CHAPTER 5
ALTERNATIVE TECHNOLOGIES

5.1 PURPOSE

5.2 DEFINITIONS

5.2.1 Air Pollutants
5.2.2 Alternative Fuels
5.2.3 Alternative Technology
5.2.4 Ambient Air
5.2.5 Best Available Control Technology (BACT)
5.2.6 Biomass Combustion
5.2.7 Biomass Conversion
5.2.8 Biomass Processing
5.2.9 Combustion
5.2.10 Conversion/Recovery Technologies
5.2.11 Emission Offset
5.2.12 Emission Standard
5.2.13 Endothermic
5.2.14 Exothermic
5.2.15 Fermentation
5.2.16 Gasification
5.2.17 Incineration
5.2.18 Nitrogen Oxides (NO_x)
5.2.19 Oxidation
5.2.20 Particulate Matter (PM)
5.2.21 Particulate Matter Less than 10 Microns (PM_{10})
5.2.22 Post-Recycled
5.2.23 Pyrolysis
5.2.24 Residual Solid Waste
5.2.25 Transformation
5.2.26 Waste-to-Energy

5.3 SPECIFIC REQUIREMENTS

5.4 INTRODUCTION

5.5 ALTERNATIVE TECHNOLOGY DEVELOPMENTS IN LOS ANGELES COUNTY

5.5.1 Los Angeles County Efforts

5.5.1.1 Southern California Conversion Technology Development Project

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CHAPTER 5
ALTERNATIVE TECHNOLOGIES

5.1 PURPOSE

The purpose of this Chapter is to describe technologies that provide an alternative to existing solid waste disposal practices and to provide a brief assessment on their current state of development. This Chapter also describes a number of benefits, advantages, and environmental constraints regarding the identified alternative technologies.

This Chapter also explores various alternative technologies (see **Flowchart 5-1**) that divert waste from landfills to generate energy and produce "green" fuels and other environmentally beneficial products. Alternatives, such as conversion/recovery technologies, are considered viable alternatives for solid waste management in the United States.

Conversion/recovery technologies provide great flexibility in managing specific waste resources such as Municipal Solid Waste (MSW), generated currently as post recyclable removed landfill material. There are three general types of conversion/recovery technologies: thermal, biological, and chemical. All of these conversion/recovery technologies reduce the amount of residual material to be landfilled, which ultimately conserves current landfill capacity. The majority of byproducts and residuals from conversion/recovery technologies are also inert materials, which dramatically decrease landfill material decomposition and emission of greenhouse gases.

Due to current concern regarding the permitting, siting, and development of conversion/recovery technologies, Los Angeles County (County) has studied the challenges and benefits of these technologies. These challenges and benefits are also discussed within this Chapter in **Section 5.7** and **Table 5-1** (Comparison of Conversion Technology Systems).

The specific requirements of this Chapter are drawn from California Code of Regulations (CCR), Title 14, Section 18756.5, and discussed in **Section 5.3** of this Chapter.

5.2 DEFINITIONS

Due to increased interest in development of alternative technologies in the United States and the evolution of thermal technologies, confusion exists among widely used and overlapping terms. **Section 5.2** defines a variety of terms and their application to alternative technologies. For clarity, select

terms will be used throughout the Chapter.

Thus far, several issues in California have inhibited the development of alternative technologies. One of the key issues is that Federal, State, and local law does not properly define these alternative technologies. For example, one term (transformation) is used to include both incineration (mass-burn) and some conversion/recovery (non-burn) technologies, while other technologies are not defined at all. State law imposes scientifically impossible standards on some thermal technologies, such as gasification, which California law prohibits from using oxygen in the conversion/recovery process or generating any water, hazardous waste, or air emissions.

The Los Angeles County Solid Waste Management Committee/Integrated Waste Management Task Force (Task Force) continues to lobby the State Legislature to revise California law to accurately reflect the scientific distinctions among these technologies, and regulate them rationally based on their relative environmental benefits and impacts compared with other solid waste management options. To date, the State Legislature has been reluctant to address this issue in any way; therefore, the definitions offered in this Chapter seek to provide a clearer distinction between the various terminologies currently in use.

Below are definitions of key terms used in this Chapter. For a more complete listing of definitions and acronyms, please refer to the Glossary of Terms and List of Acronyms at the beginning of this document.

5.2.1 Air Pollutants

Refers to material in the ambient air that produces air pollution. Common air pollutants are ozone (O_3), nitrogen dioxide (NO_2), particulate matter (PM_{10}), sulfur dioxide (SO_2), and carbon monoxide (CO). Air pollutant is defined in California Health and Safety Code (HSC), Section 39013 as "any discharge, release, or other propagation into the atmosphere and includes, but is not limited to, smoke, charred paper, dust, soot, grime, carbon, fumes, gases, odors, particulate matter, acids, or any combination thereof." Air pollutant is synonymous with air contaminant.

5.2.2 Alternative Fuels

Refer to fuels such as methanol, ethanol, hydrogen, natural gas, and liquid propane gas that are cleaner burning and help to meet the Air Resources Board's (ARB) mobile and stationary emission standards.

5.2.3 Alternative Technology

Refers to a technology capable of processing residual municipal solid waste (MSW), such as conversion/recovery technology, transformation, or other emerging technologies, in lieu of land disposal.

5.2.4 Ambient Air

Refers to the air occurring at a particular time and place outside of structures. Often used interchangeably with “outdoor” air.

5.2.5 Best Available Control Technology (BACT)

Refers to a pollution control standard mandated by the CAA; and to the most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for given regulated air pollutants and processes. BACT is a requirement of NSR (New Source Review) and PSD (Prevention of Significant Deterioration) permit actions. From a federal perspective, BACT as used for PSD purposes means an emission limitation based on the maximum degree of emissions reductions allowable, taking into account energy, environmental, and economic impacts and other costs. (CAA Section 169(3).) From a state law perspective, BACT means an emission limitation that will achieve the lowest achievable emission rates. The lowest achievable emission rates mean the most stringent of either: (1) the most stringent emission limits contained in the State Implementation Plan (SIP) for the class or category of source (unless it is demonstrated that one limitation is not achievable); or (2) the most stringent emission limit achieved in practice by that class in category of source. BACT is more stringent under state law than it is under federal law. BACT under state law is equivalent to federal Lower Achievable Emission Rate (LAER), which applies to NSR permit actions.

5.2.6 Biomass Combustion

Refers to “Biomass Conversion.”

5.2.7 Biomass Conversion

Defined in California Public Resources Code (PRC), Section 40106 as “the controlled combustion, when separated from other solid waste and used for producing electricity or heat, of the following materials: (1) agricultural crop residues; (2) bark, lawn, yard, and garden clippings; (3) leaves, silvicultural residue, and tree and brush pruning; (4) wood, wood chips, and wood waste;

(5) non-recyclable pulp or non-recyclable paper materials."

5.2.8 Biomass Processing

Refers to the controlled combustion, when separated from other solid waste and used for producing electricity or heat, of the following materials: (1) agricultural crop residues; (2) lawn, yard and grass clippings; (3) bark, leaves, silvicultural residue, and tree and brush pruning; (4) wood, wood chips, and wood waste; and/or (5) residual pulp or paper materials. Biomass processing does not include the controlled combustion of recyclable pulp or recyclable paper materials, or materials which contain sewage sludge, industrial sludge, medical waste, hazardous waste, or either high-level or low-level radioactive waste.

5.2.9 Combustion

Refers to a rapid conversion of chemical energy into thermal energy. The reaction is exothermic. Organic matter is oxidized with sufficient air (or oxygen) for reactions to go to completion. The carbon and hydrogen are oxidized to carbon dioxide and water, respectively. (See http://www.calrecycle.ca.gov/Organics/Glossary/Conversion.htm.)

5.2.10 Conversion/Recovery Technologies

Refers to a wide array of technologies capable of converting post-recycled or residual solid waste into useful products, green fuels, and renewable energy through non-combustion thermal, chemical, or biological processes. Conversion/recovery technologies may include mechanical processes, but only when combined with a secondary conversion process.

5.2.11 Emission Offset (also known as Emission Trade-Off)

Refers to a rule-making concept whereby approval of a new or modified stationary source of air pollution is conditional on the reduction of emissions from other existing stationary sources of air pollution. These reductions are required in addition to reductions required by BACT.

5.2.12 Emission Standard

Refers to the maximum amount of a pollutant that is allowed to be discharged from a polluting source such as an automobile or smoke stack.

5.2.13 Endothermic

Refers to a process or reaction that absorbs energy in the form of heat.

5.2.14 Exothermic

Refers to a process or reaction that releases energy usually in the form of heat, but also in form of light (e.g., a spark, flame, or explosion), electricity (e.g., a battery), or sound.

5.2.15 Fermentation

Refers to a process by which carbon-containing compounds are broken down in an energy yielding process. Fermentation occurs during times of low oxygen supply; therefore, it is known as a type of anaerobic respiration.

5.2.16 Gasification

Defined in PRC, Section 40117 as "a technology that uses a noncombustion thermal process to convert solid waste to a clean burning fuel for the purpose of generating electricity, and that, at minimum, meets all of the following criteria: (a) The technology does not use air or oxygen in the conversion/recovery process, except ambient air to maintain temperature control. (b) The technology produces no discharges of air contaminants or emissions, including greenhouse gases, as defined in subdivision (g) of [HSC, Section 38505]. (c) The technology produces no discharges to surface or groundwaters of the state. (d) The technology produces no hazardous waste. (e) To the maximum extent feasible, the technology removes all recyclable materials and marketable green waste compostable materials from the solid waste stream prior to the conversion/recovery process and the owner or operator of the facility certifies that those materials will be recycled or composted. (f) The facility where the technology is used is in compliance with all applicable laws, regulations, and ordinances. (g) The facility certifies to the board that any local agency sending solid waste to the facility is in compliance with this division and has reduced, recycled, or composted solid waste to the maximum extent feasible, and the board makes a finding that the local agency has diverted at least 30 percent of all solid waste through source reduction, recycling, and composting."

5.2.17 Incineration

Refers to the controlled process by which solid, liquid, or gaseous

combustible wastes are burned and changed into gases, and the residue produced contains little or no combustible material.

5.2.18 Nitrogen Oxides (NO_x)

Refers to a general term pertaining to compounds of nitric acid (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen. Nitrogen oxides (NO_x) are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant, and may contribute to numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility.

5.2.19 Oxidation

Refers to the chemical process of adding oxygen to break down pollutants or organic waste, e.g., destruction of chemicals compounds in sewage by bacterial and chemical means.

5.2.20 Particulate Matter (PM)

Refers to solid or liquid particles of soot, dust, smoke, fumes, and aerosols.

5.2.21 Particulate Matter Less than 10 Microns (PM_{10})

Refers to a major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about .0004 inches or less) allows them to easily enter the air sacs in the lungs where they may be deposited, resulting in adverse health effects. PM10 also causes visibility reduction and is a criteria air pollutant.

5.2.22 Post-Recycled

Refers to material remaining after recycling that would have otherwise gone to disposal.

5.2.23 Pyrolysis

Refers to a chemical decomposition process achieved by heating in the absence or near absence of oxygen.

5.2.24 Residual Solid Waste

Refers to the post-recycled content or remaining solid waste after municipal

solid waste has gone through the recycling, source reduction, and reuse method.

5.2.25 Transformation

Defined in PRC, Section 40201 as "incineration, pyrolysis, distillation, or biological conversion/recovery other than composting. 'Transformation' does not include composting, gasification, or biomass conversion/recovery." Because the statutory definition of transformation makes no distinction between incineration and certain conversion/recovery technologies, the CSE does not reference the term transformation. The CSE instead references the terms combustion and conversion/recovery technologies.

5.2.26 Waste-to-Energy

Refers to an incineration process in which the organic fraction of solid waste is combusted and the released heat is utilized to generate hot water, steam, and electric power, leaving the inorganic fraction (ash) as a residue**.**

5.3 SPECIFIC REQUIREMENTS

CCR, Title 14, Section 18756.5(b) requires the following:

(b) If new or expandable solid waste disposal facilities are not available, or are not sufficient to meet countywide or regionwide needs, each county and regional agency shall include strategies for disposing of solid waste. The discussion of strategies shall include, but is not limited to, the following:

(1) A description of the types (residential, commercial, industrial, and special) and quantities in cubic yards and in tons of waste in excess of remaining volumetric capacity of existing solid waste disposal facilities;

(2) A description of the diversion or export programs which will be implemented to safely handle and divert or dispose of excess solid waste. The description shall identify the existing solid waste disposal facilities, including those outside of the county or regional agency that will be used to implement these strategies. The description shall document how the proposed programs shall provide the county or regional agency with sufficient disposal capacity to meet the required minimum of 15 years of

combined permitted disposal capacity as described in CCR, Section 18775(a) of Article 6.5.

5.4 INTRODUCTION

As discussed in Chapter 1 (**Section 1.1**) and consistent with the goals established in Chapter 2, the primary goal of the Los Angeles County Countywide Siting Element (CSE) is to address the solid waste disposal needs of the 88 cities in Los Angeles County and the County unincorporated communities for a 15-year planning period.

Adequacy of disposal capacity is discussed and addressed in Chapters 3, 4, 7 and 9. These disposal capacity needs are met through utilization of existing in-County solid waste disposal facilities, increase in diversion rate, development of alternative technology facilities (e.g., conversion/recovery technology facilities), expansion of existing facilities, and out-of-County disposal. Chapter 7 confirms that no new landfills will be developed in the County in the foreseeable future, and expanding existing landfills is a long and challenging process. In the last few years, proposed new landfills and expansions of existing landfills have encountered strong opposition to their development, particularly from residents living in the vicinity of those facilities and from environmental groups.

Currently, most of the refuse in the County that is destined for disposal is transported by truck to disposal sites within the County; however, that will change during the planning period. The County is in a period of transition, and by the end of this planning period will rely on facilities outside its borders to manage most of its waste. With the closure of the Puente Hills Landfill in 2013, potential closure of other landfills, and no expected development of new landfills in the County, it is estimated that as much as 7 million tons per year of solid waste will flow out of the County by 2025. Therefore, it is critical to invest in alternative solid waste infrastructure that can address this need.

Among the most promising alternatives to landfill disposal and waste exporting are alternative technologies (e.g., conversion/recovery technologies).

5.5 ALTERNATIVE TECHNOLOGY DEVELOPMENTS IN LOS ANGELES COUNTY

5.5.1 Los Angeles County Efforts

For nearly a decade, the County has consistently supported

conversion/recovery technologies because of its potential to convert post-recycled MSW (material remaining after recycling that that would have otherwise gone to disposal) into useful products, renewable energy, and biofuels. On July 27, 1999, the County Board of Supervisors formally adopted a series of recommendations

that included support for the development of alternatives (such as conversion/recovery technologies) to landfilling and incineration.

As a strong advocate for furthering conversion/recovery technology development in California the County, in coordination with the Task Force, continues to encourage and promote local research of conversion/recovery technologies; and works to advance State legislation that would clarify the definition of conversion/recovery technologies and remove technically inaccurate definitions from State statutes. Due to current regulatory uncertainty, many potential investors have expressed hesitation in investing in conversion/recovery technologies in California.

Furthermore, the County and the Task Force support reprioritizing the solid waste management hierarchy to include conversion/recovery technologies, while allowing jurisdictions to obtain diversion credit when using conversion/recovery technologies to reduce waste disposal at landfills. Conversion/recovery technologies are a viable approach to achieving the self-imposed higher diversion and zero-waste goals implemented by many jurisdictions. Conversion/recovery technologies would also be a viable approach to achieving California's possible increase of the Statewide 50 percent waste diversion mandate.

The Alternative Technology Advisory Subcommittee (ATAS) of the Task Force was created in 2004 by a condition in the Puente Hills Landfill Conditional Use Permit (CUP). The membership of the ATAS was further adjusted by the Sunshine Canyon City/County Landfill CUP. The ATAS comprises a diverse group of professionals that includes representatives from local government, the California Department of Resources Recycling and Recovery (CalRecycle), the private sector, the public, consultants, etc. The group comprises experts in the conversion/recovery technologies field responsible for evaluating and promoting the development of conversion/recovery technologies. ATAS's ultimate goal is to facilitate development of one or more demonstration conversion/recovery technology facilities in Southern California, which would showcase the benefits of conversion/recovery technologies as a technically, economically, and environmentally viable alternative method of managing solid waste within the County.

The Task Force vigorously supports increased study of and facilitation for conversion/recovery technologies within the County through the following actions:

- Evaluating the technical, economic, and environmental feasibility of conversion/recovery technologies.

- Promoting the development of conversion/recovery technologies by advocating for changes in legislation and regulations.

- Acting as a regional resource, disseminating accurate information regarding conversion/recovery technologies, and urging stakeholders throughout the State to participate in the development of these technologies.

The County and the Task Force strongly advocate for alternative technologies to manage solid waste. The County and the Task Force successfully promoted different technologies, as demonstrated by the following significant efforts:

- Built coalitions with numerous government agencies and associations, such as the League of Council of Governments, and many other entities to promote development of conversion/recovery technologies through policies, statements, and other advocacy activities.

- Worked with the then-County Chief Administrative Officer (CAO) and now Chief Executive Officer (CEO) to sponsor two legislative bills in 2000 that intended to provide 100 percent diversion credit for waste processed at conversion/recovery technology facilities in order to create an incentive for their development. This effort created the momentum that resulted in the 2002 passage of Assembly Bill 2770 (Matthews), which required the former California Integrated Waste Management Board (CIWMB) to study these technologies and provide recommendations to the State Legislature.

- Attended and participated in workshops and forums to increase the County's knowledge and expertise in this area and to affirm the County's position and support.

- Established the ATAS as an outgrowth of the commitment of the County and the Task Force to conversion/recovery technologies, supported by a condition in the CUP of the Puente Hills landfill adopted

in 2003.

The County and the Task Force are committed to promoting solutions that address the solid waste management issues of the County, such as implementation of the Southern California Conversion Technology Development Project.

5.5.1.1 Southern California Conversion Technology Development Project

The County consistently supports the development of conversion/recovery technologies. Development of in-County, commercial scale conversion/recovery technology facilities is a key element in the County's strategy for assuring long-term disposal capacity to meet the needs of over 10 million residents and thousands of businesses county-wide. The County Department of Public Works (Public Works), in concert with the Task Force and in collaboration with state universities, CalRecycle, and neighboring counties, conducted extensive studies to evaluate the viability of these technologies to manage solid waste.

Phase I – Initial Technology Evaluation (2004-2005)

Between 2004 and 2005, Public Works conducted a preliminary evaluation of a range of conversion/recovery technology suppliers, and initiated efforts to identify Material Recovery Facilities (MRF) and Transfer Stations (TS) in Southern California that could potentially host a demonstration conversion/recovery technology facility. The benefits of such a pairing are significant and include readily available feedstock otherwise destined for landfill disposal, appropriate siting, preprocessing capacity, transportation (cost and pollution) avoidance, and other mutual benefits. Additionally, this proposed siting requirement would ensure that the wastestream (feedstock) processed by conversion/recovery technology facilities is strictly residual solid waste remaining after removal of all feasibly recoverable materials.

This effort resulted in a report titled the "Conversion Technology Evaluation Report for the County of Los Angeles Department of Public Works and the Los Angeles Solid Waste Management Committee/Integrated Waste Management Task Force's Alternative Technology Advisory Subcommittee" (also known as the "Phase I Report"), which the Task Force officially adopted on August 18, 2005. Research for the Phase I Report assessed the viability of various conversion/recovery technologies, with the goal of vetting technologies for a potential demonstration facility. The Phase I Report also identified a

preliminary short list[1] of technology suppliers and MRF and TS sites (see **Table 3-2**), and a framework for developing a demonstration facility at one of the MRF or TS sites.

Phase II – Detailed Evaluation and Vetting Efforts toward Facilitation of One or More Demonstration Facilities (2006-2008)

Following an extensive vetting process, the County identified four technology suppliers that demonstrated the technical capabilities of their conversion/recovery technologies to process MSW and are ready for participation in this project. Additionally, four of the MRF and TS sites evaluated were determined suitable for co-location with a conversion/recovery technology. This vetting process is described in detail in the "Los Angeles County Conversion Technology Report for the County of Los Angeles Department of Public Works and the Los Angeles Solid Waste Management Committee/Integrated Waste Management Task Force's Alternative Technology Advisory Subcommittee: Phase II Assessment," dated October 2007 (also known as the "Phase II Report").

The Phase II Report represents Public Works' continued efforts to facilitate development of a conversion/recovery technology demonstration facility in Southern California. Such efforts included over a year of work by Public Works, the ATAS, and technical consultants that resulted in the following key activities:

- An independent evaluation and verification of the qualifications of selected technology suppliers and the capabilities of their conversion/recovery technologies.
- An independent evaluation of candidate MRF and TS sites to determine suitability for integration with one or more technologies.
- A review of permitting pathways.
- Identification of funding opportunities and financing mechanisms.
- Identification of potential County incentives (i.e., supporting benefits) to encourage facility development among potential project sponsors.

The Phase II Report describes these activities in detail. Also, the Phase I and Phase II Reports include more detailed information on the vetting

[1] Table 3-2 of the Phase I Report lists 13 MRF/TS facilities interested in a conversion/recovery facility, out of which a short list of preferred MRFs for the first phase of development of a conversion/recovery facility were identified (see Section 4.5.1 of Phase I Report).

process.

Phase III and IV – Long Term Development of Conversion/Recovery Technologies (2009 - Present)

Phase III builds upon the efforts commenced in Phase II by completing the permitting process, design, construction, and operation of one or more demonstration facilities selected in Phase II.

On April 20, 2010, the County Board of Supervisors unanimously approved three Memoranda of Understanding (MOU) for three conversion/recovery technology demonstration projects and awarded a contract for consultant services for Phase III and Phase IV to develop alternatives to landfills within the County.

Concurrently with Phase III, Phase IV is pursuing the siting of commercial scale conversion/recovery technology facilities in the County capable of managing the County's wastestream. At their hearing on April 20, 2010, the Board of Supervisors also instructed the Director of Public Works in coordination with appropriate stakeholders, to: assess the feasibility of developing a conversion/recovery technology facility at one or more County landfills, identify other potentially suitable sites within the County, and report back Public Works' findings to the Board of Supervisors in six months.

Sixteen potential host sites for a conversion/recovery technology facility were submitted to the County. These sites are discussed in the "Los Angeles County Conversion Technology Project, Preliminary Siting Assessment" (see **Appendix 5-A**), submitted to the Board of Supervisors on October 20, 2010. In subsequent updates to the Board of Supervisors, additional sites were added to the list.

During Phase IV, the County will work with various key stakeholders that include cities, solid waste facility owners and operators, and conversion/recovery technology companies, to encourage development of mutually beneficial projects within the County. Similar to the Phase III demonstration projects, the County would support the Phase IV project by providing technical assistance of a consultant contract and assistance with permitting, grant, and loan procurement, while maximizing private-sector investment.

Due to the interval between Phase I and Phase IV, Public Works is also in the process of reevaluating the conversion/recovery technology

marketplace beginning with two Requests for Expression of Interest (RFEI) issued in June 2011. Public Works sent the first RFEI to conversion/recovery technology vendors. Technologies that met Public Works' minimum criteria were included in a publicly-available database. Public Works sent the second RFEI to financial firms with previous experience funding solid waste and renewable energy projects. Identifying potential funding sources is a critical component to Phase IV project planning and development. To ensure that this process is transparent and resources are available to all interested jurisdictions and stakeholders, the County developed a website, www.SoCalConversion.org, which contains updated project information. Additionally, the County provides a monthly e-newsletter of conversion/recovery technology news and updates to all interested parties.

For additional and more detailed information on the characteristics of various combustion systems and conversion/recovery technology systems, see **Sections 5.4** and **5.5**, and **Figure 5-1** of this Chapter. For additional and more detailed information and discussion on siting conversion/recovery technology facilities in the County, see Chapter 6 ("Facility Siting Criteria"), Chapter 7 ("Proposed In-County Facility Location and Description"), **Figure 7-9**, and Chapter 10 ("Finding of Conformance") of this CSE. Also see Appendix of **Phase I Report** for a list of conversion/recovery technology distributors.

5.5.2 City of Los Angeles Alternative Technology Efforts

The City of Los Angeles adopted a 20-year (2005-2025) solid resources management blueprint called RENEW LA Plan (Recovering Energy, Natural Resources, and Economic Benefits from Waste for Los Angeles) to achieve zero waste within the City by 2025. RENEW LA relies on two key elements: (1) the continued enhancement and growth of existing diversion programs and development of new diversion programs; and (2) the establishment of seven conversion/recovery technology facilities, with one facility located in each of the City's six wastesheds, and a seventh facility located in the southern California region, to process post-source separated municipal solid waste (MSW) still being disposed in landfills.

With the RENEW LA Plan as the blueprint, the City of Los Angeles, Bureau of Sanitation embarked upon a stakeholder-driven zero waste master planning effort, known as the Solid Waste Integrated Resource Plan (SWIRP). SWIRP takes a comprehensive long-term look at achieving zero waste in the City through the implementation of various upstream and downstream policies, programs and facilities, including the completion of alternative technology

facilities. SWIRP identifies viable alternative technologies to process municipal solid waste for the purpose of increasing diversion from landfills, reducing greenhouse gas emissions, producing energy, and recovering renewable resources.

City of Los Angeles stakeholders believe that upstream and downstream policies will net 80% diversion from landfilling. The energy in the remaining 20% should be harnessed in an environmentally safe and efficient manner and not disposed in landfills.

SWIRP defines alternative technologies as a host of specific thermal, biological, chemical, and physical technologies such as mixed material processing (mechanical separation), refuse derived fuel (RDF), advanced thermal recycling (2nd generation waste-to-energy), gasification, pyrolysis, plasma arc, anaerobic digestion and composting, among others. These technologies are all methods to process MSW as an alternative to landfill disposal.

In the spring of 2011, the City of Los Angeles, Board of Public Works (Board) authorized the Bureau of Sanitation to enter into contract negotiations with Green Conversion Systems (GCS) to develop the first commercial scale Alternative Technology facility. GCS, an advanced thermal recycling development partner, is proposing to build a 1,100 ton per day facility in the City of Los Angeles that would include an upfront mechanical separation pre-processing system to first recover recyclable materials, followed by an advanced thermal recycling system to produce energy and recover by-products.

In the summer of 2011, the Los Angeles City Council unanimously approved a motion that authorized and directed the BOS to conduct concurrent negotiations with Urbaser-Keppel Seghers for an emerging Alternative Technology facility to pioneer new methods for disposal of MSW.

5.6 COMBUSTION SYSTEMS

Combustion facilities utilizing MSW as a feedstock currently operate within the County. End products for combustion facilities are typically ash, inert material, and steam used for electricity generation. A small amount of electricity produced from these combustion facilities is used on-site to power the facility, which sells the excess energy to power utilities.

Combustion systems are used to reduce the volume of solid waste, destroy pathogens, break down chemical structures, and produce energy.

Combustion occurs at high temperatures to produce gas, ash, and inert residual material. Heat from the controlled burning process is used to produce steam, which is then used to generate power. Pollution control for gas produced is typically in the form of scrubbers and filters. The scrubbers neutralize the acid gases within the resulting gas. Filters remove minute ash particles from any gas produced, as required by current air quality standards. Typically, the ash-crete generated as a result of combustion system could be used as road base material in various types of road construction project and not limit to landfill.

5.6.1 Combustion

Combustion, as defined in **Section 5.2.9** of this Chapter, is used to manage solid waste in compliance with state and regional environmental regulations.

Solid waste combustion systems are designed to operate with two types of solid waste fuel: commingled solid waste (mass-fired) and pre-processed solid waste known as Refuse-Derived Fuel (RDF-fired).

Combustion technology was identified as one of the effective options currently available to reduce the need for landfill disposal. Combustion is commercially, technically, and environmentally feasible. From the 1970s to the 1990s, combustion technology grew as a result of energy shortages and relatively high energy prices. State legislation enacted in the 1980s encouraged the development of combustion projects. However, political resistance and negative public perception regarding combustion technology have increased due to environmental and health risk concerns.

Environmental issues associated with a combustion facility include potential impacts to air quality, water quality, traffic, aesthetics, and noise. The combustion of refuse to recover energy generates emissions that require the use of sophisticated control devices. Controlled combustion, through the use of automated damper controls for air distribution, minimizes nitrogen oxide (NO_x) and carbon oxide (CO_x). In addition, demonstrations establish that ammonia injection into the furnace of a combustion facility is successful in further reducing NO_x emissions. Sulfur dioxide (SO_x), hydrochloric acid (HCl), dioxins/furans, cadmium, and lead are removed at an efficiency of up to 99 percent through the use of lime treatment in a dry scrubber neutralizing the acid gases. The final stage in a typical air pollution control system at a combustion facility is a filter baghouse that removes up to 99.95 percent of the particulate matter. For additional and more detailed information on the characteristics of various combustion systems, see **Figure 5.1** of this Chapter.

The current lack of enthusiasm for combustion facilities is also associated with economic factors involving the high capital costs of developing such facilities, deregulation of the energy industry, and strong public opposition based on air quality concerns encountered by previous proposals. Additionally, development has been discouraged by combustion's current classification as disposal (rather than diversion) under State law[1].

Two types of Combustion Systems, namely, fluidized bed combustion and mass-fired combustion systems, are described below.

5.6.1.1 Fluidized Bed Combustion

Fluidized Bed Combustion (FBC) processes include a heated bed of particles, typically sand or another type of granular media, suspended (fluidized) within a steel column through use of an upward flow of air or fluid. Oxygen is supplied more freely through the flow action of the bed media due to the turbulent contact between the bed media and the fuel media. Complete oxidation, including the production of flames, maximizes thermal efficiency and minimizes the amount of char produced by the fuel media. Low combustion temperature reduces nitrogen oxide formation, and the addition of crushed limestone to the fluidized bed absorbs sulfur dioxide. The FBC process is best used to manage low British Thermal Unit (BTU) fuel media and MSW with high moisture content.

5.6.1.2 Mass-fired Combustion Systems

Mass-fired combustion systems are the predominant type of combustion systems. Solid waste is typically burned at temperatures of about 2200 °F (1204°C) in waterwall boilers where thermal energy in the form of steam is recovered. The steam is then passed through turbines where the thermal energy is converted to electricity.

Combustion processes are capable of achieving a 75 percent mass reduction and 90 percent volume reduction in the solid waste, with ash being the only residue produced. In a mass-fired combustion system, minimal processing is given to solid waste before it is placed in the charging hopper of the system. A crane operator responsible for loading the charging hopper manually rejects obviously unsuitable items. One of the most critical components of a mass-fired combustion system is the grate system, which serves several functions, including the movement of waste through the system, mixing of the waste, and injection of combustion air.

[1] However, under current State law non-source separated waste disposals at transformation facilities are granted 10% diversion credit.

There are two combustion facilities operating in the County, the Commerce Refuse-to-Energy Facility (CREF) in the City of Commerce and the Southeast Resource Recovery Facility (SERRF) in the City of Long Beach. Nevertheless, both facilities operate within the stringent requirements of the South Coast Air Quality Management District (SCAQMD). In addition, these facilities are required to use reclaimed water, as shown in **Figures 5-1** and **5-2** of this Chapter. The County has no current plans to develop additional combustion facilities; however, other jurisdictions may propose such facilities.

The mass-fired combustion facilities located in the County are described below.

5.6.1.2.1 Commerce Refuse-to-Energy Facility

CREF is a Joint Powers Agency (JPA) formed by the City of Commerce and the County Sanitation Districts of Los Angeles County (CSD). The CSD has operated CREF since its inception in 1987. It successfully meets SCAQMD requirements and produces some of the lowest emissions from a facility of its type worldwide. The facility combusts approximately 360 tons of refuse per day, and generates approximately 10 megawatts (MW) of electricity that is sold to Southern California Edison (SCE). Residual ash is created as a result of the combustion process. There is an ash treatment facility operating at the site. CREF adds cement to the ash to form ash-crete and transports the ash-crete to the Puente Hills Landfill where it is recycled as a base material for roads.

5.6.1.2.2 Southeast Resource Recovery Facility

SERRF is a JPA formed by the City of Long Beach and the CSD. The City of Long Beach employs a private contractor to operate the facility. SERRF has the capacity to process about 1,380 tons of refuse per day. As an end product, the combustion process generates approximately 36 gross MW of electricity (with 30 MW of electricity sold to SCE).

Residual ash is created as a result of the combustion process. There is an ash treatment facility operating at the site. Currently, SERRF adds cement to the ash and transports the mix to a local landfill where it is recycled as a base material for roads.

5.6.1.3 Refuse-Derived Fuel (RDF) -Fired Combustion Systems

Refuse-Derived Fuel (RDF) is the material remaining after the selected recyclable and noncombustible materials have been removed from the waste

stream. RDF can be produced in shredded or fluff form, or as densified pellets or cubes. Densified RDF is more costly to produce, but is easier to transport and store.

Due to the higher energy content of RDF compared to unprocessed solid waste, RDF combustion systems can be physically smaller than comparatively rated mass-fired systems. An RDF-fired system can also be controlled more precisely than a mass-fired system because of the homogeneous nature of RDF. The RDF-fired system also allows for better combustion control and better performance of air pollution control devices.

5.6.1.4 Rotary Cascading Bed Combustion

The Rotary Cascading Bed Combustion (RCBC) is a robust solid-fuel burner and heat recovery system, a form of Fluidized Bed Combustion (FBC) system. RCBC can burn solid waste, RDF, wood chips, etc. The system consists of a rotating horizontal cylindrical chamber with bundles of boiler tubes projecting into the end of the chamber. The rotational speed of the chamber is high enough to keep the bed material continually airborne, thus, increasing combustion. Almost all RCBC systems required extensive redesign to attain acceptable levels of reliability and environmental quality.

5.6.2 Biomass Combustion

PRC, Section 40106 defines "biomass conversion" as “the controlled combustion, when separated from other solid waste and used for producing electricity or heat, of the following materials: (1) agricultural crop residues; (2) bark, lawn, yard, and garden clippings; (3) leaves, silvicultural residue, and tree and brush pruning; (4) wood, wood chips, and wood waste; [and] (5) non-recyclable pulp or non-recyclable paper materials.” It is essentially the controlled combustion of certain biomass feedstocks. For the purposes of the CSE, “biomass conversion” is considered as “biomass combustion.” No biomass combustion facilities operate or are planned for in the County.

5.7 CONVERSION TECHNOLOGY SYSTEMS

Conversion/recovery technology systems are diversified alternatives to conventional landfill disposal. These technologies may be used in conjunction with current landfill practices to extend the life of existing landfills. These technologies include thermal processes such as pyrolysis and gasification; biological processes such as anaerobic digestion; and chemical processes such as ethanol fermentation. These processes are capable of converting MSW into useful products, chemicals, green fuels, and renewable

energy.

Conversion/recovery technologies represent the most significant opportunity for beneficial use of MSW to come along since passage of the California Integrated Waste Management Act of 1989, Assembly Bill 939 (AB 939), as amended (Section 40000 et seq. of the PRC). The technology suppliers vetted through the County's evaluation process have the potential to achieve diversion rates ranging from approximately 87 percent to 100 percent by the weight of the waste received, thus, representing a realistic potential to achieve the State's recycling mandates and Zero Waste goals.

According to a former CIWMB report, as of March 2005, there were approximately 130 operating conversion/recovery technology facilities utilizing MSW as a feedstock in Europe and Japan. Since that time commercial facilities have been developed in Australia and Canada. Many jurisdictions throughout the United States are moving forward with further evaluation of these technologies through research and, in some cases, demonstration projects.

Jurisdictions must carefully weigh specific issues associated with developing conversion/recovery technologies when considering it as a part of their solid waste management strategies. Most of the issues with conversion/recovery technologies can be separated into five categories: regulatory, environmental, social, technical, and economic.

Because of regulatory uncertainty in the United States, most of the conversion/recovery technologies available have yet to be permitted to process MSW. Not only do the limited regulations available differ between the state and federal levels, but they are often based on technically inaccurate definitions.

Public perception is an important aspect in developing these technologies in the United States. Despite the fact that these technology facilities are operating in various parts of the world, they are still new to the United States; thus, making it vital that jurisdictions interested in developing a facility provide public education regarding public health and safety, environmental impacts, and the specific difference from existing full combustion processes.

Feedstock characteristics, process integration, and emission controls, among others, are technical issues that must be considered. MSW is a heterogeneous feedstock that requires a robust technology to effectively process the feedstock.

Unlike other parts of the world, Southern California still is able to provide landfill capacity at a relatively low price. The tipping fees in the Los Angeles County range between $30 and $35 per ton. Because of this, conversion/recovery technologies have not been cost competitive in the County. However, it is anticipated that following the closure of the Puente Hills Landfill in 2013, tipping fees will ramp up, resulting in a direct cost comparison between conversion/recovery technologies and landfill disposal.

Some of the technologies discussed below are in the construction and operational stages for full-scale facilities. These technologies merit continued close observation of methods and costs as they mature. However, based on the above considerations and the length of time required to permit and develop these types of facilities, these technologies may not be ready for large-scale commercial operation to manage a significant portion of solid waste generated in the County within the current planning period. Nevertheless, conversion/recovery technologies should be continually evaluated so that the County may manage a significant share of its solid waste in the future.

The thermal, chemical, and biological conversion/recovery technologies discussed in the Phase I Conversion Technology Evaluation Report (CTER) will be further explained in the following sections. To simplify discussion of these technologies, the CTER is incorporated by reference. However, it should be noted that future revisions to the CT Phase I or Phase II Reports do not constitute revisions to the CSE. Therefore, the Reports will not be included as an Appendix within the CSE.

For additional and more detailed information on conversion/recovery technology systems, see **Flowchart 5-1**, and **Tables 5-1** and **5-2** of this Chapter; and the **Phase I Report**.

5.7.1 Thermal Conversion Processes

There are two major types of thermal conversion processes of solid waste, namely, pyrolysis systems and gasification systems. Thermal processing involves thermal degrading of solid waste through exothermic or endothermic reactions in an oxygen-free or oxygen-reduced environment. Full combustion of solid waste to the state of ash does not occur as a phase of the thermal conversion processes.

For additional and more detailed information on thermal conversion processes, see **Flowchart 5-1** and **Tables 5-1** and **5-2** of this Chapter; and **Section 1.1** of the **Phase I Report.**

5.7.1.1 Pyrolysis Systems

Pyrolysis is the thermal processing/degradation of organic waste in the absence of free oxygen to produce a carbonaceous char, oils, and combustible gases. Pyrolysis systems are used to convert solid waste into gaseous, liquid, and solid fuels.

Because most organic substances are thermally unstable they can, upon heating in an oxygen-free atmosphere, be broken down into gaseous, liquid, and reduced solid components. Pyrolysis systems typically include kiln-type structures that use external heat to process solid waste – there are no flames applied directly to the solid waste in this process.

Pyrolysis systems can process a wide range of carbon-based materials; however, they operate most efficiently and produce the highest quality byproducts when the feedstock is homogeneous. Since MSW is heterogeneous, if used as a feedstock it must first undergo pre-processing, shredding, and/or drying to remove inorganic materials and enhance uniformity.

During a pyrolysis operation, MSW is shredded and fed to a reactor vessel, where it is heated to temperatures ranging from 750°F to 1650°F (399°C to 2566°C) producing the following components:

- **Syngas component** - containing primarily hydrogen (H_2), methane (CH_4), carbon monoxide (CO), carbon dioxide (CO_2), and various other gases, depending on the organic characteristics of the material being processed.

- **Produced by Liquid component (Pyrolysis oil)** - Low temperature pyrolysis and consisting of a tar- or oil-like material containing acetic acid, acetone, methanol, and complex oxygenated hydrocarbons. Additional processing of this material results in a synthetic fuel oil.

- **Char or ash component -** consisting of almost pure carbon plus any inert material originally present in the solid waste.

The gas and oil may either be used to generate power or processed further and sold as fuel.

Since solid waste must be shredded prior to heating, potential environmental effects associated with the processing phase of a pyrolysis system are similar to those that may result from a mixed waste composting facility and include increases in noise, dust, traffic, and risk of fire and vector infestation.

However, since the actual distillation step is in an enclosed environment, air quality impacts are minimal.

In the United States, only a few small demonstration and commercial pyrolysis facilities have been constructed and operated; most commercial facilities have shut down due to poor end product quality.

For additional and more detailed information on Pyrolysis systems, see **Flowchart 5-1**, **Table 5-1** and **5-2**, and **Figure 1-1** of this Chapter; and **Appendix A** and **Section 1.1.2** of the **Phase I Report.**

5.7.1.2 Gasification Systems

Gasification refers to a thermal reaction with insufficient oxygen present for reaction of all hydrocarbons (compounds of carbon, hydrogen, and oxygen molecules) to carbon dioxide (CO_2) and water (H_2O). Gasification is the conversion at higher temperatures of feedstock into combustible gases, using a limited amount of air. Additionally, gasification is a general term used to describe the process of partial oxidation in which a fuel is deliberately combusted with less than the exact amount of oxygen (or air) needed for complete oxidation.

Unfortunately, PRC, Section 40117 defines gasification inaccurately and in a manner meant to sharply constrain the ability to develop this technology to manage MSW. Based on the State statute definition the development of a gasification facility would be prohibited unless the facility uses no air or oxygen in the process, produces zero air emissions, emits no discharges to surface or groundwater, and processes no feedstock from jurisdictions with less than a 30 percent diversion rate, among other restrictions. These restrictions are unprecedented for any technology or industry and appear designed to inhibit the development of conversion/recovery technologies.

Gasification effectively reduces the volume of solid waste and maximizes the recovery of energy. There are three major types of gasification systems: fixed bed gasification systems, fluidized bed gasification systems, and plasma arc gasification systems. Gasification temperatures may range from 750°F to 12,000°F (399°C to 5538°C), depending on the type of gasification system used. Typically, the feedstock used is organic or thermally degradable and usually requires preprocessing and drying. Essentially, the process involves partial oxidation of a carbonaceous fuel to generate a combustible fuel – gas rich in carbon monoxide, hydrogen, and some saturated hydrocarbons, principally methane.

The combustible fuel gas can then be combusted in an internal combustion engine, gas turbine, or boiler under excess-air conditions in order to produce power. Benefits of using a gasification system to manage solid waste are increased levels of feedstock degradation, ability to accept organic and non-organic material for degradation, and production of highly marketable products such as fuel, road base material, and other chemicals.

For additional and more detailed information on specific gasification systems and lists of various gasification technology vendors, see **Flowchart 5-1**, **Tables 5-1** and **5-2,** and **Figure 1-3** of this Chapter; and **Section 1.1.3** of the **Phase I Report**.

The following is a brief description of the three basic types of gasification systems: fixed bed gasification systems, fluidized bed gasification systems, and plasma arc gasification systems.

5.7.1.2.1 Vertical Fixed Bed Gasification System

The vertical fixed bed gasifier is characterized by the upward orientation of the gasification machinery and stationary or moving grates within the system.

This type of reactor is sensitive to the mechanical characteristics of the fuel thus requiring a uniform, homogenous fuel, such as densified RDF. The end products of the process are primarily low-BTU gas and char.

These gasifiers have the potential to achieve low air pollution emissions with simplified air pollution control devices. The emissions are comparable to or less than the emissions from excess-air combustion systems employing far more complex emission control systems.

For additional and more detailed information on vertical fixed bed gasification systems, see **Flowchart 5-1** and **Table 5-1** of this Chapter; and **Section 1.1.3.1** of the **Phase I Report.**

5.7.1.2.2 Horizontal Fixed Bed Gasification System

Horizontal fixed bed gasification systems are characterized by horizontally configured moving grates or plates that introduce feedstock into the horizontally-oriented gasification machinery.

A horizontal fixed bed gasifier consists of two major components: a primary combustion chamber and a secondary combustion chamber. In the primary chamber, waste is gasified by partial oxidation under controlled conditions,

producing a low-BTU gas, which then flows into the secondary combustion chamber. In the secondary chamber, waste is combusted with excess air that produces high-temperature of 1,200 ^{o}F to 1,600 ^{o}F (649°C to 871°C) gases that can be used to produce steam or hot water in an attached waste heat boiler. This system produces lower particulate emissions than conventional excess-air combustors.

Horizontal fixed bed gasifiers are commercially available from several manufacturers in standard sizes ranging from .05 to 4.2 tons/hour in capacity.

For additional and more detailed information on horizontal fixed bed gasification systems, see **Flowchart 5-1** and **Table 5-1** of this Chapter; and **Section 1.1.3.1** of the **Phase I Report.**

5.7.1.2.3 Fluidized Bed Gasification

Fluidized bed gasification is a process in which a bed of particles is converted to a fluid state by means of an upward flow of gas (or liquid).

In its simplest form, a fluidized bed system consists of a vertical steel cylinder with a sand bed, a supporting grid plate, and air injection nozzles. When air is forced up through the nozzles, the bed of sand expands up to twice its resting volume and acts like a fluid. RDF can be injected into the gasification reactor above or below the level of the fluidized bed. The “boiling” action of the fluidized bed promotes turbulence and mixing and transfers heat to the feedstock. In operation, auxiliary fuel (natural gas or fuel oil) is used to bring the bed up to operating temperature of 1,450°F to 1,750°F (788°C to 954°C).

With minimal modifications, a fluidized bed combustion system can be operated as a fluidized bed gasification system. The major difference between combustion and gasification systems is the method of fuel media decomposition. Fluidized bed combustion systems destroy fuel media through full oxidation including flames or combustion, thus, producing minimal amounts of char and minimal amounts of syngas.

Fluidized bed gasification systems thermally decompose organic matter in a minimal oxygen atmosphere in order to produce syngas, combustible liquids, chars, and slag material. Several pilot-scale tests have been conducted with solid waste as fuel.
For additional and more detailed information on fluidized bed gasification systems, see **Flowchart 5-1** and **Table 5-1** of this Chapter; and **Section 1.1.3.1** of the **Phase I Report.**

5.7.1.2.4 Plasma Arc Gasification System

Plasma gasification processes occur in a closed, pressurized reactor and the air/oxygen introduced is controlled for promotion of gasification reactions. Waste feedstock is thermally processed until it is converted into solid inert matter with a slag-like appearance and metal shot.

In a plasma arc gasification system, hot ionized gas (plasma) is used to heat air or oxygen to high temperatures typically in excess of 7,000°F (3,871°C) and the resulting plasma is used to treat feedstock, which can include any organic or thermally degradable materials, including MSW.

Byproducts of plasma gasification are similar to those produced in high-temperature gasification. These high temperatures allow for nearly 100 percent carbon conversion.

For additional and more detailed information regarding plasma arc gasification systems, see **Flowchart 5-1**, **Table 5-1**, and **Figure 1-5** of this Chapter; and **Section 1.1.4** of the **Phase I Report**.

5.7.2 Biological Conversion Process

Biological conversion processes are designed for biodegradable organics only and require an extensive amount of pre-processing.

Typically, the major end product is compost. The feedstock includes food waste, agricultural waste, biosolids, and various other organics and biodegradable materials.

For additional and more detailed information on biological conversion processes, see **Table 5-1** of this Chapter, and **Section 1.2** of the **Phase I Report.**

5.7.2.1 Anaerobic Digestion Process

Anaerobic digestion is a process in which biodegradable organics are converted by a series of bacteria into compost, methane, and carbon dioxide. A typical anaerobic digestion process for MSW begins with pre-processing in the form of separation of metals, plastic, and non-biodegradable residues. Anaerobic digestion employs a method that most commonly uses liquid and semi-liquid slurries such as animal waste.

Hydrolysis, acidification, and production of biogas are the main components

for anaerobic digestion. Hydrolysis is the process of breaking chemical bonds of larger molecules into smaller molecules. Acidification is the subsequent process that degrades the smaller molecules into acids, hydrogen gas, and carbon dioxide.

The products from the acidification process are introduced to methane-producing bacteria (methanogens), which then produce biogas. Typical composition of the resulting biogas is 50 percent to 70 percent methane with medium BTU values. The main advantage of anaerobic digestion is the use of "wet" waste, which is problematic for all other forms of digestion.

For additional and more detailed information on anaerobic digestion processes, see **Flowchart 5-1**, **Tables 5-1** and **5-2**, and **Figure 1-6** of this Chapter; and **Section 1.2.2** of the **Phase I Report.**

5.7.2.2 Aerobic Digestion Process

Aerobic digestion is a biological conversion process in which oxygen-dependant microorganisms degrade solid waste. Aerobic digestion feedstock must contain homogeneous biodegradable organic material. Typical feedstock includes biosolids, food, and agricultural waste.

Aerobic microorganisms in the reactor oxidize biodegradable material and produce large amounts of heat. Renewable energy in the form of synthesized biogas and ethanol are not products of this type of process. The aerobic digestion process predominantly produces compost, as well as solid and liquid fertilizers.

For additional and more detailed information on aerobic digestion processes, see **Flowchart 5-1** and **Tables 5-1** and **5-2** of this Chapter; and **Section 1.2.4.3** of the **Phase I Report.**

5.7.3 Chemical Conversion Processes

Chemical conversion processes are conversion technologies that are designed to change the chemical structure of any organic fuel media. While chemical conversion processes are designed to change organic (biodegradable or inert) fuel, biological conversion processes are designed to process only biodegradable organic fuel.

For additional and more detailed information on Chemical Conversion processes, see **Flowchart 5-1** and **Table 5-1** of this Chapter; and **Section 1.2.3** of the **Phase I Report**.

5.7.3.1 Acid Hydrolysis

Acid hydrolysis is the process of breaking the chemical bonds of cellulose-based materials and fermenting the sugar solution byproduct into ethanol. (See **Figure 1-7** of the **Phase I Report**.)

This hydrolysis of cellulose-bonds within fibrous vegetable-type matter is specifically called lignocellulosics. Green waste, agricultural waste, and paper waste are feedstock to be fed into a hydrolysis reactor and the liquid effluent from the reactor fermented and distilled into 99 percent ethanol.

Typical byproducts from this hydrolysis process are carbon dioxide and lignin-type residue. Carbon dioxide produced is a high enough quality to be used for non-food industrial applications. Lignin and other residue may be used for compost, gasification, and combustion purposes, or could be landfilled.

For additional and more detailed information on acid hydrolysis, see **Flowchart 5-1**, **Table 5-1**, and **Figure 5-2** of this Chapter; and **Section 1.2.3** of the **Phase I Report.**

5.7.3.1.1 BlueFire Renewables

BlueFire Renewables, Inc. (BlueFire) was established to use a Concentrated Acid Hydrolysis patented process for the conversion of cellulosic waste materials into renewable fuels and other products. BlueFire uses this patented process with the goal of converting widely available, inexpensive, organic materials such as agricultural residues, high-content biomass crops, wood residues, and cellulose in MSW into valuable and renewable end products.

BlueFire's use of the patented process positions it as the only viable, world-wide cellulose-to-ethanol company with demonstrated production experience with ethanol from wood wastes, urban trash (post-sorted MSW), rice and wheat straws, and other agricultural residues.

5.7.3.2 Anaerobic Fermentation

Anaerobic fermentation is a process that degrades organic material without oxygen. Organic feedstock is degraded by living anaerobic organisms and produces organic acids, ammonia, methane gas, and small amounts of carbon dioxide. Anaerobic fermentation is different from anaerobic digestion, because fermentation is specifically an anaerobic process that converts glucose and other simple sugar molecules into simpler compounds. Digestion

may be either aerobic or anaerobic depending upon the type of bacteria used for decomposition.

The energy produced by the anaerobic fermentation is contained in the methane and carbon dioxide produced. The energy released may be used as a fuel for turbine engines to generate power. Compost produced by this process is pathogen free due to the unfavorable oxygen-deprived environment. Resultant temperatures of 140°F to 160°F (60°C to 71°C) from the anaerobic reactions are only a minimal pathogen deterrent.

For additional and more detailed information on anaerobic fermentation, see **Flowchart 5-1** and **Tables 5-1** and **5-2** of this Chapter.

5.7.4 Combination Conversion Processes

Combination conversion processes are the integration of two or more conversion technology processes.

According to **Section 4.0** of the **Phase I Report**, if green fuel production becomes an objective of the proposed conversion/recovery facilities, the syngas or biogas produced by the thermal or bioconversion technologies can be used to produce green fuel. In this case, a combination of thermal, chemical, and/or bioconversion technologies may be required, and such a combination can be evaluated in the next phase of the siting project.

There are many emerging conversion/recovery technologies that have not yet been introduced on a full scale. As a result, these types of technologies are continuously being created and studied in order to find their potential solid waste applications. Due to the numerous vendors and varying levels of development, the CSE will dedicate minimal discussion to a national example of such technology.

For additional and more detailed information on Combination Conversion processes, see **Flowchart 5-1** and **Table 5-1** of this Chapter; and **Section 4.0** of the **Phase I Report.**

5.7.4.1. Thermal Depolymerization (TDP)

Thermal depolymerization is a proprietary process in which the solid waste material hydrocarbons are broken into smaller chemical hydrocarbon chains.

Typical feedstock for this process is animal or agricultural waste. Feedstock is fed into a reaction chamber where it is heated to around 482 °F (250°C) and

subjected to 600 psi (4 MPa) for approximately 15 minutes, after which the pressure is rapidly released to boil off most of the water.

The result is a mix of crude hydrocarbons and solid minerals, which are separated out. The hydrocarbons are sent to a second-stage reactor where they are heated to 932 °F (500 °C), further breaking down the longer chains, and the resulting mix of hydrocarbons is then distilled in a manner similar to conventional oil refining.

Currently, there is only one full scale facility (a 250 ton/day facility located in Carthage, Missouri) that processes a highly specific feedstock, namely turkey waste. Byproducts from this process include oil, water, and carbon solids.

This plant has not currently been successful in using MSW or RDF as a feedstock.

For additional and more detailed information on thermal depolymerization, see **Flowchart 5-1** and **Table 5-1** of this Chapter; and **Section 1.1.5** of the **Phase I Report.**

5.8 REGULATORY, TECHNICAL, ENVIRONMENTAL, ECONOMIC, AND SOCIAL CHALLENGES

5.8.1 Regulatory Issues

Due to regulatory uncertainty in California and the fact that no commercial alternative technology facility similar to those being evaluated by the County have been developed in the State to set regulatory precedent, the permitting process for conversion/recovery and alternative technology facilities is expected to be challenging. Section 7 of the Phase II Report estimates that the permits would potentially include, but are not limited to, the following:

- New or revised Land Use Permit from the host jurisdiction Planning Department, including compliance with the California Environmental Quality Act
- Wastewater Discharge Permit
- Air Quality Permits
- New or revised Solid Waste Facility Permit from the Local Enforcement Agency and CalRecycle
- Amendment to the jurisdiction's Non-Disposal Facility Element or Siting Element
- New or revised Stormwater Permits

5.8.2 Technical Issues

As mentioned previously, many conversion/recovery technology processes are designed to perform at peak performance when homogeneous feedstock is used. MSW poses a challenge as it varies in the quality and makeup from day to day and from location to location. To create a more uniform, homogenous, and reliable feedstock, preprocessing techniques such as drying, shredding, and/or mixing may be employed. Removal of bulky items and inert materials also increase the uniformity of the feedstock.

5.8.3 Environmental Issues

To become a viable solid waste management option in California it is critical that alternative technology facilities do not negatively impact public health and safety. Alternative technology facilities must meet or exceed the State's strict environmental standards.

Initially, most environmental issues were focused on visible emissions. Then, the Clean Air Act and its amendments provided an impetus for the solid waste management industry to change from simple refractory enclosures and toward water wall boiler and combustion industry, and to the solid waste combustion market. In 1977, the pollutant "dioxin" emerged as a new issue. Emissions of acid gases-hydrochloric acid (HCl), sulfur dioxide (SO_2), nitrogen oxides (NO_X), and toxic elements also became of increasing concern. Other interests focused on ash production and disposal. While air emissions dominate the "political" assessment of a given process, problems with all effluents and environmental consequences must be resolved as part of the permitting process.

Unlike other states California's air regulations for stationary sources are administered and enforced at the level of the local air pollution control district. Any conversion/recovery technology facility constructed in Orange County, or the urbanized areas of Los Angeles, San Bernardino, and Riverside Counties are subject to SCAQMD regulations, which are the most stringent permitting conditions in the State. (See **Chapter 6** ("Facility Siting Criteria") for more information on the SCAQMD regulatory process.)

In 2006, Governor Arnold Schwarzenegger signed into law Assembly Bill 32 (AB 32), a critical piece of legislation that impacts every sector in California's economy including solid waste management. The Global Warming Solutions Act of 2006 requires California to reduce greenhouse gas emissions to 1990 levels by 2020, among other things (Nunez, Chapter 488, Statutes of 2006). As instructed by AB 32, the California Air Resources Board developed a

guidance document (the "Scoping Plan") that outlines specific reduction measures each industry must comply with. It is likely that when conversion/recovery technology facilities become operational in California, they will be required to comply with these guidelines.

5.8.4 Economic Issues

Jurisdictions must evaluate total system costs, which typically include collection, transportation, processing, operating and capital investments, to determine the economic feasibility of developing a particular alternative technology facility.

The rate charged for each ton of solid waste received at a facility, is a major factor to jurisdictions or entities evaluating the option of siting facilities that utilize alternative technologies. Tipping fees and revenue from the sale of energy and byproducts produced must be sufficient to cover capital and operating costs. Even if tipping fees at these facilities at a given time were comparable or lower than fees charged at landfill disposal facilities, jurisdictions must consider the impact of potential additional costs if the waste stream fluctuates below the level needed to keep the plant running.

Due to current fiscal constraints, few local governments may be in a position to finance the development of a technology by a provider new to the United States and, therefore, need to rely on the private sector for their development. There may be government funding available for these projects because many alternative technology processes have the ability to produce a syngas that can be used to generate electricity or further refined to create biofuels. Many grants and low-interest loan opportunities for renewable energy-generating projects are emerging on both the State and Federal level as the government seeks to reduce the United States' dependence on foreign oil and increase its level of environmental stewardship.

5.8.5 Social Issues

The NIMBY (Not In My Backyard) and BANANA (Build Absolutely Nothing Anywhere Near Anyone) phenomena also create challenges to development of alternative technology facilities since it further constrains and engenders opposition to the locations where alternative technology facilities can be sited in the County.

Also, the possibility of misguided negative public perception of alternative technology facilities as incinerators curtails and blurs the distinction between

alternative technologies with incineration and creates additional public relation hurdles or obstacles to be overcome.

5.9 FLOWCHARTS, TABLES, AND FIGURES

This section includes: (1) **Flowchart 5-1** that summarizes the alternative technology systems; (2) **Table 5-1** that lists the comparison of conversion/recovery technology systems, and **Table 5-2** that is a University of California Riverside/Davis comparison table for conversion/recovery technology; and (3) **Figures 5-1** and **5-2** that are schematic process diagrams of Commerce Refuse-to-Energy Facility (CERF), and Southeast Resource Recovery Facility (SERRF), respectively.

Additional information regarding conversion/recovery technologies is discussed in detail in the Conversion Technology Evaluation Report (Phase I Report) for the County of Los Angeles dated August 18, 2005, and the Conversion Technology Report (Phase II Assessment) dated October 2007.

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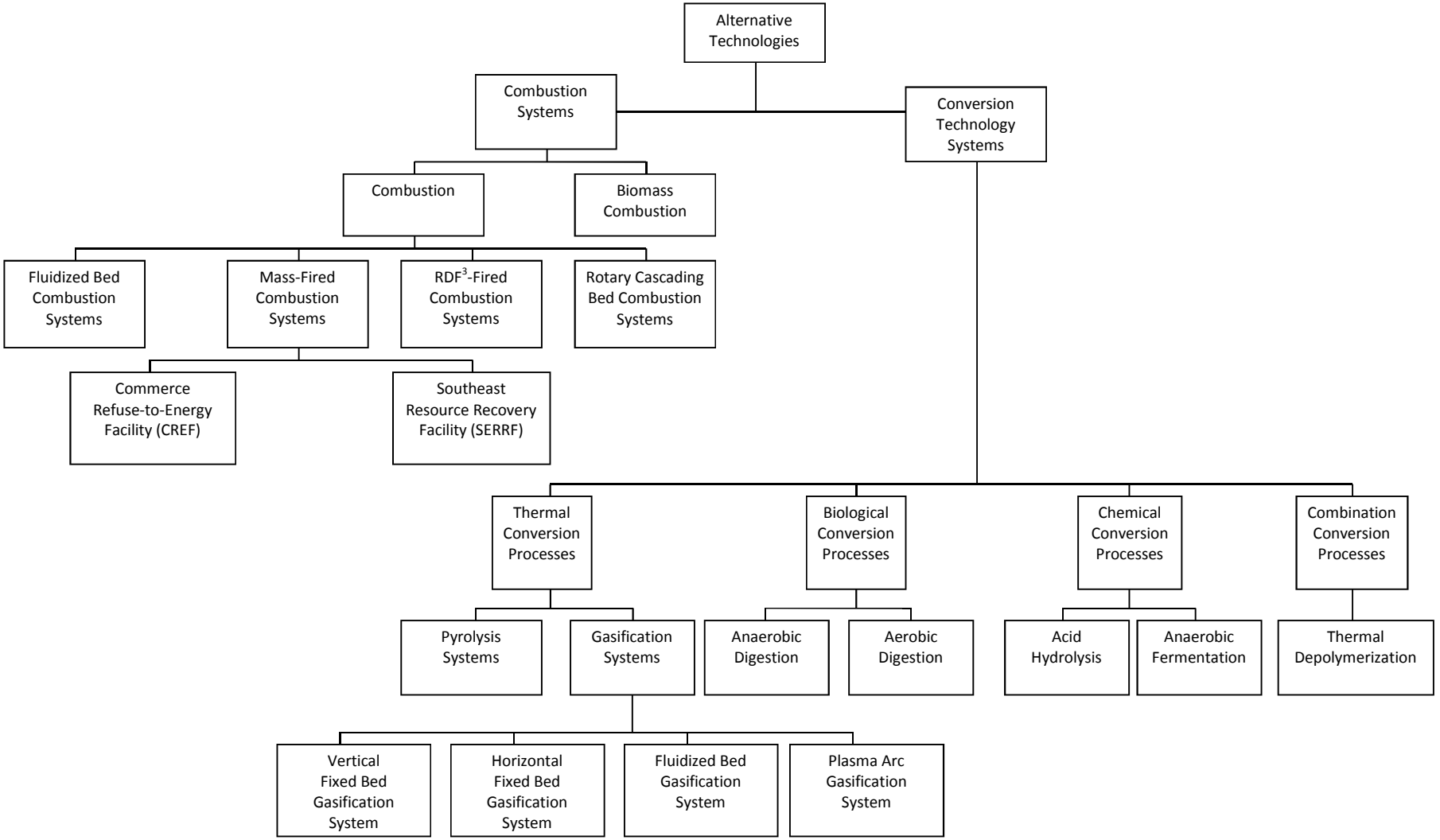
FLOWCHART[1] 5-1
Alternative Technology Processes



[1] Source: Los Angeles County Department of Public Works, Environmental Programs Division.
[2] See Los Angeles County Conversion Technology Evaluation Report (Phase I Report), dated August 18, 2005.
[3] "RDF" means Refuse-Derived Fuel.

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TABLE 5-1
COMPARISON OF CONVERSION TECHNOLOGY SYSTEMS

CATEGORY	TYPE	TYPICAL TEMPERATURE RANGE °F (°C)	TYPICAL FEEDSTOCK AND METHODS/PROCESSES	BY-PRODUCTS AND ENVIRONMENTAL CONTROLS	BENEFITS/ADVANTAGES AND CHALLENGES
Mechanical[1]	Autoclave	270 °F to 290°F	Feedstock: Mixed municipal solid waste (MSW), biosolids, and medical waste. Method/Process: Feedstock is fed into an enclosed vessel where it is heated to around 270-290°F. Moisture in the vessel is converted to steam, and the solid material is reduced in volume. Remaining materials can be used as feedstock in a thermal or biological conversion technology process. Additional recyclables are recoverable through this process.	Byproducts: Additional recyclable materials can be extracted from the wastestream. Environmental Controls: High pathogen and virus kill rate. Residual material is generally benign following the autoclave process and can be disposed or converted.	Benefits: This process is an established process and is used to sterilize medical waste prior to disposal. Challenges: This process is not complete and must be used in connection with a secondary process.

[1]Conversion/recovery technologies may include mechanical processes, but only when combined with a secondary conversion process.

TABLE 5-1[1]
COMPARISON OF CONVERSION TECHNOLOGY SYSTEMS

CATEGORY	TYPE	TYPICAL TEMPERATURE RANGE °F (°C)	TYPICAL FEEDSTOCK AND METHODS/PROCESSES	BY-PRODUCTS AND ENVIRONMENTAL CONTROLS	BENEFITS/ADVANTAGES AND CHALLENGES
Thermal	Pyrolysis	750° (399°) to 1650° (899°)	Feedstock: Any organic or thermally degradable materials. Municipal solid waste (MSW) acceptable if separation of non-thermally degraded material included, and drying material. Method/Process: Because most organic substances are thermally unstable, they can, upon heating in an oxygen-free atmosphere, be broken down into gaseous, liquid, and reduced solid components. Pyrolysis systems typically include kiln type structures that use external heat to process solid waste – there are no flames applied directly to the solid waste in this process.	Byproducts: Carbon char, silica, slag, ash, metals, non-thermally degradable material, tar, and viscous material Environmental Controls: Syngas cleaned through use of a boiler, scrubbers, low-NO_x burners, and activated carbon injection. All syngas cleaning will provide a clean burning syngas for power generation per South Coast Air Quality Management District (SCAQMD) acceptable limits.	This process typically produces the highest amount of energy per ton of feedstock. No direct burning in oxygen starved atmosphere. Carbon char produced can be used to produce diesel fuel for vehicles. Other byproducts may be used in a number of ways including road base and construction material.
Thermal	Gasification	750° (399°) to 2500°(1371°)	Feedstock: Any organic or thermally degradable materials. MSW acceptable if significant separation and drying included. Byproducts of pyrolysis process. Method/Process: The process of partial oxidation in which a fuel is deliberately combusted with less than the exact amount of oxygen (or air) needed for complete oxidation.	Byproducts: Carbon char, silica, slag, ash, and metals. Environmental Controls: Pre-cleaning of the syngas is necessary prior to being utilized for production of chemicals, or as a fuel for gas turbines or reciprocating engines, which require clean fuels to minimize corrosion and emissions.	This process typically produces high amounts of energy per ton of feedstock, with the least amount of solid residuals. Produces clean syngas that can then be converted into chemicals or power generation through an internal combustion (IC) engine or gas turbine.
Thermal	Fixed/Fluidized Bed Gasification	1400° (760°) to 2500° (1371°)	Feedstock: Any organic or thermally degradable materials. MSW acceptable if preprocessed to separate significantly large items, shredded, and sorting. Method/Process: Thermally decompose organic matter in a minimal oxygen atmosphere in order to produce syngas, combustible liquids, chars, and slag material.	Byproducts: Carbon char, silica, slag, ash, and metals. Environmental Controls: The gasification process has no outlet or stack. Pre-cleaning of the syngas is necessary prior to being utilized for production of chemicals, or as a fuel for gas turbines or reciprocating engines, which require clean fuels to minimize corrosion and emissions.	Produce clean syngas that can then be converted into chemicals or power generation through an internal combustion (IC) engine or gas turbine. Fixed bed technology allows for larger items of MSW to be thermally processed, along with less preprocessing of feedstock material. Fluidized bed technology allows for most solid waste to be processed, however, larger bulky items are not fully processed.

[1] Source: URS, Conversion Technology Evaluation Report for the County of Los Angeles, August 18, 2005.

TABLE 5-1[1]
COMPARISON OF CONVERSION TECHNOLOGY SYSTEMS

CATEGORY	TYPE	TYPICAL TEMPERATURE RANGE °F (°C)	TYPICAL FEEDSTOCK AND METHODS/PROCESSES	BY-PRODUCTS AND ENVIRONMENTAL CONTROLS	BENEFITS/ADVANTAGES AND CHALLENGES
Thermal	Plasma Arc Gasification	Greater than 7000° (3871°)	Feedstock: Any organic or thermally degradable materials. MSW acceptable if preprocessed to separate significantly large items, shredded, and sorting. Method/Process: Hot ionized gas (plasma) is used to heat air or oxygen to high temperatures typically in excess of 7,000°F (3,871°C) and the resulting plasma is used to treat feedstock.	Byproducts: Carbon conversion, molten ash, slag, and metals. Environmental Controls: Air emissions are a major environmental issue to be addressed. Contaminants are removed from the syngas and/or from the flue gases prior to being exhausted from a stack.	Volume of syngas produced is lower than the volume of flue gases formed in the combustion of MSW in a waste-to-energy facility. Syngas costs less to treat due to smaller volume. Syngas is more homogeneous and cleaner-burning fuel than MSW.
Biological	Anaerobic Digestion	N/A[2]	Feedstock: Any biodegradable organics; MSW acceptable if pre-processed in the form of separation of metals, plastic, and non-biodegradable residues. Method/Process: Hydrolysis, acidification, and production of biogas are the main components for anaerobic digestion. Hydrolysis is the process of breaking chemical bonds of larger molecules into smaller molecules. Acidification is the subsequent process that degrades the smaller molecules into acids, hydrogen gas, and carbon dioxide.	Byproducts: Acids, hydrogen gas, carbon dioxide, biogas, liquid and solid fertilizer, and compost. Environmental Controls: Methane, carbon dioxide, odor may be managed by enclosing area and blowers.	Large amounts of methane and carbon dioxide generated may be used for power generation.
Biological	Aerobic Digestion	N/A[2]	Feedstock: Food waste, agricultural waste, and sewage biosolids. Method/Process: Oxygen-dependant microorganisms degrade solid waste. Aerobic microorganisms in the reactor oxidize biodegradable material and produce large amounts of heat.	Byproducts: Residue processed to produce liquid and solid fertilizers. This process is different from anaerobic digestion in that no fuel is produced. Environmental Controls: Contaminants from leachate and gases produced are captured and not released into adjacent area.	Aerobic microorganisms in the reactor oxidize biodegradable material and produce large amounts of heat.

[1] Source: URS, Conversion Technology Evaluation Report for the County of Los Angeles, August 18, 2005.
[2] "N/A" means not applicable

TABLE 5-1[1]
COMPARISON OF CONVERSION TECHNOLOGY SYSTEMS

CATEGORY	TYPE	TYPICAL TEMPERATURE RANGE °F (°C)	TYPICAL FEEDSTOCK AND METHODS/PROCESSES	BY-PRODUCTS AND ENVIRONMENTAL CONTROLS	BENEFITS/ADVANTAGES AND CHALLENGES
Chemical	Acid Hydrolysis	N/A[2]	Feedstock: Lignocellulosics, paper, green waste, agricultural, wood, yard waste, and vegetal biomass. Method/Process: Process of breaking the chemical bonds of cellulose-based materials and fermenting the sugar solution byproduct into ethanol. The feedstock is fed into a hydrolysis reactor and the liquid effluent from the reactor is fermented and distilled into 99% ethanol.	Byproducts: Carbon dioxide produced may be used for non-food industrial applications. Lignin and other residue provided may be used for compost, gasification, combustion, or landfilling purposes. Environmental Controls: Due to the dryers, furnaces, fermentation units, boilers, and handling of hazardous chemical particulates and dangerous compounds must be taken care of.	Process may be fully enclosed to minimize odor and provide dust control. Produces fuel grade 99% ethanol.
Chemical	Anaerobic Fermentation	N/A	Feedstock: Organic material. Method/Process: Process which degrades organic material without oxygen.	Byproducts: Compost, organic acids, ammonia, methane gas, and small amounts of carbon dioxide. The energy produced by fermentation is contained in the methane and carbon dioxide produced. The energy released may be used as a fuel for turbine engines to generate power. Environmental Controls: Emission controls , minimizing nuisances associated with MSW, and handling of hazardous chemicals.	Compost produced by this process is pathogen free due to the unfavorable oxygen-deprived environment. Resultant temperatures from the anaerobic reactions are only a minimal pathogen deterrent.
Combination/ Hybrid	Thermal Depolymerization	N/A	Feedstock: All organics or biodegradable materials, including animal or agricultural waste. Method/Process: Feedstock is fed into a reaction chamber where it is heated to around 482 °F (250°C) and subjected to 600 psi (4 MPa) for approximately 15 minutes, after which the pressure is rapidly released to boil off most of the water.	Byproducts: Oil, water, and fertilizer Environmental Controls: Most processed water is recycled. Vacuum/recompression system to be utilized to minimize wastewater discharge. Tipping hall contains an odor control system.	Essentially 100% diversion rate for processed MRF residuals. Direct products from byproducts are fuel, residue for fertilizer, biogas, power generation, and carbon.

[1] Source: URS, Conversion Technology Evaluation Report for the County of Los Angeles, August 18, 2005.
[2] "N/A" means not applicable

TABLE 5-2
CONVERSION TECHNOLOGY COMPARISON TABLE[1]

CATAGORY	CONVERSION TECHNOLOGY	MUNICIPIAL SOLID WASTE COMPONENT PROCESSED	ENERGY EFFICIENCY	PRODUCTS (MOLAR %)	SCALE – COMMERCIALIZATION (ENERGY OUTPUT) In Megawatts (MW)
Thermal	Partial oxidation **gasification** air-feed	All organics low moisture <50% wet basis depending on reactor type.	75% (cold gas)	50% N_2 29% CO 15% H_2 3% CO_2 3% CH_4	0.5 to 5 MW
Thermal	Partial oxidation **gasification** oxygen-feed	All organics low moisture <50% wet basis depending on reactor type.	90% (cold gas)	40% H_2 30% CO_2 18% CO 9% CH_4 1% N_2	5 to 150 MW
Thermal	Indirectly fired **gasification**	All organics high moisture or dry.	85% (cold gas)	59% H_2 15% CO 14% CH_4 9% CO_2 3% N_2	10 to 25 MW
Thermal	Hydro-**gasification** with steam pyrolysis	All organics high moisture or dry.	90% (cold gas)	49 % CH_4 24 % H_2 11 % CO 6% CO_2	Pre-commercial
Thermal	Indirectly fired **Pyrolysis** with drier and gasifier	All organics high moisture or dry.	65% (cold gas)	40% CO_2 32% H_2 15% HCs 7% CO 5% H_2S	0.5 to 5 MW
Thermal	Indirectly fired **Pyrolysis** with drier	All organics high moisture or dry.	55% (cold gas)	36% CO_2 36% HCs 19% H_2 5% CO 3% H_2S	0.5 to 2 MW
Biological	**Anaerobic Digestion**	Biodegradable Components.	30-60% (cold gas)	60-40% CO_2 40-60% CH_4	0.1 to 10 MW
Chemical	**Anaerobic Fermentation**	Biodegradable Components.	30-70% (liquid)	Ethanol	0.1 to 10 MW
Biological	**Aerobic Digestion** (Composting)	Biodegradable Components.	N/A [2]	Soil amendment	N/A

[1] Source: Evaluation of Conversion Technology Processes and Products, University of California, Riverside and University of California, Davis.
[2] "N/A" means not applicable.

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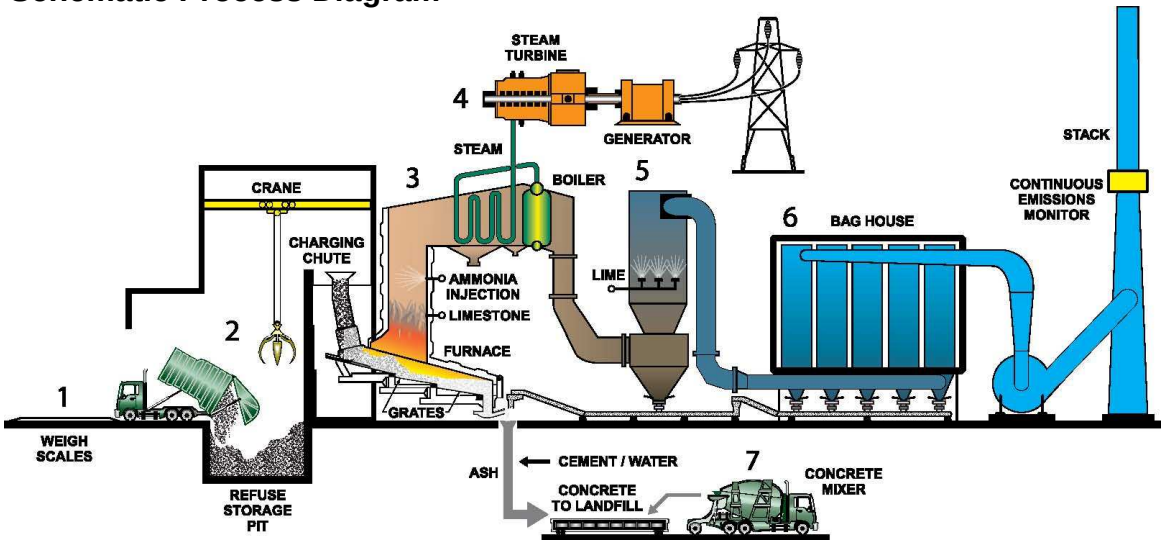
FIGURE 5-1
Commerce Refuse-to-Energy Facility (CREF) in City of Commerce, California, USA
Schematic Process Diagram



Schematic Diagram Notes:

1. Weigh Scales - Each truck must be weighed and pay a fee based upon the load weight before disposing of its load. All loads are screened by meters for radioactive materials, which if found, will be safely handled by the County Department of Public Health.

2. Refuse Storage Pit - After weigh-in, the trucks discharge their loads into the refuse storage pit. The storage pit has a 1,200 ton capacity, enough to run the Facility for three to four days. Some loads are pulled aside on an unannounced basis and checked for hazardous wastes each day. All loads are scanned for large pieces of ferrous metal which are removed and recycled. The crane operator scoops up 3,000 pound loads of refuse and delivers them to the furnace feed chute. The entire storage pit area is enclosed and air is continuously drawn into the refuse storage building to eliminate the escape of odors or dust. This air is then used for burning of the refuse. Odors are destroyed by the high temperatures in the furnace. Four carbon filters are used for odor control at times when the furnace is shut down for maintenance.

3. Furnace & Boiler - After the refuse reaches the bottom of the feed chute, hydraulic rams push it into the burning area. The floor of the furnace contains moving grates that push the burning refuse through the furnace and ensure complete combustion. The ash falls from the end of the grates and is quenched with water. The hot gases of combustion rise through the furnace as they travel to the boiler. The walls of the furnace contain steel pipes carrying water that begins to heat as the gases pass over the pipes. Ammonia is injected into the furnace to remove oxides of nitrogen. Limestone is also added to aid in acid gas removal. As the hot gases enter the boiler, the hot water contained in the boiler tubing is converted to high pressure and temperature steam.

4. Turbine-Generator - The Steam leaving the boiler enters a steam turbine. The high pressure steam causes the turbine blades to turn at high speed. The turbine is coupled to a generator that produces 11.5 megawatts of power. One and a half megawatts of this power is used to run the plant leaving 10 megawatts to be sold to Southern California Edison. The revenue from the sale of power helps to retire the bonds that were sold to build the Facility.

5. Dry Scrubber - After leaving the boiler, the hot combustion gases travel through the beginning of the sophisticated air pollution control system. The dry scrubber removes acid gases such as sulfur dioxide and hydrochloric acid. These are by-products of the refuse combustion. Lime slurry is sprayed into the exhaust stream to convert the acid gases to a solid which is removed downstream in the baghouse. In excess of 95% of the sulfur dioxide and hydrochloric acid are removed in this process.

6. Baghouse - The baghouse operates like a gigantic vacuum cleaner. As the air is drawn through the baghouse, particulate matter and fly ash are left on the inside of the bags and the air is allowed to travel through. The baghouse contains eight modules with bags made of fiberglass. The modules are cleaned by blowing air, in the reverse direction, through the bags. The particles and fly ash are removed through the bottom. This process removes 99.5% of the particulate matter in the airstream down to sub-microscopic levels, eliminating any visible plume. After leaving the baghouse, the cleaned exhaust gases exit through a 150 foot stack. Monitoring devices incorporated into the stack continuously monitor the air for oxides of nitrogen, sulfur dioxides, and carbon monoxide.

7. Ash Treatment and Recycling - The ash exiting the refuse-to-energy plant makes up approximately 30% of the total weight of the incoming refuse. The bottom ash is screened and metals are removed for recycling. The screened bottom ash and fly ash are mixed with cement to make concrete which is then used at the landfill as road base. Ninety-nine percent by weight of the incoming refuse is recycled as metals, energy, or roadbase.

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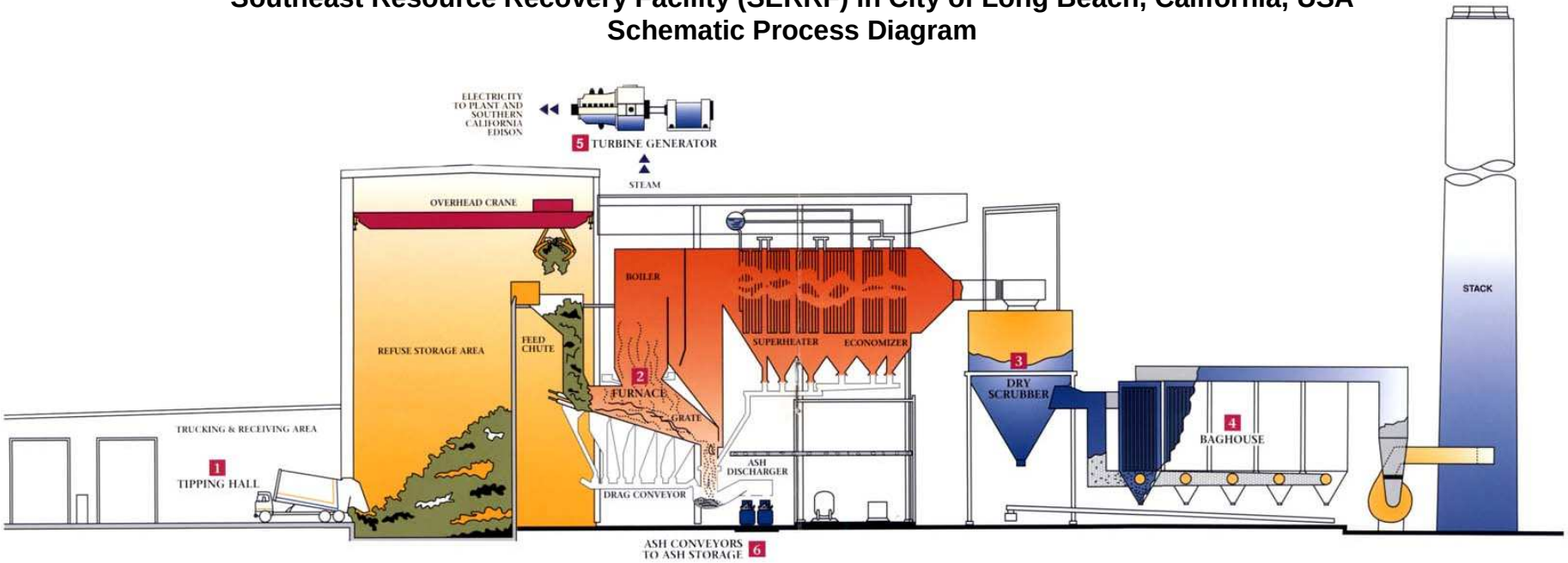
FIGURE 5-2
Southeast Resource Recovery Facility (SERRF) in City of Long Beach, California, USA
Schematic Process Diagram



Schematic Diagram Notes:

1. **Tipping Hall** - Solid waste delivered by trucks, screened for radioactive material, weighed by computerized scale, drive into enclosed tipping hall, discharging their load. Refuse inspected for unprocessible waste, pushed into refuse storage pit by front end loader. Storage pit area is enclosed, air continuously drawn from pit area, sent through boilers removing dust/odor, destroyed by high temperatures. Carbon filters used for odor control when boilers shut down for maintenance.
2. **Furnace** - Waste lifted out of storage pit by cranes, dropped into refuse feed hopper. At bottom of feed chute, hydraulic rams push refuse into boiler, and refuse combusted under controlled conditions. Heat generated converts water flowing through tubes into steam. Floor of furnace has moving grates pushing refuse through boiler. Refuse passes through boiler, ash discharged into quench tank. Quench tank cools and eliminates dispersion of the ash. Thermal DeNo$_x$ system, injects ammonia into boiler's chamber, used to control nitrogen oxides.
3. **Dry Scrubber** - After leaving boiler, combustion gases travel through pollution control system. Dry scrubber neutralizes acid gasses by spraying lime slurry into exhaust stream. Excess of 95% SO_2 and HCl removed in process. Reacted lime/ash removed from bottom of scrubber.
4. **Baghouse** - Baghouse operates like gigantic vacuum cleaner. Air drawn through baghouse, particulate matter/fly ash trapped in bags. Each boiler has baghouse containing ten modules with bags made of fiberglass. Baghouse cleaned by blowing air, in reverse direction, through the bags. Particulate and fly ash removed from bottom. Process removes 99.5% of particulate matter in air stream down to sub-microscopic levels. After leaving baghouse, cleaned exhaust gases exit through a 265 foot tri-flue stack. Emissions monitored by combination of continuous monitors and periodic stack sampling.
5. **Generator -** Steam generated from refuse used to drive turbine-generator producing electricity. Some electricity produced used to operate facility and remainder sold to Southern California Edison for distribution. Steam used to drive turbine-generator then sent to condenser, converted into water, and recycled back through boilers.
6. **Ash Conveyors** - The ash from the furnace, dry scrubber, and baghouse is treated and transported to the landfill where it is used as road base material.

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Appendix 5-A

PRELIMINARY SITING ASSESSMENT
CONVERSION TECHNOLOGIES IN LOS ANGELES COUNTY

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COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

GAIL FARBER, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

October 20, 2010

IN REPLY PLEASE EP-4
REFER TO FILE: A3454i

TO: Each Supervisor

FROM: Gail Farber
Director of Public Works

BOARD MOTION OF APRIL 20, 2010, ITEM NO. 44
CONVERSION TECHNOLOGIES IN LOS ANGELES COUNTY
PRELIMINARY SITING ASSESSMENT

On April 20, 2010, your Board unanimously approved three Memorandums of Understanding for three conversion technology demonstration projects and awarded a contract for consultant services for Phase III and Phase IV of the Southern California Conversion Technology Demonstration Project for the purpose of developing solid waste alternatives to landfills within Los Angeles.

At that time, your Board also instructed the Director of Public Works, in coordination with appropriate stakeholders, to assess the feasibility of developing a conversion technology facility at one or more County landfills; to identify other potentially suitable sites within Los Angeles County; and to report back to the Board within six months. The attached preliminary siting assessment is in response to this request.

The Board's action on April 20, 2010, sparked an unprecedented level of interest in conversion technologies, with many jurisdictions contacting Public Works requesting more information. Over the last six months, Public Works has reached out to all 88 cities as well as solid waste facility owners and operators in Los Angeles County, soliciting expressions of interest in developing a conversion technology facility. Additionally, Public Works hosted a Conversion Technology Informational Workshop on September 23, 2010, which was attended by over 200 representatives from the cities, solid waste industry, utilities, and environmental community.

Eleven stakeholders representing cities, solid waste companies, and industrial real estate developers have submitted 16 sites for consideration as follows:

- Landfills (Calabasas, Lancaster, Pebbly Beach, and Scholl Canyon)
- Materials Recovery and Transfer Facilities (3)
- Other Sites (9)

The attached site assessment provides a brief description of each of these sites, including advantages and challenges associated with each site. This preliminary site assessment considered technical factors such as site acreage, existing infrastructure, utilities, proximity to power and gas transmission lines, proximity to sensitive ecological areas, zoning, and other factors.

This assessment is not intended to be comprehensive nor is it designed to rank the sites. It is intended to establish a basis for future, more detailed technical and environmental assessments. This will assist the County in advancing the development of an optimal number of conversion technology projects within the County, which will assist in meeting the long-term solid waste management needs of County residents and businesses while generating local renewable energy, and retaining jobs and economic resources within the County.

Based on this general assessment, all of the sites identified appear feasible for development of a conversion technology facility and merit further consideration. It should be noted that prior to development of a conversion technology facility at any of these sites, and following the necessary technical environmental assessments, sites must comply with the requirements of all applicable Federal, State, and local permitting agencies.

Public Works will continue to work with interested stakeholders to identify potential project locations within the County, evaluate various technologies with Public Works' established criteria, and provide technical assistance to potential project developers. To keep your Board regularly informed on these developments, Public Works will submit a status report to your Board every six months.

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P:\sec\prelm sitng assmnt

Attach.

cc: County Counsel
Chief Executive Office
Department of Public Health
Department of Regional Planning
Sanitation Districts of Los Angeles County
Los Angeles County Solid Waste Management Committee/Integrated Waste Management Task Force

LOS ANGELES COUNTY CONVERSION TECHNOLOGY PROJECT

Preliminary Siting Assessment

October 2010

A Report to the County of Los Angeles Board of Supervisors

1.0 INTRODUCTION

1.1 Background

For over a decade, the County of Los Angeles in coordination with the Los Angeles County Solid Waste Management Committee/Integrated Waste Management Task Force has been recognized as a leader in researching and advancing the development of conversion technologies (CTs). CTs are non-combustion thermal, chemical, mechanical, and biological processes capable of converting post-recycled residual solid waste into useful products and chemicals, green fuels, and clean, renewable energy. These technologies provide an opportunity to reduce the amount of solid waste sent to landfills, create local green-collar jobs, and recover resources from our waste. Managing waste through CTs would reduce waste going to landfills and preserve landfill capacity in the County.

Consistent with the Los Angeles County Board of Supervisors' directives, the Department of Public Works (Public Works) has followed a deliberate multi-phased approach for evaluating and promoting the development of CTs. Part of this approach has been supporting Statewide legislation that would create a comprehensive regulatory framework for CT development in California consistent with your Board's direction to "support legislation which promotes the development of alternatives to landfills, such as CTs that protect public health and safety and the environment; establish a viable permitting process for these alternatives based on performance standards rather than prescriptive definitions; provide full diversion and greenhouse gas emission reduction credits for these alternatives under applicable State law; and provide that all energy produced by these CT facilities be designated as renewable energy." Several attempts have been made in California to pass legislation that would enable CTs to be developed in a streamlined fashion. This includes your Board's support for the County's sponsorship of AB 1939 (2000), five-signature letter of support for AB 1090 (2005), and other legislative efforts. To date, those attempts have not succeeded; however, the most recent legislative attempt, AB 222 (Ma/Adams), took the issue further than before with a wide base of supporters from all sectors in the State. Public Works will continue to work with the Chief Executive Office to pursue legislation that would benefit future CT development in the County.

Public Works' technology evaluation process began with Phase I, which included a preliminary evaluation, screening and ranking of CT companies and identification of material recovery facilities and transfer stations (MRF/TS) that could potentially host a CT facility. Phase II consisted of a detailed evaluation of selected technologies and MRF/TS sites. Following Phase II, Public Works issued a Request for Offers to the recommended companies and sites, which resulted in the establishment of three project development teams that connected a CT company with a local MRF operator and site owner.

On April 20, 2010, the Los Angeles County Board of Supervisors approved Memorandums of Understanding with these three project development teams and

initiated a consultant agreement with Alternative Resources, Inc. (ARI) to assist Public Works with implementing Phases III and IV of the CT effort. Phase III consists of providing technical assistance to the three project teams towards successful development. The purpose of the Phase III projects is to demonstrate the technical, economic, and environmental viability of such facilities in Southern California, and to establish pathways for permitting and financing commercial scale CT projects. These three demonstration projects are at various stages of development and include both thermal and biological conversion processes.

Phase IV focuses on facilitating the development of commercial-scale CT facilities in Los Angeles County for the purpose of providing alternatives to landfill disposal of post-recycled municipal solid waste (MSW). During Phase IV, the County will work with various key stakeholders, including cities solid waste facility owners and operators, and CT companies to encourage the development of mutually beneficial projects within the County. Similar to the demonstration projects in Phase III, the County would provide support for these projects in the form of technical support through the consultant contract with ARI, as well as assistance with permitting and grant and loan procurement, while maximizing private-sector investment.

Also on April 20, 2010, the Board unanimously adopted a motion instructing the Director of Public Works to:

a) *In coordination with appropriate stakeholders, including the County Sanitation Districts and other appropriate County departments, assess the feasibility of developing a CT facility at one or more County Landfills; and*

b) *Report back to the Board within six months, with its findings regarding the development of a CT facility at a County landfill, and identifying other potentially suitable sites within Los Angeles County.*

In accordance with the Board Motion, for the past six months, Public Works and ARI met with numerous stakeholders, including the County Sanitation Districts of Los Angeles County (Sanitation Districts), cities and solid waste facilities owners and operators to identify potential sites for development of CT facilities and discuss opportunities for collaboration. Public Works also made a presentation to the County's Regional Planning Commission regarding its Phases III and IV efforts, and will be returning for a follow-up presentation in October.

Based on these discussions, Public Works developed a preliminary list of potential sites within Los Angeles County that could host a CT facility. Development of this preliminary list included conducting outreach, attending meetings, developing evaluation criteria, and gathering information necessary to evaluate the sites. These meetings are summarized in Section 2 of this assessment.

This preliminary site assessment considered factors such as site acreage, existing infrastructure, utilities, proximity to power and gas transmission lines, proximity to sensitive ecological areas, zoning, and other factors. Based on this general

assessment, all of the sites identified appear feasible for development of a CT facility and merit further consideration.

It should be noted that prior to development of a CT facility at any of these sites, the site must undergo rigorous technical end environmental assessments as well as comply with the requirements of all applicable Federal, State, and local permitting agencies.

1.2 Purpose and Goals

The purpose of this assessment is to identify potential partners and suitable sites in Los Angeles County for development of commercial-scale CT facilities.

CTs have the potential to benefit the communities of Los Angeles County in many ways, including:

- Reducing the amount of solid waste sent to landfills
- Creating local, green-collar jobs
- Providing cost competitive solid waste management options after the Puente Hills Landfill closes
- Numerous potential environmental benefits, including:
    - Producing renewable energy and biofuels, which can displace fossil fuels
    - Net reduction of pollutants, including groundwater contamination, criteria air emissions, toxic air contaminants, and greenhouse gases
    - Reducing dependence on landfill disposal and exportation of waste to remote landfill disposal sites
    - Recovering additional recyclables and other valuable products from the waste stream that would otherwise be disposed

The County envisions one or more commercial CT facilities, ranging in size, being developed throughout the County as a means to provide long-term solid waste management capacity, to reduce dependence on landfills, and to stabilize waste disposal rates. Such facilities would process primarily post-recycled MSW, but could potentially process other materials such as food and yard waste, biosolids, non-recycled construction and demolition (C&D) materials, and other non-hazardous waste streams.

This effort reinforces the County's long-term strategy to diversify our solid waste management options and ensure a minimum of 15 years of capacity for the solid waste that is generated within the County. This includes continuing to enhance and expand our recycling and waste reduction programs; expansion of solid waste management infrastructure; and development of CTs.

2.0 METHODOLOGY

Public Works met with the Sanitation Districts, interested cities, communities, companies in the waste management sector, solid waste facility owners and operators, and industrial real estate developers to develop this list of preliminary sites. This report represents a first-level evaluation of potential sites for a CT project by identifying advantages and challenges of each site. This preliminary evaluation is not intended to be exhaustive of all potential sites in the County, and did not rank the sites evaluated. Suitable sites, potentially including additional sites not yet identified in this report, will be evaluated in more detail and presented in the next stage of site assessment as part of Phase IV of the County's CT Project.

2.1 Process for Identification of Interested Parties

As described below, several methods were used to reach out to both public and private parties to determine interest to participate in the Phase IV program.

Cities with adopted Resolutions of Interest

Prior to the initiation of Phase IV, four cities proactively adopted City Council resolutions in support of developing a CT project:

- **Calabasas** - in January 2006, the City of Calabasas unanimously adopted a resolution supporting the County's efforts and requesting consideration of a CT facility at the Calabasas Landfill.

- **Glendale** - in October 2007, the City of Glendale unanimously adopted a resolution supporting the County's efforts to evaluate and promote CTs, to support enabling legislation, and to work with the County to ensure that the Scholl Canyon Landfill is considered for any future development of CT facilities.

  In addition, on April 20, 2010, the Glendale City Council unanimously approved an action item authorizing the city manager to assemble a project team to research, analyze, report, and recommend a waste conversion project for the City of Glendale. Glendale has issued a Request for Proposals for an environmental consultant to assist them in this endeavor.

- **Lancaster** - in June 2008, the City of Lancaster unanimously adopted a resolution supporting the County's efforts to evaluate and promote CTs, to support enabling legislation, and to work with the County to ensure Lancaster is considered for any future partnerships for the development of CT facilities.

- **Long Beach** - in July 2008, the City of Long Beach unanimously adopted a resolution in support of the County's efforts to evaluate and promote CTs, to support enabling legislation, and to work with the County to ensure Long Beach is considered for any future partnerships for the development of CT facilities.

Copies of the resolutions adopted by these cities are included in Attachment 1**.**

Letters sent to all Cities, MRFs/TSs, and Landfills to solicit additional interest

In an effort to reach beyond those cities and waste industry companies that were already familiar with the County's CT efforts, Public Works sent a letter to the city managers and recycling coordinators in all 88 cities, as well as solid waste facility owners and operators including MRFs/TSs and landfills in Los Angeles County. See Attachment 2 for a copy of the letter that was distributed to all 88 cities and solid waste facilities in Los Angeles County, describing the County's efforts to promote CT development and soliciting expressions of interest.

This letter described the County efforts to promote CT development and solicited expressions of interest. Public Works developed and distributed an evaluation checklist, so that interested parties could easily identify and submit a site for consideration in this preliminary siting assessment.

Cities that have expressed interest subsequent to Board action

Since the Board's action on April 20, 2010, additional cities have expressed interest in coordinating with the County to evaluate the benefits of a CT facility. These cities contacted Public Works requesting meetings and/or suggesting possible sites. In some cases, the County team reached out to jurisdictions that it knew were involved already or interested in CT projects. At this time, cities and other public jurisdictions expressing interest include:

- Avalon
- Beverly Hills
- Carson
- Los Angeles
- Pico Rivera
- Santa Clarita
- Torrance
- Vernon

On October 5, 2010, the Vernon City Council approved a resolution authorizing the City to submit a letter of interest to the County to participate in the County's CT *Program. Please see Attachment 3.*

Private Interest

In addition to public jurisdictions, several private companies that have been involved in the solid waste and CT industry in California have also come forward at this time, expressing interest and/or offering potential sites. These include:

- BLT Enterprises (BLT)
- Calmet Services (PRR)
- Green City Development, Inc.
- Mustang Power (The Dewey Group)
- Waste Resources Recovery (WRR)

County Sponsored Workshop on September 23, 2010

To achieve maximum participation and provide the broadest opportunities for jurisdictions and private companies to participate in Phase IV efforts, the County conducted a CT workshop that was attended by approximately 200 individuals (either in person or via Webinar). At the workshop, the County explained the purpose and goals of the project, summarized progress to date for Phases I, II, III, and IV, and invited the participation of attendees. Representatives of the companies for the demonstration projects for Phase III gave brief presentations, as did several project proponents for Phase IV.

As a result of this workshop, it is anticipated that additional potential partners and sites not currently identified in this report will be considered.

2.2 Summary of Meetings with Cities, MRFs/TSs, and Landfills

Public Works has held numerous meetings with public jurisdictions and companies that have expressed interest to date. As a key stakeholder in this endeavor, Public Works met several times with the Sanitation Districts to discuss options for publicly-owned landfills, which the Sanitation Districts owns and/or operates within the County. Details of these sites are included in Section 3 of this Assessment.

Overall, the meetings were very constructive with the parties showing a willingness to work together for mutual benefit. The public jurisdictions and private companies were generally receptive to the possibility of hosting or contributing waste to a CT facility and enthusiastic about the potential of a CT to offer an alternative to landfilling. Many jurisdictions expressed the desire to develop additional options for managing their residual waste with the pending closure of the Puente Hills Landfill and the uncertainty and higher cost for waste management in the future. CT projects were also viewed as possible revenue generating facilities for those cities considering hosting regional facilities, and a means to stabilize costs in the future.

In addition to the meetings that have been held to date, several parties expressed interest but were unable to accommodate a meeting prior to the issuance of this report. These potential stakeholders include the cities of Compton, Culver City, Inglewood, Los Angeles, Santa Clarita, and Torrance, and as well as BLT Enterprises and Pacific

Coast Waste & Recycling, LLC, local solid waste companies who have a strong interest in CT development.

Public Works will continue to meet with these and other interested parties as it moves forward in the evaluation of potential sites as part of Phase IV.

3.0 SITE EVALUATION

This section of the report identifies potential sites and presents the results of the preliminary site review to determine suitable sites.

3.1 Potential Sites

Three figures are attached in the enclosures that identify sites within the County for potential project development. Figure 1 shows all areas within the County that are zoned for general industrial, heavy industrial, light industrial, miscellaneous (i.e. landfills, quarry zones), or for utility uses. Figures 2 and 3 identify all active landfills and MRF/TS facilities, respectively, that are located within Los Angeles County. Most closed landfill sites have been converted into other uses such as open space, parks or golf courses, and are also surrounded by other potentially incompatible uses, including residential development. As a result, closed landfill sites were generally not included in this preliminary siting assessment.

Figure 4 identifies a total of 16 potential CT sites that were specifically identified and brought forward by 11 stakeholders. Further discussion is needed with the site owners and operators in order to determine their level of interest and whether or a not a project at any of these sites would be mutually beneficial and financially viable.

This preliminary siting assessment will be included as an enclosure to the State-mandated Countywide Siting Element that is currently being revised. The Siting Element must demonstrate that there is a countywide or region-wide minimum of 15 years of combined permitted disposal capacity through existing or planned solid waste disposal and transformation facilities or through additional strategies. Furthermore, all facilities that require a Solid Waste Disposal Facility Permit must be identified in the Siting Element and meet the facility siting criteria established in the Siting Element. Due to current regulatory uncertainty, it is still unclear whether or not certain CT facilities will require a Solid Waste Disposal Facility Permit. As such, Public Works is proactively including this preliminary list of sites in the Siting Element to fulfill that requirement.

3.2 Overview Description of Each Site

In this section, basic information regarding each of the potential sites provided to Public Works by each of the ten stakeholders is presented below. Public Works will continue to meet with these and other interested parties as it moves forward in the evaluation of potential sites as part of Phase IV.

Stakeholder: City of Avalon

The site identified is on the small operating landfill remotely located on the western tip of Catalina Island. It serves primarily the town of Avalon, where the vast majority of the island population lives and where most tourism occurs. The landfill is owned by the City of Avalon, but is located in unincorporated Los Angeles County. It is operated by

Seagull Sanitation under contract to the City of Avalon. The current zoning (landfill) and the surrounding land use (vacant, rugged terrain, and the wastewater treatment plant) are compatible with a CT project.

Stakeholder: City of Calabasas

The City of Calabasas has identified the Calabasas Landfill as a potential site for a CT project. The facility is owned by Los Angeles County and operated by the Sanitation Districts. In 2006, the City of Calabasas adopted a resolution of support for the County's CT efforts and specifically requested consideration of a CT facility at the Calabasas Landfill.

Public Works has met with the Sanitation Districts and reviewed potential sites on the landfill property. Advantages of this site include the fact that it is an operating landfill, its use is supported as a site by the City of Calabasas and the Sanitation Districts, access off the freeway is excellent and there could be synergies with the existing landfill gas and energy recovery system. Challenges include the limited space within the property boundary, most of which is mountainous terrain; and the location of the landfill within a National Recreation Area. Current Federal regulations do not allow new waste disposal sites to be located in a national park. Due to the current regulatory uncertainty whether a CT facility is considered a disposal facility, this may require changes to Federal regulations and Federal permits as well as State and local approvals. In addition, the landfill historically received about 1,800 tons per day (tpd), but now receives about 800 tpd due to the recession and major waste haulers shipping their waste to their own landfills. Additional tonnage would likely be necessary to allow both the landfill and a CT facility to be financially viable.

Stakeholder: Calmet Services

Calmet Services, a solid waste hauling company in Los Angeles County, is in the preliminary stages of considering a CT facility that would be collocated at their MRF/TS in Paramount. The CT project could take advantage of the existing infrastructure at MRF/TS, owned and operated by Calmet Services. The site is zoned industrial and has good truck access and full utilities. The company is looking at various conversion technologies and has not yet settled on a preferred one. Calmet is the franchise hauler for several cities in the central Los Angeles basin.

This site has the advantage of being co-located with an existing MRF/TS facility and can thus make use of the existing infrastructure and processing capability. The site is of sufficient size, is zoned industrial, fully serviced with utilities, and is surrounded by other industrial uses and the Burlington Northern Santa Fe (BNSF) main line. The site also has very good truck access.

Stakeholder: City of Carson

Four sites were proposed by representatives from the City of Carson's Planning and Public Works Departments in recent meetings. Two sites are within refinery complexes,

and are industrially-zoned and currently undeveloped. Additional discussion will need to take place between the City of Carson and the property owners to determine whether a project would be feasible and mutually beneficial. Another potential advantage of locating a CT facility on these sites is the potential for these refineries to use the products from a CT facility, such as biogas, syngas, heat, or hydrogen.

The third site is a 14-acre corporate yard owned by the City and currently utilized for City public works operations. The City is planning to relocate their corporate yard, which would free up this land. This is an advantageous site due to its industrial zoning, access to rail and utilities, and City ownership.

The fourth site proposed by the City is the Joint Water Pollution Control Plant (JWPCP) which is owned and operated by the Sanitation Districts in the City of Carson. There are possible synergies between the treatment plant and the CT project in that the latter can manufacture products useful to the former such as biogas, electricity, transportation fuel, and heat. The advantages of this site are that it is located within the treatment plant in a heavy industrial area with full utilities and good access. Additional discussions are needed with the Sanitation Districts to determine if a project would be feasible and mutually beneficial.

Stakeholder: City of Glendale

The City of Glendale is investigating the possibility of utilizing Scholl Canyon Landfill as a potential site for a CT project. This 500-acre landfill is owned by the City (90 percent) and the County (10 percent), and is operated by the Sanitation Districts under a Joint Powers Authority between the City and the County. The wasteshed for the landfill is restricted to the cities of Glendale, Pasadena, South Pasadena, La Canada/Flintridge, Sierra Madre, and San Marino. The City also collects all residential and most of the commercial accounts within Glendale.

At present rate of fill, the landfill has approximately 20 years of life, plus another 10-20 years with a planned expansion. Utilities are available, including a transmission line that runs across the site.

On April 20, 2010, the Glendale City Council unanimously approved an action item authorizing the city manager to assemble a project team to research, analyze, report, and recommend a waste conversion project for the City of Glendale. Glendale has issued a Request for Proposals for an environmental consultant to assist them in this endeavor.

The advantages of this site are that it is an active landfill with a full solid waste facility permit, and primarily owned by the City of Glendale who has shown very strong support for a CT project and is continuing to pursue development of a CT project. The site is well positioned in an urban area. Access is excellent and potential synergy exists with the exiting landfill gas treatment and pipeline transportation system. A potential challenge is the limited space within the property boundary, much of which is mountainous terrain.

Stakeholder: Green City Development, Inc.

Green City Development, Inc. is an industrial land developer who owns a 115-acre parcel within the City of Santa Clarita. The site was previously used for oil drilling, but is not currently in operation, and the owner is proposing to develop a MRF and CT facility on the site, among other uses. The site has available utilities and truck access. Advantages of this site are that it is owned by the proponent, and has sufficient space, utilities, truck access, proper zoning, and is identified as an energy generation site by the California Energy Commission.

Stakeholder: City of Lancaster

The City of Lancaster met with Public Works to discuss how CTs may align with their city's environmental objectives. In 2008, the City of Lancaster unanimously adopted a resolution supporting the County's efforts to evaluate and promote CTs, to support enabling legislation, and to work with the County to ensure Lancaster is considered for any future partnerships for the development of CT facilities.

Two potential sites were discussed, the Lancaster Landfill which is located in the unincorporated area near the City, and a solar power plant located within the City boundaries. Waste Management, Inc., the owner and operator of the Lancaster Landfill, has been investing in CT companies and looking to possibly build a project at or near the landfill. Public Works may pursue additional conversations with Waste Management, Inc., and the City of Lancaster to determine if a project is mutually beneficial.

Also close to the Lancaster Landfill is the new Sun Tower Power Sierra Generating Station. The 5 MW solar power plant is located on a 95-acre parcel of which it is leasing 50 acres. Advantages of the site include sufficient space, utilities, truck access, and proper zoning. This site will require more discussion with both the City and Sun Tower Power to determine if a project is mutually beneficial.

Stakeholder: City of Long Beach

In July 2008, the City of Long Beach unanimously adopted a resolution in support of the County's efforts to evaluate and promote conversion technologies, to support enabling legislation, and to work with the County to ensure Long Beach is considered for any future partnerships for the development of CT facilities.

Public Works, in recent meetings with the City of Long Beach, discussed the possibility of siting a CT facility within the Port of Long Beach or land owned by the Port. Given the industrial zoning, proximity to utilities, truck and rail access, opportunities may exist to develop a CT facility at one or more locations. Public Works will continue to discuss options with the City and Port of Long Beach to determine if a project would be feasible and mutually beneficial.

Stakeholder: Mustang Power

Mustang Power, a CT development company, is proposing a 10-20 acre portion of a 71-acre industrially zoned site that includes approximately 14 acres previously operated as a landfill. Mustang Power owns the site in the Sylmar area in partnership with an investor group. The site has available utilities and easy truck access to the 210 and 118 freeways. Advantages of this site are that it is owned by the proponent, and has sufficient space, utilities, truck access, proper zoning, does not conflict with residential areas, and is located in a County Unincorporated area.

Stakeholder: Valley Vista Services

Valley Vista Services along with Onsite Power are in the process of developing a CT project at Valley Vista's Grand Central Recycling & Transfer Station in the City of Industry. The technology utilized would be the UC Davis Anaerobic Digestion process. The entire site of roughly 25 acres houses the MRF/TS, collection truck yard, corporate headquarters, and fueling stations. The CT facility would receive approximately 125 tpd of food waste and 125 tpd of green waste in the first phase, with the possibility to expand eventually. The project would produce pipeline quality biomethane for injection into the Gas Company distribution system. The site is fully developed and surrounded by industrial uses. This site has the advantage of being co-located with an existing MRF/TS facility and can thus make use of the existing infrastructure and processing capability. The site is of sufficient size, is zoned industrial, fully serviced with utilities, and is surrounded by other industrial uses. The site also has very good truck access.

Stakeholder: Waste Recovery and Recycling (WRR)

Public Works met with Waste Recovery and Recycling (WRR), a solid waste hauler in Los Angeles County, who is interested in co-locating a CT facility at their MRF/TS in an unincorporated area near Gardena. This site has the advantage of being co-located with an existing MRF/TS facility and can thus make use of the existing infrastructure and processing capability. The site is of sufficient size, is zoned industrial, fully serviced with utilities, is surrounded by other industrial uses, and is located in a County Unincorporated area. The site also has very good truck access. WRR is focusing on a thermal CT process.

4.0 NEXT STEPS

The next step in the Phase IV process will include a detailed comparative evaluation of the sites that were identified in this preliminary assessment. This detailed analysis will include gathering additional information that was not available at the time of the preliminary screening assessment, assessing site aspects expanding beyond the screening criteria, and continuing discussions with prospective stakeholders.

In addition to siting efforts, Public Works will continue evaluation of viable technology vendors to participate in Phase IV efforts. The conversion technology industry has matured and expanded since Public Works last conducted technology evaluations as part of Phases I and II. As such, Public Works will review the qualifications of technology vendors interested in participating in a Phase IV project and the viability of site specific projects in light of the needs expressed by the Stakeholders. Public Works will continue to work with the stakeholders identified in this Assessment, as well as others, to determine their goals and objectives, to evaluate and select a viable technology and project configuration, and to facilitate the development of suitable facilities.

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LOS ANGELES COUNTY
CONVERSION TECHNOLOGY PROJECT

Preliminary Siting Assessment

ATTACHMENTS AND FIGURES

ATTACHMENT 1

CITY RESOLUTIONS
(Calabasas, Glendale, Lancaster, Long Beach)

RESOLUTION NO. 2006-997

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CALABASAS, CALIFORNIA, SUPPORTING THE SOLID WASTE CONVERSION TECHNOLOGY AND REQUESTING A FACILITY AT THE CALABASAS LANDFILL

WHEREAS, the 2003-2004 California Waste Composition Study indicates that approximately 40 million tons of waste is landfilled in California; and

WHEREAS, Zero Waste is a primary goal of the California Integrated Waste Management Board's strategic plan; and

WHEREAS, Assembly Bill 2770 required the California Integrated Waste Management Board (CIWMB) to research and evaluate new and emerging non-combustion thermal, chemical, and biological technologies and to submit a report to the Legislature; and

WHEREAS, the Conversion Technology Report submitted to the Legislature supported the following major findings:

1. Conversion technologies are distinct from landfills and incineration, and can result in substantial environmental benefits for California, including the production of renewable energy, reduced dependency on fossil fuels, and reduction of greenhouse gases.
2. Conversion technologies can enhance landfill diversion efforts and can be complementary to the existing recycling infrastructure. The conversion technology facilities complement the local infrastructure and that they maintain or enhance the environmental benefits and economic sustainability of the Integrated Waste Management System.
3. Conversion technologies would be expected to meet federal, state, and local air emissions requirements. Local air districts in California are best equipped to review and condition conversion technology facilities.

WHEREAS, Assembly Bill 1090 reprioritizes California's waste management hierarchy to include conversion technologies and properly define these technologies based on sound science and their environmental impacts and benefits in relation to other solid waste management options.

WHEREAS, there are multiple benefits to the Conversion Technologies such as:

1. Waste materials are reduced in volume by up to 90%, significantly reducing the need for landfill space. In some cases the residual ash can be used in construction products such as concrete or brick production.

2. Synthetic gas or methane produced by these processes is used to generate electricity.
3. Co-locating these facilities with a comprehensive recycling and materials recovery operation assures that most inorganic materials and other recoverable items are removed for recycling or reuse prior to conversion processing. Advanced removal of inorganic items also reduces ash and other waste by-products requiring landfilling.
4. Significant reduction in physical space requirements compared to landfills.

WHEREAS, the Environmental Commission received testimony from the Los Angeles County engineering staff on the solid waste conversion technology during the public meeting of December 6, 2005 and made a recommendation to the City Council for approval of this resolution.

NOW THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. With landfill space at a premium, and disposal rates estimated to increase, Los Angeles County must invest in landfill alternatives, such as conversion technologies, that inhibit disposal rates, generate jobs, and utilize abundant biomass and organic waste material in an environmentally beneficial manner.

2. Waste recycling must be extended to establish a statewide recycling goal and local planning requirements, develop an extensive recycling and composting infrastructure, increase removal of hazardous materials from the waste stream, establish advanced disposal fees and other manufacturer responsibility measures in conserving natural resources and reducing our dependence on landfills.

3. In supporting efforts by the Alternative Technology Advisory Subcommittee, the Calabasas City Council strongly requests that a construction of conversion technology facility at the Calabasas Landfill be considered for any future planning of facilities within Los Angeles County.

PASSED AND APPROVED AND ADOPTED this _____ day of _____ 2006.

_____
Barry Groveman, Mayor

ATTEST:

_____
Gwen Peirce, Assistant City Clerk

APPROVED AS TO FORM:

_____
Michael Colantuono, City Attorney

Adopted
10-23-07
Weaver/Quintero
All Ayes

RESOLUTION NO. 07-188

A RESOLUTION OF THE COUNCIL OF THE CITY OF GLENDALE, CALIFORNIA, SUPPORTING THE DEVELOPMENT OF SOLID WASTE CONVERSION TECHNOLOGIES

WHEREAS, each year, over 40 million tons of waste are disposed in California; and

WHEREAS, the County of Los Angeles has evaluated conversion technologies, which are capable of converting post-recycled residual solid waste into marketable products, green fuels, and clean, renewable energy, and identified a number of viable technologies for Southern California; and

WHEREAS, there are significant. potential benefits for the City of Glendale from co-locating a conversion technology facility at a solid waste facility, such as:

1. Conversion technologies can result in substantial environmental benefits, including preserving land and resources, reducing dependency on fossil fuels, and reducing air and water pollution, including greenhouse gas emissions.
2. Conversion technologies can enhance landfill diversion efforts and can be complementary to the existing recycling infrastructure, thereby reducing the volume of materials disposed at landfills and maintaining long-term landfill capacity.
3. Conversion technologies can recover marketable products and generate green fuels and renewable electricity, thereby enhancing the economic viability of the integrated waste management system and locally producing renewable energy resources to meet local demand.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF GLENDALE,

SECTION 1. That the Council supports the County of Los Angeles' efforts to evaluate and promote development of conversion technologies that minimize landfill disposal, create "green" jobs, and utilize waste material in an environmentally beneficial manner.

SECTION 2. That City Public Works staff are authorized and directed to work with the County of Los Angeles to ensure that the Scholl Canyon Landfill is considered for any future development of conversion technology facilities.

SECTION 3. That the City's legislative advocates are authorized and directed to work, in concert with the County of Los Angeles, to support legislation that establishes a viable permitting process for conversion technologies based on performance standards rather than prescriptive definitions and provides full diversion credit for these technologies under the California Integrated Waste Management Act.

Adopted this 23rd day of October, 2007.

Mayor, City of Glendale

ATTEST:

City Clerk

APPROVED AS TO FORM

CITY ATTORNEY

DATE 10-12-07

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES)
CITY OF GLENDALE)

I, Ardashes Kassakhian, City Clerk of the City of Glendale, do hereby certify that the foregoing Resolution No. was duly adopted by the Council of the City of Glendale, California, at a regular meeting held on the 23rd day of October, 2007 and that the same was adopted by the following vote:

Ayes: Drayman, Quintero, Weaver, Yousefian, Najarian

Noes: None

Absent: None

Abstain: None

City Clerk

lancaster ca
it's positively clear.

July 3, 2008

Supervisor Yvonne B. Burke, Chair
Los Angeles County Board of Supervisors.
866 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Re: CITY OF LANCASTER LETTER OF INTEREST FOR THE DEVELOPMENT OF CONVERSION TECHNOLOGIES IN LOS ANGELES COUNTY

Dear Supervisor Burke:

On behalf of the City of Lancaster, I wish to express our interest and support for the development of conversion technologies in Los Angeles County, and the Antelope Valley in particular. As a leader in resource conservation and environmental stewardship, Lancaster advocates local implementation of conversion technologies encompassing a variety of processes that will convert municipal waste into renewable energy, bio-fuels, and will enhance landfill diversion efforts.

The City of Lancaster applauds and supports the County's efforts to evaluate and promote development of conversion technologies that minimize landfill disposal, create "green collar" jobs, and utilize waste material in an environmentally responsible and beneficial manner. We look forward to the continued opportunity to work with the County of Los Angeles to ensure that Lancaster is considered for any future partnerships for the development of a conversion technology facility.

A resolution of the City Council adopting the development of conversion technologies in the City of Lancaster is attached. If you have any questions, please contact Mr. Peter Zorba at (661)723-6234 or at pzorba@cityoflancasterca.org.

Sincerely,

R. Rex Parris
Mayor

RRP:PZ:vp

Attachment: Resolution No. 08-49

cc: Michael D. Antonovich, Los Angeles County Supervisor, 5th District
Mark Bozigian, City Manager, City of Lancaster
Randy Williams, Public Works Director, City of Lancaster
Peter Zorba, Environmental Engineer, City of Lancaster
Coby Skye, Alternative Technology Advisory Subcommittee, Los Angeles County Department of Public Works, Environmental Programs Division

RESOLUTION NO. 08-49

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LANCASTER, CALIFORNIA, ADOPTING THE DEVELOPMENT OF CONVERSION TECHNOLOGIES IN THE CITY OF LANCASTER

WHEREAS, each year, over 40 million tons of waste are disposed in California; and

WHEREAS, the County of Los Angeles has evaluated conversion technologies, which are capable of converting post-recycled residual solid waste into marketable products, green fuels, and clean, renewable energy, and identified a number of viable technologies for Southern California; and

WHEREAS, there are significant potential benefits for the City of Lancaster from hosting a conversion technology facility, such as:

1. Conversion technologies can result in substantial environmental benefits, including preserving land and resources, reducing dependency on fossil fuels, and reducing air and water pollution, including greenhouse gas emissions.
2. Conversion technologies can enhance landfill diversion efforts and can be complementary to the existing recycling infrastructure, thereby reducing the volume of materials disposed at landfills and maintaining long-term landfill capacity.
3. Conversion technologies can recover marketable products and generate green fuels and renewable electricity, thereby enhancing the economic viability of the integrated waste management system and locally producing renewable energy and fuel resources to meet local demand.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED BY THE CITY COUNCIL OF THE CITY OF LANCASTER, STATE OF CALIFORNIA, THAT:

Section 1. The Council supports the County of Los Angeles' efforts to evaluate and promote development of conversion technologies that minimize landfill disposal, create "green collar" jobs, and utilize waste material in an environmentally beneficial manner.

Section 2. City Public Works staff are authorized and directed to work with the County of Los Angeles to ensure that the City of Lancaster is considered for any future partnerships for the development of conversion technology facilities.

Section 3. The City's legislative advocates are authorized and directed to work, in concert with the County of Los Angeles, to support legislation that establishes a viable permitting process for conversion technologies based on performance standards rather than prescriptive definitions, and provides full diversion credit for these technologies under the California Integrated Waste Management Act.

PASSED, APPROVED and ADOPTED this 24th day of June, 2008, by the following vote:

AYES: Council Members: Mann, Marquez, Sileo, Vice Mayor Smith, Mayor Parris

NOES: None

ABSTAIN: None

ABSENT: None

ATTEST:

GERI K. BRYAN, CMC
City Clerk
City of Lancaster

APPROVED:

R. REX PARRIS
Mayor
City of Lancaster

STATE OF CALIFORNIA }
COUNTY OF LOS ANGELES } ss
CITY OF LANCASTER }

CERTIFICATION OF RESOLUTION
CITY COUNCIL

I, Shirley Mahoney, Assistant City Clerk City of Lancaster, California, do hereby certify that this is a true and correct copy of the original Resolution No. 08-49, for which the original is on file in my office.

WITNESS MY HAND AND THE SEAL OF THE CITY OF LANCASTER, on this 26th day of June, 2008.

(seal)

City of Long Beach

Legislative File Number 08-0670 (version 1)

Recommendation to respectfully request City Council support the County of Los Angeles' efforts to evaluate and promote development of next generation conversion technologies that minimize landfill disposal, create "green collar" jobs, and utilize waste material in an environmentally beneficial manner.

Request that City Manager work with the County of Los Angeles to ensure that Long Beach is considered for any future partnerships for the development of conversion technology facilities.

Request City's legislative advocates work with the County of Los Angeles to support legislation that establishes a viable permitting process for conversion technologies that protect public health, safety and the environment, and provides full diversion credit for these technologies under the California Integrated Waste Management Act.

The City of Long Beach is among the nation's leaders in waste diversion due to the thoughtful planning and investment by city leaders and the Environmental Services Bureau in the Southeast Resource Recovery Facility (SERRF), which began commercial operation in 1988. According to City documents, SERRF is a publicly owned solid waste management facility that uses mass burn technology to reduce the volume of solid waste by about 80% while recovering electrical energy. The facility is owned by a separate authority created by a joint powers agreement between the Sanitation Districts of Los Angeles County and the City of Long Beach, but is operated by a private company under contract. Residential and commercial solid waste from Long Beach and surrounding contracting communities is combusted in high temperature boilers to produce steam, which in turn is used to run a turbine-generator creating 36 megawatts of electricity. The SERRF site generates enough power each year to supply 40,000 residential homes with electricity and has reduced solid waste from entering landfills by over four million cubic yards. In addition, the SERRF site has allowed the City to keep the cost for waste management significantly below average, passing the savings on to our residents in their monthly bills. Each month, an average 825 tons of metal are recycled rather than sent to a landfill. As a public service and at the request of law enforcement agencies within California, SERRF began destroying narcotics and drug related paraphernalia in 1992. The program has been a tremendous success. SERRF has destroyed an average of 17,000 pounds of narcotics each month. This commitment by the City of Long Beach to assist in the removal of illegal narcotics from our cities' streets has saved law enforcement agencies hundreds of staff hours and thousands of dollars in alternative disposal costs.

The County of Los Angeles has evaluated next generation conversion technologies, which

are capable of converting post-recycled residual solid waste into marketable products, green fuels, and clean, renewable energy, and identified a number of viable technologies for Southern California. This next generation thermal conversion technology differs from our current SERRF technology in that it eliminates the residue combustion ash, which is currently treated and sent to an authorized landfill to be used as road base material. This difference is significant, since the only local landfill permitted to receive the ash is Puente Hills and it is scheduled to close in 2013.

Our existing SERRF site provides a valuable service to the residents of our city, pushing our diversion rate to 69% and converting our waste to electricity. However, next generation conversion technologies can further enhance our efforts to become our own "wasteshed", Conversion technologies may also provide us with the electricity necessary to support increased demand from cold-ironing in the harbor and Port. Just as our predecessors pursued technologies reducing the economic and environmental impacts of sending waste to local landfills, it makes sense that we explore opportunities to increase our conversion rate, better serve our residents, and further diminish our footprint on the environment.

None.

None.

Approve recommendation.

Suja Lowenthal
Councilmember, Second District

ATTACHMENT 2

LETTER TO CITIES

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

GAIL FARBER, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: EP-4

August 18, 2010

NAME
TITLE
ADDRESS
CITY, STATE, ZIP

Dear NAME:

INVITATION TO PARTICIPATE IN EFFORTS TO DEVELOP CONVERSION TECHNOLOGY FACILITIES IN LOS ANGELES COUNTY

The Los Angeles County Department of Public Works and the Integrated Waste Management Task Force continue to pursue the development of vital conversion technologies to help reduce our dependence on landfill disposal and provide new sources of renewable energy Enclosed please find a fact sheet with additional information regarding the program.

On behalf of both Public Works and the Task Force, I would like to invite you to join us in this critical effort by participating in an informational workshop, to be held on **Thursday, September 23, 2010,** from 8 a.m. to 1 p.m. at Public Works Headquarters, 900 South Fremont Avenue, Alhambra, California. Additional information regarding the workshop, including registration, is available online at www.SoCalConversion.org. Complimentary continental breakfast and lunch will be provided.

The workshop will outline three conversion technology demonstration projects recently approved by the Los Angeles County Board of Supervisors and provide the opportunity for you to learn about the County's conversion technology program and discuss regional conversion technology developments.

In addition, we would like to know if you have a site that may be suitable for development of a conversion technology facility Should you have interest in participating, we urge you to fill out and return the checklist as soon as possible so that your city can be properly represented in the report to the Los Angeles County Board of

Supervisors in October Expressing interest by filling out the checklist does not commit you to the project. It is a first step in evaluating if a project would be mutually beneficial.

If you have any further questions, or would like to meet to discuss the conversion technology program, please contact Mr Coby Skye of this office at (626) 458-5163, Monday through Thursday, 7 a.m. to 5.30 p.m., or by email at cskye@dpw.lacounty.gov.

Very truly yours,

GAIL FARBER
Director of Public Works

Pat Proano

PAT PROANO
Assistant Deputy Director
Environmental Programs Division

Enc.

TM:kp
P:\SEC\Convr Tech Mayor Mail Merge_8-17-10

cc: Each City Mayor in Los Angeles County
Each City Recycling Coordinator in Los Angeles County
Each Member of the Los Angeles County Integrated Waste Management Task Force

Checklist for Preliminary Site Information

Contact Person		**Site Information**	
Name:		Site Name:	
Affiliation:		Address/ Location:	
Address:			
Telephone:			
Email:			

Please provide as much information as possible

How big is the site (in acres)*?

Are there any known site characteristics that would reduce the acreage usable for project development, such as floodplain, wetlands, endangered/threatened species and/or critical habitat, underlying fill material (i.e. a landfill), etc.? Please describe and quantify, if possible.

**Minimum of 6-8 acres is recommended to support a commercial CT facility that is not co-located with an existing solid waste facility, larger sites (15-25 acres) provide flexibility to support larger-scale projects that may be more economically viable. Co-location with usable infrastructure can reduce size requirements.*

Please describe the current and planned future use of the site, e.g., undeveloped land; previously used and currently inactive; in current use for other purposes, etc.

Please describe current use of the properties adjacent to the subject site

Please identify existing infrastructure on the site that could be usable for a project, such as roads, weigh scales, receiving and storage buildings, recycling equipment, etc., (e.g., as may be affiliated with an existing waste management facility).

Please identify the utilities that are available at the site, such as water, reclaimed water, sewer, gas, electricity, and telephone.

What is the location of the nearest gas transmission main, electrical transmission line (i.e., 13.8 kV or greater), and/or substation for potential interconnection for sale of pipeline quality gas and/or electricity?
What is the zoning of the site (e.g., light, medium or heavy industrial, etc.)?
Does the site include a permitted Solid Waste Facility (e.g. MRF, transfer station, landfill)? If the project is anticipated to be co-located with an existing solid waste management facility: What is the current permitting capacity of that facility (tons per day)? What is the average amount of waste received (tons per day)?
Is the site located within a Coastal Zone, designated as Williamson Act land, Sensitive Ecological Area, or otherwise in an area that could complicate permitting and project development efforts?
Is the site within an Environmental Justice Zone, or are there other environmental justice issues or concerns related to the site?
What other types and quantities of solid waste may be available for a project (e.g., green waste, construction & demolition debris, industrial waste, etc.)?
Please specify who is the owner of the site, and if applicable, the operator of any existing operations at the site:

Please return your completed evaluation form to:

Los Angeles County Department of Public Works
Environmental Programs Division
ATTN: Coby Skye, Project Manager
900 S. Fremont Ave, Annex 3rd Floor
Alhambra, CA 91803

OR by e-mail to
cskye@dpw.lacounty.gov

Background

Since 2004, Public Works in conjunction with the Los Angeles County Integrated Waste Management Task Force has been evaluating and pursuing the development of conversion technologies (CTs) to reduce our dependence on landfill disposal. Conversion technology facilities include biological, non-combustion thermal, mechanical, and/or chemical processes that convert solid waste to renewable energy (electricity and fuels) and other beneficial products, providing greater than 80 percent diversion from landfill disposal and reduced air emissions. Such technologies are often paired with pre-processing equipment that recovers additional recyclable material while also preparing the waste for conversion.

To date, the County has followed a deliberate multi-phased approach in evaluating and promoting the development of conversion technologies.

- Phase I included a preliminary evaluation, screening and ranking of CT companies, and identification of material recovery facilities and transfer stations (MRF/TS) that could potentially host a CT facility

- Phase II consisted of a detailed evaluation of selected technologies and MRF/TS sites, followed by a Request for Offers that was issued to recommended companies and sites.

- Phase III is currently underway and focuses on County support to construct three CT demonstration projects in Southern California with companies that responded to the County's Request for Offers. The purpose of these projects is to demonstrate the technical, economic, and environmental viability of such facilities in Southern California. These three demonstration projects are at various stages of development and include both thermal and biological conversion processes

- The County has recently initiated Phase IV activities, which focus on establishing larger, commercial-scale CT facilities in Los Angeles County for the purpose of providing alternatives to landfill disposal of post-recycled municipal solid waste (MSW) The County envisions one or more commercial CT facilities being developed in Los Angeles County as a means to provide long-term solid waste management capacity for post-recycled MSW residuals destined to landfills, to reduce our dependence on exporting waste to remote landfill sites outside of the County, and to stabilize waste disposal rates.

Benefits of Conversion Technologies

If your City participates as a host community and/or partner in the development of a commercial CT facility, the possible advantages of such a project include:

- reduction in truck traffic due to onsite conversion of residual waste into energy
- extension of landfill life due to conversion of waste into energy
- potential for revenue and/or use of energy and other products from the CT project
- provision of a long-term, reliable, and cost-competitive means of solid waste management for your community's municipal solid waste
- if the facility is to be a regional facility, the potential for host community benefits
- potential for additional City revenue and/or use of energy and other products from the CT project (e.g electricity, transportation fuels, aggregate, compost, etc.)
- assistance from the County in applying for grants and other types of financial assistance and funding for the CT project
- assistance from the County in land use and environmental permitting
- assistance from the County in public relations and outreach activities

Next Steps

At the request of the Los Angeles County Board of Supervisors, Public Works is preparing a Siting Feasibility Study identifying potential conversion technology sites within Los Angeles County. This study will be presented to the Board of Supervisors in October 2010. In advance of this study, we will be hosting a special workshop on **Thursday, September 23, 2010,** beginning at 8 a.m. here at 900 South Fremont Avenue, Alhambra, California 91803. The purpose of this workshop is to provide more information about the County's conversion technology project and answer questions from interested parties regarding the potential benefits of participation.

The County would welcome the opportunity to identify your City as an interested participant, and to meet with you to review your goals and objectives and to obtain information on your potential site. Expressing interest does not commit you to participate, it is the first step in evaluating if a project would be mutually beneficial.

If you are interested in being considered and have one or more sites in mind that may be suitable for such a project, please fill out the enclosed checklist for preliminary site information enclosed and return to Mr. Coby Skye of this office. Mr. Skye can also be contacted at (626) 458-5163, Monday through Thursday, 7 a.m. to 5:30 p.m., or by e-mail at cskye@dpw.lacounty.gov. For More information regarding the County's conversion technology efforts, please visit www.SoCalConversion.org.

ATTACHMENT 3

CITY OF VERNON RESOLUTION

RESOLUTION NO. 2010-143

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF VERNON APPROVING AND AUTHORIZING THE CITY'S SUBMISSION OF A LETTER OF INTEREST TO PARTICIPATE IN THE LOS ANGELES COUNTY CONVERSION TECHNOLOGY PROGRAM

WHEREAS, the City of Vernon (the "City") is a municipal corporation and a chartered city of the State of California organized and existing under its Charter and the Constitution of the State of California; and

WHEREAS, since 2004, Los Angeles County has been evaluating and pursuing the development of solid waste conversion technologies to reduce dependence on landfill disposal; and

WHEREAS, Los Angeles County, through its Department of Public Works and its Integrated Waste Management Task Force, has extended an invitation to the City to participate in efforts to develop solid waste conversion technology facilities in Los Angeles County (the "Program"); and

WHEREAS, Los Angeles County's invitation included a request that the City submit a non-binding preliminary site information checklist if the City was interested in locating a solid waste conversion technology facility in the City of Vernon; and

WHEREAS, by memorandum dated September 28, 2010, the Director of Health and Environmental Control has recommended the City's submission of a letter of interest to participate in the Program.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF VERNON AS FOLLOWS:

SECTION 1: The City Council of the City of Vernon hereby

finds and determines that the recitals contained hereinabove are true and correct.

SECTION 2: The City Council of the City of Vernon hereby approves and authorizes the City's submission to Los Angeles County of a non-binding letter indicating the City's interest in participating in the Program, including submission of a preliminary site information checklist (the "Letter of Interest").

SECTION 3: The City Council of the City of Vernon hereby authorizes the City Administrator, or his designee, to take whatever actions are deemed necessary or desirable for the purpose of implementing and carrying out the purposes of this Resolution and the actions herein approved or authorized, including without limitation, execution of the Letter of Interest.

SECTION 4: The City Clerk of the City of Vernon shall certify to the passage, approval and adoption of this resolution, and the City Clerk of the City of Vernon shall cause this resolution and the City Clerk's certification to be entered in the File of Resolutions of the Council of this City.

APPROVED AND ADOPTED this 4th day of October, 2010.

Hilario Gonzales

Name: Hilario Gonzales

Title: Mayor / ~~Mayor Pro-Tem~~

ATTEST:

Willard G. Yamaguchi, City Clerk

STATE OF CALIFORNIA)
) ss
COUNTY OF LOS ANGELES)

I, Willard G. Yamaguchi, City Clerk of the City of Vernon, do hereby certify that the foregoing Resolution, being Resolution No. 2010-143, was duly passed, approved and adopted by the City Council of the City of Vernon at a regular meeting of the City Council duly held on Monday, October 4, 2010, and thereafter was duly signed by the Mayor or Mayor Pro-Tem of the City of Vernon.

Executed this 5 day of October, 2010, at Vernon, California.

Willard G. Yamaguchi, City Clerk

(SEAL)

Figure 1

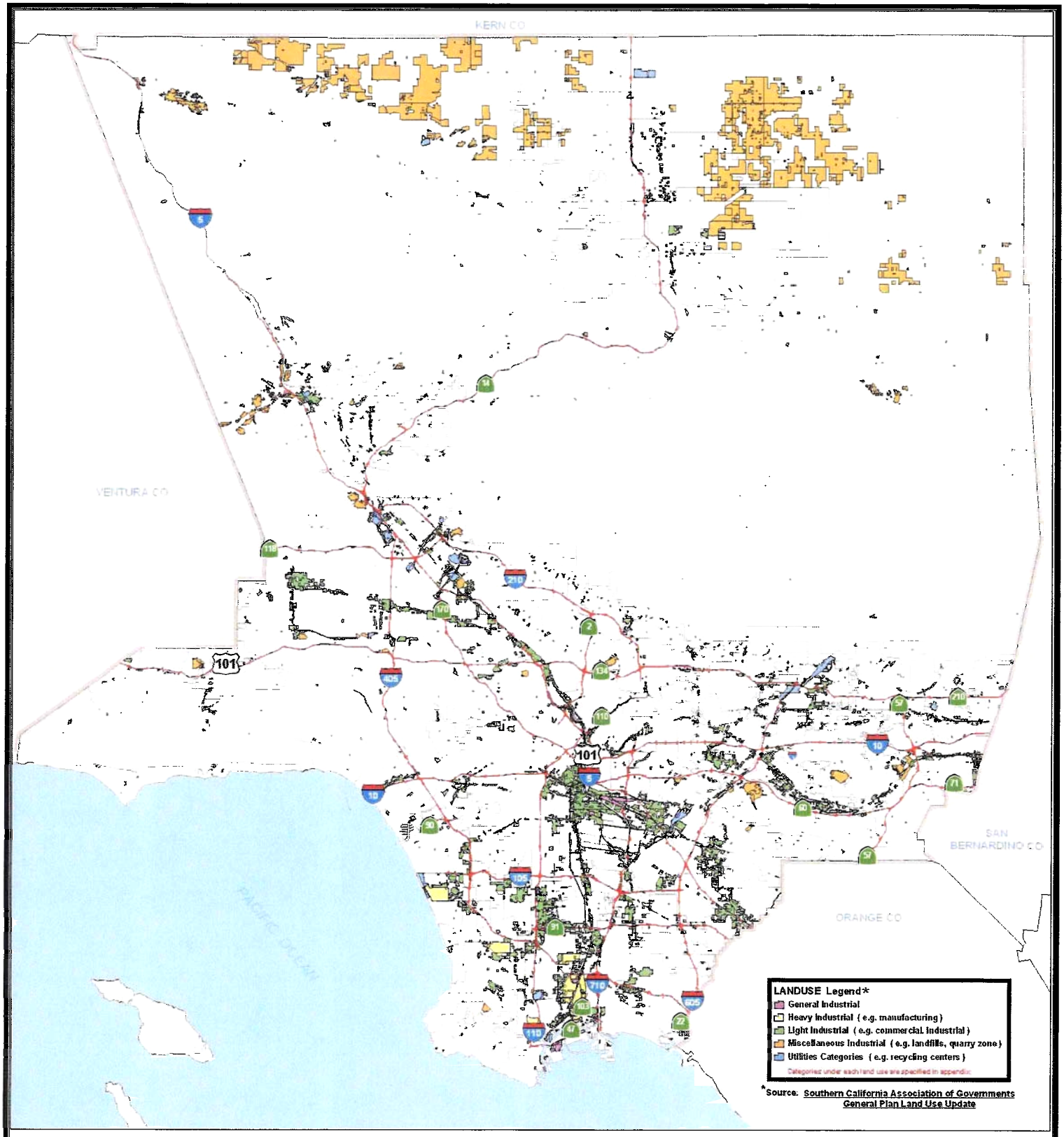

KERN CO
VENTURA CO
SAN BERNARDINO CO
ORANGE CO
PACIFIC OCEAN
101
LANDUSE Legend*
General Industrial
Heavy Industrial (e.g. manufacturing)
Light Industrial (e.g. commercial, industrial)
Miscellaneous Industrial (e.g. landfills, quarry zone)
Utilities Categories (e.g. recycling centers)
Categories under each land use are specified in appendix
*Source: Southern California Association of Governments General Plan Land Use Update
LEGEND
Freeways
City Boundaries
Adjacent Counties
N
Miles
0
5
10
PUBLIC WORKS
AREAS POTENTIALLY SUITABLE FOR SITING ALTERNATIVE TECHNOLOGY FACILITIES IN LOS ANGELES COUNTY
Figure 7-9
Data contained in this map is produced in whole or part from the Los Angeles County Department of Public Works' digital database
REF \\pwnas1\MPMGIS$\mpmgis\projects\epd\scag_sitingfacs\landuse_comboF_Fig709_8x11_revD.mxd DATE 09/10/2009
Survey/Mapping & Property Management Division, Mapping & GIS Services Section

Figure 2

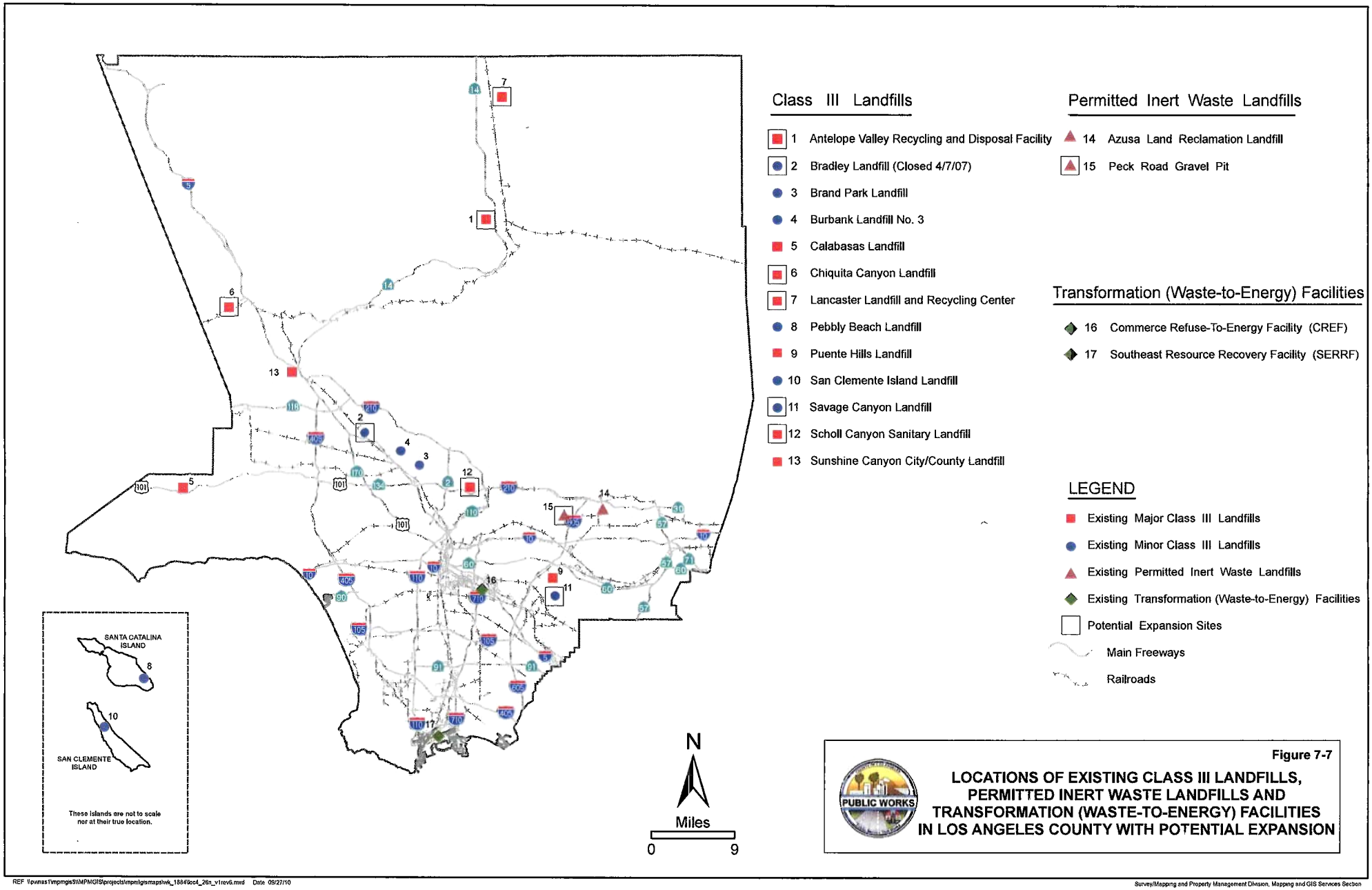
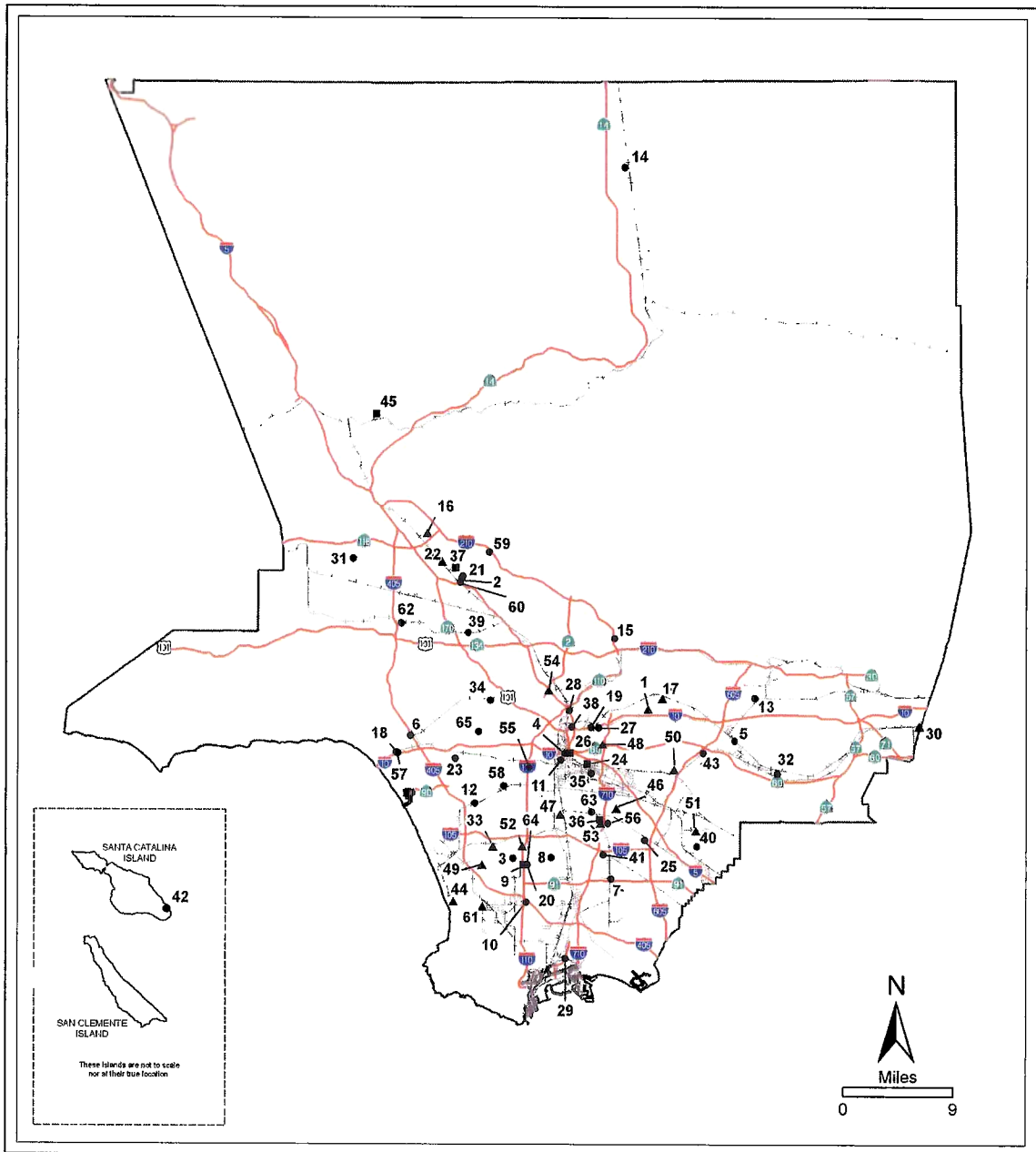

Class III Landfills
1 Antelope Valley Recycling and Disposal Facility
2 Bradley Landfill (Closed 4/7/07)
3 Brand Park Landfill
4 Burbank Landfill No. 3
5 Calabasas Landfill
6 Chiquita Canyon Landfill
7 Lancaster Landfill and Recycling Center
8 Pebbly Beach Landfill
9 Puente Hills Landfill
10 San Clemente Island Landfill
11 Savage Canyon Landfill
12 Scholl Canyon Sanitary Landfill
13 Sunshine Canyon City/County Landfill
Permitted Inert Waste Landfills
14 Azusa Land Reclamation Landfill
15 Peck Road Gravel Pit
Transformation (Waste-to-Energy) Facilities
16 Commerce Refuse-To-Energy Facility (CREF)
17 Southeast Resource Recovery Facility (SERRF)
LEGEND
Existing Major Class III Landfills
Existing Minor Class III Landfills
Existing Permitted Inert Waste Landfills
Existing Transformation (Waste-to-Energy) Facilities
Potential Expansion Sites
Main Freeways
Railroads
SANTA CATALINA ISLAND
SAN CLEMENTE ISLAND
These islands are not to scale nor at their true location.
N
Miles
0
9
PUBLIC WORKS
Figure 7-7
LOCATIONS OF EXISTING CLASS III LANDFILLS, PERMITTED INERT WASTE LANDFILLS AND TRANSFORMATION (WASTE-TO-ENERGY) FACILITIES IN LOS ANGELES COUNTY WITH POTENTIAL EXPANSION
REF \\pwmas1\mpmgis5\MPMGIS\projects\mpm\gismaps\wk_1884\loc4_26n_v1rev6.mxd Date 09/27/10
Survey/Mapping and Property Management Division, Mapping and GIS Services Section

Figure 3



NO.	FACILITY NAMES AND ADDRESSES
▲ 1	Alhambra Roll-Off Bin Transfer Station 900 South New Avenue, Alhambra, California 91801
● 2	American Waste Industries 11121 Pendleton Street, Sun Valley, California 91353
● 3	American Waste Transfer Station 1449 West Rosecrans Avenue, Gardena, California 90247
● 4	Angelus Western Paper Fibers, Inc. 2474 Porter Street, Los Angeles, California 90021
● 5	Athens Services * 14048 East Valley Boulevard, Industry, California 91746
● 6	Bel-Air Street Maintenance District Yard 11165 Missouri Avenue, Los Angeles, California 90025
● 7	Bel-Art Waste Transfer Station 2501 East 68th Street, Long Beach, California 90805
● 8	Browning Ferris Industries Waste Systems, Compton 2509 West Rosecrans Avenue, Compton, California 90220
■ 9	California Waste Services 621 West 152nd Street, Gardena, California 90247
● 10	Carson Transfer Station and Materials Recovery Facility * 321 West Francisco Street, Carson, California 90745
● 11	Central Los Angeles Recycling and Transfer Station * 2201 Washington Boulevard, Los Angeles, California 90034
● 12	City of Inglewood Transfer Station 222 West Beach Avenue, Inglewood, California 90302
● 13	City of Irvindale Limited Transfer Operation 4342 Alderson Avenue, Irvindale, California 91706
● 14	City of Lancaster Maintenance Yard, Medium Volume Transfer Station 46008 North 7th Street West, Lancaster, California 93534
▲ 15	City Yards 233 West Mountain Street, Pasadena, California 91103
▲ 16	City of San Fernando Corporate Yard 535 Glen Oaks Boulevard, San Fernando, California 91340
▲ 17	City of San Gabriel Disposal 927 East Grand Avenue, San Gabriel, California 91776
● 18	City of Santa Monica Transfer Station 2500 Michigan Avenue, Santa Monica, California 90404
● 19	City Terrace Recycling Transfer Station 1511-1525 Fishburn Avenue, City Terrace, California 90063
● 20	Coastal Materials Recovery Facility and Transfer Station 357 West Compton Boulevard, Gardena, California 90248
● 21	Community Recycling/Resource Recovery, Inc. 9147 De Garmo Avenue, Sun Valley, California 91352
▲ 22	Cordova Construction Services 12506 Montague Street, Pacoima, California 91331
● 23	Culver City Transfer and Recycling Station 9255 West Jefferson Boulevard, Culver City, California 90232
■ 24	Direct Disposal Construction & Demolition Recycling 3720 Noakes Street, Los Angeles, California 90023
● 25	Downey Area Recycling and Transfer Station (DART) * 9770 Washburn Road, Downey, California 90241
■ 26	Downtown Diversion 2424 East Olympic Boulevard, Los Angeles, California 90021
● 27	East Los Angeles Recycling and Transfer Station 1512 N. Bonnie Beach Place, City Terrace, California 90063
● 28	East Street Maintenance District Yard 452 San Fernando Road, Los Angeles, California 90065
● 29	Falcon Refuse Center, Inc. 3031 East "I" Street, Wilmington, California 90744
▲ 30	First Street Transfer Station 1730 East First Street, Pomona, California 91769
● 31	Granada Hills Street Maintenance District Yard 10210 Etiwanda Avenue, Northridge, California 91325
● 32	Grand Central Recycling and Transfer Station * 999 Hatcher Avenue, City of Industry, California 917448
▲ 33	H & C Disposal Company 3249 W. El Segundo Boulevard, Hawthorne, California 90250

NO.	FACILITY NAMES AND ADDRESSES
● 34	Hollywood Street Maintenance District Yard 6640 Romaine Street, Hollywood, California 90038
● 35	Innovative Waste Control * 4133 Bandini Boulevard, Vernon, California 90023
■ 36	Interior Removal Specialists, Incorporated. CDI 9309 Rayo Avenue, South Gate, California 90280
■ 37	Looney Bins/East Valley Diversion 11616 Sheldon Street, Sun Valley, California 91352
● 38	Mission Road Recycling and Transfer Station 840 South Mission Road, Los Angeles, California 90033
● 39	North Hollywood-Studio City Maintenance District Yard 10811 Chandler Boulevard, North Hollywood, California 91601
● 40	Norwalk Transfer Station 13780 East Imperial Highway, Santa Fe Springs, California 90670
● 41	Paramount Resource Recycling Facility 7230 Petterson Lane, Paramount, California 90723
● 42	Pebbly Beach (Avalon) Disposal Site 1 Dump Road, Avalon, California 90704
● 43	Puente Hills Materials Recovery Facility * 2800 Workman Mill Road, Whittier, California 90601
▲ 44	Redondo Beach Transfer Station 1513 Beryl Street, Redondo Beach, California 90277
■ 45	Rent-A-Bin 20745 Santa Clara Street, Santa Clarita, California 91351
▲ 46	Road Maintenance Division #4, Small Volume Transfer Station 11282 South Garfield Avenue, Downey, California 90201
▲ 47	Road Maintenance Division #141/241, Small Volume Transfer Station 2120 E. 90th Street, Los Angeles, California 90002
▲ 48	Road Maintenance Division #142, Small Volume Transfer Station 4304 Eugene Street, Los Angeles, California 90022
▲ 49	Road Maintenance Division #232, Small Volume Transfer Station 4055 West Marine Avenue, Lawndale, California 90260
▲ 50	Road Maintenance Division #446, Small Volume Transfer Station 9251 East Beverly Boulevard, Pico Rivera, California 90660
▲ 51	Road Maintenance Division #446A, Small Volume Transfer Station 13671 Telegraph Road, Whittier, California 90604
▲ 52	Rob's Roll-Off and Recycling 416 West 130th Street, Los Angeles, California 90061
▲ 53	Salt Lake Transfer Station 9599 Salt Lake Avenue, South Gate, California 90280
▲ 54	Silverlake Maintenance Station 2187 Riverside Drive, Los Angeles, California 90039
● 55	Southeast Street Maintenance District Yard 4206 South Main Street, Los Angeles, California 90037
● 56	South Gate Transfer Station * 9530 South Garfield Avenue, South Gate, California 90280
● 57	Southern California Disposal Recycling and Transfer Station 1908 Frank Street, Santa Monica, California 90404
● 58	Southwest Street Maintenance District Yard 5860 South Wilton Place, Los Angeles, California 90047
● 59	Sunland Street Maintenance District Yard 9401 Wentworth Street, Sunland, California 91040
● 60	Sun Valley Paper Stock Materials Recovery Facility and Transfer Station 8701 N. San Fernando Road, Sun Valley, California 91352
▲ 61	Torrance City Services Facility 20500 Madrona Avenue, Torrance, California 90503
● 62	Van Nuys Street Maintenance District Yard 15145 Oxnard Street, Van Nuys, California 91411
● 63	Waste Management South Gate Transfer Station 4459 Ardine Street, South Gate, California 90280
● 64	Waste Resources Recovery 357 West Compton Boulevard, Gardena, California 90248
● 65	Wilshire Street Maintenance District Yard 1274 South Cochran Avenue, Los Angeles, California 90019

Note:

* These sites were identified in Los Angeles County Countywide Siting Element, dated June 1997, as sites with potential rail-loading capability.

Legend

- ● Materials Recovery Facilities
- ▲ Transfer Stations
- ■ Construction, Demolition & Inert (CDI) Debris Processing Facilities
- Railroads
- Major Freeways

Figure 9-5

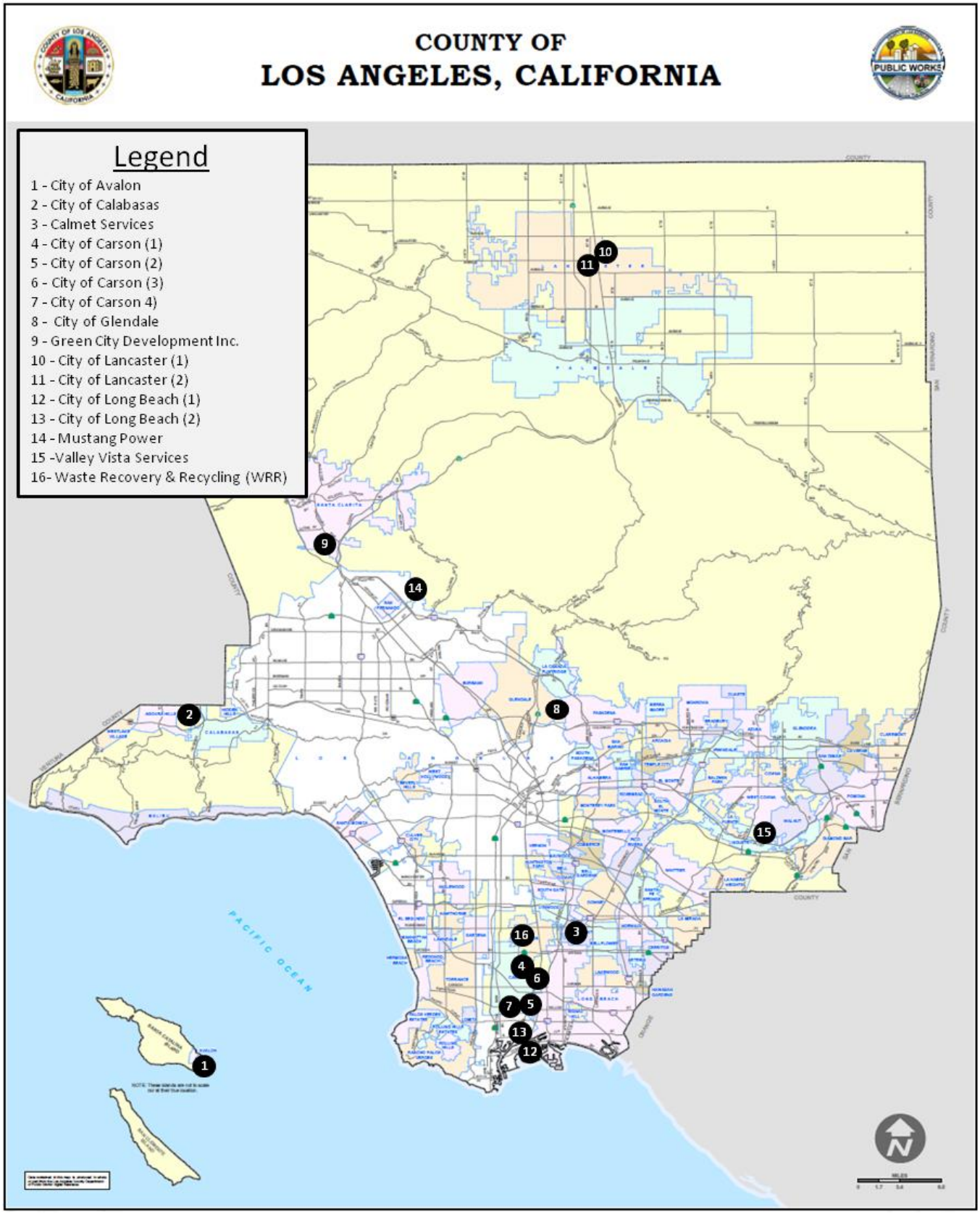
LOCATIONS OF MATERIALS RECOVERY FACILITIES, TRANSFER STATIONS, AND CDI DEBRIS PROCESSING FACILITIES IN LOS ANGELES COUNTY

REF: \\pwnas1\mpmgis$\IMPMGIS\projects\mpm\gismaps\wk_2648\mrf_ls_Rev9.mxd Date: 11/16/09

Survey/Mapping and Property Management Division, Mapping and GIS Services Section

Figure 4

Location Map of Potential Sites



Appendix 5-B

RENEW LA PLAN OF THE CITY OF LOS ANGELES

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DEPARTMENT OF CITY PLANNING

RECOMMENDATION REPORT

CITY PLANNING COMMISSION

Date: Thursday, August 23, 2007
Time: after 8;30 a.m.*
Place: 14410 Sylvan Street-Room 201
City Council Chambers
Van Nuys, CA 91401

CASE NO:	CPC 2007-0455-CA
CEQA:	ENV 2007-0456-CE
LOCATION	Citywide
COUNCIL DISTRICT:	All
PLAN AREA:	All
RELATED FILE:	CF Nos. 2005-1336, 05-1179-S3, and 05-1179-S4

PUBLIC HEARING REQUIRED

REQUEST: Amendment to Sections 12.03, 12.19, 12.20 and 12.24 of the Los Angeles Municipal Code.

SUMMARY: A proposed ordinance (Appendix A) amending provisions of the Los Angeles Municipal Code to permit Alternative Technology Facilities (the next generation of recycling, converting Municipal Solid Waste residual to recovered resources, chemicals, products, and energy, including electricity) in the M2, M3 and PF Zones, by establishing definitions of terms, and requiring a conditional use procedure.

RECOMMENDED ACTIONS:

1. **Adopt** the staff report as its report on the subject;
2. **Adopt** the attached findings; and
3. **Approve** the proposed ordinance (Appendix A) and recommend its adoption by the City Council.

S. GAIL GOLDBERG, AICP
Director of Planning

Michael LoGrande,
Chief Zoning Administrator
Telephone: (213) 978-1318

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City Planner, Code Studies
Telephone: (213) 978-1325

Nora Dresser
Planning Assistant, Code Studies
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ADVICE TO PUBLIC: *The exact time this report will be considered during the meeting is uncertain since there may be several other items on the agenda. Written communications may be mailed to the *Commission Secretariat, 200 North Spring Street, Room 532, Los Angeles, CA 90012* (Phone No. 213-978-1300). While all written communications are given to the Commission for consideration, the initial packets are sent the week prior to the Commission's meeting date. If you challenge these agenda items in court, you may be limited to raising only those issues you or someone else raised at the public hearing agendized herein, or in written correspondence on these matters delivered to this agency at or prior to the public hearing. 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. Sign language interpreters, assistive listening devices, or other auxiliary aids and/or other services may be provided upon request. To ensure availability of services, please make your request not later than three working days (72 hours) prior to the meeting by calling the Commission Secretariat at (213) 978-1300.

TABLE OF CONTENTS

SUMMARY

The purpose of this ordinance is to establish regulations for alternative technology facilities throughout the City and support the Bureau of Sanitation's goal to place a facility within each of its six wasteshed districts. Alternative technologies, the next generation of recycling, provide means to recycle, refine and re-manufacture materials which currently go to landfills. The basic methods of the technological processes include thermal, biological/chemical and/or other physical processes. The new alternative technology facilities will further the City's goal of zero waste, and help to reduce, reuse, recycle, or convert the resources now going to disposal in landfills to renewable energy, chemicals or products.

Over the past 15 years, the City has made significant accomplishments and strides in both the public and private sector toward a zero waste system. The objective of the proposed ordinance is to create standard zoning regulations for the various types of alternative technology facilities throughout the City of Los Angeles. The Los Angeles Municipal Code (LAMC) currently does not define alternative technologies or provide a process in which to entitle a new facility with proper conditions and mitigation.

The proposed ordinance (Appendix A) amends provisions of the LAMC to permit alternative technology facilities as a discretionary action. The proposed ordinance would amend Sections 12.03, 12.19, 12.20, and 12.24 of the LAMC to effect the following changes:

1. Provides definition for the various alternative technology processes.

2. To allow in the M2, M3 and PF Zones, all activities related to the operation of alternative technology facilities and material processing to be conducted within an enclosed building and require the conditional use permit procedure.

3. The proposed ordinance establishes the conditional use procedure which grants the City Planning Commission additional authority to conduct a public hearing, evaluate all required safeguards, and subsequently determine the appropriate site and conditions for alternative technology facilities in the M2, M3 and PF Zones.

FINDINGS

1. In accordance with Charter Section 556, the proposed ordinance (Appendix A) is in substantial conformance with the purposes, intent and provisions of the General Plan in that it will further Goal 9G of the Citywide General Plan Framework by providing, “an environmentally sound solid waste management system that protects public health, safety, and natural resources and minimizes adverse environmental impacts”, and advocates increased efforts to recycle or convert a greater proportion of the City’s trash and urban refuse through various programs of diverting trash from landfills; and

2. In accordance with Charter Section 558 (b) (2), the proposed ordinance is directly related to the General Plan and will not adversely affect any Specific Plans or other plans being prepared by the Planning Department. This ordinance will fulfill the Citywide General Plan Framework, Objective 9.12 and Policy 9.12.2, to support integrated solid waste management efforts through the establishment of citywide diversion objectives; and

3. In accordance with Charter Section 558 (b) (2), the proposed ordinance (Appendix A) is in substantial conformance with the public necessity, convenience, general welfare and good zoning practice, in that it will facilitate equitably locating alternative technology facilities in the M2, M3, and PF Zones citywide, supporting Goal 9F of the General Plan Framework through encouraging adequate collection, transfer and disposal of municipal solid waste, and that which cannot be reduced, recycled or composted is collected, transferred and disposed in a manner minimizing adverse environmental impacts, through the use of alternative technology processing opposed to a landfill; and

4. In accordance with Charter Section 556, the proposed ordinance (Appendix A) is in substantial conformance with the purposes, intent and provisions of the General Plan in that the ordinance will support the Citywide General Plan Framework, Infrastructure and Public Policy Objective 9.29 by converting municipal solid waste to recovered resources, chemicals, products, and energy, including electricity, in a manner that demonstrates a commitment to environmental principals, and is consistent with industry standards; and

5. That the ordinance is exempt from the requirements of the California Environmental Quality Act (CEQA) and City guidelines for the implementation thereof pursuant to Article II, Section 2, Subsection (m) of the Los Angeles City CEQA Guidelines, as it will not have a negative impact on the physical environment.

STAFF REPORT

Request

On August 8, 2006, the Planning and Land Use Management Committee referred motions to the Department of City Planning, CF 05-1336 (Smith-Zine) and CF 05-1179-S4 (Reyes-Perry), directing staff to consider giving by-right status in the M2 and M3 Zones to alternative technologies and emerging technology facilities, subject to all applicable City of Los Angeles planning code restrictions, as well as all applicable Federal, State and Local regulations for air and water quality standards. The Department was also directed to work with the Bureau of Sanitation to ensure equitable distribution of alternative technologies and other infrastructural recommendations.

Background

The definition of alternative technologies, for this report, is a municipal solid waste residual processing technology to process refuse or post-source separated waste using one or a combination of thermal, biological/chemical and/or other physical processes.

RENEW LA

In February 2006, the City Council adopted the Recovering Energy Natural Resources and Economic Benefit from Waste for Los Angeles (RENEW LA) as a guide for solid waste and resource management for the City of Los Angeles for the next twenty years. The plan builds on key elements of existing programs and infrastructure, and combines them with new conversion technology. The Plan will achieve higher levels of resource recovery in the form of recyclables, soil amendments, renewable fuels, chemicals, green energy, and a reduction in the quantity of residue material disposed of in landfills and associated environmental impacts.

For clarification, RENEW LA uses the term “conversion technology” whereas this report uses “alternative technology”, which is a broader umbrella of technologies.

The goal of RENEW LA is to reduce, reuse, recycle, or convert the resources now going to disposal in landfills and increase an overall diversion level to 90 percent or more, from the current rate of 62 percent, and to dispose of only inert residual material that which is unable to be converted after processing by the year 2025. The efforts rely on two areas of action; enhancement and growth of existing diversion programs, and the development of conversion technology facilities to process refuse that is not reused or recycled.

To date, the Bureau of Sanitation has released a request soliciting contractors to develop a facility for processing municipal solid waste (MSW) residual utilizing alternative technologies based on resource recovery for the City of Los Angeles. Prior to awarding a contract to develop an alternative technology facility, guidelines and standards for regulating facilities within the City should be approved by policy-makers. This recommendation report proposes the adoption of definitions of terms and conditional use guidelines for alternative technology facilities.

General Plan Framework Element

The Infrastructure and Public Services chapter of the General Plan Framework concludes that, due to expected population growth, the City needs to manage its infrastructure and public services in a manner that avoids depletion or permanent damage to its natural resources. The City must examine the viability of the existing infrastructure support systems relative to sustainability and correct deficiencies. Infrastructure improvements will be required to support the needs of the City's growth and replace existing facilities that have deteriorated due to age or have become obsolete.

The policies of the General Plan Framework Element seek solutions to infrastructure and service deficiencies including expansion of facilities commensurate with the demanded increase. The Bureau of Sanitation has implemented many programs to divert waste from landfills; however, the growing population of the City of Los Angeles is producing increasingly more solid waste that remains after diversion. Consequently the need for solid waste transfer and disposal facilities are increasing. Therefore, increasing the capacity of existing programs and development of new methods of diversion must be made available for the collected waste.

Status of Proposed Alternative Technology

Currently the Bureau of Sanitation is in the process of selecting one or more suppliers to develop an alternative technology facility using proven and commercialized technology for processing Black Bin/Municipal Solid Waste (MSW) residual material, and produce usable by-products such as electricity, green fuel, and/or chemicals. The proposed facilities are expected to increase the diversion level of the City's Black Bin/MSW residual material now going to landfills from the current 62 percent to 80 percent.

The City is interested in facilities that utilize solid waste treatment technologies, including but not limited to pyrolysis, gasification, advanced waste to energy (a second generation advancement of incineration technologies), biological, chemical, physical and/or combination thereof. Some treatment technologies are well-proven worldwide at

commercial scale, have high landfill diversion rates, and can generate a wide range of useful by-products that can be marketed.

Each of the six wastesheds within the city produces approximately 200-1,000 short tons/(metric tons) per day of Black Bin/MSW residual. The City's objective is to develop one facility per wasteshed. Each facility will process the waste generated by the wasteshed district it is located within, at a total throughput of 1,000 short tons/(metric tons) per day, thereby processing waste locally and equitably throughout the City. The throughput of the facility also depends on the commercialization status of the technology proposed by the operator. The City presently disposes of approximately 3,600 short tons/(metric tons) per day of Black Bin/MSW residual by landfilling. The City desires to significantly reduce the amount of Black Bin/MSW residual being disposed of in landfills and to maximize recycling and reuse of this unused resource.

In keeping with the City's goal of landfill diversion and the role of alternative technologies, this ordinance will allow for the development of both publicly and privately owned and operated alternative technology facilities.

Discussion

As a result of staff research, analysis, and review of the zoning code, in addition to a series of meetings with the staff of the Bureau of Sanitation, the Environmental Affairs Department and the Department of Building and Safety, the following discussion addresses consideration of the proposed conditional use permit process for alternative technology facilities.

Regulating Land Use

In evaluating the type of land use process for alternative technology facilities, Planning staff considered by-right, by-right with performance standards, and the conditional use process. Due to the nature of the materials handled, equipment necessary, large volume processed creating dust, noise, fumes, vibration, odor, etc., the Department is recommending the conditional use process. Alternative technology facilities will require the consideration of specific conditions to mitigate any environmental impacts to a level of insignificance. In addition, it is anticipated that alternative technology facilities will require an Environmental Impact Report (EIR), and therefore should be reviewed and conditioned through a discretionary process.

Regulatory land use controls which are by-right based are nondiscretionary. They range from simply permitting a use without any limitations when it complies with provisions of the underlying zone, to a use being permitted after it complies with performance standards.

By right. A by-right use that complies with the underlying zone may be issued a building permit without any further local review, resulting in no opportunity for establishing additional conditions by the City.

By right with performance standards. A by-right use subject to performance standards is required to obtain all permits, license and approvals from federal, state and local agencies prior to issuance of a City building permit. Using this option the City would not have the ability to include additional site specific conditions nor would this process result in a single document containing conditions of approvals from other agencies. This method limits the ability for cohesive administrative review, efficient monitoring and enforcement.

The by right based process with performance standards may be sufficient for many uses, however, alternative technologies are new and emerging and they are not readily categorized or comparable to existing uses that have known standards. Performance standards in the by right process are limited due to their generic and minimal ability to address issues related to design, operation or possible neighborhood impact.

Conditional use. The actual review procedure includes opportunity for public hearings, the ability to craft site specific conditions, review of the environmental document, and obtain fees, for the conditional use process. Additionally, it is likely alternative technology facilities will vary significantly from one location to another and will reflect changes over time in advances in technology; therefore it is of greater importance that decision makers render a decision with collective input from all stakeholders including other departments and agencies, elected officials, and community members.

The Planning Department recommends the conditional use process, which would serve as an effective tool for stakeholder participation, as well as for education and outreach of new emerging technologies, provide opportunity for neighborhood improvements, and further contribute to transparency in the review process.

Site Design and Operations

Site design and operating standards of alternative technology facilities will mitigate impacts to surrounding properties. In order to reduce potential equipment emissions and odors from the site, air quality mitigation measures will be required. The mitigation measures will be the most current available technology, and methodology to reduce the emissions and odors from the facility, as required by the South Coast Air Quality Management District.

In an effort to improve the appearance and environment of industrial areas in the City and to mitigate the visual impacts of on-site parking and storage, for areas not enclosed within a building, a solid wall, fence or gate, a minimum of eight feet in height, will be required.

To reduce potential noise impacts from the site, a noise reduction plan is required identifying measures to mitigate noise, including but not limited to sound attenuation methods such as sealing windows and doors and acoustical insulation of walls. The plan shall render the project site consistent with Minimum Ambient Noise Levels of Section 111.03 of the Los Angeles Municipal Code (LAMC).

To aesthetically enhance the visual appearance of the facilities and conserve water resources, the landscaped areas shall comply with the water management standards, of Sections 12.40, 12.41, 12.42, and 12.43 of the LAMC.

On-site parking requirements for the facility buildings will comply with Section 12.21 A 4 (c) of the LAMC, one automobile parking space for each 500 square feet of floor area shall be provided. The on-site parking and storage of delivery trucks shall accommodate the volume generated by the facility. No on street parking or storage is permitted.

To reduce associated traffic impacts on the surrounding community the ordinance provides a set of standard siting requirements. Co-location is encouraged between alternative technology sites and existing solid waste facilities, transfer stations, collection vehicles sites, material recovery facilities, and green waste facilities to reduce the distance and number of truck trips.

It is expected that the facility operation within a wholly enclosed building, processing waste and maintaining equipment, will occur 7 days a week, 24 hours per day. Truck deliveries and hauling on-site and off-site will be limited to the hours of 6:00 a.m. through 6:00 p.m., Monday through Friday, and 7:00 a.m. to 2:00 p.m. on Saturday, except as needed to accommodate City post-holiday or emergency disposal requirements. Modified hours may be considered by the decision maker.

To protect patrons or residents of nearby uses from impacts associated with facility operations, the ordinance requires that each facility will be located at least 1,000 feet from an A or R Zone or a residential use, nursing home, playground, park, school (K-12), day care, hospital, or church.

In summary, generic standards cannot fully address mitigation of impacts due to each site having its own unique setting. The conditional use process will allow the decision maker to impose site specific conditions on a project by project basis.

Neighborhood Protection

A Community Protection Program will be created by the facility operator to mitigate the potential impacts of an alternative technology facility. The Program will include a Community Improvement Fund that will finance public improvements; streetscape, infrastructure, community amenities, and provide a more livable environment. The funds will be generated from a per-ton tipping fee determined by the City Council. The fees will be paid to the facility and in turn paid on a quarterly basis to the City. Appropriation from the Fund will be authorized by resolution on a project by project basis, upon recommendation of the Councilperson for the district and approved by the City Council.

The Program will also include the publication of a quarterly newsletter prepared by the facility operator. Each newsletter will contain a summary of activities and permit violations, if any, for the reporting period and 24-hour emergency phone numbers. In addition, an annual report will be published that includes a summary of activities and permit violations, if any, for the year and overall compliance with the conditions of the subject approval. The distribution list of the newsletter and annual report will include local stakeholders, interested parties, and property owners and occupants within a 500-foot radius.

Federal, State, and Local Controls

Alternative technologies will be regulated by various federal, state, and local agencies including the South Coast Air Quality Management District, the Los Angeles Regional Water Quality Control Board, the California Integrated Waste Management Board, the California Department of Fish and Game, the State Department of Health Services, the U. S. Army Corps of Engineers, Los Angeles County and Los Angeles Local Enforcement Agency. Each agency, as a permitting body, is responsible for requiring implementation of the highest technically accepted mitigating standards for the various aspects of alternative technology facilities. In addition, the California Environmental Quality Act (CEQA) will require an Environmental Impact Report (EIR) for these facilities.

Equitable Facility Distribution

It is desirable to create an equitable distribution of facilities that share in both the negative impacts and beneficial services. However, this Ordinance cannot solve existing inequitable distribution and environmental injustices, but it can assist equitable distribution and siting of alternative technology facilities throughout the City.

The Bureau of Sanitation’s geographically designated municipal solid waste areas of the City are divided into six wastesheds for operational purposes; East Valley, West Valley, North Central, Harbor, Western and South (Exhibit C). In the effort to facilitate equal

distribution and environmental justice within the six wasteshed districts, an immediate option to address the issue within the parameters of the current zoning would be to include the PF Zone in addition to the M2 and M3 Zones. Public Facility properties are distributed throughout the six wasteshed districts increasing the opportunity for siting and co-locating with other Bureau of Sanitation facilities, and siting within districts with few Industrial designated properties. The PF Zone regulates the use and development of publicly owned land. When on publicly owned property, specifically listed Public Facility uses are subject to the conditional use process, adding alternative technology to the list of uses is consistent with the zone.

This recommended proposal, allowing facilities in the PF, M2, and M3 Zones may provide additional siting opportunities, however it would not preclude consideration of a request for an appropriately sited facility through a discretionary action, such as a zone change.

Further study and exploration of siting new facilities could be conducted as the technologies improve and established facilities demonstrate their efficiencies. The City may consider, through the Public Facilities and Service Element of the General Plan and using long range planning methods, developing future infrastructure policies and goals for siting facilities within each wasteshed. The City may also consider proactively locating and identifying potential areas of study, taking into account sites that are currently occupied or not zoned for such a use to accommodate future needs.

The Bureau of Sanitation anticipates that the development of alternative technology facilities will accommodate processing municipal solid waste residual that is generated from within its own wasteshed district boundaries, thereby furthering equal distribution in processing waste and reducing truck traffic air emissions and hauling distances.

Conclusion

In summary, the attached ordinance will define alternative technologies, establish facilities as a recognized use, and provide impact mitigating standards and criteria for the operations of the facilities. The conditional use process allows stakeholder participation, site specific conditions, provides an opportunity for neighborhood improvements, and facilitates transparency in the review process. Including the PF Zone for siting facilities should provide additional opportunities for equitable distribution throughout the City.

Staff recommends that given the range of development and operational issues attributed to alternative technology facilities, the concerns regarding environmental justice, and public participation, that the attached ordinance, Exhibit A, be approved and recommended to the City Council for adoption.

Environmental Impact

The attached proposed ordinances are exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to Article III, Section 2, Subsection (m) of the City of Los Angeles CEQA Guidelines (ordinances which have no negative impact on the physical environment).

CPC 2007-0455-CA

APPENDIX A

DISCUSSION DRAFT PROPOSED ORDINANCE
ORDINANCE NO. _____

Proposed Ordinance amending Section 12.03, 12.19, 12.20, and 12.24 of the Los Angeles Municipal Code relating to Alternative Technology Facilities.

THE PEOPLE OF THE CITY OF LOS ANGELES DO ORDAIN AS FOLLOWS:

Section1. Amend Section 12.03 of the Los Angeles Municipal Code by adding in proper alphabetic sequence the following definition:

Alternative Technology. Technologies that provide an alternative to landfill disposal of municipal solid waste. Feedstock that consist of source separated materials and/or byproduct materials from industrial and manufacturing facilities that are used beneficially as feedstock are not considered solid waste and are not covered by this ordinance. Alternative Technology consists of various types or combinations of thermal, biological/chemical, and/or other physical processes.

Thermal Technology. A high heat process to convert organic waste fraction to Synthesis gas, fuel gas or steam, or other products; methods include but are not limited to: Pyrolysis, Pyrolysis/Gasification, Pyrolysis/Steam Reforming, Convectional Gasification - Fluidized Bed, Conventional Gasification - Fixed Bed Thermal Technologies, Plasma Arc Gasification, Advanced Waste to Energy, and Catalytic Cracking.

Biological/Chemical Technology. Biological and chemical breakdown of the organic materials in waste to produce Synthesis gas (e.g., Syngas), alcohols, or other chemicals, methods include but are not limited to: Anaerobic Digestion, Aerobic Digestion/Composting, Ethanol Fermentation, Acid/Enzymatic, Hydrolysis, Syngas-to-Ethanol, Syngas-to-Biodiesel, Thermal Depolymerization, and Distillation.

Note: The City of Los Angeles Local Enforcement Agency will determine if the application meets these definitions.

Sec. 2. Add new Subdivision 17 of Subsection A of Section 12.19 of the Los Angeles Municipal Code to read as follows:

17. Alternative technology, as defined in Section 12.03, when established and operated in conformance with the standards contained in Section 12.24 U 27.

Sec. 3. Add new Subdivision 40 of Subsection A of Section 12.20 of the Los Angeles Municipal Code to read as follows:

40. Alternative technology, as defined in Section 12.03, when established and operated in conformance with the standards contained in Section 12.24 U 27.

Sec. 4. Amend Subdivision 21 of Subsection U of Section 12.24 of the Los Angeles Municipal Code to read as follows:

21. The following uses in the **PF Zone: (Amended by Ord. No. 173,492, Eff. 10/10/00.)** convention and exhibition centers; government owned parking facilities; flood control facilities; sewage treatment facilities; covered reservoirs; appurtenant structures adjacent to covered and uncovered reservoirs, such as water treatment facilities, water pumping facilities, water distribution facilities, and water filtration plants; sanitary landfills; alternative technology facilities; and any joint public and private development uses more intensive than those permitted in the most restrictive adjoining zones. The phrase "**adjoining zones**" refers to the zones of properties abutting, across the street or alley from, or having a common corner with, the subject property. In addition to the findings otherwise required by this subdivision, for any joint public and private development uses, the Commission shall find that benefits are provided to the public and that the benefit accruing from the project, whether as a result of additional taxes of the provision of public facilities, is sufficient to outweigh any impairment of the public interest that may be created by the public agencies' proposed use of the land.

Sec. 5. Add new Subdivision 27 of Subsection U of Section 12.24 of the Los Angeles Municipal Code to read:

27. Alternative technology facilities may be permitted in the M2, M3 and PF Zones in compliance with the following:

(a) Various types or combinations of thermal, biological/chemical, and/or other physical processes. The City of Los Angeles Local Enforcement Agency will determine if the application meets this definition.

(b) Prior to any local grading or building permits being issued an alternative technology operator shall obtain permits, licenses, certificates, or other approvals as may be applicable from all regulatory agencies that satisfy the necessary requirements as set forth by applicable city, county, state and federal agencies, including but not limited to the following:

(1) The South Coast Air Quality Management District;
(2) The Los Angeles Regional Water Quality Control Board;
(3) The California Integrated Waste Management Board;
(4) The California Department of Fish and Game;
(5) The State Department of Health Services;
(6) The U.S. Army Corps of Engineers; and
(7) County of Los Angeles; and
(8) City of Los Angeles Local Enforcement Agency.

(c) Co-location of alternative technology sites may be permitted at existing solid waste facilities sites, transfer stations, solid resource collection vehicles sites, material recovery facilities and green waste facility sites.

(d) The facility shall be located at least 1,000 feet from an A or R Zone or a residential use, nursing home, playground, park, school (K-12), day care, hospital, or church.

(e) All material storage, loading, unloading, operations and conversion processing shall be conducted wholly within an enclosed building or buildings. The site shall accommodate the onsite queuing of vehicles within an area completely enclosed by a solid wall or fence and gate a minimum 8 feet in height.

The wall or fence shall be located between the use and landscaped yard setback area. The front, side and rear setbacks shall be a minimum of 5 feet in depth.

(f) Landscaping shall comply with the landscape requirements set forth in Sections 12.40, 12.41, 12.42 and 12.43 of the Los Angeles Municipal Code.

(g) Automobile parking spaces shall be provided for buildings as required by Section 12.21 A 4 (c) of the Los Angeles Municipal Code. A parking and storage area for delivery trucks shall be provided on-site to adequately accommodate the volume generated by the facility. No on street parking or storage shall be permitted.

(h) The hours of operation are as follows: Facility operations, such as material processing and equipment maintenance requiring continuous operation, are permitted at all times. Truck deliveries may be accepted at the facility site between the hours of 6:00 a.m. through 6:00 p.m., Monday through Friday, and 7:00 a.m. to 2:00 p.m. on Saturday, except as needed to accommodate City post-holiday disposal requirements or emergency. Modified hours may be considered by the decision maker.

(i) Air quality mitigation measures which are used shall be the most current available technology and methodology to reduce emissions and odors from the facility. The technology and methodology shall be evaluated and approved by the South Coast Air Quality Management District (SCAQMD).

(j) The applicant shall submit a noise reduction plan to the plan checker. The noise reduction plan shall identify techniques used to mitigate noise from the site, including but not limited to sealing windows and doors, and acoustical buffering of walls. The noise reduction plan shall render the project site consistent with the Minimum Ambient Noise Levels Section 111.03 of the Los Angeles Municipal Code.

(k) The applicant shall submit a covenant to establish a Community Protection Program, to be approved by the Department of City Planning, and a recorded copy shall be provided to the plan checker. The Community Protection Program shall include the following:

(1) A quarterly newsletter created by the facility operator shall be required. The distribution shall include local stakeholders, interested parties, and property owners and occupants within a 500-foot radius. Each quarterly newsletter shall contain a summary of activities and permit violations, if any, for the reporting period and 24-hour emergency phone numbers. The facility operator shall issue an annual report which includes a summary of activities and permit violations, if any, for the year and overall compliance with the conditions of the subject approval.

(2) A Community Improvement Fund shall be established for the purpose of financing public improvements; streetscape, infrastructure and community amenities, approved by ordinance of the City Council. The fund shall be comprised of a per-ton tipping fee, at a percentage to be established by ordinance of the City Council. The fees shall be paid to the facility operator and paid on a quarterly basis by the operator to the City. Appropriation from the Fund shall be authorized by resolution on a project by project basis, upon recommendation of the Councilperson for the district and approved by the City Council. Contributions to this fund are subject to audit by the City Controller.

(l) Prohibited Material: special wastes including radioactive material, hazardous waste, household hazardous waste, electronic waste, universal waste and medical waste as defined in Sections 114960 and 25110 of the California Health & Safety Code and Section 42463 of the California Public Resources Code.

COUNTY CLERK'S USE
CITY CLERK'S USE

CITY OF LOS ANGELES

Exhibit A

OFFICE OF THE CITY CLERK
ROOM 615, CITY HALL EAST
LOS ANGELES, CALIFORNIA 90012

CALIFORNIA ENVIRONMENTAL QUALITY ACT

NOTICE OF EXEMPTION

(Article III, Section 3—City CEQA Guidelines)

Submission of this form is optional. The form shall be filed with the County Clerk, 111 No. Hill St., Los Angeles, California 90012, pursuant to Public Resources Code Section 21252 (b). Pursuant to Public Resources Code Section 21188 (d), the filing of this notice starts a 35-day statute of limitations on court challenges to the approval of the project. Failure to file this notice with the County Clerk results in the statute of limitations being extended to 180 days.

LEAD CITY AGENCY	LOG REFERENCE	COUNCIL DISTRICT
Department of City Planning	**ENV-2007-0456-CE**	**Citywide**

PROJECT TITLE:

Code Amendment (CA) - Conversion Technology Facilities (CPC-2007-0455-CA).

PROJECT LOCATION:
Citywide

DESCRIPTION OF NATURE, PURPOSE, AND BENEFICIARIES OF PROJECT:
A proposed ordinance amending provisions of the Los Angeles Municipal Code to permit Conversion Technology Facilities, by establishing definition of terms and requiring the Conditional Use procedures.

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT, IF OTHER THAN LEAD CITY AGENCY:
N/A

CONTACT PERSON	AREA CODE	TELEPHONE NUMBER
Phyllis A. Parker		**213-978-1325**

EXEMPT STATUS: (Check One)		CITY CEQA GUIDELINES	STATE EIR GUIDELINE
☐	MINISTERIAL	Art. III, Sec. 2b	Sec. 15073
☐	DECLARED EMERGENCY	Art. III, Sec. 2a (1)	Sec. 15071 (a)
☐	EMERGENCY PROJECT	Art. III, Sec. 2a (2) & (3)	Sec. 15071 (b) & (c)
☐	GENERAL EXEMPTION	Art. III, Sec. 1	Sec. 15060
☐	CATEGORICAL EXEMPTION	Art. VII, Sec. 1	Sec. 15100
✔	OTHER	(See Public Resources Code Sec. 21080 (b) and set forth state and city guideline provision. Exemption Art. II, Sec. 2 (m)	

JUSTIFICATION FOR PROJECT EXEMPTION: The proposed ordinance is exempt from the requirements of the California Environmental Quality Act (CEQA) and City guidelines for the implementation thereof pursuant to Article II, Section 2, Subsection (m) of the City of Los Angeles CEQA Guidelines because the adoption of this ordinance has no impact on the physical environment. The enactment of this ordinance will not result in any environmental impacts. The proposed ordinance merely changes the location and size of parking facilities for future residences and would neither add to nor lessen environmental review requirements for any residential project. Any proposed residential project would be subject to CEQA requirements, relative to any impacts generated.

IF FILED BY APPLICANT, ATTACH CERTIFIED DOCUMENT OF EXEMPTION FINDING.

SIGNATURE	TITLE	DATE
	City Planner	**January 29, 2007**

FEE:	RECEIPT NO.	RECEIVED BY	DATE
N/A	**N/A**	**N/A**	**N/A**

DISTRIBUTION: (1) County Clerk, (2) City Clerk, (3) Agency Record
Form Gen. 183 (Rev. 8-90) (Appendix A) (C.S. 4/98)

THE APPLICANT CERTIFIES THAT HE OR SHE UNDERSTANDS THE FOLLOWING:
Completion of this form by an employee of the City constitutes only a staff recommendation that an exemption from CEQA be granted. A Notice of Exemption is only effective if, after a public review and any required public hearings, it is adopted by the City agency having final jurisdiction (including any appeals) over the project application. If a CEQA exemption is found inappropriate, preparation of a Negative Declaration or Environmental Impact Report will be required. IF THE INFORMATION SUBMITTED BY THE APPLICANT IS INCORRECT OR INCOMPLETE SUCH ERROR OR OMISSION COULD INVALIDATE ANY CITY ACTIONS ON THE PROJECT, INCLUDING CEQA FINDINGS.

Phyllis A. Parker
NAME (PRINTED)

✖
SIGNATURE

Exhibit B-1

ENVIRONMENTAL QUALITY & WASTE MANAGEMENT

JUN 2 8 2005

PLANNING & LAND USE MANAGEMENT

MOTION

The City of Los Angeles is required by the State of California to divert an increasing percentage of waste from landfills. In addition, the State of California's Renewables Portfolio Standard (RPS) mandates that investor-owned utilities (IOUs) increase their annual retail power sales from eligible renewable resources by at least 1% per year with a goal of attaining 20% aggregate annual retail sales by 2017. Though municipal facilities like LADWP are currently exempt from the specific provisions of the RPS, SB1078 requires municipal utilities to develop renewables programs in the spirit of the legislation. In addition, the City has voluntarily set a 20% RPS goal by 2017.

Further, the City of Los Angeles currently encourages recycling by providing single-family, residential, curbside (blue can) pick-up, as well as requiring all City departments to recycle. In support of the necessity for recycling, recycling facilities have achieved a by-right designation in "M," or manufacturing zones, with certain restrictions.

There are currently many technologies able to convert the organic waste materials left after a materials recovery process and that are not suitable for composting, into green energy, alternative fuels and other useful products. These technologies include, but are not limited to: hydrolosis, gasification, pyrolysis, fermentation and anaerobic digestion. These methods differ from incineration and traditional waste-to-energy approaches because they do not require combustion, making them "clean" technologies.

In as much as it is not only good public policy, but also an ever-increasing need to produce energy from renewable sources,

I THEREFORE MOVE that conversion technology and emerging renewable energy facilities be given by-right status in the M2 and M3 zones, subject to all applicable City of Los Angeles planning code restrictions, as well as all applicable Federal, State and Local regulations for air and water quality standards.

I FURTHER MOVE that the Planning Department and Bureau of Sanitation work together to identify appropriate siting opportunities in each of the six City wastesheds, (West Valley, East Valley, West Los Angeles, North Central, South Los Angeles and Harbor) with an eye toward environmental justice.

PRESENTED BY: _____
GREIG SMITH, Twelfth District

SECONDED BY: _____

JUN 2 8 2005

05-1336

Exhibit B-2

ITEM 13 - E

MOTION

I MOVE that the matter of the continued consideration of Budget and Finance and Environmental Quality and Waste Management Committees' Reports and Communication from the City Attorney relative to Amendment No. 2 to contract with Browning-Ferris Industries of California, Inc. (BFI), for continued disposal services at BFI Sunshine Canyon Landfill for an additional five-year term starting July 1, 2006 and ending June 30, 2011, Item No. 13 on today's Council Agenda (CF 05-1179), **BE AMENDED** to instruct the Planning Department to prepare and process the necessary documents and actions to adopt a General Plan Amendment which would create suitable industrial zones equally throughout the City to enable the siting of facilities needed to implement the Renew LA concept.

PRESENTED BY: _____
ED P. REYES
Councilman, 1st District

SECONDED BY: _____

August 5, 2005
ak

CF 05-1179-S3

Mo.
ADOPTED
AUG 05 2005
LOS ANGELES CITY COUNCIL

VERBAL MOTION

I HEREBY MOVE that Council ADOPT the following recommendation in connection with Amendment No. 2 to contract with Browning-Ferris Industries of California, Inc. (BFI) for continued disposal services at BFI Sunshine Canyon Landfill:

DIRECT the Planning Department to report to the Planning and Land Use Management Committee and the Ad Hoc Committee on Recovering Energy, Natural Resources and Economic Benefit from Waste for Los Angeles (RENEW LA) relative to the land use implications (zoning issues) to ensure equitable distribution of conversion technologies and any other infrastructural recommendations that the process leads to.

PRESENTED BY _____
ED P. REYES
Councilmember, 1st District

SECONDED BY _____
JAN PERRY
Councilmember, 9th District

August 9, 2005

CF 05-1179 -S4

Motion

ADOPTED

AUG 0 9 2005

LOS ANGELES CITY COUNCIL

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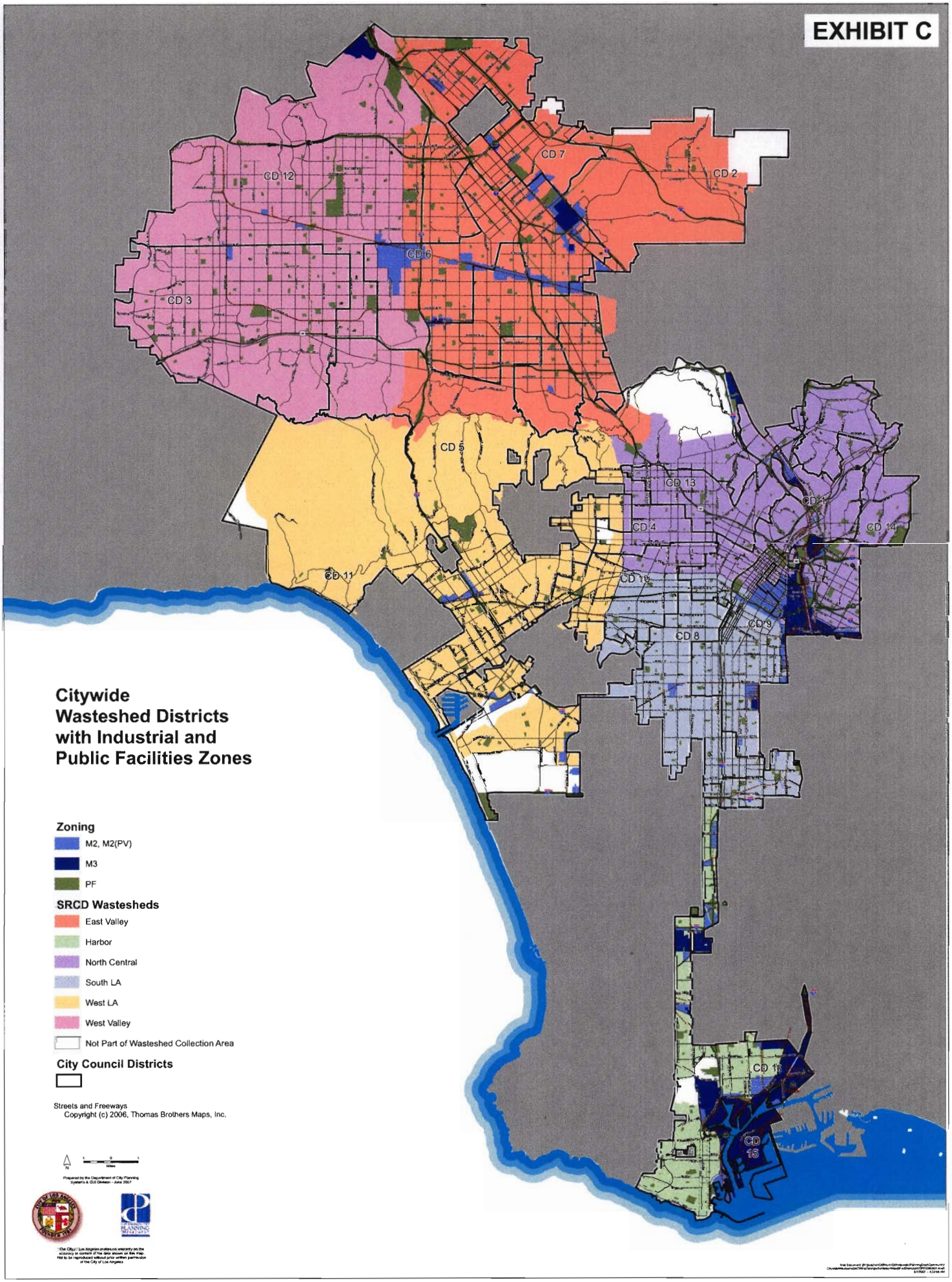
EXHIBIT C



Citywide Wasteshed Districts with Industrial and Public Facilities Zones

Zoning

- M2, M2(PV)
- M3
- PF

SRCD Wastesheds

- East Valley
- Harbor
- North Central
- South LA
- West LA
- West Valley
- Not Part of Wasteshed Collection Area

City Council Districts

Streets and Freeways
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Prepared by the Department of City Planning
Systems & GIS Division - June 2007