforms, 43: 1871-1884, doi: 10.1002/esp.4362.

Gomez, M., C. Anderson, J. DeJong, D. Nelson, and X Lau. 2014. Stimulating in situ soil bacteria for bio-cementation of sands. Geo-Congress 2014 Technical Papers: pp. 1674-1682.

Gomez, M.G., C.M. Anderson, C.M.R. Graddy, J.T. DeJong, D.C. Nelson, and T.R. Ginn. 2017. Large-scale comparison of bioaugmentation and biostimulation approaches for bio-cementation of sands. Journal of Geotechnical and Geoenvironmental Engineering, 143 (5): 04016124.

Great Basin Unified Air Pollution Control District (GBUAPCD). 2008. Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan. Available at: gbuapcd.org.

Great Basin Unified Air Pollution Control District (GBUAPCD). 2016. Owens Valley Planning Area PM_{10} State Implementation Plan, April 13, 2016. Available at: https://www.gbuapcd.org/Docs/District/AirQualityPlans/OwensValley/2016_SIP_FINAL_20160413.pdf.

Great Basin Unified Air Pollution Control District (GBUAPCD). 2018. Owens Valley Planning Area Reasonable Further Progress. Available at: https://gbuapcd.org/Docs/District/AirQualityPlans/OwensValley/2018%20OVPA%20RFP.pdf.

Groeneveld, D.P., and D.D. Barz. 2013. Remote monitoring of surfaces wetted for dust control on the Dry Owens Lakebed, California. Open Journal of Modern Hydrology 3(4): 241–252.

Hardebeck, E., G. Holder, D. Ono, J. Parker, T. Schade, and C. Scheidlinger. 1996. Feasibility and Cost-Effectiveness of Flood Irrigation for the Reduction of Sand Motion and PM_{10} on the Owens Dry Lake, Great Basin Unified Air Pollution Control District. Bishop, California.

Holling, C.S. 1978. Adaptive Environmental Assessment and Management. John Wiley & Sons, Chichester, United Kingdom.

Imperial County. 2007. Imperial County General Plan, Land Use Plan, Land Use Element Land Use Designations. March.

Imperial County Air Pollution Control District (ICAPCD). 2012. Rule 800, General Requirements for Control of Fine Particulate Matter (OM-10). Adopted October 10, 1994. Revised October 16, 2012.

Imperial County Air Pollution Control District (ICAPCD). 2014. Final Imperial County 2013 State Implementation Plan for the 2006 24-Hour PM2.5 Moderate Nonattainment Area. December 2. CARB and ICAPCD.

Imperial County Air Pollution Control District (ICAPCD). 2018a. Imperial County 2018 Annual Particulate Matter Less Than 2.5 Microns in Diameter State Implementation Plan. April 2018, CARB and APCD, https://apcd.imperialcounty.org/wp-content/uploads/2020/01/2018-IC-PM25SIP.pdf.

Imperial County Air Pollution Control District (ICAPCD). 2018b. Redesignation Request and Maintenance Plan for Particulate Matter Less Than 10 Microns in Diameter, Adopted October 23, 2018. CARB and ICAPCD.

Imperial Irrigation District (IID). 2002. IID Water Conservation and Transfer Project Final Environmental Impact Report / Environmental Impact Statement Habitat Conservation Plan, June 2002, https://www.iid.com/water/library/qsa-water-transfer/environmental-assessments-permits/final-eir-eis

Imperial Irrigation District (IID). 2016. Salton Sea Air Quality Mitigation Program. Formation Environmental, Inc. Available at: saltonseaprogram.com. July.

Imperial Irrigation District (IID). 2017. Proactive Dust Control Plan 2017/2018 Annual Plan. Formation Environmental, Inc. Available at: saltonseaprogram.com.

Imperial Irrigation District (IID). 2019a. Proactive Dust Control Plan 2019/2020 Annual Plan. Available at: saltonseaprogram.com.

Imperial Irrigation District (IID). 2019b. Implementation Work Plan: Salton Sea Near-Surface Groundwater Monitoring Network. Formation Environmental, LLC.

Imperial Irrigation District (IID). 2019c. Salton Sea Air Quality Mitigation Program.

Imperial Irrigation District (IID). 2019d. Salton Sea Air Quality Mitigation Program 2019 Stakeholder Overview.

Imperial Irrigation District (IID). 2019e. Salton Sea Air Quality Mitigation Program, 2018/2019 Proactive Dust Control Plan. August. Formation Environmental, Inc. Available at: saltonseaprogram.com.

IID, 2019f. Final Performance Report for the California Air Resources Board 2016 Salton Sea Toxic Air Pollutant Monitoring Grant. Formation Environmental LLC.

Imperial Irrigation District (IID). 2020a. DSAP and SSAQMP Coordination Presentation to the IID Board of Directors. Formation Environmental, Inc.

Imperial Irrigation District (IID). 2020b. End-of-Year 2019 Playa Exposure Estimate. Formation Environmental, Inc. April.

Imperial Irrigation District (IID). 2020c. Salton Sea Air Quality Mitigation Program, 2019/2020 Proactive Dust Control Plan. Formation Environmental, Inc. Available at: saltonseaprogram.com. April.

Imperial Irrigation District (IID). 2020d. Salton Sea Emissions Monitoring Program, 2018/2019 Annual Report and PM_{10} Emissions Estimates. Formation Environmental, Inc. March.

Oceano Dunes State Vehicular Recreation Area. 2019. Particulate Matter Reduction Plan, 2019 Annual Report and Work Plan. December 31.

Presley, D. and Tatarko, J., 2009. Principles of wind erosion and its control. Kansas State University Agricultural Experiment Station and Cooperative Extension Service.

Rice, M.A., I.K. McKewan, and C.E. Mullins. 1999. A conceptual model of wind erosion of soil surfaces by saltating particles. Earth Surface Processes and Landforms 24(5): 383-412.

Salton Sea Management Program. 2018. Phase I 10-year Plan. CNRA, DWR, and CDFW. August.

Shao, Y., Raupach, M.R. and Findlater, P.A., 1993. Effect of saltation bombardment on the entrainment of dust by wind. Journal of Geophysical Research: Atmospheres, 98(D7), pp.12719-12726.

Smesrud, J.K., J.B. Dickey, B. Jacob, J.L. Jordahl, R.Z. Jackson, P.D. Brown, and M.F. Madison. 2004. Collection and Reuse of Extremely Saline Drainwater on Owens Dry Lake. In: Drainage VIII, 21–24, March, p. 1. American Society of Agricultural and Biological Engineers.

Tupen, J. 2020. Principal Biologist, ECORP Consulting, Onsite Mitigation Manager for Oceano Dunes Restoration Project, Personal Communication with Jennifer Scholl, Senior Consultant-NEPA/CEQA Permitting Specialist, Cardno. April 3.

Tupper, K. 2020. Air Quality Specialist, San Luis Obispo County Air Pollution Control District, Personal Communication with Jennifer Scholl, Senior Consultant-NEPA/CEQA Permitting Specialist, Cardno. March 27.

Turner, R., R. Panciera, M. A. Tanase, K. Lowell, J. M. Hacker, and J. P. Walker. 2014. Estimation of soil surface roughness of agricultural soils using airborne LiDAR. Remote Sensing of Environment 140:107–117.

Walker, W.R., and G.V. Skogerboe. 1987. Surface Irrigation: Theory and Practice. Prentice-Hall, Upper Saddle River.

Withycombe, E. 2019a. Air Resources Engineer, California Air Resources Board, Personal communication with Steven Garcia, California Department of Water Resources, October 11.

Withycombe, E. 2019b. Salton Sea Windblown Dust Levels and Sources. Presentation at Mecca, California, December 17

Appendix A Outreach and Engagement

SSMP Community Engagement Committee

In November 2019, the State Team called on the SSMP Community Engagement Committee to work with the State to determine how to best structure and carry out public meetings to convey information and encourage community member participation. The Community Engagement Committee is one of the six SSMP Advisory Committees. Its charge is to "advise the State in engaging local communities to inform them and solicit meaningful input regarding health, air quality, and social aspects of SSMP projects, for the State to integrate into the 10-year/Phase 1 and long-range planning for the Salton Sea." The Committee made specific recommendations regarding the locations, times, and format of the DSAP community meetings. Additionally, many local NGOs and community members assisted in the promotion of the meetings by sharing information on their social media, distributing flyers, and door-to-door canvasing. One group local NGO brought snacks to the first meeting in Mecca, and another provided food and drinks to all five meetings.

Public Meetings

This summary details the methodology, approach and outreach efforts conducted for the DSAP meetings.

The State Team incorporated input received by the SSMP Community Engagement Committee and other community groups into planning the public meetings. The State's goal was to encourage public participation in a welcoming environment. For these reasons, meetings were held in the evening, in community-based venues such as schools and community centers, translation service was provided, refreshments were sponsored by a local non-profit organization, and coloring books were provided to children to encourage parent participation. The meetings were structured to be engaging with multiple ways to provide feedback, comments, and questions.

The meetings began with an informal open house format that included poster exhibits with DSAP team members engaging participants to provide information and help answer questions. This was followed by an informational presentation for all meeting participants. This formal large group presentation time was minimized, and greater emphasis was placed on subsequent small group break-out discussions that included a dedicated presenter, note taker and translator. By breaking into smaller groups, community members were provided a more direct and intimate opportunity to ask questions and engage in a dialogue with the DSAP team. The State Team used a questionnaire and large poster notes to help gather specific feedback in the small groups. Most of the meetings were concluded with an open forum question and answer period.

After each meeting, the DSAP team reviewed the meeting format and made adjustments to the presentation of the elements of the plan to improve communications with community members to ensure clear delivery of meeting purpose and objectives.

Meeting dates and locations

- Mecca: December 17, 2019
  5:30 p.m. to 7:30 p.m.
  Saul Martinez Elementary School Cafeteria
  Approximately 80 attendees
- Salton City: December 18, 2019
  5:30 p.m. to 7:30 p.m.
  West Shores Senior Citizens Club
  Approximately 70 attendees
- Westmorland: February 25, 2020
  6:00 p.m. to 8:00 p.m.
  Westmorland Youth Hall
  Approximately 30 attendees
- Bombay Beach: February 26, 2020
  6:00 p.m. to 8:00 p.m.
  Bombay Beach Community Center
  Approximately 45 attendees
- Torres Martinez Desert Cahuilla Indians Reservation (Thermal): March 4, 2020
  6:00 p.m. to 8:00 p.m.
  Tameka Gym
  Approximately 40 attendees

The SSMP team utilized a variety of methods to engage the community and promote the DSAP meetings that included:

- CNRA Salton Sea Management Program Update monthly eNewsletter
- Social media promotion
- Bilingual posts and event pages were created for each meeting and shared on multiple social media outlets
- Involvement with the SSMP Community Engagement Committee and community groups
- Partners shared social media-based meeting announcements through their networks to increase distribution
- Partners assisted with the distribution of hard copy flyers and canvasing in communities adjacent to the Salton Sea
- Flyer distribution at major points of interest in the community (i.e., public libraries, grocery stores, post offices, community centers, community bulletin boards, City Hall, select major businesses, places of worship)
- Flyer distribution to schools (provided to all students, teachers, and staff)

- Saul Martinez Elementary, Mecca Elementary, Oasis Elementary, Toro Canyon Middle School, Desert Mirage High School, Las Palmitas Elementary School, West Shores High School, Seaview Elementary, Westmorland Union Elementary, Calipatria High School, Bill E. Young Jr. Middle School, Grace Smith Elementary
- Flyer canvassing
- Included flyer distribution to the building manager and laundry rooms of apartment buildings, resort communities, mobile home parks and select neighborhoods. In addition, copies of flyers were provided to community members to distribute (example is the Veterans of Foreign Wars canvassing of the Slab City near Bombay Beach)
- Robocall (only for Saul Martinez Elementary meeting to all parents)
- Water bill insert of flyer (only for Westmorland meeting using City water bill)
- Outreach to elected officials, counties, cities, public agencies, health agencies, Chambers of Commerce, academic, religious, non-profit organizations and other organizations to share information

Communications Materials and Services

To ensure delivery of a consistent message and to present the DSAP information to the public, the public meetings provided the following materials and services:

- Meeting Agenda (bilingual)
- Questionnaire (bilingual)
- Poster Exhibits (some bilingual)
- Comment Cards & Sign-in Sheets (bilingual)
- Spanish Translation (headsets, small group facilitators, presentation of some material in both languages)
- Complimentary food and beverages (provided by Comite Civico del Valle)
- DSAP informational handout (bilingual - 2020 Meetings only)
- Copies of draft DSAP Plan (2020 Meetings only)
- Local Resources handout prepared by Salton Sea Community Outreach, Education & Engagement Program (2020 Meetings only)

Appendix B Draft DSAP Comments

The draft DSAP was released publicly through the CNRA Salton Sea Website and Salton Sea Listserv on February 27, 2020 for review with direction to submit comments to the CNRA website on or before March 27, 2020. This process provided additional opportunities for the public and stakeholders to submit comments for consideration in framing the DSAP. This section includes a description of the process used to record, review, and consider all comments received on the DSAP. Copies of all comments are posted on the Salton Sea program website at www.saltonsea.ca.gov.

Posted materials were processed and include the following information:

List of all comments received by commenter – numbered and categorized as follows for the December 2019 public meetings (see pie charts below):

- Communication
- Air Quality
- Water Quality
- Biology
- Public Health
- Public Outreach
- Other

In addition to these areas of interest, more categories were added to focus DSAP team members' comments review from the February/March 2020 meetings, including:

- Specific Questions related to the scope of the DSAP
- Involved Agencies

The comments were then assigned a direct relation for consideration for input to the DSAP using the following topics:

- Understanding the current status of concerns about management of the Salton Sea
- Near-term considerations
- Public process improvement
- Long-term considerations

In addition, the list of public comments also includes a reference to where within the plan the public comments were considered.

Collaborating Agency Comments

In addition to public comments received during the public meetings, several public and collaborating agency comments were received through the CNRA Salton Sea website

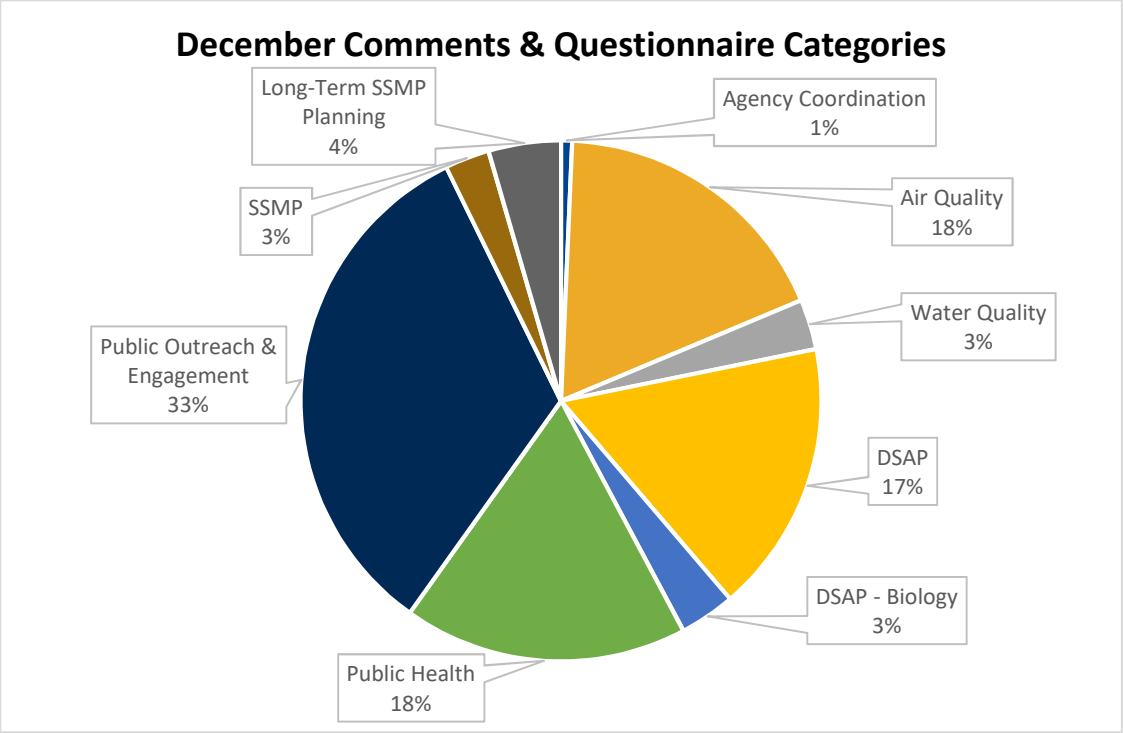
www.saltonsea.ca.gov in response to the close of public comments on March 27, 2020. Like the public comments, these comment letters were analyzed and include the following information:

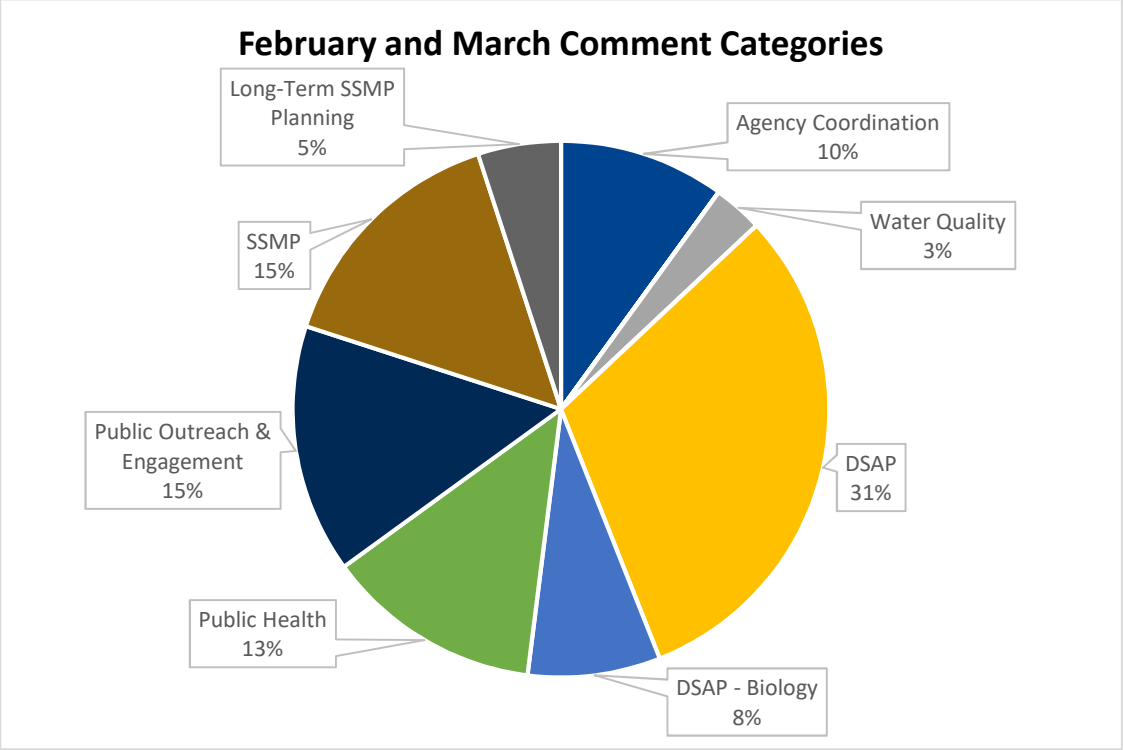
- Date received
- Commenter
- Comment Number
- Comment Summary
- Comment Category
- Agency Coordination
- Community Outreach
- Applicable DSAP Implementation Stage
- Cost/Funding/Schedule
- Design/Prioritization
- Operations and Maintenance (O&M)/Performance Measures/Monitoring
- Plan Alternatives
- Specific DSAP Comments
- Response to Comment
- Incorporated into DSAP (Yes/No)
- How and Where the Comment was Incorporated into DSAP

Response to Comments

Master responses have been prepared to address the issues and comments raised in the December, February, and March meetings as well as the emails received through the CNRA Salton Sea website. The following topics are addressed in the master responses:

- Agency Coordination
- Community Outreach
- DSAP Implementation
- Design/Prioritization
- O&M/Performance Measures/Monitoring
- Cost/Funding/Schedule
- Plan Alternatives


December Comments & Questionnaire Categories
Long-Term SSMP Planning 4%
Agency Coordination 1%
SSMP 3%
Air Quality 18%
Water Quality 3%
Public Outreach & Engagement 33%
DSAP 17%
DSAP - Biology 3%
Public Health 18%


February and March Comment Categories
Long-Term SSMP Planning 5%
Agency Coordination 10%
SSMP 15%
Water Quality 3%
Public Outreach & Engagement 15%
DSAP 31%
Public Health 13%
DSAP - Biology 8%

Appendix C Planned Project Schedules

Table 6. Salton Sea Management Program: Dust Control Program Implementation Schedule

See attached pdf file.

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Salton Sea Management Program: Darft SCH Dust Control Program Implementation Schedule

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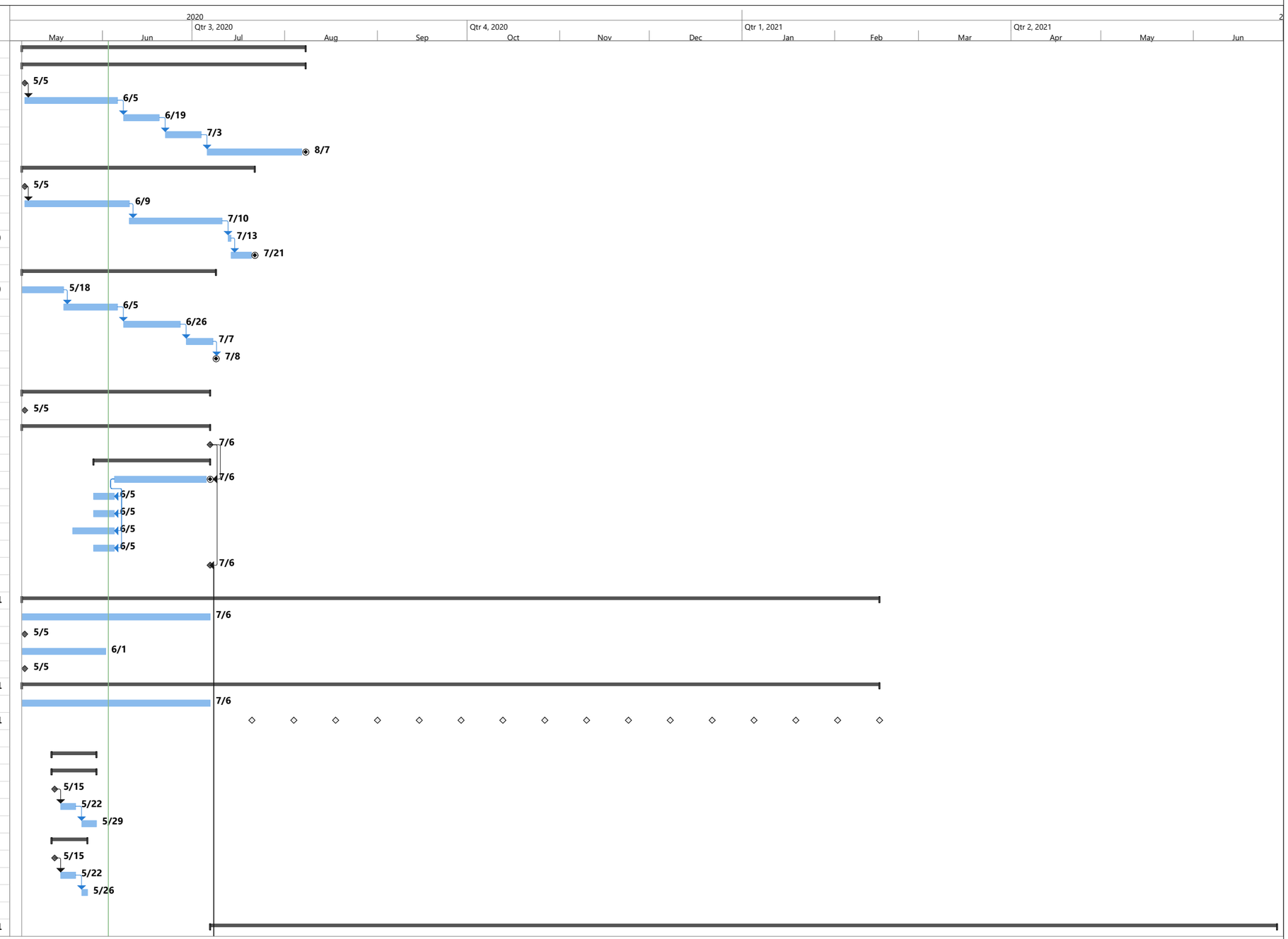
ID	Task Name	Duration	Start	Finish
1	**CONTRACTING**	**69 days**	**Tue 5/5/20**	**Fri 8/7/20**
2	**Competitive Bid**	**69 days**	**Tue 5/5/20**	**Fri 8/7/20**
3	Develop SOW (complete)	1 day	Tue 5/5/20	Tue 5/5/20
4	DWR Contract Services	23 days	Wed 5/6/20	Fri 6/5/20
5	Bid Walk/Site Visits	10 days	Mon 6/8/20	Fri 6/19/20
6	Accept Bids, Review & Select Contractor	10 days	Mon 6/22/20	Fri 7/3/20
7	Finalize Contract	25 days	Mon 7/6/20	Fri 8/7/20
8	**Interagency Agreement: CNRA or DWR & CDFW**	**56 days**	**Tue 5/5/20**	**Tue 7/21/20**
9	Develop SOW (complete/under review)	1 day	Tue 5/5/20	Tue 5/5/20
10	Finalize SOW	25 days	Wed 5/6/20	Tue 6/9/20
11	CNRA/DWR Contract Services (Expedited)	23 days	Wed 6/10/20	Fri 7/10/20
12	CDFW Review, Negotiate & Sign (Expedited)	1 day	Mon 7/13/20	Mon 7/13/20
13	DGS & DWR Review & Sign (Expedited)	6 days	Tue 7/14/20	Tue 7/21/20
14	**Agreement between DWR & IID**	**47 days**	**Tue 5/5/20**	**Wed 7/8/20**
15	Roles & Responsibilities	10 days	Tue 5/5/20	Mon 5/18/20
16	Develop SOW	14 days	Tue 5/19/20	Fri 6/5/20
17	DWR Contract Services (Expedited)	15 days	Mon 6/8/20	Fri 6/26/20
18	IID Review, Negotiate & Sign	7 days	Mon 6/29/20	Tue 7/7/20
19	DWR Review & Sign (Expedited)	1 day	Wed 7/8/20	Wed 7/8/20
20				
21	**SITE ACCESS AGREEMENTS**	**45 days**	**Tue 5/5/20**	**Mon 7/6/20**
22	IID Easement Agreement (Complete)	1 day	Tue 5/5/20	Tue 5/5/20
23	**BLM Documents (30 days prior to construction)**	**45 days**	**Tue 5/5/20**	**Mon 7/6/20**
24	Assumed Start of Construction	45 days	Tue 5/5/20	Mon 7/6/20
25	**Prepare Forms**	**27 days**	**Fri 5/29/20**	**Mon 7/6/20**
26	Fieldwork Authorization Forms	22 days	Fri 6/5/20	Mon 7/6/20
27	Cultural Resources	5 days	Fri 5/29/20	Fri 6/5/20
28	Archeological Resources	5 days	Fri 5/29/20	Fri 6/5/20
29	Plan of Development	10 days	Fri 5/22/20	Fri 6/5/20
30	Hazardous Materials Management Plan	5 days	Fri 5/29/20	Fri 6/5/20
31	Notice to Proceed	1 day	Mon 7/6/20	Mon 7/6/20
32				
33	**ENVIRONMENTAL COMPLIANCE**	**205 days**	**Tue 5/5/20**	**Mon 2/15/21**
34	Resolution of Corps Jurisdiction	45 days	Tue 5/5/20	Mon 7/6/20
35	CEQA (complete)	1 day	Tue 5/5/20	Tue 5/5/20
36	Stormwater Pollution Prevention Plan (SWPPP)	20 days	Tue 5/5/20	Mon 6/1/20
37	CDFW Lake & Streambed Alteration Agmnt. (complet	1 day	Tue 5/5/20	Tue 5/5/20
38	**Pre-Construction Surveys**	**205 days**	**Tue 5/5/20**	**Mon 2/15/21**
39	Start 6 weeks prior to construction	45 days	Tue 5/5/20	Mon 7/6/20
40	**24-hour Surveys**	**151 days**	**Mon 7/20/20**	**Mon 2/15/21**
57				
58	**DCP DESIGN**	**11 days**	**Fri 5/15/20**	**Fri 5/29/20**
59	**Surface Roughening**	**11 days**	**Fri 5/15/20**	**Fri 5/29/20**
60	Specify Suitable Areas (complete)	1 day	Fri 5/15/20	Fri 5/15/20
61	Specify design criteria:	5 days	Mon 5/18/20	Fri 5/22/20
62	Produce design drawings for construction	5 days	Mon 5/25/20	Fri 5/29/20
63	**Surfactant Application**	**8 days**	**Fri 5/15/20**	**Tue 5/26/20**
64	Specify Suitable Areas (complete)	1 day	Fri 5/15/20	Fri 5/15/20
65	Specify surfactants	5 days	Mon 5/18/20	Fri 5/22/20
66	Request Manufacturer Application Procedure	2 days	Mon 5/25/20	Tue 5/26/20
67				
68	**CONSTRUCTION**	**255 days**	**Tue 7/7/20**	**Mon 6/28/21**



Draft SCH Dust Control Program
Date: Wed 6/3/20

TETRA TECH

Task | Milestone | Summary

Salton Sea Management Program: Darft SCH Dust Control Program Implementation Schedule

DRAFT

ID	Task Name	Duration	Start	Finish
69	**950 acres of Surface Roughening**	**35 days**	**Tue 7/7/20**	**Mon 8/24/20**
70	Secure dust control permit	2 days	Tue 7/7/20	Wed 7/8/20
71	Conduct noise analysis	1 day	Thu 7/9/20	Thu 7/9/20
72	Install Signage	1 day	Fri 7/10/20	Fri 7/10/20
73	Procure equipment & Supplies	1 day	Mon 7/13/20	Mon 7/13/20
74	Mobilize	1 day	Tue 7/14/20	Tue 7/14/20
75	Delineate Area Cleared for Construction	5 days	Wed 7/15/20	Tue 7/21/20
76	**Pre-construction meeting**	**1 day**	**Wed 7/8/20**	**Wed 7/8/20**
77	Safety expectations	1 day	Wed 7/8/20	Wed 7/8/20
78	SWPPP	1 day	Wed 7/8/20	Wed 7/8/20
79	Biological Resources	1 day	Wed 7/8/20	Wed 7/8/20
80	Cultural Resources	1 day	Wed 7/8/20	Wed 7/8/20
81	**Implement Project**	**32 days**	**Thu 7/9/20**	**Fri 8/21/20**
82	Create furrows with bull-plow	10 days	Thu 7/9/20	Wed 7/22/20
83	Transfer to other areas	1 day	Thu 7/23/20	Thu 7/23/20
84	Create furrows with bull-plow	10 days	Fri 7/24/20	Thu 8/6/20
85	Transfer to other areas	1 day	Fri 8/7/20	Fri 8/7/20
86	Create furrows with bull-plow	10 days	Mon 8/10/20	Fri 8/21/20
87	Biological & Cultural/Paleo Monitoring	32 days	Thu 7/9/20	Fri 8/21/20
88	Construction Management & Inspection	32 days	Thu 7/9/20	Fri 8/21/20
89	Implement noise attenuation measures	32 days	Thu 7/9/20	Fri 8/21/20
90	**Demobilize**	**1 day**	**Mon 8/24/20**	**Mon 8/24/20**
91	**810 acres of Surfactant Application**	**168 days**	**Tue 7/7/20**	**Thu 2/25/21**
92	Secure dust control permit	2 days	Tue 7/7/20	Wed 7/8/20
93	Conduct noise analysis	1 day	Thu 7/9/20	Thu 7/9/20
94	Install Signage	1 day	Fri 7/10/20	Fri 7/10/20
95	Procure Equipment & Supplies	1 day	Mon 7/13/20	Mon 7/13/20
96	Mobilize	1 day	Tue 7/14/20	Tue 7/14/20
97	Delineate area cleared for construction	5 days	Wed 7/15/20	Tue 7/21/20
98	**Pre-construction meeting**	**1 day**	**Wed 7/22/20**	**Wed 7/22/20**
99	Safety expectations	1 day	Wed 7/22/20	Wed 7/22/20
100	SWPPP	1 day	Wed 7/22/20	Wed 7/22/20
101	Biological Resources	1 day	Wed 7/22/20	Wed 7/22/20
102	Cultural Resources	1 day	Wed 7/22/20	Wed 7/22/20
103	**Implement Project**	**155 days**	**Thu 7/23/20**	**Wed 2/24/21**
104	Apply Surfactant	155 days	Thu 7/23/20	Wed 2/24/21
105	Biological & Cultural/Paleo Monitoring	155 days	Thu 7/23/20	Wed 2/24/21
106	Construction Management & Inspection	155 days	Thu 7/23/20	Wed 2/24/21
107	Implement noise attenuation measures	155 days	Thu 7/23/20	Wed 2/24/21
108	**Demobilize**	**1 day**	**Thu 2/25/21**	**Thu 2/25/21**
109				
110	**MONITORING**	**220 days**	**Tue 8/25/20**	**Mon 6/28/21**
111	--End TBD Based on Construction Start--			
112	Visual Surveillance for Dust Monitoring	20 days	Tue 6/1/21	Mon 6/28/21
113	Topographic Survey and Mapping	20 days	Tue 6/1/21	Mon 6/28/21
114	Surface Roughness Modeling	25 days	Tue 5/25/21	Mon 6/28/21
115	Sand Flux Monitoring and Analysis	220 days	Tue 8/25/20	Mon 6/28/21
116	PM10 Monitoring and Analysis	220 days	Tue 8/25/20	Mon 6/28/21
117				
118	**MAINTENANCE AND INSPECTIONS**	**318 days**	**Tue 8/25/20**	**Thu 11/11/21**
119	**Maintenance and Inspections**	**318 days**	**Tue 8/25/20**	**Thu 11/11/21**

Draft SCH Dust Control Program
Date: Wed 6/3/20

TETRA TECH

Task | Milestone | Summary

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Administrative Draft Comment Letters

SCAQMD Comments:

Thank you for the opportunity to review and comment on the Administrative Review Draft Dust Suppression Action Plan (DSAP). South Coast Air Quality Management District (South Coast AQMD) staff continues to support projects that will minimize exposure to airborne dust within the South Coast AQMD. South Coast AQMD has the following comments based on a review of the Administrative Review DSAP.

1. Both the Coachella Exposed Lakebed and North Shore sites are part of the Phase B project schedule, because of the lack of field emissivity data. As a result, project construction for these sites will not begin until the third quarter of 2021. However, the Coachella Exposed Lakebed and North Shore areas should be a high priority for dust control, given their proximity to residences. Additionally, the Eastern Coachella Valley Community Steering Committee established by Assembly Bill 617 has identified fugitive dust from the Salton Sea as an air quality priority. Therefore, South Coast AQMD staff recommends prioritizing the data collection for both sites and expediting dust suppression projects in these areas in advance of the proposed schedule.

2. Chapter two (2) of the Administrative Draft DSAP discusses the different types of dust suppression methods successfully applied to other projects. The South Coast AQMD staff recommends providing the exposure reduction expected from implementing these dust suppression methods.

   Chapter 2 also includes information on equipment that will construct the dust suppression projects. South Coast AQMD staff recommends that during the construction phase of the project the lead agency:
   - Use the cleanest available construction equipment, including, Tier 4, zero- and near-zero-emission trucks,
   - Minimize the number of truck trips and avoid routing trucks near residences.

3. The South Coast AQMD staff recommends that the Administrative Draft DSAP quantify the air quality benefits and emissions reductions for each project. If emissions reductions cannot be quantified at this time the Administrative Draft DSAP should be revised to include language that requires annual quantification and tracking of emissions reductions the projects proposed in the DSAP.

4. The Admin Draft DSAP mentions that updates are posted on the Salton Sea website (http://saltonsea.ca.gov/); however, it does not specify whether the data collected will be accessible to the public. Therefore, South Coast AQMD staff recommends providing information on public accessibility to DSAP monitoring data (e.g., LiDAR, field survey, PM10 measurements, camera footage, etc.) when it is available.

We look forward to collaborating with the State and other collaborating agencies in the implementation of this plan. We want to ensure that all projects obtain the necessary permits to comply with South Coast AQMD's rules and regulations.

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

AIR POLLUTION CONTROL DISTRICT

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

June 12, 2020

Mr. Arturo Delgado
Assistant Secretary for Salton Sea Policy
California Natural Resources Agency

Subject: Imperial County Air Pollution Control District's Comments on the Draft Dust Suppression Action Plan

Dear Mr. Delgado:

The Imperial County Air Pollution Control District (ICAPCD) appreciates the opportunity to review and comment on the Administrative Draft of the *Salton Sea Management Program: Dust Suppression Action Plan* dated June 4, 2020 (DSAP). However, the length of the comment period for the DSAP was insufficient given the extent of changes made from the prior draft. The ICAPCD reserves the right to amend comments and issue additional comments beyond those expressed in this letter.

The main goal of the DSAP should not be solely focused on achieving acreage milestones that do not ensure real emissions reductions. Instead, the DSAP should employ scientifically based strategies for the proper placement of these projects on already identified highly emissive soil types. Making those determinations depends on the mitigation project designs, existing dust control plans, and mitigation and monitoring criteria approved by ICAPCD. Acreage is not the important metric and, when done poorly, can exacerbate the problem and delay appropriate mitigation.

EXECUTIVE SUMMARY

Outlines a summary of the DSAP as a component of the SSMP and the Phase I Plan. Its purpose is to expedite the implementation of dust suppression projects to meet goals set by the SSMP and specific annual acreage targets of the State Water Resources Control Board Order WR 2017-0134 (Water Order). Under consideration for mitigation are 9,800 acres, with 8 defined project areas, of dust suppression over the course of three years (2020 to 2022). Implementing parties, identified as the *State Team* include the California Natural Resources Agency (CNRA), the California Department of Water Resources (DWR), the California Department of Fish and Wildlife (CDFW) and with noted support from the California Air Resources Board (CARB).

Here, the executive summary presents a general overview of the highlights intended to introduce the reader to the important aspects of the DSAP. The summary creates the sense that the *State*

Team will implement these time-critical projects to protect local communities while meeting the acreage requirements of the Water Order because of the *State Team's* experience has already accounted for the planning, permitting, design, and contracting of these projects. Therefore, the ICAPCD requests that the last sentence of page 2 of the introduction be removed or clarified.[1] Stating that the DSAP is not binding seems to contradict the commitment expressed by the *State Team*. For example, while the DSAP is not a regulatory document it should be binding as far as the commitments expressed within the document regardless of the fact that the document is "a living document" subject to change or amendment.

CHAPTER 1 INTRODUCTION

Much like the Executive Summary this chapter outlines the background information, in summary format, regarding the essential components, purpose and goals of the DSAP. There is an extensive explanation regarding the Water Order as outlining the "…State Water Board's oversight role in monitoring and ensuring progress toward the goals of the SSMP…" Presumably, the annual milestones towards achieving habitat restoration and dust-suppression projects have been identified as acreage.[2]

Here, it is important to clarify two issues. First, the Phase I Plan-10-year phase (Phase I Plan) identified under its "Air Quality Planning and Implementation" section, steps 2 and 4 outlined in the environmental impact report/environmental impact statement which acknowledges the implementation of a research and monitoring program and the implementation of Best Available Control Measure (BACM) pilot projects.[3]

Second, the monitoring is specific to the habitat restoration and dust-suppression projects surrounding the Salton Sea. Any other type of monitoring would not fall within the goals or stipulations of the SSMP. In addition, an effective dust suppression plan that meets the step that requires the implementation of BACM pilot project necessarily requires that the identified methods either qualitatively or quantitatively demonstrate the potential for emission reductions.

The completion of the identified 9,800 acres within three years considering that the identified years includes 2020 seems unobtainable.

CHAPTER 2 DUST SUPPRESSION METHODS

This section identifies the intended methods that will be used for dust suppression in the overall 9,800 acres identified as Phase A and Phase B in other sections of this document. There will be initial site preparation such as clearing and grubbing while avoiding established living native vegetation as necessary. Ten identified methods include temporary surface roughening, vegetation establishment (post surface roughening), storm water spreading, surfactants, shallow-

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[1] Salton Sea Management Program: *Dust Suppression Action Plan, Administrative Review Draft*: June 4, 2020, Chapter 1: Introduction, page 2 – "The DSAP is not intended to be a regulatory or binding document."

[2] *Id at page 1*

[3] Salton Sea Management Program, Phase I: 10-Year Plan, *Air Quality Planning and Implementation*, page 16, August 2018, https://resources.ca.gov/CNRALegacyFiles/wp-content/uploads/2018/10/SSMP-Phase-1-10-Year-Plan.pdf

water habitat, sand fencing, engineered roughness, gravel coverage, shallow flooding, and enhancing soil crusting bio cementation or soil amendments.

Again, there is no priority given to the methods that would explain how these methods would meet the BACM pilot projects nor are they identified as potential contingency measures. Simply put, effective dust control programs or plans should identify priority of methods by the emission reduction potential and anticipated use. Clearly identifying each method not only as a successful method in other regions should be supplemented with historical potential emission reduction rates when applied correctly. This would allow for the appropriate emission accountability ensuring successful reduction of air emissions despite naturally occurring events. In addition, these methods should then be interrelated as far as they can be as contingency options should a first option fail. Thus, these methods should be accompanied or at minimum prioritized as to the availability as a temporary contingency either measure or replacement contingency measure. For example, the description of the Storm water Spreading event indicates that this measure if applied would more than likely cause a delay in meeting time-critical goals. Not only is there a required quantitative assessment and the development of structures that hinder implementation of this method, but the method is described as faltering because there is no appreciable discharge of water. While it is unclear why or how this option could prove to be a BACM pilot project, this method would more than likely not be chosen as either a first choice or a contingency measure. Therefore, the ICAPCD is requesting a prioritization of potential implementation by order of potential emission reductions and viability as a contingency measure.

Finally, it will be necessary to provide contingency measures for the site-preparation initial phase as well.

CHAPTER 3 PROJECT IMPLEMENTATION APPROACH

This section provides the information that the State Team requires to move forward with implementation of the projects. Three key steps are identified that will need to be completed prior to design and construction.

The first step are the access agreements. While the State Team currently has an easement agreement with IID and BLM, for a specific area that would help meet Phase A goals, the State Team does not have any other agreements to finish all the 9,800 required acres. Again, without clearer information regarding the completion of the projects it is unclear how the State Team intends to meet the 2022 completion date.

The second step includes permitting and environmental compliance. ICAPCD would like to reiterate, that without properly identifying the selected methods by their emission reduction potential and relating it back to the analyzed BACM pilot projects, then triggering the environmental compliance portion is highly likely. To avoid this, the DSAP should prioritize the selected methods by the emission reduction potential, the contingency measure potential and demonstrate how these in either the short term or long term reach the level of BACM pilot projects.

The third step includes contracting for construction. This section identifies the timelines for three phases related to contracting for construction. Based on the information provided the

ICAPCD *again*, reiterates its concern that the mile marker of 2022 is ambitious at minimum and nearly impossible at best at meeting the 9,800 acres of applied mitigation.

In subsection 3.2.8, the text implies that the District's opacity requirements under Rule 801 only apply to mechanical soil disturbance activities. That is incorrect, as inactive disturbed surfaces are also subject to the 20 percent opacity limit for visible dust emissions under both ICAPCD Rules 801 and 804. The State should amend this section accordingly. Health & Safety Code §§ 40000 *et al.* provides that "...local and regional authorities have the primary responsibility for control of air pollution from all sources, other than emissions from motor vehicles. The control of emissions from motor vehicles... shall be the responsibility of the state board."[4]

In addition, there are anti-back sliding regulations imposed on nonattainment areas that are reclassified to attainment and while new and modified major stationary sources must meet Rule 904, Prevention of Significant Deterioration (PSD) Permit Program, the calculation that is used in the determination of a major source does not include fugitive emissions. Rule 925 applies simply because the reclassification contains a maintenance plan that addresses reasonable further progress, milestones and quarterly contingency reporting. Thus, these projects cannot cause or increase any violation that would jeopardize any of the aforementioned elements.

Also, the DSAP states that "..the State Team recognizes that IID projects have already been accepted by ICAPCD." This is incorrect. IID does not have a blanket approval for its projects. IID's process for developing projects has been accepted by ICAPCD, which includes collaboration, coordination, and monthly meetings. Key details related to monitoring and mitigation are still being developed. The State should amend this section accordingly.

CHAPTER 4 SITE-SPECIFIC PROJECT IMPLEMENTATION PLANS

This section describes the nine (9) projects that have been prioritized for implementation. The lack of detail provided does not give ICAPCD the confidence that these projects can demonstrate compliance within ICAPCD's Rules and Regulations.

CHAPTER 5 SITE CHARACTERIZATION AND PERFORMANCE MONITORING

This section describes site characterization, as data collection and performance monitoring as reduction of emissions. As mentioned previously, the regulatory responsibility is legislatively granted to the ICAPCD for *all* sources with the only exception being mobile emissions sources. One of the mitigation measures identified in the DSAP is implementing regulatory monitoring activities both near the source and near the receptors. However, the DSAP explains "...goal of the monitoring program would be to observe PM10 problem or incremental increases in toxic air contaminant concentrations associated with the Proposed Project and to provide a basis for mitigation efforts."[5] Thus, these monitors should be "special purpose" monitors only and not regulatory in nature.

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[4] California Legislative Information, Health and Safety Code, Division 26, §40000, http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=26.&title=&part=3.&chapter=1.&article=

[5] Salton Sea Management Program: *Dust Suppression Action Plan, Administrative Review Draft*: June 4, 2020, Chapter 5: Site Characterization and Performance Monitoring, page 52

However, the text in the last paragraph of Section 5.1.2 is vague with regard to the type of monitors to be installed as an expansion of the shoreline network in response to feedback from the community. On the June 4 call with ICAPCD, IID, the State agencies, and other stakeholders, these planned monitors were described as "regulatory" monitors. Regulatory monitors sited in Imperial County are solely under the purview of ICAPCD in conjunction with the California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) and should not be part of this plan. They do not address the issues related to the development and/or monitoring of the dust control projects; that is the role of targeted monitoring or modeling for each dust control project.

Section 5.2 discusses air quality modeling in general, but does not describe how or if it will be used to support the State's dust control method design efforts. IID's modeling of project emissions before and during mitigation are key elements in the overall assessment and monitoring of mitigation projects. Similar modeling must be done for DSAP projects (at a minimum), unless ICAPCD indicates otherwise. The State should amend this section to describe how they will address this.

Also, the DSAP states that the Coachella Exposed Lakebed does not have IID data to confirm emissivity. As IID/Formation indicated during the June 4 call with ICAPCD, IID, the State agencies, and other stakeholders, this data does exist. It is available in IID's 2018/2019 Annual Report and PM_{10} Emissions Estimates. The State should amend this section accordingly.

The DSAP says that "IID is currently designing dust suppression projects to meet an estimated 95 percent reduction in sand motion criteria set by ICAPCD." This statement is incorrect. ICAPCD did not establish this criterion, and IID used it as a mitigation design criterion for surface roughness projects only. The appropriate design criterion for dust control projects will depend on the dust control measure being implemented, and assessment of its sufficiency (i.e., compliance with ICAPCD rules and guidance) is the role of ICAPCD. The State should amend this section accordingly.

Additionally, the State lists the following reference, "Withycomb, 2019b", after the statement, "In addition, ICAPCD, SCAQMD, and CARB also perform air quality monitoring within the region." ICAPCD would like to request a copy of this reference.

CHAPTER 6 OPERATIONS AND MAINTENANCE

The reporting cycle needs to include a time period in which the DSAP and its subsequent implementation is reviewed and discussed with oversight agencies (e.g., ICAPCD/SCAQMD). As noted, this DSAP reporting cycle and interim reports must support ICAPCD's reporting requirements under the contingency provisions of the PM_{10} SIP for the next 10 years, as IID's program does.

In closing, ICAPCD feels that the current draft DSAP *again* falls short in demonstrating effective control measures that abide by the rules and regulations adopted by ICAPCD. ICAPCD believes that a majority of our comments for the original draft DSAP have yet to have been

adequately addressed in this draft. ICAPCD appreciates the opportunity to comment on this draft Dust Suppression Action Plan. Should you have any questions regarding this letter, please contact Monica Saucier or Katie Burnworth of my staff at (442) 265-1800.

Sincerely,

Matt Dessert
Air Pollution Control Officer

cc:

Imperial County Air Pollution Control Board
Tony Rouhotas, CEO, Imperial County
Henry Martinez, General Manager, IID
Tina Shields, Water Dept, Manager, IID

June 12, 2020

Mr. Arturo Delgado
Assistant Secretary for Salton Sea Policy
California Natural Resources Agency
78078 Country Club Drive, Suite 109
Bermuda Dunes, CA 92203

Subject: IID Comments on the State's Salton Sea Management Program – Administrative Review Draft Dust Suppression Action Plan

Dear Mr. Delgado:

The Imperial Irrigation District (IID) has reviewed the State's Administrative Review Draft Dust Suppression Action Plan (Administrative Draft DSAP) prepared as part of its Salton Sea Management Program. This letter provides comments from IID on the Administrative Draft DSAP. These comments are in addition to the comments provided on the public Draft DSAP on March 27, 2020. Although we appreciate the opportunity to review the Administrative Draft DSAP, the review time allotted was grossly insufficient to allow for a meaningful review and cooperative effort to resolve significant questions and concerns with the Administrative Draft DSAP before it is finalized and released publicly. Instead, requests for an extension were denied. Accordingly, this letter provides only high-level comments, but detailed comments will be provided as warranted to the publicly released final Dust Suppression Action Plan. It is worth noting here, however, that IID has grave concerns over some assertions in this Administrative Draft DSAP that completely undermine years of work and volumes of data collection and documentation done by IID to address air quality at the Salton Sea. IID is hopeful that, as a result of this letter, there will be appropriate time given to address these concerns prior to the release of a final DSAP.

As described in our March 27 letter, both the DSAP and IID's Proactive Dust Control Plan (PDCP) address dust emission requirements at the Salton Sea. As you know, the State Team and IID have been collaborating to ensure the DSAP and the PDCP are highly coordinated and implemented to address dust emissions at the Salton Sea to the maximum extent possible. Although this collaboration is not reflected in this Administrative Draft DSAP, we provide these comments in our continued effort for success at the Salton Sea. IID has worked collaboratively with the Imperial County Air Pollution Control District (ICAPCD) and the South Coast Air Quality Management District (SCAQMD) for several years now to proactively develop and implement the Salton Sea Air Quality Mitigation Program (SSAQMP). It is crucial that IID and the State be consistent in coordinated dust control activities at the Salton Sea to avoid unnecessary regulatory enforcement actions from the local air quality regulatory agencies.

Specific comments on the Administrative Draft DSAP are provided below:

1. **QSA-JPA funding for the Salton Sea Air Quality Mitigation Program**. The DSAP refers multiple times to air quality work performed by the Quantification Settlement Agreement Joint Powers Authority (QSA-JPA) (starting Section 1.3). The QSA JPA administers funding for environmental mitigation requirements related to the QSA water transfers. The QSA JPA collects, holds, invests, and disburses funds for the required mitigation projects resulting from the QSA water transfers. The QSA JPA is comprised of designated representatives from the California Department of Fish and Wildlife, Coachella Valley Water District (CVWD), IID, and San Diego County Water Authority (SDCWA) who serve as Commissioners and staff of the QSA JPA. As a purely funding entity, the QSA JPA does not implement mitigation.

   The SSAQMP was developed by IID to provide a comprehensive, science-based, adaptive approach to address air quality mitigation requirements associated with the QSA water transfers and adopted by the IID Board of Directors in 2016. Each component of the SSAQMP is used to identify, prioritize, and guide implementation of dust control measures on exposed Salton Sea playa. More information related to IID's SSAQMP can be found on IID's air quality webpage at www.iid.com/airquality.

   To be clear, the QSA JPA reimburses IID for the implementation of the mitigation measures required for the QSA water transfers, such as the cost of the development of the SSAQMP and its implementation. Further, the permits required for the QSA water transfers are held by IID, not the QSA JPA. Therefore, it is significant to IID that the QSA JPA be appropriately described and represented. Any reference to a QSA JPA program and work by the QSA JPA under that program is incorrect. All references to the SSAQMP should be corrected to refer to IID's Salton Sea Air Quality Mitigation Program and all air quality work performed under that program should refer to IID.

2. **Playa emissivity data for the northern areas of the Salton Sea**. The DSAP states the northern part of the Salton Sea playa "does not have IID data to confirm emissivity" (Sections 4.8 and 4.9). These repeated statements are false and suggest that IID has biased the Annual Playa Emission Estimate to not include the entire Salton Sea Playa. This is patently false and even dangerous. Such statements not only undermine years of IID's work under the SSAQMP to collect and assess data on the entirety of the Sea, but is a complete fabrication that would require IID to publicly address such statements. Possibly most importantly for the State, if it were to maintain this position, would be that the data it is relying upon in this DSAP is then flawed and could lead to costly duplicative work and ultimately a significantly more expensive program.

   IID's SSAQMP has extensive emissivity data for all areas of the playa, including the project areas proposed on the northern areas of the Salton Sea (referred to as the Coachella Exposed Lakebed and the North Shore Area in Sections 1.6, 4.8 and 4.9) in this Administrative Draft DSAP. A brief memo describing the data specifically available for

these project areas is provided as an attachment to this letter. These data are also available on IID's Air Quality website (www.iid.com/airquality). In addition, IID has documented these data and subsequent analysis results in our Annual Emission Estimates (IID 2018, 2019, 2020). The results consistently demonstrate that playa in the northern portion of the Salton Sea contributes less than 1% to the total playa emissions. This is due in part to the soil conditions, natural vegetation expansion onto the playa, bare exposed playa acreage, and most importantly, lower wind speed measured (over a 10 plus year period) at multiple meteorological stations (Attachment 1). The data have documented that the vast majority of the emissions come from the southern and western playa domains (IID 2019 and 2020). This is why most of the efforts in the 2020 PCDP are focused on these areas.

That said, IID has been very clear that it is not opposed to projects for community benefit or engagement purposes in the northern areas of the Salton Sea. However, IID opposes the misrepresentation of emission data not existing for these project areas as currently described in the Administrative Draft DSAP. The idea that "more work is needed to be done" for those northern projects was an acceptable approach agreed upon to get through the Draft DSAP. We are now at a different point in the development of the DSAP and the State has failed to take time to develop an approach to deal with the northern areas of the Salton Sea that does not call into question all the work that has been done under IID's SSAQMP to date and into the future to address air quality at the Sea. In fact, the Administrative Draft DSAP has taken things a step further and dismisses all the work that has been done over several years as if it does not exist. The DSAP **must** clarify that the 1,340 acres proposed for the Coachella Exposed Lakebed area and the 93 acres proposed for the North Shore area are based solely on information obtained from community engagement.

3. **Implementation schedule**. The Administrative Draft DSAP describes a concerted effort to complete approximately 9,800 acres of dust suppression projects by the end of 2022 (for example, Executive Summary). IID understands the DSAP implementation schedule and acreage targets are intended to achieve the requirements defined by the State Water Resources Control Board Order WR 2017-0134 (SWRCB Order). However, the SWRCB Order does not require 9,800 acres by 2022. The requirement under the SWRCB Order is a total of 4,375 acres of dust-suppression projects by the end of 2022 (half of the total acreage of 8,500 acres for both habitat and dust-suppression projects by the end of 2022). IID wants to see the DSAP be successful and part of that success must be to set out a reasonable schedule that can be achieved. There is no reason to set out a schedule for an amount of acreage that cannot be met within that time period. Implementation of 15 square miles of dust control in 2.5 years is simply unrealistic and infeasible, especially given that design is not completed or reviewed with ICAPCD or SCAQMD, and that the State has not obtained permits or land use authorizations. No agencies, communities or individuals are going to be able to support or have confidence in a plan that has set itself

up for failure. It is important to develop and communicate a realistic schedule to all agencies involved in dust control activities at the Salton Sea. This is necessary to build the trust needed with stakeholders and regulatory agencies that are collaborating on these projects.

4. **Temporary dust control at SCH**. The approach described for temporary dust control at the Species Conservation Habitat Project (SCH) site is not consistent with the approach agreed upon between the State Team and the IID Team. We hope this is not an indication of how the State Team intends to collaborate on development and implementation of other joint project areas. As we have discussed extensively, surface surfactants are not a reasonable control measure for 800 acres (1.25 square miles). Based on our direct experience, temporary control with surfactants on 800 acres would cost more than $2 million and require over 2,500 plane trips for aerial application (land application is not feasible). Furthermore, there are no data to demonstrate surfactants will be effective at this scale. As discussed, IID recommends an integrated approach, consistent with the Temporary Dust Control Plan being prepared by IID for review by ICAPCD that includes surface roughening and establishing watch areas. If visible emissions are observed in the watch areas, actual dust "source areas" will be delineated and targeted for temporary dust control (perhaps using surfactants or other measures that do not disturb the natural topography and soil conditions of the site).

   In addition, the schedule for SCH states the implementation/staking plans and scope of work for the DWR / IID agreement is complete, which is not true and may not be true by the time the State intends to release the final DSAP. The schedule also provides that the DWR / IID agreement will be signed by IID by July 7 and, while this may be an option, this is a best case scenario given other work occurring with the State in the coming weeks involving a significant amount of time to be dedicated by IID staff on that work. We may not know whether this SCH schedule could be met until after the final DSAP is released. An accurate schedule should be reflected in the final DSAP or should at least not lock in deadlines that could be missed within days of the release of the final DSAP. The State will immediately lose credibility in what is set forth in the DSAP.

5. **Supplemental air quality monitoring network and modeling**. The Administrative Draft DSAP recommends supplemental air quality monitoring with a regulatory network. However, the existing special purpose monitors adequately serve their specific purpose of understanding regional air quality conditions, including modeling necessary for the Annual Emissions Estimates conducted by IID. There is no demonstrable need or purpose to convert the existing special purpose monitors to regulatory monitors. To use regulatory monitors for nothing more than the sake of adding a regulatory component to monitors that already assist the regulatory agencies does not serve the needs of the communities and will only add new requirements to a monitoring network that has proven to be useful as it is. The time and resources spent on new requirements is not worth any incremental gain, particularly when the data currently collected is already provided in a coordinated

and comprehensive manner useful to the local regulatory agencies, ICAPCD and SCAQMD. Further, because IID is responsible for compliance with the QSA and associated permits and requirements, its needs for maintaining the existing monitors is paramount to any purpose set out for a regulatory network maintained by another agency from offices located in northern California. These monitors should NOT be converted to regulatory monitors as suggested in the presentation by the State Team on Thursday, June 4. IID will not support conversion of the current special purpose monitors to a regulatory network maintained by CARB causing duplicative and potentially compromising data.

The Administrative Draft DSAP also suggests that IID uses the Single-event Wind Erosion Evaluation Program (SWEEP) for regional air quality modeling purpose (Section 5.2). This is incorrect. IID uses the SWEEP model only for evaluation and design of dust control measures on site specific, priority playa identified for dust control implementation (using data from the Annual Emission Estimate). The Annual Emission Estimate includes a comprehensive, scientifically defensible method of modeling emissions across the playa on an hourly, daily, and yearly basis. The method integrates the Weather Research and Forecasting Model (WRF), temporal and spatial playa surface characteristics, surface soil moisture conditions, vegetation cover, and modeled wind speeds (IID 2018, 2019, 2020). In addition, IID has contracted with Formation and the National Center for Atmospheric Research (NCAR) to revise the current NCAR WRF-Chem dispersion model to include IID's emission estimate methodology. In short, this will facilitate dispersion modeling of select high wind events to validate the Annual Emission Estimate Methodology (using the current special purpose monitors). Lastly, IID in collaboration with ICAPCD, is developing an "Other Test Method" submittal to EPA for the current emission estimate approach. IID does not agree that additional "duplicative" modeling or additional regulatory monitoring is needed at this time (Section 5.2) and that the State's efforts and focus should be on implementation of the projects identified in the DSAP and PDCP.

6. **Performance monitoring**. The Administrative Draft DSAP states it will be using guidance provided by CARB to evaluate the performance of surface roughening areas. However, ICAPCD and SCAQMD are the responsible agencies for dust control performance within Imperial County and Riverside County, respectively, at the Salton Sea. IID has been working with ICAPCD and their consultants (Ramboll) on development of appropriate performance monitoring methods for over three years. As described in IID's PDCPs, effective performance monitoring includes multiple lines of evidence to balance the strengths and weaknesses of individual methodologies. When combined, these complimentary methods provide a sound monitoring program that is quantitative, continuous, spatially comprehensive, and easy to interpret. The schedule and frequency of monitoring proposed in the Administrative Draft DSAP is not sufficient for the implementation of surface roughening on 4,600 acres (7 square miles). We again recommend that monitoring approaches for DSAP projects use consistent methodology

and reporting as described in IID's PDCP. Consistent performance monitoring and reporting is essential to ICAPCD's SIP and exceptional event analyses. These data are needed to demonstrate that controls are working and effective while also identifying where maintenance activities are needed to augment, replace, or extend dust control measures within existing projects.

If you have any additional questions, please contact Jessica Humes at (760) 339-9703. Thank you for your time and review.

Sincerely,

Tina Shields

Tina Shields
Water Manager

cc: Enrique Martinez, IID
Jessica Humes, IID
Matt Desert, ICAPCD

TECHNICAL MEMORANDUM

AVAILABLE PLAYA EMISSIVITY AND DUST CONTROL PLANNING DATA FOR THE NORTH SHORE REGION OF THE SALTON SEA PLAYA

PREPARED FOR: Imperial Irrigation District

PREPARED BY: Formation Environmental, LLC

DATE: June 2020

The Salton Sea Air Quality Mitigation Program (SS AQMP; IID 2016) was developed for the Imperial Irrigation District (IID), in cooperation with the Imperial County Air Pollution Control District. It has three main components: 1) an annual Emissions Monitoring Program to estimate emissions and to identify high-priority areas of exposed playa for proactive dust control, 2) an annual Proactive Dust Control Plan (PDCP) with recommendations and design for site-specific dust control measures (DCMs), and 3) implementation and monitoring of DCMs (e.g., surface roughening and vegetation establishment). These three program components are used to proactively identify and provide options for mitigating dust emissions (particulate matter less than 10 microns in diameter [PM_{10}]) as playa becomes exposed. The annual Emissions Monitoring Program is designed to work hand-in-hand with the development of the annual PDCP and subsequent implementation and monitoring of DCMs.

As described in numerous documents (IID 2018, 2019, 2020a), extensive data collection and air quality modeling efforts have been undertaken to quantify all exposed areas of the Salton Sea playa. Data are objectively analyzed following well-documented, state-of-the-art methodologies and modeling tools to characterize potential and actual dust emissions. IID's SS AQMP includes extensive playa emissivity data for all areas of the playa, including the project areas proposed on the North Shore (Coachella Playa region) in the Dust Suppression Action Plan (DSAP). In addition, IID has documented these data and subsequent analysis results in the Annual Emissions Estimates (IID 2018, 2019, 2020a) and PDCPs (IID 2018, 2019, 2020b). The results consistently demonstrate that playa in the northern portion of the Salton Sea contributes less than 1% to the total playa emissions. This is due in part to the soil conditions, natural vegetation expansion onto the playa, bare exposed playa acreage, and most importantly, lower wind speeds measured (over a 10-plus-year period) at multiple meteorological stations. These same data continue to show that the vast majority of the dust emissions from the current exposed playa originate in the Southern, Western, and Southwestern playa domains (IID 2019 and 2020a). Therefore, IID has focused prioritization of dust control implementation to these domains in the 2019/2020 PCDP (IID 2020b).

The following sections list and briefly describe the datasets that IID has collected and that are available to the State Team to characterize potential dust emissions and assist with planning on the Northern portion

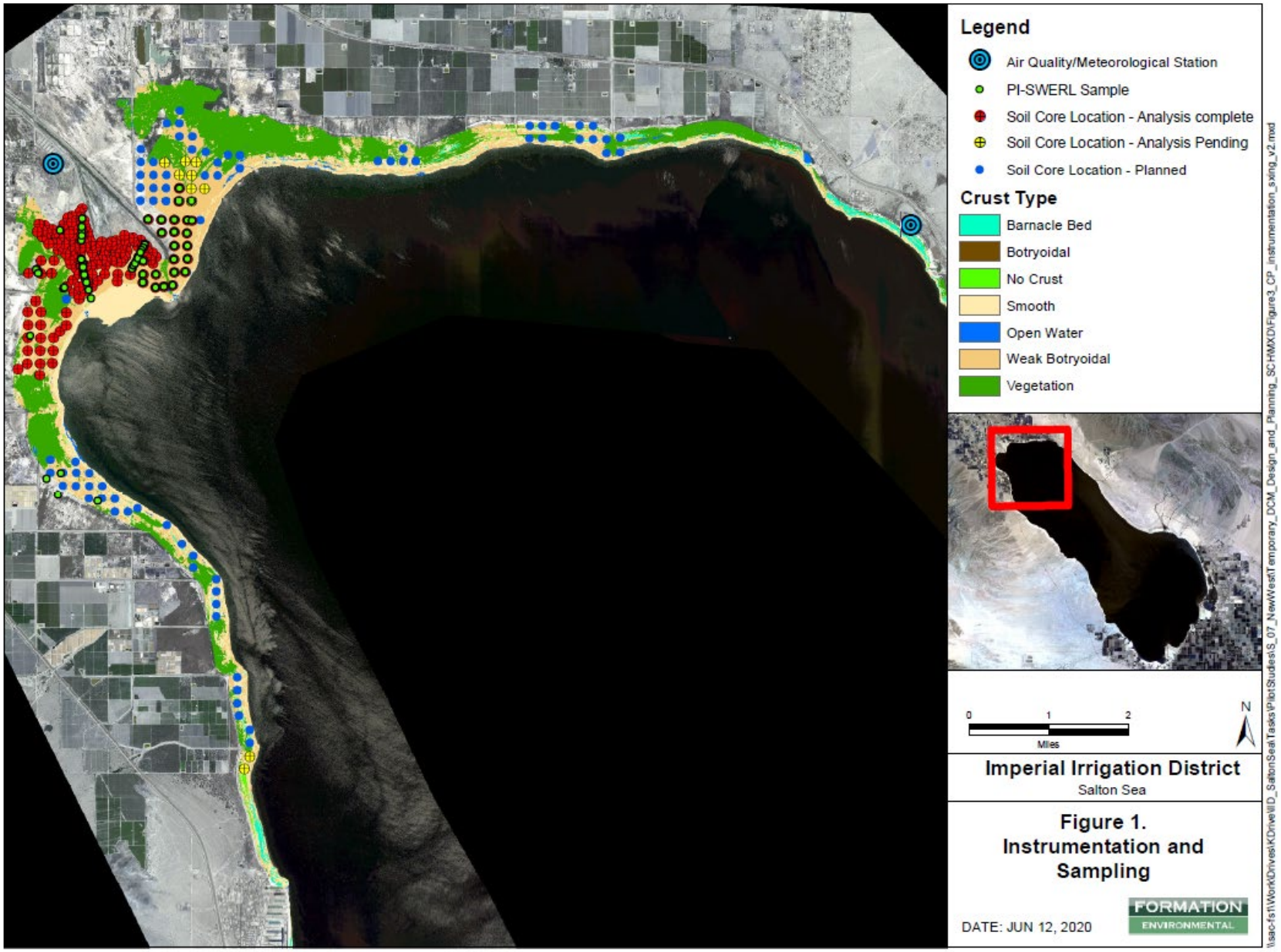
of the Salton Sea Playa. Most of these datasets have either been directly transmitted to the State Team or are available at the Salton Sea Air Quality Mitigation Program (SS AQMP) data portal.[1]

1 PI-SWERL

The Portable In-Situ Wind Erosion Laboratory (PI-SWERL) is a small field device that measures the potential amount of windblown PM_{10} that a surface can emit by applying specific frictional velocities to the surface with a spinning annular rotor, simulating various wind speeds. A total of 153 PI-SWERL samples have been collected in the Coachella Playa region of the Salton Sea since 2016 (Figure 1). These PI-SWERL datasets were collected both in transects (to understand the effect of declining sea level and year-to-year variability) and randomly (to increase sample size of less-represented surfaces). While collecting PI-SWERL data, the characteristics of the surfaces were also recorded. Post-processed PI-SWERL outputs for the whole playa, including the 153 samples for Coachella Playa, can be found on the SS AQMP data portal.

[1] https://saltonseaprogram.com/aqm/data-portal/data-portal.php

FIGURE 1. INSTRUMENTATION AND SAMPLING



2 MONITORING STATIONS

The stations located on the Torres-Martinez Reservation near the exposed delta of the Whitewater River (33.518, -116.075) and at Salton Sea Park (33.509, -115.920) measure numerous parameters pertinent to air quality and meteorological conditions, including continuous particulate matter mass concentration, horizontal wind speed, wind direction, ambient temperature, solar radiation, relative humidity, barometric pressure, precipitation, particle counts, and total sand mass (Figure 1). These stations have been in place since 2010.

3 SOIL CORE DATA

Approximately 170 soil cores have also been collected in the Coachella Playa region to support a Level 1 soil survey (Figure 1) and assist in dust control planning. Data analysis has been completed for 162 samples and 8 samples are pending analysis results from the laboratory. In addition, approximately 74 sample locations were "planned" but have not collected due to limited access (due to dense vegetation) and saturated soil conditions prohibiting soil coring activities. Regardless, the available dataset includes percent sand, silt, and clay for the top 1.5 meters at 5-cm intervals for a large portion of the North Shore area. Aggregated percent sand, silt, and clay values for the top 2-ft plow depth are also analyzed in the soil data, which can be found on the SS AQMP data portal.

4 REMOTE SENSING DATA AND POST-PROCESSED PRODUCTS

4.1 END-OF-YEAR PLAYA EXPOSURE

Playa exposure analysis is completed on an annual basis, at the end of each year when the Sea is at the lowest point of its hydrological cycle. Satellite imagery and a combination of United States Geological Survey (USGS) gauge elevation data and high-resolution bathymetric data were used to develop annual playa exposure compared to the baseline end of the year shoreline in 2002. An example dataset for playa exposure can be found on the SS AQMP data portal.

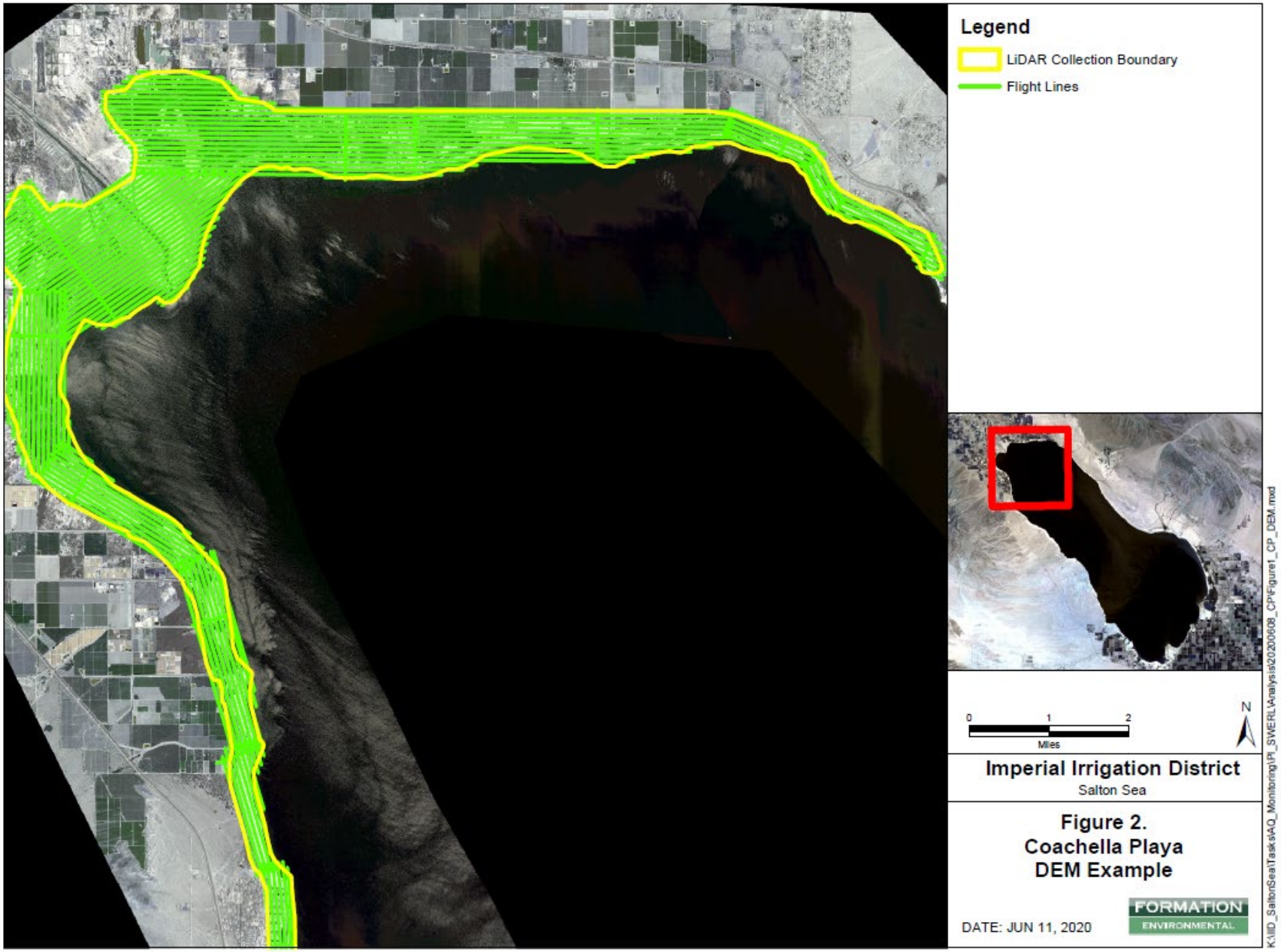
4.2 HIGH-RESOLUTION VEGETATION COVER

Pleiades high-resolution satellite imagery is routinely collected and analyzed to quantify vegetation cover for the entire Salton Sea Playa (Figure 1).

4.3 LIDAR-BASED DEM

A Digital Elevation Model (DEM) is also being generated from a recent aerial LiDAR (Light Detection and Ranging) imagery collection event in May 2020 that encompasses all the exposed playa between the 2002 baseline shoreline and the current shoreline. Figure 2 shows LiDAR collection boundaries and flight lines. In addition, currently there is a 0.25-m resolution high-quality Unmanned Aerial System (UAS) DEM collected for performance monitoring application, which is confined to the Coachella Playa surface roughening pilot study.

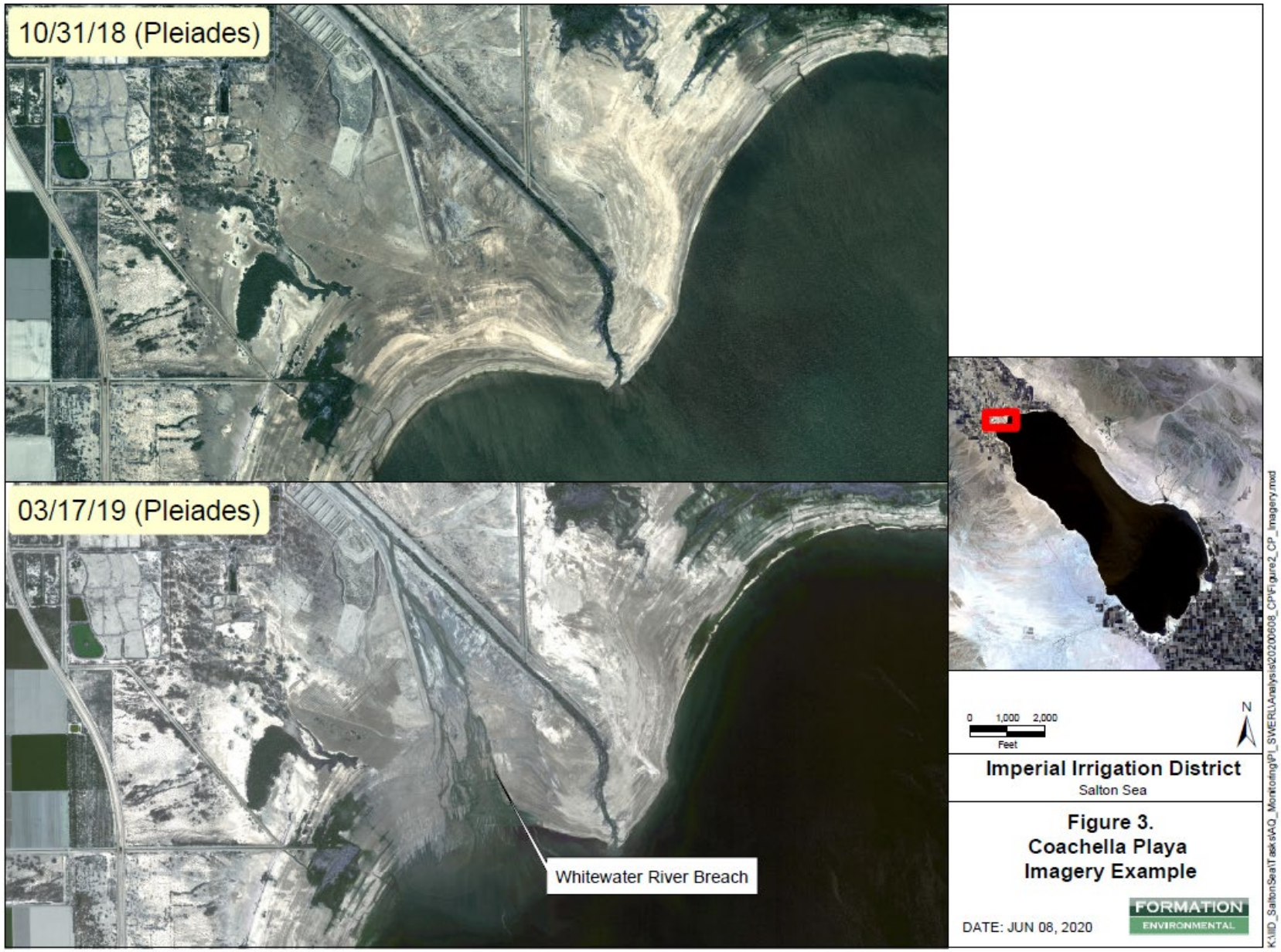
FIGURE 2. COACHELLA PLAYA DEM EXAMPLE



4.4 PLEIADES, SENTINEL-2, AND LANDSAT SATELLITE IMAGERY

Pleiades satellite imagery is acquired approximately two to three times per year for the playa domain. The Pleiades high-resolution multi-spectral imagery is operated by and purchased from AirBus. Formation converts the raw digital number imagery to a top-of-atmosphere reflectance product, assembles the imagery strips, and performs geometric corrections that account for both the interior and exterior orientation distortions, resulting in an orthorectified reflectance product. Manned and unmanned aerial vehicle acquisitions of high-resolution imagery are collected on a less frequent basis to support performance monitoring of dust control pilot studies. Imagery from public resources, such as Sentinel-2 (ESA) and Landsat (NASA/USGS) satellites are implemented alongside these products. These high-resolution images serve as the basis for many practical and remote-sensing applications. For example, Pleiades satellite images in October 2018 and March 2019 captured a breach of the Whitewater River that significantly altered the drainage and topography of the playa (Figure 3).

FIGURE 3. COACHELLA PLAYA IMAGERY EXAMPLE



4.5 MAP OF SURFACE CRUST TYPE

Surface crust type plays an important role in emissions estimates. Pleiades satellite images with numerous ground-truthing datasets were used to create a statistical model for generating a map of surface crust type for the whole playa two times per year. An example of the data can be found on the SS AQMP data portal.

4.6 MAP OF PRESENCE OR ABSENCE OF SURFACE LOOSE SAND

The abundance of surface sand also plays a critical role in emissions estimates through its effect on initiation of saltation. Pleiades satellite images with numerous ground-truthing datasets were used to create a statistical model for assessing the amount of loose sand cover on the playa two times per year. An example of the data can be found on the SS AQMP data portal.

4.7 SOIL MOISTURE MAPS

Soil moisture is currently being predicted using remote-sensing techniques to map wet and dry soil surfaces. These maps are based on (cloud-free) Sentinel (5-day frequency) and Landsat (8-day frequency) satellite imagery. The data have been used to inform dust emission estimates as well as to support dust control planning efforts.

5 WRF MODELING RESULTS

The Weather Research and Forecasting (WRF) model was used to simulate the hourly 10-meter wind speed values at a 600-meter grid for the study domain. The WRF model is a state-of-the-art, nonhydrostatic, mesoscale, atmospheric simulation modeling system. The model incorporates multiple geographic datasets (e.g., topography, land use, soil) and boundary conditions and uses different land surface and atmospheric physics to simulate weather fields. In addition, the model simulations were nudged using actual atmospheric conditions (i.e., weather data from multiple stations within the study domain) to better simulate meteorological conditions. Results of WRF output were compared with measurements, and bias corrections were made where applicable. The result of WRF output covering the whole region is available at hourly timesteps since July 1, 2016, and can be provided upon request. The data are not included in the SS AQMP data portal due to the size.

6 PM_{10} EMISSIONS ESTIMATES

PM_{10} emissions were estimated using all available data and wind field modeling outputs and following recent scientific advances. These estimates are available for the whole playa at 30-meter resolution at an hourly timestep for the last three years. For the Coachella Playa region, the PM_{10} emissions are low compared to the Western and Southern portions of the Salton Sea (<1% of the total emissions). This is due to 1) less emissive surface types with significant vegetated acreage, and 2) significantly lower wind speeds than in other parts of the playa. Figure 4 shows the three-year average annual PM_{10} emissions for the region. Figure 5 shows the five-year return wind speed values at the six shoreline deployment stations. As shown in this figure, the five-year return wind speed values at the northern portion of the playa are about 11.6 m/s, which is significantly lower than the 5-year return period in the Southern, Western, and Eastern parts of the Salton Sea playa. The lower wind speed regime on the Northern portion of the Salton Sea shore is confirmed by several other data analyses, including hourly spatial wind modeling with WRF

(Figure 6). As shown in Figure 6, for the Northern part of the playa, wind speed is typically much less intense than other parts. Additional analysis was also performed using only station wind speed values for the different combination of surface types (Figure 7). As shown in Figure 7, regardless of the surface characteristics (i.e., emissivity), the wind speed observed on the Northern portion of the Salton Sea playa is the dominant factor resulting in fewer emissions regardless of the emission potential observed by different surface types.

7 REFERENCES

IID documentation listed below may be downloaded here:
https://www.saltonseaprogram.com/aqm/team-documents.php

IID. 2016. Salton Sea Air Quality Mitigation Program. Prepared by the Salton Sea Air Quality Team. July.

IID. 2018. Annual Report and Emissions Estimates for 2016/2017, Salton Sea Emissions Monitoring Program. Prepared for Imperial Irrigation District by Formation Environmental as part of the Salton Sea Air Quality Mitigation Program. May.

IID. 2019. Annual Report and Emissions Estimates for 2017/2018, Salton Sea Emissions Monitoring Program. Prepared for Imperial Irrigation District by Formation Environmental as part of the Salton Sea Air Quality Mitigation Program. May.

IID. 2020a. Annual Report and Emissions Estimates for 2018/2019, Salton Sea Emissions Monitoring Program. Prepared for Imperial Irrigation District by Formation Environmental as part of the Salton Sea Air Quality Mitigation Program. January.

IID. 2020b. Proactive Dust Control Plan: 2019/2020 Annual Plan. Prepared for Imperial Irrigation District by Formation Environmental as part of the Salton Sea Air Quality Mitigation Program. April.

FIGURE 4. THREE YEARS OF AVERAGE ANNUAL EMISSIONS ESTIMATES

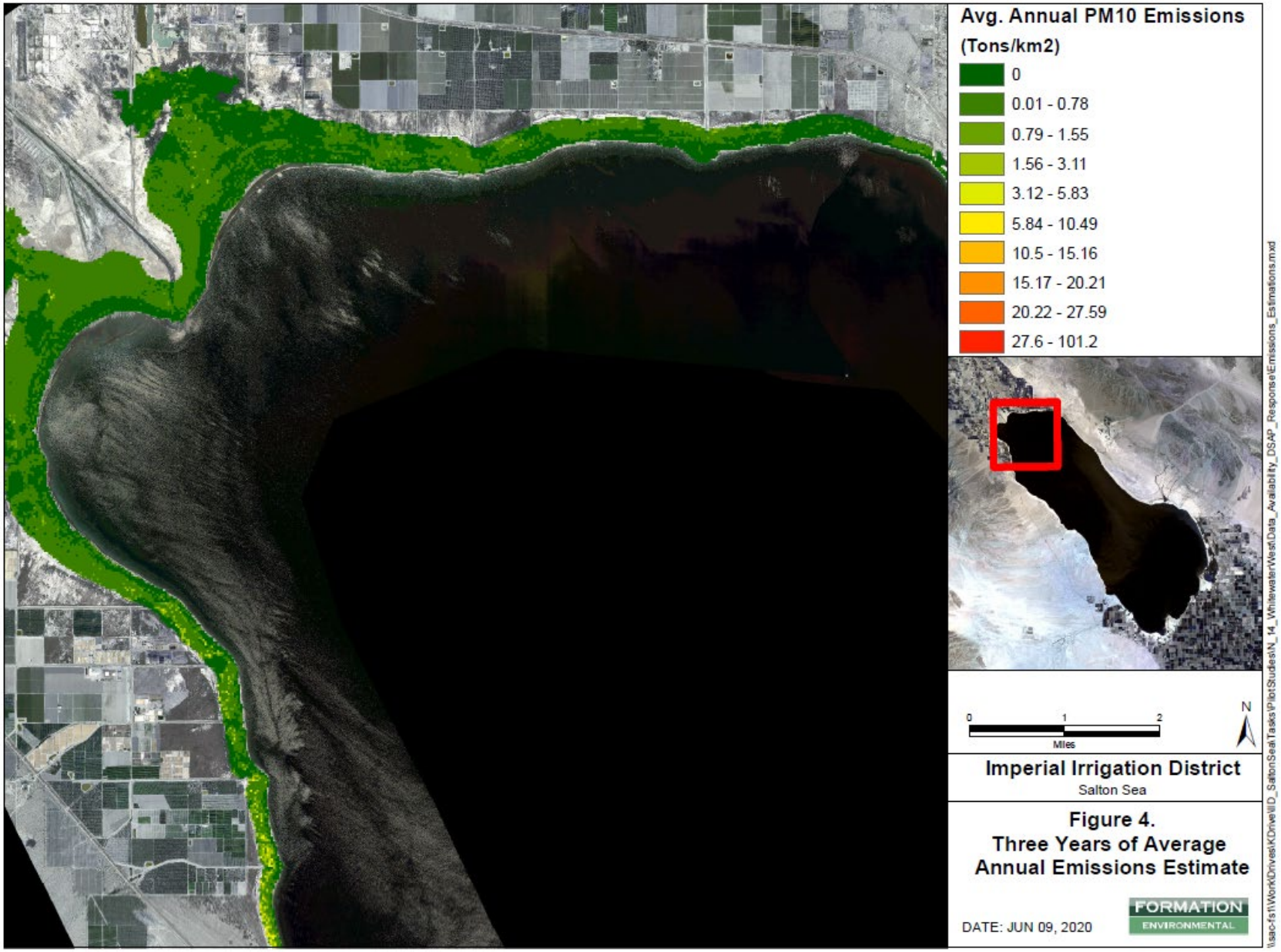


FIGURE 5. FIVE-YEAR RETURN WIND SPEED VALUES AT THE SIX SHORELINE DEPLOYMENT STATIONS

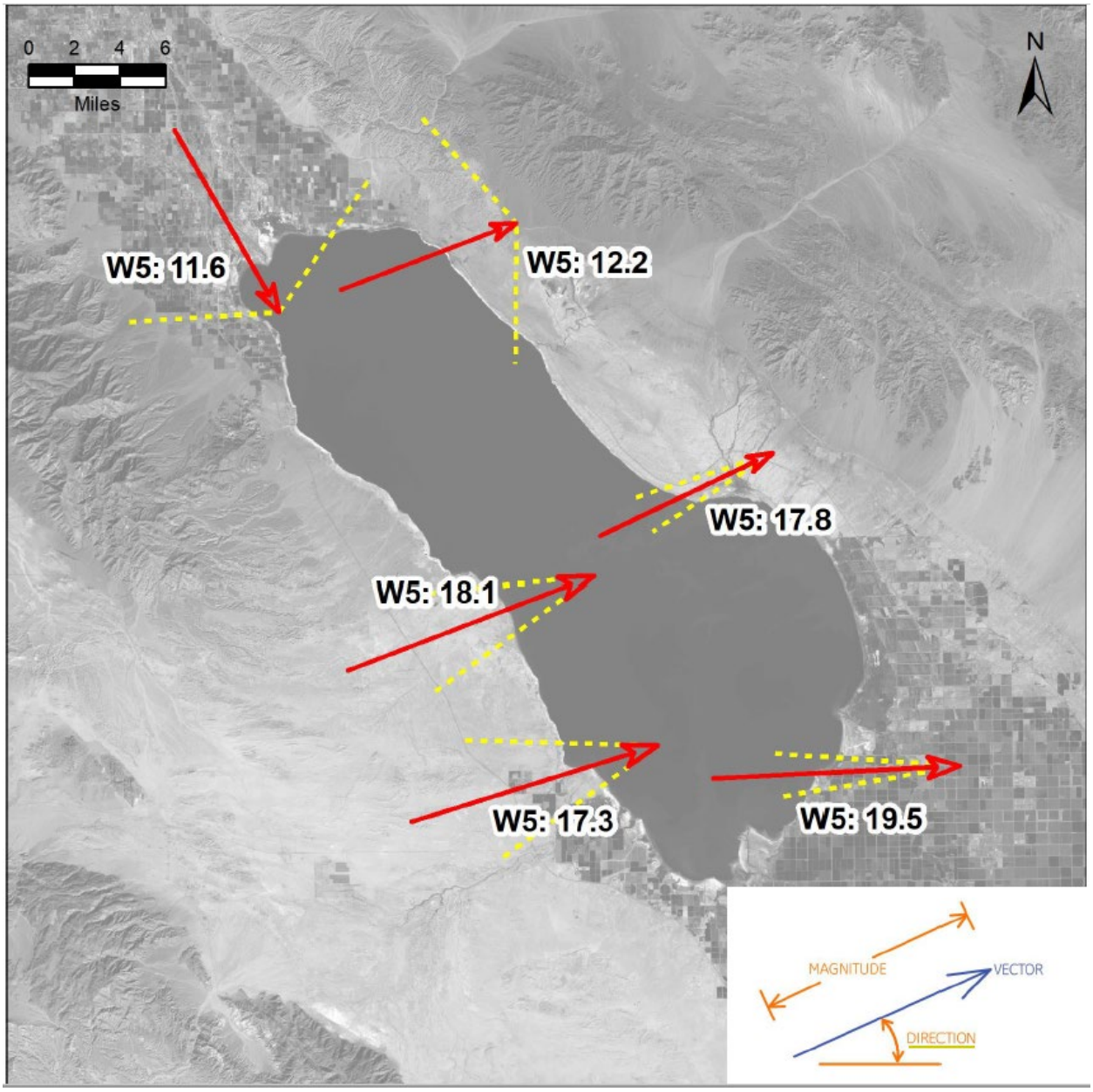


FIGURE 6. FREQUENCY OF WRF-SIMULATED WIND SPEED AT OR ABOVE 8 M/S

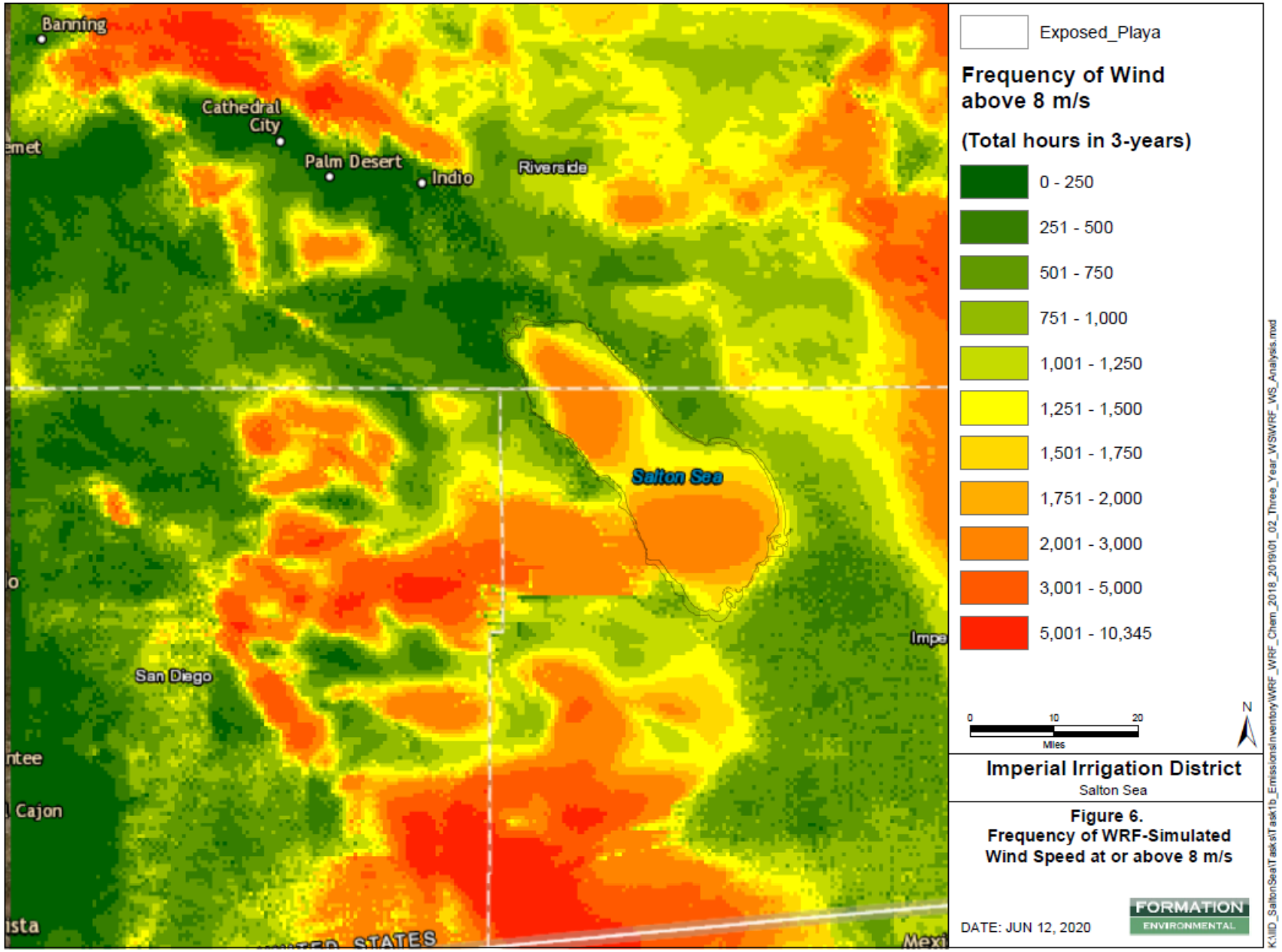
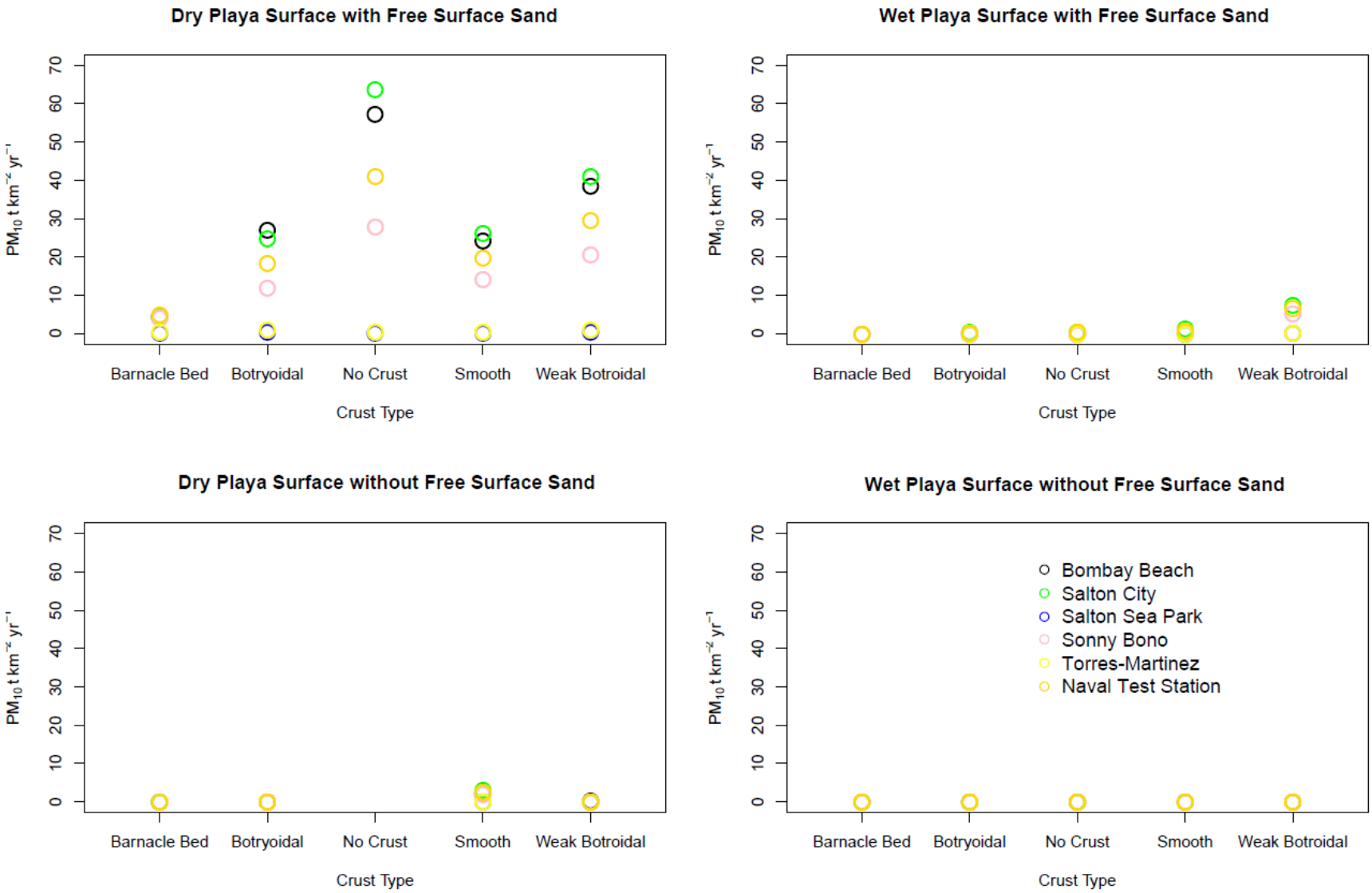


FIGURE 7. ESTIMATED PLAYA EMISSIONS FROM DIFFERENT SURFACE TYPES USING WIND CONDITIONS FROM METEOROLOGICAL STATIONS AROUND THE SALTON SEA



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AIR POLLUTION CONTROL DISTRICT

July 23, 2020

Mr. Arturo Delgado
Assistant Secretary for Salton Sea Policy
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Via email: Arturo.Delgado@resources.ca.gov

Subject: Imperial County Air Pollution Control District's Comments on the 2nd Administrative Draft of the SSMP Dust Suppression Action Plan

Dear Mr. Delgado:

The Imperial County Air Pollution Control District (ICAPCD) appreciates the opportunity to review and comment on the second administrative draft of the *Salton Sea Management Program: Dust Suppression Action Plan* dated July 2, 2020 (DSAP). The ICAPCD previously commented on the first draft of the DSAP in a letter dated March 27, 2020, as well as the first administrative draft of the DSAP in a letter dated June 12, 2020. Both previous comment letters are attached by reference. While the ICAPCD appreciates that some of the comments in the June 12th letter have been addressed by revisions shown in the second administrative draft DSAP, many others have been ignored, put off only to be dealt with later, or otherwise inadequately addressed. Some of these ongoing issues are discussed in more detail in this letter.

In line with our collaborative discussions regarding the DSAP in recent months, the ICAPCD looks forward to having frequent, ongoing meetings about the *State Team's* plans, project proposals, and development of mitigation, monitoring, and maintenance plan and implementation activities that meet the ICAPCD rule requirements. Specifically, the major issues raised in the previous two letters are still pertinent, to the extent that the DSAP either does not address them or makes no substantive commitments related to them. In light of the authority citation by the DSAP, the *Salton Sea Restoration Act*, it is incumbent on the ICAPCD to affirm two important legislative requirements.[1] First, the Fish and Game Code section 2940(f)(3) provides the express intent of the Legislature that restoration projects "[m]itigate air quality impacts … using the best available technology or best available control measures [BACM], as determined by the South Coast Air Quality Management District and the Imperial County Air Pollution Control District."[2] This distinction is important because the Salton Sea Restoration Act affirms the authority of the local air district as granted by the HEALTH & SAFETY Code. Second, as described in previous comment letters, "[t]he California State Legislation has declared that local and regional authorities, such as ICAPCD, '…have the primary responsibility for control of air pollution from all sources, other than emissions from motor vehicles.' (Health & Saf. Code, § 40000.)". The ICAPCD looks forward to working further with the *State Team* and expects that they will fulfill the commitments made in the DSAP to further the scientific basis of the projects they are proposing and ensure they comply to the fullest with the ICAPCD's rules and regulations.

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[1] Cal. Fish and Game Code §2930 (Cal. Leg. Information, 2017)
[2] Cal. Fish and Game Code §2940 (Cal. Leg. Information, 2017)

Chapter 1. Introduction:

While we appreciate that the *State Team* removed the last sentence on page 2 of the previous draft DSAP, which stated that the DSAP is "not binding", similar language was added to page 4 of the latest draft, which again refers to the DSAP as "not binding". The ICAPCD again requests that this language be removed. While the DSAP is not a regulatory document, provisions related to addressing the ICAPCD rules and other regulatory requirements should be binding, even if the document is "living" and subject to change.

Although the process of saltation may be the most common form of sand transport, saltation in and of itself is not the single element causing the suspension and ultimately the transport of dust emissions. For reasons that are apparent when analyzing wind driven emissions, other factors play significant roles in the suspension and transport of dust emissions, such as particle size and wind velocity at the surface. It is concerning to the ICAPCD that the DSAP continues to characterize dust suppression methods as relying on increasing surface roughness without properly defining the term "surface roughness" as it applies to the mitigation proposal for the conceptual projects. For example, surface roughness studies, where surface roughness are defined as vegetative forms, the determination of the effects on dust emissions created sufficient model uncertainty as to compel the authors to caution modelers, when not applying the proper stress factors associated with surface shear.[3] Thus, an appropriate description of the reliance of dust suppression methods is that they rely on the reduction of emissions by applying methods that create a stabilized surface (eliminating the uncertainty) and reduce emissions below a known and accepted opacity. This is important when consideration is given to the prioritization of methods as they apply to Phase A and Phase B projects.

Chapter 2. Dust Suppression Methods:

A fair amount of detail has been added regarding the potential dust control measures (DCMs), their effectiveness, and examples of their use in other regions. However, our previous comment asking to see a prioritization of the methods and discussion of contingency measures has not been addressed. An effective dust control program should identify the priority of potential methods by the emission reduction potential and anticipated use. On page 15, the *State Team* added that,

> "No one method is considered to be universally superior or applicable at all locations; the design approach will be to select the most cost effective and environmentally sustainable long-term mix of approaches that can meet the air quality compliance requirements at each location. This will be accomplished in future implementation phases of the DSAP."

At this time however, the ICAPCD is not confident in how the *State Team* can or will do this, given the lack of detail provided in the DSAP. The ICAPCD is again requesting a prioritization of potential implementation by order of potential emission reductions and viability as a contingency measure.

---

[3] Webb, N. P., G. S. Okin, and S. Brown, (2014), *The effect of roughness elements on wind erosion: The importance of surface shear stress distribution*, J. Geophys. Res. Atmos., 119, 6066–6084, doi:10.1002/2014JD021491, file:///C:/Users/monicasoucier/Downloads/2014JD021491.pdf
https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2014JD021491

In general, there is not sufficient detail as to what the *State Team's* process will be for determining which DCMs will be used at specific sites, and how the various agencies, like the ICAPCD, will be involved in that process. Contrary to the statement made within the DSAP, implying that "...adequate information..." is not available is an insufficient reason not to prioritize proposed mitigations. Many air districts and the US EPA have accepted default reductions with the application of accepted BACM. Thus, this level of detail is crucial to have any hope of complying with the ICAPCD's regulations.

Chapter 3. Project Implementation: Compliance Needs, Approach, and Current Status

The ICAPCD previously requested more detail on how the *State Team* plans to obtain access from the various landowners around the Salton Sea in order to implement dust control projects. While this comment was acknowledged in the edits on pages 33-34, very little detail is provided. It is not enough detail to increase the ICAPCD's confidence in the *State Team's* ability to meet the 2022 goal date.

The ICAPCD previously requested that Section 3.2.8 be amended to mention that inactive, disturbed surfaces are subject to opacity limits under the ICAPCD's Rules 801 and 804, and not just mechanical soil disturbance activities, as the DSAP describes. This comment was not addressed. Inactive, disturbed surfaces are subject not only to the opacity limits of the ICAPCD's Rules 801 and 804, but also Rule 401. This should be reflected in the DSAP.

Regarding the section added on page 40 stating that,

> "The DSAP proposes some dust control measures that are not BACM under ICAPCD rules. The State Team will consult with ICAPCD to determine the appropriate path forward for ICAPCD's consideration of projects that propose to use such measures."

This must be rephrased to say that the *State Team* will consult with the ICAPCD on what needs to be done to bring those measures up to BACM standards. This edit would address the related comment from the previous June 12th letter and would meet the compliance requirement under the Salton Sea Restoration Act cited above.

The ICAPCD disagrees with the *State Team's* interpretation of Rule 925, as described on page 40. This section has not been amended to address the ICAPCD's previous comment. The ICAPCD continues to disagree with this interpretation of the Rule and its applicability to the actions in the DSAP. The ICAPCD requests that this paragraph be revised or removed from the document.

Chapter 4. Site-Specific Action Plans

Some of the project dust suppression timelines presented in this section indicate that certain project phases will be completed by July 2020. For example, Figure 8 indicates that Planning and Design, Environmental Compliance, and Contracting and Site Access are scheduled to be completed this month at the SCH area. Please identify at which points agency coordination will occur. Is this during the Environmental Compliance phase? It is the ICAPCD's understanding of the DSAP that the *State Team* intends to, and is committing to, coordinate with the ICAPCD on those elements. Therefore, it would be inappropriate to show those phases are complete or near complete. The ICAPCD suggests including a generic schedule "for example purposes" without specific dates, and building in the necessary time for the coordination process with the appropriate agencies. This could be accomplished by adding a phase for "Interagency Coordination" occurring throughout the timeline.

The data referenced in Figure 7 from the Imperial Irrigation District's (IID's) Salton Sea Air Quality Mitigation Program is updated annually and since the DSAP is a living document, this data and figure should be updated in subsequent versions with the most recent emissions estimates.

Chapter 5. Site Characterization and Performance Monitoring

In Section 5.1.2, additional regional air quality monitoring is discussed in a newly added paragraph. As stated in the June 12th comment letter, this section does not describe how or if this monitoring will be used to support the State's DCM design efforts. The ICAPCD strongly believes this paragraph should be removed.

Previously, the ICAPCD requested additional details on the *State Team's* plans for air quality modeling for project evaluation and monitoring, as was described in Section 5.2 of the first administrative draft of the DSAP. In the second administrative draft, this section has been removed. The ICAPCD would like to reiterate the importance of modeling of project emissions before and during mitigation and again requests that the *State Team* provide details for how they will address this.

As expressed above, there is concern by the ICAPCD concerning the lack of appropriate modeling for the effects of dust emissions resulting from any type of surface roughening. Because surface roughening is not a BACM the performance monitoring upwind and downwind is a good beginning but is simply that a beginning. Determining the appropriate BACM or pilot BACM that results in full BACM requires modeling. The appropriate modeling will provide the confidence that the site characterization has been properly determined and that the performance monitoring has been properly deployed.

In closing, the ICAPCD *continues* to be disappointed by the plan put forward by the *State Team* for control of dust emissions at the Salton Sea, as it does not demonstrate the necessary steps to comply with the applicable air quality regulations. Despite numerous comment cycles and the availability of the Imperial Irrigation District's Salton Sea Air Quality Mitigation Program, which shows the level of scientific rigor and collaborative efforts that the ICAPCD is seeking, the *State Team* continues to fall short of fully addressing the ICAPCD's comments. This lack of responsiveness and collaboration has the potential to delay the much needed and important work that is necessary to avoid serious detriment to human health and the environment in our local Environmental Justice communities. Beyond regulatory compliance, Environmental Justice for these communities is important to the ICAPCD and this current DSAP does not include the detailed steps and processes needed to address either regulatory or Environmental Justice concerns. The ICAPCD hopes that the *State Team* will take these comments to heart and finally issue a DSAP that *clearly* demonstrates that the State will be implementing effective control measures that abide by the rules and regulations adopted by the ICAPCD. Should you have any questions regarding this letter, please contact Monica Soucier or Katie Burnworth of my staff at (442) 265-1800.

Sincerely,

Matt Dessert
Air Pollution Control Officer

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Enclosures (2)