

APPENDIX A
DRAFT GENERAL ORDER DOCUMENTS



**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-XXXX-DWQ**

**GENERAL WASTE DISCHARGE REQUIREMENTS
FOR COMPOSTING OPERATIONS**

JANUARY 6, 2015



THIS PAGE INTENTIONALLY LEFT BLANK

STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR COMPOSTING OPERATIONS

Table of Contents

ACRONYMS AND ABBREVIATIONS.....	ii
BACKGROUND INFORMATION	1
SCOPE OF THIS GENERAL ORDER	5
APPLICATION PROCESS.....	8
ANTIDegradation ANALYSIS	9
TITLE 27 APPLICABILITY	11
CALIFORNIA ENVIRONMENTAL QUALITY ACT	12
OTHER REGULATORY CONSIDERATIONS	15
IT IS HEREBY ORDERED.....	16
PROHIBITIONS.....	16
SPECIFICATIONS	17
DESIGN, CONSTRUCTION AND OPERATION REQUIREMENTS – ALL TIERS	18
DESIGN, CONSTRUCTION AND OPERATION REQUIREMENTS – TIER II ONLY	20
MONITORING REQUIREMENTS	21
MAINTENANCE REQUIREMENTS	21
SITE CLOSURE REQUIREMENTS	21
REPORT REQUIREMENTS	22
NOTIFICATION REQUIREMENTS	24
ADDITIONAL REQUIREMENTS	25
CERTIFICATION	27
ATTACHMENT A - DEFINITIONS	A-1
ATTACHMENT B – MONITORING AND REPORTING PROGRAM	B-1
ATTACHMENT C – NOTICE OF INTENT	C-1
ATTACHMENT D – TECHNICAL REPORT REQUIREMENTS.....	D-1

STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR COMPOSTING OPERATIONS

ACRONYMS AND ABBREVIATIONS

Antidegradation Policy	State Water Board Resolution 68-16, <i>Statement of Policy with Respect to Maintaining High Quality of Waters of California</i>
BMP	Best Management Practices
BPTC	Best Practicable Treatment or Control
CalOES	California Governor's Office of Emergency Services
CalRecycle	California Department of Resources Recycling and Recovery
CEQA	California Environmental Quality Act
cm/s	Centimeters per second
CPLX	Complexity of the Discharge Rating
cy	Cubic Yards
EDF	Electronic Deliverable Format
EIR	Environmental Impact Report
mg/L	Milligrams per Liter
mg/kg	Milligrams per kilogram
MPI	Minutes per Inch
MRP	Monitoring and Reporting Program
NOA	Notice of Applicability
NOI	Notice of Intent to Comply with the Terms of General Waste Discharge Requirements for Composting Operations
NPDES	National Pollutant Discharge Elimination System
PDF	Portable Document Format
Regional Water Board	Regional Water Quality Control Board
State Water Board	State Water Resources Control Board
TTWQ	Threat to Water Quality Rating
WDRs	Waste Discharge Requirements

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

BACKGROUND INFORMATION

FINDINGS:

The State Water Resources Control Board (State Water Board) finds that:

1. The State of California currently disposes an estimated 35 million tons of waste annually in landfills, of which 32 percent is compostable organic material, 29 percent is construction debris, and 17 percent is paper.
2. Composting is the biological decomposition of organic materials by microorganisms under controlled aerobic conditions to create a product (e.g., soil amendment, fertilizer, or soil blend). Compostable materials comprise a wide range of material types: grass, leaves, branches, prunings, stumps, wood waste, agricultural materials, manure, food, and biosolids.
3. Composting organic material yields environmental benefits by recycling nutrients and diverting materials from landfills. Diversion of compostable materials from landfills reduces the amount of material landfilled and extends landfill capacity and service life.
4. Compost can be a valuable soil amendment that improves soil tilth and plant health, increases soil water holding capacity, reduces runoff, adds beneficial micro-organisms, adds organic matter, and sequesters carbon.
5. Composting activities typically occur on open and uncovered land, exposed to precipitation. However, some composting activities are performed within structures, protected from precipitation.
6. The compostable materials may contain nutrients, metals, salts, pathogens, and oxygen-reducing compounds that can degrade water quality if allowed to migrate into groundwater or surface water. The process of composting can allow contaminants to migrate with leachate or storm water that contacts these materials.
7. Composting facilities may contain areas where composting operations occur as well as ancillary buildings (e.g., office space, equipment storage, etc.). For the purposes of these General Waste Discharge Requirements for Composting Operations (General Order), the term "Composting Operation" shall mean the area at which operations are conducted, including the receiving area, pre-processing, processing, curing, storage areas, detention ponds, and other areas associated with production of compost, including storage areas for feedstocks, additives, or amendments. Attachment A, attached hereto and made part of this order, provides definitions of terms and phrases used in this General Order.
8. For the purposes of this General Order, all references to compost include compost piles actively being composted, cured, and stored on site to mature prior to sale or use (final product).
9. Water Code section 13260, subdivision (a) requires that any person discharging waste or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the state, shall file a report of waste discharge. Water Code

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

section 13263 provides that a Regional Water Quality Control Board (Regional Water Board) or the State Water Board shall prescribe waste discharge requirements (WDRs) that implement the Regional Water Boards' water quality control plans (Basin Plans) and take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose and the need to prevent nuisance. "Waste" is defined in Water Code section 13050, subdivision (d).

10. Assembly Bill No. 341 enacted in 2011 (2011–2012 Reg. Sess.; Stats. 2011, ch. 476) established a policy goal that not less than 75 percent of the solid waste generated in the state be source-reduced, recycled, or composted by 2020. The California Department of Resources Recycling and Recovery (CalRecycle) developed a plan to increase the diversion of compostable materials.
11. CalRecycle has adopted regulations governing compostable material handling facilities. (Cal. Code Regs., tit. 14, div. 7, ch. 3.1.) The regulations address composting operations including facility siting, design standards, operating standards, environmental health standards, such as sampling and pathogen reduction requirements for the compost products derived from compostable materials prior to being sold or given away, recordkeeping, monitoring, reporting, and site restoration. CalRecycle's authority does not include regulating water quality. The State Water Board and each Regional Water Board have primary responsibility for coordination and control of water quality. (Wat. Code, § 13001.)
12. Historic regulation of composting operations by the Regional Water Boards has included individual WDRs or conditional waivers of WDRs. This General Order provides a streamlined method to allow the Regional Water Boards to permit composting operations and address potential impacts to water quality.
13. Although a discharger may be eligible for coverage under this General Order, the Regional Water Board may determine that the discharge would be more appropriately regulated by a conditional waiver of WDRs or individual WDRs.
14. Water Code section 13263, subdivision (i) states that the State Water Board or a Regional Water Board may prescribe general WDRs for a category of discharges if the State Water Board or Regional Water Board finds or determines that all of the following criteria apply to the discharges in that category:
 - a. The discharges are produced by the same or similar operations;
 - b. The discharges involve the same or similar types of waste;
 - c. The discharges require the same or similar treatment standards; and
 - d. The discharges are more appropriately regulated under general WDRs than individual WDRs.

Composting operations that will be regulated under this General Order are consistent with the criteria listed above, and therefore a general order is appropriate. All discharges, regulated under this order will be from similar operations and will be consistent with the description of composting operations as defined in this General Order. The discharges will use similar containment methods (e.g. pads and ponds). Individual WDRs are not

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

necessary because the discharges are similar and discharge requirements would be similar if individual WDRs were issued.

15. This General Order does not preempt or supersede the authority of federal, state, or local governmental agencies to prohibit, restrict, or control discharges of waste subject to their jurisdiction.
16. A composting operation typically consists of a receiving and storage area for feedstocks, additives and amendments; a pre-processing area where materials are prepared for composting (screening, size adjustment, etc.); an active composting area; a curing area where the material matures before sale (moisture content and temperature is reduced); and a final screening and storage area where the final compost product is prepared for sale. Additives and amendments are often added to compost to adjust fertilizer or moisture content, product bulk, pH, etc.
17. Composting can be done on a small or large scale. This General Order only addresses composting operations that receive, process, and store at least 500 cubic yards (cy) of materials at any given time.
18. Composting typically results in release of water from the feedstock material as biological decomposition occurs. The released water becomes leachate and if sufficient in volume will drain from the compost pile. Precipitation that falls on uncovered compost piles may also result in liquid draining from the compost piles. The liquids may contain nutrients, metals, salts, pathogens, and/or oxygen reducing compounds.
19. Substantial water is evaporated from the compost piles due to the heat generated in biological decomposition. Water is added to maintain appropriate moisture content. The water may be wastewater or storm water collected in the facility pond(s), or water from an on-site well or municipal water supply.
20. Composting operations have the potential to degrade water quality with nutrients (e.g., nitrate), salinity (e.g., sodium chloride), pathogens, oxygen-reducing materials, sediment, and other waste constituents. Implementation of best practicable treatment or control (BPTC) can prevent or limit the degradation.
21. Composting operation setbacks from water supply wells and surface water bodies are provided in this General Order. Setbacks are included as a means of reducing pathogenic risks by coupling pathogen inactivation rates with groundwater travel time to a well or other potential exposure route (e.g. water contact activities). In general, a substantial unsaturated zone reduces pathogen survival compared to saturated soil conditions. Fine grained (silt or clay) soil particles reduce the rate of groundwater transport and therefore are generally less likely to transport pathogens; coarse grained soil particles or fracture flow groundwater conditions may be more likely to transport pathogens. Setbacks also provide attenuation of other wastewater constituents through physical, chemical, and biological processes.
22. Strategies to control free draining liquid include reducing the permeability of areas where compostable materials are stored or composted, constructing sloped pads to facilitate drainage to a storage pond or tank, reducing the permeability of storage ponds, covering

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

materials to prevent generation of free draining liquids, reapplying collected liquids to compost piles, and treatment of the liquid.

23. Leachate and precipitation that falls on active compost areas may be conveyed to a detention pond. That water may be reapplied to the compost piles as needed. Supplemental water from other sources (groundwater, potable water, or collected storm water) may also be applied to the compost.
24. Total dissolved solids (TDS) consist of both volatile (organic) and fixed (inorganic) fractions. A varying concentration of volatile dissolved solids will exist in leachate and storm water that is collected in the storage pond. Volatile dissolved solids in the liquid reapplied to compost piles are likely to be reduced to negligible concentration by filtration and biological degradation. However, fixed dissolved solids (FDS) do not degrade biologically.
25. The 40 Code of Federal Regulations part 503 biosolids regulations establish ceiling concentration limits: pollutant concentrations limits; Class A pathogen requirements: Class B pathogen requirements; site restrictions; vector attraction reduction requirements; and processes to significantly reduce pathogens and processes to further reduce pathogens.
26. This General Order requires biosolids that are used as a feedstock at the composting facility to comply, at a minimum with the ceiling concentrations listed in Table 1 of 40 Code of Federal Regulations part 503 and in Table 1 listed below, and Class B pathogen requirements. The United States Environmental Protection Agency (USEPA) regularly reviews, and may revise, the limitations and requirements of 40 Code of Federal Regulations part 503. 40 Code of Federal Regulations part 503 should be consulted for updates.

Table 1. Biosolids Feedstock Ceiling Concentrations

Constituent	Units	Ceiling Concentration
Arsenic	mg/kg	75
Cadmium	mg/kg	85
Copper	mg/kg	4,300
Lead	mg/kg	840
Mercury	mg/kg	57
Molybdenum	mg/kg	75
Nickel	mg/kg	420
Selenium	mg/kg	100
Zinc	mg/kg	7,500

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

SCOPE OF THIS GENERAL ORDER

- 27. The amount and type of feedstocks composted, as well as site conditions such as depth to groundwater, percolation rate, and proximity to surface water and wells inherently affects the threat to water quality. This General Order employs a tiered approach to regulating composting operations.
- 28. Only composting operations that comply with the allowable feedstock and setback requirements are eligible for coverage under this General Order.
 - a. Tier I and Tier II allowable feedstocks (as defined in Attachment A) are limited to the materials listed in Table 2 below:

Table 2. Allowable Feedstocks

Tier I Feedstocks	Tier II Feedstocks
Agricultural materials	Food materials (non-vegetative)
Green materials	Biosolids (Class A, B, and/or EQ): as defined in Attachment A
Paper materials	Manure
Vegetative food materials	Anaerobic digestate derived from allowable Tier II feedstocks
Anaerobic digestate derived from allowable Tier I feedstocks	A combination of allowable Tier I and Tier II feedstocks
A combination of allowable Tier I feedstocks	

- b. Composting operations shall be setback at least 100 feet from the nearest surface water body and/or the nearest water supply well. A lesser setback distance may be allowed by the Regional Water Board if the Discharger can demonstrate that the groundwater, geologic, topographic, and well construction conditions at the site are adequate to protect water quality.
- 29. Composting operations (Tier I or Tier II) are classified based on the types of feedstocks; total volume of materials received, processed, and stored at any given time; and hydrogeologic siting considerations. The tiers are defined as follows:
 - a. **Tier I** includes a composting operation that meets all of the following conditions:
 - 1) The feedstocks are limited to Tier I feedstocks listed in Table 2 and defined in Attachment A;
 - 2) The facility receives, processes, and stores less than 25,000 cy of a combination of allowable Tier I feedstocks, compost, additives and amendments on site at any given time; and

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- 3) The percolation rate and depth to the highest anticipated groundwater level underlying the composting operation is consistent with Table 3 below:

Table 3. Tier I Percolation Rate and Depth to Groundwater Standards

Soil Percolation Rate (MPI – minutes per inch)	Depth to Groundwater (minimum)
< 1 MPI	50 feet
1 MPI – 5 MPI	20 feet
> 5 MPI – 30 MPI	8 feet
> 30 MPI	5 feet

- b. **Tier II** includes a composting operation that meets one or more of the following conditions:
 - 1) The feedstocks include any of the Tier II feedstocks listed in Table 2, and defined in Attachment A;
 - 2) The facility receives, processes and stores 25,000 cy or more of a combination of allowable Tier I or Tier II feedstocks, compost, additives and amendments on site at any given time; and/or
 - 3) The site-specific hydrogeologic conditions do not meet the Tier I percolation rate and depth to groundwater standards listed in Table 3.
30. The following composting-related activities are unlikely to degrade water quality and are therefore exempt from this General Order. However, the Regional Water Board may determine WDRs are appropriate under site-specific conditions. Composting operations may be subject to other federal, state, or local regulations.
- a. Agricultural composting;
 - b. Chipping and grinding facilities and operations;
 - c. Lot clearing by local government agencies (e.g., grubbing, tree trimming, etc.) for fire protection;
 - d. Composting activities that are within a fully enclosed vessel;
 - e. Composting operations that receive, process, and store less than 500 cy of allowable materials at any given time; and
 - f. Composting operations that receive, process or store less than 5,000 cy per year of allowable Tier I and Tier II feedstocks, additives and amendments that implement the following management practices:
 - 1) Completely cover all materials during rain events to prevent the generation of contaminated non-process wastewater and leachate; and
 - 2) Manage the application of process water to prevent the production of leachate.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

31. Discharges of the following wastes may pose a significant threat to water quality, and are therefore prohibited from being discharged under this General Order. The discharge of these wastes may be more appropriately regulated by individual WDRs or other orders issued by the Regional Water Board.
 - a. Animal carcasses;
 - b. Liquid wastes other than those of food origin;
 - c. Medical wastes as defined in Health and Safety Code section 117690;
 - d. Radioactive wastes;
 - e. Septage;
 - f. Sludge, including but not limited to sewage sludge, water treatment sludge, and industrial sludge;
 - g. Wastes classified as “designated”, as defined in Water Code section 13173;
 - h. Wastes classified as “hazardous” as defined in California Code of Regulations, title 22, section 66261.3;
 - i. Wood containing lead-based paint or wood preservatives, or ash from such wood; or
 - j. Any feedstock, additive, or amendment other than those specifically described in this General Order.
32. The use of additives and amendments, as defined and limited by this General Order, is not expected to pose a significant threat to water quality as long as the Discharger maintains compliance with the requirements and prohibitions of this General Order. A Regional Water Board may limit or prohibit the use of an additive or amendment if the use of the additive or amendment could result in groundwater pollution or nuisance.
33. Compliance with design specifications and associated performance requirements included in this General Order is determined to be protective of water quality.
34. The requirements in this General Order do not apply to the application or use of the final compost product.
35. Technical and monitoring reports specified in this General Order are required. Failing to furnish the reports by the due date or falsifying information in the reports, are misdemeanors that may result in assessment of civil liabilities against the Discharger. Water Code section 13267 states, in part:

“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

The technical reports required by this General Order and the Monitoring and Reporting Program (MRP) in Attachment B are necessary to assure compliance with this General Order.

36. In accordance with Water Code section 13000 et seq., this General Order implements regulations and policies adopted by the State Water Board, including the agency’s regulations under California Code of Regulations, title 23, and implements applicable provisions of the Health and Safety Code.

APPLICATION PROCESS

37. Existing composting operations, except those with individual WDRs or conditional waivers of WDRs that address the composting operation, are required to seek coverage under this General Order by submitting a complete Notice of Intent (NOI) (Attachment C), including the appropriate filing fee (Cal. Code Regs., tit. 23, § 2200), and a technical report including, but not limited to, information requested in Attachment D to the Regional Water Board. The NOI, filing fee and technical report must be submitted within one year of adoption of the General Order. The technical report shall include a schedule for full compliance and must be as short as practicable but may not exceed 6 years from the date of the NOI.
38. New composting operations that propose to begin operating after adoption of this General Order may seek coverage by submitting a complete NOI (Attachment C), including the appropriate filing fee (Cal. Code Regs., tit. 23, § 2200) and a technical report including, but not limited to, information requested in Attachment D, to the Regional Water Board not less than 90 days prior to commencement of the composting operation.
39. For the purposes of this General Order, an NOI and accompanying technical report (as described in Attachments C and D, respectively) is equivalent to a Report of Waste Discharge. After the Regional Water Board determines that the NOI and accompanying technical report are complete, the initial fee has been received, and the composting operation can be appropriately regulated under this General Order, a Notice of Applicability (NOA) will be issued by the Regional Water Board. Within the NOA, the Regional Water Board will at a minimum, confirm a Discharger's tier, timeline for compliance, and method of monitoring to comply with applicable monitoring requirements.
40. Upon issuance of an NOA for coverage under this General Order, the Discharger’s NOI and technical report will become incorporated by reference into this General Order. The Discharger is responsible for implementing all operations in a manner that complies with this General Order.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

41. The Discharger is required to pay an annual fee (e.g., waste discharge permit fee). (Wat. Code, § 13260 et seq.) The filing fee accompanying the NOI is the first year's annual fee. The annual fee is based on the threat to water quality (TTWQ) and complexity (CPLX) rating of the discharge. (Cal. Code Regs., tit. 23, § 2200.) The ratings are available at: <http://www.waterboards.ca.gov/resources/fees/>

ANTIDegradation ANALYSIS

42. State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters of California* (hereafter the Antidegradation Policy) requires that disposal of waste into the waters of the state be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state. The quality of some waters of the state is higher than that established by adopted policies, and that higher quality water shall be maintained to the maximum extent possible consistent with the Antidegradation Policy. The Antidegradation Policy requires the following:
- a. Maintenance of existing high quality waters of the state unless limited degradation is consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of the water, and will not result in water quality less than that prescribed in state policies.
 - b. Any activity that produces or may produce a waste and discharges or proposes to discharge to existing high quality waters will be required to meet WDRs that will result in BPTC of the discharge necessary to assure pollution or nuisance will not occur, and the highest water quality consistent with maximum benefit to the people of the state will be maintained.
43. When issuing NOAs under this General Order, the Regional Water Board must assure that Dischargers implement BPTC as necessary to maintain the highest water quality consistent with maximum benefit to the people of the state.
44. This General Order may allow limited discharges to groundwater. There are not sufficient data to determine which receiving waters are high quality waters. To the extent a discharge covered under this General Order may be to high quality waters, this General Order authorizes limited degradation consistent with the Antidegradation Policy as described in the findings below.
45. Limited degradation of groundwater by some waste constituents associated with composting operations, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The economic prosperity of communities and associated industry, and the diversion of wastes from landfills and associated conservation of landfill space are of maximum benefit to the people of the state and provide sufficient justification for allowing limited groundwater degradation that may occur pursuant to this General Order provided the terms of the applicable Basin Plan and other applicable State Water Board and Regional Water Board policies are consistently met.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

46. This General Order places restrictions on the discharge of waste from composting operations. The terms and conditions of this General Order are designed to minimize groundwater quality degradation and protect beneficial uses of waters of the state. Implementation of water and wastewater management plans, groundwater protection plans, and construction of waste containment features at composting operations will minimize groundwater quality degradation.
47. The General Order establishes limits on the volume, types, and quality of the feedstocks, additives and amendments used at the facility. Some waste types are explicitly prohibited from use due to their threat to water quality. All feedstocks, additives and amendments must be contained in areas that control any leachate or storm water that falls on the materials. In addition, hydrogeologic site conditions are considered when classifying a compost facility as Tier I or Tier II.
 - a. Facilities that receive, process, and store less than 25,000 cy of allowable Tier I feedstocks, compost, additives and amendments on site at any given time are inherently less likely to degrade water quality because the amount and types of waste constituents present at the facility is lower than at Tier II facilities. The limits apply both to the feedstocks and the types and amounts of additives and amendments. Tier I facilities must also comply with the hydrogeologic site conditions (depth to groundwater and percolation rate) specified in the General Order.
 - b. Tier II facilities impose additional BPTC measures such as limits on feedstock quality; and hydraulic conductivity requirements for working surfaces, detention ponds, and drainage ditches. Biosolids used as a feedstock must comply with the ceiling concentrations contained in Code of Federal Regulations, section 503.13 (Table 1). In addition, detention ponds must be constructed with a pan lysimeter to allow early detection of pond liner leakage.
48. To mitigate potential impacts to water quality, siting restrictions specified in this General Order prohibit composting operations within 100 feet of the nearest surface water body or water supply well. A lesser setback distance may be allowed by the Regional Water Board if the Discharger can demonstrate that the groundwater, geologic, topographic, and well construction conditions at the site are adequate to protect water quality. In addition, feedstocks used (Table 2), volume of materials (received, processed and stored) on site at any given time, soil percolation rate, and depth to groundwater standards (Table 3) of this General Order are used to classify composting operations into two tiers. Composting operations not meeting minimum standards for percolation rate and depth to groundwater are classified into the more protective Tier II category.
49. This General Order establishes requirements and standards for BPTC measures to limit or prevent degradation. Identified BPTC measures include:
 - a. Minimize Infiltration of Waste Constituents on Working Surfaces - The most effective way to reduce or eliminate water quality impacts is to restrict infiltration of wastes on working surfaces (including receiving, processing, and storage areas). The General Order requires working surfaces to be designed and constructed to be sloped to prevent ponding, and convey wastewater to an approved wastewater management

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- system. Tier II facilities must also comply with a hydraulic conductivity standard to limit infiltration of liquids to the subsurface at working surfaces, drainage ditches and wastewater detention ponds.
- b. Design and Operate Detention Ponds to Contain and Reuse Wastewater and Storm Water - All detention ponds must comply with design, construction, and maintenance requirements in this General Order. The General Order includes requirements that ponds must be designed and certified by a registered professional engineer to have adequate capacity and structural integrity to hold wastewater and precipitation. All ponds must be managed to prevent breeding of mosquitos and generation of odors. Detention ponds constructed at Tier II facilities must also comply with a hydraulic conductivity standard to limit infiltration of liquids to the subsurface.
 - c. Perform Monitoring to Ensure BPTC Measures are Effective - To detect potential threats to water quality, detention ponds constructed at Tier II facilities must be constructed with a pan lysimeter monitoring device under the lowest point of the pond or equivalent engineered alternative approved by the Regional Water Board. The engineered alternative must provide equivalent assurance of the earliest possible detection of a release from the pond.
50. The State Water Board recognizes that composting operations play an important role in meeting California's recycling goals to divert more wastes from landfills into reusable products. In addition, composting is a strategy for reducing greenhouse gas emissions throughout the state. Benefits of using compost include increasing soil water holding capacity, adding beneficial micro-organisms to improve soil health, improving soil tilth, and carbon sequestration. Considering these benefits, the State Water Board finds that composting in compliance with this General Order is consistent with the maximum benefit to the people of the state.

TITLE 27 APPLICABILITY

51. California Code of Regulations, title 27, sections 20200 through 20230 establish a waste classification system. Wastes covered under California Code of Regulations, title 27 are classified as either inert, nonhazardous solid, or designated. Inert wastes pose minimal risk to water quality, nonhazardous solid wastes present a greater risk than inert wastes, and designated wastes pose the greatest risk to water quality. Allowable compostable materials per this General Order meet the definition of nonhazardous solid waste under California Code of Regulations, title 27, section 20220, subdivision (a).
52. California Code of Regulations, title 27, section 20200, subdivision (a)(1) allows a finding to be made that, "...a particular waste constituent or combination of constituents presents a lower risk of water quality degradation than indicated by classification according to this article." Therefore, to the extent that a particular compostable material could be characterized as designated waste, such material shall be regulated as a nonhazardous solid waste pursuant to California Code of Regulations, title 27, section 20200, subdivision (a)(1) because the compostable material presents a lower risk to water quality than typical designated wastes when managed as required by this General Order.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

53. The California Code of Regulations, title 27 regulations that apply to nonhazardous solid waste only apply to such waste that is disposed of in a landfill. Diverting compostable organic materials from landfills is one of the goals of this General Order. Therefore, for compost operations eligible for coverage under this General Order, California Code of Regulations, title 27 regulations shall not apply so long as the Discharger continues to meet the requirements of this General Order.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

54. On [**date**], in accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), the State Water Board certified Environmental Impact Report (EIR) No. [**xxxxxx**] for this General Order. Several significant impacts related to water quality were identified in the EIR. The General Order contains mitigation measures designed to reduce the impact when possible. A summary of the water quality related significant impacts and the mitigation measures is presented below:

EIR Impact No.	Impact Summary	General Order Mitigation Measures
Impact 6.5	Composting operations have the potential to create objectionable odors affecting a substantial number of people.	The General Order requires control of objectionable odors. Mitigation measures are contained in the Specifications and Design Construction and Operation Requirements – all tiers.
Impact 9.2	Composting operations have the potential to result in substantial soil erosion or loss of topsoil.	The General Order requires control of storm water and liquids generated by the compost process. Mitigation measures are contained in the Design Construction and Operation Requirements – all tiers.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

EIR Impact No.	Impact Summary	General Order Mitigation Measures
Impact 11.1	Composting operations have the potential to result in violations of water quality standards or waste discharge requirements.	<p>The General Order requires surface and groundwater quality to be maintained to protect beneficial uses. The following mitigation measures related to water quality standards are included in the General Order:</p> <ol style="list-style-type: none"> 1. For mitigation related to surface water objectives, see mitigation measures in response to Impact 9.2 (listed above). 2. For mitigation related to groundwater objectives mitigation measures are contained in Prohibitions, Specifications, Design Construction and Operation Requirements – all tiers, and tier II, and maintenance requirements. The General Order limits the types of feedstocks used, and requires certain containment requirements to minimize infiltration. 3.
Impact 11.3	Composting operations have the potential to substantially alter existing drainage resulting in substantial erosion or siltation on- or off-site.	<p>Composting operations will be designed to contain storm water on-site. See the mitigation measures described for Impact 9.2 and 11.1.</p> <p>Requirements of the General Order to contain storm water on-site include the following:</p> <ul style="list-style-type: none"> • Design, construct, and maintain areas used for receiving, processing, or storing feedstocks, additives, amendments, or compost to control and manage run-on and run-off from a 25-year, 24-hour peak storm event; • Protect areas used for receiving, processing, or storing feedstocks, additives, amendments, or compost from surface flows associated with a 25-year, 24-hour peak storm event from inundation by surface flow; • Design and operate the storm water detention pond, containment berm, and drainage conveyance systems to contain a 25-year, 24-hour peak storm event; <p>Require low permeability drainage ditches for Tier II operations.</p>

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

EIR Impact No.	Impact Summary	General Order Mitigation Measures
Impact 11.4	Composting operations may have the potential to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.	The General Order requires management of drainage and surface water run-off. See Mitigation Measures 9.2, 11.1 and 11.3.
Impact 11.5	Composting operations may create or contribute runoff water which could exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.	Composting operations will be designed to contain storm water on-site. See the mitigation measures described for Impact 9.2.
Impact 11.6	Composting operations may have the potential to substantially degrade water quality.	Composting operations will be designed to contain storm water on-site and prevent water that contains waste constituents from changing groundwater quality to the extent beneficial uses are impacted. See the responses to Impacts 9.2 and 11.1.
Impact 15.2	Composting operations have the potential to exceed wastewater treatment requirements of the applicable Regional Water Board.	The General Order requires containment of wastewater that is generated. Active treatment systems at composting facilities are possible (most likely a mechanical aerator in a detention pond). If off-site disposal of wastewater is necessary, delivery to a treatment system is possible via a collection system or tank truck hauling. See the responses to Impacts 9.2 and 11.1.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

EIR Impact No.	Impact Summary	General Order Mitigation Measures
Impact 15.6	Composting operations have the potential to result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	The General Order requires containment of wastewater that is generated; therefore a discharge at a wastewater treatment facility is unlikely. See the responses to Impacts 9.2 and 11.1.

55. The State Water Board has notified composting operators and owners, and governmental agencies and interested persons of its intent to certify an EIR and adopt a General Order and provided them the opportunity to attend a public meeting and submit their written views and recommendations.
56. The State Water Board, in a public meeting, heard and considered all comments pertaining to this matter.

OTHER REGULATORY CONSIDERATIONS

57. All WDRs must implement the applicable Regional Water Board's Basin Plan for the region in which the discharge occurs; therefore this General Order requires dischargers to comply with all applicable Basin Plan requirements or water quality objectives governing the discharge. In the event of a conflict between the requirements of this General Order and the Basin Plan, the more stringent requirement prevails.
58. The Discharger, as a condition of this General Order, may be required to conduct regular maintenance and monitoring to demonstrate protection of water quality and beneficial uses. Dischargers are financially responsible for costs associated with these activities as long as the operation is covered under this General Order.
59. This General Order is not a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to the Federal Clean Water Act. For composting operations where storm water discharges off-site, the Discharger may be required to enroll under the State Water Board's General Order No. 97-03-DWQ (new Industrial General Permit 2014-0057-DWQ will be effective July 1, 2015), NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (Industrial General Permit), and/or future promulgations. If process wastewater pollutants are discharged to surface water, the Discharger may be required to obtain an individual NPDES permit. Coverage under this

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

General Order does not exempt a facility from the federal Clean Water Act. Any facility required to obtain such permits must notify the Regional Water Board.

60. The issuance of this General Order is consistent with the goal to provide water resources protection, while considering economic and environmental impacts as stated in the Strategic Plan of the Water Boards and section 13263, subdivision (a) of the Water Code. Economic considerations are discussed in Appendix D of the EIR.
61. This General Order does not supersede the authority of local governmental agencies to prohibit, restrict, or control the use of biosolids subject to their control, as allowed under current law. It is the responsibility of the Discharger to obtain any local governmental agency permits or authorizations prior to the composting or use of biosolids at each site.
62. This General Order does not supersede any federal, state, or local law or regulation.
63. Pursuant to Water Code section 13263, subdivision (g), the discharge of waste into waters of the state is a privilege, not a right, and adoption of this General Order does not create a vested right to discharge wastes into the waters of the state. Failure to prevent conditions that create or threaten to create pollution or nuisance or that may unreasonably degrade waters of the state will be sufficient reason to modify, revoke, or enforce this General Order.

IT IS HEREBY ORDERED

IT IS HEREBY ORDERED pursuant to Water Code sections 13263 and 13267, the Discharger, its agents, successors, and assigns, in order to meet the provisions contained in division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

PROHIBITIONS

1. Any feedstock, additive, amendment, or compost (active, curing, or final product) stored, processed, or composted outside of the designated composting operation areas, as those boundaries are specified in an NOI and approved by the Regional Water Board, is prohibited.
2. Any volume of any feedstock, additive, amendment, or compost (active, curing, or final product) exceeding those specified in this General Order is prohibited.
3. Use of any feedstock, additive, amendment, or material, other than those described in this General Order is prohibited.
4. Discharge of any of the following wastes, including storage thereof, at a composting operation under this General Order is prohibited:
 - a. Animal carcasses;
 - b. Liquid wastes other than those of food origin;
 - c. Medical wastes as defined in the Health and Safety Code section 117690;
 - d. Radioactive wastes;

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- e. Septage;
 - f. Sludge, including but not limited to sewage sludge, water treatment sludge, and industrial sludge;
 - g. Wastes classified as “designated” as defined in Water Code section 13173;
 - h. Wastes classified as “hazardous” as defined in California Code of Regulations, title 22, section 66261.3;
 - i. Wood containing lead-based paint or wood preservatives, or ash from such wood; or
 - j. Any feedstock, additive, or amendment other than those specifically described in this General Order.
5. Discharges of feedstocks, additives, amendments, or wastes to lands not owned, leased, or otherwise controlled by the Discharger for the purposes of composting is prohibited.
 6. Discharge of wastes to surface waters is prohibited, except as authorized by an NPDES permit.
 7. Discharge of wastes including overflow, wastewater, or bypass from transport, treatment, storage, or disposal systems to adjacent drainages or adjacent properties is prohibited.
 8. Use of biosolids as a feedstock with concentrations of a metal that exceeds the ceiling concentration for the metal presented in 40 Code of Federal Regulations section 503.13 (Table 1), as a feedstock is prohibited.
 9. Use of biosolids as an additive or amendment is prohibited.
 10. Concentration of constituents in any detention pond that results in hazardous constituent concentration levels, as defined in California Code of Regulations, title 22, section 66261.3 is prohibited.

SPECIFICATIONS

1. The use of additives and amendments defined in this General Order, and Attachment A, is allowed provided that the additives and amendments meet the following specifications.
 - a. For Tier I facilities, the following approved additives and amendments may comprise no more than 10 percent combined, on a total volume basis, of the total feedstocks for any given batch of compost:
 - 1) Fertilizing material applied at rates that will be consumed or fixed/immobilized during active composting;
 - 2) Manure;
 - 3) Anaerobic digestate (solid) that was not derived from allowable Tier I feedstocks and is not listed under the Prohibitions section of this General Order; and/or
 - 4) Other material specified in an NOI and approved by the Regional Water Board.
 - b. For Tier II facilities, the following approved additives and amendments may comprise no more than 30 percent combined (other than liquid food material), on a total volume basis, of the total feedstocks for any given batch of compost:

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- 1) Fertilizing material applied at rates that will be consumed or fixed/immobilized during active composting;
 - 2) Liquid food material specified in an NOI and approved by the Regional Water Board, and applied at a rate that prevents conditions leading to pollution or nuisance, as defined in Water Code section 13050;
 - 3) Anaerobic digestate (solid) that was not derived from allowable Tier II feedstocks and is not listed under the Prohibitions section of the this General Order; and/or
 - 4) Other material specified in an NOI and approved by the Regional Water Board.
2. Additives and amendments must be handled, stored, and processed in the manner specified in the NOI and/or technical report and approved by the Regional Water Board.
 3. All feedstocks, additives, amendments, and compost (active, curing, or final product) must not cause, threaten to cause, or contribute to conditions of pollution, contamination, or nuisance. These discharges must comply with the applicable Basin Plan requirements.
 4. All feedstocks, additives, amendments, and compost (active, curing, or final product) from a composting operation that are exposed to precipitation or run-on having the potential to either produce contaminated non-process wastewater or leachate must be located on containment structures constructed as required by this General Order.
 5. Dischargers must submit with the NOI and technical report, a Water and Wastewater Management Plan that describes how wastewater will be managed to prevent discharge. The plan must describe the design, operations, and maintenance of the systems, including water balance calculations and assumptions, if required.
 6. Process wastewater, contaminated non-process wastewater, and leachate shall be handled as wastewater and managed in accordance with an approved Water and Wastewater Management Plan in the technical report described in Attachment D.
 7. Feedstocks for composting shall be limited to the allowable Tier I and Tier II feedstocks listed in Table 2 and defined in Attachment A.
 8. Composting operations shall be setback at least 100 feet from the nearest surface water body and/or the nearest water supply well. A lesser setback distance may be allowed by the Regional Water Board if the Discharger can demonstrate that the groundwater, geologic, topographic, and well construction conditions at the site are adequate to protect water quality.

DESIGN, CONSTRUCTION AND OPERATION REQUIREMENTS – ALL TIERS

1. Areas used for receiving, processing, or storing feedstocks, additives, amendments, or compost (active, curing, or final product) must be designed to limit water quality degradation. Working surfaces and containment structures must be designed, constructed, operated and maintained to:
 - a. Facilitate drainage and minimize ponding by sloping or crowning pads to reduce infiltration of liquids;

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- b. Reliably transmit free liquid present during storage, treatment, and processing of materials to a containment structure to minimize the potential for waste constituents to enter groundwater or surface water; and
 - c. Prevent conditions that could contribute to, cause, or threaten to cause a condition of contamination, pollution, or nuisance.
2. Working surfaces must be constructed to allow year round equipment access to feedstocks, additives, amendments, and compost (active, curing, or final product) without damage to the working surfaces and containment structures.
3. To prevent potential impacts to waters of the state, the Discharger must minimize the potential for piles of feedstocks, additives, amendments, or compost (active, curing, or final product) to become over-saturated and generate leachate.
4. Areas used for receiving, processing, or storing feedstocks, additives, amendments, or compost (active, curing, or final product) must be designed, constructed, and maintained to control and manage all run-on, runoff, and precipitation which falls onto or within the boundaries of these areas, from a 25-year, 24-hour peak storm event at a minimum.
5. Areas used for receiving, processing, or storing feedstocks, additives, amendments, or compost (active, curing, or final product) must be protected from inundation by surface flows associated with a 25-year, 24-hour peak storm event at a minimum.
6. Detention ponds, if used, must be designed and operated to manage all wastewater and precipitation from a minimum 25-year return annual total precipitation value distributed monthly in accordance with the average (mean) precipitation values¹ or equivalent alternative approved by the Regional Water Board.
7. Detention ponds, if used, shall be managed as described in the facility's Water and Wastewater Management Plan.
8. Detention ponds, if used, must be managed to maintain a dissolved oxygen concentration in the upper zone (one foot) of at least 1.0 mg/L at any time.
9. Detention ponds, if used, shall be managed to mitigate breeding of mosquitoes including, but not limited to the following:
 - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, a shoreline synthetic liner, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall be removed from the water surface.
 - d. Coordination with the local mosquito abatement or vector control district to supplement the measures described above in cases where other methods are infeasible.

¹ Climate data may be found from the Department of Water Resources Flood Management website at http://www.dwr.water.ca.gov/floodmgmt/hafoo/csc/climate_data/ under *Precipitation*, then *Monthly Historical Rain Data*. Distribute the *SUM* value for *RP 25* by month by using the *Average* values percent breakdown by month.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

10. Berms must be designed, constructed, and maintained to prevent run-on and run-off from a 25-year, 24-hour peak storm event at a minimum. Berms must be adequately protected from erosion, and must not cause, threaten to cause, or contribute to conditions resulting in contamination, pollution, or nuisance.
11. Drainage conveyance systems must be designed, constructed, and maintained for conveyance of liquids from the working surfaces to convey all run-off and direct precipitation from a 25-year, 24-hour peak storm event at a minimum. Ditches must be properly sloped to prevent ponding and kept free and clear of debris to allow for continuous flow of liquid. Ditches must be adequately protected from erosion, and must not cause, threaten to cause, or contribute to conditions resulting in contamination, pollution, or nuisance. Ditches must be inspected and cleaned out prior to the wet season every year.

DESIGN, CONSTRUCTION AND OPERATION REQUIREMENTS – TIER II ONLY

1. Working surfaces must be capable of resisting damage from the movement of equipment and weight of piles, and have a hydraulic conductivity of 1.0×10^{-5} centimeters per second (cm/s) or less. Working surfaces must consist of one of the following:
 - a. Compacted soils, with a minimum thickness of one foot;
 - b. Asphaltic concrete or Portland cement concrete; or
 - c. An equivalent engineered alternative specified in an NOI and approved by the Regional Water Board.
2. Detention ponds must be designed, constructed, operated, and maintained to meet a hydraulic conductivity of 1.0×10^{-6} cm/s or less. These ponds must include one of the following:
 - a. A liner system consisting of a 40 thousandths of an inch (mil) synthetic geomembrane (60-mil if high-density polyethylene), underlain by either one foot of compacted clay or a geosynthetic clay liner installed over a prepared base;
 - b. A liner system that includes Portland cement concrete – designed to minimize cracking and infiltration – underlain by a 40-mil synthetic geomembrane (60-mil if high-density polyethylene); or
 - c. An equivalent engineered alternative specified in an NOI and approved by the Regional Water Board.
3. Detention ponds must be designed and constructed with a pan lysimeter monitoring device under the lowest point of the pond, or an equivalent engineered alternative approved by the Regional Water Board. The engineered alternative must provide equivalent assurance of the earliest possible detection or prevention of a release from the pond.
4. Tanks, if used, must be designed, operated, maintained and monitored in accordance with applicable laws and regulations.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

5. Drainage ditches must be designed, constructed, and maintained to convey all precipitation and runoff from a 25-year, 24-hour peak storm event at a minimum and have a hydraulic conductivity of 1.0×10^{-5} cm/s or less, and be lined with one of the following:
 - a. Compacted soils, with a minimum thickness of one foot;
 - b. Asphaltic concrete or Portland cement concrete; or
 - c. An equivalent engineered alternative specified in an NOI and approved by the Regional Water Board.

MONITORING REQUIREMENTS

1. Dischargers subject to this General Order must implement the applicable requirements specified in Attachment B, the MRP, which are hereby incorporated by reference as part of this General Order.
2. Pursuant to Water Code section 13267, the Discharger must comply with the applicable requirements specified in the MRP (Attachment B). If a site-specific MRP becomes necessary, the Discharger must comply with requirements specified in an individual MRP issued to the Discharger by the Regional Water Board. Failure to comply with the applicable requirements specified in Attachment B or a site-specific MRP issued by the Regional Water Board may subject the Discharger to civil liability. (Wat. Code, § 13268.)
3. In lieu of meeting hydraulic conductivity specifications for Tier II working surfaces and drainage ditches, the Discharger may implement a groundwater protection monitoring program. The Discharger shall confirm this intention by submitting a complete Groundwater Protection Monitoring Plan in the technical report with the NOI, as described in Attachment D.
4. Within 90 days of issuance of an NOA, the Discharger shall implement the approved Groundwater Protection Monitoring Plan, if applicable.

MAINTENANCE REQUIREMENTS

1. The Discharger shall maintain containment, control, and monitoring structures (e.g. berms, pads, detention ponds, tanks, run-on/run-off control structures, etc.) and monitoring systems (e.g. groundwater monitoring devices) in good working order.
2. The Discharger must regularly inspect and maintain all containment, control, and monitoring structures pursuant to this General Order, MRP, and NOA. The frequency of inspections must be sufficient to prevent discharges of feedstocks, additives, amendments, compost (active, curing, or final product), or wastewater from creating, threatening to create, or contributing to conditions of contamination, pollution, or nuisance.

SITE CLOSURE REQUIREMENTS

1. Release of wastes or waste-derived constituents at an unmanaged, inactive, or abandoned composting operation may cause, threaten to cause, or contribute to degradation of the waters of the state. At least 90 days prior to ceasing composting

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

operations, the discharger shall submit a Site Closure Plan to the Regional Water Board for approval.

2. The Discharger must jointly notify the appropriate Regional Water Board and Local Enforcement Agency in writing at the conclusion of the site closure activities that describes closure in accordance with the Site Closure Plan and Regional Water Board requirements.

REPORT REQUIREMENTS

1. **General Reporting Requirements** – The Discharger must furnish the following information within a timeframe specified by the Regional Water Board:
 - a. Any information which the Regional Water Board may request to determine compliance with this General Order; and
 - b. Copies of records required to be kept by this General Order.
2. **NOI and Technical Report** – The Discharger must submit an NOI and technical report as specified in Attachments C and D of this General Order. The Discharger must submit general information, site conditions, design, operations and monitoring information and a compliance schedule for existing facilities. The Discharger must submit a technical report with design information at least 90 days prior to any new construction of any working surfaces, detention ponds, berms, ditches, or any other water quality protection containment structure for approval by the appropriate Regional Water Board. The design information must include water balance calculations for detention ponds, design of storm water conveyance features for run-on and runoff control, liner materials and thicknesses, and rationale for liner system design. The technical report must ensure testing and quality assurance of liner materials and compacted soils in accordance with commonly accepted engineering practices, American Society for Testing and Materials test methods, and/or other appropriate material standards.
3. **Final Post-Construction Report** – The Discharger must submit a post-construction report to the Regional Water Board within 30 days of completing all construction activities associated with all applicable containment and monitoring structures, as required for compliance with this General Order and the MRP. The post-construction report must contain as-built plans and specifications to document that containment and monitoring structures were properly constructed and tested.
4. **Annual Monitoring and Maintenance Report** - The Discharger must submit an Annual Monitoring and Maintenance Report to the appropriate Regional Water Board no later than **April 1st** of each year (or next subsequent immediate business day, if falling on a weekend or state-observed holiday), as described in the MRP. The Annual Monitoring and Maintenance Report must summarize all monitoring and maintenance activities performed and adverse conditions noted since the prior reporting period with respect to all berms, ditches, working surfaces, detention ponds, and monitoring systems. As part of the Annual Monitoring and Maintenance Report, the Discharger must certify that the composting operation complies with the requirements of this General Order and applicable portions of the MRP.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

5. Reporting Declaration - All applications, reports, or information submitted to the Regional Water Boards must be signed and certified as follows:

- a. The NOI must be signed as follows:
 - 1) For a corporation - by a principal executive officer of at least the level of vice president;
 - 2) For a partnership or sole proprietorship - by a general partner or the proprietor, respectively;
 - 3) For a municipality, state, federal, or other public agency - by either a principal executive officer or ranking elected official; or
 - 4) For a military facility - by the base commander or person with authority and responsibility for environmental matters at the facility.
- b. All other reports required by this General Order and other information required by the Regional Water Board must be signed by a person designated in paragraph (a) above, or by a duly authorized representative of that person. An individual is a duly authorized representative only if:
 - 1) The authorization is made in writing by a person described in paragraph (a) above;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and
 - 3) The written authorization is submitted to the Regional Water Board.
- c. Any person signing a document under this section must make the following certification:

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

6. Report Submittals –The State Water Board and Regional Water Boards are transitioning to the paperless office system. Dischargers shall submit reports (both technical and monitoring reports) to the State Water Board’s GeoTracker database over the Internet in portable document format (pdf) as specified in California Code of Regulations, title 23, section 3892, subdivision (d) and section 3893. In addition, analytical data shall be uploaded to the GeoTracker database under a site-specific global identification number. Information on the GeoTracker database is provided at:

http://www.swrcb.ca.gov/ust/electronic_submittal/index.shtml;

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

7. **Use of Licensed Professionals** – The Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals. Any plan or report submitted in compliance with the requirements of this General Order, which requires technical interpretation, or proposes either a design, or a design change that might affect the composting operation’s containment features, wastewater detention ponds, or monitoring systems must be prepared by, or under the direction of, appropriately licensed professionals (e.g., registered civil engineer, professional geologist, or other registered certified specialty geologist) by the State of California. In addition, the licensee must sign and provide his or her registration number, or stamp the submitted plan or report.

NOTIFICATION REQUIREMENTS

1. **Revised Notice of Intent** – The Discharger must submit a revised NOI to the Regional Water Board at least 90 days prior to: (1) adding a new feedstock, additive, or amendment; (2) changing material or construction specifications; (3) changing a monitoring program; or (4) changing an operation or activity that was not described in the approved NOI and technical report. The Regional Water Board may require submittal of a revised technical report.
2. **Change in Ownership Notification Requirements** – The Discharger must notify the Regional Water Board and Local Enforcement Agency, in writing, at least 45 days in advance of any transfer of the General Order’s responsibility and coverage from the current owner to a new owner. This notification shall include:
- a. A statement of acknowledgment that the current owner is liable for violations occurring up to the transfer date and that the new owner is liable for violations occurring after the date that ownership of the property transfers; and
 - b. The new owner’s NOI and technical report (if applicable).
3. **Termination of Enrollment** – Enrollment under this General Order may be terminated if any of the following occur:
- a. The Regional Water Board, based on site-specific conditions or management practices, may require the Discharger to apply for individual WDRs. The applicability of this General Order to such dischargers will be rescinded upon adoption of individual WDRs;
 - b. At least 90 days prior to terminating all waste discharge activities, the Discharger must submit a Site Closure Plan to the Regional Water Board for approval. Filing a request by the Discharger for termination of this General Order does not stay any requirements of this General Order; or
 - c. If the operation is eligible for an exemption due to changes in process or procedures, the Discharger may propose termination. Filing a request by the Discharger for an exemption modification, revocation, reissuance, or termination of this General Order does not stay any requirement of this General Order.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- 4. Violation of Notification Requirements** – If a violation of requirements of this General Order or MRP occurs, the Discharger must notify the Regional Water Board by telephone or electronic mail within 48-hours of the violation. This notification must include a description of the noncompliance and its cause, the period of noncompliance (dates and times); and if the noncompliance has not been corrected, the anticipated time the noncompliance is expected to continue. The notification must also include steps taken or planned to reduce, eliminate, or prevent recurrence of the noncompliance. Depending on the severity of the violation, the Regional Water Board may require the Discharger to submit a separate technical report regarding the violation within 10 working days of the initial notification.
- 5. Monitoring Wells** – The Discharger must comply with all notice and reporting requirements of the Department of Water Resources, and with any local agency well permitting requirements regarding construction, alteration, destruction, or abandonment of any monitoring wells used for compliance with this General Order and MRP, as required under Water Code sections 13750.5 through 13755, and local agency requirements.

ADDITIONAL REQUIREMENTS

- 1. Duty to Comply** – Any noncompliance with this General Order constitutes a violation of the Water Code, and is grounds for enforcement action, and/or termination of enrollment under this General Order.
- 2. Corrective Action** – The Discharger must take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this General Order, including accelerated or additional monitoring necessary to determine the nature and impact of the noncompliance.
- 3. Responsibility for Monitoring and Maintenance** – Dischargers must be responsible for covering the costs associated with the activities necessary to maintain compliance with this General Order.
- 4. Maintenance Period** – The maintenance period must continue until the Regional Water Board finds that any feedstocks, additives, amendments, compost (active, curing, or final product), wastewaters, or other waste constituents or degradation products will not threaten waters of the state.
- 6. Revision of Waste Discharge Requirements** – This General Order may be modified, revoked, reissued, or terminated for causes including, but not limited to, the following:
 - a. Violation of any terms or conditions of this General Order,
 - b. Obtaining this General Order by misrepresentation or failure to disclose relevant facts, or
 - c. A change in any condition that requires a reduction or elimination of the authorized discharge.

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

Filing a request by the Discharger for modification, revocation, re-issuance, or termination of this General Order or notification of planned changes or anticipated noncompliance does not stay any condition of this General Order.

- 7. Change in Ownership** – This General Order is not transferable to any person except after notice to the Regional Water Board. The Discharger must submit a Change in Ownership Notification, pursuant to the Notification Requirements section of this General Order.
- 8. Property Rights** – This General Order does not convey any property rights of any sort or any exclusive privileges. Requirements prescribed herein do not authorize commission of any act causing injury to persons or property, nor protect the Discharger from liability under federal, state, or local laws or regulations, nor create a vested right for the owner and operator to continue the regulated activity.
- 9. Entry and Inspection** – Under authority of Water Code section 13267, the Discharger must allow the State Water Board and/or Regional Water Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law to:
 - a. Enter premises where a regulated facility or activity is located or conducted, or where records must be kept under specification of this General Order;
 - b. Have access to copy, at reasonable times, any records that must be kept under specification of this General Order;
 - c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or specified under this General Order;
 - d. Sample or monitor for the purposes of determining compliance with this General Order, any substances or parameters at any location; and
 - e. Photograph or video-record any structures, facilities, activities, or other conditions to determine compliance with this General Order.
- 10. Repository for Waste Discharge Requirements** – A complete and correct copy of this General Order, the NOA, and any pertinent technical documents must be maintained at the local offices of the Discharger, and must be available to facility personnel at all times.
- 11. Severability** – Provisions of this General Order are severable, and if any provision of this General Order or application of any provision of this General Order to any circumstance is held invalid, application of such provisions to other circumstances and the remainder of this General Order must not be affected thereby.
- 12. Effective Date** – This General Order becomes effective upon its adoption by the State Water Board.
- 13. Penalties for Investigations, Monitoring, or Inspection Violations** – The State Water Board and Regional Water Boards reserve the right to take any enforcement action authorized by law for violations of any terms and conditions of this General Order.
- 14. Civil Monetary Remedies** – Water Code section 13350 et seq. provides that any person who intentionally or negligently violates any conditions issued or amended by the Regional Water Board or State Water Board, is subject to administrative civil liability of up to \$10 per

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

gallon of waste discharged, or up to \$5,000 per day of violation. The Superior Court may impose civil liability of up to \$10,000 per day of violation or, if a cleanup and abatement order has been issued, up to \$15,000 per day of violation.

15. **Other Regulations** – Dischargers enrolled under this General Order may be subject to additional federal, state, or local regulations.
16. **Requesting Judicial Review** – Any person aggrieved by this General Order may, not later than 30 days from the date of adoption, file a petition for a writ of mandate for judicial review. Petitions that are not received within 30 days of the State Water Board’s adoption of the General Order will not be eligible for review by any court. (Wat. Code, § 13330 et seq.)
17. **Delegation of Authority** – By adoption of this General Order, the State Water Board delegates to the nine Regional Water Board Executive Officers, all powers and authority that may be delegated pursuant to Water Code section 13223. The State Water Board intends for the Executive Officers to make modifications or revisions in appropriate cases, to the maintenance and monitoring requirements contained within the MRP for Dischargers enrolled under this General Order; and to grant Dischargers enrollment or termination under this General Order and MRP pursuant to eligibility and termination criteria established in this General Order.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on **[date]**.

AYE:

NO:

ABSENT:

ABSTAIN:

Jeanine Townsend
Clerk to the Board

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

THIS PAGE INTENTIONALLY LEFT BLANK

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

ATTACHMENT A - DEFINITIONS

For the purposes of this General Order, the following terms, phrases, or abbreviations have a narrow scope of meaning, and are as follows:

Active Compost - Any feedstock, additive, or amendment, or combination thereof, that is in the process of being rapidly decomposed and is unstable. Active compost is generating temperatures of at least 50 degrees Celsius (122 degrees Fahrenheit) during decomposition, or is releasing carbon dioxide at a rate of at least 15 milligrams per gram of active compost per day, or the equivalent of oxygen uptake.

Additive - Material mixed with feedstocks or active compost in order to adjust the moisture level, carbon to nitrogen ratio, or porosity to create a favorable condition. Additives may include, but are not limited to, chemical fertilizers (when applied at rates that will be consumed or fixed/immobilized during active composting), manures and urea. Additives shall not be considered as either feedstocks or amendments.

Agricultural Composting - The operation of composting conducted in agricultural settings where: (1) feedstocks consist of materials generated onsite by production of farm, ranch, agricultural, horticultural, silvicultural, floricultural, vermicultural, or viticultural products, for example, orchard and vineyard prunings, culls and crop residues, and spoiled or unsalvageable food commodities (but not including animal carcasses), and; (2) the resulting compost product is returned to that same agricultural site, or an agricultural site owned by the owner of the composting activity and applied at an agronomic rate. No more than an incidental amount of up to 1,000 cubic yards of compost product may be given away or sold annually.

Agricultural Material - Consists of pre-consumer plant materials coming directly from lands used in the production of farm, agricultural, horticultural, aquacultures, silvicultural, floricultural, vermicultural, or viticultural products, including orchard and vineyard prunings, and crop residues. Agricultural material does not include manure.

Amendments - Materials added to stabilized compost to provide attributes for certain compost products, such as product bulk, product nutrient value, product pH, and soils blend. Amendments shall not be considered as either feedstocks or additives.

Anaerobic Digestate - The solid portion of the material remaining after the anaerobic digestion of any combination of agricultural materials, biosolids, food materials, green materials, manure, paper materials, or vegetative food materials. Dewatered digestate contains organic matter that may need to be further treated to stabilize it, usually through aerated composting.

Animal Carcasses - Refers to any whole or part (including, but may not be limited to the flesh, organs, blood, bones, and marrow) of a carcass of a bird, fish, or mammal, which cannot meet the definition of "food material."

ATTACHMENT A - DEFINITIONS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS

Background Water Quality - The concentrations or measures of constituents or indicator parameters in water or soil that have not been affected by waste constituents or leachate from the area being monitored.

Beneficial Uses - Pursuant to division 7, section 13050, subdivision (f) of the Water Code. "Beneficial uses" of waters of the state that may be protected against degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Management Practice(s) - A practice, or combination of practices, that is the most effective and feasible means of controlling degradation or pollution generated by nonpoint sources for the attainment of water quality objectives.

Biosolids - Sewage sludge that has been treated, tested, and meets any of the following:

1. Class A biosolids meeting the pollutant concentration limits in Table 3 of 40 Code of Federal Regulations section 503.13.
2. Class B biosolids meeting the pollutant concentration limits in Table 1 of 40 Code of Federal Regulations section 503.13.
3. Exceptional Quality (EQ) biosolids as defined in General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities Water Quality Order No. 2004-0012-DWQ, and A Plain English Guide to the EPA Part 503 Biosolids Rule, EPA 832/R-93/003.

Brine - Water saturated with or containing large amounts of common salt (sodium chloride), or a strong saline solution (e.g., calcium chloride).

California Environmental Quality Act (CEQA) - Refers to the statute promulgated in Public Resources Code, beginning with section 21000, and regulations promulgated in California Code of Regulations, title 14, chapter 3, beginning with section 15000, requiring state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

CalRecycle - The Department of Resources Recycling and Recovery (formerly the California Integrated Waste Management Board), which is the lead agency for implementing the state's municipal solid waste permit program that is deemed to be adequate by USEPA under regulations published pursuant to sections 2002 and 4005 of the Resource Conservation and Recovery Act of 1976.

Chipping and Grinding Facilities and Operations - Facilities or operational areas that do not produce compost, but mechanically reduce the size or otherwise engage in the handling of "green material." Each load of "green material" must be removed from the site within 48-hours

ATTACHMENT A - DEFINITIONS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS

from receipt, unless the Discharger has received written permission from the Local Enforcement Agency allowing the “green material” to remain onsite for up to 7 days.

Composting - A controlled microbial degradation of organic wastes yielding a safe and nuisance-free product.

Composting Conducted at a Publicly Owned Treatment Works - Refers to the composting of treated biosolids at a publicly owned treatment works, currently operating pursuant to permit or waste discharge requirements issued by a Regional Water Quality Control Board or the State Water Resources Control Board.

Composting Operation - shall mean the areas at which operations are conducted, including the receiving area, pre-processing, processing, curing, storage areas, detention ponds, and other areas associated with production of compost, including storage areas for feedstocks, additives, and/or amendments.

Constituent - An element or compound which occurs in or is likely to be derived from waste handled by a composting operation.

Constituent(s) of Concern - Any waste constituent(s), reaction product(s), and hazardous constituent(s) that is reasonably expected to be in or derived from waste handled by the composting operation.

Construction Quality Assurance - A planned system of activities that provides assurance that the facility or component thereof, is constructed as specified in the approved design. As used in this General Order, the term includes “Construction Quality Control,” a planned system of inspections that is used to directly monitor and control the quality of a construction project.

Containment Structures - Refers to any berm, ditch, working surface, wastewater detention pond, or other mechanism approved by the Regional Water Board at a Composting Operation designed, constructed, and maintained to limit feedstocks, additives, amendments, and/or compost (active, curing, or final product) from threatening to cause, causing, or contributing to conditions of contamination, pollution, or nuisance.

Contamination - Defined in section 13050, subdivision (k) of the Water Code.

Day - A calendar day unless otherwise specified.

Depth to Groundwater - The vertical distance measured, in feet, from the ground surface to the first encountered groundwater.

Discharge - The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying or dumping of wastes into or on any land or water.

Discharger - Any person who discharges waste which could affect the quality of waters of the state, and includes any person who owns a Composting Operation or who is responsible for the operation.

ATTACHMENT A - DEFINITIONS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS

Distance to Nearest Water Supply Well - The horizontal distance measured, in feet, from the nearest edge of the composting operation to the center of the water supply well head.

Distance to Nearest Surface Water - Horizontal distance measured, in feet, from the nearest edge of the composting operation to the edge of the high water mark for lakes and reservoirs, mean high tide line for tidally influenced water bodies, or the natural or levied bank for creeks and rivers.

Electronic Deliverable Format - Defined in California Code of Regulations, title 23, division 3, chapter 30, article 1, section 3891.

Evapo-concentration - The process by which the ratio of solute to water solvent is increased by the removal of the solvent and retention of the solute.

Feedstocks - Materials used in the production of compost. Feedstocks shall not be considered as either additives or amendments.

Fertilizing Material - Defined in division 7, section 14533 of the Food and Agriculture Code.

Food Material - Solid, and/or semi-solid materials resulting from the production or processing of food for animal or human consumption, but is no longer intended for such consumption, that is separated from solid waste to the maximum extent possible at the point of generation. Food material includes, without limitation, food waste from food facilities (as defined in Health and Safety Code, section 113789), food processing establishments (as defined in Health and Safety Code, section 111955), grocery stores, institutional cafeterias (such as prisons, schools, and hospitals), restaurants, and residential food scrap collection. Food material may include meat and compostable plastics incidental to a food scrap collection program. Food material shall not contain any substance included in the Prohibitions section of this General Order.

Geocomposite Liner - A manufactured material using geotextiles, geogrids, geonets, and/or geomembranes in laminated or composite form.

Geomembrane - Flexible materials in planar form manufactured to meet specific engineering purposes. Commonly, they are used as a barrier to waste solids and fluids. The term "geomembrane" is synonymous with "synthetic liner" and "flexible membrane liner".

GeoTracker - The State Water Board database as defined in California Code of Regulations, title 23, section 3891.

Green Composting Waiver - Refers to the "Conditional Waiver of Waste Discharge Requirements for Composting Operations." Adopted by most Regional Water Boards in 1996, this waiver covered the composting of green waste, some food processing waste, agricultural waste, and paper waste discharged to land with a volume in excess of 500 cubic yards.

Green Material - Any plant material that is separated at the point of generation and consists of, or contains, materials from plants, including leaves, clippings, cuttings, trimmings of grass, weeds, shrubbery, bushes, or trees, residential or community garden waste, and untreated

ATTACHMENT A - DEFINITIONS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS

wood waste. Green material does not include food material, biosolids, material processed from commingled collection, wood containing lead-based paint or wood preservative, mixed construction or mixed demolition debris.

Groundwater - Water below the ground surface that is at or above atmospheric pressure (i.e., perched, unconfined, or confined water).

Groundwater Elevation - The vertical distance measured, in feet, from mean sea level to the water table of the first encountered groundwater below the ground surface.

Hydraulic conductivity - The ability of natural and artificial materials to transmit fluid. For water, including aqueous solutions, the term is expressed as a measure of the rate of flow (e.g., cubic centimeters per second) one can expect through a unit-area (e.g., one square centimeter) cross section of the material under a unit hydraulic gradient (e.g., one centimeter of head loss per centimeter of travel through the material). The resulting numerical value is expressed in velocity units (e.g., centimeters per second).

Leachate - Any liquid formed by the drainage of liquids from, or percolation/flow of liquids through any feedstock, additive, amendment, or compost (active, curing, or stabilized) pile.

Liquid Food Material - Liquid materials resulting from the production or processing of food for animal or human consumption - but is no longer intended for such consumption - that is separated at the point of generation from the waste stream (e.g., cheese whey, brewery waste, etc.). Liquid food material shall not contain either: brines or any waste included in the Prohibitions section of this General Order.

Liquid Wastes - Waste materials which are not spadeable or in a physical state where the waste materials behave sufficiently like a solid to be moved by a spade at normal outdoor temperatures.

Liner - A material or combination of materials designed, constructed, and maintained to contain any wastewater, storm water, feedstock, additive, amendment, or compost (active, curing, or final product) discharged to land.

Local Enforcement Agencies (LEA) - Agencies that are designated by the governing body of a county or city and, upon certification by CalRecycle, are empowered to implement delegated CalRecycle programs and locally designated activities.

Lot Clearing for Fire Protection - Refers to the storage of yard trimmings at a publicly designated site for the collection of lot clearing necessary for fire protection provided that the public agency designating the site has notified the fire protection agency.

Manure - Accumulated excrement (e.g., cattle manure, chicken manure, pig manure), which includes feces and urine, and any bedding material, spilled feed, or soil that is mixed with feces or urine that does not exceed its moisture holding capacity.

Major Storm Event - Is defined as one inch of precipitation within 24 hours.

ATTACHMENT A - DEFINITIONS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS

Moisture Holding Capacity - The amount of liquid which can be held against gravity by waste materials without generating free liquid.

National Pollutant Discharge Elimination System (NPDES) - Refers to the national program under Clean Water Act section 402 (33 U.S.C. § 1342), for regulation of discharges of pollutants from point sources to waters of the United States. Discharges are illegal unless authorized by a National Pollutant Discharge Elimination System permit.

Nonhazardous Solid Waste - Means all putrescible and nonputrescible solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes and other discarded waste (whether of solid or semi-solid consistency); provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentrations which exceed applicable water quality objectives, or could cause degradation of waters of the state (i.e., designated waste).

Nuisance - Defined in section 13050, subdivision (m) of the Water Code.

Pad - See definition for "working surface."

Paper Material - Nonhazardous paper and paper by-products (including paper, cardboard, tissue, and other products manufactured from vegetative fibers).

Percolation test - A method of testing water absorption of the soil. The percolation test shall be conducted as follows or an approved alternative: a minimum of six percolation tests shall be required as follows:

1. Four holes shall be spaced uniformly throughout the operations pad area to a minimum of 24 inches deep; and
2. Two holes outside the perimeter of the detention pond nearest the deepest corner. The holes shall be dug a minimum of 24 inches below the deepest part of the pond.
3. Percolation testing shall be conducted in accordance with local codes and ordinances and performed under the direction of a Professional Geologist, Soils or Civil Engineer, or Registered Environmental Health Specialist.

Point of Compliance - A vertical surface located along the hydraulically downgradient limit of a Composting Operation and that extends down through the upper most aquifer underlying the Composting Operation.

Pollution - Defined in section 13050, subdivision (l) of the Water Code.

Portable Document Format (PDF) - Defined in California Code of Regulations, title 23, division 3, chapter 30, article 2, section 3891.

Precipitation - Is any condensate of atmospheric water vapor and includes hail, mist, rain, sleet, or snow.

ATTACHMENT A - DEFINITIONS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS

Process Wastewater - Any liquid which comes in direct contact with or results from the production or use of feedstock, additive, amendments, or compost (active, curing, or final product). Process wastewater does not include contaminated non-process wastewater. Contaminated non-process wastewater shall mean any liquid including precipitation runoff which comes into incidental contact with any feedstock, additive, amendment, or compost (active, curing, or final product).

Publicly Owned Treatment Works (POTW) - Is as defined in part 403, section 403.3(q) of 40 Code of Federal Regulations.

Radioactive Material - Defined in California Code of Regulations, title 17, section 30100, subdivision (q).

Regional Water Quality Control Board (Regional Water Board) - All references to a Regional Water Board, include the Executive Officer, who may act for the Regional Water Board in carrying out this General Order. (Wat. Code, § 13050, subd. (b) & § 13223.)

Residual - The waste destined for disposal or recycling, and removed from the site.

Runoff - Any precipitation, wastewater, or other liquids that drain from any part of a Composting Operation.

Run-on - Any precipitation, wastewater, or other liquids that drain onto any part of the Composting Operation.

Separated at the Point of Generation - Includes material separated from the waste stream by the generator of that material. It may also include material from a centralized facility as long as that material was kept separate from the waste stream prior to receipt by that facility and the material was not commingled with other waste during handling.

Septage - Any waste removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar wastewater handling device that has not passed through a municipal wastewater treatment facility.

Sewage Sludge - Any solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a municipal wastewater treatment facility. It includes solids removed or used during primary, secondary, or advanced wastewater treatment processes. It does not include grit or screening material generated during preliminary treatment of domestic sewage at a municipal wastewater treatment facility. Sewage sludge does not include biosolids that meet the criteria in Table 3 of 40 Code of Federal Regulations section 503.13.

Significant Maintenance Activities - Refers to, but may not be limited to, those activities which could alter existing surface drainage patterns, change the existing slope configuration, occur as a result of repairing surfaces or conveyances that were damaged, or result in the installation or destruction of any monitoring system at the composting operation (e.g., groundwater monitoring well, lysimeter, etc.).

ATTACHMENT A - DEFINITIONS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS

Sludge - Refers to the solid, semi-solid, or liquid residue produced by water, wastewater, or sewage treatment processes.

Source Separated - Materials that have been separated or kept separate from the waste stream, at the point of generation, for the purpose of composting.

Stabilized Compost - Any feedstock, additive, or amendment, or combination thereof, which has undergone the "Process to Further Reduce Pathogens" as described in California Code of Regulations, title 14, section 17868.3, and that has reached a stage of reduced biological activity as indicated by reduced temperatures and rate of respiration below that of active compost.

Storm - The maximum precipitation for a given duration that is expected during the given recurrence interval (e.g., a 25-year [recurrence interval], 24-hour [duration] storm).

Storm water - Refers to any form of precipitation which does not either: (1) fall onto, or otherwise come into contact with any feedstock, additive, amendment, or compost (active, curing, or final product) pile, or (2) come into contact with any wastewater.

Tier I Feedstocks - The following are allowable Tier I feedstocks: agricultural materials, green materials, paper materials, vegetative food materials, anaerobic digestate derived from allowable Tier I feedstocks, and a combination of allowable Tier I feedstocks.

Tier II Feedstock - The following are allowable Tier II feedstocks: food materials (non-vegetative); biosolids (Class A, B, and/or EQ) as defined by 40 Code of Federal Regulations part 503; manure; anaerobic digestate derived from allowable Tier II feedstocks; and a combination of allowable Tier I and Tier II feedstocks.

Vegetative Food Material - Food material resulting from the production or processing of food for animal or human consumption, but is no longer intended for such consumption, that is derived solely from plants and is separated from solid waste to the maximum extent possible at the point of generation. Vegetative food material may be processed or cooked but must otherwise remain in its essentially natural state and no salts, preservatives, fats, oils, or other adulterants have been added.

Water Quality Control Plan (Basin Plan) - Defined in division 7, section 13050, subdivision (j) of the Water Code.

Wash Water - Refers to a type of wastewater generated from the washing of vehicles and/or equipment.

Wastewater - Refers collectively to leachate, wash water, process wastewater, or contaminated non-process wastewater.

Wastewater Detention Pond - An excavated or diked area designed to capture and hold any process wastewater, leachate, contaminated non-process wastewater or wash water.

**ATTACHMENT A - DEFINITIONS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

Water Boards - Refers collectively to the State Water Resources Control Board and the nine Regional Water Quality Control Boards.

Waste - Defined in Water Code section 13050, subdivision (d).

Water Quality Objectives - Defined in Water Code section 13050, subdivision (h).

Waters of the State - Defined in Water Code section 13050, subdivision (e).

Wet Season - Defined as October 1 through April 30.

Working Surface - Any area at a Composting Operation used for the storage and/or treatment of feedstocks, additives, amendments, or compost (active, curing, or final product).

Within Vessel and Fully enclosed - Refers to the action of receiving, composting, stabilizing, curing or storing any feedstock within a fully enclosed vessel or container (e.g., drum, silo, bin, tunnel, reactor) where the organic material is covered on all sides and rests on a stable surface with environmental controls for managing all wastewaters.

THIS PAGE INTENTIONALLY LEFT BLANK

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

ATTACHMENT B – MONITORING AND REPORTING PROGRAM

This Monitoring and Reporting Program (MRP) is issued pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Regional Water Board.

This MRP includes monitoring, reporting and record keeping requirements for composting operations. Monitoring requirements include facility inspections, wastewater detention basin water quality, groundwater protection monitoring, and general sampling, as appropriate. Reporting includes requirements for the Annual Monitoring and Maintenance Report, notification of violations, and reporting of significant events. Record keeping describes the types of information and length of time that the Discharger must keep and maintain reports.

The Discharger owns and/or operates the composting operation subject to the NOA and this General Order. The reports are necessary to ensure that the Discharger complies with the NOA and the General Order. Pursuant to Water Code section 13267, the Discharger shall implement this MRP and shall submit monitoring reports described herein.

A. ROUTINE MONITORING REQUIREMENTS

1. FACILITY INSPECTIONS

Any discharger enrolled under this General Order must inspect the composting operation in accordance with the following schedule and record, at a minimum, the observations described below:

- a. Operations Areas – Perform quarterly inspections of the working surfaces, berms, ditches, facility perimeter, erosion control best management practices (BMPs), and any other operational surfaces (as specified in the NOI and approved by the Regional Water Board). The Discharger shall include the following observations in the Annual Monitoring and Maintenance Report:
 - 1) Date and time of inspections, along with the name of the inspector;
 - 2) Evidence of areas of deficiency such as cracking or subsidence in the working surfaces;
 - 3) Evidence of ponding over the working surfaces and within ditches (show affected area on a map);
 - 4) Effectiveness of erosion control BMPs;
 - 5) Maintenance activities associated with, but not limited to, the working surfaces, berms, ditches, and erosion control BMPs;
 - 6) Evidence of any water or wastewater leaving or entering the facility, estimated size of affected area, and estimated flow rate (show affected area on a map);
 - 7) Integrity of drainage systems during the wet season; and
 - 8) Photographs of observed and corrected deficiencies.

**ATTACHMENT B – MONITORING AND REPORTING PROGRAM
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- b. Wastewater Management System - Perform quarterly inspections of the wastewater management system and submit the following observations and records in the Annual Monitoring and Maintenance Report:
 - 1) Date and time of inspections along with name of inspector;
 - 2) The overall condition of the wastewater management system (i.e. pond liner, storage tank construction, municipal wastewater connection points);
 - 3) The available capacity within storage systems and the current volume of wastewater (gallons) or solids (cubic yards) contained;
 - 4) Presence of odors from the wastewater management system – characterization, source, and distance from source;
 - 5) Volume of wastewater treated and discharged, if applicable; and
 - 6) Volume of wastewater disposed at an off-site treatment system and name and location of the wastewater treatment facility, if applicable.
- c. Annual Survey – Perform annual survey of the facility to confirm that all containment structures are prepared for the pending wet season. Dischargers shall conduct an annual survey prior to the anticipated wet season, but no later than August 31 and complete any necessary construction, maintenance, or repairs by **October 31**. The Discharger shall include the following in the Annual Monitoring and Maintenance Report:
 - 1) The observation date and time of the survey, along with the name of the inspector
 - 2) The type of deficiency/non-compliance observed;
 - 3) The cause for the deficiency/noncompliance;
 - 4) Map showing the area of deficiency/noncompliance;
 - 5) The corrective actions undertaken, or planned to resolve the deficiency/non-compliance, including the date and time of repairs;
 - 6) The measures undertaken by the Discharger to prevent the recurrence of the observed deficiency/noncompliance; and
 - 7) Photographs of the observed deficiencies/noncompliance with corresponding location on the map.
- d. Storm Events - The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage within **7 days** following major storm events. Necessary repairs shall be completed within **30 days** of the inspection. The Discharger shall report any damage and subsequent repairs including photographs of the problem and repairs in the Annual Monitoring and Maintenance Report.

**ATTACHMENT B – MONITORING AND REPORTING PROGRAM
 STATE WATER RESOURCES CONTROL BOARD
 DRAFT ORDER WQ 2015-xxxx-DWQ
 GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

2. WASTEWATER DETENTION POND MONITORING (IF APPLICABLE)

- a. Any Discharger enrolled under this General Order that has a wastewater detention pond to manage wastewater onsite must conduct monitoring of the wastewater within the detention pond when there is sufficient water and analyze the sample for the parameters listed Table B-1. Water sample analyses shall be conducted by a laboratory certified for such analyses by the State Water Board’s Environmental Laboratory Accreditation Program. These laboratory analyses shall be conducted in accordance with 40 Code of Federal Regulations part 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants) or other test methods approved by the Regional Water Board.

Table B-1

Wastewater Detention Pond Monitoring

Constituent	Units	Sample Frequency	Reporting Frequency
pH	std. units	Quarterly	Annually
Dissolved Oxygen	mg/L	Quarterly	Annually
Total Dissolved Solids	mg/L	Quarterly	Annually
Fixed Dissolved Solids	mg/L	Quarterly	Annually
Total Nitrogen	mg/L	Quarterly	Annually
Specific Conductance	µmhos/cm	Quarterly	Annually

Note: These field parameters are measured during each sampling event.

Detention Pond Leak Detection Monitoring (Tier II only) – The leak detection monitoring device (i.e. pan lysimeter) shall be checked monthly during the wet season for liquid. Upon detection of liquid in a previously dry monitoring device Discharger shall notify the Regional Water Board within **48 hours**; collect a sample and analyze the liquid for the constituents listed in Table B-1; remove the liquid from the device; and continue to monitor weekly. If liquid reappears, another sample must be collected and analyzed for the constituents in Table B-1. If the liquid is confirmed to be wastewater, the Discharger must submit a Response Action Plan within 30 days for review and approval by the Regional Water Board.

- b. The results of any monitoring conducted more frequently than required at the locations specified in this General Order shall be reported to the Regional Water Board.

3. BIOSOLIDS/ANAEROBIC DIGESTATE MONITORING (IF APPLICABLE)

- a. Any Discharger enrolled under this General Order that uses biosolids as a feedstock, shall present analytical results from a certified laboratory to show proof that the biosolids meet, at a minimum, with the ceiling concentrations listed in Table 1 of 40 Code of Federal Regulations part 503. Biosolids may be characterized by the entity that generates or otherwise processes the material. Use of analytical data prepared by such an entity may be accepted in lieu of the sampling listed below. The characterization shall contain a description of the sample procedures, the analytical

**ATTACHMENT B – MONITORING AND REPORTING PROGRAM
 STATE WATER RESOURCES CONTROL BOARD
 DRAFT ORDER WQ 2015-xxxx-DWQ
 GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

report, and a statement by a responsible person that the characterization was performed in a way that accurately characterizes the quality of the biosolids. The statement shall be signed by, and shall contain the certification language contained in the General Order under Reporting Requirements. USEPA regularly reviews, and may revise, the limitations and requirements of 40 Code of Federal Regulations part 503 and should be reviewed for updates.

- b. Any discharger enrolled under this General Order that uses biosolids as a feedstock and does not show results from a certified laboratory shall perform monitoring to characterize the material for the parameters listed in Table B-2. The characterization shall contain a description of the sample procedures, the analytical report, and a statement by a responsible person that the characterization was performed in a way that accurately characterizes the quality of the biosolids. The statement shall be signed by, and shall contain the certification language contained in the General Order under Reporting Requirements.

Table B-2

Biosolids/Anaerobic Digestate Monitoring

Constituent	Units	Sample Frequency	Reporting Frequency
Arsenic	mg/kg	Sample each delivery	Annually
Cadmium	mg/kg	Sample each delivery	Annually
Copper	mg/kg	Sample each delivery	Annually
Lead	mg/kg	Sample each delivery	Annually
Mercury	mg/kg	Sample each delivery	Annually
Molybdenum	mg/kg	Sample each delivery	Annually
Nickel	mg/kg	Sample each delivery	Annually
Selenium	mg/kg	Sample each delivery	Annually
Zinc	mg/kg	Sample each delivery	Annually

4. GROUNDWATER PROTECTION MONITORING (IF APPLICABLE)

- a. A Discharger that is required to perform groundwater monitoring due to site conditions shall perform the monitoring shown in Table B-3. Sample analysis shall be conducted by a laboratory certified by the State Water Board’s Environmental Laboratory Accreditation Program. These laboratory analyses shall be conducted in accordance with 40 Code of Federal Regulations part 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants) or other test methods approved by the Regional Water Board.
- b. Discharger is required to implement the sampling and analysis program detailed in the approved Groundwater Protection Monitoring Plan submitted with the NOI as part of the accompanying technical report described in Attachment D, which is hereby incorporated by reference as part of this MRP.

**ATTACHMENT B – MONITORING AND REPORTING PROGRAM
 STATE WATER RESOURCES CONTROL BOARD
 DRAFT ORDER WQ 2015-xxxx-DWQ
 GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- c. The results of any monitoring conducted more frequently than required at the locations specified in this General Order shall be reported to the Regional Water Board.

**Table B-3
 Groundwater Monitoring**

Constituent	Units	Sample Frequency	Reporting Frequency
Groundwater Elevation	0.01 Feet	Quarterly	Annually
Depth to Groundwater ^a	0.01 Feet	Quarterly	Annually
Gradient	Feet/Feet	Quarterly	Annually
Gradient Direction	Degrees	Quarterly	Annually
pH	Std. Units	Quarterly	Annually
Total Dissolved Solids	mg/L	Quarterly	Annually
Nitrate as Nitrogen	mg/L	Quarterly	Annually
Sodium	mg/L	Quarterly	Annually
Chloride	mg/L	Quarterly	Annually
Total Coliform Organisms ^b	MPN/100 mL	Quarterly	Annually

- a. Groundwater elevation shall be based on depth to water using a surveyed measuring point elevation on the well and a surveyed reference elevation.
- b. Using a minimum of 15 tubes, or three dilutions.

5. GENERAL SAMPLING REQUIREMENTS

- a. The Discharger shall use clean sample containers and sample handling, storage, and preservation methods that are accepted or recommended by the selected analytical laboratory or, as appropriate, in accordance with approved USEPA analytical methods.
- b. All samples collected shall be representative of the volume and nature of the material being sampled.
- c. All sample containers shall be labeled and records maintained to show the time and date of collection as well as the person collecting the sample and the sample location.
- d. All samples collected for laboratory analyses shall be preserved and submitted to the laboratory within the required holding time appropriate for the analytical method used and the constituents analyzed.
- e. All samples submitted to a laboratory for analyses shall be identified in a properly completed and signed Chain of Custody form.
- f. Field instruments may be used provided:
 - 1) The operator is trained in the proper use and maintenance of the instruments;
 - 2) The instruments are field calibrated prior to each monitoring event; and
 - 3) Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency.

**ATTACHMENT B – MONITORING AND REPORTING PROGRAM
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- g. Analytical results falling between the method detection limit (MDL) and the practical quantitation limit (PQL) shall be reported as “estimated,” be accompanied by documents reporting both the MDL and PQL values for that analytical run, and be flagged appropriately (i.e., “J-flagged”).
- h. MDLs and PQLs shall be derived by the laboratory for each analytical procedure in accordance with the State Water Board’s Environmental Laboratory Accreditation Program. In a relatively interference-free laboratory, derived MDLs and PQLs are expected to agree closely with published USEPA MDLs and PQLs.
- i. If the laboratory suspects that, due to a change in matrix or other effects, the MDL or PQL for a particular analytical run differs significantly from historic MDL or PQL values, results shall be flagged and reported in the quality assurance/quality control (QA/QC) report.
- j. The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99 percent reliability of non-zero results.
- k. The PQL shall represent the lowest concentration at which a numerical value can be assigned with reasonable certainty.
- l. All quality assurance/quality control data shall be reported, along with sample results to which it applies. This information shall include method, equipment, analytical detection, quantitation limits, recovery rates, an explanation for any recovery rate that is outside method specifications, results of equipment and method blanks, results of matrix spikes and surrogate samples, and the frequency of quality control analysis. Sample results shall be reported unadjusted for blank results or spike recovery. In cases where contaminants are detected in the quality assurance/quality control samples (i.e., field, trip, or laboratory blanks), the accompanying sample results shall be appropriately flagged.

B. REPORTING REQUIREMENTS

1. ANNUAL MONITORING AND MAINTENANCE REPORT

The Annual Monitoring and Maintenance Report shall be submitted to the Regional Water Board by **April 1st** each year. The Discharger must submit this report in a searchable, electronic format (i.e., Portable Document Format (PDF) and Electronic Deliverable Format (EDF) via the State Water Board’s Internet GeoTracker system at <http://geotracker.waterboards.ca.gov/> as required by this General Order. The report must include the following:

- a. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter;
- b. A map or aerial photograph showing the locations of observation stations and monitoring points;

**ATTACHMENT B – MONITORING AND REPORTING PROGRAM
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- c. Tabular and graphical summaries of all water quality data collected during the year, including storm water monitoring if applicable; and
- d. All historical monitoring data collected during the previous 5 years, and for which there are detectable results, including data for the previous year, shall be submitted in tabular form and in a digital file format.
- e. Monitoring information must include at a minimum:
 - 1) The date, identity of sample, monitoring point from which the sample was collected, and time of sampling or measurement;
 - 2) The name of the individual(s) who performed the sampling or measurements;
 - 3) Date and time that analyses were started and completed;
 - 4) The analytical techniques or method used, including method of preserving the sample and the identity and volume of reagents used; and
 - 5) Field instrument calibration logs.
- f. Copy of the complete laboratory analytical report(s), signed by the laboratory director or project manager, and at a minimum contain:
 - 1) Complete sample analytical reports;
 - 2) Complete laboratory QA/QC reports;
 - 3) A discussion of the sample and QA/QC data;
 - 4) A properly completed “chain of custody” from the analyzed samples; and
 - 5) A transmittal letter stating whether or not all of the analytical work was supervised by the director of the laboratory, and contain the following statement:
“All analyses were conducted at a laboratory certified for such analyses by the State Water Board’s Environmental Laboratory Accreditation Program in accordance with current USEPA procedures.”
- g. Results and discussion from the annual survey;
- h. Results and discussion of the groundwater protection monitoring, if applicable, including statistical analysis as submitted in the NOI and accompanying technical report, and approved by the Regional Water Board;
- i. A summary and certification of completion of inspections and maintenance of the working surfaces, berms, ditches, erosion control BMPs or other containment structures;
- j. An evaluation and certification of completion of inspections and maintenance on the effectiveness of the wastewater handling facilities including results of the annual testing of wastewater, capacity issues, nuisance conditions, and system problems;
- k. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with this General Order; and
- l. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

**ATTACHMENT B – MONITORING AND REPORTING PROGRAM
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

2. NOTIFICATION OF VIOLATIONS

If the Discharger determines there has been a violation of the requirements specified in either the General Order or this MRP, the Discharger must notify the Regional Water Board office by telephone as soon as practicable, within **48 hours**, or no later than the following business day, once the Discharger has knowledge of the violation. The notification must include a description of the noncompliance and its cause, the period of noncompliance (dates and times); and if the noncompliance has not been corrected, the anticipated time the noncompliance is expected to continue. The notification must also include steps taken or planned to reduce, eliminate, or prevent recurrence of the noncompliance.

The Regional Water Board may, depending on the severity of the violation, require the Discharger to submit a separate technical report regarding the violation within **10 working days** of the initial notification.

3. PRIORITY REPORTING OF SIGNIFICANT EVENTS

The Discharger shall report any noncompliance that endangers human health or the environment within **24 hours** of becoming aware of its occurrence. The incident shall be reported to the Regional Water Board, the local environmental health department, and to the California Governor's Office of Emergency Services (CalOES). During non-business hours, the Discharger shall leave a message on the Regional Water Board's voice mail. The message shall include the time, date, place, and nature of the noncompliance, name, and number of the reporting person, and shall be recorded in writing by the Discharger. CalOES is operational 24 hours a day. A written report shall be submitted to the Regional Water Board office within **10 working days** of the Discharger becoming aware of the incident. The report shall contain a description of the noncompliance, causes, duration, and the actual or anticipated time for achieving compliance. The report shall include complete details of steps that the Discharger has taken or intends to take to prevent recurrence. All intentional or accidental spills shall be reported as required by this provision. The written submission shall contain:

- a. The approximate date, time, and location of the noncompliance including a description of the ultimate destination of any unauthorized discharge and the flow path of such discharge to a receiving water body;
- b. A description of the noncompliance and its cause;
- c. The flow rate, volume, and duration of any discharge involved in the noncompliance;
- d. The amount of precipitation (in inches) the day of any discharge and for each of the seven days preceding the discharge;
- e. A description (location, date and time collected, field measurements of pH, temperature, dissolved oxygen and electrical conductivity, sample identification, date submitted to laboratory, and analyses requested) of noncompliance discharge samples and/or surface water samples taken;
- f. The period of noncompliance, including dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue;

**ATTACHMENT B – MONITORING AND REPORTING PROGRAM
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- g. A time schedule and a plan to implement corrective actions necessary to prevent the recurrence of such noncompliance; and
- h. The laboratory analyses of the noncompliance discharge sample and/or upstream and downstream surface water samples shall be submitted to the Regional Water Board office within **45 days** of the discharge.

C. RECORD-KEEPING REQUIREMENTS

The Discharger must retain records of all monitoring information, including all calibration and maintenance records, and copies of all reports required by this MRP, for a minimum of **5 years** from the date of sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding the discharge or when requested by the Regional Water Board. Records of monitoring information must include at a minimum:

- a. The date, identity of sample, monitoring point from which the sample was collected, and time of sampling or measurement;
- b. The name of the individual(s) who performed the sampling or measurements;
- c. Training logs and records;
- d. Date and time that analyses were started and completed;
- e. The analytical techniques or method used, including method of preserving the sample and the identity and volume of reagents used;
- f. Calculation of results;
- g. Results of analyses performed and method used (as proposed in an NOI and accompanying technical report, and approved by the Regional Water Board) for calculating the concentration limits for each naturally occurring constituents, based on background water quality monitoring data;
- h. Results of analyses and the MDL for each non-naturally occurring constituent;
- i. Laboratory quality assurance results (e.g., percent recovery, response factor, etc.); and
- j. Chain of Custody forms.

Ordered by: _____
Regional Water Board
Executive Officer

THIS PAGE INTENTIONALLY LEFT BLANK

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

ATTACHMENT C – NOTICE OF INTENT

DISCHARGER INFORMATION

Owner Name:				
Street Address:				
City/Locale:	County:	State:	Zip:	Telephone Number:
Facsimile Number:		Email Address:		
Owner Type (check one):	<input type="checkbox"/> Individual	<input type="checkbox"/> Corporation	<input type="checkbox"/> Partnership	<input type="checkbox"/> Other:

Operator Name (if different than above):				
Mailing Address:				
City/Locale:	County:	State:	Zip:	Telephone Number:
Facsimile Number:		Email Address:		

1. COMPOSTING OPERATION INFORMATION

Compost Facility Name:				
Street Address:				
City/Locale:	County:	State:	Zip:	Telephone Number:
Type (check one): <input type="checkbox"/> Existing Composting Operation <input type="checkbox"/> New Composting Operation		Facility Acreage (acres):		
		Total Facility Capacity (cubic yards):		
		Average Weekly Throughput (cubic yards per week):		
Assessor Parcel Number(s):		Regional Water Board Office:		
Latitude ____° ____' ____" Longitude ____° ____' ____"		Regional Water Board Address:		

2. REASONS FOR FILING

<input type="checkbox"/> New Discharge	<input type="checkbox"/> Existing Discharge	<input type="checkbox"/> Expansion or Change in Operations
<input type="checkbox"/> Changes in Ownership/Operator		<input type="checkbox"/> Other:

3. STORM WATER PERMIT

<p>Is there an Industrial Storm Water Permit for this facility? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, WDID Number: _____</p> <p>Related to storm water, have you received a "No Exposure Certification", "Notice of Termination", or "Notice of Exemption" for this facility? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please provide a copy.</p> <p>The Notice of Intent for coverage under the Industrial Storm Water Permit may be obtained over the internet at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/industrial.shtml</p>
--

**ATTACHMENT C - NOTICE OF INTENT
 STATE WATER RESOURCES CONTROL BOARD
 DRAFT ORDER WQ 2015-xxxx-DWQ
 GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

4. OTHER PERMITS

Has another agency issued permits or other entitlements (e.g., solid waste facility permit, notification permit, conditional use permit, building permits, air permits) for the unit? <input type="checkbox"/> Yes <input type="checkbox"/> No
For each permit or entitlement, list the type, issuing agency, and date of issuance:

5. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Has a CEQA determination been made by an agency? <input type="checkbox"/> Yes <input type="checkbox"/> No	Name of Agency:
Type and Date of Determination:	State Clearinghouse Number:

6. PROCESS

Allowable Materials (check all that apply, and specify the quantity onsite at any time):			
<input type="checkbox"/> agricultural material	cu. yds.:	<input type="checkbox"/> anaerobic digestate	cu. yds.:
<input type="checkbox"/> biosolids	cu. yds.:	<input type="checkbox"/> food material (non-vegetative)	cu. yds.:
<input type="checkbox"/> green material	cu. yds.:	<input type="checkbox"/> manure	cu. yds.:
<input type="checkbox"/> paper material	cu. yds.:	<input type="checkbox"/> vegetative food material	cu. yds.:
Current Processing Capacity (cubic yards):			
Months during which compostable materials will be on-site:			
Additives/Amendments and maximum dry weight percentage used (list):			

7. SITE CONDITIONS

Anticipated highest groundwater elevation (feet mean sea level):
Average ground surface material hydraulic conductivity (centimeters per second) or attach results of percolation testing:
Annual average precipitation (inches per year):
Distance to nearest water supply well (feet):
Closest surface water and distance (name, feet):

8. DESIGN SPECIFICATION TIERS (check one)

<input type="checkbox"/> Tier I	<input type="checkbox"/> Tier II	<input type="checkbox"/> Tier II (monitoring)
If the box for Tier II (monitoring) has been marked, provide the proposed Groundwater Protection Monitoring Plan with Technical Report.		

**ATTACHMENT C - NOTICE OF INTENT
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

9. TECHNICAL REPORT

Provide a complete technical report with all the information required in Attachment D of this General Order.

10. FILING FEE

Pursuant to California Water Code section 13260 et seq., Dischargers enrolled under this General Order are required to pay an annual fee, as determined by the State Water Resources Control Board. The filing fee accompanying this NOI is the first year's annual fee. The annual fee is based on the threat to water quality and complexity of the discharge in accordance with California Code of Regulations, title 23, section 2200. Dischargers enrolled under this General Order will be assigned a threat to water quality and complexity rating as described in the General Order and will be assessed the corresponding fee, plus any applicable surcharges. The NOI is to be accompanied by a check, made out to the State Water Resources Control Board for the payment of the filing fee.

11. CERTIFICATION

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

_____ Signature (Owner or Authorized Representative)	_____ Date
_____ Print Name	_____ Title
_____ Telephone Number	_____ Email

THIS PAGE INTENTIONALLY LEFT BLANK

**STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

ATTACHMENT D – TECHNICAL REPORT REQUIREMENTS

The technical report required as part of the Notice of Intent (NOI) to comply with the terms of this General Order must be organized such that each item listed below is addressed in the same format, including the numbering scheme. The entire General Order should be thoroughly reviewed for its requirements prior to preparation of this technical report. The minimum information needed to provide a complete review of your application by the appropriate Regional Water Board is listed below. This list may not reference all information needed for every composting operation.

The Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals. Any plan or report submitted in compliance with the requirements of this General Order, which requires technical interpretation, or proposes either a design, or a design change that might affect the composting operation's containment features, wastewater detention ponds, or monitoring systems must be prepared by, or under the direction of, appropriately licensed professionals (e.g., registered civil engineer, professional geologist, or other registered certified specialty geologist) by the State of California. In addition, the licensee must sign and provide his or her registration number, and/or stamp the submitted plan or report.

A. GENERAL INFORMATION

1. Property owner's contact information including business name, main point of contact, address, telephone number, facsimile number, email address, and type of ownership (e.g., individual, corporation, etc.).
2. Operator's contact information including business name, main point of contact, address, telephone number, facsimile number, and email address.
3. Information including name, address, telephone number, facsimile number, and email address where legal notices may be served (if different than above).
4. Legal business name and location of composting operation. Use the most accurate location, which may include: address; nearest town; cross streets; and latitude and longitude².
5. Description of the Facility including:
 - a. Assessor's Parcel Number(s);
 - b. Legal description including Section, Township, and Range;
 - c. Total Operational Footprint (acres) including ancillary activities;

² In accordance with GeoTracker's *Survey XYZ, Well Data, and Site Map Guidelines & Restrictions* available at: http://www.waterboards.ca.gov/ust/electronic_submittal/docs/geotrackersurvey_xyz_4_14_05.pdf

**ATTACHMENT D – TECHNICAL REPORT REQUIREMENTS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- d. Permitted Operational Capacity expressed in cubic yards of all materials received, processed, and stored on site at any given time;
 - e. Land uses within one mile from the perimeter of the operation; and
 - f. Description of water supply.
6. Provide a detailed site map showing the following:
- a. Location and size (in acres) of the working surface used for the storage of incoming feedstocks, additives, and amendments (receiving area);
 - b. Location and size (in acres) of the working surface used for active composting;
 - c. Location and size (in acres) of the area used for the storage of curing and finished compost;
 - d. Drainage pattern;
 - e. Berms and ditches for the conveyance of wastewaters;
 - f. Location, size (in acres), and capacity (in acre feet) of all wastewater detention ponds, if applicable;
 - g. Location of all sampling points for the monitoring of wastewater contained within ponds pursuant to the requirements of the General Order, if applicable;
 - h. Location of all sampling points for the monitoring of storm water runoff under the Industrial General Storm Water Permit, if applicable; and
 - i. Location of any groundwater monitoring wells and water supply wells within and/or near the property boundary.
7. Provide background information on the composting operation including history and a description of methods and operation used including the following:
- a. Describe the feedstock types, volumes, sources, and suppliers.
 - b. Describe the additives used, sources, suppliers, and the maximum dry weight percentage used in the active composting process.
 - c. Describe the amendments used, sources, suppliers, and the maximum dry weight percentage used in the finished compost.
 - d. Describe the method of composting (e.g., windrow, static, forced air, mechanical).
 - e. Provide process flow diagram showing movement of the material from received to finished product. Include average amount of time the material remains in each part of the process.
 - f. Describe how residuals are removed from the feedstocks managed and/or disposed.

B. SITE CONDITION INFORMATION

1. Climatology — Calculate required climatologic values from measurements made at a nearby climatologically similar station and provide the source data from which such values were calculated, together with the name, location, and period of record of the measuring station.

**ATTACHMENT D – TECHNICAL REPORT REQUIREMENTS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

- a. Maximum, minimum, and average annual precipitation in inches/year;
 - b. Mean evaporation in inches/year;
 - c. 25-year, 24-hour design storm event; and
 - d. 25-year return annual total precipitation.
2. Geology:
- a. Map and Cross Sections — A comprehensive geologic map and geologic cross sections showing lithology and structural features.
 - b. Materials — A description of natural geologic materials in and underlying the location of the operations, including identification of lithology, distribution and dimension features, physical characteristics, special physical or chemical features (i.e., alteration other than weathering), susceptibility to natural surface/near-surface processes, and all other pertinent lithologic data, all in accordance with current industry practices.
3. Hydrogeology, including:
- a. General – An evaluation of water bearing characteristics of natural geologic materials identified under Geology above, including hydraulic conductivity and delineation of groundwater zones.
 - b. Hydraulic Conductivity – An evaluation of the in-place hydraulic conductivity of soils immediately under the operation. For Tier I facilities, this would be substituted by the soil percolation test. This evaluation includes:
 - 1) Hydraulic conductivity in tabular form, for selected locations within the boundary of the operations;
 - 2) A map of the operations showing test locations; and
 - 3) An evaluation of the test procedures and rationale used to obtain the data.
 - c. Groundwater Flow Direction and Depth – an evaluation of the groundwater flow velocity and direction(s) within the uppermost groundwater zone and the following conditions:
 - 1) Maximum and average depth to first encountered groundwater below the native ground surface (in feet) and identify the source of the information; and
 - 2) Maximum and average groundwater elevation of first encountered groundwater (in feet) relative to mean sea level.
4. Discuss the location and distance (in feet) to the nearest water supply wells (e.g., municipal supply, domestic supply, agricultural wells) from the nearest property boundary of the operation.
5. Discuss whether the operation is located within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) designation and any design features to prevent inundation of the feedstocks, additives, amendments, compost (active, curing, or final product), or detention ponds. Include a reference to the appropriate FEMA Flood

**ATTACHMENT D – TECHNICAL REPORT REQUIREMENTS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

Hazard Map. Operations located within a 100-year floodplain may be subject to state and/or local land use restrictions and permits.

6. Identify all nearby surface water bodies, including streams, ditches, canals, and other drainage courses. Provide distances from the nearest property boundary of the operation to these areas on a map.

C. DESIGN INFORMATION

1. Provide the current and/or proposed design of all working surfaces, berms, and conveyance ditches for the storage and/or treatment of feedstocks, additives, amendments, and compost (active, curing, or final product), along with information demonstrating that these containment structures comply with appropriate design specifications of this General Order. Submit for each operational area detailed preliminary and/or (if existing, or later upon completion) as-built plans, specifications, and descriptions for all working surfaces or other containment structures and drainage/conveyance systems. In addition, the report shall contain a description of, and location data for, ancillary facilities including roads, waste handling areas, detention ponds, buildings, and equipment cleaning facilities.
2. Provide a Water and Wastewater Management Plan describing how water and wastewaters will be managed in accordance with this General Order. Information must include a description of and/or plan illustrating all precipitation controls, containment structures, (i.e., conveyance systems for storm water and/or wastewaters, detention ponds), best management practices, and contingency plan including:
 - a. A storm water conveyance system for controlling run-on and runoff.
 - b. A description of how process water is obtained and used.
 - c. A description of how the operation collects and manages wastewater. Information may include, but is not limited to, quantity that is reused back into the process, description of wastewater treatment systems, other water quality permits, and best management practices (i.e. covering materials) that reduce the production of wastewater.
 - d. If using a detention pond, provide a water balance demonstrating compliance with the Design, Construction and Operation Requirements section of this General Order.

D. OPERATIONS AND MONITORING INFORMATION

1. Include a proposal for an annual survey of the operation prior to the rainy season to assure that the site has been graded and prepared for the rainy season to eliminate and prevent erosion and ponding, in compliance with the requirements of this General Order.
2. Describe the inspection and maintenance program that will be undertaken regularly during composting operations, such as inspection of the containment structures for evidence of leachate, ponding, or surface failures such as cracking, spilling, or subsidence, in compliance with the specifications of this General Order.

**ATTACHMENT D – TECHNICAL REPORT REQUIREMENTS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

3. Describe the means by which the composting operation will be conducted in a manner that does not cause, threaten to cause, or contribute to conditions of contamination, pollution, or nuisance.
4. Provide a description of the operations during periods of wet weather to ensure integrity of the containment systems.
5. For Dischargers proposing groundwater protection monitoring in lieu of the design specifications, include a Groundwater Protection Monitoring Plan for establishing, operating, and monitoring to verify groundwater has not been impacted by the composting operation. Include rationale for the type of monitoring, monitoring frequency, spatial distribution of monitoring points, selection of monitoring equipment, construction specifications, procedures for sampling, analysis of the data, and data evaluation. This plan must include the following:
 - a. Map – a map showing the locations of the proposed monitoring system;
 - b. Plans and Specifications – drawings and data showing construction details of proposed monitoring system.
 - c. Inspection Procedures – construction quality assurance plan to ensure the system will be constructed per approved plans.
 - d. Sampling and Analysis – the plan shall include consistent sampling and analytical procedures that are designed to ensure that monitoring results provide a reliable indication of water quality at all monitoring points. At a minimum, the plan shall include a detailed description of the procedures and techniques for:
 - 1) Sample collection (i.e. container types), sampling equipment (i.e. field instruments, pumps, bailers, etc.), equipment calibration, and decontamination of sampling equipment;
 - 2) Sample preservation and shipment;
 - 3) Analytical procedures;
 - 4) Chain of custody control; and
 - 5) QA/QC procedures.
 - e. Proposed Data Analysis Method – describe the methods that will be used in evaluating protection of water quality. The specifications for each data analysis method shall include a list of constituents of concern that will be monitored and a detailed description of the criteria to be used for determining “measurably significant” evidence of any release from the operation and for determining compliance.

E. SITE CLOSURE INFORMATION

The technical report must include a plan for site closure activities upon completion of operations under this General Order to protect public health, safety, and the environment. The plan must describe how the site will be restored in compliance with Site Closure Requirements section of this General Order.

**ATTACHMENT D – TECHNICAL REPORT REQUIREMENTS
STATE WATER RESOURCES CONTROL BOARD
DRAFT ORDER WQ 2015-xxxx-DWQ
GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS**

F. COMPLIANCE SCHEDULE (EXISTING FACILITIES)

The technical report shall include a proposed schedule for achieving compliance with this General Order. Proposed schedules for implementation of the identified collection, control, and monitoring practices must be as soon as practicable, supported with appropriate technical or economic justification and in no case may the schedule exceed **six (6) years** from the date of the NOI. The Regional Water Board may modify the schedules based on evidence that meeting the compliance date is technically or economically infeasible.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B
DISTRIBUTION LIST

Jurisdiction Name (Mail Mailing Agency	Agency	Mailing Address	Mailing City	State	Zip Code	Phone Number	FAX Number	Salutation	Director-First	Director-Last	Title	Email
County of Alameda	Community Development Agency, Planning Department	224 West Winton Avenue, Room 111	Hayward	CA	94544	(510) 670-5400	(510) 785-8793	Mr.	Albert	Lopez	Planning Director	albert.lopez@acgov.org
County of Alpine	Community Development Department	50 Diamond Valley Road	Markleeville	CA	96120	(530) 694-2140 ext. 425	(530) 694-2149	Mr.	Brian	Peters	Community Development Director	bpeters@alpinecountyca.gov
County of Amador	Planning Department	810 Court Street	Jackson	CA	95642	(209) 223-6380	(209) 223-6228	Ms.	Susan	Grijalva	Planning Director	sgrijalva@co.amador.ca.us
City of Berkeley	Department of Planning and Development	2120 Milvia Street	Berkeley	CA	94704	(510) 981-7400	(510) 981-7490	Ms.	Wendy	Cosin	Planning and Development Interim Director	wcosin@ci.berkeley.ca.us
County of Butte	Department of Development Services	7 County Center Drive	Oroville	CA	95965	(530) 538-6821	(530) 538-2140	Mr.	Tim	Snellings	Development Services Director	tsnellings@buttecounty.net
County of Calaveras	Planning Department	891 Mountain Ranch Road	San Andreas	CA	95249	(209) 754-6394	(209) 754-6540	Ms.	Rebecca L.	Willis	Planning Director	rlwillis@co.calaveras.ca.us
County of Colusa	Building and Planning Department	220 12th Street	Colusa	CA	95932	(530) 458-0480	(530) 458-2035	Mr.	Stephen	Hackney	Director of Building and Planning	shackney@countyofcolusa.org
County of Contra Costa	Department of Conservation & Development	651 Pine Street, 4th Floor, North Wing	Martinez	CA	94553	(925) 335-1260	(925) 335-1299	Ms.	Catherine	Kutsuris	Conservation & Development Director	catherine.kutsuris@dcd.cccounty.us
County of Del Norte	Community Development Department - Planning Division	981 H Street	Crescent City	CA	95531	(707) 464-7254	(707) 465-0340	Ms.	Heidi	Kunstal	Deputy Director of Building and Planning	hkunstal@co.delnorte.ca.us
County of El Dorado	Development Services Department	2850 Fairlane Court	Placerville	CA	95667	(530) 621-5355	(530) 642-0508	Mr.	Roger	Trout	Development Services Director	roger.trout@edcgov.us
County of Fresno	Public Works and Planning Department	2200 Tulare Street, Suite A	Fresno	CA	93721	(559) 262-4078	(559) 262-4879	Mr.	Alan	Weaver	Director	aweaver@co.fresno.ca.us
County of Glenn	Planning and Public Works Agency	777 North Colusa Street	Willows	CA	95988	(530) 934-6530	(530) 934-6533	Mr.	John	Linhart	Director of Planning & Public Works	jlinhart@countyofglenn.net
County of Humboldt	Community Development Services	3015 H Street	Eureka	CA	95501-4484	(707) 445-7541	(707) 445-7446	Mr.	Kirk	Girard	Director of Community Development Services	kgirard@co.humboldt.ca.us
County of Imperial	Planning & Development Services Department	801 Main Street	El Centro	CA	92243-2811	(760) 482-4236	(760) 353-8338	Mr.	Armando	Villa	Direction or Planning & Development Services	armandovilla@co.imperial.ca.us

Jurisdiction Name (Mail Mailing Agency)	Agency	Mailing Address	Mailing City	State	Zip Code	Phone Number	FAX Number	Salutation	Director-First	Director-Last	Title	Email
County of Inyo	Planning Department	168 North Edwards Street	Independence	CA	93526	(760) 878-0263	(760) 878-0382	Mr.	Joshua	Hart	Planning Director	jhart@inyocounty.us
County of Kern	Planning and Community Development	2700 M Street, Suite 100	Bakersfield	CA	93301-2370	(661) 862-8866	(661) 862-8601	Ms.	Lorelei	Oviatt, AICP	Director	loreleo@co.kern.ca.us
County of Kings	Community Development Agency	1400 West Lacey Boulevard	Hanford	CA	93230	(559) 852-2682	(559) 584-8989	Mr.	Gregory	Gatzka	Director	greg.gatzka@co.kings.ca.us
County of Lake	Community Development Department	255 North Forbes Street	Lakeport	CA	95453	(707) 263-2221	(707) 263-2225	Mr.	Richard	Coel	Community Development Director	richardc@co.lake.ca.us
County of Lassen	Planning and Building Services	707 Nevada Street, Suite 5	Susanville	CA	96130	(530) 251-8269	(530) 251-8373	Mr.	Maurice	Anderson	Director of Planning and Building Services	landuse@co.lassen.ca.us
City of Los Angeles	Department of City Planning	200 North Spring Street, Room 525	Los Angeles	CA	90012	(213) 978-1271	(213) 978-1275	Mr.	Michael	LoGrande	Director of Planning	michael.logrande@lacity.org
County of Los Angeles	Regional Planning	320 West Temple Street	Los Angeles	CA	90012	(213) 974-6411	(213) 626-0434	Mr.	Richard	Bruckner	Director	rbruckner@planning.lacounty.gov
County of Madera	Resource Management Agency	2037 West Cleveland Avenue	Madera	CA	93637	(559) 675-7821	(559) 675-6573	Mr.	Norman	Allinder	Planning Director	norman.allinder@madera-county.com
County of Marin	Community Development Agency	3501 Civic Center Drive, Room 308	San Rafael	CA	94903	(415) 499-6269	(415) 499-7880	Mr.	Brian	Crawford	Director	bcrawford@co.marin.ca.us
County of Mariposa	Planning Department	5100 Bulion Street	Mariposa	CA	95338	(209) 966-5151	(209) 742-5054	Mr.	Kris	Schenk	Director	planningdept@mariposacounty.org
County of Mendocino	Planning & Building Services Department	501 Low Gap Road, Room 1440	Ukiah	CA	95482	(707) 463-4281	(707) 463-5709	Mr.	Ignacio	Gonzalez	Planning & Building Services Director	pbs@co.mendocino.ca.us
County of Merced	Planning & Community Development Department	2222 M Street	Merced	CA	95340	(209) 385-7654	(209) 726-1710	Mr.	Mark	Hendrickson	Interim Development Services Director	mhedrickson@co.merced.ca.us
County of Modoc	Planning Department	203 West Fourth Street	Alturas	CA	96101	(530) 233-6406	(530) 233-6420	Ms.	Kimberly	Hunter	Planning Director	kimhunter@co.modoc.ca.us
County of Mono	Community Development Department, Planning Division	P.O. Box 8	Bridgeport	CA	93517	(760) 924-1800	(760) 924-1801	Mr.	Scott	Burns	Community Development Director	sburns@mono.ca.gov
County of Monterey	RMA - Planning Department	168 West Alisal Street	Salinas	CA	93901	(831) 755-5025	(831) 757-9516	Mr.	Mike	Novo	Planning Director	novom@co.monterey.ca.us

Jurisdiction Name (Mail Mailing Agency	Agency	Mailing Address	Mailing City	State	Zip Code	Phone Number	FAX Number	Salutation	Director-First	Director-Last	Title	Email
County of Napa	Conservation, Development and Planning Department	1195 Third Street, Suite 210	Napa	CA	94559	(707) 253-4417	(707) 299-4266	Ms.	Hilary	Gitelman	Director of Conservation, Development & Planning	cdp@countyofnapa.org
County of Nevada	Community Development Agency - Planning Department	950 Maidu Avenue, Suite 170	Nevada City	CA	95959	(530) 265-1222	(530) 265-9851	Mr.	Brian	Foss	Acting Planning Director	brian.foss@co.nevada.ca.us
County of Orange	OC Public Works/OC Planning	300 North Flower	Santa Ana	CA	92702	(714) 677-3218	(714) 834-2395	Mr.	Rick	LeFeuvre	Interim Director, OC Planning	rick.lefeuvre@ocpw.ocgov.com
City of Paso Robles	Community Development Department	1000 Spring Street	Paso Robles	CA	93446	(805) 237-3970	(805) 237-3904	Mr.	Ed	Gallagher	Community Development Director	ed@prcity.com
City of Pittsburg	Planning Division	65 Civic Avenue	Pittsburg	CA	94565	(925) 252-4920	(925) 252-4814	Ms.	Dana	Hoggatt Ayers	Planning Manager	dhoggatt@ci.pittsburg.ca.us
County of Placer	Community Development / Resource Agency	3091 County Center Drive, Suite 280	Auburn	CA	95603	(530) 745-3000	(530) 745-3120	Mr.	Michael J.	Johnson	Community Development / Resource Agency Director	mjohnson@placerc.ca.gov
County of Plumas	Planning Department	555 Main Street	Quincy	CA	95971	(530) 283-7011	(530) 283-6134	Mr.	Randy	Wilson	Planning Director	randywilson@countyofplumas.com
County of Riverside	Riverside County Transportation & Land Management Agency	4080 Lemon Street, 12th Floor	Riverside	CA	92501	(951) 955-6892	(951) 955-1811	Ms.	Carolyn	Syms Luna	Director	CLuna@rctlma.org
County of Sacramento	Planning Division	700 H street	Sacramento	CA	95814	(916) 874-6141	(916) 874-6400	Ms.	Leighann	Moffitt	Planning Manager	sacplan@saccounty.net
County of San Benito	Planning & Building Inspection Services	3224 Southside Road	Hollister	CA	95023-9174	(831) 637-5313	(831) 637-5334	Mr.	Gary	Armstrong	Director	garmstrong@cosb.us
County of San Bernardino	Land Use Services Department	385 North Arrowhead Avenue, First Floor	San Bernardino	CA	92415-0182	(909) 387-4431	(909) 387-3223	Ms.	Christine	Kelly	Director of Land Use Services	ckelly@lus.sbcounty.gov
City of San Diego	Development Services Department	1222 First Avenue	San Diego	CA	92101	(619) 446-5300	(619) 236-6478	Mr.	Tom	Tomlinson	Interim Director	TomlinsonT@san-diego.gov
County of San Diego	Department of Planning and Land Use	5201 Ruffin Road, Suite B	San Diego	CA	92123	(858) 694-2962	(858) 694-2555	Mr.	Mark	Wardlaw	Director of Planning and Development Services	mark.wardlaw@sdcounty.ca.gov

Jurisdiction Name (Mail Mailing Agency	Agency	Mailing Address	Mailing City	State	Zip Code	Phone Number	FAX Number	Salutation	Director-First	Director-Last	Title	Email
City and County of San Francisco	Planning Department	1650 Mission Street, Suite 400	San Francisco	CA	94103-2479	(415) 558-6378	(510) 558-6409	Mr.	John	Rahaim	Planning Director	john.rahaim@sfgov.org
County of San Joaquin	Community Development Department	1810 East Hazelton Avenue	Stockton	CA	95205	(209) 468-3120	(209) 468-3163	Ms.	Kerry	Sullivan	Director	ksullivan@sjgov.org
City of San Jose	Department of Planning, Building & Code Enforcement	200 East Santa Clara Street, 3rd Floor	San Jose	CA	95113	(408) 535-7900	(408) 292-6055	Mr.	Joseph	Horwedel	Director	joseph.horwedel@sanjoseca.gov
County of San Luis Obispo	Department of Planning and Building	976 Osos Street, Room 300	San Luis Obispo	CA	93408	(805) 781-5600	(805) 781-5624	Mr.	Jason	Giffen	Director, Department of Planning and Building	kgiffen@co.slo.ca.us
County of San Mateo	Planning and Building Department	455 County Center, 2nd Floor	Redwood City	CA	94063	(650) 363-1861	(650) 363-4849	Ms.	Lisa	Grote	Director	plngbldg@co.sanmateo.ca.us
County of Santa Barbara	Planning and Development Department	123 East Anapamu Street	Santa Barbara	CA	93101-2058	(805) 568-2085	(805) 568-2030	Mr.	Glenn	Russell, Ph.D.	Director, Planning and Development Department	grussell@co.santabarbara.ca.us
County of Santa Clara	Planning Department	70 West Hedding Street	San Jose	CA	95110	(408) 299-6740	(408) 288-9198	Mr.	Nash	Gonzalez	Director	nash.gonzalez@pln.sccgov.org
County of Santa Cruz	Planning Department	701 Ocean Street, Room 400	Santa Cruz	CA	95060	(831) 454-2580	(831) 454-2131	Ms.	Kathy	Molloy Previsich	Planning Director	PLN001@co.santacruz.ca.us
County of Shasta	Resource Management Department	1855 Placer Street, Suite 103	Redding	CA	96001	(530) 225-5532	(530) 245-6468	Mr.	Russ	Mull, R.E.H.S., A.I.C.P.	Director	scinfo@co.shasta.ca.us
County of Sierra	Building, Planning, and Pblc Works Department	101 Courthouse Square	Downieville	CA	95936	(530) 289-3251	(530) 289-2828	Mr.	Tim	Beals	Director of Building, Planning, & Public Works	planning@sierracounty.ws
County of Siskiyou	Public Health and Community Development Department	806 South Main Street	Yreka	CA	96097	(530) 841-2100	(530) 841-4076	Ms.	Terry	Barber	Public Health and Community Development Director	tbarber@co.siskiyou.ca.us
County of Solano	Resource Management Department	675 Texas Street, Suite 5500	Fairfield	CA	94533	(707) 784-6765	(707) 784-4805	Mr.	Bill	Emlen	Director of Resource Management Department	bemlen@solanocounty.com
County of Sonoma	Permit & Resource Management Department	2550 Ventura Avenue	Santa Rosa	CA	95403	(707) 565-1900	(707) 565-1103	Mr.	Peter	Parkinson	Director of Permit and Resource Management Dept.	pete.parkinson@sonoma-county.org

Jurisdiction Name (Mail Mailing Agency	Agency	Mailing Address	Mailing City	State	Zip Code	Phone Number	FAX Number	Salutation	Director-First	Director-Last	Title	Email
County of Stanislaus	Department of Planning and Community Development	1010 10th Street, Suite 3400	Modesto	CA	95354	(209) 525-6330	(209) 525-5911	Mr.	Kirk	Ford	Director	fordk@stancounty.com
City of Stockton	Community Development Department	345 North El Dorado Street	Stockton	CA	95202	(209) 937-8266	(209) 937-8893	Mr.	Michael M.	Niblock	Community Development Director	
County of Sutter	Community Services	1130 Civic Center Boulevard	Yuba City	CA	95993	(530) 822-7400	(530) 822-7109	Ms.	Lisa	Wilson	Planning Manager	lpurviswilson@co.sutter.ca.us
County of Tehama	Planning Department	444 Oak Street, Courthouse Annex Room 1	Red Bluff	CA	96080	(530) 527-2200	(530) 527-2655	Mr.	John	Stoufer	Interim Director of Planning	planning@co.tehama.ca.us
County of Trinity	Planning Department	61 Airport Road	Weaverville	CA	96093	(530) 623-1351	(530) 623-1353	Mr.	Richard	Tippett	Director of Transportation, Planning, and Building Development	rtippett@trinitycounty.org
County of Tulare	Resource Management Agency/Planning Branch	5961 South Mooney Boulevard	Visalia	CA	93277	(559) 624-7000	(559) 733-6291	Mr.	Michael	Spata	Assistant RMA Director, Planning Branch	m spat a@co.tulare.ca.us
County of Tuolumne	Community Resources Agency	48 West Yaney Street	Sonora	CA	95370	(209) 533-5633	(209) 533-5616	Ms.	Beverly	Shane	Community Resources Director	bshane@co.tuolumne.ca.us
County of Ventura	Resource Management Agency, Planning Division	800 South Victoria Avenue	Ventura	CA	93009	(805) 654-2481	(805) 654-2409	Ms.	Kim	Prillhart, AICP	Planning Director	kim.prillhart@ventura.org
City of Vernon	Community Services & Water	4305 Santa Fe Avenue	Vernon	CA	90058	(323) 583-8811	(213) 826-1435	Mr.	Kevin	Wilson, P.E.	Director of Community Services & Water	kwilson@ci.vernon.ca.us
City of West Covina	Planning Department	1444 West Garvey Avenue	West Covina	CA	91790	(626) 939-8422	(626) 813-8667	Mr.	Jeff	Anderson	Acting Planning Director	jeff.anderson@westcovina.org
County of Yolo	Planning and Public Works Department	292 West Beamer Street	Woodland	CA	95695	(530) 666-8775	(530) 666-8156	Mr.	John	Bencomo	Planning and Public Works Director	john.bencomo@yolocounty.org
County of Yuba	Community Development & Services Agency: Planning Department	915 8th Street	Marysville	CA	95901	(530) 749-5470	(530) 749-5434	Ms.	Wendy	Hartman	Director of Planning Housing & Community Services	whartman@co.yuba.ca.us

APPENDIX C
PHOTOGRAPHS OF COMPOSTING OPERATIONS

PHOTOGRAPHS OF COMPOSTING OPERATIONS



Vegetative Screening, Earthen Perimeter Berm



Feedstock Material with Contaminants Removed Prior to Grinding



**Co-Located at a Transfer Station which Manages its Own Fleet:
Fueling Structure, Outbuildings, Area Lighting**



Scale and Scale House



Operations and Storage Buildings, Concrete Pad and Berm, Static Aerated Pile, Fencing, Area Lighting



Feedstock and Product Material for Co-Located Chipping and Grinding Operations



Windrows in Varying Stages of Decomposition



Finished Compost Piles



Static Piles, Mechanical Turning Equipment



Feedstock Piles, Earthmoving Equipment



Composting Area, Incorporation of Additives



Water Tanks, Piles of Composted Materials, Covered Piles



Pile of Waste Separated from Feedstock Prior to Further Processing



Wastewater Pond



Wastewater Pond



Finished Compost Pile, Screening Equipment



Screening Equipment, Large Structures for Materials Processing, Feedstock Piles, Perimeter Fencing

APPENDIX D
ECONOMIC CONSIDERATIONS

GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS - ECONOMIC CONSIDERATIONS

Gerald Horner
Katheryn Landau
Office of Research, Planning and Performance
State Water Resources Control Board

Stephanie Young
Division of Water Quality
State Water Resources Control Board

June 9, 2014

SUMMARY

The proposed *General Waste Discharge Requirements for Composting Operations* (Order) will impose compliance costs on the compost industry that will increase the total cost of operations and decrease net returns. The proposed Order will require initial capital investments of approximately \$25.2 million in retention ponds, monitoring wells, and drains. Annual investment costs will be about \$2.2 million, and annual monitoring and maintenance will be an additional \$1 million. Although these amounts seem large when expressed in relative terms or in units of production, the effect on compost operators will be manageable. The industry has 121 facilities subject to the proposed Order that processes about 7.8 million cubic yards of compost annually.

The proposed Order will impose annual cost increases on the order of one percent to seven percent, depending on the size of operation and ownership. Net revenue will decline by 2.5 percent to 18 percent. However, projected profit margins vary between eight percent and 40 percent and therefore, the economic viability of the operations will not be in jeopardy.

Analysis shows that compliance with the proposed Order is highly unlikely to divert green waste from compost operations to landfills. The difference between the landfill disposal cost and the total compost cost varies from \$12.10/ton to \$23.74/ton of green waste. Total compost costs would have to increase by at least 26 percent to approach landfill disposal costs.

INTRODUCTION

Two economic considerations are addressed in this analysis. The first is to determine the effect of imposing the proposed Order compliance costs on the economic viability of composting operations. The second is to project the possible shift in compost feedstocks to landfills as a result of the proposed Order's requirements.

ECONOMIC VIABILITY UNDER THE PROPOSED ORDER

The proposed Order categorizes compost operations into two tiers, Tier I and Tier II. Tier I are those operations processing less than 25,000 cubic yards of material onsite at any given time that includes all material received, processed and stored on the premises. Tier I must meet all siting criteria: minimum groundwater depth based on soil percolation rate; distance to nearest surface water (≥ 100 feet); and distance to nearest drinking water supply well (≥ 100 feet). Tier I feedstocks are limited to agricultural, green, paper, and vegetative food materials.

Tier II operations process more than 25,000 cubic yards onsite at any given time of solid food material, biosolids and manure in addition to Tier I materials. Tier II operations also must meet certain siting criteria: minimum distances to the nearest surface water (≥ 100 feet); and distance to nearest drinking water supply well (≥ 100 feet).

Compliance with the proposed Order will require Tier II operations to either (1) upgrade the operation surface pad to meet a hydraulic conductivity standard, or (2) perform groundwater protection monitoring (assumed to be groundwater monitoring); install a lined retention pond; monitor water quality in the retention pond; and submit annual reports. Tier I operations are not subject to the operations surface pad hydraulic conductivity standard; retention pond hydraulic conductivity standard; or the groundwater protection monitoring requirements.

Eight Tier II compost facility operators volunteered to provide cost and revenue data for this analysis. The facilities represent a broad spectrum of private, public, and partnered operations receiving 25,000 to 140,000 tons per year of multiple types of feedstocks, using a variety of composting techniques. For the purposes of confidentiality, survey participants will not be identified.

Cost of Processing Compost With and Without the Proposed Order

Survey cost results were compiled on the basis of cubic yards of compost produced and sold annually as shown in Table 1. The total annualized cost of producing a cubic yard of compost (referred to as the *Total Processing Cost*) for the surveyed facilities ranged from \$19.19 to \$30.99.

Table 1. Compost Facility Characteristics and Costs by Category

Facility ¹	Compost Processed (cy/yr)	Surveyed Processing Cost				Projected Compliance Cost			Total Compost Cost (\$/cy)	Change in Compost Cost (%)
		Operating Cost (\$/cy)	Business Overhead Cost (\$/cy)	Investment Overhead Cost (\$/cy)	Total Processing Cost (\$/cy)	Plant Pad Size (ac)	30 year Average Annual Precipitation ² (in/yr)	Compliance Cost w/o Pad Installation (\$/cy)		
Pvt 1	25,000	\$15.67	\$5.89	\$7.26	\$28.82	15.8	22.36	\$2.00	\$30.83	6.9%
Pub 1	40,000	\$16.86	\$5.76	\$8.36	\$30.99	12.0	22.14	\$1.06	\$32.04	3.4%
Pvt 2	56,000	\$13.01	\$7.79	\$6.76	\$27.56	10.7	19.99	\$0.67	\$28.23	2.4%
Pvt 3	75,000	\$10.65	\$4.40	\$4.14	\$19.19	20.0	12.50	\$0.55	\$19.74	2.8%
Pub 2	100,000	\$13.98	\$12.09	\$4.51	\$30.58	18.0	38.39	\$0.80	\$31.38	2.6%
Pub 3	100,000	\$16.04	\$8.06	\$3.91	\$28.01	45.0	11.37	\$0.66	\$28.67	2.4%
Pvt 4	103,152	\$8.91	\$9.20	\$6.32	\$24.44	6.0	15.76	\$0.26	\$24.70	1.1%
Pub 4	137,016	\$11.84	\$11.23	\$3.64	\$26.70	72.0	6.63	\$0.50	\$27.20	1.9%

¹ Pvt indicates private ownership and Pub is a publically owned facility

² PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>, created 3/1/2014.

The cost to produce compost, referred to as the “Surveyed Processing Cost” in Table 1, are principally a function of: (1) the size of the operation, (2) the business arrangement (private or public), and (3) the processing techniques employed. The major cost categories of operating costs, business overhead costs, and investment overhead costs are defined as follows:

Operating Costs – Includes receiving, grinding and screening, forming open windrows, turning windrows, separating fines, forming fines curing piles, and shipping. Costs of labor, equipment operating costs (i.e., energy and repairs), and interest on operating capital, are accounted for in this category.

Business Overhead Costs – Includes staff and management costs, equipment rental, outside services, materials and supplies, office expenses, insurance, taxes, permits, fees, and land costs.

Investment Overhead Costs – Includes the annualized cost of purchased buildings, equipment, and long term facility improvements.

The cost to comply with the proposed Order was estimated assuming the annual capital costs of (1) upgrading the operation's pad surface to meet the proposed Order's hydraulic conductivity standard, or (2) installing groundwater monitoring wells and monitoring; installing a retention pond meeting the hydraulic conductivity standard; and constructing drainage conveyance ditches. Annual monitoring of pond water and maintenance costs are also included. Annual compliance cost per cubic yard of compost processed was calculated for the two options using the following equations:

Option 1: Cost of Operations Surface Pad Installation

If the operator chooses to upgrade the pad surface to meet the required hydraulic conductivity standard, the following equation calculates compliance costs:

Annual Compliance Cost With Pad Installation (\$/cubic yard) = Annual Pad Installation Cost (\$/cubic yard) + Annual Retention Pond Installation Cost (\$/cubic yard) + Annual Conveyance Drain Installation Cost (\$/cubic yard) + Annual Retention Pond Monitoring Cost (\$) + Annual Maintenance Cost (\$)

Where: Annual Pad Installation Cost (\$/cubic yard) = (Pad Installation Cost (\$/acre) x Pad Size (acre) x Capital Recovery Factor) / Compost Produced Annually (cubic yard)

Where: Pad Installation Cost (\$/acre) = \$81,675¹

Capital Recovery Factor² = 0.08718 = (Interest Rate x (1 + Interest Rate)^{Economic Life}) / ((1 + Interest Rate)^{Economic Life} - 1)

Where: Interest Rate = 6.0%

Economic Life = 20 years

Annual Retention Pond Installation Cost (\$/cubic yard) = (Pond Installation Cost (\$/ac) x Pad Size (ac) x Pond to Pad Factor (in⁻¹) x Average Annual Precipitation (in) x Capital Recovery Factor) / Compost Produced Annually (cubic yard)

Where: Pond Installation Cost (\$/acre) = \$147,388³

Pond to Pad Factor (in⁻¹) = 0.00692 = ((Pad Size (ac) x ((Open Area (% of Pad) x Pad Runoff Coefficient) + (Material Area (% of Pad) x Material Runoff Coefficient)) x 43,560 (ft²/acre) x 1/12 (ft/in)) / Pond Depth (in)) x (1/43,560 (acre/ft³))

Where: Open Area (% exposed surface) = 50%

Pad Runoff Coefficient = 0.69⁴

¹ Based on actual bids 2008 for lime/cement treated (12" thick), place AC roads, construction 200' x 200' concrete pad. Cost includes construction, design engineering, and construction oversight.

² The Excel PMT function calculates the value which is defined as the payment for a loan based on constant payments and a constant interest rate.

³ Assumes excavation, hauling, stockpiling, and finished grading (5' deep), installation of 60-mil HDPE membrane, and design, engineering and construction management.

⁴ <http://www.brighthubengineering.com/hydraulics-civil-engineering/93173-runoff-coefficients-for-use-in-rational-method-calculations/> Assumed disturbed area, 2 to 6% slope, Soil Group B with a coefficient of 0.68. However, 0.69 was inadvertently used in the calculations instead of 0.68.

$$\text{Material Area (\% covered surface)} = 1 - \text{Open Area}$$

$$\text{Material Runoff Coefficient} = 0.14^5$$

$$\text{Average Annual Precipitation (in)} = 30\text{-Year Average Annual Precipitation (in)}^6$$

$$\text{Annual Conveyance Drain Installation Cost (\$/cubic yard)} = (\text{Conveyance Drain Installation Cost (\$)} \times \text{Capital Recovery Factor}) / \text{Compost Processed Annually (cubic yard)}$$

$$\text{Where: Conveyance Drain Installation Cost (\$)} = \$10,000$$

$$\text{Annual Retention Pond Monitoring Cost (\$)} = \$3,962$$

$$\text{Annual Maintenance Cost (\$)} = \$3,500$$

Option 2: Cost of Groundwater Well Installation and Monitoring

If the operator chooses to monitor groundwater instead of upgrading the pad to the required hydraulic conductivity standard, the following equation calculates compliance costs:

$$\text{Annual Compliance Cost Without Pad Installation (\$/cubic yard)} = \text{Annual Retention Pond Installation Cost (\$/cubic yard)} + \text{Annual Conveyance Drain Installation Cost (\$/cubic yard)} + \text{Annual Groundwater/Retention Pond Monitoring Costs (\$/cubic yard)} + \text{Annual Maintenance Cost (\$/cubic yard)} + \text{Annual Groundwater Monitoring System Installation Cost (\$/cubic yard)}$$

$$\text{Where: Annual Groundwater Monitoring System Installation Costs (\$/cubic yard)}^7 = ((\text{If Pad Size} \geq 50 \text{ acres, then Cost of 5 Wells (\$), If Pad Size} < 50 \text{ acres, then Cost of 3 Wells (\$)}) \times \text{Capital Recovery Factor}) / \text{Compost Produced Annually (cubic yard)}$$

$$\text{Where: Installation Cost of 5 Wells (\$)} = \$58,919$$

$$\text{Installation Cost of 3 Wells (\$)} = \$35,387$$

$$\text{Annual Groundwater/Retention Pond Monitoring Costs (\$/cubic yard)}^8 = (\text{If Pad Size} \geq 50 \text{ acres, then Annual Cost Monitoring 5 Wells (\$), If Pad Size} < 50 \text{ acres, then Annual Cost Monitoring 3 Wells (\$)}) / \text{Compost Produced Annually (cubic yard)}$$

$$\text{Where: Annual Monitoring Costs for 5 Wells (\$)} = \$16,667$$

$$\text{Annual Monitoring Costs for 3 Wells (\$)} = \$11,167$$

Surveyed Facilities' Costs by Category

Figure 1 graphs the costs of surveyed facilities presented in Table 1, and provides a visual comparison of cost categories by facility. The results assume that the operator chooses the lower cost (Option 2) of installing and monitoring groundwater rather than upgrading the operation's pad surface (Option 1).

⁵ Op. cit. Compost material is similar to forested areas with a slope 2 to 6% on Soil Group B.

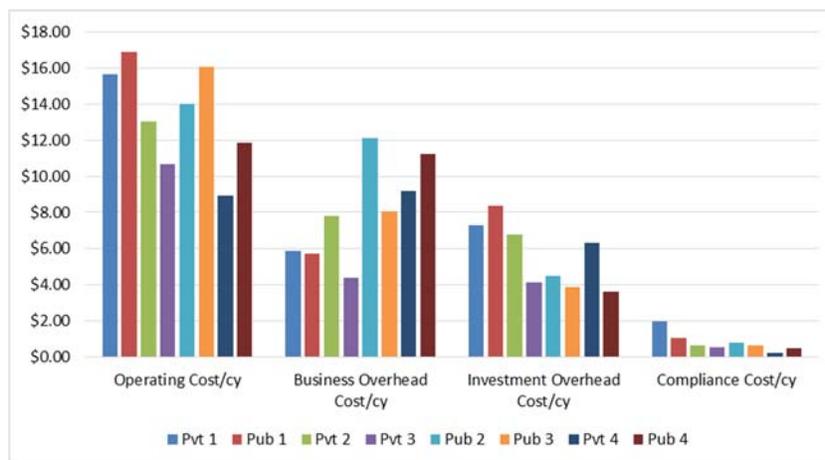
⁶ PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>, created 3/1/2014. 30-year average was closest available data to the 25-year annual required in proposed Order.

⁷ Includes project management, planning, installation, sampling, and reporting for the first year.

⁸ Includes annual sampling and reporting costs.

The facilities are arrayed by size so that the effect of economies of size on the cost of producing per cubic yard is shown. Operating costs, investment overhead costs and compliance cost decline as the amount of compost produced increases while business overhead cost increases. This is attributed to the larger facilities in the sample tending to lease or rent rather than purchasing selected capital equipment. Other differences may be attributed to the various processing technologies employed and ownership type.

Figure 1. Comparison of Surveyed Compost Facilities Cost Categories



Compliance costs assume the operator chooses the lessor cost option of monitoring groundwater rather than upgrading the operation’s pad surface. Compliance costs are principally the installation of the retention pond, which is determined by pad size and 30-year average annual precipitation. Comparing pad size and precipitation for facilities Pvt 1 and Pvt 4 illustrates the variables’ effects on compliance cost.

Facility Pvt 1 has a pad size of 15.8 acres, a 30-year average annual precipitation is 22.36 inches, and processes 25,000 cubic yards of compost annually. Using the pond to pad factor (0.00692in⁻¹), the pond installation cost of the single lined pond is \$147,388 per acre. Therefore, facility Pvt 1 has a retention pond installation capital cost of \$360,359. This capital cost is then annualized (assuming 6 percent interest rate over 20 years [0.0872]) and converted to a cost per cubic yard (by dividing the amount of compost produced annually), resulting in a cost of \$1.26/cubic yard of compost produced. Adding in the cost of the drainage conveyance (\$0.035/cubic yard); the compliance wells (\$0.123/cubic yard); and retention pond monitoring and maintenance costs (\$0.587/cubic yard), facility Pvt 1 has a total compliance cost of \$2.00/cubic yard.

Much lower compliance costs were projected for facility Pvt 4. Facility Pvt 4 has a pad size of six acres, a 30-year average annual precipitation of 15.76 inches, and processes 103,152 cubic yards of compost annually. Therefore, facility Pvt 4 has a retention pond installation capital cost would be \$96,457. Annualizing the cost and dividing by the amount of compost processed annually results in a cost of \$0.082/cubic yard. Adding in the cost of the drainage conveyance (\$0.008/cubic yard); the compliance wells (\$0.030/cubic yard); and retention pond monitoring and maintenance costs (\$0.142/cubic yard), facility Pvt 4 has a total compliance cost to \$0.26/cubic yard, or approximately 13 percent of the compliance cost for facility Pvt 1.

Profit Margins With and Without the Proposed Order

The profit margin is one indication of the economic viability of an operation. Profit margins can be used to compare similar types of operations with respect to changes in operating costs to determine changes in economic viability.

The profit margin is calculated as follows:

$$\text{Profit Margin (\%)} = ((\text{Gross Revenue (\$)} - \text{Total Costs (\$)}) / \text{Gross Revenue (\$)}) \times 100$$

The profit margin is just one indicator of economic viability. Therefore, the rate of return on investment was also calculated and will be reported later in this report. Other measures of economic viability require knowledge of the operation's assets and debt situation, which are not addressed in this analysis.

Composting gross revenue is comprised of two major revenue sources. The first revenue source is termed "tipping fees", or the charge a facility requires for accepting feedstocks. The tipping fee is usually in units of gross tons. The second revenue source is from the sales of the finished product, typically on a bulk-wholesale cubic yard basis. Gross revenue, the revenue term used in the following text and tables, represents the sum of the two revenue sources.

Table 2 presents total costs, gross revenue, net revenue, profit margins, and rate of return on investment with and without compliance costs for the surveyed facilities. In this analysis, profits represent the economic returns that will be retained by the facility owner after all itemized expenses have been paid. Of the surveyed facilities, facility Pvt 3 had the largest profit margin, with a 41.8 percent profit margin (without compliance costs). Compliance costs for Pvt 3 was relatively low, at \$.55 per cubic yard of compost sold, resulting in a profit margin with compliance costs of 40.2 percent, a reduction of 4.0 percent. Since the reduction in the profit margin is relatively low, it can be concluded that the proposed Order will not significantly affect the economic viability of Pvt 3.

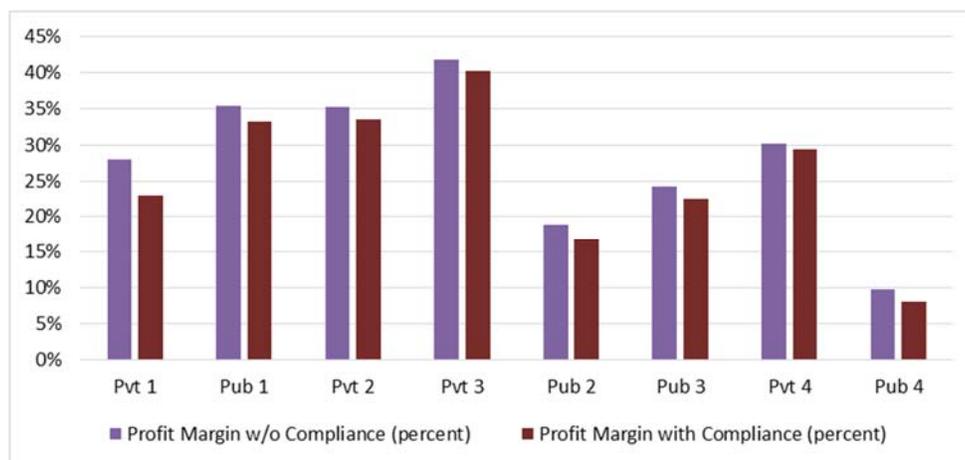
Table 2. Profit Margins

Facility	Total Cost w/o Compliance (\$/cy)	Gross Revenue (\$/cy)	Net Revenue w/o Compliance (\$/cy)	Profit Margin w/o Compliance (percent)	Compliance Cost (\$/cy)	Total Cost with Compliance (\$/cy)	Net Revenue with Compliance (\$/cy)	Profit Margin with Compliance (percent)	Decline in Profit Margin (percent)
Pvt 1	\$28.82	\$40.00	\$11.18	27.9%	\$2.00	\$30.83	\$9.17	22.9%	17.9%
Pub 1	\$30.99	\$48.00	\$17.01	35.4%	\$1.06	\$32.04	\$15.96	33.2%	6.2%
Pvt 2	\$27.56	\$42.50	\$14.94	35.2%	\$0.67	\$28.23	\$14.27	33.6%	4.5%
Pvt 3	\$19.19	\$33.00	\$13.81	41.8%	\$0.55	\$19.74	\$13.26	40.2%	4.0%
Pub 2	\$30.58	\$37.70	\$7.12	18.9%	\$0.80	\$31.38	\$6.32	16.8%	11.2%
Pub 3	\$28.01	\$37.00	\$8.99	24.3%	\$0.66	\$28.67	\$8.33	22.5%	7.4%
Pvt 4	\$24.44	\$35.00	\$10.56	30.2%	\$0.26	\$24.70	\$10.30	29.4%	2.5%
Pub 4	\$26.70	\$29.58	\$2.87	9.7%	\$0.50	\$27.20	\$2.37	8.0%	17.4%

Pub 4, the largest operation in the survey, has a 9.7 percent profit margin (without compliance costs), which is reduced to an eight percent profit margin when compliance costs are included. It should be noted that as wholly owned and operated by a public agency, profits are not the primary motivator for Pub 4. The objective of Pub 4 is to provide quality and cost-effective recycling services for the community at the lowest cost without negative financial returns. Pub 4 will provide composting services even if reasonable compliance costs increase the total cost of operation. Although the manager is charged with minimizing costs, the facility will not reduce operations due to a decline in net revenue.

Figure 2 presents a graphic comparison of facility profit margins with and without compliance costs. Pvt 1 is a privately owned, profit motivated company that will experience a decline of 17.9 percent in their profit margin. While a substantial decline in the profit margin, it leaves the operator with a 22.9 percent profit margin, which should not affect the economic viability of the facility.

Figure 2. Profit Margins With and Without Compliance Costs



The remaining five facilities will also experience reductions in net revenue, but should remain economically viable.

Four of the compost facilities are publicly owned or partnered with public entities. These operators have contractual obligations to provide compost services for the public and an additional objective to minimize costs. These operators will experience the most dramatic decline in projected profit margins, but are less vulnerable to economic hardship due to the participation of public partners. Four facilities are private operators with profit margins ranging from 22.9 to 40.2 percent after absorbing the compliance costs of the proposed Order and will remain economically viable.

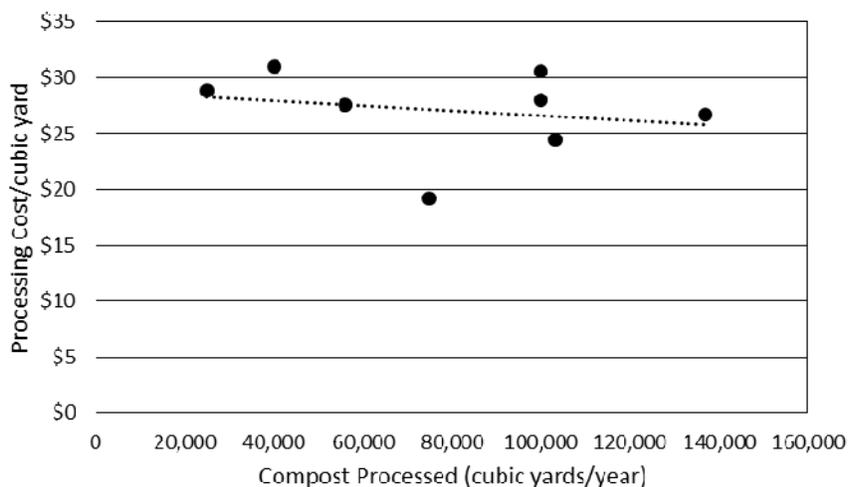
Profit Margins for California Compost Facilities

The data from the eight surveyed facilities were used to estimate costs and revenues for the remaining 113 compost operations anticipated to be subject to the proposed Order. Facilities that are covered under existing waste discharge requirements; not currently operating; or exempted operations were not included in this analysis.

Processing Costs

Existing compost processing costs (without compliance costs added) for the surveyed facilities were plotted to obtain a trend line (Figure 3).

Figure 3. Existing Processing Costs and Total Annual Compost Processed



The trend line was estimated using the following regression model:

$$y = \alpha + \beta x + \mu$$

where: y is processing cost/cubic yard;

α is the intercept;

β is the slope of function;

x is the size of the facility in cubic yards processed annually; and

μ is the error term.

The estimated regression equation is:

Processing Cost (\$/cubic yard) = \$ 28.24 + (-\$0.0000167 * Compost Processed Annually (cubic yard/year)

$$R^2 = 0.018$$

The R^2 , or correlation of determination, indicates that proportion of the total variation of processing costs that is explained by the model. An R^2 of .018 is statistically insignificant but is consistent with the presence of economies of size. To improve the predicative properties of the model, a dummy variable was introduced to test the hypotheses that the type of ownership causes a structural change in processing costs. A dummy variable is a 0 or 1 numerical value, where a 0 represents a privately owned facility and a 1 represents a publically owned facility. The logic of this model is explained in the previous section on public and private ownership, and their differences in business objectives. The regression model now becomes:

$$y = \alpha + \beta_1 x + \beta_2 p + \mu$$

where: y is processing cost/cubic yard;

α is the intercept;

β_1 is the slope of function;

x is the size of the facility in cubic yards processed annually;

β_2 is the difference in the cost of processing for publically owned compost facilities;

p is 1 if the facility is publically owned, 0 otherwise; and

μ is the error term.

The estimated regression equation is:

Processing Cost (\$/cubic yard) = \$ 28.68 + (-\$0.0000567 * Compost Processed Annually (cubic yard/year) + \$5.74 for publically owned facilities.

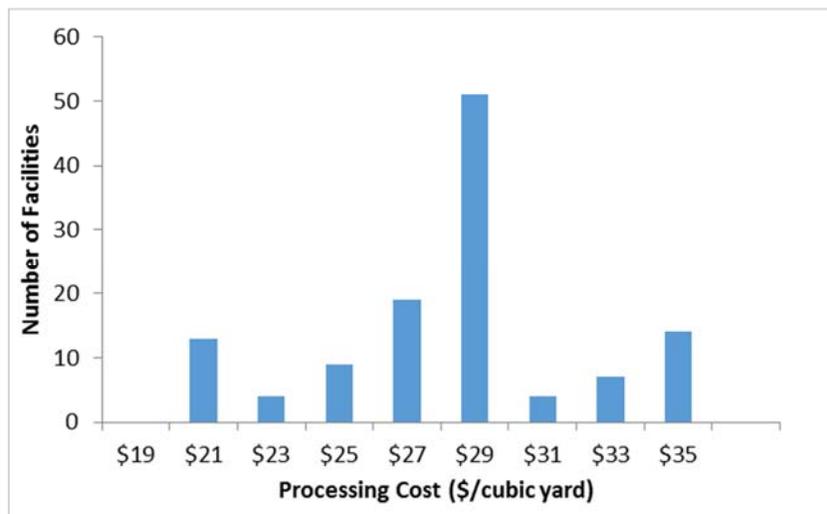
$$R^2 = 0.58$$

The R^2 indicates that 58 percent of the variation in the facility cost of processing is explained by the regression model.

The t statistic (coefficient divided by the standard error) of β_1 is 1.76, which is significant at the 90% confidence level. The t statistic of β_2 is 2.54, which is significant at the 95% confidence level. This set of regression coefficients was used to predict compost costs for the 113 statewide facilities subject to the proposed Order.

The frequency of compost processing costs for the 121 statewide facilities is presented in Figure 4.

Figure 4. Processing Cost



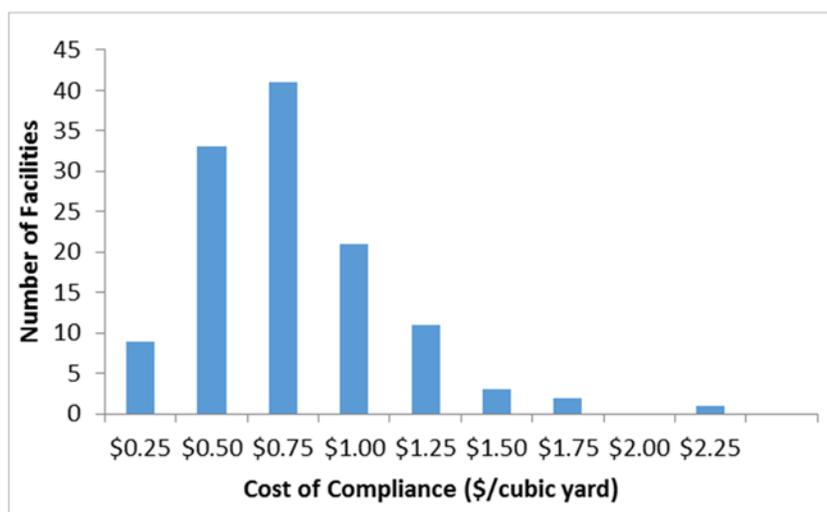
The minimum facility processing cost is \$19.19/cubic yard and the maximum is \$34.08/cubic yard. The mean is \$27.20/cubic yard and the median is \$27.66/cubic yard.

Compliance Costs

121 California compost operations are subject to the provisions of the proposed Order. CalRecycle’s Solid Waste Information System (SWIS) facility database⁹ provides collected data on the quantity of compost processed, and the size of each facility. As stated above, total compost costs for each facility is the total of processing costs plus compliance costs.

Figure 5 plots the frequency of compliance costs (\$/cubic yard) for the 121 facilities. As previously stated, compliance cost is primarily determined by the pad size, and the average annual precipitation.

Figure 5. Compliance Costs



The minimum facility compliance cost is \$.09/cubic yard and the maximum is \$2.00/cubic yard. The mean is \$0.66/cubic yard and the median is \$0.59/cubic yard.

⁹ <http://www.calrecycle.ca.gov/swfacilities/Directory/>

The location of the 121 compost facilities, their compliance costs, and 30-year average annual precipitation is shown in Figure 6. As previously stated, a high correlation exists between higher rainfall areas and higher compliance costs, which is prevalent in Northern California.

Compliance costs per unit of compost processed is a function of the size of the operation and the amount of compost processed annually. Facilities with lower compliance costs are generally located in the San Joaquin Valley and Southern California, and process larger amounts of compost annually. Plotting compliance costs and the amount of compost processed annually indicates the influence of the economies of size (Figure 7). The nonlinear Excel trendline indicates that costs decline as size increases, but most economies of size are achieved by the 50,000 cubic yard/year level. The deviations from the trendline can be attributed to distortions of pad size relative to facility size and average annual precipitation.

Figure 6. Compost Facilities and Compliance Cost

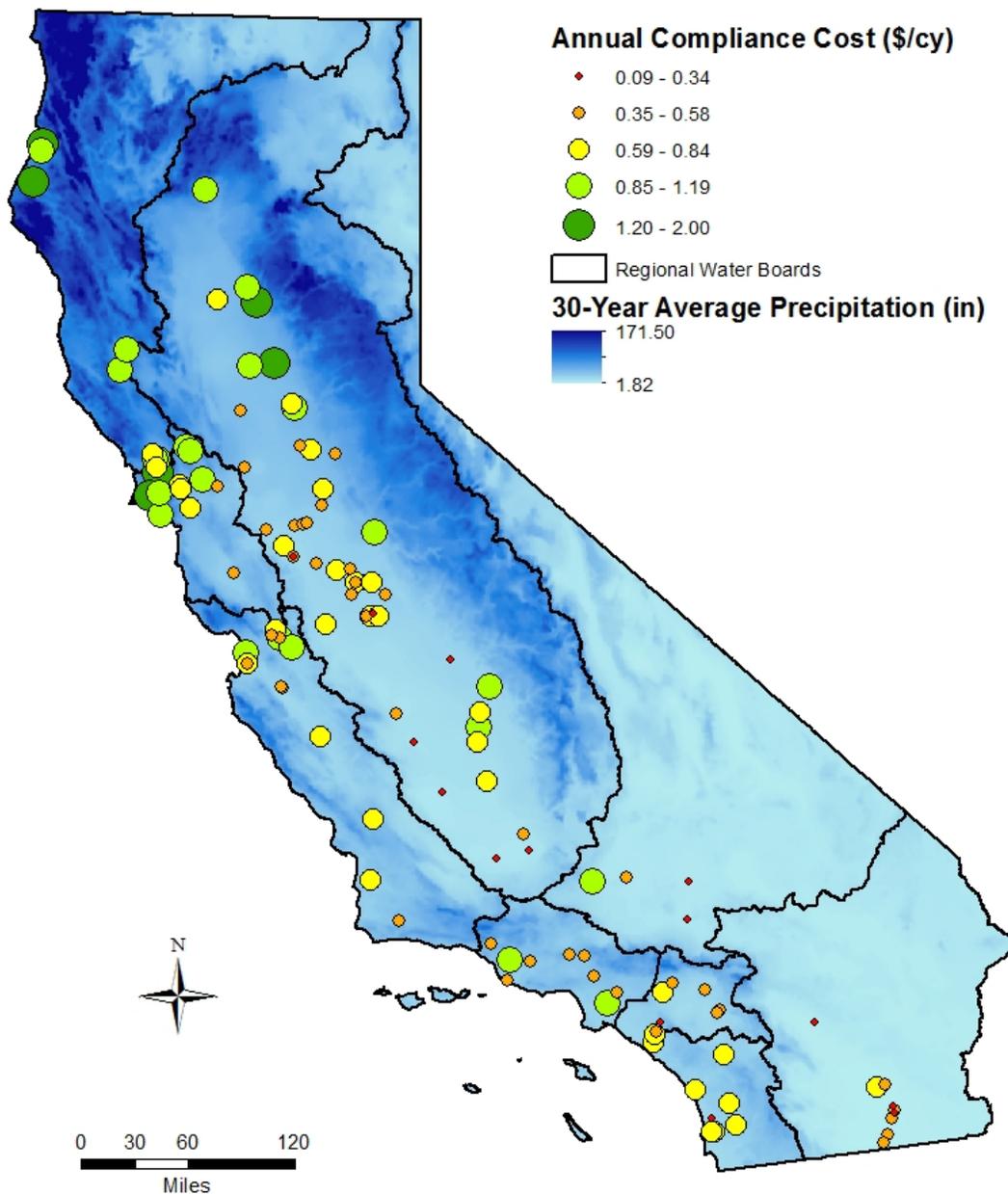
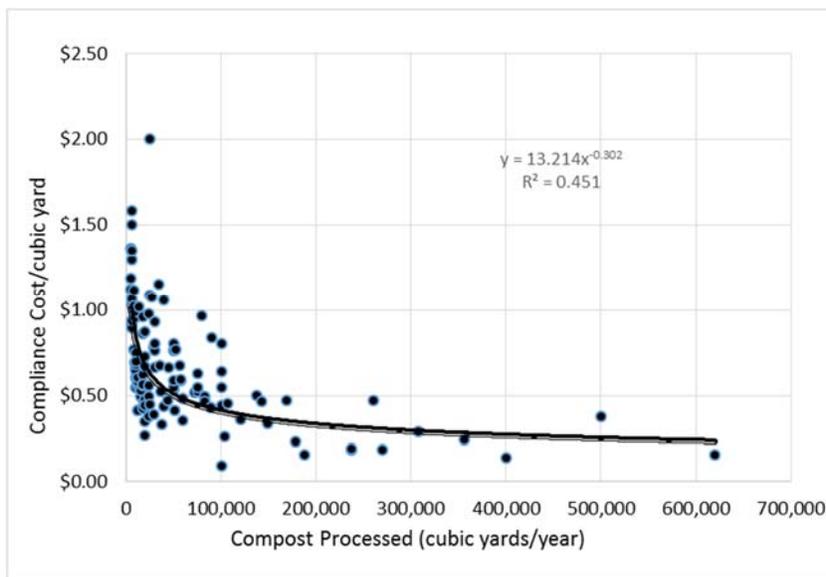


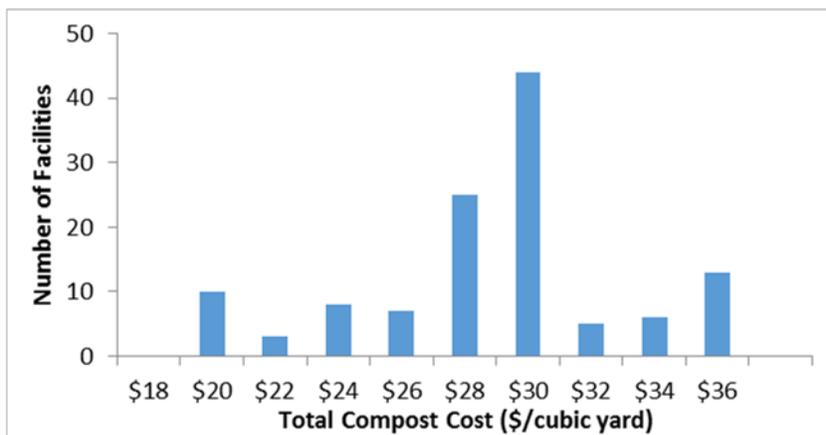
Figure 7. Compliance Cost and Size of Compost Facility



Total Compost Cost

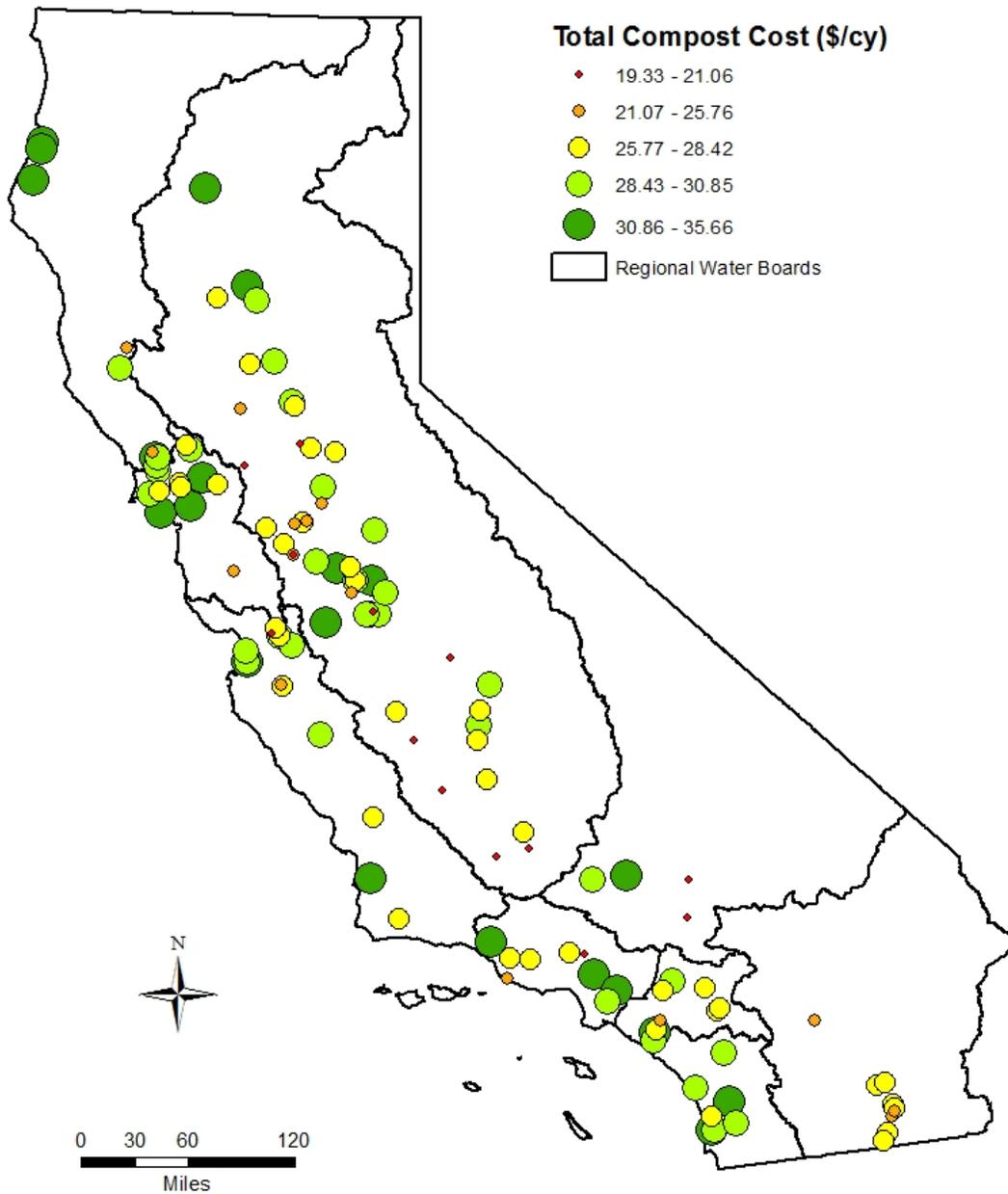
The total compost cost per cubic yard for each facility is the sum of the total processing cost and the annual compliance cost. The frequency of the facility total compost costs (\$/cubic yard) for the 121 compost operations is presented in Figure 8.

Figure 8. Total Compost Cost



The estimated minimum facility total cost is \$19.33/cubic yard and the maximum is \$35.66 cubic yard. The mean is \$27.85/cubic yard and the median is \$28.28/cubic yard. Seventy of the 121 facilities fall into the \$26/cubic yard to \$30/cubic yard cost category. Twenty five of the 32 publically owned or operated facilities had total compost costs exceeding \$29.79/cubic yard. Many of the low cost facility are located in the south central valley and southern California (Figure 9).

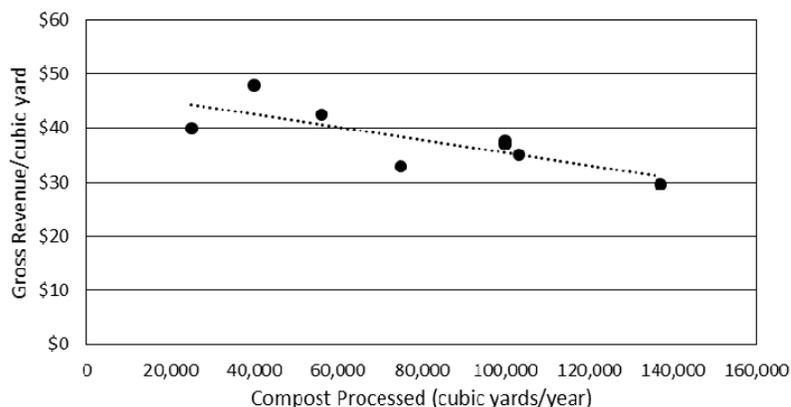
Figure 9. Compost Facilities and Total Compost Costs



Gross Revenue

Net revenue and profit margins were calculated for the 121 compost operations. First, gross revenue was projected using regression analysis. A plot of the compost gross revenue for the surveyed facilities and a linear trendline is presented in Figure 10.

Figure 10. Gross Revenue and Quantity of Compost Processed Annually



A linear regression analysis estimates the following relationship:

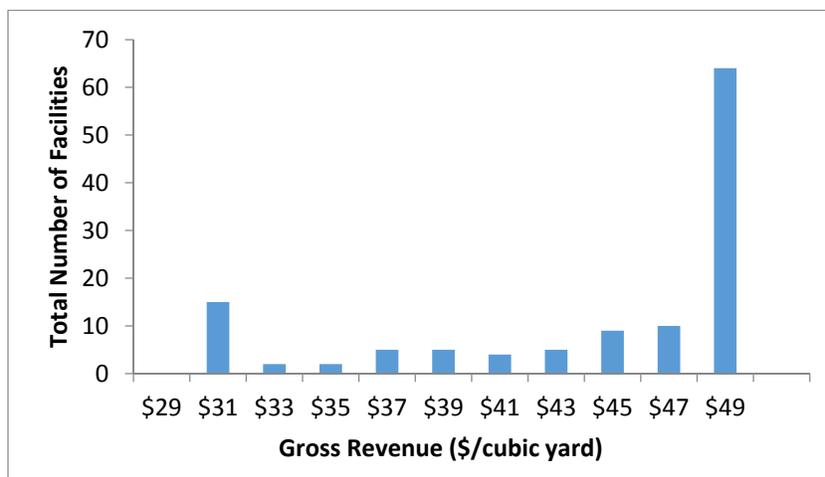
$$\text{Gross Revenue (\$/cubic yard)} = \$51.63 + (-\$0.000161 * \text{Compost Processed (tons/year)})$$

$$R^2 = .74$$

The t statistic for the slope variable is 3.8 which is significant at the 95% confidence level.

The gross revenue was calculated for the 121 compost facilities subject to the proposed Order. The frequency of the facility gross revenue is presented in Figure 11. The minimum gross revenue is \$29.58/cubic yard and the maximum is \$48.00/cubic yard. The mean is \$43.27/cubic yard and the median is \$47.60/cubic yard.

Figure 11. Gross Revenue

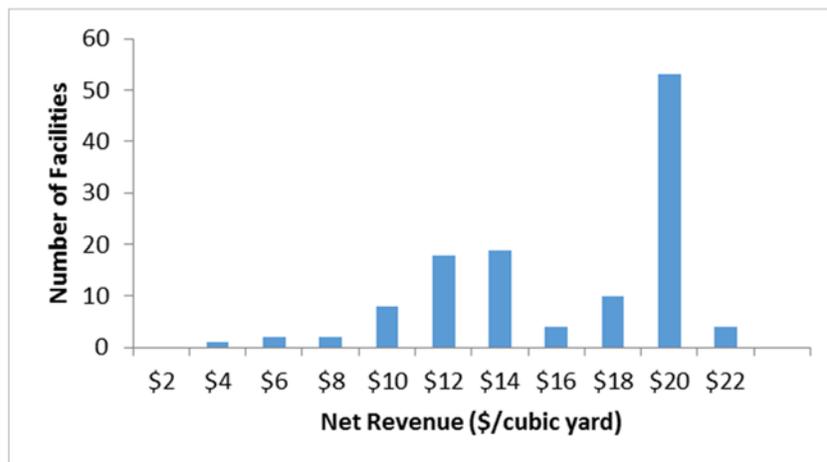


Due to the considerable slope of the regression equation, gross revenue was constrained to the upper and lower values (\$48.00 and \$29.58) of the sample data. This accounts for the high frequency (64) of Tier I and small Tier II facilities that fall into the \$47/cubic yard - \$49/cubic yard category. This is also exhibited in the number of facilities in the \$29.00/cubic yard - \$31.00/cubic yard category.

Net Revenue

Net revenue was calculated by subtracting total processing cost from gross revenue for each of the 121 compost facilities. The frequency of the facility net revenue is presented in Figure 12.

Figure 12. Net Revenue

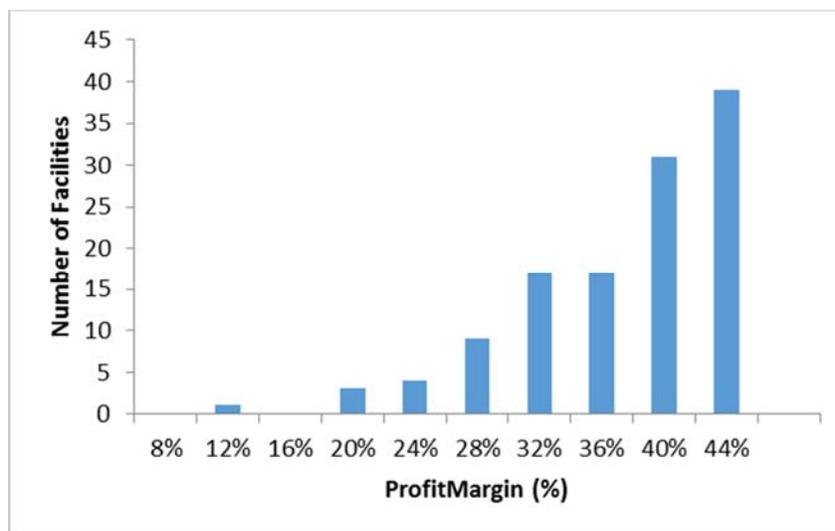


The minimum net revenue is \$2.43/cubic yard and the maximum is \$20.19/cubic yard. The mean is \$15.42/cubic yard and the median is \$17.17/cubic yard. As the regression equations indicate, both gross revenue and total costs decline as the quantity of compost processed increases but revenue declines faster than costs. While the lower net revenue per cubic yard seem small, total net revenue for a facility should be adequate to maintain economic viability due to the larger amount of compost processed. For example, the facility with the lowest net revenue (\$2.43/cubic yard)¹⁰ had a total net revenue of \$402,000.

Profit Margins

Profit margins were calculated for the 121 compost facilities by subtracting total costs from gross revenue and dividing by gross revenue. The frequency of the facility profit margins is presented in Figure 13.

Figure 13. Profit Margins



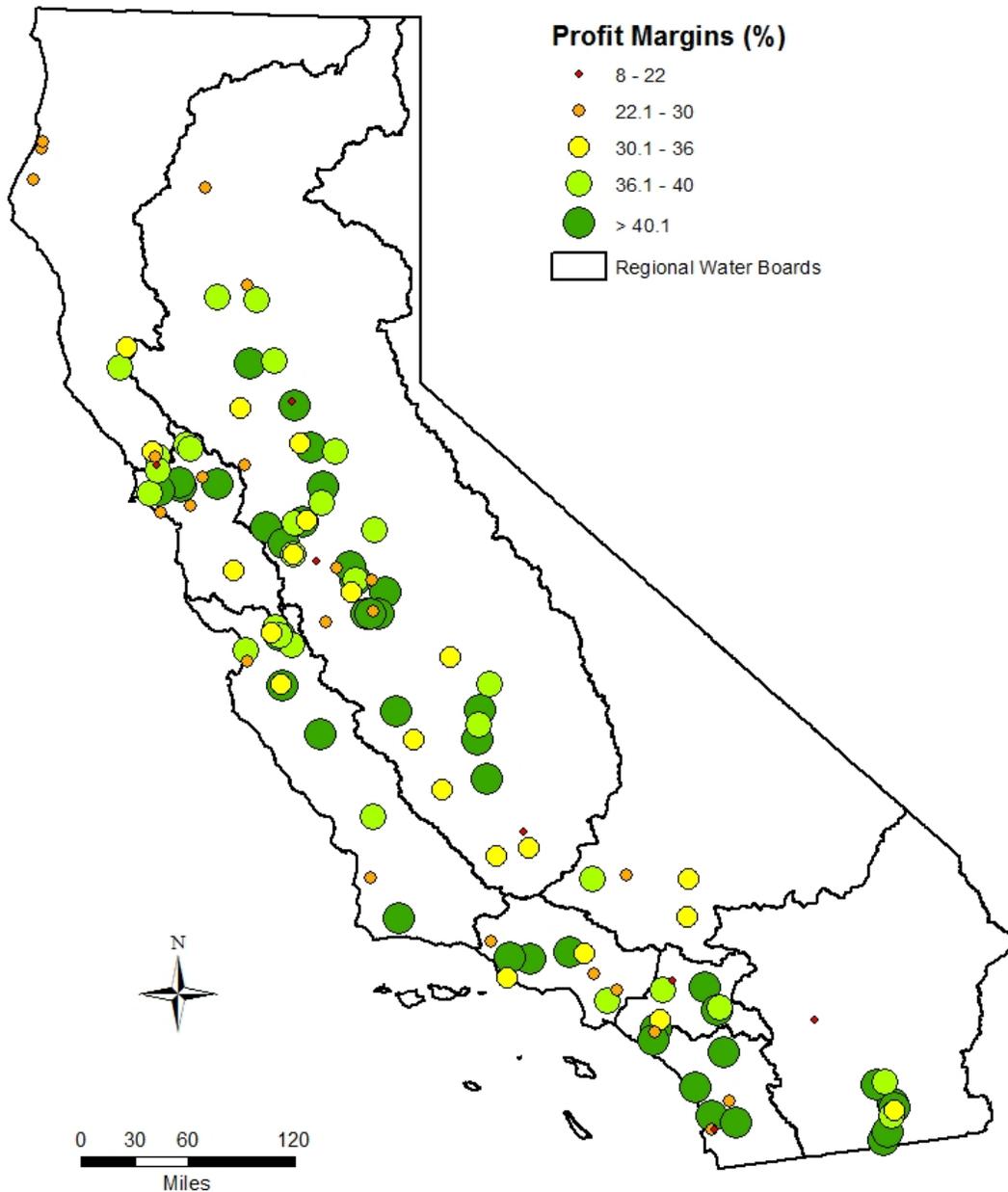
The minimum profit margin is 8.2 percent and the maximum 42.1 percent. The mean is 35.2 percent and the median is 38.5 percent.

The calculated profit margins indicate that the imposition of the proposed Order will not adversely affect the economic viability of California compost facilities. Lower profit margins (less than 18 percent) are experienced by larger, publically owned facilities (where profit margins are less significant on the

¹⁰ Included in the \$2 -\$4 range of Figure 12.

continued running of the operation) located in the San Joaquin Valley and southern desert regions (Figure 14).

Figure 14. Compost Facilities and Profit Margins



FEEDSTOCK DISPOSAL DESTINATION – COMPOST OR LANDFILL

The second objective of this analysis is to project the possible shift of compost feedstocks from composting operations to landfills as the result of the proposed Order. To project the change in feedstock destination, compost costs of the surveyed landfill disposal facilities were compared to the regional cost of landfill disposal.

Landfill Disposal Alternatives

Landfill disposal costs estimated by HF&H Consultants and Cascadia Consulting Group were used in this comparison.¹¹ The per-ton disposal costs were gathered through a survey of disposal rates for municipal and high-volume customers. Where appropriate, these disposal rates were weighted to include the costs of transfer station and transport operations. Disposal rates include all government fees and taxes. Landfill disposal costs were calculated for seven regions (Figure 15). The per ton disposal costs for each region, and the counties comprising each region, are listed in Table 3.

Table 3. Landfill Disposal Costs by Region

Region	Counties	Landfill Disposal Costs (\$/ton)
Northern California A (Urban Counties)	Marin, Sonoma, Solano, Sacramento, Contra Costa, Alameda, San Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, and Stanislaus	\$43.48
Northern California A (Rural Counties)	Napa, Yolo, and San Benito	\$49.88
Northern California B (Urban Counties)	Placer, Merced, Monterey, Butte, Fresno, and Tulare	\$57.22
Northern California B (Rural Counties)	Alpine, Amador, Calaveras, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Lake, Lassen, Madera, Mariposa, Mendocino, Modoc, Nevada, Plumas, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Tuolumne and Yuba	\$46.59
Southern California A (Urban Counties)	Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura	\$42.19
Southern California B (Urban Counties)	Imperial, Kern, San Luis Obispo, and Santa Barbara	\$41.43
Southern California B (Rural Counties)	Inyo, Mono, and Kings	\$49.53
California Average		\$43.48

Source: "Cost Study on Commercial Recycling". Contractor's Report produced under contract by HF&H Consultants, Cascadia Consulting Group for Department of Resources Recycling and Recovery, State of California. January 2011.

¹¹ "Cost Study on Commercial Recycling". Contractor's Report produced under contract by HF&H Consultants, Cascadia Consulting Group for Department of Resources Recycling and Recovery, State of California. January 2011. 625 pages.

Figure 15. Definition of Regions



Source: “Cost Study on Commercial Recycling”. Contractor’s Report produced under contract by HF&H Consultants, Cascadia Consulting Group for Department of Resources Recycling and Recovery, State of California. January 2011. 625 pages.

Survey Compost Facilities Landfill – Compost Cost Margins

Compost feedstocks would probably be diverted from composting facilities to landfill sites if the compost tipping fees exceeded landfill tipping fees. Current compost feedstock tipping fees were not reported in the CalRecycle database therefore this comparison cannot be made. However, tipping fees were collected from the surveyed operators and they are reported in Table 4. As observed in the surveyed facilities data, tipping fees generally approximate the total cost of compost processing, and sales, represent net profit. As a result,

the total cost of processing compost was assumed to approximate compost tipping fees and compared with the landfill disposal cost.

Tipping fee cost margins were calculated to easily compare the landfill and compost tipping fees. A cost margin is defined as the difference between the alternative landfill disposal cost and the total compost cost divided by the landfill disposal cost. The cost margin represents the percent increase in the compost tipping fee that would equal the landfill tipping fee. Landfill-compost cost margins for the surveyed facilities range between 27.8 and 54.6 percent (Table 4). This means that the total compost cost with compliance costs would have to increase by 27.8 percent to equal the landfill disposal cost. The high cost margins indicate that the imposition of the proposed Order compliance costs will not shift feedstock from compost sites to landfills.

Table 4. Total Compost Costs, Landfill Disposal Costs, and Cost Margin by Facility

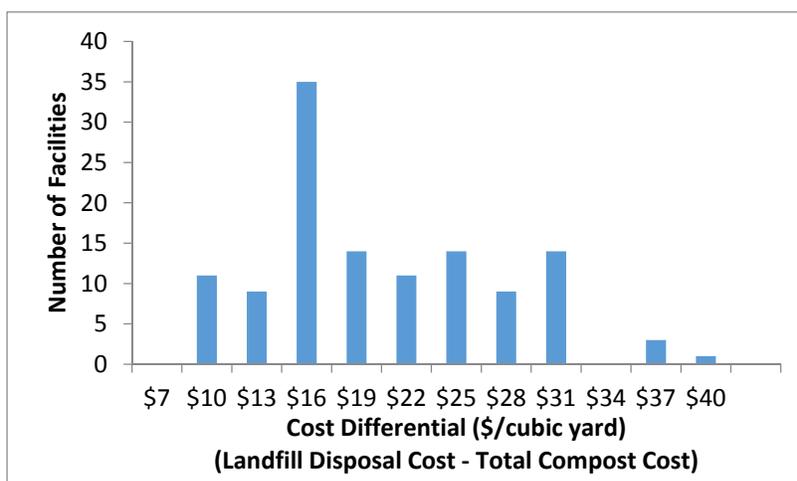
Facility	Total Cost (\$/cy)	Gross Revenue (\$/cy)	Compost Tipping Fee (\$/t)	Landfill Disposal Cost (\$/ton)	Cost Difference (\$/ton)	Cost Margin ¹ (percent)
Pub 1	\$32.04	\$48.00	\$40.00	\$49.48	\$17.44	35.2%
Pub 4	\$27.20	\$29.58	\$28.00	\$49.53	\$22.33	45.1%
Pvt 1	\$30.83	\$40.00	\$30.00	\$46.59	\$15.76	33.8%
Pvt 4	\$24.70	\$35.00	\$30.00	\$42.19	\$17.49	41.5%
Pvt 2	\$28.23	\$42.50	\$30.00	\$43.48	\$15.25	35.1%
Pub 2	\$31.38	\$37.70	\$30.00	\$43.48	\$12.10	27.8%
Pvt 3	\$19.74	\$33.00	\$21.00	\$43.48	\$23.74	54.6%
Pub 3	\$28.67	\$37.00	\$30.00	\$42.19	\$13.52	32.0%

¹ Cost Difference / Landfill Disposal Cost.

California Landfill and Compost Operation Cost Differential

Comparing the total compost cost to the landfill disposal cost determines the possibility of compost feedstock being diverted to landfills. The frequency of the cost differential between the landfill cost and the total compost cost is presented in Figure 15.

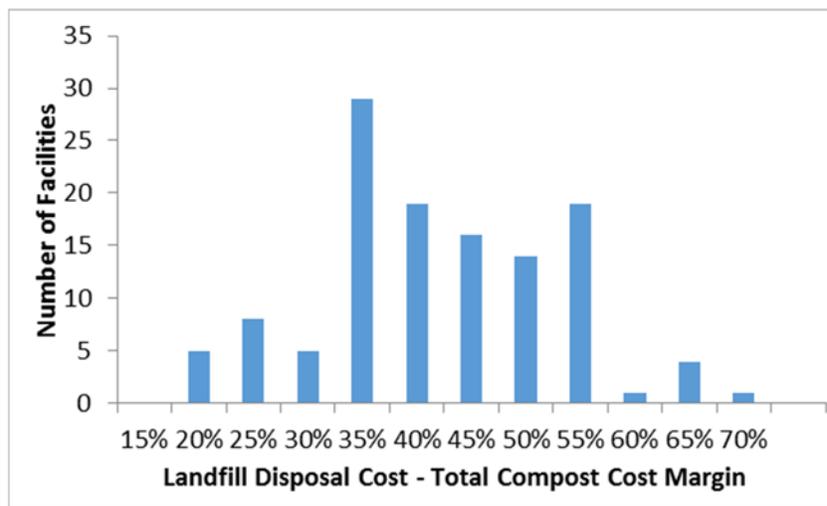
Figure 15. Landfill Disposal Cost and Total Compost Cost Differential



The minimum cost differential is \$7.04 per cubic yard and the maximum is \$37.74 per cubic yard. The mean is \$18.91 per cubic yard and the median is \$17.34 per cubic yard. The results of this comparison

indicate that compost feedstocks will not be diverted to landfills as a result of the proposed Order. The frequency of cost margins for the 121 California compost facilities is depicted in Figure 16.

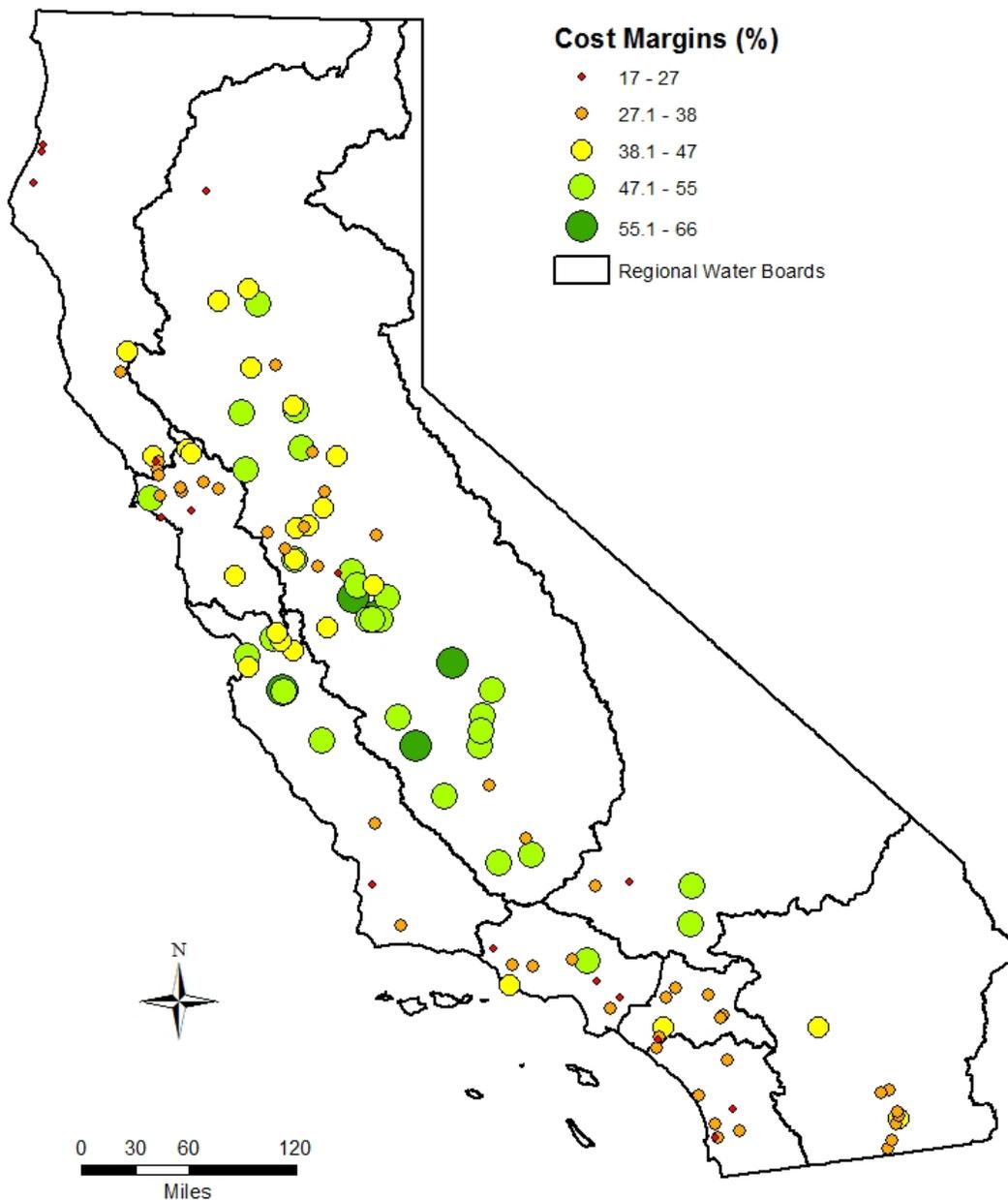
Figure 16. Landfill - Compost Cost Margins



The minimum cost margin is 17.0% and the maximum is 66.0%. The mean is 39.6% and the median is 38.3%. As stated above, the cost margins calculated here include the costs of compliance with the proposed Order.

Facilities located in the southern coastal region have the lowest cost margins and the lowest landfill disposal costs (Figure 17). Since the lowest cost margins estimated was 17.0%, there is very little possibility that compost feedstock will ever be diverted to landfills as a result of adopting the proposed Order.

Figure 17. Compost Facilities and Landfill - Compost Cost Margins



CONCLUSIONS

This report provides the results of an economic analysis of California compost operations. The objectives of the analysis were to (1) determine the economic viability of compost operations to absorb the financial costs of implementing the provisions of the proposed Order to protect groundwater, and (2) determine if compost feedstock might be diverted to landfills as a result of the proposed Order.

Specifically the proposed Order would require compost facilities to modify their operational pad to meet a permeability standard, and to install a pond to catch and store precipitation runoff. In lieu of upgrading the pad, operators can opt to install groundwater monitoring wells to determine if a groundwater threat is

present. Since the latter option is the least cost option, it is assumed operators will install the groundwater monitoring system instead of upgrading the pad to meet the permeability standard.

Detailed compost processing costs and revenues were obtained from eight compost facilities located throughout California. The facilities vary in ownership structure, size and the type of technology employed. Compliance costs were combined with the surveyed costs and revenues to determine economic viability. The results of the surveyed operations were extended to the 121 California permitted compost operations that will be subject to the proposed Order. Imposition of the proposed Order will increase facility composting costs by 1.1 percent to 6.9 percent. This increase will not threaten the economic viability of compost operations subject to the proposed Order.

Compost tipping fees were compared to landfill tipping fees to determine the possibility of compost feedstocks being diverted to landfills as a result of the proposed Order. Compost tipping fees approximate the cost of processing. Compliance cost were added to the cost of compost processing to derive the projected, post-proposed Order, tipping fee. The projected tipping fee was then compared to the landfill tipping fee to determine if compost feedstock would be diverted to landfills. The difference between the projected compost tipping fees and landfill tipping fees ranged from \$12.10 to \$23.27 per ton of feedstock. This comparison can also be expressed as a cost margin. A cost margin is the percent change that compost costs would have to increase to equal the landfill disposal cost. The cost margin ranges from 27.8% to 54.6%. The compost tipping fee includes the projected cost of compliance, therefore, the imposition of the proposed Order will not cause a diversion of compost feedstocks to landfills.

REFERENCES

<http://www.brighthubengineering.com/hydraulics-civil-engineering/93173-runoff-coefficients-for-use-in-rational-method-calculations/>

PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>, created 3/1/2014

<http://www.calrecycle.ca.gov/swfacilities/Directory/>

“Cost Study on Commercial Recycling”. Contractor’s Report produced under contract by HF&H Consultants, Cascadia Consulting Group for Department of Resources Recycling and Recovery, State of California. January 2011. 625 pages

APPENDIX E
NEW COMPOSTING FACILITY IMPACT EXAMPLES

CEQA Document Review – Composting Facility Impacts and Mitigations

Project Name	Location (City)	CEQA Document Type	Clearinghouse Number	Reference	Considered for Review	Reference
Sonoma County Waste Management Agency Compost Facility	City of Petaluma	EIR	2008122007	SCWMA 2013. Sonoma County Waste Management Agency Composting Facility Final EIR. Environmental Science Associates. December 2013.	x	
Napa Renewable Resources Project	City of Napa	MND	File No. PL 12-0022	Napa 2013. Mitigated Negative Declaration: Napa Renewable Resources Project. September 2013.	x	
Nursery Products LLC, Hawes Composting Facility	San Bernardino	EIR	2006051021	San Bernardino 2009. Final Supplemental EIR, Nursery Products LLC, Hawes Composting Facility. November 2009	x	
Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project	Kerman	MND		City of Kerman 2013. Initial Study and Draft Mitigated Negative Declaration; Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project. Planning and Development Department. January 22, 2013	x	
MND for Proposed Conditional Use permit PLN 2010-00041, Altamont Landfill and Resource Recovery Facility Materials Recovery Facility Complex,	Livermore	MND				x

Project Name	Location (City)	CEQA Document Type	Clearinghouse Number	Reference	Considered for Review	Reference
Reclaimable Anaerobic Composter System and Aerated Static Pile Composting						
Z-Best Composting Facility Expansion	Gilroy	IS/MND				x
El Corazon Compost Facility Relocation	Oceanside	ND				x
EIR – Environmental Impact Report ND – Negative Declaration MND – Mitigated Negative Declaration IS/MND – Initial Study/Mitigated Negative Declaration						

Summary of Impacts and Mitigation

Resource Type	Impacts	Mitigation	CEQA Document
Aesthetics	The project would alter the visual character of the project site. The project site is considered of moderate visual sensitivity. The visual dominance of the project is dependent on many elements or characteristics of the project. The project layout which includes a vegetated levee surrounding the site and landscaping screen on the northern and eastern borders (where there are existing, unobstructed views). Building structures would be single-story and neutral in color. The visual dominance with these project elements would be subordinate or co-dominant. (Less than Significant)	None required	Sonoma County Waste Management Agency Compost Facility
Aesthetics	The project could result in the production of new sources of light and/or glare. The project would introduce new nighttime lighting sources on the project site for security and operational purposes. Nighttime lighting can contribute to light pollution of the nighttime sky and light trespass onto adjacent properties. Additionally, excessive lighting in rural areas could affect the natural character of the area. This impact is significant .	The Project design shall incorporate the recommendation measures included in the Sonoma County's Visual Assessment Guidelines and the Sonoma County General Plan. Recommended lighting measures would minimize light pollution and light trespass by controlling the amount and direction of lighting. Implementation of the above mitigation measures would reduce impacts to a less-than-significant level.	Sonoma County Waste Management Agency Compost Facility
Aesthetics	The project site is already fully developed with industrial facilities associated with the City's Materials Diversion Facility, including a materials recycling building, administration office, scale house, outdoor composting area, outdoor finished compost storage area, outdoor soils stockpile area, and outdoor concrete recycling area. The construction of new structures and placement of new equipment associated with the new anaerobic digestion facility, the new covered composting, the new biomass gasification unit, stormwater treatment ponds, and rooftop solar panels will not adversely change the existing visual character of the site. The new biomass gasification unit will be painted an earth tone color. As such, the project does not have any potential to impact scenic resources, degrade visual quality or create a new source of substantial light and glare.	None	Napa Renewable Resources Project
Aesthetics	The Project may create new sources of light and/or glare as necessary for project safety. The proposed lighting associated with the project will be shielded to preclude light pollution or light trespass on adjacent property in conformance with this the County Night Sky ordinance, the County General Plan, and the updated Development Code. Although the appearance of the site would change, the viewer response to this change is considered less than significant. Overall impacts to visual character are considered less than significant .		Nursery Products LLC, Hawes Composting Facility

Resource Type	Impacts	Mitigation	CEQA Document
Aesthetics	There are no designated scenic vistas or highways within or adjacent to the project site. The project site will be screened by walls, fences, and landscaping. The proposed project would have no impact .		Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Aesthetics	The proposed project site is not visible from a state-designated scenic highway. The proposed project would have no impact .		Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Aesthetics	Vegetation removal and grading associated with future site development will alter the visual character of the site converting it from agricultural use to industrial related uses as a recycling and transfer station operation. However, the proposed project consists of uses that are consistent with existing recycling and transfer station operations and general plan land use designations for the surrounding area.	All outdoor lighting shall be designed to aim downward onto the project site and not glare skyward or onto adjacent parcels (e.g., by incorporating cut-off shields, or the equivalent). Less than significant after mitigation.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Aesthetics	The existing operation plus existing surrounding development to the northeast already has light and glare affecting nighttime views in the area. The addition of new industrial uses and associated lighting for businesses, parking areas, roadways and related amenities will increase light in the area. Combined with existing lighting in the area, the proposed project could contribute, incrementally, to the overall light and glare in the area resulting in potentially cumulative adverse impacts to nighttime views. Less than significant	All outdoor lighting shall be designed to aim downward onto the project site and not glare skyward or onto adjacent parcels (e.g., by incorporating cut-off shields, or the equivalent). Less than significant after mitigation.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Agriculture	The project site is already fully developed with industrial facilities associate with the City's Material Diversions Facility, and contains no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as mapped by the State of California. The project site is not under a Williamson Act Contract. No loss of forest land or conversion of forest land to non-forest use will occur. There is no agricultural or forest land on or adjacent to the project site. No Impact	None	Napa Renewable Resources Project
Agriculture	The proposed Project site and the Fort Cady site are located in rural desert areas and have not been used for irrigated agricultural production. The sites are not known to contain soils that have been designated as prime or unique agricultural soils and agricultural activities have not historically occurred at these sites. The Project would not adversely impact prime or locally important agriculture as none occur within the Project area. The Project site is not under a Williamson Act contract. Therefore, impacts to agricultural resources would be less than significant .	None	Nursery Products LLC, Hawes Composting Facility

Resource Type	Impacts	Mitigation	CEQA Document
Agriculture	The development of the proposed project would permanently convert all of the Prime Farmland and Farmland of Statewide Importance to urban uses. The City of Kerman General Plan designates the project site for Industrial use. This designation indicates that the City has contemplated the conversion of this agricultural and to urban use over the planning horizon of the General Plan and, therefore, does not view the project site as a preferred location for permanent agriculture. The Program EIR stated that such impacts to farmland are unavoidable as the city grows, and included mitigation measures in the Land Use Element of the General Plan to lessen the impacts on agricultural land, but not to an insignificant level. The proposed project would have a significant and unavoidable impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Agriculture	The project site is not subject to a Williamson Act land conservation contract and is designated industrial on the City of Kerman's General Plan and Use Map. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Agriculture	Conflict with existing zoning for agricultural use, or a Williamson Act Contract? No impact – citing the General Plan	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Air Quality	Construction of the project (associated with either windrow or ASP option) could generate short-term emissions of criteria air pollutants: ROG, NOx, CO, PM10, and PM2.5 that could contribute to existing nonattainment conditions and further degrade air quality. Significant	Construction Emission Controls. During construction, the SCWMA shall require the construction contractor to implement the measures that are specified under BAAQMD's basic and additional construction mitigation procedures. Significant and Unavoidable.	Sonoma County Waste Management Agency Compost Facility
Air Quality	Operation of the project (windrow composting option) would result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions. Significant	Composting VOC Reduction via Pseudo-Biofilters. The SCWMA shall implement the following control measure to reduce off-gas emissions from composting organic materials: -Apply finished compost as a pseudo-biofilter to cap active windrows. Estimated VOC reduction of 75 percent (CIWMB, 2007). Fugitive Dust Control. The SCWMA shall implement best management practices for fugitive dust emission control, including, but not limited to the following: - Water exposed surfaces two times per day, except during rainy days. -All vehicle speeds on unpaved roads shall be limited	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
		<p>to 15 mph. Signage with this speed restriction shall be imposed where appropriate and applicable.</p> <p>Less than Significant after mitigation.</p> <p>Implementation of the above mitigation measures would reduce net daily ROG and PM10 emissions to a less than significant level for 2011 and 2030 operations.</p>	
Air Quality	<p>Operation of the project (ASP composting option) would result in emissions of criteria air pollutants at levels that would not substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions. Significant</p>	<p>Implement Mitigation Measure (Fugitive Dust Control Significance after Mitigation: Less than Significant. Implementation of the above mitigation measures would reduce net daily PM10 emissions to a less than significant level under full build-out. Less than significant after mitigation.</p>	Sonoma County Waste Management Agency Compost Facility
Air Quality	<p>Project traffic (associated with either windrow or ASP composting option) would generate localized CO emissions on roadways and at intersections in the project vicinity. Less than Significant</p>	None required.	Sonoma County Waste Management Agency Compost Facility
Air Quality	<p>Operation of the project (associated with either windrow or ASP composting option) could create objectionable odors affecting a substantial number of people. Significant</p>	<p>Odor Control. The SCWMA shall develop and comply with an Odor Impact Minimization Plan (OIMP) pursuant to the requirements of the California Code of Regulations, Title 14, Division 7, Chapter 3.1, Article 3, Section 17863.4. Compliance with the OIMP would assure that odor impacts from composting would be less than significant. Less than Significant after mitigation.</p>	Sonoma County Waste Management Agency Compost Facility
Air Quality	<p>Implementation of the project (windrow composting option) may lead to increases in exposure of sensitive receptors in the vicinity to certain toxic air contaminants from various stationary and mobile sources. Significant</p>	<p>(Pseudo-Biofilters).. The acute risk for the maximum exposed residential receptor, the chronic risk for the worker and residential receptors, and the cancer risk for the worker and residential receptors would be less-than-significant under the windrow option. Implementation of the pseudo-biofilter would reduce the acute risk at the maximum worker and residential receptor to 0.43 and 0.040, respectively; the chronic risk at the maximum worker and residential receptor would be reduced to 0.009 and 0.0014, respectively; and the cancer risk of the maximum worker and residential receptor would be reduced to 1.55 and 1.36, respectively. With implementation of the pseudo-biofilter mitigation, the acute risk of the maximum exposed worker</p>	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
		would be reduced to less-than-significant. Less than significant after mitigation	
Air Quality	Implementation of the project (ASP composting option) may lead to increases in exposure of sensitive receptors in the vicinity to certain toxic air contaminants from various stationary and mobile sources. Less than Significant	None required.	Sonoma County Waste Management Agency Compost Facility
Air Quality	Construction and operation of the project (windrow composting option) could result in a cumulatively considerable increase in greenhouse gas emissions. Significant	a - Develop Annual GHG Inventory. The applicant shall become a reporting member of The Climate Registry. Beginning with the first year of composting and continuing for the duration of the project operations, the SCWMA shall conduct an annual inventory of GHG emissions, and report these to The Climate Registry. The annual inventory shall be conducted according to The Climate Registry protocols and third-party verified by a verification body accredited through The Climate Registry. b- Greenhouse Gas Emissions Reduction Plan. SCWMA shall prepare and make available to the public a Greenhouse Gas Emissions Reduction Plan (GHG plan) containing strategies to ensure that GHG emissions do not exceed 1,100 MT CO2e per year. Less than after Mitigation: Each year, the SCWMA will report actual emissions, in accordance with Mitigation Measure 5.8a.	Sonoma County Waste Management Agency Compost Facility
Air Quality	Construction and operation of the project (ASP composting option) could result in a cumulatively considerable increase in greenhouse gas emissions. Significant	Implement Mitigation Measures 5.8a (Develop Annual GHG Inventory) and 5.8b (Greenhouse Gas Emissions Reduction Plan). Less than Significance after Mitigation: Each year, the SCWMA will report actual emissions, in accordance with Mitigation Measure 5.8a.	Sonoma County Waste Management Agency Compost Facility
Air Quality	The project (windrow composting option), together with anticipated cumulative development in the Bay Area Air Basin, would contribute to regional criteria pollutants. Significant	Implement Mitigation Measures 5.1 (Construction Emission Controls), 5.2a (Composting VOC Reduction via Pseudo-Biofilters), and 5.2b (Fugitive Dust Control). Significant and unavoidable during project construction for NOx.	Sonoma County Waste Management Agency Compost Facility
Air Quality	The project (ASP composting option), together with anticipated cumulative development in the Bay Area Air Basin, would contribute to regional criteria pollutants. Significant	Implement Mitigation Measures Construction Emission Controls and Fugitive Dust Control.	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
		Significant and unavoidable during project construction for NOx.	
Air Quality	Cumulative risk from all past, present and reasonably foreseeable sources within 1,000 feet of the project (associated with either windrow or ASP composting option) would expose sensitive receptors to PM2.5 and TACs which may lead to adverse health effects. Less than Significant	None required.	Sonoma County Waste Management Agency Compost Facility
Air Quality	Violate any air quality or contribute to substantially to an existing or projected air quality violation. Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard, and create objectionable odors affecting a substantial number of people. Less than significant	Project design significantly decreases VOCs and minimizes odors with bio-filtration. The applicant shall develop and comply with an Odor Impact Minimization Plan.	Napa Renewable Resources Project
Air Quality	The Mojave Desert Air Basin does not meet the State and Federal ambient air quality standard for ozone (O3) and PM10. The Project would exceed the Mojave Desert Air Quality Management District's MDAQMD's VOC emissions thresholds during Project operations. These emissions constitute cumulative and Project-level impacts, as they contribute towards the creation of basin-wide O3 levels. Significant and unmitigable.	None	Nursery Products LLC, Hawes Composting Facility
Air Quality	The Project has the potential to generate offensive odors. Potentially significant.	Prior to facility operation, the applicant shall prepare an Odor Impact Minimization Plan (OIMP) to reduce potential odor impacts during operation of the compost facility. The OIMP shall be prepared pursuant to the requirements established by the CIWMB (14 CCR 17863.4) and would act as the overall program document for odor control at the compost facility. The OIMP shall include written procedures for reducing odors due to feedstock receipt, processing and handling and for compost processing. The OIMP shall be submitted to the Local Enforcement Agency, prior to operation. OIMP will include: a) Odor-Screening and Load-Checking Procedures b) Feedstock Storage and Processing Measures c) Windrow Management Measures d) Good Housekeeping Procedures e) Odor Complaint Response System Less than significant after mitigation	Nursery Products LLC, Hawes Composting Facility
Air Quality	Although long-term operation of the Project would not, by itself, exceed the SCAQMD's PM10 threshold, these emissions are based on watering the road to minimize dust generation. Without watering (or	Unpaved roads shall be watered as necessary to minimize visible dust. Alternatively roads may be paved.	Nursery Products LLC, Hawes Composting Facility

Resource Type	Impacts	Mitigation	CEQA Document
	paving) the access road to reduce dust, the Project would result in significant dust impacts. Consequently, dust control mitigation measures are included. Less than significant.	Refraining from turning the windrows during episodes of high wind speeds (30 miles per hour or higher). Less than significant after mitigation	
Air Quality	The proposed project will include an expanded greenwaste composting operation on site. This portion of the operation will be regulated under SJVAPCD Rule 4566 – Organic Material Composting Operations. Other SJVAPCD rules that will apply to the proposed project for stationary. No Impact	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Air Quality	The proposed project has the potential, temporarily, to generate dust, smoke and other air emissions during construction. Specifically, PM10 emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM10, as well as affecting PM10 compliance with ambient air quality standards on a regional base. Less than significant impacts.	The proposed project will be required to install best available control technologies (BACT) to minimize emissions from permitted sources. Emissions due to construction activities will be minimized through implementation of comprehensive fugitive dust control measures. With emission controls, the proposed project is expected to have a less than significant impacts after mitigation.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Air Quality	The VOC and NOx emissions from proposed project individually do not exceed the CEQA thresholds from stationary source operations, and the proposed project is expected to have a less than significant impact. The only large proposed project in the City of Kerman is the proposed Walmart store, which is scheduled to begin construction in November 2012. The project is located approximately 3 miles northeast of the proposed project. Construction of the Walmart store is expected to be completed prior to the start of construction of the proposed project. Therefore, there will be no cumulative construction-related air quality impacts from the proposed project and the Walmart project. The proposed project would have no impacts.	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Air Quality	The proposed project may emit hazardous air pollutants (HAP) and toxic air contaminants (TAC) from several stationary sources, including boiler(s), flare, anaerobic digester, and possibly the compost operations. Many, if not all, of these stationary sources will require air permits from the SJVAPCD. All projects requiring air quality permits from the SJVAPCD are evaluated for HAP/TAC emissions.	The SJVAPCD will ensure that the health risk to the public from project operations does not exceed the significance threshold for TAC by the application of the Risk Management Policy for Permitting New and Modified Sources during the permit application review process and by placing operating conditions on any permits issued for the project. Compliance with the permit conditions will ensure that HAP/TAC emissions from the proposed project would be less than significant.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Air Quality	Anaerobic digestion is the biological decomposition of organic matter in the absence of oxygen. As a result, odorous compounds such as ammonia and H2S are generated and could be released into the environment. The anaerobic digestion process at the proposed project	With the development and implementation of the OIMP, compliance with SJVAPCD Rules 4565 and 4566, and implementation of Mitigation Measures AIR-3 and AIR-4, the odor impacts from the	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
	occurs in a closed system. Volatile organic compounds (VOCs) are broken down through the anaerobic digestion process, and exhaust is processed in a controlled environment. The propose project will digest organic matter in a closed pressure vessel. The resulting biogas will be stored in a closed tank, processed to remove impurities in a scrubber, and the resulting purified methane would be compressed for use in vehicles. Less than significant	composting operations and anaerobic digester are expected to be less than significant .	
Air Quality	The proposed project has the potential to contribute to greenhouse gas emissions from composting and anaerobic operations. The composting and anaerobic operations would result in diverting waste from the landfill, which would otherwise decompose under anaerobic conditions to form landfill gas (LFG) consisting of methane and carbon dioxide. Less than significant	The proposed project would process waste via anaerobic digestion into compressed natural gas (CNG) which will be collected at 100 percent capture and used as vehicle fuel. The compost will be used locally as fertilizer, wood chips that will be The diversion of waste to the landfill is expected to exceed the 29 percent reduction threshold established by the SJVAPCD as significant; thus, the proposed project is expected to used locally as either ground cover or fuel for biomass power plants. Less than significant impact.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Air Quality	Neither the city, county, nor state has an adopted plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, the proposed project does not conflict with any applicable requirement. The proposed project would have no impact .	None	
Air Quality		<p>AIR-1: Implement the control measures identified in the SJVAPCD Regulation VIII to control PM10 emissions from construction activities.</p> <ul style="list-style-type: none"> • AIR-2: Prepare, implement, and maintain a site-specific Odor Impact Minimization Plan (OIMP). • AIR-3: Applicants for the development of anaerobic digester (AD) facilities shall comply with appropriate local land use plans, policies, and regulations, including applicable setbacks and buffer areas from sensitive land uses for potentially odoriferous processes. • AIR-4: If an AD facility handles compostable material and is classified as a compostable material handling facility, the facility must develop and Odor Impact Minimization Plan (OIMP) pursuant to 14 CCR 17863.4. Otherwise, applicants shall develop and implement an Odor Management Plan (OMP) that incorporates equivalent odor reduction controls for 	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
		digester operations and is consistent with local air district odor management requirements.	
Biological Resources	Implementation of the project could result in indirect impacts to Coastal Brackish Marsh, a CDFG listed Sensitive Habitat and a USFWS-designated Critical Habitat for the Central California Coast Steelhead Evolutionary Significant Unit (ESU). Significant	The SCWMA shall ensure the protection of the Coastal Brackish Marsh and Central California Coast Steelhead ESU habitats through Application of Best Management Practices (BMPs) to Provide Effective Erosion and Sediment Control. BMPs would reduce indirect impacts to Coastal Brackish Marsh, Central California Coast Steelhead ESU habitats, and other waters of the U.S. that could occur as a result of sedimentation and siltation from construction activities. Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Biological Resources	Implementation of the project has the potential to result in a loss of waters of the United States and/or waters of the state, including drainages, saline emergent wetlands, freshwater emergent wetlands, and seasonal wetlands. Significant	<p>Compensate for Loss and Disturbance of Jurisdictional Waters of the U.S. and/or Waters of the State Resulting from Construction Activities. The SCWMA shall</p> <ul style="list-style-type: none"> - Prepare a wetland delineation prior to project construction, the results of which will determine the type and acreage of wetland habitat present on the project site, for verification by the Corps. - Protect wetland habitats that occur near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the feature. Depending on site-specific conditions and permit requirements, this buffer may be wider than 20 feet. - Comply with the no net loss of wetland habitat and no significant impacts to potential jurisdictional features policy. The project shall compensate for the unavoidable loss of wetlands at a ratio no less than 1:1 - Draft restoration, mitigation and monitoring plan shall be developed in accordance with the Corps' federal guidelines - If the results of the wetland delineation, as verified by the Corps, indicate that project activities may result in a substantial modification to a river, stream, or lake the SCWMA shall submit an application for a Section 1602 Streambed Alteration Agreement to the CDFG. <p>Less than significant after mitigation</p>	Sonoma County Waste Management Agency Compost Facility
Biological	Implementation of the project has the potential to result in adverse	Perform Preconstruction Surveys for Sensitive Avian	Sonoma County Waste

Resource Type	Impacts	Mitigation	CEQA Document
Resources	impacts to special status species as defined in this section. Implementation of the project could result in direct and indirect impacts to the tricolored blackbird, Point Reyes bird's-beak, soft bird's beak, and Marin knotweed. Significant	Species. Prior to project implementation, the SWCMA shall hire a qualified botanist to perform preconstruction surveys for rare plant species that have any potential to occur within the project site. If rare plant species are found during these surveys, the project would propose avoidance, minimization, and/or compensation measures. Less than significant after mitigation	Management Agency Compost Facility
Biological Resources	The proposed project is located on an existing industrially developed site surrounded by industrial development and Napa County Airport properties. There is no biological habitat on the project site. As such, the project will not impact state or federally listed species, riparian habitat, wetlands, sensitive natural communities, migratory fish or wildlife species, adopted Habitat Conservation Plan, Natural Community Plan, tress, or marine animals.	None	Napa Renewable Resources Project (NRRP)
Biological Resources	The Project would indirectly impact the desert tortoise (an endangered species) by loss of habitat (160 acres) and by potentially attracting ravens (tortoise predator). Construction activities and vehicle traffic from the Project could directly harm the desert tortoise and possible burrowing owl. Potentially Significant Impact.	<ul style="list-style-type: none"> -Project will be phased, with initial phase not to exceed 80 acres in size. Purchase of offsite conserved habitat shall be based upon the requirements of the CDFG and USFWS, and follow the WMP if in effect at the time. -All employees, subcontractors, construction personnel, and other individuals who work on-site shall participate in a desert tortoise awareness program with educational materials provided by the West Mojave Implementation Team. -A permanent tortoise-proof fence shall be installed around the perimeter of the Project impact area prior to grading of the site. -Between February 15 and November 15, the tortoise clearance survey shall occur within 48 hours prior to ground disturbance. Between November 16 and February 14, the survey may be performed several days or weeks prior to ground disturbance. -Where practicable, vegetation clearing activities shall occur when tortoises are least likely to be active, generally between November 15 and February 15. -Cross-country vehicle use shall be prohibited and signs posted. -Except on paved roads with posted speed limits, vehicle speeds shall not exceed 20 miles per hour through desert tortoise habitat. 	Nursery Products LLC, Hawes Composting Facility

Resource Type	Impacts	Mitigation	CEQA Document
		-All trash and discarded food items generated by construction and operation activities shall be promptly contained and regularly removed to reduce predation. -Adequate funding must be set aside to manage the conserved habitat and to monitor the effects of the Project on the surrounding habitat. Preconstruction clearance surveys for desert tortoise and burrowing owl would be required 48 hours prior to commencement of proposed grading and periodically during construction. Less than significant after mitigation	
Biological Resources	Construction activities may harm Mohave ground squirrel. Potentially Significant Impact.	Mohave ground squirrel trapping surveys shall be conducted prior to construction of the Project to determine this species presence within the Project area. Less than significant after mitigation	Nursery Products LLC, Hawes Composting Facility
Biological Resources	The Project may introduce invasive plants into adjacent natural habitat. Potentially Significant Impact	Baseline studies for invasive plants shall be done in the fire break on the property perimeter, as well as within a 500-foot buffer outside the fire break no later than 30 days after the facility opens. of exotic or invasive plant species onto BLM property and adjacent habitat. The monitoring frequency may be reduced to once every four years if no invasive are detected during the first five years of monitoring. Less than significant after mitigation.	Nursery Products LLC, Hawes Composting Facility
Biological Resources	The Project may cause a fire on adjacent property that would degrade existing desert tortoise habitat. Potentially Significant Impact	The Project site must maintain an adequate water supply and delivery capacity as well as clear aisles between windrows for easy access in case of fire. Less than significant after mitigation.	Nursery Products LLC, Hawes Composting Facility
Biological Resources	Fort Cady Site Alternative only - Loss of honey mesquite bosque habitat would be considered significant due to the threatened status of this habitat in California. Potentially Significant Impact	Honey mesquite shall be planted within preserved areas onsite at an appropriate mitigation ratio to the lost habitat. The mitigation ratio shall be established in consultation with the California Department of Fish and Game. Less than significant after mitigation.	Nursery Products LLC, Hawes Composting Facility
Biological Resources	Implementation of the project could have a potentially significant impact on San Joaquin kit fox, which is federally listed as endangered and state-listed as threatened. Potentially significant impact	In accordance with the Dissemination of Standard Recommendations for the Protection of the San Joaquin Kit Fox Prior to our During Ground Disturbance, implementation of Mitigation Measures BIO-1a is required to reduce potential impact to a less than significant level after mitigation.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Biological	There is no federally protected wetland affected by the proposed		Mid Valley Disposal, Inc.,

Resource Type	Impacts	Mitigation	CEQA Document
Resources	project nor are there naturally occurring bodies of water discovered on or adjacent to the project site. The proposed project would have no impact .		Recycling Facility and Transfer State Expansion Project
Biological Resources	There will be no interference with any native resident or migratory fish or wildlife species, corridors, or wildlife nursery sites affected by the proposed project. The proposed project would have no impact .		Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Biological Resources	There are no local policies or ordinances protecting biological resources affected by the proposed project. The proposed project would have no impact .		Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Biological Resources	No habitat conservation or natural community conservation plans have been adopted. The proposed project would have no impact .	<ul style="list-style-type: none"> a. Prior to and during construction activities, the following measures shall be implemented to reduce impacts to the San Joaquin kit fox b. Prior to commencing project-related activities, the following measures shall be implemented to reduce impacts to the Swainson's Hawk c. Prior to commencing project-related activities, the following measures shall be implemented to reduce impacts to raptors 	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Cultural Resources	The project could have an adverse effect on a known archaeological site (CASON-202/H). If the site cannot be avoided by project redesign, a site evaluation and data recovery program should be implemented that includes a public outreach program. Without mitigation, this impact would be significant .	<p>-Evaluate CA-SON-202/H for its eligibility to the National Register of Historic Places and the California Register of Historical Resources and implement an archaeological data recovery program. In the interest of preventing unnecessary disturbance of a potentially-significant archaeological resource, evaluation of the resource should occur after the final determination of the project area.</p> <p>If the site cannot be avoided through redesign, it should be evaluated for its eligibility to the National and California Registers.</p> <p>-If it is determined that a legally-significant archaeological resource is present and that the project could have an adverse effect on the site, the Sonoma County Waste Management Agency (SCWMA) shall: Design and implement an Archaeological Data Recovery Program (ADRP). Less than significant after mitigation</p>	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
Cultural Resources	The project could inadvertently discover cultural resources. With the exception of resource CA-SON-202/H, it does not appear that the remaining project area contains cultural resources; however this possibility cannot be entirely discounted. Project personnel should be alerted to the possibility of encountering archaeological materials during construction, and apprised of the proper procedures to follow in the event that such materials are found. Without mitigation, this could be a significant impact .	The SCWMA shall halt work if cultural resources are discovered during ground-disturbing activities. If cultural resources are encountered, all activity in the vicinity of the find shall cease until it can be evaluated by a qualified archaeologist and a Native American representative. If avoidance is infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed in other parts of the project area while mitigation for cultural resources is being carried out. Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Cultural Resources	The project could inadvertently discover human remains. It does not appear that the project area contains human remains; however this possibility cannot be entirely discounted. Project personnel should be alerted to the possibility of encountering human remains during construction, and apprised of the proper procedures to follow in the event that they are found. Without mitigation, this could be a significant impact .	Halt work if human skeletal remains are identified during construction. If human skeletal remains are uncovered during project construction, work should immediately halt within 50 feet of the find. Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Cultural Resources	The project could inadvertently discover paleontological resources. The maximum depth of excavation associated with the project is expected to range from 6 to 8 feet below the ground surface. However unlikely, disturbance or destruction of a paleontological resource could still occur and therefore represents a significant impact .	The paleontologist shall halt work if paleontological resources are identified during construction. If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, all ground disturbing activities within 50 feet of the find shall be halted until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate salvage measures in consultation with the project sponsor and in conformance with Society of Vertebrate Paleontology Guidelines (SVP, 1995; SVP, 1996). Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Cultural Resources	The project site is already fully developed, and as such no surface historical or archaeological resources are known to exist. An archaeological report entitled <i>Napa Airport Master Environmental Assessment</i> was prepared for property that included the project site, and found that there were no archaeological resources on the project site. As such, the project will not have any significant impacts on	None Required.	Napa Renewable Resources Project (NRRP)

Resource Type	Impacts	Mitigation	CEQA Document
	archaeological resources. No impact		
Cultural Resources	Previously unidentified cultural resources may be discovered during Project grading/excavation. Potentially Significant Impact	Monitoring by a qualified archaeologist shall occur during grubbing, grading or any construction excavation that disturbs native soils. In the event that an unanticipated find is discovered during construction activities, the construction crew will stop work in the immediate vicinity of the discovery. Nursery Products will report the discovery to the San Bernardino Land Use Services Department (LUSD) and the San Bernardino County Museum. A qualified archaeologist will be required to assess the integrity and significance of any discovery prior to work proceeding in the area. Less than significant after mitigation	Nursery Products LLC, Hawes Composting Facility
Cultural Resources	Significant non-renewable paleontological resources may be discovered and damaged during Project grading/excavation. Potentially Significant Impact	<ul style="list-style-type: none"> -Monitoring of excavation in areas identified as likely to contain paleontological resources by a qualified paleontological monitor is required for all excavation into undisturbed sediments of Pleistocene older alluvium (or the Lake Manix Formation for (the Fort Cady Site Alternative) - Any recovered specimens shall be prepared and stabilized to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates. - Any small specimens collected shall be identified and curated into an established, accredited museum repository with permanent retrievable paleontological storage (e.g., SBCM). Any small specimens collected shall be identified and curated into an established, accredited museum repository with permanent retrievable paleontological storage (e.g., SBCM). Less than significant after mitigation	Nursery Products LLC, Hawes Composting Facility
Cultural Resources	Fort Cady Site Alternative only - Possibility of the site to eligible for the California Register of Historical Places (CRHR) criteria. Potentially Significant Impact	-Monitoring by a qualified archaeologist shall occur during grubbing, grading or any construction excavation that disturbs native soils. In the event that an unanticipated find is discovered during construction activities, the construction crew will stop work in the immediate vicinity of the discovery. Nursery Products will report the discovery to the San Bernardino Land Use Services Department (LUSD) and the San Bernardino County Museum. A qualified	Nursery Products LLC, Hawes Composting Facility

Resource Type	Impacts	Mitigation	CEQA Document
		<p>archaeologist will be required to assess the integrity and significance of any discovery prior to work proceeding in the area.</p> <p>-If site CA-SBR-11998 cannot be avoided, an archaeological, excavation testing program shall be developed and implemented by a qualified archeologist.</p> <p>-A qualified vertebrate paleontologist shall conduct a field assessment of the study area and monitor excavation in any surface and subsurface sediments.</p> <p>Less than significant after mitigation</p>	
Cultural Resources	<p>General Plan indicated that no recorded historic resources are documented on the project site or within 0.25 mile radius beyond the project site. Although considered unlikely since there is no indication of any historic resources on the project site, subsurface construction activities such as trenching and grading associated with the proposed project could potentially damage or destroy previously undiscovered historic resources. This is considered a potentially significant impact.</p>	<p>Implementation of standard inadvertent discovery procedures to reduce potential impacts to previously undiscovered subsurface historic resources. With the implementation of this mitigation measure, potential impacts would be reduced to a level of less than significant.</p>	<p>Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project</p>
Cultural Resources	<p>There is no evidence of an abandoned cemetery or related indications of human remains were identified on the site. Therefore, no adverse impacts are anticipated to any human remains. However, grading and excavation in conjunction with site development has the low potential to uncover unanticipated subsurface resources – a potentially significant adverse impact.</p>	<p>Mitigation is proposed to reduce this potentially significant impact to a level of less than significant.</p>	<p>Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project</p>
Cultural Resources	<p>There is no record of human remains interred at the site. The proposed project would have no impact.</p>	<p>-If ground-disturbing activities uncover previously unknown human remains, Section 7050.5 of the California Health and Safety Code applies.</p> <p>-If in the event that unanticipated cultural or paleontological resources (including structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains) are encountered during construction, all earthmoving activities within 100-foot radius of the identified resources shall cease until a qualified archaeologist evaluates the item for its significance and records the item on the appropriate State Department of Parks and Recreation (DPR) forms. The archaeologist shall determine whether the item requires further study.</p> <p>-The project developer shall consult with the Duma-Wo-Wah Tribal Government regarding the placement of a Native American monitor onsite during construction related activities. Should a</p>	<p>Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project</p>

Resource Type	Impacts	Mitigation	CEQA Document
		Native American monitor be required the cost of the monitor shall be covered by the project developer. Less than significant after mitigation.	
Geology and Soils	According to the Geologic Hazards Map on file with the City of Napa Planning Department, the subject property is not located in an Alquist Priolo Special Studies Zone (a recognized seismic hazard area). The fault-line surface rupture would not be a substantial hazard at the project site because the closest faults to the do no present any risk to people or structures. However, the project site's location within the San Francisco Bay Area subjects it to potential ground shaking in the event of an earthquake. There are no known geological conditions on site that would subject buildings to unstable soil conditions. Compliance with construction previsions set forth in the City of Napa Public Works Department Standard Specifications and the Uniform Building Code will further assure that geologic impacts are less than significant .	None required.	Napa Renewable Resources Project (NRRP)
Geology and Soils	The proposed Project site is not within a liquefaction seismic hazard zone and, in general the site contains soils with a moderate to slight potential for erosion. The soils within the Project site have low potential for expansion and therefore present a less than significant potential impact .		Nursery Products LLC, Hawes Composting Facility
Geology and Soils	The project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. Since no known surface expression of active faults is believed to cross the site, fault rupture through the site is not anticipated. The project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. Since no known surface expression of active faults is believed to cross the site, fault rupture through the site is not anticipated. No impact would occur.	Mitigation Measure HYD-1 requires the applicant to prepare and submit a geotechnical study that complies with all applicable seismic design standards of the California Building Standards Code.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Geology and Soils	Construction activities associated with the proposed project would involve vegetation removal, grading, and excavation activities that could expose barren soil to sources of wind or water, resulting in the potential for erosion and sedimentation on and off the project site. No impact	National Pollutant Discharge Elimination System (NPDES) stormwater permitting programs regulate stormwater quality from construction sites, which includes erosion and sedimentation. Under the NPDES permitting program, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) are required for construction activities that would disturb an area of 1 acre or ore. The SWPPP must identify Mid Valley Disposal, Inc., Recycling and Transfer Station Expansion Project Page 30 of 46Initial Study and Draft Mitigated Negative Declaration potential sources of erosion or sedimentation that may be reasonably expected to affect the quality of	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
		stormwater discharges as well as identify and implement Best Management Practices (BMPs) that ensure the reduction of these pollutants during stormwater discharges. Typical BMPs intended to control erosion include sand bags, detention basins, silt fencing, storm drain inlet protection, street sweeping, and monitoring of water bodies. These requirements have been incorporated into the proposed project as mitigation. The implementation of an SWPPP and its associated BMPs would reduce potential erosion impacts to a level less than significant .	
Geology and Soils	According to the United States Geological Survey of Agricultural Soil Conservation Service survey, the project site is underlain by Hanford coarse sandy loam and Hesperia sandy loam. These soils have low clay content and possess low shrink-swell properties. The proposed project would have less than significant impact .		Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Geology and Soils	No impacts from septic systems or waste water are expected on the project site which will be served by public sewer and a public storm drain system. Because no septic tanks or alternative waste water disposal systems for the disposal of waste water are anticipated for the project site, the proposed project would have no impact .		
Geology and Soils		GEO-1: Prior to issuance of building permits for the proposed project, the project applicant shall submit geotechnical report to the City of Kerman for review and approval. The report shall demonstrate that the proposed project's plans for that structure incorporate all applicable seismic design standards of the latest adopted edition of the California Building Standards Code. The recommendations from the approved geotechnical report shall be incorporated into the project plans, and the project applicant shall adhere to these approved plans in developing the project site.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Greenhouse Gas Emissions	The project would be consistent with all threshold level for emission established by the Bay Area Quality Management District, and that the project would have an overall reduction in greenhouse gas emissions. As such, the project will not result in any impacts to greenhouse gases. Over 5,000 MTCO _{2e} of greenhouse gases will be avoided with this Project by taking food waste from landfilling and deploying state-of-the art technology as part of the Project significantly decreases greenhouse gas emissions.	None required- Project design significantly decreases greenhouse gas emissions.	Napa Renewable Resources Project (NRRP)

Resource Type	Impacts	Mitigation	CEQA Document
Hazard and Hazardous Materials	There are numerous State and federal laws which regulate the transport, use, storage and handling of hazardous materials. Among these regulation is a requirement for the operator to file a Hazardous Material Business Plan with the Napa County Department of Environmental Services. Given this existing level of regulation, no impacts related to the transport, use, storage and handling of hazardous materials are anticipated. Ponds are a concern due to their potential to attract birds. The area proposed for the new ponds are in area where ponds and bioswales have pre-existing for many years There have been no reports of bird hazards associated with the ponds from Airport personnel in the many years that they have existed on the site. Feedstocks also have potential to be a bird attractor; however, feedstock is proposed to be stored and processed in enclosed container and systems. These provisions for handling feedstock are reiterated in the mitigation measures. Potentially significant impacts.	Potentially significant impacts can be mitigated to less than significant.	Napa Renewable Resources Project (NRRP)
Hazard and Hazardous Materials	Hazardous materials or fuel could spill during transfer or fueling activities, as a result of an accident or as a result of a leaking container. Potentially Significant Impact	The Project design includes guidelines for fuel transfer operations to minimize impacts associated with fueling areas and fuel transfer sites. An Emergency Contingency Plan shall be prepared and adopted for the composting facility. A Spill Prevention, Control, and Countermeasure Plan (SPCC) shall be prepared and certified prior to the commencement of on-site operations. Less than significant after mitigation.	Nursery Products LLC, Hawes Composting Facility
Hazard and Hazardous Materials	Combustion of the windrows or other onsite combustible materials. Potentially Significant Impact	The operator shall provide fire prevention, protection and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. A strip of sufficient width of cleared land must be maintained along the perimeter of site operations to act as a fire barrier or break. The applicant will consult with the local fire agency to determine the size of the fire break. Less than significant after mitigation.	Nursery Products LLC, Hawes Composting Facility
Hazard and Hazardous Materials	Exposure to pathogens, common fungus known as <i>Aspergillus fumigatus</i> , <i>entotoxins</i> , or other allergens. Potentially Significant Impact	-Following each storm event or surface water discharge, no standing water shall be retained in the impoundment basin for more than 30 days. Water from the basin may be used for process water or for dust control on windrows. -Compost leachate shall be captured and may be	Nursery Products LLC, Hawes Composting Facility

Resource Type	Impacts	Mitigation	CEQA Document
		reused to maintain compost moisture levels. - Wash down vehicles and equipment at regular intervals to reduce dust and spore levels. - Employees engaged in moving or turning compost piles should be equipped with protective clothing, gloves, and face mask. Training programs shall be instituted to instruct employees on the necessary of wearing protective gear. Less than significant after mitigation.	
Hazard and Hazardous Materials	Biosolids/windrows can potentially harbor vectors, such as flies, mosquitoes, and fleas. Potentially Significant Impact	- Muscadine, or other suitable bait materials shall be distributed along the external Project boundaries of the composting pad if the LEA determines that periodic fly problems become an area nuisance. - Biosolids shall be mixed with suitable bulking agents within 4 hours after arrival. - Employees shall be trained in procedures to prevent, detect, and remedy fly breeding areas. Potentially significant impacts can be mitigated to less than significant.	Nursery Products LLC, Hawes Composting Facility
Hazard and Hazardous Materials	The proposed project will not transport, use, or dispose of hazardous materials on the project site. Hazardous waste will be prohibited from entering the facility. However, there may be a need to dispose of a limited quantity of hazardous waste discovered through the facility's load checking program. If hazardous waste is discovered, the facility has procedures for handling, manifesting, and reporting the discovered waste. A temporary hazardous waste storage area will be located on the site, and all hazardous waste incidentally recovered from the waste stream will be temporarily stored onsite, manifested, and transported off site according to Federal and State regulatory requirements. A spill response locker will be supplied with emergency response equipment. The facility will report to the County each month, the quantity of hazardous waste transported for disposal off site. The proposed project would have a less than significant impact.	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Hazard and Hazardous Materials	There is no proposed or existing school within one-quarter mile of the project site. The nearest existing school (Kerman Floyd Elementary) is located about one mile north of the project site. The proposed project would have no impact.	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Hazard and Hazardous Materials	The project is not located within an established airport land use plan, and will not result in a safety hazard for people residing or working in the project site. The proposed project would have no impact.	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Hazard and	No private airstrips are located within the vicinity of the project site.	None	Mid Valley Disposal, Inc.,

Resource Type	Impacts	Mitigation	CEQA Document
Hazardous Materials	The proposed project would have no impact .		Recycling Facility and Transfer State Expansion Project
Hazard and Hazardous Materials	The Kerman General Plan 2027 provides an overview of the City's Safety Element. Based on a review of the element, development of the proposed project site is not anticipated to physically interfere with either emergency response or evacuation plans. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Hazard and Hazardous Materials	There are no wildland within or in proximity to the proposed project. The project site and surrounding uses are primarily cultivated agriculture (alfalfa, cotton, tree fruit, etc.). The proposed project will be served by the North Central Fire Protection District. The proposed project will be required to install a series of fire hydrants on site for fire suppression purposes. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Hydrology and Water Quality	The project could violate a water quality standard or waste discharge requirement, or otherwise substantially degrade water quality. Significant	-To control and manage shallow groundwater that is pumped during temporary construction activities, as well as stormwater runoff, SCWMA shall prepare and implement a SWPPP as required under the General Construction Permit for Discharges of Storm Water Associated with Construction Activities, for all construction phases of the project. The SWPPP shall identify pollutant sources that may affect the quality of stormwater discharge and shall require the implementation of BMPs to reduce pollutants in storm water discharges. -To ensure that accidental releases of fuels and other potentially water quality pollutants during project operations do not result in water quality degradation, SCWMA shall, prior to commencement of project operation, complete and adhere to the recommendations provided in a spill prevention and control plan. The plan shall provide for compliance with local, state, and federal regulations regarding storage and use of fluids on site Including, but not limited to, storage and handling criteria for hazardous materials, operational spill prevention measures, and clean-up procedures. Less than Significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Hydrology and Water Quality	The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local	-Sonoma County General Plan Policy WR-2d requires that all large scale commercial and industrial groundwater users implement a groundwater	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
	groundwater table or conflict with Sonoma County General Plan policies regarding groundwater. Significant	<p>monitoring program. The project operator shall implement a groundwater level monitoring program to evaluate drawdown of groundwater in accordance with county groundwater monitoring standards.</p> <p>-Prior to construction, SCWMA shall complete a study assessing the potential for implementation of the following water conservation measures on site: use of water-conserving design measures, use of stormwater retained in detention ponds, potential for use of graywater produced, and potential for use of additional process water.</p> <p>-Prior to the initiation of construction activities, SCWMA shall ensure that the project adheres to PRMD permitting requirements for the implementation of this facility, which would result in the use of groundwater sourced from a low-lying area in support of the project.</p> <p>Less than significant after mitigation.</p>	
Hydrology and Water Quality	The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site, or result in flooding on- or off-site. Significant	<p>-Prior to construction, a hydrologic and flooding study shall be completed for the two unnamed drainages on site, and SCWMA shall ensure that recommendations from the study are incorporated into project design.</p> <p>-Prior to construction, a grading and drainage plan for the project site shall be completed, and the SCWMA shall ensure that recommendations from that document are incorporated into project design.</p> <p>Less than significant after mitigation.</p>	Sonoma County Waste Management Agency Compost Facility
Hydrology and Water Quality	The project could create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Significant	Prior to construction, a grading and drainage plan for the project site shall be completed, and the SCWMA shall ensure that recommendations from that document are incorporated into project design. Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Hydrology and Water Quality	The project would be located within a FEMA-defined 100-year floodplain, and would result in the displacement of flood waters. Significant Unavoidable	None	Sonoma County Waste Management Agency Compost Facility
Hydrology and Water Quality	The project could expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Less than Significant	None required.	Sonoma County Waste Management Agency Compost Facility
Hydrology and Water Quality	Inundation of the project site could result due to seiche, tsunami, or mudflow. Less than Significant	None required.	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
Hydrology and Water Quality	Overall, the project will have a positive impact on drainage and stormwater pollution with the proposed improvements to the stormwater pollution prevention facilities and stormwater treatment facilities. The applicant shall meet the requirements of discharging to a public storm drainage system as required to ensure compliance by the City with all state and federal laws and regulations related to storm water as stipulated in the Clean Water Act. No impact.	None required. Project design significantly decreases impacts to water quality.	Napa Renewable Resources Project (NRRP)
Hydrology and Water Quality	Runoff from biosolids windrows contains pathogens and sediment that could contaminate surface waters. The runoff also may contain constituents in concentrations that could exceed limits to be specified in Waste Discharge Requirements (WDRs) expected to be issued by the Regional Water Quality Control Board (RWQCB). Potentially Significant Impact.	<ul style="list-style-type: none"> - The retention basin(s), designed and sized to contain the entire runoff from the windrow and compost storage area during a 24-hour, 100-year storm event is(are) essential to protect surface water and the public from runoff that would likely be contaminated with pathogens. - Prior to beginning operations at the site, in order to establish baseline soil conditions, at least ten samples shall be collected in the portion of the Phase 1 area that would be most frequently used for windrows. Two additional samples shall be collected from the lowest area of the retention basin after construction of the retention basin is complete. - Soil beneath the retention basin and the composting pad shall be sampled annually to confirm that the migration of constituents into subsurface soil is limited. Soil sampling shall be conducted at six different locations on the most frequently used portion of the composting pad. - Prior to construction of treatment facilities and storage reservoirs and prior to clearing and grading of the Project site, the applicant shall prepare a SWPPP to obtain coverage under the State-wide general construction storm water National Pollutant Discharge Elimination System (NPDES) permit. The BMPs outlined in the SWPPP shall be implemented. - Prior to operation of the facility, the operator shall apply for coverage under the State-wide general storm water NPDES permit for industrial facilities or apply for an individual facility storm water NPDES permit. - If a groundwater well is installed to provide water for the site, a sample shall be collected quarterly for the first year and analyzed for the constituents listed in mitigation measure W-2 (at a minimum) to 	Nursery Products LLC, Hawes Composting Facility

Resource Type	Impacts	Mitigation	CEQA Document
		<p>establish baseline groundwater conditions at the site.</p> <p>Less than significant after mitigation.</p>	
Hydrology and Water Quality	Grading of the storage and treatment areas would expose soils to erosion and may result in the transportation of sediment into local drainages. Potentially Significant Impact	<p>Prior to construction of treatment facilities and storage reservoirs and prior to clearing and grading of the Project site, the applicant shall prepare a SWPPP to obtain coverage under the State-wide general construction storm water National Pollutant Discharge Elimination System (NPDES) permit. The BMPs outlined in the SWPPP shall be implemented.</p> <p>Less than significant after mitigation.</p>	Nursery Products LLC, Hawes Composting Facility
Hydrology and Water Quality	Fuel spilled during re-fueling of heavy equipment during construction or operation of the facility could degrade water quality. Potentially Significant Impact	<p>- Prior to construction of treatment facilities and storage reservoirs and prior to clearing and grading of the Project site, the applicant shall prepare a SWPPP to obtain coverage under the State-wide general construction storm water National Pollutant Discharge Elimination System (NPDES) permit. The BMPs outlined in the SWPPP shall be implemented.</p> <p>- Prior to operation of the facility, the operator shall apply for coverage under the State-wide general storm water NPDES permit for industrial facilities or apply for an individual facility storm water NPDES permit.</p> <p>Less than significant after mitigation.</p>	Nursery Products LLC, Hawes Composting Facility
Hydrology and Water Quality	The development of the proposed project would grading and construction on approximately 28 acres of land. During these activities, there would be the potential for surface water to carry sediment from onsite erosion and small quantities of pollutants into the stormwater system and local waterways. Soil erosion may occur along project boundaries during construction in areas where temporary soil storage is required. Small quantities of pollutants have the potential to enter the storm drainage system, thereby potentially degrading water quality. The proposed project would have a significant and unavoidable impact .	<p>Mitigation Measure HYD-1 is proposed that would require the project applicant to prepare and implement a SWPPP prior to the issuance of grading or building permits.</p> <p>HYD-1: Prior to the issuance of a grading permit or building permit for the project, the project applicant shall obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit No. CA2000002 for Storm Water Discharge Associated with Construction and Land Disturbing Activities, Water Quality Order No. 2009-0009-DWQ through State Water Board's Storm Water Multi-Application and Report Tracking System (SMARTS) website at https://smarts.aterboards.ca.gov. The Construction General Permit requires the preparation and submittal of a Stormwater Pollution</p>	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
		Prevention Plan (SWPPP) to the Central Valley RWQCB that identifies specific actions and Best management Practices (BMPs) to prevent stormwater pollution during construction activities to the maximum extent practicable. The City of Kerman shall confirm that the RWQCB has approved the SWPPP prior to issuance of the grading permit or building permit. The SWPPP shall identify a practical sequence for BMP implementation and maintenance, site restoration, contingency measures, responsible parties, and agency contact.	
Hydrology and Water Quality	Construction activities would have minimal impacts on the storm water drainage patterns of the site or area resulting in substantial erosion or siltation on-or offsite. The storm water drainage pattern that currently exists on the project site will not be impacted by the proposed Expansion Project; therefore, the impact is considered less than significant .		Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Hydrology and Water Quality	The project site contains primarily cultivated agricultural lands with no existing drainage infrastructure. The project would increase impervious surface coverage on the project site. The increase in impervious surface coverage would create the potential for greater runoff to leave the project site, which could cause flooding or substantial erosion or siltation unless adequate facilities are in place. The proposed project would install onsite storm drainage system consisting of inlets and piping to a retention basin onsite, located on the northern end of the project site. The proposed project would provide adequate storm drainage facilities to ensure that runoff is captured and conveyed to the onsite storm drain basin. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Hydrology and Water Quality	The facility will collect, process, recycle and dispose of a variety of non-hazardous material (e.g., C&D materials, bulk metal, organics, wood waste, food waste, municipal solid waste, etc.). The proposed waste tipping, recycling, and processing will occur within the MRF, "dirty" MRF, and transfer station enclosures, and that the composting piles will be covered. The floor of the MRF, "dirty" MRF, and transfer station will be concrete, as will the pad under the GORE compost heaps. Inlaid in the concrete under the composting heaps will be leachate collection trenches. The leachate generated is very minor in quantity, roughly 5 gallons per 250 tons of material composted. This leachate is collected and stored in a tank and is used to moisten the feedstock as it is prepared for the composting process. This is a zero discharge leachate system.	Implementation of a SWPPP and a stormwater management control plan as set forth in Mitigation Measure HYD-1 would mitigate these impacts to less than significant .	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
Hydrology and Water Quality	There are no nearby reservoirs or other bodies of water that could result in inundation from either seiche or tsunami. The proposed project would have no impact .		Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Land Use and Planning	The project has the potential to physically divide an established community. Less than Significant	None required.	Sonoma County Waste Management Agency Compost Facility
Land Use and Planning	The project has the potential to conflict with the Sonoma County General Plan and Zoning Ordinance, resulting in adverse physical effects. (Significant) The potential impacts to the floodplain are inconsistent with the F2 Combining District and General Plan policies. The inconsistency has significant impacts related to flooding (Impact 8.5). As no feasible mitigation is available, this impact is significant and unavoidable .	None	Sonoma County Waste Management Agency Compost Facility
Land Use and Planning	The project would result in the conversion of agricultural land, specifically Farmland of Local Importance. Less than Significant	None required.	Sonoma County Waste Management Agency Compost Facility
Land Use and Planning	The project would conflict with an existing Williamson Act Contract. The project site is currently restricted to agricultural use under a Williamson Act contract. The County would not be able to permit the project until the Williamson Act contract governing the property is terminated. While this impact does not have ramifications on the physical environment, the project could not proceed on land with a Williamson Act Contract and thus this impact is considered significant .	The County, Applicant or existing property owner would complete one of the following options: - File a notice of nonrenewal which would begin a 9-year non-renewal process. At the end of this period the Williamson Act contract would be terminated. - Terminate the contract by public acquisition pursuant to the Williamson Act. Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Land Use and Planning	The project has the potential to conflict with airport operations. The composting operations associated with the project and the stormwater detention pond could create a hazardous wildlife attractant near the airport, this impact is significant .	The following measures would be implemented to reduce risks associated with wildlife hazards near Gness Field Airport: - Prior to construction of the facility, a Construction and Design Best Management Practices Evaluation will be conducted. - When operation of the project commences, a Wildlife Hazard Assessment (WHA) would be conducted by a wildlife damage management biologist. - Upon completion of the WHA, a WHMP will be developed if warranted. Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Land Use and Planning	The project site is already fully developed and is located within an industrial area that does not contain any residential development. As such the proposed new facilities and processing would not divide an established community. The General Plan designation for the site is	None	Napa Renewable Resources Project (NRRP)

Resource Type	Impacts	Mitigation	CEQA Document
	Public Serving the zoning is Public/Quasi-Public. The proposed use is consistent with these designations. There are no existing biological conservation plans associated with this industrially developed site.		
Land Use and Planning	Surrounding land uses to the project site include predominantly vacant desert with a single residence located over approximately 1.5 miles east of the project site. There are no residential communities for a distance of at least five miles to the north, west and south. Use of the site for composting operations will not conflict with existing surrounding land uses and there are no environmental justice issues as the surrounding land is vacant. The General Plan land use designation for the site is Resource Conservation (RC). No significant impact.	None	Nursery Products LLC, Hawes Composting Facility
Land Use and Planning	The project site is designated for industrial uses in the Kerman General Plan. The proposed project would not physically divide an established community. The project site does not have the potential to physically divide the community. The proposed project would have no impact.	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Land Use and Planning	The project site is designated Industrial by the City of Kerman General Plan. The proposed project consists of the expansion of the recycling and transfer station operations on a 38 acre site. The proposed project would be consistent with all applicable objectives, goals, and policies of the Kerman General Plan, including development standards contained in the City of Kerman Zoning Ordinance. The proposed project would have no impact.	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Land Use and Planning	There is no habitat conservation or natural community conservation plans that apply to the site. The proposed project would have no impact.	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Mineral Resources	There are no mineral resources on the project site. As such this proposal would not result in the loss of available mineral resources. No impact.	None	Napa Renewable Resources Project (NRRP)
Mineral Resources	The proposed Project and Fort Cady Alternative sites are not within an area designated by the State for locally important mineral resources and neither lies within the County of San Bernardino's Mineral Resource Zone. No impacts to mineral resources would occur at either the Project site or the Fort Cady site as a result. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have no impacts. The No Project Alternative would have no impacts.	None	Nursery Products LLC, Hawes Composting Facility
Mineral Resources	The Proposed Project site is not identified in the General Plan as having any known mineral resource value or as being located within any "Critical Mineral Resource Overlay" area. The proposed project would have no impact.	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
Noise	Project construction could expose persons to or generate excessive noise levels. No construction noise thresholds exist as long as the construction is temporary. Further, after it is constructed, the levee around the project site would further reduce any off-site noise effects of construction. Without hourly restrictions on construction activities, noise from construction activities would be considered significant .	Construction of the new facility shall occur only during daytime between the hours of 7 a.m. – 7 p.m. Monday thru Friday, 9 a.m. – 5 p.m. Saturday, and no construction on Sunday. Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Noise	Operation of the project could expose persons to or generate noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies. Depending on various factors the blowers could exceed 45 dBA at night at the nearest receptor if not adequately attenuated. This would be a potentially significant impact without mitigation .	ASP equipment that would operate at night shall be required to be attenuated to a level that does not exceed 45 dBA at the nearest residences. Less than significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Noise	Traffic associated with operation of the project would result in an increase in ambient noise levels on nearby roadways used to access the project site. No roadway segments would experience increases greater than 3 dBA during the peak hour as a result of the project; consequently the project would result in a less than significant impact on these segments.	None required.	Sonoma County Waste Management Agency Compost Facility
Noise	Increases in traffic from the project in combination with other development would result in cumulative noise increases. The project would not be cumulatively considerable and would have a less than significant cumulative impact on noise .	None required.	Sonoma County Waste Management Agency Compost Facility
Noise	The project site is an existing material diversion facility surrounded by heavy industrial and public airport uses. There are no sensitive receptors such as residential or office in the vicinity. The new noise generation issues are limited to noise associated with construction activities for the project and the operations of the biomass gasification facility.	None	Napa Renewable Resources Project (NRRP)
Noise	The proposed Project site, the Fort Cady Alternative site and adjacent area to both sites are undeveloped vacant land. No persons would be exposed to and noise levels would not be generated in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The proposed facility operations at either site would be in compliance with the County Noise Ordinance for stationary noise sources and the County Noise Element regarding residential land uses. Noise impacts would be less than significant .	None	Nursery Products LLC, Hawes Composting Facility
Noise	Exterior noise is anticipated in conjunction with ground disturbances during construction of the project and activities from operation of the facility. The short-term increase in ambient noise and vibration levels	a. Construction activities will be limited to the hours between 7 a.m. to 8 p.m. daily. The City of Kerman shall have the discretion to permit	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion

Resource Type	Impacts	Mitigation	CEQA Document
	<p>could occur during construction activities either from the noise impacts created by the transport of workers and movement of construction materials to and from the project site, or from the noise generated onsite during ground clearing/excavation, grading, and building construction activities. The project site is primarily in a rural setting, surrounded primarily by cultivated agricultural land to the north, east, south and west. The City of Kerman Waste Water Treatment Plant is immediately to the west. The closest noise-sensitive receptor is one single-family home located approximately 1,084 feet west of the project site. However, implementation of Mitigation Measure NOI-1 will limit the hours of construction and the noise impact to less than significant. Based on the noise levels currently generated by the project and the surrounding land uses, the expansion of the proposed project is expected to produce noise levels with existing noise levels in the vicinity of the project site. Therefore, long-term noise impacts from the proposed project are not anticipated.</p>	<p>construction activities to occur outside of the allowable hours if compelling circumstances warrant such an exception (e.g., weather conditions to pour concrete).</p> <p>b. All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.</p>	Project
Noise	<p>The proposed project is not located within an airport land use plan area or within 2 miles of any public airport. The proposed project would have no impact.</p>	None	
Population and Housing	<p>The expansion of this industrial use with new equipment and processes will not impact housing or significantly increase employment. The project will not induce growth directly or indirectly not will it displace existing housing units. As there is not construction involved, it does not present new impacts related to jobs and housing that were not already anticipated by the General Plan. No impact.</p>	None	Napa Renewable Resources Project (NRRP)
Population and Housing	<p>There are no residents living on or in the immediate vicinity or either the Project or Fort Cady Alternative sites. The Project will employ approximately eight staff members from the local area. Implementation of the Project or Fort Cady Alternative would not induce growth directly or indirectly. There would be no displacement of existing housing or people. There would be no impacts to population and housing. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have no impacts. The No Project Alternative would have no impacts.</p>	None	Nursery Products LLC, Hawes Composting Facility
Population and Housing	<p>The project site currently carries a general plan land use designation of Industrial (I). This designation would allow for future development consistent with industrial uses (e.g., manufacturing, transportation, recycling, etc.). The project site is located within the City of Kerman's designated industrial park area. There are no existing residential or housing development within or adjacent to the project site. Water, sewer, and roads already about the property to the south and north. No extensions of these facilities, except through the project site itself</p>	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
	and connecting to existing developed sites will occur. The proposed project would have no impact .		
Population and Housing	The proposed project would expand existing recycling and transfer station operations on a 28 acre site that is currently cultivated for agricultural uses. There are no existing homes or housing units on the project site that would be displaced as a result of the proposed project. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Public Service	The project, and implementation of certain mitigation, would increase energy demands. Because the project would be inherently energy efficient, would not substantially increase fuel consumption in the region, and the operator of the facility would pay improvement and operating costs for available electricity and/or natural gas, this impact would be less than significant .	None required.	Sonoma County Waste Management Agency Compost Facility
Public Service	The project would require law enforcement services from the Sonoma County Sheriff's Office. As with existing operations, the project is not anticipated to create a volume of calls which would affect the ability of the Department to provide adequate law enforcement services to the general area, or require the construction or alteration of police facilities. Thus, project effects to police protection services would be less than significant .	None required.	Sonoma County Waste Management Agency Compost Facility
Public Service	The project would increase demand for fire protection and emergency medical services including response to wildland fires. As with existing operations, the project is not anticipated to create a volume of calls which would affect the ability of the fire departments to provide adequate services to the general area, or require the construction or alteration of fire protection facilities. Thus, projects effects to fire protection and emergency medical services would be less than significant . Fire prevention controls incorporated into the project would also reduce risks from wildland fire to a less-than-significant level.	None required.	Sonoma County Waste Management Agency Compost Facility
Public Service	The project would include new stormwater drainage facilities, the construction of which could create impacts. The construction of on-site detention ponds and stormwater drainage facilities would reduce any impact on off-site public stormwater drainage facilities. Thus, the project's impact related to construction of new stormwater drainage facilities would be less than significant	None required.	Sonoma County Waste Management Agency Compost Facility
Public Service	The project site is located in an existing developed industrial park that is fully and adequately provided with all necessary public services. The addition of new facilities and processes at the site will not require any additional level of public services. Given that it is an industrial project, it will not have an impact on park and school facilities. A county fire	Prior to project approval, the applicant shall prepare and implement a Fire Safety Plan that outlines fire hazards, describes facility operations procedures to prevent ignition of fires, requires regular inspection of fire suppression systems, and provides worker	Napa Renewable Resources Project (NRRP)

Resource Type	Impacts	Mitigation	CEQA Document
	station is located less than two miles from the project site. As such, the project will not have any impact on public services.	training in safety procedures as well as protocols for responding to fire incidents. The Fire Safety Plan shall be reviewed and approved by the focal fire enforcement agency. No impact after mitigation	
Public Service	The proposed Project or the Fort Cady Alternative would not induce growth; therefore no additional public services are required. Existing public services' capacity, such as police and fire, would be adequate to serve the Project or alternative. Impacts to public services are less than significant. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts . The No Project Alternative would have no impacts.	None	Nursery Products LLC, Hawes Composting Facility
Public Service	The proposed project includes the development of an expansion to an existing recycling and transfer station facilities and operations on a 28 acre site. There have been no reportable incidents or major issues with the operation of the existing recycling and transfer station. The proposed project will be required to install appropriate fire hydrants for use in fire suppression and provide all appropriate markings and designation for fire lanes and other emergency access points. The proposed project will be served by North Central Fire District (under contract with the City of Fresno Fire Department). The proposed project will be required to comply with all building and fire code requirements and will be verified at various points in the projects' progress, including a plan check and prior to issuance of the certificate of occupancy. For these reasons, the proposed project would not generate the need for additional staff such that new or physically altered facilities would be required. The proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Public Service	The proposed project includes the development of an expansion to an existing recycling and transfer station facilities and operations on a 28 acre site. There have been no reportable incidents or major issues with the operation of the existing recycling and transfer station. The project site will include a perimeter fence around the site with lockable gates at all entrances. The proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Public Service	The proposed project includes the development of an expansion to an existing recycling and transfer station facilities and operations on a 28 acre site. The project applicant currently employs over 150 people. Many of which reside in the Kerman and, presumably those with school aged children already attend Kerman schools. Although new employees from the proposed project may enroll children in local schools, the proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
Public Service	The proposed project includes the development of an expansion to an existing recycling and transfer station facilities and operations on a 28 acre site. There are no parks or other recreational space on the project site or within the vicinity of the project site. The proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Recreation	No increase in the demand for recreation facilities will result from either the proposed Project or the Fort Cady Alternative. The area surrounding both sites includes vast amounts of open space and available recreational access. The Project does not propose construction of new recreational facilities or expansion of the existing recreational facilities. No impact to recreational facilities is expected. The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have no impacts. The No Project Alternative would have no impacts .	None	Nursery Products LLC, Hawes Composting Facility
Recreation	The proposed project is an industrial use which includes the development of an expansion to an existing recycling and transfer station facilities and operations on a 28 acre site. The project applicant currently employs over 150 people. Many of which reside in the Kerman and, presumably utilize existing park and recreational facilities. Although new employees from the proposed project may choose to reside in Kerman and use existing parks and recreational facilities, the proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Transportation and Traffic	The project would contribute to Near-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour. While peak hour intersection operations would not be significantly affected under near-term conditions by project generated traffic, there are safety and design related issues that would pose potential significant impacts in the near-term. These issues are addressed in the bicycle/pedestrian safety, traffic safety and access road sections. (Less than Significant)	None required.	Sonoma County Waste Management Agency Compost Facility
Transportation and Traffic	The project could worsen traffic safety due to design features or incompatible uses. The existing conditions of Twin House Ranch Road would not meet the needs of the project traffic in terms of capacity or safety. The roadway would need to be reconstructed to adequately accommodate two-way truck traffic with sufficient space at the intersection with Lakeville Road to allow incoming and outbound vehicles to maneuver without adversely affecting traffic operation in the public right-of-way. This is a significant impact .	- Prior to the start of project operations, SCWMA shall widen (to County standards) the Twin House Ranch Road cross-section between Lakeville Road and the project site to provide two 12-foot-wide lanes, a dedicated left-turn lane and shared through-right turn lane on the Twin House Ranch Road intersection approach to Lakeville Road, and a dedicated southbound right-turn lane on Lakeville Road of a length and turning radius sufficient to fully accommodate southbound right-turning trucks from Lakeville Road separated from the southbound through traffic flow.	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
		<p>- Prior to the start of project operations, SCWMA shall install a traffic refuge area (about 200 feet long) on Lakeville Road to accommodate left turning vehicles from Twin House Ranch Road.</p> <p>Less than significant after mitigation.</p> <p>However, if implementation of Mitigation Measures were not approved by Sonoma County (the jurisdiction responsible for Lakeville Road), the impact would be Significant and Unavoidable.</p>	
Transportation and Traffic	<p>The project would create potential conflicts with adopted policies, plans, or programs supporting alternative transportation. The potential for conflicts would be considered greatest in circumstances where Lakeville Road would be regularly used by bicyclists or pedestrians and/or is a designated proposed bikeway, and the road does not meet current County roadway design standards and fall debris from truck has the potential to create a hazard for bicyclists -(Significant)</p>	<p>-The operator of the facility shall ensure that all contract haul trucks are covered to prevent spillage of materials onto haul routes.</p> <p>- The operator shall conduct regular sweeping of the intersection of Lakeville Road / Twin House Ranch Road to keep it free of debris and dirt that may accumulate from exiting trucks. Less than significant after mitigation.</p>	Sonoma County Waste Management Agency Compost Facility
Transportation and Traffic	<p>The project would generate turning movements by heavy vehicles to and from Lakeville Road at Twin House Ranch Road, increasing the potential for road hazard conflicts between project traffic and through traffic. The introduction of increased turning movements to and from Lakeville Road at Twin House Ranch Road would increase the potential for vehicle conflicts and collisions in the project area. (Significant)</p>	<p>- Prior to the start of project operations, SCWMA shall post warning signs on Lakeville Road 250 feet in advance of the access driveway (Twin House Ranch Road) that cautions drivers about truck traffic entering and exiting the roadway. The warning signs shall follow guidelines set forth in the <i>California Manual on Uniform Traffic Control Devices</i> (Caltrans, 2010)</p> <p>-SCWMA shall implement intersection improvements identified in Mitigation Measures 12.2a and 12.2b.</p> <p>Less than Significant after mitigation; however, if implementation of Mitigation Measures 12.2a and 12.2b were not approved by Sonoma County (the jurisdiction responsible for Lakeville Road), the impact would be Significant and Unavoidable.</p>	Sonoma County Waste Management Agency Compost Facility
Transportation and Traffic	<p>The project would contribute to Long-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour. This would be a significant impact during the a.m. and weekend peak hour. (Significant)</p>	<p>- Implement Mitigation Measure 12.2b (install a 200-foot-long traffic refuge area on Lakeville Road to accommodate left turning vehicles from Twin House Ranch Road).</p> <p>-Prior to Year 2030, SCWMA shall install a traffic refuge area (about 200 feet long) on Lakeville Road to accommodate left turning vehicles from Stage Gulch Road.</p> <p>Less than significant after mitigation; however, if</p>	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
		<i>implementation of Mitigation Measures 12.2b and 12.5b were not approved by Sonoma County (the jurisdiction responsible for Lakeville Road), the impact would be Significant and Unavoidable.</i>	
Transportation and Traffic	The project would generate turning movements by heavy vehicles to and from Lakeville Road at Twin House Ranch Road, increasing the potential for road hazard conflicts between project traffic and through traffic. (Significant)	<ul style="list-style-type: none"> - Implement Mitigation Measure 12.4a (posting of warning signs on Lakeville Road in advance of Twin House Ranch Road that cautions drivers about truck traffic entering and exiting the roadway). - SCWMA shall implement intersection improvements identified in Mitigation Measures 12.2a and 12.2b. <p>Less than Significant after mitigation. <i>However, if implementation of Mitigation Measures 12.2a and 12.2b were not approved by Sonoma County (the jurisdiction responsible for Lakeville Road), the impact would be Significant and Unavoidable.</i></p>	Sonoma County Waste Management Agency Compost Facility
Transportation and Traffic	The project could contribute to the degradation of pavement on public roads. The truck trips generated by the project would cause incremental damage and wear to roadway pavement surfaces along the haul route. (Significant)	Implement Mitigation Measure 12.2a (widen Twin House Ranch Road to County standards between Lakeville Road and the project site), which would increase the pavement's Traffic Index to support the project-generated heavy truck traffic. Improving the road to County standards will lessen the degradation of the pavement due to the project. Less than Significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Transportation and Traffic	Project construction would result in temporary increases in truck traffic and construction worker traffic. Project construction activities would generate offsite traffic that would include the initial delivery of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, the delivery of materials throughout construction, and the removal of construction debris. (Significant)	The construction contractor(s) shall develop a construction management plan for review and approval by the Sonoma County Department of Transportation and Public Works. Less than Significant after mitigation.	Sonoma County Waste Management Agency Compost Facility
Transportation and Traffic	Based on the conditions analysis, with proper operator monitoring and direction of the user traffic, the MDF can safely and operationally accommodate permitted maximum traffic amount. Consequently, the weigh scale facilities are adequate to accommodate maximum usage levels.	None	Napa Renewable Resources Project (NRRP)
Transportation and Traffic	The TIA conducted for the proposed Project indicates that the proposed Project will not create significant traffic impacts to the surrounding roadway circulation system according to the traffic impact	None	Nursery Products LLC, Hawes Composting Facility

Resource Type	Impacts	Mitigation	CEQA Document
	analysis procedures, guidelines and threshold of significance specified by San Bernardino County CMP. Additionally, the proposed Project will have adequate emergency access for both fire and medical emergency vehicles. Very low existing baseline traffic and projected operational traffic volume will not hinder emergency response times. No significant transportation impacts would occur as a result of the proposed Project.		
Transportation and Traffic	The proposed project will incrementally contribute to the existing traffic load on Jensen, Church and Madera Avenues. Jensen and Church Avenues are designated collectors. Madera Avenue is designated arterial and is under the jurisdiction of the California Department of Transportation (Caltrans). The existing level of service at the Madera/Jensen Avenue intersection is B at AM Peak Hour and C at PM Peak Hour. The minimum level of service at this intersection is C (per Caltrans). The proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Transportation and Traffic	The proposed project will not affect air traffic patterns. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Transportation and Traffic	The proposed project will use existing roadways for egress and ingress and will be compatible with the General Plan land use designation for industrial uses. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Transportation and Traffic	The proposed project will be developed contingent upon the provision of emergency access as required by the North Central Fire Department (under contract with the City of Fresno Fire Department). The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Transportation and Traffic	The proposed project will be required to provide adequate on-site parking in compliance with Chapter 17.74 of the Kerman Municipal Code. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Transportation and Traffic	The proposed project would be required to provide bicycle racks for employees use as a condition of the development. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Utilities and Service Systems	The project site is located in an existing developed industrial park that is fully and adequately provided with all necessary utilities. The addition of new facilities and processes for anaerobic digestion covered composting, biomass gasification, new stormwater treatment facilities, and solar panels will not require any additional improvements to these utility systems. No impact .	None	Napa Renewable Resources Project (NRRP)

Resource Type	Impacts	Mitigation	CEQA Document
Utilities and Service Systems	The proposed Project and the Fort Cady Site Alternative would not affect or cause an increased need for additional public utilities or service systems. A maximum of eight employees are anticipated at any one time, generating a small amount of solid waste that will be transported to the Barstow Sanitary Landfill. Domestic water will be provided by an on-site well or be purchased and stored. Telephone service will be cellular. Electricity will be supplied by solar equipment, with a portable diesel-fueled generator backup. Site run-off from rainfall will be directed into a retention basin and no impacts to storm water drainage facilities are expected. Impacts to public utilities or service systems would be less than significant . The Reduced Capacity Alternative is a virtually identical operation at the same (Hawes) site and would also have less than significant impacts .	None	Nursery Products LLC, Hawes Composting Facility
Utilities and Service Systems	The proposed project would be served by wastewater collection service provide by the City of Kerman via an extension to the existing sewer line onsite which is connected to the existing sewer line in Jensen Avenue. The proposed project would generate negligible amounts of wastewater from the proposed 10,000 square foot office/maintenance building. The City of Kerman recently completed a major upgrade and expansion to its wastewater treatment plant from 1.2 mgd to 2.0 mgd. Based on growth projections contained in the General Plan, the expansion will provide capacity for the city (including the proposed project) to the year 2022. The proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Utilities and Service Systems	The proposed project will develop a storm water retention basin onsite to capture any new storm water runoff from the project. The proposed project would have a less than significant .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Utilities and Service Systems	The City of Kerman currently provides potable water to the proposed project through existing water lines serving the site. The project proponent will install new water lines onsite to serve the proposed project. The City of Kerman has sufficient distribution and capacity to serve the proposed project. The proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Utilities and Service Systems	The proposed project is expected to generate solid waste from construction and operational activities. Construction and operational waste would be extremely small amount relative to the existing capacity at the American Avenue Disposal Site. The City of Kerman is currently meeting the State's waste diversion goal. Because the project applicant is a recycling and transfer station operation, the impact on the existing landfill site would be negligible. The proposed project would have a less than significant impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project

Resource Type	Impacts	Mitigation	CEQA Document
Utilities and Service Systems	The project applicant is a recycling and transfer station operation permitted by the several local and state agencies. The project applicant is required to comply with all applicable federal, state statutes and regulations in order to operate as a municipal solid waste recycling and transfer station. The proposed project would have no impact .	None	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Mandatory Findings of Significance	The project will have an overall beneficial impact on the environment including the following: -Use of waste feedstock and yardwaste to produce a low-carbon biofuel to replace fuel usage -Increased re-use of feedstock as compost material -Conversion of wood waste to energy -Improved storm water treatment -Use of solar panels to produce clean energy - <i>Significantly decrease VOC emissions</i>		Napa Renewable Resources Project (NRRP)
Mandatory Findings of Significance	The proposed project does not have the potential to degrade the quality of the environment by reducing habitat, threatening to eliminate any plant or animal community, or eliminating important examples of California history or prehistory. With regard to this issue, the proposed project would have a less than significant impact .	Project will require implementation of mitigation measures. A Mitigation Monitoring and Reporting Program was prepared to ensure compliance.	Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Mandatory Findings of Significance	The propose project could potentially contribute to incremental effects that would cumulatively considerable when considered in combination with other past, present, or foreseeable future projects. With regards to this issue, the proposed project would have a less than significant impact with mitigation incorporation .		Mid Valley Disposal, Inc., Recycling Facility and Transfer State Expansion Project
Mandatory Findings of Significance	The proposed project would not result in environmental impact that would have a direct or indirect adverse effect on human beings. With regard to this issue, the proposed would have a less than significant impact .		

Summary of Cumulative Impacts and Mitigation

Resource Type	Impacts	Mitigation	CEQA Document
Air Quality	Cumulative risk from all past, present and reasonably foreseeable sources within 1,000 feet of the project (associated with either windrow or ASP composting option) would expose sensitive receptors.	None required.	Sonoma County Waste Management Agency Compost Facility
Air Quality	The proposed Nursery Products facility will introduce significant emissions of dust and ozone precursors (NOx and VOCs), which will contribute to regional nonattainment conditions for ozone and PM10.	All mitigation measures identified in the Air Quality Mitigation measures would also apply to the cumulative impacts. Significant and unmitigable.	Nursery Products LLC, Hawes Composting Facility
Biological Resources	The site is located on private property, and there is a large patchwork of state-and federal-owned lands in the surrounding area. Adverse cumulative impacts include the potential opportunity to develop other private lands in the Project vicinity. A regional HCP, if approved, would address potentially significant cumulative impacts to biological resources in the Project vicinity.	All mitigation measures identified in the Biology Mitigation Measures would also apply to the cumulative impacts. Less than significant	Nursery Products LLC, Hawes Composting Facility
Noise	Increases in traffic from the project in combination with other development would result in cumulative noise increases. (Less than Significant). The project itself would not result in substantial and significant increases in noise on local roadways. In addition, the projected cumulative 2030 plus project scenario would result in minimal (less than 3 dBA) increases in noise. Thus, project would not be cumulatively considerable and would have a less than significant cumulative impact on noise.	None required.	Sonoma County Waste Management Agency Compost Facility
Traffic and Transportation	The project would contribute to Near-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour. Less than Significant. While peak hour intersection operations would not be significantly affected under near-term conditions by project generated traffic, there are safety and design related issues that would pose potential significant impacts in the near-term. These issues are addressed in the bicycle/pedestrian safety, traffic safety and access road sections.	None Required.	Sonoma County Waste Management Agency Compost Facility
Traffic and Transportation	The project could worsen traffic safety due to design features or incompatible uses. The existing conditions of Twin House Ranch Road would not	a. Prior to the start of project operations, SCWMA shall widen (to County standards) the Twin House Ranch Road cross-section between	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
	<p>meet the needs of the project traffic in terms of capacity or safety. The roadway would need to be reconstructed to adequately accommodate two-way truck traffic with sufficient space at the intersection with Lakeville Road to allow incoming and outbound vehicles to maneuver without adversely affecting traffic operation in the public right-of-way.</p> <p>Significant</p>	<p>Lakeville Road and the project site to provide two 12-foot-wide lanes, a dedicated left-turn lane and shared through-right turn lane on the Twin House Ranch Road intersection approach to Lakeville Road, and a dedicated southbound right-turn lane on Lakeville Road of a length and turning radius sufficient to fully accommodate southbound right-turning trucks from Lakeville Road separated from the southbound through traffic flow.</p> <p>b. Prior to the start of project operations, SCWMA shall install a traffic refuge area (about 200 feet long) on Lakeville Road to accommodate left turning vehicles from Twin House Ranch Road.</p> <p>Less than significant. However, if implementation of Mitigation Measures 12.2a and 12.2b were not approved by Sonoma County (the jurisdiction responsible for Lakeville Road), the impact would be Significant and Unavoidable.</p>	
Traffic and Transportation	<p>The project would contribute to Long-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour. This would be a significant impact during the a.m. and weekend peak hour. Significant</p>	<p>a. Implement Mitigation Measure 12.2b (install a 200-foot-long traffic refuge area on Lakeville Road to accommodate left turning vehicles from Twin House Ranch Road).</p> <p>b. Implement Mitigation Measure 12.2b (install a 200-foot-long traffic refuge area on Lakeville Road to accommodate left turning vehicles from Twin House Ranch Road).</p> <p>Less than significant; however, if implementation of Mitigation Measures 12.2b and 12.5b were not approved by Sonoma County (the jurisdiction responsible for Lakeville Road), the impact would be Significant and Unavoidable.</p>	Sonoma County Waste Management Agency Compost Facility
Traffic and Transportation	<p>The project would generate turning movements by heavy vehicles to and from Lakeville Road at Twin House Ranch Road, increasing the potential for road hazard conflicts between project traffic and through traffic. Significant</p>	<p>a. Implement Mitigation Measure 12.4a (posting of warning signs on Lakeville Road in advance of Twin House Ranch Road that cautions drivers about truck traffic entering and exiting the roadway).</p> <p>b. SCWMA shall implement intersection improvements identified in Mitigation Measures 12.2a and 12.2b.</p> <p>Less than Significant. However, if implementation</p>	Sonoma County Waste Management Agency Compost Facility

Resource Type	Impacts	Mitigation	CEQA Document
		<p>of Mitigation Measures 12.2a and 12.2b were not approved by Sonoma County (the jurisdiction responsible for Lakeville Road), the impact would be Significant and Unavoidable.</p>	
Traffic and Transportation	<p>There will be cumulatively considerable traffic impacts in the Project area, mainly due to increased truck traffic at various times along SR 58 and local routes parallel to the highway. Less than significant</p>	None	Nursery Products LLC, Hawes Composting Facility

APPENDIX F
DESCRIPTION OF AIR BASINS

Chapter 1. Air Resources Board

Subchapter 1.5. Air Basins and Air Quality Standards

Article 1. Descriptions of California Air Basins

§ 60100. North Coast Basin.

- (a) All of Del Norte County
- (b) All of Humboldt County
- (c) All of Mendocino County
- (d) All of Trinity County
- (e) That portion of Sonoma County which lies north and west of a line described as follows:

Beginning at the southeasterly corner of the Rancho Estero Americano, being on the boundary line between Marin and Sonoma Counties, California; thence running northerly along the easterly boundary line of said Rancho Estero Americano to the northeasterly corner thereof, being an angle corner in the westerly boundary line of Rancho Canada de Jonive; thence running along said boundary of Rancho Canada de Jonive westerly, northerly and easterly to its intersection with the easterly line of Graton Road; thence running along the easterly and southerly line of Graton Road, northerly and easterly to its intersection with the easterly line of Sullivan Road; thence running northerly along said easterly line of Sullivan Road to the southerly line of Green Valley Road; thence running easterly along the said southerly line of Green Valley Road and easterly along the southerly line of State Highway 116, to the westerly line of Vine Hill Road; thence running along the westerly and northerly line of Vine Hill Road, northerly and easterly to its intersection with the westerly line of Laguna Road; thence running northerly along the westerly line of Laguna Road and the northerly projection thereof to the northerly line of Trenton Road; thence running westerly along the northerly line of said Trenton Road to the easterly line of Trenton-Healdsburg Road; thence running northerly along said easterly line of Trenton-Healdsburg Road to the easterly line of Eastside Road; thence running northerly along said easterly line of Eastside Road to its intersection with the southerly line of Rancho Sotoyome; thence running easterly along said southerly line of Rancho Sotoyome to its intersection with the Township line common to Townships 8 and 9 North, M.D.M.; thence running easterly along said township line to its intersection with the boundary line between Sonoma and Napa Counties, State of California.

§ 60101. San Francisco Bay Area Basin.

- (a) That portion of Sonoma County which lies south and east of a line described as follows:

Beginning at the southeasterly corner of the Rancho Estero Americano, being on the boundary line between Marin and Sonoma Counties, California; thence running northerly along the easterly boundary line of said Rancho Estero Americano to the northeasterly corner thereof, being an angle corner in the westerly boundary line of Rancho Canada de Jonive; thence running along said boundary of Rancho Canada de Jonive westerly, northerly and easterly to its intersection with the easterly line of Graton Road; thence running along the easterly and southerly line of Graton Road, northerly and easterly to its intersection with the easterly line of Sullivan Road; thence running northerly along said easterly line of Sullivan Road to the southerly line of Green Valley Road; thence running easterly along the said southerly line of Green Valley Road and easterly along the southerly line of State Highway 116, to the westerly line of Vine Hill Road; thence running along the westerly and northerly line of Vine Hill Road, northerly and easterly to its intersection with the westerly line of Laguna Road; thence running northerly along the westerly line of Laguna Road and the northerly projection thereof to the northerly line of Trenton Road; thence running westerly along the northerly line of said Trenton Road to the easterly line of Trenton-Healdsburg Road; thence running northerly along said easterly line of Trenton-Healdsburg Road to the easterly line of Eastside Road; thence running northerly along said easterly line of Eastside Road to its intersection with the southerly line of Rancho Sotoyome; thence running easterly along said southerly line of Rancho Sotoyome to its intersection with the Township line common to Townships 8 and 9 North, M.D.M.; thence running easterly along said township line to its intersection with the boundary line between Sonoma and Napa Counties, State of California.

- (b) All of Napa County

- (c) That portion of Solano County which lies south and west of a line described as follows:

Beginning at the intersection of the westerly boundary of Solano County and the 1/4 section line running east and west through the center of Section 34, T6N, R2W, M.D.B. & M., thence east along said 1/4 section line to the east boundary of Section 36, T6N, R2W, thence south 1/2 mile and east 2.0 miles, more or less, along the west and south boundary of Los Putos Rancho to the northwest corner of Section 4, T5N, R1W, thence east along a line common to T5N and T6N to the northeast corner of Section 3, T5N, R1E, thence south along section lines to the southeast corner of Section 10, T3N, R1E, thence east along section lines to the south 1/4 corner of Section 8, T3N, R2E, thence east to the boundary between Solano and Sacramento Counties.

- (d) All of Contra Costa County
- (e) All of Alameda County
- (f) All of Santa Clara County
- (g) All of San Mateo County
- (h) All of San Francisco County
- (i) All of Marin County

§ 60102. North Central Coast Basin.

- (a) All of Santa Cruz County
- (b) All of San Benito County
- (c) All of Monterey County

§ 60103. South Central Coast Basin.

- (a) All of San Luis Obispo County
- (b) All of Santa Barbara County
- (c) All of Ventura County

§ 60104. South Coast Air Basin.

- (a) All of Orange County
- (b) That portion of Riverside County which lies west of a line described as follows:

Beginning at the Riverside-San Diego County boundary and running north along the range line common to R. 4 E and R. 3 E; then east along the township line common to T. 8 S and T. 7 S; then north along the range line common to R. 5 E and R. 4 E; then west along the township line common to T. 6 S and T. 7 S to the southwest corner of Section 34, T. 6 S, R. 4 E; then north along the west boundaries of Sections 34, 27, 22, 15, 10, 3, T. 6 S, R. 4 E; then west along the township line common to T. 5 S and T. 6 S; then north along the range line common to R. 4 E and R. 3 E; then west along the south boundaries of Sections 13, 14, 15, 16, 17 and 18, T. 5 S, R. 3 E; then north along the range line common to R. 2 E and R. 3 E to the Riverside-San Bernardino County line.

- (c) That portion of San Bernardino County west and south of a line described as follows:

Beginning at the San Bernardino-Riverside County boundary and running north along the range line common to R. 3 E and R. 2 E; then west along the township line common to T. 3 N and T. 2 N to the San Bernardino-Los Angeles County boundary.

- (d) That portion of Los Angeles County which lies south and west of a line described as follows:

Beginning at the Los Angeles-San Bernardino County boundary and running west along the township line common to T.3 N and T.2 N, San Bernardino Base and Meridian; then north along the range line common to R.8 W and R.9 W; then west along the township line common to T.4 N and T.3 N; then north along the range line common to R.12 W and R.13 W to the southeast corner of Section 12, T.5 N, R. 13 W; then west along the south boundaries of Sections 12, 11, 10, 9, 8, 7, T.5 N, R. 13 W to the boundary of the Angeles National Forest which is collinear with the range line common to R. 13 W and R. 14 W; then north and west along the Angeles National Forest boundary to the point of intersection with the township line common to T.7 N and T. 6 N (point is at the northwest corner of Section 4 in T.6 N, R. 14 W); then west along the township line common to T.7 N and T.6 N; then north along the range line common to R. 15 W and R. 16 W to the southeast corner of Section 13, T.7 N, R. 16 W; then along the south boundaries of Sections 13, 14, 15, 16, 17, 18, T.7 N, R. 16 W; then north along the range line common to R.16 W and R. 17 W to the north boundary of the Angeles National Forest (collinear with township line common to T.8 N and T.7 N); then west and north along the Angeles National Forest boundary to the point of intersection with the south boundary of the Rancho La Liebre Land Grant; then west and north along this land grant boundary to the Los Angeles-Kern County boundary.

§ 60105. Northeast Plateau Basin.

- (a) All of Modoc County
- (b) All of Lassen County
- (c) All of Siskiyou County

§ 60106. Sacramento Valley Basin:

- (a) All of Tehama County
- (b) All of Glenn County

- (c) All of Butte County
- (d) All of Colusa County
- (e) All of Yolo County
- (f) All of Sutter County
- (g) All of Yuba County
- (h) All of Sacramento County
- (i) All of Shasta County.

(j) That portion of Solano County which lies north and east of a line described as follows:

Beginning at the intersection of the westerly boundary of Solano County and the 1/4 section line running east and west through the center of Section 34, T6N, R2W, M.D.B. & M., thence east along said 1/4 section line to the east boundary of Section 36, T6N, R2W, thence south 1/2 mile and east 2.0 miles, more or less, along the west and south boundary of Los Puntos Rancho to the northwest corner of Section 4, T5N, R1W, thence east along a line common to T5N and T6N to the northeast corner of Section 3, T5N, R1E, thence south along section lines to the southeast corner of Section 10, T3N, R1E, thence east along section lines to the south 1/4 corner of Section 8, T3N, R2E, thence east to the boundary between Solano and Sacramento Counties.

(k) That portion of Placer County which lies west of Range 9 east, M.D.B. & M.

§ 60107. San Joaquin Valley Basin.

- (a) All of San Joaquin County
- (b) All of Stanislaus County
- (c) All of Merced County
- (d) All of Madera County
- (e) All of Fresno County
- (f) All of Kings County
- (g) All of Tulare County

(h) That portion of Kern County which lies west and north of a line described as follows:

Beginning at the Kern-Los Angeles County boundary and running north and east along the northwest boundary of the Rancho La Libre Land Grant to the point of intersection with the range line common to R. 16 W. and R. 17 W., San Bernardino Base and Meridian; north along the range line to the point of intersection with the Rancho El Tejon Land Grant boundary; then southeast, northeast, and northwest along the boundary of the Rancho El Tejon Land Grant to the northwest corner of S. 3, T. 11 N., R. 17 W.; then west 1.2 miles; then north to the Rancho El Tejon Land Grant boundary; then northwest along the Rancho El Tejon line to the southeast corner of S. 34, T. 32 S., R. 30 E., Mount Diablo Base and Meridian; then north to the northwest corner of S. 35, T. 31 S., R. 30 E.; then northeast along the boundary of the Rancho El Tejon Land Grant to the southwest corner of S. 18, T. 31 S., R. 31 E.; then east to the southeast corner of S. 13, T. 31 S., R. 31 E.; then north along the range line common to R. 31 E. and R. 32 E., Mount Diablo Base and Meridian, to the northwest corner of S. 6, T. 29 S., R. 32 E.; then east to the southwest corner of S. 31, T. 28 S., R. 32 E.; then north along the range line common to R. 31 E. and R. 32 E. to the northwest corner of S. 6, T. 28 S., R. 32 E., then west to the southeast corner of S. 36, T. 27 S., R. 31 E., then north along the range line common to R. 31 E. and R. 32 E. to the Kern-Tulare County boundary.

§ 60108. Great Basin Valleys Basin.

- (a) All of Alpine County
- (b) All of Mono County
- (c) All of Inyo County

§ 60109. Mojave Desert Air Basin.

(a) That portion of Riverside County which lies east of a line described as follows:

That segment of the southwestern boundary line of Hydrologic Unit Number 18100100 within Riverside County, further described as follows:

Beginning at the Riverside-Imperial County boundary and running north along the range line common to R. 17 E. and R. 16 E., San Bernardino Base and Meridian; then northwest along the ridge line of the Chuckwalla Mountains, through T. 8 S., R. 16 E. and T. 7 S., R. 16 E., until the Black Butte Mountain, elev. 4504'; then west and northwest along the ridge line to the southwest corner of T. 5 S., R. 14 E.; then north along the range line common to R. 14 E. and R. 13 E.; then west and northwest along the ridge line to Monument Mountain, elev. 4834'; then southwest and then northwest along the ridge line of the Little San Bernardino Mountains to Quail Mountain, elev. 5814'; then northwest along the ridge line to the Riverside-San Bernardino County line.

(b) That portion of San Bernardino County east and north of a line described as follows:

Beginning at the San Bernardino-Riverside County boundary and running north along the range line common to R. 3 E and R. 2 E, San Bernardino Base and Meridian; then west along the township line common to T. 3 N and T. 2 N to the San Bernardino-Los Angeles County boundary.

(c) That portion of Los Angeles County which lies north and east of a line described as follows:

Beginning at the Los Angeles-San Bernardino County boundary and running west along the township line common to T. 3 N and T. 2 N, San Bernardino Base and Meridian; then north along the range line common to R. 8 W and R. 9 W; then west along the township line common to T. 4 N and T. 3 N; then north along the range line common to R. 12 W and R. 13 W to the southeast corner of Section 12, T. 5 N, R. 13 W; then west along the south boundaries of Sections 12, 11, 10, 9, 8, 7, T. 5 N, R. 13 W to the boundary of the Angeles National Forest which is collinear with the range line common to R. 13 W and R. 14 W; then north and west along the Angeles National Forest boundary to the point of intersection with the township line common to T. 7 N and T. 6 N (point is at the northwest corner of Section 4 in T. 6 N, R. 14 W); then west along the township line common to T. 7 N and T. 6 N; then north along the range line common to R. 15 W and R. 16 W to the southeast corner of Section 13, T. 7 N, R. 16 W; then along the south boundaries of Sections 13, 14, 15, 16, 17, 18, T. 7 N, R. 16 W; then north along the range line common to R. 16 W and R. 17 W to the north boundary of the Angeles National Forest (collinear with township line common to T. 8 N and T. 7 N) then west and north along the Angeles National Forest boundary to the point of intersection with the south boundary of the Rancho La Liebre Land Grant; then west and north along this land grant boundary to the Los Angeles-Kern County boundary.

(d) That portion of Kern County east and south of a line described as follows:

Beginning at the Kern-Los Angeles County boundary and running north and east along the northwest boundary of the Rancho La Libre Land Grant to the point of intersection with the range line common to R. 16 W. and R. 17 W., San Bernardino Base and Meridian; north along the range line to the point of intersection with the Rancho El Tejon Land Grant boundary; then southeast, northeast, and northwest along the boundary of the Rancho El Tejon Land Grant to the northwest corner of S. 3, T. 11 N., R. 17 W.; then west 1.2 miles; then north to the Rancho El Tejon Land Grant boundary; then northwest along the Rancho El Tejon line to the southeast corner of S. 34, T. 32 S., R. 30 E., Mount Diablo Base and Meridian; then north to the northwest corner of S. 35, T. 31 S., R. 30 E.; then northeast along the boundary of the Rancho El Tejon Land Grant to the southwest corner of S. 18, T. 31 S., R. 31 E.; then east to the southeast corner of S. 13, T. 31 S., R. 31 E.; then north along the range line common to R. 31 E. and R. 32 E., Mount Diablo Base and Meridian, to the northwest corner of S. 6, T. 29 S., R. 32 E.; then east to the southwest corner of S. 31 T. 28 S., R. 32 E.; then north along the range line common to R. 31 E. and R. 32 E. to the northwest corner of S. 6, T. 28 S., R. 32 E., then west to the southeast corner of S. 36, T. 27 S., R. 31 E., then north along the range line common to R. 31 E. and R. 32 E. to the Kern-Tulare County boundary.

§ 60110. San Diego Air Basin.

All of San Diego County.

§ 60111. Mountain Counties Air Basin:

- (a) All of Plumas County
- (b) All of Sierra County
- (c) All of Nevada County
- (d) All of Amador County
- (e) All of Calaveras County
- (f) All of Tuolumne County
- (g) All of Mariposa County
- (h) All of El Dorado County except that portion included in the Lake Tahoe Air Basin, as defined in Section 60113(a).
- (i) All of Placer County except that portion included in the Lake Tahoe Air Basin, as defined in Section 60113(b), and that portion included in the Sacramento Valley Air Basin, as defined in Section 60106(k).

§ 60112. Lake County Air Basin.

All of Lake County.

§ 60113. Lake Tahoe Air Basin.

(a) That portion of El Dorado County within the drainage area naturally tributary to Lake Tahoe including said Lake.

(b) That portion of Placer County within the drainage area naturally tributary to Lake Tahoe including said Lake, plus that area in the vicinity of the head of the Truckee River described as follows: commencing at the point common to the aforementioned drainage area crestline and the line common to Townships 15 North and 16 North, M.D.B. & M., and following that line in a westerly direction to the northwest corner of Section 3, Township 15 North, Range 16 East, M.D.B. & M., thence south along the west line of Sections 3 and 10, Township 15 North, Range 16 East, M.D.B. & M., to the intersection with the said drainage area crestline, thence following the said drainage area boundary in a southeasterly, then northeasterly direction to and along the Lake Tahoe Dam, thence following the said drainage area crestline in a northeasterly, then northwesterly direction to the point of beginning.

The Air Basin defined and described in (a) and (b) above shall be as delineated on the official map thereof which is signed by the Executive Officer of the Air Resources Board; such map shall be on file at the Air Resources Board Headquarters Office.

§ 60114. Salton Sea Air Basin.

(a) All of Imperial County

(b) That portion of Riverside County which lies east of a line described as follows:

Beginning at the Riverside-San Diego County boundary and running north along the range line common to R. 4 E and R. 3 E; then east along the township line common to T. 8 S and T. 7 S; then north along the range line common to R. 5 E and R. 4 E; then west along the township line common to T. 6 S and T. 7 S to the southwest corner of Section 34, T. 6 S, R. 4 E; then north along the west boundaries of Sections 34, 27, 22, 15, 10, 3, T. 6 S, R. 4 E; then west along the township line common to T. 5 S and T. 6 S; then north along the range line common to R. 4 E and R. 3 E; then west along the south boundaries of Sections 13, 14, 15, 16, 17 and 18, T. 5 S, R. 3 E; then north along the range line common to R. 2 E and R. 3 E to the Riverside-San Bernardino County line; and west of a line described as follows:

That segment of the southwestern boundary line of Hydrologic Unit Number 18100100 within Riverside County¹, further described as follows:

Beginning at the Riverside-Imperial County boundary and running north along the range line common to R. 17 E. and R. 16 E., San Bernardino Base and Meridian; then northwest along the ridge line of the Chuckwalla Mountains, through T. 8 S., R. 16 E. and T. 7 S., R. 16 E., until the Black Butte Mountain, elev. 4504'; then west and northwest along the ridge line to the southwest corner of T. 5 S., R. 14 E.; then north along the range line common to R. 14 E. and R. 13 E.; then west and northwest along the ridge line to Monument Mountain, elev. 4834'; then southwest and then northwest along the ridge line of the Little San Bernardino Mountains to Quail Mountain, elev. 5814'; then northwest along the ridge line to the Riverside-San Bernardino County line.

APPENDIX G

**MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT
AIR QUALITY STANDARDS**

APPENDIX C

***MAPS AND TABLES OF AREA DESIGNATIONS FOR
STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS***

[This page intentionally left blank]

APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

This attachment fulfills the requirement of Health and Safety Code section 40718 for ARB to publish maps that identify areas where one or more violations of any State ambient air quality standard (State standard) or national ambient air quality standard (national standard) have been measured. The national standards are those promulgated under section 109 of the federal Clean Air Act (42 U.S.C. 7409).

This attachment is divided into three parts. The first part comprises a table showing the levels, averaging times, and measurement methods for each of the State and national standards. This is followed by a section containing maps and tables showing the 2012 area designations for each pollutant for which there is a State standard in the California Code of Regulations, title 17, section 70200. The last section contains maps and tables showing the most current area designations for the national standards.

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM _{2.5})	24 Hour	—	—	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—	
Nitrogen Dioxide (NO ₂) ⁸	1 Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)		53 ppb (100 µg/m ³)	Same as Primary Standard	
Sulfur Dioxide (SO ₂) ⁹	1 Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ⁹	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) ⁹	—	
Lead ^{10,11}	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m ³ (for certain areas) ¹¹	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m ³		
Visibility Reducing Particles ¹²	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹⁰	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (2/7/12)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ 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 three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
9. On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (2/7/12)

[This page intentionally left blank]

Area Designations for the State Ambient Air Quality Standards

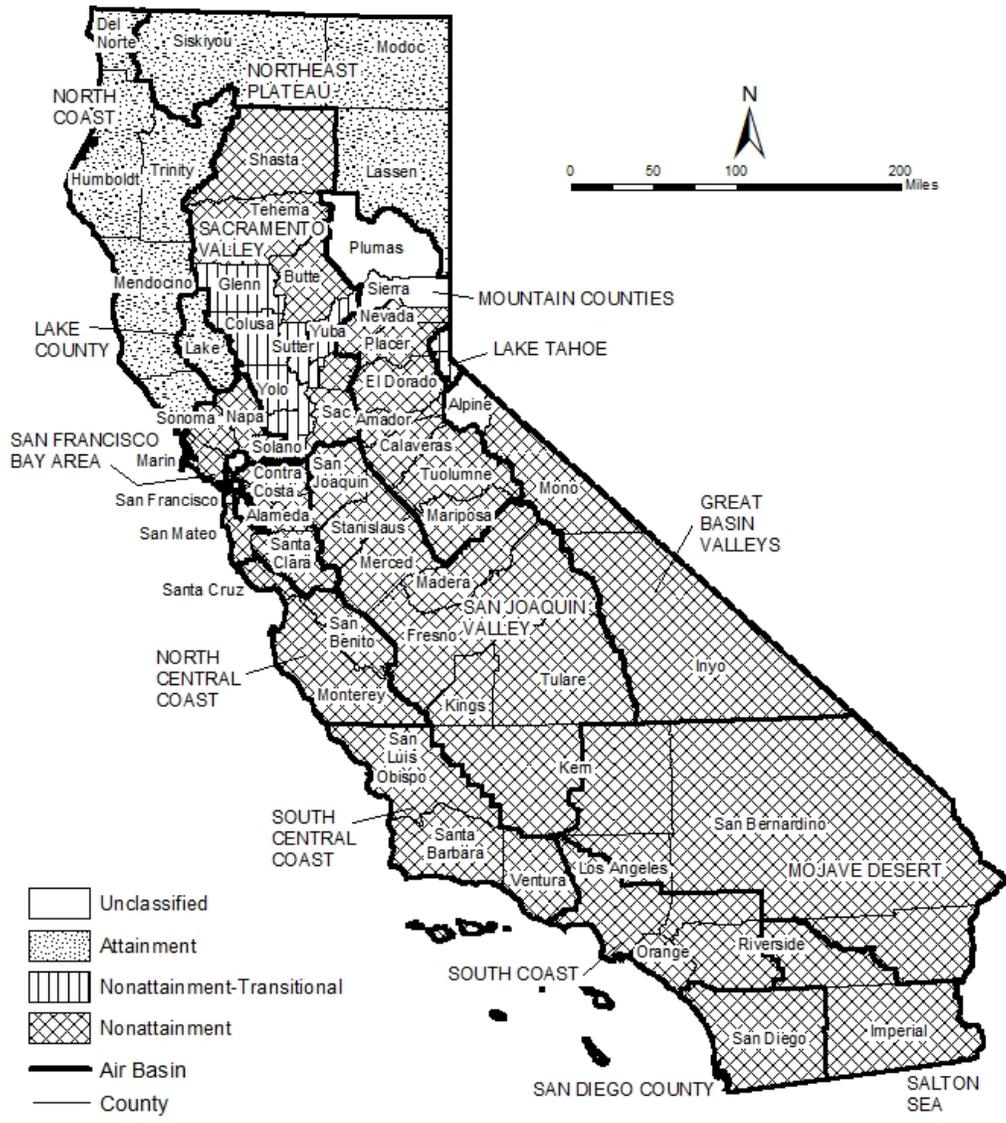
The following maps and tables show the area designations for each pollutant with a State standard set forth in the California Code of Regulations, title 17, section 60200. Each area is identified as attainment, nonattainment, nonattainment-transitional, or unclassified for each pollutant, as shown below:

Attainment	A
Nonattainment	N
Nonattainment-Transitional	NA-T
Unclassified	U

In general, ARB designates areas by air basin for pollutants with a regional impact and by county for pollutants with a more local impact. However, when there are areas within an air basin or county with distinctly different air quality deriving from sources and conditions not affecting the entire air basin or county, ARB may designate a smaller area. Generally, when boundaries of the designated area differ from the air basin or county boundaries, the description of the specific area is referenced at the bottom of the summary table.

FIGURE 1

2012
Area Designations for State
Ambient Air Quality Standards
OZONE



Source Date:
February 2012
Air Quality Data Branch, PTSD

TABLE 1

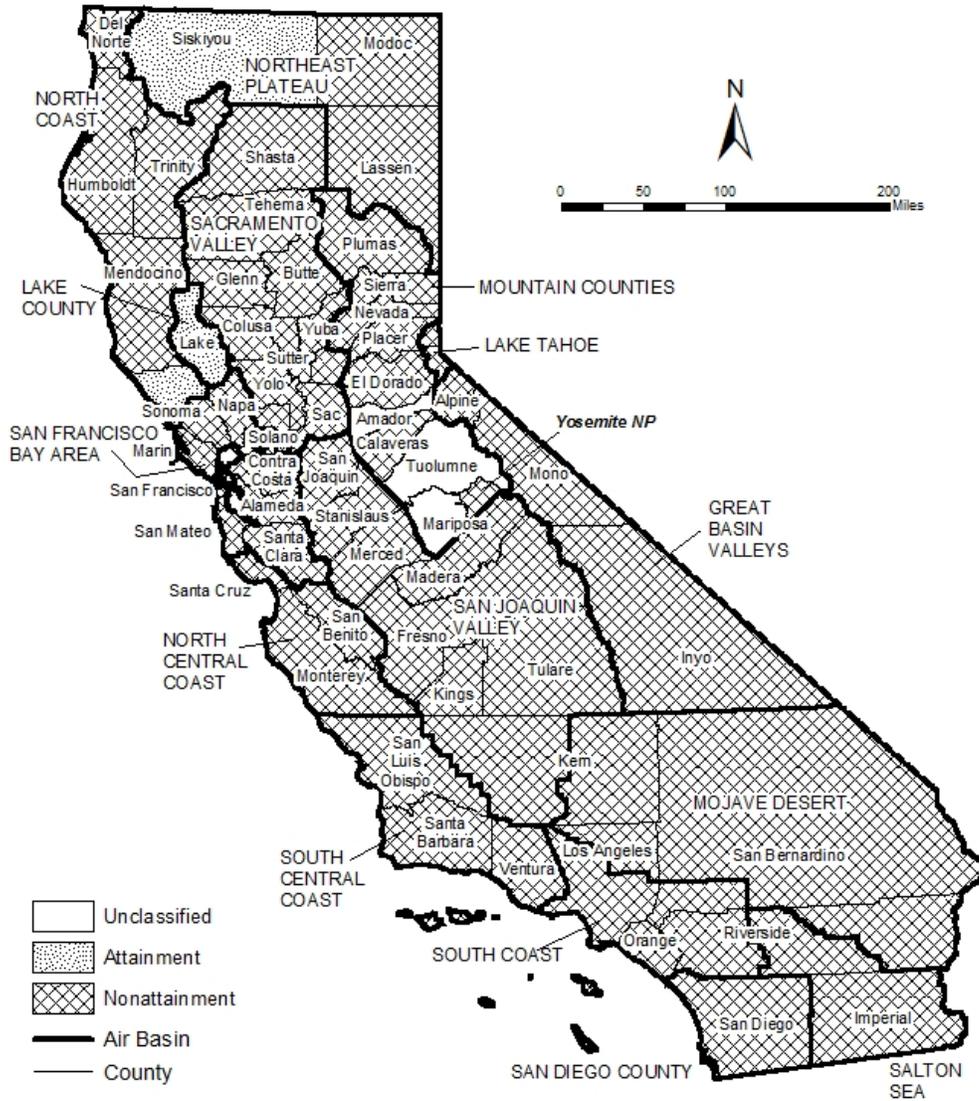
**California Ambient Air Quality Standards
Area Designations for Ozone ⁽¹⁾**

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTH COAST AIR BASIN				X
Alpine County			X		NORTHEAST PLATEAU AIR BASIN				X
Inyo County	X				SACRAMENTO VALLEY AIR BASIN				
Mono County	X				Colusa and Glenn Counties		X		
LAKE COUNTY AIR BASIN				X	Solano, Sutter, Yolo, and Yuba Counties		X		
LAKE TAHOE AIR BASIN		X			Remainder of Air Basin	X			
MOJAVE DESERT AIR BASIN	X				SALTON SEA AIR BASIN	X			
MOUNTAIN COUNTIES AIR BASIN					SAN DIEGO AIR BASIN	X			
Amador County	X				SAN FRANCISCO BAY AREA AIR BASIN	X			
Calaveras County	X				SAN JOAQUIN VALLEY AIR BASIN	X			
El Dorado County (portion)	X				SOUTH CENTRAL COAST AIR BASIN	X			
Mariposa County	X				SOUTH COAST AIR BASIN	X			
Nevada County	X								
Placer County (portion)	X								
Plumas County			X						
Sierra County			X						
Tuolumne County	X								
NORTH CENTRAL COAST AIR BASIN	X								

(1) AB 3048 (Olberg) and AB 2525 (Miller) signed into law in 1996, made changes to Health and Safety Code, section 40925.5. One of the changes allows nonattainment districts to become nonattainment-transitional for ozone by operation of law.

FIGURE 2

2012
Area Designations for State
Ambient Air Quality Standards
PM10



Source Date:
February 2012
Air Quality Data Branch, PTSD

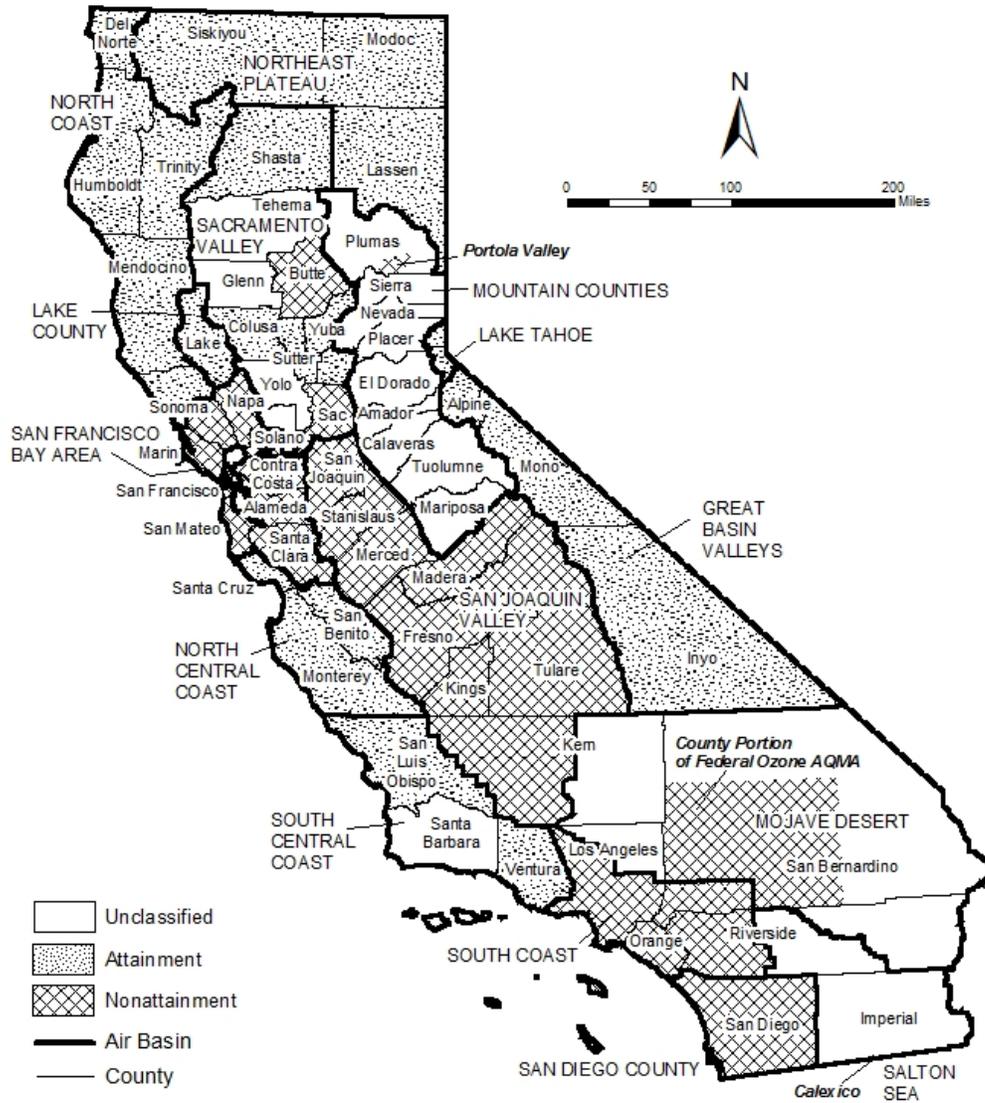
TABLE 2

**California Ambient Air Quality Standards
Area Designation for Suspended Particulate Matter (PM10)**

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN	X			NORTH CENTRAL COAST AIR BASIN	X		
LAKE COUNTY AIR BASIN			X	NORTH COAST AIR BASIN			
LAKE TAHOE AIR BASIN	X			Sonoma County (portion)			X
MOJAVE DESERT AIR BASIN	X			Remainder of Air Basin	X		
MOUNTAIN COUNTIES AIR BASIN				NORTHEAST PLATEAU AIR BASIN			
Amador County		X		Siskiyou County			X
Calaveras County	X			Remainder of Air Basin	X		
El Dorado County (portion)	X			SACRAMENTO VALLEY AIR BASIN	X		
Mariposa County				SALTON SEA AIR BASIN	X		
- Yosemite National Park	X			SAN DIEGO AIR BASIN	X		
- Remainder of County		X		SAN FRANCISCO BAY AREA AIR BASIN	X		
Nevada County	X			SAN JOAQUIN VALLEY AIR BASIN	X		
Placer County (portion)	X			SOUTH CENTRAL COAST AIR BASIN	X		
Plumas County	X			SOUTH COAST AIR BASIN	X		
Sierra County	X						
Tuolumne County		X					

FIGURE 3

2012
Area Designations for State
Ambient Air Quality Standards
PM2.5



Source Date:
February 2012
Air Quality Data Branch, PTSD

TABLE 3

**California Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)**

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			
LAKE COUNTY AIR BASIN			X	Imperial County			
LAKE TAHOE AIR BASIN			X	- City of Calexico (3)	X		
MOJAVE DESERT AIR BASIN				Remainder of Air Basin		X	
San Bernardino County				SAN DIEGO AIR BASIN	X		
- County portion of federal Southeast	X			SAN FRANCISCO BAY AREA AIR BASIN	X		
Desert Modified AQMA for Ozone (1)				SAN JOAQUIN VALLEY AIR BASIN	X		
Remainder of Air Basin		X		SOUTH CENTRAL COAST AIR BASIN			
MOUNTAIN COUNTIES AIR BASIN				San Luis Obispo County			X
Plumas County				Santa Barbara County		X	
- Portola Valley (2)	X			Ventura County			X
Remainder of Air Basin		X		SOUTH COAST AIR BASIN	X		
NORTH CENTRAL COAST AIR BASIN			X				
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN							
Butte County	X						
Colusa County			X				
Placer County (portion)			X				
Sacramento County	X						
Shasta County			X				
Sutter and Yuba Counties			X				
Remainder of Air Basin		X					

(1) California Code of Regulations, title 17, section 60200(b)

(2) California Code of Regulations, title 17, section 60200(c)

(3) California Code of Regulations, title 17, section 60200(a)

FIGURE 4

2012
 Area Designations for State
 Ambient Air Quality Standards
 CARBON MONOXIDE

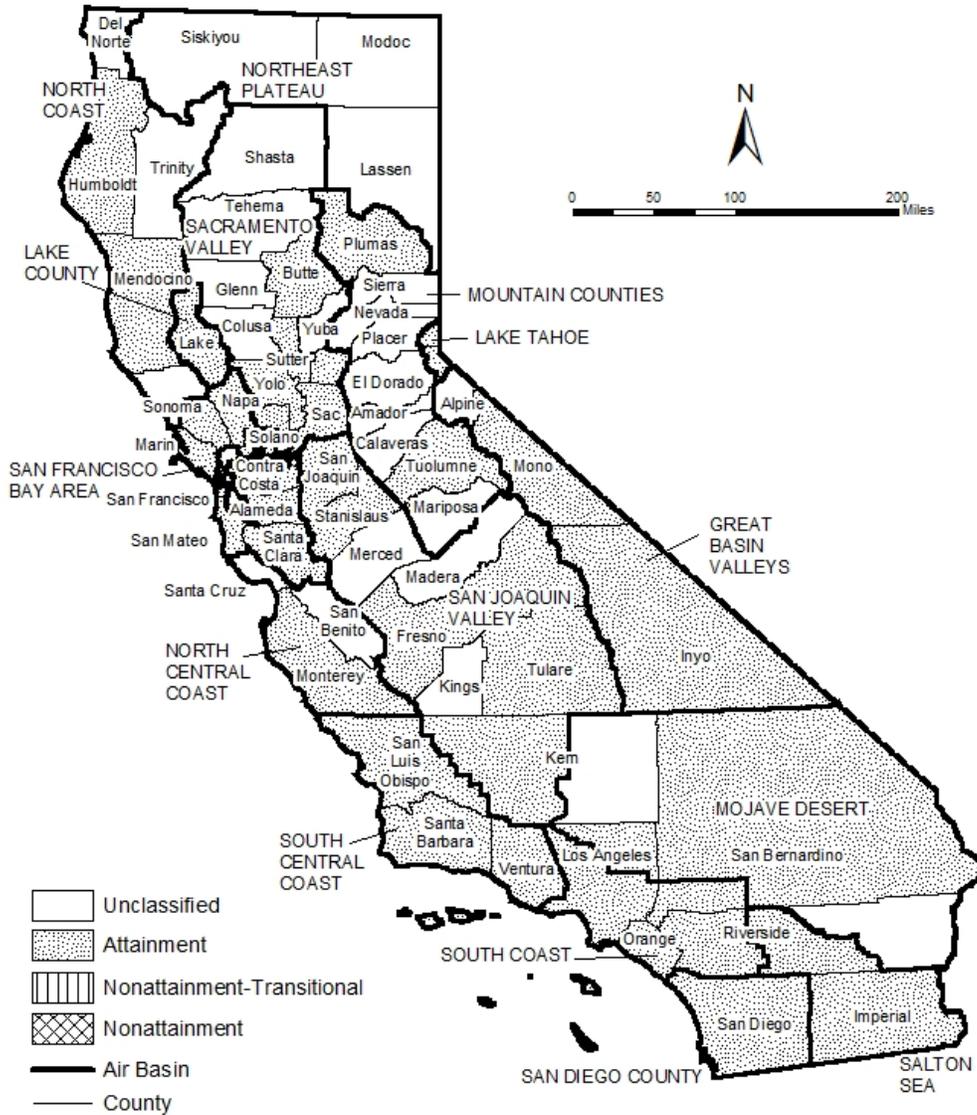


TABLE 4

**California Ambient Air Quality Standards
Area Designation for Carbon Monoxide***

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					SACRAMENTO VALLEY AIR BASIN				
Alpine County			X		Butte County				X
Inyo County				X	Colusa County			X	
Mono County				X	Glenn County			X	
LAKE COUNTY AIR BASIN				X	Placer County (portion)				X
LAKE TAHOE AIR BASIN				X	Sacramento County				X
MOJAVE DESERT AIR BASIN					Shasta County			X	
Kern County (portion)			X		Solano County (portion)				X
Los Angeles County (portion)				X	Sutter County				X
Riverside County (portion)			X		Tehama County			X	
San Bernardino County (portion)				X	Yolo County				X
MOUNTAIN COUNTIES AIR BASIN					Yuba County			X	
Amador County			X		SALTON SEA AIR BASIN				
Calaveras County			X		Imperial County				X
El Dorado County (portion)			X		Riverside County (portion)				X
Mariposa County			X		SAN DIEGO AIR BASIN				X
Nevada County			X		SAN FRANCISCO BAY AREA AIR BASIN				X
Placer County (portion)			X		SAN JOAQUIN VALLEY AIR BASIN				
Plumas County				X	Fresno County				X
Sierra County			X		Kern County (portion)				X
Tuolumne County				X	Kings County			X	
NORTH CENTRAL COAST AIR BASIN					Madera County			X	
Monterey County				X	Merced County			X	
San Benito County			X		San Joaquin County				X
Santa Cruz County			X		Stanislaus County				X
NORTH COAST AIR BASIN					Tulare County				X
Del Norte County			X		SOUTH CENTRAL COAST AIR BASIN				X
Humboldt County				X	SOUTH COAST AIR BASIN				
Mendocino County				X	Los Angeles County (portion)				X
Sonoma County (portion)			X		Orange County				X
Trinity County			X		Riverside County (portion)				X
NORTHEAST PLATEAU AIR BASIN			X		San Bernardino County (portion)				X

* The area designated for carbon monoxide is a county or portion of a county

FIGURE 5

2012
Area Designations for State
Ambient Air Quality Standards
NITROGEN DIOXIDE



TABLE 5

**California Ambient Air Quality Standards
Area Designation for Nitrogen Dioxide**

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN	X		
NORTHEAST PLATEAU AIR BASIN			X				

FIGURE 6

2012
Area Designations for State
Ambient Air Quality Standards
SULFUR DIOXIDE



Source Date:
February 2012
Air Quality Data Branch, PTSD

TABLE 6

**California Ambient Air Quality Standards
Area Designation for Sulfur Dioxide***

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X				

* The area designated for sulfur dioxide is a county or portion of a county

FIGURE 7

2012
Area Designations for State
Ambient Air Quality Standards
SULFATES



TABLE 7

**California Ambient Air Quality Standards
Area Designation for Sulfates**

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X				

FIGURE 8

2012
Area Designations for State
Ambient Air Quality Standards
LEAD



Source Date:
February 2012
Air Quality Data Branch, PTSD

TABLE 8

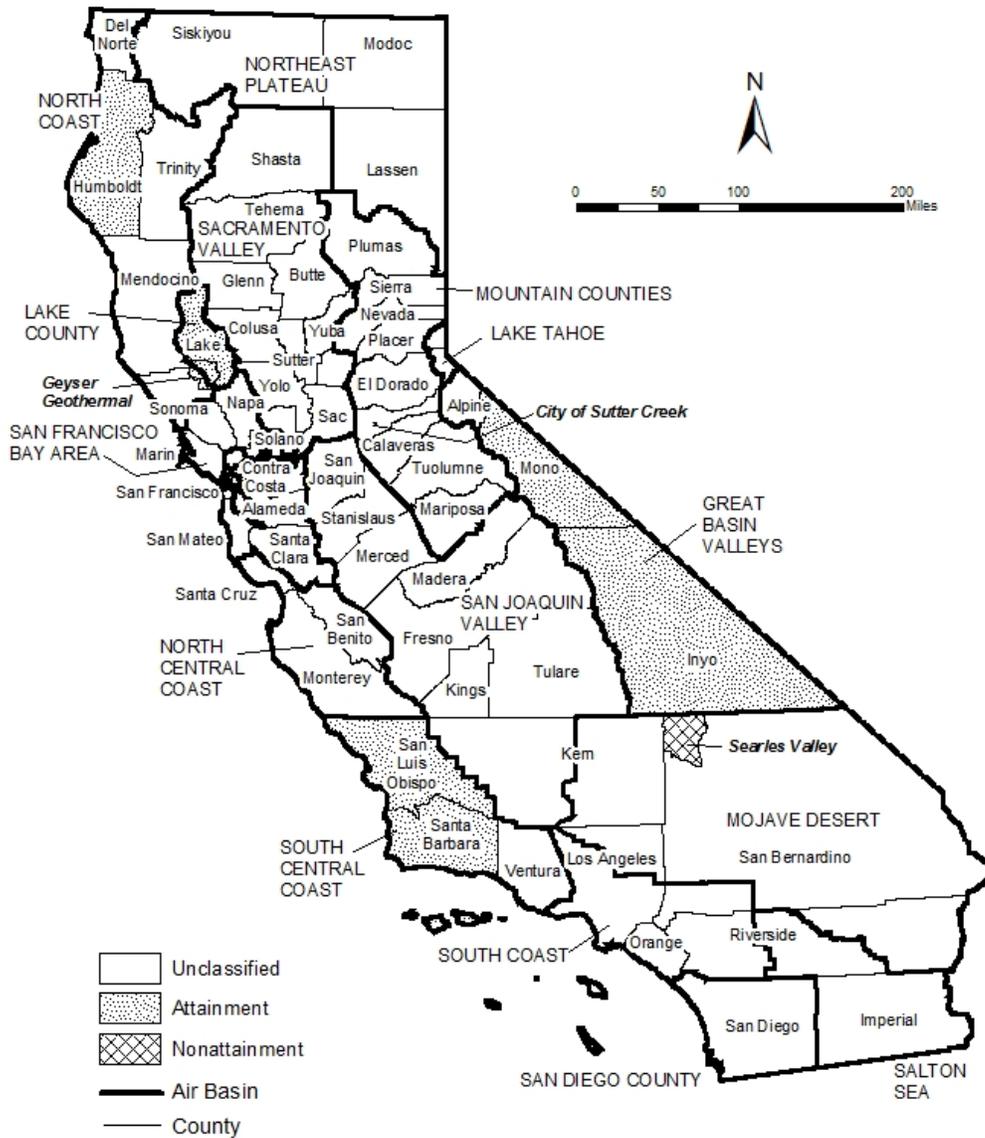
**California Ambient Air Quality Standards
Area Designations for Lead (particulate)***

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SAN DIEGO AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH COAST AIR BASIN			
NORTH COAST AIR BASIN			X	Los Angeles County	X		
NORTHEAST PLATEAU AIR BASIN			X	Remainder of Air Basin			X
SACRAMENTO VALLEY AIR BASIN			X				

* The area designated for lead is a county or portion of a county

FIGURE 9

2012
 Area Designations for State
 Ambient Air Quality Standards
 HYDROGEN SULFIDE



Source Date:
 February 2012
 Air Quality Data Branch, PTSD

TABLE 9

**California Ambient Air Quality Standards
Area Designation for Hydrogen Sulfide***

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTH CENTRAL COAST AIR BASIN			X	
Alpine County			X		NORTH COAST AIR BASIN				
Inyo County				X	Del Norte County			X	
Mono County				X	Humboldt County				X
LAKE COUNTY AIR BASIN				X	Mendocino County			X	
LAKE TAHOE AIR BASIN			X		Sonoma County (portion)				
MOJAVE DESERT AIR BASIN					- Geysler Geothermal Area (2)				X
Kern County (portion)			X		- Remainder of County			X	
Los Angeles County (portion)			X		Trinity County			X	
Riverside County (portion)			X		NORTHEAST PLATEAU AIR BASIN			X	
San Bernardino County (portion)					SACRAMENTO VALLEY AIR BASIN			X	
- Searles Valley Planning Area (1)	X				SALTON SEA AIR BASIN			X	
- Remainder of County			X		SAN DIEGO AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN					SAN FRANCISCO BAY AREA AIR BASIN			X	
Amador County					SAN JOAQUIN VALLEY AIR BASIN			X	
- City of Sutter Creek	X				SOUTH CENTRAL COAST AIR BASIN				
- Remainder of County			X		San Luis Obispo County				X
Calaveras County			X		Santa Barbara County				X
El Dorado County (portion)			X		Ventura County			X	
Mariposa County			X		SOUTH COAST AIR BASIN			X	
Nevada County			X						
Placer County (portion)			X						
Plumas County			X						
Sierra County			X						
Tuolumne County			X						

* The area designated for hydrogen sulfide is a county or portion of a county

(1) 52 Federal Register 29384 (August 7, 1987)

(2) California Code of Regulations, title 17, section 60200(d)

FIGURE 10

2012
Area Designations for State
Ambient Air Quality Standards
VISIBILITY REDUCING
PARTICLES

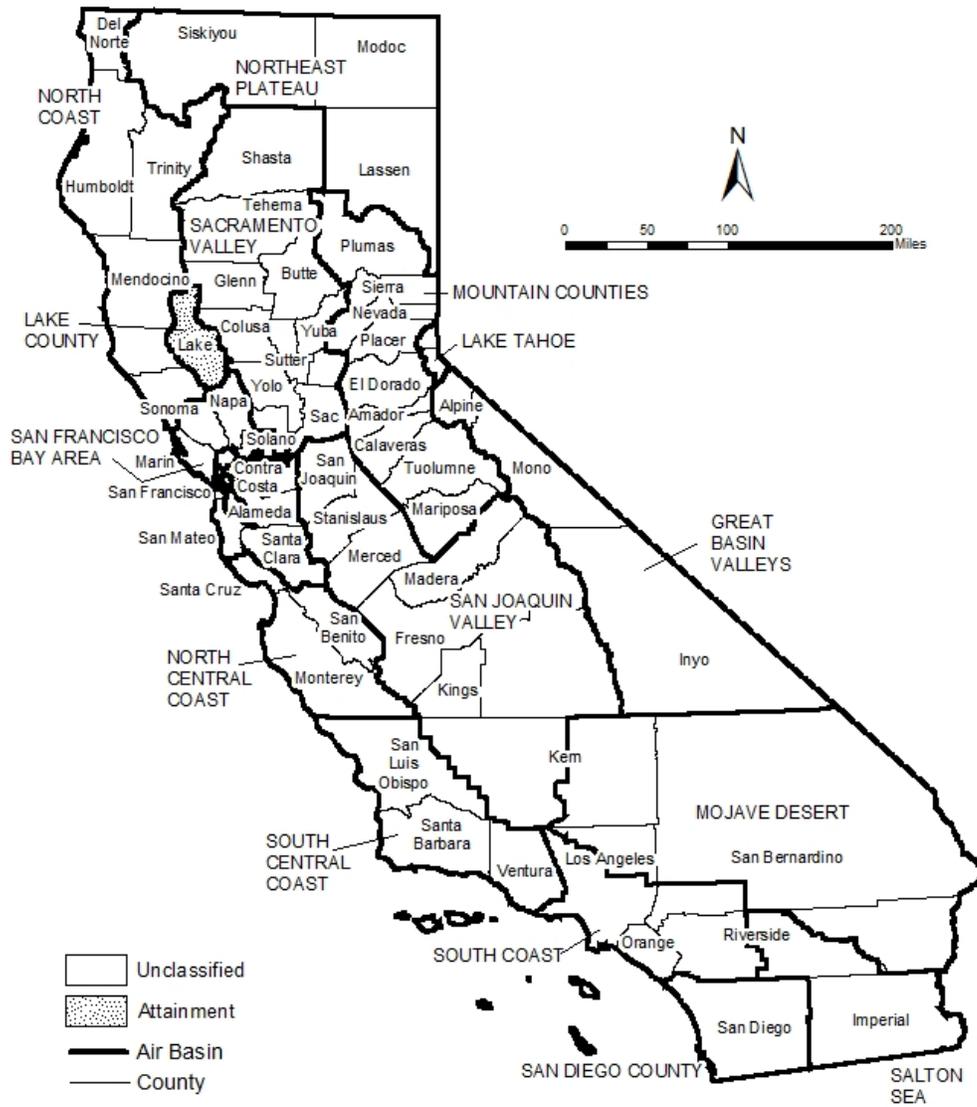


TABLE 10

**California Ambient Air Quality Standards
Area Designation for Visibility Reducing Particles**

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN			X		SACRAMENTO VALLEY AIR BASIN			X	
LAKE COUNTY AIR BASIN				X	SALTON SEA AIR BASIN			X	
LAKE TAHOE AIR BASIN			X		SAN DIEGO AIR BASIN			X	
MOJAVE DESERT AIR BASIN			X		SAN FRANCISCO BAY AREA AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN			X		SAN JOAQUIN VALLEY AIR BASIN			X	
NORTH CENTRAL COAST AIR BASIN			X		SOUTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN			X		SOUTH COAST AIR BASIN			X	
NORTHEAST PLATEAU AIR BASIN			X						

Area Designations for the National Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a national ambient air quality standard. Additional information about the federal area designations is available on the U.S. EPA website:

<http://www.epa.gov/airprog/oar/oaqps/greenbk>

Over the last several years, U.S. EPA has been reviewing the levels of the various national standards. The agency has already promulgated new standard levels for some pollutants and is considering revising the levels for others. Information about the status of these reviews is available on the U.S. EPA website:

<http://epa.gov/airquality/urbanair/>

Designation Categories

Ozone and Suspended Particulate Matter (PM₁₀). The U.S. EPA uses three categories to designate areas with respect to ozone and PM₁₀:

- Attainment
- Nonattainment
- Unclassifiable

The national 1-hour ozone standard was revoked effective June 15, 2005, and the current area designations reflect the 2008 national 8-hour ozone standard of 0.075 ppm. These designations were finalized on April 30, 2012.

Fine Suspended Particulate Matter (PM_{2.5}), Carbon Monoxide (CO), and Nitrogen Dioxide (NO₂). The U.S. EPA uses two categories to designate areas with respect to these standards:

- Nonattainment
- Unclassifiable/Attainment

New national area designations for PM_{2.5} became effective December 14, 2009. These designations reflect both the annual average standard of 15 µg/m³ and the recently revised (December 2006) 24-hour standard of 35 µg/m³.

On January 22, 2010, the U.S. EPA established a new national 1-hour NO₂ standard of 100 parts per billion (ppb) and retained the annual average standard of 53 ppb. New designations for the primary NO₂ standard became effective on February 29, 2012. All areas of California meet this standard.

Sulfur Dioxide (SO₂). The U.S. EPA uses four categories to designate areas with respect to the 24-hour and annual average sulfur dioxide standards. These designation categories are:

- Does not meet the primary standards,
- Does not meet the secondary standards,
- Cannot be classified, and
- Better than the national standards.

In California, the first two designation categories listed above are not applicable because all areas of California either meet the primary and secondary standards or are unclassifiable. The map and summary table for sulfur dioxide show areas that cannot be classified as “U” for unclassifiable and areas that are better than the national standards as “A” for attainment.

On June 2, 2010, the U.S. EPA established a new primary 1-hour SO₂ standard of 75 parts per billion (ppb). At the same time, U.S. EPA revoked the 24-hour and annual average standards. U.S. EPA is currently in the process of designating areas for the 2010 national 1-hour SO₂ standard of 75 ppb. However, these designations are not expected to be finalized until June 2012.

Lead (particulate). The U.S. EPA promulgated a new lead standard in October 2008 of 0.15 µg/m³ for a 3-month average. This new standard is ten times lower than the former lead standard. Effective December 31, 2010, several areas in the nation became nonattainment for lead, based on data collected during 2007 through 2009. All other areas were designated as unclassified. These unclassified designations will be resolved over the next several years, as data from a new, source-oriented monitoring network become available.

Designated Areas

From time to time, the boundaries of the California air basins have been changed to facilitate the planning process. ARB generally initiates these changes, and they are not always reflected in the U.S. EPA’s area designations. For purposes of consistency, the maps in this attachment reflect area designation boundaries and nomenclature as promulgated by the U.S. EPA. In some cases, these may not be the same as those adopted by ARB. For example, the national area designations reflect the former Southeast Desert Air Basin. In accordance with Health and Safety Code section 39606.1, ARB redefined this area in 1996 to be the Mojave Desert Air Basin and Salton Sea Air Basin. The definitions and boundaries for all areas designated for the national standards can be found in Title 40, Code of Federal Regulations (CFR), Chapter I, Part 81.305. They are available on the web at:

http://www.access.gpo.gov/nara/cfr/waisidx_05/40cfr81_05.html

Once at this website, scroll down to Part 81.305 to view the California area designations.

FIGURE 11

Area Designations for National Ambient Air Quality Standards
8-HOUR OZONE

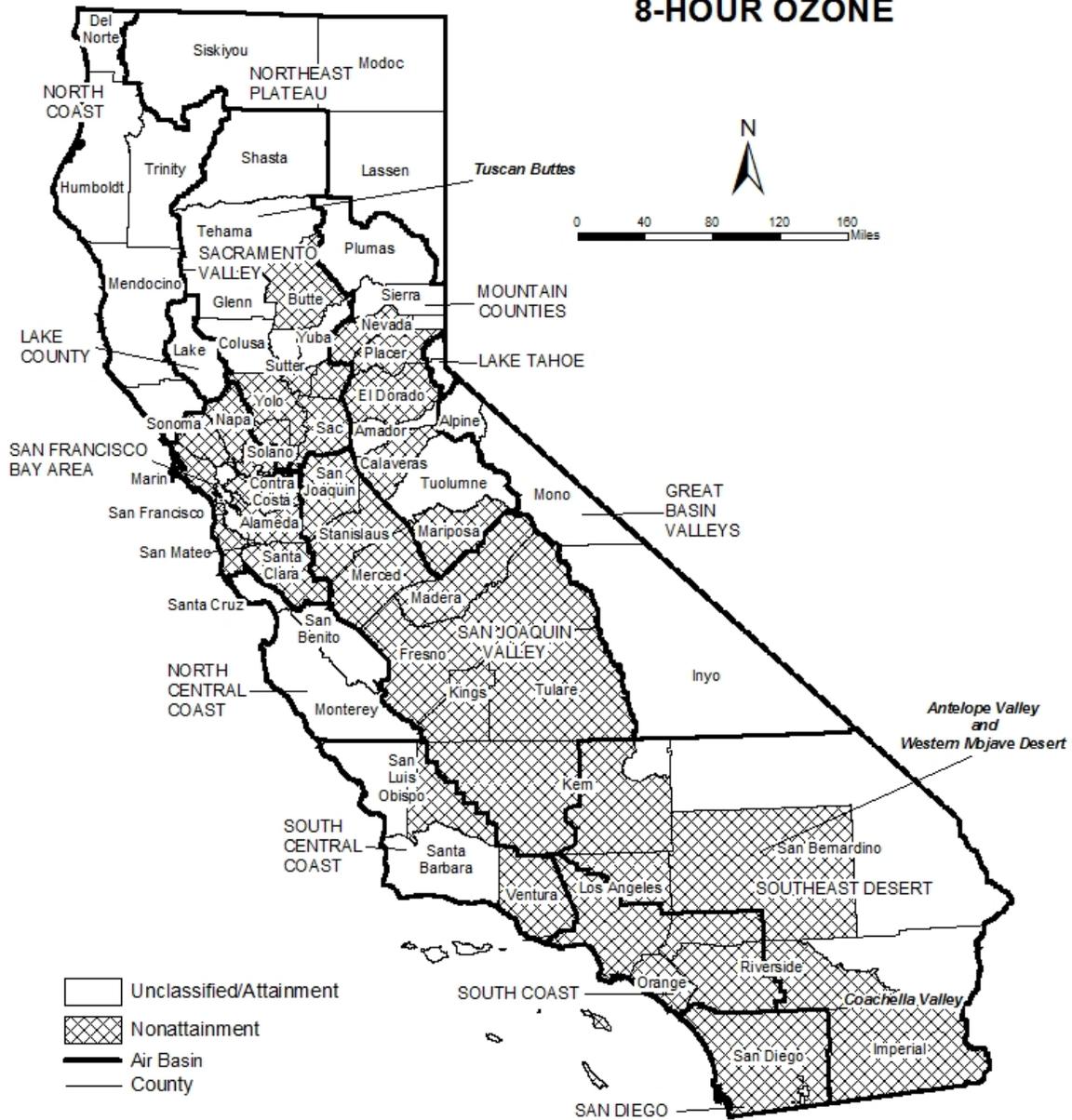


TABLE 11

**National Ambient Air Quality Standards
Area Designations for 8-Hour Ozone***

	N	U/A		N	U / A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN (cont.)		
LAKE COUNTY AIR BASIN		X	Yolo County (2)	X	
LAKE TAHOE AIR BASIN		X	Yuba County		X
MOUNTAIN COUNTIES AIR BASIN			SAN DIEGO COUNTY	X	
Amador County		X	SAN FRANCISCO BAY AREA AIR BASIN	X	
Calaveras County	X		SAN JOAQUIN VALLEY AIR BASIN	X	
El Dorado County (portion) (2)	X		SOUTH CENTRAL COAST AIR BASIN (1)		
Mariposa County	X		San Luis Obispo County		
Nevada County			- Eastern San Luis Obispo County	X	
- Western Nevada County	X		- Remainder of County		X
- Remainder of County		X	Santa Barbara County		X
Placer County (portion) (2)	X		Ventura County		
Plumas County		X	- Area excluding Anacapa and San Nicolas Islands	X	
Sierra County		X	- Channel Islands (1)		X
Tuolumne County		X	SOUTH COAST AIR BASIN (1)	X	
NORTH CENTRAL COAST AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
NORTH COAST AIR BASIN		X	Kern County (portion)	X	
NORTHEAST PLATEAU AIR BASIN		X	- Indian Wells Valley		X
SACRAMENTO VALLEY AIR BASIN			Imperial County	X	
Butte County	X		Los Angeles County (portion)	X	
Colusa County		X	Riverside County (portion)		
Glenn County		X	- Coachella Valley	X	
Sacramento Metro Area (2)	X		- Non-AQMA portion		X
Shasta County		X	San Bernardino County		
Sutter County			- Western portion (AQMA)	X	
- Southern portion of Sutter County (2)	X		- Eastern portion (non-AQMA)		X
- Remainder of Sutter County		X			
Tehama County					
- Tuscan Buttes	X				
- Remainder of Tehama County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305. Areas may include Indian country of tribes listed in the tables located on the U.S. EPA website at: <http://www.epa.gov/airquality/ozonepollution/designations/2008standards/final/tribalf.htm> and <http://www.epa.gov/airquality/ozonepollution/designations/2008standards/documents/20120430desfr.pdf>.

- (1) South Central Coast Air Basin Channel Islands:
 Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
 Ventura County includes Anacapa and San Nicolas Islands.
 South Coast Air Basin:
 Los Angeles County includes San Clemente and Santa Catalina Islands.

- (2) For this purpose, the Sacramento Metro Area comprises all of Sacramento and Yolo Counties, the Sacramento Valley Air Basin portion of Solano County, the southern portion of Sutter County, and the Sacramento Valley and Mountain Counties Air Basins portions of Placer and El Dorado counties.

TABLE 12

**National Ambient Air Quality Standards
Area Designations for Suspended Particulate Matter (PM10)***

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN				SAN DIEGO COUNTY		X	
Alpine County		X		SAN FRANCISCO BAY AREA AIR BASIN		X	
Inyo County				SAN JOAQUIN VALLEY AIR BASIN			X
- Owens Valley Planning Area	X			SOUTH CENTRAL COAST AIR BASIN		X	
- Coso Junction			X	SOUTH COAST AIR BASIN (1)	X		
- Remainder of County		X		SOUTHEAST DESERT AIR BASIN			
Mono County				Eastern Kern County			
- Mammoth Lake Planning Area	X			- Indian Wells Valley			X
- Mono Lake Basin	X			- Portion within San Joaquin Valley Planning Area	X		
- Remainder of County		X		- Remainder of County		X	
LAKE COUNTY AIR BASIN		X		Imperial County			
LAKE TAHOE AIR BASIN		X		- Imperial Valley Planning Area	X		
MOUNTAIN COUNTIES AIR BASIN				- Remainder of County		X	
Placer County (portion) (2)		X		Los Angeles County (portion)		X	
Remainder of Air Basin		X		Riverside County (portion)			
NORTH CENTRAL COAST AIR BASIN		X		- Coachella Valley (1)	X		
NORTH COAST AIR BASIN		X		- Non-AQMA portion		X	
NORTHEAST PLATEAU AIR BASIN		X		San Bernardino County			
SACRAMENTO VALLEY AIR BASIN				- Trona	X		
Butte County		X		- Remainder of County	X		
Colusa County		X					
Glenn County		X					
Placer County (portion) (2)		X					
Sacramento County (1)	X						
Shasta County		X					
Solano County (portion)		X					
Sutter County		X					
Tehama County		X					
Yolo County		X					
Yuba County		X					

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

(1) Air quality in Sacramento, South Coast, and Coachella Valley meets the national PM10 standards. Requests for redesignation

to attainment have been submitted to U.S. EPA

(2) U.S. EPA designation puts the Sacramento Valley Air Basin portion of Placer County in the Mountain Counties Air Basin.

TABLE 13

**National Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)***

	N	U/ A		N	U/ A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN	X	
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN	X	
MOUNTAIN COUNTIES AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH COAST AIR BASIN (4)	X	
NORTH COAST AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
NORTHEAST PLATEAU AIR BASIN		X	Imperial County (portion) (5)	X	
SACRAMENTO VALLEY AIR BASIN			Remainder of Air Basin		X
Butte County (portion) (1)	X				
Sacramento Metro Area (2)	X				
Sutter County (3)	X				
Yuba County (portion) (3)	X				
Remainder of Air Basin		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

(1) City of Chico and surrounding areas

(2) For this purpose, Sacramento Metro Area comprises all of Sacramento and portions of El Dorado, Placer, Solano, and Yolo Counties.

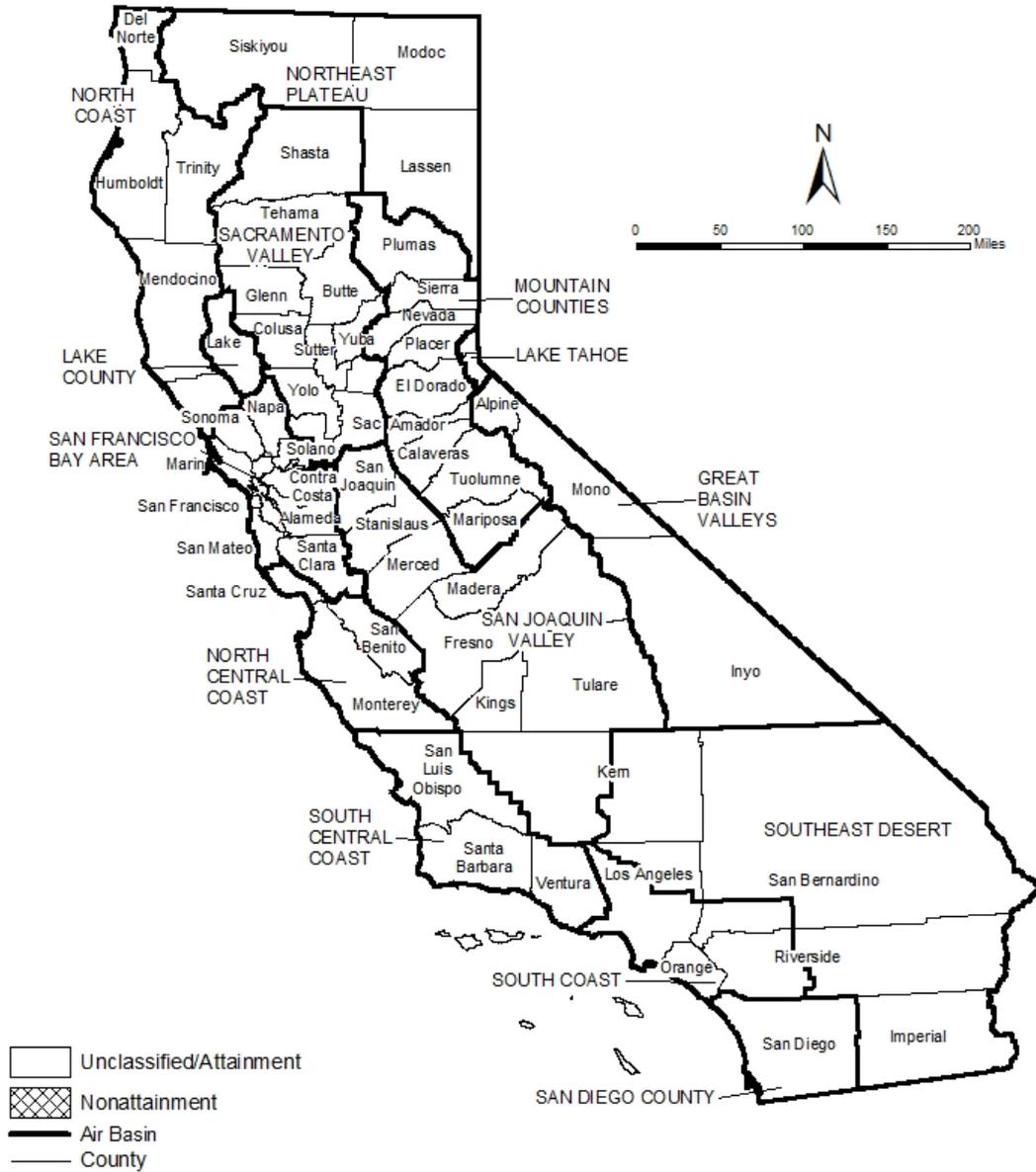
(3) Comprises all of Sutter and western portion of Yuba County.

(4) Those lands of the Santa Rosa Band of Cahulla Mission Indians in Riverside County are designated Unclassifiable/Attainment.

(5) That portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland.

FIGURE 14

**Area Designations for National Ambient Air Quality Standards
CARBON MONOXIDE**



Source Date:
February 2012
Air Quality Data Branch, PTSD

TABLE 14

**National Ambient Air Quality Standards
Area Designations for Carbon Monoxide***

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 15

Area Designations for National Ambient Air Quality Standards NITROGEN DIOXIDE



Source Date:
December 2009
Air Quality Data Branch, PTSD

TABLE 15

**National Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide***

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 16

**Area Designations for National Ambient Air Quality Standards
SULFUR DIOXIDE**



Source Date:
December 2009
Air Quality Data Branch, PTSD

TABLE 16

**National Ambient Air Quality Standards
Area Designations for Sulfur Dioxide***

	A	U		A	U
GREAT BASIN VALLEYS AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		
LAKE COUNTY AIR BASIN		X	San Luis Obispo County		X
LAKE TAHOE AIR BASIN	X		Santa Barbara County		X
MOUNTAIN COUNTIES AIR BASIN		X	Ventura County	X	
NORTH CENTRAL COAST AIR BASIN		X	Channel Islands (1)		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN	X	
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
SACRAMENTO VALLEY AIR BASIN		X	Imperial County	X	
SAN DIEGO COUNTY	X		Remainder of Air Basin		X
SAN FRANCISCO BAY AREA AIR BASIN	X				
SAN JOAQUIN VALLEY AIR BASIN					
Fresno County		X			
Kern County (portion)	X				
Kings County		X			
Madera County		X			
Merced County		X			
San Joaquin County		X			
Stanislaus County		X			
Tulare County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

Although U.S.EPA established a new 1-hour standard of 75 ppb for SO₂, current area designations still reflect the revoked 24-hour and annual average standards as U.S. EPA has not finalized the designations for the revised standard.

(1) South Central Coast Air Basin Channel Islands:

Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.

Ventura County includes Anacapa and San Nicolas Islands.

Note that the San Clemente and Santa Catalina Islands are considered part of Los Angeles County, and therefore, are included as part of the South Coast Air Basin.

FIGURE 17

Area Designations for National Ambient Air Quality Standards LEAD

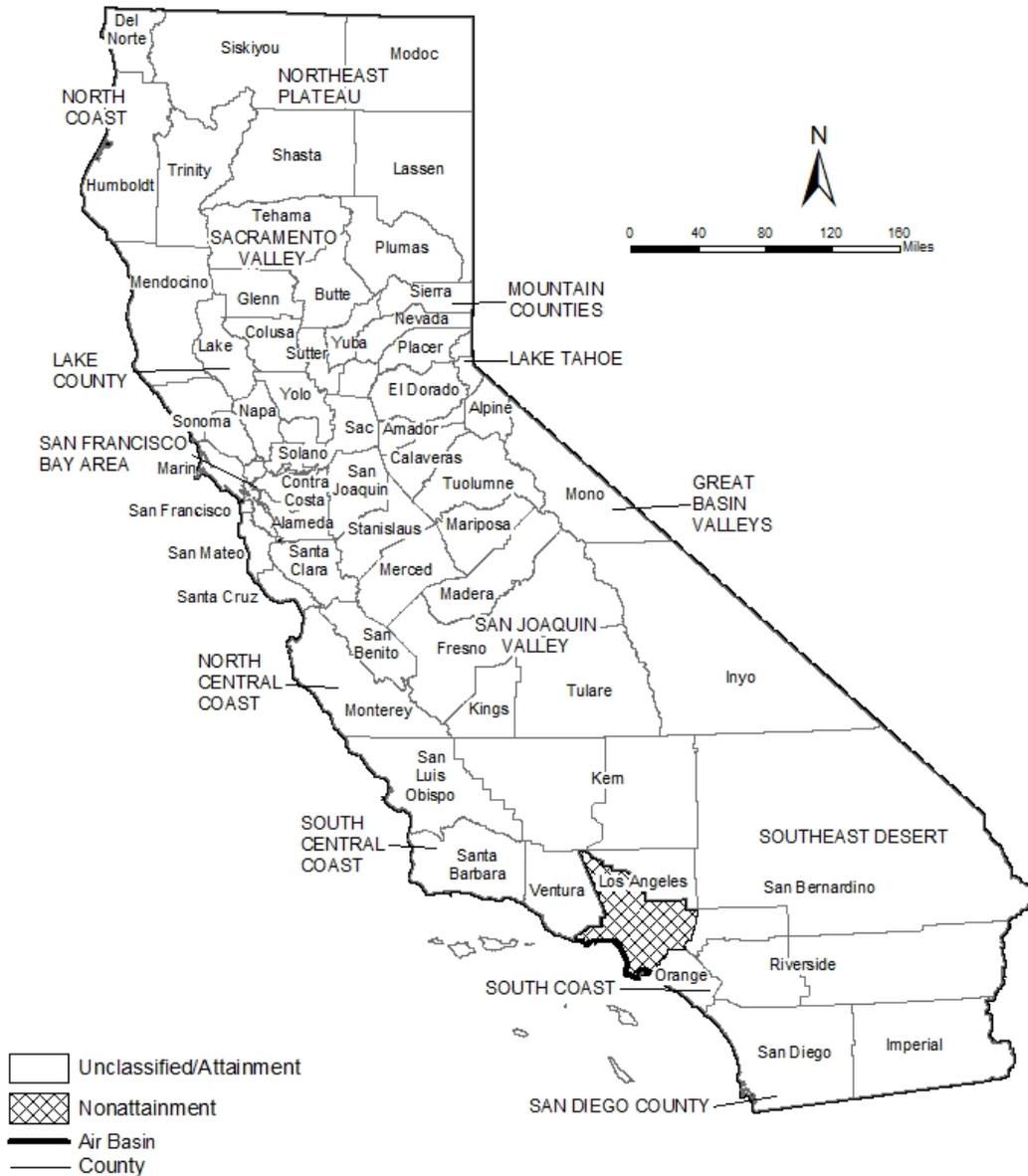


TABLE 17

**National Ambient Air Quality Standards
Area Designations for Lead (particulate)**

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH COAST AIR BASIN		
NORTH COAST AIR BASIN		X	Los Angeles County (portion) (1)	X	
NORTHEAST PLATEAU AIR BASIN		X	Remainder of Air Basin		X
SACRAMENTO VALLEY AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

(1) Portion of County in Air Basin, not including Channel Islands

APPENDIX H
CALIFORNIA GREENHOUSE GAS INVENTORY FOR 2000-2011

California Greenhouse Gas Inventory for 2000-2011
— by Category as Defined in the 2008 Scoping Plan
million tonnes of CO2 equivalent - (based upon IPCC Second Assessment Report's Global Warming Potentials)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Transportation	176.29	176.65	183.86	183.55	187.21	188.94	189.34	188.97	177.16	171.57	170.61	168.42
On Road	162.97	163.54	169.72	168.88	171.83	172.56	172.56	172.43	162.30	158.64	157.57	155.11
Passenger Vehicles	130.17	130.03	134.52	132.96	133.66	132.63	131.96	130.80	123.61	122.57	121.54	119.02
Heavy Duty Trucks	32.80	33.51	35.20	35.92	38.17	39.93	40.60	41.63	38.69	36.07	36.02	36.08
Ships & Commercial Boats	3.39	3.21	3.56	3.77	3.83	4.12	4.20	4.08	3.95	3.66	3.70	3.81
Aviation (Intrastate)	4.15	4.02	4.11	4.22	4.48	4.48	4.54	4.90	4.44	3.97	3.82	3.74
Rail	1.88	1.89	2.50	2.70	2.91	3.34	3.53	3.17	2.38	1.94	2.33	2.49
Off Road [1]	2.63	2.79	2.77	2.84	3.03	3.22	3.32	3.18	2.82	2.25	2.03	2.13
Unspecified	1.28	1.19	1.21	1.13	1.13	1.22	1.20	1.22	1.27	1.10	1.16	1.14
Electric Power	104.86	122.01	108.65	112.62	115.20	107.86	104.54	113.94	120.14	103.56	90.09	86.57
In-State Generation	58.95	62.98	49.68	48.05	49.15	45.05	49.85	54.12	54.32	55.52	46.50	39.71
Natural Gas	50.92	55.46	42.16	40.91	42.40	38.11	43.07	47.12	48.02	48.90	40.60	34.53
Other Fuels	6.85	6.36	6.37	5.99	5.59	5.77	5.64	5.85	5.15	5.28	4.80	3.94
Fugitive and Process Emissions	1.18	1.16	1.15	1.15	1.16	1.16	1.14	1.16	1.14	1.34	1.10	1.23
Imported Electricity	45.91	59.03	58.97	64.57	66.05	62.81	54.69	59.81	65.83	48.05	43.59	46.86
Unspecified Imports	14.27	25.43	26.92	32.05	32.92	30.02	27.96	32.73	37.93	14.99	13.45	15.52
Specified Imports	31.64	33.60	32.05	32.51	33.13	32.80	26.73	27.08	27.90	33.05	30.14	31.34
Commercial and Residential	43.64	43.25	43.06	42.47	43.60	42.52	43.10	43.83	44.59	44.19	45.13	45.47
Residential Fuel Use	29.65	28.72	28.88	28.41	29.45	28.18	28.54	28.69	29.03	28.65	29.38	29.85
Natural Gas	28.02	27.42	27.53	26.66	27.37	25.97	26.59	26.72	26.66	26.30	27.03	27.51
Other Fuels	1.63	1.30	1.34	1.75	2.07	2.21	1.95	1.97	2.37	2.35	2.35	2.33
Commercial Fuel Use	12.90	13.48	13.12	13.79	13.53	13.94	14.14	14.64	15.19	14.61	14.83	14.87
Natural Gas	11.44	12.21	11.85	12.37	11.93	12.27	12.87	13.25	13.36	12.60	12.54	12.56
Other Fuels	1.46	1.26	1.27	1.43	1.60	1.67	1.27	1.39	1.83	2.01	2.28	2.30
Commercial Cogeneration Heat Output	1.09	1.05	1.06	0.26	0.62	0.40	0.42	0.49	0.37	0.92	0.92	0.75
Industrial	95.81	93.85	94.42	93.42	95.73	94.23	91.88	88.79	89.27	84.43	91.00	93.24
Refineries	28.44	29.02	29.17	29.81	29.06	29.73	29.62	29.19	28.40	28.31	30.37	30.10
General Fuel Use	22.17	20.89	22.23	18.48	18.88	17.98	17.91	16.88	18.13	17.58	20.23	21.62
Natural Gas	16.82	14.62	15.18	11.97	12.80	12.72	12.38	11.56	12.37	11.46	13.46	14.48
Other Fuels	5.35	6.27	7.05	6.51	6.09	5.26	5.53	5.31	5.76	6.13	6.77	7.14
Oil & Gas Extraction [2]	18.56	18.91	17.50	20.05	20.24	18.93	16.78	16.84	18.06	16.96	16.02	16.07
Fuel Use	17.53	17.76	16.51	19.03	19.20	17.90	15.75	15.78	17.02	15.92	15.00	14.91
Fugitive Emissions	1.04	1.15	0.99	1.02	1.04	1.02	1.03	1.05	1.04	1.04	1.02	1.17
Cement Plants	9.40	9.51	9.61	9.71	9.81	9.91	9.74	9.14	8.63	5.72	5.56	6.14
Clinker Production	5.43	5.52	5.60	5.68	5.77	5.85	5.80	5.55	5.28	3.60	3.46	4.08
Fuel Use	3.97	4.00	4.01	4.03	4.04	4.06	3.94	3.59	3.34	2.12	2.10	2.06
Cogeneration Heat Output	11.72	10.48	10.65	10.59	12.92	12.41	12.16	11.15	10.40	10.27	12.49	12.59
Other Fugitive and Process Emissions	5.51	5.03	5.24	4.77	4.83	5.28	5.66	5.60	5.65	5.57	6.33	6.73

California Greenhouse Gas Inventory for 2000-2011
— by Category as Defined in the 2008 Scoping Plan
million tonnes of CO2 equivalent - (based upon IPCC Second Assessment Report's Global Warming Potentials)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Recycling and Waste	6.14	6.26	6.20	6.32	6.33	6.47	6.51	6.57	6.69	6.81	6.94	7.00
<i>Landfills [3]</i>	<i>6.02</i>	<i>6.12</i>	<i>6.06</i>	<i>6.16</i>	<i>6.15</i>	<i>6.29</i>	<i>6.31</i>	<i>6.35</i>	<i>6.46</i>	<i>6.56</i>	<i>6.68</i>	<i>6.73</i>
<i>Composting</i>	<i>0.12</i>	<i>0.13</i>	<i>0.15</i>	<i>0.16</i>	<i>0.17</i>	<i>0.19</i>	<i>0.20</i>	<i>0.22</i>	<i>0.23</i>	<i>0.25</i>	<i>0.26</i>	<i>0.27</i>
High GWP	7.11	7.12	7.25	7.87	8.53	9.25	9.86	10.50	11.48	12.45	14.15	15.17
<i>Ozone Depleting Substance (ODS) Substitutes</i>	<i>6.30</i>	<i>6.44</i>	<i>6.61</i>	<i>7.22</i>	<i>7.93</i>	<i>8.65</i>	<i>9.25</i>	<i>9.89</i>	<i>10.83</i>	<i>11.92</i>	<i>13.52</i>	<i>14.57</i>
<i>Electricity Grid SF6 Losses [4]</i>	<i>0.35</i>	<i>0.34</i>	<i>0.32</i>	<i>0.31</i>	<i>0.31</i>	<i>0.31</i>	<i>0.29</i>	<i>0.27</i>	<i>0.28</i>	<i>0.27</i>	<i>0.25</i>	<i>0.25</i>
<i>Semiconductor Manufacturing [3]</i>	<i>0.46</i>	<i>0.33</i>	<i>0.32</i>	<i>0.34</i>	<i>0.30</i>	<i>0.29</i>	<i>0.32</i>	<i>0.33</i>	<i>0.37</i>	<i>0.26</i>	<i>0.37</i>	<i>0.35</i>
Agriculture	29.04	29.23	32.39	32.84	32.57	32.81	33.95	32.94	33.88	31.69	31.68	32.24
Livestock	16.49	17.16	17.69	18.18	17.68	18.32	18.68	19.92	20.22	20.05	19.60	19.62
Enteric Fermentation (Digestive Process)	8.32	8.48	8.72	8.84	8.76	9.05	9.14	9.70	9.67	9.52	9.36	9.34
Manure Management	8.17	8.68	8.96	9.33	8.92	9.27	9.54	10.22	10.55	10.53	10.24	10.28
Crop Growing & Harvesting	8.73	8.24	10.31	10.29	10.37	9.86	9.95	9.22	9.74	9.00	9.27	8.96
Fertilizers	7.29	7.00	8.91	8.91	8.84	8.42	8.33	7.79	8.36	7.61	7.89	7.54
Soil Preparation and Disturbances	1.36	1.18	1.34	1.31	1.47	1.37	1.55	1.36	1.31	1.31	1.31	1.34
Crop Residue Burning	0.08	0.06	0.06	0.06	0.06	0.07	0.06	0.07	0.07	0.07	0.07	0.08
General Fuel Use	3.82	3.83	4.39	4.37	4.52	4.63	5.33	3.80	3.92	2.65	2.81	3.66
Diesel	2.52	2.69	3.04	3.11	3.17	3.41	3.87	2.68	3.00	1.78	1.99	2.37
Natural Gas	0.98	0.75	0.94	0.85	0.82	0.70	0.88	0.79	0.75	0.69	0.65	0.66
Gasoline	0.31	0.38	0.41	0.41	0.52	0.52	0.57	0.32	0.17	0.17	0.17	0.63
Other Fuels	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Total Emissions	462.90	478.36	475.82	479.08	489.18	482.09	479.18	485.54	483.22	454.69	449.59	448.11

[1] Includes equipment used in construction, mining, oil drilling, industrial and airport ground operations

[2] Reflects emissions from combustion of natural gas, diesel, and lease fuel plus fugitive emissions

[3] These categories are listed in the Industrial sector of ARB's GHG Emission Inventory sectors

[4] This category is listed in the Electric Power sector of ARB's GHG Emission Inventory sectors

APPENDIX I
ANIMAL AND PLANT SPECIES LIST

Complete List of Amphibian, Reptile, Bird and Mammal Species in California

**California Department of Fish and Game
Sept. 2008 (updated)**

This list represents all of the native or introduced amphibian, reptile, bird and mammal species known in California. Introduced species are marked with “I”, harvest species with “HA”, and vagrant species or species with extremely limited distributions with *. The term “introduced”, as used here, represents both accidental and intentional introductions.

Subspecies are not included on this list. The most current list of species and subspecies with special management status is available from the [California Natural Diversity Database \(CNDDDB\)](#)

Taxonomy and nomenclature used within the list are the same as those used within both the CNDDDB and CWHR software programs and data sets. If a discrepancy exists between this list and the ones produced by CNDDDB, the CNDDDB list can be presumed to be more accurate as it is updated more frequently than the CWHR data set.

AMPHIBIA

(Amphibians)

CAUDATA

(Salamanders)

AMBYSTOMATIDAE

(Mole Salamanders and Relatives)

Long-toed Salamander

Ambystoma macrodactylum

Tiger Salamander

Ambystoma tigrinum

California Tiger Salamander

Ambystoma californiense

Northwestern Salamander

Ambystoma gracile

RHYACOTRITONIDAE

(Torrent or Seep Salamanders)

Southern Torrent Salamander

Rhyacotriton variegatus

DICAMPTODONTIDAE

(Giant and Olympic Salamanders)

California Giant Salamander

Dicamptodon ensatus

Pacific Giant Salamander

Dicamptodon tenebrosus

SALAMANDRIDAE

(Newts)

California Newt

Taricha torosa

Red-bellied Newt

Taricha rivularis

Rough-skinned Newt

Taricha granulosa

PLETHODONTIDAE

(Lungless Salamanders)

Mount Lyell Salamander

Hydromantes platycephalus

Black-bellied Slender Salamander

Batrachoseps nigriventris

Channel Islands Slender Salamander

Batrachoseps pacificus

San Gabriel Mtns Slender Salamander

Batrachoseps gabrieli

Gabilan Mtns Slender Salamander

Batrachoseps gavilanensis

Santa Lucia Mtns Slender Salamander

Batrachoseps luciae

Lesser Slender Salamander

Batrachoseps minor

San Simeon Slender Salamander

Batrachoseps incognitus

Sequoia Slender Salamander

Batrachoseps kawia

Relictual Slender Salamander

Batrachoseps relictus

California Slender Salamander

Batrachoseps attenuatus

Owen's Valley Web-toed Salamander

Hydromantes sp. 1

Shasta Salamander

Hydromantes shastae

Kern Canyon Slender Salamander

Batrachoseps simatus

Limestone Salamander

Hydromantes brunus

Gregarius Slender Salamander

Batrachoseps gregarius

Hell Hollow Slender Salamander

Batrachoseps diabolicus

Breckenridge Mtn Slender Salamander

Batrachoseps sp. 1

Kings River Slender Salamander

Batrachoseps regius

Scott Bar Salamander

Plethodon asupak

Garden Slender Salamander

Batrachoseps major (aridus now

Wandering Salamander

Aneides vagrans

Tehachapi Slender Salamander

Batrachoseps stebbinsi

Large-blotched Ensatina

Ensatina klauberi

Dunn's Salamander

Plethodon dunnii

Del Norte Salamander

Plethodon elongatus

Siskiyou Mountains Salamander

Plethodon stormi

Black Salamander

Aneides flavipunctatus

Clouded Salamander

Aneides ferreus

Arboreal Salamander

Aneides lugubris

Ensatina

Ensatina eschscholtzii

Kern Plateau Salamander

Batrachoseps robustus

Inyo Mountains Salamander

Batrachoseps campi

ANURA

(Frogs and Toads)

ASCAPHIDAE

Western Tailed Frog

(Tailed Frogs)

Ascaphus truei

PELOBATIDAE

Great Basin Spadefoot
Couch's Spadefoot
Western Spadefoot

(Spadefoot Toads)

Spea intermontana
Scaphiopus couchii
Spea hammondi

BUFONIDAE

Western Toad
Great Plains Toad
Red-spotted Toad
Arroyo Toad
Woodhouse's Toad
Black Toad
Sonoran Desert (Colorado River) Toad
Yosemite Toad

(True Toads)

Bufo boreas
Bufo cognatus
Bufo punctatus
Bufo californicus
Bufo woodhousii
Bufo exsul
Bufo alvarius
Bufo canorus

HYLIDAE

California Treefrog
Pacific Treefrog

(Tree Frogs and Relatives)

Hyla cadaverina
Hyla regilla

RANIDAE

Sierra Madre Yellow-legged Frog
Sierra Nevada Yellow-legged Frog
Foothill Yellow-legged Frog
Bullfrog
Northern Leopard Frog
Cascades Frog
African Clawed Frog
Rio Grande Leopard Frog
Northern Red-legged Frog
California Red-legged Frog
Oregon Spotted Frog
Lowland Leopard Frog
Southern Leopard Frog

(True Frogs)

Rana muscosa
Rana sierrae
Rana boylei
Rana catesbeiana |
Rana pipiens |
Rana cascadae
Xenopus laevis |
Rana berlandieri |
Rana aurora
Rana draytonii
Rana pretiosa
Rana yavapaiensis *
Rana sphenoccephala

REPTILIA

(Reptiles)

TESTUDINES

(Turtles)

CHELYDRIDAE

Snapping Turtle

(Snapping Turtles)

Chelydra serpentina |

KINOSTERNIDAE

Sonora Mud Turtle

(Musk and Mud Turtles)

Kinosternon sonoriense *

EMYDIDAE

Western Pond Turtle
Painted Turtle
Pond Slider

(Box and Water Turtles)

Emys marmorata
Chrysemys picta |
Trachemys scripta |

TESTUDINIDAE

Desert Tortoise

(True Land Tortoises)

Gopherus agassizii

CHELONIIDAE

Hawksbill
Olive Ridley
Loggerhead
Green Turtle

(Sea Turtles)

Eretmochelys imbricata *
Lepidochelys olivacea *
Caretta caretta *
Chelonia mydas *

DERMOCHELYIDAE

Leatherback

(Leatherback Turtles)

Dermochelys coriacea *

TRIONYCHIDAE

Spiny Softshell

(Softshell Turtles)*Trionyx spiniferus*

1

SQUAMATA**(Lizards and Snakes)****GEKKONIDAE**Moorish Wall Gecko
Mediterranean House Gecko
Leaf-toed Gecko
Western Banded Gecko
Barefoot Gecko**(Geckos)***Tarentola mauritanica*
Hemidactylus turcicus
Phyllodactylus xanti
Coleonyx variegatus
Coleonyx switaki

*

1

IGUANIDAEDesert Iguana
Common Chuckwalla**(Iguanids)***Dipsosaurus dorsalis*
*Sauromalus ater***CROTOPHYTIDAE**Cope's Leopard Lizard
Baja California Collared Lizard
Long-nosed Leopard Lizard
Blunt-nosed Leopard Lizard
Mojave Black-collared Lizard**(Collared and Leopard Lizards)***Gambelia copeii*
Crotaphytus vestigium
Gambelia wislizenii
Gambelia sila
*Crotaphytus bicinctores***PHRYNOSOMATIDAE**Pigmy Short-horned Lizard
Desert Horned Lizard
Desert Spiny Lizard
Coast Horned Lizard
Banded Rock Lizard
Baja California Brush Lizard
Ornate Tree Lizard
Long-tailed Brush Lizard
Flat-tailed Horned Lizard
Common Side-blotched Lizard
Western Fence Lizard
Granite Spiny Lizard
Mojave Fringe-toed Lizard
Coachella Valley Fringe-toed Lizard
Colorado Desert Fringe-toed Lizard
Zebra-tailed Lizard
Sagebrush Lizard*Phrynosoma douglassi*
Phrynosoma platyrhinos
Sceloporus magister
Phrynosoma coronatum
Petrosaurus mearnsi
Urosaurus nigricaudus
Urosaurus ornatus
Urosaurus graciosus
Phrynosoma mcallii
Uta stansburiana
Sceloporus occidentalis
Sceloporus orcutti
Uma scoparia
Uma inornata
Uma notata
Callisaurus draconoides
*Sceloporus graciosus***XANTUSIIDAE**Island Night Lizard
Desert Night Lizard
Henshaw's Night Lizard
Sandstone Night Lizard**(Night Lizards)***Xantusia riversiana*
Xantusia vigilis
Xantusia henshawi
*Xantusia gracilis***SCINCIDAE**Western Skink
Gilbert's Skink**(Skinks)***Eumeces skiltonianus*
*Eumeces gilberti***TEIIDAE**Western Whiptail
Orange-throated Whiptail**(Whiptails and Relatives)***Aspidoscelis tigris*
*Aspidoscelis hyperythra***ANGUIDAE**Panamint Alligator Lizard
Southern Alligator Lizard
Northern Alligator Lizard**(Alligator Lizards and Relatives)***Elgaria panamintina*
Elgaria multicarinata
*Elgaria coerulea***ANNIELLIDAE**

California Legless Lizard

(California Legless Lizards)*Anniella pulchra***HELODERMATIDAE**

Gila Monster

(Venomous Lizards)*Heloderma suspectum*

LEPTOTYPHLOPIDAE

Western Blind Snake

(Slender Blind Snakes)

Leptotyphlops humilis

BOIDAE

Southern Rubber Boa

Rubber Boa

Rosy Boa

(Boas)

Charina umbratica

Charina bottae

Charina trivirgata

COLUBRIDAE

Night Snake

Common Kingsnake

California Mountain Kingsnake

Long-nosed Snake

Western Ground Snake

Western Shovel-nosed Snake

California Black-headed Snake

Western Lyre Snake

Striped Whipsnake

Glossy Snake

Southwestern Black-headed Snake

Spotted Leaf-nosed Snake

Gopher Snake

Sharp-tailed Snake

Racer

Coachwhip

California Whipsnake (Striped Racer)

Baja California Rat Snake

Western Patch-nosed Snake

Ring-necked Snake

(Egg-laying Snakes)

Hypsiglena torquata

Lampropeltis getula

Lampropeltis zonata

Rhinocheilus lecontei

Sonora semiannulata

Chionactis occipitalis

Tantilla planiceps

Trimorphodon biscutatus

Masticophis taeniatus

Arizona elegans

Tantilla hobartsmithi

Phyllorhynchus decurtatus

Pituophis catenifer

Contia tenuis

Coluber constrictor

Masticophis flagellum

Masticophis lateralis

Bogertophis rosaliae

Salvadora hexalepis

Diadophis punctatus

NATRICIDAE

Common Garter Snake

Western Terrestrial Garter Snake

Diamondback Water Snake

Checkered Garter Snake

Northwestern Garter Snake

Two-striped Garter Snake

Aquatic Garter Snake

Giant Garter Snake

Sierra (Western Aquatic) Garter Snake

(Live-bearing Snakes)

Thamnophis sirtalis

Thamnophis elegans

Nerodia rhombifer

Thamnophis marcianus

Thamnophis ordinoides

Thamnophis hammondi

Thamnophis atratus

Thamnophis gigas

Thamnophis couchii

HYDROPHIDAE

Yellow-bellied Sea Snake

(Sea Snakes)

Pelamis platurus

VIPERIDAE

Western Rattlesnake

Sidewinder

Mojave Rattlesnake

Speckled Rattlesnake

Western Diamond-backed Rattlesnake

Red Diamond Rattlesnake

(Vipers)

Crotalus viridis

Crotalus cerastes

Crotalus scutulatus

Crotalus mitchellii

Crotalus atrox

Crotalus ruber

AVES

(Birds)

GAVIIFORMES

(Loons)

GAVIIDAE

Red-throated Loon

Arctic Loon

Pacific Loon

Common Loon

Yellow-billed Loon

(Loons)

Gavia stellata

Gavia arctica

Gavia pacifica

Gavia immer

Gavia adamsii

*

*

PODICIPEDIDAE

Least Grebe
 Clark's Grebe
 Western Grebe
 Eared Grebe
 Pied-billed Grebe
 Horned Grebe
 Red-necked Grebe

(Grebes)

Tachybaptus dominicus *
Aechmophorus clarkii
Aechmophorus occidentalis
Podiceps nigricollis
Podilymbus podiceps
Podiceps auritus
Podiceps grisegena

PROCELLARIIFORM (Albatrosses, Shearwaters, Petrels and Relatives)**DIOMEDEIDAE**

Black-footed Albatross
 Short-tailed Albatross
 Laysan Albatross
 Wandering Albatross
 Light-mantled Albatross
 Shy Albatross

(Albatrosses)

Phoebastria nigripes
Phoebastria albatrus *
Phoebastria immutabilis
Diomedea exulans *
Phoebetria palpebrata *
Thalassarche cauta *

PROCELLARIIDAE

Dark-rumped Petrel
 Pink-footed Shearwater
 Sooty Shearwater
 Buller's Shearwater
 Wedge-tailed Shearwater
 Manx Shearwater
 Greater Shearwater
 Black-vented Shearwater
 Flesh-footed Shearwater
 Short-tailed Shearwater
 Little Shearwater
 Streaked Shearwater
 Cory's Shearwater
 Bulwer's Petrel
 Cook's Petrel
 Mottled Petrel
 Murphy's Petrel
 Great-winged Petrel
 Northern Fulmar
 Stejneger's Petrel
 Parkinson's Petrel

(Shearwaters and Fulmars)

Pterodroma phaeopygia *
Puffinus creatopus
Puffinus griseus
Puffinus bulleri
Puffinus pacificus *
Puffinus puffinus *
Puffinus gravis *
Puffinus opisthomelas
Puffinus carneipes
Puffinus tenuirostris
Puffinus assimilis *
Calonectris leucomelas *
Calonectris diomedea *
Bulweria bulwerii *
Pterodroma cookii
Pterodroma inexpectata *
Pterodroma ultima
Pterodroma macroptera *
Fulmarus glacialis
Pterodroma longirostris *
Procellaria parkinsoni *

HYDROBATIDAE

Black Storm-petrel
 Leach's Storm-petrel
 Least Storm-petrel
 Ashy Storm-petrel
 Wilson's Storm-petrel
 Fork-tailed Storm-petrel
 Wedge-rumped Storm-petrel
 Ringed Storm-petrel

(Storm Petrels)

Oceanodroma melania
Oceanodroma leucorhoa
Oceanodroma microsoma
Oceanodroma homochroa
Oceanites oceanicus *
Oceanodroma furcata
Oceanodroma tethys *
Oceanodroma hornbyi *

PELECANIFORMES (Tropicbirds, Pelicans and Relatives)**PHAETHONTIDAE**

White-tailed Tropicbird
 Red-billed Tropicbird
 Red-tailed Tropicbird

(Tropicbirds)

Phaethon lepturus *
Phaethon aethereus
Phaethon rubricauda *

SULIDAE

Masked Booby
 Nazca Booby
 Blue-footed Booby
 Brown Booby
 Red-footed Booby

(Boobies and Gannets)

Sula dactylatra *
Sula granti *
Sula nebouxii *
Sula leucogaster *
Sula sula *

PELECANIDAE

American White Pelican

(Pelicans)

Pelecanus erythrorhynchos

Brown Pelican *Pelecanus occidentalis*

PHALACROCORACIDAE (**Cormorants**)
Double-crested Cormorant *Phalacrocorax auritus*
Pelagic Cormorant *Phalacrocorax pelagicus*
Brandt's Cormorant *Phalacrocorax penicillatus*
Neotropic Cormorant *Phalacrocorax brasilianus* *

ANHINGIDAE (**Darters**)
Anhinga *Anhinga anhinga* *

FREGATIDAE (**Frigatebirds**)
Magnificent Frigatebird *Fregata magnificens*
Great Frigatebird *Fregata minor* *

CICONIIFORMES (*Herons, Storks, Ibises and Relatives*)

ARDEIDAE (**Herons and Bitterns**)
Great Blue Heron *Ardea herodias*
Black-crowned Night Heron *Nycticorax nycticorax*
Green Heron *Butorides virescens*
Cattle Egret *Bubulcus ibis*
Reddish Egret *Egretta rufescens*
Tricolored Heron *Egretta tricolor* *
Little Blue Heron *Egretta caerulea*
Great Egret *Ardea alba*
Least Bittern *Ixobrychus exilis*
American Bittern *Botaurus lentiginosus*
Yellow-crowned Night-heron *Nyctanassa violacea* *
Snowy Egret *Egretta thula*

THRESKIORNITHIDAE (**Ibises and Spoonbills**)
White-faced Ibis *Plegadis chihi* *
Roseate Spoonbill *Platalea ajaja* *
Glossy Ibis *Plegadis falcinellus* *
White Ibis *Eudocimus albus* *

CICONIIDAE (**Storks and Wood Ibises**)
Wood Stork *Mycteria americana*

CATHARTIDAE (**New World Vultures**)
Black Vulture *Coragyps atratus* *
Turkey Vulture *Cathartes aura*
California Condor *Gymnogyps californianus*

ANSERIFORMES (*Screamers, Ducks and Relatives*)

ANATIDAE (**Swans, Geese and Ducks**)
Redhead *Aythya americana* HA
King Eider *Somateria spectabilis* *,HA
Common Eider *Somateria mollissima* *
Steller's Eider *Polysticta stelleri* *,HA
Lesser Scaup *Aythya affinis* HA
Greater Scaup *Aythya marila* HA
Tufted Duck *Aythya fuligula* *,HA
Harlequin Duck *Histrionicus histrionicus* HA
Common Pochard *Aythya ferina* *,HA
Long-tailed Duck *Clangula hyemalis* HA
Canvasback *Aythya valisineria* HA
Green-winged Teal *Anas crecca* HA
Baikal Teal *Anas formosa* *,HA
Ring-necked Duck *Aythya collaris* HA
Surf Scoter *Melanitta perspicillata* HA
Black Scoter *Melanitta nigra* HA
Bufflehead *Bucephala albeola* HA
Common Goldeneye *Bucephala clangula* HA
Barrow's Goldeneye *Bucephala islandica* HA
Smew *Mergellus albellus* *,HA
Hooded Merganser *Lophodytes cucullatus* HA

Common Merganser	<i>Mergus merganser</i>	HA
Red-breasted Merganser	<i>Mergus serrator</i>	HA
Ruddy Duck	<i>Oxyura jamaicensis</i>	HA
Eurasian Wigeon	<i>Anas penelope</i>	HA
Garganey	<i>Anas querquedula</i>	*,HA
White-winged Scoter	<i>Melanitta fusca</i>	HA
Egyptian Goose	<i>Alopochen aegyptiacus</i>	I
American Black Duck	<i>Anas rubripes</i>	*,HA
Black-bellied Whistling-Duck	<i>Dendrocygna autumnalis</i>	*
Fulvous Whistling-Duck	<i>Dendrocygna bicolor</i>	HA
Greater White-fronted Goose	<i>Anser albifrons</i>	HA
Emperor Goose	<i>Chen canagica</i>	*,HA
Snow Goose	<i>Chen caerulescens</i>	HA
Ross' s Goose	<i>Chen rossii</i>	HA
Brant	<i>Branta bernicla</i>	HA
Mute Swan	<i>Cygnus olor</i>	I
Trumpeter Swan	<i>Cygnus buccinator</i>	*
Tundra Swan	<i>Cygnus columbianus</i>	
Mallard	<i>Anas platyrhynchos</i>	HA
Northern Shoveler	<i>Anas clypeata</i>	HA
Canada Goose	<i>Branta canadensis</i>	HA
Blue-winged Teal	<i>Anas discors</i>	HA
Whooper Swan	<i>Cygnus cygnus</i>	*
Cackling Goose (Aleutian Can in CA)	<i>Branta hutchinsii</i>	
American Wigeon	<i>Anas americana</i>	HA
Northern Pintail	<i>Anas acuta</i>	HA
Falcated Duck	<i>Anas falcata</i>	*,HA
Gadwall	<i>Anas strepera</i>	HA
Mandarin Duck	<i>Aix galericulata</i>	I
Wood Duck	<i>Aix sponsa</i>	HA
Cinnamon Teal	<i>Anas cyanoptera</i>	HA

FALCONIFORMES (Vultures, Hawks and Falcons)

ACCIPITRIDAE

(Hawks, Old World Vultures and Harriers)

Red-shouldered Hawk	<i>Buteo lineatus</i>	
Osprey	<i>Pandion haliaetus</i>	
Golden Eagle	<i>Aquila chrysaetos</i>	
Rough-legged Hawk	<i>Buteo lagopus</i>	
Ferruginous Hawk	<i>Buteo regalis</i>	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	
Zone-tailed Hawk	<i>Buteo albontatus</i>	*
Swainson's Hawk	<i>Buteo swainsoni</i>	
Broad-winged Hawk	<i>Buteo platypterus</i>	
White-tailed Kite	<i>Elanus leucurus</i>	
Common Black-hawk	<i>Buteogallus anthracinus</i>	*
Northern Goshawk	<i>Accipiter gentilis</i>	
Cooper's Hawk	<i>Accipiter cooperii</i>	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	
Northern Harrier	<i>Circus cyaneus</i>	
Bald Eagle	<i>Haliaeetus leucocephalus</i>	
Harris's Hawk	<i>Parabuteo unicinctus</i>	*
Mississippi Kite	<i>Ictinia mississippiensis</i>	*

FALCONIDAE

(Caracaras and Falcons)

Prairie Falcon	<i>Falco mexicanus</i>	
Peregrine Falcon	<i>Falco peregrinus</i>	
Gyr Falcon	<i>Falco rusticolus</i>	*
Merlin	<i>Falco columbarius</i>	
Crested Caracara	<i>Caracara cheriway</i>	*
American Kestrel	<i>Falco sparverius</i>	

GALLIFORMES (Magapodes, Curassows, Pheasants and Relatives)

PHASIANIDAE

(Quails, Pheasants and Relatives)

White-tailed Ptarmigan	<i>Lagopus leucura</i>	I, HA
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	HA
Wild Turkey	<i>Meleagris gallopavo</i>	I,HA
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	E

Ruffed Grouse	<i>Bonasa umbellus</i>	HA
Chukar	<i>Alectoris chukar</i>	I
Common Peafowl	<i>Pavo cristatus</i>	I
Ring-necked Pheasant	<i>Phasianus colchicus</i>	I,HA
Sooty Grouse	<i>Dendragapus fuliginosus</i>	HA

ODONTOPHORIDAE

Mountain Quail	<i>Oreortyx pictus</i>	HA
California Quail	<i>Callipepla californica</i>	HA
Gambel's Quail	<i>Callipepla gambelii</i>	HA

(New World Quail)

GRUIFORMES (Cranes, Rails and Relatives)

RALLIDAE

Clapper Rail	<i>Rallus longirostris</i>	
American Coot	<i>Fulica americana</i>	HA
Common Moorhen	<i>Gallinula chloropus</i>	HA
Purple Gallinule	<i>Porphyrio martinica</i>	*
Virginia Rail	<i>Rallus limicola</i>	
Black Rail	<i>Laterallus jamaicensis</i>	
Yellow Rail	<i>Coturnicops noveboracensis</i>	*
Sora	<i>Porzana carolina</i>	

(Rails, Gallinules and Coots)

GRUIDAE

Sandhill Crane	<i>Grus canadensis</i>	
----------------	------------------------	--

(Cranes)

CHARADRIIFORMES (Shorebirds, Gulls and Relatives)

CHARADRIIDAE

Wilson's Plover	<i>Charadrius wilsonia</i>	*
Mountain Plover	<i>Charadrius montanus</i>	
Eurasian Dotterel	<i>Charadrius morinellus</i>	*
Killdeer	<i>Charadrius vociferus</i>	
Piping Plover	<i>Charadrius melodus</i>	*
Semipalmated Plover	<i>Charadrius semipalmatus</i>	
Greater Sand-Plover	<i>Charadrius leschenaultii</i>	*
Lesser Sand-Plover	<i>Charadrius mongolus</i>	*
Pacific Golden-Plover	<i>Pluvialis fulva</i>	
American Golden-Plover	<i>Pluvialis dominica</i>	
Black-bellied Plover	<i>Pluvialis squatarola</i>	
Snowy Plover	<i>Charadrius alexandrinus</i>	

(Plovers and Relatives)

HAEMATOPODIDAE

Black Oystercatcher	<i>Haematopus bachmani</i>	
American Oystercatcher	<i>Haematopus palliatus</i>	*

(Oystercatchers)

RECURVIROSTRIDAE

American Avocet	<i>Recurvirostra americana</i>	
Black-necked Stilt	<i>Himantopus mexicanus</i>	

(Avocets and Stilts)

SCOLOPACIDAE

Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	
Pectoral Sandpiper	<i>Calidris melanotos</i>	
Baird's Sandpiper	<i>Calidris bairdii</i>	
White-rumped Sandpiper	<i>Calidris fuscicollis</i>	*
Least Sandpiper	<i>Calidris minutilla</i>	
Long-toed Stint	<i>Calidris subminuta</i>	*
Rock Sandpiper	<i>Calidris ptilocnemis</i>	
Red-necked Stint	<i>Calidris ruficollis</i>	*
Red Phalarope	<i>Phalaropus fulicarius</i>	
Western Sandpiper	<i>Calidris mauri</i>	
Little Stint	<i>Calidris minuta</i>	*
Dunlin	<i>Calidris alpina</i>	
Curlew Sandpiper	<i>Calidris ferruginea</i>	*
Stilt Sandpiper	<i>Calidris himantopus</i>	
Buff-breasted Sandpiper	<i>Tryngites subruficollis</i>	*
Short-billed Dowitcher	<i>Limnodromus griseus</i>	
Jack Snipe	<i>Lymnocyrtus minimus</i>	*
Semipalmated Sandpiper	<i>Calidris pusilla</i>	

(Sandpipers and Relatives)

American Woodcock	<i>Scolopax minor</i>	*
Wilson's Phalarope	<i>Phalaropus tricolor</i>	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	
Ruff	<i>Philomachus pugnax</i>	
Greater Yellowlegs	<i>Tringa melanoleuca</i>	
Wilson's Snipe	<i>Gallinago delicata</i>	HA (1)
Common Greenshank	<i>Tringa nebularia</i>	*
Lesser Yellowlegs	<i>Tringa flavipes</i>	
Spotted Redshank	<i>Tringa erythropus</i>	*
Solitary Sandpiper	<i>Tringa solitaria</i>	
Willet	<i>Catoptrophorus semipalmatus</i>	
Wandering Tattler	<i>Heteroscelus incanus</i>	
Gray-tailed Tattler	<i>Heteroscelus brevipes</i>	*
Spotted Sandpiper	<i>Actitis macularia</i>	
Terek Sandpiper	<i>Xenus cinereus</i>	*
Upland Sandpiper	<i>Bartramia longicauda</i>	*
Surfbird	<i>Aphriza virgata</i>	
Whimbrel	<i>Numenius phaeopus</i>	
Bristle-thighed Curlew	<i>Numenius tahitiensis</i>	*
Long-billed Curlew	<i>Numenius americanus</i>	
Hudsonian Godwit	<i>Limosa haemastica</i>	*
Bar-tailed Godwit	<i>Limosa lapponica</i>	*
Marbled Godwit	<i>Limosa fedoa</i>	
Ruddy Turnstone	<i>Arenaria interpres</i>	
Black Turnstone	<i>Arenaria melanocephala</i>	
Sanderling	<i>Calidris alba</i>	
Red Knot	<i>Calidris canutus</i>	
Little Curlew	<i>Numenius minutus</i>	*

LARIDAE

Royal Tern	<i>Sterna maxima</i>	
Caspian Tern	<i>Sterna caspia</i>	
Gull-billed Tern	<i>Sterna nilotica</i>	
Ivory Gull	<i>Pagophila eburnea</i>	*
Red-legged Kittiwake	<i>Rissa brevirostris</i>	*
Elegant Tern	<i>Sterna elegans</i>	
Swallow-tailed Gull	<i>Creagrus furcatus</i>	*
Sooty Tern	<i>Sterna fuscata</i>	*
Sabine's Gull	<i>Xema sabini</i>	
Black-legged Kittiwake	<i>Rissa tridactyla</i>	
Sandwich Tern	<i>Sterna sandvicensis</i>	*
Common Tern	<i>Sterna hirundo</i>	
Arctic Tern	<i>Sterna paradisaea</i>	
Forster's Tern	<i>Sterna forsteri</i>	
Bridled Tern	<i>Onychoprion anaethetus</i>	*
White-winged Tern	<i>Chlidonias leucopterus</i>	*
Black Tern	<i>Chlidonias niger</i>	
Black Skimmer	<i>Rynchops niger</i>	
Glaucous Gull	<i>Larus hyperboreus</i>	
Mew Gull	<i>Larus canus</i>	
Least Tern	<i>Sternula antillarum</i>	
Black-headed Gull	<i>Larus ridibundus</i>	*
South Polar Skua	<i>Stercorarius maccormicki</i>	
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>	
Laughing Gull	<i>Larus atricilla</i>	
California Gull	<i>Larus californicus</i>	
Little Gull	<i>Larus minutus</i>	*
Glaucous-winged Gull	<i>Larus glaucescens</i>	
Bonaparte's Gull	<i>Larus philadelphia</i>	
Heermann's Gull	<i>Larus heermanni</i>	
Yellow-footed Gull	<i>Larus livens</i>	
Franklin's Gull	<i>Larus pipixcan</i>	
Western Gull	<i>Larus occidentalis</i>	
Belcher's Gull	<i>Larus belcheri</i>	*
Lesser Black-backed Gull	<i>Larus fuscus</i>	*
Iceland Gull	<i>Larus glaucooides</i>	*

(Skuas, Gulls, Terns and Skimmers)

Thayer's Gull	<i>Larus thayeri</i>	
Herring Gull	<i>Larus argentatus</i>	
Ring-billed Gull	<i>Larus delawarensis</i>	
Black-tailed Gull	<i>Larus crassirostris</i>	*
Slaty-backed Gull	<i>Larus schistisagus</i>	*
Ross's Gull	<i>Rhodostethia rosea</i>	*

ALCIDAE

Kittlitz's Murrelet	<i>Brachyramphus brevirostris</i>	*
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	
Crested Auklet	<i>Aethia cristatella</i>	*
Least Auklet	<i>Aethia pusilla</i>	*
Parakeet Auklet	<i>Aethia psittacula</i>	*
Tufted Puffin	<i>Fratercula cirrhata</i>	
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	
Horned Puffin	<i>Fratercula corniculata</i>	
Xantus's Murrelet	<i>Synthliboramphus hypoleucus</i>	
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	
Long-billed Murrelet	<i>Brachyramphus perdix</i>	*
Pigeon Guillemot	<i>Cepphus columba</i>	
Thick-billed Murre	<i>Uria lomvia</i>	*
Common Murre	<i>Uria aalge</i>	
Ancient Murrelet	<i>Synthliboramphus antiquus</i>	
Craveri's Murrelet	<i>Synthliboramphus craveri</i>	

(Auks, Murres and Puffins)

COLUMBIFORMES (Pigeons and Doves)

COLUMBIDAE

Ringed Turtle-Dove	<i>Streptopelia risoria</i>	
Oriental Turtle-Dove	<i>Streptopelia orientalis</i>	*
Ruddy Ground-Dove	<i>Columbina talpacoti</i>	*
Common Ground-Dove	<i>Columbina passerina</i>	
Inca Dove	<i>Columbina inca</i>	
Mourning Dove	<i>Zenaida macroura</i>	HA
Spotted Dove	<i>Streptopelia chinensis</i>	I,HA
Band-tailed Pigeon	<i>Patagioenas fasciata</i>	HA
Rock Pigeon	<i>Columba livia</i>	
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	
White-winged Dove	<i>Zenaida asiatica</i>	HA

(Pigeons and Doves)

PSITTACIFORMES (Parrots and Relatives)

PSITTACIDAE

Yellow-chevroned Parakeet	<i>Brotogeris chiriri</i>	
Black-hooded Parakeet	<i>Nandayus nenday</i>	
Yellow-headed Parrot	<i>Amazona oratrix</i>	
Lilac-crowned Parrot	<i>Amazona finschi</i>	
Red-crowned Parrot	<i>Amazona viridigenalis</i>	
Blue-crowned Parakeet	<i>Aratinga acuticaudata</i>	
Rose-ringed Parakeet	<i>Psittacula krameri</i>	
Red-masked Parakeet	<i>Aratinga erythrogenys</i>	
White-winged Parakeet	<i>Brotogeris versicolurus</i>	
Mitred Parakeet	<i>Aratinga mitrata</i>	

(Lories, Parakeets, Macaws and Parrots)

CUCULIFORMES (Cuckoos and Relatives)

CUCULIDAE

Groove-billed Ani	<i>Crotophaga sulcirostris</i>	*
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	*
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	
Greater Roadrunner	<i>Geococcyx californianus</i>	

(Typical Cuckoos)

STRIGIFORMES (Owls)

TYTONIDAE

Barn Owl	<i>Tyto alba</i>	
----------	------------------	--

(Barn Owls)

STRIGIDAE

(Typical Owls)

Short-eared Owl	<i>Asio flammeus</i>	
Great Horned Owl	<i>Bubo virginianus</i>	
Long-eared Owl	<i>Asio otus</i>	
Barred Owl	<i>Strix varia</i>	*
Great Gray Owl	<i>Strix nebulosa</i>	
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	
Burrowing Owl	<i>Athene cunicularia</i>	
Elf Owl	<i>Micrathene whitneyi</i>	
Snowy Owl	<i>Bubo scandiacus</i>	*
Western Screech Owl	<i>Megascops kennicottii</i>	
Flammulated Owl	<i>Otus flammeolus</i>	
Northern Pygmy Owl	<i>Glaucidium gnoma</i>	
Spotted Owl	<i>Strix occidentalis</i>	

CAPRIMULGIFORMES (*Goatsuckers and Relatives*)

CAPRIMULGIDAE	(Goatsuckers)
Lesser Nighthawk	<i>Chordeiles acutipennis</i>
Common Nighthawk	<i>Chordeiles minor</i>
Common Poorwill	<i>Phalaenoptilus nuttallii</i>
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>
Buff-collared Nightjar	<i>Caprimulgus ridgwayi</i>
Whip-poor-will	<i>Caprimulgus vociferus</i>

APODIFORMES (*Swifts and Hummingbirds*)

APODIDAE	(Swifts)
Vaux's Swift	<i>Chaetura vauxi</i>
White-throated Swift	<i>Aeronautes saxatalis</i>
White-collared Swift	<i>Streptoprocne zonaris</i>
Black Swift	<i>Cypseloides niger</i>
Chimney Swift	<i>Chaetura pelagica</i>
TROCHILIDAE	(Hummingbirds)
Black-chinned Hummingbird	<i>Archilochus alexandri</i>
Allen's Hummingbird	<i>Selasphorus sasin</i>
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>
Calliope Hummingbird	<i>Stellula calliope</i>
Rufous Hummingbird	<i>Selasphorus rufus</i>
Costa's Hummingbird	<i>Calypte costae</i>
Broad-billed Hummingbird	<i>Cyananthus latirostris</i>
Anna's Hummingbird	<i>Calypte anna</i>
Ruby-throated Hummingbird	<i>Archilochus colubris</i>
Blue-throated Hummingbird	<i>Lampornis clemenciae</i>
Violet-crowned Hummingbird	<i>Amazilia violiceps</i>
Xantus's Hummingbird	<i>Hylocharis xantusii</i>
Magnificent Hummingbird	<i>Eugenes fulgens</i>
Green Violet-ear	<i>Colibri thalassinus</i>

CORACIIFORMES (*Kingfishers and Relatives*)

ALCEDINIDAE	(Kingfishers)
Belted Kingfisher	<i>Ceryle alcyon</i>

PICIFORMES (*Woodpeckers and Relatives*)

PICIDAE	(Woodpeckers and Wrynecks)
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Lewis's Woodpecker	<i>Melanerpes lewis</i>
Gilded Flicker	<i>Colaptes chrysoides</i>
Northern Flicker	<i>Colaptes auratus</i>
Black-backed Woodpecker	<i>Picoides arcticus</i>
White-headed Woodpecker	<i>Picoides albolarvatus</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Ladder-backed Woodpecker	<i>Picoides scalaris</i>
Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>

Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	
Gila Woodpecker	<i>Melanerpes uropygialis</i>	
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	*
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	

PASSERIFORMES (Perching Birds)

TYRANNIDAE

Scissor-tailed Flycatcher
Ash-throated Flycatcher
Great Crested Flycatcher
Brown-crested Flycatcher
Sulphur-bellied Flycatcher
Tropical Kingbird
Couch's Kingbird
Cassin's Kingbird
Thick-billed Kingbird
Eastern Kingbird
Fork-tailed Flycatcher
Vermilion Flycatcher
Dusky-capped Flycatcher
Western Kingbird
Gray Flycatcher
Nutting's Flycatcher
Western Wood-pewee
Eastern Wood-pewee
Yellow-bellied Flycatcher
Alder Flycatcher
Willow Flycatcher
Say's Phoebe
Hammond's Flycatcher
Dusky Flycatcher
Pacific-slope Flycatcher
Cordilleran Flycatcher
Greater Pewee
Black Phoebe
Olive-sided Flycatcher
Eastern Phoebe
Least Flycatcher

(Tyrant Flycatchers)

Tyrannus forficatus
Myiarchus cinerascens
Myiarchus crinitus *
Myiarchus tyrannulus
Myiodynastes luteiventris *
Tyrannus melancholicus
Tyrannus couchii *
Tyrannus vociferans
Tyrannus crassirostris *
Tyrannus tyrannus
Tyrannus savana *
Pyrocephalus rubinus
Myiarchus tuberculifer *
Tyrannus verticalis
Empidonax wrightii
Myiarchus nuttingi *
Contopus sordidulus
Contopus virens *
Empidonax flaviventris *
Empidonax alnorum *
Empidonax traillii
Sayornis saya
Empidonax hammondi
Empidonax oberholseri
Empidonax difficilis
Empidonax occidentalis
Contopus pertinax *
Sayornis nigricans
Contopus cooperi
Sayornis phoebe
Empidonax minimus

LANIIDAE

Loggerhead Shrike
Brown Shrike
Northern Shrike

(Shrikes)

Lanius ludovicianus
Lanius cristatus *
Lanius excubitor

VIREONIDAE

Hutton's Vireo
Yellow-green Vireo
Red-eyed Vireo
White-eyed Vireo
Warbling Vireo
Blue-headed Vireo
Cassin's Vireo
Plumbeous Vireo
Yellow-throated Vireo
Gray Vireo
Bell's Vireo
Philadelphia Vireo

(Typical Vireos)

Vireo huttoni
Vireo flavoviridis *
Vireo olivaceus
Vireo griseus *
Vireo gilvus
Vireo solitarius
Vireo cassinii
Vireo plumbeus
Vireo flavifrons *
Vireo vicinior
Vireo bellii
Vireo philadelphicus *

CORVIDAE

Black-billed Magpie
Western Scrub-Jay
Common Raven
American Crow
Yellow-billed Magpie
Pinyon Jay

(Jays, Magpies and Crows)

Pica hudsonia
Aphelocoma californica
Corvus corax
Corvus brachyrhynchos HA
Pica nuttalli
Gymnorhinus cyanocephalus

Gray Jay
Island Scrub-Jay
Blue Jay
Steller's Jay
Clark's Nutcracker

ALAUDIDAE

Sky Lark
Horned Lark

HIRUNDINIDAE

Tree Swallow
Cave Swallow
Cliff Swallow
Bank Swallow
Violet-green Swallow
Barn Swallow
Purple Martin
Northern Rough-winged Swallow

PARIDAE

Oak Titmouse
Juniper Titmouse
Chestnut-backed Chickadee
Black-capped Chickadee
Mountain Chickadee

REMIZIDAE

Verdin

AEGITHALIDAE

Bushtit

SITTIDAE

Red-breasted Nuthatch
White-breasted Nuthatch
Pygmy Nuthatch

CERTHIIDAE

Brown Creeper

TROGLODYTIDAE

House Wren
Winter Wren
Sedge Wren
Cactus Wren

Canyon Wren
Rock Wren
Marsh Wren
Bewick's Wren

CINCLIDAE

American Dipper

PYCNONOTIDAE

Red-whiskered Bulbul

REGULIDAE

Golden-crowned Kinglet
Ruby-crowned Kinglet

SYLVIIDAE

Arctic Warbler
Black-tailed Gnatcatcher
Blue-gray Gnatcatcher
Dusky Warbler
Lanceolated Warbler
California Gnatcatcher

Perisoreus canadensis
Aphelocoma insularis
Cyanocitta cristata
Cyanocitta stelleri
Nucifraga columbiana

(Larks)

Alauda arvensis
Eremophila alpestris

(Swallows)

Tachycineta bicolor
Petrochelidon fulva
Petrochelidon pyrrhonota
Riparia riparia
Tachycineta thalassina
Hirundo rustica
Progne subis
Stelgidopteryx serripennis

(Titmice and Relatives)

Baeolophus inornatus
Baeolophus ridgewayi
Poecile rufescens
Poecile atricapillus
Poecile gambeli

(Verdin)

Auriparus flaviceps

(Bushtit)

Psaltriparus minimus

(Nuthatches)

Sitta canadensis
Sitta carolinensis
Sitta pygmaea

(Creepers)

Certhia americana

(Wrens)

Troglodytes aedon
Troglodytes troglodytes
Cistothorus platensis
Campylorhynchus brunneicapillus

Catherpes mexicanus
Salpinctes obsoletus
Cistothorus palustris
Thryomanes bewickii

(Dippers)

Cinclus mexicanus

(Bulbuls)

Pycnonotus jocosus

(Kinglets)

Regulus satrapa
Regulus calendula

(Old World Warblers and Gnatcatchers)

Phylloscopus borealis
Poliophtila melanura
Poliophtila caerulea
Phylloscopus fuscatus
Locustella lanceolata
Poliophtila californica

*

*

*

*

*

*

*

*

*

1,*

*

*

*

MUSCICAPIDAE

Taiga Flycatcher

(Old World Flycatchers)*Ficedula albicilla* ***TURDIDAE**

Hermit Thrush

Western Bluebird

Varied Thrush

American Robin

Rufous-backed Robin

Eyebrowed Thrush

Wood Thrush

Swainson's Thrush

Gray-cheeked Thrush

Veery

Mountain Bluebird

Northern Wheatear

Red-flanked Bluetail

Townsend's Solitaire

Stonechat

(Thrushes)*Catharus guttatus**Sialia mexicana**Ixoreus naevius**Turdus migratorius**Turdus rufopalliatus* **Turdus obscurus* **Hylocichla mustelina* **Catharus ustulatus**Catharus minimus* **Catharus fuscescens* **Sialia currucoides**Oenanthe oenanthe* **Tarsiger cyanurus* **Myadestes townsendi**Saxicola torquatus* ***TIMALIIDAE**

Wrentit

(Babblers)*Chamaea fasciata***MIMIDAE**

California Thrasher

Blue Mockingbird

Gray Catbird

Le Conte's Thrasher

Crissal Thrasher

Bendire's Thrasher

Brown Thrasher

Northern Mockingbird

Curve-billed Thrasher

Sage Thrasher

(Mockingbirds and Thrashers)*Toxostoma redivivum**Melanotis caerulescens* **Dumetella carolinensis* **Toxostoma lecontei**Toxostoma crissale**Toxostoma bendirei**Toxostoma rufum**Mimus polyglottus**Toxostoma curvirostre* **Oreoscoptes montanus***STURNIDAE**

European Starling

(Starlings and Allies)*Sturnus vulgaris* |**MOTACILLIDAE**

Eastern Yellow Wagtail

Gray Wagtail

White Wagtail

Olive-backed Pipit

Red-throated Pipit

American Pipit

Sprague's Pipit

(Wagtails and Pipits)*Motacilla tschutschensis* **Motacilla cinerea* **Motacilla alba* **Anthus hodgsoni* **Anthus cervinus* **Anthus rubescens**Anthus spragueii* ***BOMBYCILLIDAE**

Bohemian Waxwing

Cedar Waxwing

(Waxwings)*Bombycilla garrulus**Bombycilla cedrorum***PTILOGONATIDAE**

Phainopepla

Gray Silky-flycatcher

(Silky Flycatchers)*Phainopepla nitens**Ptilogonys cinereus* ***PARULIDAE**

Louisiana Waterthrush

Bay-breasted Warbler

Blackpoll Warbler

Cerulean Warbler

Black-and-white Warbler

American Redstart

Prothonotary Warbler

Worm-eating Warbler

Ovenbird

Northern Waterthrush

Kentucky Warbler

Connecticut Warbler

Mourning Warbler

(Wood Warblers and Relatives)*Seiurus motacilla* **Dendroica castanea**Dendroica striata**Dendroica cerulea* **Mniotilta varia**Setophaga ruticilla* **Protonotaria citrea* **Helmitheros vermivorum* **Seiurus aurocapilla**Seiurus noveboracensis**Oporornis formosus**Oporornis agilis* **Oporornis philadelphia* *

Macgillivray's Warbler	<i>Oporornis tolmiei</i>	
Common Yellowthroat	<i>Geothlypis trichas</i>	
Hooded Warbler	<i>Wilsonia citrina</i>	
Wilson's Warbler	<i>Wilsonia pusilla</i>	
Palm Warbler	<i>Dendroica palmarum</i>	
Red-faced Warbler	<i>Cardellina rubrifrons</i>	*
Painted Redstart	<i>Myioborus pictus</i>	
Yellow-breasted Chat	<i>Icteria virens</i>	
Canada Warbler	<i>Wilsonia canadensis</i>	
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	*
Prairie Warbler	<i>Dendroica discolor</i>	
Blue-winged Warbler	<i>Vermivora pinus</i>	*
Tennessee Warbler	<i>Vermivora peregrina</i>	
Orange-crowned Warbler	<i>Vermivora celata</i>	
Nashville Warbler	<i>Vermivora ruficapilla</i>	
Virginia's Warbler	<i>Vermivora virginiae</i>	
Lucy's Warbler	<i>Vermivora luciae</i>	
Northern Parula	<i>Parula americana</i>	
Yellow Warbler	<i>Dendroica petechia</i>	
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	
Magnolia Warbler	<i>Dendroica magnolia</i>	
Grace's Warbler	<i>Dendroica graciae</i>	*
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	
Yellow-rumped Warbler	<i>Dendroica coronata</i>	
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	
Golden-cheeked Warbler	<i>Dendroica chrysoparia</i>	*
Black-throated Green Warbler	<i>Dendroica virens</i>	
Townsend's Warbler	<i>Dendroica townsendi</i>	
Hermit Warbler	<i>Dendroica occidentalis</i>	
Blackburnian Warbler	<i>Dendroica fusca</i>	
Yellow-throated Warbler	<i>Dendroica dominica</i>	*
Pine Warbler	<i>Dendroica pinus</i>	*
Cape May Warbler	<i>Dendroica tigrina</i>	

THRAUPIDAE

Summer Tanager	<i>Piranga rubra</i>	
Hepatic Tanager	<i>Piranga flava</i>	
Western Tanager	<i>Piranga ludoviciana</i>	
Scarlet Tanager	<i>Piranga olivacea</i>	*

(Tanagers)

EMBERIZIDAE

Harris's Sparrow	<i>Zonotrichia querula</i>	
Song Sparrow	<i>Melospiza melodia</i>	
Rustic Bunting	<i>Emberiza rustica</i>	*
Nelson's Sharp-tailed Sparrow	<i>Ammodramus nelsoni</i>	
Lincoln's Sparrow	<i>Melospiza lincolni</i>	
Swamp Sparrow	<i>Melospiza georgiana</i>	
White-throated Sparrow	<i>Zonotrichia albicollis</i>	
Fox Sparrow	<i>Passerella iliaca</i>	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	
Dark-eyed Junco	<i>Junco hyemalis</i>	
Mccown's Longspur	<i>Calcarius mccownii</i>	
Lapland Longspur	<i>Calcarius lapponicus</i>	
Smith's Longspur	<i>Calcarius pictus</i>	*
Little Bunting	<i>Emberiza pusilla</i>	*
Snow Bunting	<i>Plectrophenax nivalis</i>	*
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	*
Black-throated Sparrow	<i>Amphispiza bilineata</i>	
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	
Chipping Sparrow	<i>Spizella passerina</i>	
Lark Bunting	<i>Calamospiza melanocorys</i>	
Baird's Sparrow	<i>Ammodramus bairdii</i>	*
Spotted Towhee	<i>Pipilo maculatus</i>	
California Towhee	<i>Pipilo crissalis</i>	
Abert's Towhee	<i>Pipilo aberti</i>	
Cassin's Sparrow	<i>Aimophila cassinii</i>	*
American Tree Sparrow	<i>Spizella arborea</i>	
Green-tailed Towhee	<i>Pipilo chlorurus</i>	

(Emberizines)

Clay-colored Sparrow
 Brewer's Sparrow
 Field Sparrow
 Black-chinned Sparrow
 Vesper Sparrow
 Lark Sparrow
 Sage Sparrow
 Savannah Sparrow
 Grasshopper Sparrow
 Rufous-crowned Sparrow

Spizella pallida
Spizella breweri
Spizella pusilla *
Spizella atrogularis
Pooecetes gramineus
Chondestes grammacus
Amphispiza belli
Passerculus sandwichensis
Ammodramus savannarum
Aimophila ruficeps

CARDINALIDAE

(Cardinals, Grosbeaks and Allies)

Indigo Bunting
 Dickcissel
 Painted Bunting
 Varied Bunting
 Lazuli Bunting
 Blue Grosbeak
 Black-headed Grosbeak
 Rose-breasted Grosbeak
 Northern Cardinal
 Pyrrhuloxia

Passerina cyanea
Spiza americana
Passerina ciris *
Passerina versicolor *
Passerina amoena
Passerina caerulea
Pheucticus melanocephalus
Pheucticus ludovicianus
Cardinalis cardinalis | (3)
Cardinalis sinuatus *

ICTERIDAE

(Blackbirds, Orioles and Allies)

Scott's Oriole
 Baltimore Oriole
 Bullock's Oriole
 Streak-backed Oriole
 Hooded Oriole
 Orchard Oriole
 Brown-headed Cowbird
 Common Grackle
 Bobolink
 Great-tailed Grackle
 Red-winged Blackbird
 Tricolored Blackbird
 Western Meadowlark
 Yellow-headed Blackbird
 Rusty Blackbird
 Brewer's Blackbird
 Bronzed Cowbird

Icterus parisorum
Icterus glabula
Icterus bullockii
Icterus pustulatus *
Icterus cucullatus
Icterus spurius
Molothrus ater
Quiscalus quiscula *
Dolichonyx oryzivorus
Quiscalus mexicanus
Agelaius phoeniceus
Agelaius tricolor
Sturnella neglecta
Xanthocephalus xanthocephalus
Euphagus carolinus
Euphagus cyanocephalus
Molothrus aeneus

FRINGILLIDAE

(Finches)

Red Crossbill
 Pine Siskin
 Evening Grosbeak
 Oriental Greenfinch
 American Goldfinch
 Lawrence's Goldfinch
 Lesser Goldfinch
 Black Rosy-finch
 Brambling
 Gray-crowned Rosy-finch
 House Finch
 Cassin's Finch
 Purple Finch
 Pine Grosbeak
 White-winged Crossbill
 Common Redpoll

Loxia curvirostra
Carduelis pinus
Coccothraustes vespertinus
Carduelis sinica |
Carduelis tristis
Carduelis lawrencei
Carduelis psaltria
Leucosticte atrata *
Fringilla montifringilla *
Leucosticte tephrocotis
Carpodacus mexicanus
Carpodacus cassinii
Carpodacus purpureus
Pinicola enucleator
Loxia leucoptera *
Carduelis flammea *

PASSERIDAE

(Old World Sparrows)

House Sparrow

Passer domesticus |

ESTRILDIDAE

(Waxbills and Allies)

Nutmeg Mannikin

Lonchura punctulata |,*

MAMMALIA (Mammals)

DIDELPHIMORPHI (Marsupials)

DIDELPHIDAE

Virginia Opossum

(Opossums)

Didelphis virginiana

I,HA

INSECTIVORA (Insectivores)

SORICIDAE

Preble's Shrew
Desert Shrew
Merriam's Shrew
Trowbridge's Shrew
Marsh Shrew
Inyo Shrew
Ornate Shrew
Fog Shrew
Dusky Shrew
Mt. Lyell Shrew
Water Shrew
Vagrant Shrew

(Shrews)

Sorex preblei
Notiosorex crawfordi
Sorex merriami
Sorex trowbridgii
Sorex bendirii
Sorex tenellus
Sorex ornatus
Sorex sonomae
Sorex monticolus
Sorex lyelli
Sorex palustris
Sorex vagrans

TALPIDAE

Shrew-mole
Townsend's Mole
Coast Mole
Broad-footed Mole

(Moles)

Neurotrichus gibbsii
Scapanus townsendii
Scapanus orarius
Scapanus latimanus

CHIROPTERA (Bats)

PHYLLOSTOMIDAE

Mexican Long-tongued Bat
Southern Long-nosed Bat
Lesser Long-nosed Bat
California Leaf-nosed Bat

(Leaf-nosed Bats)

Choeronycteris mexicana
Leptonycteris curasoae
Leptonycteris yerbabuena
Macrotus californicus

VESPERTILIONIDAE

Big Brown Bat
Spotted Bat
Occult Little Brown Bat
Allen's Big-eared Bat
Townsend's Big-eared Bat
Western Yellow Bat
Hoary Bat
Western Red Bat
Silver-haired Bat
Western Small-footed Myotis
California Myotis
Long-legged Myotis
Little Brown Myotis
Fringed Myotis
Yuma Myotis
Cave Myotis
Long-eared Myotis
Western Pipistrelle
Pallid Bat

(Evening Bats)

Eptesicus fuscus
Euderma maculatum
Myotis occultus
Idionycteris phyllotis
Corynorhinus townsendii
Lasiurus xanthinus
Lasiurus cinereus
Lasiurus blossevillii
Lasionycteris noctivagans
Myotis ciliolabrum
Myotis californicus
Myotis volans
Myotis lucifugus
Myotis thysanodes
Myotis yumanensis
Myotis velifer
Myotis evotis
Pipistrellus hesperus
Antrozous pallidus

MOLOSSIDAE

Brazilian Free-tailed Bat
Western Mastiff Bat
Pocketed Free-tailed Bat
Big Free-tailed Bat

(Free-tailed Bats)

Tadarida brasiliensis
Eumops perotis
Nyctinomops femorosaccus
Nyctinomops macrotis

LAGOMORPHA (Rabbits, Hares and Pika)

OCHOTONIDAE

American Pika

(Pikas)

Ochotona princeps

LEPORIDAE

White-tailed Jackrabbit
Snowshoe Hare
European Rabbit
Desert Cottontail
Mountain Cottontail
Pygmy Rabbit
Brush Rabbit
Black-tailed Jackrabbit

(Rabbits and Hares)

Lepus townsendii HA
Lepus americanus HA
Oryctolagus cuniculus I
Sylvilagus audubonii HA
Sylvilagus nuttallii HA
Brachylagus idahoensis HA
Sylvilagus bachmani HA (4)
Lepus californicus HA

RODENTIA (Rodents)

APLODONTIIDAE

Mountain Beaver

(Mountain Beaver)

Aplodontia rufa

SCIURIDAE

Western Gray Squirrel
Belding's Ground Squirrel
Rock Squirrel
California Ground Squirrel
Mohave Ground Squirrel
Round-tailed Ground Squirrel
Eastern Gray Squirrel
Panamint Chipmunk
Eastern Fox Squirrel
Douglas' Squirrel
Northern Flying Squirrel
Townsend's Ground Squirrel
Golden-mantled Ground Squirrel
Yellow-cheeked Chipmunk
Nelson's Antelope Squirrel
Least Chipmunk
Alpine Chipmunk
Yellow-pine Chipmunk
Sonoma Chipmunk
Yellow-bellied Marmot
California Chipmunk
Long-eared Chipmunk
Allen's Chipmunk
Siskiyou Chipmunk
Lodgepole Chipmunk
Uinta Chipmunk
White-tailed Antelope Squirrel
Merriam's Chipmunk

(Squirrels, Chipmunks and Marmots)

Sciurus griseus HA
Spermophilus beldingi
Spermophilus variegatus
Spermophilus beecheyi
Spermophilus mohavensis
Spermophilus tereticaudus
Sciurus carolinensis I,HA
Neotamias panamintinus
Sciurus niger I,HA (5)
Tamiasciurus douglasii HA
Glaucomys sabrinus
Spermophilus townsendii
Spermophilus lateralis
Neotamias ochrogenys
Ammospermophilus nelsoni
Neotamias minimus
Neotamias alpinus
Neotamias amoenus
Neotamias sonomae
Marmota flaviventris
Neotamias obscurus
Neotamias quadrimaculatus
Neotamias senex
Neotamias siskiyou
Neotamias speciosus
Neotamias umbrinus
Ammospermophilus leucurus
Neotamias merriami

GEOMYIDAE

Northern Pocket Gopher
Western Pocket Gopher
Townsend's Pocket Gopher
Botta's Pocket Gopher
Mountain Pocket Gopher

(Pocket Gophers)

Thomomys talpoides
Thomomys mazama
Thomomys townsendii
Thomomys bottae
Thomomys monticola

HETEROMYIDAE

Fresno Kangaroo Rat
Merriam's Kangaroo Rat
Desert Kangaroo Rat
Stephens' Kangaroo Rat
Panamint Kangaroo Rat
Giant Kangaroo Rat
California Kangaroo Rat
Narrow-faced Kangaroo Rat
San Diego Kangaroo Rat
Pacific Kangaroo Rat

(Pocket Mice and Kangaroo Rats)

Dipodomys nitratoides
Dipodomys merriami
Dipodomys deserti
Dipodomys stephensi
Dipodomys panamintinus
Dipodomys ingens
Dipodomys californicus
Dipodomys venustus
Dipodomys simulans
Dipodomys agilis

Little Pocket Mouse
 Chisel-toothed Kangaroo Rat
 Heermann's Kangaroo Rat
 San Joaquin Pocket Mouse
 Great Basin Pocket Mouse
 White-eared Pocket Mouse
 Long-tailed Pocket Mouse
 Bailey's Pocket Mouse
 Ord's Kangaroo Rat
 San Diego Pocket Mouse
 California Pocket Mouse
 Spiny Pocket Mouse
 Dark Kangaroo Mouse
 Pale Kangaroo Mouse
 Desert Pocket Mouse

Perognathus longimembris
Dipodomys microps
Dipodomys heermanni
Perognathus inornatus
Perognathus parvus
Perognathus alticolus
Chaetodipus formosus
Chaetodipus baileyi
Dipodomys ordii
Chaetodipus fallax
Chaetodipus californicus
Chaetodipus spinatus
Microdipodops megacephalus
Microdipodops pallidus
Chaetodipus penicillatus

CASTORIDAE

American Beaver

(Beavers)

Castor canadensis 1 (6),HA

MURIDAE

House Mouse
 Western Red-backed Vole
 Heather Vole
 Sonoma Tree Vole
 California Vole
 Townsend's Vole
 Long-tailed Vole
 Creeping Vole
 Large-eared Woodrat
 Common Muskrat
 Baja Mouse
 Norway Rat
 White-footed Vole
 Sagebrush Vole
 Northern Grasshopper Mouse
 Montane Vole
 Deer Mouse
 Black Rat
 California Mouse
 Cactus Mouse
 Canyon Mouse
 Pinyon Mouse
 Southern Grasshopper Mouse
 Hispid Cotton Rat
 Arizona Cotton Rat
 Salt-marsh Harvest Mouse
 White-throated Woodrat
 Western Harvest Mouse
 Desert Woodrat
 Dusky-footed Woodrat
 Bushy-tailed Woodrat
 Brush Mouse

(Mice, Rats and Voles)

Mus musculus 1
Clethrionomys californicus
Phenacomys intermedius
Arborimus pomo
Microtus californicus
Microtus townsendii
Microtus longicaudus
Microtus oregoni
Neotoma macrotis
Ondatra zibethicus 1 (7),HA
Peromyscus fraterculus
Rattus norvegicus 1
Arborimus albipes
Lemmiscus curtatus
Onychomys leucogaster
Microtus montanus
Peromyscus maniculatus
Rattus rattus 1
Peromyscus californicus
Peromyscus eremicus
Peromyscus crinitus
Peromyscus truei
Onychomys torridus
Sigmodon hispidus
Sigmodon arizonae
Reithrodontomys raviventris
Neotoma albigula
Reithrodontomys megalotis
Neotoma lepida
Neotoma fuscipes
Neotoma cinerea
Peromyscus boylii

DIPODIDAE

Western Jumping Mouse
 Pacific Jumping Mouse

(Jumping Mice)

Zapus princeps
Zapus trinotatus

ERETHIZONTIDAE

Common Porcupine

(New World Porcupines)

Erethizon dorsatum

MYOCASTORIDAE

Nutria

(Myocastorids)

Myocastor copys

CARNIVORA

(Carnivores)

CANIDAE

Red Fox
Feral Dog
Gray Fox
Island Gray Fox
Kit Fox
Coyote

(Foxes, Wolves and Relatives)

Vulpes vulpes 1,(8)
Canis familiaris I
Urocyon cinereoargenteus HA
Urocyon littoralis
Vulpes macrotis
Canis latrans

URSIDAE

Black Bear

(Bears)

Ursus americanus HA

OTARIIDAE

Northern Fur-seal
Guadalupe Fur-seal
Northern (Steller) Sea-lion
California Sea-lion

(Eared Seals)

Callorhinus ursinus
Arctocephalus townsendi
Eumetopias jubatus
Zalophus californianus

PHOCIDAE

Northern Elephant Seal
Harbor Seal
Ribbon Seal
Ringed Seal

(Hair Seals)

Mirounga angustirostris
Phoca vitulina
Histiophoca fasciata
Pusa hispida

PROCYONIDAE

Ringtail
Raccoon

(Raccoons and Relatives)

Bassariscus astutus
Procyon lotor HA

MUSTELIDAE

Sea Otter
American Marten
American Badger
Fisher
Northern River Otter
Wolverine
Long-tailed Weasel
Ermine
American Mink

(Weasels and Relatives)

Enhydra lutris
Martes americana
Taxidea taxus HA
Martes pennanti
Lontra canadensis
Gulo gulo
Mustela frenata HA
Mustela erminea HA
Mustela vison HA

MEPHITIDAE

Western Spotted Skunk
Striped Skunk

(Skunks)

Spilogale gracilis HA
Mephitis mephitis HA

FELIDAE

Feral Cat
Mountain Lion
Bobcat

(Cats)

Felis catus I
Puma concolor
Lynx rufus HA

CETACEA

(Whales)

ESCHRICHTIIDAE

Gray Whale

(Gray Whale)

Eschrichtius robustus

BALAELOPTERIDAE

Blue Whale
Fin Whale
Sei Whale
Minke Whale
Humpback Whale

(Rorquals)

Balaenoptera musculus *
Balaenoptera physalus *
Balaenoptera borealis *
Balaenoptera acutorostrata *
Megaptera novaeangliae *

BALAEENIDAE

Black Right Whale

(Right Whales)

Eubalaena glacialis *

DELPHINIDAE

Killer Whale
Bottle-nosed Dolphin
Northern Right-whale Dolphin
Short-finned Pilot Whale

(Dolphins)

Orcinus orca
Tursiops truncatus
Lissodelphis borealis
Globicephala macrorhynchus

False Killer Whale
 Grampus
 Pacific White-sided Dolphin
 Common Dolphin
 Pantropical Spotted Dolphin
 Rough-toothed Dolphin
 Striped Dolphin

Pseudorca crassidens
Grampus griseus
Lagenorhynchus obliquidens
Delphinus delphis
Stenella attenuata
Steno bredanensis
Stenella coeruleoalba

PHOCOENIDAE

Harbor Porpoise
 Dall's Porpoise

(Porpoises)

Phocoena phocoena
Phocoenoides dalli

ZIPHIIDAE

Goose-beaked Whale
 Perrin's Beaked Whale
 North Pacific Beaked Whale
 Dense-beaked Whale
 Moore's Beaked Whale
 Ginko-toothed Whale
 North Pacific Bottle-nosed Whale

(Beaked Whales)

Ziphius cavirostris
Mesoplodon perrini
Mesoplodon stejnegeri
Mesoplodon densirostris
Mesoplodon carlhubbsi
Mesoplodon ginkodens
Berardius bairdii

KOGIIDAE

Pygmy Sperm Whale
 Dwarf Sperm Whale

(Pygmy Sperm Whales)

Kogia breviceps
Kogia sima

PHYSETERIDAE

Sperm Whale

(Sperm Whale)

Physeter macrocephalus

PERISSODACTYLA (Horses, Tapirs and Relatives)

EQUIDAE

Feral Horse
 Feral Ass
 Burchell's Zebra

(Horses)

Equus caballus
Equus asinus
Equus burchelli

I
 I
 I

ARTIODACTYLA (Even-toed Ungulates)

SUIDAE

Wild Pig

(Pigs)

Sus scrofa

I,HA

CERVIDAE

Elk
 Axis Deer
 Fallow Deer
 Mule Deer
 Sambar Deer

(Deer, Elk and Relatives)

Cervus elaphus
Axis axis
Dama dama
Odocoileus hemionus
Cervus unicolor

I,HA (9)
 I,HA
 I,HA
 HA
 I,HA

ANTILOCAPRIDAE

Pronghorn

(Pronghorn)

Antilocapra americana

HA

BOVIDAE

Barbary Sheep
 Himalayan Tahr
 Feral Goat
 Bighorn Sheep
 Blackbuck
 Bison
 Feral Cattle

(Sheep, Goats and Relatives)

Ammotragus lervia
Hemitragus jemlahicus
Capra hircus
Ovis canadensis
Antilope cervicapra
Bos bison
Bos taurus

I,HA
 I,HA
 I,HA
 HA (10)
 I
 I
 I

Preparation:

Monica Parisi
Darlene McGriff
Kiffanie Stahle
Anne Miller
Stacie Hooper

Notes:

Amphibians and Reptiles We have adopted nomenclature of the Center for North American Herpetology, <http://www.cnah.org>. The phylogenetic sequence is that of Stebbins (2003). Both Jennings (2004) and Stebbins (2003) were used as sources for species found in California. Exceptions are for taxonomic splits recognized subsequent to these publications (Shaffer et al. 2004, Vredenburg et al. 2007).

Birds We based the organization and nomenclature on the work of the American Ornithologists' Union (AOU) Committee on Classification and Nomenclature (AOU 1998, 2000, 2002, 2003a, 2003b, 2005, 2006, 2007, 2008). A list of birds found in California is provided by the California Bird Records Committee (CBRC): <http://wfo-cbrc.org/cbrc/>. Our list differs slightly from CBRC because we include species introduced to California that may or may not have stable populations (Garrett 1997, Jurek 2002).

(1) Listed in the Fish and Game Code for California and in Title 14 of the California Code of Regulations as jacksnipe or common snipe.

(2) Listed as Gilded Northern Flicker in Section 670.5 of Title 14 of the California Code of Regulations.

(3) Cardinals are native to California only marginally in the Colorado River Valley. Other populations are of introduced subspecies.

Mammals We used Williams (2001) as a basis for the occurrence of mammal species in California. With few exceptions, nomenclatural conventions used were from Baker et al. (2003). As this list is ordered alphabetically, we used Jones (1982) as a reference for taxonomic sequence. This is the order used within the California Wildlife Habitat Relationships (CWHR) database program.

(4) Riparian brush rabbit (subspecies riparius) is state and federally-endangered and may not be legally harvested.

(5) Referenced in Fish and Game Code Section 4152 as Red Fox Squirrel.

(6) Some populations were introduced into the Sierra Nevada and Southern California

from stock taken from Oregon and Washington.

(7) Some populations in California were introduced.

(8) Red foxes native to California are of the subspecies *V. v. necator*. Populations of individuals from subspecies not native to California have been introduced. We know of at least a few subspecies of eastern red foxes and fur stock released into California, but we do not have records of every kind. Hybridization is occurring in the wild among subspecies now as well.

(9) Elk native to California are Roosevelt (*C. e. roosevelti*) and tule (*C. e. nannodes*) elk. Rocky Mountain elk (*C. e. nelsoni*) have been introduced to California.

(10) *O. c. nelsoni* is fully protected except in areas where it is legally hunted.

References

American Ornithologists' Union. 1998. The A.O.U. Checklist of North American Birds. Seventh edition. American Ornithologists' Union. Washington D.C. 829 pp.

American Ornithologists' Union. 2000. Forty-second supplement to the American Ornithologists' Union check-list of North American birds. *The Auk* 117(3):847-858.

American Ornithologists' Union. 2002. Forty-third supplement to the American Ornithologists' Union check-list of North American birds. *The Auk* 119(3):897-906.

American Ornithologists' Union. 2003a. Forty-fourth supplement to the American Ornithologists' Union check-list of North American birds. *The Auk* 120(3):923-931.

American Ornithologists' Union. 2003b. Forty-fifth supplement to the American Ornithologists' Union check-list of North American birds. *The Auk* 121(3):985-995.

American Ornithologists' Union. 2005. Forty-sixth supplement to the American Ornithologists' Union check-list of North American birds. *The Auk* 122(3):1026-1031.

American Ornithologists' Union. 2006. Forty-seventh supplement to the American Ornithologists' Union check-list of North American birds. *The Auk* 123(3):926-936.

American Ornithologists' Union. 2007. Forty-eighth supplement to the American Ornithologists' Union check-list of North American birds. *The Auk* 124(3):1109-1115.

American Ornithologists' Union. 2008. Forty-ninth supplement to the American Ornithologists' Union check-list of North American birds. *The Auk* 125(3):758-768.

Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Dragoo, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Ried, D. W. Rice and C. Jones. 2003. Revised checklist of North American mammals North of Mexico. Occasional Papers, Museum of Texas Tech University 229:1-23.

Garrett, K. L. 1997. Population status and distribution of naturalized parrots in Southern California. *Western Birds* 28(4):181-195.

Jennings, M. R. 2004. An annotated check list of the amphibians and reptiles of California and adjacent waters. Third, revised edition. *California Fish and Game* 90(4):161-228.

Jones, J. K., Jr., D. C. Carter, H. H. Genoways, R. S. Hoffman, and D. W. Rice. 1982. Revised checklist of North American mammals north of Mexico. Occasional Papers, Museum Texas Tech. University, No. 80.

Jurek, R. M. 2002. Personal communication. California Department of Fish and Game. Sacramento, CA.

Shaffer, H. B., G. M. Fellers, S. R. Voss, J. C. Oliver and G. B. Pauly. 2004. Species boundaries, phylogeography and conservation genetics of the red-legged frog (*Rana aurora/draytonii*) complex. *Molecular Ecology* 13:2667-2677.

Stebbins, R. C. 2003. *A Field Guide to Western Reptiles and Amphibians*. Third edition. Houghton Mifflin Co. Boston, MA. 533 pp.

Vredenburg, V. T., R. Bingham, R. Knapp, J. A. T. Morgan, C. Moritz and D. Wake. 2007. Concordant molecular and phenotypic data delineate new taxonomy and conservation priorities for the endangered mountain yellow-legged frog. *Journal of Zoology* 271:361-374.

Williams, D. F. 2001. *Checklist of California Mammals*. California State University, Stanislaus. Turlock, CA. <http://esrp.csustan.edu/>

State of California
The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Biogeographic Data Branch
California Natural Diversity Database

STATE & FEDERALLY LISTED ENDANGERED & THREATENED ANIMALS OF CALIFORNIA

October 2013

This is a list of animals found within California or off the coast of the State that have been classified as Endangered or Threatened by the California Fish & Game Commission (state list) or by the U.S. Secretary of the Interior or the U.S. Secretary of Commerce (federal list). The federal agencies responsible for listing are the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).

The official California listing of Endangered and Threatened animals is contained in the California Code of Regulations, Title 14, Section 670.5. The official federal listing of Endangered and Threatened animals is published in the Federal Register, 50 CFR 17.11. The California Endangered Species Act of 1970 created the categories of “Endangered” and “Rare.” The California Endangered Species Act of 1984 created the categories of “Endangered” and “Threatened.” On January 1, 1985, all animal species designated as “Rare” were reclassified as “Threatened.”

Also included on this list are animal “Candidates” for state listing and animals “Proposed” for federal listing; federal “Candidates” are currently not included. A state Candidate species is one that the Fish and Game Commission (FGC) has formally declared a candidate species. A federal Proposed species is one that has had a published proposed rule to list in the Federal Register.

Designation	Totals as of October 2013
State listed as Endangered	SE 47
State listed as Threatened	ST 35
Federally listed as Endangered	FE 91
Federally listed as Threatened	FT 39
State Candidate (T or E)	SC 8
State Candidate (Delisting)	SCD 0
Federally proposed (Endangered)	FPE 2
Federally proposed (Threatened)	FPT 3
Federally proposed (Delisting)	FPD 4
<div style="display: flex; justify-content: space-between;"> Total number of candidate/proposed animals for listing 13 </div> <div style="display: flex; justify-content: space-between; margin-left: 40px;"> Number of animals State listed only 31 </div> <div style="display: flex; justify-content: space-between; margin-left: 40px;"> Number of animals Federally listed only 69 </div> <div style="display: flex; justify-content: space-between; margin-left: 40px;"> Number of animals listed under both State & Federal Acts 49 </div> <hr style="width: 100%;"/> <div style="display: flex; justify-content: space-between;"> Total number of animals listed (excludes double counting DPSs and ESUs) 149 </div>	

Common and scientific names are shown as they appear on the state or federal lists. If the nomenclature differs for a species that is included on both lists, the state nomenclature is given and the federal nomenclature is shown in a footnote. Synonyms, name changes, and other clarifying points are also footnoted.

The “List Date” for **final** federal listing is the date the listing became effective. This is usually not the date of publication of the rule in the Federal Register; it is usually about 30 days after publication, but may be longer.

If an animal was previously listed and no longer has any listing status, the entry has been **grayed out**. If an animal was previously proposed or a candidate for listing, but the listing was not warranted or revoked, the record has been removed from the table.

For taxa that have more than one status entry, the **current status is in bold and underlined**.

<u>Table of contents</u>	<u>Page</u>
Gastropods	2
Crustaceans	2
Insects	2
Fishes	4
Amphibians	6
Reptiles	8
Birds	8
Mammals.....	11
Abbreviations.....	14
Additional Resources	14

	State Listing		Federal Listing	
<u>GASTROPODS</u>				
Trinity bristle snail <i>Monadenia setosa</i> ¹	ST	10-02-80		
Morro shoulderband (=banded dune) snail <i>Helminthoglypta walkeriana</i>			FE ²	1-17-95
White abalone <i>Haliotis sorenseni</i>			FE ³ FE	11-16-05 6-28-01
Black abalone <i>Haliotis cracherodii</i>			FE ⁴ FE	4-13-11 2-13-09
<u>CRUSTACEANS</u>				
Riverside fairy shrimp <i>Streptocephalus woottoni</i>			FE	8-03-93
Conservancy fairy shrimp <i>Branchinecta conservatio</i>			FE	9-19-94
Longhorn fairy shrimp <i>Branchinecta longiantenna</i>			FE	9-19-94
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>			FT	9-19-94
San Diego fairy shrimp <i>Branchinecta sandiegonensis</i>			FE	2-03-97
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>			FE	9-19-94
Shasta crayfish <i>Pacifastacus fortis</i>	<u>SE</u> ST	2-26-88 10-02-80	FE	9-30-88
California freshwater shrimp <i>Syncaris pacifica</i>	SE	10-02-80	FE	10-31-88
<u>INSECTS</u>				
Zayante band-winged grasshopper <i>Trimerotropis infantilis</i>			FE	2-24-97
Mount Hermon June beetle <i>Polyphylla barbata</i>			FE	2-24-97
Casey's June beetle <i>Dinacoma caseyi</i>			FE	10-24-11
Delta green ground beetle <i>Elaphrus viridis</i>			FT	8-08-80

¹ Current taxonomy is *Monadenia infumata setosa*.

² The 2006 five year review should be consulted to better understand the status of this species.

³ Listed by NMFS in 2001 and by USFWS in 2005.

⁴ Listed by NMFS in 2009 and by USFWS in 2011.

	State Listing		Federal Listing	
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>			FPD FT	10-2-12 8-08-80
Ohlone tiger beetle <i>Cicindela ohlone</i>			FE	10-03-01
Kern primrose sphinx moth <i>Euproserpinus euterpe</i>			FT	4-08-80
Mission blue butterfly <i>Icaricia icarioides missionensis</i> ⁵			FE	6-01-76
Lotis blue butterfly <i>Lycaeides argyrognomon lotis</i> ⁶			FE	6-01-76
Palos Verdes blue butterfly <i>Glaucopsyche lygdamus palosverdesensis</i>			FE	7-02-80
El Segundo blue butterfly <i>Euphilotes battoides allyni</i>			FE	6-01-76
Smith's blue butterfly <i>Euphilotes enoptes smithi</i>			FE	6-01-76
San Bruno elfin butterfly <i>Callophrys mossii bayensis</i>			FE	6-01-76
Lange's metalmark butterfly <i>Apodemia mormo langei</i>			FE	6-01-76
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>			FT	10-18-87
Quino checkerspot butterfly <i>Euphydryas editha quino</i> (= <i>E. e. wrighti</i>)			FE	1-16-97
Carson wandering skipper <i>Pseudocopaodes eunus obscurus</i>			FE	8-07-02
Laguna Mountains skipper <i>Pyrgus ruralis lagunae</i>			FE	1-16-97
Callippe silverspot butterfly <i>Speyeria callippe callippe</i>			FE	12-05-97
Behren's silverspot butterfly <i>Speyeria zerene behrensii</i>			FE	12-05-97
Oregon silverspot butterfly ⁷ <i>Speyeria zerene hippolyta</i>			FT	7-02-80
Myrtle's silverspot butterfly ⁸ <i>Speyeria zerene myrtleae</i>			FE	6-22-92

⁵ Current taxonomy is *Plebejus icarioides missionensis*.

⁶ Current taxonomy is *Plebejus idas lotis*.

⁷ Also known by the common name Hippolyta fritillary.

⁸ The USFWS and others have not yet determined if the taxonomic expansion by Emmel and Emmel (1998) into *S. z. myrtleae* and *S. z. puntareyes* is warranted. The *Speyeria zerene* along coast of Marin and Sonoma Counties are Federally Endangered under the subspecies concept in the 1992 listing.

	State Listing		Federal Listing	
Delhi Sands flower-loving fly <i>Rhaphiomidas terminatus abdominalis</i>			FE	9-23-93
<u>FISHES</u>				
White shark <i>Carcharodon carcharias</i>	SC	2-19-13		
Green sturgeon - southern DPS <i>Acipenser medirostris</i>			FT ⁹	6-06-06
Mohave tui chub <i>Gila bicolor mohavensis</i> ¹⁰	SE	6-27-71	FE	10-13-70
Owens tui chub <i>Gila bicolor snyderi</i> ¹¹	SE	1-10-74	FE	8-05-85
Thicktail chub (Extinct) <i>Gila crassicauda</i>	<u>Delisted</u> SE	10-02-80 1-10-74		
Bonytail ¹² <i>Gila elegans</i>	<u>SE</u> ST	1-10-74 6-27-71	FE	4-23-80
Clear Lake hitch <i>Lavinia exilicauda chi</i>	SC	3-11-13		
Colorado pikeminnow <i>Ptychocheilus lucius</i>	SE	6-27-71	FE	3-11-67
Modoc sucker <i>Catostomus microps</i>	<u>SE</u> ST	10-02-80 1-10-74	FE	6-11-85
Santa Ana sucker <i>Catostomus santaanae</i>			FT ¹³	5-12-00
Shortnose sucker <i>Chasmistes brevirostris</i>	<u>SE</u> ST	1-10-74 6-27-71	FE	7-18-88
Lost River sucker <i>Deltistes luxatus</i>	<u>SE</u> ST	1-10-74 6-27-67	FE	7-18-88
Razorback sucker <i>Xyrauchen texanus</i>	<u>SE</u> ST	1-10-74 6-27-71	FE	10-23-91
Delta smelt <i>Hypomesus transpacificus</i>	<u>SE</u> ST	1-20-10 12-09-93	FT	3-05-93
Longfin smelt <i>Spirinchus thaleichthys</i>	ST	4-09-10		
Pacific eulachon - southern DPS <i>Thaleichthys pacificus</i>			FT FT	4-13-11 ¹⁴ 5-17-10

⁹ Includes all spawning populations south of the Eel River.

¹⁰ Current taxonomy: *Siphateles bicolor mohavensis*.

¹¹ Current taxonomy: *Siphateles bicolor snyderi*.

¹² Federal common name: bonytail chub.

¹³ Populations in the Los Angeles, San Gabriel, and Santa Ana River basins.

¹⁴ Eulachon was listed as Threatened by the NMFS in 2010 and by the USFWS in 2011.

	State Listing		Federal Listing	
Lahontan cutthroat trout <i>Oncorhynchus clarkii henshawi</i> ¹⁵			FT FE	7-16-75 10-13-70
Paiute cutthroat trout <i>Oncorhynchus clarkii seleniris</i>			FT FE	7-16-75 3-11-67 ¹⁶
Coho salmon - south of Punta Gorda ¹⁷ <i>Oncorhynchus kisutch</i>	SE ¹⁸	3-30-05	FE ¹⁹ FT	8-29-05 12-02-96
Coho salmon - Punta Gorda to the N. border of California ²⁰ <i>Oncorhynchus kisutch</i>	ST ²¹	3-30-05	FT ²² FT	8-29-05 6-05-97
Steelhead - southern California DPS ²³ <i>Oncorhynchus mykiss</i>			FE ²⁴ FE	2-06-06 10-17-97
Steelhead - south central California coast DPS ²⁵ <i>Oncorhynchus mykiss</i>			FT ²⁶ FT	2-06-06 10-17-97
Steelhead - central California coast DPS ²⁷ <i>Oncorhynchus mykiss</i>			FT ²⁸ FT	2-06-06 10-17-97
Steelhead - California Central Valley DPS ²⁹ <i>Oncorhynchus mykiss</i>			FT ³⁰ FT	2-06-06 5-18-98
Steelhead - northern California DPS ³¹ <i>Oncorhynchus mykiss</i>			FT ³² FT	2-06-06 8-07-00
Little Kern golden trout <i>Oncorhynchus mykiss whitei</i> ³³			FT	4-13-78
Chinook salmon - winter-run ³⁴ <i>Oncorhynchus tshawytscha</i>	SE	9-22-89	FE ³⁵ FE	8-29-05 2-03-94

¹⁵ According to the American Fisheries Society Special Publication 29 (2004), “clarkii” has two i’s.

¹⁶ All species with a list date of 03-11-67 were listed under the Endangered Species Preservation Act of October 15, 1966.

¹⁷ The Federal listing is for central California coast Coho ESU and includes populations from Punta Gorda south to, and including, the San Lorenzo River as well as populations in tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin River system.

¹⁸ The Coho south of San Francisco Bay were state listed in 1995. In Feb 2004 the Fish and Game Commission determined that the Coho from San Francisco to Punta Gorda should also be listed as Endangered. This change was finalized by the Office of Administrative Law on 30 Mar 2005.

¹⁹ The NMFS completed a comprehensive status review in 2005 reaffirming the status.

²⁰ The Federal listing is for southern Oregon/northern California coast Coho ESU and includes populations in coastal streams between Cape Blanco, Oregon and Punta Gorda, California.

²¹ The Fish and Game Commission determined that the Coho from Punta Gorda to the Oregon border should be listed as Threatened on 25 Feb 2004. This determination was finalized by the Office of Administrative Law on 30 Mar 2005.

²² The NMFS completed a comprehensive status review in 2005 reaffirming the status.

²³ Coastal basins from the Santa Maria River (inclusive), south to the U.S.-Mexico Border.

²⁴ The NMFS completed a comprehensive status review in 2006 reaffirming the status.

²⁵ Coastal basins from the Pajaro River (inclusive) south to, but not including, the Santa Maria River.

²⁶ The NMFS completed a comprehensive status review in 2006 reaffirming the status.

²⁷ Coastal streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chippis Island at the confluence of the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), exclusive of the Sacramento-San Joaquin River Basin of the California Central Valley.

²⁸ The NMFS completed a comprehensive status review in 2006 reaffirming the status.

²⁹ The Sacramento and San Joaquin Rivers and their tributaries.

³⁰ The NMFS completed a comprehensive status review in 2006 reaffirming the status.

³¹ Naturally spawned populations residing below impassable barriers in coastal basins from Redwood Creek in Humboldt County to, and including, the Gualala River in Mendocino County.

³² The NMFS completed a comprehensive status review in 2006 reaffirming the status.

³³ Originally listed as *Salmo aguabonita whitei*. The genus *Salmo* was reclassified as *Oncorhynchus* changing the name to *Oncorhynchus aguabonita whitei*. However, recent studies indicate this is a subspecies of rainbow trout, therefore *Oncorhynchus mykiss whitei*.

³⁴ The federal designation is for Chinook salmon - Sacramento River winter-run ESU and described as winter-run populations in the Sacramento River and its tributaries in California.

	State Listing		Federal Listing	
Chinook salmon - California coastal ESU ³⁶ <i>Oncorhynchus tshawytscha</i>			FT ³⁷ FT	8-29-05 11-15-99
Chinook salmon - spring-run ³⁸ <i>Oncorhynchus tshawytscha</i>	ST	2-05-99	FT ³⁹ FT	8-29-05 11-15-99
Bull trout <i>Salvelinus confluentus</i>	SE	10-02-80	FT	12-01-99
Desert pupfish <i>Cyprinodon macularius</i>	SE	10-02-80	FE	3-31-86
Tecopa pupfish (Extinct) <i>Cyprinodon nevadensis calidiae</i>	Delisted SE	1987 6-27-71	Delisted FE	1-15-82 10-13-70
Owens pupfish <i>Cyprinodon radiosus</i>	SE	6-27-71	FE	3-11-67
Cottonball Marsh pupfish <i>Cyprinodon salinus milleri</i>	ST	1-10-74		
Unarmored threespine stickleback <i>Gasterosteus aculeatus williamsoni</i>	SE	6-27-71	FE	10-13-70
Rough sculpin <i>Cottus asperimus</i>	ST	1-10-74		
Tidewater goby <i>Eucyclogobius newberryi</i>			FE ⁴⁰	2-04-94
<u>AMPHIBIANS</u>				
California tiger salamander ⁴¹ <i>Ambystoma californiense</i>	ST ⁴²	8-19-10	(FE) (FT)	
California tiger salamander - central California DPS <i>Ambystoma californiense</i>	(ST)		FT ⁴³	9-03-04
California tiger salamander - Santa Barbara County DPS <i>Ambystoma californiense</i>	(ST)		FE ⁴³	9-15-00
California tiger salamander - Sonoma County DPS <i>Ambystoma californiense</i>	(ST)		FE ⁴³	3-19-03
Santa Cruz long-toed salamander <i>Ambystoma macrodactylum croceum</i>	SE	6-27-71	FE	3-11-67

³⁵ The NMFS completed a comprehensive status review in 2005 reaffirming the status.

³⁶ Rivers and streams south of the Klamath River to the Russian River.

³⁷ The NMFS completed a comprehensive status review in 2005 reaffirming the status.

³⁸ The State listing is for "Spring-run chinook salmon (*Oncorhynchus tshawytscha*) of the Sacramento River drainage." The Federal listing is for Central Valley spring-run Chinook ESU and includes populations of spring-run Chinook salmon in the Sacramento River and its tributaries including the Feather River.

³⁹ The NMFS completed a comprehensive status review in 2005 reaffirming the status.

⁴⁰ See Federal Register 76(12):3071, 19 Jan 2011, for a summary of listing, proposed delisting, and down-list petition.

⁴¹ The State listing refers to the entire range of the species.

⁴² Adopted 20 May 2010. The Office of Administrative Law approved the listing on 21 Aug 2010 and the effective date of regulations was 19 Aug 2010.

⁴³ In 2004 the California tiger salamander was listed as Threatened statewide. The Santa Barbara County and Sonoma County Distinct Vertebrate Population Segments (DPS), formerly listed as Endangered, were reclassified to Threatened. On 19 Aug 2005 U.S. District court vacated the down-listing of the Sonoma and Santa Barbara populations from Endangered to Threatened. Therefore, the Sonoma & Santa Barbara populations are once again listed as Endangered.

	State Listing		Federal Listing	
Siskiyou Mountains salamander ⁴⁴ <i>Plethodon stormi</i>	ST ⁴⁵	6-27-71		
Scott Bar salamander <i>Plethodon asupak</i>	ST ⁴⁶	6-27-71		
Tehachapi slender salamander <i>Batrachoseps stebbinsi</i>	ST	6-27-71		
Kern Canyon slender salamander <i>Batrachoseps simatus</i>	ST	6-27-71		
Desert slender salamander <i>Batrachoseps aridus</i> ⁴⁷	SE	6-27-71	FE	6-04-73
Shasta salamander <i>Hydromantes shastae</i>	ST	6-27-71		
Limestone salamander <i>Hydromantes brunus</i>	ST	6-27-71		
Black toad <i>Bufo exsul</i> ⁴⁸	ST	6-27-71		
Arroyo toad <i>Anaxyrus californicus</i> ⁴⁹			FE	1-17-95
Yosemite toad <i>Anaxyrus canorus</i>			FPT	4-25-13
California red-legged frog <i>Rana aurora draytonii</i> ⁵⁰			FT	5-20-96
Oregon spotted frog <i>Rana pretiosa</i>			FPT	8-29-13
Southern mountain yellow-legged frog ⁵¹ <i>Rana muscosa</i>	SE	4-1-13	(FE) (FPE)	
Mountain yellow-legged frog - southern California DPS ⁵² <i>Rana muscosa</i>	(SE)		FE	8-01-02
Mountain yellow-legged frog - northern California DPS ⁵³ <i>Rana muscosa</i>	(SE)		FPE	4-25-13

⁴⁴ The common name is spelled incorrectly in Title 14 of the CCR as “Siskiyou mountain salamander.”

⁴⁵ Was a State Candidate for Delisting on 30 Sep 2005. No action was taken by the FGC after the CDFW presented a Department report on 3 Nov 2006; SMS was tabled at the 3 May 2007 FGC meeting, and there was nothing to report regarding the Department’s environmental documents at the 11 Oct 2007 meeting. Therefore, with respect to Fish & Game Code 2075, it is assumed that this is no longer a candidate for delisting.

⁴⁶ As recognized by the FGC, the Scott Bar salamander is currently protected under the CESA as a sub-population of the Siskiyou Mountains salamander (*Plethodon stormi*) (Calif. Regulatory Notice Register, No. 21-Z, p. 916, 25 May 2007).

⁴⁷ Current taxonomy: *Batrachoseps major aridus*.

⁴⁸ Current taxonomy: *Anaxyrus exsul*.

⁴⁹ At the time of listing, arroyo toad was known as *Bufo microscaphus californicus*, a subspecies of southwestern toad. In 2001 it was determined to be its own species, *Bufo californicus*. Since then, many species in the genus *Bufo* were changed to the genus *Anaxyrus*, and now arroyo toad is known as *Anaxyrus californicus*.

⁵⁰ Current taxonomy: *Rana draytonii*.

⁵¹ Though the scientific name *Rana muscosa* is not disputed, the State uses this common name, whereas the USFWS listing refers to two distinct population segments. This species is also known by the common name Sierra Madre yellow-legged frog (Vredenburg et al. 2007).

⁵² San Gabriel, San Jacinto, and San Bernardino Mountains only.

⁵³ North of the Tehachapi Mountains from the Monarch Divide to portions of the Kern River drainage.

	State Listing		Federal Listing	
Sierra Nevada yellow-legged frog <i>Rana sierrae</i>	ST	4-1-13	FPE	4-25-13
<u>REPTILES</u>				
Desert tortoise <i>Gopherus agassizii</i>	ST	8-03-89	FT	4-02-90
Green sea turtle ⁵⁴ <i>Chelonia mydas</i>			<u>FT</u> FE	7-28-78 10-13-70
Loggerhead sea turtle - North Pacific DPS ⁵⁵ <i>Caretta caretta</i>			<u>FE</u> FT	10-24-11 7-28-78
Olive (=Pacific) ridley sea turtle <i>Lepidochelys olivacea</i>			FT	7-28-78
Leatherback sea turtle <i>Dermochelys coriacea</i>			FE	6-02-70
Barefoot banded gecko ⁵⁶ <i>Coleonyx switaki</i>	ST	10-02-80		
Coachella Valley fringe-toed lizard <i>Uma inornata</i>	SE	10-02-80	FT	9-25-80
Blunt-nosed leopard lizard <i>Gambelia silus</i> ⁵⁷	SE	6-27-71	FE	3-11-67
Island night lizard <i>Xantusia riversiana</i>			FPD <u>FT</u>	2-4-13 8-11-77
Southern rubber boa <i>Charina bottae umbratica</i> ⁵⁸	ST	6-27-71		
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	ST	6-27-71	FT	12-05-97
San Francisco garter snake <i>Thamnophis sirtalis tetrataenia</i>	SE	6-27-71	FE	3-11-67
Giant garter snake <i>Thamnophis couchi gigas</i> ⁵⁹	ST	6-27-71	FT	10-20-93
<u>BIRDS</u>				
Short-tailed albatross <i>Phoebastria albatrus</i>			FE FE	8-30-00 ⁶⁰ 6-2-1970

⁵⁴ Current nomenclature: green turtle.

⁵⁵ The 1978 listing was for the worldwide range of the species. The 24 Oct 2011 final rule is for the North Pacific DPS (north of the equator & south of 60 degrees north latitude).

⁵⁶ Current nomenclature: Barefoot gecko.

⁵⁷ Current taxonomy: *Gambelia sila*. Originally listed under the ESA as *Crotaphytus wislizenii silus*.

⁵⁸ Current taxonomy: *Charina umbratica*.

⁵⁹ Current taxonomy and Federal listing: *Thamnophis gigas*.

⁶⁰ Listed as Endangered in one of the original species list, but “due to an inadvertent oversight” when the 1973 ESA repealed the 1969 Act, short-tailed albatross was effectively delisted. Proposed listing to fix this error in 1980, with final rule in 2000.

	State Listing		Federal Listing	
California brown pelican ⁶¹ (Recovered) <i>Pelecanus occidentalis californicus</i>	Delisted SE	6-03-09 6-27-71	Delisted FE	12-17-09 2-20-08 10-13-70
Aleutian Canada goose (Recovered) <i>Branta canadensis leucopareia</i> ⁶²			Delisted FT FE	3-20-01 12-12-90 3-11-67
California condor <i>Gymnogyps californianus</i>	SE	6-27-71	FE	3-11-67
Bald eagle <i>Haliaeetus leucocephalus</i>	SE (rev) SE	10-02-80 6-27-71	Delisted ⁶³ FT FE (rev) FE	8-08-07 7-06-99 8-11-95 2-14-78 3-11-67
Swainson's hawk <i>Buteo swainsoni</i>	ST	4-17-83		
American peregrine falcon (Recovered) <i>Falco peregrinus anatum</i>	Delisted SE	11-04-09 6-27-71	Delisted FE	8-25-99 6-02-70
Arctic peregrine falcon (Recovered) <i>Falco peregrinus tundrius</i>			Delisted FT FE	10-05-94 3-20-84 6-02-70
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST	6-27-71		
California clapper rail <i>Rallus longirostris obsoletus</i>	SE	6-27-71	FE	10-13-70
Light-footed clapper rail <i>Rallus longirostris levipes</i>	SE	6-27-71	FE	10-13-70
Yuma clapper rail <i>Rallus longirostris yumanensis</i>	ST SE	2-22-78 6-27-71	FE	3-11-67
Greater sandhill crane <i>Grus canadensis tabida</i>	ST	4-17-83		
Western snowy plover <i>Charadrius alexandrinus nivosus</i> ⁶⁴			FT ⁶⁵	4-05-93
California least tern <i>Sterna antillarum browni</i> ⁶⁶	SE	6-27-71	FE	10-13-70
Marbled murrelet <i>Brachyramphus marmoratus</i>	SE	3-12-92	FT	9-30-92

⁶¹ Federal nomenclature: Brown pelican (*Pelecanus occidentalis*).

⁶² Current taxonomy: Cackling goose (*Branta hutchinsii leucopareia*).

⁶³ The Post-delisting Monitoring Plan will monitor the status of the bald eagle over a 20 year period with sampling events held once every 5 years.

⁶⁴ Current taxonomy: *Charadrius nivosus nivosus* (AOU 2011).

⁶⁵ Federal status applies only to the Pacific coastal population.

⁶⁶ Current taxonomy: *Sternula antillarum browni*.

	State Listing		Federal Listing	
Xantus's murrelet ⁶⁷ <i>Synthliboramphus hypoleucus</i>	ST ⁶⁸	12-22-04		
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	<u>SE</u> ST	3-26-88 6-27-71		
Elf owl <i>Micrathene whitneyi</i>	SE	10-02-80		
Northern spotted owl <i>Strix occidentalis caurina</i>	SC ⁶⁹		FT	6-22-90
Great gray owl <i>Strix nebulosa</i>	SE	10-02-80		
Gila woodpecker <i>Melanerpes uropygialis</i>	SE	3-17-88		
Black-backed woodpecker <i>Picoides arcticus</i>	SC	12-27-11		
Gilded northern flicker ⁷⁰ <i>Colaptes auratus chrysoides</i>	SE	3-17-88		
Willow flycatcher <i>Empidonax traillii</i>	SE ⁷¹	1-02-91		
Southwestern willow flycatcher <i>Empidonax traillii eximius</i>	(SE)		FE	3-29-95
Bank swallow <i>Riparia riparia</i>	ST	6-11-89		
Coastal California gnatcatcher <i>Polioptila californica californica</i>			FT	3-30-93
San Clemente loggerhead shrike <i>Lanius ludovicianus mearnsi</i>			FE	8-11-77
Arizona Bell's vireo <i>Vireo bellii arizonae</i>	SE	3-17-88		
Least Bell's vireo <i>Vireo bellii pusillus</i>	SE	10-02-80	FE	5-02-86
Inyo California towhee <i>Pipilo crissalis eremophilus</i> ⁷²	SE	10-02-80	FT	8-03-87
San Clemente sage sparrow <i>Amphispiza belli clementeae</i>			FT	8-11-77

⁶⁷ According to the AOU (2012), this protected species that breeds on islands in southern California is now known as the Scripps's Murrelet (*Synthliboramphus scrippsi*).

⁶⁸ The FGC determined that Xantus's murrelet should be listed as a Threatened species 24 Feb 2004. The decision was reviewed by the OAL and the listing became effective on 22 Dec 2004.

⁶⁹ The FGC passed the motion to designate the northern spotted owl as a Candidate for Threatened or Endangered species status at their meeting on 7 Aug 2013; a formal Notice of Finding has not yet been posted.

⁷⁰ Current taxonomy: Gilded flicker (*Colaptes chrysoides*).

⁷¹ State listing includes all subspecies.

⁷² Current taxonomy: *Melospiza crissalis eremophilus*.

	State Listing		Federal Listing	
Belding's savannah sparrow <i>Passerculus sandwichensis beldingi</i>	SE	1-10-74		
Santa Barbara song sparrow (Extinct) <i>Melospiza melodia graminea</i>			Delisted FE	10-12-83 6-04-73
<u>MAMMALS</u>				
Point Arena mountain beaver <i>Aplodontia rufa nigra</i>			FE	12-12-91
San Joaquin antelope squirrel ⁷³ <i>Ammospermophilus nelsoni</i>	ST	10-02-80		
Mohave ground squirrel <i>Spermophilus mohavensis</i> ⁷⁴	ST	6-27-71		
Morro Bay kangaroo rat <i>Dipodomys heermanni morroensis</i>	SE	6-27-71	FE	10-13-70
Giant kangaroo rat <i>Dipodomys ingens</i>	SE	10-02-80	FE	1-05-87
San Bernardino kangaroo rat ⁷⁵ <i>Dipodomys merriami parvus</i>			FE	9-24-98
Tipton kangaroo rat <i>Dipodomys nitratooides nitratooides</i>	SE	6-11-89	FE	7-08-88
Fresno kangaroo rat <i>Dipodomys nitratooides exilis</i>	SE ST	10-02-80 6-27-71	FE	3-01-85
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	ST	6-27-71	FE	9-30-88
Pacific pocket mouse <i>Perognathus longimembris pacificus</i>			FE	9-26-94
Amargosa vole <i>Microtus californicus scirpensis</i>	SE	10-02-80	FE	11-15-84
Riparian woodrat <i>Neotoma fuscipes riparia</i>			FE	3-24-00
Salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	SE	6-27-71	FE	10-13-70
American pika <i>Ochotona princeps</i>	SC	10-26-11		
Riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	SE	5-29-94	FE	3-24-00
Buena Vista Lake ornate shrew <i>Sorex ornatus relictus</i>			FE	4-05-02

⁷³ Current taxonomy: Nelson's antelope squirrel.⁷⁴ Current taxonomy: *Xerospermophilus mohavensis*.⁷⁵ Federal nomenclature: San Bernardino Merriam's kangaroo rat.

	State Listing		Federal Listing	
Lesser long-nosed bat <i>Leptonycteris yerbabuenae</i>			FE	10-31-88
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SC ⁷⁶			
Gray wolf <i>Canis lupus</i>	SC	10-18-12	FPD FE	6-13-13 4-10-78
Island fox <i>Urocyon littoralis</i>	ST ⁷⁷	6-27-71	(FE)	
San Miguel Island Fox <i>Urocyon littoralis littoralis</i>	(ST)		FE	4-05-04
Santa Catalina Island Fox <i>Urocyon littoralis catalinae</i>	(ST)		FE	4-05-04
Santa Cruz Island Fox <i>Urocyon littoralis santacruzae</i>	(ST)		FE	4-05-04
Santa Rosa Island Fox <i>Urocyon littoralis santarosae</i>	(ST)		FE	4-05-04
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	ST	6-27-71	FE	3-11-67
Sierra Nevada red fox <i>Vulpes vulpes necator</i>	ST	10-02-80		
Guadalupe fur seal <i>Arctocephalus townsendi</i>	ST	6-27-71	FT FE	1-15-86 3-11-67
Steller sea lion - Eastern DPS <i>Eumetopias jubatus</i>			FPD FT FT	4-18-12 6-4-97 ⁷⁸ 4-05-90
Southern sea otter <i>Enhydra lutris nereis</i>			FT	1-14-77
Wolverine <i>Gulo gulo</i>	ST	6-27-71	FPT ⁷⁹	2-4-13
Pacific fisher ⁸⁰ <i>Martes pennanti</i>	SC ⁸¹	3-11-13 4-14-09		
California (=Sierra Nevada) bighorn sheep <i>Ovis canadensis californiana</i> ⁸²	SE ST	8-27-99 6-27-71	FE	1-03-00

⁷⁶ The FGC passed the motion to designate the Townsend's big-eared bat as a candidate for Threatened or Endangered species status at their meeting on 26 Jun 2013; a formal Notice of Finding has not yet been posted.

⁷⁷ State listing includes all 6 subspecies on all 6 islands. Federal listing is for only 4 subspecies on 4 islands.

⁷⁸ The NMFS reclassified Steller sea lion as two distinct population segments: western DPS west of 144 degrees longitude (Endangered), and eastern DPS east of 144 degrees longitude (Threatened).

⁷⁹ Federal proposed listing is for the distinct population segment of the North American wolverine (*Gulo gulo luscus*) occurring in the contiguous U.S.

⁸⁰ The FGC during their review has recognized the common name Pacific fisher, whereas the USFWS recognizes the common name fisher, and candidacy refers to the West Coast DPS in California, Oregon, and Washington.

⁸¹ The FGC Notice of Findings stated that the Pacific fisher was a candidate for listing as either an Endangered or Threatened species. At the 23 Jun 2010 meeting the FGC determined that the listing was not warranted. An 11 Mar 2013 Notice of Findings stated that pursuant to court order, the FGC set aside its 15 Sep 2010 findings rejecting the petition to list, and the Pacific fisher is a candidate species for the purposes of CESA.

⁸² Current & Federal taxonomy: Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*)

	State Listing		Federal Listing	
Peninsular bighorn sheep DPS ⁸³ <i>Ovis canadensis cremnobates</i>	ST	6-27-71	FE	3-18-98
North Pacific right whale <i>Eubalaena japonica</i> ⁸⁴			FE ⁸⁵ FE	4-7-08 6-02-70
Sei whale <i>Balaenoptera borealis</i>			FE	6-02-70
Blue whale <i>Balaenoptera musculus</i>			FE	6-02-70
Fin whale <i>Balaenoptera physalus</i>			FE	6-02-70
Humpback whale ⁸⁶ <i>Megaptera novaeangliae</i>			FE	6-02-70
Gray whale (Recovered) <i>Eschrichtius robustus</i>			Delisted FE	6-15-94 6-02-70
Killer whale (Southern resident DPS) <i>Orcinus orca</i>			FE ⁸⁷ FE	4-04-07 2-16-06 12-22-04
Sperm whale <i>Physeter macrocephalus</i> ⁸⁸			FE	6-02-70

⁸³ Current taxonomy: the subspecies *O.c. cremnobates* has been synonymized with *O.c. nelsoni*. The desert bighorn sheep in the Peninsular Ranges, the Peninsular bighorn sheep, is now considered to be a Distinct Population Segment (DPS) of the subspecies.

⁸⁴ The scientific name was clarified in the Federal Register Vol. 68, No. 69 April 10, 2003.

⁸⁵ The NMFS completed a status review of right whales in the N. Pacific and N. Atlantic Oceans and determined the previously Endangered northern right whale (*Eubalaena* spp.) as two separate Endangered species: North Pacific right whale (*E. japonica*) and North Atlantic right whale (*E. glacialis*).

⁸⁶ Also known as Hump-backed whale.

⁸⁷ The killer whale was listed as Endangered by the NMFS on Feb 16, 2006 and by the USFWS on Apr 4, 2007.

⁸⁸ Current taxonomy: *Physeter catodon* with *P. macrocephalus* as a synonym.

ABBREVIATIONS

AOU: American Ornithologists' Union

CCR: California Code of Regulations

CDFW: California Department of Fish and Wildlife (previously known as Department of Fish and Game (DFG))

CESA: California Endangered Species Act

DPS: Distinct population segment

ESA: Endangered Species Act (Federal)

ESU: Evolutionarily significant unit

FGC: California Fish and Game Commission

NMFS: National Marine Fisheries Service

NOAA: National Oceanic and Atmospheric Administration

USFWS: United States Fish and Wildlife Service

ADDITIONAL RESOURCES

The California Fish and Game Commission publishes notices relating to changes to Title 14 of the California Code of Regulations: <http://www.fgc.ca.gov/>

Title 14 of the California Code of Regulations can be accessed through The Office of Administrative Law: <http://www.oal.ca.gov/>

The U.S. Fish and Wildlife Service is responsible for protecting Endangered and Threatened species, and conserving candidate species and at-risk species so that ESA listing is not necessary: <http://www.fws.gov/Endangered/>

NOAA's National Marine Fisheries Service, Office of Protected Resources is responsible for protecting marine mammals and Endangered and Threatened marine life: <http://www.nmfs.noaa.gov/pr/>

State of California
The Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Biogeographic Data Branch
California Natural Diversity Database

STATE AND FEDERALLY LISTED
ENDANGERED, THREATENED, AND RARE PLANTS OF CALIFORNIA

July 2013

Designations and Subtotals for each Designation:

Designations:	Subtotals:
SE State-listed endangered	134
ST State-listed threatened	22
SR State-listed rare	64
SC State candidate for listing	0
FE Federally listed endangered	139
FT Federally listed threatened	47
FPE Federally proposed endangered	0
FPT Federally proposed threatened	0
Both State and Federally listed	125

State listing is pursuant to §1904 (Native Plant Protection Act of 1977) and §2074.2 and §2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code, relating to listing of Endangered, Threatened and Rare species of plants and animals. Federal listing is pursuant with the Federal Endangered Species Act of 1973, as amended. For information regarding plant conservation, contact the Habitat Conservation Planning Branch, 1416 Ninth Street, Sacramento, CA 95814, phone (916) 653-9767, or the nearest Department of Fish and Wildlife office. For information on this list, contact CNDDDB's Information Services at (916) 324-3812. Scientific and common names for State-listed plants are listed in Title 14, §670.2. Scientific or common names in parentheses are the most scientifically accepted nomenclature but have yet to be officially adopted into the California Code of Regulations, Title 14, Division 1, §670.2.

State Designated Plants

Classification

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Acanthomintha duttonii</i> San Mateo thorn-mint	SE	Jul 1979	FE	Sep 18,1985
<i>Acanthomintha ilicifolia</i> San Diego thorn-mint	SE	Jan 1982	FT	Oct 13,1998
<i>Agrostis blasdalei</i> var. <i>marinensis</i> (= <i>Agrostis blasdalei</i>) Marin bent grass		Delisted April 2008.		
<i>Allium munzii</i> Munz's onion	ST	Jan 1990	FE	Oct 13,1998
<i>Allium yosemitense</i> Yosemite onion	SR	Jul 1982		

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Alopecurus aequalis</i> var. <i>sonomensis</i> Sonoma alopecurus			FE	Oct 22,1997
<i>Ambrosia pumila</i> San Diego ambrosia			FE	July 2, 2002
<i>Amsinckia grandiflora</i> large-flowered fiddleneck	SE	Apr 1982	FE	May 08,1985
<i>Arabis hoffmannii</i> Hoffmann's rock cress			FE	Jul 31,1997
<i>Arabis mcdonaldiana</i> McDonald's rock cress	SE	Jul 1979	FE	Oct 29,1978
<i>Arctostaphylos bakeri</i> (=A. b. ssp. <i>bakeri</i> and A. b. ssp. <i>sublaevis</i>) Baker's manzanita	SR	Sep 1979		
<i>Arctostaphylos confertiflora</i> Santa Rosa Island manzanita			FE	Jul 31,1997
<i>Arctostaphylos densiflora</i> Vine Hill manzanita	SE	Aug 1981		
<i>Arctostaphylos edmundsii</i> var. <i>parvifolia</i> Hanging Gardens manzanita		Delisted April 2008		
<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i> Del Mar manzanita			FE	Oct 07,1996
<i>Arctostaphylos hookeri</i> ssp. <i>hearstiorum</i> Hearst's manzanita	SE	Sep 1979		
<i>Arctostaphylos montana</i> ssp. <i>ravenii</i> Presidio manzanita	SE	Nov 1978	FE	Oct 26,1979
<i>Arctostaphylos imbricata</i> San Bruno Mountain manzanita	SE	Sep 1979		
<i>Arctostaphylos morroensis</i> Morro manzanita			FT	Dec 15,1994
<i>Arctostaphylos myrtifolia</i> Ione manzanita			FT	May 26,1999
<i>Arctostaphylos pacifica</i> Pacific manzanita	SE	Sep 1979		
<i>Arctostaphylos pallida</i> pallid manzanita	SE	Nov 1979	FT	Apr 22,1998
<i>Arenaria paludicola</i> marsh sandwort	SE	Feb 1990	FE	Aug 03,1993
<i>Astragalus agnicidus</i> Humboldt milk-vetch	SE	Apr 1982		
<i>Astragalus albens</i> Cushenbury milk-vetch			FE	Aug 24,1994
<i>Astragalus brauntonii</i> Braunton's milk-vetch			FE	Jan 29,1997
<i>Astragalus claranus</i> Clara Hunt's milk-vetch	ST	Jan 1990	FE	Oct 22,1997
			FE	Oct 06,1998

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Astragalus jaegerianus</i> Lane Mountain milk-vetch				
<i>Astragalus johannis-howellii</i> Long Valley milk-vetch	SR	Jul 1982		
<i>Astragalus lentiginosus</i> var. <i>cochellae</i> Coachella Valley milk-vetch			FE	Oct 06,1998
<i>Astragalus lentiginosus</i> var. <i>piscinensis</i> Fish Slough milk-vetch			FT	Oct 06,1998
<i>Astragalus lentiginosus</i> var. <i>sesquimetralis</i> Sodaville milk-vetch	SE	Sep 1979		
<i>Astragalus magdalenae</i> var. <i>peirsonii</i> Peirson's milk-vetch	SE	Nov 1979	FT	Oct 06,1998
<i>Astragalus monoensis</i> Mono milk-vetch	SR	Jul 1982		
<i>Astragalus pycnostachyus</i> var. <i>lanosissimus</i> Ventura Marsh milk-vetch	SE	Apr 2000	FE	May 21,2001
<i>Astragalus tener</i> var. <i>titi</i> coastal dunes milk-vetch	SE	Feb 1982	FE	Aug 12,1998
<i>Astragalus traskiae</i> Trask's milk-vetch	SR	Nov 1979		
<i>Astragalus tricarinatus</i> triple-ribbed milk-vetch			FE	Oct 06,1998
<i>Atriplex coronata</i> var. <i>notatior</i> San Jacinto Valley crownscale			FE	Oct 13,1998
<i>Atriplex tularensis</i> Bakersfield smallscale	SE	Jan 1987		
<i>Baccharis vanessae</i> Encinitas baccharis	SE	Jan 1987	FT	Oct 07,1996
<i>Bensoniella oregona</i> bensoniella	SR	Jul 1982		
<i>Berberis nevinii</i> Nevin's barberry	SE	Jan 1987	FE	Oct 13,1998
<i>Berberis pinnata</i> ssp. <i>insularis</i> island barberry	SE	Nov 1979	FE	Jul 31,1997
<i>Blennosperma bakeri</i> Sonoma sunshine	SE	Feb 1992	FE	Dec 02,1991
<i>Blennosperma nanum</i> var. <i>robustum</i> Point Reyes blennosperma	SR	Nov 1978		
<i>Bloomeria humilis</i> dwarf goldenstar	SR	Nov 1978		
<i>Brodiaea coronaria</i> ssp. <i>rosea</i> Indian Valley brodiaea	SE	Sep 1979		
<i>Brodiaea filifolia</i> thread-leaved brodiaea	SE	Jan 1982	FT	Oct 13,1998

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Brodiaea insignis</i> Kaweah brodiaea	SE	Nov 1979		
<i>Brodiaea pallida</i> Chinese Camp brodiaea	SE	Nov 1978	FT	Sep 14,1998
<i>Calamagrostis foliosa</i> leafy reed grass	SR	Nov 1979		
<i>Calochortus dunnii</i> Dunn's mariposa lily	SR	Nov 1979		
<i>Calochortus persistens</i> Siskiyou mariposa lily	SR	Jul 1982		
<i>Calochortus tiburonensis</i> Tiburon mariposa lily	ST	May 1987	FT	Feb 03,1995
<i>Calyptridium pulchellum</i> Mariposa pussypaws			FT	Sep 14,1998
<i>Calystegia stebbinsii</i> Stebbins's morning-glory	SE	Aug 1981	FE	Oct 18,1996
<i>Camissonia benitensis</i> San Benito evening-primrose			FT	Feb 12,1985
<i>Carex albida</i> 1 white sedge	SE	Nov 1979	FE	Oct 22,1997
<i>Carex tompkinsii</i> Tompkins's sedge	SR	Nov 1979		
<i>Carpenteria californica</i> tree-anemone	ST	Jan 1990		
<i>Castilleja affinis</i> ssp. <i>neglecta</i> Tiburon Indian paintbrush	ST	Jan 1990	FE	Feb 03, 1995
<i>Castilleja campestris</i> ssp. <i>succulenta</i> succulent owl's-clover	SE	Sep 1979	FT	Mar 26,1997
<i>Castilleja cinerea</i> ash-gray Indian paintbrush			FT	Sep 14,1998
<i>Castilleja gleasonii</i> Mt. Gleason Indian paintbrush	SR	Jul 1982		
<i>Castilleja grisea</i> San Clemente Island Indian paintbrush	SE	Apr 1982	FE	Sep 12,1977

1 *Carex albida* has been removed from the list of Special Status Plants but has not yet been officially delisted as of July 2013. *Carex albida* is now considered to be a synonym of *Carex lemmonii*, a common taxon.

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Castilleja mollis</i> soft-leaved Indian paintbrush			FE	Jul 31,1997
<i>Castilleja uliginosa</i> Pitkin Marsh Indian paintbrush	SE	Nov 1978		
<i>Caulanthus californicus</i> California jewel-flower	SE	Jan 1987	FE	Jul 19,1990
<i>Caulanthus stenocarpus</i> slender-pod jewel-flower		Delisted April 2008		
<i>Ceanothus ferrisiae</i> coyote ceanothus			FE	Feb 03,1995
<i>Ceanothus hearstiorum</i> Hearst's ceanothus	SR	Aug 1981		
<i>Ceanothus maritimus</i> maritime ceanothus	SR	Nov 1978		
<i>Ceanothus masonii</i> Mason's ceanothus	SR	Nov 1978		
<i>Ceanothus ophiochilus</i> Vail Lake ceanothus	SE	Jan 1994	FT	Oct 13,1998
<i>Ceanothus roderickii</i> Pine Hill ceanothus	SR	Jul 1982	FE	Oct 18,1996
<i>Cercocarpus traskiae</i> Catalina Island mountain-mahogany	SE	Apr 1982	FE	Aug 08,1997
<i>Chamaesyce hooveri</i> Hoover's spurge			FT	Mar 26,1997
<i>Chlorogalum purpureum</i> var. <i>purpureum</i> ² purple amole			FT	Mar 20,2000
<i>Chlorogalum purpureum</i> var. <i>reductum</i> ³ Camatta Canyon amole	SR	Nov 1978	FT	Mar 20,2000
<i>Chorizanthe howellii</i> Howell's spineflower	ST	Jan 1987	FE	Jun 22,1992
<i>Chorizanthe orcuttiana</i> Orcutt's spineflower	SE	Nov 1979	FE	Oct 07,1996

² The U.S. Fish & Wildlife Service listed the entire species, *Chlorogalum purpureum*.

³ The U.S. Fish & Wildlife Service listed the entire species, *Chlorogalum purpureum*.

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Chorizanthe parryi</i> var. <i>fernandina</i> San Fernando Valley spineflower	SE	Aug 2001		
<i>Chorizanthe pungens</i> var. <i>hartwegiana</i> Ben Lomond spineflower			FE	Feb 04,1994
<i>Chorizanthe pungens</i> var. <i>pungens</i> Monterey spineflower			FT	Feb 04,1994
<i>Chorizanthe robusta</i> var. <i>hartwegii</i> Scotts Valley spineflower			FE	Feb 04,1994
<i>Chorizanthe robusta</i> var. <i>robusta</i> robust spineflower			FE	Feb 04,1994
<i>Chorizanthe valida</i> Sonoma spineflower	SE	Jan 1990	FE	Jun 22,1992
<i>Cirsium ciliolatum</i> Ashland thistle	SE	Sep 1982		
<i>Cirsium fontinale</i> var. <i>fontinale</i> fountain thistle	SE	Jul 1979	FE	Feb 03,1995
<i>Cirsium fontinale</i> var. <i>obispoense</i> Chorro Creek bog thistle	SE	Jun 1993	FE	Dec 15,1994
<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i> Suisun thistle			FE	Nov 20,1997
<i>Cirsium rhotophilum</i> surf thistle	ST	Feb 1990		
<i>Cirsium scariosum</i> var. <i>loncholepis</i> La Graciosa thistle	ST	Feb 1990	FE	Mar 20,2000
<i>Clarkia franciscana</i> Presidio clarkia	SE	Nov 1978	FE	Feb 03,1995
<i>Clarkia imbricata</i> Vine Hill clarkia	SE	Nov 1978	FE	Oct 22,1997
<i>Clarkia lingulata</i> Merced clarkia	SE	Jan 1989		
<i>Clarkia speciosa</i> ssp. <i>immaculata</i> Pismo clarkia	SR	Nov 1978	FE	Dec 15,1994
<i>Clarkia springvillensis</i> Springville clarkia	SE	Sep 1979	FT	Sep 14,1998
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i> salt marsh bird's-beak	SE	Jul 1979	FE	Oct 29,1978
<i>Cordylanthus mollis</i> ssp. <i>mollis</i> soft bird's-beak	SR	Jul 1979	FE	Nov 20,1997
<i>Cordylanthus nidularius</i> Mt. Diablo bird's-beak	SR	Nov 1978		
<i>Cordylanthus palmatus</i> palmate-bracted bird's-beak	SE	May 1984	FE	Jul 01, 1986

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i> seaside bird's-beak	SE	Jan 1982		
<i>Cordylanthus tenuis</i> ssp. <i>capillaris</i> Pennell's bird's-beak	SR	Nov 1978	FE	Feb 03,1995
<i>Croton wigginsii</i> Wiggins' croton	SR	Jan 1982		
<i>Cryptantha roosiorum</i> bristlecone cryptantha	SR	Jul 1982		
<i>Cupressus abramsiana</i> Santa Cruz cypress	SE	Nov 1979	FE	Jan 08,1987
<i>Cupressus goveniana</i> ssp. <i>goveniana</i> Gowen cypress			FT	Aug 12,1998
<i>Dedeckera eurekensis</i> July gold	SR	Nov 1978		
<i>Deinandra arida</i> Red Rock tarplant	SR	Jul 1982		
<i>Deinandra conjugens</i> Otay tarplant	SE	Nov 1979	FT	Oct 13,1998
<i>Deinandra increscens</i> ssp. <i>villosa</i> Gaviota tarplant	SE	Jan 1990	FE	Mar 20,2000
<i>Deinandra minthornii</i> Santa Susana tarplant	SR	Nov 1978		
<i>Deinandra mohavensis</i> Mojave tarplant	SE	Aug 1981		
<i>Delphinium bakeri</i> Baker's larkspur	SE	April 2007	FE	Jan 26,2000
<i>Delphinium hesperium</i> ssp. <i>cuyamaca</i> Cuyamaca larkspur	SR	Jul 1982		
<i>Delphinium luteum</i> yellow larkspur	SR	Sep 1979	FE	Jan 26,2000
<i>Delphinium variegatum</i> ssp. <i>kinkiense</i> San Clemente Island larkspur	SE	Sep 1979	FE	Sep 12,1977
<i>Dichanthelium lanuginosum</i> var. <i>thermale</i> Geysers dichanthelium	SE	Sep 1978		
<i>Dieteria asteroides</i> var. <i>lagunensis</i> Mount Laguna aster	SR	Sep 1979		
<i>Dithyrea maritima</i> beach spectaclepod	ST	Feb 1990		
<i>Dodecahema leptoceras</i> slender-horned spineflower	SE	Jan 1982	FE	Sep 28,1987

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Downingia concolor</i> var. <i>brevior</i> Cuyamaca Lake downingia	SE	Feb 1982		
<i>Dudleya abramsii</i> ssp. <i>parva</i> Conejo dudleya			FT	Jan 29,1997
<i>Dudleya brevifolia</i> short-leaved dudleya	SE	Jan 1982		
<i>Dudleya cymosa</i> ssp. <i>agourensis</i> ⁴ Santa Monica Mtns. dudleya			FT	Jan 29, 1997
<i>Dudleya cymosa</i> ssp. <i>marcescens</i> marcescent dudleya	SR	Nov 1978	FT	Jan 29,1997
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i> Santa Monica Mountains dudleya			FT	Jan 29,1997
<i>Dudleya nesiotica</i> Santa Cruz Island dudleya	SR	Nov 1979	FT	Jul 31,1997
<i>Dudleya setchellii</i> Santa Clara Valley dudleya			FE	Feb 03,1995
<i>Dudleya stolonifera</i> Laguna Beach dudleya	ST	Jan 1987	FT	Oct 13,1998
<i>Dudleya traskiae</i> Santa Barbara Island dudleya	SE	Nov 1979	FE	May 27,1978
<i>Dudleya verityi</i> Verity's dudleya			FT	Jan 29,1997
<i>Enceliopsis nudicaulis</i> var. <i>corrugata</i> Ash Meadows daisy			FT	May 20,1985
<i>Eremalche kernensis</i> Kern mallow			FE	Jul 19,1990
<i>Eremogone ursina</i> Big Bear Valley sandwort			FT	Sep 14,1998
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i> Santa Ana River woollystar	SE	Jan 1987	FE	Sep 28,1987
<i>Eriastrum hooveri</i> Hoover's woolly-star			Delisted	Oct 7,2003
<i>Eriastrum tracyi</i> Tracy's eriastrum	SR	Jul 1982		
<i>Erigeron parishii</i> Parish's daisy			FT	Aug 24,1994

⁴ The U.S. Fish & Wildlife Service has listed the more encompassing *Dudleya cymosa* ssp. *ovatifolia* from which ssp. *agourensis* was split.

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Eriodictyon altissimum</i> Indian Knob mountainbalm	SE	Jul 1979	FE	Dec 15,1994
<i>Eriodictyon capitatum</i> Lompoc yerba santa	SR	Sep 1979	FE	Mar 20,2000
<i>Eriogonum alpinum</i> Trinity buckwheat	SE	Jul 1979		
<i>Eriogonum apricum</i> var. <i>apricum</i> ⁵ Ione buckwheat	SE	Aug 1981	FE	May 26,1999
<i>Eriogonum apricum</i> var. <i>prostratum</i> ⁶ Irish Hill buckwheat	SE	Jan 1987	FE	May 26,1999
<i>Eriogonum butterworthianum</i> Butterworth's buckwheat	SR	Nov 1979		
<i>Eriogonum crocatum</i> Conejo buckwheat	SR	Sep 1979		
<i>Eriogonum giganteum</i> var. <i>compactum</i> Santa Barbara Island buckwheat	SR	Nov 1979		
<i>Eriogonum grande</i> ssp. <i>timorum</i> (= <i>Eriogonum grande</i> var. <i>timorum</i>) San Nicolas Island buckwheat	SE	Nov 1979		
<i>Eriogonum kelloggii</i> Kellogg's buckwheat	SE	Apr 1982		
<i>Eriogonum kennedyi</i> var. <i>austromontanum</i> southern mountain buckwheat			FT	Sep 14,1978
<i>Eriogonum ovalifolium</i> var. <i>vineum</i> Cushenbury buckwheat			FE	Aug 24,1994
<i>Eriogonum thornei</i> (= <i>E. ericifolium</i> var. <i>thornei</i>) Thorne's buckwheat	SE	Nov 1979		
<i>Eriogonum twisselmannii</i> Twisselmann's buckwheat	SR	Jul 1982		
<i>Eriophyllum congdonii</i> Congdon's woolly sunflower	SR	Jul 1982		
<i>Eriophyllum latilobum</i> San Mateo woolly sunflower	SE	Jun 1992	FE	Feb 03,1995
<i>Eryngium aristulatum</i> var. <i>parishii</i> San Diego button-celery	SE	Jul 1979	FE	Aug 03,1993
<i>Eryngium constancei</i> Loch Lomond button-celery	SE	Jan 1987	FE	Jan 22,1987

⁵ The U.S. Fish & Wildlife Service has listed *Eriogonum apricum* as the species, which includes both rare varieties.

⁶ The U.S. Fish & Wildlife Service has listed *Eriogonum apricum* as the species, which includes both rare varieties.

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Eryngium racemosum</i> Delta button-celery	SE	Aug 1981		
<i>Erysimum capitatum</i> var. <i>angustatum</i> Contra Costa wallflower	SE	Nov 1978	FE	May 27,1978
<i>Erysimum menziesii</i> ⁷ Menzies' wallflower	SE	Sep 1984	FE	Jun 22,1992
<i>Erysimum teretifolium</i> Santa Cruz wallflower	SE	Aug 1981	FE	Feb 04,1994
<i>Fremontodendron decumbens</i> Pine Hill flannelbush	SR	Jul 1979	FE	Oct 18,1996
<i>Fremontodendron mexicanum</i> Mexican flannelbush	SR	Jul 1982	FE	Oct 13,1998
<i>Fritillaria gentneri</i> Gentner's fritillary			FE	Dec 10,1999
<i>Fritillaria roderickii</i> Roderick's fritillary	SE	Nov 1979		
<i>Fritillaria striata</i> striped adobe-lily	ST	Jan 1987		
<i>Galium angustifolium</i> ssp. <i>borregoense</i> Borrego bedstraw	SR	Sep 1979		
<i>Galium buxifolium</i> box bedstraw	SR	Nov 1979	FE	Jul 31,1997
<i>Galium californicum</i> ssp. <i>sierrae</i> El Dorado bedstraw	SR	Nov 1979	FE	Oct 18,1996
<i>Galium catalinense</i> ssp. <i>acrispum</i> San Clemente Island bedstraw	SE	Apr 1982		
<i>Gilia tenuiflora</i> ssp. <i>arenaria</i> sand gilia	ST	Jan 1987	FE	Jun 22,1992
<i>Gilia tenuiflora</i> ssp. <i>hoffmannii</i> Hoffmann's slender-flowered gilia			FE	Jul 31,1997
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	SE	Nov 1978		
<i>Grindelia fraxinipratensis</i> Ash Meadows gumplant			FT	May 20,1985
<i>Hazardia orcuttii</i> Orcutt's hazardia	ST	Aug 2002		
<i>Helianthemum greenii</i> island rush-rose			FT	Jul 31,1997

⁷ The U.S. Fish & Wildlife Service separately listed all as endangered, *E. menziesii* ssp. *eurekaense*, *E. menziesii* ssp. *menziesii*, and *E. menziesii* ssp. *yadonii*.

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Helianthus niveus</i> ssp. <i>tephrodes</i> Algodones Dunes sunflower	SE	Nov 1979		
<i>Hesperolinon congestum</i> Marin western flax	ST	Jun 1992	FT	Feb 03,1995
<i>Hesperolinon didymocarpum</i> Lake County western flax	SE	Aug 1981		
<i>Holmgrenanthe petrophila</i> (= <i>Maurandya petrophila</i>) rock lady	SR	Jul 1982		
<i>Holocarpha macradenia</i> Santa Cruz tarplant	SE	Sep 1979	FT	Mar 20,2000
<i>Howellia aquatilis</i> water howellia			FT	Jul 14,1994
<i>Ivesia callida</i> Tahquitz ivesia	SR	Jul 1982		
<i>Lasthenia burkei</i> Burke's goldfields	SE	Sep 1979	FE	Dec 02,1991
<i>Lasthenia conjugens</i> Contra Costa goldfields			FE	Jun 18,1997
<i>Layia carnosa</i> beach layia	SE	Jan 1990	FE	Jun 22,1992
<i>Lesquerella kingii</i> ssp. <i>bernardina</i> San Bernardino Mountains bladderpod			FE	Aug 24,1994
<i>Lessingia germanorum</i> San Francisco lessingia	SE	Jan 1990	FE	Jun 19,1997
<i>Lewisia congdonii</i> Congdon's lewisia	SR	Jul 1982		
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	SR	Nov 1979		
<i>Lilium occidentale</i> western lily	SE	Jan 1982	FE	Aug 17,1994
<i>Lilium pardalinum</i> ssp. <i>pitkinense</i> Pitkin Marsh lily	SE	Nov 1978	FE	Oct 22,1997
<i>Limnanthes bakeri</i> Baker's meadowfoam	SR	Nov 1978		
<i>Limnanthes douglasii</i> var. <i>sulphurea</i> Point Reyes meadowfoam	SE	Apr 1982		
<i>Limnanthes floccosa</i> ssp. <i>californica</i> Butte County meadowfoam	SE	Feb 1982	FE	Jun 08,1992
<i>Limnanthes gracilis</i> var. <i>parishii</i> Parish's meadowfoam	SE	Jul 1979		
<i>Limnanthes vinculans</i> Sebastopol meadowfoam	SE	Nov 1979	FE	Dec 02,1991

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Lithophragma maximum</i> San Clemente Island woodland star	SE	Feb 1982	FE	Aug 08,1997
<i>Lotus argophyllus</i> var. <i>adsurgens</i> San Clemente Island bird's-foot trefoil	SE	Nov 1979		
<i>Lotus argophyllus</i> var. <i>niveus</i> Santa Cruz Island bird's-foot trefoil	SE	Aug 1981		
<i>Lotus dendroideus</i> var. <i>traskiae</i> San Clemente Island lotus	SE	Apr 1982	FE	Sep 12,1977
<i>Lupinus citrinus</i> var. <i>deflexus</i> Mariposa lupine	ST	Jan 1990		
<i>Lupinus milo-bakeri</i> Milo Baker's lupine	ST	Jan 1987		
<i>Lupinus nipomensis</i> Nipomo Mesa lupine	SE	Jan 1987	FE	Mar 20,2000
<i>Lupinus padre-crowleyi</i> Father Crowley's lupine	SR	Aug 1981		
<i>Lupinus tidestromii</i> Tidestrom's lupine	SE	Jan 1987	FE	Jun 22,1992
<i>Machaeranthera lagunensis</i> (see <i>Dieteria asteroides</i> var. <i>lagunensis</i>)				
<i>Mahonia sonnei</i> (= <i>Berberis sonnei</i>) Truckee barberry		Delisted April 2008	Delisted	Oct 1,2003
<i>Malacothamnus clementinus</i> San Clemente Island bush mallow	SE	Feb 1982	FE	Sep 12,1977
<i>Malacothamnus fasciculatus</i> var. <i>nesioticus</i> Santa Cruz Island bush mallow	SE	Nov 1979	FE	Jul 31,1997
<i>Malacothrix indecora</i> Santa Cruz Island malacothrix			FE	Jul 31,1997
<i>Malacothrix squalida</i> island malacothrix			FE	Jul 31,1997
<i>Monardella linoides</i> ssp. <i>viminea</i> willowy monardella	SE	Nov 1979	FE	Oct 13,1998
<i>Monolopia congdonii</i> San Joaquin woollythreads			FE	Jul 19,1990
<i>Nasturtium gambellii</i> Gambel's water cress	ST	Feb 1990	FE	Aug 03,1993
<i>Navarretia fossalis</i> spreading navarretia			FT	Oct 13,1998

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Navarretia leucocephala</i> ssp. <i>pauciflora</i> few-flowered navarretia	ST	Jan 1990	FE	Jun 18,1997
<i>Navarretia leucocephala</i> ssp. <i>plieantha</i> many-flowered navarretia	SE	Nov 1979	FE	Jun 18,1997
<i>Nemacladus twisselmannii</i> Twisselmann's nemacladus	SR	Jul 1982		
<i>Neostapfia colusana</i> Colusa grass	SE	Nov 1979	FT	Mar 26,1997
<i>Nitrophila mohavensis</i> Amargosa nitrophila	SE	Nov 1979	FE	May 20,1985
<i>Nolina interrata</i> Dehesa nolina	SE	Nov 1979		
<i>Oenothera californica</i> ssp. <i>eurekaensis</i> Eureka Dunes evening-primrose	SR	Nov 1978	FE	May 27,1978
<i>Oenothera deltoides</i> ssp. <i>howellii</i> Antioch Dunes evening-primrose	SE	Nov 1978	FE	May 27,1978
<i>Opuntia basilaris</i> var. <i>treleasei</i> Bakersfield cactus	SE	Jan 1990	FE	Jul 19,1990
<i>Orcuttia californica</i> California Orcutt grass	SE	Sep 1979	FE	Aug 03,1993
<i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass	SE	Sep 1979	FT	Mar 26,1997
<i>Orcuttia pilosa</i> hairy Orcutt grass	SE	Sep 1979	FE	Mar 26,1997
<i>Orcuttia tenuis</i> slender Orcutt grass	SE	Sep 1979	FT	Mar 26,1997
<i>Orcuttia viscida</i> Sacramento Orcutt grass	SE	Jul 1979	FE	Mar 26,1997
<i>Ornithostaphylos oppositifolia</i> Baja California birdbush	SE	Apr 2001		
<i>Oxytheca parishii</i> var. <i>goodmaniana</i> Cushenbury oxytheca			FE	Aug 24,1994
<i>Packera ganderi</i> Gander's ragwort	SR	Jul 1982		
<i>Packera layneae</i> Layne's ragwort	SR	Nov 1979	FT	Oct 18,1996
<i>Pedicularis dudleyi</i> Dudley's lousewort	SR	Sep 1979		
<i>Pentachaeta bellidiflora</i> white-rayed pentachaeta	SE	Jun 1992	FE	Feb 03,1995
<i>Pentachaeta lyonii</i> Lyon's pentachaeta	SE	Jan 1990	FE	Jan 29,1997

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Phacelia insularis</i> ssp. <i>insularis</i> northern Channel Islands phacelia			FE	Jul 31,1997
<i>Phlox hirsuta</i> Yreka phlox	SE	Jan 1987	FE	Feb 3,2000
<i>Piperia yadonii</i> Yadon's rein orchid			FE	Aug 12,1998
<i>Plagiobothrys diffusus</i> San Francisco popcorn-flower	SE	Sep 1979		
<i>Plagiobothrys strictus</i> Calistoga popcorn-flower	ST	Jan 1990	FE	Oct 22,1997
<i>Pleuropogon hooverianus</i> North Coast semaphore grass	ST	Dec 2002		
<i>Poa atropurpurea</i> San Bernardino blue grass			FE	Sep 14,1998
<i>Poa napensis</i> Napa blue grass	SE	Jul 1979	FE	Oct 22,1997
<i>Pogogyne abramsii</i> San Diego mesa mint	SE	Jul 1979	FE	Oct 29,1978
<i>Pogogyne clareana</i> Santa Lucia mint	SE	Nov 1979		
<i>Pogogyne nudiuscula</i> Otay Mesa mint	SE	Jan 1987	FE	Aug 03,1993
<i>Polygonum hickmanii</i> Scott's Valley polygonum	SE	May 2005	FE	Apr 8,2003
<i>Potentilla hickmanii</i> Hickman's cinquefoil	SE	Sep 1979	FE	Aug 12,1998
<i>Pseudobahia bahiifolia</i> Hartweg's golden sunburst	SE	Aug 1981	FE	Feb 06,1997
<i>Pseudobahia peirsonii</i> San Joaquin adobe sunburst	SE	Jan 1987	FT	Feb 06,1997
<i>Rorippa subumbellata</i> Tahoe yellow cress	SE	Apr 1982		
<i>Rosa minutifolia</i> small-leaved rose	SE	Oct 1989		
<i>Sanicula maritima</i> adobe sanicle	SR	Aug 1981		
<i>Sanicula saxatilis</i> rock sanicle	SR	Jul 1982		
<i>Sedella leiocarpa</i> Lake County stonecrop	SE	Jan 1990	FE	Jun 18,1997
<i>Senecio ganderi</i> Gander's ragwort	SR	Jul 1982		
<i>Sibara filifolia</i> Santa Cruz Island rock cress			FE	Aug 08,1997
<i>Sidalcea covillei</i> Owens Valley checkerbloom	SE	Jul 1979		

State Designated Plants**Classification**

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Sidalcea hickmanii</i> ssp. <i>anomala</i> Cuesta Pass checkerbloom	SR	Nov 1979		
<i>Sidalcea hickmanii</i> ssp. <i>parishii</i> Parish's checkerbloom	SR	Nov 1979		
<i>Sidalcea keckii</i> Keck's checker-mallow			FE	Feb 16,2000
<i>Sidalcea oregana</i> ssp. <i>valida</i> Kenwood Marsh checkerbloom	SE	Jan 1982	FE	Oct 22,1997
<i>Sidalcea pedata</i> bird-foot checkerbloom	SE	Jan 1982	FE	Aug 31,1984
<i>Sidalcea stipularis</i> Scadden Flat checkerbloom	SE	Jan 1982		
<i>Silene campanulata</i> ssp. <i>campanulata</i> Red Mountain catchfly	SE	Apr 1982		
<i>Streptanthus albidus</i> ssp. <i>albidus</i> Metcalf Canyon jewel-flower			FE	Feb 03,1995
<i>Streptanthus niger</i> Tiburon jewel-flower	SE	Feb 1990	FE	Feb 03,1995
<i>Suaeda californica</i> California seablite			FE	Dec 15,1994
<i>Swallenia alexandrae</i> Eureka Valley dune grass	SR	Aug 1981	FE	May 27,1978
<i>Taraxacum californicum</i> California dandelion			FE	Sep 14,1998
<i>Thelypodium stenopetalum</i> slender-petaled thelypodium	SE	Feb 1982	FE	Aug 31,1984
<i>Thermopsis macrophylla</i> var. <i>angina</i> Santa Ynez false lupine	SR	Aug 1981		
<i>Thlaspi californicum</i> Kneeland Prairie penny-cress			FE	Feb 9,2000
<i>Thysanocarpus conchuliferus</i> Santa Cruz Island fringepod			FE	Jul 31,1997
<i>Trichostema austromontanum</i> ssp. <i>compactum</i> Hidden Lake bluecurls			FT	Sep 14,1998
<i>Trifolium amoenum</i> showy Indian clover			FE	Oct 22,1997
<i>Trifolium polyodon</i> Pacific Grove clover	SR	Sep 1979		
<i>Trifolium trichocalyx</i> Monterey clover	SE	Nov 1979	FE	Aug 12,1998
<i>Tuctoria greenei</i> Greene's tuctoria	SR	Sep 1979	FE	Mar 26,1997
<i>Tuctoria mucronata</i> Crampton's tuctoria	SE	Jul 1979	FE	Sep 29,1978
<i>Verbena californica</i> California vervain	ST	Aug 1994	FT	Sep 14,1998

State Designated Plants

Classification

	<u>State</u>	<u>List Date</u>	<u>Federal</u>	<u>List Date</u>
<i>Verbesina dissita</i> Big-leaved crownbeard	ST	Jan 1990	FT	Oct 07,1996

APPENDIX J
WATER QUALITY DATA

MONITORING PARAMETERS	Receiving Water WQC/WQO		NPDES Industrial Stormwater Multi-Sector Benchmark Values	SMARTS SIC 2875 (2011-2013)	Central Landfill (2012)	Yuba-Sutter (2013)		Cold Canyon (2010)	Hay Road (2009-2013)	Units
	WQC/WQO	Reference			SW-3	S1 (compost pile leachate)	S2 - LF-1 Drainage Ditch)	Compost Runoff Pad	COMP POND	
Field Parameters										
pH ¹	6.5 - 8.5	Basin Plan and USEPA 2nd MCL	6.0 - 9.0	5.1 - 8.9	7.03	6.77	7.7	8.4		
Dissolved Oxygen	7.0 mg/L	Basin Plan/COLD			5.16	9.92	7			
Specific Conductance ¹	700 µS/cm	Ag WQG	200 µS/cm	36 - 2740	2402	2540	1085			umhos/cm
Temperature	None	N/A			54.5 deg F	18.45 deg C	14.34 deg C			
Turbidity ¹	None	N/A	< 10-20% increase over background, depending on region		1147					
Monitoring Parameters										
General Parameters										
Ammonia as Nitrogen (non-ionized)	490 µg/L	USEPA National Recomm. WQ Criteria, 4-day avg, as N (i)	19,000 µg/L		0.059	22.8	4.78	2.4	.3 - 110	mg/L
Biochemical Oxygen Demand, 5-day (BOD ₅)	30/45 mg/L	UEPA TBEL (30/7 day)	30 mg/L		670	570	110	56		mg/L
Fecal Coliform	200 CFU/100 ml - 30-day/5-sample geo. Mean, and < 10% samples in 30 days > 400 CFU/100 ml	USEPA Ambient Water Quality Criteria for Bacteria	Usually determined by basin-specific TMDL							
Nitrite as Nitrogen	1.0 mg/L	DHS - 1st MCL	0.68 mg/L		0.023	0.94	0.47	ND	0.21 - 0.66	mg/L
Ortho-phosphate	100 µg/L	EPA Gold Book, 1986			12					
Phosphorus	0.14 µg/L	USEPA IRIS Reference Dose	2000 µg/L	0.05 - 20		32.5	12.9		6.4 - 150	mg/L
Total Dissolved Solids	500 mg/L	DHS - 2nd MCL		92	2600			4080	740 - 6900	mg/L
Fixed Dissolved Solids									460 - 5200	
Total Kjeldahl Nitrogen (TKN)	None	N/A			81	124	7.6	71	12 - 320	mg/L
Total Organic Carbon	2.5 mg/L	CDPH draft Groundwater Recharge Reuse Regulation	100 mg/L	13 - 102		734	566	460		mg/L
General Minerals										
Alkalinity, Bicarbonate	20 mg/L	USEPA recommended criteria for freshwater aquatic life protection (4-day ave)								
Calcium	None	N/A								
Chloride	250 mg/L	DHS - 2nd MCL							81 - 1600	mg/L
Magnesium	None	N/A								
Nitrate as Nitrogen	10 mg/L	DHS- 1st MCL	0.68 mg/L		ND	6.38	1.24	0.86	0	mg/L
Potassium	None	N/A								

MONITORING PARAMETERS	Receiving Water WQC/WQO		NPDES Industrial Stormwater Multi-Sector Benchmark Values	SMARTS SIC 2875 (2011-2013)	Central Landfill (2012) SW-3	Yuba-Sutter (2013)		Cold Canyon (2010) Compost Runoff Pad	Hay Road (2009-2013) COMP POND	Units
	WQC/WQO	Reference				S1 (compost pile leachate)	S2 - LF-1 Drainage Ditch)			
Sodium	20 mg/L	USEPA Drinking Water Advisory for persons on restricted sodium diet								
Sulfate as SO ₄	250 mg/L	DHS - 2nd MCL				68.7	110		0 - 320	mg/L
Dissolved Metals (all samples shall be field filtered prior to laboratory analysis)										
Aluminum	200 µg/L	DHS - 2nd MCL	750 µg/L			16.1	19.5			mg/L
Antimony	6 µg/L	DHS - 1st MCL								
Arsenic*	10 µg/L	DHS - 1st MCL						0.024		mg/L
Barium	1 mg/L	DHS- 1st MCL						0.043		mg/L
Beryllium	4 µg/L	DHS- 1st MCL								
Boron	1 mg/L	DPH drinking water notification level								
Cadmium*	5 µg/L	DHS- 1st MCL								
Chromium (III)*	50 µg/L	DHS - 1st MCL						0.019		mg/L
Copper*	1 mg/L	DHS - 2nd MCL & USEPA Nat. Rec. WQ Criteria	0.064 mg/L	0.0083 - 0.028		0.136	0.159	0.037		mg/L
Iron	300 µg/L	DHS-2nd MCL	1000 µg/L	0.22 - 114		20.1	24.4			mg/L
Lead*	15 µg/L	DHS - 1st MCL	82 µg/L	0.0014 - 0.07		0.044	0.072		0 - 0.150	mg/L
Manganese	50 µg/L	DHS - 2nd MCL								
Mercury*	2 µg/L	DHS - 1st MCL								
Molybdenum	35 µg/L	USEPA IRIS Reference Dose						0.033		mg/L
Nickel*	100 µg/L	DHS - 1st MCL						0.06		mg/L
Selenium*	50 µg/L	DHS - 1st MCL						0.021		mg/L
Thallium	2 µg/L	DHS - 1st MCL								
Vanadium	50 µg/L	DPH drinking water notification level						0.009		mg/L
Zinc*	2.1 mg/L	USEPA IRIS Reference Dose	0.117 mg/L	0.11 - 11		0.379	0.459			mg/L
Other										
Chemical Oxygen Demand			120 mg/L	327		1360	890	2400		mg/L
Nitrate + Nitrite				0.16 - 7.6	81			72	0 - 14	mg/L
Total Suspended Solids	30/45 mg/L	USEPA TBEL (30/7 day)	100 mg/L	15 - 2200		1980	1690	72		mg/L

Note: mg/L = milligrams/liter; µg/L = micrograms/liter; NTU = nephelometric turbidity units; µS/cm = microsiemens per centimeter; mmhos/cm = micromhos per centimeter; MPN/100 mL = Most Probable Number per 100 milliliters

APPENDIX K
TRAFFIC CALCULATIONS

25,000 cy facility wastewater transportation

Windrow Size

L	150 feet	
W1	7 feet	
W2	15 feet	
H	8 feet	
Volume	13,200 cubic feet each windrow	488.89
Area	2,250 square feet	

Facility Size	25,000 cubic yards on site at any given time
	675,000 cubic feet

How many windrows? (assuming processing, curing, and storage done in windrows)

Number of Windrows:	51.1
Area for windrows:	115,057 square feet

Size factor:	2 (factor used to compute operational area)
Total Facility Area:	230,114 square feet
Acres:	5.28 acre conversion

Precipitation and Runoff Estimate

San Rafael 35.2 Annual average rainfall (1981 to 2010) - highest in California (<http://www.currentresults.com/Weather/California/average-yearly-city-precipitation.php#b>)

Inches (intensity, i)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	7	7.1	4.6	1.9	0.9	0.1	0	0.1	0.2	1.5	4.3	7.6

Runoff (<http://www.brighthubengineering.com/hydraulics-civil-engineering/93173-runoff-coefficients-for-use-in-rational-method-calculations/>)

Q = CiA												
C - runoff coefficient (open)	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
C - runoff coefficient (material)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
i - rain intensity (feet/month)	0.58	0.59	0.38	0.16	0.08	0.01	-	0.01	0.02	0.13	0.36	0.63
A - watershed area (open)	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82
A - watershed area (material)	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82	115,056.82
Q - storm water runoff (cubic feet)	55,706.68	56,502.49	36,607.24	15,120.38	7,162.29	795.81	-	795.81	1,591.62	11,937.14	34,219.82	60,481.53
Conversion to Gallons	416,685.94	422,638.59	273,822.19	113,100.47	53,573.91	5,952.66	-	5,952.66	11,905.31	89,289.84	255,964.22	452,401.88

1 cubic foot = 7.48 gallons

1 truck = gallons capacity	20,000.00											
Number of trucks per month	20.83	21.13	13.69	5.66	2.68	0.30						

APPENDIX L
PERTINENT REGULATIONS

PERTINENT REGULATIONS

The following discussion provides an overview of some federal, state, and local regulations, and may be used as a reference for project-specific analysis. Additional requirements may apply to subsequent projects that receive federal funding or otherwise affect federal lands and federal decision-making.

AESTHETICS

California Department of Transportation – California Scenic Highways Program

California's Scenic Highway Program, run by Caltrans, was created by the Legislature in 1963. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. State laws governing the Scenic Highway Program are found in the Streets and Highways Code, sections 260 through 263. Responsibility for development of scenic highways, and establishment and application of specific planning and design standards and procedures falls to state and local agencies.

Local Jurisdictions

California counties and cities have general plan documents that provide guidance and policies related to land use. Some general plans may designate scenic vistas or corridors in addition to those recognized at the state level. Local zoning ordinances establish design guidelines such as minimum setbacks, maximum height requirements, maximum density, and/or landscaping requirements.

Some counties possess General Plans that provide guidance and policies regarding management and siting of existing and new facilities specific to composting. Such guidance includes buffer zones between composting operations and sensitive receptors such as residences, schools, and hospitals. Guidance can also include policies addressing light and glare issues from composting operations on surrounding sensitive receptors.

AGRICULTURE AND FORESTRY

Federal Farmland Protection Policy Act

The federal Farmland Protection Policy Act (FPPA) was enacted to minimize federal contributions to conversion of farmland to nonagricultural uses by ensuring that federal programs are administered in a manner compatible with state government, local government, and private programs designed to protect farmland. The FPPA established the Farmland Protection Program (FPP) and the Land Evaluation and Site Assessment (LESA) system.

The FPP is a voluntary program that provides funds to help purchase development rights to keep productive farmland in agricultural uses. The LESA system helps state and local officials make sound decisions about land use and accurately ranks land for suitability and inclusion in the FPP. LESA evaluates several factors, including soil potential for agriculture, location, market access, and adjacent land use. These factors are used to rank land parcels for inclusion in the FPP based on local resource evaluation and site considerations. The LESA system classifies

land based on ten soil and climatic characteristics. The California Department of Conservation (CDOC) augmented that program in 1980 by initiating a system of inventorying, mapping, and monitoring the acreage of farmland in California. The CDOC inventory system was designed to document how much agricultural land in California was being converted to nonagricultural land or transferred into Williamson Act contracts.

National Forest Management Act

National Forest Management Act (NFMA) requires United States Forest Service (USFS) to provide for a diversity of plant and animal communities as part of its multiple use mandates. NFMA regulations require that each forest prepare a plan that provides strategic direction for managing land and resources during the next 10 to 15 years. USFS must maintain viable populations of existing native and desired non-native species in the planning area. The Regional Forester designates sensitive and management indicator species as part of a proactive approach to ensuring biodiversity is maintained.

Healthy Forests Restoration Act

Healthy Forests Restoration Act (HFRA) contains a variety of provisions to speed up hazardous-fuel reduction and forest-restoration projects on specific types of federal land at risk of wildland fire and/or of insect and disease epidemics. The HFRA helps states, tribes, rural communities and landowners restore healthy forest and rangeland conditions on state, tribal, and private lands.

The California Land Conservation Act (Williamson Act)

The California Land Conservation Act, better known as the Williamson Act, was enacted by the California State Legislature in 1965 to encourage preservation of agricultural and open-space lands. The Williamson Act allows for property tax relief for landowners who contract with a city or county to keep their land in agricultural production or approved open-space uses for at least 10 years. Williamson Act contracts are renewed annually for 10 years unless a party to contract files for nonrenewal. The filing of a non-renewal application by a landowner ends automatic annual extension of a contract and starts a 9-year non-renewal and phase-out of the contract. During the phase-out period, the land remains restricted to agricultural and open-space uses. At the end of the 9-year non-renewal process, the contract expires and the owner's uses of the land are restricted only by applicable local zoning. The Williamson Act defines compatible use of contracted lands as any use determined by the county or city administering the agricultural preserve to be compatible with agricultural, recreational, or open space use of land within the preserve and subject to contract. (Gov. Code, § 51202(e).) However, uses deemed compatible by a county or city government must be consistent with principles of compatibility set forth in Government Code section 51238.1.

Farmland Mapping and Monitoring Program (FMMP)

In 1982, the CDOC created the FMMP to carry on the mapping activity from the National Resources Conservation Service (NRCS) on a continuing basis. The FMMP is a non-regulatory program that provides consistent and impartial analysis of agricultural land use and land use changes throughout California for use by decision-makers in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources. The

FMMP produces Important Farmland Maps, which are a hybrid of resource quality (soils) and land use information. The FMMP is the primary system by which the extent, distribution, and quality of farmland is evaluated and monitored. Farmland is designated in one of several categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance (if adopted by a county), Grazing Land, Urban and Built-up Land, Other Land, and Water. Maps of Important Farmland are prepared periodically (approximately every 2 years) by the FMMP for most of the state's agricultural regions, based on soil survey information and land inventory and monitoring criteria developed by the NRCS.

Z'berg-Nejedly Forest Practice Act

Z'Berg-Nejedly Forest Practices Act (FPA) ensures that logging on privately owned lands in California is done in a manner that will preserve and protect fish, wildlife, forests, and streams. This act established a nine member Board of Forestry whose mandate was control over forest practices and forest resources in California. The Board of Forestry is the policy arm of the California Department of Forestry (CALFIRE), which is the enforcement branch.

The Forest Practice Act requires that a Timber Harvest Plan (THP) be prepared by a Registered Professional Forester for timber harvest on virtually all non-federal land. THPs are submitted to CALFIRE for its review prior to approval. The THP process is the functional equivalent of an EIR under CEQA. The Forest Practice Act also established the requirement that all non-federal forests cut in the State of California be regenerated with at least three hundred stems per acre on high site lands, and one hundred fifty trees per acre on low site lands.

California Forest Practice Rules 2010

The State Board of Forestry has authority delegated by legislature to adopt forest practice and fire protection regulations on non-federal lands. These regulations carry out California legislature's mandates to protect and enhance the state's unique forest and wildland resources.

Local Jurisdictions - General Plans, Community and Specific Plans, and Zoning

The most comprehensive land use planning for a region is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. The general plan contains goals and policies concerning topics mandated by state law or which the jurisdiction has chosen to include such as: land use, conservation and open space, natural resources, parks and recreation, and agricultural elements. City and county general plans must be consistent with each other. County general plans must cover areas not included by city general plans (i.e., unincorporated areas). A city or county may also provide land use planning by developing community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan.

The city or county zoning code is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code presents standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction.

Public Ownership, Purchase of Development Rights, and Open-Space Acquisition

Local governments and special districts, either on their own or working with land trusts and conservancies, can acquire fee title to agricultural and open space lands or purchase development rights to preserve rural and agricultural areas, watersheds, or critical habitat, or to create public parks and recreational areas.

AIR QUALITY AND GREENHOUSE GASES

Federal Clean Air Act

The Clean Air Act of 1970 is the comprehensive federal law that regulates air emissions from stationary and mobile sources. In 1990, Congress dramatically revised and expanded the Clean Air Act, providing United States Environmental Protection Agency (USEPA) even broader authority to implement and enforce regulations reducing air pollutant emissions. Under the Clean Air Act, USEPA sets limits on certain air pollutants, including limits on how much can be in the air anywhere in the United States. The Clean Air Act also gives USEPA authority to limit emissions of air pollutants from sources like chemical plants, utilities, and steel mills. Individual states or tribes may have stronger air pollution laws, but they may not have weaker pollution limits than those set by USEPA.

To protect public health and welfare nationwide, the Clean Air Act authorized the USEPA to establish National Ambient Air Quality Standards (NAAQS) for certain common and widespread pollutants based on science at that time. USEPA has set air quality standards for six common “criteria pollutants”:

- 1) PM,
- 2) Ozone,
- 3) SO₂,
- 4) NO₂,
- 5) CO, and
- 6) Lead

States were then required to develop and enforce state implementation plans to achieve and maintain the standards. State plans must control emissions that drift across state lines and harm air quality in downwind states. USEPA must approve state, tribal, and local agency plans for reducing air pollution. If a plan does not meet the necessary requirements, USEPA can issue sanctions against the state and, if necessary, take over enforcing the Clean Air Act in that area. Current federal and state ambient air quality standards are provided in Appendix G.

Other key provisions of the Clean Air Act were designed to minimize pollution increases from growing numbers of motor vehicles, and from new or expanded industrial plants. The law called for new stationary sources (e.g., power plants and factories) to use the best available technology, and allows less stringent standards for existing sources. These requirements were implemented through an operating permit program. Operating permits include information on which pollutants are being released, how much may be released, and what kinds of steps the source's owner or operator is required to take to reduce the pollution. Permits must include plans to measure and report the air pollution emitted. States and tribes issue operating permits.

If those governments do not do a satisfactory job of carrying out the Clean Air Act permitting requirements, USEPA can take over issuing permits.

The Clean Air Act also contains specific provisions to address “hazardous” or “toxic” air pollutants that pose health risks; acid rain that damages aquatic life and ecosystems, acidifies forest soils, damages property, and degrades visibility; chemical emissions that deplete the stratospheric ozone layer; and regional haze that impairs visibility. In addition, Congress drafted the Clean Air Act with general authorities that can be used to address pollution problems that emerge over time, such as GHGs that cause climate change.

The Clean Air Act’s authority to regulate emissions that cause or contribute to air pollution that may endanger public health or welfare extends to air pollution from GHGs. In 2007, the Supreme Court decided that the Clean Air Act’s definition of air pollutant includes GHGs. Since then, the USEPA has determined that certain provisions of the Clean Air Act should be used to control large sources of emissions that contribute to climate change.

USEPA has issued GHG regulations for motor vehicles, including cars, trucks, and buses. Because GHGs are now regulated pollutants, large new and modified stationary sources of GHGs must comply with preconstruction permitting provisions of the Clean Air Act under the Prevention of Significant Deterioration (PSD) program, including requirement to apply the best available control technology (BACT) considering cost and other factors. USEPA has issued rules to limit this statutory requirement to large emitters (e.g., power plants, cement manufacturers, refineries, etc.).

A related provision provides for regulation of existing sources, in specific circumstances, for pollutants such as GHGs that are not regulated through requirements for national air quality standards or hazardous air pollutant provisions. USEPA is responsible for regulations that establish a procedure for each state, in those circumstances, to submit a plan containing emissions performance standards for existing sources of such emissions. USEPA is authorized to prescribe a plan for a state if the state fails to submit or enforce a satisfactory plan.

Congress directed USEPA to establish a mandatory reporting system for GHG emissions in the fiscal year 2008 Consolidated Appropriations Act (613 pp, 1.5M) (Pub.L.110-161 (Dec. 26, 2007) 121 Stat. 1844–2456). USEPA’s Greenhouse Gas Reporting Rule requires reporting for direct GHG emitters, fossil fuel suppliers, industrial gas suppliers, and facilities that inject CO₂ underground for sequestration. Municipal solid waste landfills that generate CH₄ in amounts equivalent to 25,000 metric tons or more CO₂e per year are subject to reporting. Composting was not listed as an affected source category.

California Clean Air Act

ARB is responsible for developing and enforcing the state implementation plan to meet standards set by USEPA. ARB works with local air districts to manage air quality by establishing state ambient air quality standards and regulating mobile and stationary source emission sources.

California has adopted ambient standards that are more stringent than federal standards for criteria air pollutants. The California Clean Air Act, which is patterned after the federal Clean Air Act, also requires designation of clean and dirty air areas based on whether state and national standards are met. Areas where the air quality falls short of national standards are designated

as “non-attainment areas.” Areas where air quality meets the standards are called “attainment areas.” Areas for which data is lacking are designated “unclassifiable,” and generally have the same obligations as attainment areas. An area can be attainment for one pollutant and non-attainment for another. Air quality planning and control requirements differ for non-attainment and attainment areas. The status for each air basin is shown in the Environmental Setting subsection.

The 1988 California Clean Air Act required development of air quality plans and strategies to meet state air quality standards in areas designated as non-attainment (with the exception of areas designated as non-attainment for PM standards). Maintenance plans are required for attainment areas that had previously been designated non-attainment to ensure continued attainment of the standards. Air quality plans developed to meet federal requirements are referred to as State Implementation Plans.

Air Toxics Program

The Air Toxics Program was established in 1983 under Assembly Bill No. 1807 (1983–1984 Reg. Sess.). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) hazardous air pollutants (HAPs) adopted in accordance with AB 2728. The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (Assem. Bill No. 2588 (Health & Saf. Code, § 44300, et seq.)) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

ARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (ARB, 2000), which represents proposals to reduce DPM emissions, with the goal of reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed DPM filters and ultra-low sulfur diesel fuel on diesel-fueled engines.

ARB recently published the *Air Quality and Land Use Handbook: A Community Health Perspective* (ARB, 2005). The primary goal in developing the handbook was to provide information that will help keep California’s children and other vulnerable populations out of harm’s way with respect to nearby sources of TACs. The handbook highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. The health risk is greatly reduced with distance. For that reason, ARB provides some general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

Executive Order S-3-05

In 2005, in recognition of California’s vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order No. S-3-05 (June 1, 2005), which sets forth a series of target dates by which statewide emission of GHG would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels
- By 2020, reduce GHG emissions to 1990 levels

- By 2050, reduce GHG emissions to 80 percent below 1990 levels

Global Warming Solutions Act of 2006

The California Global Warming Solutions Act of 2006 (Assem. Bill No. 32; Stats. 2006, ch. 488, hereafter AB 32), creates a comprehensive, multi-year program to reduce GHG emissions to 1990 levels by the year 2020. AB 32 requires that the ARB develop GHG reduction strategies that do not interfere with existing air pollution control measures. The AB 32 Scoping Plan contains the main strategies California will use to reduce the GHGs that cause climate change. The AB 32 Scoping Plan (Measure No. RW-3) commits ARB staff to work with CalRecycle, CDFA, Caltrans, and others to increase production and markets for organic products. ARB projects a reduction of 2 million metric tons CO₂E from this effort alone.

ARB is currently collaborating with CalRecycle on the development of Waste Management Sector element for the 2013 Scoping Plan Update. A primary objective of this effort is to merge California's GHG emissions reductions goals with the Assembly Bill No. 341 (2011–2012 Reg. Sess.) 75 percent recycling goal, which will require about 22 million tons per year of material be removed from the landfill waste stream and used in non-disposal alternatives by 2020. Composting biodegradable solid waste is viewed to have a significant role in helping to achieve these goals.

Local Air Districts

State law delegates air pollution control authority for stationary sources to local air pollution control districts (APCDs) and air quality management districts (AQMDs). The districts are shown in Figure 1. For some air basins covering more than one county, a unified air district has been formed to manage air quality issues throughout the basin. In other multicounty air basins, individual county air districts manage air quality in only their county. Individual air districts or groups of air districts prepare air quality management plans designed to bring an air basin into compliance for non-attainment criteria pollutants. Those plans are submitted to the ARB for approval, and usually contain an emissions inventory and a list of rules proposed for adoption.

All districts have permitting programs that implement requirements of the federal and state Clean Air Acts, their air quality management plan, and air quality rules and regulations by specifying operating and compliance requirements for stationary sources that emit air pollutants. New major and non-major sources with a potential to emit (including air toxics and hazardous air pollutants) must have a permit prior to commencing construction and/or operation, unless specifically exempt. Since composting operations and associated equipment have the potential to emit several of the criteria pollutants, they must apply for and obtain permits from the air districts.

California Air Districts

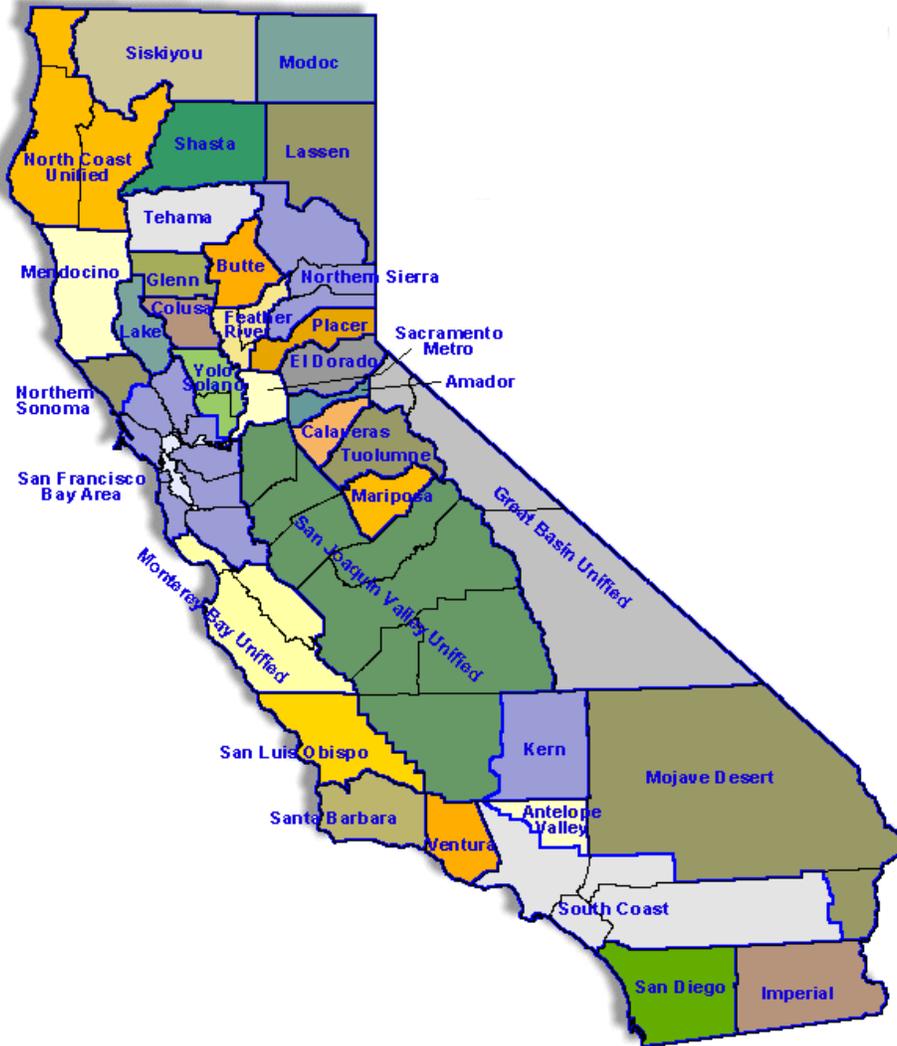


FIGURE 1. Map of California Air Districts

Authority to Construct/Permit to Operate

The *Authority to Construct* is a permit issued by the air district granting permission to install, modify, and/or construct equipment or processes that will meet local air quality standards. This permit is required when building, erecting, altering, or replacing any article, machine, equipment or other contrivance that may cause issuance of air contaminants, or use of which may eliminate, reduce, or control issuance of air contaminants. The *Authority to Construct* permit typically remains in effect until the *Permit to Operate* the article, machine, equipment, or other contrivance is granted.

The *Permit to Operate* is a permit granting permission to operate the equipment or processes within enforceable limits designed to meet local air quality standards. It must be obtained before any machine, equipment or other contrivance may be operated, used, leased, or rented for operation or use.

Title V Program

Title V is a federal program designed to standardize air quality permits and the permitting process for major sources of emissions across the country. The name "Title V" comes from Title V of the 1990 federal Clean Air Act Amendments, which requires USEPA to establish a national operating permit program. Accordingly, USEPA adopted regulations (40 C.F.R. ch. 1(c), § 70), which require states and local permitting authorities to develop and submit a federally enforceable operating permit programs for USEPA approval. All air districts adopted regulations to interface federal permitting requirements with the submitted Title V permit program.

Title V only applies to "major sources," which USEPA defines as a facility that emits, or has the potential to emit any criteria pollutant or HAPs at levels equal to or greater than Major Source Thresholds. Major Source Thresholds for criteria pollutants may vary depending on the attainment status (i.e. marginal, serious, or extreme) of the geographic area and the Criteria Pollutant or HAP in which the facility is located. Table 6-3 provides a summary of major source thresholds found in the rules of each air district.

TABLE L-1. MAJOR SOURCE THRESHOLDS PER AIR DISTRICT

APCD/AQMD	POLLUTANT (TONS PER YEAR)								
	VOC	NOX	SOX	CO	PM10	SINGLE HAP	COMBO OF HAPS	Total GHG Emissions	CO2e
Amador County APCD	50	50	100	100	70	10	25		
Antelope Valley AQMD	25	25	100	100	100	10	25		
Bay Area AQMD	100	100	100	100	100	10	25		
Butte County AQMD	50	50	100	100	70	10	25	100	100000
Calaveras County APCD	100	100	100	100	100	10	25		
Colusa County APCD	100	100	100	100	100	10	25		
Eastern Kern APCD	50	50	100	100	100	10	25		
El Dorado County AQMD	25	25	100	100	100	10	25		
Feather River AQMD	25	25	100	100	100	10	25		
Glenn County APCD	100	100	100	100	100	10	25		
Great Basin APCD	50	50	100	100	70	10	25		
Imperial County APCD	100	100	100	100	70	10	25	100	
Lake County AQMD	50	50	100	100	70	10	25		
Lassen County AQMD	100	100	100	100	100	10	25		
Mariposa County APCD	100	100	100	100	100	10	25		
Mendocino County AQMD	50	50	100	100	70	10	25		
Modoc County APCD	100	100	100	100	100	10	25		
Mojave Desert AQMD - Zone A	25	25	100	100	100	10	25		

APCD/AQMD	POLLUTANT (TONS PER YEAR)								
	VOC	NOX	SOX	CO	PM10	SINGLE HAP	COMBO OF HAPS	Total GHG Emissions	CO2e
Mojave Desert AQMD - Zone B	100	100	100	100	100	10	25		
Monterey Bay Unified APCD	100	100	100	100	100	10	25		100000
North Coast Unified AQMD	50	50	100	100	70	10	25	100	
Northern Sierra AQMD	50	50	100	100	70	10	25		
Northern Sonoma County APCD	50	50	100	100	70	10	25		
Placer County APCD	50	50	100	100	70	10	25	100	100000
Sacramento Metropolitan AQMD	25	25	100	100	100	10	25	100	
San Diego County APCD	50	50	100	100	100	10	25		
San Joaquin Valley APCD	10	10	70	100	70	10	25		
San Luis Obispo County APCD	100	100	100	100	100	10	25		100000
Santa Barbara County APCD	100	100	100	100	100	10	25		100000
Shasta County AQMD	50	50	100	100	70	10	25		
Siskiyou County APCD	100	100	100	100	100	10	25		
South Coast AQMD									
- South Coast Air Basin ^(a)	10	10	100	50	70	10	25		
- Riverside County Portion of Salton Sea Air Basin ^(a)	25	25	100	100	70	10	25		
- Riverside County Portion of Mojave Desert Air Basin ^(a)	100	100	100	100	100	10	25		
Tehama County APCD	50	50	100	100	70	10	25	100	100000
Tuolumne County APCD	50	50	100	100	70	10	25		
Ventura County APCD	25	25	100	100	100	10	25		
Yolo-Solano AQMD	25	25	100	100	100	10	25		

Notes:

- 1) Criteria pollutant thresholds were found in the district rules regarding Title V or Part 70 permitting.
- 2) Some Air Districts may regulate over multiple air basins. In these cases, thresholds may be different depending on the specific project location and area designation.

Source Specific Rules

The air districts listed below have established specific rules and regulations for composting operations, as planned in their State Implementation Plan shown below. Not every air district has done this; however, this does not imply that composting is unregulated by these other air districts. Many of the other air districts look to the ones below as guidance for permitting composting facilities.

Antelope Valley Air Quality Management District (AQMD): The Antelope Valley AQMD was established in 1997 by the state Legislature, which separated Antelope Valley and northern Los Angeles County from the South Coast AQMD. The Antelope Valley AQMD is the local agency

with primary responsibility for control of non-vehicular sources of air pollution throughout Antelope Valley. The Antelope Valley AQMD is located within the Mojave Desert air basin, in the northern part of Los Angeles County. The district boundaries start on the south just outside of Acton, north to the Kern County line, east to the San Bernardino County line, and west to the Quail Lake area.

The Antelope Valley AQMD adopted Regulation XI Rule 1133 for Composting and Related Operations on March 17, 2009. The purpose of the rule is to limit emissions of VOCs and ammonia; prevent inadvertent decomposition occurring during chipping and grinding operations; and create an emissions-related informational database through administrative requirements as part of a composting registration program. A copy of the rule is available at: <http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=1503>.

San Joaquin Valley Air Pollution Control District (APCD): The San Joaquin Valley APCD is comprised of eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the San Joaquin Valley Air Basin portion of Kern. The San Joaquin Valley APCD is a public health agency whose mission is to improve the health and quality of life for all San Joaquin valley residents through efficient, effective, and entrepreneurial air quality-management strategies.

San Joaquin Valley APCD adopted Regulation IV Rule 4566 for Organic Material Composting Operations on August 18, 2011. The purpose of this rule is to limit emissions of volatile organic compounds from composting operations. A copy of the rule is available at: <http://www.valleyair.org/rules/currnrules/Rule4566CleanRule.pdf>.

South Coast Air Quality Management District: The South Coast AQMD is the air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino counties. The South Coast AQMD is committed to undertaking all necessary steps to protect public health from air pollution, with sensitivity to impacts of actions on the community and businesses. This protection is accomplished through a comprehensive program of planning, regulation, compliance assistance, enforcement, monitoring, technology advancement, and public education primarily focused on controlling stationary source emissions.

South Coast AQMD adopted Regulation XI Rule 1133 for Composting and Related Operations – General Administrative Requirements on January 10, 2003; Rule 1133.2 for Emission Reductions from Co-Composting Operations on January 10, 2003, and; Rule 1133.3 for Emission Reductions from Greenwaste Composting Operations on July 8, 2011. The purpose of the rules is to reduce fugitive emissions of volatile organic compounds and ammonia occurring during these composting operations. Copies of the rules are available at: http://aqmd.gov/rules/reg/reg11_tofc.html.

BIOLOGICAL RESOURCES

Endangered Species Act

The 1973 Endangered Species Act (16 U.S.C. § 1531 et seq.) protects fish and wildlife species and their habitats that have been identified by the United States Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration's (NOAA) National Marine

Fisheries Service (NMFS) as threatened or endangered. Endangered refers to species, subspecies, or distinct population segments in danger of extinction through all or a significant portion of their range. Threatened refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future. The act is administered by USFWS and the NMFS. In general, NMFS is responsible for protection of listed marine species and anadromous fish, whereas other listed species are under USFWS jurisdiction.

Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act states that without a permit issued by the U.S. Department of the Interior, it is unlawful to pursue, hunt, take, capture, or kill any migratory bird.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act makes it illegal to import, export, take (which includes molest or disturb), sell, purchase, or barter any bald eagle, golden eagle or any parts thereof.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires coordination with USFWS, NMFS, and the DFW when waters of any stream or other body of water are proposed, authorized, permitted, or licensed to be impounded, diverted, or otherwise controlled or modified under a federal permit or license (16 U.S.C. § 661–667(e)). USFWS typically prepares an advisory Coordination Act Report with recommendations to address impacts on fish and wildlife resources only.

Clean Water Act

The Clean Water Act was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The Act serves as the primary federal law protecting quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The Act empowers the USEPA to set national water quality standards and effluent limitations and includes programs addressing both point-source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in storm water runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the Act's primary regulatory tool.

In addition, the Act requires permitting and monitoring of all discharges to surface water bodies. Section 404 requires a permit from the United States Army Corps of Engineers (USACE) for a discharge from dredged or fill materials into waters of the United States, including wetlands. Section 401 requires a permit from a Regional Water Board for discharge of pollutants. By federal law, every applicant for a federal permit or license for an activity that may result in a discharge into a California water body, including wetlands, must request state certification that the proposed activity would not violate state and federal water quality standards.

Federal Noxious Weed Act of 1974

The Federal Noxious Weed Act (enacted Jan. 3, 1975; 7 U.S.C. 2801 et seq.) establishes a federal program to control the spread of noxious weeds. A noxious weed is a plant species that has been designated by the Secretary of Agriculture as one that is injurious to agricultural and/or horticultural crops, natural habitats and/or ecosystems, and/or humans or livestock. The Secretary of Agriculture designates plants as noxious weeds by regulation and movement of all such weeds in interstate or foreign commerce is prohibited except under permit.

National Forest Management Act

The NFMA requires USFS to provide for a diversity of plant and animal communities as part of its multiple-use mandate. NFMA regulations require that each forest prepare a plan that provides strategic direction for managing land and its resources during the next 10 to 15 years. USFS must maintain viable populations of existing native and desired non-native species in the planning area. The Regional Forester designates sensitive and management indicator species as part of a proactive approach to ensure biodiversity is maintained.

California Environmental Quality Act

CEQA projects will be deemed to have a significant environmental impact on biological resources if it substantially reduces the number or restricts the range of a rare, threatened, or endangered species or habitat of that species; substantially interferes with movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. CEQA Guidelines define rare, threatened, or endangered species as those listed under the California Endangered Species Act and the Endangered Species Act, as well as other species that meet criteria of resource agencies or local agencies — for example, DFW-designated species of special concern and some California Native Plant Society-listed species.

California Endangered Species Act

The California Endangered Species Act of 1984 (Fish & G. Code, div. 3, ch. 1.5, § 2050 et seq.) requires that state agencies seek and conserve threatened and endangered species and restricts all persons from taking listed species. DFW administers the act and authorizes take under Fish and Game Code, section 2081 agreements (except for designated “fully protected species”). The California Endangered Species Act defers to the California Native Plant Protection Act of 1977 (Fish & G. Code, § 1904), which prohibits importing of rare and endangered plants into California, taking of rare and endangered plants, and selling of rare and endangered plants. State-listed species are protected mainly in cases where state agencies are involved in projects under CEQA. In this case, plants listed as rare under the California Native Plant Protection Act are not protected under the California Act but can be protected under CEQA. The following activities are exempt from the California Native Plant Protection Act:

- Agricultural operations;
- Fire control measures;
- Timber harvest operations;
- Mining assessment work;
- Removal of plants by private landowners on private land for construction of canals, ditches, buildings, roads, or other rights-of-way; and

- Removal of plants for performance of a public service by a public agency or a publicly or privately owned public utility.

Clean Water Act, Section 401

The State Water Board has authority over wetlands through section 401 of the federal Clean Water Act of 1972 (33 U.S.C. § 1251 et seq.), which requires that an application for a section 404 permit (to discharge dredged or fill material into waters of the United States) first obtain certification from the appropriate state agency, stating that the fill is consistent with the state's water quality standards and criteria. In California, authority to either grant certification or waive requirements for permits is delegated to the nine Regional Water Boards.

DFW Lake and Streambed Alteration Agreements

Under sections 1600–1616 of the California Fish and Game Code, the DFW prohibits activities that would “substantially divert or obstruct natural flow of, or substantially change or use material of the bed, channel, or bank of any river, stream, and lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake” without consulting with DFW. Notification is required prior to any such activities and DFW will issue an Agreement with any necessary mitigation to ensure protection of the State's fish and wildlife resources.

California Oak Woodlands Conservation Act

The California Oak Woodlands Conservation Act was enacted in 2001 to protect oak woodland habitats that were being diminished by development, firewood harvesting, and agricultural conversions. (Fish & G. Code, § 1360 et seq.) The Oak Woodlands Conservation Program was established because of the act and is intended to provide project funding opportunities for private landowners, conservation organizations, and cities and counties to conserve and restore oak woodlands. The program authorizes the Wildlife Conservation Board to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts.

Local Jurisdictions - Habitat Conservation Plans/Natural Community Conservation Plans

During implementation of specific projects, an activity subject to section 10 of the Endangered Species Act (16 U.S.C. § 1539) and considered a covered project under the implementing rules of an adopted Habitat Conservation Plan or Natural Community Conservation Plan may be able to participate in the plan for effects on covered species.

CULTURAL RESOURCES

While historic resources are generally known, archaeological and paleontological resources are frequently uncovered during construction of projects that require excavation. Strict mitigation and protection measures are required whenever such resources are discovered. In addition, there is a general requirement that a cultural resource survey and environmental analysis be prepared prior to commencement of any action, development, or land use change subject to CEQA or NEPA on lands subject to federal jurisdiction or for projects involving federal funds.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. § 470f), as amended, is the primary federal law governing preservation of cultural and historic resources in the United States. The act establishes the federal government policy on historic preservation and programs through which this policy is implemented. Section 106 of the NHPA (16 U.S.C. § 470f) requires federal agencies to take into account effects of their undertakings on any district, site, building, structure, or object included in or determined eligible for inclusion in the National Register for Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 C.F.R. § 800.1). Under §section 106 of the NHPA, significance of any adversely affected cultural resource is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Significant cultural resources (historic properties) are those resources listed in, or are eligible for listing on the NRHP per criteria listed at 36 Code of Federal Regulations section 60.4. Section 101(d)(6)(A) of the NHPA (16 U.S.C. § 470a(d)(6)(a)) allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for inclusion on the NRHP. Section 106 also directs federal agencies to involve consulting parties, including the State Historic Preservation Officer, Native American tribes, and local governments, to provide an opportunity for public involvement during the compliance process (36 C.F.R. § 800.2(4)(c)). To be eligible for the NRHP, cultural resources must possess integrity and meet at least one of the following four criteria delineated at 36 Code of Federal Regulations section 60.4:

- a) Are associated with events that have made a significant contribution to broad patterns of American history;
- b) Are associated with lives of persons significant in American history;
- c) Embody distinctive characteristics of a type, period, or method of construction, or that represent work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d) Have yielded, or may be likely to yield, information important in prehistory or history.

Under title 16 of the United States Code section 470f, impacts of a project to historic properties that affect characteristics that qualify a property for NRHP inclusion are considered a significant effect on the environment. Examples of adverse effects on historic properties are listed under 36 Code of Federal Regulations section 800.5(a)(2) and include, but are not limited to, physical destruction or damage to all or part of a property, change of character of use of the property or physical feature within the setting of the property that contribute to its significance, or introduction of visual, atmospheric, or audible elements that diminish integrity of significant features of the property. If an adverse effect is found, the agency shall act pursuant to 36 Code of Federal Regulations section 800.6 (36 C.F.R. § 800.5(d)(2)) to resolve the adverse effect by developing and evaluating alternatives or modifications to the undertaking that “could avoid, minimize or mitigate adverse effects on historic properties” (36 C.F.R. § 800.6(a)).

Cultural resources that have been determined not eligible for the NRHP, in consultation with the State Historic Preservation Officer and interested parties, require no further consideration unless new discoveries trigger re-evaluation. Section 106 of the act does not apply to paleontological resources unless they are found in a culturally-related context. In addition to the Antiquities Act (16 U.S.C. §§ 431–433) of 1906, preservation and salvage of fossils and other

paleontological resources can be protected under the National Registry of Natural Landmarks (16 U.S.C. §§ 461–467) and NEPA which directs federal agencies to “preserve important historic, cultural, and natural aspects of our national heritage.”

Archeological Resources Protection Act of 1979

The Archeological Resources Protection Act of 1979 (43 C.F.R. § 7) may impose additional requirements on an agency if federal or Indian lands are involved. This act:

1. Prohibits unauthorized excavation on federal and Indian lands;
2. Establishes standards for permissible excavation;
3. Prescribes civil and criminal penalties;
4. Requires agencies to identify archeological sites; and
5. Encourages cooperation between federal agencies and private individuals.

American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act of 1978 (42 U.S.C. §§ 1996, 1996a) affirms the right of Native Americans to have access to their sacred places. If a place of religious importance to American Indians may be affected by an undertaking, the act promotes consultation with Indian religious practitioners. Amendments to section 101 of NHPA in 1992 strengthened interface between the two acts by clarifying the following:

1. Properties of traditional religious and cultural importance to an Indian tribe or organization may be determined to be eligible for inclusion in the NRHP.
2. In carrying out its responsibilities under section 106, a federal agency shall consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties described under (1).

Native American Graves Protection and Repatriation Act of 1990

For activities on federal lands, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (43 C.F.R. §10) requires consultation with “appropriate” Indian r organizations prior to intentional excavation, or removal after inadvertent discovery, of several kinds of cultural items, including human remains and objects of cultural patrimony. For activities on Native American lands, which are defined in the statute, NAGPRA requires consent of the Indian tribe or organization prior to removal of cultural items. The law also provides for repatriation of such items from federal agencies and federally assisted museums and other repositories.

The 1992 amendments to the NHPA strengthened NAGPRA by encouraging “protection of Native American cultural items...and of properties of religious or cultural importance to Indian tribes, Native Hawaiians, or other Native American groups” (NHPA § 112[b][3]) and by stipulating that a federal “...agency’s procedures for compliance with section 106...provide for the disposition of Native American cultural items from federal or tribal land in a manner consistent with section 3(c) of the Native American Graves Protection and Repatriation Act...” The final rule of the NAGPRA regulations, effective May 14, 2010, added procedures for disposition of culturally unidentifiable Native American human remains in possession or under purview of museums of federal agencies. The rule also amended sections of NAGPRA related

to purpose and applicability of regulations, definitions, inventories of human remains and related funerary objects, civil penalties, and limitations and remedies.

California Environmental Quality Act

CEQA of 1972 (Pub. Resources Code, § 21000 et seq.; and Cal. Code Regs., tit. 14, § 15000 et seq. (CEQA Guidelines hereafter and throughout)) is the principal regulatory control addressing impacts on historical and paleontological resources in California. Projects with potential to adversely affect significant cultural resources must be reviewed through the CEQA process.

Further direction on cultural resources can be found in the CEQA Guidelines section 15064.5, “Determining the Significance of Impacts to Archaeological and Historical Resources.” Subsection (a) defines the term “historical resources.” Subsection (b) explains when a project may be deemed to have a significant effect on historical resources and defines terms used in describing those situations. Subsection (c) describes CEQA’s applicability to archaeological sites and provides a bridge between application of the terms “historical resource” and a “unique” archaeological resource. The term “historical resource” is similar to, but more inclusive than the NRHP criteria. Under CEQA, a historical resource includes, but is not limited to:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (Pub. Resources Code, §5024.1; Cal. Code Regs., tit. 14, § 4852).
- A resource included in a local register of historical resources (as defined by Pub. Resources Code, §5020.1(k)), or identified in a historical resource survey meeting requirements of Pub. Resources Code, §5024.1(g) (presumption of historical significance), and
 - Is associated with events that have made a significant contribution to broad patterns of California’s history and cultural heritage;
 - Is associated with lives of persons important to American history;
 - Embodies distinctive characteristics of a type, period, region, or method of installation, represents work of an important creative individual, or possesses high artistic values; or
 - Has yielded, or may be likely to yield, information important in prehistory or history.
- A resource that the lead agency otherwise determines is a historical resource as defined by Public Resources Code section 5020(j) or section 5024.1. (CEQA Guidelines, § 15064.7), “Thresholds of Significance,” encourages agencies to develop thresholds of significance to be used in determining potential impacts and defines the term “cumulatively significant.”

CEQA Guidelines section 15065, “Mandatory Findings of Significance,” state that a lead agency shall find that a project may have significant effect on the environment and thereby require an EIR to be prepared in certain circumstances. Subsection (a) of section 15065 is applicable to cultural resources, and states that the project has the potential to eliminate important examples of major periods of California history or prehistory. CEQA Guidelines section 15126.4, “Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant

Effects,” subsection (b) discusses impacts of maintenance, repair, stabilization, restoration, conservation, or reconstruction of a historical resource. Subsection (b) also discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation is not feasible.

In the case of projects that must consider both federal and state laws, regulations and standards, joint environmental documents, and time limits for preparation, and cooperation with federal agencies on common documents is encouraged (Cal. Code Regs., tit. 14, §§ 15222, 15225).

California Public Resources Code

Public Resources Code section 5024.1, establishes the California Register of Historical Resources, sets forth criteria to determine significance (detailed above), defines eligible properties, and lists nomination procedures. As described in subsection (d), resources automatically listed in the register include those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks from No. 770 onward. section 5097.5 states that any unauthorized removal or destruction of archaeological or paleontological resources on sites located on public land is a misdemeanor. As used in this section, “public lands” is defined as “lands owned by, or under the jurisdiction of, the State, or any city, county, district, authority, or public corporation, or agency thereof.”

Section 5097.9 prohibits interference with free expression of Native American religion as provided in the United States Constitution and the California Constitution. it also prohibits severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine on public property, except on a clear and convincing showing that the public interest and necessity so require.

Section 5097.98 requires the Native American Heritage Commission, upon notification by a county coroner, to notify the most likely descendants regarding discovery of Native American human remains, it enables descendants, within 48 hours of notification by the commission, to inspect the site of discovery of Native American human remains and to recommend to the landowner or person responsible for the excavation work means for treating or disposition, with appropriate dignity, the human remains and any associated grave goods, it requires the owner of land upon which Native American human remains were discovered, in event that no descendant is identified or the descendant fails to make a recommendation for disposition or the landowner rejects the recommendation of the descendant, to reinter the remains and burial items with appropriate dignity of the property in a location not subject to further disturbance.

Section 5097.99 prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and sets penalties for those actions.

Section 5097.991 states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.

Section 21083.2 states that if a project may affect a resource that has not met with the definition of a historical resource set forth in section 21084, then the lead agency may determine whether a project may have a significant effect on “unique” archaeological resources, if so, an EIR shall

address these resources. If a potential for damage to unique archaeological resources can be demonstrated, such resources must be avoided, if they cannot be avoided, mitigation measures shall be required. The law also discusses excavation as mitigation, discusses costs of mitigation for several types of projects, sets time frames for excavation, defines unique and non-unique archaeological resources, provides for mitigation of unexpected resources, and sets financial limitations for this section.

Section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historical resource. The section further defines a “historical resource” and describes what constitutes a “significant” historical resource.

California Code of Regulations

California Code of Regulations (Cal. Code Regs., tit. 14, div. 3, ch. 1, §§ 4307, 4308) states that no person shall remove, injure, deface, or destroy any object of paleontological, archaeological or historical interest or value.

California Penal Code

California Penal Code section 622.5 establishes willful injury, disfiguration, defacement, or destruction of any object or thing of archaeological or historical interest or value, whether situated on private or public lands, as a misdemeanor.

California Health and Safety Code

California Health and Safety Code section 7050.5 requires that if human remains are discovered during construction outside of a dedicated cemetery, the project owner is required to contact the county coroner and further excavation or disturbance of land cease until the coroner has made a determination. If the coroner determines the remains are Native American, procedures outlined in Public Resources Code section 5097.98 must be followed.

Senate Bill No. 18

Senate Bill No.18 (2003–2004 Reg. Sess.) (SB 18) was signed into law in September 2004, and became effective on March 1, 2005. (Gov. Code §§ 65352.3, 65352.4.) SB 18 permits California Native American tribes recognized by the Native American Heritage Commission to hold, on terms mutually satisfactory to the tribe and the landowner, conservation easements. The term “California Native American tribe” is defined as a federally recognized California Native American tribe or a non-federally recognized California Native American tribe on the contact list maintained by the Native American Heritage Commission.

SB 18 also requires that, prior to adoption or amendment of a city or county’s general plan of the adoption of a Specific Plan, the city or county conduct consultations with California Native American tribes for the purpose of preserving specified places, features, and objects located within the city or county’s jurisdiction. Specifically, SB 18 requires public notice to be sent to tribes listed on the Native American Heritage Commission’s SB 18 Tribal Consultation list within the geographical areas affected by the proposed changes. Tribes must respond to a local government notice within 90 days (unless a shorter time frame has been agreed upon by the tribe), indicating whether they want to consult with the local government.

Local Jurisdictions – Historic Preservation Ordinances

Each local government has authority to adopt a historic preservation ordinance that provides regulations for historical resources. In addition, some City and County General Plans also contain goals, policies and programs that promote protection of cultural heritage within a Conservation and Open Space, Resources, or similarly titled Element. For instance, the Sacramento County General Plan Resources Element includes a goal to inventory, protect, and interpret the cultural heritage of the County, and policies and programs that specifically address cultural resources of Native Americans (County of Sacramento, 2011). Another example can be found in the Los Angeles City General Plan, which addresses archaeological significance to the history of that City in the Conservation Element (City of Los Angeles, 2001). Paleontological resources may not be included in General Plans for any local agency. However, paleontological resources are included as significant cultural resources under CEQA.

GEOLOGY, SOILS, SEISMICITY, AND MINERALOGY

National Earthquake Hazards Reduction Program 1977, Reauthorization Act of 2004

The National Earthquake Hazards Reduction Act was enacted in 1977 to “reduce the risks to life and property from future earthquakes in the United States through establishment and maintenance of an effective earthquake hazards and reduction program.” To accomplish this, the act established the National Earthquake Hazards Reduction Program. The program’s mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The Act designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Other agencies include the National Institute of Standards and Technology, National Science Foundation, and the USGS. <http://www.nehrp.gov/about/PL108-360.htm>

Soil and Water Resources Conservation Act of 1977 (16 U.S.C. §§ 2001–2009)

The Soil and Water Resources Conservation Act provides broad natural resource strategic assessment and planning authority for the United States Department of Agriculture (USDA). The purpose of the Act was to ensure that USDA programs for the conservation of soil, water, and related resources are responsive to the long-term needs of the nation. Provisions of the Act include 1) a continuing appraisals of soil, water, and resources; 2) a National Conservation Program; 3) implementation of conservation strategies through legislative changes. NRCS' natural resources conservation programs help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. NRCS programs that may be applicable to the order include Colorado River Basin Salinity Control, Highly Erodible land and Wetland Conservation, Environmental Justice, National Environmental Policy Act, Rapid Watershed Assessment, Soil Survey Program, State Technical Committees, Watershed Surveys and Planning. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/rca/?cid=nrcs143_008206

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed into law following the February 9, 1971 Mw 6.6 San Fernando earthquake. The intent of the Act was to ensure public safety by prohibiting the siting of structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep, and to mitigate existing fault rupture hazards.

The Act requires the State Geologist to delineate earthquake fault zones along known active faults in California, and prohibits new construction within these zones without investigation. The Act also requires owners of existing properties within these zones to disclose the earthquake zone prior to sale of the property.. Local regulatory agencies affected by the fault zones must regulate certain projects within the zone, including requiring geologic investigations to evaluate the threat of surface displacement (CGS, 2010b).

The Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. <http://www.conservation.ca.gov/cgs/rghm/ap/Pages/main.aspx>

Seismic Hazards Mapping Act (Pub. Resources Code, div. 2, ch. 7.8)

The intent of the Seismic Hazards Mapping Act is to provide a statewide seismic hazard mapping and technical advisory program to assist regulatory agencies. The maps and supporting documents provide information about areas more likely to be affected by strong ground shaking, liquefaction, landslides, and other seismic hazards caused by earthquakes.

California has designated areas where specific geologic hazards have been identified in sufficient number and severity to warrant special hazard zoning. Regulatory hazard zones require site-specific investigation for potential hazards such as faulting, landslides, and liquefaction as part of a grading or building permit.

The California Regional Geologic Hazards Mapping Program includes seismic hazards and analysis, regional geologic mapping, landslide and liquefaction mapping and information about hazardous minerals. The purpose of the mapping program is to identify significant geologic and seismic hazards in order to improve land use planning and emergency response planning decisions. The hazard maps are available on the CGS's website at: http://www.conservation.ca.gov/cgs/geologic_hazards/regulatory_hazard_zones/Pages/Index.aspx

California Building Standards Code

The California Building Code (CBC), also referred to as title 24, is administered by the California Building Standards Commission, which is responsible for coordinating all building standards. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The CBC is based on the International Building Code (IBC) published by the International Code Conference, and

includes California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 provides requirements for general structural design and includes means for estimating earthquake loads and other loads.

The earthquake design requirements consider the occupancy category of a structure, site class, soil classifications, and various seismic coefficients, which are used to determine a Seismic Design Category for a project. This classification system combines the occupancy categories with the expected ground motions to estimate seismic vulnerability of a site and is used to develop design specifications. Appendix J of the CBC contains regulations for grading, excavation and earthwork construction, including fills and embankments.

Statutes and Regulations Pertaining to Dams and Reservoirs, Water Code, Division 3, Dams and Reservoirs, Part 1, Chapter 1

The Division of Safety of Dams has jurisdiction over large water containment structures: over a dam or barrier that is 1) more than 6 feet high and impounds 50 acre-feet or more of water, or 2) is 25 feet or higher and impounds more than 15 acre-feet of water, unless it is federally owned or exempted under special Water Code provisions. Some water containment structures are exempt from the Division's jurisdiction, including: circular tanks, tanks elevated above ground, sewage sludge drying facilities, and wastewater control facility ponds which are 15 feet or less in height and have a maximum storage capacity of 1,500 acre-feet or less and are constructed as part of a waste water facility.

HAZARDS AND HAZARDOUS MATERIALS

Hazardous materials are subject to numerous federal, state, and local laws, regulations, ordinances, and guidance intended to protect public health and safety and the environment. The USEPA, CalEPA, DTSC, State and Regional Water Boards, ARB, federal and California Occupational Safety and Health Administration (OSHA), CalRecycle, CALFIRE and the local oversight agencies are the major federal, state, and regional agencies that enforce these regulations. The main focus of OSHA is to prevent work-related injuries and illnesses, including from exposures to hazardous materials. CalRecycle is mandated to reduce waste, promote management of materials to their highest and best use, and protect public health and safety and the environment. CALFIRE implements fire safety regulations. In accordance with Chapter 6.11 of the California Health and Safety Code (§ 25404, et seq.), local regulatory agencies enforce many federal and state regulatory programs through the Certified Unified Program Agency (CUPA) program, including:

- Hazardous materials business plans (Health & Saf. Code, ch. 6.95, § 25501 et seq.).
- State Uniform Fire Code requirements (§ 80.103 of the Uniform Fire Code as adopted by the state fire marshal pursuant to Health & Saf. Code, § 13143.9).
- UST (Health & Saf. Code, ch. 6.7, § 25280 et seq.).
- Aboveground storage tanks (Health & Saf. Code, § 25270.5, subd. (c)).
- Hazardous waste generator requirements (Health & Saf. Code, ch. 6.5, § 25100 et seq.).

The following is a summary of worker safety and hazardous materials regulations by applicable topic. Within each summary is a discussion of relevant federal, state, and local regulations.

State Agency Regulation

CalRecycle regulates composting operation as a *Compostable Materials Handling Operations and Facilities* under California Code of Regulations, title 14, division 7, chapter 3.1. Regulations regarding solid waste facilities and compostable materials handling, operations, and regulatory requirements can be obtained at:

<http://www.calrecycle.ca.gov/Laws/Regulations/title14/default.htm>.

These regulations are overseen by CalRecycle and its designated local EAs. These regulations include, but are not limited to, the following for compost facility operations: establishes permitting and inspection requirements; prohibits acceptance of hazardous wastes, liquids and sludge; outlines general operating standards; provides for removal of contaminants from compost and feedstock; requires materials handling in a manner that minimizes vectors and prevents unauthorized access by individuals and animals; outlines pathogen reduction and sampling requirements; establishes recordkeeping and facility closure requirements.

Specific regulations that provide EAs the means to address issues regarding vectors, odor, and other nuisances include the following for composting operations and transfer/processing operations respectively:

1. *“All handling activities shall be conducted in a manner that minimizes vectors, odor impacts, litter, hazards, nuisances, and noise impacts; and minimizes human contact with, inhalation, ingestion, and transportation of dust, particulates, and pathogenic organisms”* (Composting Operating Standards in Cal. Code Regs., div. 7, ch. 3.1, art. 6, § 17867); and,
2. *“The operator shall take adequate steps to control or prevent the propagation, harborage, and attraction of flies, rodents, or other vectors and animals and to minimize bird attraction”* (Minimum Standards for Solid Waste Handling and Disposal are in Cal. Code Regs., tit. 14, div. 7, ch. 3. art. 6.1, § 17410.4).

EAs perform routine inspections to certify compliance with permit conditions to ensure that State programs are effectively implemented. CalRecycle can also initiate enforcement actions in addition to, or in lieu of, the EA.

Worker Safety

The federal and California OSHA agencies are responsible for assuring worker safety in handling and using chemicals in the workplace. Federal regulations pertaining to worker safety are contained in 29 Code of Federal Regulations, as authorized in the Occupational Safety and Health Act of 1970. These regulations provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. California OSHA assumes primary responsibility for developing and enforcing workplace safety regulations. California OSHA standards are generally more stringent than federal regulations.

State regulations concerning use of hazardous materials in the workplace are included in California Code of Regulations, title 8 which contains requirements for safety training,

availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. California OSHA also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees.

At sites where hazardous materials are present, workers must receive training in hazardous materials operations and a site health and safety plan must be prepared. The health and safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the site.

Prior to any construction activities, a site health and safety plan must be prepared in accordance with 29 Code of Federal Regulations sections 1910 and 1926, to include procedures for managing:

- Preparation and maintenance of working surfaces
- Means of entry and egress
- Power equipment and heavy machinery
- Fire prevention
- Respiratory protection
- Noise
- Hazardous materials handling and storage
- Hazard communication
- Personal protective equipment
- Medical and first aid
- Traffic control
- Training
- Recordkeeping

Hazardous Materials Business Plans

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. California's Hazardous Materials Release Response Plans and Inventory Law of 1985, sometimes called the "Business Plan Act," aims to minimize potential for accidents involving hazardous materials and to facilitate an appropriate response to possible hazardous materials emergencies.

The law requires businesses that use hazardous materials to provide inventories of those materials to designated emergency response agencies, to illustrate on a diagram where materials are stored on-site, to prepare an emergency response plan, and to train employees to use materials safely. A business plan includes an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (Health & Saf. Code, div. 20, ch. 6.95, art. 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter

into agreements with the state. Local agencies are responsible for administering these Business Plan Act regulations.

Hazardous Waste

The California Hazardous Waste Control Act regulates generation, treatment, storage, and disposal of hazardous waste. (Health & Saf. Code, § 2510 et seq.) Hazardous waste is designated as any material or substance discarded, relinquished, disposed of, or burned, or for which there is no intended use or reuse, and the material or substance causes or significantly contributes to an increase in mortality or illness; or the material or substance poses a substantial present or potential hazard to human health or the environment. These materials or substances include spent solvents and paints, used oil, used oil filters, used hazards and hazardous materials, acids and corrosives, and unwanted or expired products (e.g., pesticides, aerosol cans, cleaners). If the original material or substance is labeled as dangerous, toxic, poisonous, flammable, corrosive, or reactive, the waste may be hazardous.

Use and Storage of Hazardous Materials and Wastes

State and federal laws require detailed planning and management to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to reduce risks to human health and the environment. Hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

State laws governing USTs specify requirements for permitting, monitoring, closure, and cleanup of these facilities. Regulations set forth construction and monitoring standards for existing tanks, release reporting requirements, and closure requirements. In general, the local CUPA has regulatory authority for permitting, inspection, and removal of USTs. Any entity proposing to remove a UST must submit a closure plan to the CUPA prior to tank removal. Upon approval of the UST closure plan, the CUPA would issue a permit, oversee removal of the UST, require additional subsurface sampling if necessary, and issue a site closure letter when the appropriate removal and/or remediation has been completed. USTs are not typically associated with compost facilities; however, these regulations are relevant due to the potential of leaking USTs to affect subsurface conditions at potential project sites.

The Aboveground Petroleum Storage Act of 1990 requires facilities storing petroleum products in a single tank greater than 1,320 gallons, or facilities storing petroleum in aboveground tanks or containers with a cumulative storage capacity of greater than 1,320 gallons to file a storage statement with the State Water Board and prepare a spill prevention, control, and countermeasure plan. The plan must identify appropriate spill containment or equipment for diverting spills from sensitive areas, as well as discuss facility-specific requirements for the storage system, inspections, recordkeeping, security, and personnel training.

Transport of Hazardous Materials and Wastes

The United States Department of Transportation (USDOT) regulates hazardous materials transportation on all interstate roads. Within California, the state agencies with primary

responsibility for enforcing federal and State regulations and for responding to transportation emergencies are the CHP and Caltrans. Together, federal and State agencies determine driver-training requirements, load labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

Chemical Accident Prevention

The 40 Code of Federal Regulations, section 68 provides a list of regulated substances and thresholds, a petition process for adding or removing substances to the list, requirements for owners or operators of stationary sources concerning prevention of accidental releases, and the state accidental release prevention program approved under section 112 subdivision r of the Clean Air Act. The California Accidental Release Prevention Program is the state adaptation of this federal regulation. The list of federally regulated substances with threshold quantities is available online at the California Office of Emergency Services web site (<http://www.oes.ca.gov>).

Emergency Planning Community Right-to-Know Act

Emergency Planning Community Right-to-Know Act was passed in response to concerns regarding environmental and safety hazards posed by storage and handling of toxic chemicals. The Act establishes requirements for federal, state, and local governments, Indian tribes, and industry regarding emergency planning and “Community Right-to-Know” reporting on hazardous and toxic chemicals. Community Right-to-Know provisions are designed to increase the public’s knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment.

Fire Hazards

The California Uniform Fire Code (Cal. Code Regs., tit. 24, pt. 9) and local building codes establish requirements for construction and maintenance of structures for fire safety. The National Fire Protection Association (NFPA) develops and publishes consensus codes and standards intended to minimize the possibility and effects of fire and other risks. While not regulations, these codes and standards are industry-accepted guidelines for construction and fire protection systems. NFPA Code 820 establishes the standard for fire protection in wastewater treatment and collection facilities, which may be applicable to compost facilities. Additional relevant codes include a fuel gas code, standard on explosion prevention systems, standards for fire prevention during welding, etc.

The California Public Resources Code includes fire safety regulations that restrict use of equipment that may produce a spark, flame, or fire; requires use of spark arrestors on construction equipment that use an internal combustion engine; specifies requirements for safe use of gasoline-powered tools in fire hazard areas; and specifies fire suppression equipment that must be provided onsite for various types of work in fire-prone areas during time of high fire danger to reduce risk of wildland fires.

Wildlife-Related Aviation Hazards

Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106–181)(49 U.S.C. § 40101 as amended) limits construction or establishment of new municipal solid waste landfill facilities within 6 statute miles of certain public-use airports, when both the airport and landfill meet very specific conditions. FAA Advisory Circular No. 150-5200-33B (FAA, 2007) describes these requirements.

FAA Advisory Circular No. 150-5200-33B (FAA, 2007) provides guidance regarding hazardous wildlife attractants near airports. Separation distances depend on the type of aircraft the airport serves (piston vs. turbine powered aircraft) and proposed land use. The FAA recommends minimum separation criteria for land-use practices that attract hazardous wildlife to the vicinity of airports as follows:

- Airports serving piston-powered aircraft: 5,000 feet from the air operations area;
- Airports serving turbine-powered aircraft: 10,000 feet from the air operations area; and
- For all airports, 5 statute miles between the facility and the farthest edge of air operations area.

Guidance includes composting operations on or near airport property and associated storm water detention facilities. Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife. Sewage sludge, woodchips, and similar material are not municipal solid wastes and may be used as compost bulking agents. The compost, however, must never include food or other municipal solid waste. Composting operations should not be located on airport property. Off-airport property composting operations should be located no closer than the greater of the following distances: 1,200 feet from any air operations area or the distance called for by airport design requirements.

Pest Control

Under the California Health and Safety Code, local vector control agencies (often public health departments or mosquito abatement districts) have authority to conduct surveillance for vectors, prevent occurrence of vectors, and abate production of vectors. These agencies also have authority to review, comment, and make recommendations during planning and environmental quality processes, permitting, licensing, etc., regarding the potential effects related to vector production of proposed projects. Additionally, agencies have broad authority to enforce abatement of vector sources on public and private property.

Soil and Groundwater Contamination

Remediation of contaminated sites is generally performed under oversight of the counties (Local Oversight Program), the Regional Water Boards and/or DTSC. At sites where contamination is suspected or known to have occurred, the site owner is required to perform a site investigation and perform site remediation, if necessary. Site remediation or development may also be subject to regulation by other agencies. For example, if a project required dewatering near a hazardous waste site, the project sponsor might be required to obtain a permit from the municipal sewer agency before discharging water to the sewer system, or an NPDES permit from the Regional Water Board before discharging to the storm water collection system.

HYDROLOGY AND WATER QUALITY

Numerous policies, laws, and programs are administered by local, state, and federal agencies to enforce limitations on discharge of pollutants to the environment; maintain surface water and groundwater quality; and protect beneficial uses such as municipal, industrial, and agricultural water supply, recreation, and fish and wildlife habitat.

Clean Water Act

The Clean Water Act establishes the basic structure for regulating discharges of pollutants into “waters of the United States.” The act specifies a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.

Section 303(d) requires states, territories, and authorized tribes to develop a list of water-quality limited segments of rivers and other water bodies under their jurisdiction. Waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for waters on the list and develop action plans, called total maximum daily loads (TMDL), to improve water quality.

Section 401 requires every applicant for a federal permit or license for any activity that may result in a discharge to a water body to obtain a water quality certification that the proposed activity will comply with applicable water quality standards.

Section 402 regulates point- and nonpoint-source discharges to surface waters through the NPDES program. In California, the State Water Board oversees the NPDES program, which is administered by the Regional Water Boards. The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits for municipalities, industrial activities, and construction activities. The industrial storm water permitting component of NPDES covers 10 categories of industrial activity. Compost facilities are covered by Category 1 under Industry Group 287, Standard Industrial Classification 2875 Fertilizers, Mixing Only. Construction activities, also administered by the State Water Board, are discussed below.

National Toxics Rule

The National Toxics Rule promulgates chemical-specific, numeric criteria for priority toxic pollutants for 14 states, including California, necessary to bring the states into compliance with requirements of section 303(c)(2)(B) of the Clean Water Act. States determined by USEPA to fully comply with section 303(c)(2)(B) requirements are not affected by this rule, however California is not in compliance. The rule addresses two situations. For a few states, USEPA is promulgating a limited number of criteria which were previously identified as necessary in disapproval letters to such states, and which the state has failed to address. For other states, federal criteria are necessary for all priority toxic pollutants for which USEPA has issued section 304(a) water quality criteria guidance and that are not the subject of approved State criteria. When these standards take effect, they will be the legally enforceable standards in the named States for all purposes and programs under the Clean Water Act, including planning, monitoring, NPDES permitting, enforcement and compliance.

Federal Anti-degradation Policy (40 C.F.R. §131.12)

The first anti-degradation policy statement was released in 1968, and subsequently included in USEPA's first Water Quality Standards Regulation (40 C.F.R. 130.17, 40 Fed. Reg. 55340-41) published in 1975. The policy was refined in 1983 (48 Fed. Reg. 51400; 40 C.F.R. § 131.12). Anti-degradation requirements and methods for implementing those requirements are minimum conditions to be included in a state's water quality standards, as required by the Clean Water Act. The anti-degradation policy and implementation methods are required, at a minimum, to be consistent with the following:

1. Existing in-stream water uses and level of water quality necessary to protect existing uses shall be maintained and protected.
2. Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the state finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the state shall assure water quality adequate to protect existing uses fully. Further, the state shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.
3. Where high quality waters constitute an outstanding national resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.
4. In cases where potential water quality impairment associated with a thermal discharge is involved, the anti-degradation policy and implementing method shall be consistent with section 316 of the Clean Water Act.

The Anti-degradation Policy established a three-tiered program.

- Tier 1 maintains and protects existing uses and water quality conditions necessary to support such uses. An existing use can be established by demonstrating that fishing, swimming, or other uses have occurred since November 28, 1975, or that water quality is suitable to allow such uses to occur. Where an existing use is established, it must be protected even if it is not listed in water quality standards as a designated use. Tier 1 requirements are applicable to all surface waters.
- Tier 2 maintains and protects "high quality" waters -- water bodies where existing conditions are better than necessary to support Clean Water Act section 101(a)(2) "fishable/swimmable" uses. Water quality can be lowered in such waters. However, state and tribal Tier 2 programs identify procedures that must be followed and questions that must be answered before a reduction in water quality can be allowed. In no case may water quality be lowered to a level that interferes with existing or designated uses.

- Tier 3 maintains and protects water quality in outstanding national resource waters. Except for certain temporary changes, water quality cannot be lowered in such waters. Outstanding national resource waters generally include the highest quality waters of the United States. However, this classification also offers special protection for waters of exceptional ecological significance, i.e., those that are important, unique, or sensitive ecologically. Decisions regarding which water bodies qualify are made by states and authorized Indian Tribes. Anti-degradation implementation procedures identify the steps and questions that must be addressed when regulated activities are proposed that may affect water quality. The specific steps to be followed depend upon which tier or tiers of Anti-degradation apply.

Safe Drinking Water Act

Under the Safe Drinking Water Act (Pub.L. 93-523 (Dec. 16, 1974) 42 U.S.C. §§ 300f–300j–9), the USEPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter aesthetic acceptability of the water. These types of contaminants are regulated by USEPA primary and secondary Maximum Contaminant Levels (MCLs) applicable to treated water supplies delivered to the distribution system. MCLs and the process for setting these standards are reviewed triennially. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting MCLs for drinking water. USEPA has delegated to the California Department of Public Health (CDPH; formerly the Department of Health Services) the responsibility for administering California's drinking-water program. CDPH is accountable to USEPA for program implementation, and for adopting standards and regulations at least as stringent as those developed by USEPA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) (Porter-Cologne) established the State Water Board and divided the state into nine regions, each overseen by a Regional Water Board. The nine Regional Water Boards have primary responsibility for coordination and control of water quality within their respective jurisdictional boundaries. Under the act, water quality objectives are limits or levels of water quality constituents or characteristics established to protect beneficial uses. Porter-Cologne requires Regional Water Boards to establish water quality objectives while acknowledging that water quality may be changed to some degree without unreasonably affecting beneficial uses. Designated beneficial uses, together with corresponding water quality objectives, also constitute water quality standards under the federal Clean Water Act. Therefore, water quality objectives form regulatory references for meeting state and federal requirements for water quality control.

California Code of Regulations, title 22, division 4.5

Environmental health standards for management of hazardous waste are promulgated in California Code of Regulations, title 22. These regulations provide criteria for identification and classification of hazardous waste, rules for transporting hazardous waste, and standards for transferring, treating, storing, and disposing of hazardous waste.

California Code of Regulations, title 23, chapter 15

Regulations in this chapter pertain to water quality aspects of hazardous waste discharge to land, establish waste and site classifications, and waste management requirements for waste treatment, storage, or disposal in landfills, surface impoundments, waste piles, and land treatment facilities. Regional Water Boards may impose more stringent requirements to accommodate regional and site-specific conditions. In addition, requirements of this chapter apply to cleanup and abatement actions for unregulated discharges to land of hazardous waste (e.g., spills), taken pursuant to Resolution No. 92-49 (Cal. Code Regs., tit. 23, § 2907).

California Code of Regulations, title 23, chapter 16

Chapter 16 of California Code of Regulations, title 23 pertains to regulation of UST to protect waters of the state. These regulations define what constitutes an UST; provide for exemptions from these regulations; establish construction requirements for new USTs; stipulate environmental monitoring requirements for new and existing USTs; establish requirements for reporting unauthorized releases to appropriate regulatory agencies; institute standards for repairing, upgrading, and closing USTs; and specify procedures to request variances to these regulations.

California Code of Regulations, title 27

Non-hazardous waste is managed in California via combined State Water Board and CalRecycle regulations promulgated in California Code of Regulations, title 27, division 2, sections 20005 through 23014. The regulations that are promulgated by the State Water Board pertain to water quality aspects of discharges of waste to land for treatment, storage, or disposal. The State Water Board promulgated regulations establish waste and site classifications and waste management requirements for solid waste treatment, storage, or disposal in landfills, surface impoundments, waste piles, and land treatment units.

Regulations for developing WDRs for non-hazardous waste disposal facilities are specified in title 27, section 21710. Dischargers of solid waste to land where water quality could be affected must submit a report of waste discharge to the appropriate Regional Water Board, unless the report is waived by the Regional Water Board. Dischargers must provide information on waste characteristics, geologic and climatologic characteristics of the unit and the surrounding region, installed features, operation plans for waste containment, precipitation and drainage controls, and closure and post closure maintenance plans as set forth in title 27, sections 21740, 21750, 21760, and 21769.

Leaking Underground Fuel Tank Guidance Manual

The current version (September 2012) of this guidance document identifies roles and responsibilities for parties involved with leaking fuel UST systems; summarizes statutes and regulations pertaining to funding leaking fuel UST site cleanups; specifies project planning document requirements for site assessment, corrective action, and closure, including site assessment work plans and corrective action plans; provides guidance regarding UST removal, site assessment, risk analysis, site monitoring, and case closure; and outlines reporting requirements.

Basin Plans

The nine Regional Water Boards are responsible for implementing water basin plans throughout California. These plans identify existing and potential beneficial uses of waters of the State and establish water quality objectives to protect these uses. Beneficial uses and associated narrative and numerical water quality objectives are established in a basin plan for each region that is updated through a triennial review process.

Basin plans also contain implementation, surveillance, and monitoring plans. Statewide and regional water quality control plans include enforceable prohibitions against certain types of discharges, including those that may pertain to nonpoint sources. Beneficial uses and corresponding water quality objectives meet federal regulatory criteria for water quality standards, and therefore, California's basin plans serve as regulatory references for meeting both state and federal requirements for water quality control (40 C.F.R. §§ 130,131). Beneficial uses are defined in Water Code section 13050 subdivision f.

Basin plans adopted by Regional Water Boards are primarily implemented through the NPDES and waste discharge to land permitting system and issuance of WDRs to regulate waste discharges so that water quality objectives are met. These permits impose discharge restrictions and pollutant limits that take into consideration applicable state and federal water quality criteria for surface water, groundwater, and drinking water. Basin plans provide the technical basis for determining WDRs and taking regulatory enforcement actions if deemed necessary.

Statement of Policy With Respect to Maintaining High Quality of Waters in California (Resolution 68-16)

A key policy of California's water quality program is the state's Anti-degradation Policy. This policy, formally known as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (State Water Board Resolution No. 68-16), restricts degradation of surface water and groundwater. In particular, this policy protects water bodies where existing quality is higher than necessary for protection of beneficial uses. Under the Anti-degradation Policy, any actions that can adversely affect water quality in all surface water and groundwater must:

- 1) Meet WDRs that result in the best practicable treatment or control of the discharge necessary to assure that:
 - (a) a pollution or nuisance will not occur, and
 - (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained,
- 2) Not unreasonably affect present and anticipated beneficial use of the water, and
- 3) Not result in water quality less than that prescribed in water quality plans and policies.

Furthermore, any actions that can adversely affect surface waters are also subject to the federal Anti-degradation Policy (40 C.F.R. § 131.12), developed under the Clean Water Act.

Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304 (Resolution 92-49)

This resolution, Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304, provides specific requirements pertaining to implementation of the California Water Code (Porter-Cologne Water Quality Control Act). Section 13304 of this code requires that any person who discharges waste into waters of the state in violation of state statutes, regulations, requirements, prohibitions, permits, or who creates a condition of pollution or nuisance may be required to clean up the discharge and abate the effects thereof. This section authorizes Regional Water Boards to require complete cleanup of all waste discharged and restoration of affected water to ambient background conditions.

Policy for Regulation of Discharges of Municipal Solid Waste (Resolution 93-62)

This resolution was adopted to ensure compliance with the federal Solid Waste Disposal Act (SWDA) sections 4003 and 4005 (42 U.S.C. §§ 6943, 6945). The resolution requires each Regional Water Board to implement waste discharge requirements for discharges at MSW landfills, in accordance with California Code of Regulations, title 27 regulations and those applicable provisions of the federal MSW regulations necessary to protect water quality. Specific issues addressed by the resolution include:

- Composite liners - Test results have shown that releases of leachate and gas from MSW landfills that are unlined are likely to degrade the quality of underlying groundwater. Research on liner systems for landfills indicates that:
 - (a) Single clay liners only delay, rather than preclude, the onset of leachate leakage
 - (b) The use of composite liners represents the most effective approach for reliably containing leachate and landfill gas

The resolution provides prescriptive design standards for upper and lower MSW liners, as well as provisions for alternative designs meeting criteria provided by California Code of Regulations, title 27, section 20080(b).

- Sideslopes – alternate liner criteria are provided for containment systems installed on sideslopes that are too steep to permit construction of a stable composite liner that meets the prescriptive standards.
- Lack of compliance with landfill regulations - WDRs for many MSW landfills had not been revised to meet the State Water Board’s landfill regulations.

Standards for leachate collection — the resolution requires MSW facilities to have a leachate collection and removal system that conveys all leachate that reaches the liner to a sump or other appropriate lined collection area, and that does not rely upon unlined or clay-lined areas for such conveyance.

Construction Storm Water NPDES Permit

The federal Clean Water Act prohibits discharges of storm water from construction projects unless the discharge complies with a NPDES permit. The State Water Board is the permitting

authority in California, and has adopted the *National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Order No. 2012-0006-DWQ, NPDES No. CAS000002) (Construction General Permit) covering one or more acres of soil disturbance. Construction or demolition activities include clearing, grading, excavation, grubbing, stockpiling, and reconstruction of existing facilities (removal or replacement).

The Construction General Permit requires that the legally responsible person must file Permit Registration Documents prior to commencement of the construction activity. The Permit Registration Documents consists of a Notice of Intent, Storm Water Pollution Prevention Plan, and other documents required by the Construction General Permit. These documents are intended to establish a mechanism that can be used to clearly identify responsible parties, locations, and scope of operations of dischargers covered by the Construction General Permit and to document the discharger's knowledge of the permit's requirements.

Industrial Storm Water NPDES Permit

The Industrial Storm Water General Permit Order 97-03-DWQ ([General Industrial Permit](#)) is an NPDES permit that regulates discharges associated with 10 broad categories of industrial activities. The General Industrial Permit requires implementation of management measures that will achieve the performance standard of best available technology economically achievable and best conventional pollutant control technology. The General Industrial Permit also requires the development of a Storm Water Pollution Prevention Plan and a monitoring plan where sources of pollutants are identified and the means to manage the sources to reduce storm water pollution are described.

California Department of Health Services Drinking Water Regulations

California Department of Health Services (DHS) serves as the primary responsible agency for drinking water regulations. DHS must adopt drinking water quality standards at least as stringent as federal standards, and may also regulate contaminants to more stringent standards than USEPA, or develop additional standards. DHS regulations cover more than 150 contaminants, including microorganisms, particulates, inorganics, natural organics, synthetic organics, radionuclides, and disinfection by-products.

California Toxics Rule

The USEPA published the California Toxics Rule in the Federal Register (65 Fed.Reg. 31682-31719 (May 18, 2000)), adding 40 Code of Federal Regulations section 131.38. The rule contains numeric water quality criteria for priority toxic pollutants and other water quality standards provisions to be applied to waters in California. USEPA promulgated this rule based on the Administrator's determination that the numeric criteria are necessary in California to protect human health and the environment.

USEPA promulgated this rule to fill a gap in California water quality standards that was created in 1994 when a State court overturned the State's water quality control plans containing water quality criteria for priority toxic pollutants. Thus, California has been without numeric water quality criteria for many priority toxic pollutants as required by the Clean Water Act, necessitating this action by USEPA. These Federal criteria are legally applicable in the State of

California for inland surface waters, enclosed bays and estuaries for all purposes and programs under the Clean Water Act.

National Pretreatment Program for Industrial Discharges

Pretreatment of industrial discharges is mandated by the Clean Water Act of 1977 (33 U.S.C. §§ 1251–1376). USEPA has established pretreatment standards (40 C.F.R. § 403) for various industrial categories. USEPA created the National Pretreatment Program and first issued pretreatment regulations in 1973, which has been revised numerous times since. The most recent revision of the regulations was promulgated under the pretreatment Streamlining Rule, which became effective in November 2005.

The purpose of the National Pretreatment Program is to regulate the discharge of pollutants to municipal sanitation sewers. The goal is to protect receiving water quality and the environment from pollutants that can pass through a wastewater treatment plant relatively unaffected by the treatment processes. An individual pretreatment program will typically involve several steps:

- Identification of pollutants that could cause upset or bypass (pollutants of concern);
- Development of discharge limitations for nondomestic discharges (local limits);
- Identification of nondomestic discharge sources; and
- Implementation of nondomestic monitoring programs to enforce the local limits.

Drinking Water Source Water Assessment and Protection Program

The 1996 federal Safe Drinking Water Act amendments require California to develop and implement a Source Water Assessment Program. Section 11672.60 of the California Health and Safety Code requires DHS (precursor to CDPH) to develop and implement a program to protect sources of drinking water, specifying that the program must include both a source water assessment program and a wellhead protection program. This program, which is required by federal and state law, is called the Drinking Water Source Water Assessment and Protection Program. California's program addressed both groundwater and surface water sources. The groundwater portion serves as the state wellhead protection program. In developing the surface water components, DHS integrated existing requirements for watershed sanitary surveys (DHS, 1999, and CDPH, 2007).

The groundwater program includes components intended to fulfill the requirements for state development of a Wellhead Protection Program strategy, as required by section 1428 of the Safe Drinking Water Act amendments of 1986. A Wellhead Protection Area, as defined by the 1986 amendments, is “the surface and subsurface area surrounding a water well or well-field supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well-field.”

CDPH must inventory possible contaminating activities that might lead to release of microbiological or chemical contaminants within the delineated area. An essential element of the program is an inventory of these activities considered potential sources of contamination in designated drinking water source areas and protection zones.

Resolution 88-63, "Sources of Drinking Water" specifies that all surface water and groundwater of the state must be protected as existing or potential sources of municipal and domestic supply, except under specific circumstances. The policy provides for specific and limited circumstances where surface water and groundwater may be excluded from this policy, including cases where existing physical and chemical characteristic of these waters do not meet criteria to be considered a suitable water supply source (i.e., insufficient water yield, high ambient total dissolved solids concentrations or electrical conductivity, presence of pre-existing natural or man-made contamination not amenable to remediation, agricultural drainage waters, and exempt aquifers used to produce geothermal or hydrocarbon-based energy).

Groundwater Management Plan (AB 3030)

Assembly Bill No. 3030 (AB 3030), known as the Groundwater Management Act, added sections 10750-10756 of the Water Code in 1992, and describes components that may be included in a groundwater management plan developed by a local agency to protect groundwater. In all, 149 agencies have adopted groundwater management plans in accordance with AB 3030 (California DWR, 1994b). Each component would play a role in evaluating or operating a groundwater basin so that groundwater can be managed to maximize the total water supply while protecting groundwater quality. California DWR Bulletin 118-80 defines groundwater basin management as including planned use of basin yield, storage space, transmission capability, and water in storage (California DWR, 2003). Groundwater basin management includes:

- Protection of natural recharge and use of intentional recharge,
- Planned variation in amount and location of pumping over time,
- Use of groundwater storage conjunctively with surface water from local and imported sources, and
- Protection and planned maintenance of groundwater quality.

The 12 components listed in section 10753.7 of the Water Code form a basic list that includes data collection and operation of facilities that may be undertaken by an agency operating under this act. With respect to protecting groundwater from potential contamination from composting, critical components to be included in local plans include the following:

- Identification and management of wellhead protection areas and recharge areas.
- Regulation of the migration of contaminated groundwater.
- Administration of a well abandonment and destruction program.
- Monitoring of groundwater levels and storage.

Review of land use plans and coordination with land use planning agencies to assess risk of groundwater contamination from various activities.

LAND USE, PLANNING, AND RECREATION

Federal Land Policy Management Act

The Federal Land Policy Management Act of 1976 is the principal law governing how the Bureau of Land Management manages public lands. This act requires the Bureau to manage public land resources for multiple use and sustained yield for both present and future generations. The act addresses topics such as land use planning, land acquisition, fees, and payments, administration of federal land, range management, and right-of-ways on federal land. Although local agencies do not have jurisdiction over the federal lands managed by the Bureau, under this act and the Bureau's regulations at 43 Code of Federal Regulations, section 1600, the Bureau must coordinate planning efforts with state and local planning initiatives.

Established by Federal Land Policy Management Act, resource management plans are designed to protect present and future land uses and to identify management practices needed to achieve desired conditions within the management area covered by the plan. Management direction is set forth in the plans in the form of goals, objectives, standards, and guidelines. These, in turn, direct management actions, activities, and uses that affect land management, and water, recreation, visual, natural, and cultural resources.

This act also defines an Area of Critical Environmental Concern as an area within public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. The Bureau identifies, evaluates, and designates these areas through its resource management planning process. Allowable management practices and uses, mitigation, and use limitations, if any, are described in the planning document and the concurrent or subsequent plan. These areas are considered land use authorization avoidance areas because they are known to contain resource values that could result in denial of applications for land uses that cannot be designed to be compatible with management objectives and prescriptions.

National Landscape Conservation System

Created in 2000, the Bureau of Land Management's National Landscape Conservation System encompasses 27 million acres and is composed of 880 units that include national monuments, national conservation areas, wilderness, and wilderness study areas, wild and scenic rivers, national scenic and historic trails, and conservation lands, including lands in the California Desert. In March 2009, Congress passed the Omnibus Public Lands Management Act, providing a statutory basis for the system. The mission of the system is to conserve, protect, and restore nationally significant landscapes recognized for their outstanding cultural, ecological, and scientific values.

California Desert Protection Act of 1994

Congress enacted the California Desert Protection Act of 1994 (Pub.L. 103-433 (Oct. 31, 1994) 108 Stat. 4471) to establish desert wilderness areas for protection including the Chuckwalla Mountains Wilderness, the Little Chuckwalla Mountains Wilderness, the Palen/McCoy Wilderness, and the Palo Verde Mountains Wilderness. In addition, this act established Death

Valley National Park, Joshua Tree National Park, and the Mojave National Preserve. The act established administration of wilderness lands and addresses land use compatibility issues such as buffers and right of ways.

Wild and Scenic Rivers Act of 1968

This act established a National Wild and Scenic Rivers System for the protection of rivers with important scenic, recreational, fish and wildlife, and other values. The act contains procedures and limitations for control of lands in federally administered components of the System and for disposition of lands and minerals under federal ownership.

Comprehensive Conservation Plans for National Wildlife Refuges

The USFWS is directed to develop comprehensive conservation plans to guide the management and resource use for each refuge of the National Wildlife Refuge System under requirements of the National Wildlife Refuge Improvement Act of 1997. Refuge planning policy also directs the process and development of these plans. A comprehensive conservation plan describes desired future conditions and long-range guidance necessary to meet refuge purposes. The plan also guides management decisions and sets forth strategies for achieving refuge goals and objectives within a 15-year time frame.

National Trails System Act of 1968

The National Trails System Act is intended to promote preservation of, public access to, travel within, and enjoyment and appreciation of the open air, outdoor areas, and historic resources through establishment of a national trail system. The act created a series of trails administered by a federal agency (Bureau of Land Management, United States Forest Service, or National Park Service).

Farmland Protection Policy Act

FPPA directs Federal agencies to consider the effects of Federal programs or activities on farmland, and ensure that such programs, to the extent practicable, are compatible with state, local, and private farmland protection programs and policies. The rating process established under this act was developed to help assess options for land use on an evaluation of productivity weighed against commitment to urban development.

Federal Aviation Administration Regulations

FAA regulations address potential aircraft obstruction for structures taller than 200 feet or within 20,000 feet of an airport. Specifically, 14 Code of Federal Regulations section 77, established standards and notification requirements for objects that have the potential to affect navigable airspace. Section 77 standards are intended to: (1) evaluate the effect of the construction or alteration of structures on airport operating procedures; (2) determine if there is a potential hazard to air navigation; and (3) identify measures to enhance safety. Specifically, the FAA requires notification through the filing of FAA Form 7460, Notice of Proposed Construction or Alteration, if a structure is more than 200 feet in height or closer than 20,000 feet to an existing airport or airport under construction.

Natural Communities Conservation Planning Act

The California Fish and Game Code (§§ 2800–2835) sets forth policies on the conservation, protection, restoration, and enhancement of the California's natural resources and ecosystems. The intent of the legislation is to provide for conservation planning as an officially recognized policy that can be used as a tool to eliminate conflicts between the protection of the State's natural resources and the need for growth and development. In addition, the legislation promotes conservation planning as a means of coordination and cooperation among private interests, agencies, and landowners, and as a mechanism for multispecies and multi-habitat management and conservation.

State Park Units

Department of Parks and Recreation may acquire title or any interest in real property, "which the department deems necessary or proper for the extension, improvement, or development of the state park system" (Pub. Resources Code, § 5006). Prior to classifying a unit, the department must prepare an "inventory of the unit's scenic, natural, and cultural features, including, but not limited to, ecological, archaeological, historical, and geological features" (Pub. Resources Code, § 5002.1). This inventory is then considered by the department in classifying a unit. There are eight classification categories: State parks, State recreation units, Historical units, State seashores, State reserves, State wildernesses, Natural preserves, and Cultural preserves (Pub. Resources Code, § 5019.53–5019.74). The last three units are subunits of the first five. Management and improvements on State parks must be made in a manner that protects the native environment to the "extent compatible with the primary purpose for which the park was established" (Pub. Resources Code, § 5019.53).

State Conservancies

The seven California Conservancies (Tahoe, Coastal, Santa Monica Mountains, San Gabriel, and Lower Los Angeles Rivers and Mountains, Coachella Valley and Mountains, San Joaquin River, and Baldwin Hills) were legislatively created to protect and preserve distinct regions of the state. They are empowered to acquire land to preserve and restore habitat and ecosystems, and provide recreational opportunities in these regions.

The state conservancies are given broad powers to conserve land and natural resources in defined geographical regions of statewide significance. Most conservancies have a direct mandate to provide recreation and education activities. Thus, they are engaged in conservation for human use, though they often also seek to conserve natural systems as well.

Wild and Scenic Rivers Act

This act establishes a Wild and Scenic Rivers System for protection of rivers with important scenic, recreational, fish and wildlife, and other values. It was created in 1972 by the Legislature in an effort to balance traditional water and power development on rivers with preservation of some free-flowing segments for their recreation and wildlife values. In the state, 1,900 miles of river are under Wild and Scenic protection. Pursuant the California Wild and Scenic Rivers Act, no dam or reservoir shall be constructed on any river unless the Secretary determines that the facility is needed to supply domestic water, and that it will not adversely affect the free-flowing condition of the river (Pub. Resources Code, § 5093.55).

State Planning and Zoning Law

Government Code section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for physical development of the city or county. The general plan addresses a broad range of topics, including at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies goals, objectives, policies, principles, standards, and plan proposals that support the city or county's vision for the area. The general plan is also a long-range document that typically addresses the physical character of an area during a 20-year period. Although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

The State Zoning Law (Gov. Code, § 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific district, must be consistent with the general plan and any applicable specific plan.

Farmland Conservation

The CDOC's Division of Land Resource Protection administers two important incentive programs for the preservation of agricultural land. The California Land Conservation Act, also known as the Williamson Act (Gov. Code, § 51200) was passed in 1965 to preserve, through tax incentives, farmland pressured by spiraling land valuation and tax increases associated with suburban growth. Farmland enrolled in the program is assessed at farmland value, as opposed to the Proposition 13 valuation; and, through the Open Space Subvention Act, counties are substantially reimbursed for lost property tax revenue. Approximately 16 million acres of farmland (about 50 percent of the State's total farmland) are enrolled in the program. Amendments to the Budget Act of 2009 reduced Williamson Act Subvention payments budget to \$1,000, essentially suspending the subvention payments to the counties.

The Farmland Security Zone is additional agricultural land conservation legislation that allows local governments and landowners to rescind a Williamson Act contract and simultaneously place the farmland under a Farmland Security Zone contract for an initial term of at least 20 years. A Farmland Security Zone contract offers landowners greater property tax reduction than the Williamson Act by valuing enrolled real property at 65 percent of its Williamson Act valuation, or its Proposition 13 valuation, whichever is lower.

Government Code section 51238 states that unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses within any agricultural preserve. Also section 51238 states the board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses in conformity with section 51238.1.

Further, Government Code section 51238.1 allows a board or council to allow as compatible a use that without conditions or mitigations would otherwise be considered incompatible. However, this may occur only if the use meets the following conditions:

- The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves.
- The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel, parcels, or neighboring lands, including activities such as harvesting, processing, or shipping.
- The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

The California Farmland Conservancy Program was created in 1996 (Pub. Resources Code, § 10200) and provides grant funding for agricultural conservation easements. Although the easements are always written to reflect the benefits of multiple resource values, there is a provision in the statute that prevents easements funded under the program from restricting husbandry practices. This provision could prevent restricting those practices to benefit other natural resources.

The CDOC also administers the FMMP (Gov. Code § 65570; Pub. Resources Code, § 612). The program was established in 1982 to assess the location, quality, and quantity of agricultural lands and conversion of these lands over time. Agricultural designations used by the department include the following:

- Prime Farmland: Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Farmland of Statewide Importance: Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Unique Farmland: Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- Farmland of Local Importance: Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- Grazing Land: Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

- **Urban and Built-Up Land:** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land:** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Coastal Act of 1976

The California Coastal Act contains provisions to protect agricultural productivity in the coastal zone. The act has specific guidance measures to avoid the conversion of prime agricultural land.

The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the area's agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:

"...(e) By assuring that public service and facility expansions and nonagricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality (§30241 California Public Resources Code)."

Further, the Coastal Act calls for the protection of the long-term productivity of soils and timberlands. (Pub. Resources Code, § 30243.)

Airport Land Use Compatibility Planning

The State Aeronautics Act (Pub. Util. Code, § 21001 et seq.) establishes statewide requirements for airport land use compatibility planning and requires nearly every county to create an Airport Land Use Commission or other alternative.

The California Department of Transportation Airport Land Use Planning Handbook establishes guidance on land use planning near airports in California. The Handbook also outlines the legal authority (and limitations thereof) possessed by a commission when establishing noise and safety corridors around airports that potentially restrict land use development. The intent of the Handbook is to make recommendations for establishing land use development policies based upon FAA regulations, rather than specifying precise statutes or means of interpreting FAA regulations (Caltrans, 2011).

The purpose of a commission is to establish policies that intend to make land use development around airports compatible with airport-related noise and safety corridors. As applicable, these policies must follow established FAA regulations and other federal, state, and local statutes. However, the Caltrans Handbook provides guidance on the scope of authority that a commission has to restrict land use development. Caltrans guidance suggests that land use restrictions are legitimate when they prevent harm to the surrounding area rather than confer a benefit to the airport.

Natural Community Conservation Planning Act (1991)

The Natural Community Conservation Planning program of DFW is an unprecedented effort by California, and numerous private and public partners that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. The act identifies and provides for the regional or area wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity.

The program is a cooperative effort to protect habitats and species. The program, which began in 1991 under the State's Natural Community Conservation Planning Act, is broader in its orientation and objectives than the California and Federal Endangered Species Acts. These laws are designed to identify and protect individual species that have already declined in number significantly.

The primary objective of the program is to conserve natural communities at the ecosystem level while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

Local Agency Formation Commissions

The Cortese-Knox-Hertzberg Act of 2000 (Gov. Code, § 56000 et seq.), establishes the process through which local agency boundaries are established and revised. Each county must have a local agency formation commission, which is the agency that has the responsibility to create orderly local government boundaries, with the goal of encouraging "planned, well-ordered, efficient urban development patterns," the preservation of open-space lands, and the discouragement of urban cities, and one member of the public. Many commissions also include one special district representative.

While commissions have no land use power, their actions determine which local government will be responsible for planning new areas. The commissions address a wide range of boundary actions, including creation of spheres of influence for cities, adjustments to boundaries of special districts, annexations, incorporations, detachments of areas from cities, and dissolutions of cities. A city's sphere of influence is an indication of the city's future boundaries. Since 1992, state law requires that incorporation of a new city must not financially harm the county and must result in a positive cash flow for the new city, a requirement that has slowed the rate of new city incorporation.

The California Land Conservation Act (Williamson Act)

The California Land Conservation Act, better known as the Williamson Act, was enacted by the California State Legislature in 1965 to encourage the preservation of agricultural lands. The Williamson Act program permits property tax adjustments for landowners who contract with a city or county to keep their land in agricultural production or approved open space uses for at least 10 years. Lands covered by Williamson Act contracts are assessed based on their agricultural value instead of their potential market value under nonagricultural uses. In return for the preferential tax rate, the landowner is required to contractually agree to not develop the land for a period of at least 10 years. Williamson Act contracts are renewed annually for 10 years unless a party to the contract files for nonrenewal. The filing of a non-renewal application by a

landowner ends the automatic annual extension of a contract and starts a 9-year phase-out of the contract. During the phase-out period, the land remains restricted to agricultural and open-space uses, but property taxes gradually return to levels associated with the market value of the land. At the end of the 9-year non-renewal process, the contract expires and the owner's uses of the land are restricted only by applicable local zoning. The Williamson Act defines compatible use of contracted lands as any use determined by the county or city administering the agricultural preserve to be compatible with the agricultural, recreational, or open space use of land within the preserve and subject to contract. (Gov. Code, § 51202(e).) However, uses deemed compatible by a county or city government must be consistent with the principles of compatibility set forth in Government Code section 51238.1.

State Lands Commission Significant Lands Inventory

The State Lands Commission is responsible for managing lands owned by the state, including lands that the state has received from the federal government. These lands total more than four million acres and include tide and submerged lands, swamp and overflow lands, the beds of navigable waterways, and state school lands. The State Lands Commission has a legal responsibility for, and a strong interest in, protecting the ecological and Public Trust values associated with the State's sovereign lands, including the use of these lands for habitat preservation, open space, and recreation.

General Plans

The most comprehensive land use planning is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. The general plan contains goals and policies concerning topics mandated by state law or which the jurisdiction has chosen to include. Required topics are: land use, circulation, housing, conservation, open space, noise, and safety. Other topics that local governments frequently choose to address are public facilities, parks and recreation, community design, or growth management, among others. City and county general plans must be consistent with each other. County general plans must cover areas not included by city general plans (i.e., unincorporated areas).

Specific and Community Plans

A city or county may also provide land use planning by developing community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan. Specific and community plans are required to be consistent with the city or county's general plan.

Zoning

The city or county zoning code is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code presents standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan, except in charter cities.

Housing Element Law

State law requires each city and county to adopt a general plan containing at least seven mandatory elements including housing. Unlike the other general plan elements, the housing element, required to be updated every five to six years, is subject to detailed statutory requirements and mandatory review by a State agency, the California Department of Housing and Community Development. Housing elements have been mandatory portions of local general plans since 1969. This reflects the statutory recognition that housing is a matter of statewide importance and cooperation between government and the private sector is critical to attainment of the State's housing goals. The availability of an adequate supply of housing affordable to workers, families, and seniors is critical to the State's long-term economic competitiveness and the quality of life for Californians.

NOISE

Noise Control Act of 1972

The federal Noise Control Act of 1972 (Pub.L. 92-574 (Oct. 27, 1972); codified in 42 U.S.C. § 4901 et seq.) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare. The USEPA was given the responsibility for:

- Providing information to the public regarding identifiable effects of noise on public health and welfare;
- Publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety,
- Coordinating federal research and activities related to noise control, and
- Establishing federal noise emission standards for selected products distributed in interstate commerce.

The Noise Control Act also directed that all federal agencies comply with applicable federal, state, interstate, and local noise control regulations. Although the USEPA was given a major role in disseminating information to the public and coordinating with other federal agencies, each federal agency retains authority to adopt noise regulations pertaining to agency programs. The USEPA can, however, require other federal agencies, such as those listed below, to justify their noise regulations in terms of Noise Control Act policy requirements.

California Office of Noise Control

The California DHS Office of Noise Control studied the correlation of noise levels and their effects on various land uses and published land use compatibility guidelines for the noise elements of local general plans. The guidelines are the basis for most noise element land use compatibility guidelines in California.

The land use compatibility for community noise environment chart identifies the normally acceptable range for several different land uses, as shown in Figure 13-1 below. Persons in low-density residential settings are most sensitive to noise intrusion, with noise levels of 60 dBA

CNEL and below considered “acceptable”. For land uses such as schools, libraries, churches, hospitals, and parks, acceptable noise levels go up to 70 dBA CNEL. Industrial areas (including solid waste facilities) are land uses that can tolerate higher ambient noise level, with conditionally acceptable noise levels being up to 80 dBA CNEL.

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dB at 15 meters. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by State and local law enforcement officials.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards. (Cal. Code Regs., tit. 24, § 3501 et seq.) The noise insulation standards set forth an interior standard of DNL 45 dBA in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Local Jurisdictions

In California, most cities and counties have noise ordinances serve as enforcement mechanisms for controlling noise. Jurisdictions also have General Plan Noise Elements may be used as planning guidelines to ensure that long-term noise generated by a source is compatible with adjacent land uses. Both the noise ordinances and General Plan Noise Elements may include limits for industrial areas and limits for sensitive receptor noise levels.

POPULATION AND HOUSING

Federal Housing Administration

The Federal Housing Administration (FHA) was created by Congress in 1934, and became part of the United States Department of Housing and Urban Development’s (HUD) Office of Housing in 1965. The FHA made it possible for potential homebuyers to get the financing they needed to own a home. The FHA accomplished this by providing mortgage insurance on loans made by FHA-approved lenders throughout the United States. The insurance is intended to reduce the risk on lenders in the event that a homeowner defaults on a mortgage. The FHA also has various programs and regulations in place to help provide affordable and equal housing opportunities throughout the United States.

Tenement House Act of 1909

The State Tenement House Act of 1909 was the first housing regulation passed in California. The law only applied to apartment houses and hotels within cities. Later laws such as the State Dwelling House Act and the State Housing Law (formerly the State Housing Act) were applied to a wider range of housing types, and eventually lead to formation of the Department of Housing and Community Development in 1965. This department is responsible for developing and

enforcing statewide minimum construction regulations for all types of housing, and to promote and maintain adequate housing and decent living environments for all of California's citizens.

The State Housing Law Program was established to assure availability of affordable housing and uniform statewide code enforcement; to protect the health, safety, and general welfare of the public and occupants of housing and buildings accessory thereto. To fulfill this obligation the program may propose legislation and regulations. The program oversees application of state laws, regulations, and code enforcement by a city, county, city and county building, housing, health, and fire department or fire district.

The program develops statewide building standards for new construction of hotels, motels, lodging houses, apartments, dwellings, and buildings accessory thereto. The building standards are published in the California Code of Regulations, title 24, known as the California Building Standards Code.

The program adopts regulations for maintenance, use, occupancy, repair, alteration, moving, and demolition of existing hotels, motels, lodging houses, apartments, dwellings, and buildings accessory thereto. The regulations are published in the California Code of Regulations, title 25, division 1, chapter 1.

PUBLIC SERVICES AND UTILITIES

California Composting and Transfer/Processing Regulations

Composting operations could be regulated under CalRecycle's existing composting and transfer/processing regulations. The application of permitting requirements must be applied on a case-by-case basis. The determination as to the type of facility would be based on the nature of the feedstock and the temperature of on-site processes. If the feedstock reach a temperature of at least 50 degrees Celsius/122 degrees Fahrenheit (50°C/122°F) on site, then the facility could be regulated as a compostable material handling facility. If the feedstock does not reach the temperature of 50°C/122°F on site, then the facility could be regulated as a transfer/processing facility. Composting operations covered within the Order typically also must obtain a Compostable Material Handling Facility Permit unless exempted under California Code of Regulations, title 14, section 17855.

CalRecycle's compostable material handling, design and operations regulatory requirements are located at California Code of Regulations, title 14, division 7, chapter 3.1, section 17850 et seq. The transfer/processing regulatory requirements are located at title 14, division 7, chapter 3, article 6.0 (§ 17400 et seq.) Specific sections related to public services and utilities are provided below:

Section 17867. General Operating Standards as follows:

(a) All compostable materials handling operations and facilities shall meet the following requirements:

(8) The operator shall provide fire prevention, protection, and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from

combustible materials. Fire lanes shall be provided to allow fire control equipment access to all operation areas.

(9) The operator shall provide telephone or radio communication capability for emergency purposes.

(10) Physical Contaminants and refuse removed from feedstock, compost, or chipped and ground material shall be removed from the site within 7 days and transported to an appropriate facility.

(13) The operator shall prevent or remove physical contaminants in compost and chipped and ground materials that may cause injury to humans.

Section 17867.5. Training as follows:

(a) Compostable materials handling operations and facilities shall meet the following requirements:

(1) Operators shall ensure that all personnel assigned to the operation shall be trained in subjects pertinent to operations and maintenance, including the requirements of this article, physical contaminants and hazardous materials recognition and screening, with emphasis on odor impact management and emergency procedures. A record of such training shall be maintained on the site.

Local Jurisdictions

Local agencies that regulate public services and publicly-owned utility systems include county fire departments and fire districts, county water departments and water districts, county environmental health departments for wells and septic systems, and county flood management departments and drainage districts for flood protection and drainage services. Local agencies regulate facilities within their jurisdiction by enforcing State and local laws and ordinances. Local agencies currently adopt and enforce the 2007 California Fire Code. (Cal. Code Regs., tit. 24, pt. 9 (2010) (Building Standards).) Local jurisdictions also provide goals, objectives, and policies related to public services and utilities in the jurisdiction's general plan.

TRANSPORTATION

California Department of Transportation (Caltrans)

Caltrans is responsible for planning, designing, constructing, operating, and maintaining all State-owned roadways. Caltrans also implements Federal highway standards for interstates in California. Caltrans' construction practices require temporary traffic control planning "during any time the normal function of a roadway is suspended". In addition, Caltrans has discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles contained in Division 15 of the California Vehicle Code. Requests for such special permits require completion of an application for a Transportation Permit. The California Highway Patrol is notified about transportation of oversize/overweight loads.

State highway weight and load limitations are specified in the California Vehicle Code, sections 35550 to 35559. The following general provisions would apply to the project:

- The gross weight imposed upon the highway by the wheels on any axle of a vehicle shall not exceed 20,000 pounds, and the gross weight upon any one wheel, or wheels, supporting one end of an axle, and resting upon the roadway, shall not exceed 10,500 pounds.
- The maximum wheel load is the lesser of the following: (a) the load limit established by the tire manufacturer, or (b) a load of 620 pounds per lateral inch of tire width, as determined by the manufacturer's rated tire width.

For vehicles with trailers or semi-trailer, the following provision applies:

- The gross weight imposed upon the highway by the wheels on any one axle of a vehicle shall not exceed 18,000 pounds, and the gross weight upon any one wheel, or wheels, supporting one end of an axle and resting upon the roadway, shall not exceed 9,500 pounds, except that the gross weight imposed upon the highway by the wheels on any front steering axle of a motor vehicle shall not exceed 12,500 pounds, according to California Vehicle Code section 35551.5.

These weight and load limitations for state highways would also apply to county or city roadways if no limitations are specified by the local jurisdiction.

County and City Land Use Regulations and Ordinances

Local regulations and ordinances vary widely from area to area. Typically, local jurisdictions adopt building, grading, and erosion control ordinances. In addition, local jurisdictions typically require a traffic safety / traffic management plan for any project that includes lane closures, partial road closures, and road closures with detours. An encroachment permit is required for any work to be performed in the roadway right-of-way.