Draft Environmental Impact Report for Green Acres Farm Biosolids Land Application Project

Prepared for:
City of Los Angeles
Los Angeles, California

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Bureau of Engineering
Environmental Management Group

City of Los Angeles

Bureau of Sanitation

Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

1.1 Purpose of an Environmental Impact Report (EIR)

This Environmental Impact Report (EIR) has been prepared by the City of Los Angeles Department of Public Works, Bureau of Sanitation (BOS) to evaluate potential environmental effects that would result from the proposed Green Acres Farm Biosolids Land Application Project (proposed project). This EIR has been prepared in conformance with the California Environmental Quality Act of 1970 (CEQA) statutes (Public Resources Code §21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations, §15000 et seq.). The City of Los Angeles (the City) is the lead agency under CEQA.

The project site is located at Green Acres Farm (the Farm), which consists of nearly 4,700 acres of land in unincorporated western Kern County where active farming has occurred since 1988. The two interrelated subsequent activities in the City's biosolids program (described further in Section 2.6) are the components of this proposed project. These two subsequent activities are: (1) the City's approval in 2000 of Amendment No. 2 to City Contract C-94375, a pre-existing contract between the City and the contractor, Responsible Biosolids Management, Inc. (RBM), for the loading, transportation, and beneficial reuse of the City's biosolids at the Farm; and (2) the City's purchase of the Farm in 2000.[1] As a result of a Tulare County Court Superior Court Writ of Mandate in 2005 (Writ) and Court Order on Return to Writ of Mandate in 2012 (Court Order), an Initial Study (IS) was prepared for these two actions (Section 1.2.1). Based on the conclusions of the IS, this EIR has been prepared. This is a retrospective EIR for a project that commenced in 2000 and resulted from the Writ and Court Order.

1.2 The CEQA Environmental Process

1.2.1 Previous CEQA Actions

A Program EIR (PEIR) was prepared in 1989 (1989 PEIR) to analyze off-site options for use and/or disposal of biosolids produced at the City's wastewater treatment plants, including land application.[2] A second PEIR was prepared in 1996 (1996 PEIR) to further analyze the environmental impacts associated with the City's management and use of biosolids.[3] In response to the Writ, an addendum to the 1989 and 1996 PEIRs was prepared in 2010 (Addendum). In 2012, the Court Order ruled that the Addendum was inadequate to discharge the Writ and the City was directed to prepare an IS. This current CEQA analysis has been prepared to address the Writ and Court Order.

1.2.2 Current CEQA Actions

CEQA requires preparation of an EIR when there is substantial evidence supporting a fair argument that a proposed project may have a significant effect on the environment. The purpose of an EIR is to provide decision makers, public agencies, and the general public with an

[1] Note that all documents and references used in the EIR will be available upon request through the Bureau of Sanitation contact person(s) listed for this EIR

[2] City of Los Angeles. 1989. Program EIR: Offsite Sludge Transportation and Disposal Program. March 1989. State Clearinghouse No. 88021018.

[3] City of Los Angeles. 1996. Program EIR: Biosolids Management Program. State Clearinghouse No. 93051010.

objective and informational document that fully discloses the environmental effects of the proposed project. The EIR process is intended to facilitate the objective evaluation of potentially significant direct, indirect, and cumulative impacts of the proposed project, and to identify feasible mitigation measures and alternatives that would reduce or avoid the proposed project's significant effects. In addition, CEQA specifically requires that an EIR identify those adverse impacts determined to be significant after mitigation.

In accordance with the CEQA Guidelines, an IS was prepared and a Notice of Preparation (NOP) distributed on February 14, 2013, to public agencies, interested organizations, and the general public. The purpose of the IS/NOP was to provide notification that the City plans to prepare an EIR and to solicit input on the scope and content of the EIR. The IS/NOP was distributed to agencies, property owners, and occupants via mail (530 recipients) and e-mail (655 recipients); 19 written comment letters and e-mails were received from various agencies, organizations, and individuals. The IS/NOP is included in Appendix A and the letters and e-mailed comments are included in Appendix B of this EIR.

1.3 Project Outreach

A public agency scoping meeting was held near the project site at the Frazier Park Library in Frazier Park in Kern County on March 6, 2013. The purpose of this meeting was to seek input from public agencies and the general public regarding the environmental issues and concerns that may potentially result from the proposed project. One person submitted oral comments at the scoping meeting.

1.4 Areas of Known Controversy and Issues to be Resolved

The following list summarizes the main public comments and questions that were received in response to the IS/NOP and at the scoping meeting related to environmental issues:

- **Aesthetics**. Comments were raised about the proximity of the project to off-site receptors and whether the smell or appearance of the Farm will interfere with visitors' enjoyment of the nearby recreation areas.
- **Agriculture and Forestry Resources**. A comment stated that the proposed EIR must analyze the impacts to public health of applying biosolids to food-chain crops. An additional comment stated that an analysis of the constituents of the harvested crop should be conducted and their final environmental fate should be determined. Additionally, comments raised the concern that existing farmland and at least one canal used for crop irrigation could be impacted by the project.
- **Air Quality**. Comments were raised associated with the potential criteria pollutant and greenhouse gas (GHG) emissions from transporting the biosolids; criteria pollutants that are able to escape after the spread material is covered; whether hot and windy days will increase the release of microbes and toxics; potential construction and operation related air quality impacts; and possible alternatives such as using the biosolids for fuel or treating them with high heat and pressure to produce hydrogen and carbon dioxide. In addition, it was suggested that California Emissions Estimation Model (CalEEMod™) be used for estimating emissions; that emissions of particulate matter less than 2.5 microns ($PM_{2.5}$) should be quantified and compared to the recommended South Coast Air Quality Management District (SCAQMD) significance thresholds; and that a localized air quality analysis and a mobile source health risk assessment (HRA) be done if the proposed project

generates or attracts vehicle trips. Comments expressed concerns about the potential for airborne pathogen release and contamination by microbes, nutrients, and toxins.

- **Biological Resources**. Comments stated that the PEIR found a significant impact to biological resources where nondegradable constituents would assimilate into vegetation onsite, and that the EIR must discuss appropriate mitigation measures. A commenter also stated that the EIR must include a full chapter on biological resources including current surveys on the use of the site and the potential impacts of the last 12 years of biosolids spreading on wildlife.
- **Cultural Resources**. Suggestions were submitted that the Native American Heritage Commission (NAHC), Native American tribes in the area, and the appropriate Information Center should be consulted to examine whether any archaeological fixtures, cultural resources or burial sites exist in the project location.
- **Geology/Soils**. One comment stated that the PEIR found that land application rates greater than 25 wet tons per acre would result in significant heavy metal contamination in soils so the loading rate must be strictly controlled. Other comments state that the EIR must address the site-specific impacts of the project on soils and their mitigation measures. A commenter stated the EIR must also address the conflict between the actual land application rate and the rate imposed as a mitigation measure in the PEIR.
- **Greenhouse Gases**. Concerns were raised about the potential GHG emissions resulting from transporting and land applying the biosolids at the Farm and that the emissions need to be examined in the EIR.
- **Hazards and Hazardous Materials**. No comments related to hazards and hazardous materials was received.
- **Hydrology/Water Quality**. Questions were raised regarding whether the water supply was based on groundwater, surface water, or treated wastewater; whether any potential water seepage to water supplies and resources were being considered; and whether there were any effects on water quality. One comment suggested consideration of project alternatives such as anaerobic digestion and incineration, or alternative project locations to minimize water contamination and human ingestion.
- **Land Use/Planning**. One comment states that the EIR must analyze whether the impacts to land use from the acquisition of the Farm would be less than that analyzed in the PEIR.
- **Noise**. One commenter stated that the PEIR found that noise impacts would be significant but would be mitigated through using sufficient buffers of 3,000 feet. However, the IS stated that the nearest sensitive receptor is 1,850 feet from the Farm, so commenter stated the EIR must analyze the significant noise impacts.
- **Population/Housing**. No comments related to population/housing were received.
- **Public Services**. No comments related to public services were received.
- **Recreation**. Comments expressed concern that the location of the project is adjacent to the Buena Vista Aquatic Recreation Area (BVARA).
- **Transportation/Traffic**. One comment stated that reliance on the PEIR analysis of truck traffic is inadequate and the EIR must analyze the site specific impacts of truck traffic. Another comment stated that the EIR must consider the cost of maintaining Kern County roads.
- **Utilities/Service Systems**. No comments related to utilities/service systems were received.

This EIR focuses on the environmental impacts identified as potentially significant during the IS process and addresses the comments received in response to the NOP. The environmental areas analyzed in detail in this EIR include air quality, GHG emissions, hydrology/water quality and land use/planning. Effects not found to be significant are addressed in Chapter 3 Impacts Overview of this EIR.

This Draft EIR (DEIR) is being circulated for 45 days for public review and comment. The time frame of the public review period is identified in the Notice of Completion (NOC) attached to the DEIR. During this period, comments from the general public, organizations, and agencies regarding environmental issues analyzed in the DEIR and the DEIR's accuracy and completeness may be submitted to the lead agency at:

Diane Gilbert Jones
City of Los Angeles Department of Public Works
Bureau of Sanitation
1149 S. Broadway – 10th floor
Los Angeles, CA 90015
Fax: 213-847-1779
E-Mail: diane.gilbert@lacity.org

General questions about this EIR and the EIR process should also be submitted to the lead agency at the address above. The City will prepare written responses to comments pertaining to environmental issues raised in the DEIR if they are submitted in writing (i.e., via postal mail or e-mail) and postmarked by the last day of the public review period identified in the NOC. Prior to approval of the proposed project, the City, as the lead agency and decision-making entity, is required to certify that this EIR has been completed in accordance with CEQA, that the proposed project has been reviewed, and the information in this EIR has been considered, and that this EIR reflects the independent judgment of the City. CEQA also requires the City to adopt "findings" with respect to each significant environmental effect identified in the EIR) (Pub. Res. Code §21081; Cal. Code Regs., Title 14, §15091). For each significant effect, CEQA requires the approving agency to make one or more of the following findings:

- The proposed project has been altered to avoid or substantially lessen significant impacts identified in the Final EIR (FEIR).
- The responsibility to carry out such changes or alterations is under the jurisdiction of another agency.
- Specific economic, legal, social, technological, or other considerations, which make infeasible the mitigation measures or alternatives identified in the FEIR.

If the City concludes that the proposed project would result in significant effects that cannot be substantially lessened or avoided by feasible mitigation measures and alternatives, the City must adopt a "Statement of Overriding Considerations" prior to approval of the proposed project [(Pub. Res. Code §21081 (b))]. Such statements are intended under CEQA to provide a written means by which the lead agency balances in writing the benefits of the proposed project and the significant and unavoidable environmental impacts. Where the lead agency concludes that the economic, legal, social, technological, or other benefits outweigh the unavoidable

environmental impacts, the lead agency may find such impacts “acceptable” and approve the proposed project.

In addition, public agencies, when approving a project, must also adopt a Mitigation Monitoring or Reporting Plan (MMRP) describing the changes that were incorporated into the proposed project or made a condition of project approval in order to mitigate or avoid significant effects on the environment (Pub. Res. Code §21081.6). The MMRP is adopted at the time of project approval and is designed to ensure compliance during project implementation. Upon approval of the proposed project, the City would be responsible for implementation of the proposed project’s MMRP.

1.5 Organization of the EIR

The EIR is organized as follows:

The **Executive Summary** provides an overview of the information provided in detail in subsequent chapters. Per CEQA Guidelines §15123, the Executive Summary a) provides a brief summary of the proposed actions and its consequences; b) identifies each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect; c) identifies areas of controversy known to the lead agency including issues raised by agencies and the public; and d) identifies issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects.

Chapter 1 Introduction provides a brief description of the proposed project, requirements of the CEQA environmental review process, public outreach, summary of public comments received on the IS/NOP, purpose and intended use of the EIR, and organization of the EIR.

Chapter 2 Project Description provides a detailed description of the proposed project, including its location and setting. Project objectives are identified, and information is provided on the proposed project characteristics and construction scenario.

Chapter 3 Environmental Setting, Impacts, and Mitigation provides an introduction to the resource areas that were determined, through the completion of an IS for the project, to not result in a significant environmental effect and would therefore require no further environmental analysis. In addition, this section provides the description for each of the environmental resource areas evaluated, including the affected environment and setting (i.e., regulatory framework, methodology, and significance thresholds), an analysis of the environmental impacts, and discussion of mitigation measures to reduce or eliminate any significant environmental impacts associated with the project. The existing environmental setting for each resource area provides a baseline for assessing environmental impacts, formulating mitigation measures, and evaluating alternatives to the project. Measures that reduce or eliminate any significant environmental impacts include: i) existing plans, programs, and policies, which include existing regulatory requirements or plans and programs that would be applicable to the proposed project; and ii) mitigation measures that are recommended where the impacts analysis determines that implementation of the proposed project would result in significant impacts.

It should be noted that the analysis of impacts for each issue area assumes and accounts for project features and existing plans, programs, and applicable laws, rules, and regulations that serve to avoid or reduce potentially significant impacts associated with the proposed project. Mitigation measures were formulated only for those issue areas where the results of the impacts analysis identified significant impacts. All mitigation measures identified and required to be implemented as part of the project will be included in the MMRP for the project (which will be prepared along with the FEIR). If during the course of project implementation it is determined that a specific measure cannot be carried out because it is infeasible, unnecessary, or otherwise undesirable, the City may delete that measure and, if necessary, substitute for it another feasible measure(s) which is (are) determined to be equivalent or more effective. “Equivalent or more effective” means that the new measure will avoid or reduce the potential environmental effect addressed in the EIR to at least the same degree as, or to a greater degree than, the original measure and will create no more adverse effect of its own than would have the original measure. Prior to deleting and substituting for a specified measure, the City Council may, at its discretion, hold a public hearing on the matter and adopt a written finding that the new measure is equivalent or more effective in mitigating or avoiding potential significant impacts and that it in itself will not cause any potentially significant effect on the environment.

Chapter 4 Alternatives describes and evaluates the comparative merits of a reasonable range of alternatives to the proposed project that would feasibly attain most of the basic objectives of the proposed project and avoid or substantially lessen potentially significant project-related impacts. The chapter also describes the preliminary site constraints analysis and rationale for selecting the range of alternatives discussed in the EIR and identifies the alternatives considered by the City that were rejected from further discussion as infeasible during the scoping process. Chapter 4 also includes a discussion of the environmental effects of the “No Project” Alternative and identifies the environmentally superior alternative.

Chapter 5 Other CEQA Considerations presents the other mandatory CEQA sections, including the following:

> *Unavoidable Significant Adverse Impacts* - This subsection identifies and summarizes the unavoidable significant impacts described in detail in Chapter 3.
>
> *Effects Not Found to Be Significant* - This subsection identifies and summarizes the issue areas that were determined to have no adverse environmental effect or a less than significant environmental effect given the established significance criteria.
>
> *Cumulative Impacts* - This subsection addresses the potentially significant cumulative impacts that may result from the proposed project when taking into account related or cumulative impacts resulting from other past, present, and reasonably foreseeable future projects.
>
> *Irreversible Environmental Changes* - This subsection addresses the extent to which the proposed project would result in the commitment of nonrenewable resources.

Growth-Inducing Impacts - This subsection describes the potential of the proposed project to induce economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment.

Chapter 6 Acronyms and Abbreviations provides a list of acronyms and abbreviations used in this EIR.

Chapter 7 Preparers identifies those persons responsible for the preparation of this EIR.

Chapter 8 References provides a list of sources used in the preparation of the EIR. Footnote references are also provided in each chapter.

2 Project Description

This chapter describes the project background, the project location and setting, the project purpose, the project description, and project objectives. It includes a description of project characteristics and a summary of project approvals that would be required with the implementation of the proposed project. This information is provided pursuant to the CEQA Guidelines §15124.

2.1 Project Background

The City operates four wastewater treatment plants (WWTPs) serving over four million people. Historically, biosolids, which are an organic solid product that results from the wastewater treatment processes and can be beneficially used, were discharged to the Santa Monica Bay (1957-1987). The City entered into an Amended Consent Decree with the United States Environmental Protection Agency (USEPA) in 1987 that required the City to end the discharge of biosolids into the ocean by December 31, 1987. A study completed in late 1980s recommended a short and long-term biosolids management plan for alternatives to discharging into Santa Monica Bay including dehydration, combustion, and energy recovery. This alternative system, the Hyperion Energy Recovery System (HERS), began operation in 1987 but was decommissioned in 1997.

Under the Amended Consent Decree, the City was required to haul specified amounts of biosolids to other locations for non-ocean disposal unless other viable on-site reuse options were available. The 1989 PEIR analyzed off-site options for use and/or disposal of biosolids produced at the City's Hyperion Treatment Plant (HTP) and Terminal Island Water Reclamation Plant (TIWRP), including land application. That same year, the FEIR was approved.

The proposed project location has been used for farming since 1988. The City of Bakersfield prepared an EIR in 1984 (1984 EIR) under CEQA to analyze the use of treated effluent from the Bakersfield Wastewater Treatment Plant No. 3 for irrigation purposes at the Farm to grow crops.[4] The Bakersfield 1984 EIR evaluated (among other environmental impacts) the effects of converting the 4,700-acre site to agricultural uses. After completion of the 1984 EIR, the Central Valley Regional Water Quality Control Board (RWQCB) issued a permit allowing use of reclaimed water for irrigation purposes on the site.[5] This permit requires groundwater monitoring, imposes reporting requirements, and establishes minimum setback distances and buffer zones.

RBM land applied biosolids as a fertilizer and soil conditioner to enhance the growth of feed crops such as corn, wheat, sudan, milo, and alfalfa, which are primarily sold to local dairies. RBM commenced land application of biosolids in 1994 after obtaining the requisite authorizations. Specifically, the Central Valley RWQCB issued two orders in 1994 and 1995 permitting land application by RBM at the Farm, including a Waste Discharge Requirement

[4] City of Bakersfield. 1984. Draft Supplemental Environmental Impact Report. Modified Interstate Disposal Site – Wastewater Treatment Plant Three.Quad Consultants. May 1984.

[5] Central Valley Regional Water Quality Control Board (RWQCB). 1988. Order No. 88-172. Wastewater reclamation requirements for Tenneco West, Inc. Land Application Site, Kern County. September 1988.

(WDR) permit to RBM to land apply biosolids at the Farm to enhance crop growth. These two RWQCB orders contain various requirements to minimize any environmental impacts that might result from land application of biosolids. These requirements include specific measures to minimize potential impacts in terms of erosion, odors, surface water quality, groundwater quality, and public health including the following:

- Limitations on the amount of biosolids that may be land applied;
- Limitations on the trace amounts of metals in biosolids and the farm fields receiving biosolids;
- Buffers from residences, surface waters, and other land uses and physical features;
- Operational protocols, including prohibitions on applying biosolids to flooded, frozen or water-saturated ground or during periods of heavy rainfall; and
- Detailed monitoring, reporting, and recordkeeping requirements.

A formal, written contract was then executed by the City with RBM and Valley Communities, Inc. (VCI) (which at that time owned the Farm) in 1996 (City Contract C-94375) to govern the transportation and land application of these biosolids. The Term of the contract was three years. RBM has to present day been responsible for coordinating the transportation of biosolids from the City to the Farm, for land applying the biosolids at the Farm, and for conducting monitoring, reporting, and recordkeeping.

In 1996, a PEIR certified by the City analyzed this Biosolids Management Program (1996 PEIR). This program incorporated the successful elements of the 1989 offsite program and the HERS into the City's long-term goals of localized processing and beneficial use of biosolids and other wastewater treatment residuals.

On October 19, 1999, the City approved an amendment to its 1996 biosolids contract with RBM and VCI. This contract amendment (Amendment No. 1 to City Contract C-94375) made some minor changes to the provisions of the initial 1996 biosolids contract and extended the contract for another three-year term. Amendment No. 1 was executed on October 29, 1999.

To ensure full City oversight of land application operations at the Farm, on November 24, 1999, the City Council adopted a resolution declaring the City's intent to purchase the Farm. On February 22, 2000, the City Council approved the purchase of the Farm for a sale price of $9,630,000. The City Council also authorized the Department of Public Works to finalize a second amendment to its existing biosolids contract (Amendment No. 2 to City Contract C 94375). Pursuant to the City Council's approval, this contract amendment was formally executed in September 2000. These amendments included increasing the transportation of biosolids from a maximum of 700 wet tons per day (monthly average of 450 wet tons per day) to 800 wet tons per day (monthly average of 550 wet tons per day), and extending the contract's term to 2010. This purchase of the Farm by the City did not otherwise result in a change in how the site was used. Since the contract was amended in 2000 the actual tonnage to the Farm has decreased. As of 2013, an average of 515 wet tons per day are trucked to the Farm for land application.

In November 2002, Ordinance G-6931 was adopted by Kern County that allowed only the land application of EQ biosolids in unincorporated areas of the County, banning Class B land application. In response to this and related ordinances, the City now produces Class A, EQ, biosolids at both its HTP and TIWRP sites. After purchasing the Farm, the City spent more than $15 million to upgrade its wastewater treatment facilities at its HTP and TIWRP to allow additional holding time for heat treatment of biosolids in large anaerobic "digesters" that destroy microorganisms. This was in response to regulations adopted by Kern County requiring the phase-out of "Class B" biosolids (which are treated to reduce certain microorganisms by 99%) by the end of 2002. "Class A" biosolids are treated longer and more intensively than "Class B" biosolids and are essentially free of any pathogens; "Exceptional Quality" (or "EQ") biosolids satisfy stringent pollutant concentrations for the trace amounts of metals found in biosolids at the parts per million level. The City produces only Class A, EQ biosolids and no longer produces Class B biosolids. Since 2003, all biosolids land applied at the Farm have consistently met, and continue to meet, both "Class A" and "Exceptional Quality" standards as a result of these facility improvements.

2.2 Project Location

The proposed project is located at the Farm, which consists of nearly 4,700 acres of land in unincorporated western Kern Country (Figure 2-1) where active farming has occurred since 1988. The Farm is located approximately 15 miles southwest of the City of Bakersfield, and approximately 120 miles north of the City of Los Angeles (Figure 2-2: Vicinity Map of Green Acres). It is surrounded by highways, vacant lands, industrial facilities, commercial uses, and land used for agricultural purposes. The closest residence is approximately 1,000 feet to the west of the Farm. The Farm is bounded to the east by an interstate freeway (I-5) and to the north by a state highway (State Route 119, also known as the Taft Highway; Figure 2-3: Aerial Image of Green Acres). There are farmlands, vacant lands, and a number of dairies to the south of the property and to the east of I-5, as well as farmlands and vacant lands to the north of the highway. There are several residences to the southwest of the property, although they are not adjacent to the Farm and are separated from the site by intervening agricultural lands. The site is bounded to the west by South Enos Lane and Coles Levee Road, with more farmlands and vacant lands and land used for light industrial purposes to the west of these roadways. In September 2007, Kern County approved a commercial-industrial project at the southwest corner of South Enos Lane and Taft Highway, consisting of a motel, fast-food restaurants, recreational vehicle storage, and an existing gas station.

Figure 2-1: Regional Map of Green Acres

Figure 2-2: Vicinity Map of Green Acres

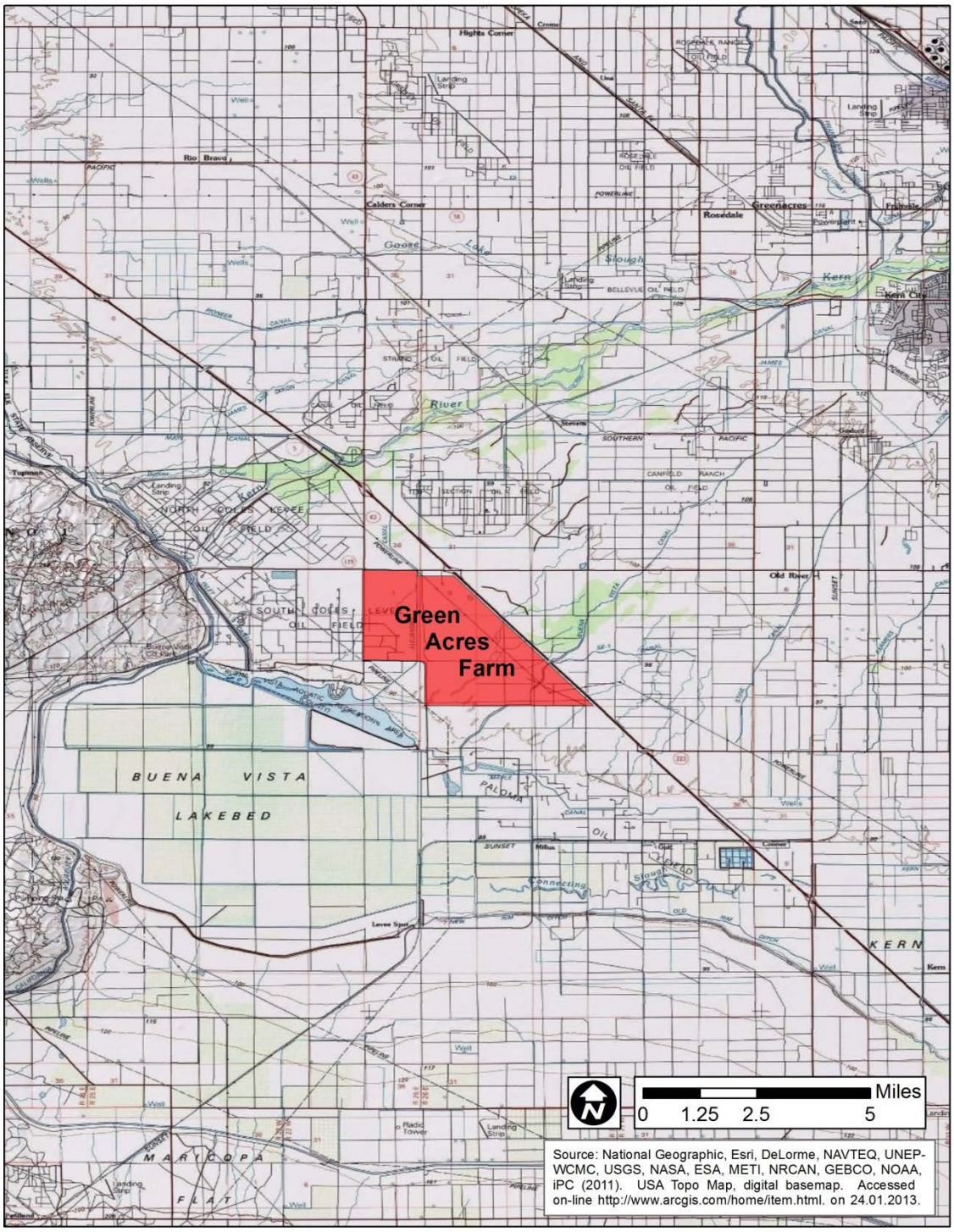
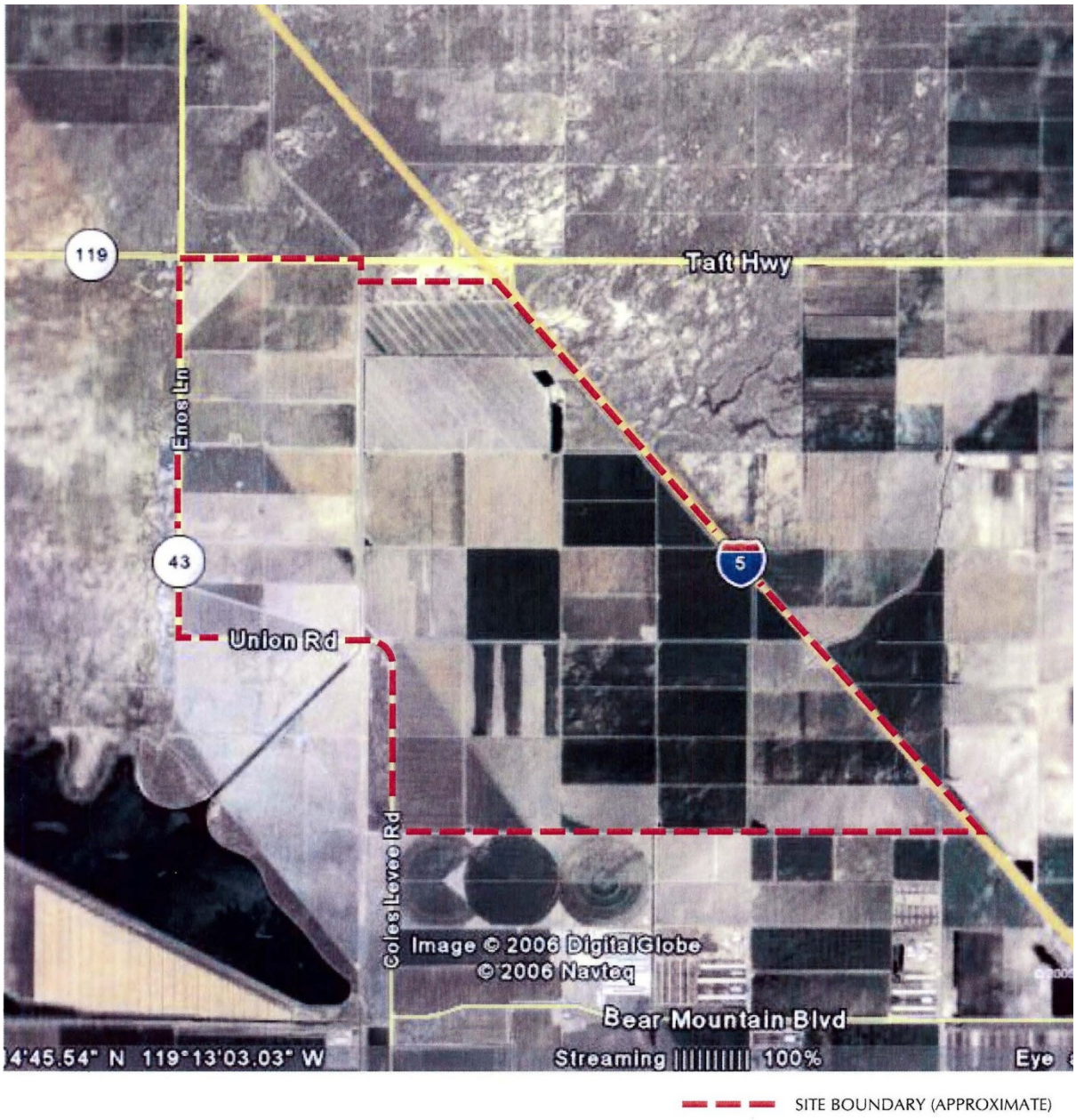


Figure 2-3: Aerial Image of Green Acres



2.3 Existing Environment

2.3.1 Farming Activities

The Farm consists of nearly 4,700 acres of land. Farming has occurred at the site since 1988. A rotation of crops, including sudangrass, wheat, alfalfa, and corn silage, are grown at the Farm. Land application of biosolids at the Farm began in 1994. The Farm uses conventional farm equipment for planting and treated secondary effluent from the City of Bakersfield Wastewater Treatment Plant for irrigation of crops. The types of farm equipment and water usage as it

relates to biosolids land application and chemical fertiziler application in the alternative projects are discussed in subsequent sections.

2.3.2 Regulatory Setting

Land application of biosolids is regulated at the federal, state, regional, and local level. These multiple layers of regulations ensure there are no appreciable risks to the environment or to public health or safety from the land application of Class A, EQ biosolids. Pursuant to these regulatory requirements, the land applier prepares and submits to the appropriate regulatory agencies the following documentation and reports:

- Pre-application reports: Prior to each application of biosolids, these reports are submitted to the Central Valley RWQCB, explaining the amount of biosolids that will be applied to a specific field and establishing that regulatory requirements for nutrients and trace amounts of metals are satisfied and that the proper agronomic rates (which determines the amount of biosolids that may be applied for each farm field, and is specific to the farm location, crop type, and soil type) are not exceeded.
- Post-application/summary field reports: When activities in a particular farm field are completed (usually after harvest and always before more biosolids are applied), a report is prepared that assesses the amount of biosolids applied and the loadings of nutrients and metals.
- Quarterly reports on metals and pathogens: As required by Kern County, on a quarterly basis biosolids are sampled directly at the field, before incorporation into the soil, for metals, bacteria, polychlorinated biphenyls (PCBs) and dioxins.
- Annual reports: These reports, which are submitted to the Central Valley RWQCB and to Region IX of the USEPA, include all summary field reports spanning a calendar year, as well as aggregate reports on cumulative metal loads in each field and farm-wide summary reports – further demonstrating compliance with the applicable regulatory requirements.
- Three-year soil reports: As required by Kern County, every three years or after 40 dry tons of biosolids per acre have been applied to a field, the soil is tested for heavy metals, PCBs and dioxins.

RBM contacts the regulatory agencies to insure that the agencies are satisfied with the operations at the Farm and with the reporting submitted by the Farm. Routine site inspections are done by the USEPA, Kern County, Central Valley RWQCB, and San Joaquin Valley Air Pollution Control District (SJVAPCD).

In recognition of the City's biosolids program achievements, in 2003 the Los Angeles Bureau of Sanitation became the second agency in the country to receive a Biosolids Management Program certification from the National Biosolids Partnership, an alliance formed in 1997 with the National Association of Clean Water Agencies, the Water Environment Federation, and the USEPA. The City earned its Environmental Management System (EMS) certification through a lengthy and rigorous third-party audit of all management, operations, training, compliance, and public outreach elements of its biosolids treatment and recycling program.

In the 2000 baseline year, biosolids were land applied at the Farm as well as composted at Griffith Park. To be conservative, the proposed Project assumes no prior land application of biosolids at the site. Since 2000, biosolids continue to be composted at Griffith Park as well as

land applied at the Farm. In addition, since 2008, the City also places biosolids into the subsurface as part of the Terminal Island Renewable Energy Project (TIRE) under a demonstration permit.

Additional information on relevant regulations is provided below.

USEPA Part 503

In 1993, the USEPA adopted regulations to establish national standards governing the use and disposal of sewage sludge.[6] The USEPA's "Part 503 Rule" is a comprehensive, risk-based rule designed to protect public health and the environment. The USEPA adopted the Part 503 Rule after conducting lengthy and extensive scientific research and peer review, including a formal rulemaking proceeding with substantial input from the public and government agencies. To develop the Rule, the USEPA reviewed data to screen approximately 200 different constituents. The results from the screening were used to identify those constituents that warranted a formal risk assessment and conservative assumptions to develop highly protective regulatory limits.

Among other controls, the USEPA's Part 503 Rule established numeric limits for trace amounts of metals; mandated standards for the reduction of pathogens, which are essentially eliminated in Class A biosolids; established requirements to reduce the attraction of vectors; established minimum operational controls and management practices to further protect public health and the environment; and imposed vigorous monitoring, recordkeeping and reporting requirements. According to the USEPA and the National Academy of Sciences, the land application of biosolids "when practiced in accordance with existing federal guidelines and regulations, presents negligible risk to the consumer, to crop production and to the environment."[7]

In correspondence regarding the land application of biosolids in Kern County, the USEPA in September 2006 confirmed its long-held position that land application in accordance with the Part 503 Rule is environmentally safe and beneficial.[8] The USEPA emphasized in this correspondence that:

> Wastewater agencies across the country have widely relied upon land application as a method for managing biosolids. Specifically, well over fifty percent of the total volume of biosolids produced in the United States is currently land applied. Land application of biosolids is thus clearly an important option for municipalities to have, and USEPA believes that it should be available to all municipalities wherever possible as an option for biosolids management. The application of biosolids to farmland serves to help meet several important environmental goals, including improving soil and preserving increasingly scarce landfill capacity for wastes not appropriate for recycling.

[6] Code of Federal Regulations. 40 CFR Part 503. Available at: http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title40/40cfr503_main_02.tpl. Accessed June 2013.

[7] USEPA Biosolids Webpage. Frequently Asked Questions. Item #9. Available at: http://www.epa.gov/owm/mtb/biosolids/genqa.htm.

[8] Hanlon, James. 2006. James A. Hanlon, Director, Office of Wastewater Management, USEPA, Letter to Ms. Roberta Larson, Director, Legal & Regulatory Affairs, California Association of Sanitation Agencies, dated Sept. 15, 2006.

The USEPA's letter further points to the "considerable experience" of the USEPA, state agencies and local wastewater authorities with land application extending back to the 1970s, and the letter concludes: "Published research and major scientific reviews by USEPA, the Water Environment Research Foundation, and others, in addition to the results of successful land application systems across the country, continue to demonstrate that the practice, when conducted in compliance with the Part 503 requirements, is protective of public health and the environment."

Current regulations (e.g., Ordinance G-6931 described in further detail below under *Kern County Regulations*) strictly limit the land application of Class B biosolids in the unincorporated sections of Kern County. As a result, both HTP and TIWRP treat biosolids to Class A, EQ standards. Although the biosolids originate from these locations, the treatment is not part of the proposed project. The treatment would have occurred, and is occurring, at HTP and TIWRP in the absence of the proposed project.

Based on §503.13(b)(1) of the Part 503 Rule, Class A biosolids, such as those being applied at the Farm, need to meet pollutant concentration limits in § 503.13(b)(3) and at least one of the vector attraction reduction measures in §503.33(b)(1)-(b)(8) must be used. The Class A biosolids being applied at the Farm meet all of the pollutant concentration limits listed in §503.13(b)(3) and have a reduced volatile solids content of at least 38%, meeting the requirements in §503.33(b)(1). Based on this, the land application of biosolids at the Farm meets the new requirements in the USEPA's Part 503 Rule.

Water Quality Control Board Requirements
As discussed above, the Central Valley RWQCB has established a detailed set of conditions and requirements in authorizing the land application of biosolids at the Farm.[9,10]

In addition to these two orders adopted by the Central Valley RWQCB, in 2004 the State Water Resources Control Board issued its final statewide General Order permitting land application of biosolids (General Order).[11] The statewide General Order imposes numerous controls that add to the federal requirements of the USEPA's Part 503 Rule. The General Order imposes specific requirements for the use, storage, and transport of biosolids, including buffers from water supply wells, surface waters, residences, and public roads. The General Order also establishes a comprehensive monitoring and reporting program, including groundwater monitoring, and requires the preparation of various planning documents, such as a spill response plan and an erosion control plan.

The General Order, which was based on a voluminous Statewide PEIR completed in 2004, finds that the beneficial reuse of biosolids through land application, in accordance with the regulatory

[9] Central Valley RWQCB. 1994. Order No. 88-172. Wastewater reclamation requirements for Tenneco West, Inc. Land Application Site. Kern County. September 1988.
[10] Central Valley RWQCB. 1995. Order No. 95-140. Waste discharge requirements. General order for reuse of biosolids and septage on agricultural, forest, and reclamation sites. May 1995.
[11] California State Water Resources Control Board. 2004. Water Quality Order No. 2004-0012-DWQ. 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. July 2004.

requirements, "is environmentally sound and preferable to non-beneficial disposal".[12] The 2004 PEIR provides a thorough analysis of environmental impacts associated with land application of biosolids, including impacts on soils, hydrology and water quality, land productivity, public health, land use and aesthetics, biological resources, fish, traffic, air quality, noise, cultural resources, and cumulative impacts. The 2004 PEIR found that all impacts would be less than significant after mitigation.[13] The Regional Board General Orders are more stringent than the State General Orders; the City follows the most restrictive criteria regulating the land application of biosolids.

San Joaquin Valley Air Pollution Control District Rules
The SJVAPCD adopted Rule 4565 in 2007.[14] This rule is intended to limit emissions of volatile organic compounds (VOCs) from facilities that land apply biosolids. Rule 4565 requires that all operators that land apply biosolids must implement one of the following mitigation measures:

- Direct injection of biosolids at least three inches below the soil surface within three hours of receipt;
- Incorporate the biosolids into the soil within three hours of receipt (if received after 6pm, the biosolids must be incorporated by noon of the following day) [Note that the City complies with this measure.];
- Cover the biosolids within three hours of receipt using a waterproof cover, at least six inches of finished compost, or at least six inches of soil;
- Implement an alternative mitigation measure that demonstrates at least a 10% reduction in VOC emissions.

Kern County Regulations
Kern County has also adopted regulations that supplement the various requirements included in the federal Part 503 Rule, the State Water Board's General Order, and the orders issued by the Central Valley RWQCB.

Kern County passed its first ordinance to regulate land application of biosolids in 1998 (G-6528). This ordinance allowed land application of Class A and Class B biosolids by any person who obtained a County permit and observed specified management practices and site restrictions.

In October 1999, Kern County adopted a new ordinance (G-6638) that required a phase-out of all land application of Class B biosolids in unincorporated areas of the County by the end of 2002. The ordinance also prohibited land application of Class B biosolids on any sites without an existing County land application permit. The Farm was allowed to continue land application of biosolids, because it held an existing County permit and had received such permits since 1994-95. The City, other sanitation entities, and others challenged Ordinance G-6638 in court,

[12] State Water Resources Control Board. 2004. Water Quality Order No. 2004-0012-DWQ. 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. July 2004.
[13] California State Water Resources Control Board. 2004. Statewide Program EIR. Draft Statewide Program EIR Covering general waste discharge requirements for biosolids land application and Final Statewide Program EIR covering general waste discharge requirements for biosolids land application.
[14] San Joaquin Valley Air Pollution Control Board (SJVAPCD). Rule 4565. Biosolids, animal manure, and poultry litter. Available at: http://www.valleyair.org/rules/currntrules/r4565.pdf

and Kern County cross-challenged. Among other things, the litigation resulted in a writ issued against Kern County for CEQA violations and the Writ and Court Order issued against the City.

In November 2002, Kern County adopted an ordinance (G-6931) that allowed only land application of EQ biosolids in unincorporated areas of the County. The ordinance defined EQ biosolids as Class A biosolids that also meet stringent requirements for trace metals. The ordinance stated: "The County recognizes that Exceptional Quality biosolids, as defined in this chapter, are considered by the [USEPA] to be a product distributed in bulk form, bags or other containers that can be applied as freely as any other fertilizer or soil amendment to any type of land".

The 2002 G-6931 ordinance imposed a series of requirements on the application of Class A, EQ biosolids. For example, the ordinance requires pre-application and periodic soil sampling, quarterly biosolids sampling, annual County permitting, and various management practices and site restrictions. It also provides for County inspections four times a year, and imposes additional monitoring, recordkeeping and reporting obligations in addition to those imposed by federal and state regulations.

In June 2006, Kern County voters adopted an initiative known as Measure E, which banned all land application of biosolids (including Class A, EQ biosolids) within unincorporated areas of the County by January 2007. In an action brought by the City, other sanitation entities and others, a federal district court preliminarily enjoined enforcement of Measure E before it could be implemented.[15] The court later ruled that Measure E both violated the United States Constitution and was preempted by a state statute; the court then issued a permanent injunction.[16] Subsequently, the Court of Appeals overturned that judgment on procedural grounds.[17] Thereafter the federal district court declined to retain jurisdiction over the remaining state law claims and dismissed the case.

On January 25, 2011, the City, other sanitation entities and others filed a complaint in the Kern County Superior Court seeking a declaration that Measure E is unlawful and a permanent injunction against its enforcement.[18] Upon stipulation of the parties, the action was transferred to the Tulare County Superior Court. On June 9, 2011, the Tulare County Superior Court granted a preliminary injunction against Measure E, finding a high likelihood of success on the merits. The preliminary injunction prevents the implementation of Measure E, allowing land application of biosolids to continue while the case is being heard. Kern County appealed this decision, and the California Court of Appeal upheld the ruling allowing the preliminary injunction in February 2013. The California Supreme Court has granted review of the Court of Appeal decision on procedural grounds. The court case is still pending.

In addition, Kern County, as well as the City, requires that the contractor maintain a site management plan outlining practices and procedures for land application of biosolids including the method for calculating the amount of biosolids to be applied on a given area. This plan

[15] City of Los Angeles v. County of Kern.C.D.Cal. 2006.462 F.Supp.2d 1105, 1108-1109.
[16] City of Los Angeles v. County of Kern.C.D.Cal. 2007.509 F.Supp.2d 865, 870.
[17] City of Los Angeles v. County of Kern.9th Cir. 2009.581 F.3d 841, 844.
[18] City of Los Angeles, et al. v. County of Kern, et al. Kern County Superior Court Case No. S-1500-CV-27240 SPC.

accounts for the agronomic rate and, in practice, biosolids are not applied at greater than the agronomic rate. However, if biosolids were inadvertently applied at a rate greater than the agronomic rate, the site management plan outlines procedures to follow, including stopping further application of biosolids to the area, careful application of water to not cause undue leaching, and monitoring of soil and plant tissue until the levels of nitrogen return to acceptable levels for growing crops. The City and RBM have complied with, and continue to comply with, these conditions and requirements imposed by the Central Valley RWQCB, in addition to the nationwide land application standards established by the USEPA in the Code of Federal Regulations (CFR); the statewide land application standards established by the State Water Resources Control Board after an extensive, statewide environmental review; and local land application regulations adopted by Kern County.

A summary of the key dates in the regulatory setting is provided in Table 2-1: Key Dates in Regulatory Setting.

Table 2-1: Key Dates in Regulatory Setting

Date	Summary
1988	Farming activities begin at the Farm
1994-1995	Central Valley RWQCB orders permit land application at the Farm
1998	Kern County ordinance G-6528 allows land application of Class A and B biosolids
1999	Kern County ordinance G-6638 requires phase-out of land application Class B biosolids in unincorporated Kern County by 2002.
2002	Kern County ordinance G-6931 requires Class A - Exceptional Quality biosolids for land application in unincorporated Kern County
2006	Kern County adopts Measure E, which bans all land application of biosolids; the Farm continues to operate while Measure E is challenged in court.
2006-2010	Federal Court proceedings challenging Measure E; eventually dismissed on procedural grounds
June 2011	Tulare County Superior Court Judge grants preliminary injunction, preventing implementation of Measure E
February 2013	California Court of Appeal upholds the ruling allowing the preliminary injunction, preventing implementation of Measure E
April 2013	California Supreme Court takes review of procedural issue in Measure E litigation related to statute of limitations

2.4 Project Purpose and Need

The City operates four wastewater treatment plants (WWTPs) serving over four million people. Historically, biosolids, which are the organic solids that are produced by wastewater treatment processes and that can be beneficially used, were discharged to the Santa Monica Bay (1957-1987). The City entered into an Amended Consent Decree with the USEPA in 1987 that required the City to end the discharge of biosolids into the ocean by December 31, 1987. A study completed in the late 1980s recommended a short- and long-term biosolids management

plan for alternatives to discharging into Santa Monica Bay including dehydration, combustion, and energy recovery. This alternative system, HERS, began operation in 1987 but was decommissioned in 1997.

In addition, under the Amended Consent Decree, the City was required to haul specified amounts of biosolids to other locations for non-ocean disposal unless other viable on-site reuse options were available. At this time, there are no other viable on-site reuse options at Hyperion or other wastewater treatment plants. The project meets the purpose and need because it hauls biosolids to a location for non-ocean disposal.

As discussed in Section 2.2, the City was directed by the Writ to undertake an evaluation under Section 15168(c) of the CEQA guidelines to determine if additional CEQA review was required for the 2000 purchase of the site and the 2000 amendment of the RBM contract. This current CEQA analysis has been prepared to address the Writ, as well as the subsequent Court Order.

2.5 Project Objective

The City recognized the benefits of recycling biosolids instead of disposing or placing in a landfill and adopted a resolution in 1999 that supported the full recycling of biosolids and the proper management and oversight of this practice in accordance with the California Water Environment Association Manual of Good Practice, and the application of all classes of biosolids to land in accordance with the USEPA's Part 503 rule.[19] To affirm the recycling of biosolids and its oversight of the practice, the City also adopted a biosolids policy in 2002 that committed to recycling one hundred percent of the biosolids it produced that complied with all federal, state, and local regulations.[20] When establishing the policy, the City committed to several goals for the biosolids management program. The goals listed below are in line with this project.

1) Managing its biosolids in an environmentally sound, socially acceptable, and cost-effective manner;

2) Complying with all applicable federal, state, and local laws and regulations;

3) Requiring its land appliers to comply with the provisions of the CWEA Manual of Good Practice for Agricultural Land Application of Biosolids;

4) Producing Exceptional Quality (EQ) biosolids that meet or exceed the requirements in 40 CFR Part 503; and

5) Maintaining a verified Biosolids Environmental Management System (EMS) that conforms to the National Biosolids Partnership EMS program requirements.

The project's objective is to beneficially re-use the biosolids produced by the City's wastewater treatment plants. Beneficial reuse can be land application as a soil amendment/fertilizer, composting or pelletizing as a soil amendment/fertilizer, waste-to-energy/fuel conversion, etc. Injection of biosolids into sub-surface wells can also be a beneficial reuse. Incineration of biosolids would not be a beneficial reuse unless energy or fuel was generated from the

[19] City of Los Angeles. 1999. Resolution: In Support of Recycling of Biosolids. Adopted by Los Angeles City Council on May 18. 1999.
[20] City of Los Angeles. 2002. Biosolids Policy Statement. Available at: http://www.lacitysan.org/biosolidsems/. Accessed March 2014.

incineration. Landfilling of biosolids is not considered a beneficial reuse and is restricted in California.

2.6 Project Description

Two interrelated "subsequent activities" in the City's biosolids program, as referenced in the Writ and the 1989 EIR and the 1996 EIR, are the components of this proposed project. These two subsequent activities are: (1) the City's approval in 2000 of Amendment No.2 to City Contract C-94375, a pre-existing contract between the City and RBM for the loading, transportation and beneficial reuse of the City's biosolids at the Farm; and (2) the City's 2000 purchase of the Farm.

1. Contract amendment: The City's amendment of the preexisting contract included increasing the transportation of biosolids from a maximum of 700 wet tons per day (monthly average of 450 wet tons per day) to 800 wet tons per day (monthly average of 550 wet tons per day), and increasing the term of the contract. No other changes in how the site was used occurred due to this contract amendment.
2. Purchase of the site: The City approved the purchase of the Farm in February 2000. The transfer of title to the City did not result in a change in how the site was used. In particular, the site continued to be used as a farm with biosolids land applied to enhance the growth of feed crops; this use has continued to the present day. The City purchased the property to ensure availability of a suitable site and controlled environment for continued land application of biosolids and farming activities, and to ensure full City oversight of these activities.

The baseline for the proposed project is assumed to be the year 2000 based on the above activities and the City's discretion under CEQA to set the baseline as supported by substantial evidence. The City has assumed no biosolids land application at the Farm during the baseline period (the most conservative assumption).

The proposed project analyzed in this document is the purchase of the site and application of up to 800 tons of Class A biosolids per day at the Farm. The proposed project includes all aspects of land application, including compliance with applicable regulations, including but not limited to the SJVAPCD's Rule 4565. The equipment used for land application includes two wheel loaders, a tractor, and a water truck, as described in further detail in Section 3.1.

The activities to be evaluated do not include the original selection of the Farm as a farming site in 1988, the original decision in 1994 to authorize land application of biosolids at the Farm, or the City's decision in 1996 to execute a formal written biosolids contract with RBM. These actions preceded the 2000 activities.

2.7 Project Approvals Required

The analysis in this document assumes that, unless otherwise stated, the project would be designed, constructed and operated following all applicable laws, regulations, ordinances and formally adopted City standards including but not limited to:

- Los Angeles Municipal Code

- Bureau of Engineering Standard Plans
- Standard Specifications for Public Works Construction
- Work Area Traffic Control Handbook
- Additions and Amendments to the Standard Specifications for Public Works Construction.

The proposed project and environmental documentation, including this EIR, would require approval by the following City of Los Angeles advisory and decision-making bodies: Board of Public Works and the City Council. Additional anticipated approvals or permits for the proposed project would be obtained as required and/or needed.

3 Environmental Setting, Impacts, and Mitigation

3.1 Air Quality

As discussed in Chapters 1 and 2, the project site is located at the Farm, 15 miles southwest of Bakersfield in Kern County within the San Joaquin Valley Air Basin (SJVAB). Biosolids will be transported from the HTP within the South Coast Air Basin (SCAB) to the Farm. As a result, air quality and potential impacts will be discussed for both air basins for the transportation and management of biosolids.

3.1.1 Existing Setting

3.1.1.1 San Joaquin Valley Air Basin

The SJVAB includes all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties, as well as the San Joaquin Valley portion of Kern County. The air quality within this basin is influenced by a variety of sources (e.g., industrial facilities, agriculture, vehicles, and consumer products) and unique geography, topography, and meteorology. The SJVAB currently exceeds state standards for ozone (O_3), fine particulate matter ($PM_{2.5}$), and respirable particulate matter (PM_{10}), but meets the state standards for carbon monoxide (CO), oxides of nitrogen (NO_2), sulfur dioxide (SO_2), sulfate, and lead (Pb). The basin currently exceeds federal standards for O_3 and $PM_{2.5}$, but meets the federal standards for CO, NO_2, oxides of sulfur (SO_x), PM_{10}, and Pb. The attainment status is described in further detail below in Section 3.1.2.

Local ambient air quality data are available from Kern County for monitoring stations near the Farm. This data is part of the air monitoring network that is set up throughout California for compliance with federal air monitoring requirements. The stations closest to the Farm include the Bakersfield stations at Golden State Highway and California Avenue; the California Air Resources Board (CARB) and the SJVAPCD are responsible for these sites. The most recent maximum background pollutant concentrations data were from years 2009, 2010, and 2011 and are shown in Table 3-1.

3.1.1.2 South Coast Air Basin

The SCAB includes the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties, and all of Orange County. This area of 10,743 square miles is home to over 16.8 million people - about half the population of the whole state of California. It is the second most populated urban area in the United States and one of the smoggiest. The air quality within this basin is primarily influenced by a wide range of emissions sources (e.g., dense population centers, heavy vehicular traffic, and industry) and meteorology. The SCAB currently exceeds state standards for O_3, $PM_{2.5}$, NO_2, and Pb, but meets the state standards for CO, PM_{10},[21] SO_2, and sulfate. The basin currently exceeds federal standards for O_3, PM_{10}, $PM_{2.5}$, and Pb, but meets the federal standards for CO, NO_2, and SO_x. The attainment status is described in further detail below in Section 3.1.2.

[21] The USEPA recently found that the South Coast Air Basin is in attainment for PM_{10} (CFR vol. 78, No. 123, pp. 38223-38226; June 26, 2013).

Local ambient air quality data are available from the Southwest Coastal Los Angeles County monitoring station, which is the closest monitoring station to the HTP. The most recent maximum background pollutant concentrations data were from years 2009, 2010, and 2011 and are shown in Table 3-1.

Table 3-2: Historical Ambient Air Concentration Levels - San Joaquin Valley Air Basin and South Coast Air Basin

Year	SO_2 (ppm)		CO (ppm)		PM_{10} (µg/m^3)		$PM_{2.5}$ (µg/m^3)		Sulfate (µg/m^3)	Lead (µg/m^3)			NO_2 (ppm)	
	1-hr[a]	24-hr[a]	1-hr[a]	8-hr [b],[c]	24-hr [b],[d]	Annual [b],[d]	24-hr [b],[d]	Annual [b],[d]	24-hr[a]	Monthly	Rolling 3-month	Qtrly.	1-hr (max)[b],[d]	Annual [b],[d]
San Joaquin Valley Air Basin														
2009	0.01	0.005	3.4	1.5	99	41	196	21	15.0	--	--	--	0.07	0.02
2010	0.02	0.003	3.3	1.5	238	33	112	17	5.6	--	--	--	0.08	0.01
2011	0.02	0.004	3.2	--	154	44	83	18	4.8	--	--	--	0.06	0.02
2012	--	--	--	--	126	41	87	18	--	--	--	--	0.07	0.02
Max	**0.02**	**0.005**	**3.4**	**1.5**	**238**	**44**	**196**	**21**	**15.0**	**--**	**--**	**--**	**0.08**	**0.02**
South Coast Air Basin[e]														
2009	0.02	0.01	2.0	1.9	52	25	--	--	8.6	0.01	--	0.01	0.08	0.02
2010	0.03	0.00	3.0	2.2	37	21	--	--	9.7	0.01	--	0.01	0.08	0.01
2011	0.01	--	--	1.8	41	22	--	--	5.9	0.01	0.01	0.01	0.10	0.01
Max	**0.03**	**0.01**	**3.0**	**2.2**	**52**	**25**	**0**	**0**	**9.7**	**0.01**	**0.01**	**0.01**	**0.10**	**0.02**

[a] San Joaquin Valley data obtained from CARB. AQMIS: Air Quality and Meteorological Information Site. Available at: http://www.arb.ca.gov/aqmis2/aqmis2.php. Accessed June 2013.

[b] San Joaquin Valley data obtained from CARB. iADAM: Air Quality Data Statistics. Available at: http://www.arb.ca.gov/adam/ Accessed June 2013.

[c] San Joaquin Valley data from Bakersfield Station - Golden State Highway.

[d] San Joaquin Valley data from Bakersfield Station - 5558 California Ave.

[e] South Coast data from SCAQMD. Historical Data. Southwest Coastal LA County monitoring station. Available at: https://www.aqmd.gov/smog/historicaldata.htm Accessed June 2013.

3.1.1.3 Baseline Operating Conditions Used in Analyses

For the purposes of this retrospective assessment, the 2000 baseline assumes that no HTP biosolid were sent to the Farm and that the HTP biosolids would have been transported to another location for handling. Operations at the Farm and alternative biosolids handling in 2000 are necessarily hypothetical but a resonable scenario can be identified. The operating scenario was chosen based on realistic feasible alternatives focused on providing a conservative impact analysis (i.e., greatest possible incremental impacts, which implies the lowest estimate of 2000 baseline emissions). Based on the alternatives available at the time, Table 3-2 lists out the hypothetical baseline scenario – chemical fertilization of crops at the Farm, and shipment of biosolids to Griffith Park Composting up to the facility's daily capacity with the remaining biosolids sent to Arizona for land application.

Table 3-3: 2000 Baseline Operating Scenario

Air Basin	Comment
SJV (Farm): Chemical fertilization of crops	• Assumes no off-site truck emissions even though there would be fertilizer transportation
	• Assumes the number of acre-passes required for fertilizer application is the same as the number required for land application of biosolids
SCAB (HTP): Biosolids sent to Griffith Park Compositing facility to limit; excess sent to other locations (land application or landfill) in Arizona	• Uses mileage from HTP to Griffith Park Composting facility for biosolids up to the capacity of Griffith Park (2 trucks per week, i.e., 56 tpd assuming both trucks on the same day); remaining mileage for trucking biosolids to Arizona border for land application in Arizona.
	• Assumes no Griffith Park Composting facility emissions or land application emissions within the Basin (land application assumed to occur in Arizona)

Alternatively, the City has assessed the potential enviornmental impacts if the baseline emissions were zero for all activities and thus, the incremental impacts for the proposed project would be the project emissions itself. This comparison is discussed in more detail in Section 3.1.4.2.

3.1.2 Regulatory Setting

The following sections summarize the regulations governing air quality in the two affected air basins (SJVAB and SCAB).

3.1.2.1 Federal

Several federal regulations may apply to the Farm and the proposed project.

The Air Pollution Control Act of 1955 was the first federal legislation involving air pollution, which provided funds for federal research in air pollution. The Federal Clean Air Act (CAA) in 1963 was the first federal legislation regarding air pollution control and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990. At the federal level, the USEPA is responsible for implementation of some portions of the CAA (e.g., certain

mobile source and other requirements). Other portions of the CAA (e.g., stationary source requirements) are implemented by state and local agencies.

The CAA establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) and specifies dates for achieving compliance. Two types of ambient air quality standards have been established: primary (to protect the public health with an adequate margin of safety) and secondary (to protect the public welfare against adverse non health-related environmental effects). Primary NAAQS, as well as primary California ambient air quality standards (CAAQS), are limits set to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.[22] The CAAQS define clean air and are established to protect even the most sensitive individuals in our communities.[23]

Table 3-3includes the NAAQS currently in effect for each of the criteria pollutants as well as other pollutants recognized federally. Table 3-4 includes a summary of the health effects of the various criteria pollutants.

Under the CAA, the USEPA is responsible for setting and enforcing the NAAQS. The CAA mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting these standards (i.e., nonattainment areas). The SIP must integrate federal, state, and local actions and regulations to identify specific control measures to reduce pollution to attain the NAAQS by the required compliance date. The proposed project may have potential impacts in both the SCAB and the SJVAB, which are areas designated as non-attainment for specific pollutants regulated under the CAA.

Table 3-4: California Ambient Air Quality Standards

Pollutant	Averaging Period	California Standard[1]	Federal Standard[2]	Attainment Status for Each Air Basin	
				California Standard[3],[4]	Federal Standard[5]
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m^3)	Revoked	Nonattainment - SC, SJV	---
	8 hour	0.07 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Nonattainment - SC, SJV	Nonattainment - SC, SJV
Respirable Particulate Matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3	Nonattainment - SC, SJV	Attainment - SC, SJV
	Annual	20 µg/m^3	Revoked	Nonattainment - SC, SJV	--
Fine Particulate Matter ($PM_{2.5}$)	24 hour	---	35 µg/m^3	---	Nonattainment - SC, SJV
	Annual	12 µg/m^3	12 µg/m^3	Nonattainment -	Nonattainment -

[22] USEPA. National Ambient Air Quality Standards (NAAQS). Available at: http://www.epa.gov/air/criteria.html. Accessed July 2013.
[23] CARB. Available at: http://arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed July 2013.

Pollutant	Averaging Period	California Standard[1]	Federal Standard[2]	Attainment Status for Each Air Basin	
				California Standard[3],[4]	Federal Standard[5]
				SC, SJV	SC, SJV
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Attainment - SC; Attainment/ Unclassified - SJV	Attainment - SC, SJV
	8 hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	Attainment - SC; Attainment/ Unclassified - SJV	Attainment - SC, SJV
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	Nonattainment - SC Attainment - SJV	--
	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	--	Maintenance - SC; Attainment - SJV
Lead (Pb)	30 day average	1.5 µg/m^3	--	Nonattainment - SC Attainment - SJV	---
	Rolling 3-month average	--	0.15 µg/m^3	---	Nonattainment - SC; Attainment - SJV
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m^3)	0.075 ppm (197 µg/m^3)	Attainment - SC, SJV	---
	3 hour[6]	---	0.5 ppm (1300 µg/m^3)	---	Attainment - SC, SJV
	24 hour	0.04 ppm (105 µg/m^3)	--	Attainment - SC, SJV	---
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m^3)	---	Unclassified - SC, SJV	---
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m^3)	---	Unclassified - SC	---
Sulfates	24 hour	25 µg/m^3	---	Attainment - SC, SJV	---
Visibility-Reducing Particles	8 hour	Extinction coefficient of 0.23 per kilometer	---	Unclassified - SC, SJV	---

Pollutant	Averaging Period	California Standard[1]	Federal Standard[2]	Attainment Status for Each Air Basin	
				California Standard[3],[4]	Federal Standard[5]
		(visibility of ten miles or more due to particles when relative humidity is less than 70 percent)			

[1] California standards as listed on CARB website (http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm).
[2] Federal Standards as listed on USEPA website (http://epa.gov/air/criteria.html).
[3] California standard attainment status as listed on CARB website (http://www.arb.ca.gov/desig/adm/adm.htm).
[4] SC indicates the South Coast Air Basin; SJV indicates the San Joaquin Valley Air Basin.
[5] Federal standard attainment status as listed on USEPA websites (http://www.epa.gov/oaqps001/greenbk/).
[6] This is a secondary standard.

Table 3-5: Criteria Pollutants, Their Precursors, and Related Health Effects [1]

Pollutant	Health Effects
$PM_{2.5}$ and PM_{10} In addition to directly emitted particulates, NO_x, SO_x are precursors of $PM_{2.5}$ and PM_{10}.	Respirable particulates ($PM_{2.5}$ and PM_{10}) pose a serious health hazard, alone or in combination with other pollutants. More than half of the smallest particles inhaled get deposited in the lungs and can cause permanent lung damage. Respirable particles have been found to increase morbidity and mortality via the following adverse health effects: decreased lung function, aggravated asthma, exacerbation of lung and heart disease symptoms, chronic bronchitis and irregular heartbeats. In addition, respirable particles can act as a carrier of absorbed toxic substance.[2]
Ozone Ozone is not a directly emitted pollutant from project sources; VOCs and NO_x are precursors of ozone.	Elevated ozone concentrations have been shown to induce airway irritation, cause airway inflammation, induce wheezing and difficulty breathing, aggravate preexisting respiratory conditions such as asthma, and can lead to permanent lung damage after repeated exposure to elevated concentrations.[3]
CO	Carbon monoxide is a colorless and odorless gas that is known to cause aggravation of various aspects of coronary heart disease, dizziness, fatigue, impairment to central nervous system functions, and possible increased risk to fetuses.
SO_2	Sulfur dioxide is known to cause irritation in the respiratory tract, shortness of breath, and can injure lung tissue when combined with fine PM. It also reduces visibility and the level of sunlight.

Pollutant	Health Effects
NO_2	Long-term exposure to nitrogen dioxide has the potential to decrease lung function and worsen chronic respiratory symptoms and diseases in sensitive population. It has also been associated with cardiopulmonary mortality and emergency room asthma visits. USEPA recently adopted a 1-hour federal standard to address short-term exposure impacts (e.g., adverse respiratory effects), particularly near major roadways.

[1] SCAQMD. 2012. 2012 Air Quality Management Plan. Available at http://www.aqmd.gov/aqmp/2012aqmp/index.htm. Accessed March 2013.
[2] USEPA National Center for Environmental Assessment, particle pollution health affects http://www.epa.gov/air/particlepollution/health.html.
[3] USEPA National Center for Environmental Assessment, ground level ozone health affects http://www.epa.gov/air/ozonepollution/health.html.

3.1.2.2 State

Several state regulations may apply to the proposed project.

The California Clean Air Act (CCAA) requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. The California Air Resource Board (CARB), a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both state and federal air pollution control programs within California. In this capacity, the CARB conducts research, sets CAAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

Table 3-3 includes the CAAQS currently in effect for each of the criteria pollutants as well as other pollutants recognized by the State. The CAAQS include more stringent standards than the NAAQS for many pollutants.

3.1.2.3 Local

Several local regulations may apply to the proposed project.

City of Los Angeles

The proposed project may have potential impacts within the City, which is the lead agency. The City had not adopted its own independent CEQA significance thresholds for air quality. Instead, the CEQA Guidance developed by the City references the SCAQMD's significance thresholds.[24] These thresholds are described in more detail below.

South Coast Air Quality Management District

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, Los Angeles County except for the Antelope Valley, the urban

[24] City of Los Angeles. 2006. CEQA Thresholds Guide. Available at http://www.environmentla.org/programs/thresholdsguide.htm. Accessed July 2013.

portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The Basin is a sub-region of the SCAQMD jurisdiction.

The SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the CAAQS and NAAQS. Responsible agencies develop policies and measures to meet Federal and State standards for healthy air quality in the Basin, based upon the AQMPs. These AQMPs contain a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. The 2012 AQMP employs the most up-to-date science, primarily in the form of updated emissions inventories, ambient measurements, meteorological data, and air quality modeling tools.[25]

The SCAQMD adopts rules and regulations to implement portions of the AQMP. Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with plans and new development projects within the Basin. Instead, the SCAQMD has prepared the CEQA Air Quality Handbook (Handbook) to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of plans and projects proposed in the Basin.[26]

The SCAQMD published the Handbook in November 1993 to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs, and was used extensively in the preparation of this analysis. However, the SCAQMD is currently in the process of replacing the Handbook and has provided several updates to the tables and methods in the original Handbook on its website. The SCAQMD recommends using approved models to calculate emissions from projects, such as the California Emissions Estimator Model™ (CalEEMod™)[27] and other online models. These recommendations were followed in the preparation of this analysis.

The SCAQMD also has developed the Localized Significance Thresholds (LSTs) in response to the SCAQMD Governing Board's environmental justice initiatives in recognition of the fact that criteria pollutants can have local impacts as well as regional impacts.[28] A methodology for $PM_{2.5}$ was established in October 2006. The mass emission LSTs represent the maximum emissions resulting from the construction or operation of a project that will not cause or contribute to an exceedance of the most stringent applicable Federal or State ambient air quality standard for CO, NO_2, PM_{10}, and $PM_{2.5}$. This methodology is voluntary and applies only to projects that are five acres or smaller in size. Because the City's CEQA Guidance references the SCAQMD, as discussed above, the analyses included in this EIR will be based on methodologies developed by the SCAQMD for CEQA (i.e., the SCAQMD Handbook).

[25] SCAQMD. 2012. Final 2012 Air Quality Management Plan. Available at: http://www.aqmd.gov/aqmp/2012aqmp/Final/Chapters.pdf. Accessed July 2013.
[26] SCAQMD. Air Quality Analysis Guidance Handbook. Website. Available at http://www.aqmd.gov/ceqa/hdbk.html. Accessed July 2013.
[27] California Emissions Estimator ModelTM Version 2011.1.1. Available at: http://caleemod.com/. Accessed July 2013.
[28] SCAQMD. Final Localized Significance Threshold Methodology. Revised July 2008. Available at: http://www.aqmd.gov/ceqa/handbook/lst/Method_final.pdf.

San Joaquin Valley Air Pollution Control District

The SJVAPCD has jurisdiction over eight counties in the Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and a portion of Kern, (which includes the location of the Farm).

The SJVAPCD has adopted a CO, ozone, and PM plan to meet the CAAQS and NAAQS. The most recent CO plan from 2004 included a discussion of how ten planning areas will comply with the standard through 2018. This update to the SIP was approved on July 22, 2004.[29] The SVJAPCD is required to develop an ozone attainment plan for the revoked 1-hour federal ozone standard. A new plan has been developed and was adopted by the SJVAPCD's Governing Board on September 19, 2013.[30,31] This plan and associated modeling demonstrate that the SJVAPCD will attain the revoked 1-hour ozone standard by 2017. The SJVAPCD currently has three PM plans: a $PM_{2.5}$ plan adopted in 2012, a $PM_{2.5}$ plan adopted in 2008, and a PM_{10} maintenance plan adopted in 2007. These plans address the federal standards for PM.

Similar to the SCAQMD, the SJVAPCD adopts rules and regulations to implement portions of these plans. Several of these rules may apply to operation of the proposed project. For example, SJVAPCD Rule 4565 requires the implementation of certain practices to limit emissions of VOCs from the management of biosolids.

The SJVAPCD has its own CEQA guidelines to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of plans and projects proposed in the SJVAB. The SJVAPCD's November 2008 draft CEQA Implementation Policy provides guidance for analyzing and mitigating project-specific air quality impacts.[32] Additional guidance is found in the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) that was most recently revised in January 2002.[33] The SJVAPCD also recommends using approved models to calculate emissions from projects, such as CalEEMod™ and other online models. These guidance documents were followed in the preparation of this analysis. The City has reviewed the GAMAQI and SJVAPCD CEQA Implementation Policy, and included comparison to the SJVAPCD significance thresholds although the City's CEQA guidance only references the SCAQMD CEQA significance thresholds discussed above.

3.1.3 Environmental Impacts

The proposed project site is located within the SJVAB, with impacts also occurring in the SCAB due to transportation from HTP; thus, environmental impacts of the proposed project will be assessed based on the City's, SCAQMD's, and SJVAPCD's CEQA significance thresholds (the

[29] ARB. California State Implementation Plan (SIP) for Carbon Monoxide. Available at: http://www.arb.ca.gov/planning/sip/co/co.htm. Accessed September 2013.
[30] SJVAPCD. Ozone Plans. Available at: http://www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm. Accessed September 2013.
[31] SJVAPCD. 2013 Plan for the Revoked 1-Hour Ozone Standard. Available at: http://www.valleyair.org/Air_Quality_Plans/Ozone-OneHourPlan-2013.htm. Accessed November 2013.
[32] SJVAPCD. 2008. CEQA Implementation Policy. Available at: http://www.valleyair.org/transportation/ceqa_implementation_policy-draft.pdf. Accessed July 2013.
[33] SJVAPCD. 2002. Guide for Assessing and Mitigating Air Quality Impacts. Available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf. Accessed July 2013.

City directs project proponents to reference the SCAQMD Handbook and relevant SCAQMD CEQA guidance when evaluating air quality issues). This section outlines the thresholds of significance and describes the air quality impact analysis for operation of the proposed project; there are no construction activities associated with the proposed project.

3.1.3.1 Significance Thresholds

The City's CEQA Thresholds Guide indicates that a significant impact related to air quality may occur if the proposed project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

c) Result in a 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors); or

d) Expose sensitive receptors to substantial pollutant concentrations.

Both the SCAQMD and the SJVAPCD have established significance thresholds to assess the impacts of project-related construction and operational emissions on regional ambient air quality (Table 3-5 and Table 3-6).[34, 35] Operational emissions occurring in the SJVAB will be compared to the SJVAPCD's thresholds while emissions occurring in the SCAB will be compared to the SCAQMD's thresholds. There are no construction emissions.

SJVAPCD Significance Thresholds

The SJVAPCD has established annual significance thresholds for stationary and mobile sources (Table 3-5).[36] The SJVAPCD's CEQA Implementation Policy is currently in draft form. The policy identifies separate thresholds for evaluation of stationary sources and mobile sources. For the purposes of this analysis, total emissions were analyzed.

In addition, the SJVAPCD states that odors are potentially significant if they "create objectionable odors affecting a substantial number of people."

[34] SCAQMD, 2011. SCAQMD Air Quality Significance Thresholds. Available at: http://www.aqmd.gov/ceqa/handbook/signthres.pdf. Accessed: July 2013.
[35] SJVAPCD. 2002. Guide for Assessing and Mitigating Air Quality Impacts. Available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf. Accessed September 2013.
[36] SJVAPCD. 2008. Draft. CEQA Implementation Policy. Available at: http://www.valleyair.org/transportation/ceqa_implementation_policy-draft.pdf Accessed September 2013.

Table 3-6: SJVAPCD Project Emissions Significance Thresholds

Pollutant	Emissions Threshold (tpy)
NO_x	10
VOC	10
PM_{10}	15
SO_x	27.4

SCAQMD Significance Thresholds

The SCAQMD has established mass daily thresholds for operating emissions. The SCAQMD has also established concentration significance thresholds for one-hour average (NO_2, CO, SO_2), eight-hour average (CO), 24-hour average ($PM_{2.5}$, PM_{10}, SO_2), and annual average (NO_2, PM_{10}, SO_2) concentrations, as well as 30-day average, rolling 3-month average, and quarterly average concentrations for Pb (Table 3-6).

Table 3-7: SCAQMD Significance Thresholds[37]

Mass Daily Thresholds		
Pollutant	**Construction (lb/day)**	**Operation (lb/day)**
NO_x	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_x	150	150
CO	550	550
Pb	3	3
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and noncarcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer burden >0.5 excess cancer cases ≥ 1 in 1 million) Chronic and Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants		
NO_2	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:	
1-hour average	0.18 ppm (state)	
annual average	0.03 ppm (state) and 0.0534 ppm (federal)	

[37] SCAQMD, 2011. SCAQMD Air Quality Significance Thresholds. March. Available at: http://www.aqmd.gov/ceqa/handbook/signthres.pdf. Accessed: September 2013

Ambient Air Quality for Criteria Pollutants	
PM_{10}	
24-hour average	10.4 µg/m^3 (construction) & 2.5 µg/m^3 (operation)
annual average	1 µg/m^3
$PM_{2.5}$	
24-hour average	10.4 µg/m^3 (construction) & 2.5 µg/m^3 (operation)
SO_2	
1-hour average	0.25 ppm (state) & 0.075 ppm (federal - 99th percentile)
24-hour average	0.04 ppm (state)
Sulfate 24-hour average	25 µg/m^3 (state)
CO	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:
1-hour average	20 ppm (state) and 35 ppm (federal)
8-hour average	9.0 ppm (state/federal)
Lead	
30-day average	1.5 µg/m^3 (state)
Rolling 3-month average	0.15 µg/m^3 (federal)
Quarterly average	1.5 µg/m^3 (federal)

3.1.4 Impact Analysis

As indicated in Section IV and Appendix A of the February 14, 2012 IS, there are less than significant impacts for item (a) of the checklist included in Section 3.1.3.1 above:

a) Conflict with or obstruct implementation of the applicable air quality plan;

Therefore, this impacts analysis will focus only on items (b) through (e).

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

c) Result in a 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;

d) Expose sensitive receptors to substantial pollutant concentrations; or

e) Create objectionable odors affecting a substantial number of people.

3.1.4.1 Methodology

This analysis concentrates on the change in the air quality environment due to implementation of the proposed project. The proposed project would result in air emissions of criteria pollutants and Toxic Air Contaminants (TACs) from operational sources only. Operational activities would generate emissions at the project site from off-road agricultural equipment activity associated with land applying the biosolids and from emissions from the biosolids themselves. In addition, offsite emissions would be generated due to transporting the biosolids from the HTP to the Farm. No additional workers or deliveries are expected to be needed for the proposed project

compared to the 2000 baseline farming operations; thus, emissions from worker commuting trips or vendor deliveries are not calculated.

The operational emissions are estimated using commonly accepted techniques. The methodology uses site-specific data, or assumptions when site specific data are not available, as the basis for identifying applicable emission factors and for calculations as appropriate. The emission factors are obtained from standard sources such as SCAQMD, SJVAPCD, and USEPA AP-42. Data from the CalEEMod™ tool is also used to assist with emission estimates. Additional details for each emissions activity are discussed below. Assumptions and emission factors are included in the tables found in Appendix C.

Operation – On-site

On-site operational emissions result from combustion emissions from off-road equipment used to land apply the biosolids, fugitive dust emissions from the off-road equipment traveling on the fields during land application, and emissions from surface degradation of the biosolids (emissions related to other farming operations would be the same or lower than the 2000 baseline and thus, they are not calculated for this assessment). Operational emissions from the off-road equipment were calculated using anticipated equipment types and emission factors from CalEEMod™. Emissions from surface degradation of the biosolids were estimated using emission factors from the SJVAPCD.[38] The only emissions expected from the fertilizer used in the 2000 baseline are NO_x emissions. No data were available from the standard sources referenced above to estimate NO_x emissions from the fertilizer. Thus, the direct criteria pollutant emissions from the fertilizer application in the 2000 baseline are considered negligible, which is a conservative estimate as it results in a greatest incremental impact. TACs from land application equipment were calculated by using emission factors from the SJVAPCD for biosolids composting.[39]. Although studies have shown that bioaerosols can be emitted from the composting process, this process is not the same as land application and incorporation.[40] For example, windrow composting consists of active, open-air turning of composting materials. Land application and incorporation turns wet biosolids under the soil. No appreciable amount of bioaerosols are expected from operation of the proposed project.

Operation – Off-site

Off-site operational emissions result from transportation of the biosolids. Emissions were calculated using the expected number of trips, distance from HTP to the Farm (or to Griffith Composting Facility and the Arizona border for the 2000 baseline assessment), and emission factors from Emission Factors Model 2011 (EMFAC2011). The analysis assumes that fleet-average 26-ton trucks are used to transport the biosolids. This results in 31 trucks to transport 800 tpd in the proposed project; it results in two 2000 year fleet-average trucks per week to

[38] SJVAPCD. 2007. Appendix B: Emission Reduction Analysis for Proposed New Rule 4565. Available at: http://www.valleyair.org/workshops/postings/priorto2008/2007/03-08-07/r4565_appb_rf.pdf. Accessed September 2013.

[39] SJVAPCD. 2013. San Joaquin Valley Air Pollution Control District's Biosolids Composting Emission Factors. Available at: http://www.valleyair.org/busind/pto/emission_factors/emission_factors_idx.htm. Accessed December 2013.

[40] Harrison, Ellen Z. Compost Facilities: Off-site Air Emissions and Health (Summary of the Literature). Cornell Waste Management Institute. July 2007.

Griffith Composting Facility and 23 2000 year fleet-average trucks per day to Arizona to transport 588 tpd in the baseline. For the proposed project, the total distance from HTP to the Farm is 115 miles, with 76 miles occurring in the SCAB and 39 occurring in the SJVAB. For the baseline, the total distance from HTP to Griffith Composting Facility is 28 miles and 110 miles to the Arizona border occurring solely in the SCAB. TACs from transportation of the biosolids were calculated by using the PM emissions along with speciation profiles available from the SCAQMD.[41]

3.1.4.2 Maximum Mass Emissions and Results

The estimated maximum mass daily and annual operation emissions are shown in Table 3-7and 3-8 for those pollutants for which significance thresholds have been established. Incremental emissions are calculated assuming a baseline scenario with transportation of biosolids to Griffith Park Composting and to the Arizona border for land application in Arizona. Additional detail can be found in Appendix C. The estimated emissions are less than the SCAQMD's mass daily significance thresholds and less than the SJVAPCD's mass annual significance thresholds for all criteria pollutants.

Table 3-8: Annual Emissions Resulting from the Proposed Project - San Joaquin Valley Air Basin

Operational Emissions Analysis	NO_x emissions[1] (tpy)	VOC emissions[1] (tpy)
Baseline		
Transportation Emissions[2]	--	--
Fertilizer Land Application Emissions[3]	0.18	0.02
Total Baseline Emissions	**0.18**	**0.02**
Project		
Transportation Emissions[4]	8.2	0.4
Biosolids Land Application Emissions[5],[6]	4.6	3.1
Total Project Emissions	**13**	**3.6**
Incremental Emissions	**12.8**	**3.5**

[41] SCAQMD. 2010. South Coast Air Quality Management District's Supplemental Instructions for AB2588 Facilities. Available at: http://www.aqmd.gov/aer/Updates/SuppInstruforAB2588Facilities.pdf. Accessed December 2013.

Operational Emissions Analysis	NO_x emissions[1] (tpy)	VOC emissions[1] (tpy)
Threshold[7]	10	10
Significant?	**Yes**	**No**

[1] The SJVAPCD only provides emissions thresholds for NO_x and VOCs; thus, no other criteria pollutants are shown.

[2] There are no transportation emissions in the baseline scenario because biosolids are assumed to be trucked from HTP to Griffith Park Composting Facility and the Arizona border, with no trucking occurring within the SJVAPCD jurisdiction. Trucking of fertilizer is not included, providing a very conservative 2000 Baseline emissions level.

[3] Baseline fertilizer land application emissions include emissions from offroad application equipment fuel combustion.

[4] Project transportation emissions include roundtrip emissions from trucks that deliver the biosolids to the Farm. Note that the emissions are only those that occur within the SJVAB jurisdiction (from the SCAB boundary, approximately where the Frazier Mountain Park Road off-ramp is on the I-5 freeway, to the Farm).

[5] Project land application emissions include emissions from agricultural equipment (e.g. tractors, water trucks, etc.) that apply the biosolids at the Farm; fugitive emissions from the application itself; emissions from the biosolids after land application; and emissions from equipment used to incorporate the biosolids into the earth.

[6] SJVAPCD Rule 4565 requires that facilities that land apply biosolids incorporate the biosolids within 3 hours of receipt of the biosolids. However, if materials are received after 6PM, Rule 4565 allows for incorporation by noon of the following day. Typical practice on the Farm is to incorporate within 3 hours of receipt, in compliance with Rule 4565. Materials received between midnight and 6am may be stored for up to 6 hours before land application and incorporation. Therefore, land application emissions are calculated assuming incorporation within 6 hours. This is a conservative estimate as it assumes all biosolids will be incorporated within 6 hours, when in reality the majority of biosolids are incorporated in 3 hours.

[7] SJVAPCD CEQA thresholds (http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf)

Table 3-9: Mass Daily Emissions Resulting from the Proposed Project - South Coast Air Basin

Operational Emissions Analysis	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
Baseline						
Transportation Emissions[1]	255	11	1.7	7.2	6.6	44
Composting, Disposal, or Land Application Emissions[2]	--	--	--	--	--	--
Total Baseline Emissions	255	11	1.7	7.2	6.6	44
Project						
Transportation Emissions[3]	87.8	4.5	0.2	3.5	3.2	22.5
Biosolids Land Application Emissions[4]	--	--	--	--	--	--
Total Project Emissions	**87.8**	**4.5**	**0.2**	**3.5**	**3.2**	**22.5**
Incremental Emissions	**-167**	**-6.8**	**-1.5**	**-3.7**	**-3.4**	**-22**
Threshold[5]	55	55	150	150	55	550
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

[1] Baseline transportation emissions are based on roundtrip emissions from year 2000 fleet-average trucks that deliver the biosolids from HTP to Griffith Park Composting Facility and the Arizona Border.

[2] There are no baseline fertilizer land application emissions in the SCAB because the Farm is located in the SJVAB. Composting, disposal, or land application of HTP biosolids are assumed to be zero, which produces a very conservative estimate of baseline emissions.

[3] Project transportation emissions include roundtrip emissions from trucks that deliver the biosolids to the Farm. Note that the emissions are only those that occur within the SCAB (from HTP to the SCAB boundary, approximately where the Frazier Mountain Park Road off-ramp is on the I-5 freeway).

[4] There are no project land application emissions in the SCAB because the Farm is located in the SJVAB.

[5] SCAQMD CEQA thresholds (http://www.aqmd.gov/ceqa/handbook/signthres.pdf)

The annual mass emissions in the SJVAB are less than the SJVAPCD's significance thresholds for all pollutants except NO_x. Operation of the proposed project may result in potentially significant impacts. Although NO_x mass emissions are greater than the significance threshold, the nearest sensitive receptor is approximately 1,000 feet west of the site. The proposed project is not expected to contribute to an exceedance of the NAAQS.

The mass daily emissions in the SCAB are less than the SCAQMD's significance thresholds and less than significant impacts are expected from operation of the proposed project. Because these impacts are less than significant and the emission sources are mobile and thus not concentrated at a facility, the proposed project is not expected to contribute to any exceedance of the NAAQS.

If the baseline emissions were conservatively assumed to be zero, the project would also be potentially significant for NO_x mass emissions in the SCAB when compared to the SCAQMD's significance thresholds. Under this scenario, the operation of the proposed project may have potentially significant impacts in both the SJVAB and SCAB. However, as noted above, the Farm is about 1,600 feet east of the nearest sensitive receptor. In addition, emissions occurring in the SCAB are due to mobile sources and, thus, are not localized.

In the 1989 PEIR, air quality impacts were found to be significant. However, the worst-case scenario in the 1989 EIR was identified as composting and, thus, the significance determination was based on composting, not land application. Regardless, the 1989 PEIR found significant impacts due to transportation emissions of NO_x, SO_x, PM, and CO; compost emissions of CO, fugitive dust, odors, and toxics. In contrast, impacts from the proposed project are significant only for NO_x,

3.1.4.3 Health Risk Assessment

The estimated annual emissions of TACs in the SJVAB and the SCAB are shown in Table 3-9and 3-10. The SJVAPCD is developing guidance related to assessing health risk through a prioritization score.[42] If the prioritization score is less than established thresholds (proposed thresholds are 10×10^{-6} for carcinogens and 1×10^{-6} for noncarcinogens), then the project is expected to result in less than significant impacts and no further analysis is needed. The proposed project is calculated to have a low prioritization score at the nearest sensitive receptor (i.e., 1,600 feet west of the site) (Appendix C). The proposed project is not expected to result in significant health impacts in the SJVAB.

TAC emissions in the SCAB from the proposed project decrease as compared to the baseline. Because TAC emissions decrease, any associated health risk would also be expected to decrease. The proposed project is not expected to result in significant health impacts in the SCAB. Thus, no significant health impacts are expected from the proposed project.

[42] SJVAPCD. 2012. DRAFT #2. Guide for Assessing and Mitigating Air Quality Impacts. Available at: http://www.valleyair.org/transportation/GAMAQIDRAFT-2012/GAMAQI-2012-Draft-May312012.pdf. Accessed September 2013.

Table 3-10: Annual TAC Emissions Resulting from the Proposed Project - San Joaquin Valley Air Basin

Pollutants	CAS#	Baseline	Project	Increment
		(tpy)	(tpy)	(tpy)
Benzene	71432	4.08E-05	4.13E-03	4.09E-03
1,1,1-Trichloroethane	71556	--	5.38E-04	--
1,1-Dichloroethane	75343	--	7.12E-04	--
2-Butanone (Methyl ethyl ketone)	78933	--	2.41E-02	--
Carbon disulfide	75150	--	2.69E-03	--
Methylene chloride	75092	--	1.75E-02	--
Styrene	100425	--	6.18E-04	--
Tetrachloroethene	127184	--	1.20E-03	--
Vinyl acetate	108054	--	4.23E-03	--
1,3-Butadiene	106990	4.76E-05	4.68E-03	4.63E-03
Cadmium	7440439	3.28E-07	3.23E-05	3.19E-05
Formaldehyde	50000	3.78E-04	3.71E-02	3.68E-02
Hexavalent chromium	18540299	2.19E-08	2.15E-06	2.13E-06
Arsenic	7440439	3.28E-07	3.23E-05	3.19E-05
Lead	7439921	1.82E-06	1.79E-04	1.77E-04
Nickel	7440020	8.54E-07	8.39E-05	8.31E-05
Naphthalene	91203	4.31E-06	4.24E-04	4.20E-04
PAHs (excluding Naphthalene)	1151	7.92E-06	7.79E-04	7.71E-04
Acetaldehyde	75070	1.71E-04	1.69E-02	1.67E-02
Acrolein	107028	7.42E-06	7.29E-04	7.22E-04
Ammonia	7664417	1.75E-04	1.72E-02	1.70E-02
Copper	7440508	8.98E-07	8.82E-05	8.73E-05
Ethyl benzene	100414	2.39E-06	2.35E-04	2.32E-04
Hexane	110543	5.89E-06	5.79E-04	5.73E-04
Hydrogen chloride	7647010	4.08E-05	4.01E-03	3.97E-03
Manganese	7439965	6.79E-07	6.67E-05	6.60E-05
Mercury	7439976	4.38E-07	4.30E-05	4.26E-05
Selenium	7782492	4.82E-07	4.73E-05	4.69E-05
Toluene	108883	2.31E-05	2.62E-03	2.60E-03
Xylenes	1330207	9.28E-06	9.12E-04	9.03E-04

Table 3-11: Annual TAC Emissions Resulting from the Proposed Project – South Coast Air Basin

Pollutants	CAS#	Baseline	Project	Increment
		(tpy)	(tpy)	(tpy)
Benzene	71432	7.17E-03	5.74E-03	-1.43E-03
1,1,1-Trichloroethane	71556	--	--	--
1,1-Dichloroethane	75343	--	--	--
2-Butanone (Methyl ethyl ketone)	78933	--	--	--
Carbon disulfide	75150	--	--	--
methylene chloride	75092	--	--	--
Styrene	100425	--	--	--
Tetrachloroethene	127184	--	--	--
Vinyl acetate	108054	--	--	--

Pollutants	CAS#	Baseline (tpy)	Project (tpy)	Increment (tpy)
1,3-Butadiene	106990	8.37E-03	6.70E-03	-1.67E-03
Cadmium	7440439	5.78E-05	4.62E-05	-1.15E-05
Formaldehyde	50000	6.65E-02	5.32E-02	-1.33E-02
Hexavalent chromium	18540299	3.85E-06	3.08E-06	-7.70E-07
Arsenic	7440439	5.78E-05	4.62E-05	-1.15E-05
Lead	7439921	3.20E-04	2.56E-04	-6.39E-05
Nickel	7440020	1.50E-04	1.20E-04	-3.00E-05
Naphthalene	91203	7.59E-04	6.07E-04	-1.52E-04
PAHs (excluding Naphthalene)	1151	1.39E-03	1.12E-03	-2.79E-04
Acetaldehyde	75070	3.02E-02	2.41E-02	-6.03E-03
Acrolein	107028	1.31E-03	1.04E-03	-2.61E-04
Ammonia	7664417	3.08E-02	2.46E-02	-6.16E-03
Copper	7440508	1.58E-04	1.26E-04	-3.16E-05
Ethyl benzene	100414	4.20E-04	3.36E-04	-8.39E-05
Hexane	110543	1.04E-03	8.29E-04	-2.07E-04
Hydrogen chloride	7647010	7.17E-03	5.74E-03	-1.43E-03
Manganese	7439965	1.19E-04	9.55E-05	-2.39E-05
Mercury	7439976	7.70E-05	6.16E-05	-1.54E-05
Selenium	7782492	8.47E-05	6.78E-05	-1.69E-05
Toluene	108883	4.06E-03	3.25E-03	-8.11E-04
Xylenes	1330207	1.63E-03	1.31E-03	-3.26E-04

3.1.5 Odor Assessment

Wastewater and associated byproducts, such as biosolids are inherently odorous materials. The odors associated with wastewater and biosolids originate primarily from biological activity within the material. Microscopic organisms consume organic constituents of the waste material and produce gases, most of which are non-odorous such as methane and carbon dioxide. However, all municipal wastewater contains certain elements, particularly sulfur, that when consumed by biological activity result in small quantities of odorous gases being produced. Most notable among these gases are hydrogen sulfide, mercaptans, and other reduced sulfur compounds.

The human olfactory system is capable of detecting these gases at very low concentrations. Hydrogen sulfide, for example, can typically be detected by humans at a concentration of 8 parts per billion in the air. It is the presence of these gases in wastewater that produces the characteristic unpleasant odor that we associate with wastewater. Because there is residual biological activity in biosolids, these same odorous gases continue to be produced even after the biosolids have been separated from the wastewater.

The digestion of biosolids is also a biological process where biological activity is enhanced. In an ideal setting, the biological process would go to its completion and all consumable organic material in the waste would be converted and the biological organism population would dissipate to essentially zero. But in real-world applications, digestion only proceeds to the point where biological activity falls to a low level. As a result some odor continues to be produced by biosolids even after digestion, although with modern digesters, this can be minimized.

The current project will utilize Class A/EQ Biosolids which are treated after digestion. This additional treatment further reduces any residual biological activity in the material. Thus the biosolids in the current project are expected to have less odor than those in typical non-Class A facilities.

In the current project, biosolids will be transported to the site in trucks and deposited on the ground directly from the truck bed. The material is then distributed evenly over the soil surface via a front-end loader and specially configured land-plane. The biosolids are then incorporated into the soil using traditional farming techniques of cross-discing, ripping and cross discing a second time.

The odors potentially affecting people fall into two categories:

- Odors from transportation in trucks and the potential impact to other motorists or those along the haulage route, and
- Odors from the placement and handling of the material at the Farm.

3.1.5.1 Odor During Transport

Odors during transport can occur if the material is directly exposed to the air. Such exposure can result if the material is transported in an open-bed truck. Exposure can also occur if the truck bed is covered, but residual material has been allowed to accumulate on the exterior of the truck, such as in the wheel wells or side sills of the truck bed. For the current project sealed truck beds will be used and all loads will be covered prior to leaving the wastewater treatment plant. Also, trucks will be cleaned after delivery to the land-application site so that any residual material on the exterior of the truck is eliminated. These actions have been shown to greatly reduce any odor emanation from haulage.

It is possible there will be some residual odors that are still detectable in the biosolids from the facility. This can occur when biosolids are stored in trucks for a period of time at the wastewater treatment plant before being transported to the site. In such events, residual biological activity in the biosolids can result in some odor production which can escape even from a covered haulage truck. However, the quantity of odor produced is limited and rapidly dilutes in the air as a result of the truck's movement. It is uncommon for complaints to occur along haulage routes where biosolids are involved. Also, odor can occasionally be observed by motorists directly behind a biosolids-hauling vehicle, although such odors are typically minor and rarely result in complaints from motorists because in such situations motorists can adjust speed or change lanes and/or pass the truck to avoid any odors.

Winges and Hrachovec investigated odors from biosolids hauling from a Seattle-area wastewater treatment facility.[43] The findings showed that odors from the hauling of biosolids were observable for approximately 15 seconds immediately adjacent to a residential street where biosolids were being hauled. They also observed odors when driving directly behind the

[43] Winges, K. D. and M. E. Hrachovec, Odorous Gas Permeation through Plastic Membranes, Presented at the Pacific Northwest International Section (PNWIS) of the Air and Waste Management Association (AWMA) 1995 Annual Meeting, November 1995.

trucks on the same roadway. However, the odors were thought to partly be caused by poor sealing of the trucks as well as delay in delivery of the biosolids from the wastewater treatment plant to the end user. With improved management, these odors have been greatly reduced. The biosolids were not Class A biosolids and were not heat treated after production. It is expected that the biosolids from the proposed project will have less impact. The overall conclusion is that odors from biosolids hauling associated with the project are not expected to cause significant objectionable odors to a substantial number of people.

3.1.5.2 Odor During Land Application

The land application of the biosolids at the Farm has the potential to generate odors because the biosolids will be exposed directly to the air for a short period of time, on the order of several hours. The dumping and distribution of the biosolids on the ground will allow gases from the still-composing biosolids to escape. It is expected that workers in the immediate vicinity of the biosolids during the dumping and distribution of the biosolids on the farm would experience some odor from the material. However, these odors rapidly dissipate as they are transported and dispersed by the wind away from the dumping site. Also, the odors will be greatly reduced, if not entirely eliminated, once the biosolids have been worked into the soil during the discing operation.

The Virginia Cooperative Extension, part of Virginia Technical Institute, has provided an analysis of odors from land application of biosolids.[44] While they acknowledge that odors from biosolids application can be objectionable, they also outline key elements of programs to successfully handle biosolids and avoiding odor impacts. These include:

- Large land areas are needed to keep application rates low
- Stabilization of the material reduces odor
- Immediate incorporation into the soil
- Minimizing any storage of the material between generation at the treatment plant and application at the farm
- Morning application allows favorable meteorological conditions to dissipate odors more rapidly
- Selection of application sites far from residential areas

They conclude that, “A well-managed system with proper equipment and stabilized biosolid will substantially reduce the potential for unacceptable odors.” As discussed in the above sections, the biosolids at the Farm are incorporated within 3 hours of arrival (or within 6 hours if they arrive after midnight) and are not stored on-site. In addition, the Farm is roughly 1,000 feet from the nearest sensitive receptor.

A study conducted by Western Lake Superior Sanitary District and St. Croix Sensory Inc., a firm specializing in odor measurements and quantification, evaluated odor from biosolids application

[44] Evanylo, G.K., Extension Specialist, Department of Crop and Soil Environmental Sciences, Virginia Tech, http://pubs.ext.vt.edu/452/452-304/452-304.html

at 18 different agricultural land-application sites near Duluth, Minnesota.[45] The findings did show odors in the vicinity of the facilities, but generally odors were close to the land application site. Most of the odors observed were from locations where biosolids were stockpiled or stored on the site. Sites where they were directly incorporated in the soils have much lower odors. The study states, "By 60 feet, the odor strength had dissipated significantly, generally to less than 7 Dilution to Threshold (D/T)." D/T is a method for measurement of odor, where one D/T is the theoretical detection limit for a human observer. Values less than 7 D/T are typically thought to be mild, barely-detectable odors. Because resident locations will be much farther at the current site than 60 feet, the study suggests that potential odors from the current project would not be detectable at the nearest resident.

Using the data collected in the Duluth study, an odor modeling study was conducted for the current project. The EPA's AERMOD model was used to compute concentrations of downwind odor from application of biosolids (the model does not account for incorporation into the soil, which would decrease odors). The basic assumption was that odors would be on the order of 15 D/T at a distance of about 20 feet downwind from the biosolids application area. Odors were computed for a network of 2,091 locations distributed evenly over the Farm and the surrounding area. A total of 5 years of meteorological data was processed and an odor level was computed at each of the 2,091 receptors for every hour in the meteorological data set. In all, a total of over 91,000,000 concentrations were calculated. For purposes of this analysis, the land application was assumed to occur on the western boundary of the Farm, directly east of the closest sensitive receptors (i.e., a commercial development and residence). Although there is an additional commercial receptor at the northwest corner of the Farm, the land application site closest to the residential receptor was chosen for a more conservative analysis. This is the worst-case location, as it is closest to the sensitive receptors. This analysis assumed no land application between midnight and 6am, consistent with Farm practices and SJVAPCD Rule 4570. The analysis conservatively assumes surface application of biosolids only; in compliance with SJVAPCD Rule 4570, biosolids must be incorporated within 3 hours or, if received after midnight, within 6 hours.

The results were then summarized statistically. Two basic odor levels were used as criteria. The level of 1 D/T is generally considered the level at which odors can be perceived. A somewhat higher level of 4 D/T was used to indicate a level of odor that is more likely to result in a noticeable odor that might be considered an annoyance level. The percentage of time at each receptor that these two criteria were exceeded was then computed. The results are shown in Figure 3-1 and Figure 3-2.

[45] Hamel, K.C. and M.A. McGinley, Land Application Odor Control Case study, Water Environment Federation Residuals and Biosolids Management Conference, Salt Lake City, UT, February 22-25, 2004. http://www.nasalranger.com/media/40%20WLSSD%20Land%20Application%20Field%20Olfactometry%20Case%20Study.pdf

Figure 3-4: Percent of Time Odors Would Exceed 1 D/T

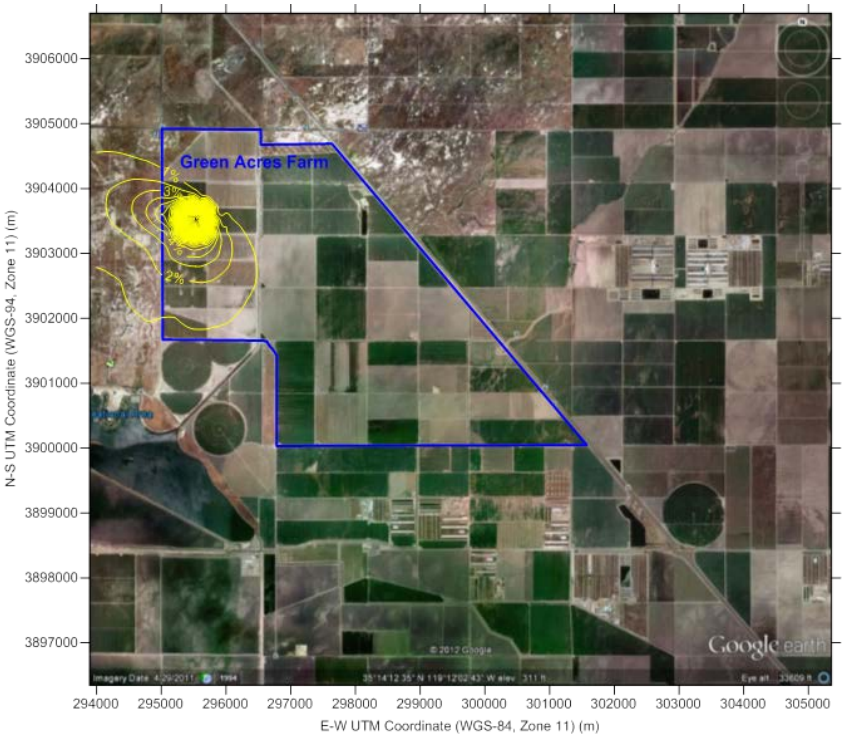
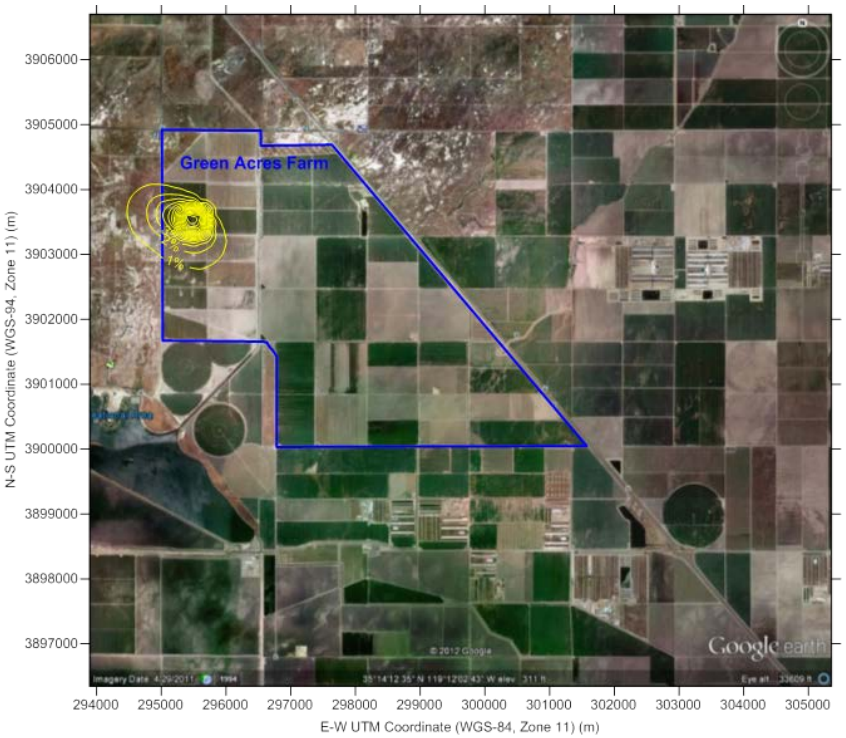


Figure 3-5: Percent of Time Odors Would Exceed 4 D/T



As the figures show, odors could occasionally (6% of the time) exceed the theoretical odor perception limit on the western boundary of the property if biosolids were applied next to the western boundary, but odors above the annoyance threshold would be rare (1 to 3% of the time)

on the boundary even if biosolids were applied next to the western boundary. This assumes biosolids are exposed on the surface; in reality, soil incorporation is required within 3 or 6 hours of receiving the biosolids, as discussed above. Soil incorporation is likely to reduce odors significantly from those shown in Figure 3-1 and Figure 3-2. In addition, this analysis assumes the biosolids are always applied along the western border of the Farm; in reality, biosolids are applied to all sections of the Farm based on crop needs. Thus, any potential exposure to odors at the closest receptors would be even less than this worst-case, conservative analysis shows. The SJVAPCD considers odors significant if they "create objectionable odors affecting a substantial number of people."[46] Perceptible odors would occur at any residential, commercial, or industrial receptor only rarely. As such, odor impacts would be less than significant and negligible because they do not affect many people, much less a substantial number of people.

3.1.6 Significance Determination

The proposed project is expected to result in potentially significant impacts related to air quality due to NO_x emissions in the SJVAB.

In addition, the process of transporting, handling and land-application of biosolids has the potential to create objectionable odors. However, it is felt that the current project will result in less than significant impacts related to objectionable odors affecting a substantial number of people for the following reasons:

- These are Class A/EQ biosolids which have been stabilized by digestion and heat treatment, both of which reduce odors over other biosolids;
- The haulage method will be in sealed trucks that have been cleaned of exterior material to prevent the exposure of biosolids to the air during transport;
- Biosolids will not be stored or allowed to further degrade in the air between their creation at the wastewater treatment plant and their application at the Farm;
- The farm application is conducted in a large rural area with few nearby neighbors;
- Application will be followed by rapid soil incorporation so that biosolids will not be allowed to sit on the surface for any extended period of time; and
- The City requires that the contractor adhere to the California Manual of Good Practice for Land Application of Biosolids and the National Biosolids Partnership National Manual of Good Practice for Biosolids to ensure a properly managed program is undertaken and that odors and other nuisances are minimized.[47,48]

The plan as designed and presently proposed incorporates all elements of a successful land application program. No further mitigation is deemed necessary, although all elements of the plan as proposed are critical to the success of the program and must be implemented if odors are to be maintained to less than significant impact levels.

[46] SJVAPCD. 2012. Draft. Guidance for Assessing and Mitigating Air Quality Impacts – 2012. Available at: http://www.valleyair.org/transportation/GAMAQIDRAFT-2012/GAMAQI-2012-Draft-May312012.pdf. Accessed March 2014.

[47] California Water Environment Association. California Manual of Good Practice for Land Application of Biosolids. Available for purchase at: http://www.cwea.org/book_ocb.shtml.

[48] National Biosolids Partnership. 2005. Manual of Good Practice for Biosolids. Available at: http://www.wef.org/Biosolids/page.aspx?id=7767. Accessed March 2014.

3.1.6.1 1989 PEIR Criteria Assessment

The 1989 PEIR lists a number of critieria that would need to be met to avoid significant impacts.

- The proposed project must comply with Proposition 65, which prohibits discharges of certain substances that can cause cancer or birth defects from reaching drinking water. These chemicals, such as beryllium, cadmium, hexavalent chromium, lead, and nickel, can be emitted from the site in fugitive dust from the biosolids.

Although the above list from the 1989 PEIR was not specified as mitigation measures, the City notes that the Farm does, however, meet these criteria. As discussed in the health risk assessment, the impact related to TAC emissions decreases as a result of the proposed project. The project is shown to have a low prioritization score, indicating that there will be no significant impacts per the SJVAPCD's guidance (see Section 3.1.4.3 for more details). The City will comply with Proposition 65 if applicable.

3.1.7 Mitigation Measures

The proposed project may result in potentially significant impacts due to air quality. The 1989 and 1996 PEIRs list a number mitigation measures that would apply if adverse impacts were expected for any sludge-related activity.[49] Because the proposed project does result in significant impacts, the City has assessed the applicability of these measures to this project. The City found that none of these mitigation measures are applicable to the proposed project (see Table 3-9).

Table 3-12: Mitigation measures from 1989 and 1996 PEIRs

Mitigation Measure	Applicable to Proposed Project?	Explanation
1989 PEIR[1]		
The land application area is within a 40-mile radius from HTP	No	This measure is an estimate based on the assumptions used in the analysis for the 1989 PEIR. The 1989 PEIR assumed approximately 53 trucks would be used to transport dewatered sludge and varying distances depending on the final application site. These assumptions are not used in the current analysis for the proposed project, as the current analysis is based on actual data of the amount of biosolids, the capacity of trucks used, and the actual location of the Farm. The current analysis of all air emissions associated with land application, including transportation, indicates that there are significant impacts in the SJVAB due to NO_x emissions. There are no land application areas that have sufficient capacity for the biosolids within a 40-mile radius from HTP. Thus, the suggested mitigation measure of maintaining a 40-mile radius is not feasible.

[49] The 1989 and 1996 PEIRs reference sludge. The proposed project involves only the land application of Class A-EQ biosolids.

Mitigation Measure	Applicable to Proposed Project?	Explanation
Use alternative fuels for composting [2],[3]	No	The current analysis of all air emissions associated with land application indicates that there are no significant impacts resulting from combustion in on-site equipment and from land application. Instead, the significant impacts are due to the trucks required to transport the biosolids from HTP to the Farm. This mitigation measure is not required because composting is not being used in the proposed project and because no significant impacts result from on-site equipment at the Farm.
1996 PEIR[4]		
Cover transport vehicles	Not required but incorporated in project	This mitigation measure is intended to mitigate PM_{10} emissions. The current analysis shows that PM_{10} emissions are not significant and mitigation is not required. However, covered transport vehicles are used per requirements of the applicable district rules.
Water site and clean equipment morning and evening	Not required but incorporated in project	This mitigation measure is intended to mitigate PM_{10} emissions. The current analysis shows that PM_{10} emissions are not significant and mitigation is not required. However, watering the site and cleaning the equipment will be incorporated as required under applicable air district rules.
Apply District approved chemical soil stabilizers according to manufacturer's specifications, to all inactive areas (previously graded areas which remain inactive for 96 hours)	No	This mitigation measure is intended to mitigate PM_{10} emissions. The current analysis shows that PM_{10} emissions are not significant and mitigation is not required.
Sweep streets if silt is carried over to adjacent public thoroughfares	No	This mitigation measure is intended to mitigate PM_{10} emissions. The current analysis shows that PM_{10} emissions are not significant and mitigation is not required.
Wash off trucks leaving the site	Yes	This mitigation measure is intended to mitigate PM_{10} emissions. The current analysis shows that PM_{10} emissions are not significant and mitigation is not required. However, the City already implements, and will continue to implement, this measure. It also minimizes the track-out of any odor-producing material from the Farm.

Mitigation Measure	Applicable to Proposed Project?	Explanation
Use low emission on-site stationary equipment where necessary	No	This mitigation measure is intended to mitigate PM_{10} emissions. The current analysis shows that PM_{10} emissions are not significant and mitigation is not required. In addition, stationary equipment are not used in the land application of biosolids.

[1] 1989 PEIR. Page 3.2-23 through 3.2-24.

[2] The 1989 PEIR lists this mitigation measure for composting, not for land application. However, the City analyzed this mitigation measure in context of the proposed project.

[3] The 1989 PEIR stated that this mitigation measure may not reduce emissions below significance.

[4] 1996 PEIR. Page IV-9 through IV-10.

In addition, the City researched potential applicable mitigation measures proposed by the SCAQMD and SJVAPCD.[50] The following measures were found to be applicable but not feasible for the project.

- Diesel particulate filter (Level 3 plus retrofit): Reduces NO_x emissions by 25% to 40%.
- Use alternative fuels for construction equipment. Reduces NO_x emissions by a variable amount (depending on equipment) – the proposed project does not involve construction activities.
- Use of Tier 4 engines in non-road vehicles. Reduces NO_x emissions by a variable amount (depending on Tier used). The City upgraded the diesel engines on various pumps at the farm to Tier 4 levels starting in 2009. The City has also upgraded most of the diesel-powered farm equipment to latest available technology. The trucking fleet used to transport the biosolids incorporates is model year 2007 or newer, which have much lower PM and NO_x emissions than older trucks.

3.2 Greenhouse Gases

As discussed in Chapters 1 and 2, the project site will be located at the Farm, 15 miles southwest of Bakersfield in Kern County within the SJVAB. Biosolids will be transported from the HTP within the SCAB to the Farm. As a result, greenhouse gases (GHGs) will be calculated for both air basins, but discussed as a global pollutant.

3.2.1 Existing Setting

3.2.1.1 Background

Unlike criteria pollutants emissions, GHGs emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is a result of their accumulation in the atmosphere. GHGs absorb long wave radiant energy reflected by the earth both upward to space and back down toward the surface of the earth. The downward part of this long wave radiation that accumulates in the atmosphere is known as the "greenhouse effect." The accumulation of GHGs in the atmosphere causes climate change. Global climate change

[50] SCAQMD. Mitigation Measures: On-road engines. Available at: http://www.aqmd.gov/ceqa/handbook/mitigation/onroad/MM_onroad.html. Accessed November 2013.

refers to changes in average climatic conditions on earth as a whole, including temperature, wind patterns, precipitation, and storms. Some studies indicate that the potential effects of global climate change may include rising surface temperatures, loss in snow pack, rising sea levels, more extreme heat days per year, and more drought years. These climatic changes in turn may have numerous indirect effects on the natural environment and humans.

The six major GHGs identified by the Kyoto Protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). The first three (CO_2, CH_4, and N_2O) occur naturally in the atmosphere whereas the last three are not naturally present in the atmosphere but result from anthropogenic activities. There are other GHGs that are not recognized by the Kyoto Protocol or the State of California because of the smaller role that they play in climate change or the uncertainties surrounding their effects. Atmospheric water vapor is not recognized by the governments because there is not an obvious correlation between water vapor concentrations and specific human activities. Water vapor appears to act in a positive feedback manner; higher temperatures lead to higher water concentrations, which in turn cause more global warming.

Atmospheric concentrations of GHGs have increased since the pre-industrial era compared to modern-time concentrations in 2005: CO_2 increased from 275 ppm to 379 ppm; CH_4 increased from approximately 700 ppb to 1,775 ppb; and N_2O increased from 270 ppb to 319 ppb.[51]

The effect of GHGs is a combination of their emissions and their global warming potential (GWP). Global warming potential is a relative measure that indicates, on a mass for mass basis, how much a gas will contribute to climate change relative to CO_2. Both CH_4 and N_2O are more potent GHGs than CO_2, with GWPs (100-year horizon) of 21 and 310, respectively.[52] The other GHGs that are not naturally found in the atmosphere are also more potent and have greater GWPs than CO_2 (e.g., SF_6 GWP = 23,900; HFCs and PFCs GWP = 140 to 11,700).

3.2.1.2 Baseline Operating Conditions Used in Analyses

For the purposes of this retrospective assessment, the 2000 baseline assumes that no HTP biosolids were sent to the Farm and that the HTP biosolids would have been transported to another location for handling. Operations at the Farm and alternative biosolids handling in 2000 are necessarily hypothetical but a resonable scenario can be identified. The operating scenario was chosen based on realistic feasible alternatives focused on providing a conservative impact analysis (i.e., greatest possible incremental impacts, which implies the lowest estimate of 2000 baseline emissions; see Table 3-12).

[51] IPCC. 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller (eds). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

[52] GWP values from IPCC's Second Assessment Report (SAR, 1996) are still used by international convention and are used in this analysis, even though more recent (and slightly different) GWP values were developed in the IPCC's Third Assessment Report (TAR, 2001). The values cited here and most commonly used refer to the gases' global warming potential averaged over 100 years' time in the atmosphere.

Table 3-13: 2000 Baseline Operating Scenario

Air Basin	Comment
SJVAB (Farm): Chemical fertilization of crops	• Assumes no off-site truck emissions even though there would be fertilizer transportation, in order to analyze the impacts from the most conservative baseline
SCAB (HTP): Biosolids sent to Griffith Park Composting facility to facility limit (52 tons/week); excess sent to Arizona for land application[53]	• Incorporates mileage from HTP to Griffith Park Composting facility for biosolids up to the capacity of Griffith Park (2 trucks per week, i.e. 56 tpd assuming both trucks on the same day); remaining mileage for trucking biosolids to Arizona border for land application in Arizona
	• Assumes no Griffith Park Composting facility emissions or land application emissions within the Basin (land application assumed to occur in Arizona)

3.2.2 Regulatory Setting

In response to growing scientific and political concern regarding global climate change, a series of laws at the state and federal level have been adopted to reduce both the level of GHGs in the atmosphere and to reduce emissions of GHGs from commercial and private activities within the state.

3.2.2.1 Federal

There are several federal regulations that may apply to the HTP and the proposed project.

April 2007 Supreme Court Ruling

In Massachusetts *et al*. vs. Environmental Protection Agency *et al*., the US Supreme Court ruled that GHGs were air pollutants under the CAA and that provided authorization to the USEPA to regulate CO_2 emissions from new motor vehicles, should those emissions endanger the public health or welfare. The USEPA was not required to implement regulations to reduce GHG emissions under this decision; instead, the Court found that the only times when the USEPA could avoid taking action were (1) if it found that GHGs do not contribute to climate change or (2) if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change. In 2009, the USEPA Administrator signed two separate and distinct findings related to GHGs.

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs – CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 – in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

[53] The City's contingency plan lists Arizona as an alternative land application site. This has been used in the past. Similarly, biosolids have been, and continue to be, sent to Griffith Park for composting.

There were no requirements imposed on industry or other entities as a result of these findings; the findings instead were a prerequisite for setting GHG emissions standards for vehicles and allowed the USEPA to finalize the proposed emissions standards for light-duty vehicles.[54]

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (EISA) was signed into law on December 19, 2007, and includes provisions covering:

- renewable fuel standard;
- biofuels infrastructure;
- building energy efficiency; and
- average fuel economy standards.

The EISA also addressed energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."[55]

The Renewable Fuel Standard (RFS) regulations require annual increases in the amount of renewable fuel that is blended into gasoline. The EISA expanded this program to include diesel as well as gasoline, and increased the volume to 36 billion gallons by 2022.[56]

Reporting Requirements

The Consolidated Appropriations Act of 2008 (HR 2764), which was passed by Congress in December 2007, required the USEPA to develop a rule for mandatory reporting of GHGs. As a result, the GHG Reporting Rule was issued in 2009.[57] The stated purpose of the rule is to collect accurate and timely GHG data to inform future policy decisions. Facilities that emit 25,000 metric tonnes (MT) or more per year of GHGs are required to submit annual reports to the USEPA. Direct emissions from on-site sources counted toward the threshold. Suppliers of certain products that result in GHG emissions if released, as well as facilities that inject CO_2 underground for geologic sequestration, are also covered.[58]

Biosolids, and emissions resulting from decomposition of the material, are an example of biomass/waste-derived. GHG emissions associated with biomass/waste-derived material are considered part of a natural, carbon-neutral cycle and, thus, are thought to not contribute to

[54] USEPA. Endangerment and Cause or Contribute Findings for Greenhouse Gases under §202(a) of the Clean Air Act. Website. Available at: http://www.epa.gov/climatechange/endangerment/. Accessed March 2013.
[55] USEPA. Summary of the Energy Independence and Security Act. Website. Available at: http://www.epa.gov/lawsregs/laws/eisa.html. Accessed March 2013.
[56] USEPA. Renewable Fuel Standard. Website. Available at: http://www.epa.gov/otaq/fuels/renewablefuels/index.htm. Accessed March 2013.
[57] USEPA. Fact Sheet – Greenhouse Gases Reporting Program Implementation. Available at: http://www.epa.gov/ghgreporting/documents/pdf/2009/FactSheet.pdf. Accessed April 2013.
[58] USEPA. Greenhouse Gas Reporting Program. Website. Available at: http://www.epa.gov/ghgreporting/. Accessed March 2013.

climate change.[59] Biogenic emissions are reported separately under the Mandatory Reporting Rule.

Clean Air Act Permitting for GHGs

GHG emissions from the largest stationary sources are covered by the Prevention of Significant Deterioration (PSD) and Title V Operating Permit Programs. The PSD program applies to new major sources and major modifications to existing major sources. The Title V program requires major sources to obtain and operate in compliance with a facility-wide operating permit. However, the thresholds established in the Act for determining when emissions of pollutants trigger a source "major" classification, i.e. subject to these permitting programs (100 and 250 tons per year), were based on traditional pollutants and were not originally intended to be applied to GHGs.

To address this issue, the USEPA's GHG Tailoring Rule, issued in May 2010, established a phased approach to incorporating facilities emitting GHG emissions at higher thresholds into these programs. Under the rule, GHG permitting initially focused on the largest industrial sources. Effective July 1, 2011, PSD permitting requirements covered new projects that emit GHG emissions of at least 100,000 tons/year even if they do not exceed the PSD permitting thresholds for any other pollutant. Modifications at existing facilities that increase GHG emissions by at least 75,000 tons/year are subject to PSD permitting requirements, even if they do not significantly increase emissions of any other pollutant. Facilities that emit at least 100,000 tons/year CO_2 equivalents (CO_2eq) are also subject to Title V permitting requirements. While phasing in the Tailoring Rule, USEPA has stated that it will also make an assessment of administrative issues and examine GHG permitting for smaller sources in a 5-year study expected to be completed by April 2015; results are expected by April 2016 to determine if successful streamlining will allow further phase-in or exclude smaller sources from permit requirements. In July 2011, a subsequent rulemaking was completed to defer permitting requirements for CO_2 emissions from biomass and other biogenic sources for three years.[60,61] This deferral was vacated by the D.C. Court of Appeals on July 12, 2013.

3.2.2.2 State

There are several state regulations or initiatives that may apply to the Farm and the proposed project.

Executive Order S-3-05

This executive order established GHG emissions reduction targets for the State, as well as a process to ensure that the targets are met. As a result of this executive order, the California

[59] USEPA. EPA Inventory Of U.S. Greenhouse Gas Emissions And Sinks: 1990-2008, (April 2010), Page 8-5, Box 8-1: "CO2 emissions from the combustion or decomposition of biogenic materials (e.g., paper, wood products, and yard trimmings) grown on a sustainable basis are considered to mimic the closed loop of the natural carbon cycle—that is, they return to the atmosphere CO2 that was originally removed by photosynthesis."

[60] USEPA. New Source Review Regulations & Standards. Website. Available at: http://www.epa.gov/NSR/actions.html. Accessed March 2013.

[61] USEPA. Final Rule – Deferral for CO_2 emissions from bioenergy and other biogenic sources under the Prevention of Significant Deterioration (PSD) and Title V programs. Available at: http://www.epa.gov/NSR/documents/Biogenic_Fact_Sheet_June_2011.pdf. Accessed March 2013.

Climate Action Team (CAT), led by the Secretary of the California State Environmental Protection Agency (CalEPA), was formed.[62]

AB 32

AB 32 required the California Air Resources Board (CARB) to establish a statewide GHG emissions cap for 2020, adopt mandatory reporting rules and an emission reduction plan for significant sources of GHG emissions, and adopt regulations to achieve the maximum technologically feasible and cost effective reductions of GHGs.[63]

AB 32 Reporting Requirements

AB 32 specified mandatory reporting of GHG emissions from certain facilities in California. CARB's mandatory GHG reporting regulation is a set of rules that establishes who must report GHG emissions to CARB and sets forth the requirements for measuring, calculating, reporting, and verifying those emissions. Industrial facilities are generally required to report their GHG emissions to the State annually if they exceed 25,000 MT of direct emissions from operations.[64] Under the Mandatory Reporting Rules, biogenic emissions are reported separately from non-bioogenic emissions.

AB 32 Cap-and-Trade

As a result of AB 32, the cap-and-trade program established an enforceable GHG limit (i.e., cap), with this limit decreasing over time. Allowances (i.e., tradable permits) are distributed by ARB as well as traded. Facilities from capped sectors will be allowed to trade these allowances to emit GHGs.[65]

Senate Bill (SB) 97

SB 97 required the Office of Planning and Research (OPR) to develop and adopt CEQA guidelines for GHGs by January 1, 2010. As a result, the amendments to the CEQA Guidelines related to GHGs were adopted on December 30, 2009, and became effective on March 18, 2010.[66] These amendments state that the lead agency must "make a good-faith effort… to describe, calculate or estimate the amount of GHG emissions resulting from a project." When determining the significance of a project's GHG emissions, SB 97 directs a lead agency to consider:

- The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;

[62] Executive Order S-3-05. Website. Available at: http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm. Accessed March 2013.
[63] CARB. Assembly Bill 32: Global Warming Solutions Act Website. Available at: http://www.arb.ca.gov/cc/ab32/ab32.htm. Accessed March 2013.
[64] CARB. Mandatory Greenhouse Gas Emissions Reporting Website. Available at: http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm. Accessed March 2013.
[65] CARB. Cap-and-Trade Program Website. Available at: http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm Accessed March 2013.
[66] SB 97. CEQA: Greenhouse gas emissions. Available at: http://opr.ca.gov/docs/SB_97_bill_20070824_chaptered.pdf. Accessed March 2013.

- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.[67]

Local

- SCAQMD – In December 2009, the SCAQMD adopted an interim significance threshold for industrial projects of 10,000 metric tons (MT) CO_2eq per year. This threshold applies to industrial projects where the SCAQMD is the lead agency or where the lead agency adopted this threshold.
- SJVAPCD – In December 2009, the SJVAPCD proposed and adopted a tiered approach to addressing GHGs under CEQA. [68]
  - Step 1: If the project complies with an approved GHG emission reduction plan or mitigation program in the relevant geographic area, then the project would be determined to have a less than significant impact for GHGs.
  - Step 2: If the project implements a Best Perfomance Standard (BPS), then the project is not required to quantiify project-specific GHG emissions and would be determined to be less than significant. This method defines BPS as "the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source."
  - Step 3: If a project does not implement BPS, then project-specific emissions must be quantified and a 29% reduction compared to business-as-usual must be demonstrated.

  Regardless of the tier used, the SJVAPCD's guidance specifies that project-specific emissions must be quantified for all EIRs, as is required under CEQA.

3.2.3 Environmental Impacts

The proposed project site is located within the SJVAB, with impacts also occurring in the SCAB due to transportation through the City. Although the City has not established a GHG significance criteria, environmental impacts of the proposed project will be calculated and compared to the SCAQMD's and SJVAPCD's CEQA significance thresholds for informational purposes. This section describes the air agencies' thresholds of significance and the GHG impact analysis for operation of the proposed project; there are no construction activities associated with the proposed project.

[67] Natural Resources Agency. 2009. Adopted CEQA Guidelines Amendments. Available at: http://ceres.ca.gov/ceqa/docs/Adopted_and_Transmitted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf. Accessed March 2013.

[68] SJVAPCD. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. Available at: http://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf. Accessed October 2013.

3.2.3.1 Significance Thresholds

The City had not itself established a significance threshold for GHG emissions. The proposed project is located in Kern County, which is part of the SJVAB; the SJVAB is under the jurisdiction of the SJVAPCD. In December 2009, the SJVAPCD adopted an approach to significance for GHGs under CEQA.[69] This threshold only applies to projects where the SJVAPCD is the lead agency or the lead agency has adopted this threshold. Based on this, the threshold does not apply to this project because 1) the City is the lead agency; 2) the City has not adopted a significance threshold for GHGs; and 3) the City has not adopted the SJVAPCD's threshold.

Project activities, i.e., transportation of biosolids, also occur in the City, which is part of the SCAB; the SCAB is under the jurisdiction of the SCAQMD. In December 2009, the SCAQMD adopted an interim significance threshold for industrial projects of 10,000 MT CO_2eq per year. This threshold only applies to projects where the SCAQMD is the lead agency or the lead agency has adopted this threshold. Based on this, the threshold does not apply to this project because 1) the City is the lead agency; 2) the City has not adopted a significance threshold for GHGs; and 3) the City has not adopted the SCAQMD's GHG threshold.

Consistent with OPR's guidance and for this specific evaluation and case, the City has calculated and reports herein the biogenic and nonbiogenic emissions for the proposed project. Any comparisons to air district GHG significance thresholds are for information purposes only. See Section 3.2.4. (Significance Determination) for emissions comparison to these thresholds and for project-specific significance determinations.

3.2.3.2 Methodology

This retrospective analysis calculates the change in GHG emissions due to the implementation of the proposed project. The proposed project would result in GHG emissions from operational sources only. Operational activities would generate emissions at the project site from off-road agricultural equipment activity associated with land applying the biosolids and emissions from the biosolids themselves. In addition, offsite emissions would be generated due to transporting the biosolids from the HTP to the Farm. No additional workers or deliveries are expected to be needed for the proposed project; thus, emissions from worker commuting trips or vendor deliveries are not calculated. On-site GHG emissions would result from irrigation at the Farm; however, the GHG impacts would be relatively low. The Farm would be irrigated regardless of whether a chemical fertilizer or biosolids are used. Biosolids have a total solids content of 28.4%, indicating that a substantial amount of water is also applied with the biosolids. Because irrigation water is applied based on crop needs, applying biosolids with this relatively high water content is not expected to increase the amount of irrigation water needed (and in fact may reduce the amount of irrigation water needed). Because there would be no incremental emissions from irrigation, these emissions are not analyzed.

The operational emissions are estimated using commonly accepted techniques. The methodology uses site-specific data, or assumptions when site-specific data are not available,

[69] SJVAPCD. Best Performance Standards (BPS) for Stationary Sources. Available at: http://www.valleyair.org/Programs/CCAP/bps/BPS_idx.htm. Accessed September 2013.

as the basis for identifying applicable emission factors and for calculations as appropriate. The emission factors are obtained from standard sources such as SCAQMD, SJVAPCD, and USEPA AP-42. The CalEEMod™ tool, approved by both the SCAQMD and SJVAPCD, is also used to assist with emission estimates. Additional details for each emissions source are discussed below and included in Appendix C.

Operation – On-site

On-site operational direct emissions result from combustion emissions from off-road equipment used to land apply the biosolids, fugitive dust emissions from the off-road equipment traveling on the fields during land application, and from emissions from surface degradation of the biosolids (emissions related to other farming operations would be the same or lower than in 2000, and are not part of the project, and thus, they are not calculated). Operational emissions from the off-road equipment were calculated using anticipated equipment types and emission factors from CalEEMod™. Emissions from surface degradation of the biosolids were estimated using methodology developed for biosolids degradation, assuming incorporation within 6 hours. SJVAPCD Rule 4565 requires incorporation within 3 hours; however, this rule was adopted in 2007 and, to be conservative, the analysis assumed 6 hours.[70] The only emissions expected from the fertilizer used in the baseline are CO_2 and N_2O emissions. These emissions were estimated using emission factors from Kern County.[71]

On-site operational indirect emissions result from emissions associated with water usage and transport and electricity usage. Because neither the water usage nor the electricity usage at the Farm are expected to change as a result of the proposed project, the indirect emissions will not change and are not calculated.

Operation – Off-site

Off-site direct operational emissions result from transportation of the biosolids from HTP to the Farm. Emissions were calculated using the expected number of trips, distance from HTP to the Farm (or to Griffith Composting Facility and Arizona for the 2000 baseline assessment), and emission factors from EMFAC2011. The analysis assumes that fleet-average 26-ton trucks are used to transport the biosolids. This results in 31 trucks in the proposed project to transport 800 tpd and 23 year 2000 fleet-average trucks in the baseline to transport 588 tpd. For the proposed project, the total distance from HTP to the Farm is 115 miles, with 76 miles occurring in the SCAB and 39 occurring in the SJVAB. For the baseline, the total distance from HTP to Griffith Composting Facility is 28 miles occurring solely in the SCAB. For the remaining biosolids that are transported to Arizona for disposal, the total distance from HTP to Arizona is 242 miles, with 110 miles occurring in the SCAB and 132 miles occurring from the SCAB boundary to Arizona.

[70] Terralog. April 30, 2002, Technical Data Supporting Experimental Objectives for Biosolids Injection Demonstration Project, Page 8.

[71] Kern County. Emission factors from Kern County Community-wide Greenhouse Gas Emission Inventory Methodology Documents Volume 2, Appendix G.7, May 2012. Available at: http://www.co.kern.ca.us/planning/pdfs/kc_ghg_methods_vol2.pdf. Accessed September 2013. The N_2O emission factor assumes urea fertilizer with a nitrogen content of 46% urea (AP-42).

3.2.3.3 Annual Emissions

The estimated maximum annual operation emissions are shown in Table 3-13, Table 3-14, and Table 3-15. Additional detail can be found in Appendix C.

Table 3-14: Annual Emissions Resulting from the Proposed Project - San Joaquin Valley Air Basin

Operational Emissions Analysis	Annual GHG Emissions (MT CO_2eq/yr)		
	Biogenic	**Nonbiogenic**	**Total**
Baseline			
Transportation Emissions[1]	0	0	0
Land Application Emissions[2]	0	1,020	1,020
Total Baseline Emissions (SJVAB)	**0**	**1,020**	**1,020**
Project			
Transportation Emissions[1]	0	1,529	1,529
Land Application Emissions[2]	594	602	1,196
Total Project Emissions (SJVAB)	**594**	**2,131**	**2,724**
Incremental Emissions (SJVAB)	**594**	**1,111**	**1,705**

[1] There are no transportation emissions in the SJVAB in the baseline scenario because biosolids are trucked from HTP to Griffith Park Composting Facility, which is within the SCAB, and to Arizona, and trucking of fertilizer within the SJVAPCD jurisdiction is not accounted for in this analysis.
[2] Baseline land application emissions are due to equipment fuel combustion and the nitrogen fertilizer.

Table 3-15: Annual Emissions Resulting from the Proposed Project – South Coast Air Basin

Operational Emissions Analysis	Annual GHG Emissions (MT CO_2eq/yr)		
	Biogenic	**Nonbiogenic**	**Total**
Baseline			
Transportation Emissions[1]	0	3,207	3,207
Land Application Emissions[2]	0	0	0
Total Baseline Emissions (SCAB)	**0**	**3,207**	**3,207**
Project			
Transportation Emissions[3]	0	2,979	2,979
Land Application Emissions[4]	0	0	0.0
Total Project Emissions (SCAB)	**0**	**2,979**	**2,979**

Operational Emissions Analysis	Annual GHG Emissions (MT CO_2eq/yr)		
	Biogenic	Nonbiogenic	Total
Incremental Emissions (SCAB)	**0**	**-228**	**-228**

[1] Baseline transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility.
[2] There are no baseline land application emissions in the SCAB because the Farm is located in the SJVAB. Operational emissions from Griffith Park or any other location are considered to be zero in this analysis.
[3] Project transportation emissions include roundtrip emissions from trucks that deliver the biosolids to the Farm. Note that the emissions are only those that occur within the SCAB (from HTP to the SCAB boundary, approximately where the Frazier Mountain Park Road off-ramp is on the I-5 freeway).
[4] There are no project land application emissions in the SCAB because the Farm is located in the SJVAB.

Table 3-16: Annual Emissions Resulting from the Proposed Project – Total Emissions

Operational Emissions Analysis	Annual GHG Emissions (MT CO_2eq/yr)		
	Biogenic	Nonbiogenic	Total
Baseline			
Transportation Emissions[1]	0	3,207	3,207
Land Application Emissions[2]	0	1,020	1,020
Total Baseline Emissions	**0**	**4,227**	**4,227**
Project			
Transportation Emissions[3]	0	4,507	4,507
Land Application Emissions[4]	594	602	1,196
Total Project Emissions	**594**	**5,109**	**5,703**
Incremental Emissions	**594**	**883**	**1,477**

3.2.4 Significance Determination

Although the City does not have a significance threshold for GHGs and is not an industrial project, both the non-biogenic and biogenic emissions are individually and cumulatively less than the SCAQMD's guidance threshold for industrial projects (10,000 MT CO_2eq/yr) and federal reporting limits. The SJVAPCD's guidance is intended for stationary sources and land-use projects, and is not applicable to the proposed project. An EIR analysis has been prepared even though the possible effects of the proposed project are likely less than significant and not cumulatively considerable. Consistent with OPR's guidance and for this specific evaluation and case, the City has calculated and reports herein the biogenic and nonbiogenic emissions for the proposed project.

Although the SJVAPCD's guidance is not applicable to the project, an analysis conforming to this guidance was done. SJVAPCD's guidance states that a reduction of 29% compared to a

business-as-usual (BAU) scenario would demonstrate that a project has a less than cumulatively significant impact.[72] The BAU scenario for this project is assumed to be the maximum amount of biosolids sent to Griffith Park for composting, with the remainder land applied at an alternate site in Arizona. Note that the BAU scenario is identical to Alternative 1 (No Project). Results are presented here and more detail is provided in Section 4. Alternatives and in the appendices. The emissions from the BAU scenario are 8,067 MT CO_2eq/yr; in comparison the proposed project emits 5,703 MT CO_2eq/yr, for a reduction of 29.3%.

3.2.5 Mitigation Measures

The project is not expected to result in significant impacts or be cumulatively considerable related to GHGs and thus, no additional mitigation measures are required.

Although GHG impacts were not previously analyzed, the 1989 PEIR lists a few mitigation measures for air quality that would apply for GHG impacts if adverse impacts were expected for any sludge-related activity.[73] In addition, the SCAQMD refers to the California Air Pollution Control Officers Association (CAPCOA) document for potential mitigation measures. Although the proposed project does not result in significant impacts, the City has assessed the the 1989 and 1996 PEIR measures that could apply to this project and has found that none of these mitigation measures are applicable to the proposed project (see Table 3-16).

Table 3-17: Mitigation Measures from 1989 and 1996 PEIRs and CAPCOA's Guidance

Mitigation Measure	Applicable to Proposed Project?	Explanation
1989 PEIR[1]		
The land application area is within a 40-mile radius from HTP	No – There are no land application sites within 40 miles of HTP	This measure is an estimate based on the assumptions used in the analysis for the 1989 PEIR. The 1989 PEIR assumed approximately 53 trucks would be used to transport dewatered sludge over varying distances depending on the final application site. The current analysis for the proposed project is based on actual data of the amount of biosolids, the capacity of trucks used, and the actual location of the Farm. The current analysis of GHG emissions associated with land application, including transportation, indicates that there are no considerable impacts even with a distance from HTP to the Farm of 115 miles (total incremental emissions are less than 1,477 MT CO_2eq/yr). The measure is not applicable because there are no possible land application sites within 40 miles of HTP or closer than the Farm.[2]

[72] SJVAPCD. Climate Change Action Plan. Available at: http://www.valleyair.org/Programs/CCAP/CCAP_menu.htm. Accessed December 2013.

[73] The 1989 and 1996 PEIRs reference sludge. The proposed project involves only the land application of Class A-EQ biosolids.

Mitigation Measure	Applicable to Proposed Project?	Explanation
Use alternative fuels for composting [3],[4]	No – The project does not compost.	This mitigation measure was proposed in the 1989 PEIR for the activity that was found to have the greatest impact – composting. The proposed project will entail land application of biosolids, and not composting.
CAPCOA [5]		
Utilize alternative fueled vehicles	No	Farm vehicles do not use sufficient fuel to make an alternative fuel station feasible. The haul trucks fleet have been modernized to meet the latest USEPA standards; the cost of replacing an essentially new fleet when incremental transportation GHG emissions are small would have very low cost effectiveness and the measure is also economically infeasible.
Use Water-Efficient Landscape Irrigation Systems	No	The proposed project will not result in an increase in use of water for irrigation at the farm. In addition, the current analysis of GHG emissions, including transportation of the biosolids, indicates that the total emissions are below the SCAQMD's industrial project significance threshold. Therefore, this mitigation measure is not required or feasible.

[1] 1989 PEIR. Page 3.2-23 through 3.2-24.
[2] There are four potential land application sites in Arizona.
[3] The 1989 PEIR lists this mitigation measure for composting, not for land application. However, the City analyzed this mitigation measure in context of the proposed project.
[4] The 1989 PEIR stated that this mitigation measure may not reduce emissions below significance.
[5] California Air Pollution Control Officers Association (CAPCOA). 2010. Quantifying Greenhouse Gas Mitigation Measures, Available at: http://www.aqmd.gov/ceqa/handbook/mitigation/greenhouse_gases/CAPCOA-Quantification-Report-Final1.pdf. Accessed November 2013.

3.3 Hydrology/Water Quality

3.3.1 Existing Setting

As discussed in Chapters 1 and 2, the project site is the existing Farm located near Bakersfield in Kern County.

3.3.2 Regulatory Setting

The following sections summarize the regulations governing hydrology and water quality.

3.3.3 Federal

In 1993, USEPA promulgated regulations to protect public health and the environment from biosolids. The regulations established requirements, including general requirements, numeric

limits on pollutant concentrations, management practices, and if necessary, operational requirements, for the final use and disposal of biosolids. These regulations are codified in Title 40 of the CFR (40 CFR) Part 503. In particular, regulations pertaining to land application are codified in 40 CFR Part 503.10-503.18 including pollutant concentration limits. 40 CFR Part 503 applies to this project, and is considered in the Impact Analysis section.

3.3.3.1 State

California Code of Regulations

The California Department of Public Health (CDPH) adopted drinking water standards, including primary and secondary maximum contaminant levels (MCLs), to protect public health and safety when consuming drinking water from public water systems. These regulations are codified in Title 22 of the California Code of Regulations (CCR) in §64431-64483. The regulations include MCLs for microbiological contaminants and radioactive, inorganic, synthetic organic, volatile organic, and disinfection byproduct compounds. Elements of these regulations apply to this project, and are considered in the Impact Analysis section.

Water Quality Control Plan for the Tulare Lake Basin (Basin Plan)

The Central Valley RWQCB is required by the Porter-Cologne Water Quality Control Act (California Water Code §13240) and §303 of the Federal Clean Water Act to adopt a water quality control plan that outlines water quality standards, consisting "of the designated uses of navigable waters involved and the water quality criteria for such waters based upon such uses". The Basin Plan also contains beneficial uses and water quality objectives for groundwater basins. Beneficial uses for groundwater basins, in particular the Kern County Basin at the location of the Farm, include municipal and domestic supply (MUN), agricultural supply (AGR), and industrial service supply (IND). Elements of the Basin Plan apply to this project, and are considered in section 3.1.4 Impact Analysis.

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 (General Order) (Water Quality Order No. 2004-0012-DWQ)

On July 22, 2004, the State Water Resources Control Board (State Water Board) issued Water Quality Order No. 2004-0012-DWQ, which is the General Order that required the State Water Board or Regional Water Boards to prescribe general Waste Discharge Requirements (WDR) for discharge of biosolids used as a soil amendment. As part of the Water Quality Order, the State Water Board developed and certified a Programmatic EIR, which evaluated the potential impacts of land application of biosolids on groundwater.[74] The Programmatic EIR concluded that if biosolids are applied according to the management practices and requirements outlined in 40 CFR Part 503, there is minimal, if any, potential impact of nutrients, metals, and synthetic organics on groundwater resulting from the land application of biosolids.

[74] California State Water Resources Control Board. General Waste Discharge Requirements for Biosolids Land Application Draft Statewide Program EIR. February 2004.

Waste Discharge Requirements for Valley Communities, Inc. and General Partners of Responsible Biosolids Management Sludge Application to Land Kern County (Order No. 94-286)[75]

On September 16, 1994, the Central Valley RWQCB adopted Order No. 94-286, which permitted RBM, the City's contractor for biosolids management, to apply stabilized, non-hazardous biosolids from municipal wastewater treatment facilities to cropland as a fertilizer and soil amendment. Order No. 94-286 contains restrictions, pollutant concentration limitations, and management practices that RBM must adhere to for land application of biosolids. Elements of Order No. 94-286 apply to this project, and are considered in the Impact Analysis section.

Waste Discharge Requirements General Order for Reuse of Biosolids and Septage on Agricultural, Forest, and Reclamation Sites (General WDR) (Order No. 95-140)

On May 26, 1995, the Central Valley RWQCB adopted Order No. 95-140, which is a general order that allows for the reuse of biosolids and septage for beneficial uses, including as fertilizer and/or soil amendment in farming, forestry, and land reclamation operations. Dischargers can obtain coverage under the general order after filing a Notice of Intent (NOI) and submitting a fee. Order No. 95-140 contains restrictions, pollutant concentration limitations, and management practices that must be adhered to for land application of biosolids. The City obtained coverage under the general order. Elements of Order no. 95-140 apply to this project, and are considered in the Impact Analysis section.

3.3.4 Environmental Impacts

Environmental impacts will be assessed based on the City's CEQA Thresholds Guide.[76] This section outlines the thresholds of significance and describes the hydrology and water quality impact analysis for the proposed project.

3.3.4.1 Significance Thresholds

The City's CEQA Thresholds Guide states that a significant impact related to hydrology and water quality may occur if the proposed project would:

a) Violate any water quality standards or waste discharge requirements;
b) 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 groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
c) 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;

[75] The Waste Discharge Requirements reference sludge. The proposed project involves only the land application of Class A-EQ biosolids.
[76] City of Los Angeles. CEQA Thresholds Guide. Available at: http://www.environmentla.org/programs/thresholdsguide.htm. Accessed June 2013.

d) 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 that would result in flooding on- or off-site;
e) 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;
f) Otherwise substantially degrade water quality;
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood delineation map;
h) Place within a 100-year flood hazard area structures that impede or redirect flood flows;
i) 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; or
j) Inundation by seiche, tsunami, or mudflow.

3.3.4.2 Impact Analysis

As indicated in Section IV – I[77] and Appendix A, Section 9[78] of the February 14, 2013 Initial Study, there are no impacts identified related to items (b)-(e) and (g)-(j) of the checklist above. Therefore, this impacts analysis will focus on item (a) and (f).

a) Violate any water quality standards or waste discharge requirements;
f) Otherwise substantially degrade water quality;

There are two components of the proposed project: the City's purchase of the Farm in 2000 and the land application of biosolids up to 800 wet tons per day.

The first component, the City's 2000 purchase of the Farm, was a transfer of title and no associated material change was made to the Farm or related operations because of it. Thus, the purchase does not result in impacts to hydrology or water quality.

The second component involves the land application of biosolids. The land application of biosolids will have a less than significant impact on water quality and no impact on hydrology. The following sections will describe the potentially less than significant impact on surface water and groundwater quality.

Surface Water

The Farm is located in the Kern Delta Hydrologic Area (No. 557.10), and receives approximately 7 inches of precipitation annually.[79] Surface water drains southwesterly toward the Buena Vista

[77] City of Los Angeles. California Environmental Quality Act Initial Study. February 14, 2013. Page 24.
[78] City of Los Angeles. California Environmental Quality Act Initial Study. February 14, 2013. Pages A-14 through A-15.

Lake Bed, which is located approximately 1,200 feet from the southwestern boundary of the Farm. The southwest area of the Farm closest to the Buena Vista Lake Bed is along Coles Levee Road just north of its intersection with Bear Mountain Boulevard. Agricultural and vacant lands separate the above-grade road boundaries of the Farm and the Buena Vista Lake Bed. The Farm is also not located in a 100-year flood plain. The topography is flat with slopes not exceeding 1% and the farming sites are leveled using lasers to improve irrigation efficiency.

The Farm has a tailwater and runoff water recovery system that collects excess flows and returns it to the source fields or to adjacent fields to prevent any runoff from the site. Based on the physical factors of the site and the presence of the tailwater and runoff water recovery system, it is highly unlikely that the Buena Vista Lake Bed would be impacted by either tailwater or stormwater runoff from the Farm.

Groundwater

The Farm is located in the Kern County Groundwater Basin Detailed Analysis Unit (No. 254). The soils at the Farm are mostly loam, sandy loam, and fine sandy loams with a typical depth in excess of 60 inches. Permeability for these soils is typically moderately slow to very slow due to the hard pan present at the site.[80] The groundwater table ranges from approximately 100 feet below the ground surface near the northwest area of the Farm to approximately 150 feet below the ground surface near the southeast area of the Farm.[81] "Perched" groundwater does not persist in the area. Groundwater typically flows towards the southern and northwestern areas of the Farm.

Percolation of water irrigating the soil and/or precipitation may potentially transport pollutants in land applied biosolids into the subsurface and groundwater. During the promulgation of 40 CFR Part 503, USEPA conducted a risk assessemnt that identified 14 potential exposure pathways for pollutants to impact humans and organisms through land application of biosolids. This risk assessment included a potential exposure pathway of pollutants in the biosolids traveling through the soil and into the groundwater, which can be consumed by humans. As part of this effort, USEPA enlisted the assistance of Federal, State, academic, and private sector experts to identify the pollutants likely to be found in biosolids that should be examined as possible candidates for numeric limitations.[82] The experts screened approximately 200 pollutants that, if disposed improperly, could cause adverse human health or environmental effects. The initial list of pollutants of concern was compiled from readily available data, which considered variables including frequency of occurrence, aquatic toxicity, phytotoxicity, human health effects, domestic and wildlife effects, and plant uptake.[83]The experts identified a list of 32 pollutants of concern for land application of biosolids. Following a screening assessment, this list was further narrowed to

[79] California Regional Water Quality Control Board, Central Valley Region. Order No. 94-286 Waste Discharge Requirements for Valley Communities, Inc. and General Partners of Responsible Biosolids Management Sludge Application to Land Kern County. September 16, 1994.
[80] California Regional Water Quality Control Board, Central Valley Region. Order No. 94-286 Waste Discharge Requirements for Valley Communities, Inc. and General Partners of Responsible Biosolids Management Sludge Application to Land Kern County. September 16, 1994.
[81] Geocon Consultants Inc. 2011 Summary of Groundwater Conditions. October 27, 2011.
[82] Federal Register. 40 CFR Part 257 et al. Standards for the Use and Disposal of Sewage Sludge; Final Rules. February 19, 1993.
[83] USEPA. Technical Support Document for Land Application of Sewage Sludge, Volume I. November 1992.

7 metals and 10 organic pollutants of concern related to exposure from groundwater consumption.

A risk assessment was conducted on the remaining pollutants of concern, and consisted of the following steps: hazard identification; dose-response evaluation; exposure evaluation; and risk characterization. The hazard identification determined the nature of the effects that may be experienced by an exposed human or ecosystem from an identified pollutant. The dose-response evaluation quantitatively characterized the connection between exposure to a pollutant and the extent of toxic injury or disease. The exposure evaluation assessed the environmental concentration of pollutants. The risk characterization identified and evaluated potential exposure pathways to estimate the uncertainties in the assessment. Using this information, and considering other alternatives for regulating land application of biosolids, USEPA used an approach based on risk to highly-exposed individuals and consideration of health protection for higher risk populations (aggregate risk assessment). USEPA modeled the various exposure pathways using this risk assessment for each of the remaining pollutants of concern using conservatives assumptions and various safety factors, including, but not limited to the following:[84]

a) Mixing of of biosolids uniformly to a depth of 15 cm;

b) Having a groundwater depth of 1 meter below the ground surface;

c) Requiring compliance with MCLs at the groundwater interface with no allowance for dilution;

d) Using a carcinogenic risk target of 10^{-4} for biosolids used in production of agricultural crops;

e) Assuming a 70-year exposure period for a highly-exposed individual;

f) Setting the numeric pollutant limits at the 99^{th} percentile pollutant concentration from the National Sewage Sludge Survey database;[85]

g) Presuming no rate of decay for the pollutant in the model; and

h) Assuming no dispersive smoothing of the peak leachate concentration.

Specifically in the pathway of pollutants migrating from the biosolids through the soil and into the groundwater, which is consumed by individuals using the groundwater as a drinking water source, the allowable pollutant loading rate was determined from the MCL that must be fully met at the groundwater interface.This exposure pathway was modeled using the VADOFT finite element module, which is a fate and transport mathematical model to estimate flow and transport through the vadose zone, and linked to a three-dimensional analytical model, AT123D, which is a fate and transport model designed for the saturated zone.[86]

After modeling all potential exposure pathways, USEPA established numeric pollutant limits for ten metals for land application of biosolids. The analysis found that pollutants from biosolids

[84] USEPA. Technical Support Document for Land Application of Sewage Sludge, Volume I. November 1992.
[85] The database references sludge. The proposed project involves only the land application of Class A-EQ biosolids.
[86] USEPA.Technical Support Document for Land Application of Sewage Sludge, Volume I. November 1992.

transported through the soil and subsurface into the groundwater, where it can be consumed, was not a limiting exposure pathway. USEPA determined that the other pollutants were not of concern because:[87]

a) The pollutant is banned or restricted by USEPA and/or no longer manufactured or used in a manufacturing of a product; or

b) The pollutant is not present in biosolids at significant frequencies of detection based on monitoring data evaluated from the National Sewage Sludge Survey;[88] or

c) The USEPA risk assessment for the pollutant showed no reasonably anticipated adverse effects on public health or the environment at the 99th-percentile concentration found in biosolids from the monitoring data evaluated.

A summary of the pollutants evaluated by USEPA at each step in developing the pollutant limits for the land application of biosolids is presented in Table 3-17: Pollutants of Concern Evaluated for Land Application of Biosolids.

Table 3-18: Pollutants of Concern Evaluated for Land Application of Biosolids

Pollutant	Initial List of Pollutants Considered	Pollutants Modeled for Groundwater Exposure	Pollutants with Biosolids Numeric Limits
Aldrin/Dieldrin	X		
Arsenic	X	X	X
Benzene	X	X	
Benzo(a)anthracene	X		
Benzo(a)pyrene	X	X	
Bis(2-ethylhexyl)phthalate	X	X	
Cadmium	X	X	X
Chlordane	X	X	
Chromium	X	X	X
Cobalt	X		
Copper	X	X	X
Cyanide	X		
DDT/DDD/DDE	X	X	
Dimethylnitrosamine	X		
Fluoride	X		

[87] Federal Register. 40 CFR Part 257 et al. Standards for the Use and Disposal of Sewage Sludge; Final Rules. February 19, 1993.

[88] The database references sludge. The proposed project involves only the land application of Class A-EQ biosolids.

Pollutant	Initial List of Pollutants Considered	Pollutants Modeled for Groundwater Exposure	Pollutants with Biosolids Numeric Limits
Heptachlor	X		
Hexachlorobenzene	X		
Hexachlorobutadiene	X		
Iron	X		
Lead	X	X	X
Lindane	X	X	
Mercury	X	X	X
Methylene bis(2-chloroaniline)	X		
Methylene chloride	X		
Molybdenum	X		X
Nickel	X	X	X
n-Nitrosodimethylamine	X	X	
PCBs	X	X	
Pentachlorophenol	X		
Selenium	X		X
Toxaphene	X	X	
Trichloroethylene	X	X	
Tricresyl phosphate	X		
Zinc	X		X

USEPA subsequently removed the pollutant limit for chromium in 1995. In addition to developing pollutant limits for 9 metals for land application of biosolids, USEPA also established general requirements for land application of biosolids in 40 CFR Part 503. These general requirements are explicit statements of obligation not to violate the requirements when biosolids are land applied.[89] 40 CFR Part 503 also includes biosolids management practices, pathogen and vector attraction reduction, monitoring, recordkeeping, and reporting requirements.

As stated previously, in 2004 when the State Water Board adopted the General Order, it developed and certified a Programmatic EIR that evaluated the potential impacts of land

[89] Federal Register. 40 CFR Part 257 et al. Standards for the Use and Disposal of Sewage Sludge; Final Rules. February 19, 1993.

application of biosolids on groundwater. The pollutants assessed in the Programmatic EIR included nutrients, metals, and synthetic organics.

Nutrient concentrations, in particular nitrogen, are typically used to determine the biosolids application rate (agronomic rate) to prevent excess nitrogen leaching into the soil and potentially degrading groundwater quality. Nitrogen being transported into the groundwater is determined by the dissolved nitrate concentration in the soil-water profile, volume of water percolating, and rate of nitrogen uptake by plants. Proper biosolids application management standards can minimize and/or eliminate the potential for nutrients to degrade groundwater. The General Order prohibits biosolids application projects that would cause degradation and requires managmenet practices to ensure compliance.

As mentioned previously, contamination of groundwater by metals was not found to be the limiting criteria upon which the pollutant limits for land application of biosolids is based. The Programmatic EIR found that there is a low probability that all conditions suitable for metals transport into the groundwater will occur in California (i.e., high metals concentrations in biosolids, high biosolids application rates, low soil pH, and high precipitation conditions).

The groundwater pathway for ten synthetic organics evaluated by USEPA was found not to be the most limiting pathway for exposure in the development of 40 CFR Part 503. The Programmatic EIR found that there is a very low probability that synthetic organics would cause a degradation in groundwater quality. Organic compounds typically bond to surface soils and do not mobilize in the aquatic environment.[90] Because of the depth of the groundwater table at the Farm, it is unlikely that synthetic organics will be transported into the groundwater. Additionally, while synthetic organics are not regulated by pollutant limits for land application of biosolids, federal and state hazardous waste disposal laws still apply and require periodic testing to ensure compliance with hazardous waste limits.

The Programmatic EIR concluded that if biosolids are applied according to the management practices and requirements outlined in 40 CFR Part 503, there is minimal, if any, potential impact of nutrients, metals, and synthetic organics on groundwater resulting from the land application of biosolids.

Following the issuance of the General Order, the Central Valley RWQCB developed general WDR for reuse of biosolids and septage on agricultural, forest, and reclamation sites. The General WDR outlines the prohibitions, general limitations, groundwater limitations, and operations and maintenance requirements for land appliers of biosolids. The requirements in the General WDR are consistent with the findings and requirements of the General Order and 40 CFR Part 503 and intended to protect groundwater quality and its beneficial uses among other environmental goals.

[90] California State Water Resources Control Board. General Waste Discharge Requirements for Biosolids Land Application Draft Statewide Program EIR. February 2004.

Groundwater Cumulative Impact Analysis

Between 2000 and 2003, the City produced Classes B, A, and EQ biosolids. Since 2003, the City produces Class A/EQ biosolids. Class A biosolids are treated longer than Class B biosolids to essentially make it free of pathogens. Biosolids classified as EQ satisfy more stringent pollutant concentrations for metals when compared to the pollutant limits in 40 CFR Part 503. Additionally, production of Class A biosolids reduces the volume of biosolids produced when compared to Class B biosolids.

As required by the applicable WDRs, the City is required to conduct monitoring of its biosolids and groundwater for various pollutants. This information is reported as part of pre-application reports, post-application/summary field reports, quarterly reports for metals and pathogens, annual reports, and three-year soil reports to various regulatory agencies.

In 2011-2012, the City land applied approximately 480 wet tons per day of biosolids at the Farm. As required by its permits, the City collected and analyzed biosolids samples for metals and other compounds. A comparison of the biosolids monitoring data and applicable pollutant limits are presented in Table 3-18.

Table 3-19: 2011-2012 Hyperion Treatment Plant Biosolids Monitoring Data and Applicable Pollutant Limits

Pollutant	Average Biosolids Concentration (mg/kg dry weight)	Biosolids Concentration Range (mg/kg dry weight)	Monthly Average Pollutant Limit (mg/kg)[1]	Daily Maximum Ceiling Concentration (mg/kg)[2]
Arsenic	5.88	<1.00 – 9.61	41	75
Cadmium	13.7	7.09 – 33.7	39	85
Chromium	80.1	55.9 – 111	–	–
Copper	928	784 – 1,150	1,500	4,300
Lead	33.5	23.4 – 48.0	300	840
Mercury	1.53	1.20 – 2.46	17	57
Molybdenum	20.7	13.9 – 31.7	–	75
Nickel	44.2	35.9 – 52.9	420	420
Selenium	12.6	<0.70 – 23.6	100	100
Zinc	1,450	1,200 – 1,640	2,800	7,500
Ammonia as N	8,190	7,050 – 9,890	–	–
Nitrate as N	17.1	3.47 – 34.5	–	–
Organic N	37,600	33,800 – 43,500	–	–

[1] From Table 3 of 40 CFR Part 503.13
[2] From Table 1 of 40 CFR Part 503.13

Based on the average concentrations of metals in the biosolids presented in Table 3-19, the cumulative load for each metal that has been applied to the Farm between 2000 and 2012 can be estimated. Cumulative nutrient loads applied to the Farm were not estimated because there are expected losses due to denitrification and plant uptake. All biosolids are applied at applicable agronomic rates to the Farm, which considers nutrient loading. The following assumptions were made in estimating the cumulative load of pollutants applied to the Farm between 2000 and 2012:

a) Pollutant samples that were non-detect were excluded from the average biosolids concentration calculation (e.g., arsenic, selenium). This is a conservative assumption because it will result in higher estimated cumulative loads for these pollutants than what was applied.

b) Attachment D of Order No. 94-286 lists each of fields for which biosolids are land applied. The total size of the field for which biosolids are land applied is 2,950 acres (1,194 hecatres). This is also a conservative assumption because field development has occurred since 1994 to increase the land usage for agriculture at the Farm.

c) Loss of metals through plant uptake and other losses are not considered in this estimation. This is a conservative assumption because plant uptake can remove metals from the soil.

d) An average total solids concentration of 28.4% was used to convert wet tons to dry tons. This average total solids concentration is from 2011-2012 monitoring.

Based on the 2011-2012 biosolids monitoring data and the assumptions presented above, the potential cumulative loadings for metals in biosolids that were land applied at the Farm between 2000 and 2012 are presented in Table 3-19. The approximate site lifetime based on the current pollutant loadings rates is also presented in Table 3-19. The estimated site lifetimes shown in Table 3-19 are conservative as they do not account for any plant or microbial update or other potential pollutant losses.

Table 3-20: Cumulative Metals Loading at Green Acres Farm, 2000-2012

Pollutant	Annual Average Loading Rate (kg/ha/yr)	Average Annual Loading Rate Limit (kg/ha/yr)[1]	Cumulative Loading Rate, 2000-2012 (kg/ha)	Cumulative Loading Rate Limit (kg/ha)[2]	Site Lifetime (yr)
Arsenic	0.22	2.0	2.67	41	186
Cadmium	0.52	1.9	6.23	39	75
Chromium	3.04	–	36.5	–	–
Copper	35.2	75	422	1,500	43
Lead	1.27	15	15.3	300	236
Mercury	0.058	0.85	0.700	17	293
Molybdenum	0.785	–	9.42	18[3]	23
Nickel	1.67	21	20.1	420	251
Selenium	0.48	5.0	5.75	100	208

Pollutant	Annual Average Loading Rate (kg/ha/yr)	Average Annual Loading Rate Limit (kg/ha/yr)[1]	Cumulative Loading Rate, 2000-2012 (kg/ha)	Cumulative Loading Rate Limit (kg/ha)[2]	Site Lifetime (yr)
Zinc	55.2	140	662	2,800	51

[1] From Table 4 of 40 CFR Part 503.13
[2] From Table 2 of 40 CFR Part 503.13
[3] From State Water Resources Control Board Water Quality Order No. 2004-0012-DWQ.

Based on the estimation above, the Farm has an estimated site lifetime of 23 years, which is limited by the cumulative loading for molybdenum. However, based on the conservative assumptions, it is likely that the Farm has an actual site lifetime that is beyond the site lifetime estimated above. As stated previously, during the development of 40 CFR Part 503, USEPA considered the pathway of human exposure through drinking groundwater that underlies or was near a land application site for biosolids. However, the pollutant limits promulgated in 40 CFR Part 503 for land application of biosoilds were not based on the groundwater exposure pathway, but instead through other exposure pathways. This means that the pollutants limits in 40 CFR Part 503 are more protective of groundwater quality than necessary, and indicates that groundwater quality will not likely be impacted with metals by land application of biosolids.

The Central Valley RWQCB Order No. 88-172 requires that groundwater monitoring to be conducted at various wells at and around the Farm. The wells are sampled at a minimum of an annual frequency for chloride, electrical conductivity, pH, and nitrate and measured for water elevation. The City owns an irrigation well (City Well No. 7), which is located just south of Union Road and west of Coles Levee Road and is downgradient of the Farm. Because the well is located downgradient of the Farm, analysis of monitoring data collected at this site is representative of potential trends that may indicate whether the groundwater is being affected. Monitoring has been conducted annually at this irrigation well for chloride, electrical conductivity, pH, and nitrate. Monitoring data, collected between 2000 and 2011, for these constituents are presented in Figure 3-3 to Figure 3-6.

Figure 3-6: 2000-2011 Chloride Concentrations in Groundwater from City Well No. 7

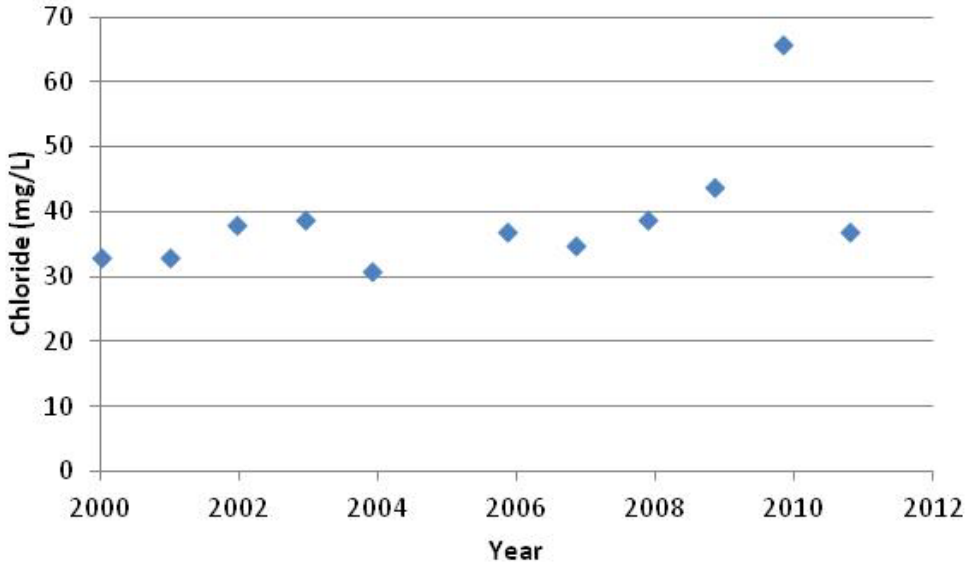


Figure 3-7: 2000-2011 Electrical Conductivity in Groundwater from City Well No. 7

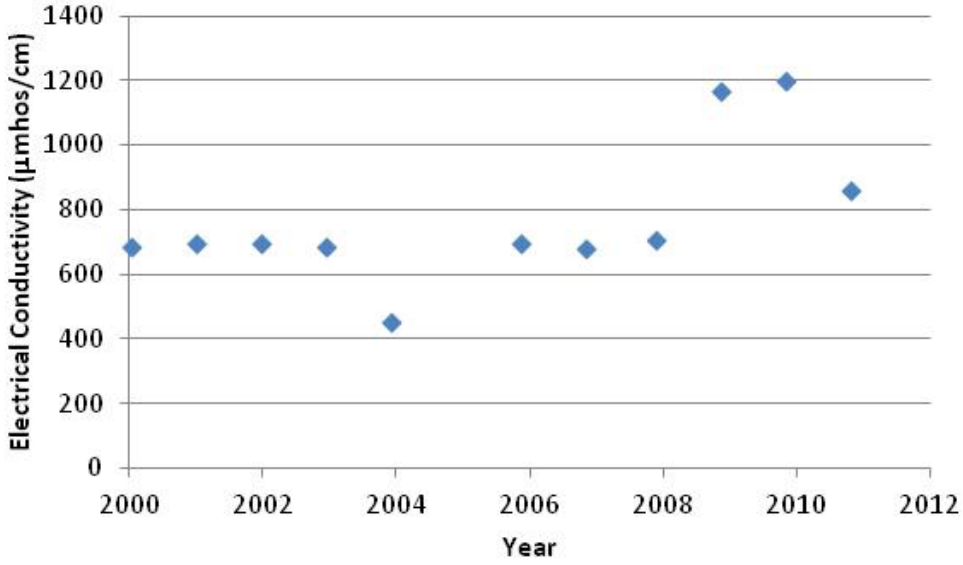


Figure 3-8: 2000-2011 Nitrate Concentration in Groundwater from City Well No. 7

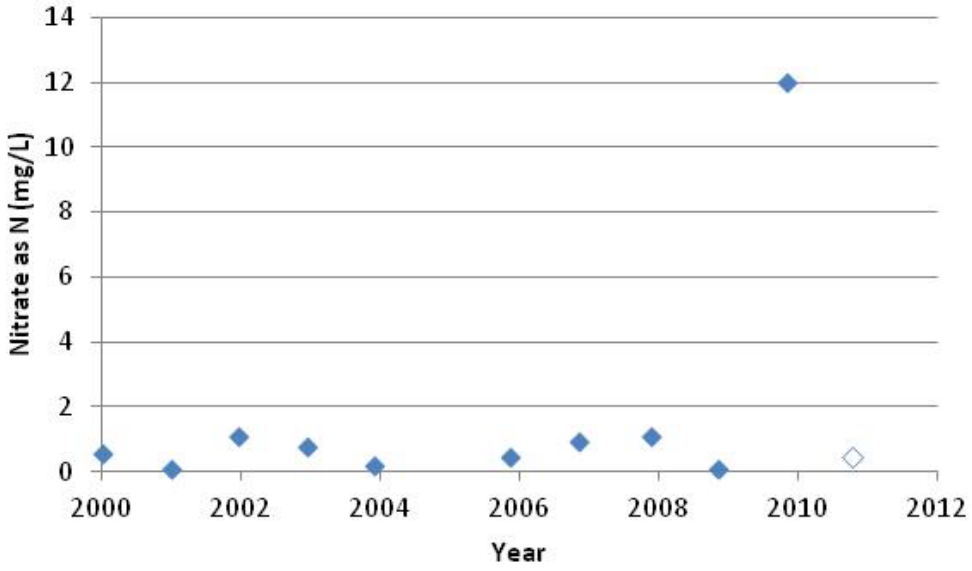
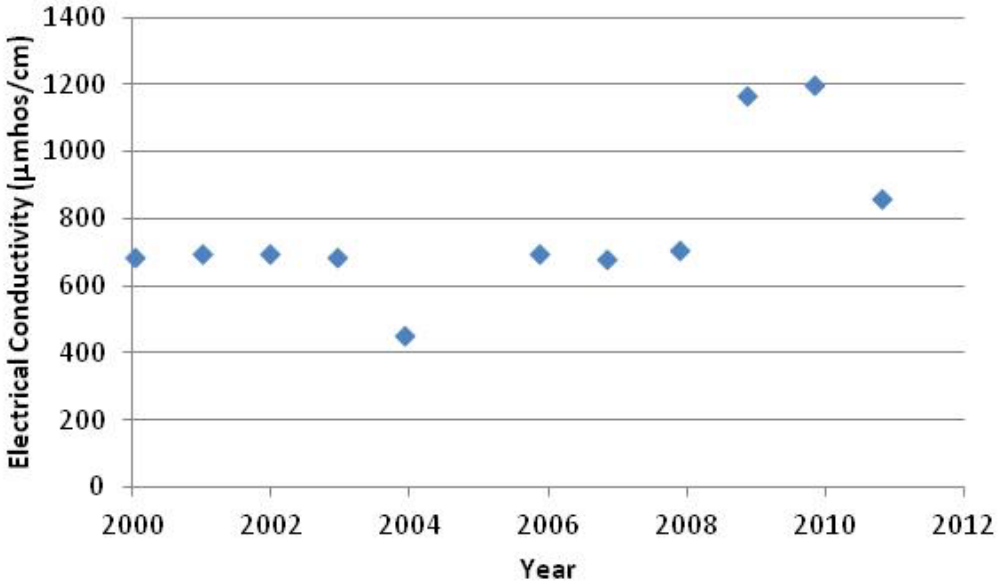


Figure 3-9: 2000-2011 pH in Groundwater from City Well No. 7



Chloride concentrations in groundwater from City Well No. 7 have increased between 2000 and 2011. A statistical analysis indicates that the sample collected in 2010 was very likely an outlier as the data point exceeds the 99th percentile of the data set. If this data point is removed from the data set, the three-year average chloride concentration in the well has increase from 34.7 to 40.5 mg/L, or a 17% increase. However, chloride concentrations in the groundwater are still significantly below the secondary MCL for chloride of 250 mg/L. If the entire increase in the chloride concentration is attributable to only the land application of biosolids, the evaluation of the monitoring data indicates that land applying biosolids at the Farm is not impairing the beneficial uses of the groundwater.

Electrical conductivity in groundwater from City Well No. 7 has also increased between 2000 and 2011. The data collected in 2009 and 2010 are on the higher percentiles of the data set (94th and 95th percentiles, respectively), but not qualified outliers. The three-year average electrical conductivity in the well has increased from 700 to 1,080 μmhos/cm, or a 35% increase. If the 2009 and 2010 data points are removed from the data set, the electrical conductivity has increased between 2000 and 2011 by only 19%, which is similar to the increase for chloride. This increase in electrical conductivity is below the maximum annual average increase objective in the Basin Plan of 5,000 μmhos/cm. [91] This indicates that land applying biosolids at the Farm is not impairing the beneficial uses of the groundwater.

Between 2000 and 2011, a nitrate (as N) sample collected in 2010 was determined to be an outlier and excluded from the data analysis. The three-year average nitrate (as N) concentration in the well has decreased from 0.6 to 0.28 mg/L, or a 120% decrease. Overall, nitrate concentrations in City Well No. 7 are below primary MCL for nitrate (as N) of 10 mg/L, and indicates that land applying biosolids at the Farm is not impairing the beneficial uses of the groundwater.

A review of pH data collected between 2000 and 2011 at City Well No. 7 indicates that the pH has not changed significantly.

USEPA, as well as the State Water Board, determined that proper application of biosolids would not result in impacts to groundwater. This finding is further supported by a declaration from a scientific expert prepared for the City in September 2006 that found no measurable impact to groundwater at the Farm resulting from land application of biosolids due to the climate, soil type, and hydrogeology at the site.[92] This cumulative impact analysis finds that there is unlikely any impact on groundwater from metals, pH, and nitrate and a minimal impact on groundwater from salinity. However, the change in salinity does not result in significant degradation that impair the beneficial uses of the groundwater. Although the use of recycled water from the City of Bakersfield Wastewater Treatment Plant No. 3 can also introduce additional loads from salts, the City currently accounts for the use of this irrigation water in its agronomic calculations for the crops.

3.3.5 Significance Determination

The proposed project has no significant impact related to hydrology and less than significant to no impact related to water quality. Several measures were identified in the 1989 PEIR to mitigate and/or eliminate potential impacts related to water quality. Subsequently, operation and management requirements outlined in the General Order, General WDR, Order No. 88-172, and Order No. 94-286 mitigate and/or eliminate potential impacts related to water quality. These mitigation measures and requirements are discussed in the 1989 PEIR (Section 3 of the 1989 PEIR - Mitigation Measures).

[91] California Regional Water Quality Control Board, Central Valley Region. Water Quality Control Plan for the Tulare Lake Basin Second Edition. Revised January 2004. Page III-8.
[92] Declaration of Thomas M. Johnson. September 18, 2006.

3.3.5.1 1989 PEIR Site Criteria Assessment

The 1989 PEIR lists a number of criteria that were used in 1989 analysis.[93,94]

1. Compliance with all applicable state, federal, and local permitting regulations;
2. Measures to control leakage and spilling during sludge transport;
3. Implementation of a spill plan, as necessary;
4. Use of collection, treatment, and disposal systems as needed to control rainfall runoff and spills from process and application sites;
5. Monitoring of groundwater at locations upgradient and downgradient from disposal site;

The 1989 PEIR also included example permit conditions for a site in Colorado, which included, among other conditions, restrictions on crops consumed by humans and dairy animals due to potential accumulation of cadmium. The proposed project will comply with all state and federal recommendations related to crops consumed by humans and dairy animals as well as comply with other applicable state, federal, and local permitting requirements. In addition, the City already implements the assumed criteria listed above, where applicable (see Section 3.4 below).

3.3.6 Mitigation Measures

The 1989 PEIR lists several mitigation measures that would apply for the assumed general project types if adverse impacts are expected for biosolids-related activities. The City has assessed the applicability of these measures to this project (see Table 3-20). While the proposed project has no significant impact related to hydrology and less than significant to no impact related to water quality, several mitigation measures from the 1989 PEIR were identified that can be applied to the proposed project to further protect hydrology and water quality.

[93] City of Los Angeles. 1989. Program EIR: Offsite Sludge Transportation and Disposal Program. March 1989. State Clearinghouse No. 88021018. Pages 3.3-3 to 3.3-4.

[94] The 1989 and 1996 PEIRs reference sludge. The proposed project involves only the land application of Class A-EQ biosolids.

Table 3-21: Mitigation measures included in 1989 PEIR

Mitigation Measure	Applicable to Proposed Project?	Explanation
Apply Class III landfill criteria to mitigate the potential for leachate contamination of groundwater with nondegradable constituents and runoff contamination of surface water with sediments and nondegradable constituents. If applied to land spreading, Class III landfill criteria would require that a land-spreading site be so located that natural geologic formations would not allow leachate to enter the groundwater or leachate and runoff to enter surface waters.	No	The proposed project is located in natural geologic formations that limit the leaching from the surface into the groundwater. The groundwater table is between 100 to 150 feet below the surface, and is separated from the surface by a hard pan layer, which has a low hydraulic conductivity. The Farm has a tail water and runoff water recovery system that prevents excess water (runoff) from leaving the Farm where it can potentially impact surface waters. This mitigation measure does not apply to the proposed project.
Contain runoff from the site from contacting surface water.	Yes	The Farm has a tail water and runoff water recovery system that prevents excess water from leaving the Farm where it can potentially impact surface waters.
Implement spill prevention and control to mitigate spills at the Port of Los Angeles.	No	This mitigation measure does not apply because biosolids are not transported to the Farm via the Port of Los Angeles.
Implement good housekeeping practices and a spilling-containment system at material transfer locations to mitigate sludge spills. Clean up the spilled materials as much as possible and place it back into the transportation vehicle or back on the stockpile.	Yes	RBM developed *Guidelines for the Safe Transportation of Biosolids and Emergency Spill Response Plan* (Revised August 2008) to address spill containment and clean-up. These guidelines and plan are used to implement good housekeeping practices and mitigate potential impacts from spills, and are reviewed annually.

Mitigation Measure	Applicable to Proposed Project?	Explanation
A setback distance of more than 500 ft should be maintained between sludge-application areas and surface water bodies.	No	The Central Valley RWQCB establishes project-specific requirements, including those affecting water quality, with permits. Order No. 94-286 currently requires a setback distance of 100 ft between sludge staging/application areas and surface waters and surface waters drainage courses. The Central Valley RWQCB has determined that this setback distance is sufficient for protecting surface waters and surface water drainage courses. The Farm currently implements these required setback distances to mitigate potential human health concerns with land application of biosolids. As mentioned previously, the Farm has a tail water and runoff water recovery system that prevents excess water from leaving the Farm where it can potentially impact surface waters. This water recovery system is a mitigating measure to reduce and/or eliminate potential impacts to the surface waters. This mitigation measure does not apply to the proposed project because the Central Valley RWQCB has updated the requirements with permits subsequent to the 1989 PEIR.
A groundwater-monitoring program should be established, especially for monitoring nitrate concentrations. If enrichment of groundwater with nitrates is observed, sludge application rates should be reduced to the agronomic rate or less. Agronomic rates should be calculated for the particular site, using site-specific data.	Yes	This mitigation measure is currently implemented.

As stated previously, USEPA and other experts found that proper land application of biosolids would mitigate and/or eliminate potential impacts to groundwater. The State Water Board adopted Order No. 2004-0012-DWQ and the Central Valley RWQCB adopted Orders No. 88-172, 94-286, and 95-140, which include requirements that must be met in order to land apply biosolids. These requirements are presented in Table 3-21 and are implemented by the City during land application of biosolids at the Farm to protect surface and groundwater quality.

Table 3-22: Permit Requirements included in State Water Board Order No. 94-0012-DWQ and Central Valley RWQCB Orders No. 88-172, 94-286, and 95-140

Permit Requirements	Applicable to Proposed Project?	Explanation
Setback distances/buffer zones from the irrigation reservoir, surface irrigation areas, spray irrigation areas, wells, dwellings, sensitive habitat, etc.	Yes	Order No. 88-172 Finding B.5; Order No. 94-286 Discharge Specification B.2; Order No. 2004-0012-DWQ Discharge Specification B.11. Setback distances and buffer zones mitigate and/or eliminate potential water quality impacts to sensitive areas.
Application of biosolids no more than once per year between crop rotations.	Yes	Order No. 94-286 Finding 7, Discharge Specification B.6. This requirement prevents over-application of biosolids annually.
Transported biosolids is not stored on the application fields.	Yes	Order No. 94-286 Finding 11, Prohibition A.9. This requirement prevents potential over-application of biosolids into the ground at the application fields and leaching of pollutants of concern into the soil, subsurface, and groundwater.
Soils with a pH less than 6.5 will not be used for biosolids application.	Yes	Order No. 94-286 Finding 12, Discharge Specification B.4. Low pH can potentially mobilize certain metals. Restricting application of biosolids in low pH soil will reduce any potential impact from metals leaching into the soil, subsurface, and groundwater.
Tail water and runoff water is collected and returned to the source fields or to adjacent fields using a tail water and runoff water recovery system.	Yes	Order No. 94-286 Finding 13, Prohibition A.1. The tail water and runoff water recovery system prevents excess water from leaving the Farm where it can potentially impact surface waters.
Land application of biosolids meeting Class A or Class B criteria.	Yes	Order No. 94-286 Prohibition A.2; Order No. 95-140 General Limitation B.1. The City currently produces Class A, EQ biosolids, which is above and beyond the Class A and Class B requirements. This higher quality biosolids has essentially no pathogens and lower metals concentrations due to longer treatment.

Permit Requirements	Applicable to Proposed Project?	Explanation
No land application of biosolids classified as hazardous or designated as defined in §2521(a) and §2522(a) of Chapter 15 of the CCR.	Yes	Order No. 94-286 Prohibition A.3; Order No. 2004-0012-DWQ Prohibition A.11; Order No. 95-140 Prohibition A.4. The City does not land apply hazardous or designated biosolids.
Prohibition of applying biosolids and other sources of nitrogen at rates in excess of the nitrogen requirements of the vegetation, or at rates that would cause excess nitrogen or metals to leach into the groundwater.	Yes	Order No. 94-286 Prohibition A.6; Order No. 2004-0012-DWQ Prohibition A.8; Order No. 95-140 Prohibition A.4. This prohibition requires regular monitoring of the soil and biosolids for nitrogen concentrations in order to calculate the amount of biosolids that can be applied to a field without exceeding the agronomic rate of the crop. This prohibition mitigates and/or eliminates the potential of metals and nutrients to leach into the groundwater from the biosolids.
Biosolids shall not be applied on slopes exceeding 10 percent.	Yes	Order No. 94-286, Discharge Specification B.3; Order No. 95-140 Discharge Limitation B.8. This standard prevents irrigation water from running off the site and potentially impacting surface waters.
Biosolids shall not be applied to flooded, frozen, or water saturated ground, or during periods of heavy rainfall.	Yes	Order No. 94-286, Discharge Specification B.5; Order No. 2004-0012-DWQ Prohibition A.13; Order No. 95-140 Discharge Limitation A.6. This standard prevents irrigation water from running off the site and potentially impacting surface waters as well as exceeding the infiltrative capacity of the soil, which can result in leaching to the groundwater.
No discharge of biosolids from the storage or application area to adjacent land areas not regulated by the General Order, to surface waters, or to surface water drainage courses.	Yes	Order No. 2004-0012-DWQ, Prohibition No. A.6; Order No. 95-140 Prohibition A.2. This requirement prevents the potential of biosolids impacting surface waters.
Prohibition of application of biosolids or septage onto ground having less than 24 inches of depth to groundwater at the time of application.	Yes	Order No. 95-140 Prohibition A.8. This requirement prevents pollutants of concern leaching into the groundwater due to shallow groundwater depth.

3.4 Land Use/Planning

3.4.1 Existing Setting

As discussed in Chapters 1 and 2, the project site is the existing Farm located near Bakersfield in Kern County.

3.4.2 Regulatory Setting

The following sections summarize the regulations governing land use/planning applicable to the proposed project.

3.4.2.1 City of Los Angeles

General Plan

The City of LA General Plan[95] (City General Plan) provides a framework to guide all land use decisions within the City. There are multiple elements of the City General Plan that discuss specific topics in various elements including Air Quality, Conservation, Housing, Noise, Open Space Element, Service Systems, Safety, and Transportation. The Farm is owned by, but not located in, the City; therefore, the majority of the General Plan Elements will not be applicable to the Farm. However, a portion of the transportation of the biosolids from the HTP will occur in the City and, thus, aspects of the Transportation elements of the City General Plan may apply. The City of LA is currently in the process of updating the Transportation element of the General Plan[96].

Biosolids Policy

In addition, the City Council adopted a Biosolids Policy in 2000, which was subsequently revised and adopted in 2004. This policy commits the City to certain goals related to its Biosolids Program, including, among others:[97]

- Managing its biosolids in an environmentally sound, socially acceptable, and cost-effective manner;
- Complying with all applicable federal, state, and local laws and regulations; and
- Producing A/EQ biosolids

3.4.2.2 County of Los Angeles

Aspects of LA County's existing General Plan[98] were adopted and/or updated from 1965 (e.g., Regional Recreation Areas Plan) through 2012 (e.g., Bicycle Master Plan). The multiple elements of the County General Plan apply to unincorporated parts of the County. LA County's draft General Plan[99] (County General Plan) for 2035 focuses on issues to address sustainability.

[95] City of Los Angeles. General Plan. Available at: http://cityplanning.lacity.org/. Accessed June 2013.
[96] City of Los Angeles, Transportation. Available at: http://la2b.org/ Accessed: November 2013.
[97] City of Los Angeles. Biosolids Policy Statement. Available at: http://www.lacitysan.org/biosolidsems/downloads/overview/biosolids_policy_statement.pdf. Accessed December 2013.
[98] Los Angeles County. General Plan. 1980. Available at: http://planning.lacounty.gov/generalplan/existing
[99] Los Angeles County. Draft General Plan – 2035. 2013. Available at: http://planning.lacounty.gov/generalplan/draft2013. Accessed December 2013.

Similarly, the multiple elements of the County General Plan apply to unincorporated parts of the County. These elements include Land Use, Mobility, Air Quality, Conservation and Natural Resources, Parks and Recreation, Noise, Safety, Public Services and Facilities, and Economic Development. The Farm is not located in the County and therefore the majority of the County General Plan Elements will not be applicable to the Farm. However, a portion of the transportation of the biosolids from the HTP will occur in unincorporated areas of the County and thus the County General Plan Transportation elements may be applicable. The initial transportation element of the county's current general plan was adopted in 1980[100].

3.4.2.3 Kern County

General Plan

Kern County's existing General Plan[101] was adopted in 2009. The draft General Plan[102] (Kern General Plan) for targets set in 2020 is intended to guide policy decisions made by County officials in unincorporated Kern County. To achieve this goal, the Kern General Plan contains elements focused on topics including Land Use/Conservation/Open Space, Circulation, Noise, Safety, Energy, and Military Readiness. The multiple elements of the Kern General Plan apply to unincorporated parts of the County, including the Farm.

Measure E

Measure E was a ballot measure in 2006 that posed the question of whether land application of biosolids in unincorporated areas of Kern County should be banned. This measure passed and was adopted, but is currently being challenged in court. Please see Section 2.3.2 for the litigation history of Measure E. The City, along with other southern California cities, sued Kern County in Federal court in 2010; subsequently, the case was dismissed. Effective January 19, 2011, Kern County began enforcing Measure E, which required all land application of biosolids to cease by July 19, 2011. The City, along with other plaintiffs, filed a complaint against Kern County on January 26, 2011,[103] and sought a preliminary injunction on April 22. This preliminary injunction was granted by the Judge on June 9, 2011, and prevented the implementation of Measure E, thus allowing land application of biosolids to continue in Kern County while the case is being heard. Kern County appealed this decision on June 21, 2011, and was rejected on September 7, 2011. Kern County filed another appeal of the preliminary injunction ruling on September 8, 2011. In February 2013, an appeals court upheld the ruling allowing the preliminary injunction.

[100] Los Angeles County, Transportation element, 1980. Available At: http://planning.lacounty.gov/assets/upl/project/gp_web80-transportation.pdf. Accessed: November 2013.
[101] Kern County, Existing General Plan. Available at: http://pcd.kerndsa.com/planning/planning-documents/general-plans. Accesses : November 2013.
[102] Kern County. General Plan. 2009. Available at: http://www.co.kern.ca.us/planning/pdfs/kcgp/KCGPIntroduction.pdf Accessed June 2013.
[103] City of Los Angeles v. Kern County.

3.4.3 Environmental Impacts

The project proponent is the City and so environmental impacts will be assessed based on the City's CEQA Thresholds Guide.[104] This section outlines the thresholds of significance and describes the land use/planning impact analysis for the proposed project.

3.4.3.1 Thresholds of Significance

The City's CEQA Thresholds Guide states that a significant impact related to land use/planning shall be assesed on a case-by-case basis, considering the following factors:

- The extent of the area that would be impacted, the nature and degree of impacts, and the type of land uses within that area;
- The extent to which existing neighborhoods, communities, or land uses would be disrupted, divided or isolated, and the duration of the disruptions; and
- The number, degree, and type of secondary impacts to surrounding land uses that could result from implementation of the proposed project.

3.4.3.2 Impact Analysis

The first component, the City's 2000 purchase of the existing Farm, was a transfer of title and no associated material change was made to the Farm or related operations because of it. Thus, there are no land use/planning impacts associated with the City's purchase of the Farm in 2000.

The second component involves the transportation and land application of biosolids. There are no restrictions on transporting biosolids by truck in the City, County, or Kern General Plans; in addition, the maximum number of trucks (31 trucks) required to transport the biosolids will not conflict with the City, County, or Kern General Plans. There will be no new roads or highways constructed to as a result of the number of trucks required for this project; only designated truck routes will be used. In addition, the trucks travel only one-half of a mile on state roads in the immediate vicinity of the Farm; the remainder of the trip uses private Farm roads. Thus transportation of the biosolids will not have a significant impact on land use, disrupt, divide or isolate a community, or result in significant secondary land use impacts.

Land application activities will occur within the boundaries of the existing Farm. These activities are consistent with the agricultural activities that have occurred at the Farm since 1988, as well as with the current Kern County zoning "A" classification, Exclusive Agriculture.[105] The preliminary injunction currently prohibits the enforcement of Measure E, allowing the land application of biosolids at the Farm during the time period of this analysis. The proposed project will not impact the type of land use occuring at the Farm, will not disrupt, divide or isolate a community as the activities will occur at an existing farm, and will not result in significant secondary impacts to the surrounding land use area.

[104] City of Los Angeles. CEQA Thresholds Guide. Available at: http://www.environmentla.org/programs/thresholdsguide.htm. Accessed June 2013.

[105] Kern County, California. Code of Ordinances. Title 19 – Zoning. Chapter 19.12. Exclusive Agriculture (A) District. Available at: http://library.municode.com/HTML/16251/level2/TIT19ZO_CH19.12EXAGDI.html. Accessed December 2013.

3.4.4 Significance Determination

The proposed project has no significant impacts related to land use/planning, unless Measure E is upheld after the legal challenges and is enforced. If Measure E is upheld and is enforced, then the land application portion of the proposed project would conflict with an applicable land use requirement and result in significant impacts that would not be able to be mitigated by the proposed project.

3.4.4.1 1989 PEIR Site Criteria Assessment

The 1989 PEIR found that a specific site that met the majority of the criteria for different sludge-related activities "should eliminate most of the existing and future land-use impacts in relation to sludge-related acitvities."[106] Based on Figure 3.6-1 of the 1989 PEIR, the Farm's compatiability with land application of biosolids on agricultural land (used for both food and non-food chain crops) should be determined on a case-by-case basis.[107] The 1989 PEIR also lists a number of critieria that would need to be met for certain sludge-related activities to be allowed at agricultural sites, although land application is not one of the sludge-related activites listed.[108,109]

1. The site is surrounded by other compatible land uses;
2. The site meets the size requirements for the proposed activity;
3. The sludge-related activities on the site do not create odor, air emissions, noise, or visual impacts on nearby residential, commercial, recreational, and institutional uses;
4. Sludge-related activity is located at a minimum distance from any neighboring incompatible land use (The 1989 PEIR states a rule of thumb based on the State of Washington of at least a 100 foot distance for a sludge-related activity from the receiving property line for a nonresidential property.);
5. No specific zoning ordinances, state laws, or other legal restrictions that prevent implementation of the sludge-related activity;
6. Only designated truck routes are used during transport of sludge;
7. All impacts related to geology, groundwater, air quality, biology, and health hazards are addressed;
8. All sites are in conformance with the requirements of County Solid Waste Management Plans, local General Plans, Coastal Plans, the State Government Code, and local planning and zoning codes.

Although the above list from the 1989 PEIR was not listed as applying to land application, the City notes that the Farm does, however, meet these criteria. The site is an existing farm of appropriate size which is compatible with the surrounding land uses. As compared to the applicable significance thresholds, the proposed land application project does not result in significant odor, air emisisons, noise or visual impacts; all potential impacts are addressed if required for geology, groundwater, air quality, biology or health hazard. The nearest residence

[106] 1989 PEIR, page 3.6-13.
[107] 1989 PEIR, pages 3.6-2 and 3.6-3.
[108] 1989 PEIR, page 3.6.4.
[109] The 1989 and 1996 PEIRs reference sludge. The proposed project involves only the land application of Class A-EQ biosolids.

is approximately 1,000 feet to the west of the Farm. The City will be using only designated truck routes for transportation and the project will meet all local and state codes and planning requirements.

3.4.4.2 Acreage Criteria Assessment

The 1989 PEIR includes an estimate of the amount of land required for sludge-related activities such as land application. This is not a listed mitigation measure in the 1989 PEIR, but is analyzed here for the purpose of this EIR.[110]

The 1989 PEIR recommends a minimum land area of 2 acres up to a maximum of 17,520 acres.[111] This sludge application rate was estimated for a specific site in Riverside County. This recommendation was determined by assuming a sludge application rate of 25 tons/acre which was estimated by calculating the rate at which the maximum cumulative load would be reached for various metals, with cadmium being the limiting metal. This sludge application rate was estimated for a specific site in Riverside County. The cadmium concentration used in this analysis was 66 mg/kg, which was the mean cadmium concentration in HTP biosolids at the time of the 1989 PEIR. Since the release of the 1989 PEIR, the USEPA released its Part 503 Rule which, among other things, specifies requirements for the different classes of biosolids. Class A EQ biosolids, which are the highest quality biosolids, are required to have a ceiling cadmium concentration not greater than 85 mg/kg[112] and a monthly cadmium concentration not greater than 39 mg/kg.[113] Also, in 2012, the cadmium concentration of HTP's biosolids ranged from 9 to 37 mg/kg, demonstrating that HTP's biosolids meet the cadmium concentration requirements of Class A EQ biosolids laid out in Part 503 rules.[114] The analysis based on 66 mg/kg of cadmium does not reflect the current requirements that Class A EQ biosolids like those produced at HTP must meet or the HTP-specific cadmium measurements for biosolids and thus, overestimates the land required. Therefore, the example 25 tons/acre maximum sludge application rate used in the 1989 PEIR does not apply to the proposed project. However, even if the example rate did apply to the Project, the Farm consists of a 4,700 acre site and thus, meets the minimum 2 acre requirement in the 1989 PEIR for soil enhancement. Overall, the acreage requirement is based on biosolids make-up and crop rotation; agronomic rates are calculated based on site-specific information.

3.4.4.3 Food-Chain Crop

The 1989 PEIR expressed a public health concern related to "the risk of ingestion by humans of toxic metals and organics in food grown on soil to which sludge has been applied."[115] The discussion primarily related to the ingestion of metals, particularly cadmium, and identified two scenarios under which biosolids containing cadmium could be safely applied to food-chain

[110] The 1989 and 1996 PEIRs reference sludge. The proposed project involves only the land application of Class A-EQ biosolids.
[111] 1989 PEIR, pages 3.6-5 and 3.6-6.
[112] §503.13. Table 1. Pollutant Concentrations – Ceiling Concentrations.
[113] §503.13. Table 3. Pollutant Concentrations – Monthly Average Concentrations.
[114] City of Los Angeles. 2013. 2012 Biosolids Metal Assessment. Available at: http://www.lacitysan.org/biosolidsems/downloads/program_performance/2013/2012_Biosolids_Metal_Assessment.pdf. Accessed June 2013.
[115] 1989 PEIR, Section 3.7. Public Health, pages 3-7.1-15.

crops. The 1989 PEIR assumed that the cadmium concentration in the biosolids from HTP would be between 54 to 78 mg/kg dry weight. However, the dairy feed crops grown at the Farm pose no risk to human health because the concentration of metals in the Class A, EQ biosolids in the proposed project are much lower than those found in the biosolids analyzed by the 1989 PEIR (i.e., 9 to 37 mg/kg cadmium from HTP vs. 54 to 78 mg/kg assumed in the 1989 PEIR). Indeed, Kern itself once recognized that Class A, EQ biosolids are considered to be a product "that can be applied as freely as any other fertilizer or soil amendment to any type of land."[116] In addition, the 2010 Addendum cites several scientific experts who determined that land application of biosolids at the Farm poses no public health risk.[117] Thus, no public health impacts have been demonstrated to exist from land applying biosolids at the Farm.

3.4.5 Mitigation Measures

The 1989 PEIR lists a number mitigation measures that would apply if adverse impacts are expected for any sludge-related activity.[118] These mitigation measures were based on conditions in 1989, and so do not reflect the latest scientific understanding in the 1993 version of USEPA's Part 503 rules and the 2004 State EIR. Recent advances in science and information, as well as stricter requirements on biosolids, render these mitigation measures inapplicable to the proposed project. Even though the measures are not applicable and the proposed project is not expected to result in significant impacts, the City has assessed the applicability of these measures to this project (see Table 3-22). The 1989 PEIR does not explicitly include a mitigation measure prohibiting land application of biosolids to food-chain crops. Instead, the 1989 PEIR lists two alternative mitigation measures, either of which would be sufficient to mitigate potentially significant impacts. Although one refers to avoiding application to food-chain crops, the other measure requires monitoring and analysis of biosolids and the soil, regardless of whether food-chain crops are being grown. In addition, other sections of the 1989 PEIR assume that biosolids could be applied to food-chain crops as long as sufficient monitoring was done. The City concludes that no additional 1989 PEIR mitigation measures are applicable to the proposed project.

Finally, the 1996 PEIR did not find any potentially significant impacts and, thus, did not identify any mitigation measures related to land use/planning for construction or operation.[119]

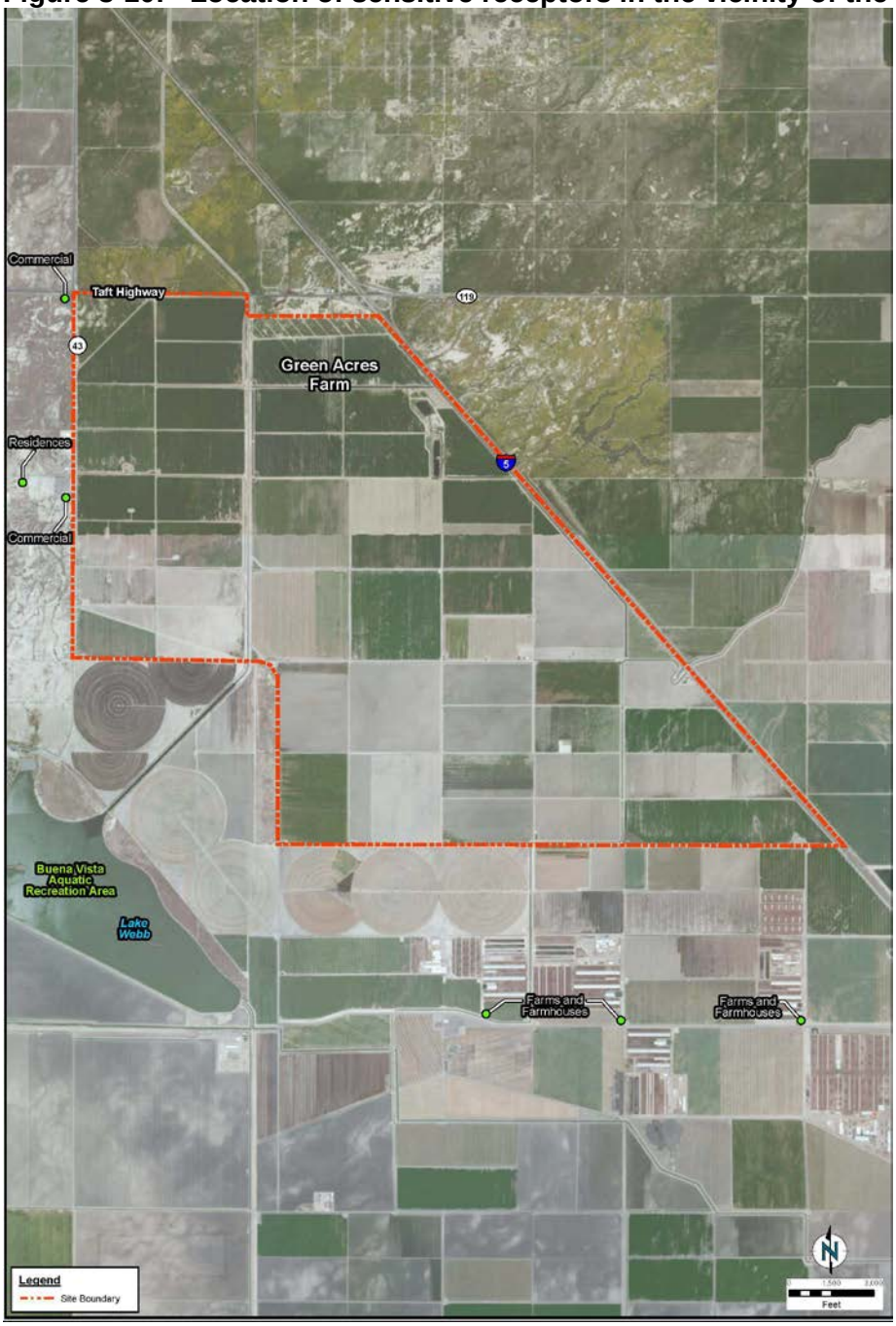
[116] See Kern Co. Ord., ch. 8.05 (repealed 2006).
[117] City of LA. 2010. Final Addendum to the 1989 and 1996 PEIRs. Available at: http://www.lacitysan.org/biosolidsems/downloads/program_performance/Addendum_to_1989_&_1996_EIRs.pdf Accessed March 2014.
[118] The 1989 and 1996 PEIRs reference sludge. The proposed project involves only the land application of Class A-EQ biosolids.
[119] 1996 PEIR, page IV-7.

Table 3-23: Mitigation measures included in 1989 PEIR if land use impacts were determined to be significant

Mitigation Measure[120]	Applicable to Proposed Project?	Explanation
Enclose facilities for composting, co-composting, or chemical stabilization to eliminate impacts such as odor, which would affect adjacent land uses. If placed in an area where industrial uses are permitted (assuming transportation of sludge to and from the site does not create impacts), such a facility would have minimal or no adverse impacts on land use.	No	Composting, co-composting, or chemical stabilization are not used on the Farm. Thus, this mitigation measure does not apply to the proposed project.
Design sludge-related facilities to be less obtrusive if built in either urbanized or scenic areas. Some mitigation of visual impacts can be created with vegetation, walls, and proper site planning to hide unattractive elements of the sludge-treatment site.	No	The proposed project will occur at an existing farm. The Farm is not located in an urban setting. The area surrounding the Farm is largely rural and/or agricultural. There are no scenic resources. Thus, this mitigation measure does not apply to the proposed project.
In addition to the minimal distances established in subsection 3.6.1 (See discussion of this in Section 4.4.5.2 of this EIR), create supplemental buffer zones to reduce the perceived and actual impacts of incompatible land use. Buffer zones could take the form of open space (preferably landscaped or maintained land). Another type of buffer could be an "intermediate" use to be placed between both the sludge-related activity and sensitive use that would be compatible with both.	No	As shown in Figure 3-8, the Farm is surrounded by compatible land uses such as highways, vacant lands, industrial facilities, and other agricultural activities. The nearest resident is 1,600 feet away from the Farm. Because the land application will not occur directly adjacent to sensitive/residential receptors and is surrounded by compatible land uses, additional buffer zones or modification to the existing buffer zones are not required.

[120] 1989 PEIR. page 3.6-13.

Figure 3-10: Location of sensitive receptors in the vicinity of the Farm



4 Alternatives

4.1 Introduction

As required by the CEQA Guidelines, this chapter identifies and compares the relative merits of alternatives to the proposed project. Evaluation of these alternatives includes an assessment of their ability to achieve most of the basic objectives of the proposed project and an analysis of their comparative impacts. A No Project Alternative must also be evaluated. The range of alternatives must be sufficient to permit a reasoned choice, but need not include every conceivable project alternative. CEQA Guidelines [§15126.6(c)] specifically notes that the range of alternatives required in a CEQA document is governed by a "rule of reason" and only necessitates that the CEQA document set forth those alternatives necessary to facilitate a reasoned choice. The key consideration is whether the selection and discussion of alternatives fosters informed decision making and meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. ***As noted in Section 1.1, this is a retrospective EIR that analyzes the impacts related to the year 2000 purchase of the Farm by the City and the year 2000 contract with RBM. Alternatives to this year 2000 project are analyzed as they would have been analyzed in a pre-2000 EIR analysis of the City's 2000 purchase of the Farm and the RBM contract for the Farm. Even as a retrospective EIR, the latest EIR guidance and technical tools are used, as if they were available pre-2000.***

As discussed in Section 2.4, the project's purpose is to purchase the Farm and to land apply up to 800 tpd of biosolids at the Farm. Comments received on the Initial Study have informed the selection of the range of reasonable alternatives discussed in this section. Alternatives to the proposed project that are rejected as infeasible are discussed in Section 4.2.2; alternatives that are analyzed are described in Sections 4.2.1. and 4.3. Aside from the alternatives described in Section 4.2, no other project alternatives were identified that met the basic objectives of the proposed project while substantially reducing significant adverse environmental impacts. The alternatives are presented and compared to the baseline and proposed project in Table 4-1.

4.2 Alternatives Considered and Rejected

In accordance with CEQA Guidelines §15126.6(c), a CEQA document should identify alternatives that were considered by the lead agency, but were rejected during the scoping process and briefly explain the reason underlying the lead agency's determination. CEQA Guidelines §15126.6(c) states that factors that may be used to eliminate alternatives from detailed consideration in and EIR are:

1. Failure to meet most of the basic project objectives;
2. Infeasibility; or
3. Inability to avoid significant environmental impacts.

Additionally, CEQA Guidelines §15126.6(f)(1) also lists the following factors that may be taken into account when addressing the feasibility of alternatives:

1. Site suitability;
2. Economic viability; and
3. Availability of infrastructure.

Finally, CEQA Guidelines §15364 defines feasible as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."

The discussion in the following sections describes the alternatives that were rejected and the basis for rejection.

Table 4-1: Equipment and Associated Parameter Comparison of the Baseline, Project, and Alternatives

Project	2000 Baseline	Project - Land Application at the Farm	Alt 1 - No Project	Alt 2 - Composting and Land Application	Alt 3 - TIRE (Beginning July 2008)	Alt 4 - Incineration	Alt 5 - Renewable Fuel
Project Description							
Amount of biosolids	588 tpd	800 tpd	800 tpd	800 tpd	800 tpd	800 tpd	800 tpd
Use of biosolids	52 tons/week of biosolids to be composted at Griffith Park Composting Facility; Remainder (99%) land applied at a site in AZ	Land application at the Farm	52 tons/week of biosolids to be composted at Griffith Park Composting Facility; Remainder (99%) land applied at a site in AZ	Composting at Liberty Recycling,[b] then compost application at Green Acres Farm	Underground biodegradation and conversion of up to 400 tpd (pending permitting) into renewable energy; Remainder (50%) land applied at a site in AZ	Incineration of biosolids	Conversion and use of biosolids as renewable fuel
Additional Chemical Fertilizer at the Farm							
Type of chemical fertilizer used at the Farm	Urea[c]	None[d]	Urea[c]	None[d]	Urea[c]	Urea[c]	Urea[c]
Application rate of fertilizer at the Farm	69 lb/acre[c]	0 lb/acre[d]	69 lb/acre[c]	0 lb/acre[d]	69 lb/acre[c]	69 lb/acre[c]	69 lb/acre[c]
Trucking Related to Biosolids							
# of trucks per day[e]	23	31	31	31	31	31	31
Destination	Griffith Park Composting Facility and AZ	the Farm	Griffith Park Composting Facility and AZ	Liberty Recycling, then Green Acres Farm	Terminal Island Water Reclamation Plant and AZ	N/A[g]	N/A[g]
# of miles (one round trip, miles/day)	56 to Griffith Park (SCAB) and 484 to AZ (220 in SCAB, 164 in other CA air basins)	152 (SCAB) 78 (SJVAB)	56 to Griffith Park (SCAB) and 484 to AZ (220 in SCAB, 164 in other CA air basins)	152 (SCAB) 254 (SJVAB)	44 (SCAB) and 484 to AZ (220 in SCAB, 164 in other CA air basins)	N/A[g]	N/A[g]
Green Acres Farm Land Application Equipment							
Material being land applied at the Farm	Fertilizer[h]	Biosolids	Fertilizer	Compost	Fertilizer	Fertilizer	Fertilizer
Wheel loaders	2 (1.5 – 4.5 hrs/day)	2 (1.5 – 4.5 hrs/day)	2 (1.5 – 4.5 hrs/day)	2 (1.5 – 4.5 hrs/day)	2 (1.5 – 4.5 hrs/day)	2 (1.5 – 4.5 hrs/day)	2 (1.5 – 4.5 hrs/day)
Tractor	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)
Water truck	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)	1 (6 hrs/day)
Analysis in the EIR?	**Yes**	**Yes**	**Yes**	**Yes**	**No[i]**	**No[i]**	**No[i]**

a. Multiple alternative locations were analyzed by the City in 2006 per CEQA §15126.6. These include Cullison Farms (Welton, AZ), Copper Mountain Landfill (Yuma, AZ), ABT/Haskell (Redlands, CA), and Arizona Soils (AZ). Additional possible alternative locations include Magan Farms (Dateland, AZ), VF Investment Farms (Vicksburg, AZ), AgTech (Yuma, AZ), Liberty Recycling, Inc. (Lost Hills, CA), San Diego Landfill Systems (Chula Vista, CA), South Kern Compost Manufacturing Facility (Kern County, CA).

b. Formerly San Joaquin Composting Facility.

c. In the absence of biosolids used for fertilizer, the Farm used urea. The fertilizer application rate is a typical rate obtained from the USDA. (Fertilizer use and price. Table 28. ERS. Available at: http://www.ers.usda.gov/data-products/fertilizer-use-and-price.aspx#26718 Accessed September 2013). Fertilizer application is assumed to occur once a year and to require 14 days for application.

d. All of the plant and soil nutritional needs are met by application of biosolids or compost. No additional fertilizer is needed.

e. The number of trucks needed is calculated by dividing the amount of biosolids by the assumed capacity of 26 tons/truck.

f. The number of miles varies based on the location but ranges from 162 miles (CA location: one round trip, miles/day) to 638 miles (AZ location: one round trip, miles/day).

g. A specific location will not be identified for this alternative because it is not a feasible alternative.

h. A reduced analysis will be included in the EIR because this alternative is not feasible and/or does not meet the project's key purpose and need. However, there will be a discussion of potential impacts in the EIR. See Section 4.2.2.

4.2.1 Description of the Project Alternatives Evaluated

As described in further detail in Section 2.6 of this EIR, the proposed project consists of the year 2000 purchase of the Farm and the land application of up to 800 tpd of Class A/EQ biosolids at the Farm.

Two alternatives were identified for further analysis in this section. The project alternatives were developed by modifying one or more components of the proposed project. Unless otherwise stated, all other components of each project alternative are identical to the proposed project. Potential impacts associated with these alternatives are compared in Section 4.4 with potential impacts from the proposed project.

4.2.1.1 Alternative 1 – No Project

The No Project alternative considers the scenario in which neither the proposed year 2000 project nor any build alternative takes place. In the No Project alternative, operations at the Farm would be the same as in the baseline scenario: no land application would occur and chemical fertilizer would be used instead. A portion of the biosolids (52 tons per week) would be composted at Griffith Park Composting Facility. At the Griffith Park Composting Facility, biosolids are blended with yard clippings and animal manure from the Los Angeles Zoo to produce compost that is used to augment soil at City parks or sold for private use. For the volume of biosolids that cannot be composted (e.g., volume in excess of the capacity of the Griffith Park Composting Facility, up to 748 tpd), the biosolids are trucked to a land application site in Arizona.

4.2.1.2 Alternative 2

Alternative 2 considers the scenario in which the biosolids are trucked to Liberty Recycling, composted, and then the composted biosolids send back to the Farm for land application. Measure E only called for the prohibition of land application of biosolids. Measure E did not propose any limitation for manure, fertilizer, and compost land application. Liberty Recycling uses biosolids, green waste, and organic material to produce Class A compost that is suitable for a wide variety of uses. No additional chemical fertilizer would be required at the Farm in this alternative. Other operations at the Farm, including the number and type of land application eqiupment, would remain the same as the proposed project.

4.2.2 Project Alternatives Rejected

4.2.2.1 Alternative 3 – TIRE

Alternative 3 consists of injection of the biosolids at the Terminal Island Renewable Energy (TIRE) facility. TIRE is a demonstration project that involves the injection of biosolids deep into the geological subsurface at the Terminal Island Water Reclamation Plant (TIWRP).[121] TIRE became operational in 2008 and could inject up to 400 tpd of biosolids (pending final permitting). As of November 2013, TIRE injects approximately 200 tpd of biosolids.

[121] Terminal Island Renewable Energy. Webpage. Available at: http://www.lacitysan.org/biosolidsems/managing_biosolids/deep_well.htm. Accessed November 2013.

This alternative was not available, and thus infeasible, as an option in 2000 as it did not begin operating until 2008. TIRE is currently a demonstration project and only 150 tpd are injected as of November 2013. Pending permitting of the full project buildout, a maximum of up to 400 tpd may be injected, but permitting is not guaranteed; this project may not come to fruition. Regardless of permitting, an alternate means of disposal for the remaining biosolids would be required, likely land application in Arizona. Although injection of a portion of the biosolids would reduce air emissions, emissions of criteria pollutants and GHGs would still occur due to trucking to and land application in Arizona. This alternative does not meet the definition of feasibility per CEQA Guidelines §15364, essentially duplicates the No Project alternative, and would not be expected to reduce environmental impacts below significance or project levels. Thus, this alternative is eliminated from consideration.

4.2.2.2 Alternative 4 – Incineration

Alternative 4 consists of trucking to a facility where the biosolids would be combusted at a high temperature using natural gas or diesel. After incineration, the remaining ash would likely be landfilled. In California, there are only two incineration facilities operating and these facilities have a limited capacity for combustion of biosolids.[122,123] Because of the capital investment and operating costs, as well as permitting challenges, associated with these facilities, additional facilities are not expected to be constructed and were not constructed after 2000. Incineration concentrates the metal resulting in a high metal-content ash, which creates additional potential environmental impacts associated with handling and disposal of the ash in landfills.[124] As a result, incineration was not (and is not) a feasible management option for the biosolids. This alternative does not meet the objectives of the project in that the biosolids would not be beneficially reused. This alternative does not meet the definition of feasibility per CEQA Guidelines §15364 and also would not be expected to reduce environmental impacts below significance. Thus, this alternative is eliminated from consideration.

4.2.2.3 Alternative 5 – Renewable Fuel

Alternative 5 consists of trucking to a facility where the biosolids would be converted to a renewable fuel for use either on- or off-site. Two facilities in California (EnerTech Environmental California and Rialto Regional Biosolids Facility) began conversion of biosolids to renewable fuel in 2008 and 2009.[125,126] However, after experiencing technical difficulties, the Rialto Regional Biosolids Facility closed in 2012.[127] EnerTech California also shutdown in 2012.

[122] USEPA. 2003. Biosolids technology fact sheet. Available at: http://water.epa.gov/scitech/wastetech/upload/2005_07_28_mtb_incineration_biosolids.pdf. Accessed December 2013.

[123] The two operating biosolids incineration facilities in California are: (1) Central Contra Costa County Sanitary District – Located in Martinez, CA; began operation in 1948; incinerates 200 tpd of biosolids; and (2) Palo Alto Regional Water Quality Control Plant – Located in Palo Alto, CA; began operation in 1972; incinerated 7,068 dry tons of biosolids in 2012 (equivalent to approximately 19 tpd).

[124] CalRecylce- Organic Materials Management – Biosolids. Available at: http://www.calrecycle.ca.gov/organics/biosolids/. Accessed November 2013.

[125] EnerTech Environmental, Inc. Converting biosolids to a usable fuel. Available at: http://www.calrecycle.ca.gov/lea/conference/05Conf/Presentation/Day2/Biosolids.pdf. Accessed November 2013.

[126] Filanc. Rialto Regional Biosolids Facility. Webpage. Available at: http://www.filanc.com/project-showcase/rialto-regional-biosolids-processing-facility/. Accessed November 2013.

[127] The Sun News. EnerTech energy plant in Rialto closes. Available at: http://www.sbsun.com/general-news/20121101/enertech-energy-plant-in-rialto-closes. Accessed November 2013.

Neither facility was an available option in 2000 when the Farm was purchased by the City. No other facilities existed in 2000 that successfully demonstrated the continued and reliable conversion of biosolids to a renewable fuel.

This alternative does not meet the definition of feasibility per CEQA Guidelines §15364 and also would not be expected to reduce environmental impacts below significance. Thus, this alternative is eliminated from consideration.

4.3 Comparison of Impacts: Alternatives to the Proposed Project

The impacts of Alternatives 1 and 2 are qualitatively summarized in the following sections and compared to the proposed project impacts, per CCR §15126.6 (d). A summary of the proposed project impacts is also included for each environmental area below.

4.3.1 Agriculture and Forestry Resources

The following sections summarize the impacts of the alternatives related to agriculture and forestry resources.

4.3.1.1 Summary of the Proposed Project Impacts

As described in the IS,[128] the proposed project would cause no impacts to agriculture and forestry resources. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. The Farm is currently zoned as Exclusively Agricultural (A) and Limited Agriculture (A-1). The Farm contains property zoned by the California Farmland Mapping and Monitoring Program (2010) as Farmland of Statewide Importance (S), Unique Farmland (U), Grazing Land (G), and Vacant/Disturbed Land (V). No proposed Project lands are designated as occurring within the Williamson Act. Furthermore, no land on or near the Farm is zoned for or contains forest or timberland uses. The proposed Project will not result in the conversion of these lands to non-agricultural uses or impact forestry resources as none exist at the Farm.Thus, there are no agriculture or forestry resources impacts due solely to the proposed project.

4.3.1.2 Alternative 1 (No Project) Impacts

In the No Project alternative, the Farm would not be purchased and biosolids would not be land applied. Farming would be expected to continue to occur at the Farm. No zoning changes or changes in land use would be expected to occur in this alternative. Therefore, no impacts to agriculture or forestry resources would be expected from the No Project Alternative.

4.3.1.3 Alternative 2 Impacts

In this alternative, the Farm would be purchased and used for agriculture. The only difference between this alternative and the Project is that the biosolids would be composted and then the compost would be land applied. Farming would be expected to continue to occur at the Farm. No zoning changes or changes in land use would be expected to occur in this alternative.

[128] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.B. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.

Therefore, no impacts to agriculture or forestry resources would be expected from the Alternative 2.

4.3.2 Air Quality

The following sections summarize the impacts of the alternatives related to air quality. A summary of maximum daily operational emissions of criteria pollutants associated with each alternative are summarized in Table 4-2 and Table 4-3.

Table 4-2: Comparison of Maximum Annual Emissions - SJVAB

Emission Source	Maximum Annual Emissions (tpy)	
	NO_x[1]	VOC[1]
Baseline	0.2	0.02
(a) Project		
Total Emissions	17	4
Incremental Emissions	16	4
(b) Alternative 1 (No Project)		
Total Emissions	0.2	0.02
Incremental Emissions	0	0
(c) Alternative 2 (Composting and Application)		
Total Emissions	43	9
Incremental Emissions	43	9
Significance Threshold[6]	10	10

[1] The SJVAPCD only provides emissions thresholds for NOx and VOCs; thus, no other criteria pollutants are shown.
[2] SJVAPCD CEQA thresholds (http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf)

Table 4-3: Comparison of Maximum Daily Emissions - SCAB[1]

Emissions Source	Maximum Daily Emissions (lb/day)					
	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO
Baseline[2]	255	11	2	7	7	44
(a) Project[3]						
Total Emissions	127	6.5	0.2	5.7	5.2	30
Incremental Emissions	-128	-4.8	-1.5	-1.5	-1.4	-14

Emissions Source	Maximum Daily Emissions (lb/day)					
	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO
(b) Alternative 1 (No Project)[3]						
Total Emissions	137	7.0	0.2	6.1	5.6	32
Incremental Emissions	-118	-4.3	-1.5	-1.1	-1.0	-12
(c) Alternative 2 (Composting and Application)[3]						
Total Emissions	127	6.5	0.2	5.7	5.2	30
Incremental Emissions	-128	-4.8	-1.5	-1.5	-1.4	-14
Significance Threshold[4]	55	55	150	150	55	550

[1] SCAB emissions only; total CA emissions are provided in Appendix D.

[2] The baseline assumes 588 tpd biosolids and a Year 2000 fleet average.

[3] The project and alternatives assume 800 tpd biosolids and a Year 2010 fleet average. Although the throughput of biosolids increases, Year 2010 fleet average trucks are cleaner than Year 2000 fleet average trucks. Thus, emissions decrease compared to the baseline.

[4] SCAQMD CEQA thresholds (http://www.aqmd.gov/ceqa/handbook/signthres.pdf)

4.3.2.1 Summary of the Proposed Project Impacts

As described in the IS,[129] the City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations, so there are no air quality impacts due solely to the City's 2000 purchase of the Farm.

The project does not require any construction and consists only of activities associated with operation. As discussed in Section 3.1of the EIR, the proposed project would result in the emissions of criteria pollutants during operation. The proposed project would have significant impacts to air quality in the SJVAPCD. Mass emissions of NO_x are greater than the SJVAPCD's significance threshold. However, mass emissions for all pollutants in the SCAQMD relative to the 2010 baseline are below the SCAQMD's significance thresholds.

4.3.2.2 Alternative 1 (No Project) Impacts

The impacts to air quality from the No Project alternative are expected to be slightly less than those of the proposed project due to the absence of land application of biosolids and thus, the associated emissions. No land application would occur in the the SJVAB (although fertilizer application would be required). Emissions are less than those of the proposed project. Emissions are slightly greater in the SCAB because both trucking and composting occur in the SCAB in this alternative, whereas only trucking occurs in the SCAB in the baseline.

[129] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.C. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.

4.3.2.3 Alternative 2 Impacts

The impacts to air quality from Alternative 2 are expected to be greater than those of the proposed project. The major difference is that biosolids are composted and then, the compost is sent back to the Farm for land applicaiton. Trucking, composting, and land application occur in the SJVAB in this alternative, and thus emissions are greater than those of the proposed project. The trucking distance in the SCAB is the same in Alternative 2 as in the proposed project and thus, SCAB emissions are the same.

4.3.3 Greenhouse Gas Emissions

The following sections summarize the impacts of the alternatives related to GHGs impacts. A summary of annual operational emissions of GHGs associatd with each alternative are summarized in Table 4-4.

Biomass-based emissions are reported separately from fossil-fuel based emissions under CARB's Mandatory Reporting Rule and are excluded from applicability under CARB's GHG Cap-and-Trade program.[130,131] Thus, biogenic and non-biogenic emissions are reported separately.

Table 4-4: Comparison of Total Annual GHG Emissions

Emission Source	Annual GHG Emissions (MT CO_2eq/yr)		
	Biogenic	**Nonbiogenic**	**Total**
Baseline	0	4,226	1,020
(a) Project			
Total Emissions	594	5,109	5,703
Incremental Emissions	594	883	1,477
(b) Alternative 1 (No Project)			
Total Emissions	0	4,229	4,229
Incremental Emissions	0	2	2
(c) Alternative 2			
Total Emissions	1,187	8,559	9,746
Incremental Emissions	1,187	4,332	5,520

[130] CARB Assembly Bill 32 website. Available at: http://www.arb.ca.gov/cc/ab32/ab32.htm Accessed March 2013.
[131] CARB Cap-and-Trade Program website. Available at: http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm Accessed March 2013.

4.3.3.1 Summary of the Proposed Project Impacts

As described in the IS,[132] the City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations, so there are no air quality impacts due solely to the City's 2000 purchase of the Farm.

The project does not require any construction and consists only of activities associated with operation. As discussed in Section 3.2 of the EIR, the proposed project would result in the emissions of GHGs during operational activities, which include the transport of biosolids from the HTP to the Farm, land application of the biosolids, and subsequent incorporation of the biosolids into the soil by mixing. Although the City has not established a GHG significance threshold, the proposed project would not exceed the SCAQMD significance threshold.

4.3.3.2 Alternative 1 (No Project) Impacts

The impacts to GHGs from the No Project alternative are slightly less than those of the proposed project and are a decrease from the baseline. The major difference is that there is no land application occurring in California and, thus, land application emissions are not shown. If non-California emissions were included, the No Project alternative would have emissions greater than the baseline because more biosolids are trucked beyond the California borders.

4.3.3.3 Alternative 2 Impacts

The impacts to GHGs from Alternative 2 are greater than those of the proposed project. The major difference is that biosolids are composted, producing methane, and then sent to the Farm for land application. Additional trucking or composting occurs in this alternative. Note that the land application emissions are the same and the trucking distance in the SCAB is the same in Alternative 2 as in the proposed project.

4.3.4 Hydrology and Water Quality

The following sections summarize the impacts of the alternatives related to hydrology and water quality.

4.3.4.1 Summary of the Proposed Project Impacts

As described in the IS,[133] the City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations, so there are no potential hydrology or water quality impacts due solely to the City's 2000 purchase of the Farm.

The project does not require any construction and consists only of activities associated with operation, specifically the land application of biosolids. As discussed in Section 4.4 of the EIR, the proposed project would have no significant impact related to hydrology and less than significant to no impact related to water quality, surface water or groundwater. The Farm is regulated under the Water Quality Order No. 2004-0012-DWQ, Order No. 95-140, Order No. 88-172, and Order No. 94-286; each outline operational requirements and management

[132] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.G. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[133] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.I. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.

practices, including setbacks from sensitive areas such as waterbodies, tail water and runoff water recovery systems, biosolids storage, etc. Implementation of the permit requirements, along with some of the mitigation measures identified in the 1989 PEIR, will mitigate and/or eliminate any potential impacts of the project on water quality.

4.3.4.2 Alternative 1 (No Project) Impacts

Alternative 1 would result in the composting of biosolids at the Griffith Park Composting Facility and land application of biosolids at a site in Arizona. The compost created from Class A/EQ biosolids blended with yard clippings and animal manure is tested by a certified laboratory and certified by the California Compost Quality Council to ensure that it meets 40 CFR Part 503 guidelines for pathogen destruction and vector attraction and reduction requirements. Based on these measures, composting biosolids for reuse would have no significant impacts on hydrology or water quality in this alternative.

Land application of biosolids at a site in Arizona is similar to land application practices at the Farm. As discussed in Section 4.4 of the EIR, land application of biosolids would have no significant impact related to hydrology and less than significant to no impact related to water quality, surface water or groundwater due to the operational and management restrictions for applying biosolids to land. While there may be specifications and requirements in permits specific to Arizona for land application of biosolids, operational and management requirements from 40 CFR Part 503 will mitigate and/or eliminate any potential impacts of Alternative 1 to water quality.

4.3.4.3 Alternative 2 Impacts

Alternative 2 would result in the composting of biosolids by Liberty Recycling and then shipment of the compost to the Farm for land application. Alternative 2 does not require any construction and consists only of activities associated with operation, specifically the composting of biosolids and land application of the compost.

Composting at Liberty Recycling is regulated by a Full Solid Waste Facility permit from CalRecycle, an Authority to Construct/Permit to Operate and Emission Control Plan from the SJAPCD, Waste Discharge Requirements from the Central Valley RWQCB, and Conditional Use Permit from Kern County. These various permits, which regulate the operation and management of compost production and final quality, result in the production of high-quality compost that will not have a significant impact on hydrology or water quality.

Land application of compost at the Farm is similar to the proposed project where biosolids are land applied at the Farm. As discussed in Section 4.4 of the EIR, Alternative 2 would have no significant impact related to hydrology and less than significant to no impact related to water quality, surface water or groundwater. The Farm is regulated under the Water Quality Order No. 2004-0012-DWQ, Order No. 95-140, Order No. 88-172, and Order No. 94-286, which each outline operational requirements and management practices, including setbacks from sensitive areas such as waterbodies, tail water and runoff water recovery systems, storage, etc. Implementation of the permit requirements, along with some of the mitigation measures identified in the 1989 PEIR, will mitigate and/or eliminate any potential impacts of Alternative 2 on water quality.

4.3.5 Land Use and Planning

The following sections summarize the impacts of the alternatives related to land use and planning.

4.3.5.1 Summary of the Proposed Project Impacts

The proposed Project involves the purchase of the existing Farm and the land application of biosolids. The City's purchase of the Farm in 2000 was a transfer of title and no associated material change was made to the Farm or related operations because of it. Thus, there are no land use and planning impacts associated with the City's purchase of the Farm in 2000.

There are currently no restrictions on transporting biosolids by truck in the City, County, or Kern General Plans. Land application will occur within the boundaries of the existing Farm. These activities are consistent with the agricultural activities that have occurred at the Farm since 1988, as well as with the current zoning. The preliminary injunction currently prohibits the enforcement of Measure E, allowing the land application of biosolids at the Farm during the time period of this analysis. Please see Section 2.3.2 for the litigation history of Measure E. The proposed project will not impact the type of land use occuring at the Farm, will not disrupt, divide or isolate a community as the activities will occur at an existing farm, and will not result in significant secondary impacts to the surrounding land use area. Thus, there are no land use or planning impacts due solely to the proposed project.

4.3.5.2 Alternative 1 (No Project) Impacts

In the No Project alternative, the Farm would not be purchased and biosolids would not be land applied at the Farm. Farming would be expected to continue to occur at the Farm. No zoning changes or changes in land use would be expected to occur in this alternative. Composting currently occurs at Griffith Composting Facility and no changes would be expected; similarly, the site in Arizona chosen to send the HTP biosolids would allow land application of biosolids and no changes would be expected. Therefore, no impacts to land use and planning would be expected from the No Project Alternative.

4.3.5.3 Alternative 2 Impacts

In this alternative, the Farm would be purchased and used for agriculture. The only difference between this alternative and the Project is that the biosolids would be composted before land application. Land application of compost is not affected by Measure E (Please refer to Section 2.3.2 for additional information on Measure E). Farming would be expected to continue to occur at the Farm. No zoning changes or changes in land use would be expected to occur in this alternative. Therefore, no impacts to land use and planning would be expected from the Alternative 2.

4.4 Conclusion

Table 4-5 and Table 4-5 provide a qualitative comparison of the potential environmental impacts of the alternatives relative to the proposed project in the SJVAB and SCAB, respectively. Based on the preceding analyses, Alternative 1 (No Project) is the only alternative that avoids the exceedance of all significance criteria identified for the proposed project, although it increases the magnitude of a less than significant impact (i.e., air quality). Thus, this alternative would be

the “Environmentally Superior Alternative” per CEQA Guidelines §15126.6(e)(2). CEQA Guidelines §15126.6(e)(2) also states that “the EIR shall also identify an environmentally superior alternative among the other alternatives” in cases where the No Project alternative is the environmentally superior. Based on this, the Project would be the environmentally superior alternative of the remaining options.

Under Alternative 1 (No Project), there would be no impacts on agriculture and forestry resources, similar to the Project. Emissions of all criteria pollutants in the SJVAB and GHGs would be less than the applicable significance thresholds during operation and less than emissions from the Project. Emissions of all criteria pollutants and GHGs in the SCAB would be less than the applicable significance thresholds during operation and greater than emissions from the Project. Alternative 1 would have no significant impacts on hydrology or water quality. There would be no impacts on land use/planning, and potential impacts related to Measure E (if upheld) would be less as no land application would occur at the Farm in this scenario. This alternative reduces an impact (i.e., air quality in the SJVAB) to less than significance but causes an increase in another impact (i.e., air quality in the SCAB) although it does not result in a new significant impact.

Under Alternative 2, there would be no impacts on agriculture and forestry resources, similar to the Project. Alternative 2 would have no significant impacts on hydrology or water quality. There would be no impacts on land use/planning, and potential impacts related to Measure E (if upheld, see Section 2.3.2) would be less as no biosolids land application would occur at the Farm in this scenario (although compost from a co-composting facility would be land applied). Emissions of NO_x in the SJVAB would exceed the applicable significance threshold. Emissions of all other criteria pollutants in the SJVAB would be less than the applicable significance thresholds but greater than emissions in the SJVAB from the Project. Emissions of all criteria pollutants in the SCAB would be less than the applicable significance thresholds and would be similar to emissions from the Project. Emissions of GHGs would be less than the applicable significance threshold but greater than emissions from the Project. There would be no impacts on land use/planning. This alternative increases multiple impacts (i.e., air quality and GHGs) without reducing any impacts.

Table 4-5: Comparison of Alternatives to the Proposed Project - SJVAB Impacts

Environmental Topic	Proposed Project	Alternative 1 (No Project)	Alternative 2
Agriculture and Forestry Resources	NS	NS (=)	NS (=)
Air Quality	S	NS (-)	S (+)
Hydrology/Water Quality	NS	NS (=)	NS (=)
Land Use/Planning	NS	NS (-)	NS (=)

S = Exceeds significance criteria
NS = Does not exceed significance criteria
(+) = Potential impacts are greater than the proposed project.
(-) = Potential impacts are less than the proposed project.
(=) = Potential impacts are essentially the same as the proposed project.
[1] Due to non-CA emissions.

Table 4-6: Comparison of Alternatives to the Proposed Project - SCAB Impacts

Environmental Topic	Proposed Project	Alternative 1 (No Project)	Alternative 2
Agriculture and Forestry Resources	NS	NS (=)	NS (=)
Air Quality	NS	NS (+)	NS (=)
Greenhouse Gases (all CA)	NS	NS (=)[1]	NS (+)
Hydrology/Water Quality	NS	NS (=)	NS (=)
Land Use/Planning	NS	NS (-)	NS (=)

S = Exceeds significance criteria
NS = Does not exceed significance criteria
(+) = Potential impacts are greater than the proposed project.
(-) = Potential impacts are less than the proposed project.
(=) = Potential impacts are essentially the same as the proposed project.
[1] Due to non-CA emissions.

5 Other CEQA Considerations

5.1 Cumulative Impacts

The CEQA Guidelines define cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (§15355).

Multiple resources were used to identify projects that have been constructed since 2000, are being constructed currently, or are potential future projects that could theoretically produce impacts related to the project due to (1) construction impacts, (2) operational impacts, or (3) close geographic proximity to the Farm. The search focused on a 10-mile radius about the Farm, comprising Kern County Supervisorial Districts 2 and 4.[134] CEQA Guidelines (§15130(b)(3)) allows the lead agency discretion in defining the geographic scope for the analysis of cumulative impacts. The 10-mile radius was chosen for the following reasons:

- Projects in the vicinity of the proposed project are not located in close proximity to each other, so a wider radius would account for more projects contributing to potential cumulative impacts;
- No related projects have been constructed in the vicinity between the periods of 2000 and 2013. Selecting a 10-mile radius allowed for a comprehensive analysis of projects in the area while not resulting in a large number of unrelated projects (i.e., projects not related to agriculture or transportation).

Findings from the resources searched are summarized below:

- Kern County Construction Services – No projects constructed within a 10-mile radius of the Farm between 2000 and 2011.[135]
- Kern County Planning – No project notices were found within a 10-mile radius of the Farm between 2000 and 2011.[136]
- Kern County Environmental Documents – No projects were found within a 10-mile radius of the Farm.[137]
- Historical satellite imagery – No significant changes were found within a 10-mile radius of the Farm between 2000 and current images.[138] This includes no evidence of new dairies.

It is noted that, during the project period, four other sites managed biosolids in the larger Kern area. The last of these sites closed in 2010.

[134] Kern County. Kern County Supervisorial District Map. Available at: http://www.co.kern.ca.us/bos/kcmap.pdf. Accessed September 2013.
[135] Kern County. Kern County Construction Services website. Available at: http://www.co.kern.ca.us/apps/cmp/cmpdspinter.asp. Accessed September 2013.
[136] Kern County. Kern County Planning and Community Development – Notices of Preparation. Available at: http://pcd.kerndsa.com/planning/notices-of-preparation. Accessed September 2013.
[137] Kern County. Kern County Planning and Community Development – Environmental Documents. Available at: http://pcd.kerndsa.com/planning/environmental-documents. Accessed September 2013.
[138] "Green Acres Farm" 35°14'23.76N and 119°13'17.43W. Google Earth. Historical images: August 2013, August 2012, October 2009, April 2006, July 2005, June 2004, June 2003, September 1994); Accessed March 2014.

Thus, there are no other projects to account for when considering cumulative impacts. The existing setting includes any past projects in the vicinity (e.g., existing biosolids operations) and, thus, incorporates any potential cumulative effects. Cumulative impacts to any CEQA environmental area would occur if the project, in combination with other known current or future projects, created a significant impact that might otherwise be considered individually less than significant. The following sections summarize the City's conclusions on the potential cumulative impacts for each environmental area.

5.1.1 Aesthetics

The project was found to have no impacts related to aesthetics.[139] Thus, because there are no other projects to account for when considering cumulative impacts, the project would not contribute to a cumulative impact to aesthetics in the area.

5.1.2 Agriculture and Forestry Resources

The project was found to have no impacts related to agriculture and forestry resources.[140] Thus, because there are no other projects to account for when considering cumulative impacts, the project would not contribute to a cumulative impact to agriculture and forestry resources in the area.

5.1.3 Air Quality

As discussed in Section 3.1, the project would result in potentially significant impacts related to air quality (i.e., NO_x) and less than significant impacts related to health risk, after feasible mitigation measures were accounted for. Because no projects were identified in a 10-mile radius of the Farm, there are no nearby projects that, in combination with the proposed project, could contribute to a cumulatively significant impact. Thus, the project is not expected to contribute to a cumulatively considerable change to the air quality or health risk in the area.

5.1.4 Biological Resources

The project was found to have no impacts related to biological resources.[141] Thus, because there are no other projects to account for when considering cumulative impacts, the project would not contribute to a cumulative impact to biological resources in the area.

5.1.5 Cultural Resources

The project was found to have no impacts related to cultural resources.[142] Individual projects would be required to determine whether there is the potential for the project to impact cultural resources, as these impacts are site-specific. Because the impacts are site-specific and the project would result in no impacts, the project would not contribute to a cumulative impact to cultural resources in the area.

[139] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.A. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[140] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.B. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[141] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.D. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[142] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.E. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.

5.1.6 Geology/Soils

The project was found to have less than significant impacts related to geology/soils because soil fertilizer/amendment on farming operations have continued through the years.[143] Because no projects were identified in a 10-mile radius of the Farm, there are no nearby projects that, in combination with the proposed project, could contribute to a cumulatively significant impact. Thus, the project would not contribute to a cumulative impact to geology/soils in the area.

5.1.7 Greenhouse Gas Emissions

As discussed in Section 3.2, operation of the project would not result in cumulatively considerable emissions of biogenic or non-biogenic GHGs. Impacts due to GHG emissions are regional in nature and are not cumulatively considerable based on emissions analysis; thus the project is not expected to contribute to cumulatively considerable impacts.

5.1.8 Hazards

The project was found to have less than significant impacts related to hazards.[144] Because no projects were identified in a 10-mile radius of the Farm, there are no nearby projects that, in combination with the proposed project, could contribute to a cumulatively significant impact. Thus, the project would not contribute to a cumulative impact to hazards in the area.

5.1.9 Hydrology/Water Quality

As discussed in Section 3.3, the project would result in less than significant impacts related to hydrology/water quality. The Kern Water Bank is located north of the project site. Groundwater located in the northern area of the project site flows in a south and southeast direction while groundwater in the southern area of the project site flows in a northeast direction.[145] Since groundwater from the project site does not flow towards the Kern Water Bank, there will be no impact from the project on the Kern Water Bank. Because no other projects were identified in a 10-mile radius of the Farm, there are no nearby projects that, in combination with the proposed project, could contribute to a cumulatively significant impact. Thus, the project is not expected to contribute to a cumulatively considerable change to the hydrology/water quality in the area.

5.1.10 Land Use/Planning

The project is not expected to result in any impacts related to land use/planning. The preliminary injunction currently prohibits the enforcement of Measure E, allowing the land application of biosolids at the Farm during the time period of this analysis. Please see Section 2.3.2 for the litigation history of Measure E. However, if Measure E had been implemented, then the project would not have existed after July 19, 2011. There would have been significant impacts related to land use/planning and land applications because the Farm would have been required to cease its biosolids application (or be in violation of the Measure E ordinance) and find other destinations for the City's biosolids. Thus, if Measure E is implemented, the project would have significant and unmitigable individual and cumulative impacts related to land use/planning.

[143] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.F. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[144] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.H. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[145] Declaration of Thomas M. Johnson. September 18, 2006.

5.1.11 Mineral Resources

The project was found to have no significant impacts related to mineral resources.[146] Thus, because there are no other projects to account for when considering cumulative impacts, the project would not contribute to a cumulative impact to mineral resources in the area.

5.1.12 Noise

The project was found to have less than significant impacts related to noise.[147] Because no projects were identified in a 10-mile radius of the Farm, there are no nearby projects that, in combination with the proposed project, could contribute to a cumulatively significant impact. Thus, the project would not contribute to a cumulative impact to noise in the area.

5.1.13 Population/Housing

The project was found to have no impacts related to population/housing resources.[148] Thus, because there are no other projects to account for when considering cumulative impacts, the project would not contribute to a cumulative impact to population/housing in the area.

5.1.14 Public Services

The project was found to have no impacts related to public services.[149] Thus, because there are no other projects to account for when considering cumulative impacts, the project would not contribute to a cumulative impact to public services in the area.

5.1.15 Recreation

The project was found to have no impacts related to recreation.[150] Thus, because there are no other projects to account for when considering cumulative impacts, the project would not contribute to a cumulative impact to recreation in the area.

5.1.16 Transportation/Traffic

The project was found to have less than significant impacts related to transportation/traffic.[151] Because no projects were identified in a 10-mile radius of the Farm, there are no nearby projects that, in combination with the proposed project, could contribute to a cumulatively significant impact. As described in the IS, the proposed project requires the travel of trucks on public roads, primarily major roads such as Imperial Highway, Interstate 5, and Taft Highway. The transportation route minimizes travel on local roads, and both primary routes (i.e., from HTP and TIWRP) require less than 5 miles of travel on a road other than a state or federal highway. The trucks travel only one-half of a mile on state roads in the immediate vicinity of the Farm; the

[146] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.K. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[147] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.L. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[148] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.M. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[149] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.N. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[150] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.O. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.
[151] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.P. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.\

remainder of the trip uses private, Farm roads. Thus, the project would not contribute to a cumulative impact to transportation/traffic in the area.

5.1.17 Utilities/Service Systems

The project was found to have no impacts related to utilities/service systems.[152] Thus, because there are no other projects to account for when considering cumulative impacts, the project would not contribute to a cumulative impact to utilities/service systems in the area.

5.2 Significant Irreversible Environmental Changes

The CEQA Guidelines require that an EIR analyze any "significant irreversible environmental changes which would be caused by the proposed project should it be implemented", such as the use of nonrenewable resources, primary and secondary impacts, and irreversible damage that could result from environmental accidents associated with the project [§15126.2(c)]. Furthermore, it defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (§15355).

The project repurposes sewage sludge by land applying treated (i.e., Class A-EQ) biosolids to farmland for use as crop fertilizer. This reduces the need for chemical fertilizers and utilizes a renewable resource. The project would require diesel fuel for the trucks that transport the biosolids from the HTP to the Farm. The project would have various environmental impacts as described in Section 3 of the EIR.

There have been complaints related to the presence of flies at the Buena Vista Recreation Area, which is located several miles to the southwest of the Farm. The West Side Mosquito Abatement District investigated the matter in 2003 and took the following steps: It sampled the biosolids land applied at the Farm and found no fly pupa; it placed fly larva into biosolids from the Farm to see if the larva could live in that environment and determined they could not; and it tested three different places on the Farm but found no evidence of flies breeding on the site. The investigation indicated that the flies were likely coming from other sources, such as nearby dairies. This finding is consistent with an earlier study from 1996 conducted at the Farm by an entomologist. Thus, no significant impacts related to flies are expected from the proposed project.

5.3 Growth-Inducing Impacts

The CEQA Guidelines define growth-inducing change as the impacts of a proposed project that "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment" (§15126.2(d)). Regardless of this project, biosolids would continue to be produced at HTP, even if they were processed elsewhere. No significant growth inducing impacts are expected from the proposed project.

[152] City of Los Angeles. Green Acres Biosolids Land Application Project. Initial Study. Section IV.Q. Available at: http://eng.lacity.org/techdocs/emg/green_acres_biosolids_land.htm. Accessed March 2014.

6 Acronyms and Abbreviations

Acronym	Definition
µg/m^3	Micrograms per cubic meter
AB 32	Assembly Bill 32
Addendum	2010 Addendum to the 1989 and 1996 PEIRs
AGR	Agricultural Supply
AP-42	Compilation of Air Pollutant Emission Factors
AQMIS	Air Quality and Meteorological Information Site
AQMP	Air Quality Management Plan
BAU	Business-as-Usual
BOS	Bureau of Sanitation
BPS	Best Performance Standard
BVARA	Buena Vista Aquatic Recreation Area
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod™	California Emissions Estimator Model
CalEPA	California State Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAS	Chemical Abstracts Service
CAT	Climate Action Team
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
City	City of Los Angeles
City General Plan	City of LA General Plan
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2eq	Carbon Dioxide Equivalents
County	LA County
County General Plan	LA County Draft General Plan

Acronym	Definition
Court Order	2012 Return to Writ of Mandate
D/T	Dilution to Threshold
DEIR	Draft Environmental Impact Report
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act of 2007
EMFAC	Emission Factors Model
EMS	Environmental Management System
EQ	Exceptional Quality
Farm	Green Acres Farm
FEIR	Final Environmental Impact Report
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
General Order	General Order permitting land application of biosolids issued by the State Water Resources Control Board
GHG	Greenhouse Gas
GWP	Global Warming Potential
H_2S	Hydrogen Sulfide
HERS	Hyperion Energy Recovery System
HFC	Hydrofluorocarbon
hr	Hour
HR 2764	Consolidated Appropriations Act of 2008
HRA	Health Risk Assessment
HTP	Hyperion Treatment Plant
I-5	California Interstate 5
iADAM	Air Quality Data Statistics
IND	Industrial Service Supply
IS	Initial Study
Kern General Plan	Kern County Draft General Plan
LA	Los Angeles
lbs/day	Pounds Per Day
LST	Localized Significance Threshold
MCL	Maximum Contaminant Level
MMRP	Mitigation Monitoring or Reporting Plan
MT	Metric Tonnes
MUN	Municipal and domestic supply

Acronym	Definition
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NO_2	Oxides of Nitrogen
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	Oxides of Nitrogen
O_3	Ozone
OPR	Office of Planning and Research
PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PCB	Polychlorinated Biphenyl
PEIR	Program Environmental Impact Report
PFC	Perfluorocarbon
PM	Particulate Matter
PM_{10}	Particulate Matter less than 10 microns in diameter
$PM_{2.5}$	Particulate Matter less than 2.5 microns in diameter
ppb	Parts Per Billion
ppm	Parts Per Million
PSD	Prevention of Significant Deterioration
RBM	Responsible Biosolids Management
RFS	Renewable Fuel Standard
RWQCB	Regional Water Quality Control Board
SB 97	Senate Bill 97
SC	South Coast
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCAQMD Handbook	Methodologies developed by the SCAQMD for CEQA
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SJV	San Joaquin Valley
SJVAB	San Joaquin Valley Air Basin

Acronym	Definition
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	Sulfur Dioxide
SO_x	Oxides of Sulfur
State Water Board	State Water Resources Control Board
TAC	Toxic Air Contaminant
the Handbook	the CEQA Air Quality Handbook
TIRE	Terminal Island Renewable Energy Project
TITP	Terminal Island Treatment Plant
TIWRP	Terminal Island Water Reclamation Plant
tpd	Tons Per Day
tpy	Tons Per Year
USEPA	United States Environmental Protection Agency
VADOFT	Vadose Zone Flow and Transport Model
VCI	Valley Communities, Inc.
VOC	Volatile Organic Compound
WDR	Waste Discharge Requirement
Writ	2005 Tulare County Court Superior Court Write of Mandate
WWTP	Wastewater Treatment Plant
yr	Year

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Appendix A

Initial Study and Notice of Preparation

CITY OF LOS ANGELES
CALIFORNIA ENVIRONMENTAL QUALITY ACT

INITIAL STUDY

(Article I - City CEQA Guidelines)

Council District: ALL Date: February 14, 2013

Lead City Agency: City of Los Angeles, Bureau of Sanitation, Regulatory Affairs Division

Project Title: GREEN ACRES BIOSOLIDS LAND APPLICATION PROJECT
Work Order #

I. INTRODUCTION

A. Purpose of an Initial Study

An initial study is a preliminary analysis conducted by the lead agency, in consultation with other agencies (responsible or trustee agencies, as applicable), to determine whether there is substantial evidence that a project may have a significant effect on the environment. If the initial study concludes that the project, with mitigation, may have a significant effect on the environment, an environmental impact report should be prepared; otherwise the lead agency may adopt a negative declaration or mitigated negative declaration.

This Initial Study (IS) has been prepared in accordance with CEQA (Reference 1), the State CEQA Guidelines (Reference 2), and the Los Angeles CEQA Thresholds Guide (Reference 3).

B. Document Format

This Initial Study is organized into seven sections as follows:

Section I, Introduction: Provides an overview of the project and the CEQA environmental documentation process.

Section II, Project Description: Provides a description of the project location, project background, and project components.

Section III, Existing Environment: Provides a description of the existing environmental setting with focus on features of the environment which could potentially affect the proposed Project or be affected by the proposed Project.

Section IV, Potential Environmental Effects: Provides a detailed discussion of the environmental factors that would be potentially affected by this project as indicated by the screening checklist in Appendix A.

Section V, Preparation and Consultation: Provides a list of key personnel involved in the preparation of this report and key personnel consulted.

Section VI, Determination – Recommended Environmental Documentation: Provides the recommended environmental documentation for the proposed Project; and,

Section VII, References: Provides a list of reference materials used during the preparation of this report.

C. CEQA Process

Once an Initial Study (IS) has been completed, a public comment period opens for no less than thirty (30) days. The purpose of this comment period is to provide public agencies and the general public an opportunity to review the initial study and comment on the adequacy of the analysis and the findings of the lead agency regarding potential environmental impacts of the proposed Project. If a reviewer believes the project may have a significant effect on the environment, the reviewer should (1) identify the specific effect, (2) explain why it is believed the effect would occur, and (3) explain why it is believed the effect would be significant. Facts or expert opinion supported by facts should be provided as the basis of such comments.

After the close of the public review period, the City of Los Angeles considers the IS, together with any comments received during the public review process, and makes a determination whether to require the preparation of an Environmental Impact Report (EIR), a Mitigated Negative Declaration (MND), or a Negative Declaration (ND). Staff has preliminarily determined that an EIR is required for the proposed Project.

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services, and activities.

II. PROJECT DESCRIPTION

A. Location

The Green Acres Farm (the Farm) consists of nearly 4,700 acres of land in unincorporated western Kern County (Figure 1) where active farming has occurred since 1988. The Farm is located approximately 15 miles southwest of the City of Bakersfield, and approximately 120 miles north of the City of Los Angeles (Figure 2).

It is surrounded by highways, vacant lands, industrial facilities, and land used for agricultural purposes. There are no adjacent residences. The Farm is bounded to the east by an interstate freeway (I-5) and to the north by a state highway (State Route 119, also known as the Taft Highway; Figure 3). There are farmlands, vacant lands, and a number of dairies to the south of the property and to the east of I-5, as well as farmlands and vacant lands to the north of the highway. There are several residences to the southwest of the property, although they are not adjacent to the Farm and are separated from the site by intervening agricultural lands. The site is bounded to the west by South Enos Lane and Coles Levee Road, with more farmlands and vacant lands and land used for light industrial purposes to the west of these roadways. These local roadways provide access to the Farm and were paid for and are maintained by the City. Kern County has approved a commercial-industrial project at the southwest corner of South Enos Lane and Taft Highway, consisting of a motel, fast-food restaurants, recreational vehicle storage, and an existing gas station.

Figure 1: Regional Map of Green Acres

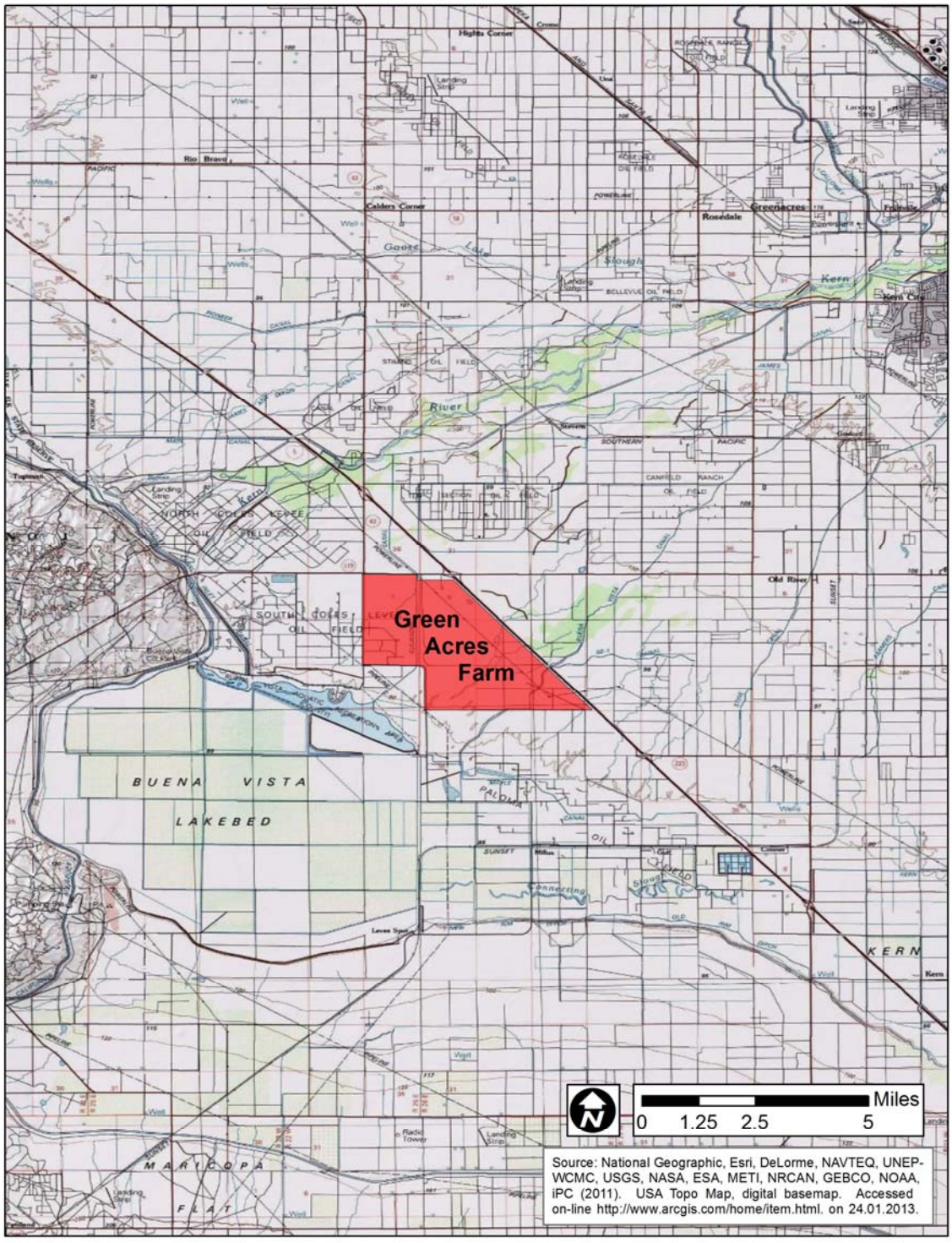

Figure 2: Vicinity Map of Green Acres

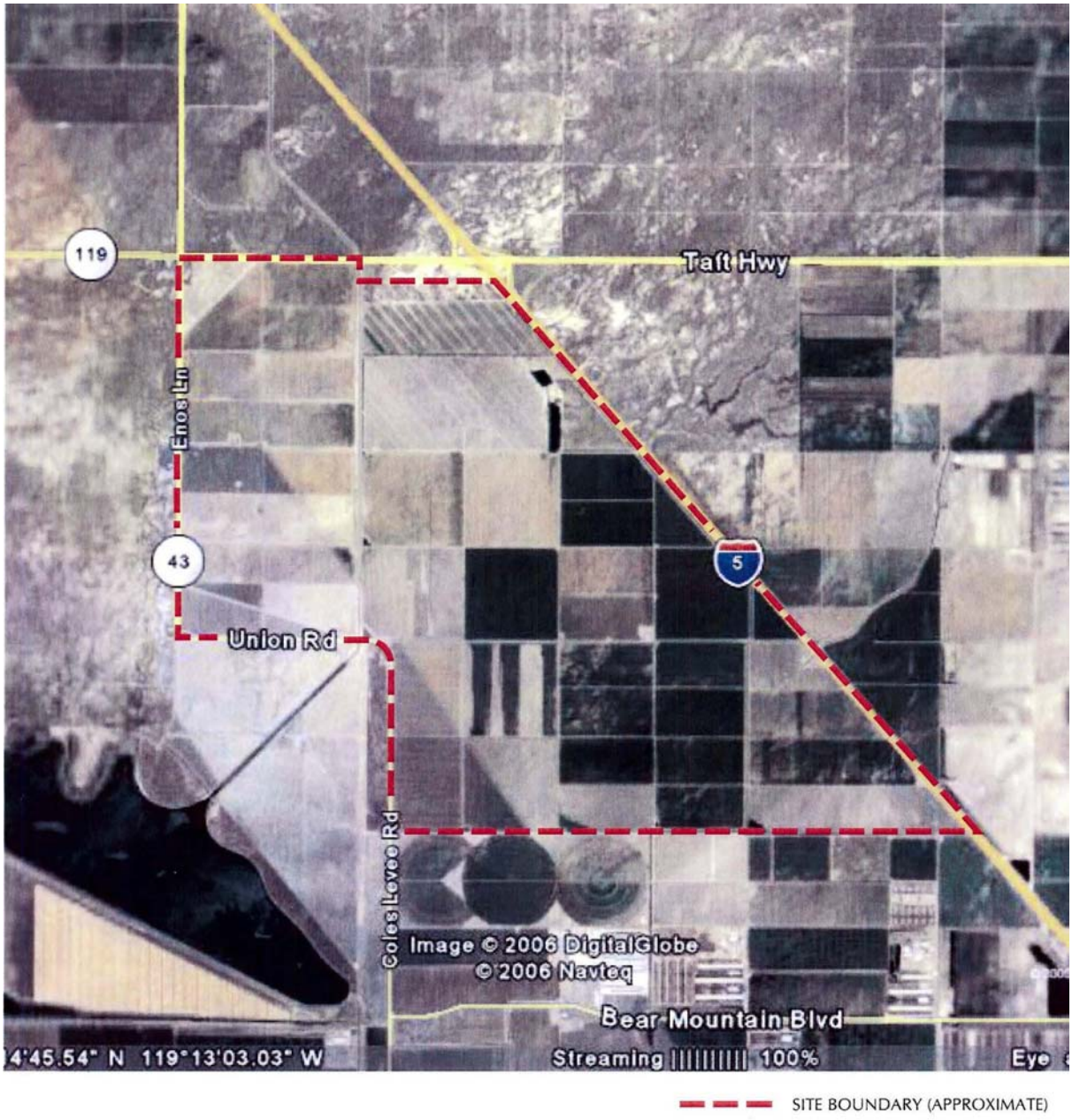

Figure 3: Aerial Image of Green Acres

B. Purpose

The City of Los Angeles (the City) operates four wastewater treatment plants (WWTPs) serving over four million people. Historically, biosolids, which are organic solid product that result from wastewater treatment processes and that can be beneficially used, were discharged to the Santa Monica Bay (1957-1987). The City entered into an Amended Consent Decree with the U.S. Environmental Protection Agency (USEPA) in 1987 that required the City to end the discharge of biosolids into the ocean by December 31, 1987. A study completed in late 1980s recommended a

short and long-term biosolids management plan for alternatives to discharging into Santa Monica Bay including dehydration, combustion, and energy recovery. This alternative system, the Hyperion Energy Recovery System (HERS), began operation in 1987 but was decommissioned in 1997.

In addition, under the Amended Consent Decree, the City was required to haul specified amounts of biosolids to other locations for non-ocean disposal unless other viable on-site reuse options were available. In 1989, a Program EIR (Reference 4) analyzed off-site options for use and/or disposal of biosolids produced at the City's wastewater treatment plants, including land application. That year, a Final EIR (FEIR) was approved that analyzed options for the offsite transportation and disposition of sewage sludge produced at the Hyperion Treatment Plant (HTP) and Terminal Island Water Reclamation Plant (TIWRP).

In 1994, the Central Valley Regional Water Quality Control Board (RWQCB) issued a Waste Discharge Requirement (WDR) permit to Responsible Biosolids Management, Inc. (RBM) to land apply biosolids at the Farm to enhance crop growth. A formal, written contract was then executed by the City of Los Angeles with RBM in 1996 to govern the transportation and land application of these biosolids. In 1996, a EIR (Reference 5) was approved that analyzed this Biosolids Management Program, which incorporated the successful elements of the 1989 offsite program and the HERS into the City's long-term goals of localized processing and beneficial use of biosolids and other wastewater treatment residuals.

In 2000, the City of Los Angeles bought the Farm and amended the aforementioned 1996 contract with RBM. These amendments included increasing the transportation of biosolids from a maximum of 700 wet tons per day (monthly average of 450 wet tons per day) to 800 wet tons per day (monthly average of 550 wet tons per day), and extending the contract's term to 2010. This transfer of title to the City did not otherwise result in a change in how the site was used. Since the contract was amended in 2000 the actual tonnage to the Farm has decreased.

In November 2002, Ordinance G-6931 was adopted by Kern County that allowed land application of "Exceptional Quality" biosolids only in unincorporated areas of the County, banning Class B land application. In response to this and related ordinances, the City now produces Class A, Exceptional Quality, biosolids at HTP and TIWRP sites.

In 2005, the City was directed by a writ of mandate issued by the Tulare County Superior Court (Writ) to undertake an evaluation under Section 15168(c) of the CEQA guidelines to determine if additional CEQA review was required for the 2000 purchase of the site and the 2000 amendment of the RBM contract. Based on the Writ, an addendum to the 1989 and 1996 Biosolids EIR (Addendum; Reference 6) was prepared and approved by the City Council on December 8, 2010. In April 2012, the Tulare County Superior Court ruled that the Addendum was inadequate to discharge the Writ and directed the City "to do a new Initial Study per Section

15168(c)(1), and to proceed thereafter as required by law" (Court Order). This current CEQA analysis has been prepared to address that Court Order.

C. Description

Two interrelated "subsequent activities" in the City's biosolids program, as referenced in the 1989 EIR and the 1996 EIR, are the components of this proposed Project. These two subsequent activities are: (1) the City's approval in 2000 of Amendment No.2 to City Contract C-94375, a pre-existing contract between the City and RBM for the loading, transportation and beneficial reuse of the City's biosolids at the Farm; and (2) the City's 2000 purchase of the Farm.

1. Contract amendment: The City's amendment of the preexisting contract included increasing the transportation of biosolids from a maximum of 700 wet tons per day (monthly average of 450 wet tons per day) to 800 wet tons per day (monthly average of 550 wet tons per day), and increasing the term of the contract. No other changes in how the site was used occurred due to this contract amendment.

2. Purchase of the site: The City approved the purchase of the Farm in February 2000. The transfer of title to the City did not result in a change in how the site was used. In particular, the site continued to be used as a farm with biosolids land applied to enhance the growth of feed crops; this use has continued to the present day. The City purchased the property to ensure a suitable site and controlled environment for continued land application of biosolids and farming activities, and to ensure full City oversight of these activities.

Based on these activities, the City's discretion under CEQA to set the baseline as supported by substantial evidence, and consistent with the Court Order, the baseline for the proposed Project is assumed to be the year 2000: no biosolids land applied at the Farm (the most conservative assumption). The proposed Project analyzed in this document is the application of up to 800 tons of Class A biosolids per day at the Farm. The proposed Project includes all aspects of land application, including compliance with applicable regulations, including but not limited to the San Joaquin Valley Air Pollution Control District's Rule 4565 (Reference 7).

The activities to be evaluated do not include the original selection of the Farm as a farming site in 1988, the original decision in 1994 to authorize land application of biosolids at the Farm, or the City's decision in 1996 to execute a formal written biosolids contract with RBM. These actions preceded the 2000 subsequent activities, and are not subject to the Writ.

The analysis in this document assumes that, unless otherwise stated, the proposed Project will be designed, constructed and operated following all applicable laws, regulations, ordinances and formally adopted City standards including but not limited to:

- *Los Angeles Municipal Code* (Reference 8)
- Bureau of Engineering *Standard Plans* (Reference 9)
- *Standard Specifications for Public Works Construction* (Reference 10)
- *Work Area Traffic Control Handbook* (Reference 11)
- *Additions and Amendments to the Standard Specifications for Public Works Construction* (Reference 12).

III. EXISTING ENVIRONMENT

A. Farming Activities

The Green Acres Farm consists of nearly 4,700 acres of land in Kern County, approximately 15 miles southwest of the City of Bakersfield, and approximately 120 miles north of the City of Los Angeles. The Farm is surrounded by highways, vacant lands, industrial facilities, and land used for agricultural purposes. There are no adjacent residences.

Green Acres Farm has been a farming site since 1988. The City of Bakersfield prepared an EIR under CEQA to analyze the use of treated effluent from the Bakersfield Wastewater Treatment Plant No. 3 for irrigation purposes at the Farm. The Bakersfield EIR evaluated (among other environmental impacts) the effects of converting the 4,700-acre site to agricultural uses. After completion of the EIR, the Central Valley Regional Water Quality Control Board issued a permit allowing use of reclaimed water for irrigation purposes on the site (Reference 13). This permit requires groundwater monitoring, imposes reporting requirements, and establishes minimum setback distances and buffer zones.

In 1994, RBM commenced land application of biosolids at the Farm. Land application of biosolids at the Farm has continued to the present day. Biosolids are used as a fertilizer and soil conditioner to enhance the growth of feed crops such as corn, wheat, sudan, milo, and alfalfa, which are primarily sold to local dairies.

Before commencing land application of biosolids at the Farm, RBM obtained the requisite authorizations from the Central Valley Regional Water Quality Control Board. Specifically, the Central Valley Regional Water Board issued two orders in 1994 and 1995 permitting land application by RBM at Green Acres Farm (References 14 and 15). These two RWQCB orders contain various requirements to minimize any environmental impacts that might result from land application of biosolids. These requirements include specific measures to minimize potential impacts in terms of erosion, odors, surface water quality, ground water quality, and public health – including limitations on the amount of biosolids that may be land applied; limitations on the trace amounts of metals in biosolids and the farm fields receiving biosolids; buffers from residences, surface waters, and other land uses and physical features; operational protocols, including prohibitions on applying biosolids to flooded, frozen or water-saturated ground or during periods of heavy rainfall; and detailed monitoring, reporting and recordkeeping requirements. Also the

City of Los Angeles and Kern County require that the contractor maintain a site management plan outlining practices and procedures for land application of biosolids including the method for calculating the amount of biosolids to be applied on a given area. This plan accounts for the agronomic rate and, in practice, biosolids are not applied at greater than the agronomic rate. However, if biosolids were inadvertently applied at a rate greater than the agronomic rate, the site management plan outlines procedures to follow, including stopping further application of biosolids to the area, careful application of water to not cause undue leaching, and monitoring of soil and plant tissue until the levels of nitrogen return to acceptable levels for growing crops. The City and RBM have complied with, and continue to comply with, these conditions and requirements imposed by the Regional Water Board – which are in addition to the nationwide land application standards established by the USEPA in the Code of Federal Regulations; the statewide land application standards established by the State Water Resources Control Board after an extensive, statewide environmental review; and local land application regulations adopted by Kern County.

In 1996, the City executed a formal written contract (City Contract C-94375) with RBM and Valley Communities, Inc. (which at that time owned Green Acres Farm) to govern the loading of the City's biosolids at the City's wastewater treatment plants, the transportation of the City's biosolids to the Farm, and the beneficial use of the biosolids at the Farm to grow feed crops. The term of the contract was three years. RBM has been responsible to the present day for coordinating the transportation of biosolids from the City to the Farm, for land applying the biosolids at Green Acres, and for conducting monitoring, reporting and record keeping. Also in 1996, the City prepared an additional EIR on its Biosolids Management Program. The 1996 EIR contains a further analysis of the environmental impacts related to the City's management and use of biosolids. The 1996 EIR explained that the City's existing biosolids program, which included land application in western Kern County, was covered by its 1989 EIR on its Offsite Transportation and Disposal Program.

On October 19, 1999, the City approved an amendment to its 1996 biosolids contract with RBM and VCI. This contract amendment (Amendment No. 1 to City Contract C-94375) made some minor changes to the provisions of the initial 1996 biosolids contract and extended the contract for another three-year term. Amendment No. 1 was executed on October 29, 1999. On February 22, 2000, the City Council authorized the Department of Public Works to finalize a second amendment to its existing biosolids contract (Amendment No. 2 to City Contract C-94375). Pursuant to the City Council's approval, this contract amendment was formally executed in September 2000.

To ensure full City oversight over land application operations at the Farm, on November 24, 1999, the City Council adopted a resolution declaring the City's intent to purchase Green Acres Farm. On February 22, 2000, the City Council approved the purchase of the Farm. The purchase agreement included a sale price of $9,630,000. After purchasing Green Acres Farm, the City – in response to regulations adopted by Kern County requiring the phase-out by the end of 2002 of

"Class B" biosolids (which are treated to reduce certain microorganisms by 99%) – spent more than $15 million to upgrade its wastewater treatment facilities at its HTP and TIWRP to allow additional holding time for heat treatment of biosolids in large anaerobic "digesters" that kill microorganisms. As a result of these facility improvements, since the beginning of 2003, all biosolids land applied at the Farm have consistently met, and continue to meet, both "Class A" and "Exceptional Quality" standards. "Class A" biosolids are treated longer and more intensively than "Class B" biosolids and are essentially free of any pathogens; "Exceptional Quality" (or "EQ") biosolids satisfy stringent pollutant concentrations for the trace amounts of metals found in biosolids at the parts per million level. The City produces only Class A, EQ biosolids and no longer produces Class B biosolids.[1] Due to the treatment processes involved, the production of Class A, EQ biosolids from a given volume of wastewater results in a decrease in biosolids tonnage as compared with the production of Class B biosolids from the same wastewater volume.

Land application of biosolids has come under increasingly strict regulation in recent years, at the federal, state, regional, and local level. These multiple layers of regulations ensure there are no appreciable risks to the environment or to public health or safety from land application of Class A, EQ biosolids. Pursuant to these regulatory requirements, the Farm prepares and submits to the appropriate regulatory agencies the following documentation and reports:

- Pre-application reports: Prior to each application of biosolids, these reports are submitted to the Central Valley Regional Water Quality Control Board, explaining the amount of biosolids that will be applied to a specific field and establishing that regulatory requirements for nutrients and trace amounts of metals are satisfied and that the proper agronomic rates (which determines the amount of biosolids that may be applied for each farm field) are not exceeded.
- Post-application/summary field reports: When activities in a particular farm field are completed (usually after harvest and always before more biosolids are applied), a report is prepared that assesses the amount of biosolids applied and the loadings of nutrients and metals.
- Quarterly reports on metals and pathogens: As required by Kern County, on a quarterly basis biosolids are sampled directly at the field, before incorporation into the soil, for bacteria, PCBs and dioxins.
- Annual reports: These reports, submitted to the Central Valley Regional Water Board and to Region IX of the EPA, include all summary field reports spanning a calendar year, as well as aggregate reports on cumulative metals loads in each field and farm-wide summary reports – further demonstrating compliance with the applicable regulatory requirements.

[1] The City previously completed its wastewater treatment improvements necessary for the production of Class A, EQ biosolids. The City determined that these improvements were exempt under CEQA, pursuant to the City's CEQA Guidelines that were then in effect. Specifically, the City determined that the improvements constituted the installation of new equipment and facilities involving no expansion of use and which were required for environmental control. See, e.g., Notice of Exemption for TIWRP Class A Biosolids Conversion (Reference 16).

- Three-year soil reports: As required by Kern County, every three years or after 40 dry tons of biosolids per acre have been applied to a field, the soil is tested for heavy metals, PCBs and dioxins.

RBM contacts the regulatory agencies to insure that the agencies are satisfied with the operations at the Farm and with the reporting submitted by the Farm. Routine site inspections are done by the USEPA, Kern County, and San Joaquin Valley Air Quality Management District.

In recognition of the City's achievements in its biosolids program, in 2003 the Los Angeles Bureau of Sanitation became the second sanitation agency in the country to receive an Biosolids Management Program ("BMP") certification from the National Biosolids Partnership, an alliance formed in 1997 with the National Association of Clean Water Agencies, the Water Environment Foundation, and the U.S. Environmental Protection Agency. The City earned its EMS certification through a lengthy and rigorous third-party audit of all management, operations, training, compliance and public outreach elements of its biosolids treatment and recycling program.

In the 2000 baseline year, biosolids were land applied at the Farm as well as composted at Griffith Park. To be conservative, the proposed Project assumes no prior land application of biosolids at the site. Since 2000, biosolids continue to be composted at Griffith Park as well as land applied at the Farm. Since 2008, the City also places biosolids into the subsurface as part of the Terminal Island Renewable Energy Project (TIRE) under a demonstration permit.

B. Regulatory Setting

USEPA Part 503

In 1993, the U.S. Environmental Protection Agency (USEPA) adopted regulations (40 CFR Part 503; Reference 17) to establish national standards governing the use and disposal of sewage sludge. USEPA's "Part 503 Rule" is a comprehensive, risk-based rule designed to protect public health and the environment. USEPA adopted the Part 503 Rule after conducting lengthy and extensive scientific research and peer review, including a formal rulemaking proceeding with substantial input from the public and government agencies. To develop the Rule, USEPA reviewed data to screen approximately 200 different constituents in order to identify those constituents that warranted a formal risk assessment. USEPA used conservative assumptions to develop highly protective regulatory limits.

Among other controls, USEPA's Part 503 Rule establishes numeric limits for trace amounts of metals; mandates standards for the reduction of pathogens, which are essentially eliminated in Class A biosolids; establishes requirements to reduce the attraction of vectors; establishes minimum operational controls and management practices to further protect public health and the environment; and imposes vigorous monitoring, recordkeeping and reporting requirements. According to the USEPA

and the National Academy of Sciences (Reference 18), the land application of biosolids "when practiced in accordance with existing federal guidelines and regulations, presents negligible risk to the consumer, to crop production and to the environment.".

In correspondence regarding the land application of biosolids in Kern County, USEPA in September 2006 confirmed its long-held position that land application in accordance with the Part 503 Rule is environmentally safe and beneficial. See Letter from Mr. James A. Hanlon, Director, Office of Wastewater Management, U.S. USEPA, to Ms. Roberta Larson, Director, Legal & Regulatory Affairs, California Association of Sanitation Agencies, dated Sept. 15, 2006 (Reference 19). The USEPA emphasized in this correspondence that:

> Wastewater agencies across the country have widely relied upon land application as a method for managing biosolids. Specifically, well over fifty percent of the total volume of biosolids produced in the United States is currently land applied. Land application of biosolids is thus clearly an important option for municipalities to have, and USEPA believes that it should be available to all municipalities wherever possible as an option for biosolids management. The application of biosolids to farmland serves to help meet several important environmental goals, including improving soil and preserving increasingly scarce landfill capacity for wastes not appropriate for recycling.

USEPA's letter further points to the "considerable experience" of USEPA, state agencies and local wastewater authorities with land application extending back to the 1970s, and the letter concludes: "Published research and major scientific reviews by USEPA, the Water Environment Research Foundation, and others, in addition to the results of successful land application systems across the country, continue to demonstrate that the practice, when conducted in compliance with the Part 503 requirements, is protective of public health and the environment."

Current regulations (e.g., Ordinance G-6931 described above) strictly limit the land application of Class B biosolids in the unincorporated sections of Kern County. As a result, both HTP and TIWRP currently treat biosolids to Class A (Exceptional Quality) standards. Although the biosolids originate from these locations, the treatment is not part of the proposed Project. The treatment would have occurred, and is occurring, at HTP and TIWRP in the absence of the Project.

The regulations issued by USEPA for Section 503, The Standards for the Use or Disposal of Sewage Sludge, became effective in 1993. The regulations list requirements for land application of biosolids based on the quality of the biosolids. Based on Section 503.13(b)(1), Class A biosolids, such as those being applied at the Farm, need to meet pollutant concentration limits in Section 503.13(b)(3) and at least one of the vector attraction reduction measures in Section 503.33(b)(1)-(b)(8)

must be used. The Class A biosolids being applied at the Farm meet all of the pollutant concentration limits listed in Section 503.13(b)(3) and have a reduced volatile solids content of at least 38%, meeting the requirements in Section 503.33(b)(1). Based on this, the land application of biosolids at the Farm meets the new requirements in USEPA's Section 503 (Reference 16).

Water Quality Control Board Requirements

As discussed above, the Central Valley RWQCB has established a detailed set of conditions and requirements in authorizing the land application of biosolids at the Farm (Reference 14, Reference 15).

In addition to these two orders adopted by the Central Valley Regional Board, in 2004 the State Water Resources Control Board issued its final statewide General Order permitting land application of biosolids (General Order; Reference 20). The statewide General Order imposes numerous controls that add to the federal requirements of USEPA's Part 503 Rule. The General Order imposes specific requirements for the use, storage, and transport of biosolids, including buffers from water supply wells, surface waters, residences, and public roads. The General Order also establishes a comprehensive monitoring and reporting program, including groundwater monitoring, and requires the preparation of various planning documents, such as a spill response plan and an erosion control plan.

The General Order, which was based on a voluminous Statewide Program Environmental Impact Report completed in 2004, finds that the beneficial reuse of biosolids through land application, in accordance with the regulatory requirements, "is environmentally sound and preferable to non-beneficial disposal" (Reference 20). The 2004 Statewide EIR provides a thorough analysis of environmental impacts associated with land application of biosolids, including impacts on soils, hydrology and water quality, land productivity, public health, land use and aesthetics, biological resources, fish, traffic, air quality, noise, cultural resources, and cumulative impacts. The 2004 Statewide EIR found that all impacts would be less than significant after mitigation (Reference 21).

San Joaquin Valley Air Pollution Control District Rules

The San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted Rule 4565 (Reference 7) in 2007. This rule is intended to limit emissions of volatile organic compounds (VOCs) and applies to facilities that land apply biosolids. Rule 4565 requires that all operators that land apply biosolids must implement one of the following mitigation measures:

- Direct injection of biosolids at least three inches below the soil surface within three hours of receipt;
- Incorporate the biosolids into the soil within three hours of receipt (if received after 6pm, the biosolids must be incorporated by noon of the following day);

- Cover the biosolids within three hours of receipt using a waterproof cover, at least six inches of finished compost, or at least six inches of soil;
- Implement an alternative mitigation measure that demonstrates at least a 10% reduction in VOC emissions.

Kern Regulations

Kern County has also adopted regulations that supplement the various requirements included in the federal Part 503 Rule, the State Water Board's General Order, and the orders issued by the Central Valley Regional Water Board.

Kern County passed its first ordinance to regulate land application of biosolids in 1998 (G-6528). This ordinance allowed land application of Class A and Class B biosolids by any person who obtained a County permit and observed specified management practices and site restrictions.

In October 1999, Kern County adopted a new ordinance (G-6638) that required a phase-out of all land application of Class B biosolids in unincorporated areas of the County by the end of 2002. The ordinance also prohibited land application of Class B biosolids on any sites without an existing County land application permit. The Farm was allowed to continue land application of biosolids, because it held an existing County permit and had received such permits since 1994-95. The City, other sanitation entities, and others challenged Ordinance G-6638 in court, and Kern County cross-challenged. Among other things, the litigation resulted in a writ issued against Kern County for CEQA violations and the Writ and Court Order issued against the City.

In November 2002, Kern County adopted an ordinance (G-6931) that allowed only land application of "Exceptional Quality" biosolids in unincorporated areas of the County. The ordinance defined Exceptional Quality (EQ) biosolids as Class A biosolids that also meet stringent requirements for trace metals. The ordinance stated: "The County recognizes that Exceptional Quality biosolids, as defined in this chapter, are considered by the U.S. Environmental Protection Agency to be a product distributed in bulk form, bags or other containers that can be applied as freely as any other fertilizer or soil amendment to any type of land".

Kern's 2002 ordinance imposed a series of requirements on the application of Class A, EQ biosolids. For example, the ordinance requires pre-application and periodic soil sampling, quarterly biosolids sampling, annual County permitting, and various management practices and site restrictions. It also provides for County inspections four times a year, and imposes additional monitoring, recordkeeping and reporting obligations in addition to those imposed by federal and state regulations.

Finally, in June 2006, Kern County voters adopted an initiative known as Measure E, which banned all land application of biosolids (including Class A, EQ biosolids) within unincorporated areas of the County by January 2007. In an action brought by

Los Angeles, other sanitation entities and others, a federal district court preliminarily enjoined enforcement of Measure E before it could be implemented (Reference 22). The court later ruled that Measure E both violated the United States Constitution and was preempted by a state statute; the court then issued a permanent injunction (Reference 23). Subsequently, the Court of Appeals overturned that judgment on procedural grounds (Reference 24).

Thereafter the federal district court declined to retain jurisdiction over the remaining state law claims and dismissed the case. On January 25, 2011, the City, other sanitation entities and others filed a complaint in the Superior Court for Kern County seeking a declaration that Measure E is unlawful and a permanent injunction against its enforcement (Reference 25). Upon stipulation of the parties, the action was transferred to the Tulare County Superior Court. On June 9, 2011, the Tulare County Superior Court granted a preliminary injunction against Measure E, finding a high likelihood of success on the merits. Kern County filed an appeal with the California Court of Appeal, which is currently pending.

IV. POTENTIAL ENVIRONMENTAL EFFECTS

The environmental factors checked below would be potentially affected by this project, involving at least one impact as indicated by the checklist in Appendix A. Along with the information provided in Appendix A, a detailed discussion of these potential environmental effects follows.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology /Soils
☒ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☒ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities / Service Systems	☒ Mandatory Findings of Significance

A. Aesthetics

Initial screening determined that the proposed Project would cause no impacts to aesthetics. The Farm is approximately 15 miles southwest of the City of Bakersfield, and approximately 120 miles north of the City of Los Angeles. It is surrounded by highways, vacant lands, industrial facilities, and land used for agricultural purposes. There are no adjacent residences. Land application of biosolids is consistent with

the agricultural activities occurring on the site, will not require any additional sources of light, and will have no impact on the scenic resources surrounding the Farm. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. Thus, there are no aesthetics impacts due solely to the City's 2000 purchase of the Farm. No further analysis is needed. See Appendix A for the detailed CEQA checklist.

B. Agriculture and Forestry Resources

Initial screening determined that the proposed Project would cause no impacts to agriculture and forestry resources. The Farm is currently zoned as Exclusively Agricultural (A) and Limited Agriculture (A-1). The Farm contains property zoned by the California Farmland Mapping and Monitoring Program (2010) as Farmland of Statewide Importance (S), Unique Farmland (U), Grazing Land (G), and Vacant/Disturbed Land (V). No proposed Project lands are designated as occurring within the Williamson Act. Furthermore, no land on or near the Farm is zoned for or contains forest or timberland uses. The proposed Project will not result in the conversion of these lands to non-agricultural uses or impact forestry resources as none exist at the Farm.

The Class A biosolids being applied at the Farm have less than the pollutant concentrations listed in USEPA Section 503.13(b)(3) and have a reduced volatile solids content of at least 38%, meeting the requirements in Section 503.33(b)(1).

The 1989 EIR included a mitigation measure related to public health to limit the use of biosolids for land application for growing nonfood-chain crops only. The proposed Project will comply with the USEPA's Section 503 regulations. These regulations were approved and adopted in 1993. Section 503 places restrictions on the growth and harvest of food-chain crops to maintain the safety of the food chain (Section 503.32). The proposed Project complies with Section 503 and, thus, this mitigation measure may not be applicable to the Farm. The EIR will include further analysis on mitigation measures in the 1989 EIR.

The proposed Project will cause no impacts to agriculture and forestry resources. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. Thus, there are no agriculture or forestry resources impacts due solely to the proposed Project. No further analysis is needed. See Appendix A for the detailed CEQA checklist.

C. Air Quality

The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. Thus,

there are no air quality impacts due solely to the City's 2000 purchase of the Farm.

The Project does not require any construction and, thus, consists only of activities associated with operation. Operational activities overall involve the transport of biosolids from the HTP and TIWRP to the Farm, land application of the biosolids, and subsequent incorporation of the biosolids into the soil by mixing. Offsite operational emissions result from the vehicles required to transport the biosolids and worker commuting trips. Onsite operational emissions result from off-road equipment used for land application and incorporation of the biosolids, and emissions from the decomposing biosolids on the surface of the soil before incorporation. Initial screening indicates that the proposed Project could cause potentially significant impacts to air quality. The EIR will include an air quality analysis for the proposed Project.

D. Biological Resources

Increasing the load of land applied biosolids will not result in adverse effects on special status species. The northwest portion of the Farm was converted from open land to agricultural uses between 2000 and 2002. This land conversion was part of a previous project. As outlined in WDR 94-286, the City of Bakersfield Supplemental EIR (Reference 26) determined that there were significant unmitigatable effects associated with the approval and use of the Farm. These impacts would affect a number of special status species including: San Joaquin kit fox (*Vulpes macrotis mutica*), burrowing owl (*Athene cunicularia*), and Nelson's antelope ground squirrel (*Ammospermophilus nelsonii*) and the conversion of these lands represented a significant unmitigatable effect. The City of Bakersfield certified the EIR and adopted a Statement of Overriding Considerations, which determined that it was economically infeasible to mitigate the loss of the onsite sensitive species/habitats and that benefits from the proposed Project outweighed the unavoidable adverse and significant environmental effects identified (Reference 27). The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. The proposed Project does not change the previously approved use of the Farm as to cause any additional impacts. As such, suitable mitigation would not be required or necessarily addressed by any lead agency.

The Farm occurs within the draft Kern County Valley Floor Habitat Conservation Plan region (Reference 28). The intention of this HCP is to develop a plan for the valley floor that will obtain 10a and 2081 permits for the taking of listed species and provide consistency among agencies. It is also intended to streamline the permit process and plan for long term conservation. The land in the vicinity of the Farm occurs in areas designated by the draft VFHCP as either 'Green Zone' or 'White Zone' (see Figure 3.1 in Reference 28). Green Zones are those areas that contain habitat of moderate conservation importance that may also provide valuable connection areas of high conservation importance. White Zones are those that are

of limited importance due primarily to intensive land uses, such as cultivated agriculture. The Farm site conversion to cultivated agricultural lands, which would be consistent with a White Zone designation, was approved in 1984 (Reference 26).

The Farm also occurs within the Buena Vista Lake – Kern Lake Conservation Plan section of the Tulare Basin Regional Conservation Plan (Reference 29). The Tulare Basin Regional Conservation Plan proposes land and water conservation goals to protect large, interconnected areas of uplands and wetlands. Currently, neither the Tulare Basin Regional Conservation Plan nor the Kern County VFHCP has yet been adopted.

Initial screening determined that the proposed Project would cause no impacts to biological resources. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the proposed Project. Thus, there are no biological resources impacts due to the proposed Project. No further analysis is needed. See Appendix A for the detailed CEQA checklist.

E. Cultural Resources

The Green Acres Farm has been operating as a farm since 1988 and will not undergo any expansions or other developments as a result of the proposed Project. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the proposed Project. Thus, there are no cultural resources impacts due to the proposed Project. No further analysis is needed. See Appendix A for the detailed CEQA checklist.

F. Geology and Soils

The Central or Great Valley of California is a large structural basin. The Farm sits at almost the exact center of the southern San Joaquin Valley. The Farm is located on nearly flat lying Holocene sediments deposited adjacent to ancient (now mostly dry) Buena Vista Lake. The Farm is bounded by many faults and is located at least 10 miles from the nearest identified basin boundary fault. The Farm is ringed on the east by the Tehachapi Mountains, on the south by the San Emigdio Mountains, and on the west by the Temblor Range. This corresponds to the Kern, Breckenridge, White Wolf, Garlock and San Andreas fault systems. The Farm is underlain by approximately 2 miles of Eocene to Pleistocene aged sedimentary rocks capped with approximately ~100 feet of Holocene unconsolidated sediments. The nearest fault in the vicinity of the Farm is the Buena Vista Hills Thrust, a near-surface overthrust fault in the Elk Hills oil field across the Buena Vista Playa which stretches for several miles south and west of the Farm.

The Farm is mapped as primarily soil association Garces-Millox (Figure 4), with

minor Bakersfield-Oldriver and Calfax-Excelsior-Fages. In general, this group of soil assemblages is composed of very deep nearly level saline-alkali lacustrine sandy loams to fine sandy loams. These assemblages generally develop as a mantle around the distal/lower ends of alluvial fans or are "formed in alluvium derived from granitoid rock and in lacustrine deposits over alluvium derived from granitoid rock and/or rocks of mixed mineralogy; on non-buried fan remnants and on basin floors." Agriculturally, they range from Capability Class I to III with the primary land use for these soils is row and field crop production of salt and alkali tolerant, drought resistant crops. A search of common references related to expansive soils did not show the Garces-Millox soil type to be expansive. In addition, other soils with properties similar to Garces-Millox (e.g., Kimberlina-Garces, Remnoy-Melga-Youd) present only slight restrictions to building site development.

Surface application of biosolids and/or surface incorporation of biosolids will not affect the underlying soils in the area, and will not expose a significant number of additional people to or affect the potential for earthquakes, ground shaking, or other failures such as liquefaction or landslides. By adding organic matter to the soil, land application of biosolids increases the capacity of the soil to retain water, thereby minimizing any potential for excessive soil erosion or soil instability. Land application of biosolids will have less than significant impacts on geology and soils. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. The proposed Project is expected to result in less than significant project-specific impacts. The EIR will include an analysis of the potential of the proposed Project to result in cumulatively considerable impacts. See Appendix A for the detailed CEQA checklist.

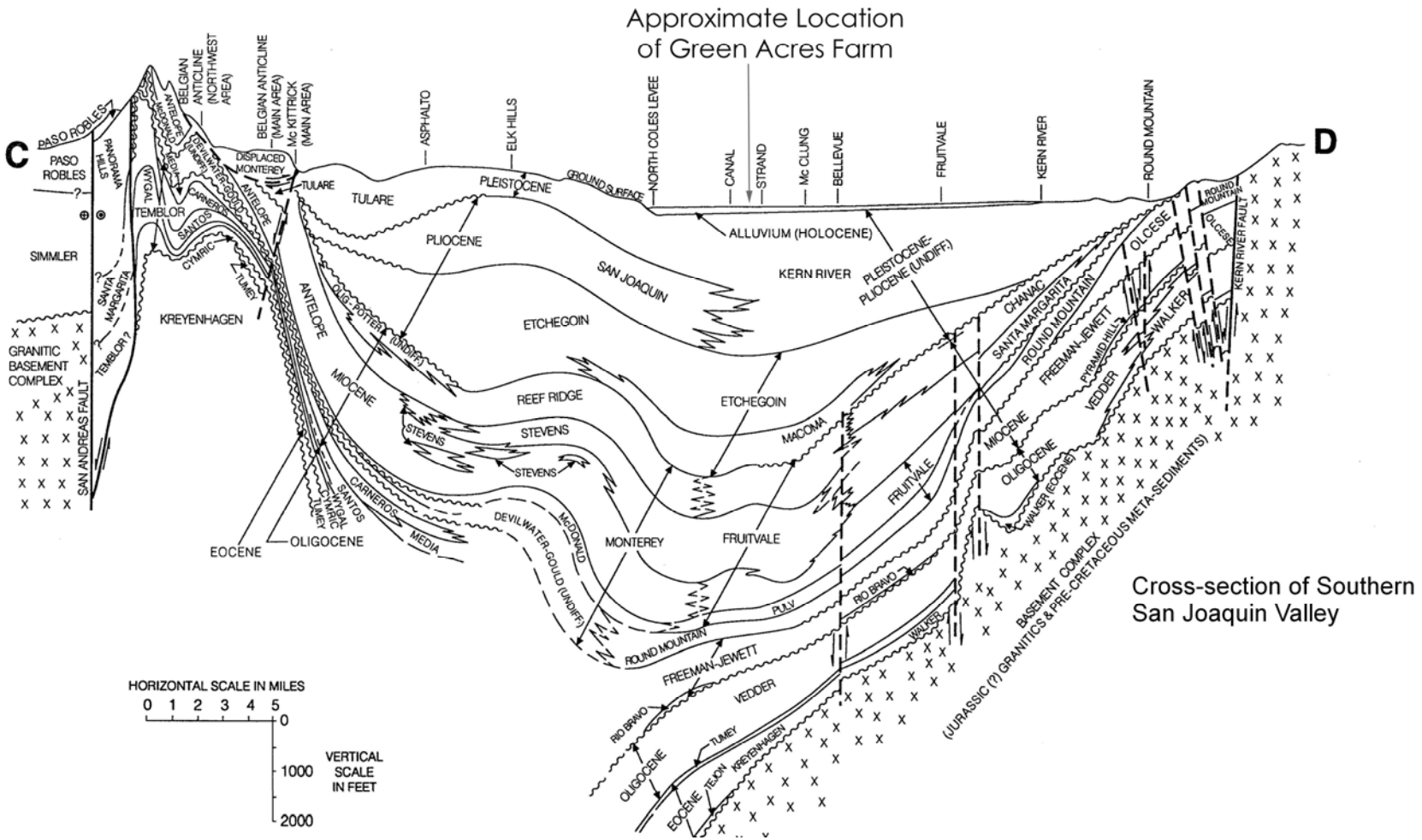

Figure 4. Generalized Cross-Section passing almost through the Farm (Reference 30)

G. Greenhouse Gas Emissions

The proposed Project does not require any construction and, thus, consists only of activities associated with operation. Operational activities overall involve the transport of biosolids from the HTP and TIWRP to the Farm, land application of the biosolids, and subsequent incorporation of the biosolids into the soil by mixing. Offsite operational emissions result from the vehicles required to transport the biosolids and worker commuting trips. Onsite operational emissions result from off-road equipment used for land application and incorporation of the biosolids, and emissions from the decomposing biosolids on the surface of the soil before incorporation.

The 1989 EIR and 2000 project actions occurred before GHG and climate change analyses were specifically required for CEQA purposes. However, to be conservative, a GHG screening is included. Initial screening determined that the proposed Project may result in potentially significant impacts. The EIR will conduct these analyses for the proposed Project.

H. Hazards and Hazardous Materials

Biosolids are not defined as a hazardous material by the USEPA (Reference 31). According to the Site Maintenance and Management Plan (Reference 32), every source of biosolids must supply written verification that the material is nonhazardous per 22 CCR Division 4.5, Chapter 11, Article 3, or other approved test. Therefore, the land application of biosolids is not subject to the California Accidental Release Prevention (CalARP) Program or USEPA's Risk Management Program (RMP). In addition, procedures for the transport and management of the biosolids exist (Reference 33), and there are detailed steps that must be followed in the event of a spill. The 1989 EIR included a mitigation measure related to the development of a spill response plan to deal with any potential spills while transporting biosolids. This measure is applicable to the proposed Project and the Project will comply with the measure. The proposed Project is not expected to result in any impacts to hazards and hazardous materials with existing mitigation. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. Thus, there are no hazards and hazardous materials impacts due to the proposed Project. No further analysis is needed. See Appendix A for detailed CEQA checklist.

I. Hydrology and Water Quality

Biosolids will be mixed in with the native soil as a soil amendment. The biosolids used for land application may contain various levels of metals, nutrients, and salts that can affect, and potentially degrade, water quality. Land application of biosolids is regulated under Title 40 of the Code of Federal Regulations (40 CFR) Part 503,

which contains limitations on pollutant concentrations as well as management practices. Since 2003, the City applies Class A biosolids to the site. A preliminary review of biosolids monitoring data indicates that biosolids that are land applied to the Project site meet these regulations. In addition to 40 CFR Part 503, Waste Discharge Requirements (WDRs) adopted by the Central Valley Regional Water Quality Control Board regulate land application practices, such as applying biosolids at agronomic rates and groundwater limitations.

Because there is a tail and runoff water recovery system that collects and returns collected water to the source field or to adjacent fields, no water from the site will enter any surface waters. Percolation may potentially transport pollutants into the groundwater. During the promulgation of 40 CFR Part 503, USEPA conducted a risk assessment that identified 14 potential exposure pathways for pollutants to impact humans or organisms through the practice of land application of biosolids. This evaluation included a potential exposure pathway of pollutants in the biosolids traveling through the soil and into the groundwater. For approximately 200 inorganic (e.g., metals) and organic (e.g., pesticides) pollutants evaluated, they found groundwater may only be slightly impacted by pollutants resulting from the land application of biosolids.

Additionally, the State Water Resources Control Board issued Water Quality Order No. 2004-0012-DWQ (*General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*) in July 2004. As part of this, the State Water Resources Control Board also developed and certified a Programmatic EIR. The EIR evaluated the potential impacts of land application of biosolids on groundwater. The EIR concluded that if biosolids are applied according to the management practices and requirements outlined in 40 CFR Part 503, there is a minimal, if any, potential impact of nutrients, metals, and synthetic organics on groundwater resulting from the land application of biosolids.

The proposed Project will not significantly affect water quality standards, waste discharge requirements, or groundwater recharge. Additional groundwater supplies will not be required for the proposed Project. Land application of biosolids will have a less than significant impact on hydrology and water quality. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. The proposed Project is expected to result in less than significant impacts related to hydrology and water quality. The 1989 EIR included mitigation measures related to water quality. Although no water quality impacts are expected from the proposed Project, the EIR will include further analysis on mitigation measures in the 1989 EIR. The EIR will also analyze the potential for the proposed Project to result in cumulatively considerable impacts. See Appendix A for the detailed CEQA checklist.

J. Land Use and Planning

The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the proposed Project. Thus, there are no land use and planning impacts due to the proposed Project.

Initial screening determined that the proposed Project may result in a potentially significant impact should Measure E be upheld. Additional analysis will be included in the EIR.

K. Mineral Resources

On August 30, 2011, regulations set forth by the State Mining and Geology Board (SMGB) for the designation of regionally significant aggregate resources in the Bakersfield Production-Consumption (P-C) Region in Kern County were enacted. Section 2761(b) of the Surface Mining And Reclamation Act (SMARA) directs the State Geologist to classify land solely on the basis of geologic factors and without regard to existing land use and economic factors. Areas subject to mineral land classification studies are divided by the State Geologist into various Mineral Resource Zone (MRZ) categories that reflect varying degrees of mineral resource potential (Figures 5 and 6).

The Farm is located on approximately 100 feet of recent Holocene sediments deposited in association with the development and decline of ancient Buena Vista Lake. In contrast to alluvial deposits which have accumulated adjacent to the Sierra Nevada and Coast Ranges, no aggregate resources are found in the vicinity of the Farm. The Farm lies adjacent to the South Coles Levee oil field on the west, which is a small structural culmination on the east end of the prolific Elk Hills Field, formerly the Naval Petroleum Reserve No. 1 (Figure 7). East of the Farm is the Ten Section oil field (Figure 7).

The Hays 7 well, a few miles to the west in Elk Hills field, is considered the greatest gas well in the United States. The Elk Hills Field is, by an order of magnitude, the largest gas field in California. The South Coles Levee field was discovered in 1957 and borders the Farm on the west. Land application activities are not expected to result in the loss of availability of a known mineral resource as this is one of the most heavily explored oil regions in the state and land application and incorporation only affects surface topsoil. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of it. The proposed Project is expected to result in no impacts to Mineral Resources. See Appendix A for the detailed CEQA checklist.

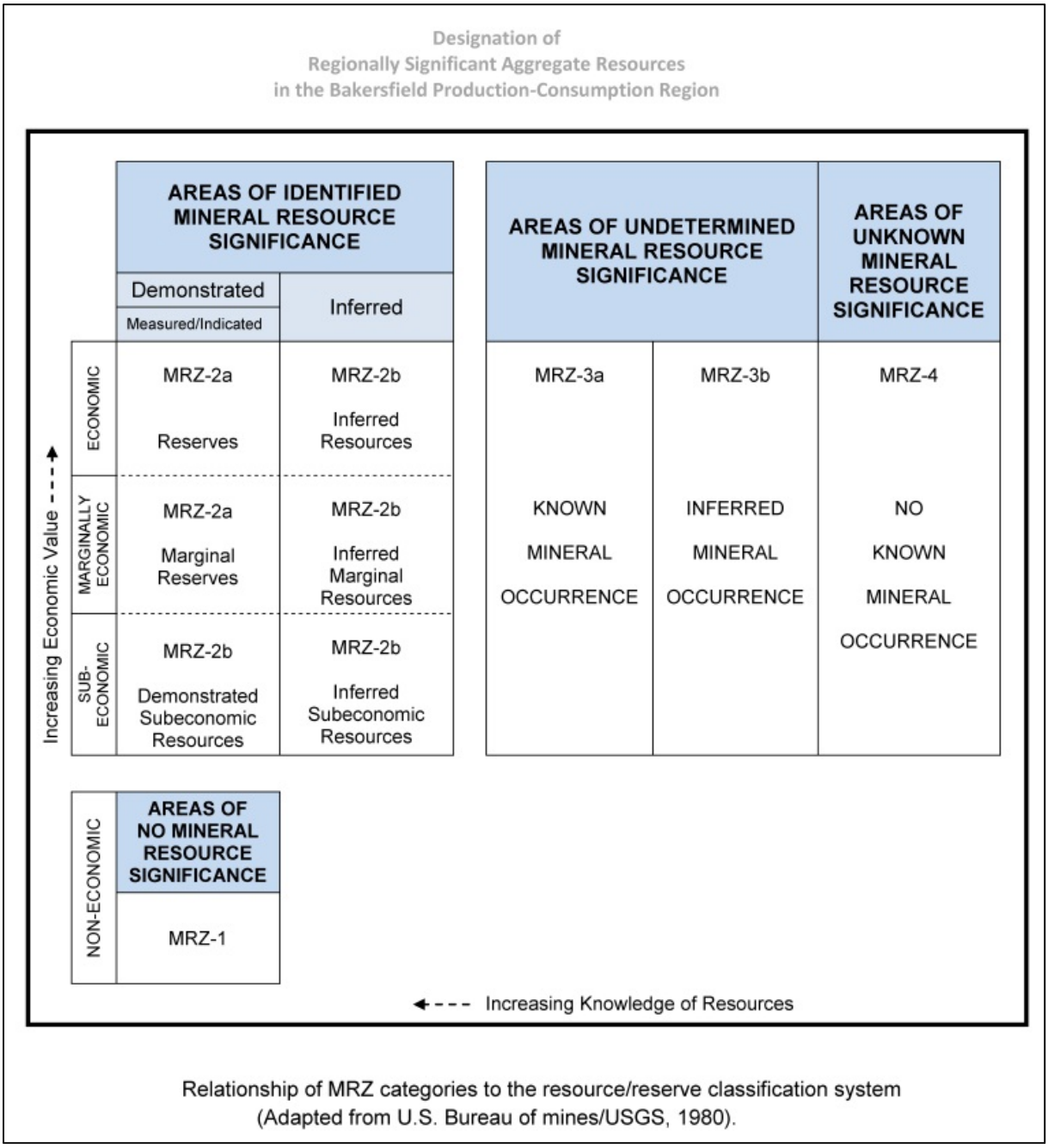

Figure 5. Bakersfield Production-Consumption Mineral Resource Zone Designations

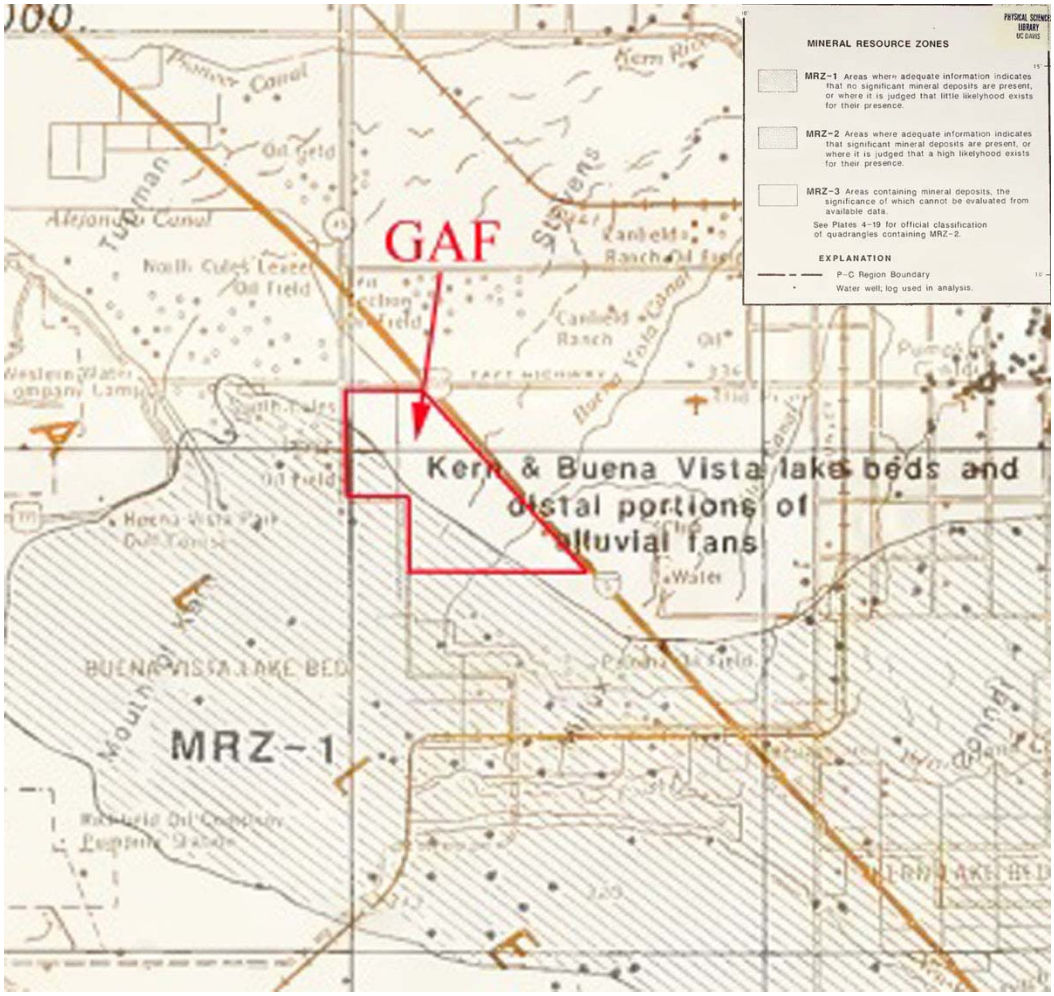

Figure 6. Mineral Land Classification for the Bakersfield Production-Consumption Area ("GAF" indicates Green Acres Farm)

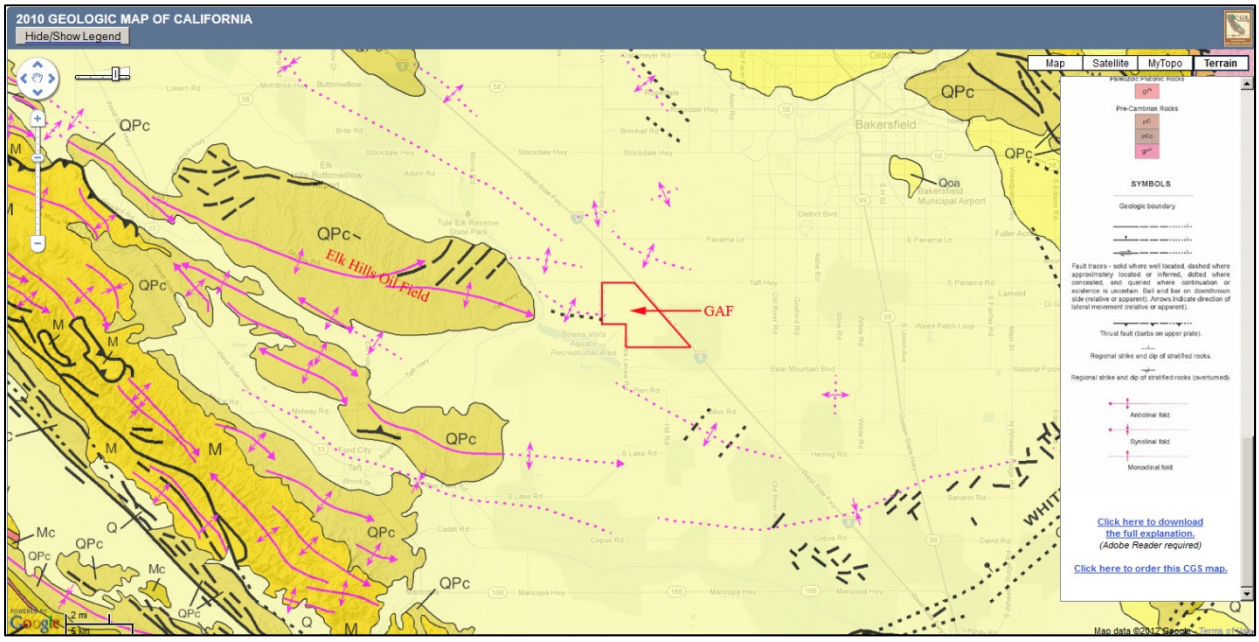

Figure 7. Surface Structural Geology of SW Kern County, California ("GAF" indicates Green Acres Farm)

L. Noise

A significant noise impact could occur during construction if construction were to occur between the hours of 9 PM and 6 AM on weekdays and 9 PM and 8 AM on weekends, and if the construction site is within one thousand feet of an occupied residential dwelling. A significant noise impact could occur during operation of the Farm if sound levels were to exceed the noise levels identified in the general plan as suitable for residential/sensitive uses. Initial screening determined that the proposed Project would cause less than significant impacts for noise.

Construction

No construction has been identified as part of the proposed Project. Even if construction were necessary, the nearest residence to any part of the Farm is more than 1,000 feet away. Therefore, no noise impact would be expected related to construction activities at Farm.

Operation

Kern County has not established specific noise limits for agriculturally zoned lands. However, the Noise Element of Kern County's General Plan (Reference 34) identifies noise levels considered suitable for various sensitive land uses including residential areas, parks and recreational areas, and churches. For all sensitive uses, Kern County recommends a level of 65 dBA day-night sound level (Ldn) or less in

outdoor activity areas.[2] If an outdoor level of 65 dBA Ldn cannot be achieved, then an interior level of 45 dBA Ldn should be sought by enforcing the State Noise Insulation Standards (Reference 35) and Chapter 35 of the Uniform Building Code (Reference 36).

The nearest sensitive uses to the Farm are residences approximately 1,600 feet west of the site, several residences approximately 5,000 feet south of the site, and the Buena Vista Aquatic Recreational Area approximately 3,500 feet southwest of the site.

The County has approved a commercial-industrial project, at the southwest corner of South Enos Lane and Taft Highway consisting of a motel, fast-food restaurants, recreational vehicle storage, and an existing gas station. This is inconsequential to the noise analysis, however, because none of these uses are identified as "sensitive" uses in the Kern County Noise Element.

The pieces of equipment used at Farm that would generate the most noise during operation are one Caterpillar Challenger Tractor 95E and one Caterpillar Front-End Loader 928G. This equipment could operate approximately 8 hours per day. A water truck would operate intermittently over the day. Even though the tractor and loader could operate for 8 hours per day on the field nearest to any of the identified sensitive uses, most of the time the equipment would be operating in other fields at greater distances. Therefore, the worst-case sound levels presented here would not be expected to occur every day.

Using sound levels presented in the FHWA Roadway Construction Noise Model (Reference 37) the maximum sound levels of a tractor, front-end loader, and water truck are expected to be approximately 84, 80, and 75 dBA, respectively, at a distance of 50 feet. The tractor and loader are assumed to operate 100% of each hour and the water truck approximately 20% of each hour for eight hours a day. Using the above equipment sound level data, the calculated hourly Leq at the residences west of the site (approximately 1,600 feet away) is 55 dBA; the hourly Leq at the residences 5,000 feet south of the site is 46 dBA; the hourly Leq at the recreational area 3,500 feet southwest of the site is 49 dBA.3 The resulting Ldns, assuming the equipment operates for eight hours between 7 AM and 7 PM are 51, 41, and 44 dBA at the nearest residences to the west, the nearest residences to the south, and the recreational area to the southwest, respectively. These levels are all well below the 65 dBA Ldn identified by Kern County as suitable for sensitive uses. In addition, the calculated Ldn levels would only occur for a few days a year, with the levels from the Farm being lower (and often much lower) for much of the year.

The 1989 EIR included a mitigation measure for noise of creating a buffer zone. The

[2] The day-night sound level, L_{dn}, is similar to a 24-hour energy-average sound level (L_{eq}), except that a 10-dBA penalty is added to sound levels between 10 PM and 7 AM to account for potential increased sensitivity to noise during nighttime hours when most people sleep.

[3] The L_{eq} can be considered an energy-average sound level over a specific time interval.

suggested distance was 3,000 feet in rural areas between land application activities and receptors. However, because this site-specific analysis shows that there is no significant impact at the closest receptor (i.e., residences 1,600 feet west of the site), this mitigation measure may not be applicable to the Farm. The EIR will include further analysis of mitigation measures in the 1989 EIR.

The 1989 EIR included two additional mitigation measures for noise including minimizing travel through residential areas and equipping all trucks and locomotives with manufacturers' standard noise-abatement devices, such as mufflers. These measures are applicable to the proposed Project; the proposed Project will comply with these measures. The majority of the truck traffic required for transporting biosolids will occur on major freeways and traffic in residential areas will be minimized. All biosolids transport trucks will be equipped with standard noise-abatement devices.

The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. Thus, there are no noise impacts due solely to the City's 2000 purchase of the Farm.

Based on the analysis above, the proposed Project is expected to result in less than significant impacts. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts. See Appendix A for the detailed CEQA checklist.

M. Population and Housing

The Farm is located within the Southern San Joaquin Valley Planning Area (Reference 38). The proposed Project involves the land application of biosolids to the Farm and the City's 2000 purchase. Substantial numbers of employees are not required and the proposed Project does not involve displacing either housing units or residents. Project-related activities will not involve an increase, decrease, or relocation of population. In addition, the City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. Therefore, the proposed Project is not expected to have any impact on housing, induce substantial population growth, or exceed the growth projections contained in any adopted plans. Thus, there are no population and/or housing impacts due to the proposed Project. No further analysis is needed. See Appendix A for the detailed CEQA checklist.

N. Public Services

The City's purchase of the Farm and land application of biosolids do not increase the number of residences, schools, parks, or public services. The proposed Project is not expected to impact existing or require new fire protection, police protection,

schools, parks, or other public services. No impact is expected and no further analysis is needed. See Appendix A for the detailed CEQA checklist.

O. Recreation

The City's 2000 purchase of the Farm and land application of biosolids do not affect any existing recreational facilities or propose any new ones. Initial screening determined that the proposed Project would cause no impact to recreation and no further analysis is needed. See Appendix A for the detailed CEQA checklist.

P. Transportation/Traffic

The proposed Project includes the transportation of up to 800 tpd biosolids from HTP to the Farm. Based on the maximum daily amount of biosolids and typical truck capacity (i.e., 26 tons), a total of up to 31 trucks per day would be used to transport these biosolids. Operation of the proposed Project would require (and has required) up to five new, full-time, contracted employees at the Farm for land application. The HTP is located at the southeast corner of Imperial Highway and Vista del Mar. There are four entry/exit gates along Vista del Mar, although only one gate is presently in use. The other access gate is located along Imperial Highway. The Farm is bounded on the east by Interstate 5 (I-5). Taft Highway (Route 119) borders the site to the north. Due to the irregular shape of the property, the western boundary is comprised of two roads: Enos Lane and Coles Levee Road. The southern boundary is comprised of Union Road.

The total trips for the proposed Project are estimated to be 36 (i.e., biosolids transport trucks and 5 employees). No additional parking will be needed for the employees as they will park at existing facilities at the Farm.

The proposed Project requires a total of up to 31 trucks per day to transport biosolids from the HTP and TIWRP to the Farm. The primary truck route from the HTP is intended to be the 105 East, to the 405 North, to the 5 North, to 119/Taft Highway, and then to the Farm. The primary truck route from the TIWRP is the 710 North, to the 405 North, to the 5 North, to 119/Taft Highway, and then to Green Acres Farm. These routes minimize travel on local roads and both primary routes require less than 5 miles of travel on a road other than a state or federal highway. Alternate routes may be taken if passes such as the Gorman Pass or Tehachapi Pass are closed, or if there are traffic or safety concerns. In addition, the local roads used for access to the Farm were paid for and are maintained by the City. Any maintenance required on these roads due to wear and tear from the biosolids transport trucks would thus be the responsibility of the City.

The 1989 EIR included several mitigation measures for traffic including spreading the biosolids transport trucks over as long as possible of a daily time period and

widening affected highway segments. The site-specific analysis of the proposed Project above shows that there is no significant impact related to transportation. As a result, these mitigation measures may not be applicable to the Farm. The EIR will include further analysis of mitigation measures in the 1989 EIR.

The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. The proposed Project is expected to result in less than significant impacts to transportation and traffic. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts. See Appendix A for the detailed CEQA checklist.

Q. Utilities and Service Systems

Land application of biosolids at the Farm will not require water or generate wastewater. The proposed Project will not require the construction or expansion of existing water treatment facilities or impact the local wastewater facility. Irrigation water, which is primarily recycled water from the City of Bakersfield Wastewater Treatment Plant No. 3, is applied at agronomic rates. The Farm has a tail water and runoff water collection system that returns collected water to the source field or to adjacent fields. Additionally, the proposed Project will not expand the land area of the site, which could potentially increase the volume of tail water and runoff water that would need to be collected and returned. The proposed Project will not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities

As discussed above in the Regulatory Setting, current regulations limit the disposal methods available for Class B biosolids. HTP and TIWRP eventually needed to treat to Class A standards even in the absence of the proposed Project. The energy required to treat to Class A standards is not included in the proposed Project. However, even if it were, digester gas is used as the energy source for treating the biosolids. Digester gas is generated at the treatment plants and is a renewable resource. As a result, the proposed Project is not expected to have a significant adverse impact due to the energy required to treat the biosolids.

If biosolids were not land applied at the Farm, an alternative method for biosolids disposal is landfilling. Disposal of biosolids in landfills would result in significant impacts that will impact the disposal of other solid waste disposal needs. Because biosolids are rich in nutrients and serve as soil amendment for agriculture, land application of biosolids is the preferable option for disposal of biosolids from wastewater treatment facilities.

Land application of biosolids at the Farm is not expected to generate any solid waste. The proposed Project will not result in a significant increase in the number of employees at the Farm, which would increase the amount of solid waste generated

at the Farm. No further analysis of this issue is necessary.

The 1989 EIR included several mitigation measures for utilities including a monitoring program (solids content, pollutant concentrations in biosolids), limiting the types of crops grown, and limiting the yearly and cumulating amounts of biosolids that could be applied to the land. The proposed Project has a monitoring program and the Project will comply with this mitigation measure. The proposed Project complies with Section 503, which limits the types of crops grown and the amount of biosolids to be applied to the land. This mitigation measure may not be applicable to the Farm. The EIR will include further analysis of mitigation measures in the 1989 EIR.

The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale.

Thus, there are no public utilities impacts due to the proposed Project. No further analysis is required. See Appendix A for the detailed CEQA checklist.

R. Mandatory Findings of Significance

As explained elsewhere in this Initial Study, the proposed Project may have potentially significant impacts on air, greenhouse gases, and land use/planning. Further analysis of these potential impacts is needed and will be provided in the EIR.

The proposed Project may have less than significant impacts on geology/soils, hydrology/water quality, noise, and transportation/traffic. Further analysis of the proposed Project's potential to cause cumulatively considerable impacts in these areas in addition to air, greenhouse gases, and land use/planning will be provided in the EIR.

The proposed project would have no impact on aesthetics, agriculture and forestry resources, biological resources, cultural resources, hazards and hazardous materials, mineral resources, population/housing, public services, recreation, or utilities/service systems. Therefore, there is no risk of individual or cumulatively considerable impacts in these areas and no further analysis is needed in the EIR.

The purpose of the proposed Project is to beneficially use the biosolids produced at the HTP and TIWRP, and to reduce the amount of fertilizer required to be purchased for the Farm. The proposed Project is anticipated to have positive long-term impacts; any alternative use of biosolids would also have potential environmental impacts. Therefore, the proposed Project does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

The EIR will provide sufficient analysis to determine whether the proposed Project

could have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly in the identified issue areas.

V. NAME OF PREPARER

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VI. DETERMINATION - RECOMMENDED ENVIRONMENTAL DOCUMENTATION

A. Summary

The proposed Project was analyzed and found to have less than, or no, significant impacts in the areas of aesthetics, agriculture and forestry resources, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology and water quality, land use/planning, mineral resources, noise, population/housing, public services, recreation, transportation/traffic, or utilities/service systems.

The proposed Project has potentially significant impacts in the areas of air quality, greenhouse gases, and land use/planning. Further analysis of these areas is required and will be done in an EIR.

B. Recommended Environmental Documentation

On the basis of this initial evaluation:

I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Reviewed By:
Diane Gilbert Jones
Environmental Engineer Associate IV
Regulatory Affairs Division

Approved By:
Gary Lee Moore, P.E.
City Engineer

By:
James E. Doty
Environmental Affairs Officer
Environmental Management Group

APPENDICES

A. Environmental Screening Checklist

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APPENDIX A

ENVIRONMENTAL SCREENING CHECKLIST

A brief explanation is provided for all answers except "No Impact" answers that are adequately supported by the information sources cited following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the Project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

1. AESTHETICS – Would the project:

a) Have a substantial adverse effect on a scenic vista? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project introduces incompatible visual elements within a field of view containing a scenic vista or substantially alters a view of a scenic vista. Reference: Reference 3 (Sections A.1 and A.2)

Explanation: A scenic vista generally provides focal views of objects, settings, or features of visual interest; or panoramic views of large geographic areas of scenic quality, primarily from a given vantage point. A significant impact may occur if the proposed Project introduced incompatible visual elements within a field of view containing a scenic vista or substantially altered a view of a scenic vista.

The Farm is surrounded by highways, vacant lands, industrial facilities, and land used for agricultural purposes. There are no adjacent residences. There are no scenic resources affected by land application of biosolids on the Farm.

The City's 2000 purchase of the Farm and land application of biosolids are consistent with the agricultural activities occurring on the Farm before 2000. The proposed Project is not expected to have any adverse effects on any scenic vistas. No impacts are expected and no further analysis of this issue is required.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ☐ ☐ ☐ ☒

Standard: A significant impact may occur where scenic resources within a state scenic highway would be damaged or removed as a result of the proposed Project. Reference: Reference 3 (Sections A.1 and E.3) and Reference 42

Explanation: There are no scenic highways in the vicinity of the Farm. No scenic resources will be affected by land application of biosolids on the site or its 2000 purchase, and no impact is expected. No further analysis of this issue is required.

c) Substantially degrade the existing visual character or quality of the site and its surroundings? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project introduces incompatible visual elements to the Project site or visual elements that would be incompatible with the character of the area surrounding the Project site. Reference: Reference 3 (Sections A.1 and A.3)

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

Explanation: The proposed Project involves the land application of Class A biosolids at the Farm in western Kern County and the Farm's purchase in 2000. The Farm is surrounded by other land used for agricultural purposes. Land application of biosolids is consistent with the agricultural activities occurring on the site. Land application of biosolids will not introduce incompatible visual elements to the Farm or visual elements that would be incompatible with the character of the area surrounding the Farm. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. No impact is expected, and no further analysis of this issue is required.

d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area? ☐ ☐ ☐ ☒

Standard: A significant impact would occur if the proposed Project caused a substantial increase in ambient illumination levels beyond the property line or caused new lighting to spill-over onto light-sensitive land uses such as residential, some commercial and institutional uses that require minimum illumination for proper function, and natural areas. Reference: Reference 3 (Section A.4)

Explanation: No new facilities would be constructed at the Farm as a result of the proposed Project (i.e., 2000 purchase and land application of biosolids). No land application occurs at night and, thus, land application will not require any new sources of light or glare. No impact is expected. No further analysis of this issue is required.

2. AGRICULTURE AND FOREST RESOURCES –Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were to result in the conversion of state-designated agricultural land from agricultural use to another non-agricultural use. Reference: Reference 43

Explanation: The proposed Project will not convert any farmlands to non-agricultural lands and no impact is expected. No further analysis of this issue is required.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were to result in the conversion of land zoned for agricultural use, or indicated under a Williamson Act contract, from agricultural use to another non-agricultural use. Reference: Reference 44

Explanation: The proposed Project will not convert any land zoned for agricultural use to non-agricultural lands. There are no Williamson Act contract lands on the Farm. No impacts related to the conflict of agricultural land use zoning or Williamson Act contracts are expected. No further analysis of this issue is required.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the Project results in a conflict with existing zoning, or causes rezoning of forest land or timberland. Reference: Reference 44

Issues

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

Explanation: The proposed Project would result in no impacts related to conflicts with forest land or timberland zoning. No further analysis of this issue is required.

d) Result in the loss of forest land or conversion of forest land to non-forest use? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the Project results in a conflict with existing zoning, or causes rezoning of forest land or timberland. Reference: Reference 44

Explanation: There are no forest lands or timberlands on the Farm and, thus, the proposed Project would result in no impacts related to the conversion or rezoning of forest land and timberlands. No further analysis of this issue is required.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if a project results in the conversion of farmland to another non-agricultural use. Reference: Reference 44

Explanation: The land application of biosolids maintains the soil quality of the agricultural land and does not result in an adverse impact related to farmland. No further analysis of this issue is required.

3. AIR QUALITY –Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the Project was inconsistent with or obstruct the implementation of the Air Quality Element of the City's General Plan or the Air Quality Management Plan (AQMP). Reference: Reference 3 (Sections B1 and B2), Reference 38, and Reference 45

Explanation: The proposed Project will serve existing and intended land uses and will not affect regional employment or population growth. The main objectives of the proposed Project are to land apply biosolids. Existing uses on and surrounding the Farm will not be changed. The AQMPs include growth projections, etc. of county and city services. The proposed Project requires only five employees; this small number of new employees is available from the existing labor pool and will not cause an increase in the local population. It thus will not cause a significant increase in demand for county or city services and will not conflict with the AQMPs, or with the County's or City's General Plan. A less than significant impact is expected.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? ☒ ☐ ☐ ☐

Standard: A significant impact may occur if the proposed Project violated any SCAQMD or SJVAPCD air quality standard. The SCAQMD and SJVAPCD have set thresholds of significance for reactive organic gases (ROG), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter (PM_{10}) emissions resulting from construction and operation in the South Coast Air Basin. Reference: Reference 3 (Sections B1 and B2), Reference 46, and Reference 47

Explanation: The initial analysis indicates that the proposed Project may have a potentially significant impact and that further analysis is needed. The additional analysis will be completed in the EIR.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone ☒ ☐ ☐ ☐

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

precursors)?

Standard: A significant impact may occur if the proposed Project would result in a cumulatively considerable net increase of a criteria pollutant for which the South Coast Air Basin and/or San Joaquin Valley Air Basin exceeds federal and state ambient air quality standards and has been designated as an area of non-attainment by the U.S. Environmental Protection Agency (USEPA) and/or California Air Resources Board. Reference: Reference 3 (Sections B1 and B2), Reference 48, and Reference 49

Explanation: The initial analysis indicates that the proposed Project may have a potentially significant impact and that further analysis is needed. The additional analysis will be completed in the EIR.

d) Expose sensitive receptors to substantial pollutant concentrations? ☒ ☐ ☐ ☐

Standard: A significant impact may occur if construction or operation of the proposed Project generated pollutant concentrations to a degree that would significantly affect sensitive receptors. Reference: Reference 3 (Sections B1, B2, and B3)

Explanation: The initial analysis indicates that the proposed Project may have a potentially significant impact and that further analysis is needed. The additional analysis will be completed in the EIR.

e) Create objectionable odors affecting a substantial number of people? ☒ ☐ ☐ ☐

Standard: During operation, sources of odor are diesel emissions from land application equipment and volatile organic compounds from biosolids. Applicable best management practices such as those in SCAQMD Rule 431 (Diesel Equipment) would, in addition to minimizing air quality impacts, also help minimize potential odors. Reference: Reference 3 (Sections B1 and B2)

Explanation: The initial analysis indicates that the proposed Project may have a potentially significant impact and that further analysis is needed. The additional analysis will be completed in the EIR.

4. BIOLOGICAL RESOURCES – Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ☐ ☐ ☐ ☒

A significant impact may occur if the proposed Project would remove or modify habitat for any species identified or designated as a candidate, sensitive, or special status species in local or regional plans, policies, or regulation, or by the state or federal regulatory agencies cited. Reference: Reference 14, Reference 26, Reference 27, Reference 50, Reference 51

Explanation: Land application of biosolids at Green Acres Farm or its 2000 purchase will not adversely affect any special status species in the project area. As these lands are currently under agricultural use, they do not provide suitable habitat for any of the identified special status species. Therefore, no impacts from land application of biosolids on the farm are expected.

The northwest portion of the Project Site was converted from open land to agricultural uses between 2000 and 2002. This land conversion was part of a previous project and analyzed in the City of Bakersfield Supplemental EIR (Reference 26). It was determined that there were significant unmitigatable effects associated with the approval and use of the site for farming. These impacts would affect a number of special status species including: San Joaquin kit fox *(Vulpes macrotis mutica*), burrowing owl (Athene cunicularia), and Nelson's antelope ground squirrel (*Ammospermophilus nelsonii),* and the conversion of these lands represented a significant unmitigatable effect. The City of Bakersfield certified the EIR and

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

adopted a Statement of Overriding Considerations which determined that it was economically infeasible to mitigate the loss of the onsite sensitive species and that benefits from the City of Bakersfield project outweighed the unavoidable adverse and significant environmental effects identified (Reference 27). (The related WDR 94-286 required a pre-conversion survey for kit fox dens, which was done prior to the conversion). The proposed Project does not change the previously approved use of the Farm as to cause any additional impacts. The conversion of open land to farmland was previously analyzed in the 1984 certified City of Bakersfield Supplemental EIR and no further analysis or mitigation is required.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if riparian habitat or any other sensitive natural community were to be adversely modified. Reference: Reference 14, Reference 26, Reference 27, Reference 50

Explanation: Land application of biosolids at Green Acres Farm or its 2000 purchase will not adversely affect any riparian habitat or other sensitive natural community in the project area. Therefore, no impacts from land application of biosolids on the farm are expected.

The City of Bakersfield Supplemental EIR (Reference 26) described in 4-a above determined that there were significant unmitigatable effects associated with the approval and use of the Project Site, including the conversion of approximately 2,560 acres of Valley Mesquite Savannah and Valley Saltbrush Scrub to irrigated crop lands. The City of Bakersfield certified the EIR and adopted a Statement of Overriding Considerations which determined that it was economically infeasible to mitigate the loss of habitat and that benefits from the City of Bakersfield project outweighed the unavoidable adverse and significant environmental effects identified (Reference 27). This resulted in a ruling that such agricultural conversion is an allowable use and not subject to any specific mitigation measures. The conversion of open land to farmland was previously analyzed in the 1984 certified City of Bakersfield Supplemental EIR and no further analysis or mitigation is required.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if federally protected wetlands, as defined by Section 404 of the Clean Water Act would be modified or removed. Reference: Reference 26 and Reference 27

Explanation: Land application of biosolids at Green Acres Farm or its 2000 purchase will not adversely affect any federally protected wetlands in the project area. Therefore, no impacts from land application of biosolids on the farm are expected.

The Supplemental EIR prepared by the City of Bakersfield (Reference 26) determined that there were no surface hydrologic features affected by the conversion of the site from open lands to agricultural use. In addition, WDR 94-366 identifies only the Alajandro Canal as an onsite Water of the United States. This drainage feature was not modified or removed by the previous land conversion or proposed Project activities. The conversion of open land to farmland was previously analyzed in the 1984 certified City of Bakersfield Supplemental EIR and no further analysis or mitigation is required.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ☐ ☐ ☐ ☒

Issues

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

Standard: A significant impact may occur if the proposed Project interferes or removes access to a migratory wildlife corridor or impedes the use of native wildlife nursery sites. Reference: Reference 50

Explanation: The Project Site is characterized as agricultural lands and is bounded by agricultural lands to the south and east. Therefore, the Project Site is not expected to be utilized as a travel route, migratory wildlife corridor or crossing by local wildlife, nor is it expected to impede the use of a native wildlife nursery site. No significant impact is expected, and no further analysis of this issue is required.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project would cause an impact that is inconsistent with local regulations pertaining to biological resources.

Explanation: The Project will not conflict with any local policies or ordinances protecting biological resources. No further analysis of this issue is required.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project would be inconsistent with mapping or policies in any conservation plans of the cited type. Reference: Reference 28 and Reference 29

Explanation: There is no adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan for the project area. Thus there is no impact.

It is noted that the Project Site occurs within the proposed Kern County Valley Floor Habitat Conservation Plan area (VFHCP; Reference 28). The intention of this proposed VFHCP is to develop a plan for the valley floor that will obtain 10a and 2081 permits for the taking of listed species and provide consistency among agencies. It is also intended to streamline the permit process and plan for long term conservation. The land in the vicinity of the Farm occurs in areas designated by the draft VFHCP as either 'Green Zone' or 'White Zone' (Figure 3.1 in Reference 28). Green Zones are those areas that contain habitat of moderate conservation importance that may also provide valuable connection areas of high conservation importance. White Zones are those that are of limited importance due primarily to intensive land uses, such as cultivated agriculture. The Farm site conversion to cultivated agricultural land, which would be consistent with a White Zone designation, was approved in 1984 (Reference 26). In addition to the Zones identified in the VFHCP, several sensitive species are determined to be within the Project Area. These species are listed in Section 4(a) above.

5. CULTURAL RESOURCES – Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations Section 15064.5? ☐ ☐ ☐ ☒

Standard: A significant impact may result if the proposed Project caused a substantial adverse change to the significance of a historical resource (as identified above). Reference: Reference 3 (Section D.3)

Explanation: The land application of biosolids at the Farm or its 2000 purchase will not involve any additional ground-disturbing activities. Therefore, this activity is not expected to result in an adverse impact to any equipment or structures over 50 years of age that may be culturally significant because no cultural resources have been previously identified at the Farm and none are expected to be found during land application of biosolids. No impact is expected, and no further analysis of this issue is required.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations Section 15064.5?	☐	☐	☐	☒

Standard: A significant impact may occur if the proposed Project were to cause a substantial adverse change in the significance of an archaeological resource which falls under the CEQA Guidelines section cited above. Reference: Reference 3 (Section D.2)

Explanation: The Farm will not be cleared, excavated, and/or developed as a result of the land application of biosolids or its 2000 purchase, and no archeological resources have been identified since the Farm began operations in 1988. Therefore, there are no impacts expected from the proposed Project. No further analysis of this issue is required.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Standard: A significant impact may occur if grading or excavation activities associated with the proposed Project would disturb unique paleontological resources or unique geologic features. Reference: Reference 3 (Sections D.1 and E.3)

Explanation: No paleontological resources have been identified since the Farm began operations in 1988, and no paleontological resources or geologic features will be disturbed as a result of the land application of biosolids or its 2000 purchase. No impact is expected, and no further analysis of this issue is required.

d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Standard: A significant impact may occur if grading or excavation activities associated with the proposed Project would disturb interred human remains. Reference: Reference 3 (Section D.2)

Explanation: The Farm will not need to be cleared, excavated, and/or developed as a result of the proposed Project (i.e., land application of biosolids and 2000 purchase). No known human remains or burial sites have been identified at the Farm during farming activities, and none are expected to be found during land application of biosolids. No impact is expected, and no further analysis of this issue is required.

6. GEOLOGY AND SOILS – Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☐	☒

Standard: A significant impact may occur if the proposed Project were located within a state-designated Alquist-Priolo Zone or other designated fault zone and appropriate building practices were not followed. References: Reference 52

Explanation: There are no known faults in the area. The California Geological Survey does not provide an Alquist-Priolo Fault Zone Map for the area as there are no known active faults in the vicinity of the Farm. No impact is expected, and no further analysis of this issue is required.

ii) Strong seismic ground shaking?	☐	☐	☐	☒

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

Standard: A significant impact may occur if the proposed Project design did not comply with building code requirements intended to protect people from hazards associated with strong seismic ground shaking. Reference: Reference 53

Explanation: The Farm is underlain by approximately 2 miles of sedimentary rocks capped with approximately 100 feet of unconsolidated sediments. The thickness of the sediments, as well their degree of moisture saturation, influences their ability to amplify seismic events. The proximity to most of the basin boundary faults and the thickness of the sediments beneath the site could be conducive to the propagation of elastic seismic waves. However, the land application of biosolids and the 2000 purchase of the Farm proposed for the Project do not include new structures or increased population so it is not expected to result in an impact (risk of loss, injury or death) to people or structures due to seismic ground shaking. No further analysis of this issue is required.

iii) Seismic-related ground failure, including liquefaction? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the proposed Project would be located in an area identified as having a high risk of liquefaction and appropriate design measures required within such designated areas were not incorporated into the Project. Reference: Reference 53

Explanation: Ground failure at the Farm is considered unlikely due to the layers of sedimentary rocks. The land application of biosolids and the 2000 purchase of the Farm proposed for the proposed Project will not affect the underlying sedimentary rocks and will not affect the risk of ground failure. The proposed Project is expected to result in less than significant impacts related to seismic-related ground failure to the additional workers. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts.

iv) Landslides? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were located in a hillside area with soil conditions that would suggest high potential for sliding and appropriate design measures were not implemented. Reference: Reference 53

Explanation: The Farm is relatively flat. Relief is so low as to make landslides essentially impossible. The site is also only a few miles from the structurally lowest point in the San Joaquin basin. The land application of biosolids and the 2000 purchase of the Farm proposed for the proposed Project would not result in a significant impact associated with landslides because it does not add any structures or appreciable number of new workers. No impacts are expected and no further analysis of this issue is required.

b) Result in substantial soil erosion or the loss of topsoil? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the proposed Project were to expose large areas to the erosion effects of wind or water for a prolonged period of time. Reference: Reference 54

Explanation: According to the National Research Council (Reference 54) “Soil organic matter enhances the structural properties of a soil by binding together soil particles into aggregates or lumps and creating large (non-capillary) pores through which air and water more. Generally, the application of sludge increases the capacity of the soil to retain water. The organic carbon content of sludge may affect water retention either through the direct effect of sludge organic particles themselves or through its indirect effect on other physical properties (such as bulk density, porosity, and pore size distribution.” The enhanced structural properties of the soil suggest that there is little probability of a significant erosion event. Because the proposed Project is likely to enhance the structural properties of the soil and will not cause substantial erosion, less than significant impacts are expected. The EIR will also analyze the potential for the proposed Project to result in cumulatively considerable impacts.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒

Standard: A significant impact may occur if the proposed Project were built in an unstable area without proper site preparation or design features to provide adequate foundations for Project buildings, thus posing a hazard to life and property. Reference: Reference 54

Explanation: The application and incorporation of biosolids increases the capacity of the soil to retain water, enhances soil aggregation, increases porosity, and lowers bulk density. The soil at the Farm is not expected to become unstable and, thus, impacts from the proposed Project (i.e., land application of biosolids and 2000 purchase of the Farm) are not expected. No further analysis of this issue is required.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒

Standard: A significant impact may occur if the proposed Project were built on soils that were defined as expansive in Table 18-1-B in the Uniform Building Code. Reference: Reference 55

Explanation: The surface soils at the Farm are not known to be expansive. Based on this, the proposed Project (i.e., land application of biosolids and the 2000 purchase of the Farm) is not expected to have any impacts. No further analysis is needed.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Standard: A significant impact may occur if the proposed Project were built on soils that were incapable of adequately supporting the use of septic tanks or alternative wastewater disposal system, and such a system was proposed. Reference: Reference 55

Explanation: The soils at the Farm present only slight restrictions to building site development. Therefore, the soils are expected to adequately support the use of septic tanks or alternative wastewater disposal systems if needed at the site. However, none are included in the proposed Project (i.e., land application of biosolids and the 2000 purchase of the Farm) and the project is expected to have no impacts. No further analysis is needed.

7. GREENHOUSE GAS EMISSIONS – Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐

Standard: A significant impact may occur if the proposed Project would generate a substantial amount of greenhouse gas (GHG) emissions. Reference: Reference 56

Explanation: The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. Thus, there are no GHG impacts due solely to the City's 2000 purchase of the Farm.

The initial analysis indicates that the proposed Project may have a potentially significant impact and that further analysis is needed. The additional analysis will be completed in the EIR.

b) Conflict with any applicable plan, policy or regulation of an agency	☒	☐	☐	☐

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

adopted for the purpose of reducing the emissions of greenhouse gases?

Standard: A significant impact may occur if the proposed Project would conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. Reference: Reference 56

Explanation: The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. Thus, there are no GHG impacts due solely to the City's 2000 purchase of the Farm.

The initial analysis indicates that the proposed Project may have a potentially significant impact and that further analysis is needed. The additional analysis will be completed in the EIR.

8. HAZARDS AND HAZARDOUS MATERIALS – Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project involved the use or disposal of hazardous materials as part of its routine operations and would have the potential to generate toxic or otherwise hazardous emissions. Reference: Reference 3 (Sections F.1 and F.2)

Explanation: Biosolids are not defined as a hazardous material. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. No impacts are expected and no further analysis is required.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project involved a risk of accidental explosion or utilized substantial amounts of hazardous materials as part of its routine operations that could potentially pose a hazard to the public under accident or upset conditions. Reference: Reference 3 (Sections F.1 and F.2)

Explanation: See comment to 8(a). As biosolids are not defined as hazardous materials, the land application of biosolids and the 2000 purchase of the Farm would not pose a significant hazard involving the release of hazardous materials. Furthermore, procedures are in place to address any potential spill of the biosolids during a comprehensive spill response plan for the transport and management. No impact is expected, and no further analysis of this issue is required.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were located within one-quarter mile of an existing or proposed school site and were projected to release toxic emissions which pose a hazard beyond regulatory thresholds. Reference: Reference 3 (Section F.2)

Explanation: No existing or proposed schools are located within one-quarter mile of the Green Acres Farm so no impacts to a school within one-quarter mile are expected. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. No impact is expected, and no further analysis of this issue is required.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, ☐ ☐ ☐ ☒

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

as a result, would it create a significant hazard to the public or the environment?

Standard: A significant impact may occur if the project would introduce or directly modify pipelines carrying hazardous or explosive substances, subterranean storage fields or above ground tanks, solid waste facilities, wastewater treatment plants, or other facilities that handle hazardous materials. A significant impact may also occur if the project would locate people adjacent to a health hazard or if the project would create a health hazard by disturbing, removing, or disposing of asbestos-containing materials or lead paints. Reference: Reference 3 (Sections F.2)

Explanation: The Green Acres Farm is not included on a list of hazardous sites pursuant to Government Code Section 65962.5. The City's purchase of the Farm in 2000 was a transfer of title and no material change was made to the Farm or related operations because of the sale. No impact is expected, and no further analysis of this issue is required.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project site were located within a public airport land use plan area, or within two miles of a public airport, and would create a safety hazard. Reference: Reference 3 (Section F.1) and Reference 38

Explanation: The Farm is located more than two miles from the nearest public airports. A Kern County Airport Land Use Compatibility Plan[4] (ALUCP) was created by the Kern County Planning and Community Development Department with the purpose of coordinating the planning for the areas surrounding public use airports. The Farm will not add new buildings or other structures as a result of the proposed Project (i.e., land application and the 2000 purchase of the Farm) that will interfere with flight patterns. The Farm is consistent with the ALUCP, and no potentially significant safety hazards related to nearby airports are expected from the land application of biosolids to the Farm or the City's purchase of the Farm in 2000. No impacts are expected, and no further analysis of this issue is required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the Project would result in a safety hazard for people residing or working in the Project area because of its location near a private airstrip. Reference: Reference 3 (Section F.1)

Explanation: The Farm is not located within the vicinity of a private airstrip. Therefore, the proposed Project (i.e., land application and the 2000 purchase of the Farm) would result in no impacts related to private airstrip hazards. No further analysis of this issue is required.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were to substantially interfere with roadway operations used in conjunction with an emergency response plan or evacuation plan or would generate sufficient traffic to create traffic congestion that would interfere with the execution of such plan. Reference: Reference 3 (Section F.1) and Reference 57

4 Airport Land Use Compatibility Plan.2011. Kern County Planning and Community Development Department. Available at: http://www.co.kern.ca.us/planning/pdfs/ALUCP2011.pdf. Accessed 30 October 2012.

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

Explanation: The Farm does not use hazardous materials or involve a potential release of acutely hazardous materials during operation of the farm. Because biosolids are not defined as hazardous materials, the land application of biosolids at the Farm and the 2000 purchase will not require the development of an emergency response plan or evacuation plan. No impact is expected, and no further analysis of this issue is required.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were located in a wild land area and poses a significant fire hazard, which could affect persons or structures in the area in the event of a fire. Reference: Reference 57

Explanation: No substantial or native vegetation exists within the area of the Farm, other than agricultural crops. The land application of biosolids and the 2000 purchase will not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees. Therefore, no increase in fire hazards is expected to be associated with the proposed Project. No further analysis of this issue is required.

9. HYDROLOGY AND WATER QUALITY – Would the project:

a) Violate any water quality standards or waste discharge requirements? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the proposed Project discharged water which did not meet the quality standards of agencies which regulate surface water quality and water discharge into storm-water drainage systems. Reference: Reference 3, Reference 15, and Reference 39

Explanation:

Based on Section 503 EPA studies and other assessments discussed in Section IV above, the land application of biosolids at the Project site and the 2000 purchase of the Farm are expected to be less than significant and unlikely to result in the violation of any water quality standards or waste discharge requirements. The 1989 EIR included mitigation measures related to water quality. Although no water quality impacts are expected from the proposed Project, the EIR will include further analysis on mitigation measures in the 1989 EIR. The EIR will also analyze the potential for the proposed Project to result in cumulatively considerable impacts.

b) 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 groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? ☐ ☐ ☐ ☒

Standard: A Project would normally have a significant impact on groundwater supplies if it were to result in a demonstrable and sustained reduction of groundwater recharge capacity or change the potable water levels sufficiently that it would reduce the ability of a water utility to use the groundwater basin for public water supplies or storage of imported water, reduce the yields of adjacent wells or well fields, or adversely change the rate or direction of groundwater flow. Reference: Reference 3

Explanation: The proposed Project, the land application of biosolids at the site and the 2000 purchase of the Farm, will not require using the groundwater supplies. Biosolids will be mixed in with the native soil as a soil amendment and will not interfere with groundwater recharge. No impacts are expected and no further analysis of this issue is necessary.

Issues

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact
c) 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?	☐	☐	☐	☒

Standard: A significant impact may occur if the proposed Project resulted in a substantial alteration of drainage patterns that resulted in a substantial increase in erosion or siltation during construction or operation of the Project. Reference: Reference 3

Explanation: The proposed Project (i.e., land application of biosolids and its 2000 purchase) will not alter the existing drainage pattern of the site. Biosolids will be mixed in with the native soil as a soil amendment. Farming practices at the site include carefully grading the site with laser levels to ensure effective irrigation and drainage of the site and erosion and siltation control. Additionally Waste Discharge Requirements (WDR) prohibits land application of biosolids in areas subject to erosion. No impacts are expected and no further analysis of this issue is necessary.

d) 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 that would result in flooding on- or off-site?	☐	☐	☐	☒

Standard: A significant impact may occur if the proposed Project resulted in increased runoff volumes during construction or operation of the proposed Project that would result in flooding conditions affecting the Project site or nearby properties. Reference: Reference 3

Explanation: See explanation 9(c) above. No impacts are expected and no further analysis of this issue is necessary.

e) 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?	☐	☐	☐	☒

Standard: A significant impact may occur if the volume of runoff were to increase to a level which exceeded the capacity of the storm drain system serving a Project site. A significant impact may also occur if the proposed Project would substantially increase the probability that polluted runoff would reach the storm drain system. Reference: Reference 3

Explanation: The proposed Project (i.e., land application of biosolids and its 2000 purchase) will not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. The site currently has a tail and runoff water recovery system that returns collected water to the source field or to adjacent fields. Land application of biosolids can potentially introduce additional pollutants such as metals, nutrients, and salts. Because all tail and runoff water is collected and returned to the site, there will be no runoff from the site that may potentially pollute surface waters. No impacts are expected and no further analysis of this issue is necessary.

f) Otherwise substantially degrade water quality?	☐	☐	☒	☐

Standard: A significant impact may occur if a project included potential sources of water pollutants and potential to substantially degrade water quality. Reference: Reference 3

Explanation: See explanation 9(a) above. The proposed Project is expected to result in less than significant impacts. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other	☐	☐	☐	☒

Issues

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

flood hazard delineation map?

Standard: A significant impact may occur if the proposed Project placed housing within a 100-year flood zone. Reference: Reference 3 and Reference 57

Explanation: The proposed Project site is not located in a 100-year flood plain, and construction of housing is not proposed for this Project (i.e., land application of biosolids and its 2000 purchase). No impacts are expected and no further analysis of this issue is necessary.

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were located within a 100-year flood zone and would impede or redirect flood flows. Reference: Reference 3 and Reference 57

Explanation: The proposed Project site is not located in a 100-year flood plain, and construction of structures is not proposed for this Project (i.e., land application of biosolids and its 2000 purchase). No impacts are expected and no further analysis of this issue is necessary.

i) 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? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were located in an area where a dam or levee could fail, exposing people or structures to significant risk of loss, injury or death. Reference: Reference 3 and Reference 57

Explanation: The proposed Project (i.e., land application of biosolids and its 2000 purchase) will not expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam. No impacts are expected and no further analysis of this issue is required.

j) Inundation by seiche, tsunami, or mudflow? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were located in an area with inundation potential due to seiche, tsunami, or mudflow. Reference: Reference 3 and Reference 57

Explanation: The proposed Project (i.e., land application of biosolids and its 2000 purchase) is not located in an area that is subject to the risk of inundation by seiche, tsunami, or mudflow. No impacts are expected and no further analysis of this issue is necessary.

10. LAND USE AND PLANNING – Would the project:

a) Physically divide an established community? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were sufficiently large or otherwise configured in such a way as to create a physical barrier within an established community. Reference: Reference 3 (Section H.2), Reference 38, Reference 58, and Reference 59

Explanation: The proposed Project only involves the land application of biosolids at the Farm and its 2000 purchase. There are no modifications to the Farm and the proposed Project does not involve a change in the existing land or water use at the site. No established community will be physically divided as a result of the operation of the proposed Project. Therefore, no impact is expected and no further analysis is required.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ☒ ☐ ☐ ☐

Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Standard: A significant impact may occur if the proposed Project were inconsistent with the General Plan, or other applicable plan, or with the site's zoning if designated to avoid or mitigate a significant potential environmental impact. Reference: Reference 3, Reference 38, Reference 44, Reference 58, and Reference 59

Explanation: The initial analysis indicates that the proposed Project (i.e., land application of biosolids and its 2000 purchase) may have a potentially significant impact if Measure E is upheld and that further analysis is needed. The additional analysis will be completed in the EIR.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were located within an area governed by a habitat conservation plan or natural community conservation plan and would conflict with such plan. Reference: Reference 3, Reference 28, Reference 29, Reference 58, and Reference 59

Explanation: As described in Section 4(f), the Project Site occurs within the Kern County VFHCP (Reference 28) and the Buena Vista Lake – Kern Lake Conservation Plan section of the Tulare Basin Regional Conservation Plan (Reference 29). Neither the Kern County VFHCP nor the Tulare Basin Regional Conservation Plan have been finalized and/or implemented. As such, these are not legally binding documents and projects are not required to maintain compliance with them. Regardless, the Project site is composed entirely of agricultural lands and, as such, increasing the amount of land applied biosolids will not constrain adoption of an HCP.

The 1989 EIR included a mitigation measure for land use of creating a buffer zone to reduce the perceived or actual impacts of incompatible land uses. The specific distance for this zone was not specified. However, because this site-specific analysis shows that there is no significant impact with the zoning at the Farm and surrounding land uses, this mitigation measure may not be applicable to the Farm. The EIR will include further analysis on mitigation measures in the 1989 EIR.

The proposed Project (i.e., land application of biosolids and its 2000 purchase) would result in no impacts related to conflicts with the provisions of an adopted Habitat Conservation Plan, or other approved local, regional, or state habitat conservation plan. No further analysis of this issue is required.

11. MINERAL RESOURCES – Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the Project were located in an area used or available for extraction of a regionally important mineral resource, if the Project converted an existing or potential present or future regionally-important mineral extraction use to another use, or if a project affected access to such a site. Reference: Reference 3 (Section E4) and Reference 60

Explanation: The land application of biosolids and the 2000 purchase of the Farm are not expected to affect the mineral resources in the area (i.e., nearby South Coles Levee oil field, Ten Section oil field, Hay 7 well). The proposed Project will not result in the loss of available mineral resources to the area and no impacts are expected. No further analysis of this impact is required.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? ☐ ☐ ☐ ☒

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

Standard: A significant impact may occur if a project were located in an area used or available for extraction of a locally-important mineral resource and the project converted such a resource to another use or affected access to such a site. Reference: Reference 3 (Section E4) and Reference 60

Explanation: See response to 11a. The Farm site is not an area used or available for locally important mineral extraction. No impacts are expected from the proposed Project and no further analysis of this impact is required.

12. NOISE – Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the Project generated noise levels exceeding the standards for ambient noise as established by the General Plan and Municipal Code or exposed persons to that increased level of noise. Reference: Reference 3 (Section I), Reference 34, and Reference 61

Explanation: Less than significant impacts would be expected due to equipment noise associated with the biosolids application at the Farm. No impact will (or has) occurred due to its 2000 purchase. The proposed Project is expected to result in less than significant impacts. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts

b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the Project were to expose persons to or generate excessive ground-borne vibration or ground-borne noise levels. Reference: Reference 3 (Section I), Reference 34, and Reference 59

Explanation: Construction activities could generate ground-borne vibration from use of heavy equipment. However, construction activities using heavy equipment are not part of the proposed Project (i.e., land application of biosolids and its 2000 purchase). See also comment under Section 12(a). No impact is expected and no further analysis is needed.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the Project were to substantially and permanently increase the ambient noise levels in the project vicinity above levels existing without the proposed Project. Reference: Reference 3 (Section I) and Reference 34

Explanation: Refer to discussion under 12 (a) above. Less than significant impacts are expected; the EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the Project were to create a substantial temporary or periodic increase in the ambient noise levels in the Project vicinity above levels existing without the proposed Project. Reference: Reference 3 (Section I) and Reference 34

Explanation: Refer to discussion under 12 (a) above. Less than significant impacts are expected; the EIR will also analyze the potential for the proposed Project to result in cumulatively considerable impacts

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or ☐ ☐ ☐ ☒

Issues	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Standard: Reference: Reference 3 (Section I) and Reference 62

Explanation: The Farm is not located within two miles of an airport. No impact is expected and no further analysis is needed.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? ☐ ☐ ☐ ☒

Standard: Reference: Reference 3 (Section I) and Reference 62

Explanation: No private airstrips are located within the vicinity of the Farm. No impact is expected and no further analysis is needed.

13. POPULATION AND HOUSING – Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if population growth is induced in an area, either directly or indirectly, such that the population of the area may exceed the planned population of that area. Reference: Reference 63

Explanation: The proposed Project involves land application of biosolids received at the existing facility and its 2000 purchase. Project related activities will not involve an increase, decrease, or relocation of population. Therefore, the proposed Project is not expected to have any impacts on housing, induce substantial population growth, or exceed the growth projections contained in any adopted plans. No further analysis of this issue is required.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project results in a displacement of a substantial number of houses. Reference: Reference 63

Explanation: No housing is, or will be, located on the Farm. The proposed Project (i.e., land application of biosolids and its 2000 purchase) would not displace any existing housing units. Therefore, the proposed Project would result in no impacts related to housing displacement and replacement. No further analysis of this issue is required.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project displaces a substantial number of people. Reference: Reference 63

Explanation: The proposed Project (i.e., land application of biosolids and its 2000 purchase) would not displace any existing housing units. Therefore, the proposed Project would result in no impacts related to housing displacement and replacement. No further analysis of this issue is required.

14. PUBLIC SERVICES –

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered

Issues

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact
governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☐	☒

Standard: A significant impact may occur if the City of Los Angeles Fire Department (LAFD) could not adequately serve the proposed Project based on response time, access, or fire hydrant/water availability. Reference: Reference 57

Explanation: Land application of biosolids and the 2000 purchase of the Farm are not expected to require the addition of new fire stations, or the expansion, consolidation or relocation of and existing facility to maintain service in the area. Therefore, the proposed Project would result in no impacts related to fire protection. No further analysis of this issue is required.

ii) Police protection? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were to result in an increase in demand for police services that would exceed the capacity of the police department responsible for serving the site. Reference: Reference 57

Explanation: Land application of biosolids and the 2000 purchase of the Farm are not expected to result in an increase in demand for police services that would exceed the capacity of the police department responsible for serving the site. Therefore, the proposed Project would result in no impacts related to police protection. No further analysis of this issue is required.

iii) Schools? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project includes substantial employment or population growth that could generate demand for school facilities that exceeded the capacity of the school district responsible for serving the Project site. Reference: Reference 59

Explanation: Land application of biosolids and the 2000 purchase of the Farm are not expected to result in employment or population growth that could generate demand for school facilities that exceeded the capacity of the school district responsible for serving the Farm. Therefore, the proposed Project would result in no impacts related to schools. No further analysis of this issue is required.

iv) Parks? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the recreation and park services available could not accommodate the population increase resulting from the implementation of the proposed Project. Reference: Reference 59

Explanation: Land application of biosolids and the 2000 purchase of the Farm are not expected to result in a population increase that would require additional recreation and park services. Therefore, the proposed Project would result in no impacts related to parks. No further analysis of this issue is required.

v) Other public facilities? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the other public facilities could not accommodate the population increase resulting from the implementation of the proposed Project. Reference: Reference 59

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

Explanation: Land application of biosolids and the 2000 purchase of the Farm are not expected to result in a population increase that would require additional recreation and park services. Therefore, the proposed Project would result in no impacts related to other public facilities. No further analysis of this issue is required.

15. RECREATION –

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project includes substantial employment or population growth that may generate demand for public park facilities that exceed the capacity of existing parks. Reference: Reference 3 (Section K.4) and Reference 59

Explanation: The Farm is surrounded by highways, vacant lands, industrial facilities, and lands used for agricultural purposes. The nearest public parks are located in the City of Bakersfield, which is approximately 15 miles away from the Farm.

The proposed Project involves the land application of biosolids at the Farm and its 2000 purchase. Five employees are required for applying the biosolids at the Farm. The proposed Project does not involve any expected change in the population in the surrounding area because the existing labor pool in the Kern County area is sufficient to fulfill the longer term requirements for biosolids transportation and land application. Therefore, the land application of biosolids at the Farm is not expected to cause or contribute to an increase in the use of recreation facilities or to require the construction of new or expanded recreation facilities near the Farm. No impact to recreational facilities is expected to occur as a result of the proposed Project. No further analysis of this issue is needed.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? ☐ ☐ ☐ ☒

Standard: Reference: Reference 3 (Section K.4) and Reference 59

Explanation: See comment 15(a) above. No impact is expected and no further analysis is necessary

16. TRANSPORTATION/TRAFFIC – Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersection, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the proposed Project causes an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. Reference: Reference 3 (Section L) and Reference 8

Explanation: The screening criteria provided in Section L of the L.A. CEQA Thresholds Guide indicates that additional analysis to ascertain potential significance is required if the proposed Project:

Generates and/or causes a diversion or shift of 500 or more daily trips or 43 or more p.m. peak hour vehicle trips;

Adds 150 or more one-way vehicle trips to a Congestion Management Program (CMP) mainline

Issues

Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

freeway monitoring segment during either the a.m. or p.m. peak hours;

Adds 50 or more a.m. or p.m. peak hour trips to a freeway on- or off-ramp;

Generates more than 120 daily vehicle trips to a local residential street;

Provide less parking supply than that required by City Code, including Los Angeles Municipal Code (LAMC, Reference 8), Transportation Specific Plan (TSP) or Interim Control Ordinance (ICO) requirements, prior to applying for a variance, exemption, or amendment, if any apply to the Project; or

Provide less proposed parking supply than that required by California Coastal Commission requirements, if the Project is located in the coastal zone (generally, 1000 yards inland of the mean high tide line).

The proposed Project includes the transportation of up to 800 tpd biosolids from HTP to Green Acres and the 2000 purchase of the Farm. A total of up to 31 trucks per day would be used to transport these biosolids. Operation of the proposed Project would require up to 5 new, full-time, contracted employees at GAF for land application. The HTP is located at the southeast corner of Imperial Highway and Vista del Mar. There are four entry/exit gates along Vista del Mar, although only one gate is presently in use. The other access gate is located along Imperial Highway. Green Acres is bounded on the east by Interstate 5 (I-5). Taft Highway (Route 119) borders the site to the north. Due to the irregular shape of the property, the western boundary is comprised of two roads: Enos Lane and Coles Levee Road. The southern boundary is comprised of Union Road.

The total trips for the proposed Project is estimated to be 36,which is less than the fewest trips (43) that would require additional analysis, per the screening criteria described in the L.A. CEQA Thresholds Guide. No additional parking will be needed for the employees as they will park at existing facilities at the Farm. The proposed Project will also not conflict with any applicable plans or congestion management programs. As a result, less than significant impacts are expected. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the proposed Project causes a conflict with an applicable congestion management program. Reference: Reference 3 (Section L), Reference 59, Reference 64, Reference 65, and Reference 66

Explanation: The trucking required as part of the proposed Project (i.e., land application of biosolids and its 2000 purchase) represent only a very small fraction of the total traffic that travels on the roads in Los Angeles and Kern County that comprise the primary truck route. This volume is not expected to affect the level of service (LOS) for any of the roads and the proposed Project does not conflict with the Circulation Element of the Kern County General Plan, the Transportation Element of the City's General Plan, or the Los Angeles County Congestion Management Plan. In addition, local access roads to the Farm are owned and maintained by the City. As a result, less than significant impacts are expected. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project changed air traffic patterns, including either an increase in traffic levels or a change in location the resulted in substantial safety risks.

Issues

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant	No Impact

Reference: Reference 3 (Section L)

Explanation: The proposed Project includes transportation and land application of biosolids, and the 2000 purchase of the Farm. No delivery of materials and/or personnel via air is required, and the Project would not involve any changes in air traffic patterns. Therefore, the proposed Project would result in no impacts related to air traffic patterns. No further analysis of this issue is required.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project substantially increased road hazards due to a design feature or incompatible uses. Reference: Reference 3 (Section L)

Explanation: The proposed Project (i.e., land application of biosolids and its 2000 purchase) does not involve construction of roads or the use of incompatible equipment on roads (e.g., farm equipment). Therefore, no increased hazards due to a design feature or incompatible use is expected. No impacts are expected and no further analysis of this issue is needed.

e) Result in inadequate emergency access? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the proposed Project resulted in inadequate emergency access. Reference: Reference 3 (Section L)

Explanation: The entries and exits to HTP, TIWRP, and the Farm will remain unchanged. The increase in personnel will be minimal and is not expected to affect emergency access or use. The existing emergency access gates will be maintained. There will be a maximum of 31 trucks entering the Farm on a daily basis and these trucks will not block emergency access. Therefore, the proposed Project (i.e., land application of biosolids and its 2000 purchase) is not expected to result in inadequate emergency access at or adjacent to the HTP or the Farm, and any impacts would be less than significant. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? ☐ ☐ ☒ ☐

Standard: A significant impact may occur if the proposed Project conflicts with adopted policies, plans, or programs supporting alternative transportation. Reference: Reference 3 (Section L), Reference 64, Reference 65, and Reference 66

Explanation: The proposed Project requires trucking from HTP and TIWRP to the Farm. This trucking will occur primarily on state and federal highways. The proposed Project (i.e., land application of biosolids and its 2000 purchase) does not conflict with the Circulation Element of the Kern County General Plan, the Transportation Element of the City's General Plan, or the Los Angeles County Congestion Management Plan or with any plans for public transit, bicycle, or pedestrian facilities. The proposed Project will not impact any of these existing facilities. The 1989 EIR included several mitigation measures for traffic including spreading the biosolids transport trucks over as long as possible of a daily time period and widening affected highway segments. The site-specific analysis of the proposed Project shows that there is no significant impact related to transportation. These mitigation measures may not be applicable to the project site. The EIR will include further analysis on mitigation measures in the 1989 EIR. The proposed Project is expected to have less than significant impacts. The EIR will analyze the potential for the proposed Project to result in cumulatively considerable impacts.

17. UTILITIES/SERVICE SYSTEMS

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project exceeds wastewater treatment requirements of the local regulatory governing agency. Reference: Reference 3 (Section M)

Explanation: Land application of biosolids at the Farm and its 2000 purchase will not generate wastewater. Irrigation water, which is primarily recycled water from the City of Bakersfield Wastewater Treatment Plant No. 3, is applied at agronomic rates, and tail water and runoff water is collected and returned to the source fields or to adjacent fields. The proposed Project will not impact the local wastewater facility. No further analysis of this issue is necessary.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project resulted in the need for new construction or expansion of water or wastewater treatment facilities that could result in an adverse environmental effect that could not be mitigated. Reference: Reference 3 (Section M)

Explanation: See comment to 17(a) above. Land application of biosolids at the Farm and its 2000 purchase will not require water, and therefore, new construction or expansion of existing water treatment facilities is not needed. The proposed Project is designed, operated, and maintained to follow all applicable federal, state, and local statutes and regulations related to solid waste.

As discussed above in the Regulatory Setting, current regulations limit the disposal methods available for Class B biosolids. As a result, HTP and TIWRP eventually needed to treat to Class A standards even in the absence of the proposed Project. As such, the energy required to treat to Class A standards is not included in the proposed Project. However, even if it were, digester gas is used as the energy source for treating the biosolids (e.g., steam production) and no impact would be expected on existing energy utilities.

No impacts are expected and no further analysis of this issue is necessary.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the volume of storm water runoff from the proposed Project increases to a level exceeding the capacity of the storm drain system serving the Project site. Reference: Reference 3 (Sections G and M)

Explanation: The Farm has an existing tail water and runoff water collection system that returns collected water to the source field or to adjacent fields; the proposed Project (i.e., land application of biosolids and its 2000 purchase) will not expand the land area of the site, which could potentially increase the volume of tail water and runoff water that would need to be collected and returned. Therefore, the proposed Project will not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. No impacts are expected and no further analysis of this issue is necessary.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project's water demands would exceed the existing water supplies that serve the site. Reference: Reference 3 (Section M)

Explanation: See comment to 17(a) and 17(b) above.

Because the Farm has been active since 1988 producing dairy feed crops and land application of biosolids to the site does not require additional water, the proposed Project (i.e., land application of biosolids and its 2000 purchase) is not expected to result in impacts on the water supplies or require additional water supplies. Additionally, the proposed Project will not expand the land area of the Farm. No further analysis of this issue is necessary.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project would increase wastewater generation to such a degree that the capacity of facilities currently serving the Project site would be exceeded. Reference: Reference 3 (Section M)

Explanation: See comment to 17(a) above. No impacts are expected and no further analysis is needed.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project were to increase solid waste generation to a degree that existing and projected landfill capacities would be insufficient to accommodate the additional waste. Reference: Reference 3 (Section M) and Reference 66

Explanation: Land application of biosolids at the Farm is not expected to generate any solid waste that would be landfilled. The proposed Project (i.e., land application of biosolids and its 2000 purchase) will not result in a significant increase in the number of employees at the Farm. As a result, the proposed Project is not expected to increase the solid waste. No impacts are expected and no further analysis of this issue is necessary.

g) Comply with federal, state, and local statutes and regulations related to solid waste? ☐ ☐ ☐ ☒

Standard: A significant impact may occur if the proposed Project would generate solid waste that was in excess of or was not disposed of in accordance with applicable regulations. Reference: Reference 3 (Section M) and Reference 66

Explanation: The proposed Project (i.e., land application of biosolids and its 2000 purchase) does not generate waste that needs utilities or services. No impact is expected and no further analysis is needed.

18. MANDATORY FINDINGS OF SIGNIFICANCE --

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? ☒ ☐ ☐ ☐

Reference: Preceding analyses.

Explanation: There are no potential impacts on aesthetics, agriculture and forestry resources, biological resources, cultural resources, hazards and hazardous materials, mineral resources, population/housing, public services, recreation, or utilities/service systems.

Excluding potential cumulative impacts (see 18b), the proposed Project has less than significant impacts on geology/soils, hydrology/water quality, noise, and transportation/traffic.

The proposed Project may have potentially significant impacts on air, greenhouse gases, and land use/planning. Further analysis is needed and will be provided in the EIR.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? ☒ ☐ ☐ ☐

Reference: Preceding analyses.

Explanation: There are no potential impacts on aesthetics, agriculture and forestry resources, biological resources, cultural resources, hazards and hazardous materials, mineral resources, population/housing, public services, recreation, or utilities/service systems. Therefore, there is no risk of individual or cumulatively considerable impacts in these areas and no further analysis is needed in the EIR.

The proposed Project may have less than significant impacts on geology/soils, hydrology/water quality, noise, and transportation/traffic. The proposed Project may have potentially significant impacts on air, greenhouse gases, and land use/planning. Further analysis of the proposed Project's potential to cause cumulatively considerable impacts in these areas will be provided in the EIR.

c) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals? ☐ ☐ ☒ ☐

Reference: Preceding analyses.

Explanation: The purpose of the proposed Project is to beneficially use the biosolids produced at the HTP and TIWRP, and to reduce the amount of fertilizer required to be purchased for the Farm.

The purpose of the proposed Project is to beneficially use the biosolids produced at the HTP and TIWRP, and to reduce the amount of fertilizer required to be purchased for the Farm. The proposed Project is anticipated to have positive long term impacts but alternative uses of biosolids would also have environmental impacts. Therefore the proposed Project does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals

d) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly? ☐ ☐ ☒ ☐

Reference: Preceding analyses.

Explanation: Further analysis will be provided in the EIR if any potential impact issue is not already presented or arises during the NOP/IS comment period.

CITY OF LOS ANGELES
CALIFORNIA

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February 14, 2013

NOTICE OF PREPARATION

Responsible Agencies, Trustee Agencies, Stakeholders, and Interested Parties

Notice of Preparation of a Draft Environmental Impact Report for the Green Acres Biosolids Land Application Project

-State Clearinghouse No. (SCH#): Pending Assignment by the OPR-

The City of Los Angeles (City), Bureau of Sanitation (BOS) is the Lead Agency and will require the preparation of an environmental impact report ("EIR") for the project identified herein. The City requests your input as to the scope and content of the Draft EIR in accordance with Section 15082 of California Environmental Quality Act (CEQA). The project description and potential environmental effects are included below. Also included below are the date, time, and location of the scoping meeting that will be held in order to solicit input regarding the content of the Draft EIR.

PROJECT DESCRIPTION:

Background

In 2005, the City was directed by a writ of mandate issued by the Tulare County Superior Court (Writ) to undertake an evaluation under Section 15168(c) of the CEQA guidelines to determine if additional CEQA review was required for the 2000 purchase of the site and the 2000 amendment of the RBM contract. Based on the Writ, an addendum to the 1989 and 1996 Biosolids Program EIR (Addendum) was prepared and approved by the City Council on December 8, 2010. In April 2012, the Court Order ruled that the Addendum was inadequate to discharge the Writ and directed the City "to do a new Initial Study per §15168(c)(1), and to proceed thereafter as required by law." This current CEQA analysis has been prepared to address that Court Order.

Project Location

The Green Acres Farm (the Farm) consists of nearly 4,700 acres of land in unincorporated western Kern County (Figure 1) where active farming has occurred since 1988. The site is located approximately 15 miles southwest of the City of Bakersfield, and approximately 120 miles north of the City of Los Angeles (Figure 2). The site is surrounded by highways, vacant lands, industrial facilities, and land used for agricultural purposes. There are no adjacent residences. The site is bounded to the east by an interstate freeway (I-5) and to the north by a state highway (State Route 119, also known as the Taft Highway). There are farmlands, vacant lands, and a number of dairies to the south of the property and to the east of I-5, as well as farmlands and vacant lands to the north of the highway.

Proposed Project

Two interrelated "subsequent activities" in the City's biosolids program, as referenced in the 1989 Program EIR and the 1996 Program EIR, are the components of this proposed Project. These two subsequent activities

are: (1) the City's approval in 2000 of Amendment No.2 to City Contract C-94375, a pre-existing contract between the City and RBM for the loading, transportation and beneficial reuse of the City's biosolids at Green Acres Farm; and (2) the City's 2000 purchase of the Farm.

Based on these activities, the City's discretion under CEQA to set the baseline as supported by substantial evidence, and consistent with the Court Order, the baseline for the proposed Project is assumed to be the year 2000: no biosolids land applied at Green Acres (the most conservative assumption). The proposed Project analyzed in this document is the application of up to 800 tons of Class A biosolids per day at the Farm. The proposed Project includes all aspects of land application.

POTENTIAL ENVIRONMENTAL EFFECTS:

- Air Quality
- Greenhouse Gas Emissions
- Land Use/Planning

An analysis of potential environmental effects is provided in an Initial Study prepared for the Project, and can be obtained for review at the following locations:

- Public Works Building, Bureau of Sanitation, 10th Floor, 1149 S. Broadway, Los Angeles, CA 90015
- El Segundo Library, 111 W. Mariposa Avenue, El Segundo, California, 90245
- Kern County Library System – Beale Memorial Library, 701 Truxtun Avenue, Bakersfield, California, 93301

A copy of the Initial Study and checklist can be obtained on-line at http://eng.lacity.org/techdocs/emg/ or by contacting Diane Gilbert Jones at diane.gilbert@lacity.org or at 213-847-5180.

PUBLIC SCOPING MEETING:

In addition a public scoping meeting will be held to obtain input on the scope and comments on the Draft EIR at the following date, time and location:

Date:	March 6, 2013
Time:	5:00 pm – 7:00 pm
Location:	Frazier Park Branch Library 3732 Park Drive Frazier Park, CA 93225

RESPONSE/COMMENTS:

The City welcomes all comments regarding potential environmental impacts of the proposed Project. Comments will be considered in the preparation of the Draft EIR. Written comments must be submitted by March 15, 2013. Written comments will also be accepted at the public scoping meeting described above.

Please send your comments to:
Mrs. Diane Gilbert Jones
City of Los Angeles, Bureau of Sanitation
1149 S. Broadway, 10th Floor
Los Angeles, CA 90015

Comments may also be submitted by e-mail on or before March 15, 2013 to diane.gilbert@lacity.org (please include "Green Acres CEQA" in the subject line). Please include in your communication, name, telephone and e-mail address of person to contact if we have any questions regarding your comments.

If you have any questions regarding this communication please contact Mrs. Diane Gilbert Jones at diane.gilbert@lacity.org or 213-847-5810.

Figure 1. Regional Map of Green Acres Farm.

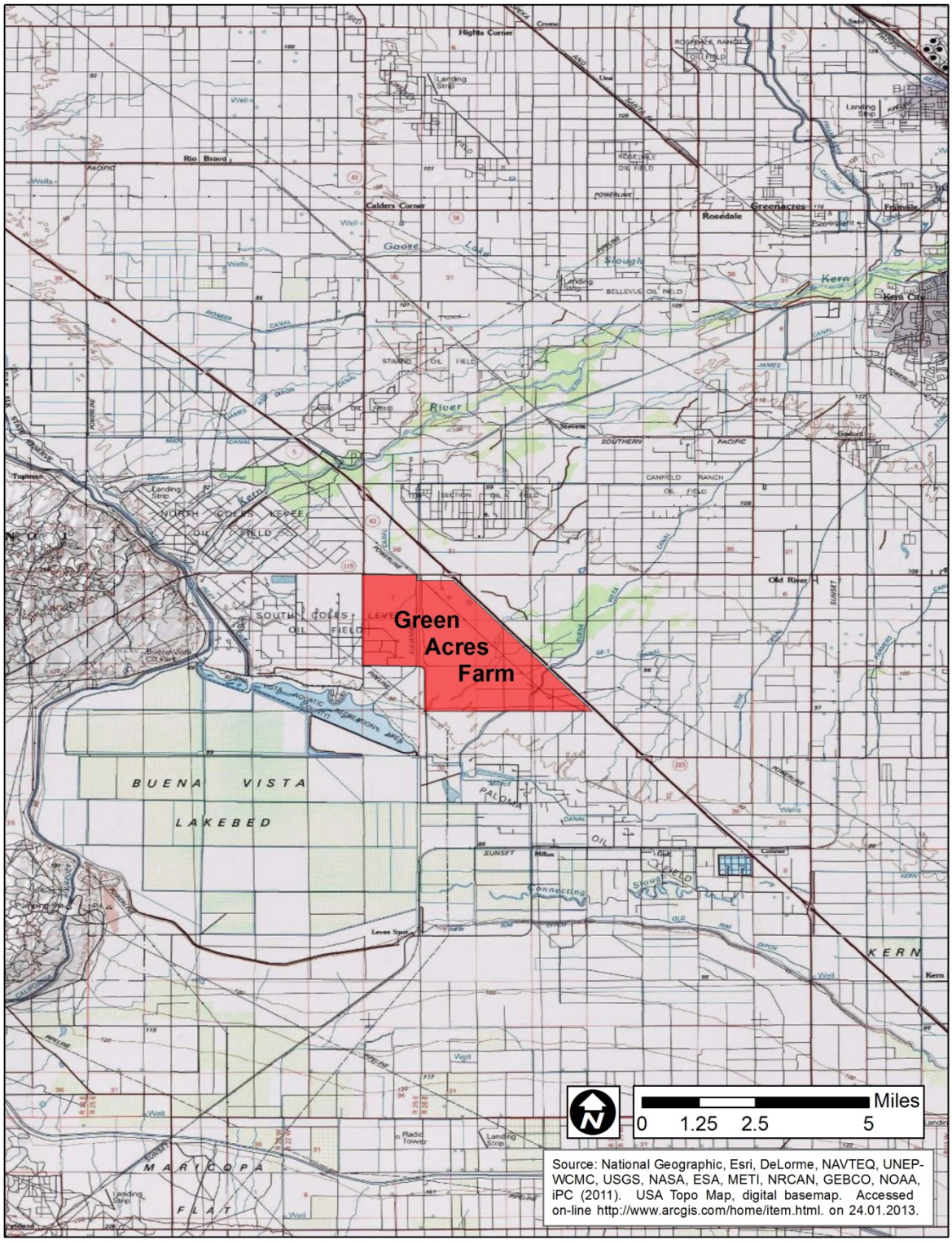

Figure 2. Vicinity Map of Green Acres Farm

Appendix B

Response to Comments

Introduction

This Appendix contains the comment letters received on the Notice of Preparation/Initial Study (NOP/IS) and will be included in the Draft EIR (DEIR) for the proposed Green Acres Biosolids Land Application Project. The IS was circulated for a 30-day public review and comment period, which started on February 14, 2013, and ended March 15, 2013. A copy of the IS was available at the following locations:

- Public Works Building, Bureau of Sanitation
  1149 S. Broadway, 10th floor, Los Angeles, CA 90015
- El Segundo Library
  111 W. Mariposa Avenue, El Segundo, CA 90245
- Kern County Library System – Beale Memorial Library
  701 Truxtun Avenue, Bakersfield, CA, 93301

The IS included a detailed project description, the environmental setting for each environmental resource, and an analysis of each environmental resource on the California Environmental Quality Act (CEQA) checklist, including all potentially significant environmental impacts. Based on the IS, no significant adverse environmental impacts were associated with the proposed project in the areas of aesthetics, agriculture and forestry resources, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology/water quality,[1] mineral resources, noise, population/housing, public services, recreation, transportation/traffic, or utilities/service systems. Potentially significant environmental impacts are associated with biosolids land application in the areas of air quality, greenhouse gases (GHGs), and land use/planning.

The City of Los Angeles (City) received 19 comment letters on the IS during the public comment period that ended on March 15, 2013. Fifteen of the letters were from various public agencies. The other four letters were from individuals. All comment letters and responses to those comments are presented in this Appendix A. The comments are bracketed and numbered. The related responses are identified with the corresponding number of the applicable comment and are included in the pages following each respective comment.

[1] Note that, although hydrology/water quality was analyzed and found to have less than significant impacts in the IS, a full analysis was included in the DEIR to fully answer questions that were raised during the public comment period.

COMMENT LETTER NO. 1
BUENA VISTA WATER STORAGE DISTRICT
MARCH 13, 2013

Response 1-1

CEQA Guidelines §21083.9 specifies that the scoping meeting be "held in the city or county within which the project is located." The Farm is located in the Bakersfield area, but the biosolids are transported from Hyperion Treatment Plant (HTP). The proposed project thus potentially affects residents in the City, the city of Bakersfield, Los Angeles County, and Kern County. The scoping meeting was held in Frazier Park in Kern County. The venue was chosen to be convenient to residents near HTP, as well as residents near the Farm. In addition, the Frazier Park Library was the nearest venue deemed to be of sufficient size should a large group of people attend. Regardless, the scoping meeting did not involve a presentation and was simply to accept comments from attendees; the NOP/IS provided alternative means of submitting comments via email, phone, and writing, and, thus, providing the public with sufficient methods of submitting comments.

Response 1-2

Your background information is noted and appreciated.

Farming was already occurring on the Farm in 2000, the baseline year. The proposed project is the ensuing land application of biosolids and the 2000 purchase of the Farm. Neither of these two interrelated activities will change existing operational activities, including irrigation practices, at the Farm when compared to the Farm's operation prior to 2000 (i.e., baseline). Thus, the project is not expected to increase the amount of water drawn from local or district sources. In addition, irrigation water at the Farm before and after 2000 is recycled water from the Bakersfield Wastewater Treatment Plant #3. See EIR Section 3.3 (Hydrology/Water Quality) and IS Section IV.Q. (Utilities and Service Systems) for more information on this water source.

Because there was and is a tail and runoff water recovery system that collects and returns collected water at the Farm, no runoff from the project location will enter any surface waters. No impact to surface waters from the project (or for the No Project or any other Project alternative) is expected.

While the State Water Resources Control Board has found that land application of biosolids using the proper management practices and meeting requirements outlined in 40 CFR Part 503 will result in minimal, if any, potential impact on groundwater (including water banking programs), an evaluation of the cumulative impacts of the project on groundwater is included in the EIR (Section 5.1 Cumulative Impacts).

Response 1-3

The IS included a detailed project description that consisted of the required elements under CEQA Guidelines. CEQA Guidelines §15124 specifies that the project description in an EIR needs to contain the following: (a) precise location and boundaries on a map (see Figures 1-3, IS pg. 4-6); (b) a statement of objectives (see IS, Section 2.B. Project Purpose); (c) general description (see IS, Section 2.C. Description); and (d) a statement describing the intended uses

of the EIR (see IS, Section I. Introduction; and IS, Section I.C. CEQA Process). This, and all required information, is included in the EIR (Section 2).

Response 1-4

The EIR will include information on the method and timing of land application of biosolids, and the potential impacts to air quality and GHGs. Because there is a tail and runoff water recovery system that collects and returns collected water at the Farm, no water from the project location is expected to be released into the water supply or other non-project areas.

While the State Water Resources Control Board has found that land application of biosolids using the proper management practices and meeting requirements outlined in 40 CFR Part 503 will result in minimal, if any, potential impact on groundwater (including water banking programs), an evaluation of the cumulative impacts of the project on groundwater is included in the EIR (Section 5.1).

Response 1-5

The proposed project is the land application of biosolids and the purchase of the Green Acres Farm. Neither of these two interrelated activities will change other farming-related activities, including irrigation practices, at the Farm when compared to the Farm's operation prior to 2000. These activities will not utilize any additional surface water, groundwater, or additional treated wastewater beyond the effluent already used as a potential water supply source. This information is provided in the IS (Section IV.I., IV.Q., and Appendix A. Section 17) and the EIR (Section 3.3).

Response 1-6

The proposed project is the land application of biosolids and the purchase of the land area of the Farm. Neither of these two interrelated activities will change other farming-related activities, including irrigation practices, at the Farm when compared to the Farm's operation prior to 2000. These activities will not utilize surface water or any additional treated wastewater as a potential water supply source. This information is provided in the IS (Section IV.Q and Appendix A. Section 17), which found no significant impacts.

Response 1-7

The use of recycled water from the City of Bakersfield Wastewater Treatment Plant No. 3 for irrigation at the Farm was evaluated under the Bakersfield Environmental Impact Report[2]. After completion of the Bakersfield EIR, the Central Valley Regional Water Quality Control Board issued a permit in 1983 (e.g., allowing use of recycled water at the Farm) that included requirements for groundwater monitoring, reporting provisions, and minimum setback distances and buffer zones to evaluate groundwater impacts and protect against runoff to surface storage or distribution facilities.

The proposed project does not require additional water supply beyond what is needed for existing irrigation practices prior to 2000. Although the State Water Resources Control Board

[2] City of Bakersfield. 1984. Draft Supplemental Environmental Impact Report. Modified Interstate Disposal Site – Wastewater Treatment Plant Three. Quad Consultants. May 1984.

has determined that application of biosolids according to the management practices and requirements outlined in 40 CFR Part 503 will result in minimal, if any, potential impact on groundwater, additional evaluation of the cumulative impacts of the land application of biosolids on potential seepage is included in the EIR (Section 5.1.9).

Response 1-8

The proposed project is the land application of biosolids and the purchase of the land area of the Farm. Neither of these two interrelated activities will change other farming-related activities, including irrigation practices, at the Farm when compared to the Farm's operation prior to 2000. As a result, the project does not intensify irrigation practices or affect storm and/or flood flows, or other circumstances, and thus will not affect potential drainage of water to adjoining properties. The potential impacts to surface water of the Farm purchase and land application are discussed in the IS (Section IV. I and Appendix A. Section 9).

Response 1-9

The IS discusses the Regulatory Setting (Section III.B) for the proposed project. It includes historical information, such as the permits issued in 1994 and 1995, because they are relevant to the history and current operations at the Farm. In addition, analyses for individual environmental areas discuss the current regulatory requirements applicable to the proposed project. Proposed or new regulations are not considered in this DEIR because it would be difficult to address unknown future requirements; however, any future regulations applicable to the Farm will be addressed appropriately by the City and/or farm operators, consistent with any new regulatory requirements. Further discussion is included in the EIR as applicable.

Response 1-10

This comment requests that the EIR include a "term" for the project. The purchase of the Farm occurred in 2000 and an initial 10-year contract for land application of biosolids originated in 2000. For purposes of the EIR, the analysis in 2010 represents implementation of the project. Land application at the Farm is not limited to a specific number of years, and CEQA does not require that a limit be placed on project operation.

Response 1-11

Because there is a tail and runoff water recovery system that collects and returns collected water at the Farm, potential runoff from the project location will not enter any surface waters. Although the State Water Resources Control Board has found that land application of biosolids using the proper management practices and meeting requirements outlined in 40 CFR Part 503 will result in minimal, if any, potential impacts on groundwater, an evaluation of the cumulative impacts of the project on groundwater is included in the EIR (Section 5.1.9). Cumulative impacts to air quality resulting from the proposed project is also discussed in the EIR (Section 5.1.3).

Response 1-12

The biosolids are the residual from the treatment of wastewater after the anaerobic digestion process. Other alternatives include composting, incineration, deep well injection, and waste-to-energy/fuel, as well as the No Project Alternatives, where the bulk of the biosolids are

transported to Arizona for land application. The EIR includes an alternatives analysis pursuant to CEQA Guidelines §15126.6 (Section 4).

Response 1-13

See Response 1-12. The EIR includes an alternatives analysis pursuant to CEQA Guidelines §15126.6 (Section 4).

Response 1-14

The proposed project will not impact surface waters as discussed in the IS (see Section IV. I.) and, thus, no further analysis is required. The EIR evaluates the potential for the proposed project to result in cumulatively considerable impacts in groundwater (see Section 5.1.9).

COMMENT LETTER NO. 2
SIERRA CLUB KERN-KAWEAH CHAPTER
MARCH 15, 2013

Response 2-1

See Response to Comment 1-1.

Response 2-2

Your question on the number of substances produced by the world is noted. The project specifically relates to the land incorporation of HTP biosolids. HTP biosolids comply with US EPA's Part 503 and other regulatory requirements. CEQA does not require consideration of speculative situations such as at every potentially hazardous substance that might be spread on the Farm (§15064(d)).

The analysis considered potential hazardous impacts of the proposed project (see IS Section IV.H. and Appendix A. Section 8). Potential health impacts due to air emissions are discussed in the EIR (Section 3.1).

The IS/NOP was distributed to the relevant agencies as required under CEQA Guidelines §15082. The EIR will be distributed to interested parties as detailed in CEQA Guidelines §15086. Your suggestion on specific agencies is noted, and the EIR will be distributed accordingly.

Response 2-3

The potential impacts to agriculture were discussed in the IS (Section IV. B. and Appendix A. Section 2). The Farm produced mostly sudangrass and wheat green chop which are included in the baseline. Under the proposed project, the Farm produced alfalfa, corn silage, sudangrass, and wheat green chop for sale. The proposed project does not involve the conversion of farmland to non-farmland uses. The proposed project does not include the sale of farmland and use of such sold land. No further analysis is required.

Response 2-4

Potential transportation impacts (traffic and roads) were analyzed in the IS (Section IV.Q and Appendix A Section 16). Potential air quality impacts, including criteria pollutants and health impacts, and GHGs emissions related to transporting the biosolids, are calculated per applicable guidelines and included in the EIR (Sections 3.1 and 3.2).

Response 2-5

Potential air quality impacts, including odor impacts to any sensitive receptors, are analyzed in the EIR (Section 3.1). The potential aesthetic impacts were analyzed in the IS (Section IV.A.) and there was no change in the appearance of the Farm that would affect the Reserve or Recreation Area; no further analysis related to aesthetics is required.

Response 2-6

See Responses to Comment 1-7 and 1-14.

Response 2-7

Incorporation within 3 hours minimizes but does not eliminate air emissions. Biosolids are relatively well incorporated expeditiously on the Farm; thus, they do not dry out to any degree that would be expected to increase emissions.

Potential air quality impacts, including those associated with land application of biosolids, are included in the EIR (Section 3.1).

Response 2-8

40 CFR Part 503 specifies requirements for different classes of biosolids. These requirements were designed to protect human health and the environment from adverse impacts associated with land application of biosolids. HTP produces Class A-EQ biosolids, which are the highest quality biosolids. Regular monitoring of the biosolids demonstrates the compliance with 40 CFR Part 503 requirements.[3]

The monitoring of the biosolids (as well as compliance with 40 CFR Part 503 requirements) demonstrates that the majority of the pathogens are destroyed. In addition, the amounts of metals in the biosolids are below the ceiling limits allowed by 40 CFR Part 503. Although compliance with regulations does not in and of itself result in no significant impacts, the monitoring of the biosolids in combination with the regulations indicates that there is no significant impact related to pathogens.

Thus, it is not expected that either pathogens or toxics will cumulate in the soils at the Farm. In addition, the biosolids are applied at a rate less than or at the agronomic rate applicable to the Farm. This rate defines the amount of nutrients needed by the vegetation growing on the surface. If nutrients were applied above this rate, then the nutrients would accumulate in the soil. However, because biosolids are not applied above the agronomic rate, the plants use all of the available nutrients and accumulation in the soil is not expected. No further analysis is required.

Response 2-9

40 CFR Part 503 specifies requirements for different classes of biosolids. These requirements were designed to protect human health and the environment from adverse impacts associated with land application of biosolids. HTP produces Class A-EQ biosolids, which are the highest quality biosolids. Regular monitoring of the biosolids demonstrates the compliance with 40 CFR Part 503 requirements.[4] The monitoring of the biosolids (as well as compliance with 40 CFR Part 503 requirements) demonstrates that the majority of the pathogens are destroyed. In addition, the amounts of metals in the biosolids are below the ceiling limits allowed by 40 CFR Part 503.

Prions are not discussed in the 40 CFR Part 503 requirements as a potential impact from biosolids. No evidence is provided to support that biosolids testing for prions is, or should be,

[3] City of Los Angeles. 2013. 2012 Biosolids Metal Assessment. Available at: http://www.lacitysan.org/biosolidsems/downloads/program_performance/2013/2012_Biosolids_Metal_Assessment.pdf. Accessed June 2013.

[4] Ibid.

required. In the absence of evidence, the City finds that this potential impact is too speculative per §15145. No further analysis is needed.

Response 2-10

The Farm is not required to test for antibiotic resistance. The cited article is not relevant to the land application project because it refers to wastewater treatment and does not make a connection to biosolids (which are produced after the wastewater treatment is completed) and the land application of biosolids. No further analysis is required.

Response 2-11

The comment suggests that the biosolids consist of both well-known and little known compounds and questions whether these could combine to create new toxics, facilitate absorption of toxics, or cause pathogenicity due to exposure at sub-toxic levels. The commenter cites a reference about generating antibiotic resistance, not the impacts previously referenced. Additionally, the reference is a study on sludge and does not show a correlation of biosolids metal levels to antibiotic resistance. In the absence of evidence, particularly about the "little known nutrients" referenced by the commenter, the City finds that this potential impact is too speculative per §15145. No further analysis is required.

Response 2-12

As discussed in Section IV.D. of the IS, increasing the load of land applied biosolids will not result in adverse effects on special status species. The City of Bakersfield Supplemental EIR[5] determined that there were significant unmitigatable effects associated with the approval and use of the Farm, which would impact a number of sensitive burrowing species including: San Joaquin kit fox (Vulpes macrotis mutica), burrowing owl (Athene cunicularia), and Nelson's antelope ground squirrel (Ammospermophilus nelsonii). The City of Bakersfield certified the EIR and adopted a Statement of Overriding Considerations, which determined that it was economically infeasible to mitigate the loss of the onsite sensitive species/habitats and that benefits from the proposed project outweighed the unavoidable adverse and significant environmental effects identified (Reference 27). The proposed project does not change the previously approved use of the Farm as to cause any additional impacts due to farming.

The Farm was a working farm prior to 2000. Farming operations will continue to occur; a simpler process is used to land apply biosolids as compared to the process to land apply fertilizer. Potential air quality impacts, including health risk impacts, are assessed in the EIR (Section 3.1).

Response 2-13

As stated in the IS,[6] the EIR includes further analysis on the 1989 EIR's mitigation measures for food-chain crops related to public health. The crops grown at the Farm are not directly consumed by humans. Crops used as animal feed meet all applicable requirements, including any required for toxics or microbes.

[5] City of Bakersfield. 1984. Draft Supplemental Environmental Impact Report. Modified Interstate Disposal Site – Wastewater Treatment Plant Three. Quad Consultants. May 1984.
[6] IS, page 17.

Farm does not raise animals for human consumption so no further analysis is needed.

Response 2-14

Any potential impacts from changes in government funding are uncertain and speculative. However, as required, the Farm will continue to conduct its farming operations in compliance with regulatory requirements. No further analysis is required.

Response 2-15

See also Response to Comment 1-11. The EIR includes an alternative analysis pursuant to CEQA Guidelines §15126.6 (Section 4).

Response 2-16

The EIR and other related documents will be provided as required under CEQA Guidelines.

COMMENT LETTER NO. 3
CENTER ON RACE, POVERTY & THE ENVIRONMENT
MARCH 14, 2013

Response 3-1

The comment sets forth the commenter's interpretation of the analyses presented in the IS as well as a general statement of areas that should be addressed in the EIR. The commenter goes on to expand on each area the commenter believes additional analysis should be conducted; specific comments related to these areas will be addressed below. We do note that the project does not include the delivery of sewage sludge to the Farm. Sewage sludge is further processed at HTP to meet strict regulatory requirements. Only Class A-EQ biosolids (a higher classification) are spread at the Farm.

Response 3-2

Your comment is noted and the City has reviewed the cited references as well as other documents. There is no documented scientific evidence that Part 503 has failed to protect public health (page 3 of the July 2013 Executive Summary of the National Research Council's (NRC's) "Biosolids Applied to Land: Advancing Standards and Practices").[7] Although additional analyses were suggested, specific scientific information has not been provided which would indicate that the proposed project would result in significant impacts beyond those discussed in this EIR. If the scientific basis and standards of Part 503 are updated in the future, the Farm will modify its management practices accordingly. An analysis of potential impacts related to hydrology/water, air and greenhouse gases, and land use planning is included in the EIR. Please refer to the appropriate sections of the EIR.

Response 3-3

The comment states that the conclusions reached in the IS rely on layers of regulations to demonstrate that there will be no impacts from the project. This is not correct; impacts were assessed after effects of regulations were taken into account. In addition, regulatory requirements are simply that; the Bureau does not get to choose which regulations it will follow. There is no documented scientific evidence that Part 503 has failed to protect public health (page 3 of the Executive Summary).[7] Although the NRC reference[7] states that additional analyses should be conducted by the USEPA in order to potentially update Part 503, scientific information has not been provided which would indicate that the proposed project would result in significant impacts beyond those discussed in this EIR. If the scientific basis and standards of Part 503 are updated in the future, the Farm will modify its management practices accordingly. In addition to complying with all applicable regulations, the analyses included in this EIR assess applicable impacts that may be potentially significant. Please refer to the appropriate sections of the EIR for further detail.

[7] National Research Council. "Biosolids Applied to Land: Advancing Standards and Practices." July 2002. Available at: http://water.epa.gov/scitech/wastetech/biosolids/upload/complete.pdf. Accessed July 2013.

Response 3-4

There is no documented scientific evidence that Part 503 has failed to protect public health (page 3 of the Executive Summary).[7] Although the NRC reference[7] states that additional analyses should be conducted by the USEPA in order to potentially update Part 503, scientific information has not be provided which would indicate that the proposed project would result in significant impacts beyond those discussed in this EIR. If the scientific basis and standards of Part 503 are updated in the future, the Farm will modify its management practices accordingly. We have reviewed the cited document and it does not identify structural changes that could result in significant impacts. The assessment of the impacts to agriculture associated with the proposed project were analyzed in accordance with CEQA Guidelines.

Response 3-5

A full analysis of the operational air quality as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1). This includes the emission factors used by air agencies to reflect total air emissions with accelerated incorporation. The project does not involve composting, and therefore the bioaerosol studies cited in reference 15 of the comment letter are not relevant to the proposed project.

Response 3-6

The cited reference states there is no scientific evidence to confirm that sludge land application contributes to sludge syndrome. In addition, Class A-EQ biosolids, not sludge, is land applied in the project. Therefore, the commenter has not provided enough information to warrant additional analysis and, thus, no further analysis is necessary.

Response 3-7

Hydrological and water use impacts are analyzed in the EIR (Section 3.3). The Biological resource assessment in the IS was not solely based on the 1989 EIR, but more recent information on habitats. Additionally, an environmental biological assessment was conducted during the permitting process and when the City purchased the Farm. No further analysis related to impacts on biological resources is required.

Response 3-8

Your comment on potential soil chemistry impacts is noted. However, any soil amendment (e.g., manure, chemical fertilizer, or biosolids) would impact the chemistry of the soil. As stated in reference 27 of the comment letter, the impacts of biosolids are lower than manure impacts. Further analysis of impacts of land application of biosolids to soil chemistry is not required as stated in the IS.

Response 3-9

There is no documented scientific evidence that Part 503 has failed to protect public health (page 3 of the Executive Summary), even with more compounds being identified.[8] Although the

[8] National Research Council. “Biosolids Applied to Land: Advancing Standards and Practices.” July 2002. Available at: http://water.epa.gov/scitech/wastetech/biosolids/upload/complete.pdf. Accessed July 2013.

document states that additional analyses should be conducted by the USEPA in order to potentially update Part 503, scientific information has not been provided which would indicate that the proposed project would result in significant impacts beyond those discussed in this EIR. If the scientific basis and standards of Part 503 are updated in the future, the Farm will modify its management practices accordingly. An analysis of the potentially significant impacts to water quality is included in the EIR (Section 3.3).

Response 3-10

An analysis of odors as required under CEQA is provided in the EIR (Section 3.1.5). The EIR also includes an analysis of potential cumulative impacts, including impacts regarding flies.

Response 3-11

Further analyses are included in the EIR as discussed herein. The EIR will be made available to the public as required under CEQA.

COMMENT LETTER NO. 4
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
FEBRUARY 22, 2013

Response 4-1

The DEIR and supporting files will be provided to the SCAQMD upon public release.

Response 4-2

A full analysis of the operational air quality impacts as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1).

Response 4-3

Although this is not a traditional industrial or development project, impacts for all applicable phases were analyzed. A full analysis of the operational air quality impacts as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1). The proposed project does not involve construction-related activities and thus, an analysis of construction emissions is not applicable.

Response 4-4

The analysis uses SCAQMD's $PM_{2.5}$ guidance, consistent with the City's guidelines. This includes calculation of $PM_{2.5}$ emissions and comparison to SCAQMD's significance thresholds. A full analysis of the air quality impacts as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1).

Response 4-5

The Project site where the land application is occurring is in Kern County, which is outside of SCAQMD's jurisdiction; portions of the project related to truck traffic from the City of Los Angeles does occur in SCAQMD's jurisdiction. The EIR uses SJVAPCD guidance for localized air quality impact analyses, and references applicable SCAQMD guidance where appropriate.

Response 4-6

See Response to Comment 4-5. Air toxics, including particulates, at the site are analyzed per SJVAPCD guidance. Diesel truck emissions through SCAQMD's jurisdiction are calculated but are dispersed throughout the South Coast Air Basin; thus a quantitative dispersion HRA was not required.

Response 4-7

As necessary, the EIR considered the measures referenced in the comment.

Response 4-8

The City appreciates the SCAQMD's offer of staff availability during the CEQA process.

Response 4-9

A copy of the IS/NOP was provided to the SJVAPCD; a copy of the EIR will be provided as well.

COMMENT LETTER NO. 5
SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT
MARCH 15, 2013

Response 5-1

A full analysis of the operational air quality impacts as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1); however, the proposed project does not involve construction-related activities and, thus, an analysis of construction emissions is not applicable.

Response 5-2

A full analysis of the operational air quality impacts as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1).

Response 5-3

An analysis of the odor impacts from the proposed project is included in the EIR (Section 3.1.5).

Response 5-4

Consistent with SJVAPCD guidance, an analysis of the health risk impacts from the proposed project is included in the EIR (Section 3.1). The Bureau has determined, consistent with SJVAPCD guidance, that a detailed HRA is not required. See Section 3.1.4.3. for additional details.

Response 5-5

The EIR includes a discussion on methodology, assumptions and results for the air quality and risk analyses, and mitigation measures.

Response 5-6

A full analysis of the operational air quality impacts, including a cumulative impact analysis, as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Sections 3.1 and 5.1.3).

Response 5-7

A full analysis of the operational air quality impacts, including the applicability of District rules for mitigation of project emissions, as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1).

Response 5-8

The Bureau, as the project proponent, has reviewed the SJVAPCD's comments. The Bureau appreciates the SJVAPCD providing contact information and will contact staff as necessary.

COMMENT LETTER NO. 6
EDO MCGOWAN
FEBRUARY 19, 2013

Response 6-1

Page 11 of the IS states that, since the beginning of 2003, all biosolids land applied at the Farm have consistently met, and continue to meet, "Class A-EQ" standards, which means the biosolids are essentially free of any pathogens.[9] A full analysis of the impacts of biosolids land application on hydrology and water uses, as well as the impacts on air quality and greenhouse gases, is included in the EIR (Sections 3.1, 3.2, and 3.3). See also Responses to Comments 2-2 and 3-2.

Response 6-2

As noted in Response to Comment 3-1, the project does not include sewage sludge, but instead includes biosolids, which result from the advanced treatment of sewage sludge per USEPA Part 503 and other regulatory requirements. A full analysis of the air quality and GHG impacts, as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD), is in the EIR (Sections 3.1 and 3.2).

[9] USEPA. Environmental Regulations and Technology: Control of Pathogens and Vector Attraction in Sewage Sludge (Including Domestic Septage) Under 40 CFR Part 503, Chapter 5. July 2003. Available at: http://www.epa.gov/nrmrl/pubs/625r92013/625R92013chap5.pdf. Accessed December 2013.

COMMENT LETTER NO. 7
EDO MCGOWAN
FEBRUARY 21, 2013

Response 7-1

We have reviewed the list of documents provided in your comment letter. Of the articles that we were able to access and review (73 out of 81 articles), only the articles listed below apply to biosolids. The remaining articles were not found to relate to biosolids and, thus, were not relevant and did not require further analysis. Results of our detailed review are presented below.

- Article #30: "A Plain English Guide to the EPA Part 503 Biosolids Rule."[10]
  The Project complies with USEPA Part 503 requirements. A full analysis of the impacts related to hydrology and water use is included in the EIR (Section 3.3).

- Article #39: "Microbial characterization during composting of municipal solid waste."[11]
  The study investigated the microbial population present in composted municipal solid waste. Results showed that while bacteria and fungi populations decreased during the high-temperature auto-sterilization stage of compost production, the bacteria population gradually increased during the cooling phase. This increase in bacteria could pose a risk if compost were used for agronomic purposes, and therefore, compost may not be a suitable alternative for biosolids land application.

- Article #40: "Biosolids Applied to Land: Advancing Standards and Practices."[12]
  The Farm follows land application practices as established by EPA Part 503. This source states there is no documented scientific evidence that Part 503 has failed to protect public health (page 3 of the Executive Summary). Although the document states that additional analyses should be conducted by the USEPA in order to potentially update Part 503, scientific information has not been provided which would indicate that the proposed project would result in significant impacts beyond those discussed in this EIR. If the scientific basis and standards of Part 503 are updated in the future, the Farm will modify its management practices accordingly. No further analysis is necessary.

- Article #67: "Survey of Organic Wastewater Contaminants in Biosolids Destined for Land Application."[13]
  The biosolids applied at the Farm meet Class A-EQ standards. This article does not provide applicable information as to how land application of biosolids in the proposed project would result in potentially significant impacts. The article does state that "this study was not designed to investigate the environmental fate of [organic wastewater contaminants] originating from land application of biosolids" (page 7212). Thus, conclusions drawn as to the impacts of land application of biosolids at the Farm are

[10] USEPA. "A Plain English Guide to the EPA Part 503 Biosolids Rule." September 1994. Available at: http://water.epa.gov/scitech/wastetech/biosolids/503pe_index.cfm. Accessed July 2013.
[11] Hassen, A. et al. "Microbial Characterization During Composting of Municipal Solid Waste."
[12] National Research Council. "Biosolids Applied to Land: Advancing Standards and Practices." July 2002. Available at: http://water.epa.gov/scitech/wastetech/biosolids/upload/complete.pdf. Accessed July 2013.
[13] Kinney, C.A., et al. Survey of Organic Wastewater Contaminants in Biosolids Destined for Land Application. Environ. Sci. Technol. 2006, 40, 7207-7215.

uncertain and speculative. Although no further analysis is warranted related to this article, a full impact analysis related to hydrology and water use is included in the EIR (Section 3.3).

- Article #73: "Growing PR Problem Related to Agricultural Use of Biosolids."[14]
  This article discussed the discovery of E. coli in lettuce. The article does not contain any scientific evidence that the land application of biosolids has resulted in any public health concerns. The biosolids applied at the Farm meet Class A-EQ standards. Additionally, the Farm does not produce any crops (e.g., lettuce) for human consumption. No further analysis is needed.

- Article #74: "Crops Absorb Pharmaceuticals from Sewage Sludge Spread on Farmlands."[15]
  The biosolids applied at the Farm meet Class A-EQ standards. This article does not contain any scientific evidence that the land application of biosolids has resulted in public health concerns. No further analysis is needed.

[14] Fitchette, T. Growing PR problem related to agricultural use of biosolids. Available at: http://conservativepoliticalblog.wordpress.com/2010/05/10/agricultural-use-of-biosolids/. Accessed July 2013.
[15] Gutierrez, D. Crops absorb pharmaceuticals from sewage sludge spread on farmlands. Available at: http://www.naturalnews.com/z030841_sewage_sludge_crops.html. Accessed July 2013.l

COMMENT LETTER NO. 8
EDO MCGOWAN
FEBRUARY 23, 2013

Response 8-1

Your comments about specific alternatives and analyses are noted. The EIR includes an alternatives analysis pursuant to CEQA Guidelines §15126.6 (Section 4).

Response 8-2

The Bureau did consider alternatives similar to those suggested by the commenter (see Response to Comment 1-12); the analyses of those alternatives is in Section 4. Note that air quality permitting of fluid-bed oxidizers and biogasification in California is very different from permitting in other states due to extreme ozone attainment area requirements. In addition, HTP uses solids in wastewater to produce on-site biogas that has been used to offset external energy requirements. It is planned to be used to provide renewable power to the facility.

COMMENT LETTER NO. 9
EDO MCGOWAN
MARCH 4, 2013

Response 9-1

The EIR includes an alternatives analysis pursuant to CEQA Guidelines §15126.6 (Section 4).

Response 9-2

The EIR includes an alternatives analysis pursuant to CEQA Guidelines §15126.6 (Section 4).

COMMENT LETTER NO. 10
HENRY MILLER WATER DISTRICT
MARCH 15, 2013

Response 10-1

See Response to Comment 1-1.

Response 10-2

See Response to Comment 1-2.

Response 10-3

See Response to Comment 1-3.

Response 10-4

See Response to Comment 1-4.

Response 10-5

See Response to Comment 1-5.

Response 10-6

See Response to Comment 1-6.

Response 10-7

See Response to Comment 1-7.

Response 10-8

See Response to Comment 1-8.

Response 10-9

See Response to Comment 1-9.

Response 10-10

See Response to Comment 1-10.

Response 10-11

See Response to Comment 1-11.

Response 10-12

See Response to Comment 1-12.

Response 10-13

See Response to Comment 1-13.

Response 10-14

A full analysis of the operational air quality impacts as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1).

Response 10-15

As discussed on pages 12-13 of the IS, land application of biosolids practiced in accordance with existing federal guidelines and regulations presents negligible risk to crop production. A full analysis of land use is included in the EIR (Section 3.4).

Response 10-16

The EIR includes an alternatives analysis pursuant to CEQA Guidelines §15126.6 (Section 4).

Response 10-17

See Response to Comment 1-14.

COMMENT LETTER NO. 11
KERN DELTA WATER DISTRICT
MARCH 13, 2013

Response 11-1

See Response to Comment 1-1.

Response 11-2

See Response to Comment 1-2.

Response 11-3

See Response to Comment 1-3.

Response 11-4

See Response to Comment 1-4.

Response 11-5

See Response to Comment 1-5.

Response 11-6

See Response to Comment 1-6.

Response 11-7

See Response to Comment 1-7.

Response 11-8

See Response to Comment 1-8.

Response 11-9

See Response to Comment 1-9.

Response 11-10

See Response to Comment 1-10.

Response 11-11

See Response to Comment 1-11.

Response 11-12

See Response to Comment 1-12.

Response 11-13

See Response to Comment 1-13.

Response 11-14

See Response to Comment 1-14.

COMMENT LETTER NO. 12
STEVEN YOUNG, ROADS DEPARTMENT OF KERN COUNTY
MARCH 15, 2013

Response 12-1

Your comment is noted. No further analysis is required.

COMMENT LETTER NO. 13
KERN COUNTY WATER AGENCY
MARCH 14, 2013

Response 13-1

Your comment is noted.

Response 13-2

The EIR includes a discussion of water quality data and monitoring, sampling frequency, and monitoring well locations (Section 3.3). The potential cumulative groundwater impacts of the proposed project are evaluated in the EIR (Section 5.1.9).

Response 13-3

An analysis of data prior to 2000 is outside the scope of the EIR. The EIR includes an evaluation of the cumulative groundwater impacts between 2000 and 2012 from the proposed project for metals based on metals concentrations in the biosolids and the loading rates of the biosolids. The analysis indicates concentrations for pollutants of concern are well below all pollutant concentration limits. Additionally, based on conservative assumptions and agronomic loading rates, the project site has a site life of more than 40 years subsequent to 2012 (Section 3.3).

The DEIR also includes an evaluation of pH, nitrate, chloride, and electrical conductivity. pH has not changed significantly between 2000 and 2011. Nitrate concentrations have significantly decreased by 120%. Chloride and electrical conductivity have increased by approximately 20% (Section 3.3).

The potential cumulative groundwater impacts of the proposed project are evaluated in the EIR (Section 5.1.9).

Response 13-4

The Kern Water Bank is located north of the project site. Groundwater located in the northern area of the project site flows in a south and southeast direction while groundwater in the southern area of the project site flows in a northeast direction. Because groundwater underlying the project site does not flow towards the Kern Water Bank, there will be no impact from the project on the Kern Water Bank.

As discussed in the EIR (Section 3.3), proper application of biosolids will not result in impacts to groundwater. Additionally, the project site has a tail water and runoff water recovery system that collects and returns tail water and runoff water to the source fields or adjacent fields. This prevents water from leaving the project site. The potential cumulative groundwater impacts of the proposed project are evaluated in the EIR (Section 5.1.9).

COMMENT LETTER NO. 14
KERN WATER BANK AUTHORITY
MARCH 18, 2013

Response 14-1

The Kern Water Bank is located north of the project site. Groundwater located in the northern area of the project site flows in a south and southeast direction while groundwater in the southern area of the project site flows in a northeast direction. Because groundwater underlying the project site does not flow towards the Kern Water Bank, there will be no impact from the project on the Kern Water Bank. In addition, the potential cumulative groundwater impacts of the proposed project are evaluated in the EIR (Section 5.1.9).

COMMENT LETTER NO. 15
NATIVE AMERICAN HERITAGE COMMISSION
MARCH 5, 2013

Response 15-1

Your suggestion to contact an appropriate Information Center is noted. As stated on page A-7 of the Initial Study, the Farm will not be cleared, excavated, and/or developed as a result of the land application of biosolids or its 2000 purchase. No culturally or archeologically significant resources have been identified, including any Native American culturally significant resources, since the Farm began operations in 1988. No impacts on archeological or cultural resources are expected due to the Project.

Response 15-2

Your comment on archaeological surveying is noted. No archeologically significant resources have been identified in the area of the Farm, and thus no additional archaeological inventory survey is required.

Response 15-3

Your suggestion to regarding the consultation with tribes and interested Native American consulting parties is noted. No archaeological resources, paleontological resources, or human remains were previously identified and there will be no ground-breaking activity as a result of the Project. However, it is the City's practice to respect all cultures and communities and as such, all effort will be made to make contact with those on the provided Native American Contact List should any archaeological resources be discovered.

Response 15-4

The City values its ongoing relationship between Native American tribes and lead agencies. To this end, the City will consult with applicable Native American tribes when the project warrants consultation. As discussed in Reponses 15-1 through 15-3, operation of the Farm is not expected to result in identification of archeological or Native American cultural resources or human remains and thus, further consultation is not needed at this time. The City appreciates the Native American Heritage Commission's comments.

COMMENT LETTER NO. 16
PALLA ROSA DAIRY
MARCH 14, 2013

Response 16-1

See Response to Comment 1-1.

Response 16-2

See Response to Comment 1-3.

Response 16-3

See Response to Comment 1-4.

Response 16-4

See Response to Comment 1-5.

Response 16-5

See Response to Comment 1-9.

Response 16-6

The proposed project is the land application of biosolids and the purchase of the land area of the Farm, not the irrigation of land using recycled water. The use of recycled water for irrigation at the Farm was evaluated under in the City of Bakersfield EIR. The use of water at the Farm will not change due to land application of biosolids. No further analysis is required.

Response 16-7

The potential cumulative groundwater impacts of the proposed project are evaluated in the EIR (Section 5.1.9). As stated in Comment 1-9, proposed or new regulations are not considered in this DEIR because it would be difficult to address unknown future requirements, but will be addressed as applicable in the future by the City and/or farm operators, consistent with any new regulatory requirements.

COMMENT LETTER NO. 17
KERN COUNTY
MARCH 13, 2013

Response 17-0

The comment sets forth the commenter's interpretation of the analyses presented in the IS; specific comments will be addressed below. All comment letters related to the Initial Study will be included as an attachment to the EIR. As requested, notice of any further EIR-related proceedings or public documents will be sent to Kern County as required by applicable law.

Response 17-1

The commenter references only one part of the project description (i.e., the City's purchase of the Farm in 2000) and states that this does not properly address the Court's direction to analyze the entirety of the activity. However, the project description in the IS specifically states "the baseline for the proposed Project is assumed to be the year 2000: no biosolids land applied at the Farm." The subsequent analyses are based on the incremental impacts resulting from land application of 800 tons per day (tpd) of biosolids compared to no application of biosolids, which is the entirety of the project activity.

Response 17-2

The analyses included in the IS and the EIR are site-specific and focused on the Farm. The commenter does not provide information to support the claim that the analyses are not site-specific. A full analysis of the air quality, greenhouse gas, land use planning and hydrology/water use impacts are included in the EIR (Sections 3.1, 3.2, 3.3, and 3.4).

Response 17-3

As described in the project description, the proposed project is defined as the land application of 800 tpd and the purchase of the site, using a baseline of the year 2000, which has been conservatively defined as no land application of biosolids. The 800 tpd of biosolids land application does represent the consolidation of all biosolids (not sewage sludge) at the Farm; indeed it represents land application that exceeds any historical biosolids land application. An EIR has been prepared that includes an assessment of potentially significant impacts related to air quality, greenhouse gases, land use planning and hydrology/water use impacts if all City biosolids were land applied at the Farm.

Response 17-4

The City is not relying on the WDR EIR as a project EIR; information from the certified EIR was and is used in independently assessing project impacts. The EIR is an environmental review of the City's purchase of Green Acres and the amendment to the City's preexisting contract to transport up to 800 wet tons per day (monthly average of 550 wet tons per day) of biosolids to Green Acres.

Response 17-5

The IS includes a brief description of mitigation measures identified in the PEIR and a brief statement as to whether the measure was expected to be applicable (see for example IS,

Section IV. B. Agriculture and Forestry Resources). The EIR includes further analyses on mitigation measures included in the PEIR as they relate to potentially significant impacts analyzed for air quality, greenhouse gases, land use planning, and hydrology/water use.

Response 17-6

The PEIR identified potential impacts to soils, water quality and public health. See also Responses to Comments 2-2 and 3-2. This EIR includes an analysis of potentially significant impacts related to air quality, greenhouse gases, land use planning, and hydrology/water use.

Response 17-7

The proposed project is for the purchase of the Farm and subsequent land application of up to 800 tpd of biosolids. The proposed project does not include the process for conversion of Class B sewage sludge to Class A-EQ biosolids; this process is part of the operations that occur at HTP and would have happened independently of the project. These HTP operational changes would occur with or without the project. Further analysis related to HTP process changes of Class A-EQ biosolids is not required under CEQA.

Response 17-8

Compliance with federal regulations is cited as supporting evidence regarding the effects of the incremental changes to the land application activities. While not conclusive evidence of no significant impact under CEQA, agency reference to project compliance with federal, state, regional, and local regulations remains a valuable tool for determining whether a project may have significant environmental effects. (CEQA Guidelines § 15064.7(a).

See Response to Comment 17-7.

Response 17-9

Biosolids reuse in California may be conducted pursuant to either the State Water Resources Control Board's General Order (Order 2004-10-DWQ) or individual waste discharge requirements (WDRs) issued by the appropriate Regional Water Quality Control Board. Land application at the site is subject to the requirements of two WDRs issued and enforced by the Central Valley Regional Water Quality Control Board (R5-94-286 and R5-95-140). No additional analysis is required related to this.

Response 17-10

The IS references regulations as one supporting fact to illustrate that Class A-EQ biosolids have been deemed safe to land apply under certain conditions, such as those in the project. The IS and EIR contain an analysis of the impacts of land application of biosolids beyond stating that the project will comply with regulations and this does not rely solely on compliance with permit conditions as suggested in the comment. No further analysis is required.

Response 17-11

The PEIR stated that, if a loading rate of 25 wet tons per acre was used, a new land application site would be required every 6 years for a total of 48 acres (or 27 square miles of land (pg. 3.1-5)). However, the EIR also stated that "these requirements could change when the EPA issues its Section 503 regulations" (pg. 3.1-5). These regulations, The *Standards for the Use or*

Disposal of Sewage Sludge, became effective in 1993. The regulations list requirements for land application of biosolids based on the quality of the biosolids. Based on §503.13(b)(1), Class A-EQ biosolids, such as those being applied at the Farm, need to meet pollutant concentrations in §503.13(b)(3) and at least one vector attraction reduction measures in §503.33(b)(1)-(b)(8). The Class A-EQ biosolids being applied at the Farm meet all of the pollutant concentrations listed in §503.13(b)(3) and have a reduced volatile solids content of at least 38%, meeting the requirements in §503.33(b)(1). Based on this, land application of biosolids at the Farm meets the new requirements in USEPA's Section 503 and will not lead to any contamination, including heavy metal contamination, that could limit the future use of the site for agricultural purposes.

In addition, the 25 ton/acre loading rate was an example rate based on the loading rate approved by the Regional Water Quality Control Board (RWQCB) in Santa Ana for application of HTP sludge. The farming conditions in Santa Ana would not apply to those in Kern County and the biosolids currently being land applied are a higher quality than those analyzed previously for Santa Ana.

Response 17-12

The IS includes a brief description of mitigation measures identified in the PEIR and a statement as to whether the measure was expected to be applicable (see for example, IS Section IV. B. Agriculture and Forestry Resources). The 25 wet tons per acre agronomic rate was estimated for a specific site in Riverside County based on heavy metal concentrations, particularly cadmium. This example rate assumed a greater concentration of cadmium in biosolids than the concentration actually present in biosolids from HTP. Therefore, this agronomic rate does not apply to the proposed project (see Section 3.4.4.2). The EIR includes further analysis of those applicable mitigation measures included in the PEIR.

Response 17-13

See Response to Comment 7-12.

Response 17-14

See Response to Comment 17-12. The agronomic rate will be different for farms in different locations and with different crop types.

Response 17-15

Your comment on land application is noted. Please see Responses to Comments 17-12 and 17-15 related to the 25 ton/acre loading rate, which is specific to the Santa Ana region. The EIR includes a full analysis of the potentially significant impacts related to land use (Section 3.4).

Response 17-16

The use of recycled water at the Farm has been authorized since 1988. The Bakersfield 1984 EIR analyzed the use of wastewater effluent and the Central Valley RWQCB issued a permit allowing reclaimed water for irrigation. The City accounts for the use of biosolids in its agronomic calculations for the crops.

Response 17-17

A full analysis of the operational air quality impacts of the project as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1).

Response 17-18

A full analysis of the operational air quality impacts of the project as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1).

Response 17-19

A full analysis of the operational air quality impacts of the project as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1).

Response 17-20

A full analysis of the operational air quality impacts as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.1). The EIR includes further analysis on mitigation measures included in the PEIR (Section 3.1.7).

Response 17-21

The EIR includes an analysis of potential cumulative impacts, including impacts regarding flies (Section 5.2).

Response 17-22

A full analysis of the GHG impacts as required under CEQA and according to guidance from the appropriate agencies (e.g., SCAQMD and SJVAPCD) is provided in the EIR (Section 3.2).

Response 17-23

The EIR includes a discussion as to whether Class III landfill criteria for land application sites are used as a mitigation measure. This mitigation measure is not applicable to the proposed project because the project site is located in natural geologic formations that limit leaching from the surface to the groundwater. Additionally, the project site has a tail water and runoff water recovery system that prevents excess water (runoff) from leaving the project site.

Response 17-24

Between 2000 and 2012, approximately 9.3 tons of nitrogen per acre was applied to the project site. Because this loading rate is significantly lower than the 25 tons per acre threshold, it is not necessary to analyze the impact of a nitrogen loading rate of 40 to 60 tons per acre.

Response 17-25

As noted in Responses to Comments 17-12 and 17-18, the 1989 PEIR did not limit application rates to 25 tons/acre (which was described as the allowable rate for Santa Ana in the 1989 PEIR). A full analysis of land use planning is included in the EIR (Section 3.4). Impacts from the

proposed project on biological resources were found to be less than significant in the IS based on CEQA Guidelines. No further analysis related to biological resources is required.

Response 17-26

See Response to Comment 2-12.

Response 17-27

The 1989 PEIR based the noise analysis and subsequent conclusion of significant impacts on the use of bulldozers, loaders, graders, and tank trucks with high-power spray guns; it continued to say that these activities would create high noise levels similar to the construction activities analyzed in the 1989 PEIR. These assumptions included one bulldozer, one front-end loader, and three trucks and assumed construction activities occurring for 10 hours each day. The significant impacts and suggested buffer zone were based on these assumptions. In contrast, the site-specific analysis in the IS (Section IV. L) found less than significant impacts. In addition, no construction is currently occurring, or is planned, at the Farm and thus, the buffer mitigation measure is not required.

Response 17-28

The commenter misinterprets the 1989 PEIR's use of the worst-case scenario (low agronomic rate in Santa Ana only) with a required agronomic rate and related land needed for application. As noted in Responses to Comments 17-12 AND 17-15, agronomic rates can vary by location and crop types, and still be consistent with less than significant environmental impacts.

Response 17-29

See Response to Comment 17-28.

Response 17-30

The EIR includes a full impact analysis of potential significant impacts of air quality, GHG, land use planning, and hydrology/water use, as well as cumulative impacts (Sections 3.1, 3.2, 3.3, 3.4, and 5.1). The City also concluded in the IS that impacts to the public related to aesthetics, agriculture and forestry resources, biological resources, cultural resources, geology/soils, hazards & hazardous materials, mineral resources, noise, population/housing, public services, recreation, transportation/traffic, and utilities/service systems from the proposed project were found to be less than significant or to have no impact. Further analysis related to these areas is not required.

Response 17-31

The EIR includes an analysis of potential cumulative impacts, including impacts regarding transporting biosolids (Section 5.1).

Response 17-32

See Responses to Comments 7-12, 17-12, 17-15, and 17-25.

Response 17-33

As stated in the IS (Section IV.B), the EIR includes further analysis on the 1989 EIR's mitigation measures for food-chain crops related to public health (Section 3.4).

Response 17-34

The City complies with the buffers contained in applicable permits. The commenter has not provided any substantial evidence of adverse impacts caused by the project itself.

Response 17-35

The City is not relying upon the traffic analysis in the 1989 PEIR. The City analyzed transportation impacts of this project in the IS and concluded that the impacts based on the number of truck trips per day of this project would be less than significant. No further analysis is required.

Response 17-36

Your comment on land use planning issues, Kern County ordinances, and Measure E is noted. The EIR includes an analysis of potential land use and planning impacts (Section 3.4). Please see Section 2.3.2 for the litigation history of Kern County ordinances and Measure E.

Response 17-37

See Response to Comment 17-8.

Response 17-38

The proposed project does not use potable water for irrigation. Recycled water from the City of Bakersfield Wastewater Treatment Plant #3 is applied at agronomic rates and tail water and runoff water is collected and returned to the source fields or adjacent fields. The IS analyzed the impacts on the water supply (Section IV. I, IV. Q., and Appendix A. Section 17). In addition, a full analysis of potentially significant impacts related to hydrology and water use is included in the EIR (Section 3.3).

Response 17-39

See Response to Comment 2-12.

Response 17-40

The proposed project does not use potable water for irrigation. Recycled water from the City of Bakersfield Wastewater Treatment Plant #3 is applied at agronomic rates and tail water and runoff water is collected and returned to the source fields or adjacent fields. The IS analyzed the impacts on the water supply (Section IV. I, IV. Q., and Appendix A. Section 17). In addition, a full analysis of potential impacts related to hydrology and water use is included in the EIR (Section 3.3).

Response 17-41

See Response to Comment 1-1.

Response 17-42

All relevant EIR documents will be provided per CEQA requirements.

Response 17-43

See Response to Comment 17-2.

COMMENT LETTER NO. 18
ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT
MARCH 26, 2013

Response 18-1

See Response to Comment 1-1.

Response 18-2

See Response to Comment 1-2.

Response 18-3

See Response to Comment 1-3.

Response 18-4

See Response to Comment 1-4.

Response 18-5

See Response to Comment 1-5.

Response 18-6

See Response to Comment 1-6.

Response 18-7

See Response to Comment 1-7.

Response 18-8

See Response to Comment 1-8.

Response 18-9

See Response to Comment 1-9.

Response 18-10

See Response to Comment 1-10.

Response 18-11

See Response to Comment 1-11.

Response 18-12

See Response to Comment 1-12.

Response 18-13

See Response to Comment 1-13.

Response 18-14

See Response to Comment 1-14.

COMMENT LETTER NO. 19
ORANGE COUNTY SANITATION DISTRICT
MARCH 15, 2013

Response 19-1

Your comment is noted. A full analysis of the air quality, GHG impacts and land use planning as required under CEQA is provided in the EIR (Sections 3.1, 3.2, and 3.3).

Appendix C

Emissions Calculations – Project

Table 1a. Comparison of Criteria Pollutant Emissions to SCAQMD CEQA Thresholds

	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
Baseline						
Transportation Emissions[1]	254.9	11.3	1.7	7.2	6.6	44.2
Land Application Emissions[2]	--	--	--	--	--	--
Total Baseline Emissions	**255**	**11**	**1.7**	**7.2**	**6.6**	**44**
Project						
Transportation Emissions[3]	127.1	6.5	0.2	5.7	5.2	29.9
Land Application Emissions[4]	--	--	--	--	--	--
Total Project Emissions	**127**	**7**	**0**	**6**	**5**	**30**
Incremental Emissions	**-128**	**-4.8**	**-1.5**	**-1.5**	**-1.4**	**-14**
Threshold[5]	55	55	150	150	55	550
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

[1] Baseline transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility and rountrip emissions generated in the SCAB from trucks that deliver the biosolids from HTP to the SCAB boundary (en route to AZ).
[2] There are no baseline land application emissions in the SCAB because the Farm is located in the SJVAB.
[3] Project transportation emissions include roundtrip emissions from trucks that deliver the biosolids to the Farm. Note that the emissions are only those that occur within theSCAB (from HTP to the SCAB boundary, approximately where the Frazier Mountain Park Road off-ramp is on the I-5 freeway).
[4] There are no project land application emissions in the SCAB because the Farm is located in the SJVAB.
[5] SCAQMD CEQA thresholds (http://www.aqmd.gov/ceqa/handbook/signthres.pdf)

Table 1b. Comparison of Criteria Pollutant Emissions to SJVAPCD CEQA Thresholds

	NO_x emissions (tpy)	VOC emissions (tpy)	SO_x emissions (tpy)	PM_{10} emissions (tpy)	$PM_{2.5}$ emissions (tpy)	CO emissions (tpy)
Baseline						
Transportation Emissions[1]	--	--	--	--	--	--
Land Application Emissions[2]	0.18	0.02	0.00	0.01	0.01	0.09
Total Baseline Emissions	**0.18**	**0.02**	**0.00**	**0.01**	**0.01**	**0.09**
Project						
Transportation Emissions[3]	11.9	0.6	0.0	0.5	0.5	2.8
Land Application Emissions[4]	4.6	3.1	0.0	0.2	0.2	2.3
Total Project Emissions	**17**	**3.7**	**0**	**1**	**1**	**5**
Incremental Emissions	**16.3**	**3.7**	**0**	**1**	**1**	**5**
Threshold[5]	10	10	--	--	--	--
Significant?	**Yes**	**No**	**No**	**No**	**No**	**No**

[1] There are no transportation emissions in the baseline scenario because biosolids are trucked from HTP to Griffith Park Composting Facility or from HTP to AZ. No trucking occurs within the SJVAPCD jurisdiction.
[2] Baseline land application emissions include land application emissions from the equipment and the nitrogen fertilizer.
[3] Project transportation emissions include roundtrip emissions from trucks that deliver the biosolids to the Farm. Note that the emissions are only those that occur within the SJVAB jurisdiction (from the SCAB boundary, approximately where the Frazier Mountain Park Road off-ramp is on the I-5 freeway, to the Farm).
[4] Project land application emissions include emissions from agricultural equipment (e.g. tractors, water trucks, etc.) that apply the biosolids at the Farm; fugitive emissions from the application itself; emissions from the biosolids after land application; and emissions from equipment used to incorporate the biosolids into the earth.
[5] SJVAPCD CEQA thresholds (http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf)

Abbreviations:
CEQA = California Environmental Quality Act
HTP = Hyperion Treatment Plant
lb = pound
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District
SJVAPCD = San Joaquin Valley Air Pollution Control District
tpy = tons per year

Table 2a. Annual GHG Emissions - SCAB

Emission Source	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions (MT/year)	CO_2e emissions[6] (MT/year)
Baseline				
Transportation Emissions[1]	3,175	0.09	0.10	3,207
Land Application Emissions[2]	--	--	--	--
Total Baseline Emissions	**3,175**	**0.09**	**0.10**	**3,207**
Project				
Transportation Emissions[3]	2,949	0.05	0.09	2,979
Land Application Emissions[4]	--	--	--	--
Total Project Emissions	**2,949**	**0.05**	**0.09**	**2,979**
Incremental Emissions	**-225**	**-0.04**	**0.00**	**-228**

[1] Baseline transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility and rountrip emissions generated in the SCAB from trucks that deliver the biosolids from HTP to the SCAB boundary (en route to AZ).

[2] There are no baseline land application emissions in the SCAB because the Farm is located in the SJVAB.

[3] Project transportation emissions include roundtrip emissions from trucks that deliver the biosolids to the Farm. Note that the emissions are only those that occur within the SCAB (from HTP to the SCAB boundary, approximately where the Frazier Mountain Park Road off-ramp is on the I-5 freeway).

[4] There are no project land application emissions in the SCAB because the Farm is located in the SJVAB.

[6] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1

CH_4 = 21

N_2O = 310

Table 2b. Annual GHG Emissions - SJVAB

Emission Source	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions (MT/year)	CO_2e emissions[5] (MT/year)
Baseline				
Transportation Emissions[1]	--	--	--	--
Land Application Emissions[2]	611	0.04	1.3	1,020
Total Baseline Emissions	**611**	**0.04**	**1.3**	**1,020**
Project				
Transportation Emissions[3]	1,513	0.03	0.05	1,529
Land Application Emissions[4]	635	26	0	1,196
Total Project Emissions	**2,149**	**26**	**0.06**	**2,724**
Incremental Emissions	1,537	26	-1.3	1,705

[1] There are no transportation emissions in the baseline scenario because biosolids are trucked from HTP to Griffith Park Composting Facility or from HTP to AZ. No trucking occurs within the SJVAPCD jurisdiction.

[2] Baseline land application emissions include land application emissions from the equipment and the nitrogen fertilizer.

[3] Project transportation emissions include roundtrip emissions from trucks that deliver the biosolids to the Farm. Note that the emissions are only those that occur within the SJVAB jurisdiction (from the SCAB boundary, approximately where the Frazier Mountain Park Road off-ramp is on the I-5 freeway, to the Farm).

[4] Project land application emissions include emissions from agricultural equipment (e.g. tractors, water trucks, etc.) that apply the biosolids at the Farm; fugitive emissions from the application itself; emissions from the biosolids after land application; and emissions from equipment used to incorporate the biosolids into the earth.

[5] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1

CH_4 = 21

N_2O = 310

Abbreviations:

CEQA = California Environmental Quality Act

CH_4 = methane

CO_2 = carbon dioxide

CO_2e = CO_2 equivalent

HTP = Hyperion Treatment Plant

MT = metric tonnes

N_2O = nitrous oxide

SCAB = South Coast Air Basin

SCAQMD = South Coast Air Quality Management District

SJVAPCD = San Joaquin Valley Air Pollution Control District

Table 3a. Calculation of Number of Project Truck Trips and Trip Miles

Truck Trips		
Biosolids trucked from HTP to Green Acres[1]	800	tons/day
Truck capacity[1]	26	tons/truck
Daily trucks[2]	31	trucks/day
Annual trucks[3]	11,315	trucks/year
Truck Miles		
Distance from HTP to SCAB boundary (one way)[4]	76	miles
Distance from SCAB boundary to Green Acres (one way)[4]	39	miles
Total daily truck miles - HTP to SCAB boundary (round trip)	4,712	miles/day
Total daily truck miles - SCAB boundary to Green Acres (round trip)	2,418	miles/day
Total annual truck miles - HTP to SCAB boundary (round trip)[3]	1,719,880	miles/year
Total annual truck miles - SCAB boundary to Green Acres (round trip)[3]	882,570	miles/year

[1] Project-specific information provided by the City of LA.
[2] Calculated based on the amount of biosolids and truck capacity.
[3] Calculated assuming biosolids are trucked 365 days/year.
[4] Estimate based on South Coast Air Quality Management District boundary map (http://www.aqmd.gov/map/mapaqmd1.pdf) and Google Maps.

Table 3b. Calculation of Number of Baseline Truck Trips and Trip Miles

Truck Trips		
Biosolids trucked from HTP to Griffith Park[1]	52	tons/week
Biosolids trucked from HTP to AZ[1]	581	tons/day
Truck capacity[1]	26	tons/truck
Weekly trucks from HTP to Griffith Park[2]	2	trucks/week
Daily trucks from HTP to AZ[2]	23	trucks/day
Annual trucks from HTP to Griffith Park[3]	104	trucks/year
Annual trucks from HTP to AZ[3]	8,395	trucks/year
Truck Miles		
Distance from HTP to Griffith Park (one way)[4]	28	miles
Distance from HTP to SCAB boundary (en route to AZ)[4]	110	miles
Distance from SCAB boundary to AZ[4]	132	miles
Total weekly truck miles - HTP to Griffith Park (round trip)	112	miles/week
Total daily truck miles - HTP to SCAB boundary (round trip)	5,060	miles/day
Total daily truck miles - SCAB boundary to AZ (round trip)	6,072	miles/day
Total annual truck miles - HTP to Griffith Park (round trip)[3]	5,824	miles/year
Total annual truck miles - HTP to SCAB boundary (round trip)[3]	1,846,900	miles/year
Total annual truck miles - SCAB boundary (round trip)[3]	2,216,280	miles/year

[1] Project-specific information provided by the City of LA.
[2] Calculated based on the amount of biosolids and truck capacity.
[3] Calculated assuming biosolids are trucked 365 days/year.
[4] Estimate based on Google Maps.

Abbreviations:
AZ = Arizona
CEQA = California Environmental Quality Act
HTP = Hyperion Treatment Plant
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District
SJVAPCD = San Joaquin Valley Air Pollution Control District

Table 4. Parameters Used in Project Criteria Pollutant Calculations.

Emission Category	Source	Equipment Horsepower[1] (hp)	Equipment Operating Schedule[2] (hrs/day)	Emission Factor							Load Factor (unitless)
				NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO	Unit	
Trucking	Trucking[3]	--	--	12.24	0.63	0.02	0.54	0.50	2.88	g/mile	--
Biosolids Land Application - Equipment Emissions	CAT 928G Wheel Loader[4]	125	1.5	4.314	0.553	0.006	0.239	0.239	3.285	g/hp-hr	0.55
	CAT 928H Wheel Loader[4]	149	4.5	4.314	0.553	0.006	0.239	0.239	3.285		0.55
	Challenger 755T Tract Tractor[4]	260	6	5.810	0.654	0.005	0.235	0.235	2.890		0.65
	Freightliner Water Truck[4]	275	6	3.728	0.452	0.005	0.132	0.132	1.327		0.57
Biosolids Land Application - Surface Degradation	Biosolids[5]	--	--	--	0.0178	--	--	--	--	lb/ton	--

[1] Equipment horsepower is based on the equipment model provided by the client, or based on the closest model if the information is not available.
CAT 928G Wheel Loader horsepower from: http://www.cat.com/cda/layout?m=607367&x=7
CAT 928H Wheel Loader horsepower based on CAT 928Hz: http://www.cat.com/cda/layout?m=663385&x=7
Challenger 755T Tract Tractor based on Challenger MT755D: http://www.challenger-ag.us/products/tractors/mt700d-series-track-tractors/
Freightliner Water Truck based on the average Freightliner M2 106 rating: https://www.freightlinertrucks.com/Trucks/Models/M2106/Specs
[2] Project-specific information provided by the City of LA.
[3] Emission factors from EMFAC2011 with the following parameters: calendar year 2010, statewide total, annual average, T7 CAIRP, aggregated model years, aggregated speeds (CARB. Onroad Emission Factors. http://www.arb.ca.gov/msei/modeling.htm)
[4] Load factors and emission factors from California Emissions Estimation Model (CalEEMod™) User's Guide, Appendix D, Tables 3.3 and 3.4, respectively. (http://caleemod.com)
[5] San Joaquin Valley Unified Air Pollution Control District. February 15, 2007, Appendix B: Emission Reduction Analysis for Proposed New Rule 4565 (http://www.valleyair.org/workshops/postings/priorto2008/2007/03-08-07/r4565_appb_rf.pdf). The emission factor for land application of biosolids is listed as 1.42 lb/ton per 20 days for each day the biosolids are not land incorporated. SJVAPCD Rule 4565 requires that facilities that land apply biosolids incorporate the biosolids within 3 hours of receipt of the biosolids. However, if materials are received after 6PM, Rule 4565 allows for incorporation by noon of the following day. Typical practice on the Farm is to incorporate within 3 hours of receipt, in compliance with Rule 4565. Materials received between midnight and 6am may be stored for up to 6 hours before land application and incorporation. Therefore, the VOC emission factor is calculated as follows: VOC emission factor = (1.42 lb/ton) / (20 days) / (24 hours/day) * (6 hours) = 0.0178 lb/ton. This is a conservative estimate as it assumes all biosolids will be incorporated within 6 hours, when in reality the majority of biosolids are incorporated in 3 hours.

Abbreviations:
CO = carbon monoxide
g = gram
hp = horsepower
hr = hour
HTP = Hyperion Treatment Plant
lb = pound
NO_x = nitrogen oxides
PM_{10} = particulate matter with diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns
SO_x = sulfur oxides
T7 CAIRP = Heavy-Heavy Duty Diesel California International Registration Plan Truck
VOC = volatile organic compounds

Table 5a. Project Daily Trucking Emissions - Criteria Pollutants

Trip Leg	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
HTP to SCAB boundary	127.11	6.54	0.17	5.66	5.20	29.95
SCAB boundary to Green Acres	65.23	3.36	0.09	2.90	2.67	15.37
Total	**192.34**	**9.90**	**0.26**	**8.56**	**7.87**	**45.31**

Table 5b. Project Daily Land Application Emissions - Criteria Pollutants

Equipment/Activity	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
CAT 928G Wheel Loader	0.98	0.13	0.00	0.05	0.05	0.75
CAT 928H Wheel Loader	3.51	0.45	0.00	0.19	0.19	2.67
Challenger 755T Tract Tractor	12.99	1.46	0.01	0.53	0.53	6.46
Freightliner Water Truck	7.73	0.94	0.01	0.27	0.27	2.75
Emissions from Biosolids after Land Application	--	14.20	--	--	--	--
Total	**25.21**	**17.17**	**0.03**	**1.05**	**1.05**	**12.63**

Table 6a. Project Annual Trucking Emissions - Criteria Pollutants

Trip Leg	NO_x emissions (tons/year)	VOC emissions (tons/year)	SO_x emissions (tons/year)	PM_{10} emissions (tons/year)	$PM_{2.5}$ emissions (tons/year)	CO emissions (tons/year)
HTP to SCAB boundary	23.20	1.19	0.03	1.03	0.95	5.47
SCAB boundary to Green Acres	11.90	0.61	0.02	0.53	0.49	2.80
Total	**35.10**	**1.81**	**0.05**	**1.56**	**1.44**	**8.27**

Table 6b. Project Annual Land Application Emissions - Criteria Pollutants

Equipment/Activity	NO_x emissions (tons/year)	VOC emissions (tons/year)	SO_x emissions (tons/year)	PM_{10} emissions (tons/year)	$PM_{2.5}$ emissions (tons/year)	CO emissions (tons/year)
CAT 928G Wheel Loader	0.18	0.02	0.00	0.01	0.01	0.14
CAT 928H Wheel Loader	0.64	0.08	0.00	0.04	0.04	0.49
Challenger 755T Tract Tractor	2.37	0.27	0.00	0.10	0.10	1.18
Freightliner Water Truck	1.41	0.17	0.00	0.05	0.05	0.50
Emissions from Biosolids after Land Application	--	2.59	--	--	--	--
Total	**4.60**	**3.13**	**0.01**	**0.19**	**0.19**	**2.30**

Abbreviations:

CO = carbon monoxide
HTP = Hyperion Treatment Plant
lb = pound
NO_x = nitrogen oxides
PM_{10} = particulate matter with diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns
SCAB = South Coast Air Basin
SO_x = sulfur oxides
VOC = volatile organic compounds

Table 7. Parameters Used in Baseline Criteria Pollutant Calculations.

Emission Category	Source	Equipment Horsepower[1] (hp)	Equipment Operating Schedule[2] (hrs/day)	Equipment Operating Schedule[3] (hrs/yr)	Load Factor (unitless)	Emission Factor						
						NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO	Unit
Trucking	Trucking[4]	--	--	--	--	22.36	0.99	0.15	0.63	0.58	3.88	g/mile
Land Application - Equipment Emissions	CAT 928G Wheel Loader[5]	125	1.5	21.0	0.55	4.314	0.553	0.006	0.239	0.239	3.285	g/hp-hr
	CAT 928H Wheel Loader[5]	149	4.5	63.0	0.55	4.314	0.553	0.006	0.239	0.239	3.285	
	Challenger 755T Tract Tractor[5]	260	6	84.0	0.65	5.810	0.654	0.005	0.235	0.235	2.890	
	Freightliner Water Truck[5]	275	6	84.0	0.57	3.728	0.452	0.005	0.132	0.132	1.327	

Emission Category	Source	Fertilizer type	Fertilizer Application Rate[6] (lb/acre)	Total Fertilizer Applied[6] (lb fertilizer/ year)	Emission Factor						
					NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO	Unit
Land Application - Fertilizer Emissions	Fertilizer[7]	Urea	69	324,300	0	--	--	--	--	--	lb/lb

[1] Equipment horsepower is based on the equipment model provided by the client, or based on the closest model if the information is not available.
CAT 928G Wheel Loader horsepower from: http://www.cat.com/cda/layout?m=607367&x=7
CAT 928H Wheel Loader horsepower based on CAT 928Hz: http://www.cat.com/cda/layout?m=663385&x=7
Challenger 755T Tract Tractor based on Challenger MT755D: http://www.challenger-ag.us/products/tractors/mt700d-series-track-tractors/
Freightliner Water Truck based on the average Freightliner M2 106 rating: https://www.freightlinertrucks.com/Trucks/Models/M2106/Specs

[2] Project-specific information provided by the City of LA.

[3] Fertilizer application is assumed to occur once a year and to require 14 days for application. The total time for application is calculated assuming the tractor can be used to fertilize up to 60 acres/hour (http://www.deere.com/wps/dcom/en_US/products/equipment/nutrient_application/nutrient_application.page). Assuming the tractor operates 6 hours/day, 14 days would be required for fertilization of the Farm (4,700 acres).

[4] Emission factors from EMFAC2011 with the following parameters: calendar year 2000, statewide total, annual average, T7 CAIRP, aggregated model years, aggregated speeds (CARB. Onroad Emission Factors. http://www.arb.ca.gov/msei/modeling.htm)

[5] Load factors and emission factors from California Emissions Estimation Model (CalEEMod™) User's Guide, Appendix D, Tables 3.3 and 3.4, respectively. (http://caleemod.com)

[6] The fertilizer application rate is obtained from the USDA. Fertilizer use and price. Table 28. ERS. Available at: http://www.ers.usda.gov/data-products/fertilizer-use-and-price.aspx#26718 Accessed September 2013. Total annual fertilizer is calculated by assuming fertilizer is applied evenly over the entire farm (4,700 acres) at the specified rate one time per year.

[7] Inorganic chemical fertilizers are only expected to emit NO_x emissions. However, because no information on emission factors was found, NO_x emissions are conservatively assumed to be zero.

Abbreviations:

CO = carbon monoxide
g = gram
hp = horsepower
hr = hour
HTP = Hyperion Treatment Plant
lb = pound
NO_x = nitrogen oxides
PM_{10} = particulate matter with diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns
SO_x = sulfur oxides
T7 CAIRP = Heavy-Heavy Duty Diesel California International Registration Plan Truck
VOC = volatile organic compounds

Table 8a. Baseline Daily Trucking Emissions - Criteria Pollutants

Trip Leg	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
HTP to Griffith Park	5.52	0.25	0.04	0.16	0.14	0.96
HTP to SCAB boundary (en route to AZ)	249.42	11.09	1.68	7.05	6.48	43.24
Total	**254.94**	**11.34**	**1.71**	**7.20**	**6.63**	**44.20**

Table 8b. Baseline Daily Land Application Emissions - Criteria Pollutants

Equipment/Activity	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
CAT 928G Wheel Loader	0.98	0.13	0.00	0.05	0.05	0.75
CAT 928H Wheel Loader	3.51	0.45	0.00	0.19	0.19	2.67
Challenger 755T Tract Tractor	12.99	1.46	0.01	0.53	0.53	6.46
Freightliner Water Truck	7.73	0.94	0.01	0.27	0.27	2.75
Emissions from Fertilizer after Land Application	0.00	--	--	--	--	--
Total	**25.21**	**2.97**	**0.03**	**1.05**	**1.05**	**12.63**

Table 9a. Baseline Annual Trucking Emissions - Criteria Pollutants

Trip Leg	NO_x emissions (tons/year)	VOC emissions (tons/year)	SO_x emissions (tons/year)	PM_{10} emissions (tons/year)	$PM_{2.5}$ emissions (tons/year)	CO emissions (tons/year)
HTP to Griffith Park	0.14	0.01	0.00	0.00	0.00	0.02
HTP to SCAB boundary (en route to AZ)	45.52	2.02	0.31	1.29	1.18	7.89
Total	**45.66**	**2.03**	**0.31**	**1.29**	**1.19**	**7.92**

Table 9b. Baseline Annual Land Application Emissions - Criteria Pollutants

Equipment/Activity	NO_x emissions (tons/year)	VOC emissions (tons/year)	SO_x emissions (tons/year)	PM_{10} emissions (tons/year)	$PM_{2.5}$ emissions (tons/year)	CO emissions (tons/year)
CAT 928G Wheel Loader	0.007	0.001	0.000	0.000	0.000	0.005
CAT 928H Wheel Loader	0.025	0.003	0.000	0.001	0.001	0.019
Challenger 755T Tract Tractor	0.091	0.010	0.000	0.004	0.004	0.045
Freightliner Water Truck	0.054	0.007	0.000	0.002	0.002	0.019
Emissions from Fertilizer after Land Application	0.00	--	--	--	--	--
Total	**0.18**	**0.02**	**0.00**	**0.01**	**0.01**	**0.09**

Abbreviations:

AZ = Arizona
CO = carbon monoxide
HTP = Hyperion Treatment Plant
lb = pound
NO_x = nitrogen oxides
PM_{10} = particulate matter with diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns
SCAB = South Coast Air Basin
SO_x = sulfur oxides
VOC = volatile organic compounds

Table 10a. Parameters Used in Project Greenhouse Gas Emissions Calculations.

Emission Category	Source	Equipment Horsepower[1] (hp)	Equipment Average Operating Load[2] (%)	Equipment Operating Schedule[2] (hrs/day)	Emission Factor				Load Factor (unitless)
					CO_2	TOG	CH_4	Unit	
Trucking	Trucking[3],[4]	--	--	--	1,715	0.72	0.03	g/mile	--
Biosolids Land Application - Equipment Emissions	CAT 928G Wheel Loader[5]	125	50%	8.0	568	--	0.05	g/hp-hr	0.55
	CAT 928H Wheel Loader[5]	149	50%	4.5	568	--	0.05		0.55
	Challenger 755T Tract Tractor[5]	260	50%	6	568	--	0.06		0.65
	Freightliner Water Truck[5]	275	50%	6	568	--	0.04		0.57
Biosolids Land Application - Surface Degradation	Biosolids[6]	--	--	--	0.30	--	0.20	lb/ton biosolid	--

Table 10b. Parameters Used to Calculate Biosolids Land Application Surface Degradation Emission Factors

Parameter	Emission Factor	Unit
Total Solids in Digested Sludge[7]	28%	% total solids (ton total solids/ ton biosolids)
Percent Volatile Solids to Total Solids in Digested Sludge[7]	62%	% (ton VS/ ton total solids)
Biogas production rate[7]	34,800	scf biogas/ton VS remaining
CO_2 content of biogas emitted during surface degradation[7]	35%	% (scf CO_2/scf biogas)
CH_4 content of biogas emitted during surface degradation[7]	65%	% (scf CH_4/scf biogas)
Percent of volatile solids converted to biogas[7]	58%	% (ton VS remaining/ ton VS)
density of CO_2[8]	0.116	lb/ft^3
density of CH_4[8]	0.042	lb/ft^3

[1] Equipment horsepower is based on the equipment model provided by the client, or based on the closest model if the information is not available.
CAT 928G Wheel Loader horsepower from: http://www.cat.com/cda/layout?m=607367&x=7
CAT 928H Wheel Loader horsepower based on CAT 928Hz: http://www.cat.com/cda/layout?m=663385&x=7
Challenger 755T Tract Tractor based on Challenger MT755D: http://www.challenger-ag.us/products/tractors/mt700d-series-track-tractors/
Freightliner Water Truck based on the average Freightliner M2 106 rating: https://www.freightlinertrucks.com/Trucks/Models/M2106/Specs

[2] Project-specific information provided by the City of LA.

[3] Emission factors from EMFAC2011 with the following parameters: calendar year 2010, statewide total, annual average, T7 CAIRP, aggregated model years, aggregated speeds (CARB. Onroad Emission Factors. http://www.arb.ca.gov/msei/modeling.htm)

[4] CH_4 emissions are calculated as 0.0408 x TOG emission factor for EMFAC Heavy Duty vehicle categories, per EMFAC FAQ website: http://www.arb.ca.gov/msei/emfac2011-faq.htm#emfac2011_web_db_qstn07 (Accessed May 21, 2013).

[5] Load factors and emission factors from California Emissions Estimation Model (CalEEMod™) User's Guide, Appendix D, Tables 3.3 and 3.4, respectively. (http://caleemod.com)

[6] Emission factors calculated using the methodology discussed in Reference 7 (see below) using the parameters in Table 10b. This methodology assumes that biosolids are eventually converted to biogas (CO_2 and CH_4) over a given period. For this analysis, this period is assumed to be 60 days (see Figure 3 in Reference 7).

[7] Terralog. April 30, 2002, Technical Data Supporting Experimental Objectives for Biosolids Injection Demonstration Project, Page 8.

[8] Gas Encyclopedia. http://encyclopedia.airliquide.com

Abbreviations:

CARB = California Air Resources Board
CH_4 = methane
CO_2 = carbon dioxide
EMFAC = EMission FACtors model
ft^3 = cubic feet
g = gram
hp = horsepower
hr = hour
lb = pound
T7 CAIRP = Heavy-Heavy Duty Diesel California International Registration Plan Truck
TOC = total organic carbon
VS = volatile solids

Table 11a. Project Annual Trucking Emissions - Greenhouse Gases

Trip Leg	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions[1] (MT/year)	CO_2e emissions[2] (MT/year)
HTP to SCAB boundary	2,949	0.05	0.093	2,979
SCAB boundary to Green Acres	1,513	0.03	0.048	1,529
Total	**4,462**	**0.08**	**0.14**	**4,507**

Table 11b. Project Annual Land Application Emissions - Greenhouse Gases

Equipment/Activity	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions[1] (MT/year)	CO_2e emissions[2] (MT/year)
CAT 928G Wheel Loader	114	0.01	0.003	115
CAT 928H Wheel Loader	76	0.01	0.002	77
Challenger 755T Tract Tractor	210	0.02	0.005	212
Freightliner Water Truck	195	0.01	0.005	197
Subtotal - Combustion Emissions due to Land Application	*596*	*0.05*	*0.02*	*602*
Emissions from Biosolids after land application	39	26	--	594
Subtotal - Land Application Emissions, Biogenic	*39*	*26*	*0*	*594*
Subtotal - Land Application Emissions, Non-Biogenic	*596*	*0.05*	*0.02*	*602*
Total	**635**	**26**	**0.02**	**1,196**

[1] The contributions of CH_4 and N_2O are likely small (<1% of total CO_2e) from diesel construction equipment. (California Climate Action Registry (CCAR). 2009. General Reporting Protocol. Version 3.1). To be conservative, N_2O emissions are estimated assuming the contributions for CH_4 and N_2O are 1% of total CO_2e emissions.

[2] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1

CH_4 = 21

N_2O = 310

Abbreviations:

CH_4 = methane

CO_2 = carbon dioxide

CO_2e = CO_2 equivalent

EMFAC = EMission FACtors model

HTP = Hyperion Treatment Plant

MT = metric tonnes

N_2O = nitrous oxide

SCAB = South Coast Air Basin

TOG = total organic gases

Table 12. Parameters Used in Baseline Greenhouse Gas Emissions Calculations.

Emission Category	Source	Equipment Horsepower[1] (hp)	Equipment Average Operating Load[2] (%)	Equipment Operating Schedule[2] (hrs/day)	Emission Factor					Load Factor (unitless)
					CO_2	TOG	CH_4	N_2O	Unit	
Trucking	Trucking[3],[4]	--	--	--	1,713	1.13	0.05	--	g/mile	--
Land Application - Equipment Emissions	CAT 928G Wheel Loader[5]	125	50%	1.5	568	--	0.05	--	g/hp-hr	0.55
	CAT 928H Wheel Loader[5]	149	50%	4.5	568	--	0.05	--		0.55
	Challenger 755T Tract Tractor[5]	260	50%	6	568	--	0.06	--		0.65
	Freightliner Water Truck[5]	275	50%	6	568	--	0.04	--		0.57

Emission Category	Source	Fertilizer type	Fertilizer Application Rate[6] (lb/acre)	Total Fertilizer Applied[6] (kg fertilizer/ year)	Emission Factor				
					CO_2	TOG	CH_4	N_2O	Unit
Land Application - Fertilizer	Fertilizer[7]	Urea	69	147,100	7.33E-04	--	--	8.85E-06	MT/kg fertilizer

[1] Equipment horsepower is based on the equipment model provided by the client, or based on the closest model if the information is not available.
CAT 928G Wheel Loader horsepower from: http://www.cat.com/cda/layout?m=607367&x=7
CAT 928H Wheel Loader horsepower based on CAT 928Hz: http://www.cat.com/cda/layout?m=663385&x=7
Challenger 755T Tract Tractor based on Challenger MT755D: http://www.challenger-ag.us/products/tractors/mt700d-series-track-tractors/
Freightliner Water Truck based on the average Freightliner M2 106 rating: https://www.freightlinertrucks.com/Trucks/Models/M2106/Specs
[2] Project-specific information provided by the City of LA.
[3] Emission factors from EMFAC2011 with the following parameters: calendar year 2000, statewide total, annual average, T7 CAIRP, aggregated model years, aggregated speeds (CARB. Onroad Emission Factors. http://www.arb.ca.gov/msei/modeling.htm)
[4] CH_4 emissions are calculated as 0.0408 x TOG emission factor for EMFAC Heavy Duty vehicle categories, per EMFAC FAQ website: http://www.arb.ca.gov/msei/emfac2011-faq.htm#emfac2011_web_db_qstn07 (Accessed May 21, 2013).
[5] Load factors and emission factors from California Emissions Estimation Model (CalEEMod™) User's Guide, Appendix D, Tables 3.3 and 3.4, respectively. (http://caleemod.com)
[6] The fertilizer application rate is obtained from the USDA. Fertilizer use and price. Table 28. ERS. Available at: http://www.ers.usda.gov/data-products/fertilizer-use-and-price.aspx#26718 Accessed September 2013. Total annual fertilizer is calculated by assuming fertilizer is applied evenly over the entire farm (4,700 acres) at the specified rate one time per year.
[7] Emission factors from Kern County Community-wide Greenhouse Gas Emission Inventory Methodology Documents Volume 2, Appendix G.7, May 2012. (http://www.co.kern.ca.us/planning/pdfs/kc_ghg_methods_vol2.pdf). The N_2O emission factor assumes urea fertilizer with a nitrogen content of 46% urea (AP-42).

Abbreviations:
CARB = California Air Resources Board
CH_4 = methane
CO_2 = carbon dioxide
EMFAC = EMission FACtors model
ft^3 = cubic feet
g = gram
hp = horsepower
hr = hour
lb = pound
T7 CAIRP = Heavy-Heavy Duty Diesel California International Registration Plan Truck
TOC = total organic carbon
VS = volatile solids

Table 13a. Baseline Annual Trucking Emissions - Greenhouse Gases

Trip Leg	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions[1] (MT/year)	CO_2e emissions[2] (MT/year)
HTP to Griffith Park	10	0.00	0.000	10
HTP to SCAB boundary (en route to AZ)	3,165	0.09	0.097	3,197
SCAB boundary to AZ	3,797	0.10	0.117	3,836
Total	**6,972**	**0.19**	**0.21**	**7,042**

Table 13b. Baseline Annual Land Application Emissions - Greenhouse Gases

Equipment/Activity	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions[1] (MT/year)	CO_2e emissions[2] (MT/year)
CAT 928G Wheel Loader	21	0.00	0.001	22
CAT 928H Wheel Loader	76	0.01	0.002	77
Challenger 755T Tract Tractor	210	0.02	0.005	212
Freightliner Water Truck	195	0.01	0.005	197
Subtotal - Combustion Emissions due to Land Application	*503*	*0.04*	*0.01*	*508*
Emissions from Fertilizer after land application	108	--	1.3	511
Subtotal - Land Application Emissions, Biogenic	--	--	--	--
Subtotal - Land Application Emissions, Non-Biogenic	*611*	*0*	*1*	*1,020*
Total	**611**	**0**	**1.32**	**1,020**

[1] The contributions of CH_4 and N_2O are likely small (<1% of total CO_2e) from diesel construction equipment. (California Climate Action Registry (CCAR). 2009. General Reporting Protocol. Version 3.1). To be conservative, N_2O emissions are estimated assuming the contributions for CH_4 and N_2O are 1% of total CO_2e emissions.

[2] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1
CH_4 = 21
N_2O = 310

Abbreviations:

CH_4 = methane
CO_2 = carbon dioxide
CO_2e = CO_2 equivalent
EMFAC = EMission FACtors model
HTP = Hyperion Treatment Plant
MT = metric tonnes
N_2O = nitrous oxide
SCAB = South Coast Air Basin
TOG = total organic gases

Table 14a. Project Trucking Emissions - Toxic Pollutants

Trucking Route			HTP to SCAB Boundary		SCAB boundary to Green Acres	
PM_{10} Emissions			(lb/day)	(tpy)	(lb/day)	(tpy)
			5.66	1.03	2.90	0.53
Pollutants	**CAS#**	**Emission Factor[1],[2] (lb/lb PM_{10})**	**(lb/day)**	**(tpy)**	**(lb/day)**	**(tpy)**
Benzene	71432	5.56E-03	3.15E-02	5.74E-03	0.016139377	2.95E-03
1,3-Butadiene	106990	6.49E-03	3.67E-02	6.70E-03	1.88E-02	3.44E-03
Cadmium	7440439	4.48E-05	2.53E-04	4.62E-05	1.30E-04	2.37E-05
Formaldehyde	50000	5.15E-02	2.91E-01	5.32E-02	1.50E-01	2.73E-02
Hexavalent chromium	18540299	2.99E-06	1.69E-05	3.08E-06	8.66E-06	1.58E-06
Arsenic	7440439	4.78E-05	2.70E-04	4.93E-05	1.39E-04	2.53E-05
Lead	7439921	2.48E-04	1.40E-03	2.56E-04	7.19E-04	1.31E-04
Nickel	7440020	1.16E-04	6.58E-04	1.20E-04	3.38E-04	6.17E-05
Naphthalene	91203	5.88E-04	3.33E-03	6.07E-04	1.71E-03	3.11E-04
PAHs (excluding Naphthalene)	1151	1.08E-03	6.11E-03	1.12E-03	3.14E-03	5.72E-04
Acetaldehyde	75070	2.34E-02	1.32E-01	2.41E-02	6.79E-02	1.24E-02
Acrolein	107028	1.01E-03	5.72E-03	1.04E-03	2.94E-03	5.36E-04
Ammonia	7664417	2.39E-02	1.35E-01	2.46E-02	6.93E-02	1.26E-02
Copper	7440508	1.22E-04	6.92E-04	1.26E-04	3.55E-04	6.48E-05
Ethyl benzene	100414	3.25E-04	1.84E-03	3.36E-04	9.44E-04	1.72E-04
Hexane	110543	8.03E-04	4.54E-03	8.29E-04	2.33E-03	4.25E-04
Hydrogen chloride	7647010	5.56E-03	3.15E-02	5.74E-03	1.61E-02	2.95E-03
Manganese	7439965	9.25E-05	5.23E-04	9.55E-05	2.69E-04	4.90E-05
Mercury	7439976	5.97E-05	3.38E-04	6.16E-05	1.73E-04	3.16E-05
Selenium	7782492	6.57E-05	3.71E-04	6.78E-05	1.91E-04	3.48E-05
Toluene	108883	3.15E-03	1.78E-02	3.25E-03	9.13E-03	1.67E-03
Xylenes	1330207	1.27E-03	7.16E-03	1.31E-03	3.67E-03	6.70E-04

[1] Speciated emission factors are calculated using emission factors from Table B-2 of the South Coast Air Quality Management District Supplemental Instructions for AB2588 Facilities, January 2010. (http://www.aqmd.gov/aer/Updates/SuppInstruforAB2588Facilities.pdf)
[2] Speciated emission factors in units of lb/lb PM_{10} are calculated by dividing the pollutant's emission factor by the diesel exhaust particulate emission factor.

Table 14b. Project Land Application Equipment Emissions - Toxic Pollutants

PM_{10} Emissions			(lb/day)	(tpy)
			1.05	0.19
Pollutants	**CAS#**	**Emission Factor[1],[2] (lb/lb PM_{10})**	**(lb/day)**	**(tpy)**
PAHs (excluding Naphthalene)	1151	1.08E-03	1.13E-03	2.07E-04
Formaldehyde	50000	5.15E-02	5.40E-02	9.85E-03
Benzene	71432	5.56E-03	5.83E-03	1.06E-03
Acetaldehyde	75070	2.34E-02	2.45E-02	4.47E-03
Naphthalene	91203	5.88E-04	6.16E-04	1.12E-04
Ethyl benzene	100414	3.25E-04	3.41E-04	6.22E-05
1,3-Butadiene	106990	6.49E-03	6.80E-03	1.24E-03
Acrolein	107028	1.01E-03	1.06E-03	1.93E-04
Toluene	108883	3.15E-03	3.30E-03	6.02E-04
Hexane	110543	8.03E-04	8.41E-04	1.54E-04
Xylenes	1330207	1.27E-03	1.33E-03	2.42E-04
Lead	7439921	2.48E-04	2.60E-04	4.74E-05
Manganese	7439965	9.25E-05	9.70E-05	1.77E-05
Mercury	7439976	5.97E-05	6.25E-05	1.14E-05
Nickel	7440020	1.16E-04	1.22E-04	2.23E-05
Cadmium	7440439	4.48E-05	4.69E-05	8.56E-06
Arsenic	7440439	4.78E-05	5.00E-05	9.13E-06
Copper	7440508	1.22E-04	1.28E-04	2.34E-05
Hydrogen chloride	7647010	5.56E-03	5.83E-03	1.06E-03
Ammonia	7664417	2.39E-02	2.50E-02	4.57E-03
Selenium	7782492	6.57E-05	6.88E-05	1.26E-05
Hexavalent chromium	18540299	2.99E-06	3.13E-06	5.71E-07

[1] Speciated emission factors are calculated using emission factors from Table B-2 of the South Coast Air Quality Management District Supplemental Instructions for AB2588 Facilities, January 2010. (http://www.aqmd.gov/aer/Updates/SuppInstruforAB2588Facilities.pdf)

[2] Speciated emission factors in units of lb/lb PM_{10} are calculated by dividing the pollutant's emission factor by the diesel exhaust particulate emission factor.

Table 14c. Project Biosolids Land Application Emissions - Toxic Pollutants

VOC Emissions			(lb/day)	(tpy)
			14.20	2.59
Pollutants	**CAS#**	**Emission Factor[1] (lb/lb VOC)**	**(lb/day)**	**(tpy)**
Benzene	71432	4.60E-05	6.54E-04	1.19E-04
1,1,1-Trichloroethane	71556	2.08E-04	2.95E-03	5.38E-04
Methylene chloride	75092	6.76E-03	9.60E-02	1.75E-02
Carbon disulfide	75150	1.04E-03	1.48E-02	2.69E-03
1,1-Dichloroethane	75343	2.75E-04	3.90E-03	7.12E-04
2-Butanone (Methyl ethyl ketone)	78933	9.28E-03	1.32E-01	2.41E-02
Styrene	100425	2.38E-04	3.39E-03	6.18E-04
Vinyl acetate	108054	1.63E-03	2.32E-02	4.23E-03
Toluene	108883	1.37E-04	1.94E-03	3.55E-04
Tetrachloroethene	127184	4.61E-04	6.55E-03	1.20E-03

[1] Emission factors are from the San Joaquin Valley Air Pollution Control District's Biosolids Composting Emission Factors, June 2013. (http://www.valleyair.org/busind/pto/emission_factors/emission_factors_idx.htm)

Abbreviations:

HTP = Hyperion Treatment Plant
lb = pound
PM_{10} = particulate matter with diameter less than or equal to 10 microns
SCAB = South Coast Air Basin
tpy = tons per year
VOC = volatile organic compounds

Table 15a. Baseline Trucking Emissions - Toxic Pollutants

Trucking Route			HTP to Griffith Park		HTP to SCAB boundary (en route to AZ)	
PM_{10} Emissions			(lb/day)	(tpy)	(lb/day)	(tpy)
			0.16	0.00	7.05	1.29
Pollutants	**CAS#**	**Emission Factor[1],[2] (lb/lb PM_{10})**	**(lb/day)**	**(tpy)**	**(lb/day)**	**(tpy)**
Benzene	71432	5.56E-03	8.67E-04	2.25E-05	3.92E-02	7.15E-03
1,3-Butadiene	106990	6.49E-03	1.01E-03	2.63E-05	4.57E-02	8.34E-03
Cadmium	7440439	4.48E-05	6.98E-06	1.82E-07	3.15E-04	5.76E-05
Formaldehyde	50000	5.15E-02	8.04E-03	2.09E-04	3.63E-01	6.63E-02
Hexavalent chromium	18540299	2.99E-06	4.66E-07	1.21E-08	2.10E-05	3.84E-06
Arsenic	7440439	4.78E-05	7.45E-06	1.94E-07	3.37E-04	6.14E-05
Lead	7439921	2.48E-04	3.86E-05	1.00E-06	1.75E-03	3.19E-04
Nickel	7440020	1.16E-04	1.82E-05	4.72E-07	8.20E-04	1.50E-04
Naphthalene	91203	5.88E-04	9.17E-05	2.38E-06	4.14E-03	7.56E-04
PAHs (excluding Naphthalene)	1151	1.08E-03	1.69E-04	4.38E-06	7.61E-03	1.39E-03
Acetaldehyde	75070	2.34E-02	3.65E-03	9.48E-05	1.65E-01	3.01E-02
Acrolein	107028	1.01E-03	1.58E-04	4.10E-06	7.13E-03	1.30E-03
Ammonia	7664417	2.39E-02	3.72E-03	9.68E-05	1.68E-01	3.07E-02
Copper	7440508	1.22E-04	1.91E-05	4.96E-07	8.62E-04	1.57E-04
Ethyl benzene	100414	3.25E-04	5.07E-05	1.32E-06	2.29E-03	4.18E-04
Hexane	110543	8.03E-04	1.25E-04	3.26E-06	5.66E-03	1.03E-03
Hydrogen chloride	7647010	5.56E-03	8.67E-04	2.25E-05	3.92E-02	7.15E-03
Manganese	7439965	9.25E-05	1.44E-05	3.75E-07	6.52E-04	1.19E-04
Mercury	7439976	5.97E-05	9.31E-06	2.42E-07	4.21E-04	7.68E-05
Selenium	7782492	6.57E-05	1.02E-05	2.66E-07	4.63E-04	8.44E-05
Toluene	108883	3.15E-03	4.91E-04	1.28E-05	2.22E-02	4.05E-03
Xylenes	1330207	1.27E-03	1.97E-04	5.13E-06	8.92E-03	1.63E-03

[1] Speciated emission factors are calculated using emission factors from Table B-2 of the South Coast Air Quality Management District Supplemental Instructions for AB2588 Facilities, January 2010. (http://www.aqmd.gov/aer/Updates/SuppInstruforAB2588Facilities.pdf)
[2] Speciated emission factors in units of lb/lb PM_{10} are calculated by dividing the pollutant's emission factor by the diesel exhaust particulate emission factor.

Table 15b. Baseline Land Application Equipment Emissions - Toxic Pollutants

PM_{10} Emissions			(lb/day)	(tpy)
			1.05	0.01
Pollutants	**CAS#**	**Emission Factor[1],[2] (lb/lb PM_{10})**	**(lb/day)**	**(tpy)**
Benzene	71432	5.56E-03	5.83E-03	4.08E-05
1,3-Butadiene	106990	6.49E-03	6.80E-03	4.76E-05
Cadmium	7440439	4.48E-05	4.69E-05	3.28E-07
Formaldehyde	50000	5.15E-02	5.40E-02	3.78E-04
Hexavalent chromium	18540299	2.99E-06	3.13E-06	2.19E-08
Arsenic	7440439	4.78E-05	5.00E-05	3.50E-07
Lead	7439921	2.48E-04	2.60E-04	1.82E-06
Nickel	7440020	1.16E-04	1.22E-04	8.54E-07
Naphthalene	91203	5.88E-04	6.16E-04	4.31E-06
PAHs (excluding Naphthalene)	1151	1.08E-03	1.13E-03	7.92E-06
Acetaldehyde	75070	2.34E-02	2.45E-02	1.71E-04
Acrolein	107028	1.01E-03	1.06E-03	7.42E-06
Ammonia	7664417	2.39E-02	2.50E-02	1.75E-04
Copper	7440508	1.22E-04	1.28E-04	8.98E-07
Ethyl benzene	100414	3.25E-04	3.41E-04	2.39E-06
Hexane	110543	8.03E-04	8.41E-04	5.89E-06
Hydrogen chloride	7647010	5.56E-03	5.83E-03	4.08E-05
Manganese	7439965	9.25E-05	9.70E-05	6.79E-07
Mercury	7439976	5.97E-05	6.25E-05	4.38E-07
Selenium	7782492	6.57E-05	6.88E-05	4.82E-07
Toluene	108883	3.15E-03	3.30E-03	2.31E-05
Xylenes	1330207	1.27E-03	1.33E-03	9.28E-06

[1] Speciated emission factors are calculated using emission factors from Table B-2 of the South Coast Air Quality Management District Supplemental Instructions for AB2588 Facilities, January 2010. (http://www.aqmd.gov/aer/Updates/SuppInstruforAB2588Facilities.pdf)

[2] Speciated emission factors in units of lb/lb PM_{10} are calculated by dividing the pollutant's emission factor by the diesel exhaust particulate emission factor.

Abbreviations:

AZ = Arizona
HTP = Hyperion Treatment Plant
lb = pound
PM_{10} = particulate matter with diameter less than or equal to 10 microns
SCAB = South Coast Air Basin
tpy = tons per year

Table 16a. Toxic Pollutants Emissions Summary - SCAB

Pollutants	CAS#	Baseline (tpy)	Project (tpy)	Increment (tpy)
Benzene	71432	7.17E-03	5.74E-03	-1.43E-03
1,1,1-Trichloroethane	71556	--	--	--
1,1-Dichloroethane	75343	--	--	--
2-Butanone (Methyl ethyl ketone)	78933	--	--	--
Carbon disulfide	75150	--	--	--
Methylene chloride	75092	--	--	--
Styrene	100425	--	--	--
Tetrachloroethene	127184	--	--	--
Vinyl acetate	108054	--	--	--
1,3-Butadiene	106990	8.37E-03	6.70E-03	-1.67E-03
Cadmium	7440439	5.78E-05	4.62E-05	-1.15E-05
Formaldehyde	50000	6.65E-02	5.32E-02	-1.33E-02
Hexavalent chromium	18540299	3.85E-06	3.08E-06	-7.70E-07
Arsenic	7440439	5.78E-05	4.62E-05	-1.15E-05
Lead	7439921	3.20E-04	2.56E-04	-6.39E-05
Nickel	7440020	1.50E-04	1.20E-04	-3.00E-05
Naphthalene	91203	7.59E-04	6.07E-04	-1.52E-04
PAHs (excluding Naphthalene)	1151	1.39E-03	1.12E-03	-2.79E-04
Acetaldehyde	75070	3.02E-02	2.41E-02	-6.03E-03
Acrolein	107028	1.31E-03	1.04E-03	-2.61E-04
Ammonia	7664417	3.08E-02	2.46E-02	-6.16E-03
Copper	7440508	1.58E-04	1.26E-04	-3.16E-05
Ethyl benzene	100414	4.20E-04	3.36E-04	-8.39E-05
Hexane	110543	1.04E-03	8.29E-04	-2.07E-04
Hydrogen chloride	7647010	7.17E-03	5.74E-03	-1.43E-03
Manganese	7439965	1.19E-04	9.55E-05	-2.39E-05
Mercury	7439976	7.70E-05	6.16E-05	-1.54E-05
Selenium	7782492	8.47E-05	6.78E-05	-1.69E-05
Toluene	108883	4.06E-03	3.25E-03	-8.11E-04
Xylenes	1330207	1.63E-03	1.31E-03	-3.26E-04

Table 16b. Toxic Pollutants Emissions Summary - SJVAB

Pollutants	CAS#	Baseline (tpy)	Project (tpy)	Increment (tpy)
Benzene	71432	4.08E-05	4.13E-03	4.09E-03
1,1,1-Trichloroethane	71556	--	5.38E-04	--
1,1-Dichloroethane	75343	--	7.12E-04	--
2-Butanone (Methyl ethyl ketone)	78933	--	2.41E-02	--
Carbon disulfide	75150	--	2.69E-03	--
Methylene chloride	75092	--	1.75E-02	--
Styrene	100425	--	6.18E-04	--
Tetrachloroethene	127184	--	1.20E-03	--
Vinyl acetate	108054	--	4.23E-03	--
1,3-Butadiene	106990	4.76E-05	4.68E-03	4.63E-03
Cadmium	7440439	3.28E-07	3.23E-05	3.19E-05
Formaldehyde	50000	3.78E-04	3.71E-02	3.68E-02
Hexavalent chromium	18540299	2.19E-08	2.15E-06	2.13E-06
Arsenic	7440439	3.28E-07	3.23E-05	3.19E-05
Lead	7439921	1.82E-06	1.79E-04	1.77E-04
Nickel	7440020	8.54E-07	8.39E-05	8.31E-05
Naphthalene	91203	4.31E-06	4.24E-04	4.20E-04
PAHs (excluding Naphthalene)	1151	7.92E-06	7.79E-04	7.71E-04
Acetaldehyde	75070	1.71E-04	1.69E-02	1.67E-02
Acrolein	107028	7.42E-06	7.29E-04	7.22E-04
Ammonia	7664417	1.75E-04	1.72E-02	1.70E-02
Copper	7440508	8.98E-07	8.82E-05	8.73E-05
Ethyl benzene	100414	2.39E-06	2.35E-04	2.32E-04
Hexane	110543	5.89E-06	5.79E-04	5.73E-04
Hydrogen chloride	7647010	4.08E-05	4.01E-03	3.97E-03
Manganese	7439965	6.79E-07	6.67E-05	6.60E-05
Mercury	7439976	4.38E-07	4.30E-05	4.26E-05
Selenium	7782492	4.82E-07	4.73E-05	4.69E-05
Toluene	108883	2.31E-05	2.62E-03	2.60E-03
Xylenes	1330207	9.28E-06	9.12E-04	9.03E-04

Abbreviations:

lb = pound
SCAB = South Coast Air Basin
SJVAB = San Joaquin Valley Air Basin
tpy = tons per year

Table 17. Facility Prioritization

Compound[1]	CAS #	Appendix B	Cancer[2]	Chronic[2]	Acute[2]	Cancer Potency Factor[2] (mg/kg-dy)$^{-1}$	Unit Risk Factor[3]	Chronic Acceptable Exposure Level[2] (ug/m^3)	Acute Acceptable Exposure Level[2] (ug/m^3)	Carcinogenic[4]	Chronic	Acute	Non-Carcinogenic[5]
Benzene	71432	yes	yes	yes	yes	1.00E-01	2.86E-05	6.00E+01	1.30E+03	1.60E-02	9.42E-05	4.35E-05	9.42E-05
Methylene chloride	75092	yes	yes	yes	yes	3.50E-03	1.00E-06	4.00E+02	1.40E+04	2.38E-03	6.00E-05	1.71E-05	6.00E-05
Styrene	100425	yes	no	yes	yes	--	--	9.00E+02	2.10E+04	--	9.40E-07	4.03E-07	9.40E-07
1,3-Butadiene	106990	yes	yes	yes	no	6.00E-01	1.71E-04	2.00E+01	--	1.09E-01	3.20E-04	--	3.20E-04
Cadmium	7440439	yes	yes	yes	no	1.50E+01	4.29E-03	2.00E-02	--	1.88E-02	2.21E-03	--	2.21E-03
Formaldehyde	50000	yes	yes	yes	yes	2.10E-02	6.00E-06	9.00E+00	5.50E+01	3.03E-02	5.65E-03	9.25E-03	9.25E-03
Hexavalent chromium	18540299	yes	yes	yes	no	5.10E+02	1.46E-01	2.00E-01	--	4.26E-02	1.47E-05	--	1.47E-05
Arsenic	7440439	yes	yes	yes	yes	1.20E+01	3.43E-03	1.50E-02	2.00E-01	1.51E-02	2.95E-03	2.21E-03	2.95E-03
Lead	7439921	yes	yes	no	no	4.20E-02	1.20E-05	--	--	2.91E-04	--	--	--
Nickel	7440020	yes	yes	yes	yes	9.10E-01	2.60E-04	1.40E-02	2.00E-01	2.97E-03	8.21E-03	5.75E-03	8.21E-03
Naphthalene	91203	yes	yes	yes	no	1.20E-01	3.43E-05	9.00E+00	--	1.98E-03	6.45E-05	--	6.45E-05
PAHs (excluding Naphthalene)	1151	yes	yes	no	no	3.90E+00	1.11E-03	--	--	1.18E-01	--	--	--
Acetaldehyde	75070	yes	yes	yes	yes	1.00E-02	2.86E-06	1.40E+02	4.70E+02	6.55E-03	1.65E-04	4.91E-04	4.91E-04
Acrolein	107028	yes	no	yes	yes	--	--	3.50E-01	2.50E+00	--	2.85E-03	4.00E-03	4.00E-03
Ammonia	7664417	yes	no	yes	yes	--	--	2.00E+02	3.20E+03	--	1.18E-04	7.37E-05	1.18E-04
Copper	7440508	yes	no	no	yes	--	--	--	1.00E+02	--	--	1.21E-05	1.21E-05
Hydrogen chloride	7647010	yes	no	yes	yes	--	--	9.00E+00	2.10E+03	--	6.10E-04	2.61E-05	6.10E-04
Manganese	7439965	yes	no	yes	no	--	--	9.00E-02	--	--	1.02E-03	--	1.02E-03
Mercury	7439976	yes	no	yes	yes	--	--	3.00E-02	6.00E-01	--	1.97E-03	9.83E-04	1.97E-03
Selenium	7782492	yes	no	yes	no	--	--	2.00E+01	--	--	3.24E-06	--	3.24E-06
Toluene	108883	yes	no	yes	yes	--	--	3.00E+02	3.70E+04	--	1.20E-05	9.71E-07	1.20E-05
Xylenes	1330207	yes	no	yes	yes	--	--	7.00E+02	2.20E+04	--	1.79E-06	5.68E-07	1.79E-06
Total Facility Prioritization Score										**3.64E-01**			**3.14E-02**
Facility Prioritization[6]										**Low**			**Low**

[1] Only the emitted pollutants that appear in Appendix B of the CAPCOA Facility Prioritization Guidelines (July 1990) contribute to the facility's prioritization score. Available at: http://www.arb.ca.gov/ab2588/RRAP-IWRA/priguide.pdf. Accessed December 2013.

[2] The cancer potency factor and the chronic and acute exposure levels are from the SCAQMD Rule 1401 Attachment L (December 2012). Available at: http://www.aqmd.gov/prdas/pdf/1401AttL7Dec2012.pdf. Accessed December 2013.

[3] The unit risk factor is calculated in accordance with the OEHHA Technical Support Document for Cancer Potency Factors (May 2009) as follows. Available at: http://www.oehha.ca.gov/air/hot_spots/2009/TSDCancerPotency.pdf. Accessed December 2013.

$UR = CPF * 20\ m^3 / (70\ kg * CV)$

where UR = unit risk factor

CPF = cancer potency factor $(mg/kg\text{-}dy)^{-1}$

$20\ m^3$ = reference human inspiration rate per day

70 kg = reference human body weight

CV = 1000 ug/mg conversion factor

[4] The carcinogenic prioritization score is calculated in accordance with the CAPCOA Facility Prioritization Guidelines (July 1990) as follows. Available at: http://www.arb.ca.gov/ab2588/RRAP-IWRA/priguide.pdf. Accessed December 2013.

$TS = \{\sum(E_c)(P_c)\}(RP)(1.7*10^3)$

where TS = total facility score

c = specific carcinogenic substance

E_c = emissions of c (lbs/year)

P_c = unit risk of c

RP = receptor proximity adjustment factor (from Appendix C; RP = 0.04 for a receptor distance of 1600 ft)

$1.7*10^3$ = normalization factor

[5] The non-carcinogenic prioritization score is calculated in accordance with the CAPCOA Facility Prioritization Guidelines (July 1990) as follows. Available at: http://www.arb.ca.gov/ab2588/RRAP-IWRA/priguide.pdf. Accessed December 2013.

$TS = \{\sum(E_t/P_t)\}(RP)(a)$

where TS = total facility score

t = toxic substance

E_t = emissions of t (maximum lbs/hr for acute toxic substances; average lbs/hr for chronic toxic substances)

P_t = acceptable exposure level of t (ug/m^3)

RP = receptor proximity adjustment factor (from Appendix C; RP = 0.04 for a receptor distance of 1600 ft)

a = normalization factor (150 for chronic; $1.5*10^3$ for acute)

[6] A facility score less than 1 has low priority. See Tables II-1 and II-2 of the CAPCOA Facility Prioritization Guidelines (July 1990) as follows. Available at: http://www.arb.ca.gov/ab2588/RRAP-IWRA/priguide.pdf. Accessed December 2013.

Appendix D

Emissions Calculations - Alternatives

Table 1a. Comparison of Alternative 1 Criteria Pollutant Emissions to SCAQMD CEQA Thresholds

	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
Baseline						
Transportation Emissions[1]	254.9	11.3	1.7	7.2	6.6	44.2
Land Application Emissions[2]	--	--	--	--	--	--
Total Baseline Emissions	**255**	**11**	**2**	**7**	**7**	**44**
Alternative 1						
Transportation Emissions[3]	136.9	7.0	0.2	6.1	5.6	32.3
Land Application Emissions[4]	--	--	--	--	--	--
Total Alternative 1 Emissions	**137**	**7**	**0**	**6**	**6**	**32**
Incremental Emissions	**-118**	**-4**	**-2**	**-1**	**-1**	**-12**
Threshold[5]	55	55	150	150	55	550
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

[1] Baseline transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility and rountrip emissions generated in the SCAB from trucks that deliver the biosolids from HTP to the SCAB boundary (en route to AZ).
[2] There are no baseline land application emissions in the SCAB because the Farm is located in the SJVAB.
[3] Alternative 1 transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility up to its capacity and from HTP to the SCAB boundary (en route to AZ) for the remainder of the biosolids.
[4] There are no Alternative 1 land application emissions in the SCAB because the Farm is located in the SJVAB.
[5] SCAQMD CEQA thresholds (http://www.aqmd.gov/ceqa/handbook/signthres.pdf)

Table 1b. Comparison of Alternative 2 Criteria Pollutant Emissions to SCAQMD CEQA Thresholds

	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
Baseline						
Transportation Emissions[1]	254.9	11.3	1.7	7.2	6.6	44.2
Land Application Emissions[2]	--	--	--	--	--	--
Total Baseline Emissions	**255**	**11**	**2**	**7**	**7**	**44**
Alternative 2						
Transportation Emissions[3]	127.1	6.5	0.2	5.7	5.2	29.9
Land Application Emissions[4]	--	--	--	--	--	--
Total Alternative 2 Emissions	**127**	**7**	**0**	**6**	**5**	**30**
Incremental Emissions	**-128**	**-5**	**-2**	**-2**	**-1**	**-14**
Threshold[5]	55	55	150	150	55	550
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

[1] Baseline transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility and rountrip emissions generated in the SCAB from trucks that deliver the biosolids from HTP to the SCAB boundary (en route to AZ).
[2] There are no baseline land application emissions in the SCAB because the Farm is located in the SJVAB.
[3] Alternative 2 transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to the SCAB boundary.
[4] There are no Alternative 2 land application emissions in the SCAB because the Farm is located in the SJVAB.
[5] SCAQMD CEQA thresholds (http://www.aqmd.gov/ceqa/handbook/signthres.pdf)

Table 1c. Comparison of Alternative 1 Criteria Pollutant Emissions to SJVAPCD CEQA Thresholds

	NO_x emissions (tpy)	VOC emissions (tpy)	SO_x emissions (tpy)	PM_{10} emissions (tpy)	$PM_{2.5}$ emissions (tpy)	CO emissions (tpy)
Baseline						
Transportation Emissions[1]	--	--	--	--	--	--
Land Application Emissions[2]	0.18	0.02	0.00	0.01	0.01	0.09
Total Baseline Emissions	**0**	**0**	**0**	**0**	**0**	**0**
Alternative 1						
Transportation Emissions[3]	--	--	--	--	--	--
Land Application Emissions[4]	0.18	0.02	0.00	0.01	0.01	0.09
Total Alternative 1 Emissions	**0**	**0**	**0**	**0**	**0**	**0**
Incremental Emissions	**0**	**0**	**0**	**0**	**0**	**0**
Threshold[5]	10	10	--	--	--	--
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

[1] There are no transportation emissions in the baseline scenario because biosolids are trucked from HTP to Griffith Park Composting Facility or from HTP to AZ. No trucking occurs within the SJVAPCD jurisdiction.
[2] Baseline land application emissions include land application emissions from the equipment and the nitrogen fertilizer.
[3] There are no transportation emissions in the Alternative 1 scenario because biosolids are trucked from HTP to Griffith Park Composting Facility or from HTP to AZ. No trucking occurs within the SJVAPCD jurisdiction.
[4] Alternative 1 land application emissions include land application emissions from the equipment and the nitrogen fertilizer.
[5] SJVAPCD CEQA thresholds (http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf)

Table 1d. Comparison of Alternative 2 Criteria Pollutant Emissions to SJVAPCD CEQA Thresholds

	NO_x emissions (tpy)	VOC emissions (tpy)	SO_x emissions (tpy)	PM_{10} emissions (tpy)	$PM_{2.5}$ emissions (tpy)	CO emissions (tpy)
Baseline						
Transportation Emissions[1]	--	--	--	--	--	--
Land Application Emissions[2]	0.18	0.02	0.00	0.01	0.01	0.09
Total Baseline Emissions	**0**	**0**	**0**	**0**	**0**	**0**
Alternative 2						
Transportation Emissions[3]	38.8	2.0	0.1	1.7	1.6	9.1
Land Application Emissions[4]	4.6	7.0	0.0	0.2	0.2	2.3
Total Alternative 2 Emissions	**43**	**9**	**0**	**2**	**2**	**11**
Incremental Emissions	**43**	**9**	**0**	**2**	**2**	**11**
Threshold[5]	10	10	--	--	--	--
Significant?	**Yes**	**No**	**No**	**No**	**No**	**No**

[1] There are no transportation emissions in the baseline scenario because biosolids are trucked from HTP to Griffith Park Composting Facility or from HTP to AZ. No trucking occurs within the SJVAPCD jurisdiction.
[2] Baseline land application emissions include land application emissions from the equipment and the nitrogen fertilizer.
[3] Alternative 2 transportation emissions include roundtrip emissions from trucks that deliver the biosolids from the SCAB boundary to Liberty Recycling and roundtrip emissions from trucks that deliver compost from Liberty Recycling to the Farm.
[4] Alternative 2 land application emissions include emissions from composting the biosolids and land application emissions from the equipment and the compost.
[5] SJVAPCD CEQA thresholds (http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf)

Abbreviations:
AZ = Arizona
CEQA = California Environmental Quality Act
HTP = Hyperion Treatment Plant
lb = pound
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District
SJVAPCD = San Joaquin Valley Air Pollution Control District
tpy = tons per year

Table 2a. Alternative 1 Annual GHG Emissions - SCAB

Emission Source	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions (MT/year)	CO_2e emissions[6] (MT/year)
Baseline				
Transportation Emissions[1]	845	0.02	0.03	853
Land Application Emissions[2]	--	--	--	--
Total Baseline Emissions	**845**	**0.02**	**0.03**	**853**
Alternative 1				
Transportation Emissions[3]	3,177	0.05	0.10	3,209
Land Application Emissions[4]	--	--	--	--
Total Alternative 1 Emissions	**3,177**	**0.05**	**0.10**	**3,209**
Incremental Emissions	**2,332**	**0.03**	**0.07**	**2,356**

[1] Baseline transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility and rountrip emissions generated in the SCAB from trucks that deliver the biosolids from HTP to the SCAB boundary (en route to AZ).
[2] There are no baseline land application emissions in the SCAB because the Farm is located in the SJVAB.
[3] Alternative 1 transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility up to its capacity and from HTP to the SCAB boundary (en route to AZ) for the remainder of the biosolids.
[4] There are no Alternative 1 land application emissions in the SCAB because the Farm is located in the SJVAB.
[5] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1
CH_4 = 21
N_2O = 310

Table 2b. Alternative 2 Annual GHG Emissions - SCAB

Emission Source	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions (MT/year)	CO_2e emissions[6] (MT/year)
Baseline				
Transportation Emissions[1]	845	0.02	0.03	853
Land Application Emissions[2]	--	--	--	--
Total Baseline Emissions	**845**	**0.02**	**0.03**	**853**
Alternative 2				
Transportation Emissions[3]	2,949	0.05	0.09	2,979
Land Application Emissions[4]	--	--	--	--
Total Alternative 2 Emissions	**2,949**	**0.05**	**0.09**	**2,979**
Incremental Emissions	**2,104**	**0.03**	**0.07**	**2,126**

[1] Baseline transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to Griffith Park Composting Facility and rountrip emissions generated in the SCAB from trucks that deliver the biosolids from HTP to the SCAB boundary (en route to AZ).
[2] There are no baseline land application emissions in the SCAB because the Farm is located in the SJVAB.
[3] Alternative 2 transportation emissions include roundtrip emissions from trucks that deliver the biosolids from HTP to the SCAB boundary.
[4] There are no Alternative 2 land application emissions in the SCAB because the Farm is located in the SJVAB.
[5] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1
CH_4 = 21
N_2O = 310

Table 2c. Alternative 1 Annual GHG Emissions - SJVAB

Emission Source	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions (MT/year)	CO_2e emissions[5] (MT/year)
Baseline				
Transportation Emissions[1]	--	--	--	--
Land Application Emissions[2]	611	0	1	1,020
Total Baseline Emissions	**611**	**0**	**1.32**	**1,020**
Alternative 1				
Transportation Emissions[3]	--	--	--	--
Land Application Emissions[4]	611	0.04	1.3	1,020
Total Alternative 1 Emissions	**611**	**0.04**	**1.3**	**1,020**
Incremental Emissions	**0**	**0.00**	**0.00**	**0**

[1] There are no transportation emissions in the baseline scenario because biosolids are trucked from HTP to Griffith Park Composting Facility or from HTP to AZ. No trucking occurs within the SJVAPCD jurisdiction.

[2] Baseline land application emissions include land application emissions from the equipment and the nitrogen fertilizer.
[3] There are no transportation emissions in the Alternative 1 scenario because biosolids are trucked from HTP to Griffith Park Composting Facility or from HTP to AZ. No trucking occurs within the SJVAPCD jurisdiction.

[4] Alternative 1 land application emissions include land application emissions from the equipment and the nitrogen fertilizer.
[5] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1
CH_4 = 21
N_2O = 310

Table 2d. Alternative 2 Annual GHG Emissions - SJVAB

Emission Source	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions (MT/year)	CO_2e emissions[5] (MT/year)
Baseline				
Transportation Emissions[1]	--	--	--	--
Land Application Emissions[2]	611	0	1	1,020
Total Baseline Emissions	**611**	**0**	**1.32**	**1,020**
Alternative 2				
Transportation Emissions[3]	4,928	0	0	4,978
Land Application Emissions[4]	675	52.86	0.0	1,789
Total Alternative 2 Emissions	**5,603**	**52.94**	**0.2**	**6,767**
Incremental Emissions	**4,991**	**52.90**	**-1.14**	**5,747**

[1] There are no transportation emissions in the baseline scenario because biosolids are trucked from HTP to Griffith Park Composting Facility or from HTP to AZ. No trucking occurs within the SJVAPCD jurisdiction.

[2] Baseline land application emissions include land application emissions from the equipment and the nitrogen fertilizer.

[3] Alternative 2 transportation emissions include roundtrip emissions from trucks that deliver the biosolids from the SCAB boundary to Liberty Recycling and roundtrip emissions from trucks that deliver compost from Liberty Recycling to the Farm.
[4] Alternative 2 land application emissions include emissions from composting the biosolids and land application emissions from the equipment and the compost.
[5] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1
CH_4 = 21
N_2O = 310

Abbreviations:
CEQA = California Environmental Quality Act
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = CO_2 equivalent
HTP = Hyperion Treatment Plant
MT = metric tonnes
N_2O = nitrous oxide
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District
SJVAPCD = San Joaquin Valley Air Pollution Control District

Table 3a. Calculation of Number of Alternative 1 Truck Trips and Trip Miles

Truck Trips		
Biosolids trucked from HTP to Griffith Park[1]	52	tons/week
Biosolids trucked from HTP to AZ[1]	581	tons/day
Truck capacity[1]	26	tons/truck
Weekly trucks from HTP to Griffith Park[2]	2	trucks/week
Daily trucks from HTP to AZ[2]	23	trucks/day
Annual trucks from HTP to Griffith Park[3]	104	trucks/year
Annual trucks from HTP to AZ[3]	8,395	trucks/year
Truck Miles		
Distance from HTP to Griffith Park (one way)[4]	28	miles
Distance from HTP to SCAB boundary, en route to AZ (one way)[4]	110	miles
Distance from SCAB boundary to AZ[4]	132	miles
Total weekly truck miles - HTP to Griffith Park (round trip)	112	miles/week
Total daily truck miles - HTP to SCAB boundary, en route to AZ (round trip)	5,060	miles/day
Total daily truck miles - SCAB boundary to AZ (round trip)	6,072	miles/day
Total annual truck miles - HTP to Griffith Park (round trip)[3]	5,824	miles/year
Total annual truck miles - HTP to SCAB boundary, en route to AZ (round trip)[3]	1,846,900	miles/year
Total annual truck miles - SCAB boundary (round trip)[3]	2,216,280	miles/year

[1] Project-specific information provided by the City of LA.
[2] Calculated based on the amount of biosolids and truck capacity.
[3] Calculated assuming biosolids are trucked 365 days/year.
[4] Estimate based on Google Maps.

Table 3b. Calculation of Number of Alternative 2 Truck Trips and Trip Miles

Truck Trips		
Biosolids trucked from HTP to Liberty Recycling[1]	800	tons/day
Compost trucked from Liberty Recycling to Green Acres[1]	800	tons/day
Truck capacity[1]	26	tons/truck
Daily trucks from HTP to Liberty Recycling[2]	31	trucks/day
Daily trucks from Liberty Recycling to Green Acres[2]	31	trucks/day
Annual trucks from HTP to Liberty Recycling[3]	11,315	trucks/year
Annual trucks from Liberty Recycling to Green Acres[3]	11,315	trucks/year
Truck Miles		
Distance from HTP to SCAB boundary (one way)[4]	76	miles
Distance from SCAB boundary to Liberty Recycling (one way)[4]	83	miles
Distance from Liberty Recycling to Green Acres (one way)[4]	44	miles
Total daily truck miles - HTP to SCAB boundary (round trip)	4,712	miles/day
Total daily truck miles - SCAB boundary to Liberty Recycling (round trip)	5,146	miles/day
Total daily truck miles - Liberty Recycling to Green Acres (round trip)	2,728	miles/day
Total annual truck miles - HTP to SCAB boundary (round trip)[3]	1,719,880	miles/year
Total annual truck miles - SCAB boundary to Liberty Recycling (round trip)[3]	1,878,290	miles/year
Total annual truck miles - Liberty Recycling to Green Acres (round trip)[3]	995,720	miles/year

[1] Project-specific information provided by the City of LA.
[2] Calculated based on the amount of biosolids/compost and truck capacity.
[3] Calculated assuming biosolids/compost are trucked 365 days/year.
[4] Estimate based on South Coast Air Quality Management District boundary map

Abbreviations:
AZ = Arizona
HTP = Hyperion Treatment Plant
SCAB = South Coast Air Basin

Table 4. Parameters Used in Alternative 1 Criteria Pollutant Calculations.

Emission Category	Source	Equipment Horsepower[1] (hp)	Equipment Operating Schedule[2] (hrs/day)	Equipment Operating Schedule[3] (hrs/yr)	Load Factor (unitless)	Emission Factor						
						NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO	Unit
Trucking	Trucking[4]	--	--	--	--	12.24	0.63	0.02	0.54	0.50	2.88	g/mile
Land Application - Equipment Emissions	CAT 928G Wheel Loader[5]	125	1.5	21.0	0.55	4.314	0.553	0.006	0.239	0.239	3.285	g/hp-hr
	CAT 928H Wheel Loader[5]	149	4.5	63.0	0.55	4.314	0.553	0.006	0.239	0.239	3.285	
	Challenger 755T Tract Tractor[5]	260	6	84.0	0.65	5.810	0.654	0.005	0.235	0.235	2.890	
	Freightliner Water Truck[5]	275	6	84.0	0.57	3.728	0.452	0.005	0.132	0.132	1.327	

Emission Category	Source	Fertilizer type	Fertilizer Application Rate[6] (lb/acre)	Total Fertilizer Applied[6] (lb fertilizer/ year)	Emission Factor						
					NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO	Unit
Land Application - Fertilizer Emissions	Fertilizer[7]	Urea	69	324,300	0	--	--	--	--	--	lb/lb

[1] Equipment horsepower is based on the equipment model provided by the client, or based on the closest model if the information is not available.
CAT 928G Wheel Loader horsepower from: http://www.cat.com/cda/layout?m=607367&x=7
CAT 928H Wheel Loader horsepower based on CAT 928Hz: http://www.cat.com/cda/layout?m=663385&x=7
Challenger 755T Tract Tractor based on Challenger MT755D: http://www.challenger-ag.us/products/tractors/mt700d-series-track-tractors/
Freightliner Water Truck based on the average Freightliner M2 106 rating: https://www.freightlinertrucks.com/Trucks/Models/M2106/Specs

[2] Project-specific information provided by the City of LA.

[3] Fertilizer application is assumed to occur once a year and to require 14 days for application. The total time for application is calculated assuming the tractor can be used to fertilize up to 60 acres/hour (http://www.deere.com/wps/dcom/en_US/products/equipment/nutrient_application/nutrient_application.page). Assuming the tractor operates 6 hours/day, 14 days would be required for fertilization of the Farm (4,700 acres).

[4] Emission factors from EMFAC2011 with the following parameters: calendar year 2010, statewide total, annual average, T7 CAIRP, aggregated model years, aggregated speeds (CARB. Onroad Emission Factors. http://www.arb.ca.gov/msei/modeling.htm)

[5] Load factors and emission factors from California Emissions Estimation Model (CalEEMod™) User's Guide, Appendix D, Tables 3.3 and 3.4, respectively. (http://caleemod.com)

[6] The fertilizer application rate is obtained from the USDA. Fertilizer use and price. Table 28. ERS. Available at: http://www.ers.usda.gov/data-products/fertilizer-use-and-price.aspx#26718 Accessed September 2013. Total annual fertilizer is calculated by assuming fertilizer is applied evenly over the entire farm (4,700 acres) at the specified rate one time per year.

[7] Inorganic chemical fertilizers are only expected to emit NO_x emissions. However, because no information on emission factors was found, NO_x emissions are conservatively assumed to be zero.

Abbreviations:
CO = carbon monoxide
g = gram
hp = horsepower
hr = hour
HTP = Hyperion Treatment Plant
lb = pound
NO_x = nitrogen oxides
PM_{10} = particulate matter with diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns
SO_x = sulfur oxides
T7 CAIRP = Heavy-Heavy Duty Diesel California International Registration Plan Truck
VOC = volatile organic compounds

Table 5a. Alternative 1 Daily Trucking Emissions - Criteria Pollutants

Trip Leg	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
HTP to Griffith Park	0.43	0.02	0.00	0.02	0.02	0.10
HTP to SCAB boundary (en route to AZ)	136.50	7.02	0.18	6.07	5.59	32.16
Total	136.93	7.05	0.18	6.09	5.60	32.26

Table 5b. Alternative 1 Daily Land Application Emissions - Criteria Pollutants

Equipment/Activity	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
CAT 928G Wheel Loader	0.98	0.13	0.00	0.05	0.05	0.75
CAT 928H Wheel Loader	3.51	0.45	0.00	0.19	0.19	2.67
Challenger 755T Tract Tractor	12.99	1.46	0.01	0.53	0.53	6.46
Freightliner Water Truck	7.73	0.94	0.01	0.27	0.27	2.75
Emissions from Fertilizer after Land Application	0.00	--	--	--	--	--
Total	25.21	2.97	0.03	1.05	1.05	12.63

Table 6a. Alternative 1 Annual Trucking Emissions - Criteria Pollutants

Trip Leg	NO_x emissions (tons/year)	VOC emissions (tons/year)	SO_x emissions (tons/year)	PM_{10} emissions (tons/year)	$PM_{2.5}$ emissions (tons/year)	CO emissions (tons/year)
HTP to SCAB boundary	0.08	0.00	0.00	0.00	0.00	0.02
HTP to SCAB boundary (en route to AZ)	24.91	1.28	0.03	1.11	1.02	5.87
Total	24.99	1.29	0.03	1.11	1.02	5.89

Table 6b. Alternative 1 Annual Land Application Emissions - Criteria Pollutants

Equipment/Activity	NO_x emissions (tons/year)	VOC emissions (tons/year)	SO_x emissions (tons/year)	PM_{10} emissions (tons/year)	$PM_{2.5}$ emissions (tons/year)	CO emissions (tons/year)
CAT 928G Wheel Loader	0.007	0.001	0.000	0.000	0.000	0.005
CAT 928H Wheel Loader	0.025	0.003	0.000	0.001	0.001	0.019
Challenger 755T Tract Tractor	0.091	0.010	0.000	0.004	0.004	0.045
Freightliner Water Truck	0.054	0.007	0.000	0.002	0.002	0.019
Emissions from Fertilizer after Land Application	0.00	--	--	--	--	--
Total	0.18	0.02	0.00	0.01	0.01	0.09

Abbreviations:

AZ = Arizona
CO = carbon monoxide
HTP = Hyperion Treatment Plant
lb = pound
NO_x = nitrogen oxides
PM_{10} = particulate matter with diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns
SCAB = South Coast Air Basin
SO_x = sulfur oxides
VOC = volatile organic compounds

Table 7. Parameters Used in Alternative 2 Criteria Pollutant Calculations.

Emission Category	Source	Equipment Horsepower[1] (hp)	Equipment Operating Schedule[2] (hrs/day)	Emission Factor							Load Factor (unitless)
				NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO	Unit	
Trucking	Trucking[3]	--	--	12.24	0.63	0.02	0.54	0.50	2.88	g/mile	--
Compost Land Application - Equipment Emissions	CAT 928G Wheel Loader[4]	125	1.5	4.314	0.553	0.006	0.239	0.239	3.285	g/hp-hr	0.55
	CAT 928H Wheel Loader[4]	149	4.5	4.314	0.553	0.006	0.239	0.239	3.285		0.55
	Challenger 755T Tract Tractor[4]	260	6	5.810	0.654	0.005	0.235	0.235	2.890		0.65
	Freightliner Water Truck[4]	275	6	3.728	0.452	0.005	0.132	0.132	1.327		0.57
Composting Process	Compost[5]	--	--	--	0.0355	--	--	--	--	lb/ton	--
Compost Land Application - Surface Degradation	Compost[6]	--	--	--	0.0089	--	--	--	--	lb/ton	--

[1] Equipment horsepower is based on the equipment model provided by the client, or based on the closest model if the information is not available.
CAT 928G Wheel Loader horsepower from: http://www.cat.com/cda/layout?m=607367&x=7
CAT 928H Wheel Loader horsepower based on CAT 928Hz: http://www.cat.com/cda/layout?m=663385&x=7
Challenger 755T Tract Tractor based on Challenger MT755D: http://www.challenger-ag.us/products/tractors/mt700d-series-track-tractors/
Freightliner Water Truck based on the average Freightliner M2 106 rating: https://www.freightlinertrucks.com/Trucks/Models/M2106/Specs

[2] Project-specific information provided by the City of LA.

[3] Emission factors from EMFAC2011 with the following parameters: calendar year 2010, statewide total, annual average, T7 CAIRP, aggregated model years, aggregated speeds (CARB. Onroad Emission Factors. http://www.arb.ca.gov/msei/modeling.htm)

[4] Load factors and emission factors from California Emissions Estimation Model (CalEEMod™) User's Guide, Appendix D, Tables 3.3 and 3.4, respectively. (http://caleemod.com)

[5] San Joaquin Valley Unified Air Pollution Control District. February 15, 2007, Appendix B: Emission Reduction Analysis for Proposed New Rule 4565 (http://www.valleyair.org/workshops/postings/priorto2008/2007/03-08-07/r4565_appb_rf.pdf) and; August 18, 2011, Rule 4566 Organic Material Composting Operations (http://www.valleyair.org/rules/currntrules/Rule4566CleanRule.pdf). The emission factor for an active composting phase of 20 days is 1.42 lb/ton. SJVAPCD Rule 4566 presents a composting mitigation measure where each windrow is covered within 3 hours of formation and within 3 hours after each turning of the windrow for at least 3 turns. This is equivalent to the windrows being uncovered for up to 12 hours during the active composting phase. Therefore, the VOC emission factor is calculated as follows: VOC emission factor = (1.42 lb/ton) / (20 days) / (24 hours/day) * (12 hours) = 0.0089 lb/ton.

[6] San Joaquin Valley Unified Air Pollution Control District. February 15, 2007, Appendix B: Emission Reduction Analysis for Proposed New Rule 4565 (http://www.valleyair.org/workshops/postings/priorto2008/2007/03-08-07/r4565_appb_rf.pdf). Because the emission factor for land application of biosolids, used in the Project's emission calculations, is based on a composting emission factor, then the emission factor for land application of compost is assumed to be the same. The emission factor is listed as 1.42 lb/ton per 20 days for each day the compost is not land incorporated. Assuming compost will be incorporated within 3 hours of receipt, like biosolids are as required by SJVAPCD Rule 4565, the VOC emission factor is calculated as follows: VOC emission factor = (1.42 lb/ton) / (20 days) / (24 hours/day) * (3 hours) = 0.0089 lb/ton.

Abbreviations:

CO = carbon monoxide
g = gram
hp = horsepower
hr = hour
HTP = Hyperion Treatment Plant
lb = pound
NO_x = nitrogen oxides
PM_{10} = particulate matter with diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns
SO_x = sulfur oxides
T7 CAIRP = Heavy-Heavy Duty Diesel California International Registration Plan Truck
VOC = volatile organic compounds

Table 8a. Alternative 2 Daily Trucking Emissions - Criteria Pollutants

Trip Leg	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
HTP to SCAB boundary	127.11	6.54	0.17	5.66	5.20	29.95
SCAB boundary to Liberty Recycling	138.82	7.14	0.19	6.18	5.68	32.70
Liberty Recycling to Green Acres	73.59	3.79	0.10	3.27	3.01	17.34
Total	339.53	17.47	0.45	15.11	13.90	79.99

Table 8b. Alternative 2 Daily Land Application Emissions - Criteria Pollutants

Equipment/Activity	NO_x emissions (lb/day)	VOC emissions (lb/day)	SO_x emissions (lb/day)	PM_{10} emissions (lb/day)	$PM_{2.5}$ emissions (lb/day)	CO emissions (lb/day)
CAT 928G Wheel Loader	0.98	0.13	0.00	0.05	0.05	0.75
CAT 928H Wheel Loader	3.51	0.45	0.00	0.19	0.19	2.67
Challenger 755T Tract Tractor	12.99	1.46	0.01	0.53	0.53	6.46
Freightliner Water Truck	7.73	0.94	0.01	0.27	0.27	2.75
Emissions from Composting Process	--	28.40	--	--	--	--
Emissions from Compost after Land Application	--	7.10	--	--	--	--
Total	25.21	38.47	0.03	1.05	1.05	12.63

Table 9a. Alternative 2 Annual Trucking Emissions - Criteria Pollutants

Trip Leg	NO_x emissions (tons/year)	VOC emissions (tons/year)	SO_x emissions (tons/year)	PM_{10} emissions (tons/year)	$PM_{2.5}$ emissions (tons/year)	CO emissions (tons/year)
HTP to SCAB boundary	23.20	1.19	0.03	1.03	0.95	5.47
SCAB boundary to Liberty Recycling	25.33	1.30	0.03	1.13	1.04	5.97
Liberty Recycling to Green Acres	13.43	0.69	0.02	0.60	0.55	3.16
Total	61.96	3.19	0.08	2.76	2.54	14.60

Table 9b. Alternative 2 Annual Land Application Emissions - Criteria Pollutants

Equipment/Activity	NO_x emissions (tons/year)	VOC emissions (tons/year)	SO_x emissions (tons/year)	PM_{10} emissions (tons/year)	$PM_{2.5}$ emissions (tons/year)	CO emissions (tons/year)
CAT 928G Wheel Loader	0.18	0.02	0.00	0.01	0.01	0.14
CAT 928H Wheel Loader	0.64	0.08	0.00	0.04	0.04	0.49
Challenger 755T Tract Tractor	2.37	0.27	0.00	0.10	0.10	1.18
Freightliner Water Truck	1.41	0.17	0.00	0.05	0.05	0.50
Emissions from Composting Process	--	5.18	--	--	--	--
Emissions from Compost after Land Application	--	1.30	--	--	--	--
Total	4.60	7.02	0.01	0.19	0.19	2.30

Abbreviations:

CO = carbon monoxide
HTP = Hyperion Treatment Plant
lb = pound
NO_x = nitrogen oxides
PM_{10} = particulate matter with diameter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns
SCAB = South Coast Air Basin
SO_x = sulfur oxides
VOC = volatile organic compounds

Table 10. Parameters Used in Alternative 1 Greenhouse Gas Emissions Calculations.

Emission Category	Source	Equipment Horsepower[1] (hp)	Equipment Average Operating Load[2] (%)	Equipment Operating Schedule[2] (hrs/day)	Emission Factor					Load Factor (unitless)
					CO_2	TOG	CH_4	N_2O	Unit	
Trucking	Trucking[3,4]	--	--	--	1,715	0.72	0.03	--	g/mile	--
Land Application - Equipment Emissions	CAT 928G Wheel Loader[5]	125	50%	1.5	568	--	0.05	--	g/hp-hr	0.55
	CAT 928H Wheel Loader[5]	149	50%	4.5	568	--	0.05	--		0.55
	Challenger 755T Tract Tractor[5]	260	50%	6	568	--	0.06	--		0.65
	Freightliner Water Truck[5]	275	50%	6	568	--	0.04	--		0.57

Emission Category	Source	Fertilizer type	Fertilizer Application Rate[6] (lb/acre)	Total Fertilizer Applied[6] (kg fertilizer/ year)	Emission Factor				
					CO_2	TOG	CH_4	N_2O	Unit
Land Application - Fertilizer	Fertilizer[7]	Urea	69	147,100	7.33E-04	--	--	8.85E-06	MT/kg fertilizer

[1] Equipment horsepower is based on the equipment model provided by the client, or based on the closest model if the information is not available.
CAT 928G Wheel Loader horsepower from: http://www.cat.com/cda/layout?m=607367&x=7
CAT 928H Wheel Loader horsepower based on CAT 928Hz: http://www.cat.com/cda/layout?m=663385&x=7
Challenger 755T Tract Tractor based on Challenger MT755D: http://www.challenger-ag.us/products/tractors/mt700d-series-track-tractors/
Freightliner Water Truck based on the average Freightliner M2 106 rating: https://www.freightlinertrucks.com/Trucks/Models/M2106/Specs
[2] Project-specific information provided by the City of LA.
[3] Emission factors from EMFAC2011 with the following parameters: calendar year 2010, statewide total, annual average, T7 CAIRP, aggregated model years, aggregated speeds (CARB. Onroad Emission Factors. http://www.arb.ca.gov/msei/modeling.htm)
[4] CH_4 emissions are calculated as 0.0408 x TOG emission factor for EMFAC Heavy Duty vehicle categories, per EMFAC FAQ website: http://www.arb.ca.gov/msei/emfac2011-faq.htm#emfac2011_web_db_qstn07 (Accessed May 21, 2013).
[5] Load factors and emission factors from California Emissions Estimation Model (CalEEMod™) User's Guide, Appendix D, Tables 3.3 and 3.4, respectively. (http://caleemod.com)
[6] The fertilizer application rate is obtained from the USDA. Fertilizer use and price. Table 28. ERS. Available at: http://www.ers.usda.gov/data-products/fertilizer-use-and-price.aspx#26718 Accessed September 2013. Total annual fertilizer is calculated by assuming fertilizer is applied evenly over the entire farm (4,700 acres) at the specified rate one time per year.
[7] Emission factors from Kern County Community-wide Greenhouse Gas Emission Inventory Methodology Documents Volume 2, Appendix G.7, May 2012. (http://www.co.kern.ca.us/planning/pdfs/kc_ghg_methods_vol2.pdf). The N_2O emission factor assumes urea fertilizer with a nitrogen content of 46% urea (AP-42).

Abbreviations:
CARB = California Air Resources Board
CH_4 = methane
CO_2 = carbon dioxide
EMFAC = EMission FACtors model
ft^3 = cubic feet
g = gram
hp = horsepower
hr = hour
lb = pound
T7 CAIRP = Heavy-Heavy Duty Diesel California International Registration Plan Truck
TOC = total organic carbon
VS = volatile solids

Table 11a. Alternative 1 Annual Trucking Emissions - Greenhouse Gases

Trip Leg	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions[1] (MT/year)	CO_2e emissions[2] (MT/year)
HTP to Griffith Park	10	0.00	0.000	10
HTP to SCAB boundary (en route to AZ)	3,167	0.05	0.100	3,199
SCAB boundary to AZ	3,800	0.06	0.119	3,839
Total	**6,977**	**0.12**	**0.22**	**7,048**

Table 11b. Alternative 1 Annual Land Application Emissions - Greenhouse Gases

Equipment/Activity	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions[1] (MT/year)	CO_2e emissions[2] (MT/year)
CAT 928G Wheel Loader	21	0.00	0.001	22
CAT 928H Wheel Loader	76	0.01	0.002	77
Challenger 755T Tract Tractor	210	0.02	0.005	212
Freightliner Water Truck	195	0.01	0.005	197
Subtotal - Combustion Emissions due to Land Application	*503*	*0.04*	*0.01*	*508*
Emissions from Fertilizer after land application	108	--	1.3	511
Subtotal - Land Application Emissions, Biogenic	*--*	*--*	*--*	*--*
Subtotal - Land Application Emissions, Non-Biogenic	*611*	*0*	*1*	*1,020*
Total	**611**	**0**	**1.32**	**1,020**

[1] The contributions of CH_4 and N_2O are likely small (<1% of total CO_2e) from diesel construction equipment. (California Climate Action Registry (CCAR). 2009. General Reporting Protocol. Version 3.1). To be conservative, N_2O emissions are estimated assuming the contributions for CH_4 and N_2O are 1% of total CO_2e emissions.

[2] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1
CH_4 = 21
N_2O = 310

Abbreviations:

AZ = Arizona
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = CO_2 equivalent
EMFAC = EMission FACtors model
HTP = Hyperion Treatment Plant
MT = metric tonnes
N_2O = nitrous oxide
SCAB = South Coast Air Basin
TOG = total organic gases

Table 12a. Parameters Used in Alternative 2 Greenhouse Gas Emissions Calculations.

Emission Category	Source	Equipment Horsepower[1] (hp)	Equipment Average Operating Load[2] (%)	Equipment Operating Schedule[2] (hrs/day)	Emission Factor				Load Factor (unitless)
					CO_2	TOG	CH_4	Unit	
Trucking	Trucking[3],[4]	--	--	--	1,715	0.72	0.03	g/mile	--
Compost Land Application - Equipment Emissions	CAT 928G Wheel Loader[5]	125	50%	8.0	568	--	0.05	g/hp-hr	0.55
	CAT 928H Wheel Loader[5]	149	50%	4.5	568	--	0.05		0.55
	Challenger 755T Tract Tractor[5]	260	50%	6	568	--	0.06		0.65
	Freightliner Water Truck[5]	275	50%	6	568	--	0.04		0.57
Composting Process	Compost[6]	--	--	--	0.30	--	0.20	lb/ton	--
Compost Land Application - Surface Degradation	Compost[6]	--	--	--	0.30	--	0.20	lb/ton	--

Table 12b. Parameters Used to Calculate Compost Land Application Surface Degradation Emission Factors

Parameter	Emission Factor	Unit
Total Solids in Digested Sludge[7]	28%	% total solids (ton total solids/ ton biosolids)
Percent Volatile Solids to Total Solids in Digested Sludge[7]	62%	% (ton VS/ ton total solids)
Biogas production rate[7]	34,800	scf biogas/ton VS remaining
CO_2 content of biogas emitted during surface degradation[7]	35%	% (scf CO_2/scf biogas)
CH_4 content of biogas emitted during surface degradation[7]	65%	% (scf CH_4/scf biogas)
Percent of volatile solids converted to biogas[7]	58%	% (ton VS remaining/ ton VS)
density of CO_2[8]	0.116	lb/ft^3
density of CH_4[8]	0.042	lb/ft^3

[1] Equipment horsepower is based on the equipment model provided by the client, or based on the closest model if the information is not available.
CAT 928G Wheel Loader horsepower from: http://www.cat.com/cda/layout?m=607367&x=7
CAT 928H Wheel Loader horsepower based on CAT 928Hz: http://www.cat.com/cda/layout?m=663385&x=7
Challenger 755T Tract Tractor based on Challenger MT755D: http://www.challenger-ag.us/products/tractors/mt700d-series-track-tractors/
Freightliner Water Truck based on the average Freightliner M2 106 rating: https://www.freightlinertrucks.com/Trucks/Models/M2106/Specs

[2] Project-specific information provided by the City of LA.

[3] Emission factors from EMFAC2011 with the following parameters: calendar year 2010, statewide total, annual average, T7 CAIRP, aggregated model years, aggregated speeds (CARB. Onroad Emission Factors. http://www.arb.ca.gov/msei/modeling.htm)

[4] CH_4 emissions are calculated as 0.0408 x TOG emission factor for EMFAC Heavy Duty vehicle categories, per EMFAC FAQ website: http://www.arb.ca.gov/msei/emfac2011-faq.htm#emfac2011_web_db_qstn07 (Accessed May 21, 2013).

[5] Load factors and emission factors from California Emissions Estimation Model (CalEEMod™) User's Guide, Appendix D, Tables 3.3 and 3.4, respectively. (http://caleemod.com)

[6] Compost land application emission factors are assumed to be equal to biosolids land application emission factors because approximately half of compost is composed of co-composting materials (e.g., grass) and half of biosolids is water content; therefore, compost and biosolids have approximately the same solid waste content. Emission factors were calculated using the methodology discussed in Reference 8 (see below) using the parameters in Table 12b. This methodology assumes that compost/biosolids are eventually converted to biogas (CO_2 and CH_4) over a given period. For this analysis, this period is assumed to be 60 days (see Figure 3 in Reference 8).

[7] Terralog. April 30, 2002, Technical Data Supporting Experimental Objectives for Biosolids Injection Demonstration Project, Page 8.

[8] Gas Encyclopedia. http://encyclopedia.airliquide.com

Abbreviations:

CARB = California Air Resources Board
CH_4 = methane
CO_2 = carbon dioxide
EMFAC = EMission FACtors model
ft^3 = cubic feet
g = gram
hp = horsepower
hr = hour
lb = pound
T7 CAIRP = Heavy-Heavy Duty Diesel California International Registration Plan Truck
TOC = total organic carbon
VS = volatile solids

Table 13a. Alternative 2 Annual Trucking Emissions - Greenhouse Gases

Trip Leg	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions[1] (MT/year)	CO_2e emissions[2] (MT/year)
HTP to SCAB boundary	2,949	0.05	0.093	2,979
SCAB boundary to Liberty Recycling	3,221	0.05	0.101	3,253
Liberty Recycling to Green Acres	1,707	0.03	0.054	1,725
Total	**7,877**	**0.13**	**0.25**	**7,957**

Table 13b. Alternative 2 Annual Land Application Emissions - Greenhouse Gases

Equipment/Activity	CO_2 emissions (MT/year)	CH_4 emissions (MT/year)	N_2O emissions[1] (MT/year)	CO_2e emissions[2] (MT/year)
CAT 928G Wheel Loader	114	0.01	0.003	115
CAT 928H Wheel Loader	76	0.01	0.002	77
Challenger 755T Tract Tractor	210	0.02	0.005	212
Freightliner Water Truck	195	0.01	0.005	197
Subtotal - Combustion Emissions due to Land Application	*596*	*0.05*	*0.02*	*602*
Emissions from Composting Process	39	26	--	594
Emissions from Compost after Land Application	39	26	--	594
Subtotal - Land Application Emissions, Biogenic	*79*	*53*	*--*	*1,187*
Subtotal - Land Application Emissions, Non-Biogenic	*596*	*0*	*0.02*	*602*
Total	**675**	**53**	**0.02**	**1,789**

[1] The contributions of CH_4 and N_2O are likely small (<1% of total CO_2e) from diesel construction equipment. (California Climate Action Registry (CCAR). 2009. General Reporting Protocol. Version 3.1). To be conservative, N_2O emissions are estimated assuming the contributions for CH_4 and N_2O are 1% of total CO_2e emissions.

[2] CO_2e emissions calculated based on the following Global Warming Potentials:

CO_2 = 1

CH_4 = 21

N_2O = 310

Abbreviations:

CH_4 = methane

CO_2 = carbon dioxide

CO_2e = CO_2 equivalent

EMFAC = EMission FACtors model

HTP = Hyperion Treatment Plant

MT = metric tonnes

N_2O = nitrous oxide

SCAB = South Coast Air Basin

TOG = total organic gases

Table 14a. Transportation Toxic Pollutants Emissions Summary - SCAB

Pollutants	CAS#	Project (lb/day)	Alternative 1 (lb/day)	Increment (lb/day)	Project (tpy)	Alternative 1 (tpy)	Increment (tpy)
Benzene	71432	3.15E-02	3.39E-02	2.43E-03	5.74E-03	6.18E-03	4.43E-04
1,3-Butadiene	106990	3.67E-02	3.95E-02	2.83E-03	6.70E-03	7.22E-03	5.17E-04
Cadmium	7440439	2.53E-04	2.73E-04	1.96E-05	4.62E-05	4.98E-05	3.57E-06
Formaldehyde	50000	2.91E-01	3.14E-01	2.25E-02	5.32E-02	5.73E-02	4.11E-03
Hexavalent chromium	18540299	1.69E-05	1.82E-05	1.30E-06	3.08E-06	3.32E-06	2.38E-07
Arsenic	7440439	2.70E-04	2.91E-04	2.09E-05	4.93E-05	5.31E-05	3.81E-06
Lead	7439921	1.40E-03	1.51E-03	1.08E-04	2.56E-04	2.75E-04	1.98E-05
Nickel	7440020	6.58E-04	7.09E-04	5.09E-05	1.20E-04	1.29E-04	9.28E-06
Naphthalene	91203	3.33E-03	3.58E-03	2.57E-04	6.07E-04	6.54E-04	4.69E-05
PAHs (excluding Naphthalene)	1151	6.11E-03	6.58E-03	4.72E-04	1.12E-03	1.20E-03	8.61E-05
Acetaldehyde	75070	1.32E-01	1.42E-01	1.02E-02	2.41E-02	2.60E-02	1.86E-03
Acrolein	107028	5.72E-03	6.17E-03	4.42E-04	1.04E-03	1.13E-03	8.07E-05
Ammonia	7664417	1.35E-01	1.45E-01	1.04E-02	2.46E-02	2.66E-02	1.90E-03
Copper	7440508	6.92E-04	7.46E-04	5.35E-05	1.26E-04	1.36E-04	9.76E-06
Ethyl benzene	100414	1.84E-03	1.98E-03	1.42E-04	3.36E-04	3.62E-04	2.59E-05
Hexane	110543	4.54E-03	4.89E-03	3.51E-04	8.29E-04	8.93E-04	6.40E-05
Hydrogen chloride	7647010	3.15E-02	3.39E-02	2.43E-03	5.74E-03	6.18E-03	4.43E-04
Manganese	7439965	5.23E-04	5.64E-04	4.04E-05	9.55E-05	1.03E-04	7.38E-06
Mercury	7439976	3.38E-04	3.64E-04	2.61E-05	6.16E-05	6.64E-05	4.76E-06
Selenium	7782492	3.71E-04	4.00E-04	2.87E-05	6.78E-05	7.30E-05	5.24E-06
Toluene	108883	1.78E-02	1.92E-02	1.37E-03	3.25E-03	3.50E-03	2.51E-04
Xylenes	1330207	7.16E-03	7.71E-03	5.53E-04	1.31E-03	1.41E-03	1.01E-04

Table 14b. Transportation Toxic Pollutants Emissions Summary - SJVAB

Pollutants	CAS#	Project (lb/day)	Alternative 1 (lb/day)	Increment (lb/day)	Project (tpy)	Alternative 1 (tpy)	Increment (tpy)
Benzene	71432	1.61E-02	--	--	2.95E-03	--	--
1,3-Butadiene	106990	1.88E-02	--	--	3.44E-03	--	--
Cadmium	7440439	1.30E-04	--	--	2.37E-05	--	--
Formaldehyde	50000	1.50E-01	--	--	2.73E-02	--	--
Hexavalent chromium	18540299	8.66E-06	--	--	1.58E-06	--	--
Arsenic	7440439	1.39E-04	--	--	2.53E-05	--	--
Lead	7439921	7.19E-04	--	--	1.31E-04	--	--
Nickel	7440020	3.38E-04	--	--	6.17E-05	--	--
Naphthalene	91203	1.71E-03	--	--	3.11E-04	--	--
PAHs (excluding Naphthalene)	1151	3.14E-03	--	--	5.72E-04	--	--
Acetaldehyde	75070	6.79E-02	--	--	1.24E-02	--	--
Acrolein	107028	2.94E-03	--	--	5.36E-04	--	--
Ammonia	7664417	6.93E-02	--	--	1.26E-02	--	--
Copper	7440508	3.55E-04	--	--	6.48E-05	--	--
Ethyl benzene	100414	9.44E-04	--	--	1.72E-04	--	--
Hexane	110543	2.33E-03	--	--	4.25E-04	--	--
Hydrogen chloride	7647010	1.61E-02	--	--	2.95E-03	--	--
Manganese	7439965	2.69E-04	--	--	4.90E-05	--	--
Mercury	7439976	1.73E-04	--	--	3.16E-05	--	--
Selenium	7782492	1.91E-04	--	--	3.48E-05	--	--
Toluene	108883	9.13E-03	--	--	1.67E-03	--	--
Xylenes	1330207	3.67E-03	--	--	6.70E-04	--	--

Abbreviations:
lb = pound
SCAB = South Coast Air Basin
SJVAB = San Joaquin Valley Air Basin
tpy = tons per year