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The mission of the Sierra Club is to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. The Sierra Club regularly reviews and comments on large scale projects that affect the environment.

The Sierra Club is interested in the effects of aircraft in terms of air quality, greenhouse gases, fuel use, noise impacts and environmental justice. After a review of the Draft Environmental Assessment and project documents for the SoCal Optimization of Airspace Procedures in the Metroplex (OAPM) project, the Sierra Club Angeles Chapter has the following comments on the project.

I. AIR QUALITY, GREENHOUSE GAS (GHG) AND FUEL USE

Greenhouse Gas (GHG) emissions from aircraft are currently responsible for more than 3 percent of total US emissions,¹ and jet fuel is 9% of finished petroleum products consumed in the U.S.² The Sierra Club applauds efforts to reduce GHG impacts by increasing aircraft fuel efficiency, changing the mix of fuels, and increased flight track efficiency.

1.) The EA declares that "... the Proposed Action would result in a slight increase in emissions when compared to the No Action alternative."³ This does not demonstrate a reduction in emissions that was promised at the outset. As such, increases and reductions should be quantified and stated specifically instead of using the ambiguous description of "slight." A breakdown of quantity of volume of specific emissions will be helpful here. What Specific emissions have increased and by how much?

2.) 3,000 feet is inaccurately stated as the "mixing height" of the study area⁴. Mixing height is a variable which differs according to the region, time of day and time of year. Southern California has 2 distinct temperature inversion layers that control the vertical depth of pollutant mixing. The height of the base of the

1 U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2012 (April 2014) at ES-2, Tables 2-15, 3-12, 3-50, 3-52, available at <http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html#fullreport> .

2 U.S. Energy Information Administration for 2014, from http://www.eia.gov/dnav/pet/pet_sum_snd_d_nus_mbbldpd_a_cur.htm .

3 SoCal Metroplex Draft EA. Chapter 5 – Environmental Consequences. Section 5.8.1 Summary of Impacts

4 SoCal Metroplex Draft EA. Chapter 4 – EA. Section 4.3.8 Air Quality

marine/subsidence inversion and the radiation inversion layers is the “mixing height.” The inversion base height changes as a result of seasonal influences and daily heating and cooling effects. Aircraft fly at different altitudes throughout the day. The impact of each aircraft will be unique depending on the altitude, the time of day, season and the region. Throughout the Study area mixing heights will vary markedly and a single mean value will not represent effects.

Has the FAA consulted with atmospheric scientists, analysts or meteorologists with the South Coast Air Quality Management District, National Oceanic and Atmospheric Administration, University of California at San Diego or Irvine, Jet Propulsion Laboratory or other organizations to evaluate the appropriateness of using the tools used to model, and help customize them appropriately, for the unique and diverse characteristics of the Southern California airspace?

3.) The EA declares that “changes to flight paths under the Proposed Action ... are presumed to conform with the applicable state implementation plans (SIPs).”

- a) This presumption requires justification.
- b) The argument that emissions are below the EPA *de minimus* threshold is likewise unsupported and needs proof.
- c) The claim that changes in air traffic procedures which increase operational efficiency between 1500 feet AGL and the mixing height is exempt is likewise unsupported: The EA fails to demonstrate any operational efficiencies that are occurring within this mixing height.⁵
- d) The methodology lacks science and demonstration. Rather than numbers the analysis uses words like “typically”, “normally not required”, and “presumed” (which is used 3 times.)
- e) The EA fails to demonstrate how this conforms to a California SIP.

4.) Fuel Use will increase as a result of the Proposed Action vs. No Action by 8 Metric Tons in 2015, and 9 Metric tons in 2020⁶. This 0.33% increase in fuel use does not appear to demonstrate the reduction of fuel savings as promised as rationale for the project.

Altitudes have been lowered, approach and departure procedures have been shortened, and more direct paths have been created. Can you explain why the reduction of fuel use was not met? What is the fuel use difference for each procedure change?

If the efficiency of the procedure hasn't been increased, as demonstrated by this higher fuel use, what benefit does it serve to enforce procedures that increase ground noise, such as lowering flight altitudes and shortening approaches and departures?

5.) The EA used the Noise Integrated Routing System (NIRS) model v7.0b⁷ to perform Noise Modeling and to estimate fuel burn and GHG emissions. The NIRS model is used to evaluate flight track changes above 3000 feet and is unable to provide meaningful information below 3000 feet. The AEDT superseded NIRS in March 2012. There appears to be an issue in that the outdated NIRS was used while AEDT was available. The EA should have an updated analysis using AEDT – the FAA recommended and approved tool.

6.) The calculation of CO₂ appears inconsistent. Section 4.3.7 declares “IFR aircraft arriving at and departing from the Study Airports burn approximately 289,341 gallons of fuel on an annual average day”. It is not clear if this is fuel use of the Proposed Action, No Action or something else. It is also unclear where the boundaries of fuel use are calculated. According to the EPA the CO₂ conversion factor of jet fuel is 9.75 kg CO₂/gallon. This equals 1,029,700 MT CO₂/year. This is different than the 7882 & 7909 MT of CO₂ respectively listed in Section 5.9.3 for the No Action and Proposed Alternatives. The fuel burn, CO₂ and other emission calculations needs to be calculated openly, have a defined boundary of applicability, and use federally accepted formulas.

5 SoCal Metroplex Draft EA. Chapter 5 – Environmental Consequences. Section 5.8.2 Methodology

6 SoCal Metroplex Draft EA. Chapter 5 – Environmental Consequences. Section 5.7.3 Potential Impacts – 2015 and 2020

7 SoCal Metroplex Draft EA. Chapter 4 – EA. Section 4.3.1.1 Noise Modeling Methodology

7.) The EA States that “Changes to flight paths under the Proposed Action would primarily occur at or above 3,000 feet AGL.” This suggests that there are changes below 3000 feet. These changes should be described in order to determine via a quantitative analysis what further impacts to air quality may result.

8.) The EA is missing a Hazardous Air Pollutant (HAP) emissions inventory and fails to correlate the potential health impacts of the Proposed Action. An inventory and discussion should include organic gases created by aircraft emissions as well as particulate matter (PM₁₀ & PM_{2.5}) due to their potential impacts on human health.

9.) A discussion should be included about how GHG emissions from Aircraft engines and the Proposed Action may affect air pollution and regional/Global Climate Change.

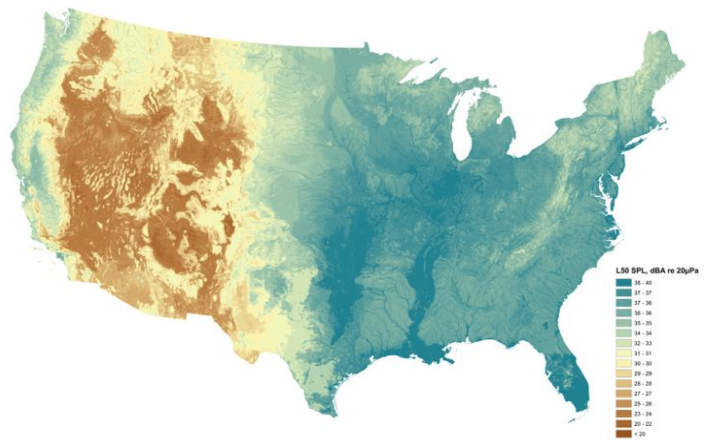
II. NOISE

1.) FAA Order 1050.1E requires special consideration be given to noise sensitive environmental and cultural resources. It further holds the DNL 65 dB threshold inadequate and Part 150 guidelines insufficient when evaluating aircraft noise impacts on noise sensitive areas within national parks, national wildlife refuges and historic sites, including traditional cultural properties.

The Sierra Club Angeles Chapter believes the order applies to state, county and municipal parks, environmental and cultural resources as they satisfy the requirement of “noise is very low and a quiet setting is a generally recognized purpose and attribute.” This view is reinforced by the FAA actions in already including such sites and resources in the study⁸. In the summary dismissal of no impacts, the FAA has demonstrated it hasn't taken the required “hard look” at the problem and reviewed the impacts on these sites and resources.

2.) The FAA needs to be considering the effect that an incremental increase in aircraft noise has on the cumulative impact of aircraft noise⁹ “when added to other past, present, and reasonably foreseeable future actions regardless of what agency ... or person undertakes such other actions.”

3.) The DNL 45 dB threshold was put forth 10 years ago in the Environmental Impact Statement (EIS) for the Expanded East Coast Plan (EECP). This level was recommended on the rationale that “even distant ambient noise sources and natural sounds such as wind in trees can easily exceed this [DNL 45 dB] value.”¹⁰ This ignores the summary by a 2015 National Park survey¹¹ of ambient noise levels that areas within the Southwest and the Study Area are up to 15 dB quieter in Natural Conditions than the rest of the United States.¹² DNL 45 is unsuitable as a basis of quiet. A baseline the FAA should use as “quiet”, and the basis of measurements, is the per site existing ambient noise level.



Use of existing natural ambient noise levels allows comparing the project to an environmental baseline of natural

8 EA Noise Technical Report, Appendix 2- Section 4(f) Resources and Historic and Cultural Resources

9 Title 40 C.F.R. § 1508.7- Cumulative Impact., Grand Canyon Trust v. FAA (2002)

10 U.S. Department of Transportation, Federal Aviation Administration, Expanded East Coast Plan – Changes in Aircraft Flight Patterns Over the State of New Jersey, Pp. 5-9. 1995.

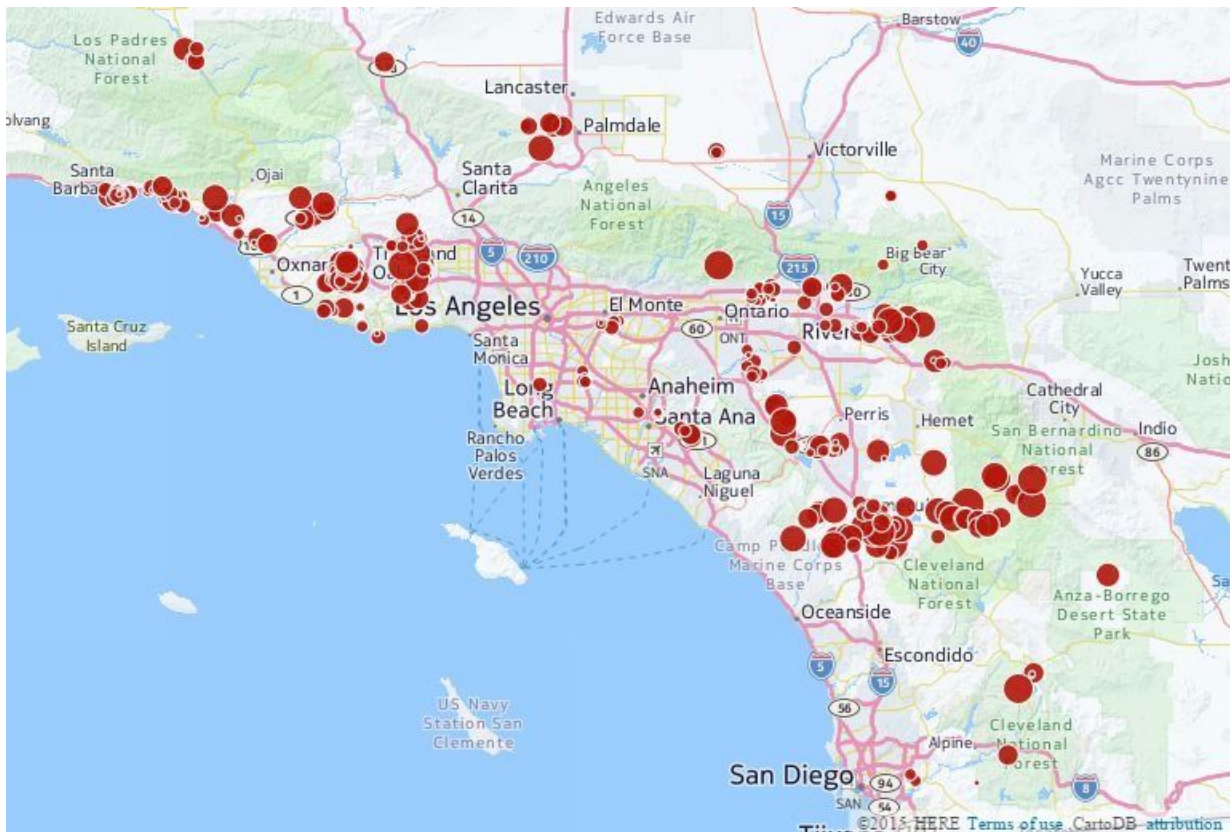
11 National Park Service, Geospatial sound modeling. 2013-2015. Project-2217356
<http://www.nature.nps.gov/sound/soundmap.cfm>

12 A-weighted hourly L50 sound pressure level dB re 20 uPa on a typical summer day at 270m resolution.

quiet. Since some of these sites already have extremely low natural ambient noise levels of 25 dB¹³ a “significant” cumulative threshold may have been reached.

The baseline of what measurement is a “quiet setting” must be defined. The existing DNL 60-65 dB and DNL 45 to 60 dB exposure level brackets don’t represent “quiet” and are orders of magnitude above ambient levels.

4.) Out of the 3875 sensitive sites within the SoCal Metroplex that have increases between 1.5 – 5 dB DNL¹⁴, the Sierra Club has identified 400 sites that require extra consideration in terms of a “hard look” both as a special consideration and cumulative impacts. The list is added to this Document as Appendix A and includes 193 parks, 30 open spaces, 11 beaches, 8 ecological or wildlife preserves, 7 conservation areas and numerous other canyons, arroyos, creeks and mountain areas. The list is not exhaustive, it is meant as a sampling of areas.



Map of identified sensitive sites that need evaluation for special consideration and cumulative impacts.

5.) The FAA recognizes CNEL (Community Noise Equivalent Level) as an alternative metric for California (FAA Order 1050.1F). Caltrans Division of Aeronautics specifies the use of CNEL for aviation noise impacts. In addition local communities use CNEL in noise ordinances. Use of DNL instead of CNEL is inconsistent with local and state regulations and practice. Regardless of whether the SoCal OAPM project team believes it needs to use CNEL. A CNEL analysis should be performed in addition to, or to substitute, a DNL analysis in order to make impacts more understandable to the public.

6.) The use of the best available technology and known noise assessment techniques will help the FAA engage

13 NPS Geospatial sound modeling. 2013-2015. Project-2217356

14 Appendix A of the SoCal Metroplex Noise Technical Report, Section 4(f) of the Department of Transportation Act of 1966.

with communities by making the impacts more understandable to the general public.

FAA Order 1050 allows supplementing the DNL “to describe aircraft noise impacts for specific noise-sensitive locations or situations and to assist in the public’s understanding of the noise impact.”¹⁵

The ACRP released a FAA sponsored handbook for airports on dealing with a variety of community issues including noise.¹⁶ On Page 114 under “Noise Metrics and Community Response” the report states:

“Cumulative aircraft noise contours often are challenged by airport neighbors as not representing what can be heard and measured every time an aircraft flies over their home. Long duration measurements and computer technology may show the contour patterns are correct for the community, but they fail to capture the discrete nature of the single events that people actually find and complain about.”

An alternate noise level or metric that would adequately address the noise effects needs to be used.¹⁷ For example the St George EIS used L_{eq} , Number of operations above 35dB and Time above Ambient as supplemental metrics.¹⁸

III. ENVIRONMENTAL IMPACTS

1.) The FAA has only considered the bird and bat strikes which occur at 3,000 feet or below as an environmental impact. There are no studies on the impact of chemical drop outs, gaseous emission or Particulate Matter that may be dispersed over sensitive areas. Chemical residuals on the fragile Orcutt's spineflower (highly endangered) could be fatal. On other plants (since toyon and lemonade berries will be coated with chemicals) the impact will be very big on birds both migratory and local who rely on a healthy food source.

2.) According to the FAA this is the largest overhaul of flight tracks in the history of Southern California. In many instances the flight tracks have been in place for decades or longer with very little movement. Species have been given time to adapt and survive in the environment. A sudden change or moving of a flight path over or away from its current position could have a deleterious effect on the species ability to survive under both the old and new positions. Some species of birds and other wildlife may have impaired abilities to communicate due to noise level changes. The FAA needs to take a “hard look” at potential impacts to endangered, threatened and sensitive wildlife species found at all of the 213 ecological or wilderness reserves, wildlife refuges, sanctuary's, preserves and study areas affected in the Metroplex. A list of these Sensitive Natural Sites is included below. In addition:

1. Has the FAA consulted with biologists at other federal agencies such as U.S. Fish and Wildlife, National Park Service, Bureau of Land Management, Department Of Agriculture, U.S. Geological Survey, U.S. Coast Guard and U.S. Department of Veterans Affairs to study the impact of the Metroplex proposal on species at these sensitive natural sites?
2. Has the FAA consulted with biologists at local agencies such as the California Department of Fish and Wildlife, California Wildlife Conservation Board, and the University of California to study the impact of the Metroplex proposal on species at these sensitive natural sites?

Sensitive Natural Sites

5 Winds Ranch Open Space Preserve	Forrestal Nature Preserve	River Wilderness Park
Agua Hedionda Lagoon Ecological	French Valley Wildlife Area	Robert E. Ward Nature Preserve

15 FAA Order 1050.1E, Appendix A, Paragraphs 14.4c, 14.5a, 14.5e; and Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Issues, August 1992.

16 ACRP: Aircraft Noise: A Toolkit for Managing Community Expectations, 2007

17 FAA Order 1050.1E, Appendix A, Paragraphs 14.3, 14.4b

18 St. George Airport Environmental Impact Statement, FAA

Reserve		
Agua Tibia Wilderness	Galster Wilderness Park	Rock Mountain Preserve
Agua Tibia Wilderness Study Area	George F Canyon Nature Park and Preserve	Sage Hill Preserve
Aliso and Wood Canyons Wilderness Park	Glendora Wilderness Park	San Diego Bay National Wildlife Refuge
Arcadia Wilderness Park	Golden Hills Wilderness Park	San Diego National Wildlife Refuge
Arroyo Conejo Nature Preserve - COSCA	Goleta Slough Ecological Reserve	San Diego River Ecological Reserve
Bailey Canyon Wilderness Park	Goodhart Wildlife Habitat Preserve	San Dieguito Lagoon Ecological Reserve
Ballona Lagoon Marine Preserve	Goodhart Wildlife Habitat Preserve	San Elijo Lagoon Ecological Reserve
Ballona Wetlands Ecological Reserve	Gordon Mull Preserve	San Felipe Hills Wilderness Study Area
Barkentine Canyon Preserve	Hauser Mountain Wilderness Area	San Felipe Valley Wildlife Area
Batiquitos Lagoon Ecological Reserve	Hauser Mountain Wilderness Study Area	San Gabriel Wilderness
Beauty Mountain G Wilderness Study Area	Hauser Wilderness	San Gorgonio Pass Wildlife Corridor
Big Morongo Canyon Preserve	Heller's Bend Preserve	San Gorgonio Wilderness
Bighorn Mountain Wilderness	Hellhole Canyon County Open Space Preserve	San Jacinto Wilderness
Bighorn Mountains Wilderness	Hollenbeck Canyon Wildlife Area	San Jacinto Wildlife Area
Black Mesa Significant Ecological Area	Hope Nature Preserve	San Luis Rey River Ecological Reserve
Blaisdell Preserve	Hopkins Wilderness Park	San Mateo Canyon Wilderness
Blanche Hamilton Wildlife Sanctuary	Hopper Mountain National Wildlife Refuge	San Rafael Wilderness
Blue Sky Ecological Reserve	Iron Mountain Wildlife Area	San Ysidro Mountain Wilderness Study Area
Bluebird Preserve	Jackrabbit Flats Wildlife Sanctuary	Santa Margarita Ecological Reserve
Boden Canyon Ecological Reserve	Jacumba Wilderness	Santa Margarita Preserve
Bolsa Chica Ecological Reserve	James Scripps Bluff Preserve	Santa Margarita River Ecological Reserve
Bonsall Preserve	Joshua Tree Wilderness	Santa Rosa Plateau Ecological Reserve
Boulder Creek Ecological Reserve	Knollwood Preserve - The Environmental Trust	Santa Rosa Wilderness
Boulder Oaks Open Space Preserve	Laguna Coast Wilderness Park	Santa Rosa Wildlife Area
Briar Summit Open Space Preserve	Laguna Laurel Ecological Reserve	Sawtooth Mountains A Wilderness Study Area
Buena Vista Creek Ecological Reserve	Lake Hodges Ecological Reserve	Sawtooth Mountains Wilderness
Buena Vista Lagoon Ecological Reserve	Lake Mathews Ecological Reserve	Seal Beach National Wildlife Refuge
Carl O. Gerhardy Wildlife Sanctuary	Limestone-Whiting Wilderness Park	Seaside Wilderness Park
Carlsbad Highlands Ecological Reserve	Linden H. Chandler Preserve	Sepulveda Basin Wildlife Reserve
Carrizo Canyon Ecological Reserve	Lopez Canyon Open Space Preserve	Sespe Wilderness
Carrizo Gorge Wilderness	Los Jilgueros Preserve	Sheep Mountain Wilderness
Caspers Wilderness Park	Los Penasquitos Canyon Preserve	Sheila Agnes Nature Preserve

Chatsworth Nature Preserve and Reservoir	Lunada Canyon Preserve	Silverwood Wildlife Sanctuary
Chino Fish & Wildlife Base	Magnesia Spring Ecological Reserve	Sky Valley Ecological Reserve
Chula Vista Wildlife Reserve	Mason Wildlife Refuge	Sperling Preserve
Chumash Wilderness	Matilija Wilderness	Summerland Greenwell Preserve
Claremont Hills Wilderness Park	McCain Valley Nat'l Co-op Land & Wildlife Mgmt Area	Sycamore Canyon Ecological Reserve
Cleveland National Forest Wildlife Corridors	McCrea Wildlife Preserve	Sycamore Canyon Preserve
Coachella Valley Ecological Reserve	McGinty Mountain Ecological Reserve	Sycuan Peak Ecological Reserve
Coachella Valley National Wildlife Refuge	Meadowbrook Ecological Reserve	Talbert Nature Preserve
Coachella Valley Preserve	Mecca Hills Wilderness	Thomas F Riley Wilderness Park
Coachella Valley Preserve - WCB	Michael D Antonovich Open Space Preserve	Tijuana Slough National Wildlife Refuge
Coal Canyon Ecological Reserve	Monrovia Wilderness Preserve	Trimark Otay Tarplant Preserve
Cold Creek Canyon Preserve	Monserate Mountain Preserve	University of California Ecological Study Area
Cold Creek Valley Preserve	MSCP Open Space Preserve Land	Fallbrook Land Conservancy
Coldwater Canyon Ecological Reserve	Newport 5 Preserve	Upper Las Virgenes Open Space Preserve
Coronado Butterfly Preserve	North Etiwanda Habitat Preserve	Upper Las Virgenes Open Space Preserve / Ahmanson
Coyote Mountains Wilderness	North Peak Preserve	Upper Newport Bay Ecological Reserve
Crestridge Ecological Reserve	O'Neal Canyon Preserve	Upper Newport Bay Nature Preserve
Cucamonga Wilderness	Orocopia Mountains Wilderness	Verdugo Mountains Open Space Preserve
Culverdale Wilderness Park	Otay Mountain Ecological Reserve	Vista de la Valle - Land Preserve/Mitigation Area
Day Canyon Preserve	Otay Mountain Wilderness	Walker Canyon Ecological Reserve
Del Dios Highlands Preserve	Otay National Co-op Land & Wildlife Mgmt Area	Walnut Creek Wilderness Park
Del Mar Mesa -- Lopez Ridge Ecological Reserve	Palos Verdes Shoreline Preserve	Weir Canyon Wilderness Park
Deukmejian Wilderness Park	Park Place Open Space Preserve	West Marshall Canyon Wilderness Area
Dick Smith Wilderness	Peninsular Ranges Ecological Reserve	Western Cold Creek Preserve
Dinwiddie Preserve	Pilgrim Creek Ecological Reserve	Westridge-Canyonback Wilderness Park
Duarte Wilderness Preserve	Pine Creek Wilderness	Westridge-Canyonback Wilderness Park of LA
East Elliott Preserve	Pipes Canyon Preserve	Whelan Preserve
Edom Hill-Willow Hole Preserve	Plaisted Creek Ecological Reserve	White Point Nature Preserve
Emerson Wildlife Preserve	Point Loma Ecological Reserve	Whitewater Floodplain Preserve
Engel Family Preserve	Portuguese Bend Nature Preserve	Wilderness Basin Park
Environmental Trust Preserve	Poway Creek Riparian Preserve	Wilderness Gardens Open Space Preserve
Estelle Mountain Ecological Reserve	Ramona Grasslands Preserve	Wilderness Glen Park
Ewing Oak Preserve	Rancho Jamul Ecological Reserve	Wilderness Park

Fond Wilderness Preserve	Rancho La Costa Preserve	Wilmont Preserve
	Rancho Mission Viejo Ecological Reserve	Woodridge Preserve

IV. SPECIFIC FLIGHT PATH AND WAYPOINT CHANGES

1.) The proposed SAN flight path IBEEE which replaces POGG has removed the waypoint LOWMA. Waypoint LOWMA was put in place to protect the natural resource on Point Loma(FRC) and Cabrillo National Monument(CNM) from overflights. Removal of the LOWMA waypoint will expose the bird breeding grounds to the potential of increased noise, stress, and endangerment from overflights.

Endangered (E.) and Threatened (T.) species at Point Loma, according to US Fish and Wildlife:

- Orcutt's Spineflower (*Chorizanthe orcuttiana*) E., Plant
- California Least Tern (*Sterna antiserum browni*) E., Bird
- California Gnatcatcher (*Poliophtila californica*) T., Bird

The California Gnatcatcher (*Poliophtila californica*) was reported on at least 7 different occasions at both CNM and FRC between April and September 2015, including the capture of a juvenile by USGS net survey. The California Gnatcatcher is on the Threatened species list according to US Fish and Wildlife.

Additional species considered threatened or Endangered at Cabrillo National Monument according to NPS:

- Ferruginous Hawk (*Buteo regalis*), Bird
- Swanson's Hawk (*Buteo swainsoni*), Bird
- Long-tailed Duck (*Clangula hyemalis*), Bird
- Horned Lark (*Eremophila alpestris actia*), Bird
- Baird's Sparrow (*Ammodramus bairdii*), Bird
- Cerulean Warbler (*Dendroica cerulea*), Bird
- Ashy Storm-Petrel (*Oceanodroma homochroa*), Bird
- Desert Christmas Tree (*Pholisma arenarium*), Plant
- Peak Rush Rose (*Helianthemum scoparium*), Plant
- Western Dichondra (*Dichondra occidentalis*), Plant

The Sierra Club opposes the removal of the LOWMA waypoint, and the threat it poses to the sensitive habitat on Point Loma, and we recommend its reinstatement or movement farther south.

2.) Southern California beaches are an important natural resource and provide integral benefits to Southern California. In a study by the California Climate Change Center (CEC-500-2009-033-F) the authors Pendleton, King, Mohn, Webster, Vaughn, and Adams summarize the benefits as such:

“Beaches are an important recreational resource enjoyed by residents of California and many visitors to the state. According to The National Survey of Recreation and the Environment (NSRE) in 2000, nearly fifteen million people participated in beach activities in California. This dominates all other forms of marine recreation in the state but is still an underestimate because foreign tourists were not included in the survey. Most of these beach visitors spend money at the beach. It has been estimated that out-of-state beach-oriented tourism brings annual revenues of \$61 billion to California (California Department of Boating and Waterways 2002). An additional \$4 billion is spent annually on beach recreation by California residents (Pendleton and Kildow 2006). Many local visitors are able to enjoy the beach at little or no cost, but they enjoy considerable economic benefit from their presence. This benefit, beyond what people do pay, is called the consumer surplus or non-market value of beaches and represents the willingness to pay to visit beaches, beyond what people actually do

pay. These non-market values are real and are most often realized when beaches are damaged (either through beach loss or deterioration of water quality) or removed from use (e.g., due to an oil spill). The non-market value of beaches has been evaluated numerous times in the literature and has been estimated to contribute more than \$2 billion to the economic well-being of Californians (Pendleton and Kildow 2006).

The billions of dollars spent by beachgoers contribute to a number of local economic activities. Day visitors to beaches spend money locally on food, beverages, parking, and beach-related activities and rentals (e.g., body boards, umbrellas). Such purchases partially represent a transfer of expenditures that may have been made elsewhere in the state (e.g., gas and auto), but are largely expenditures that would not have been made in the absence of the beach trip. King (1999) estimated the fiscal impact of beaches in California and reported that in 1998, California's beaches generated \$14 billion dollars in direct revenue (King 1999).

In two other studies, the average expenditures per person per day trip (\$/trip/person) were estimated for visits to California beaches at between \$23 and \$29 per day. Such numbers may appear small when compared to alternative activities, such as amusement parks, but with annual daily visits in the millions, it all adds up to a multi-billion dollar, renewable resource.”

Southern California Beaches are an important resource. It is very surprising therefore that the FAA has decided to move flight paths and waypoints that were away from the shore closer to or onto points directly overhead of beaches. Flight paths parallel to the shoreline as well as paths that carried flights over the water to turn are now closer to shore and or at lower elevations. Beach use as a quiet setting is a generally recognized purpose and attribute. A listing, which is not exhaustive, of specific flight paths that encroach upon beaches are:

LAX DARRK SID	LGB HAWCC SID	LAX CRUSHR STAR
LAX KARVR SID	LGB ZOOM SID	SAN IBEEE SID
LAX OSHNN SID	LGB TOPMM SID	SAN MMOTO SID
LAX PANDH SID	LGB FRITR SID	LAX RDEYE2 STAR

The Sierra Club Angeles Chapter does not agree that disruption of the shorelines by increasing aircraft presence, lowering flight path altitudes, or bringing flight paths closer to shore is needed or a desired outcome.

Has the FAA researched the historical basis for these paths to exist in their current places and altitudes? In some cases noise abatement procedures negotiated with communities at LAX, SNA and SAN have resulted in these specific situations. Has the FAA reviewed all airport's noise abatement and standard operating procedures prior to eliminating their negotiated effects?

Has the FAA done an analysis on the economic impact of air traffic blight on a beach's non-market value and consulted with local Municipalities, Chamber of Commerce's, beach-going citizens and tourists about the effects that an increase in the amount of aircraft noise that closer flight paths, and lowering of paths, would have on the economic and emotional benefits of Southern California Beaches?

V. ENVIRONMENTAL JUSTICE

1.) The EA fails to demonstrate proof for its claim “Therefore, no disproportionately high and adverse effects to minority¹⁹ populations or low-income populations would occur under either the Proposed Action or No Action Alternative.” According to the released Google Earth data there are census tracts which would experience a disproportionate impact that can be categorized as an adverse effect.

19 DOT defines minority as: Black or African American, Hispanic, Asian American, American Indian/Alaskan Native, and Native Hawaiian or Pacific Islander.

There is no official definition of Low-income²⁰ but in Federal use it:

- 1.) always includes the poverty population- those within 100% of the Federal Poverty Level (FPL) and,
- 2.) usually refers to either <200% FPL or <185%FPL. The data below is from the US Census Bureau and at the time of this writing was only available in the 100% and <200% FPL.

A few samplings across the Metroplex area demonstrate the disproportionate effect of noise increases on minorities and low-income populations.

Locale	Tract	Max increase in noise	Ethnic Majority	% of Majority	Population	100% poverty level	200% poverty level
Orange	759.01	4.3 dB	Non-white	51%	3920	24%	43%
Orange	759.02	4.3 dB	Hispanic	49%	7336	15%	17%
Orange	758.06	4.5 dB	Hispanic	45%	5904	8%	31%
Home Gardens	414.12	3.7 dB	Hispanic	56%	4695	8%	36%
Temecula	432.53	5.3 dB	Non-white	52%	5532	11%	18%
Temecula	432.56	5.4 dB	Non-white	63%	3401	8%	23%
Murietta	498	3.1 dB	White	52%	3510	17%	57%
San Diego	135.03	3.7 dB	White	56%	5110	7%	24%
Pine Valley	212.02	4.9 dB	White	79%	2828	12%	28%
San Bernardino	110.01	5.8 dB	White	66%	2375	19%	45%
Yucaipa	87.05	5.4 dB	White	61%	4691	9%	34%
Yucaipa	88	6.0 dB	White	59%	6342	14%	28%

Executive Order 12898²¹ directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

Using localized census tract data and other relevant information sources, the FAA is required to gather data and list any readily identifiable groups or clusters of minority or low-income persons in the study area. Small clusters or dispersed populations should not be overlooked. The FAA needs to perform a population analysis to demonstrate that the changes from the Proposed Action effect all populations equally.

2.) Has the FAA communicated directly or specifically reached out and notified communities that are being adversely impacted by the Proposed Changes? A phone call to the City authority of many of these communities indicated that they have not been contacted or told of the impacts.

3.) The draft EA focuses on the difference between The Proposed Action and No Action. Discussion on the cumulative effects of Aircraft flights should be given to help contextualize the overall impacts.

VI. CONCLUSION

The Sierra Club is deeply interested in environmental impacts and involving the public in decisions that effect the environment and people’s health.

²⁰ DOT uses the Department of Health and Human Services poverty guidelines.

²¹ Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, signed by the President on February 11, 1994

In order to determine whether it is necessary to prepare an EIS, federal agencies may prepare an Environmental Assessment (EA). An EA must "provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact." 40 C.F.R. 1508.9(a).

The term "significantly" is defined as those actions "with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment." 40 C.F.R. 1502.3.

A "Cumulative impact" is defined as: "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. 1508.27(b)(7)

According to the results of the Section 4(f) properties and resources noise study, the EA has potentially significant indirect impacts in the form of noise and or pollution where mitigation and a more detailed study may yield more information. Integration of supplemental metrics may help the public understanding of the impacts.

The Sierra Club applauds the detail in the Noise Technical Report and the additional release of supplementary data in the form of Google Maps and waypoint coordinates. These resources are allowing the public to better understand and investigate effects, in some parts, to a greater depth than is stated in EA. However, this supplemental data and information does not release the FAA from its requirement to take a "hard look" at the problem. Due to the complexity of the project, amount of missing information in the draft Environmental Assessment, the lateness of which the supplemental data arrived, proceeding to a final Environmental Assessment will not provide suitable feedback.

The Sierra Club recommends the draft be repeated with all feedback incorporated, or as the reason for having an Environmental Assessment, the project should promptly proceed to an Environmental Impact Statement (EIS).

If the FAA, or courts, decide to proceed to a final EA it is recommended the FAA should consider a 12 month post-implementation period, with 2 months interim assessments, be set aside to complete mitigation and allow all stakeholders to provide final comments about the project. Aside from the issues pointed out here, a complex project may have unintended side-effects that may need to be mitigated or otherwise addressed. Boston-Logan was given a 12-month evaluation period for the implementation, assessment and refinement of the Runway 33L RNAV project. The SoCal Metroplex project is no less complex – and a much larger scale.

Sincerely,



Darrell Clarke
Angeles Chapter Conservation co-chair and Transportation co-chair



Stephen Murray
Contributing Author and Metroplex Response Team Project Manager

APPENDIX A: Table of Sensitive sites

Sensitive Site Name	Area (Acres)	2015 No Action dB DNL	2015 Proposed Action dB DNL	2015 Change in dB DNL	Latitude	Longitude
5 Winds Ranch Open Space Preserve	333	21.8	26.8	5	34.0586	-116.9937
Abrams	107	31.7	33.7	1.9	34.1343	-118.7289
Abrams Adj	26	31.6	33.4	1.7	34.1317	-118.7399
Agua Tibia Wilderness	17514	23	25.6	2.6	33.4167	-117.0497
Agua Tibia Wilderness Study Area	606	24.2	28.5	4.3	33.4579	-117.0188
Alberhill Conservation Area	2791	40.8	44.2	3.4	33.7313	-117.4216
Alberhill Conservation Area, Expansion 1	318	40	43.5	3.5	33.6962	-117.3025
Alberhill Conservation Area, Expansion 2	110	39.1	42.2	3.1	33.6879	-117.3026
Almeria Park	8	29.8	31.7	1.9	34.1224	-117.4613
Alta Vista Open Space - COSCA	11	32.5	34.6	2.1	34.1865	-118.9594
Ambassador Park	0	31.1	32.9	1.8	34.4103	-119.6929
Anne Shirrells Park	13	35.3	37.8	2.5	34.1237	-117.3300
Arrowbear Park Ball Field	1	28.1	31.8	3.7	34.2115	-117.0784
Arroyo Conejo - South Arroyo Conejo Open Space	46	32.1	36	3.9	34.1880	-118.9056
Arroyo Conejo Nature Preserve - COSCA	250	32.7	36	3.3	34.1930	-118.9096
Arroyo Simi Equestrian Center	9	33.7	35.6	1.9	34.2633	-118.7273
Arroyo Verde Park	129	37	38.6	1.6	34.2875	-119.2262
Arroyostow Park	2	38.7	40.7	2	34.2686	-118.6820
Avenue A Park	0	23	29	6	34.0331	-117.0377
Avenue I Park	10	25.9	30	4.1	34.0093	-117.0592
Bahia Vista Park	0	28.6	32.9	4.3	33.5076	-117.1154
Bancroft County Park	-	38.7	40.8	2.1	32.7403	-116.9867
Banman (Prairie Pacific)	136	28.8	32.2	3.5	34.3433	-119.0604
Banyan Park	7	33.2	35.1	2	34.1575	-118.9509
Barranca Vista Park	5	38.2	39.7	1.5	34.2628	-119.1937
Bassett Park	10	32.7	34.5	1.8	34.0514	-117.9867
Bell Canyon Open Space	46	39.6	42.5	2.8	34.2122	-118.6559
Bell Canyon Park	103	39.4	42.4	3	34.2014	-118.6634
Best	39	29.5	32.4	2.8	34.3694	-118.9844
Blair Park	34	35.6	37.4	1.8	34.1514	-117.3175
BLMCAUS_07240215	162	37.9	40.3	2.4	33.6813	-117.0954
BLMCAUS_07240223	199	24.1	29.2	5.2	33.4629	-117.0394
BLMCAUS_07240227	143	28.4	30.8	2.3	33.5209	-117.0015

BLMCAUS_07240246	328	23.9	27.7	3.8	33.5097	-116.8893
BLMCAUS_07240253	44	24	25.7	1.7	33.4360	-116.8902
BLMCAUS_07240268	43	21.9	26.1	4.2	33.4932	-116.8077
BLMCAUS_07240294	236	23.1	25.9	2.8	33.4780	-116.7071
BLMCAUS_07240310	21	26.8	28.7	2	33.5618	-116.6151
BLMCAUS_07240325	38	23.4	26	2.6	33.4903	-116.6743
BLMCAUS_07240326	44	29.3	31.4	2	33.5862	-116.6717
BLMCAUS_07240520	55	32.9	34.6	1.7	33.0451	-116.5615
BLMCAUS_07240551	136	26.3	28.2	1.9	33.5570	-116.6240
BLMCAUS_07240555	31	30.5	32.8	2.2	33.5976	-116.6902
BLMCAUS_07240561	17	21.6	23.2	1.6	33.3899	-117.0533
BLMCAUS_07240577	41	23	25.7	2.7	33.4720	-116.7181
BLMCAUS_07240647	6	31.2	33.1	1.9	34.4067	-117.0554
BLMCAUS_07240648	3	31.2	32.8	1.6	34.4067	-117.0515
BLMCAUS_07240655	80	40.7	42.8	2.1	33.7050	-117.2277
BLMCAUS_07240686	99	40.1	43.5	3.4	33.6969	-117.2951
BLMCAUS_07240696	99	44.2	47.3	3	33.8083	-117.4546
BLMCAUS_07240698	20	44.7	49.1	4.4	33.7802	-117.4204
BLMCAUS_07240700	145	44.7	49.1	4.4	33.7707	-117.4135
BLMCAUS_07240701	19	44.8	49.2	4.4	33.7748	-117.4130
BLMCAUS_07240713	20	44.1	48.1	4	33.7839	-117.4297
BLMCAUS_07240730	18	44.9	49.3	4.4	33.7725	-117.4078
BLMCAUS_07240731	180	45.2	49.2	4	33.8110	-117.4454
BLMCAUS_07240735	0	33.1	34.6	1.6	33.0390	-116.5667
BLMCAUS_07240738	1	33	34.5	1.6	33.0421	-116.5666
BLMCAUS_07240762	199	21.1	23.4	2.3	34.8211	-119.4776
BLMCAUS_07240765	37	22	24.5	2.4	34.7875	-119.4463
BLMCAUS_07240766	20	22	24.8	2.8	34.7947	-119.4410
BLMCAUS_07240767	17	35.3	37.4	2.1	34.3643	-119.3762
BLMCAUS_07240823	40	35.8	37.8	2	34.3576	-119.3676
BLMCAUS_07240873	5	28.5	30.4	1.9	34.6049	-118.3066
BLMCAUS_07240890	84	33	35.4	2.4	34.7855	-118.7915
BLMCAUS_07240896	42	27	28.9	1.9	34.5331	-117.6509
BLMCAUS_07240897	7	27.4	29.3	1.9	34.5295	-117.6506
BLMCAUS_07240921	37	29.2	31.5	2.3	34.6040	-118.2953
BLMCAUS_07240922	78	33.7	38.9	5.3	34.6055	-118.2075
BLMCAUS_07240937	29	22.1	24.8	2.7	34.7866	-119.4384
BLMCAUS_07240938	18	21.3	25.2	3.9	34.8223	-119.4359
Bohnett Park	2	30.7	32.5	1.8	34.4172	-119.7121

Borchard Park	27	32	34.5	2.5	34.1811	-118.9509
Bryant St Detention Basin	52	22.4	27.5	5	34.0509	-117.0340
Butterfield Stage Park	3	26.9	32.2	5.2	33.4897	-117.0929
Byron Zinn Park	3	39.1	41.2	2.2	33.9089	-118.1106
Cabrillo Bell Park	4	31.6	33.2	1.6	34.4165	-119.6739
Cahuilla	18517	23.7	26.2	2.5	33.5288	-116.7878
Calle Aragon Park	1	28.5	32.9	4.4	33.5061	-117.1162
Canilla Corp.	3	32.9	35.2	2.2	34.1429	-118.9282
Carbon Beach	15	41.4	43	1.6	34.0375	-118.6637
Caroline Park	18	28.5	33.9	5.4	34.0231	-117.1586
Carpinteria Bluffs Public Open Space	44	34.6	36.6	2	34.3851	-119.4988
Carpinteria Cemetery	16	33.6	35.7	2	34.4119	-119.5398
Carpinteria City Beach	2	34.2	36.2	2	34.3944	-119.5271
Carpinteria Creek	3	34.3	36.4	2.1	34.3953	-119.5076
Carpinteria Salt Marsh Reserve	33	34.1	36.1	2	34.3962	-119.5280
Carpinteria Salt Marsh Reserve - UC Natural Reserve	157	33.9	35.9	2	34.4006	-119.5339
Carpinteria State Beach	58	34.4	36.4	2	34.3919	-119.5212
Caruthers Park	13	38.5	40.5	2	33.8792	-118.1098
Castle Peak Park	-	40.3	41.9	1.7	34.2072	-118.6540
Cedar Grove Park	10	36.8	38.3	1.5	33.7512	-117.7698
Cerritos Iron Wood Nine GC	27	38.7	40.9	2.1	33.8797	-118.1062
Chapman Heights Open Space	336	23.6	28.3	4.7	34.0448	-117.0733
Chapman Plaza	-	38.5	41.6	3.1	33.7936	-117.8522
Chapman Water Storage Tank	4	23.9	28.5	4.6	34.0426	-117.0809
Chase Palm Park	31	31.3	33	1.7	34.4152	-119.6857
Cheeseboro Canyon	0	31.3	33.6	2.3	34.1679	-118.7285
Chumash Park	102	36.4	39	2.6	34.2844	-118.6781
Circle X Ranch	59	34.8	37.1	2.3	34.0885	-118.9304
Citrus Grove - JACINTO MEMORIAL	4	27.6	30.4	2.8	34.0368	-117.1457
Citrus Grove - PROSPECT	3	29.3	31.7	2.4	34.0362	-117.1688
Citrus Ranch Park	17	37.3	38.8	1.5	33.7447	-117.7737
Clark/Tran	37	30.6	35.9	5.3	33.5099	-117.2984
Clough Park	-	46.3	48.1	1.8	33.9092	-117.5032
Community Environmental Council 1	1	30.9	32.7	1.8	34.4110	-119.7215
Conejo Canyons - Adventist Hill Open Space - COSCA	22	33	36	2.9	34.1967	-118.9476
Conejo Canyons - Rancho Conejo Open Space - City	645	34.4	36.9	2.5	34.2097	-118.9397
Conejo Canyons - Rancho Conejo Open Space - COSCA	287	36.4	38.1	1.7	34.2181	-118.9397

Conservation Area	213	29.4	33	3.5	34.0683	-117.0737
Country Trail Park	1	32.5	34.5	2.1	34.2633	-118.9071
Crafton Hills Reservoir	19	23.6	25.7	2.1	34.0659	-117.0489
Crown Hill Park	4	27.7	32.2	4.5	33.4982	-117.0746
Cucamonga Wilderness	9206	30.2	32.2	2.1	34.2101	-117.6432
Cunningham Park	2	30.4	31.9	1.6	34.1196	-117.2227
Cuyamaca Rancho State Park	12250	32	33.9	1.9	32.9995	-116.6143
Cypress Park - CRPD	9	33.1	35.1	2	34.1682	-118.9632
Dana Point Park	6	27.4	29	1.6	34.2666	-116.9430
Darrah Park	-	34.4	36.3	1.8	34.2653	-118.7226
Darrah Volunteer Park	8	34.4	36.1	1.7	34.2667	-118.7236
Deer Creek - Denman	9	39.9	41.4	1.5	34.0805	-118.9700
Deer Ridge - Deer Ridge Open Space	59	32.2	34.8	2.7	34.1596	-118.9397
Del Parque Park	9	38.5	40.7	2.1	32.7340	-116.9671
Del Rosa School Field	3	34.7	36.2	1.5	34.1501	-117.2560
Del Vallejo Park	9	33.7	35.3	1.5	34.1439	-117.2442
Delmann Heights Park	19	35.2	37.5	2.2	34.1445	-117.3273
Diamond Point Park	0	38.8	41.3	2.5	33.6825	-117.2617
Dick Clark Open Space	57	41.2	42.7	1.5	34.0895	-118.9920
Dos Vientos Community Park	29	34.4	36.3	1.9	34.1751	-118.9836
Dos Vientos Neighborhood Park	6	35.3	37.3	1.9	34.1567	-118.9791
Dos Vientos Open Space	12	34.9	36.8	1.9	34.1564	-118.9744
Dos Vientos Open Space - COSCA	110	35.2	37.1	1.9	34.1603	-118.9797
Dos Vientos Open Space - MRCA	103	36.3	38.2	1.9	34.1597	-118.9900
Dos Vientos Playfield	20	33.4	35.4	1.9	34.1712	-118.9697
Duck Farm Property	29	32.6	34.6	2	34.0468	-118.0071
Dwight Murphy Field	6	31.8	33.3	1.5	34.4186	-119.6693
East Beach	19	32	33.5	1.5	34.4166	-119.6650
Eastport Park	3	38.7	41.1	2.4	33.6804	-117.2360
Ebell Club of Santa Paula	-	28.7	31.8	3.1	34.3517	-119.0656
Ebell Park	1	28.7	31.9	3.2	34.3519	-119.0648
El Carro Park	10	33.8	36	2.2	34.4050	-119.5101
El Escorpion Park	67	39.2	42.4	3.2	34.1964	-118.6634
El Mission Creek	2	30.7	32.3	1.7	34.4163	-119.7053
El Paseo Plaza de la Guerra	-	31	32.6	1.6	34.4206	-119.6996
El Presidio de Santa Barbara State Historic Park	2	31.1	32.6	1.5	34.4227	-119.6980
Elings Park	9	30.9	32.6	1.7	34.4157	-119.7332
Elings Park - Elings Park Foundation	211	31.1	32.8	1.7	34.4078	-119.7355

Emerson Wildlife Preserve	-	24.4	29.5	5.1	33.4667	-117.0403
Equestrian Center	5	25.1	29.1	4.1	34.0134	-117.0357
Escondido Park	7	31.1	32.9	1.8	34.4114	-119.7282
Estelle Mountain Ecological Reserve	323	43.5	47	3.5	33.7647	-117.4209
Estrella County Park	-	40.4	42.1	1.7	32.7509	-116.9845
Estrella Drive Park	7	40.7	42.3	1.5	32.7527	-116.9847
Evans Park	12	35.9	38.1	2.2	33.9767	-117.3839
Fallbrook Land Conservancy	1166	23.6	26.2	2.6	33.4304	-117.3877
Flag Hill Veterans Memorial Park	8	22.8	28.8	6	34.0341	-117.0279
Fleischmann Field	-	33.3	35.2	1.9	34.4200	-119.5621
Fontana Park	34	24.9	26.4	1.5	34.1523	-117.4644
Foster Park	201	34.4	36.1	1.7	34.3513	-119.3121
Franklin Creek Park	-	33.8	36	2.2	34.4064	-119.5182
Freeman Donation	1	35.8	39.1	3.3	34.0911	-118.8746
Garbani, Rocco, Homestead	-	36.3	38.1	1.8	33.6595	-117.0741
Garcia Park	6	30.1	31.8	1.7	34.1094	-117.5181
Gates Canyon Park	7	35.2	40.6	5.4	34.1611	-118.6926
Geller Property	234	23.1	26.6	3.5	33.5051	-116.8582
Gilman Historic Ranch Park	198	29.4	31.4	1.9	33.9377	-116.8993
Gilman Ranch Historic Park	-	29.5	31.5	2	33.9397	-116.9042
Glazier Park	1	38.9	41.1	2.2	33.8953	-118.1034
Glen Tavern Hotel	-	28.6	32.2	3.5	34.3542	-119.0614
Goodhart Wildlife Habitat Preserve	909	35.7	38	2.3	33.6478	-116.9043
Grape Arbor Park	3	32.9	36.1	3.3	34.1420	-118.7118
Griffin Park	13	47.3	50.9	3.6	33.8926	-117.5079
Harding Park	16	28.6	32.7	4.1	34.3542	-119.0512
Harding Recreation Center	-	30.6	32.4	1.8	34.4169	-119.7207
Harrelson Memorial Park	0	38.8	41.5	2.7	33.6837	-117.2793
Harry A. Lyon Park	8	37.9	39.3	1.5	34.2998	-119.2922
Harveston Community Park	20	31.8	33.5	1.8	33.5327	-117.1599
Heath Ranch Park	-	33.8	35.9	2.1	34.4075	-119.5232
Heath Ranch Park and Adobe	2	33.8	35.9	2.1	34.4077	-119.5237
Heritage Circle Park	3	28.7	30.9	2.2	34.1168	-117.4926
Heritage Neighborhood Center	17	27.7	29.8	2.2	34.1211	-117.5021
Hidden Valley Park	13	30.5	32.1	1.5	34.4242	-119.7493
Highland Historic District	-	29.5	31.5	1.9	34.1280	-117.2090
Hilda McIntyre Ray Park	-	30.8	32.7	1.9	34.4125	-119.7232
Hilda Ray Park	1	30.9	32.8	1.8	34.4120	-119.7248
Hillcrest Center	6	33.2	34.7	1.5	34.1873	-118.8846

Hobson County Park	3	36.8	38.3	1.5	34.3381	-119.4115
Holiday Harbor Park	4	38.6	41	2.4	33.6807	-117.2715
Honda Valley Park	21	31	32.9	1.9	34.4079	-119.7153
Honda Valley Park - Community Environmental Council	5	30.8	32.7	1.9	34.4117	-119.7132
Hope Nature Preserve	359	31.2	36.5	5.3	34.1680	-118.8996
Houghton-Schreiber Park	9	35.5	37	1.5	34.2939	-118.7115
Hulda Crooks Park	9	32.3	35.3	3	34.0386	-117.2448
Indian Beach Park	2	38.6	40.8	2.2	33.6784	-117.2508
Ingalls Park	34	47.5	49.4	1.9	33.9361	-117.5220
Inman Family Trust	19	29.6	35.2	5.6	33.5016	-117.3053
Irvine holding 26	65	36.8	38.4	1.6	33.7208	-117.7353
Jalem Productions Acquisition	1150	22.6	26.2	3.5	33.4880	-116.8387
John Magee Park	1	26.9	31.8	5	33.4753	-117.1170
John Tooker Civic Park	4	23.4	29.1	5.7	34.0342	-117.0589
Juan Bautista de Anza Park	3	34.5	37.1	2.6	34.1256	-118.7073
Juanamaria Park	5	36.3	37.8	1.5	34.2834	-119.1927
Kent Hintergardt Park	12	26.2	31.2	5	33.4693	-117.1059
Kimber Park	8	31.9	34.5	2.7	34.1739	-118.9454
Kimberly Crest	-	29.4	31.4	2	34.0379	-117.1703
Knapp Ranch Park	69	39.3	42.5	3.2	34.1889	-118.6634
Knoll Open Space	21	32.4	35	2.5	34.1902	-118.9522
Koehler Park / The Landings	10	27.4	29.5	2.1	34.1300	-117.4700
La Coronilla Park	15	31.3	33.1	1.9	34.4049	-119.7159
La Mesa Park	19	32.2	33.8	1.6	34.3981	-119.7226
La Palma	19	32.2	34	1.8	34.1244	-118.7436
Lake Casitas Recreation Area	3085	31.3	32.8	1.5	34.4012	-119.3727
Las Piedras Park	6	28.5	32.7	4.2	34.3625	-119.0557
Las Virgenes Creek Open Space	4	34.2	37.4	3.2	34.1280	-118.7073
Leadbetter Beach	16	31.2	33.1	1.9	34.4010	-119.6985
Lechuza Beach	3	35.2	36.7	1.5	34.0363	-118.8676
Legacy Park	4	24.6	26.1	1.5	34.1475	-117.4995
Liberty Canyon - Silver Rock	39	32.2	34	1.8	34.1235	-118.7393
Liberty Canyon Open Space	373	31.2	33.1	2	34.1426	-118.7289
Liberty Plaza	-	38.5	42	3.4	33.7928	-117.8522
Lillian Eaton Park	0	23.3	29	5.7	34.0343	-117.0573
Limonite Meadows Park	4	50	51.4	1.5	33.9688	-117.5454
Lions Parkq	0	38.9	41.3	2.5	33.6821	-117.2504
Loma Linda Park	2	26.7	31	4.3	33.4626	-117.1164

Lookout Park and Beach	7	33.3	34.8	1.5	34.4203	-119.6021
Los Banos del Mar	-	31	33	1.9	34.4067	-119.6944
Los Robles Golf Course	133	32.6	34.9	2.3	34.1763	-118.8895
Los Robles Open Space	352	32.4	35.6	3.2	34.1679	-118.8895
Los Vientos Open Space	28	32.6	34.6	2.1	34.1767	-118.9615
Lucky Cove Park	0	38.9	41.5	2.6	33.6835	-117.2392
Lynn Oaks Park	16	31.3	36.2	4.9	34.1740	-118.9016
Lynnmere Open Space	109	33.6	35.6	2	34.2049	-118.8959
Lynnoaks Park	-	31.3	36.1	4.8	34.1750	-118.9007
Maple Street Park	-	36	37.7	1.7	34.1145	-117.3267
Margarita Community Park	11	29.7	33.5	3.8	33.5105	-117.1440
Marie Kerr Park	57	35	38.2	3.2	34.6037	-118.1798
Mary Van Dyke Park	2	33.6	35.3	1.7	34.0497	-118.0476
McConica Ranch	147	28.6	33.3	4.7	34.3600	-119.0302
Micor	141	37.1	40.6	3.5	34.1154	-118.7012
Mill Park	14	30.9	33	2.2	34.0847	-117.2739
Moonstone Beach Park	1	39.7	42.7	3	33.6927	-117.2697
Mt. Olympus Park	552	24.7	26.5	1.8	33.4092	-117.0996
New Temple Park	5	33.5	35.3	1.8	34.0431	-118.0434
Newbury Gateway Park	8	31.4	35.9	4.5	34.1803	-118.9267
Nicholson Park	9	36.2	38.7	2.6	34.1039	-117.3487
North Fontana Park	-	27.5	29.1	1.7	34.1383	-117.4542
North Heritage Park	1	27.5	29.6	2.1	34.1224	-117.5054
Northgate Park	1	32.8	34.5	1.7	34.1118	-117.4510
Oak Glen	352	23.2	28	4.8	34.0410	-116.9440
Oak Glen Creek Detention Basin	18	22.3	28	5.7	34.0442	-117.0274
Oakmont Park	15	27	33.2	6.2	34.0125	-117.1227
Old Agoura Park	10	31	32.6	1.5	34.1464	-118.7395
Old Conejo Open Space	38	33.4	35.5	2.1	34.1959	-118.9554
Old Towne Orange Historic District	-	41	42.8	1.8	33.7841	-117.8514
Olive Grove Park	8	24.8	26.4	1.6	34.1443	-117.4981
Other Federal 1	7	33.5	35.8	2.3	34.4067	-119.4862
Other Federal 2	16	33.1	34.6	1.5	34.4324	-119.5937
Outrigger Park	1	39.4	42.1	2.8	33.6881	-117.2416
Pablo Apis Park	2	25.5	30.9	5.4	33.4722	-117.0836
Pala Community Park	6	27	31.7	4.7	33.4720	-117.1175
Pala Road Park	-	27.6	32.2	4.5	33.4750	-117.1275
Paloma Del Sol	4	26.7	32	5.3	33.4836	-117.1023
Palza Vera Cruz	2	31.1	32.8	1.7	34.4189	-119.6940

Paramount Ranch	0	32.9	34.5	1.6	34.1190	-118.7507
Parkview Park	6	46.3	48.4	2.1	33.9016	-117.5314
Parmenter Park	4	46.4	48	1.6	33.9225	-117.5473
Paseo Gallante Park	2	25.8	31	5.2	33.4685	-117.0978
Pass Valley Park	5	28.6	30.3	1.7	33.9328	-116.8642
Patricia Marrujo Park	5	26.4	27.9	1.5	34.1470	-117.4521
Patricia Murray Park	2	30.5	32.3	1.8	34.1075	-117.5127
Pauba Ridge Park	5	29	32.5	3.5	33.5113	-117.0806
Peacock Ridge Open Space	28	32.9	35.5	2.6	34.1330	-118.7151
Pechanga	4489	23.6	28.1	4.5	33.4511	-117.1086
Pechanga Indian Reservation	3961	24.6	29.4	4.8	33.4508	-117.0886
Pepper Tree Playfield	22	32.8	35	2.3	34.1914	-118.9551
Pershing Park	6	31	32.9	1.9	34.4086	-119.6960
Peto Family Trust	99	28.7	33.3	4.6	34.3537	-119.0372
Pilgrim Terrace Park	-	30.5	32.1	1.6	34.4256	-119.7240
Pitcher Park	1	39.8	43.7	3.9	33.7858	-117.8449
Plaza del Mar Park	6	31	32.9	1.9	34.4080	-119.6952
Plaza Square Park	1	39.8	43.1	3.3	33.7879	-117.8532
Point Dume State Beach	0	37.6	39.3	1.7	34.0107	-118.8168
Potrero / Kelley Estates	3	31.4	35.6	4.2	34.1775	-118.9299
Potrero / Potrero - COSCA	115	32.6	34.9	2.3	34.1672	-118.9459
Prado Park	3	35.4	37.6	2.2	34.0396	-117.2780
Promenade Community Park	20	47	50.2	3.2	33.8948	-117.5188
Quail Valley Park	-	40.7	43	2.2	33.7053	-117.2420
Ramona	546	31	33.4	2.5	33.6019	-116.6860
Ramona Indian Reservation	1353	32.1	34.9	2.8	33.6104	-116.6957
Rancho Conejo Open Space	-	33.4	36.6	3.3	34.2072	-118.9334
Rancho Conejo Playfield	14	32.4	36.2	3.9	34.1924	-118.9119
Rancho Santa Susana Community Park	45	37.8	39.6	1.8	34.2725	-118.6951
Rancho Simi Community Park	33	31.3	33	1.6	34.2656	-118.7634
Rancho Summit Park	7	24.7	26.2	1.5	34.1461	-117.5028
Rattlesnake Reservoir	59	36.6	38.4	1.8	33.7290	-117.7398
Redlands holding 1	2	28.1	31.2	3.1	34.0342	-117.1527
Repplier Park	9	28.7	30.3	1.6	33.9311	-116.8797
Reservoir Hill Park	5	39	41	2.1	33.8786	-118.1015
Rincon Beach Park	32	34.9	36.9	2	34.3781	-119.4818
Ritter Ranch	2417	37.3	39.1	1.9	34.5413	-118.2532
River Trails Park	-	49.4	51.2	1.8	33.9547	-117.5409
Riverside County Habitat Conservation	41	21.7	26	4.3	33.4901	-116.7991

Agency 1						
Riverside County Habitat Conservation Agency 2	41	21.6	26	4.4	33.4865	-116.7948
Riverside County Habitat Conservation Agency 4	31	21.7	25.9	4.3	33.4824	-116.7525
Riverwalk Dog Park	4	45.6	47.4	1.9	33.8997	-117.4939
Rock Mountain Preserve	76	27.6	29.8	2.2	33.4349	-117.2442
Rock Vista Park	8	47.5	50.7	3.2	33.9028	-117.5242
Rosena Park	10	25.3	27	1.7	34.1435	-117.4726
Sage Ranch Park	579	39.7	42.8	3.2	34.2427	-118.6783
Sam Hicks Monument Park	2	29.6	33.7	4.1	33.4984	-117.1509
San Angelo Park	9	32.5	34.6	2.1	34.0506	-118.0028
San Bernardino Soccer Complex	46	31.4	33.2	1.8	34.1293	-117.2329
San Jose Creek	38	32.9	34.5	1.5	34.0331	-118.0110
San Manuel	669	32.3	33.8	1.5	34.1542	-117.2223
Santa Barbara holding 6	0	31	32.8	1.8	34.4099	-119.7224
Santa Barbara Maitime Museum	39	31	32.9	1.9	34.4078	-119.6937
Santa Claus Lane Beach	2	33.9	35.8	1.9	34.4044	-119.5470
Santa Fe Depot Park	-	39.9	42.9	3	33.7883	-117.8567
Santa Margarita Ecological Reserve	910	28.7	31.2	2.5	33.4359	-117.1985
Santa Margarita Preserve	211	25.4	27	1.6	33.4056	-117.2530
Santa Margarita River	222	29	32.5	3.6	33.4684	-117.1480
Santa Margarita River Ecological Reserve	162	28.7	31	2.4	33.4357	-117.1886
Santa Margarita River Lands	1361	26.9	28.8	1.8	33.4116	-117.2488
Santa Monica Creek	25	33.7	35.8	2.1	34.4149	-119.5264
Santa Paula	76	29.1	31.4	2.3	34.3392	-119.0679
Santa Rosa	10920	27.3	29.5	2.2	33.5326	-116.5684
Santa Rosa Indian Reservation	9255	30.2	33	2.9	33.5994	-116.5664
Santa Rosa Plateau Ecological Reserve	5557	32.9	36	3.1	33.5117	-117.2466
Settlers Park	11	36.8	38.4	1.6	33.7390	-117.7590
Shandin Hill Golf Course	65	35.4	37.4	2	34.1474	-117.3229
Shea Open Space - Las Virgenes	25	33.7	38.2	4.5	34.1555	-118.7038
Shiveley Park	6	33.8	35.5	1.7	34.0436	-118.0484
Sierra Park	4	38.8	41	2.1	33.7911	-117.9184
Simi Cemetery	5	31.1	32.7	1.6	34.2660	-118.7671
Simi Hills Golf Course	228	36.6	39.7	3.1	34.2872	-118.6943
Simi Hills Neighborhood Park	6	36.6	39.1	2.6	34.2870	-118.6961
Sorenson	28	27.5	33.2	5.7	33.4881	-117.3368
South El Monte Community Center	0	33.6	35.4	1.8	34.0462	-118.0468
Speicher Park	28	31.3	33.1	1.7	34.1270	-117.2339

Spencer Adams Park	3	30.9	32.5	1.6	34.4222	-119.7076
Stagecoach Inn Park	16	31.5	36.4	4.9	34.1782	-118.9124
Stearns Wharf	4	31.2	33	1.8	34.4100	-119.6870
Steckel Park	200	27.2	32.2	5.1	34.4018	-119.0806
Sterling Park	2	33.8	35.3	1.5	34.1481	-117.2432
Stevenson Park	12	40.2	41.8	1.6	33.8711	-118.2579
Summer Lake Park	16	37	38.5	1.5	33.6931	-117.3920
Summerland Greenwell Preserve	2	33.3	34.9	1.6	34.4237	-119.5891
Swartz County Regional Park	214	37.1	38.7	1.5	32.8084	-116.6496
Tapo Canyon Park	203	34.1	36.5	2.4	34.3271	-118.7135
Tar Pits Park	9	34.6	36.5	1.9	34.3870	-119.5112
Tarantula Hill	45	33.6	35.1	1.5	34.1947	-118.8885
Taylor Family Ranch	39	29.1	32.6	3.5	34.3658	-118.9932
Teague Park	8	29.1	31	1.9	34.3430	-119.0793
Tehachapi Park	3	45.5	47.3	1.8	33.8940	-117.5289
Temecula Creek Trail Park	5	26.1	31.4	5.3	33.4828	-117.0730
Temecula Duck Pond	6	29.5	33.6	4.1	33.5027	-117.1469
Temeku Hills Park	11	30.1	32.7	2.6	33.5242	-117.1127
Thornbury Park	28	30.9	32.9	1.9	34.4083	-119.7107
Tokay Park	-	32	33.9	1.8	34.1120	-117.4567
Toland Park	220	29	32	3	34.3851	-119.0000
Toro Canyon Park	89	32.9	34.8	1.9	34.4339	-119.5543
Tuscany Hills Community Park	5	38.8	41.5	2.7	33.6820	-117.2836
Unknown - NGO	639	30.7	32.3	1.6	33.3264	-116.3062
Unknown - Santa Monica Mountains Conservancy	6	31.4	33.1	1.8	34.1389	-118.7327
Unknown Preserve - Fallbrook Land Conservancy	39	28	29.6	1.6	33.4105	-117.1792
Upper Las Virgenes Open Space Preserve	116	37.6	42.9	5.2	34.1676	-118.6786
Upper Las Virgenes Open Space Preserve / Ahmanson	5428	35.5	40	4.5	34.2094	-118.7287
Upper Stokes	46	41.4	43.6	2.2	34.1163	-118.6744
Vail Ranch Park	16	25.7	31.2	5.4	33.4755	-117.0834
Ven-Tu Park	-	31.4	36.4	5	34.1745	-118.9098
Ventu Park Open Space	125	31.5	36.4	4.9	34.1680	-118.9196
Ventura Community Park	97	37.4	38.9	1.5	34.2713	-119.1929
Verde Park	7	37.5	39.5	2.1	34.2744	-118.6720
Victoria Arbors Park	9	28.8	30.3	1.5	34.1178	-117.5307
Vista del Arroyo Park	3	33.4	35.3	1.9	34.2632	-118.7293
Walnut Grove Equestrian Center	13	31.8	35.8	4	34.1835	-118.9010
Walnut Open Space	9	32	35.3	3.4	34.1823	-118.8940

Warrack Park	32	31.1	37.2	6.1	34.6129	-118.2231
Wendy Park	5	32.3	34.7	2.4	34.1642	-118.9420
Wentworth Park	0	30.9	32.8	1.9	34.4118	-119.7020
West Hills Recreation Center	16	39.9	41.8	1.9	34.1975	-118.6570
Westward Beach	21	37.8	39.3	1.5	34.0064	-118.8129
Whelan	40	41.4	43	1.6	34.0798	-119.0005
White Oaks Park	-	38.5	40.8	2.4	34.2861	-118.6643
Wildwood - Lynnmere North Open Space	376	33.7	35.6	1.9	34.2097	-118.9196
Wildwood - Wildwood Mesa Open Space	221	34.6	36.4	1.8	34.2181	-118.9196
Wildwood Canyon	854	23.4	28.7	5.3	34.0254	-117.0046
Williams Property	112	22.7	25.6	2.8	33.4612	-116.7498
Wilson	114	31.9	33.7	1.8	34.1271	-118.7349
Wilson Creek Riparian Corridor	464	23.8	26	2.2	33.4690	-116.7197
Windrows Park	8	27	28.5	1.5	34.1292	-117.5295
Yarborough Park	2	38.4	39.9	1.5	33.6759	-117.3292
Yucaipa Regional Park	414	22.9	27.4	4.5	34.0513	-117.0541
Yucaipa Skate Park	6	24.3	29.3	4.9	34.0354	-117.0926
Zuma County Beach	0	37.7	39.6	1.9	34.0166	-118.8170

#END