COUNCIL AGENDA: 10/30/07
ITEM: 7.2

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

# Memorandum

**TO:** HONORABLE MAYOR AND CITY COUNCIL

**FROM:** Nadine N. Nader

**SUBJECT:** **SEE BELOW**

**DATE:** October 4, 2007

Approved Deanna Santana Date 10/4/07

**SUBJECT: ZERO WASTE GOALS [Transportation and Environment Committee referral 10/01/07 – Item (b)]**

On October 1, 2007 staff presented a report on Zero Waste Goals to the Transportation and Environment Committee.

Vice Mayor Cortese motioned to approve staff's recommendation and requested that the item be cross-referenced for full Council consideration, Councilmember Williams seconded the motion. Attached is the report that was presented to the T&E Committee.

Mishell Brisley
for NADINE N. NADER
Agenda Services Manager

Attachment

T&E AGENDA: 10-01-07
ITEM: 2

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

# Memorandum

**TO:** TRANSPORTATION AND ENVIRONMENT COMMITTEE

**FROM:** John Stufflebean

**SUBJECT: ZERO WASTE GOALS**

**DATE:** 09-20-07

Approved

Date 9/21/07

## RECOMMENDATION

1. Recommend that the City Council:

   a. Adopt a resolution establishing a goal of 75% waste diversion by 2013, and a goal of Zero Waste by 2022;

   b. Direct staff to complete waste characterization studies and return to the Transportation and Environment Committee with those results by August 2008 and;

   c. Direct staff to return by the end of 2008 for Council consideration of an Integrated Waste Management Master Plan to achieve zero waste goals.

## OUTCOME

The approval of this recommendation will enable the City to remain in the forefront of environmental stewardship. Residents and businesses will benefit from improvements to the environment (such as reduced energy use and lower greenhouse gas emissions), and from the economic benefits of a system designed to reduce waste of all kinds.

## EXECUTIVE SUMMARY

In 1989, the State Legislature enacted AB 939, requiring all California cities to divert 50 percent of waste from landfills by January 1, 2000, through source reduction, recycling, and composting activities. The State currently estimates San José's diversion rate at 61%. In November 2005, Council approved the Urban Environmental Accords ("Accords"). The Accords were developed by cities around the world as part of the United Nations World Environment Day, in June of 2005. They include 21 actions that cities can implement to become more environmentally sustainable. The adoption of Action 4, Zero Waste, increases the City's waste diversion goal from the State-mandated goal of 50%, to 75% by 2013. This memorandum outlines the next steps towards enacting Action 4 of the Accords.

Staff recommends adopting a resolution establishing a goal of 75% waste diversion by 2013, and a goal of zero waste to landfills by 2022. It is also recommended that the Accords be incorporated as a framework into the Integrated Waste Management (IWM) Master Plan, which will result in further resource conservation, waste reduction, and pollution prevention. The recommended waste characterization studies will help staff better plan for reaching zero waste goals. By signing the Accords, the City joined 94 other cities worldwide, including such major U.S. cities as Seattle, Sacramento, Chicago, Denver, and Austin. Bay Area signatory cities include Oakland, Berkeley, San Francisco, Novato, and Emeryville.

## BACKGROUND

The City has reached a plateau in its recycling rate with 64% of waste diverted from landfills in 2000. Although the City has an exceptional recycling program, it must be more aggressive in its efforts in order to significantly improve waste diversion. Increased diversion goals support several existing City policies and directives, including: the Urban Accords, the California Integrated Waste Management Act (AB 939), and the Guiding Principles of the 2040 General Plan Update. In addition, Council approved support of Senate Bill 1020 on August 14, 2007; this bill, currently under consideration in Sacramento, establishes more rigorous state-wide recycling goals by 2020.

Landfill capacity and other infrastructure needs are important issues to address when striving for high diversion standards such as those proposed under SB 1020 and the recommended Zero Waste goals. At current waste generation levels, it is estimated that the City will only have landfill capacity until 2022. Increasing diversion could extend the life expectancy of local landfills significantly. However, increasing diversion would require more solid waste processing infrastructure capacity, including reuse centers, corporation yards, compost facilities, material recovery facilities, construction and demolition processing facilities, and transfer stations. A report on these infrastructure requirements, prepared by Environmental Planning Consultants, a local solid waste planning firm with extensive knowledge of San José, is included as Attachment A, "Resource Management, Infrastructure Requirements Assessment". Additional information on local landfill capacity is included in Attachment B, San José Disposal Capacity.

A Zero Waste goal promotes the highest and best use of materials to eliminate waste and pollution, and incorporates the following core principles to reduce waste generation by more than 90%:

- Improving 'downstream' reuse/recycling of end-of-life products and materials to ensure their highest and best use;
- Pursuing 'upstream' re-design strategies to reduce the volume and toxicity of discarded products and materials, and promote low-impact or reduced consumption lifestyles; and
- Fostering and supporting use of discarded products and materials to stimulate and drive local economic and workforce development.

## ANALYSIS

The City's landfill agreement with International Disposal Company at Newby Island Landfill expires in 2020. All landfill capacity in Santa Clara County is predicted to be consumed about 2023. Because there are currently no planned potential landfill sites in the County, it is inevitable that costs will increase for disposal solutions that include truck transfer of waste over greater distances (refer to Attachment B). Because of this, staff is proposing 75% diversion by 2013, and Zero Waste by 2022, well ahead of the Urban Accords deadline of zero waste to landfills by 2040.

Although at this time, the costs of implementation of Zero Waste cannot be estimated, future costs to the City and its residents and businesses will increase regardless, as solid waste disposal costs increase due to closure of local landfills and more stringent regulations limiting disposal options for future waste.

Achieving the 75% and 90% or greater recycling rates as early as practicable will extend the life expectancy of existing landfills and reduce the need to open new landfills. This will improve the quality of life for residents and save costs, since any new landfills are unlikely to be within the Bay Area and would therefore result in significant environmental and cost impacts of transporting solid waste over long distances. Although total future City revenues related to disposal (the Disposal Facility Tax, Solid Waste Enforcement Fee, and Countywide Integrated Waste Management Fee) are tied to the remaining capacity in tons, increased diversion rates will result in these revenues being spread over additional years. Annual revenues from the two fees can be maintained at a cost recovery level by increasing the fees as necessary until local disposal sites are at or near capacity. The Disposal Facility Tax can not be increased without a general election. If the current rate of $13 per ton is maintained, annual receipts of about $14.7 million would be expected to continue for up to ten years and then to taper off to zero about 2025. If the recommended diversion targets are achieved, annual receipts will begin to decline by 2013, with a significant decline by 2022. However the total available future revenue available from this source, which is on the order of $180 million, would still be realized, with the declining annual revenue stretching out into the 2030s. If landfill operators accept additional waste from other jurisdictions, the City's tax revenues may continue at the current level, with more of the costs passed along to out-of-town customers than is the case now.

In addition to considering revenue options in the proposed Master Plan, staff is also participating in a joint grant project with Alameda County Waste Management Authority and the City of Palo Alto. The project will evaluate alternatives to city and county reliance on landfill fees and identify restructuring strategies to mitigate declining revenues as landfilled waste decreases. Many local governments in California also rely on fees generated from solid waste and staff will continue to actively participate with these agencies over the near term to create alternate revenue sources.

In order to address the fiscal impact and pending closure, as well as remain in compliance with the Urban Accords and the proposed SB 1020 legislation, the City should adopt a zero waste

goal and implement waste reduction strategies. *Zero Waste* is defined as at least 90% of waste diverted from landfills. Zero Waste includes promoting technology and economic incentives that encourage reduction of waste on the front end and recycling and reuse of waste on the back end, after discarded by the consumer. A number of Bay Area cities have adopted zero waste goals. San Francisco and Oakland plan to achieve 75% diversion from landfill by 2010, and Zero Waste (90% diversion) by 2020. The City of Palo Alto proposes 75% diversion to align with their 2011 landfill closure date, and Zero Waste by 2021. In California, the cities of Fresno, Burbank, and Los Angeles, and the counties of Santa Cruz, Marin, San Louis Obispo, and Del Norte, to name a few, have also adopted Zero Waste goals.

The recommended IWM Master Plan development process will address the following key components for achieving Zero Waste: strengthening recycling programs, identifying infrastructure requirements for reuse, recycling and composting; and establishing effective waste prevention programs. The Plan will also identify economic development opportunities from expanding solid waste processing facilities and industries using recycled materials as feedstock. It is estimated that solid waste processing operations, such as recycling and composting facilities, employ ten times as many employees as disposal facilities to handle the same quantity of waste.

Staff has reviewed Zero Waste plans from other cities, and finds that many of the initiatives under development by Zero Waste cities are already being implemented or planned for the City. In order to meet proposed waste reduction goals, the IWM Master Plan will consider key strategies such as food waste composting, reducing packaging, extended producer responsibility, the commercial solid waste system design, and improved services for multi-family dwellings. Staff will also evaluate incorporating waste to energy technologies as a component of the City's Master Plan. In addition to these new strategies, the City will continue to improve on the model resource management programs outlined below, that have made San José an environmental leader.

**Construction Demolition Debris Deposit (CDDD) Program**

The CDDD program serves as a national model in the diversion of demolition debris. It was established to capture a waste stream that previously made up 30% of the total tons landfilled each year. The permit deposit program has become the state template used by the California Integrated Waste Management Board, and an example of a national and international success. While currently diverting nearly 5 times more than any other single material, great potential still remains to capture much more of the mixed construction and demolition waste currently being disposed.

**Yard Waste Composting Program**

San José's residential yard waste collection and composting program is one of the largest in the nation, diverting more residential green waste than all other recyclables combined. In addition to providing critical tonnage to meet diversion mandates, the San José program serves as a model of highest and best use policy and progressive contract implementation.

**Multi-Family Dwelling (MFD) Garbage Compostable Program**

The City's groundbreaking compostables program, operated by GreenTeam of San José, involves retrieving recyclables and organic resources out of the mfd garbage dumpsters. This initiative has allowed for a recycling rate of 35% for apartments—an achievement well beyond expectations in the recycling industry for this difficult to recycle waste stream.

**Go Green Schools Program**
San José's Go Green program has been named International Go Green City of the Year for 2007, reflecting its impact on environmental programming in San José schools. The potential for increased school recycling, as well as the impact of raising the awareness of students about environmental stewardship will benefit waste reduction efforts into the future.

**Las Plumas Eco-Park**
The proposed Eco-Park at the Las Plumas site is envisioned to be one of the most progressive facilities in the Bay Area, designed to fulfill both community and environmental responsibilities. In addition to providing a central collection center for household hazardous waste, it may also become a center for green building and sustainable development. This site will also incorporate LEED certification standards into any potential redesign.

**Special Event Recycling**
In addition to providing recycling options to green events such as the Grand Prix, the City implemented the first zero waste pilot event at the Comcast Jazz Festival. The Festival recycled 60% of its waste and created valuable recommendations for future improvements. Vendors and attendees felt that it was valuable for raising public awareness of reduced waste options.

## EVALUATION AND FOLLOW-UP

Staff will return to the T&E Committee by August 2008 with results of waste characterization studies, and to Council by the end of 2008 with the IWM Master Plan.

Additionally, the core service of the Environmental and Utility Services CSA to "Manage Recycling and Garbage Services" includes a performance measure related to solid waste diverted from landfills. This performance measure is calculated annually by the state, and reported to Council as part of the budget process.

## POLICY ALTERNATIVES

***Alternative #1: Do not adopt resolution to achieve higher diversion. Maintain status quo.***

**Pros:** Less need to develop waste diversion infrastructure.
**Cons:** Reduced landfill capacity. Negative environmental impacts.
**Reason for not recommending:** The City has already adopted the Urban Environmental Accords and supported proposed legislation SB 1020, which contains diversion requirements that

are similar to our recommendations. Failure to begin the planning process to reach these goals may have serious environmental, economic, and regulatory repercussions to the City.

***Alternative #2: Adopt more aggressive waste diversion goals.***

**Pros:** City would realize comprehensive environmental benefits more quickly, including reduced greenhouse gases, and an increase in jobs dedicated to recycling.
**Cons:** Need to develop a most robust waste diversion infrastructure and devote more resources to these projects in the near team.
**Reason for not recommending:** Staff is recommending waste diversion goals that are achievable in the proposed timeframe and more readily coincide with the term of the City's existing waste management service contracts and the commercial system redesign evaluation process currently underway.

## PUBLIC OUTREACH/INTEREST

This memo does not fall into criteria requiring outreach; however, outreach will be implemented as part of the recommended master planning effort.

Subsequent associated Council Memos will fall into Criterion 2 and memos will include the appropriate recommendations for outreach. As part of the Integrated Waste Management Master Planning efforts, Environmental Services will solicit extensive stakeholder input which will be incorporated into the Master Plan. Stakeholder input may include community meetings, customer surveys, and/or focus groups.

- ☐ **Criterion 1**: Requires Council action on the use of public funds equal to $1 million or greater.
  **(Required: Website Posting)**
- ☐ **Criterion 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)**
- ☐ **Criterion 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)**

## COORDINATION

This memorandum was coordinated with the City Attorney's Office, the Office of Economic Development, the City Manager's Budget Office, and the Department of Planning, Building and Code Enforcement.

## FISCAL/POLICY ALIGNMENT

This recommendation is in alignment with the City Council-approved Urban Environmental Accords.

## COST SUMMARY/IMPLICATIONS

Approval of this recommendation will result in costs not to exceed $550,000 for consultant services to assist with the development of the Integrated Waste Management Master Plan and to complete the Waste Characterization Study. Although implementation of Zero Waste programs could reduce annual revenues related to disposal sooner than if no changes were made to the current system, no such programs will be implemented until the Master Plan is submitted to Council and individual programs are approved. As part of the development of the Master Plan, a consultant will prepare a more comprehensive analysis of revenues related to both waste collection and disposal and will develop alternative revenue options from the City's solid waste system for Council consideration.

## BUDGET REFERENCE

| Fund # | Appn. # | Appn. Name | RC. | Total Appn. | Amt. For Contract | 2007-2008 Proposed Operating Budget (Page) | Last Budget Action (Date, Ord. No.) |
|---|---|---|---|---|---|---|---|
| 423 | 0762 | Non-Personal/ Equipment | 500500 | $4,418,251 | $550,000 | VIII-40 | 06/26/07 Ord No 28086 |

## CEQA

Not a project.

JOHN STUFFLEBEAN
Director, Environmental Services

For questions, please contact Jo Zientek, Deputy Director, Integrated Waste Management Division, Environmental Services, at (408) 535-8557.

Attachments:
(A) Resource Management, Infrastructure Requirements Assessment
(B) San José Disposal Capacity

# ATTACHMENT A
# Resource Management
# Infrastructure Requirements Assessment

September 2007

Historically, the City has contracted with private companies to provide collection services, processing facilities, and landfills necessary to manage the City's waste stream. The City operated the Singleton, Story Road, and Roberts Road landfills for a short period of time after purchasing them from their respective prior owners. The City also owned the Watson Park fill, but the incinerator operations were conducted by a private entity. The City has been out of the landfill business since then.

The terms of the recently awarded garbage and recyclables collection contracts are just six years. But, all of the equipment required to perform these contracts has a useful life longer than six years. Some of the facilities can be used for up to 20 years. Because of this differential some of the costs for these facilities and equipment may have been amortized over the shorter period by the proposers, thus raising the annual cost of the contract.

Even so, there are strong benefits to the City in maintaining short-term collection contracts. They allow for more rapid implementation of changes in technology that improve the way discards - recyclables, compostables and garbage - are collected. They allow for the change to cleaner air collection vehicles more rapidly. And, the frequent competition is believed to keep the collection costs lower.

However, the same benefits may not be realized with short-term processing and disposal contracts. In fact, in 1985 the City negotiated a 30-year disposal contract that dropped the rate charged for disposal of City's contractor collected wastes from $12.00 per ton to $8.00 per ton at that time. That Agreement has been extended and will now continue through 2020, with the possibility of another extension through 2024.

To manage the collection of garbage, recyclables and compostables, the collection contractors need facilities from which to operate. These facilities include:

- corporation yards where they will have their offices, vehicle maintenance facilities and truck parking
- recyclables processing facilities
- compostables processing facilities

The contractors must find and permit the facilities they need prior to the beginning of each new contract. The need to find a suitable location for their operations limits the number of companies that can respond to each Request for Proposals for collection services offered by the City. The costs to find and permit a facility must be spread over the short term of the contract, so that they can be recovered by the contractor.

And because of the pressure to increase housing and other development, it will be harder to find suitable locations for these facilities at the start of each successive contract.

Therefore, the City will be able to maintain lower cost, higher quality services if the City secures facilities for each of the long-term resource and waste management operations.

**San Jose Waste Diversion Summary**

The California Integrated Waste Management Board has approved the Annual Report submitted by the City for 2004 and determined that the diversion rate was 62%. The 2005 Annual Report has not yet been approved, but it shows a diversion rate of 61%.

The report for 2005 shows that:

- The total solid waste and recyclables generated in San Jose was 1,820,000 tons (25% residential; 75% commercial/industrial/ institutional).
- San Jose disposed of a total of 712,000 tons by landfilling (231,000 tons of this was residential waste collected by the City's contractors; the remainder was non-residential (commercial/industrial/institutional).
- In total, San Jose diverted 1,108,000 tons from disposal. However, much of that material (estimated to be over 500,000 tons of construction and demolition debris and inerts) was used at the local landfills as cover or on-site construction material.

**Major Waste Diversion Program results for 2005:**

Residential curbside and multi-family recycling programs recovered 119,190 tons. Residential yard trimmings collection and composting programs recovered 148,182 tons.

Commercial recycling and composting reported by the City's franchised waste and recycling haulers diverted 149,142 tons.

The San Jose-Santa Clara Wastewater Treatment Plant diverted 77,000 tons of dried biosolids (treated sewage sludge) for use as cover and construction material at local landfills.

An additional 615,000 tons were diverted, mostly from construction and demolition materials being recycled by developers or landfill operators, and by other recycling activities in the private sector.

**Required Facilities**

In addition to the corporation yards, recyclables processing facilities, and compostables processing facilities the City will need to support reuse centers, C&D waste processing facilities, hard to recycle materials processing facilities, transfer stations, and landfills. This report describes eight main types of facilities that are needed for the City to achieve its Zero Waste Goals.

**1. Reuse Centers**: Reuse Centers include facilities that will repair household items for resale, thrift stores, used furniture and appliance stores, building materials reuse centers, and other similar facilities.

1. thrift stores – the City could assist Salvation Army and other charitable organizations in expanding recovery and sales of usable household items that are no longer wanted by their owners.
2. used appliance and furniture stores – the City could provide rebates for repair of appliances. The rebates could be funded from AB939 fees and avoided disposal fees. The City could potentially fund these programs though a reuse component in the collection agreements for bulky item collections and neighborhood cleanup activities.
3. household item resale – "one more chance mercantile" selling usable household items and other items collected through the bulky waste collection program, or that are brought in by residents. This facility could be operated by a private firm or non-profit organization.
4. building materials reuse centers – the City could provide space for Habitat for Humanity, Whole House Building Supply and/or another organization, to operate from and store building materials awaiting reuse or resale.
5. 'Virtual World' reuse activities - This would include the promotion by the City of opportunities for residents and businesses to find a new home for unwanted materials, rather than disposing of them. This would include promoting Resource Area For Teaching (RAFT), Craig's List, Free-cycle, eBay, garage sales, swap meets, flea markets, materials exchanges, and other opportunities to residents and businesses.

## 2. Collection Company Corporation Yards

Each contractor providing service to each service district, for collection of each type of material type (garbage, recyclables and plant trimmings or compostable materials), needs a corporation yard.

Each operation will need space for office operations, truck maintenance, and truck parking.

Office and Admin – about 5,000 SqFt per district and per contract
Truck maintenance - about 8,000 SqFt per district and per contract
Truck parking –about 1,200 SqFt per truck

The number of trucks currently required to provide collection services is:

| | Garbage | Recyclables | Organics |
|---|---|---|---|
| District A | 37 | 33 | 22 |
| District B | 14 | 15 | 12 |
| District C | 26 | 27 | 21 |

The minimum space required for these vehicles (in acres) is:

| | Garbage | Recyclables | Organics |
|---|---|---|---|
| District A | 1.04 | 0.93 | 0.62 |
| District B | 0.39 | 0.42 | 0.34 |
| District C | 0.73 | 0.76 | 0.59 |

The total space required for the collection company corporation yards could be as high as 8.5 acres, if each of the services provided for each District is in a separate contract.

## 3. Compost Facilities:

Three types of composting facilities would be needed to achieve the maximum diversion of organics by the City. These are:

1. Plant Trimmings Only Compost Facilities:

   The yard trimmings collection program in the City is currently a plant trimmings only collection program. The collected materials are currently being composted at the Z-Best compost facility. This facility is operating at or near their maximum permitted capacity, and can not receive significantly more material than they currently receive, without permit modifications.

As the operators of local composting facilities contract with other jurisdictions for processing capacity, there may not be capacity for the natural growth in the yard trimmings collection program at these sites.

Compost facilities compost the plant trimmings that are currently collected throughout the City to produce a high quality soil amendment. The compost is sold for agriculture, horticulture and landscaping uses, such as golf courses. Compost produced at these sites is also used at City facilities and for highway transportation projects. Most of the material is sold in bulk (minimum of 100 cubic yards) to agriculture or soil blenders. It is sold to the public through soil yards. In the future various materials produced from these yard trimmings could be made directly available to the public at small scale material yards.

Since the City collects plant trimmings from three districts, the City could site and permit three compost processing facilities, as a way to reduce haul distances for the contractors, reduce truck traffic on our highways, and hence the related pollution. If these facilities were open to the public for recycling clean green material, then landscapers that currently haul small loads long distances would also benefit.

If these facilities were to be located within the City limits, they would need to be enclosed facilities to reduce dust, odor and noise impacts on the local neighborhoods. This would dramatically increase the cost per ton to process the compost and could be very hard to site and permit. Each facility would require about 15 acres and would be able to receive only about 65,000 tons per year.

Alternately, the City could develop a single large facility to reduce the impacts on local neighborhoods. About 30 to 35 acres would be required to compost the currently collected 145,000 tons per year.

City owned composting facilities, operated by private contractors, would allow the City to increase the number of collection companies that can respond to the City's plant trimmings collection RFPs.

2. Commingled Organics Composting Facilities:

An important step in achieving Zero Waste is the collection and composting of commingled organics. Commingled organics are the mixture of plant trimmings, food scraps and food soiled paper [which may be as much as 25%-30% of the waste still disposed from the City].

Many of the communities in Alameda County and San Francisco currently collect food scraps along with their plant trimmings to increase the amount of materials that are diverted from landfill.

The active composting process would happen either in temporary storage vessels (bags) at a relatively remote location, or in a building, to reduce the impacts of dust and odors from the operation. The Z-Best compost facility at the very southeast corner of Santa Clara County, is permitted to manage this stream of compostables; as are the Newby Island Landfill compost facility and the Pacheco Pass Landfill compost facility. There are currently no other permitted facilities in the County that can manage these materials.

The total tons of mixed single family and multi-family residential commingled organics (food scraps and soiled paper) is estimated to be about equal to the tonnage of the currently collected plant trimmings, and would double the amount of materials to be processed.

Traditionally it has been difficult to recover recyclables from multi-family residential units. The City's current MFD collection contract provides financial incentives for the waste collector to process some of the organics into compost to meet the City's diversion targets.

Approximately 19,000 tons of San Jose multi-family solid wastes are processed annually at the Z-Best Facility, where recyclables are first removed and the remaining material is composted. The next round of multi-family residential collection contracts could provide the incentive for composting all of the mixed wastes from apartments. This could add an additional 35,000 – 50,000 tons of material to be processed.

Additionally it is estimated that more than 100,000 tons per year of commercial food waste from grocery stores, restaurants and bars; and plant trimmings from florists could be separately collected and diverted to composting facilities.

Using an average figure of 15 acres per 75,000 tons per year, it is estimated that an area of about 90-100 acres of composting bags could be required to compost 450,000-500,000 tons of compostable organics (not including biosolids) generated in San Jose.

3. Co-compost Facilities:

The City is currently paying Allied waste to haul about 77,000 tons of biosolids (treated sewage sludge) to the Newby Island Landfill, where the sludge is used on-site instead of dirt. Instead, the City could develop a co-compost facility where the biosolids would be combined with some of the plant trimmings to produce compost. The only practical place to compost the biosolids (treated sewage sludge) in the area is at the WPCP.

Because it is too near the population center, co-composting to be done in the open windrows would not likely be permitted by the State. It is

possible that aerated static piles would work in conjunction with bio-filters to reduce the release of unpleasant odors from the site. The composting would best be accomplished in a bag system or enclosed building.

A composting facility for a combined 160,000 tons of biosolids and yard trimmings per year would require approximately 40 acres. If the biosolids are composted along with 75,000-80,000 tons per year of plant trimmings, then the space requirement for other compostable materials processing (described above) would be reduced by about 15 acres.

### 4. Materials Recovery Facilities (MRFs)

A City-owned MRF operated by a private contractor will allow the City to increase the number of collection companies that can respond to the City's recyclables collection RFPs. The facility would be designed to process the specific material types that the City will have the companies collect, instead of having the recyclables processed at facilities that were designed to manage a different set of materials.

The City is currently recovering about 108,500 tons per year of recyclable materials from single family households, and 16,500 tons from multi-family households. The multi-family tonnage could be expected to increase by 10-20% over the life of the current collection contracts, so in six years, the annual tonnage of recyclables from MFDs might be as high as 20,000 tons. Additionally, about 2,000 tons per year of large bulky items are currently collected.

Recyclables collected from single family and multi-family households are currently processed at two facilities. The GreenTeam MRF occupies about 2.94 acres, with a 20,000 SqFt processing building. The CWS MRF is on 3.57 acres, with an 85,000 SqFt processing building.

Each of these facilities is currently operating at or near its operational capacity. The space that they have for incoming trucks to unload the collected materials, and for complete separation of the collected recyclables into high quality commodities for marketing to manufacturers, is extremely limited at both of these facilities.

It is estimated that a MRF that properly processes all of the recyclables to meet the City's standards for 'Highest and Best Use' would require a total of 6.5 acres, with a 125,000 SqFt building. Alternately, the processing capacity could be provided at multiple sites. As suggested as an alternative for the plant trimmings composting facilities, if there were appropriate available locations

there could be a processing facility for each of the collection Districts to reduce travel time and trucks on the roadways.

### 5. C & D Processing Facilities

The City implemented the Construction and Demolition Debris Diversion (CDDD) program in 2002 to encourage processors to install equipment to process construction and demolition wastes for recovery. A focus of the program was to certify facilities that divert over 50% of the incoming C&D materials. The City currently has no direct involvement in contracting for collection of construction and demolition (C&D) wastes and recyclables.

Although all of the Certified Processing Facilities are diverting well over 50% of the incoming materials [they average over 80% diversion when all of the dirt, concrete and asphalt are included in the calculation], some of the facilities are no longer processing all of the mixed loads of materials received, to reduce the cost of their operation. The City should make the appropriate changes to the CDDD program regulations to require higher diversion rates from mixed C&D materials, to encourage the recovery of additional materials.

The City also implemented a grants program to get the facility operators to install new and upgrade existing equipment. The City could reinstitute the grants program, or provide a per-ton diverted to reuse incentive payment, to encourage facilities to further upgrade their existing processing facilities and provide a higher diversion rate.

There are adequate long-term C&D waste processing facilities in the City, so there appears to be no need for the City to own a C&D materials processing facility. Also, the City may want to take steps to prevent the conversion of any of the existing C&D processing facilities to other uses without full mitigation, such as establishing a replacement site within a reasonable hauling distance.

### 6. Hard to Recycle Materials Facilities:

The City is currently in the process of siting a Household Hazardous Waste Drop-Off Facility to process household and small quantity commercial generator wastes which can not be landfilled by State law. These materials include items such as electronic waste, florescent tubes, batteries, and paint.

Fluorescent tubes and Compact Fluorescent Lamps can no longer be landfilled, because they contain Mercury. It will be important for the City to insure that there are appropriate ways for residents to recycle these items so that they do not end up at landfills, or in recyclables processing facilities where if broken they would be hazardous to the workers.

Electronics and computer recycling infrastructure is already well established in the Bay Area, and there are several computer recycling facilities that capture these materials in San Jose. State law (SB 20) enacted in 2005 provides sufficient incentive for electronics recycling businesses to actively seek to recover these materials.

The City should not have to be responsible for the management of these types of waste materials, but should continue to support legislation that will include other hard to manage materials in this same model of producer responsibility program. Most materials that can not be landfilled according to state law should be subject to 'Extended Producer Responsibility' regulations, where the manufacturers or retailers who sold these products would be required to accept them back from customers who no longer wanted or needed them. A prime example is 'pharmaceuticals' or left over medications that can disrupt the working balance at the wastewater treatment plant, and which can contaminate the Bay if residents flush them into the sewer system. Other such materials might include pressure treated lumber, dry cell batteries, oil-based and water-based paints, and certain types of cleaning compounds.

Some materials (such as tennis shoes, books, small appliances, upholstered furniture and mattresses) can be recycled if sufficient quantities can be collected, processed, and stored awaiting shipment to market. The City should provide space for the storage of these materials, so that they can be recycled. This activity could be combined with the bulky item management component of the City's MRF operations.

## 7. Transfer Stations

As the City implements these various programs to achieve Zero Waste Goals, the amount of residue requiring transfer and disposal is projected to be about 10% of the current total waste stream, or about 182,000 tons per year.

After the current disposal contract ends in 2021, the wastes from residential and non-residential collection services, and the residue from the recyclables and compostables processing facilities in the City will need to be taken to a residuals facility, or landfill. Having an efficient transfer facility will reduce the cost of managing this residue.

It will be increasingly more difficult to site and permit a solid waste landfill within Santa Clara County, so the City should be prepared to haul the residual materials to a more distant landfill. This will require the development of a transfer station. To properly manage this amount of material, a transfer station of approximately 5 acres would be required. Some of this space requirement would be reduced if the transfer station function were combined with a MRF.

To provide the City with the maximum number of options for the management of these residuals, the transfer station should have access to a railroad siding, so that the residuals could potentially be hauled to dry tomb landfills in Nevada or Arizona. Assuming that the transfer station is located in conjunction with one of the materials processing facilities, rail access would provide the best opportunities for marketing the separated recyclables.

**8. Residual Facilities, or landfills**

When all of the organic wastes are separately collected and processed, the remaining materials will be inert, and the residue to be disposed in landfills will no longer be a source of methane or leachate. At this point, there will be less than significant environmental hazards from the residual facility, and it may be possible to site this facility in the County.

As existing landfills close, the landfill-based systems for on-site use of soils, inerts, and Alternate Daily Cover materials will also cease operation. Local facilities for the temporary stockpiling some of these materials until subsequent building seasons may be necessary (e.g., excavated soils, pavement rubble), as may transfer or treatment options for other materials (petroleum contaminated soils, industrial residues).

## ATTACHMENT B
## San José Disposal Capacity

### Existing Disposal Capacity in County

There are five disposal sites in San José, with only one other site still operating in Santa Clara County. The San José sites are Guadalupe Landfill, Kirby Canyon Landfill, Newby Island Landfill, Zanker Road Landfill, and Zanker Material Processing Facility, which includes a small disposal area. Palo Alto owns and operates the only remaining open site outside the City. The San José 2020 General Plan shows the general location of several Candidate Solid Waste Disposal Sites on the east side of Coyote Valley, including Tennant Canyon, Metcalf Canyon, and Encinal Canyon.

In 1990, the County was estimated to have 29 years of remaining disposal capacity, including the South County site at Pacheco Pass and municipal sites in the cities of Santa Clara, Mountain View, and Sunnyvale, all of which have since closed. This projection assumed that all jurisdictions would meet the 25% diversion requirement by 1995; it did not include the additional capacity expected from proposed expansions at the Palo Alto, Guadalupe, and Kirby Canyon Landfills.

*One other Candidate Site, Hellyer Canyon, had been dropped by this time due to the* development of Silver Creek. Efforts by other cities to site a landfill or waste-to-energy facility elsewhere in the County had all been abandoned for technical or political reasons.

The Santa Clara County Integrated Waste Management Plan, approved by the Board of Supervisors and all 15 Cities in the County in 1995, showed sufficient capacity for the required 15-year planning horizon, through 2010. Based on the assumed successful implementation of all 16 jurisdictions' Source Reduction and Recycling Elements, the Plan suggested that capacity would be available through 2022. Although the landfill expansions that had been pending in 1990 had been approved and diversion was expected to increase from 25% to more than 50%, projected disposal capacity had only been extended for three years, since total waste generation had been determined to be greater than previously estimated. The Integrated Waste Management Plan included goals to provide a minimum of 30 years disposal capacity and to explore means to develop up to 50 years capacity.

Since 1995, no new disposal facilities have been sited in Santa Clara County. (The former Owens-Corning Site was permitted to accept waste for disposal as part of the Zanker Material Processing Facility.) Consumption of disposal capacity has been affected by increased transfer of waste outside the County, in part to avoid the City's Disposal Facility Tax. This has been largely offset by increasing imports of construction and demolition materials reported by disposal operators as cover material or inert construction materials, on which taxes are not paid.

In 2005, the General Plan was amended to include the following Level of Service Policy:

> 20. For solid waste management, the City should seek to exceed 50% diversion of waste from disposal, maintain 20 years of landfill capacity, and provide for storage and collection of recyclables from every location where solid waste is generated.

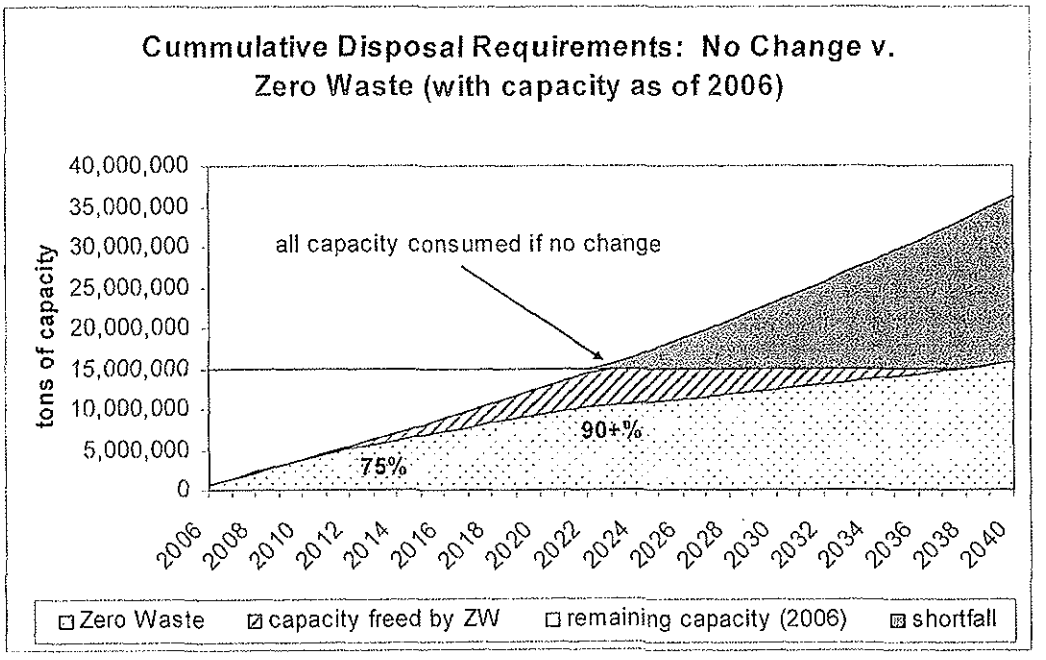
**City's Disposal Agreement**

San José had provided for collection and disposal of all residential waste and commercial garbage by a single contractor through the early 1980s. Non-putrescible commercial rubbish was collected in a competitive system under separate franchise agreements, as almost all commercial waste is now. All haulers were responsible for disposal of the waste that they collected. The City's garbage collector, Browning-Ferris Industries (BFI), owned the only major landfill in San José, which was almost out of permitted capacity. The City worked with industry for several years to develop additional capacity—Zanker Road Landfill was opened, BFI received approval for a significant expansion of Newby Island Landfill (the last major expansion in a historic tideland of San Francisco Bay), and Waste Management Inc. successfully sited, permitted, and developed Kirby Canyon Landfill in an area annexed to the City. Guadalupe Landfill was subsequently annexed, allowing it to expand into the area already inside City limits.

In 1985, the City entered into a 30-year Disposal Agreement with International Disposal Corporation (IDC) for use of Newby Island Landfill. IDC was a subsidiary of BFI, which is now owned by Allied Waste. The contract provided for the disposal of 395,000 tons per year of residential refuse and commercial garbage beginning in May 1986. This was the first major disposal contract put out to bid by the City, with competition having been made possible by the permitting of Kirby Canyon. Disposal costs fell from $12.00 to $8.00 per ton. With the Disposal Agreement in place, the City released an RFP for garbage collection, resulting in the award of the entire City to Waste Management at a rate low enough to fund new recycling and compost programs while still reducing service rates.

In 1995, following the establishment of the Recycle Plus residential system and demonopolization of commercial garbage collection, the City negotiated an amendment to the Disposal Agreement. As part of this amendment, the term was extended to December 31, 2020, with potential extension beyond that if Newby Island remains open and has sufficient capacity.

**Future Capacity**

Despite the success of our diversion programs, landfill capacity remaining in San José and Santa Clara County is now insufficient to meet the City's and County's goals. County staff have recently completed the Five-Year County Integrated Waste

Management Plan Report, and submitted it to the Recycling and Waste Reduction Commission for comment. It shows that the six landfills in Santa Clara County expect to reach capacity from 2010 (Palo Alto) to 2034 (Kirby Canyon). However, these dates are based on current flows to each site, and do not address the results of each closure as it happens. With the most heavily used site in the County, Newby Island, expected to close by 2024, and to cut off non-contracted business much sooner than that, Guadalupe and Kirby Canyon Landfills will almost certainly see increased flows, resulting in their capacity being exhausted sooner than they now project. The 45 million tons of gross capacity remaining after 2005 (which includes the capacity used for landfill daily cover and construction materials as well as the 15 million tons of net capacity), would be fully utilized by 2023 at current levels of waste generation and diversion. Implementation of the 75% diversion and Zero Waste goals recommended could extend the life of the existing sites beyond 2030, although the actual closure dates will depend on diversion efforts by others and on business decisions that affect the import or export of waste. Additional disposal capacity required through the remainder of the planning horizon (2040) would be reduced dramatically.