



Memorandum

TO: HONORABLE MAYOR AND
CITY COUNCIL

FROM: Vilcia Rodriguez

SUBJECT: SEE BELOW

DATE: December 4, 2008

Approved

Date

12/4/08

SUBJECT: Report on Zero Waste Goals and Waste to Energy Projects. [Transportation and Environment Committee – Item (c)]

On December 1, 2008, staff presented the Report on Zero Waste Goals and Waste to Energy Projects to the Transportation and Environment Committee.

At the Committee's direction, this item is being cross-referenced to the December 16, 2008 Council agenda for full Council consideration. The Committee's recommendation and minutes are available online on the City Clerk's Office's website.

VILCIA RODRIGUEZ
Senior Executive Analyst

Attachment



Memorandum

TO: TRANSPORTATION AND
ENVIRONMENT COMMITTEE

FROM: John Stufflebean

SUBJECT: SAN JOSE'S ZERO WASTE
STRATEGIC PLAN

DATE: 11-17-08

Approved

Date

11/19/08

RECOMMENDATIONS

Place the following recommendations on the December 16, 2008, Council Agenda for discussion:

1. Accept the attached Zero Waste Strategic Plan which outlines strategies the City is considering to achieve zero waste to landfill by 2022 and convert waste to energy; and
2. Approve the Proposed 2009 Zero Waste Workplan.

OUTCOME

Approval of the recommendations would establish a roadmap to dramatically increase recycling and waste diversion in the City. The Zero Waste Strategic Plan (Plan) primarily addresses San Jose's Zero Waste Goal of 75% diversion by 2013 and Zero Waste by 2022 and Goal 5 of the Green Vision, to divert 100% of waste from our landfills and convert waste to energy. The Plan also supports several other Green Vision goals, including: Goal 1 – create green jobs; Goal 2 – reduce energy use; Goal 3 – generate renewable energy; Goal 4 – construct and retrofit green buildings; and Goal 7 – plan for sustainable development. In addition, the funding alternatives component of the plan identifies ways to stabilize, and potentially increase, revenues for the General Fund and Integrated Waste Management programs.

BACKGROUND

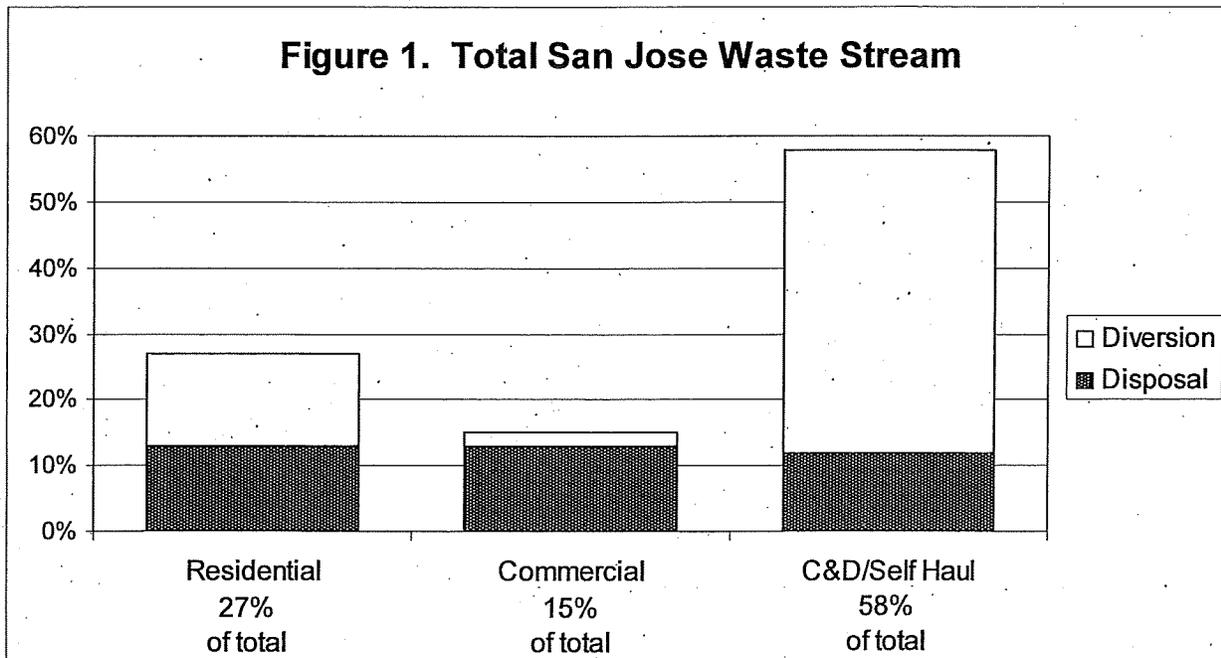
On October 30, 2007, Council established a goal of 75% waste diversion by 2013, and zero waste by 2022; directed staff to complete waste characterization studies and return to Council with those results; and directed staff to present a plan to achieve these goals for consideration by the end of 2008. At the same October meeting, Council also adopted the City's Green Vision

and the goal to implement at least 19 of the Urban Environmental Accords in order to achieve Global Sustainable City status. The Accords address energy and climate change, waste reduction, urban design, urban nature, transportation, environmental health, and water quality. The Green Vision, Urban Environmental Accords, and Zero Waste Goals all interrelate and require complementary strategies over the next 14 years. Many of the actions recommended in the proposed Zero Waste Strategic Plan can be initiated in 2009, while others are included for future implementation. For the purposes of this initiative, "zero waste" means promoting the highest and best use of materials to eliminate waste and pollution, with an ultimate goal of reducing waste generation by more than 90%.

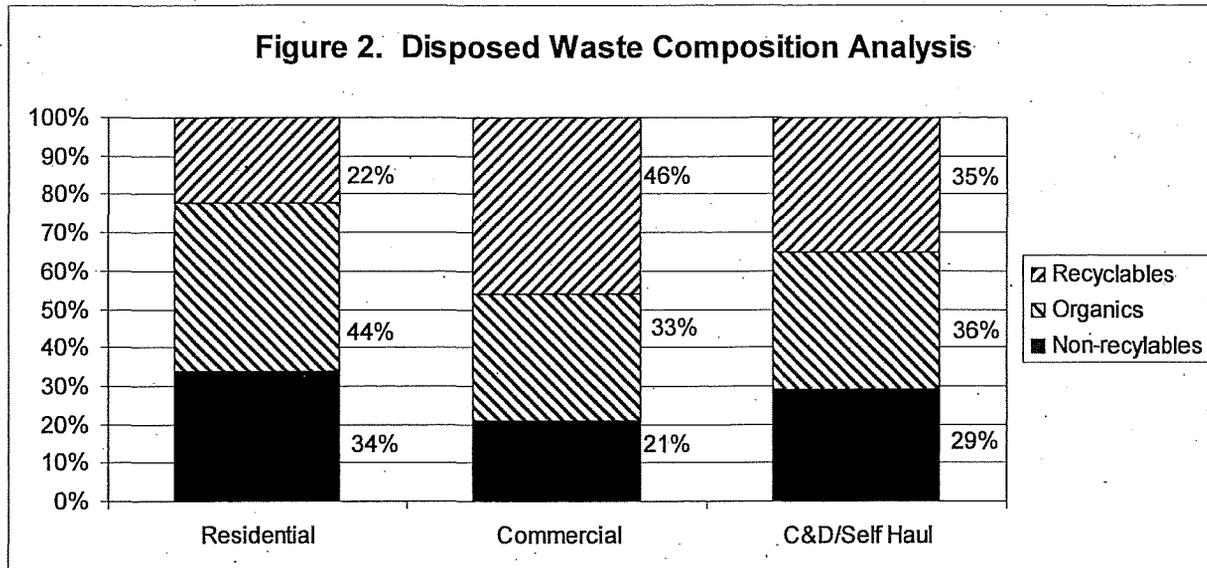
ANALYSIS

San José's Waste Stream Today

To develop strategies for achieving San José's zero waste and waste to energy goals, it was necessary to understand the current waste stream. Although the City's programs have led to a 62% diversion rate, San José still disposes of a large percentage of its waste. Figure 1 shows the total San José waste stream (material currently diverted from landfill as well as disposed) by the City's primary waste generating sectors: 1.) Residential, 2.) Commercial, and 3.) Construction and Demolition (C&D) and Self-haul. Disposal and diversion for these sectors are shown as a part of the total City waste stream and the associated percentages are impacted by the heavy weight of C&D materials.



Interestingly, as shown in Figure 1, the amount of waste disposed in each sector (by weight) is approximately equal. Figure 2 provides more detail about the disposed waste for each sector.



Residential

The residential sector includes both single-family and multi-family households. As shown in Figure 2, the largest portion of waste landfilled is organic material (44%), and a significant amount of recyclables remain in the disposal stream (22%). San José can capture more recyclables through increased education and program enforcement and/or mixed waste processing. San José currently sends all waste placed in multi-family garbage containers to a mixed waste processing facility where workers remove recyclables and organics from the garbage. Non-recyclable material from the residential sector (defined as material not currently recyclable, currently 34%) must ultimately be addressed through new strategies, such as extended producer responsibility, developing new recyclables markets, and developing new processing and conversion technologies.

Commercial

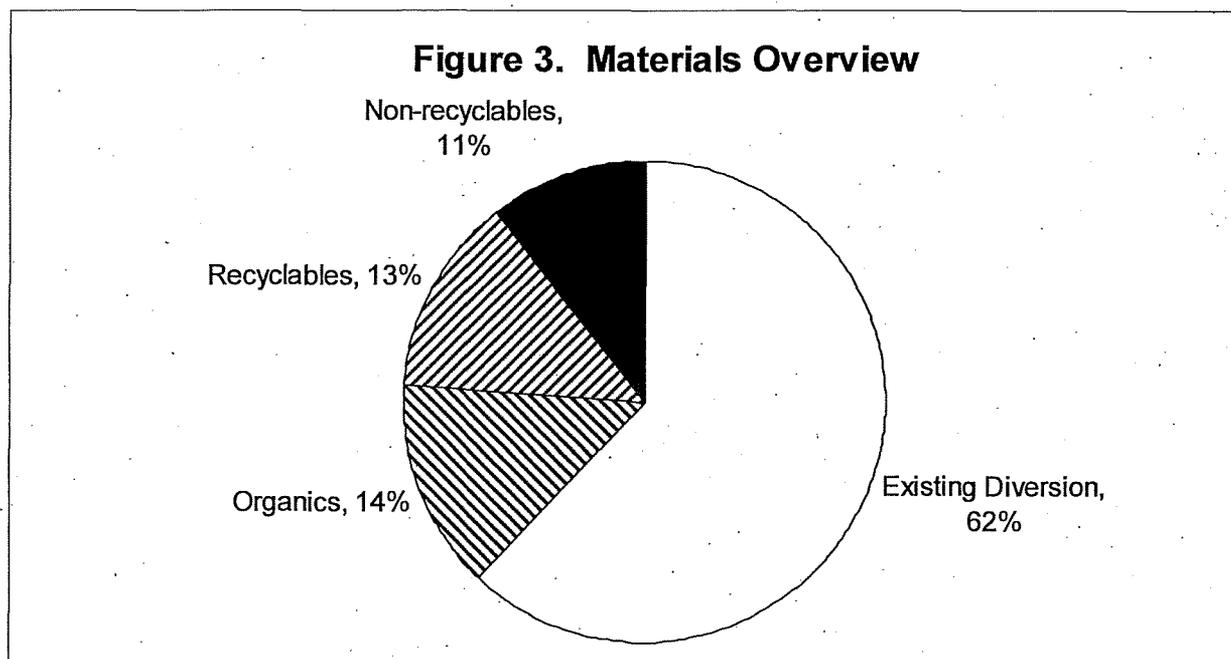
Coupling the information revealed in Figure 1, (that only a small portion of commercial waste is currently diverted) with the information revealed in Figure 2, (that 79% of disposed commercial waste can be recycled or composted), makes this sector a priority for diversion program enhancements. The December 2007 Commercial Redesign White Paper outlined components of the current program that cause the low diversion rates: limited recycling services available to most customers, limited hauler investment in infrastructure, and inconsistent and hard-to-enforce hauler agreements resulting in varied customer service. Program enhancements through the commercial redesign process will address these issues and target materials identified in the waste characterization. Separate waste diversion strategies for schools, city facilities, public areas, and special events are also being implemented. These efforts include technical assistance, increased

outdoor recycling, tool-kits for zero waste events, composting of food waste, and the use of compostable service ware.

Construction and Demolition and Self Haul

As shown in Figure 1, C&D and Self-haul debris is the largest component of the overall City waste stream. This is somewhat deceptive since this comparison is based on weight rather than volume, and C&D waste is composed of heavy materials (concrete, asphalt, etc.). Actual landfill space is consumed based on the volume of compacted material. C&D waste characterization shows that approximately 71 % of the disposed material can be recycled or reused (Figure 2). This opportunity led the City to initiate a comprehensive C&D evaluation in 2008, which encompasses best practice surveys of other jurisdictions, and an assessment of policies, requirements, procedures, and reporting systems. The evaluation could lead to recycling incentives for permittees, building contractors, and deconstruction sites.

Figure 3 shows the current status of all materials in the San José waste stream. To achieve zero waste, City policies, programs, and infrastructure must (1) continue diverting all of the materials (62%) that are currently being recycled and composted, (2) target the recoverable recyclables and organic waste (27%) that are still being landfilled, and (3) address the 11% of materials that are currently non-recoverable.



Implementation Progress for Strategic Plan Goals

The year 2008 was significant for San José's Integrated Waste Management programs. After successfully implementing the Recycle Plus transition, the City reasserted its national leadership with several projects, including implementing progressive waste diversion programs for multi-

family residences, City facilities, special events and venues, and schools. Council also approved two significant studies of the City's largest (heaviest) waste streams (the Commercial and Construction and Demolition (C&D) sectors), to determine how to maximize recycling. Finally, San José significantly enhanced its influence in developing regional and State-wide environmental policy with such initiatives as: sponsorship and passage of SB 1357 which will authorize up to \$20 million in unclaimed California Redemption Value (CRV) funds for community recycling efforts, staff appointment to the board of the California Product Stewardship Council, a leadership role in developing regional options for reducing single-use carryout bags, and staff appointment to the California Integrated Waste Management Board (CIWMB)'s Organics Roadmap Taskforce.

Key Zero Waste Strategies

The Zero Waste Strategic Plan provides an overview of key zero waste initiatives and describes policies, programs, and facilities that will be needed within the next 14 years in order to realize the City's vision of achieving zero waste. A snapshot of the top ten actions staff recommends the City take to achieve zero waste is listed below:

- **Pursue opportunities to support Extended Producer Responsibility initiatives**
- **Enhance Residential recycling**
- **Redesign the Commercial waste system**
- **Enhance C&D recycling**
- **Support the development of the waste management infrastructure, especially mixed waste processing**
- **Develop and strengthen markets for recoverable and reusable materials**
- **Evaluate anaerobic digestion of food scraps at the San José/Santa Clara Water Pollution Control Plant**
- **Promote and pursue the future development of energy conversion technologies**
- **Modify existing revenue streams to mitigate funding lost from zero waste efforts**
- **Educate the public about the benefits of reducing wasteful consumption**

Proposed 2009 Zero Waste Workplan

The Zero Waste Strategic Plan represents the first major assessment and comprehensive overview of the City's Integrated Waste Management system since the City's 1991 Source Reduction and Recycling Element required by the California Integrated Waste Management Act of 1989 (AB939). The Plan is a dynamic document, and the current version captures the best information available to date on waste generation, solid waste facilities, waste processing technologies, and approaches for increased diversion. Updates and progress on the Plan will be reported to Council through the existing Green Vision process.

The Zero Waste Strategic Plan includes proposals to evaluate several policies including: extended producer responsibility, environmentally preferable procurement, landfill regulations, generator mandates, reducing single-use packaging lower carbon emissions, recycling market development zones, green jobs creation, and financial and funding policies. San José will support the development of waste processing and waste conversion infrastructure, as well as continuing its partnerships with the Santa Clara County Recycling and Waste Reduction Commission, Keep It Clean Cities Partnership, Green Cities California, and the Bay Area Climate Collective, among others, to promote active and significant zero waste initiatives. In addition, staff will initiate or continue the following significant program improvements and system redesigns in 2009:

Residential Recycle Plus Program Improvements

Staff will be evaluating pilot programs to test new collection and processing methods, including the collection and composting of residential food waste. An extensive outreach campaign will be developed to reduce the amount of contamination in the recycling carts. Enforcement and incentive programs may be implemented to encourage proper recycling. Staff will also be evaluating the list of materials collected in the Recycle Plus program. New materials may be added, while difficult to recycle materials may be removed from the program.

Evaluation of Term for Current Recycle Plus Agreements

The agreements to provide Recycle Plus services to residential properties (single-family and multi-family) end in June 2013. While there is an option to extend the term for two of the five agreements to June 2015, staff must evaluate whether having two different programs would be in the City's best interest. The evaluation of an extension would include cost considerations, program and service needs, and current contractor performance. When the June 2013 contract termination dates were originally established in 2001, the City had not yet adopted the Green Vision or Zero Waste Goals. To meet these policy priorities, the City must evaluate all existing programs (as it is doing with the redesign of the commercial solid waste system), in order to determine how programs can be improved to better meet zero waste goals.

If the City can extend the terms for all contractors until June 2015, staff would have the necessary time to thoroughly plan and implement pilot programs which are needed to evaluate alternative collection techniques and evolving processing technologies. A term extension would also allow more time to best redesign the residential program to meet the zero waste goals and to integrate residential redesign with the commercial and CDDD program efforts currently underway.

If new residential contracts are to begin in July 2013, staff must implement pilots in early 2009, and then initiate preparation of Request for Proposal (RFP) documents in late 2009, before a thorough evaluation of the pilots can be completed. Under this shorter timeframe, new residential contracts would need to be in place by summer of 2011 to allow for the two-year transition period. Unlike the transition in 2007 which did not involve significant program changes, staff anticipates the new residential solid waste program would require a longer

transition period to fully implement the programs for meeting zero waste goals. A 2013 timeline would require staff to implement major changes to both the residential and commercial systems at the same time. The same hauling community that would be implementing one of the largest contracts in California for new and innovative recycling services to businesses would also be participating in the new residential RFP. San José's residential program is the largest privatized solid waste system in the country. This scenario would place significant strain on the resources of both the hauling community and the City and could limit the number of haulers willing to participate in both the residential and commercial RFP processes.

Las Plumas Final Site Development Plan

Even though Household Hazardous Waste (HHW) is a small percentage of waste, maintaining a robust HHW program is essential to protect public health and safety, and to allow safe processing of the residential waste stream. The new permanent HHW drop-off site in central San José is scheduled to open in the summer of 2009. In addition to greatly enhancing the HHW program, this facility will be part of a larger environmental resource center for the public and local businesses which will provide additional C&D recycling services and environmental education and programming. Las Plumas is being designed as the first City-owned LEED Platinum building and is anticipated to open in 2011. Staff will return to Council in June 2009 with recommendations for programming, tenants, and funding the future facility build-out.

Commercial Solid Waste System Redesign

On September 16, 2008, Council approved redesigning the commercial system to an exclusive franchise system where two or three waste hauling companies would be awarded a franchise to provide waste and recycling collection services in specified geographic areas of the city. The scope of the system, with certain exemptions, will include solid waste, recyclables, and organics collected in bags, carts, front-load bins, roll-off boxes, and compactors. Staff plans to release a RFP in late spring/early summer 2009. Staff would return to Council with recommendations to award a franchise to successful proposers in 2010, with start of service scheduled for 2012. Currently, the most significant opportunity to meet the City's overall waste reduction goals is through the commercial solid waste system redesign.

Zero Waste Pilot Programs for Schools, City Venues and Special Events

In November 2007, Council approved special event permit requirements and pilot programs for the 2008 event season. This project was very successful: staff worked with event organizers to divert up to 93% of waste from the five largest events in San José, and the City developed a one-of-a-kind collaborative partnership with the San José Conservation Corps. Staff is gathering stakeholder feedback and evaluating the first year of the program. Recommendations for the 2009 event season will be presented to Council in early 2009.

Staff also implemented significant improvements to City facilities recycling, including sorting and recycling of all city facility garbage. These efforts resulted in a 75% recycling rate for City operations, including the Airport, Convention Center, libraries, and City Hall. For 2009, staff plans to initiate an evaluation of options to recycle inert waste still landfilled from City corporation yards and contractors. In addition, staff is planning food scrap composting pilots at City Hall and the Airport. Finally, in 2008 the City launched a composting and recycling pilot

with the Union School District at all of its six elementary schools, two middle schools, and the district office. An important element of the program is the replacement of traditional Styrofoam food service ware with compostable plates, cups, and utensils which can be transformed into compost at an off-site commercial facility. Staff will evaluate the pilot's success and opportunities for expansion in 2009.

Evaluation of the Construction and Demolition Recycling Program

In July 2008, the City initiated a comprehensive evaluation of current C&D recycling in San José and the City's Construction and Demolition Debris Deposit (CDDD) program. A fall 2008 study analyzed C&D debris delivered to landfills, material recovery facilities, and transfer stations in the City. The study showed that as much as 71% of C&D material is recoverable. Staff is now surveying C&D programs in other jurisdictions to evaluate program features that may be incorporated into the San José program. Staff plans to develop new program requirements by the summer of 2009 based on information from C&D markets, C&D facilities operations and infrastructure, and a review of other successful C&D programs. The transition to any new program requirements would occur in 2010 and would include stakeholder engagement, outreach, and re-certification of all existing and new C&D facilities participating in the CDDD program.

Analysis of Waste Conversion Technology

Staff is coordinating with the San José/Santa Clara Water Pollution Control Plant Master Plan which is currently in development, to find opportunities for collaboration in meeting mutual goals. Plant lands could be suitable for development of zero waste infrastructure, and there are opportunities for synergy with the programs at the Plant, including biosolids management, food scrap diversion, and processing of fats, oils and grease. Staff is analyzing energy conversion technologies such as gasification, incineration and pelletizing for refuse derived fuel, as well as implementation of a food waste digestion pilot.

Solid Waste Fee and Revenue Review

Currently two sources of General Fund revenue, the Commercial Solid Waste Franchise Fee and the Disposal Facility Tax, are based on the quantity of garbage going to landfill. In addition, Recycle Plus rates and AB 939 fee revenue which fund the City's integrated waste management programs are also based on the collection and disposal of garbage. Both the General Fund and the Integrated Waste Management Fund face declining revenues as waste diversion increases unless the basis for these revenues is modified and/or new revenue sources are implemented. The Zero Waste Strategic Plan includes a survey of existing and alternate funding sources to initiate this revenue review.

Reduction of Single-Use Carryout Bags

San José staff is providing key support for countywide efforts to reduce disposable bag usage. In October 2008, the Recycling and Waste Reduction Commission of Santa Clara County proposed a regional solution to litter and other issues associated with disposable single-use carryout bags. The Commission's Technical Advisory Committee is drafting a model countywide ordinance to implement the proposal. Staff from the Environmental Services Department and the Office of Economic Development are facilitating stakeholder efforts and policy development with staff.

from the County and other cities, including Palo Alto, Sunnyvale, Mountain View, Morgan Hill, Santa Clara, and Milpitas. A model ordinance will be submitted to the Santa Clara County Cities Association, the Board of Supervisors, and all local jurisdictions for consideration in winter and spring of 2009. Staff also plans to implement a "Bring Your Own Bag" outreach campaign in the same timeframe in partnership with regional Bay Area efforts, helping to fulfill Urban Environmental Accords Action 5.

Key Supporting Documents and Studies

Several studies and evaluations were used to create the strategies and next steps outlined in the Plan. Some studies have already been presented and others are published in the Plan appendices for the first time. The following describes each of these documents and how they contributed to development of the Plan. Plan appendices will be posted on the City website, linked to the December Transportation and Environment Committee Agenda for this item.

City Waste Characterization Study: May 5, 2008 Transportation & Environment Committee

On October 30, 2007, Council directed staff, as part of the Zero Waste resolution, to complete a waste characterization study and report the results to the Transportation and Environment Committee in 2008. The study targeted single-family dwellings and regular subscription waste service for commercial businesses. The study took place between March 17 and 28, 2008. Staff worked with a consultant to establish more than 50 types of waste and recyclable materials for the study.

Needs Assessment for the Zero Waste Plan Development: November 2008

This report projects City waste generation, disposal, and diversion tonnages through the year 2040, including flow estimates and characterization by generator sector. This assessment provides projected quantities and characterization of disposed waste, and recommendations for program enhancements to address this waste.

Infrastructure Assessment: November 2008

This study summarizes the City's existing waste management system including all landfills, transfer stations, and waste processing facilities used by the City. It identifies the need for future facilities based on a review of the current waste management system and information from the Needs Assessment Report, referenced above. Finally, the study addresses land use needs for solid waste management infrastructure.

Opportunities for Alternative Revenue Generating Mechanisms: November 2008

This report contains the following components: a summary of the fees and taxes related to solid waste and recycling, a review of how the current fees and taxes will change due to increased disposal related to population changes and to reductions to the waste stream as the Zero Waste Strategic Plan is implemented (i.e., decreases in fees at landfills as landfill tonnages decrease, and decreases in franchise fees as landfilled waste decreases), and identification of alternative fees and taxes that should be explored in order to replace existing revenues.

Energy Conversion Technologies and Facilities: November 2008

This report includes surveys and reviews of conversion technologies that the City should consider for future implementation to achieve zero waste. Next steps to evaluate new and existing technology are also discussed in the report.

EVALUATION AND FOLLOW-UP

Updates and progress on the Zero Waste Strategic Plan will be reported to Council through the existing Green Vision process.

POLICY ALTERNATIVES

N/A

PUBLIC OUTREACH/INTEREST

Public engagement for zero waste initiatives is a fundamental and iterative process. As portions of the Plan are developed, stakeholders are solicited for input on future plans and changes under consideration. The Commercial Redesign process is the first large scale action of the Plan. Businesses have been engaged since February 2008 as described in the Stakeholder Engagement Process section of the Plan. This section also describes outreach actions related to reducing the use of single-use carryout bags which have involved retailer and grocery store stakeholders since February of 2008. Community engagement efforts will be designed for appropriate audiences as each element of the Plan comes under consideration. The criteria below do not apply to the recommendations in this report.

- Criteria 1:** Requires Council action on the use of public funds equal to \$1 million or greater. **(Required: Website Posting)**
- Criteria 2:** Adoption of a new or revised policy that may have implications for public health, safety, quality of life, or financial/economic vitality of the City. **(Required: E-mail and Website Posting)**
- Criteria 3:** Consideration of proposed changes to service delivery, programs, staffing that may have impacts to community services and have been identified by staff, Council or a Community group that requires special outreach. **(Required: E-mail, Website Posting, Community Meetings, Notice in appropriate newspapers)**

11-17-08

Subject: San Jose's Zero Waste Strategic Plan

Page 11

COORDINATION

This memorandum has been coordinated with the Department of Finance, and the City Attorney and City Manager's Budget Office. The attached Zero Waste Strategic Plan has been coordinated with the Departments of Finance; Parks, Recreation and Neighborhood Services; Planning, Building, and Code Enforcement; Airport; General Services; Transportation; and the Offices of Economic Development, Cultural Affairs, City Attorney, Intergovernmental Relations, and City Manager's Budget Office.

COST SUMMARY/IMPLICATIONS

Staff will submit budget proposals needed for implementing the Zero Waste Strategic Plan to Council for consideration as part of the annual budget process. Staff does not anticipate any additional funding needed to implement the 2009 Zero Waste Workplan in the remainder of 2008-2009.

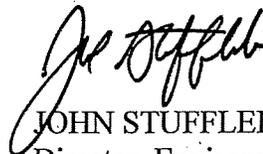
BUDGET REFERENCE

N/A

CEQA

Exempt File No PP08-254

Council's acceptance of the Zero Waste Strategic Plan and adoption of the 2009 Zero Waste Workplan, as described in this memo, is categorically Exempt from CEQA. Once specific components of this plan have been drafted for Council consideration, it will be subject to CEQA review, including any required public outreach and inter-agency coordination prior to a decision by Council to approve and implement the specific plan components.



JOHN STUFFLEBEAN
Director, Environmental Services

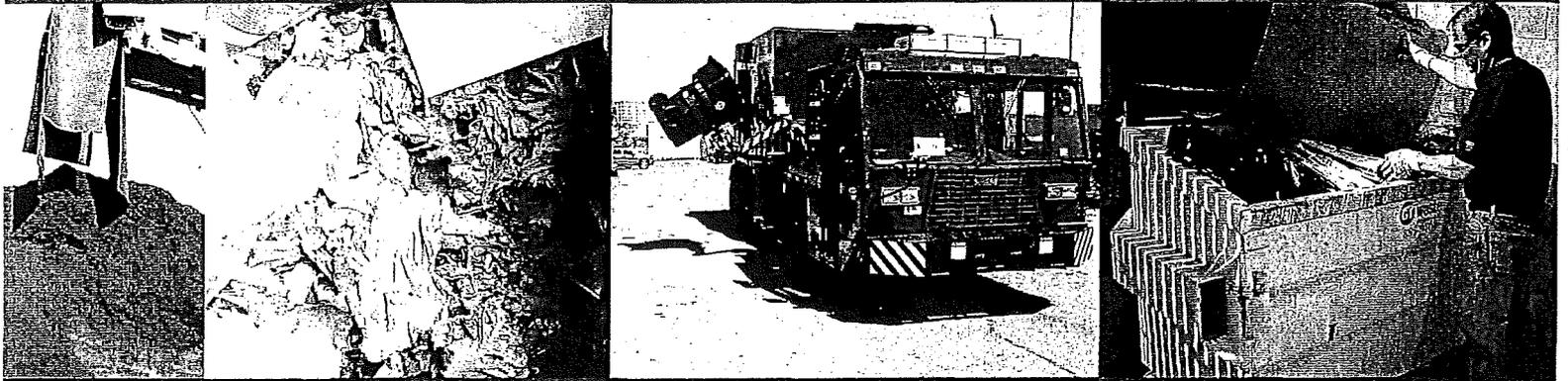
For questions, please contact Jo Zientek, Deputy Director, Integrated Waste Management, at 408-535-8557.

Attachment: City of San José Zero Waste Strategic Plan



City of San José
Environmental Services Department

INTEGRATED WASTE MANAGEMENT ZERO WASTE STRATEGIC PLAN



November 2008

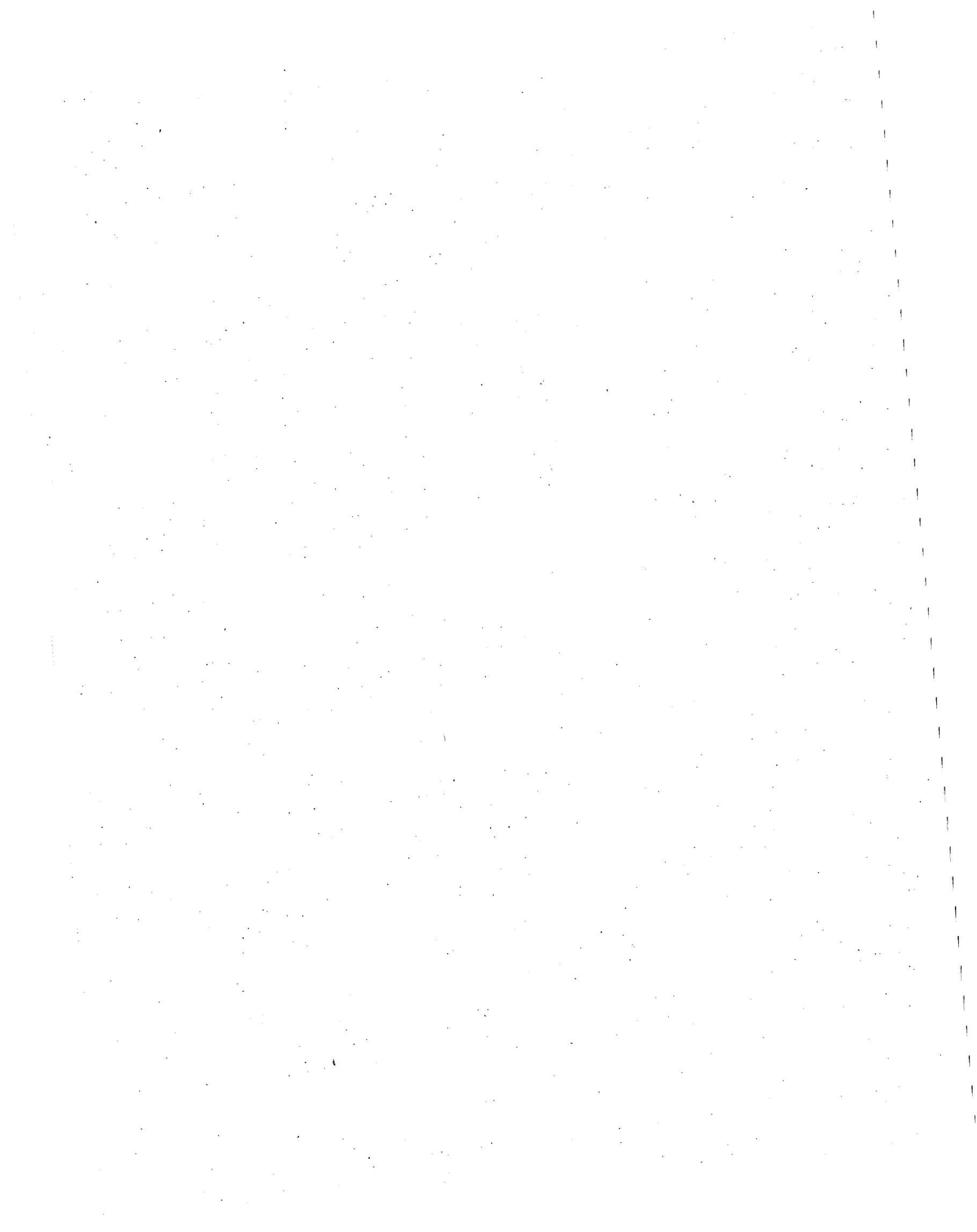


Table of Contents



Introduction	2
A World Without Waste.....	2
What is Zero Waste?.....	3
Evaluating Zero Waste.....	4
Increase Environmental Benefits to the Community.....	4
Improve Quality of Service.....	4
Support Local, State and National Mandates.....	5
Address Fiscal Impacts.....	5
Community Engagement.....	6
Leadership.....	6
Partnership & Collaboration.....	7
Zero Waste Plan Structure.....	9
Policies	11
Zero Waste Policies.....	11
Policy Leadership.....	16
Climate Protection.....	19
Green Jobs.....	21
Recycling Market Development.....	22
Finances & Funding.....	23
Programs	24
Residential.....	24
Single-Family.....	24
Problem Materials.....	25
Recycle Plus Program Enhancements.....	25
Multi-Family.....	28
Commercial Programs.....	30
City Facilities.....	32
Public Areas & Parks.....	33
Special Events.....	33
City Venues & Operations.....	35
Schools.....	36
Go Green Schools Program.....	37
Union School District Pilot.....	37
Construction & Demolition.....	39
Diversion Deposit Program.....	39
CDDD Evaluation.....	39
Opportunities for Increasing Diversion of Disposed C&D Debris.....	40
Self-Haul & Non-Franchised Contractors.....	42
Opportunities to Address Self-Haul and Non-Franchised Waste.....	43
Facilities	45
Context for Facilities.....	45
Existing & Planned Infrastructure.....	46
Future Infrastructure.....	49
Water Pollution Control Plant Master Plan.....	50
Envision San José 2040.....	53
Key Initiatives for Achieving Zero Waste	54

Introduction



A World Without Waste

In October 2007, San José unveiled its Green Vision for the future. The Vision provides a comprehensive approach to achieve sustainability through new technology and innovation. In adopting its Green Vision, the City established 10 Green Vision goals to achieve within 15 years:

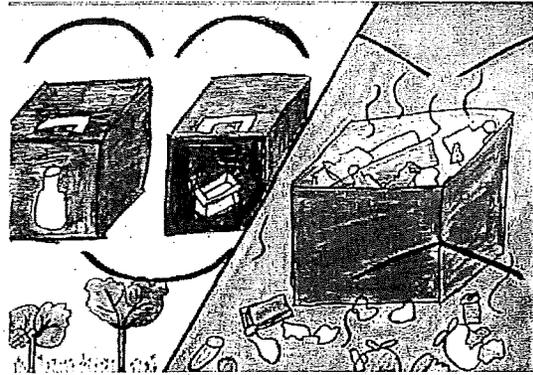


San José Green Vision

1. Create 25,000 Clean Tech jobs as the World Center of Clean Tech Innovation
2. Reduce per capita energy use by 50 percent
3. Receive 100 percent of our electrical power from clean renewable sources
4. Build or retrofit 50 million square feet of green buildings



Tree Planting - Lee Mattbeson MS



"Which World Do You Want?" by Student Art Contest Winner, Hyeongshin, Age 8 Parkview Elementary School, San Jose

5. Divert 100 percent of waste from landfill and convert waste-to-energy
6. Recycle or beneficially reuse 100 percent of our wastewater
7. Adopt a General Plan with measurable standards for sustainable development
8. Ensure that 100 percent of public fleet vehicles run on alternative fuels
9. Plant 100,000 new trees and replace 100 percent of our streetlights with smart, zero emission lighting
10. Create 100 miles of interconnected trails

The Zero Waste Strategic Plan (Plan) supports several Green Vision goals, including Goal 1 - create green jobs, Goal 2 - reduce energy use, Goal 3 - generate renewable energy, Goal 4 - build green, and Goal 7 - plan for sustainable development. However, the primary focus of the Plan is to identify the path to achieve zero waste, as articulated in Goal 5.



This goal, further described in the City's Zero Waste Resolution, was approved by the City Council in October 2007 and established the specific objectives of:

- 75 percent diversion by 2013 and
- Zero waste by 2022.

The resolution also identified the City's zero waste principles as:

- Improve "downstream" reuse and recycling of end-of-life products and materials to ensure their highest and best use
- Pursue "upstream" redesign strategies to reduce the volume and toxicity of discarded products and materials while promoting less wasteful lifestyles
- Support the reuse of discarded products and materials to stimulate and drive local economic workforce development
- Preserve land for sustainable development and green industry infrastructure

- Establish a policy to achieve zero waste going to landfills and incinerators by 2040.
- Adopt a citywide program that reduces the use of a disposable, toxic, or non-renewable product category by at least 50 percent in seven years.
- Implement "user-friendly" recycling and composting programs to reduce per capita solid waste sent to landfill and incineration by 20 percent in seven years.



Garden Preparation at Lee Matheson Middle School

In November 2005, in honor of World Environment Day, the City signed the Urban Environmental Accords.



The Accords are a declaration by participating city governments to build ecologically sustainable, economically dynamic, and socially equitable futures for their citizens. Signatories to the Accords agree to perform the following actions:

What is Zero Waste?

"Zero Waste" is a perception change. It requires rethinking what we have traditionally regarded as garbage and treating all materials as valued resources instead of items to discard. Zero waste entails shifting consumption patterns, more carefully managing purchases, and maximizing the reuse of materials at the end of their useful life.



Zero waste takes into account the whole materials management system, from product design and the extraction of natural resources, to manufacturing and distribution, to product use and reuse, to recycling or disposal.

In developing policies and programs to achieve zero waste, the City can both maximize diversion from landfills (through program implementation and facility development) and reduce generation of waste (through zero waste policies and education). Achieving zero waste entails encouraging the City, its residents, and its businesses to reevaluate what we view as waste.

Ultimately, zero waste contributes to achieving a greener community. In order to reach true sustainability, Plan strategies must address People, Planet, and Profit as a “triple bottom line,” achieving social, environmental, and economic sustainability.

Evaluating Zero Waste

Each of the Plan initiatives described in the policies, programs, and facilities sections of this report can be evaluated based on the following four evaluation criteria established for the zero waste planning process:

1. Increase Environmental Benefits to the Community
2. Improve Quality of Service
3. Support Local, State, and National Mandates
4. Address Fiscal Impacts

The following lists show the guiding principals for applying the four evaluation criteria.

Increase Environmental Benefits to the Community

- Reduce vehicle emissions to support Urban Environmental Accords Action 14
- Support San José’s Climate Action Plan
- Reduce and mitigate landfill and other facility impacts
- Invest in new, safe technologies and processes for infrastructure
- Consider environmental benefits and impacts in siting and permitting of new facilities
- Protect public health and the environment
- Analyze markets for recoverable materials to consider the highest and best use of materials and the implications of reliance on domestic and overseas markets

Improve Quality of Service

- Improve customer convenience such as offering a broader range of collection programs and container options; improving the recycling program for residents; improving call center responsiveness; and enhanced and targeted customer outreach



Newby Island Compost Facility

- Improve aesthetics - control of graffiti, litter and illegal dumping; specification of container types, quality, and placement
- Provide incentives to participate in, and maximize the effectiveness of, program initiatives
- Ensure that program initiatives are convenient, accessible and appropriate
- Ensure equity for all customers
- Create City operations that serve as a model for zero waste

Support Local, State and National Mandates

- Increase diversion to support the zero waste goal from the City's Green Vision Goal 5, the City's 2007 Zero Waste

Resolution, and the Urban Environmental Accords Action 4 (zero waste goal)

- Reduce the use of a disposable, toxic, or non-renewable product category by at least 50 percent in seven years to achieve Urban Environmental Accords Action 5
- Implement user-friendly recycling and composting programs pursuant to Urban Environmental Accords Action 6

• Support the City Sustainable Energy Policy and Action Plan

- Support the "Reduce, Reuse, Recycle" hierarchy
- Strengthen Environmentally Preferable Purchasing efforts
- Support Extended Producer Responsibility efforts
- Lead by example

Address Fiscal Impacts

- Minimize impact on customer rates and provide rate equity
- Minimize impact on City's revenue streams
- Minimize contract management and enforcement costs for programs
- Invest in infrastructure

- 
-
- Invest in green jobs and economic development
 - Address long-term fiscal planning and assess full economic impacts
 - Understand the potential impact on system fees (hauling, tipping, franchise)

Community Engagement

Public engagement for zero waste is a fundamental and iterative process. The Commercial Solid Waste System Redesign project is the first large scale implementation within the Plan. Businesses have been involved in this initiative since February 2008 as described in Appendix D: Stakeholder Engagement Processes for Zero Waste. This appendix also describes outreach efforts related to reducing the proliferation of single-use carryout bags. These efforts have included retailer and grocery store stakeholders since February 2008. City staff will continue to seek input from appropriate audiences before implementing elements of the Plan.

Leadership

The City has implemented many state-of-the-art waste diversion programs for both the residential and commercial sectors, including single-stream recycling, innovative organics processing, and an effective construction and demolition debris recovery program. In 2000, the City achieved a 64 percent diversion rate which was the highest level of diversion by any big city in the country.

The City has also been a leader in developing fee structures and cost models that provide incentives to maximize waste diversion. Historically, the City has used its fee structure to encourage the private sector to develop new approaches to processing materials such as organics, construction and demolition debris, and mixed waste. As a result, the infrastructure for managing recoverable materials within San José is unique in California.

2008 was a significant year for the City's recycling programs. The City reasserted its national leadership with several projects, including implementing progressive waste diversion programs for multi-family residences, City facilities, special events and venues, and schools. Council also approved two significant evaluations of the City's largest waste streams: Commercial and Construction and Demolition (C&D). Finally, San Jose enhanced its influence in developing regional and statewide environmental policy with such initiatives as: sponsorship and passage of SB 1357 which will authorize up to \$20 million in unclaimed California Redemption Value (CRV) funds for community recycling efforts; staff appointment to the board of the California Product Stewardship Council; support for developing regional options for reducing single-use carryout bags; and appointment of staff to the California Integrated Waste Management Board (CIWMB)'s Organics Roadmap Taskforce.



Partnership & Collaboration

San José recognizes that the road to zero waste cannot be traveled alone and has sought partnerships to fulfill its mission. The City is an active member in each of the following organizations.

Bay Area Zero Waste Communities

Bay Area Zero Waste Communities is an informal group of zero waste cities that share information and work cooperatively on innovative zero waste policy solutions. Policy discussions include development of a model service-ware ordinance requiring the use of reusable, recyclable or compostable service-ware in restaurants.

BayROC

Founded in 1996, the Bay Area Recycling Outreach Coalition (BayROC) is a collaboration of staff representing over 40 San Francisco Bay Area cities, counties, and other public agencies. These agencies promote waste reduction and buy-recycled concepts through a variety of media campaigns focusing on personal action and behavior change.

California Product Stewardship Council

This organization was formed to advocate for "cradle to cradle" producer responsibility at the state and local level. Since its formation, the California Product Stewardship Council has helped the California Integrated Waste Management Board set aggressive priorities

for Extended Producer Responsibility and has supported legislation promoting take-back policies. The Council, which includes staff from San José, co-sponsored successful State legislation requiring manufacturers to create an infrastructure that makes it convenient for consumers to return mercury thermostats to retailers.

The Recycling & Waste Reduction Commission of Santa Clara County

This 10-member body of representatives from communities throughout Santa Clara County serves as the principal advisor to city and town councils and the Board of Supervisors of Santa Clara County on solid waste planning issues. The Commission also has state-mandated responsibilities, such as review and oversight of the Countywide Integrated Waste Management Plan and Siting Element, local Source Reduction and Recycling Elements, Household Hazardous Waste Elements, and Non-disposal Facility Elements. All of these reports are required by state law.

The Recycling & Waste Reduction Technical Advisory Committee (TAC)



San Jose Wetlands



This committee is composed of solid waste professionals from cities within Santa Clara County, representatives of the private solid waste industry, business representatives, and representatives of interested community organizations. TAC provides technical support and recommendations in the general area of integrated waste management and policy to the Recycling & Waste Reduction Commission. San José chairs the Source Reduction and Recycling Subcommittee which is developing a countywide carryout bag regulation to address the problems of disposable carryout bags on a regional level. The City is working with TAC to strengthen its regional collaboration and long-term solid waste planning role.

Green Cities California

City staff, along with representatives from 10 other major California cities, met in May 2006 to discuss leveraging their combined experience, influence, and sustainability goals to advocate for collective, urban, environmental action. In June 2008, the City formally adopted the Green Cities California Resolution, pledging to collaborate with local governments throughout the nation to adopt sustainable policies and practices.

Cities Keep It Clean Partnership

In September 2008, San José was the first city in the Bay Area to join the Cities Keep It Clean Partnership. San José committed to protect the San Francisco Bay from: trash,

mercury, e-waste, pharmaceuticals, pesticides, vehicle pollution, and runoff.

Bay Area Climate Collective

The City is an original signatory, along with San Francisco and Oakland, of the Bay Area Climate Change Compact. This Compact establishes regional leadership in fully supporting the statewide climate change goals instituted in Assembly Bill 32. The Compact encourages local action to reduce greenhouse gas emissions and recognizes that some challenges can best be addressed through regional partnerships. Compact signatories strive to enable and expand the environmental, economic, and equity benefits of climate action. The Compact also provides for achieving a more aggressive zero waste goal by 2020 instead of 2022.

Responsible Purchasing Network (RPN)

In 2007, the City joined RPN, an international network of buyers dedicated to socially responsible and environmentally sustainable purchasing. This organization offers information and training in Environmentally Preferable Procurement.

Bay Friendly Gardening Coalition

San José is a charter member of this coalition and is spearheading efforts to bring the program to Santa Clara County. The Bay Friendly Gardening Program promotes sustainable gardening and landscaping practices that help reduce waste, conserve



energy, save water, prevent pollution, and protect local habitat.

State Organics Roadmap Taskforce

City staff is a member of this statewide task force that is working with the Integrated Waste Management Board to reduce yard trimmings landfills by 50 percent. The task force is involved in lifecycle analysis for composting, siting, permitting, yard trimmings Alternative Daily Cover (ADC) reduction, and compost marketing.



Garbage Dumped at Newby Island Landfill

Zero Waste Plan Structure

The Zero Waste Strategic Plan includes this document and several technical appendices, including the studies undertaken by the City in 2007 and 2008 to:

- Identify the City's current disposal and diversion tonnages
 - Characterize the City's disposed waste
 - Identify opportunities for increasing diversion
 - Describe the City's existing infrastructure
 - Evaluate the policy, program, and facility options available to the City
- The Plan provides an overview of key zero waste initiatives and describes policies, programs, and facilities that the City will need within the next 14 years to realize the City's vision of achieving zero waste.
- Key initiatives include short-term goals to be implemented from 2008-2013, and long-term goals to be implemented between 2013 and 2022.
- Short-term goals—divert 75 percent of waste from landfills:**
- Enhance residential recycling to maximize recycling and composting from single-family and multi-family residents
 - Redesign commercial waste system to provide recycling and composting services to all businesses and institutions in the City
 - Enhance the construction and demolition debris recycling to increase diversion from the building sector
 - Evaluate anaerobic digestion of food scraps at the San José/Santa Clara Water Pollution Control Plant
 - Pursue opportunities to support Extended Producer Responsibility initiatives and target reduction of single-use carryout



bags as well as non-recyclable/non-compostable take-out food packaging

Long-term goals—get to zero waste:

- Modify existing revenue streams to mitigate funding lost from zero waste efforts
- Support implementing zero waste policies locally, regionally, and statewide, such as regional landfill bans of targeted materials and Extended Producer Responsibility
- Continue implementing mixed waste recycling of single-family residential garbage and recycling processing residue to ensure that all recyclable and compostable materials are diverted from landfills
- Develop and strengthen markets for recoverable and reusable materials, and lead by example, requiring recycled content in City purchased materials, and encouraging local market development
- Promote the future development of energy conversion technologies for converting residual wastes into energy
- Educate the public about the benefits of reducing wasteful consumption

Over the past year, the City completed the following studies to support the findings of the Zero Waste Strategic Plan. Some of the studies are included as appendices to this report or published on-line at:

<http://www.sjrecycles.org/zerowaste.asp>

Commercial Redesign White Paper

(Transportation & Environment Committee, December 3, 2007) Evaluates current performance and alternatives for improving the commercial recycling and solid waste system

Waste Characterization Study

(Transportation & Environment Committee, May 5, 2008) Characterizes City disposed waste from single-family residential and commercial generators.

Extended Producer Responsibility Work Plan

(Transportation & Environment Committee, October 6, 2008) Provides the work plan for implementing Extended Producer Responsibility (EPR) initiatives locally and in support of regional and statewide initiatives

Needs Assessment for the Integrated Waste Management Zero Waste Strategic Plan Development, November 2008, Appendix A

Compiles diversion and disposal data for single-family, multi-family, commercial, City facilities, construction and demolition debris, commercial hauler waste, and alternative daily cover. Provides projected quantities and characterization of disposed waste through 2040. Provides recommendations for program enhancements.



Assessment of Infrastructure for the Integrated Waste Management Zero Waste Strategic Plan Development, November 2008, Appendix B

Summarizes the City's current waste management infrastructure including all landfills, transfer stations, and waste processing facilities used by the City.

Opportunities for Alternative Revenue Generating Mechanisms for the Integrated Waste Management Zero Waste Strategic Plan Development, October 2008, Appendix C

Evaluates funding and financing mechanisms for General Fund solid waste related revenues and for funding future zero waste programs.

Stakeholder Engagement Processes, November 2008, Appendix D

Describes the process that the City undertook to solicit feedback from stakeholders for the commercial solid waste system redesign and carryout bag policy initiatives.

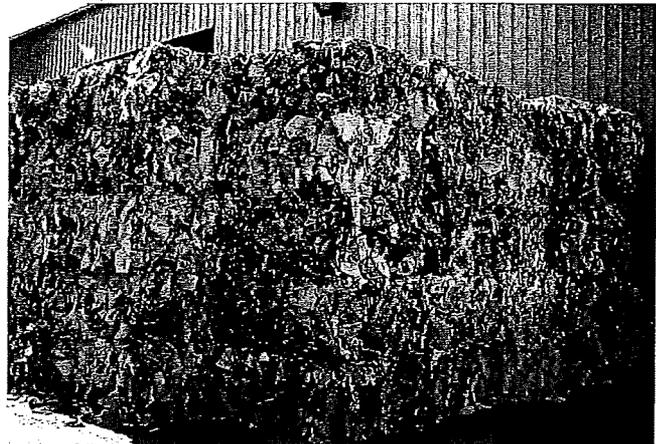
Energy Conversion Technologies & Facilities, November 2008, Appendix E

Describes conversion technologies that the City could consider for future implementation and outlines evaluation criteria.

Zero Waste Policies

This section describes policies that support the City in achieving 75 percent diversion by 2013 and zero waste by 2022. These policies include:

- Environmentally Preferable Procurement
- Extended Producer Responsibility and Product Stewardship
- Disposable Packaging Reduction
- Reducing Single-Use Carryout Bag Initiative



Paper at Green Waste Recovery Baled for Market

Environmentally Preferable Procurement

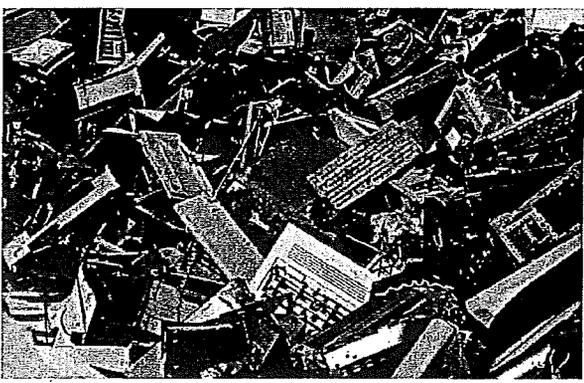
In 2001, the City adopted the Environmentally Preferable Procurement Policy (EP3) to use environmentally preferable goods and services where possible to demonstrate leadership and help move the market toward more environmentally sound commerce. The EP3 Steering Committee establishes policy which is implemented by the EP3 Implementation Team.



The Green Vision adopted by San José focused the City's purchasing goals on renewable energy, energy conservation, green building, alternative fuel for the municipal fleet, and zero emission street lighting.

The City's EP3 multi-year strategic plan includes the following goals:

- Fully incorporate EP3 into all contracting processes
- Disseminate information about green products to all City contractors, grantees, and City departments, and also establish an EP3 liaison program
- Review one-third of commodities procured by the Finance Department annually to identify green product and service alternatives and incorporate EP3 specifications into upcoming solicitations for the reviewed commodities
- Incorporate EP3 into the City's construction, operations, and maintenance activities
- Use benefits calculators (such as those that quantify the environmental benefits



Electronic Waste

of computer and recycled paper purchases) to track the City's progress in reducing the environmental impacts of purchasing

- Identify performance measures to monitor progress.

The City received recognition for its recent successes in environmental procurement. In October 2007, the U.S. Environmental Protection Agency recognized the City as a Green Electronics Champion for its early adoption of the national EPEAT environmental standard for computers. In April 2008, the City's environmental purchasing efforts were recognized with a Green California Leadership Award at the Green California Summit in Sacramento.

Next Steps for EP3

In 2008-2009 the City plans to continue implementing the EP3 multi-year strategic plan, which entails the following actions:

1. Incorporate EP3 into the City's grants manual
2. Revise landscaping specifications to incorporate Integrated Pest Management and to support use of mulch and compost
3. Develop a schedule to discontinue the use of disposable, toxic or non-renewable products as outlined in the Urban Environmental Accords
4. Develop meaningful, understandable, and achievable performance measures



5. Continue to collaborate with City departments and outside agencies
6. Continue to implement the Green Fleet Administrative Policy
7. Analyze incorporating Extended Producer Responsibility into the City's procurement practices

- Promote engagement and partnering with businesses to implement EPR
- Incorporate EPR policies into the City's product procurement practices
- Return with an implementation plan for pharmaceutical take-back programs

Extended Producer Responsibility

Extended Producer Responsibility (EPR) and product stewardship combine strategies to promote the integration of environmental costs associated with products throughout their life-cycles into the market price of products. This effort shifts the costs of managing waste products from a government-funded and ratepayer-financed system, to an open market system. The shift can include cooperation from distributors and retailers to create a convenient, closed-loop system in which consumers can return products at the end of life for recycling or re-use. This EPR effort also aims to create incentives for manufacturers to further design products to minimize environmental impact.



Plastic Bags Create Litter

In October 2008, the Transportation & Environment Committee accepted a report on the City's EPR work plan to:

- Establish EPR as a Legislative Guiding Principle of the City
- Support the work of the Product Stewardship Institute and the California Product Stewardship Council

The City supports the California Product Stewardship Council's efforts to implement EPR initiatives statewide. After considering the possible negative impacts of adopting local EPR regulations, the City opted to prioritize regional EPR efforts instead. A good example of a regional EPR effort is the City's leadership in developing a countywide carryout bag regulation.

Next Steps for EPR

1. Work with area hospitals and pharmacies to establish household pharmaceuticals collection systems for their customers
2. Work with State and Federal legislators to amend regulations to facilitate



establishment of household
pharmaceutical collection stations

3. Identify area pharmacies willing to take-back medicines and sharps from their customers for proper disposal
4. Identify retail outlets willing to take back Universal Wastes such as batteries, electronics, and compact fluorescent lights
5. Identify a retail partner willing to accept packaging (such as polystyrene blocks or film plastic) returned by its customers
6. Promote EPR partnerships through website links and City directories
7. Formally recognize San José businesses that showcase exemplary EPR practices
8. Continue to support State and Federal legislation that implements EPR practices

Disposable Packaging Reduction

The City has pledged through its Green Vision to "divert 100 percent of the waste from our landfill and convert waste to energy"; and through the Urban

Environmental Accords to "adopt a citywide program that reduces the use of a disposable, toxic, or non-renewable product category by at least 50 percent in seven years." As part of meeting both of these pledges, the City is researching strategies to reduce the consumption of single-use carryout bags and food packaging.

Litter, including disposable packaging, is a problem for the City and its watershed. Despite comprehensive litter management programs, the City, County, and State have failed to reduce litter generation and accumulation in local creeks and streams to an acceptable level. As a result, the City may face millions of dollars in mandatory capital improvements to the stormwater system to reduce the build up of litter that flows into the watershed, such as plastic bags and foam food packaging. Stormwater system improvements alone will not eliminate these waste products from City creeks. Plastic debris, including foam and bags, comprises 60 percent of litter in streams in the San Francisco Bay Area. Much of this debris is carried into San Francisco Bay and the Pacific Ocean where it accumulates. Single-use plastic carryout bags and foam food packaging do not degrade in the marine environment and substantially affect marine life.



Litter Pollutes the Guadalupe River



Next Steps for Reducing Disposable Packaging

1. Create outreach material for City food establishments describing the types of take-out packaging that can be recycled or composted by the City.
2. Discuss the reduction of other hard-to-recycle food packaging, such as foam food containers, with stakeholders, and consider the following enforcement measures:
 - Impose a citywide ban such as Portland, San Francisco, Oakland, Millbrae and other cities
 - Support legislation addressing recyclability or compostability of food packaging
3. Investigate banning the use of foam food packaging purchased by or used at City facilities.
4. Work with restaurants near City Hall to phase out take-out foam food packaging, thus developing synergy with the City Hall composting program.

Reducing Single-Use Carryout Bags

Plastic bags are easily carried by wind and water throughout the City and to distant locations with serious environmental consequences. Plastic bags can take up to 1,000 years to decompose, causing serious harm to aquatic animals and ecosystems. Paper bags are resource-intensive. While they are compostable, the manufacturing process

and the recycling of paper bags use a large amount of energy and natural resources.

The City is working on a countywide solution to address this issue with the Santa Clara County Recycling and Waste Reduction Commission (Commission), the Santa Clara County Cities Association, and other local jurisdictions. The goal of this effort is to create a consistent regional approach for businesses and customers. A regional approach will also have a greater positive impact on the environment by conserving energy and materials, reducing greenhouse gases and other air pollutants, reducing litter in streets, storm drains and creeks; and reducing the cost of litter control and recycling programs.

City staff and stakeholder groups are collaborating with the Commission to develop a model ordinance. The Commission provided policy direction regarding key components for ordinance language at its October 2008 meeting. The Commission directed county staff and its Technical Advisory Committee (TAC) to present the model ordinance to the Commission at the December 2008 meeting. City staff will also continue to conduct stakeholder outreach to the San José retail and grocer community and work with chambers and business groups. City stakeholders including bag manufacturers, retailers, and consumers are already involved in policy development and identifying issues, including the type of regulation including which stores to regulate,



the bag types to be regulated, and the performance standards to adopt.

Next Steps for Reducing Single-Use Carryout Bags

1. Subcommittee to draft recommendations for a model ordinance to be submitted to the Santa Clara County Recycling and Waste Reduction Commission, the County Board of Supervisors, and all local jurisdictions for consideration- Spring/Summer 2009
2. Implementation of a "Bring Your Own Bag" campaign in San José in partnership with other similar Bay Area efforts. This initiative could include the provision of reusable bags at reduced or no cost to City residents in partnership with other organizations. - Spring 2009
3. Support state legislation in the upcoming legislative cycle that reduces the use of single-use carryout bags and other problem waste material, including packaging
4. Engage stakeholders to address carryout bags at restaurants and food establishments

Policy Leadership

Many potential policies or legislative actions impacting zero waste are actively being discussed at regional and statewide levels. San José has taken the lead in analyzing and promoting these actions. Many of these

planning initiatives align with the City of San José 2009 Legislative Guiding Principles that support:

- Innovation and employment
- Producer responsibility and sustainable product design
- Sustainable development
- Preservation of natural resources
- Environmental protection
- Climate protection
- Energy innovation

The City adopted the following phased approach to zero waste implementation.

Phase 1 – Voluntary actions, education, and creation of incentives

Phase 2 – New programs and advocacy

Phase 3 – Bans, mandates, and legislation

San José has been active over the years in phase one and two activities, but to meet zero waste goals, the City may need to focus on bans, mandates, advocacy, and legislation.

Landfill Regulations & Material Bans

Material bans at landfills are common across the country for easily divertible materials such as yard trimmings and cardboard. In California, state law prohibits many hazardous materials from disposal in landfills, including needles and sharps, asbestos, treated wood, pesticides and household chemicals, automotive chemicals, mercury-containing items, universal wastes (batteries, used motor oil and paint), tires, and some electronic wastes.



Typically, bans are implemented statewide or at publicly owned facilities such as those in Fresno, Santa Cruz and Sonoma County. The Alameda County Solid Waste Management Authority and Source Reduction and Recycling Board (Stopwaste.org) is currently evaluating bans that could target yard trimmings and cardboard at the private landfills within Alameda County. The City and Stopwaste.org have discussed regional implementation of disposal bans to ensure that materials do not move from one jurisdiction to another.

Key considerations for material disposal bans include:

- Ensure adequate opportunities exist for all waste generators to divert the materials proposed to be banned (self-haul, construction and demolition, and commercial generators).
- Phase in the requirements over an appropriate term, beginning with education, followed by a notice of violation, followed by enforcement.
- Consider illegal dumping impacts that can result from poorly implemented material bans and affect costs for City clean up, enforcement, and disposal.
- Evaluate the value of synchronizing bans with local adoption of generator mandates.

Another key factor in landfill use is the cost of disposal. Large low cost regional landfills,

such as Republic Services' Potrero Hills Landfill in Solano County, act as a magnet for waste from San José. City garbage dumped at these facilities negatively impact both revenues and financial incentives that the City has set up to encourage recycling.

These landfills also create an incentive for haulers to truck waste 70 or more miles from San José creating a larger carbon footprint than local disposal. As a result, staff is exploring regional and statewide approaches to address the impact of low-cost, out-of-county disposal.

Next Steps for Landfill Regulations

1. Assess the opportunities for regional solutions using material bans with Stopwaste.org and others - ongoing
2. Engage stakeholders to ascertain the level of acceptance of bans or mandates - 2012-2013.
3. Analyze impacts of potential illegal dumping on City services and low income neighborhoods where material bans could affect proper disposal.
4. Evaluate a fee for all wastes exported from San José. San Mateo County is currently considering such a fee, among other options, to address impact of low cost out-of-county landfill fees.
5. Support legislation to adopt a statewide landfill surcharge with an exemption for locally-enacted landfill fees or other statewide solution for low cost regional landfill issue.



Alternative Daily Cover

By state law, the use of approved materials as Alternative Daily Cover (ADC) currently counts as diversion and counts toward the 50% diversion requirements. However, there are concerns that ADC may be over-used and that the materials being used as ADC could be diverted and used for other higher and better uses. In addition, during the planning period (through 2040), many landfills will close, affecting both waste disposal and the potential for ADC use.

ADC use in San José has ranged from 100,000 tons per year to nearly 240,000 tons per year over the last six years. In 2006, 165,086 tons of ADC was used totaling nearly 9% of the overall waste generation.

The key materials used as ADC include Construction and Demolition Debris (C&D) and green waste. The City has already set policy to minimize use of these recoverable materials as ADC in order to ensure the highest and best use.

For example, the City's residential contracts do not allow green waste to be used for landfill activities, and require yard trimmings haulers to process material for compost or mulch, rather than ADC. The same policy will be recommended for the commercial solid waste system redesign.

Because much of the current ADC applications in San José are C&D waste, the City will also evaluate the most environmentally sustainable uses for this

material as part of the 2009 comprehensive review of the C&D program.

City staff is participating on a CIWMB-organized task force to create long-term recommendations about ADC use statewide. San José has supported legislation to remove green waste from the landfill by eliminating the diversion credit for green waste ADC, or charging fees for green waste. Pending future legislation, San José will continue to lead by voluntarily minimizing the affects of ADC use.

ADC Next Steps

1. Prepare a comprehensive ADC analysis that examines long-term trends and forecasts of ADC use, summary of the haulers delivering various material types ADC to landfills, alternatives to ADC that are available to landfills, and medium and long-term capacity projections for ADC with upcoming landfill closures. This may be completed as part of the upcoming CDDD program review and the commercial redesign process.

San Jose ADC Type	Tonnage 2006
C&D Debris	105,059
Green Waste	41,818
Sludge	1,257
Mixed Waste	16,875
Other	77
Total ADC	165,086



2. Continue utilizing City policies and contract practices that minimize ADC use.
3. Participate as a model city in development of the CIWMB Organics Roadmap to minimize green waste disposed of in the landfill, such as compost market development, compost specification and use requirements.
4. Analyze and comment on potential legislation that reduces the use of green waste as ADC through removal of diversion credit, fees or other mechanisms.

Generator Mandates

Several communities in California have adopted or are considering mandatory requirements for source-separation of waste for recycling, including Santa Cruz County, Palo Alto, Sacramento, San Diego, and San Francisco. Mandatory requirements for source-separation include:

- Extensive outreach and education to inform generators of the new requirements.
- Phase-in of the requirements over a number of years, beginning with education, followed by a notice of violation, and enforcement.

Next Step for Generator Mandates

- Study generator mandates in other communities. Review model ordinances, effective education materials, and

enforcement procedures from other jurisdictions.

- Determine the impact of generator mandates on other possible actions such as landfill material bans.

Climate Protection

The Urban Environmental Accords, adopted by the City of San José in 2005, include a goal for signatory cities to reduce greenhouse gas (GHG) emissions by 25 percent by 2030 (Action 3). Assembly Bill (AB) 32, together with Executive Order S-3-05, set a statewide goal of reducing GHG emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. In 2007, the San José City Council also adopted municipal GHG reductions to bring City GHG emissions below 1990 levels as follows:

Goal to bring GHG emissions below 1990 levels	
By Year	Percentage Below 1990 Levels
2012	25%
2015	30%
2020	35%
2030	50%
2045	80%



In its AB 32 Proposed Scoping Plan, the California Air Resources Board (CARB) has determined that 1990 may not be a realistic baseline for local government due to data availability and set a goal of 15 percent reduction from current GHG emissions levels instead. CARB also acknowledges that waste management practices help reduce the GHG emissions that contribute to climate change.

In addition to the other environmental benefits of diverting waste from the landfill, the City's progress toward zero waste will also result in a reduction of GHG emissions. For example, by composting and recycling all of the waste that is recoverable under current City community recycling programs, there is potential to reduce carbon dioxide (CO₂) emissions by over 537,000 tons (CO₂ equivalent).¹ This amount is equivalent to reducing annual GHG emissions from over 98,000 passenger vehicles or from electricity used by over 71,000 homes.² As additional alternatives to landfilling are developed, the amount of GHG reduced could be greater.

City staff has provided comments on CARB's Proposed Scoping Plan, which is slated for adoption on December 11, 2008. The plan includes "Recycling and Waste"

recommendations that specifically advocate for the following:

- Improved landfill methane control and capture.
- High recycling/ zero waste activities including increased commercial recycling, production and markets for compost, anaerobic digestion, extended producer responsibility and environmentally preferable purchasing.

In order to qualify carbon offsets, the California Climate Action Registry (CCAR) has protocols to certify emission reductions related to livestock, forest, landfill and urban forest projects. CCAR is also completing a protocol for local governments and evaluating standardized protocols related to organic waste diversion, such as composting and anaerobic digestion.

City staff is developing a baseline GHG inventory and emissions reduction plan for municipal operations as well as citywide community emissions. The City is working with Joint Ventures Silicon Valley and Sustainable Silicon Valley to determine how a regional community climate action plan might benefit both San José and the surrounding communities. Other portions of the Plan elaborate on the City's current activities related to increasing commercial recycling, exploring anaerobic digestion and increasing Extended Producer Responsibility and Environmentally Preferable Purchasing. In line with City and statewide goals to reduce GHG emissions, additional steps may be

¹ Based on 51% recoverable materials identified in the *Needs Assessment for the Integrated Waste Management Zero Waste Plan Development*, Appendix B, and emissions figures calculated with the U.S. Environmental Protection Agency (EPA)'s Waste Reduction Model (WARM) calculator, <http://www.epa.gov/WARM>.

² EPA's Greenhouse Gas Equivalencies Calculator, <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>



taken to reduce those emissions that are associated with the City's waste management practices.

Next Steps for Climate Protection

1. Continue to participate in the development of climate change and carbon offset protocols, plans and regulations being developed by State and other agencies, such as the California Air Resources Board and CCAR, to ensure that recycling, composting and anaerobic digestion are appropriately measured for their climate change impacts.
2. Pursue the verification of carbon credits for City projects under new or existing California Climate Action Registry protocols.
3. Advocate for legislation such as AB 32 that will raise the profile of the City's waste reduction and recycling programs and their role in reducing GHG emissions
4. Ensure that waste management programs are adequately represented in San José's Climate Action Plan.
5. Work with neighboring jurisdictions to evaluate and consider regional landfill bans, particularly for organic materials such as food waste and yard trimmings that contribute to methane generation at landfills.

Green Jobs

The Green Vision includes the creation of green jobs in San José. These are jobs created by businesses and organizations that improve environmental quality and sustainability.

The new green economy can help lift people out of poverty while improving the environment. The City's recycling programs and related policies are a catalyst for green jobs in the City and the region. The Institute for Local Self-Reliance has estimated that every 10,000 tons of materials discarded per year can create the following full-time jobs:

- 1 job at a landfill, or
- 4 jobs at a compost facility, or
- 10 jobs at a recycling facility, or
- 25 jobs at a recycling-based manufacturer, or
- 75 to 250 jobs at a reuse facility



Recycling Creates Jobs

The following recent City programs created new green jobs in San José:

Special event and City facility recycling —
The City is working with 150 members and staff of the San José Conservation Corps to



implement recycling at special events and City facilities.

Multi-family and City facility recycling and composting — The City is working with local private waste management companies to create green jobs processing and composting waste materials from multi-family residential complexes and City facilities.

Next Steps for Green Jobs

1. Expand, attract, and support green businesses.
2. Continue to support the development of green jobs through investment in zero waste programs and infrastructure.
3. Continue to provide outreach to the City's youth and other job-seekers, educate them about opportunities in green jobs and new technology.
4. Provide information on training opportunities and journey level positions at local green businesses.

Recycling Market Development

Encouraging sustainable local markets for the post-consumer materials that end up in landfills is essential to any recycling program. It is not possible to reach the City's diversion goals without viable markets for recycled end products. However, financial barriers to businesses interested in manufacturing recyclables have often been too great to overcome. The California Integrated Waste Management Board designated the City a

Recycling Market Development Zone (RMDZ) to encourage market creation and development. The RMDZ program provides attractive loans to fund recycling-based manufacturing businesses. Due to the progressive and ever changing nature of this industry, alternate loan funding is essential as many conventional lenders are apprehensive about these projects due to the limited track records.



Scrap Metal Ready for Recycling

In an effort to achieve the Green Vision, San José is positioning itself to become a leader in this program. As new technologies develop, San José would like to leverage the resources of RMDZ to encourage infrastructure development locally. Due to the CIWMB program's current narrow scope, only a small percentage of businesses are eligible for this funding. Also, the maximum loan amounts may not be enough to encourage large scale operations. San José will work with the RMDZ staff to evaluate current program restrictions and help ensure more funding is available for more projects.



Next Steps for RMDZ

1. Continue to work with stakeholders to identify areas for program improvement.
2. Continue to collaborate with other jurisdictions to increase RMDZ program funding at the State level.

Finances & Funding

Recycling programs have historically been funded from fees on solid waste that is disposed at landfills. The City's fee for the residential collection programs is used to pay for garbage, recycling, and yard trimmings collection as well as street sweeping services. Commercial haulers pay a franchise fee based on the volume of solid waste collected for disposal. Also, the City receives General Fund revenue from the Disposal Facility Tax assessed on landfills within the City. Over the medium to long-term, as the City's zero waste programs become more successful in reducing the need for disposal, City revenues will decrease and there will be a need to identify alternative means of funding.

The City conducted a survey of its fee structures, and revenue alternatives which is included as Appendix D "Opportunities for Alternative Revenue Generating Mechanisms." The report describes several City fees and taxes and how they will change over time. Revenues discussed include:

- Disposal Facility Tax
- Commercial Solid Waste Collection Franchise Fee

- Commercial Source Reduction and Recycling Fee
- County Planning Fee

The report also discusses possible alternative fees, including:

- Solid Waste Development Impact Fees
- Vehicle Impact Fees
- Street Sweeping Fees
- Host Fees
- Extended Producer Responsibility Fees
- Advanced Disposal/Recycling Fees
- Revenues from the Sale of Carbon Credits

Additional review must occur before these fees can be recommended.

Next Steps for Finances & Funding

- Develop alternative fee based options and/or alternative fees to address the impact of waste diversion activities on the General Fund and Integrated Waste Management Fund - 2009-2010.
- Examine the remaining capacity at local landfills and incoming tonnage to estimate when the City would need to replace the Disposal Facility Tax revenue with an alternative funding mechanism and evaluate revenue options— 2010.
- Continue to support a statewide landfill surcharge to fund local programs and facilities.
- Ensure that the redesign of the commercial, residential, and construction and demolition programs will phase-in cost recovery.

Programs

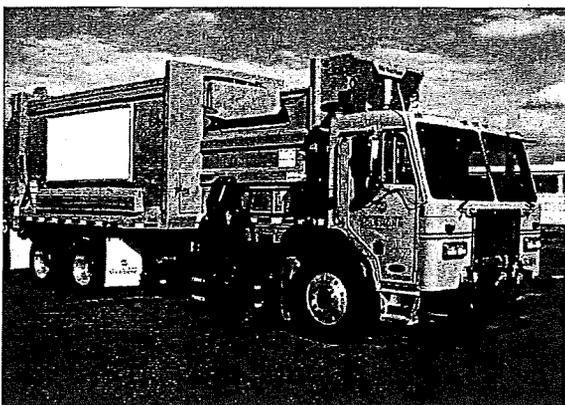


This section describes program options that may be implemented to achieve the City's goals of 75 percent diversion by 2013 and zero waste by 2022.

Residential

The residential sector accounts for 32 percent of the City's total disposed waste stream; with 24 percent from single-family households and 8 percent from multi-family complexes.

The residential sector comprises both single-family residences and multi-family complexes. In San José, single-family collection services are provided to single-family residences, townhomes, and multi-family complexes that choose cart services. Multi-family collection services are provided to all multi-family complexes that choose bin services. Seventy-five percent of residential waste is generated by single-family households in the City and 25 percent of residential waste is generated at multi-family complexes.



*Lower Emissions 2007
California Waste Solutions Recycling Truck*

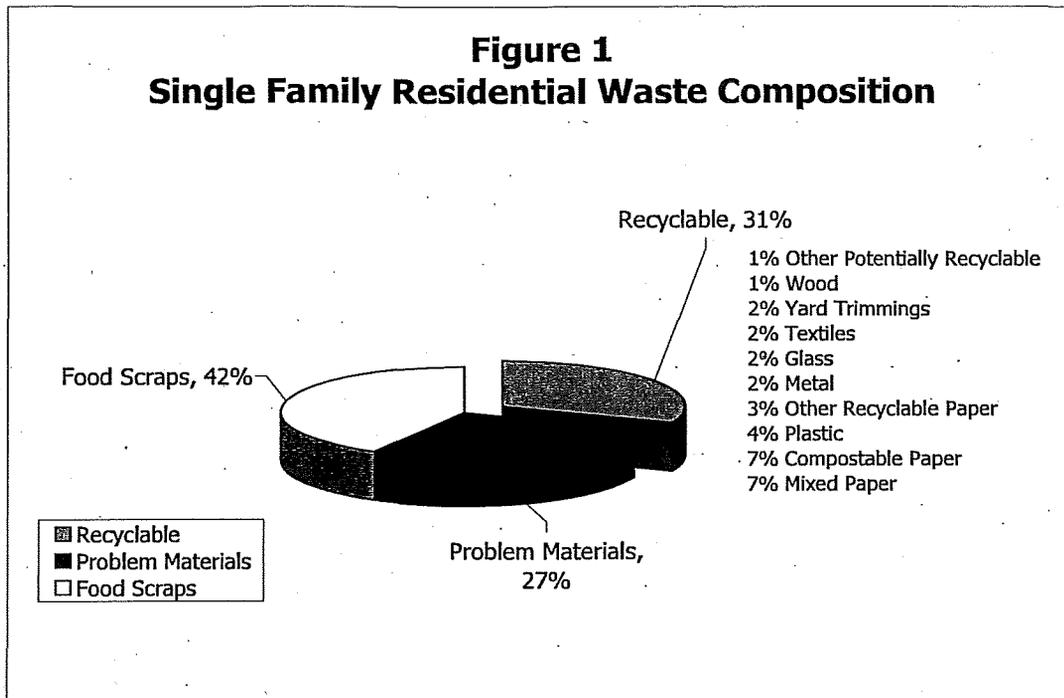
Single-Family

The City's residential recycling program is one of the largest privatized systems in the United States and provides collection services to approximately 205,000 single-family units citywide. The current single-family Recycle Plus program was implemented in 2002 with comprehensive services including:

- Unlimited single-stream collection of recyclable materials (paper and cardboard, cans and cartons, glass bottles and jars, plastic containers, polystyrene foam, scrap metal, and textiles) in wheeled carts. Extra recyclables may be placed in paper bags next to the recycling cart.
- Garbage collection in wheeled carts, with monthly fees based on the size of the cart. Extra garbage may be placed in plastic bags next to the garbage cart (for an extra fee).
- Yard trimmings collection is offered as loose-in-the-street collection or subscription cart collection with loose-in-the-street collection of overages.
- Monthly street sweeping.
- Used motor oil and oil filters collected separately at the curb.
- Large item collection by appointment (for an extra fee).
- Neighborhood Cleanup Program
- Household Hazardous Waste Program
- Home Composting Program



Figure 1
Single Family Residential Waste Composition



In evaluating improvements to the current Recycle Plus program, the following materials could be targeted for increased diversion:

- Plastic bottles and containers
- Aluminum and steel cans
- Textiles
- Paper

Other materials not currently captured in the Recycle Plus program also offer a significant opportunity to increase overall residential diversion. For example, compostable materials, including food scraps, compostable paper, and wood represent nearly 53 percent of materials that could be diverted from the landfill.

Problem Materials

A relatively large percentage of materials disposed by generators in the City consists of

non-recyclable “problem” materials, including composite materials (composed of more than one material), non-recoverable special waste, non-recoverable construction and demolition debris, treated wood, and disposable diapers. These problem materials comprise 27 percent of single-family disposed waste and 17 percent of disposed waste citywide. These materials are considered non-recyclable because they are not currently marketed by material recovery facilities in San José. Strategies for addressing non-recyclable or problem materials, such as Extended Producer Responsibility and recycling market development are discussed in the policies section.

Recycle Plus Program Enhancements

The expiration of the City’s current single-family Recycle Plus collection agreements



provides the opportunity for enhancing the current residential collection system. Options to be considered to maximize diversion, some of which are mutually exclusive, include:

Recyclables

- Change from a single-stream recycling cart to a split recycling cart where a divider is placed in the recycling cart and mixed paper is collected on one side and mixed containers are collected on the other side of the cart to improve marketability of cleaner products.
- Co-collect recyclables and garbage and then process them at a solid waste processing facility.
- Increase program participation and reduce disposal of recyclable materials through intensive outreach, incentives, enforcement or mandates.

Organics

- Provide a compostables cart to all residential customers and co-collect yard trimmings, food scraps, compostable paper, wood waste, and other organics.
- Provide a separate cart for food scraps, grass clippings, and compostable paper for use in a digestion operation, and also continue to collect yard trimmings loose in the street as well as in separate wheeled carts (for an extra fee).
- Co-collect organic materials and garbage; process at a solid waste processing facility.

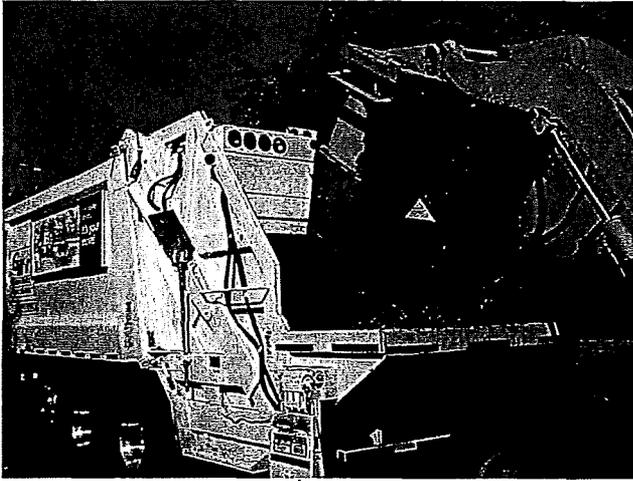
- Offer periodic or seasonal loose-in-the-street yard trimmings and leaf collection as an addition to a compostables cart option.

Garbage (material not segregated for recycling or composting, also called residual wastes)

- Process garbage at a solid waste processing facility (a dirty MRF).
- Increase processing of residual garbage with energy conversion technologies.

The Recycle Plus agreements expire in 2013. Two of the five Recycle Plus agreements include provisions to extend the term for up to two years (July 2015). They City may also be able to extend the remaining three contracts for a similar term. This could provide the City more opportunity to evaluate how to move the City's residential sector towards zero waste, and to work with existing haulers on pilot programs, such as food scrap collection.

The additional time would also allow the City to evaluate alternative collection techniques and new processing technologies. Finally, the City can better redesign the residential program after the commercial program redesign and construction and demolition program redesign begin. The need to have new residential contracts in place by July 2013 would require staff to begin pilots in early 2009 and then start drafting the Request for Proposals documents in late 2009, which would be very challenging. Currently, new contracts would need to be in place by

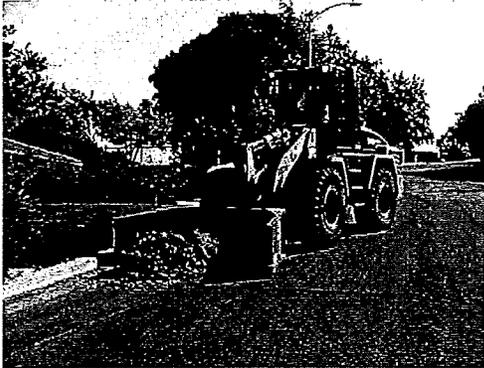


Yard Trimmings Collection in San Jose

summer of 2011 to allow for the two year transition period required with any major programmatic change. This timeline does not provide sufficient opportunity to fully develop and evaluate pilots and would result in staff implementing major system changes to both the residential and commercial systems at the same time, putting a large strain on existing City resources.

Next Steps for Single-Family

1. Evaluate whether to extend three of the current Recycle Plus agreements for up to two years. This analysis would include: the time required to implement and evaluate pilot programs, cost-savings to the City, and current contractor performance. Upon Council approval, negotiate and execute agreement extensions if appropriate – 2009
2. Increase recycling program participation and reduce recycling contamination through options such as outreach, incentives, enforcement or mandates. These efforts can also reduce hazardous materials contamination of recycling and garbage.
3. Consider removing difficult-to-recycle materials from the recycling program and evaluate new materials for recycling.
4. Evaluate a pilot program to provide a split cart in place of the single-stream recycling cart to collect mixed paper on one side and mixed containers and other materials on the other side - 2009.
5. Evaluate a pilot program to provide a separate cart to co-collect some or all yard trimmings, food scraps, compostable paper, wood waste, and other organics – 2009.
6. Evaluate a pilot program to provide a separate cart to co-collect food scraps and compostable paper –2009.
7. Evaluate a pilot program to test effectiveness of periodic/seasonal loose-in-the-street yard trimmings collection – 2009 in conjunction with organics cart collection pilot.
8. Analyze benefits of mandatory cart collection of yard trimmings to reduce stormwater pollution.
9. Evaluate a pilot program to process garbage for recyclables and compostables.
10. Confirm availability of processing capacity for composting (food scraps, yard



Claw Collects Yard Trimmings

trimmings and other organics), for mixed waste composting, and for the anaerobic digestion of source-separated food scraps processing – 2010.

11. Monitor developments in every-other-week collection of non-putrescible refuse (as practiced in Toronto and being considered in Berkeley) – Late 2012 (dependent on extension of Recycle Plus Agreements).
12. Analyze street sweeping residue to determine if there are feasible alternatives to its current use as landfill cover.
13. Develop Request for Proposals for Recycle Plus Services based on results of pilot programs, stakeholder input, feedback from service providers, and availability of processing capacity in early 2010 (2012 if extended).

Multi-Family

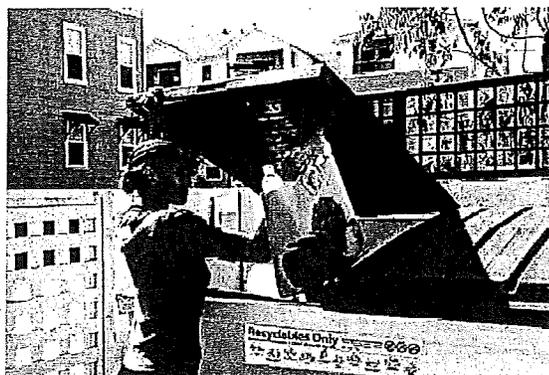
In order to achieve the zero waste goal, the City must dramatically increase its recycling in

every sector of the City, including multi-family complexes. Multi-family generators account for 7 percent of disposed waste citywide. The City's franchised waste haulers serve approximately 93,000 multi-family living units in 3,200 multi-family complexes. The current agreements expire July 2013.

The current multi-family Recycle Plus program was implemented in 2002.

Comprehensive services include:

- Unlimited single-stream collection of recyclable materials (paper and cardboard, cans and cartons, glass bottles and jars, plastic containers, polystyrene foam, scrap metal, and textiles) in bins (dumpsters) or carts.
- Yard trimmings collection is offered as loose-in-the-street and subscription cart collection.
- Monthly street sweeping
- Garbage collection in bins
- Large item collection by appointment (for an extra fee)
- Neighborhood Cleanup Program



Apartment Recycling in San Jose



- Household Hazardous Waste Program
- Home Composting Program

Multi-family recycling and waste programs are difficult to implement for a number of reasons. Effective outreach to this population has been challenging since apartment dwellers are a more transient population with diverse language requirements. Multi-family buildings often suffer from the “tragedy of the commons” problem, where no one takes responsibility for shared trash and recycling areas. By 2003, the City’s multi-family collection contractor achieved a diversion rate of only 18 percent. To reach the contractually required 35 percent diversion rate, which is among the highest rates of diversion for this sector, the contractor sent 25 percent of garbage collected to a mixed waste processing facility, with most of the material composted at the Z-Best Composting Facility in Gilroy. However, in order to achieve zero waste, the City needs to do more.

In July 2008, the City modified the diversion program for multi-family complexes. Instead of sending most multi-family garbage directly to the landfill, the City’s contractor, GreenTeam of San José, delivers all of this material to a new solid waste processing facility in San José. This facility, operated by GreenWaste Recovery, removes recyclables such as cans, bottles, and clean paper as well as large non-processable items. Remaining materials, consisting largely of organics, are composted at the Z-Best Composting Facility in Gilroy.

This program can help the City achieve its zero waste goal without the extra challenge of trying to enforce new recycling requirements for residents, property managers, and owners. This program is, in fact, invisible to property owners and residents and defers more stringent recycling ‘mandates’ on property owners such as those being implemented in San Francisco and San Diego. Traditional recycling is still encouraged at multi-family properties.

The City requires GreenWaste Recovery to ensure waste diversion rates of up to 75 percent, making San José’s multi-family recycling program among the most successful in the country. The City’s program can serve as a model for other communities looking for alternatives to imposing unpopular recycling mandates.

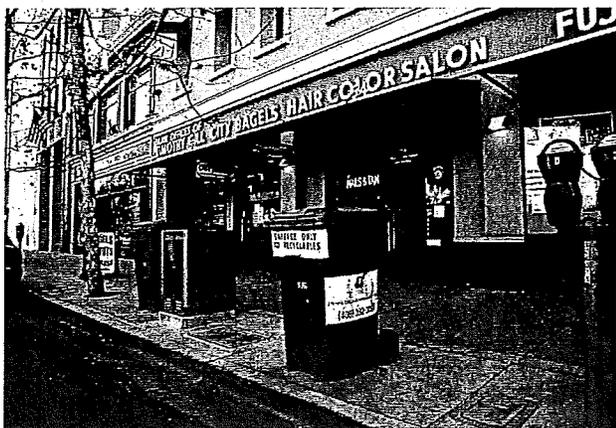
In order to implement this new program and fund annual contractual obligations resulting from fuel and labor increases, the City increased multi-family customer rates by 8 percent in July 2008 to fund the program.

Next Steps for Multi-Family

1. Evaluate extending the Recycle Plus Agreements for services to multi-family complexes to 2015. Evaluation would include: implementing and evaluating pilot programs, processing capacity issues, contractor performance, and cost-savings. Upon Council approval, negotiate and execute agreement extensions if appropriate – 2009.



2. Monitor the effectiveness of the new multi-family program and its achievement of 70 to 75 percent diversion.
3. Increase recycling program participation and reduce recycling contamination through options such as outreach, incentives, enforcement or mandates.
4. Confirm the on-going availability of open windrow composting. This technology can release emissions, such as volatile organic compounds, and may be more strictly regulated in the future.
5. Evaluate developments in new technology to convert mixed waste to appropriate energy conversion technologies.
6. Develop Request for Proposals for Recycle Plus Multi-Family Services based on results of the pilot program evaluation, stakeholder input, feedback from service providers, and availability of processing capacity in early - 2010-2012.



Downtown Business Recycling

Commercial Programs

Commercial waste comprises 32 percent of disposed waste citywide. Since 1995, the City has regulated its commercial sector through non-exclusive franchises. Currently, about 20 franchise haulers hold Commercial Solid Waste and Recyclables Collection Franchises and compete with each other on a customer-by-customer basis to provide solid waste collection services to approximately 9,600 businesses citywide. Approximately 4,900 businesses receive recycling collection services from the franchised haulers.

In 2007, the franchised haulers reported a 14.1 percent diversion rate excluding construction and demolition (C&D) debris. The commercial sector as a whole has a much higher diversion rate, due to separate collection of high-value, source separated recyclables from large generators. However, based on the results of the City's Waste Characterization Study completed in May 2008, nearly 79 percent of disposed commercial waste could be recycled or composted. Fifteen percent of the recoverable material in this study was C&D and could be recovered through improvements in the C&D diversion program.

Commercial generators report difficulty with obtaining cost-effective recycling programs through the franchised haulers.

In December 2007, City staff presented the Commercial Redesign White Paper to the City Council. This paper evaluated the current



system performance and identified alternatives for improving the commercial recycling and solid waste system. The key findings from this white paper were:

- Significant opportunities exist to increase diversion of materials from the commercial waste stream.
- Recycling services available to most customers are limited in the current system
- Hauler investment in recycling infrastructure is limited due to a lack of guaranteed customer base.
- Customer service and hauler compliance with franchise agreements and municipal code provisions are inconsistent and difficult to enforce in the current system.

IMPROVING RECYCLING FOR BUSINESSES:
WE NEED TO HEAR FROM YOU.

SAN JOSE ZERO WASTE
Take our survey: www.sjrecycles.org/business/zerowaste

The City recognized the potential for increased diversion and formed a commercial redesign team. This team evaluated eight different approaches to commercial hauler regulation and conducted surveys of other high performing jurisdictions. Staff undertook an extensive stakeholder outreach

process to better understand the needs of the business community and the challenges that both businesses and contractors face when trying to increase recycling. The results of this outreach were incorporated into the recommendations brought forward to the City Council.

In September 2008, the commercial redesign team presented its findings to the City Council and received direction to pursue a new approach for commercial collection in San José. The new system will put the City in a better position to achieve its environmental goals, stabilize revenue, and offer better services to businesses.

Similar to the single-family Recycle Plus Program model, the City will pursue an exclusive service district model to maximize collection routing efficiencies, establish diversion standards for all waste streams, facilitate equitable rate setting, enforce performance standards for all contractors, provide the most options for setting and collecting City fees, and establish standards for collection vehicles.

Entities exempt from the new exclusive service district model may include:

- Small businesses covered by the Recycle Plus program
- Mixed use developments covered by the Recycle Plus program
- Multi-family complexes

Examples of materials exempt from the new model include:

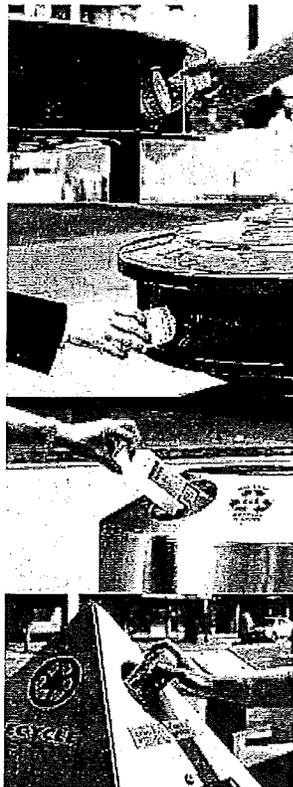


- Specialty recyclables not collected in the new system
- Materials for which the customer is compensated
- Self-hauled waste (except garbage, which may not be self-hauled)
- Donated materials
- Organics materials composted on-site
- Construction and demolition materials

The City anticipates that if the commercial sector could realize its full potential, the City's overall diversion rate could increase to 75 percent.

Next Steps for Commercial

1. Provide recycling education and offer more robust technical assistance to targeted businesses to maximize waste diversion efforts.
2. Evaluate requiring covered trash and recycling at all facility enclosures to minimize blowing debris.
3. Evaluate prohibiting locating trash enclosures and bins adjacent to creeks.
4. Issue a Request for Proposals, for redesign of the commercial system—2009.
5. Award new franchise agreements—2011.



6. Implement new commercial collection systems—2012.

City Facilities

San José models best practices by providing state-of-the-art recycling programs throughout the community in public areas and parks, and at City facilities and special events.

Waste generated by City facilities represents less than one percent of the City's total disposed waste stream. However, the City recognizes that in striving for zero waste, the City must model best practices for its residents and businesses.

The solid waste and recyclable materials generated from municipal facilities and public containers throughout the City are collected

and processed under one collection agreement. Under this agreement, a contractor collects all the waste and mixed recyclables for all City facilities, including large venues and parks.

Yard trimmings collection is provided on a limited basis for small sites, including fire stations and libraries. GreenWaste Recovery provides yard trimmings recycling to these small civic facilities as part of the single-family yard trimmings program.

City Facility solid waste, like the multi-family program waste, is processed at a local solid waste processing facility. The facility



separates the recyclables as well as large items that can not be recycled or composted and sends organics offsite for composting. The agreement for City facilities waste collection also specifies a required minimum diversion rate of 70 percent.

In addition, the San José Conservation Corps (SJCC) provides source-separated beverage container collection services to approximately 33% of City facilities and to over 160 parks.

Public Areas & Parks

The City has long promoted the concept of “recycle where you live, work, and play” to unify the City’s recycling programs and to ensure easy access to recycling,

Covering more than 160 parks ranging from large concession-based parks to neighborhood parks and tot lots, over 500 recycling containers throughout the parks system give residents and visitors an opportunity to pitch in and recycle.

The SJCC provides onsite collection of recyclables at each park, and uses proceeds from their beverage container redemption program to help defray the cost of their job training and other educational programs.

With grant funding assistance from the State Department of Conservation, the City has placed recycling containers at the following locations throughout the City:

- Mineta San José International Airport
- Alum Rock Village
- City Hall

- City Parks
- Community Centers
- San José McEnery Convention Center
- Downtown
- Japantown
- Libraries
- Alameda Business District
- West San Carlos Business District

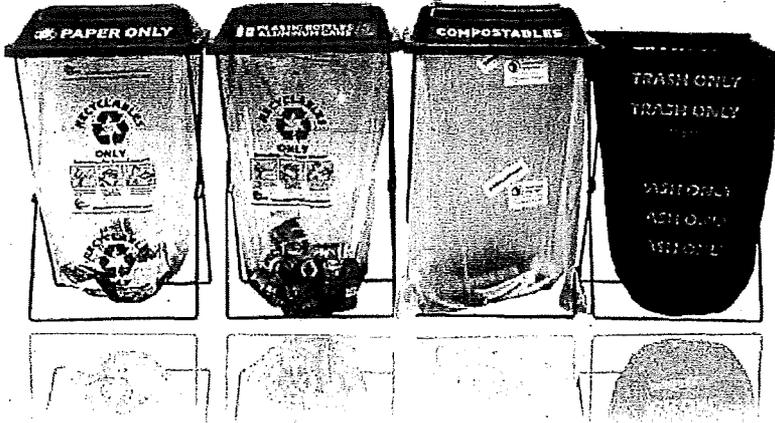
The City also began processing the waste picked up from its 800 Public Litter Cans collected citywide. The recyclable and compostable materials in the public litter cans are diverted from disposal in a program that is the first of its kind in the nation.

Next Steps for Public Areas & Parks

1. Secure additional grant funding to implement recycling programs.
2. Implement recycling programs at new parks, and restart or expand programs at existing parks.
3. Partner with Parks Division to promote recycling.
4. Evaluate collaborating with VTA to place and maintain recycling and trash cans at transit stops and on vehicles.

Special Events

Special events provide a unique opportunity for the City to teach its residents, businesses, and visitors about zero waste. Over the past year, the City has made a concerted effort to “green” special events throughout the City. The City formally acknowledges event



sponsors with three categories of events that demonstrate commitment to green practices through waste reduction, reuse and, recycling:

Category 1: Going Green Event — event organizers arrange for recycling collection service, require vendors to use recyclable #1 plastic cups and containers, and protect all storm drains from discharges. Events have a goal to achieve 30% to 40% waste reduction at this level.

Category 2: Green Event — in addition to the practices listed for Going Green, event organizers require vendors to use compostable service-ware, implement a composting program, provide education and environmental awareness, and provide adequate recycling staff or volunteers at the event. Events have a goal to achieve at least 40% to 60% waste reduction at this level.

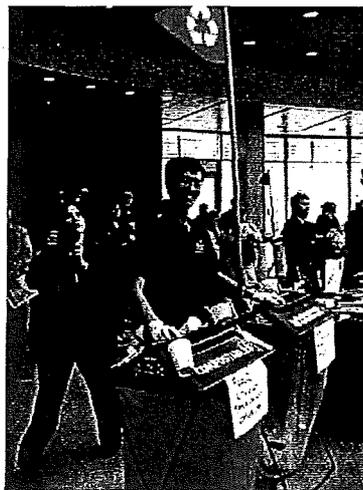
Category 3: Zero Waste Event — in addition to the practices listed for a Green Event, event organizers require all vendors to use only recyclable and compostable materials and collect and recycle cooking oil, prohibit plastic water bottles and use water stations, calculate the event's greenhouse gas emissions

and obtain off-set credits, and provide an interactive activity to raise environmental awareness. Events have a goal to achieve greater than 60% waste reduction at this level.

Special events held in the City have achieved extraordinary success at reducing waste.

The five large public events targeted to model zero waste practices in 2008 were:

1. **Tapestry Arts Festival** — achieved Green Event status and recycled and composted 85 percent this year.
2. **San José Jazz Festival** — achieved Zero Waste status and increased its diversion rate from 60 percent in 2007 to 93 percent in 2008.
3. **Cinco de Mayo** — achieved Going Green status and recycled 44 percent.



Zero Waste Event – City Hall Rotunda



4. **American Independence Festival** — which achieved Green Event status and recycled and composted 70 percent.
5. **IAHF Italian Family Festa** — which achieved Green Event status and recycled and composted 77 percent.

The City partners with the SJCC to offer recycling services at special events. The SJCC provided more than 150 members and staff to green these events. Further, GreenWaste Recovery sorts and processes the event's compostable material and garbage. Involvement of the event planners, event production staff, and the food vendors played an instrumental role in the success of the Special Events program in 2008.

Next Steps for Special Events

1. Evaluate the current program to determine opportunities for improvement.
2. Develop a resource kit to assist event organizers in reducing the waste generated at their events.

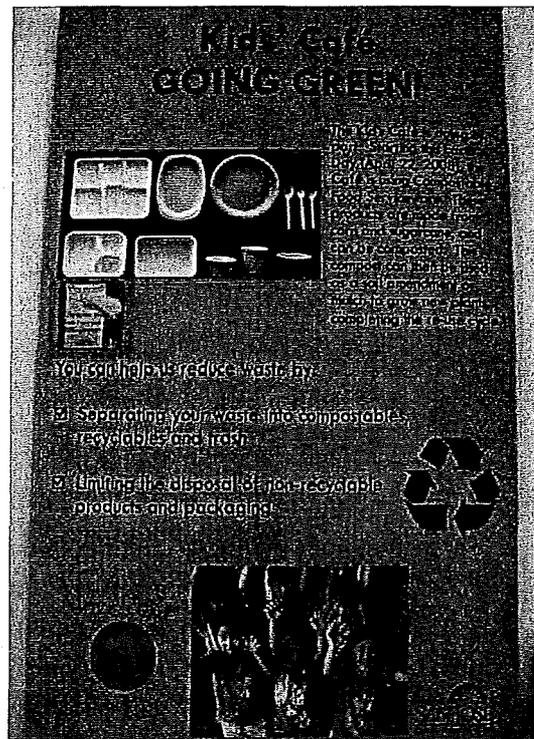
City Venues & Operations

In addition, the City has initiated programs at key City venues including:

1. **Norman Y. Mineta San José International Airport** — The airport is striving for zero waste and is one of the country's leading airports for environmental conservation and sustainability. Additional recycling containers have been added to concession

areas, hold rooms, and near security checkpoints. The airport also participates in the City facility mixed waste recycling program, and is working with its vendors and tenants on targeted zero waste initiatives.

2. **San José McEnery Convention Center** — The City's largest venue for events and conventions is also a model for sustainability. The Convention Center waste recycled ranges from paper products and scrap metal, to carpeting and to food waste. What cannot be recycled, like furniture and foam boards, is donated to non-profit organizations, such as the Resource Area for Teaching, and local schools. The Convention Center is one of the few West Coast centers that composts



Children's Discovery Museum Kids Cafe Sign



food scraps and other compostables. The center operators also offer products that are recyclable or compostable, such as plates, cups, flatware, napkins, and box lunch containers.

3. **Children's Discovery Museum of San José** — Through a partnership with the City and Hope Services, the Museum is going green with an expanded recycling program and a new food waste composting pilot, which will allow the Museum to recycle, compost or reuse almost all of the waste it generates. With over 325,000 visitors per year, the Museum is in a unique position to educate and inspire its youngest guests and their families to recycle, compost, and care about their community and their environment.
4. **The Tech Museum of Innovation** — The Tech Museum is another world-class venue in the City that will be inspiring zero waste with a focus on technology innovation and hands-on interactive exhibits.



5. **City Hall** — The City's premier green building also serves as a model for practicing zero waste. To show that they can "walk their talk," City employees participate in one of the most successful City facility recycling programs in the country. Achieving diversion rates in excess of 70 percent, the City serves as a model of zero waste behavior for its residents and businesses.

Next Steps for City Venues & Operations

1. Expand the City's model recycling and composting program to all City facilities and large public venues.
2. Work with the Department of Transportation and the City's contractors to divert more of the inert materials disposed through the City's corporation yard operations.
3. Establish food scrap composting pilots at City Hall and the Airport — 2009.
4. Monitor the diversion rates of the new mixed waste recycling programs.
5. Continue to evaluate processing capacity and other innovations to enhance programs at City facilities.

Schools

The school recycling program has been core element of the City's education and outreach programs for over eight years.

The City has over 300 K-12 schools, with 237 public schools organized in 19 school



districts, and 78 private schools. With 262,348 students, San José is home to one of the nation's most diverse student populations. More than 54 languages are spoken by students and their families in San José schools. Many (10%) of the City's students are low income, living below the poverty line.

Go Green Schools Program

Key features of schools program include:

- Free recycling containers for paper, and beverage bottle and can recycling through a unique partnership with the nonprofit Resource Area for Teachers
- On-site technical assistance to schools to design and implement campus recycling and other green programs.
- Information for schools about How to Start a Green Schools Program through the program's website and print materials.
- On-line Schools Resource Directory – local, state, and national environmental resources for San José schools.
- Annual Schools Environmental Conference.
- Annual Green Schools Mini-Grants – providing up to \$5,000 for projects supporting school recycling and other environmental measures.

The program serves as an environmental resource center for schools throughout the City, connecting 73 San José schools with free recycling supplies and other

green resources, encouraging them to green their schools at whatever level and pace they choose. Through the program, 69 schools have developed recycling programs, and 45 schools have been awarded mini-grants.

Over 400 tons of paper and 372,000 bottles and cans have been recycled in the first two years of the program's operation. Schools participating in the recycling program have experienced reductions in garbage up to 50 percent. The program website, its online recycling supplies order process, and Resource Directory generated 30 new school recycling programs in its first three months.

In September 2008, the program won the National Recycling Coalition's Outstanding K-12 Program Award.

Union School District Pilot

The City is working with the Union School District to launch a composting and recycling program at all of its six elementary schools, two middle schools, and the district office.



Go Green Schools—San Jose Students Sort Recyclables



To address three major sources of school waste, students, faculty, and staff are composting lunch waste; and recycling paper, bottles and cans. An important element of the program is the replacement of traditional Styrofoam food service-ware with compostable plates, cups and utensils which can be transformed into soil at an off-site commercial composting facility.

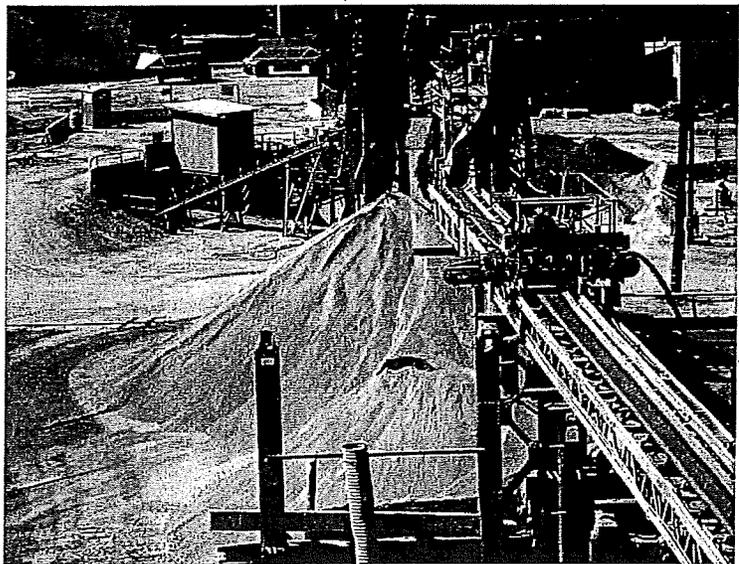
The City provides technical assistance to the school district and supports the program by paying the differential between what the District paid in 2007 for their service-ware, and what they are paying in 2008 for compostable service-ware. By using compostable plates, cups, and utensils, and sending all this along with food scraps to be composted, the District will be able to keep most of its waste from going into landfills.

Next Steps for Schools

The City recognizes that achieving zero waste will require a change in our culture. K-12 students comprise the next generation of environmental stewards. Students who recycle at school encourage their families to recycle at home. By focusing on the next generation, the City is investing in the program participants of the future. To continue this investment the City will:

1. Continue and enhance programs and services to all schools in the City.

2. Evaluate the Union School District pilot program to assess feasibility and launch an organics collection program with all school districts in the City — 2010-2013.
3. Create additional partners, including City businesses and civic organizations, to broaden support for the schools program — 2009-2010.
4. Implement a comprehensive outreach campaign to inform City schools and school districts about no and low cost green resources available for zero waste, water and energy conservation, and how to become a certified Green Business — 2009.
5. Achieve a 60 percent participation rate in the schools program by 2011.



Processed Construction and Demolition Debris



Construction & Demolition

Construction and demolition (C&D) debris generated in the City is collected by franchised haulers or self-hauled. A significant amount of waste from construction projects, including roofing projects, is included in the self-haul and non-franchised sector.

Diversion Deposit Program

The City provides incentives for C&D debris diversion through its model Construction and Demolition Diversion Deposit (CDDD) program. The CDDD program is nationally recognized for its success at developing public/private partnerships with recycling facilities to reduce the amount of C&D debris buried in landfills.



Used Concrete for Crushing & Reuse

When applying for a building permit, prospective permittees who meet the CDDD minimum threshold pay a deposit based on the square footage and type of project. To receive a refund of the deposit, permittees

provide documentation to the City that they have diverted at least 50 percent of the C&D debris generated by the project. Permittees can demonstrate diversion by documenting their specific recycling efforts or by submitting documentation that they have delivered their construction and demolition debris to a certified facility.

To assist permittees in documenting diversion and to encourage development of C&D debris recycling infrastructure, the City certifies facilities that meet a minimum of 50 percent diversion.



Sorted Wood Waste for Recycling

CDDD Evaluation

Recognizing that C&D debris represents a large fraction of the City's waste stream (nearly 30 percent), the City initiated a project in 2008 to evaluate the CDDD program. The City recently completed an analysis of C&D debris delivered to landfills, material recovery facilities, and transfer stations in the City. As shown in Figure 2, approximately 72 percent of disposed mixed C&D debris can be recycled or reused.



Opportunities for Increasing Diversion of Disposed C&D Debris

The City is evaluating the CDDD program and plans to have new program requirements by Summer 2009 that will be used for the recertification of all existing and new C&D facilities participating in the CDDD program. Aspects of the CDDD program currently being examined include establishing new reporting requirements for CDDD certified facilities.

Currently, CDDD facilities report facility-wide diversion rates and tonnages to the City regardless of origin. The facilities currently do not provide specific information about San José generators. The City is working with facilities to report diversion and disposal tonnage of C&D debris originating within the City.

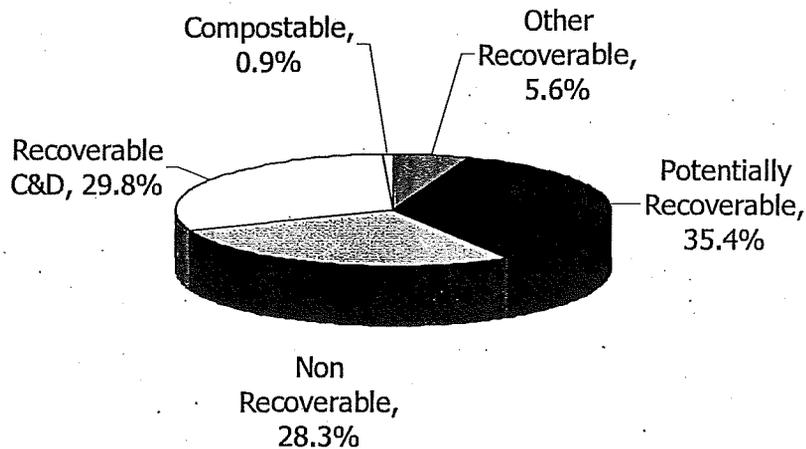
Additional Incentives for Permittees

The City is reviewing the minimum and maximum thresholds and deposit rates to determine if they are consistent with similar programs in other jurisdictions. Staff will also explore whether it may also be possible to incorporate Leadership in Energy and Environmental Design (LEED) and Green Building standards within the program framework as part of the overall requirements for permittees.

Incentives for Building Contractors

A large number of construction, demolition, and roofing contractors work in San José. However, a limited number of contractors work on the majority of projects in the City. The City may consider certifying building contractors or specialty contractors (such as roofing contractors) and allowing them to

Figure 2
Divertability of Disposed Mixed C&D





report on behalf of their customers on an annual, aggregated basis. These contractors could provide documentation of diversion from disposal or proof that they use a certified facility.

Incentives for Deconstruction, Salvaging & Reuse

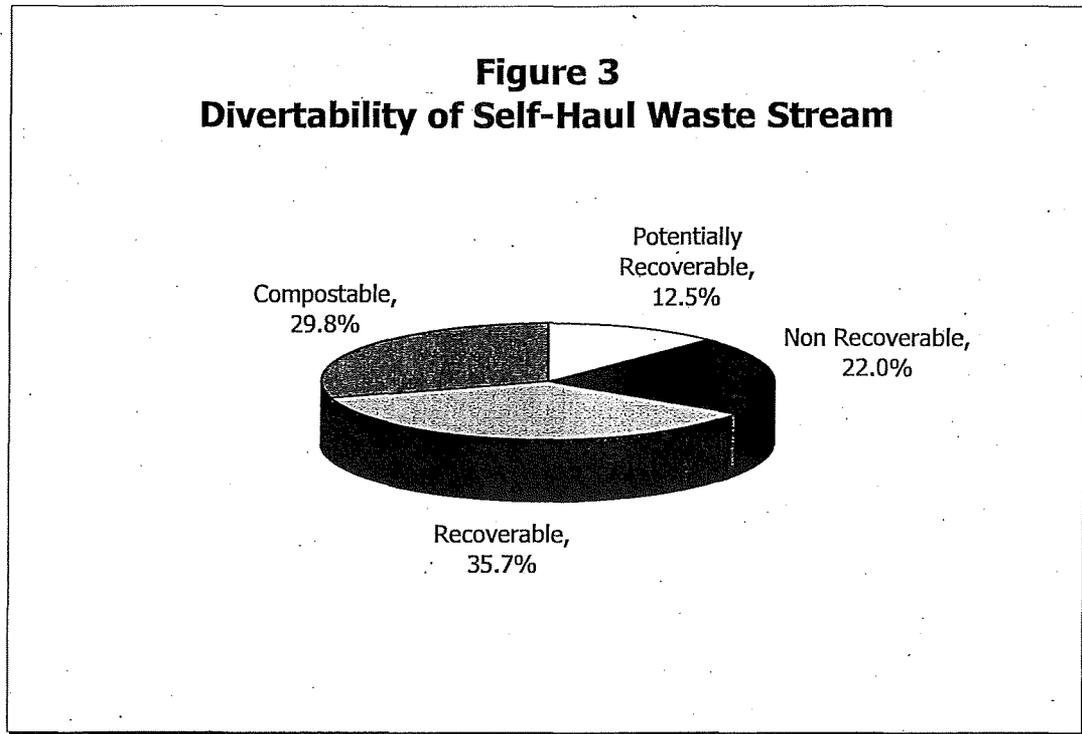
The City could evaluate options for requiring permitted construction contractors to salvage reusable materials before building demolition. The City may also wish to require or encourage building owners to remodel existing buildings through adaptive reuse, rather than demolishing the building. In an adaptive reuse design, the major building elements of the existing building are kept intact and are incorporated into the new use (e.g., factory buildings converted to condominiums, warehouse building converted

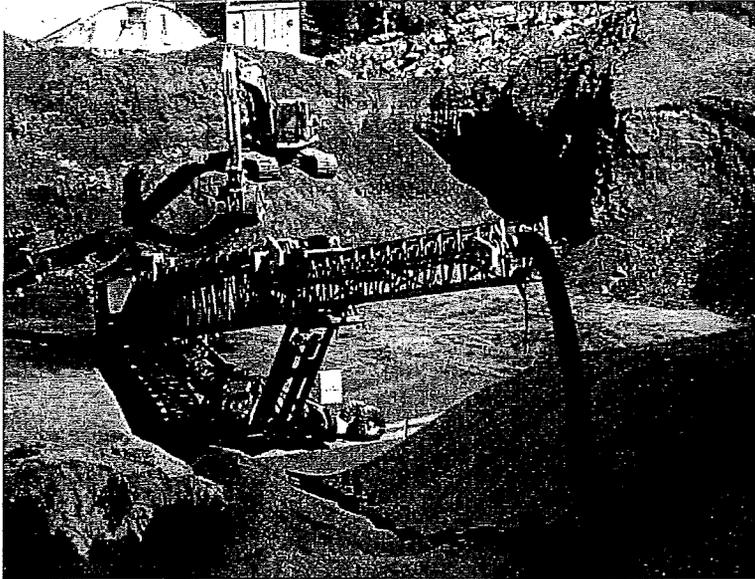
to live-work lofts).

C&D recycling programs are important for projects pursuing LEED Certification. With specific reuse and salvage requirements in place, the CDDD program can assist a project earn more points since points are awarded for using local and salvaged materials. The CDDD program can be a resource for new construction projects seeking LEED certification. As diversion requirements continue to increase, assisting permittees with LEED Certification will be a valuable contribution to the City's Green Vision.

Next Steps for Construction & Demolition

1. Evaluate CDDD program enhancements and present recommendations to City Council — Fall 2009.
 - Identify opportunities to increase





Recycled Construction Material Ready for New Projects

diversion based on the results of the materials characterization study at C&D certified facilities. Identify and survey C&D programs in other jurisdictions to evaluate program features that may be incorporated into the City's CDDD program.

- Review current policies, requirements, procedures, reporting, and accounting controls of the CDDD program and incorporate improvements that support the Plan and Green Vision goals.
- Establish new program recommendations by Summer 2009 based on information gathered from C&D markets, C&D facilities operations and infrastructure, and

review of other successful C&D programs.

2. Implement new program requirements in 2010 with recertification of all existing and new C&D facilities and new program literature.

Self-Haul & Non-Franchised Contractors

One third of the City's total disposed waste is from waste self-hauled by the generator and/or

non-franchised contractors. The sources of this waste might include non-franchised contractors, illegal contractors, clean-up or junk removal companies, businesses or residents self-hauling their own waste, landscapers, gardeners, and construction and demolition contractors.

Except for prohibiting self-haul of putrescible wastes (garbage), the City does not currently regulate this portion of the waste stream and diversion rates from self-haul and non-



Roll Off Box Debris Collection



franchised waste generators cannot be tracked. As the City becomes more and more successful in achieving significant diversion rates from its franchised haulers, it will become more important to focus on the self-haul and non-franchised waste.

The City recently completed a characterization of self-haul waste delivered to solid waste facilities in the City. Self-haul loads were divided into two categories:

Residential – waste generated from single or multi-family residences, even when the waste is hauled by another person or company.

Non-residential – waste generated from businesses, schools, government offices, and other institutions that are not residences, even when the waste is hauled by another person or company.

During the sampling period (conducted on weekend days), 106 self-haul samples were characterized, including 83 residential samples and 23 non-residential samples.

As shown in Figure 3, approximately 78 percent of waste disposed by self-haul generators can be recycled or reused.

Opportunities to Address Self-Haul and Non-Franchised Waste

Improving diversion from self-hauled waste is an area the City needs to address.

Incentives for Self-Haulers at City Landfills

Self haulers use several landfills in San José. The City could work with local landfills to

encourage diversion for self-haulers, such as establishing recovery parks at the landfills and providing tipping fee incentives.

Resource Recovery Parks

A resource recovery park enables the public to:

- Reduce their cost because there is less waste for disposal.
- Recover some value from the sale of materials in a “one-stop service center” for reuse, recycling, and composting.
- Buy other items of value from reuse, recycling, compost, and recycled-content retail stores.

Resource recovery parks can be designed at a smaller scale to have less impact than large-scale solid waste facilities.

Each of the landfills in the City currently provides free drop-off areas for recyclables and some of the landfills allow self-haulers to separate construction and demolition debris and yard trimmings materials. However, a significant amount of self-haul materials still end up buried in the landfills.

The City could work with the landfill operators to enhance public disposal areas, to provide more opportunities to divert recoverable materials.

Tipping Fee Incentives

To encourage self-haul generators to separate materials for recycling and composting, the landfills could provide a tiered tipping fee. All

self-haul loads could be directed to the area designated for separating materials into market categories (glass, metals, plastic, yard trimmings, asphalt, concrete, inerts, mixed construction debris, etc.). Those self-haulers wishing to bypass the materials separation area could do so by paying an extra fee.

Consider Landfill Material Bans

As discussed in the policies section, the City could work with landfill operators to ban certain materials, such as cardboard and yard trimmings from the landfill. A landfill ban would encourage landfills to give generators a chance to source-separate and self-haulers the opportunity to segregate materials for recycling and composting.

Expand CDDD Thresholds

The City's requirements under the CDDD program have been effective for projects that require a building permit and meet the CDDD project thresholds. It is possible that much of the construction and demolition debris generated by self-haul comes from building projects that fall below the CDDD threshold or do not require a building permit. To encourage these self-haul generators to divert C&D debris from disposal, the City could amend its CDDD thresholds to require that all projects requiring a building permit comply with the CDDD program requirements.

For generators of small levels of C&D debris, the City may wish to require that all loads be



Workers Sort Recyclables at Green Waste Recovery MRF

Facilities



delivered to a CDDD facility rather than requiring these generators to pay a deposit.

Non-Franchised Generators

The City is not unique in having a significant portion of its waste uncharacterized and unregulated. However, because the City is host to a number of local landfills used by non-franchised generators, it is in a better position to require the landfills to provide information about these generators, so that the City can develop programs for addressing this waste stream. The City's CDDD certified facilities could also track and report to the City diversion and disposal from non-franchised generators.

Next Steps for Self-Haul & Non-Franchise Waste

Work with landfills to address self-haul and non-franchised contractors. Identify landfill partners willing to develop resource recovery parks and tipping fee incentives. 2010

Evaluate City development of resource recovery parks for self-haul waste on publicly-owned lands or in other areas of the City. 2013 (Las Plumas)

Require landfills and CDDD facilities to provide information about non-franchised waste

contractors. 2010

Evaluate landfill ban initiatives in neighboring jurisdictions (Alameda and Santa Cruz counties) and consider imposing regional landfill bans in cooperation with other regional landfill hosts.

This section describes facilities that will be needed to achieve the City's goals of 75 percent diversion by 2013 and zero waste by 2022.

Context for Facilities

The City's solid waste infrastructure has historically been provided by the private sector. The City encouraged private sector development with the following:



Self Haul Load Delivered to C&D Recycling Facility



- Entering into processing and disposal contracts;
- Supporting new technology (such as food scrap composting and C&D recycling) with grants; and
- Designing programs and regulations to encourage private sector investment in new processing infrastructure.

The infrastructure for managing recoverable materials in San José is extensive compared to many communities in the state.

In planning future programs, the City should consider the following:

- Existing private sector infrastructure and plans for expansions.
- Service voids which may require City development support, such as organics processing, conversion technologies, and household hazardous waste facilities.
- Future regulation of facilities, such as composting facilities.
- Opportunities to invest in new technologies, such as anaerobic digestion, gasification and other conversion technologies.
- Opportunities for hosting regional facilities to meet the needs of Santa Clara County and the Bay Area.
- Opportunities for using anaerobic digestion capacity at the San José /Santa Clara Water Pollution Control Plant.

- Opportunities for regional collaboration with other Bay Area waste water treatment plants.
- Opportunities for energy conversion and steam generation technologies. New facilities could provide energy for key City operations and facilities.
- Availability of appropriately zoned land

Existing & Planned Infrastructure

The City evaluated its current waste management system, including landfills, transfer stations, and waste processing facilities. This Infrastructure Assessment Report is attached as Appendix B. The report identified 27 facilities serving the City including: five landfills, nine recycling and transfer stations, four composting facilities, and eight mixed materials construction and demolition debris processing facilities.

Findings of the Infrastructure Assessment Report:

Landfills—The three major landfills in the City, Guadalupe Mines, Kirby Canyon, and Newby Island are projected to exhaust their permitted disposal capacity or reach their daily tonnage limits between 2020 and 2025. Guadalupe and Newby are expected to close in that period, while Kirby will reach its permit limits and operate at that level until it is full or its lease expires. The Zanker Road



and Zanker Road Resource Management, Ltd. landfills will continue to operate beyond 2025,

planned for development by the private sector. No capacity shortfall is anticipated for MRFs that accept recyclable materials.



Food Waste Composting at Zanker's Z-Best Facility

Composting facilities — There are four composting facilities used by the City or located within Santa Clara County. One compost facility plans to expand and one anaerobic digestion facility is in the planning stage. No capacity shortfall is anticipated. However, concerns about emissions from compost facilities (including volatile organic

and will continue to accept small amounts of construction and demolition wastes, yard trimmings, industrial waste and tires. The City will need to identify disposal options for non-recyclable residual waste in the future. Remaining landfill capacity may be reduced by changed business plans, such as Zanker's current initiative to close its disposal operation earlier to allow for facility construction, or by sale of long-term capacity to other jurisdictions.

compounds) could inhibit future expansions or development of new facilities. In addition, other areas do not have infrastructure in their locality and need access to compost facilities. Three large Bay Area counties are actively seeking additional capacity and are looking to South Bay facilities to meet their needs. San José will compete with these jurisdictions for all of the additional capacity near and in San José.

In addition, under current zoning and permits, some processing operations at landfills may be required to close when disposal operations cease.

Recycling and transfer stations —

There are nine facilities currently located in San José, one facility is permitted, but not in current operation, and two new facilities are

Table 2 Planned Future Capacity Table 3

Facility Type	Planned Capacity
Recycling and transfer	745,800 tons
Composting	561,600 tons
Construction and demolition	468,000 tons

Source: Facility Assessment Report, November

Annual Facility Capacity and Projected Capacity Need (in tons)

Facility Type	Facility Capacity (2007)		Capacity Need	
	Permitted	Unused	2007/08	2040
Landfills or other disposal	4,274,400	2,423,840	153,356	227,588
Recycling and transfer	1,475,448	580,115	198,274	294,247
Composting	1,054,560	422,068	196,793	292,051
Construction and demolition	4,859,400	3,417,514	176,807	262,390

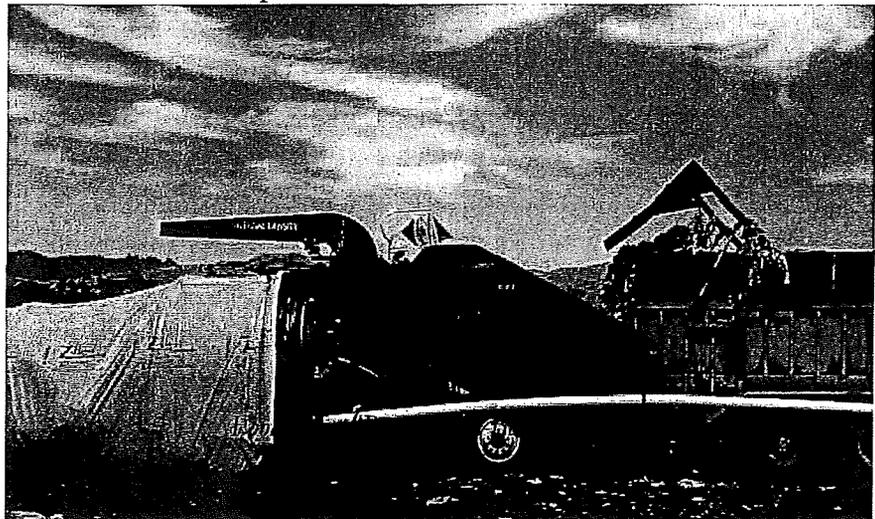
Source: Facility Assessment Report, November 2008

Construction and demolition — There are eight mixed materials construction and demolition facilities used by the City and one new facility planned for development. No capacity shortfall is anticipated.

Table 3 summarizes the permitted capacity of facilities used by the City and the unused capacity at these facilities in 2007. This table

also projects capacity needed by the City if it were to continue with current program and processing options. As zero waste programs are implemented, diversion capacity will increase and landfill needs will move towards zero.

Table 2 summarizes the planned capacity of facilities that are slated for development by the private sector.



Food Waste Bagger at Z-Best Composting Facility

Future Infrastructure

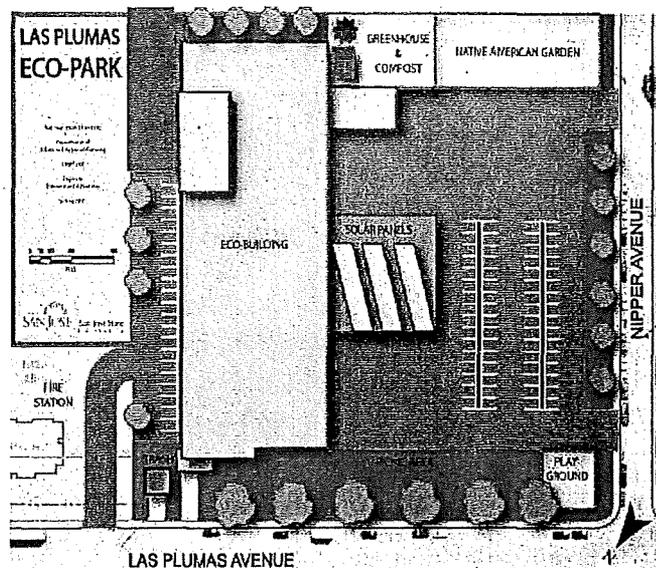
San José leads several efforts to develop new facilities and technologies. Given that much of the City's zero waste infrastructure for recycling, composting, construction and demolition, and transfer will be provided by the private sector, the City is pursuing innovative opportunities to meet service needs for facilities and new technology that will address:

- Household hazardous waste and building materials reuse and recycling.
- Technology that is compatible with existing infrastructure at the San José /Santa Clara Water Pollution Control Plant, such as anaerobic digestion of fats, oils, grease and food scraps.
- Conversion technology to create energy from residual wastes.

Environmental Innovation Center

The City will be relocating the San José Household Hazardous Waste (HHW) drop-off facility to the warehouse site located at 1608 Las Plumas Avenue. Part of this facility will be operated by the County of Santa Clara's Department of Environmental Health and will provide San José with its sole permanent HHW drop-off site, and serve nearby County residents.

Historically, San José residents have recycled or disposed of nearly 1 million pounds of hazardous material annually through the HHW program. This program prevents the



Artist's Rendering of Remodeled Las Plumas Site

materials from entering the solid waste stream or the storm and sanitary sewer system.

The award to construct the facility is anticipated for early 2009, with groundbreaking in the Spring and a facility grand opening in Summer 2009. This facility will be constructed as a part of a larger environmental campus, the Environmental Innovation Center, which will provide additional environmental education and building materials re-use and recycling operations open to residents and businesses.

Facility design is scheduled for 2009, with a 2010 opening date. The facility will be designed to meet green building standards and is anticipated to achieve a Leadership in Energy and Environmental Design (LEED) Platinum rating through the US Green Building Council. The joint collaboration between San Jose State University students and the City to develop a conceptual plan for this facility won the California Chapter of the



American Planning Association's Outstanding Planning Achievement Award for 2008.

- Reduction of Plant waste streams (grit, screenings).

Water Pollution Control Plant Master Plan

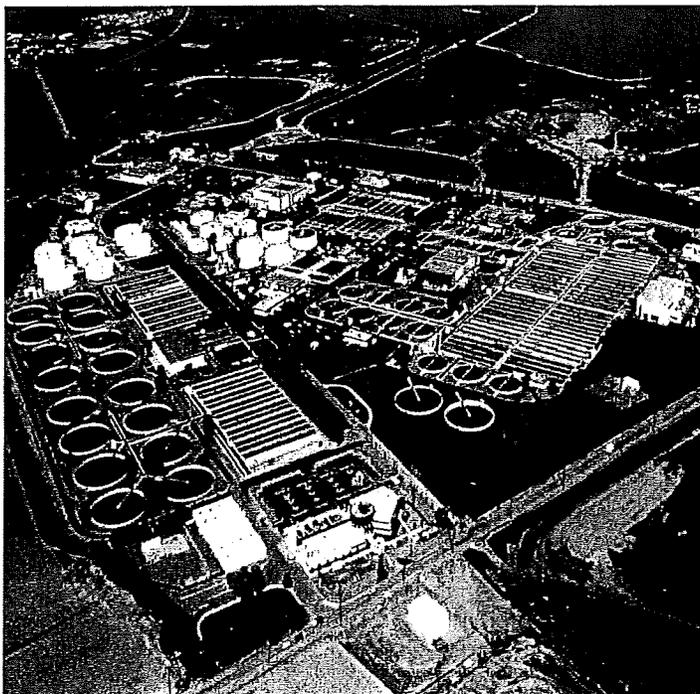
The City is coordinating the development of the Zero Waste Strategic Plan with the San José /Santa Clara Water Pollution Control Plant (Plant) Master Plan. Lands around the plant could be suitable for future development of zero waste infrastructure and opportunities exist for synergy with the programs of the Plant, including biosolids management, food scrap diversion, and processing of fats, oils, and grease.

The City has identified the following linkages between the plans.

Plant Master Plan & Zero Waste Strategic Plan Alignment

- Rehabilitation of Plant digesters to accommodate fats, oils and grease, and food scraps.
- Possible use of Plant lands to co-locate zero waste infrastructure, including energy conversion technology, yard trimmings processing, and preprocessing activities, that compliment Plant operations
- Biosolids management, reduction, and disposal.
- Collaboration with Plant's neighboring landfills.

Fats, Oils & Grease (and Food Scraps)



San Jose/Santa Clara Water Pollution Control Plant

Fats, oils, and grease (FOG) are generated by residential, commercial, institutional and industrial generators, including:

- Restaurants
- Grocery stores
- Hospitals
- Food processors
- Residents

The City inspects businesses to ensure compliance with FOG disposal requirements. FOG materials accumulate in the sewer system causing blockages and filling interceptor structures. In 2007, approximately



640 tons of grease were removed from the primary treatment area at the San José/Santa Clara Water Pollution Control Plant.

Currently, most FOG materials are disposed at a local landfill. However, FOG has value in the digester because it is easily digestible. The Plant is considering installing a FOG receiving station that would collect FOG and pump it into the plant sewage sludge digesters where much of the FOG would be converted into methane to create energy, and offset the amount of natural gas the Plant buys.

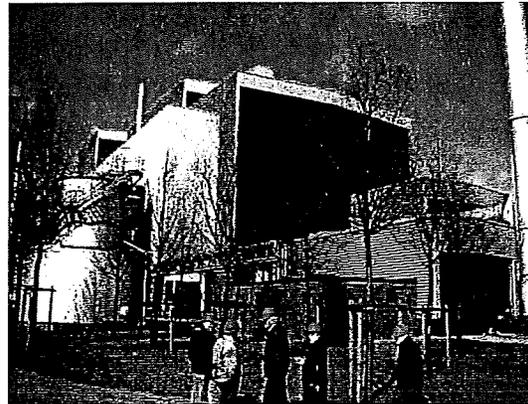
The City is currently evaluating its FOG control program operations and will make recommendations for improvements to the program in March 2009. Tasks include estimating FOG waste volume and evaluating:

- FOG waste disposal practices
- Alternative FOG waste disposal options, including a "Waste-FOG-to-Energy" program
- FOG outreach efforts
- FOG-related grants and loans

Similarly, food scraps perform somewhat similar to FOG. As a part of the renovation of the Plant facilities, the City is exploring the use of existing digesters to process food scraps. As part of the Plant Master Plan process, the City will evaluate the feasibility of processing food scraps at the Plant.

Energy Conversion Technology

In December 2007, in response to the Green Vision, the City released a Request for Information to evaluate the cost effectiveness and feasibility of locating an alternative technology energy recovery facility on Plant lands which would use selected City waste materials.



Hamburg, Germany Waste to Energy Conversion Facility

Some of the conversion technologies that create energy from waste include:

- **Synthetic gas generation:** using plasma arc gasification, gasification and pyrolysis
- **Waste-to-energy:** using fluidized bed and grate technology for incineration
- **Biomass to energy:** using fluidized bed technology for incineration and steam generation
- **Anaerobic digestion:** producing a biogas which can be combusted to create energy

Other conversion technologies that produce products other than energy include:

*

- **Hydrolysis:** using a chemical reaction to produce sugars that can be converted to ethanol or other products
- **Mechanical processing:** using mechanical processes to produce organics and non-organic feedstocks
- **Chemical processing:** using chemicals and catalysts to convert waste to by-products

Descriptions of these technologies as well as a summary of evaluation considerations are included in the Conversion Technologies and Facilities Report (Appendix F).

Tesla Motors

Tesla Motors, a zero-emission, all-electric car company, plans to locate its headquarters, manufacturing, and research and development campus in San José. The proposed facility would be located on buffer lands adjacent to the Plant.

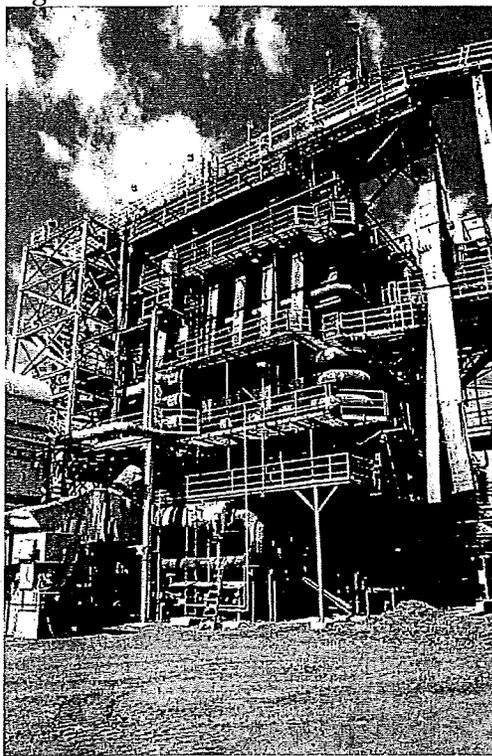
As a large-scale manufacturing facility, Tesla may wish to collaborate with the City on green energy solutions to power its operations. A facility of this scale could be an appropriate customer for energy and steam created through potential conversion technology projects.

Next Steps for Energy Conversion Technology

1. Continue to pursue use of rehabilitated digesters at the Plant for FOG and food scraps. The relative ease of implementing

a FOG program will allow the City to test the feasibility of using the plant capacity for non-traditional streams such as food scraps.

2. Assess the development of high solids digesters or stand-alone low solids digesters for more diverse waste streams.

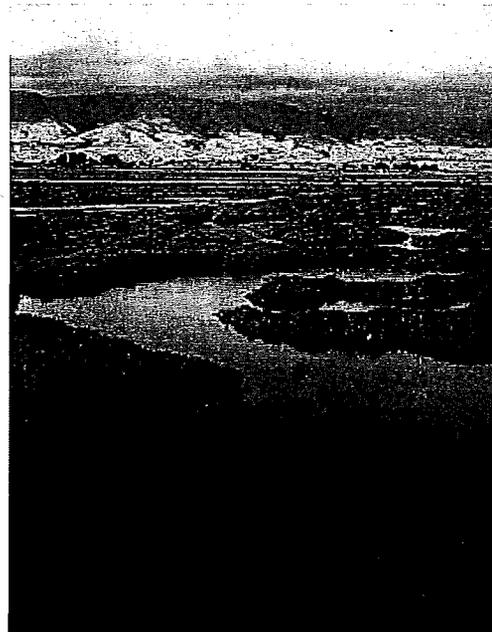


Biomass Facility (employing Fluidized bed technology), Central Valley, CA

3. Monitor the development of emerging gasification technology for applicability to municipal solid waste.
4. Perform an analysis of possible feedstocks available for all types of conversion technologies.



5. Evaluate any potential social and political issues of siting a traditional waste-to-energy facility in San José.
6. Evaluate the air emissions control requirements of the Bay Area Air Quality Management District for technologies under consideration.
7. Assess the possibility of entering into the carbon credit market with waste conversion projects.



South bay Wetlands

Envision San José 2040

As part of the Envision San José 2040 General Plan update process, Zero Waste staff will be partnering with the City's Planning Department to update General Plan goals and policies related to waste Management. Envision San José 2040 is a multi-year process and goal and policy revisions and additions will be developed in the coming year.

policies and potential changes (underlined text) which could impact zero waste goals and infrastructure in San Jose.

The following table shows existing goals and

	Proposed Policy Changes
Policy 1	Monitor the continued availability of long-term disposal capacity to ensure adequate solid waste disposal capacity <u>until the City's Zero Waste goals are achieved.</u>
Policy 2	No new candidate landfill sites should be designated until the need for additional landfill capacity has been established. Source reduction <u>through</u> recycling, composting, <u>market-based and energy conversion</u> alternatives should be taken into account when evaluating the need for a landfill.
Policy 4	The preferred method for increasing the City's landfill capacity is to <u>maximize</u> the capacity of existing landfill sites <u>until they are no longer needed. Efforts to extend the life of landfills will require further development of</u> recycling, resource recovery and composting <u>infrastructure</u> to ensure adequate long term capacity.

Key Initiatives for Achieving Zero Waste



Zero Waste Initiative	2008-2013 to 75 percent Diversion	2013-2022 to Zero Waste
1. Commercial Redesign	✓	
2. Food Scraps Composting and Recycling (including anaerobic digestion)	✓	✓
3. CDDD Redesign and Enhancements	✓	
4. Residential System Enhancements	✓	✓
5. Landfill Regulations	✓	✓
6. Generator Mandates		✓
7. Extended Producer Responsibility Programs	✓	✓
8. Mixed Waste Recycling	✓ (Commercial)	✓ (Single-Family Residential)
9. Future Development of Energy Conversion Technologies		✓

Table 4, Zero Waste Initiatives

As described in the policies, programs and facilities sections, the City is rolling out several key initiatives for achieving zero waste. A number of these initiatives will be undertaken within the next five years to reach the City's interim goal of 75 percent diversion by 2013. Some of these initiatives will be

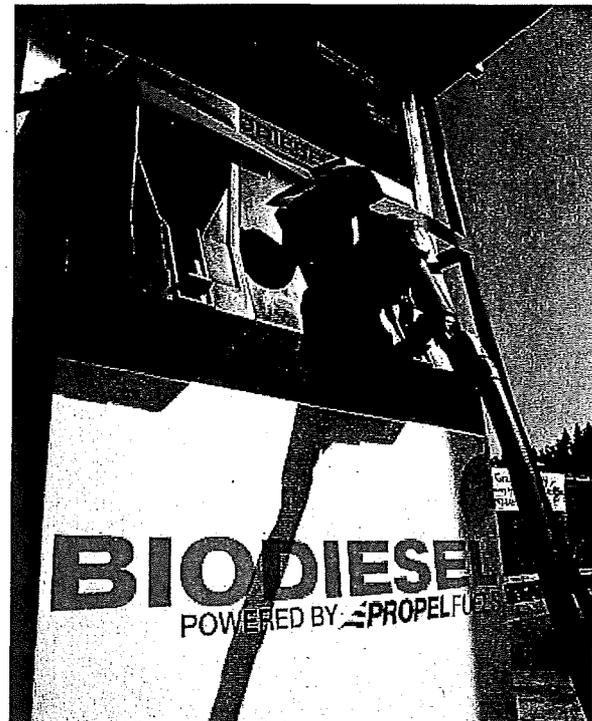
implemented in the long-term over the next 5 to 15 years to reach the City's long-term goal of zero waste by 2022. Additionally, a few of these initiatives will begin to be implemented in the short-term, but will come to full fruition in the long-term. Table 4 lists the zero waste initiatives and the short-term and long-term schedule for implementation.



Zero Waste Initiatives

1. **Commercial Redesign** – The City has embarked on a new program designed to provide recycling and composting collection services to all businesses and institutions in the City. If the commercial sector is able to realize its full potential, the City's overall diversion rate could increase to 75 percent. In the short-term, the City will finalize the commercial system design, procure new collection and processing contracts, and roll-out the new system to all commercial businesses citywide.
2. **Food Scraps Composting and Recycling** – The City has a unique opportunity to use digestion capacity at the Water Pollution Control Plant for food scrap diversion. In the short-term the City will evaluate the feasibility of developing commercial collection routes dedicated to food scraps, preprocessing these materials to prepare them for digestion, and managing the digestate through beneficial reuse and composting. In the long-term, the City will consider future options for processing residential food scraps for digestion.
3. **CDDD Redesign and Enhancements** – The City will implement enhancements for improving the CDDD program and increasing diversion of construction and demolition debris from the franchised haulers and from the non-franchised and self-haul sectors.

4. **Residential System Enhancements** – The City's single-family agreements will expire within the next five to seven years. In the short-term, the City will evaluate new collection and processing options, including co-collecting yard trimmings and food scraps; and separately collecting food scraps for digestion. In the long-term, the City will finalize the new collection and processing system and procure new collection and processing contracts.
5. **Landfill Regulations** – Zero waste policies, including landfill bans and EPR programs, may be needed to reach beyond maximizing recycling to reducing the overall volume of waste. In the short-term, the City will work with its regional



Alternative Fuel Generated From Waste

partners on local and statewide solutions.

6. **Generator Mandates –**
City will evaluate this if programs alone are not achieving required results.
7. **Extended Producer Responsibility –**
The City will advocate for EPR legislation at the state level and engage local businesses in voluntary take-back programs. The City will work with Stopwaste.org and others to determine whether bans of materials, such as cardboard and yard trimmings, will be effective in increasing diversion of these materials.

Ultimately, EPR requirements for the prohibition or mandating take-back of many toxic and hard-to-recycle materials may be necessary to end landfill disposal and achieve zero waste.

8. **Mixed Waste Recycling –** In the future, the City may require processing of all mixed waste loads prior to disposal to ensure that all recyclable and compostable materials are diverted. The City will evaluate the success of its multi-family and City facility mixed waste processing program and determine whether it is appropriate for further expansion to the single-family residential and commercial sectors. The City will also monitor the development of new processing capacity for mixed waste processing planned by the private sector.

9. **Future Development of Energy Conversion Technologies –** Conversion technologies for processing mixed waste to create energy, including synthetic gas generation, are emerging and still in their pilot stage of development. Waste-to-energy and biomass are mature technologies, but difficult to implement in populated areas. As a feature of the Water Pollution Control Plant Master Plan, the City is actively considering anaerobic digestion for FOG and food scraps. In the long-term, the City will evaluate the options for converting residual waste-to-energy and ultimately achieving the goal of zero waste.



Sorting C&D at Zanker Facility