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Palo Alto Zero Waste Strategic Plan

**Prepared for the City of Palo Alto and
the Palo Alto Zero Waste Task Force**

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(adoption date)

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Palo Alto Zero Waste Strategic Plan

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1. Introduction and Methodology

This Zero Waste Strategic Plan has been developed to guide the City of Palo Alto to achieve Zero Waste. This first section provides:

- ◆ Introduction
- ◆ Definition of Zero Waste
- ◆ Strategic Plan Objectives
- ◆ Strategic Plan Methodology
- ◆ Input from Community Surveys
- ◆ Organization of Report

1.1 Introduction

The City of Palo Alto has long been a leader in recycling and sustainability, and has developed many innovative and comprehensive programs. On April 2, 2001 Palo Alto City Council adopted a Sustainability Policy, which was modified on June 17, 2002 as:

“It is the intent of the City of Palo Alto to be a sustainable community - one which meets its current needs without compromising the ability of future generations to meet their own needs. In adopting this policy, the City of Palo Alto accepts its responsibility, through its programs and services, to:

Economy:

Maintain a healthy, thriving and well-balanced economy comprised of a blend of large and small business, which encourages the development of independent businesses and is resilient to the economic changes common to California’s economy

Social Equity:

Continuously improve the quality of life for all Palo Alto community members

Environment:

· Reduce resource use and pollution in a cost-effective manner, while striving to protect and enhance the quality of the air, water, land and other natural resources

· Promote and support the conservation of native vegetation, fish, wildlife habitat and other ecosystems

· Minimize human impacts on local and regional ecosystems.

In working toward these goals, the City will, when appropriate, align and partner with community groups, businesses and non-profits.”

Shortly after the City adopted its Sustainability Policy, in November 2001 the California Integrated Waste Management Board (CIWMB) included as one of its eight strategic goals in its Strategic Plan to:

“Promote a ‘Zero Waste California’ where the public, industry, and government strive to reduce, reuse, or recycle all municipal solid waste

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1 materials back into nature or the marketplace in a manner that protects human
2 health and the environment and honors the principles of California's Integrated
3 Waste Management Act.”²
4

5 By the summer of 2004, a Zero Waste Task Force of Santa Clara, San Mateo and San Benito
6 Counties (ZWTFsBay) formed to promote Zero Waste in this region. On September 3, 2004, the
7 ZWTFsBay adopted a Zero Waste Communities Strategy.³ This Zero Waste Communities
8 Strategy encourages communities to go beyond California's AB939 goal of 50 percent waste
9 diversion to adopt a Zero Waste goal and develop a Zero Waste Plan to implement Zero Waste in
10 their community.
11

12 Building on Palo Alto's commitment to sustainability, on November 15, 2004, the Palo Alto City
13 Council directed City staff to prepare a Zero Waste Plan for Palo Alto.⁴ The development of a
14 Zero Waste policy and plan is consistent with the City's Sustainability Policy and these new
15 State and regional directions.
16

17 On January 13, 2005, a task force of residents and businesses was formed by City staff to assist
18 in the creation of a Zero Waste Policy and Plan for Palo Alto. Respected community leaders
19 lead the Task Force: Bud Mission, Roche BioScience; and Walt Hays, an active Palo Alto
20 resident. The Zero Waste Task Force met seven times over six months, and meetings were open
21 to public participation. The Task Force also invited individuals who were most active to
22 officially join the Task Force as voting members. Gary Liss & Associates (GLA)⁵ was hired to
23 create this “Zero Waste Strategic Plan,” to guide the development of an operational plan for Zero
24 Waste.
25

26 In reviewing plans for the coming year, City staff had planned to complete a detailed waste
27 characterization study comparable to those done in 1990 and 1997. As a result, it was decided
28 that it would be best if this Zero Waste Plan focused on policies and services needed as a
29 Strategic Plan, and that a more detailed Zero Waste Operations Plan be developed. The Zero
30 Waste Operations Plan would then identify public or private programs needed to reduce, reuse,
31 recycle or compost the materials identified in the waste characterization study, and respond to
32 the service opportunities identified in this Strategic Plan. The Zero Waste Operations Plan
33 would also identify suggested locations for new public and private facilities that might be
34 required, with a plan for how to pursue the development of those facilities.
35

36 1.2 Zero Waste Definition

37

38 The Zero Waste International Alliance broadly defines Zero Waste as:

39
40 “A philosophy and visionary goal that emulates natural cycles, where all outputs
41 are simply an input for another process. It means designing and managing
42 materials and products to conserve and recover all resources and not destroy or

² The CIWMB has established a website to promote Zero Waste at: <http://www.zerowaste.ca.gov/>

³ The Strategy is posted at: <http://www.crra.com/grc/articles/zwc.html>

⁴ CMR:470:04

⁵ See www.garyliss.com for background.

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1 bury them, and eliminate discharges to land, water or air that do not contribute
2 productively to natural systems or the economy.”⁶

3
4 Zero Waste means setting the goal of diverting from landfill at least 90 percent of the waste
5 generated by all sources, both business and residential. Zero Waste is meant to:

- 6
- 7 ♦ Reduce excess consumption and minimize unnecessary waste
- 8 ♦ Encourage reuse, recycling and composting to the maximum extent possible
- 9 ♦ Ensure that products are made to be reused, repaired or recycled back into nature or
10 the marketplace
- 11

12 Unlike our current system of managing waste, Zero Waste seeks to eliminate waste wherever
13 possible by encouraging a systems approach that avoids the creation of waste in the first place. A
14 Zero Waste systems approach turns materials discarded from one product or process into a
15 resource for other products and processes.

16 17 1.3 Strategic Plan Methodology

18 This Zero Waste Strategic Plan includes input from a wide cross-section of the community.
19 Public meetings were held and surveys were widely distributed to obtain feedback throughout
20 the community. Surveys were sent to at least 1,000 businesses throughout Palo Alto. In
21 addition, surveys were sent to over 400 reuse, recycling and composting service providers
22 throughout the San Francisco Bay Area. All residents received information about a residential
23 survey in their May utility bills. Both commercial and residential surveys were posted on the
24 City’s website.

25
26 Local participation was encouraged through news releases, attending local business meetings
27 (including the Stanford Shopping Center, Chamber Government Affairs Committee, Stanford
28 Business Park, and food generating businesses), door to door visits with Palo Alto service
29 providers, a special zero waste web site (zerowaste@cityofpaloalto.org), a Yahoo discussion
30 group, newspaper ads, Community Recycler newsletter, Utility bill inserts, flyers (at local
31 libraries, May Fete parade, and the City landfill), and the Recycling Center kiosk.

32 33 34 1.4 Strategic Plan Objectives

35 The objectives of this Zero Waste Strategic Plan are to:

- 36 ♦ Identify the magnitude of and opportunities for improved management of materials
37 and products discarded in Palo Alto.
- 38 ♦ Identify policies, incentives and educational programs that could be adopted to help
39 achieve Zero Waste in Palo Alto.
- 40 ♦ Identify services needed to achieve Zero Waste and criteria for evaluating specific
41 proposals for implementation.
- 42
- 43

⁶ <http://www.zwia.org/standards.html>

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1.5 Inputs from Surveys

The City received 61 responses to the Commercial Survey and 111 responses to the Residential Survey. The responses provided support and suggestions for the issues posed. However, these numbers do not represent a statistically valid sample and should only be considered as one part of the input provided through this Zero Waste planning process.

Of those responding to the Surveys, more than half indicated support for Zero Waste, and would like more information about how to pursue that. Strong support was also indicated from those responding to the Surveys for the following:

- ◆ **Garbage And Recycling Rates** - Keep current structure (Garbage rates structured so businesses that prevent waste, reuse, and recycle can reduce their garbage bill by reducing their level of service. Provides recycling collection, at no additional cost. Recycling and garbage rate are rolled into one monthly rate.)
- ◆ **Recycling Center** - Operate and maintain a recycling center within the city limits.
- ◆ **Resource Recovery Park** - Establish a Resource Recovery Park within Palo Alto City limits or nearby.
- ◆ **Require Tenant Access** - Require property management companies to provide tenants (e.g., apartment complexes, office buildings) with access to City's Recycling Program.
- ◆ **Commercial Yard Waste Collection** - Implement a landscape/plant debris collection program for commercial customers.
- ◆ **Implement Food Waste Collection** - Expand collection services to include separated food waste for composting.
- ◆ **Require Compostable Packaging And Containers** - Ban disposable food-service containers and require compostable food-service containers only.

Those responding to the Residential Survey also strongly supported the following:

- ◆ **Establish Zero Waste Refuse Rate** - Establish a reduced refuse rate for residents that generate less waste than the Mini-can (20 gallon) level of service. Rate would still include costs for other programs/services funded by Refuse rates (e.g., Household Hazardous Waste Program, street sweeping).
- ◆ **Adopt Product Life-Cycle Regulations** - Encourage Palo Alto elected officials to advocate for the adoption of legislation, on a State or National level that would require Producer Responsibility, financial and physical, for the take-back of products and packaging they produce at the end of the product's useful life.
- ◆ **Implement Green Building** - Implement a Green Building Program for new construction and major renovations.
- ◆ **Implement Food Waste Collection** - Expand collection services to include separated food waste (including food-soiled paper like pizza boxes, waxy cardboard, and frozen food boxes) for composting.
- ◆ **Landfill Ban on Recyclable Materials** - Ban materials from the Palo Alto Landfill that are recyclable, such as, cardboard, paper, metal, bottles and cans and construction and demolition debris. The Palo Alto Landfill receives waste for disposal from debris boxes, residents/businesses self-hauling garbage.
- ◆ **Ban on Recyclables in Garbage** - Ban materials from garbage pick-up that are recyclable, such as, cardboard, paper, bottles and cans.

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- ◆ **Adopt Precautionary Principle** - Require the City to adopt the Precautionary Principle as a strategy in conducting business (e.g. city operations, program and service offerings). The Precautionary Principle requires analysis of materials and processes to eliminate the risks of environmental and human health before problems occur,

Respondents also overwhelmingly supported a goal of Zero Waste, and 95 percent would either adopt a goal for themselves now, or would do so with more information provided. In general, the response to the survey of residents suggested a more aggressive set of policies be adopted than recommended by either the respondents to the Commercial Survey or the Zero Waste Task Force.

1.6 Organization of Report

The Report is presented in 7 sections and 2 appendices:

- ◆ Introduction and Methodology
- ◆ Waste & Recycling System -A summary of the current solid waste and recycling system
- ◆ Service Needs Analysis - A review of services needed to achieve Zero Waste
- ◆ Policies - To support those additional services, and to engage Palo Alto residents and businesses in working collaboratively towards Zero Waste, a wide variety of policies and incentives are recommended.
- ◆ Education – Highlights the need for a comprehensive education program on the benefits achieved through Zero Waste and how to participate.
- ◆ Funding - Funding options for implementing the Strategic Plan are highlighted, for both public and private participation.
- ◆ Vision and Strategy – A Vision of what could be accomplished is highlighted in this section, then a Strategy is detailed suggesting the next steps that need to be taken to achieve that Vision.
- ◆ Appendices - Task Force members and waste data are included in the appendices. The Palo Alto Service Needs Analysis, Funding Opportunities for Zero Waste, and the 2003 Palo Alto Annual Recycling Report are separate documents that also provide significant background information for this Plan.

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2. Palo Alto Waste & Recycling System

This section contains information regarding the existing solid waste and recycling system in Palo Alto. In particular, it presents information about:

- Current Solid Waste and Recycling Facilities
- Current Solid Waste and Recycling Programs
- Major Events Impacting Design of System
- Purpose of Waste Generation Study
- City of Palo Alto Waste Generation Studies
- State Waste Characterization Studies

2.1 Current Solid Waste and Recycling Facilities.

The City of Palo Alto (City) owns and operates a municipal solid waste landfill that includes a temporary composting facility and a temporary recycling drop-off center within the property boundary. The 7.5-acre temporary composting facility operates under a standardized permit and accepts approximately 17,000 tons of green waste per year for processing. The 1.5-acre temporary recycling drop-off center accepts recyclable materials (paper, glass, metal, and plastic) and some household hazardous wastes from residents and businesses. The recycling drop-off center processes approximately 15,000 tons per year of material.

The City's Household Hazardous Waste (HHW) program collects about 270 tons per year of HHW from both its recycling drop-off center and its HHW collection events that operate out of the Water Quality Control Plant under a temporary HHW Facility Permit.

The landfill final closure is scheduled to occur in 2011.⁷ All facilities operating there will be removed and a public, passive park will be established. Currently, there is no decision regarding the relocation of the recycling and composting facilities that are at the landfill.

In addition to these facilities, the City partnered with the cities of Mountain View and Sunnyvale for the operation of the Sunnyvale Materials Recovery and Transfer (SMaRT) station which disposes its waste at the Kirby Canyon Landfill through an agreement with Waste Management Inc. (see Approaching Events below).

2.2 Current Solid Waste and Recycling Programs.

In 2003, the California Integrated Waste Management Board (CIWMB) estimated that the City of Palo Alto generated 166,548 tons of waste annually. Of this total generated tonnage:

- ◆ 95,169 tons were diverted from disposal through source reduction, reuse, recycling, and composting activities, including:
 - 44,019 tons were diverted through non-City programs.
 - 51,150 tons were diverted through City operated reuse, recycling and composting programs (see details in Table 1)

⁷ More details on this are on page 6.

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Table 1 - City Recycling Programs 2003⁸

<u>Program</u>	<u>Tons</u>
Composting	16,890
Recycling drop- off center	15,130
SMaRT station diversion	9,480
Recycling at City Landfill	6,470
C& D debris box recycling	2,510
Single stream recycling pilot	1,670

The combination of the City and non-City programs resulted in the CIWMB calculating a 57% diversion rate for Palo Alto for calendar year 2003. The CIWMB reported that 71,379 tons of City waste was disposed in 2003, of which 23,230 tons were disposed at the Palo Alto Landfill, 39,846 tons were disposed at the Kirby Canyon Landfill and 8,303 tons were disposed of at other landfills in California.

2.3 Major Events Impacting on Design of System

Four events will significantly impact Palo Alto's ability to change its solid waste and recycling system and the timing of such changes. These events need to be factored into the design of any Zero Waste system for Palo Alto:

- ◆ Palo Alto's agreement with Palo Alto Sanitation Company/ Waste Management Inc. for solid waste and recyclable material handling services will terminate on July 1, 2007. It typically takes about two years for the City to go through a competitive procurement process, so the City will need to decide in 2005 whether to extend the contract or begin such a process. If the City extends for two additional years in 2005, then the City will need to decide by the summer of 2007 how to structure a competitive procurement process to be completed by July 1, 2009.
- ◆ Palo Alto's City-owned landfill will close in 2011. When it closes, the landfill property will become part of the Baylands Byxbee Park. By 2008, the City will need to decide whether or not a Recycling Center is maintained in that area once the landfill is closed. If the City chooses to maintain such a Recycling Center, a design for that facility needs to be prepared, environmental review completed, permits obtained, and construction completed by the time the landfill closes. If the City chooses to close that Recycling Center, it will need to decide by 2007 to site and implement one or more Recycling Centers elsewhere in Palo Alto.
- ◆ Palo Alto's Memorandum of Understanding (MOU) with Sunnyvale and Mountain View to use the SMaRT station will terminate on October 15, 2021..

⁸ Additional information about City programs and their history can be found in the 2003 City's Annual Recycling Report at: [\[include URL for that, once posted\]](#)

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- ◆ Palo Alto’s agreement with Waste Management Inc. to use the Kirby Canyon Landfill will terminate on October 7, 2021. At that time, the City will have the option to extend the term for an additional 10 years.

Until 2021, the City is obligated to deliver a set amount of waste annually to the SMaRT station and the Kirby Canyon Landfill or pay a fee per ton for each ton short of the City’s commitment. These commitments should be renegotiated before 2007, and any disincentive to Zero Waste adjusted as part of the City’s Zero Waste Operations Plan.

2.4 Waste Generation Studies

The purpose of a waste generation study is to estimate the quantities of materials, sources of generation, and types of solid waste generated within the community. The purpose of conducting an *updated* waste generation study is to obtain current information and identify successes that will aid in creating new programs for the future.⁹

2.4.1 City Waste Generation Studies.

In 1990, in compliance with AB 939, the City conducted a waste generation study. The results of the waste generation study provided the basis for preparing the Source Reduction and Recycling Element and identifying programs to help the City meet diversion goals of 25 percent in 1995 and 50 percent in 2000. In 1997, the City conducted a second waste generation study to assist the City in achieving the AB 939 50 percent diversion mandate by the year 2000.

Table 2-7 of the 1997 waste generation study (attached to this Plan as Appendix B) compares the 1990 and 1997 waste disposal composition by tons disposed for each of the four sectors. In general, all four sectors (residential, commercial, roll-off and self-haul) show significant changes in waste composition from 1990. Tonnages of some waste categories were up but overall the total tonnage of waste disposed in all four sectors experienced a sharp decline. This is due to an increase in diversion rate from 17.50 percent (1990) to 48.83 percent (1997) and to the success of over 50 updated, modified or additional diversion programs.

Single-family residents create only 18.3% of all Palo Alto discarded materials that are currently landfilled. Over 58% of discarded materials come from businesses (30.3% front-loader collection and 28% collected in roll-offs). However, the numbers for commercial include, by definition,¹⁰ discarded materials from apartment buildings in the City. Approximately 17.3% comes from City and other institutional operations, including the Community Improvement Project and schools. Only 6% is hauled directly to the Palo Alto landfill by residents and businesses.

The following are pie charts prepared for each of the four sectors that highlight the top 10 materials that were still landfilled as of 1997.

⁹ Title 14, California Code of Regulations, Chapter 9, Article 6.1, Sections 18722-18726 describes the methodology in how these studies are to be conducted.

¹⁰ Unfortunately, the amount of the commercial waste stream coming from multi-family dwellings has not been determined.

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Chart 1 - Top 10 Material Types found in Palo Alto Waste Disposal Composition

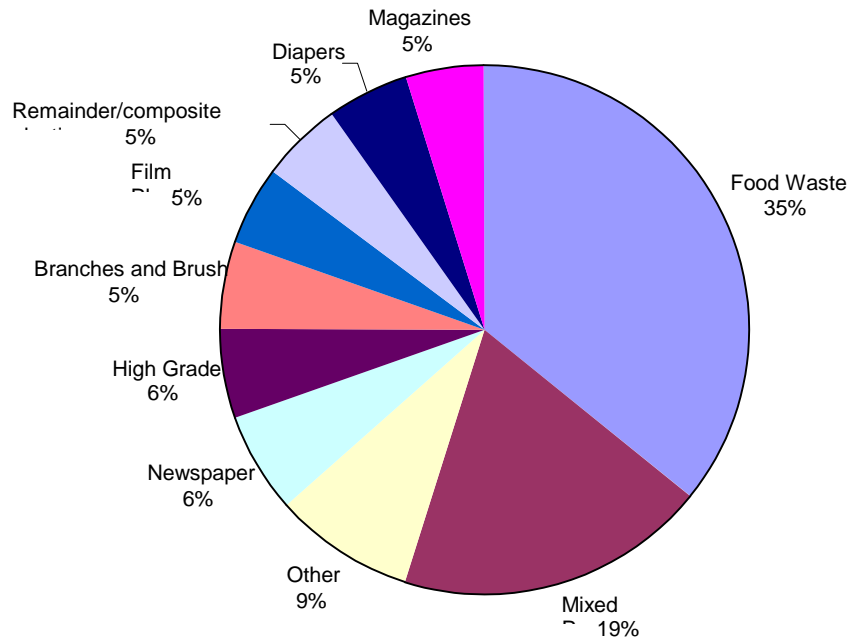
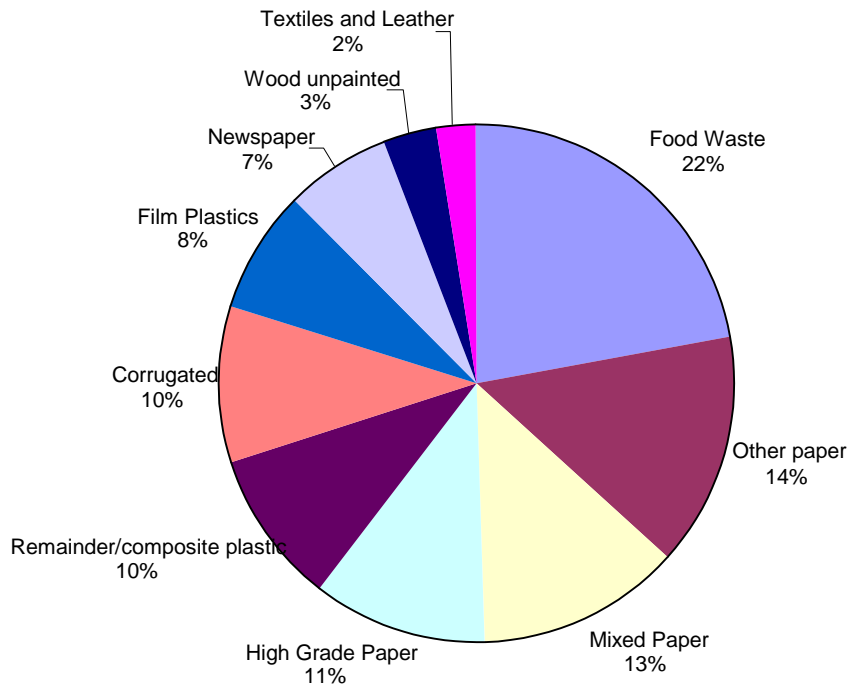


Chart 2 - Top 10 Material Types found in Palo Alto Waste Disposal Composition



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Chart 3 - Top 10 Material Types found in Palo Alto Waste Disposal Composition Study

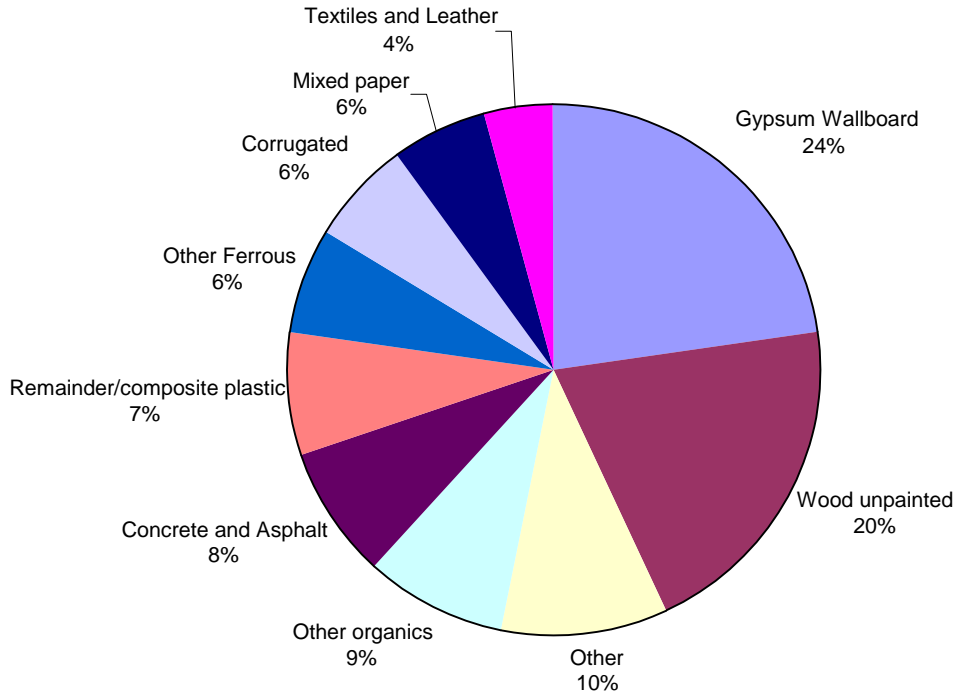
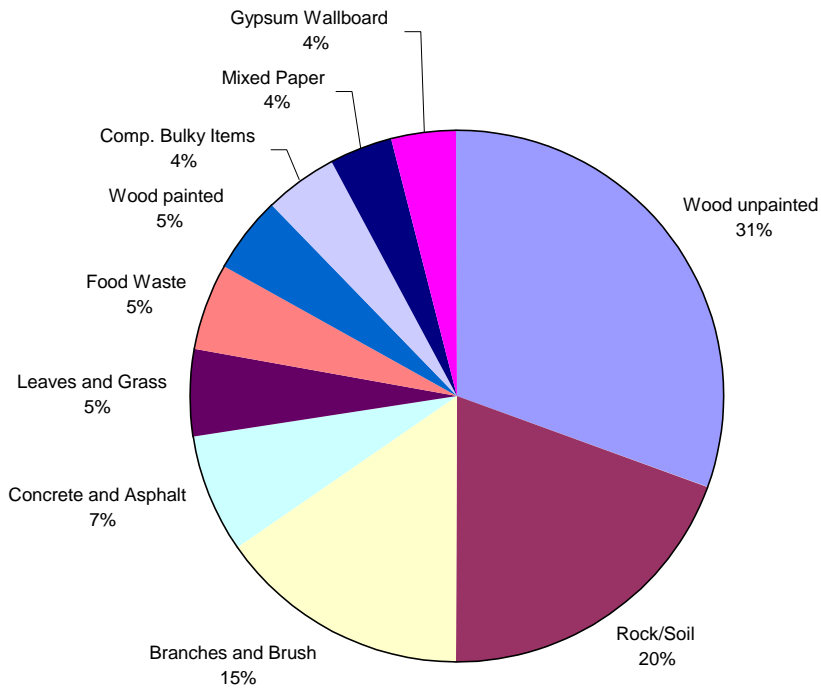


Chart 4 - Top 10 Material Types found in Self Haul Palo Alto Waste Disposal Composition Study 1997



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2.4.2 State Waste Characterization Studies

1
2
3 In 1999, the California Integrated Waste Management Board (CIWMB) conducted a statewide
4 waste characterization study to obtain information on the types and amounts of materials still
5 being disposed in the state. This study gathered data from the commercial, residential, and self-
6 hauled waste stream throughout California. In addition to the waste characterization study,
7 estimates of the types and amounts of materials in the waste streams of individual California
8 jurisdictions in 1999 are included the 1999 solid waste characterization database, where data was
9 collected during the 1999 waste characterization study.

10
11 Although unable to compare City and State WCS results due to methodology, year and
12 specificity of study, the state study provides useful data and information as detailed in tables in
13 the companion Service Needs Analysis completed concurrent with this plan by GLA.

14
15 In 2003 and 2004, the CIWMB conducted another statewide study with the same objective as the
16 1999 study. However, this study departs significantly from the 1999 study in its methodology.
17 The 2003-04 statewide study obtained samples from vehicles at disposal facilities to characterize
18 commercial waste, instead of samples obtained at actual commercial sites as was done for the
19 1999 study. Unfortunately, without an updated waste characterization database, the 2003-04
20 statewide study was not useful in better understanding the current status of Palo Alto's waste
21 stream.

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3. Service Needs Analysis

This section highlights:

- ◆ Priority Service Needs
- ◆ Services Needs by Material Types
- ◆ Pie Chart Highlighting Top 15 Materials Landfilled for All Sectors in 1997

GLA extensively evaluated reuse, recycling and composting services in the Palo Alto area. A companion report was developed¹¹ which details how this analysis was done, and different methodologies that were used to determine priorities for services needed in Palo Alto. In particular, an inventory of all of the material types that had services available was created. Each of the detailed material categories (listed in the 12 master categories) was evaluated to understand the available service categories. The evaluation included assessing whether the material could be reused, recycled or composted through one of the following services: on-site composting, reuse pick up or drop off services, franchisee pick up or debris box services, Palo Alto Recycle Center services, Palo Alto Landfill recycling services, Palo Alto household hazardous waste facility services, other services at facilities in Palo Alto, SMaRT Station services, other services outside of Palo Alto but in the San Francisco Bay Area, and other services outside of the Bay Area. This list was compiled by researching information available from the City of Palo Alto, County and State websites, brochures, flyers, and other readily accessible local resources such as the phone book. In addition, GLA visited many local service provider locations and talked with local residents and businesses owners about service needs.

The inventory found that there were no services available for a number of materials. However, priority service needs also considered other factors beyond this inventory. GLA combined the service inventory analysis with the analysis of disposed waste characterization data from the City of Palo Alto 1997 Waste Study and the State's 1999 Waste Characterization Study. These studies were used to evaluate the relative importance (by weight percent) of each of the material categories. This combined methodology avoided identifying inconsequential service needs.

Priority service needs were then identified for material types where no or low services were found to be available and where the specific material type was found to be a significant weight percent of disposed waste.

3.1 **Priority Service Needs**

Based on this extensive analysis, Table 2 summarizes the materials where priority services may be needed, followed by a discussion for each of the major types of materials discarded in Palo Alto. Please note that lack of services for material types do not necessarily indicate a need to provide services but could instead reveal a need to reduce or eliminate these materials:

¹¹ *Palo Alto Service Needs Analysis*, July 2005, see [include URL once posted to City's website]

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Table 2 - Priority Service Needs

Top Priority Service Needs for all Palo Alto waste streams
◆ Food Wastes
◆ Other Paper
◆ Composite Plastics
◆ Film Plastics
◆ Textiles and Leather
Second Priority Service Needs for all Palo Alto waste streams
◆ Wood unpainted ¹
◆ Gypsum wall board ¹
◆ Other Ferrous

3.2 Service Needs by Type of Material

The following is a description of the service needs and opportunities that were identified for each of the 12 master categories of materials discarded in Palo Alto.

- 1. Reusables.** Facilities selectively take certain grades of reusable materials, primarily the high end. A limited number of facilities accept and process reusable materials like large appliances, mattresses and reusable building and construction materials. Only a few organizations have pick up services, and those are for a limited set of materials. There are no facilities for used building materials in Palo Alto and nearby facilities are very limited in what they accept (e.g., have many specifications for what grade, type or age of materials they accept). The Palo Alto website could also promote other reuse services (e.g., Free-cycle, Cal-Max, e-Bay, Resource Area for Teachers, and Craig’s list).. The City of Palo Alto and the State waste characterization studies do not provide any data on reusables found in disposed waste to help determine priority of reusable service needs. Materials in the reuse category were assessed as a high priority need because there were limited services found and because reuse is above recycling on the integrated waste management hierarchy.
- 2. Paper.** Adequate services are provided for most types of paper in Palo Alto. However, there are no services available in the vicinity of Palo Alto that take waxed or plasticized paper/paperboard. The Palo Alto waste characterization study from 1997 unfortunately did not provide itemization of waxed cardboard, however the “other paper” category for which it was lumped into did appear as a top 10 material type representing 13% of the waste stream. Also because there is some evidence that there has been a significant increase in use of this type of material in product packaging since 1997, this category was included, as a priority service need. GLA analysis indicated that there are few services that recycle source separated high-grade office paper from commercial sectors aside from the “mixed paper” category, which reduces the value to generators.¹² But because mixed paper services were

¹² If white paper is kept separate from other colors and types of paper, it commands a higher price in the marketplace. Large businesses that generate such material can sell it and generate some net revenue. Although they could also recycle that as mixed paper, they would not get the revenue from that material.

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1 found to be abundant, high-grade paper was not noted to be a high priority service need, but
2 rather a “niche opportunity.” There is a lack of services to take thermal paper for thermal
3 paper commercial users. However, because the waste characterization study did not identify
4 it as large a quantity disposed material thermal paper is not noted to be a priority. There are
5 services to accept blueprints but education is needed (e.g., a brochure and website info) to
6 explain these services to architectural businesses, and residents that dispose of blueprints.
7 More detailed information is also needed on the website for services that take waxed or
8 plasticized coated paper.

- 9 3. **Glass.** Adequate services are provided for mixed glass containers. Service is needed for
10 recycling glass for higher and better uses (e.g., wine bottles back to wine bottles, clear glass
11 back to clear glass). None of the glass categories were found to be high in quantity in
12 disposed waste. As a result, even though the following lacks of services were noted, none of
13 these are priority. It should be noted however that due to the close proximity of Palo Alto to
14 wine country where wine is bottled this service need represents another niche opportunity.
15 Very few beverage container redemption depots¹³ exist in Palo Alto. Other services needed
16 include: plate glass recycling in or near Palo Alto aside from debris box services where they
17 may likely be broken and contaminated and services to recycle non-fluorescent light bulbs,
18 Pyrex, ceramics, and composites. These may be niche opportunities (especially Pyrex since
19 Palo Alto is home to facilities of the Pyrex manufacturer).
- 20 4. **Metals.** Services are adequate for most metals recycling. None of the metals categories
21 were found to be high in quantity in the disposed waste stream from the 1997 study so the
22 following lack of services are not considered high priority. There is a need for more
23 information on scrap metal services to all sectors. Although scrap metal is accepted at
24 curbside for residential customers, there is no dedicated container to separate this material to
25 inform residents of its acceptance. No scrap metal curbside services are offered to business
26 and multi-family sectors and they are noted as a niche opportunity especially since there are
27 strong markets for scrap metal. As noted above, Palo Alto lacks adequate beverage container
28 redemption depots, which also creates a niche opportunity for aluminum can recycling. A
29 new mattress recycling service exists, but needs more publicity. Information on Automobile
30 reuse and recycling (including automobile donation services) is scarce since they are not
31 listed in the Recyclopedia.
- 32 5. **Plant Debris.** Adequate services exist for most plant debris. Branches and brush were found
33 in significant quantities (12%) in disposed self haul waste in 1997 however it is not noted as
34 a priority since specific green waste policies have been implemented since 1997 that should
35 have resulted in a major decrease in the disposal of these materials. Better signage and
36 information is needed to direct self-haulers to the recycling of plant debris section at the
37 landfill and to clarify that this material is not buried in the landfill. More information about
38 grasscycling and on-site composting is needed. .
- 39 6. **Putrescibles.** The 1997 waste characterization study identified food wastes as significant in
40 quantity, 26.5% in residential and 13% in all sectors combined. There are NO services for
41 drop off or pick up of all types of putrescibles. As a result discarded food collection and
42 composting services are noted as a top priority for services needed for residential and
43 commercial food waste. Vegetative and food contaminated paper may be composted on-site
44 but there is limited information about on-site composting for all sectors. The Recyclopedia

¹³ Facilities that would redeem containers under the AB2020 recycling system (see
<http://www.consrv.ca.gov/DOR/gpi/FactSheet04New.pdf>)

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1 does not provide information about on-site composting services and the Palo Alto website
2 does not provide a brochure on these services.

- 3 7. **Wood.** Unpainted wood was found in significant quantities in disposed waste in 1997.
4 Unpainted wood was seen in significant quantities in roll off (17%) and self haul (24%)
5 streams in 1997. However, unpainted wood is anticipated to be significantly lower in the
6 roll-off stream today because of the recent C&D ordinance requiring recycling of large
7 projects. Its unclear if unpainted wood remains in the self-haul waste streams that may be
8 from small-scale generators (e.g., small remodels). Because there are adequate recycling
9 services for these materials outside of Palo Alto and because Palo Alto has a C&D ordinance
10 in place for large projects, the service need for unpainted wood is considered 2nd priority and
11 should be reconsidered with updated waste characterization data. Information on best
12 practices to recycle wood from remodeling and demolition projects would be helpful. Wood
13 mixed into a debris box may become inseparable for recycling when mixed with soil concrete
14 and other items. Limited services and information are available on drop off recycle locations
15 for painted and unpainted lumber and wood in or near Palo Alto. There are locations that
16 take pallets for direct recycling but there is no information about that service on the Palo Alto
17 website.
- 18 8. **Construction & Demolition Debris/Ceramics.** Gypsum wallboard was found in significant
19 quantities (7%) in the overall waste stream in 1997. But because the analysis shows that
20 gypsum wallboard is primarily brought into the disposed stream from roll-off containers, it is
21 not identified as a priority service need but should be restudied closely to see if significant
22 quantities remain in the roll-off stream from projects that are not triggered by the
23 requirements of the C&D ordinance. More information is needed on best practice
24 procedures to recycle C&D materials. These materials may become contaminated and
25 inseparable in debris boxes. No drop of or pick up service is in place for carpet and carpet
26 padding recycling in or near Palo Alto, nor is there a way to conveniently recycle gypsum
27 wallboard, porcelain, brick, and composite roofing from small building improvement projects
28 not required to recycle these materials by ordinance.
- 29 9. **Soils.** Rock and soil were not found to be disposed of in significant quantities in the 1997
30 study and are therefore not considered a top priority. With the adoption of a construction and
31 demolition (C&D) ordinance an updated waste study may find that rock and soil are now
32 adequately serviced in Palo Alto.
- 33 10. **Plastics.** There are very limited services available for film plastics and composite plastics,
34 both of which were identified to be in significant quantities (3.5% and 6% respectively) in
35 the overall waste stream. Additionally there is some evidence that since 1997 these materials
36 have increased in quantity due to their increased use in packaging and products. As a result
37 both film plastics and composite plastics are considered a top priority service need. There are
38 no services provided near or in Palo Alto for #6 foam containers. Foam containers are not
39 identified in significant quantities in disposed waste from the 1997 characterization study,
40 however the State waste study from 1999 did identify restaurants as one of the top 4 waste
41 generators in the commercial sector. As take-out food is commonly sold in #6 foam
42 containers, when restaurants are surveyed, the City should be able to get a better estimate of
43 the quantities of these wastes discarded.
- 44 11. **Textiles.** The 1997 waste characterization study found textiles to be enough of a quantity of
45 the overall disposed waste stream at 2.7% to be considered a priority for review. There are no
46 services provided near or in Palo Alto for recycling of textile products including cotton and

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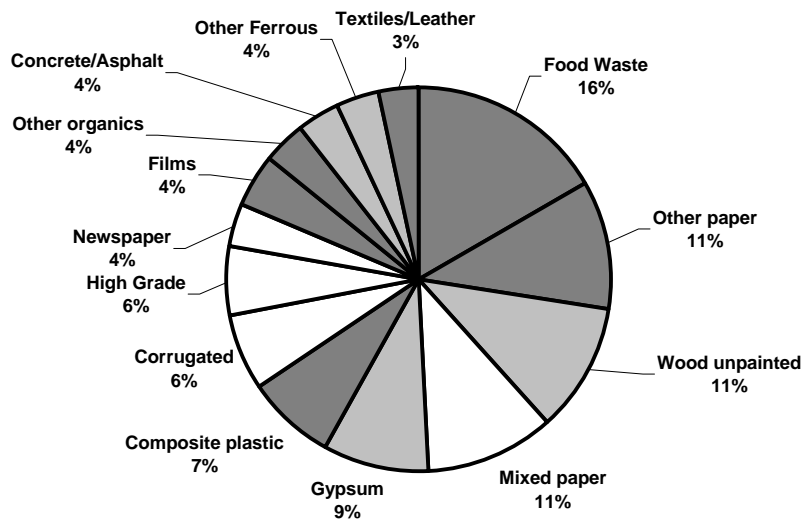
1 wool (which have relatively stable markets). There are only a few organizations that pick up
2 textiles with a primary intent of processing these items for reuse.

3 12. **Chemicals.** Information and services are limited for recycling of pharmaceuticals and
4 treated medical waste (such as needles), or for the proper handling and disposal of treated
5 wood. These materials present possible health protection issues, and they may contain toxic
6 constituents even though they may not be regulated as hazardous wastes. With the successful
7 implementation of SB 20 in 2005, there is a need for increased free and convenient drop off
8 services for recycling of TVs, computer monitors and other hazardous electronics to
9 discourage dumping or hiding these toxic items in disposal especially in anticipation of
10 greater high density TV sales.

11
12 Chart 5 is a pie chart that highlights the top 15 materials still disposed in landfills in 1997 when
13 considering the entire waste stream (all four sectors: residential, commercial, roll-off and self-
14 haul). The total amount of waste reported landfilled in 1997 was 85,357 tons for the year.

Chart 5 - Top 15 Materials Landfilled in Palo Alto 1997

All 4 sectors combined (residential, commercial, roll-off, self-haul)
Total waste quantity 85357 tons, Palo Alto 1997 WCS



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1 4. Policies for Zero Waste

2
3 This section highlights:

- 4 ♦ Recommended Mission
 - 5 ♦ Recommended Policies
- 6

7 The Palo Alto Zero Waste Task Force reviewed a menu of policies and incentives prepared by
8 the consultants to assist the City in achieving Zero Waste. Those policies included economic
9 incentives and disincentives, policies for different generators of waste to reduce and recycle their
10 wastes, retail and landfill bans, and policies that would engage retailers and producers to be
11 responsible for the products and packaging that they create and dispose of. These options
12 highlighted that there are many tools that Palo Alto could use to influence the marketplace.

13
14 In most communities that have achieved high rates of waste diversion, these tools are used
15 incrementally, with voluntary approaches and partnerships tried first before more challenging
16 policies are adopted. However, businesses will also need to know that the City is committed to
17 the goal of Zero Waste before they invest substantial resources in changing their operations.
18 Therefore, the most critical policy of all is for the City to adopt its Zero Waste goal, and ask all
19 stakeholders in the community to participate in working towards the goal, to strive to achieve it
20 by the target deadline.

21
22 The Task Force recognizes that Palo Alto will need to develop appropriate policies and programs
23 for different types of businesses sectors, particularly: multi-tenant office buildings, downtown
24 businesses, strip malls, restaurants and hospitality industry, and major industrial areas (e.g.,
25 Stanford Business Park). As in most communities, multi-family housing needs must be addressed
26 separately as well.

27
28 The Task Force was most comfortable with a Strategic Plan that initially encouraged and
29 provided incentives for the pursuit of Zero Waste in Palo Alto, rather than initially mandating
30 policies and requiring participation in programs. The Task Force wants to create a partnership
31 among all the stakeholders involved, and work together positively to achieve the many benefits
32 that Zero Waste offers. The Task Force also wants to revise the City's thinking of this as a waste
33 disposal problem to solve, and view it more as an economic development opportunity to create
34 new jobs and businesses in the area, and to make Palo Alto businesses "Greener," more
35 "Sustainable," and more cost competitive.

36
37 The Task Force was particularly clear that policies and incentives needed to be applied to
38 restructure rates and fees to provide a clear price signal to reward those who waste less and
39 recycle more. The City will also work with other communities in the San Francisco Bay Area to
40 adopt a variety of policies that will eliminate wastes and keep recyclable materials from being
41 landfilled. In addition, the City needs to help expand existing reuse, recycling and composting
42 activities by working to site one or more Resource Recovery Parks in the region.

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4.1 Recommended Mission

Divert 75% of discarded materials from landfills or incinerators by 2011 and strive for Zero Waste by 2021 to keep resources in Palo Alto, to eliminate discards to air, water and land, to improve the environment, to eliminate toxics in products, to help Palo Alto businesses compete as sustainable enterprises and to reduce City liabilities.

4.2 Recommended Policies

1. **Eliminate Waste** - Encourage Palo Alto businesses to be the **global innovators** and designers of a new generation of **sustainable products and processes** that reduce the volume and toxicity of waste and materials, emulate sustainable natural cycles, conserve and recover all resources, and not burn or bury them. Focus beyond recycling on services and policies needed to eliminate waste. Encourage Palo Alto residents to consider their purchases carefully with regard to waste issues, and to reduce or eliminate toxic products for use in households. Developing a list of toxic products and packaging for businesses and residents to discontinue using should be a priority.

2. **Policies and Incentives** - Residents and businesses that **waste less should pay less**. Increase incentives for waste generators and service providers to design out waste and reuse, recycle and compost materials for their highest and best uses. Change Ordinances, contracts, franchises, permits, zoning, and garbage rate structures so that the least expensive option is to stop discarding materials, and so that reusing, recycling or composting discarded materials is cheaper than landfilling or incineration.

Designate materials that should be eliminated, reused, recycled or composted, then provide information and technical assistance needed for implementation. After 2-3 years, if designated materials have not decreased by more than 20%, then adopt economic incentives and disincentives to further encourage desired behavior. After another 2-3 years, if designated materials have not decreased by more than 50% from 2005 levels, then adopt bans or mandates requiring proper handling of those materials.

3. **Service Needs** - Increase public and private reuse, recycling and composting collection and processing services on an open, competitive basis, and help develop new businesses that add value to materials recovered, minimizing residues requiring disposal. Adding services will mean adding businesses to Palo Alto, and the region. Develop discarded food collection and composting services as the highest next priority for new services in Palo Alto for both residential and commercial sectors. Encourage innovative services to be added by the private sector and nonprofit groups so the City does not have to invest in those activities. Encourage different types of services to be provided for different types of businesses. Develop new requirements for multi-family dwellings that ensure that all tenants have services comparable to single-family dwellings.

Encourage retailers and their suppliers to takeback products and packaging that are currently difficult to reuse, recycle or compost in Palo Alto (like Ottawa, Canada program).¹⁴ Post all

¹⁴ For more info, see: http://www.city.ottawa.on.ca/gc/takeitback/index_en.shtml

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1 cooperating retailers on City's Zero Waste website and regularly include articles and/or ads
2 about this program in area newsletters and newspapers.

3
4 Support other regional recycling centers used by Palo Alto residents and businesses to help them
5 expand and provide additional services needed. Develop one or more resource recovery parks
6 within Palo Alto City limits or nearby to provide locations for expansion of reuse, recycling and
7 composting businesses. At a minimum, maintain one or more recycling drop-off centers within
8 the City limits once the City's landfill closes in 2011, consistent with the Baylands Master Plan.

9
10 The Zero Waste Operations Plan should address the services needed identified in this Strategic
11 Plan, and should be implemented with policies and incentives consistent with those outlined in
12 this Strategic Plan.

13
14 **4. Economic Development-** Zero Waste systems should keep jobs in Palo Alto by lowering the
15 costs for businesses in Palo Alto, helping Palo Alto businesses become more sustainable and
16 globally competitive and providing the greatest economic development benefit for the region.
17 Engage community and economic development staff in making it a priority to expand needed
18 reuse, recycling and composting services.

19
20 **5. Minimize Liabilities** - Minimize City liabilities from wasting resources and ensure that the
21 burdens and benefits of zero waste systems are equitably distributed. Minimize long-term landfill
22 liabilities by ensuring that full capital and operating, closure and post-closure costs are factored
23 into current rates and financial assurances, particularly for private landfills. Establish a
24 budgetary target to reflect the benefits of avoiding these future liabilities as an avoided disposal
25 cost, which will help in evaluating the economic viability of City investment in waste reduction
26 programs. Eliminate all discharges to land, water or air that may be a threat to planetary, human,
27 animal or plant health and protect the environment for local residents.

28
29 **6. City role** The City will lead by example to achieve Zero Waste goals for all facilities owned
30 or leased by the City, and in support of environmentally preferable purchasing. The City will
31 facilitate and encourage expansion of services by private and nonprofit organizations and will
32 allow open competition for reuse, recycling and composting service providers. The City should
33 fund community Zero Waste initiatives with fees levied on the transport, transfer and disposal of
34 wastes and by leveraging the investments of the private sector. The City should structure fees
35 and taxes in ways that provide additional incentives for eliminating waste and expanding reuse,
36 recycling and composting programs. The City should include Zero Waste goals in job
37 descriptions and specifications of all staff and contractors involved in operating City waste and
38 recycling programs. Palo Alto elected officials should advocate for the adoption of legislation
39 on a State or National level that would support Zero Waste. The City should develop a Zero
40 Waste Operations Plan to detail priorities for facilities to be developed for the City as a whole
41 after the City updates its detailed waste characterization study. The City should continue the
42 Zero Waste Task Force to help review and comment on the Zero Waste Operations Plan, and the
43 implementation of Zero Waste in Palo Alto.

44
45 **7. Waste Data** - A better understanding of the waste stream is critical to the development of the
46 Zero Waste Operations Plan. The waste generation study planned next needs to include

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1 additional analysis of different segments of the commercial and industrial sectors. This could be
2 accomplished through informal visual assessments of randomly selected businesses. At a
3 minimum, separate data on waste and recycling services provided to multi-family dwellings is
4 needed to provide a clear baseline to measure progress for that sector.
5
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1 5. Education and Information

2
3 Communications with the Palo Alto community is critical to the success of any new programs.
4 The City needs to educate and engage the community to support Zero Waste initiatives. Develop
5 and implement a public education and communications program concurrent with the design of
6 new waste diversion programs. Implement new education program in advance of the
7 implementation of any new programs. Coordinate outreach programs for sustainability and
8 pollution prevention with Zero Waste, waste prevention and recycling programs. Ask local
9 businesses to adopt Zero Waste goals and to develop Zero Waste plans. Recognize businesses
10 that are models of one or more Zero Waste Business Principles.¹⁵ Implement comprehensive
11 community-based social marketing programs to more actively engage residents and businesses.
12 Work on region-wide development of messages and promotions for events such as Earth Day
13 (April 22), World Environment Day (June 1-5), Second Chance Week (September), and America
14 Recycles Day (November 15).

15
16

¹⁵ For copy of the Principles, go to: <http://www.grn.org/zerowaste/business/>

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1 6. Funding for Zero Waste

2
3 Funding for Zero Waste initiatives may come from a wide variety of sources. Stakeholders and
4 service providers may be willing to assist with the expansion of solid waste, reuse, recycling and
5 composting services in Palo Alto without public investments. Other local business people might
6 want to invest in new Zero Waste ventures (such as a Resource Recovery Park), or would self-
7 finance the expansion of new reuse, recycling and/or composting services by diversifying
8 existing unrelated businesses. Properly designed avoided collection and disposal costs can
9 become the economic engine that drives the system to Zero Waste.

10
11 Proposed policies and incentives could harness the forces of the marketplace to also achieve Zero
12 Waste at little or no cost to the City. The City of Palo Alto can have major impacts in defining
13 what is economic, through the policies adopted in ordinances, contracts, permits, zoning, and rate
14 structures. By adjusting policies as recommended, the City can help everyone who eliminates
15 and recycles waste benefit, and let those who choose to waste, pay higher fees for those services.

16
17 The City of Palo Alto should become a strong supporter of Retailer and Producer Responsibility
18 initiatives. Once retailers and/or producers assume responsibility for their products and
19 packaging, they incorporate the costs of reuse, recycling and/or composting within the purchase
20 price of the products. This essentially becomes a self-funding system, and is one of the most
21 powerful opportunities that exist to move towards Zero Waste, particularly for products and
22 packaging items currently difficult to recycle.

23
24 Socially responsible investors would be interested in investing in projects like a Resource
25 Recovery Park and new reuse, recycling and composting ventures. There is strong interest in
26 investments in sustainable development and Zero Waste certainly qualifies as a tool to achieve a
27 sustainable local economy. Adopting Zero Waste as a goal will also distinguish Palo Alto from
28 most other communities at this point in time, which will immediately attract more interest and
29 attention for outside funders to support Palo Alto's initiatives. With the strong investment
30 community located in Palo Alto, there may be great opportunities to engage them in local
31 socially responsible investments that could be models for other communities to follow.

32
33 The Business Alliance for Local Living Economies (www.livingeconomies.org) was established
34 by the Social Ventures Network to not only help on sustainable development projects, but also to
35 develop programs that encourage the reinvestment in local communities. Other socially
36 responsible investors can be identified through a variety of sources, including:

- 37 ♦ Investors Circle (www.investorscircle.net)
- 38 ♦ Green Biz Com (www.greenbiz.com)
- 39 ♦ Institute for Local Self-Reliance (www.ilsr.org)
- 40 ♦ Center for New American Dream (www.newdream.org)
- 41 ♦ Business for Social Responsibility (www.bsr.org)
- 42 ♦ CERES (www.ceres.org)

43
44 Many foundations are particularly interested in funding Sustainable Development. The
45 Environmental Grantmakers Association (www.ega.org) has a Sustainable Consumption and

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1 Production Committee that is composed of foundations around North America that are funding
2 such initiatives.

3
4 As recycling emerged in the 1980s, investment followed through an array of programs at each
5 level of government to support enterprises that use recycled materials.¹⁶ Gil Friend, CEO of
6 Natural Logic, Berkeley, CA, estimates that there is over \$5 billion now available for investment
7 in such sustainable development enterprises from the private sector. A report has been developed
8 that identifies funding sources for public, private and non-profit initiatives to provide the services
9 needed to move Palo Alto to achieve Zero Waste.¹⁷ Private and nonprofit organizations could
10 obtain letters of support from the City in applying for such funding. In addition, as part of
11 developing a Zero Waste Operations Plan, the City's Economic Development/Redevelopment
12 agency could be asked to investigate which of these financing tools might be helpful to
13 expanding services needed to achieve Zero Waste in Palo Alto.

14
15 Sources include: Community Development Finance Institutions, Community Reinvestment Act
16 Bank investments, Local Initiative Support Corporations, private foundation Program Related
17 Investments (PRIs), local Community Investment Funds, local and state Industrial Revenue
18 Bonds as well as traditional debt-lease-asset based and purchasing order financing, and special
19 federal agency programs.

20
21 The state of California has its own unique financing infrastructure for recycling, zero waste and
22 sustainable development investments. These state and other local programs can be leveraged in
23 a number of ways to support environmentally sound industrial and commercial development.

24
25 Traditional financing of small businesses includes debt, equity, equity participation loan, bond
26 financing, lease financing. These investment needs can be met through commercial banks,
27 pension funds, credit unions among numerous other agencies.¹⁸

16 For the history of these developments see C. Leach, *Financing Mechanisms to Promote Recycling at the State and Local Level*, Institute for Local Self-Reliance, Washington, DC 1985; and, Neil Seldman, *National Recycling research Agenda*, National Science Foundation, Washington, DC, 1980.

17 This is a separate report entitled "Funding of Zero Waste Initiatives in Palo Alto," 2005, GLA and Institute for Local Self-Reliance.

18 See, *Financing Recycling-Related Ventures: Options for Community Development*, Institute for Local Self-Reliance, Washington, DC, 1995; Also see, *Government and Community-Based Sources and Strategies for Financing Recycling Related Enterprises*.

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7. Vision and Strategy for Zero Waste

This Section highlights:

- ◆ Zero Waste Vision
- ◆ Zero Waste Strategy

There is no recipe or formula for getting to Zero Waste since each jurisdiction has its own demographic, economic and solid waste characteristics. The most important part of any long journey is having a clear vision of the final destination. This section provides a Zero Waste Vision for a new way to manage materials. It also provides key strategies that can act as a framework to guide City officials in the planning and decision making process towards achieving Zero Waste goals.

7.1 The Vision

By 2021, all materials and products discarded in Palo Alto will be used by someone else or be a resource for sustainable businesses that have developed in the area. To accomplish that, the City will have:

- ◆ Encouraged residents and businesses to only buy what they need, and urged them not to buy goods that are toxic or wasteful.
- ◆ Provided incentives, recognition and technical assistance to local businesses to be sustainable and considered all “wastes” as valuable resources: for manufacturing, by redesigning their production and supply and distribution processes; for retailers, by implementing a “take back” program where all products and packaging they sell that are not collected locally by others are taken back by the retailer.
- ◆ Implemented policies that made cost effective development and expansion of reuse, recycling and composting services for all materials discarded in Palo Alto a top priority. Policies also were implemented that highly discouraged the use of toxic or wasteful products or packaging.
- ◆ Maintained ongoing education programs for the community on the many benefits achieved through Zero Waste, using community-based social marketing tools and working together with the Palo Alto Unified School District and local colleges and universities.
- ◆ Led by example, and minimized products that might be toxic to residents or users, reused, recycled or composted all other materials generated by City operations, and coordinated with other environmental and sustainability programs of the City and the region to help them achieve Zero Waste.
- ◆ Advocated with other communities in the San Francisco Bay Area to adopt similar Zero Waste goals and plans, and worked with them to resolve obstacles to

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1 achieving Zero Waste with State and Federal legislators from the San Francisco
2 Bay Area.

- 3
- 4 ◆ Reinvested resources in the local economy to create jobs, save energy, support
5 local construction and remodeling projects, and eliminate air, water and land
6 pollution, and celebrate the conversion of the City landfill to parkland.
- 7

8 **7.2 Strategy**

9

10 **1. Adopt a Zero Waste Goal.**

- 11
- 12 • Set target dates, intermediate and zero waste goals.
- 13 • Adopt zero waste policy and resolution. (Draft to be attached in Appendix __).
- 14

15 **2. Plan towards Zero Waste Goal.**

- 16
- 17 • Maintain Zero Waste Task Force.
- 18 • Continue to involve residents and businesses in the planning process.
- 19 • Build alliances (public and political support) share and celebrate successes.
- 20 • Conduct an improved waste characterization study to better understand the waste stream.
- 21 • Develop programs to address service needs identified in Strategic Plan.
- 22 • Share ideas and learn from the leaders.
- 23 • Understand the economics of zero waste.
- 24

25 **3. Create a Solid Framework of Policies and Incentives.**

- 26
- 27 • Ensure all waste management fees reflects the true cost of wasting.
- 28 • Increase incentives for waste generators and service providers to eliminate waste and reuse,
29 recycle and compost materials for their highest and best uses.
- 30 • Design Zero Waste systems that lower the cost of doing business in Palo Alto.
- 31 • Give incentives to enhance or develop businesses needed locally to support the City's Zero
32 Waste Goals.
- 33 • Change City contracts to apply Zero Waste principles.
- 34 • Phase in policies detailed in Section 4 of this Plan as needed.
- 35

36 **4. Build Zero Waste Infrastructure.**

- 37
- 38 • Aggressively improve local source reduction, reuse, recycling and composting program
39 infrastructure.
- 40 • Improve material processing and develop new markets to minimize “residuals” requiring
41 disposal.
- 42 • Target organic waste as the next priority for services to be provided.
- 43 • City set example as a Zero Waste Leader in the community.
- 44 • Enhance locally owned and independent infrastructure on an open, competitive
45 basis.

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- 1 • Consider and prioritize new, expanded programs and facilities (including public
- 2 vs. private; local vs. regional; locations).
- 3 • Design programs for both the largest waste generating segments of the community and the
- 4 smallest, recognizing their different service needs.
- 5 • Minimize environmental impacts and City liabilities from wasting.
- 6 • Consider bans on materials as an alternative if other policies and incentives are not
- 7 successful.

8

9 **5. Engage the Community.**

- 10
- 11 • Educate and engage the community to support Zero Waste initiatives and to suggest new
- 12 policies and programs needed.
- 13 • Promote positive Zero Waste consumer buying power and behavior.
- 14 • Collaborate nationally, regionally and with neighboring cities to avoid duplicating the work
- 15 of others.
- 16 • Create a Zero Waste fund to encourage local innovation and participation.
- 17 • Develop joint ventures.
- 18 • Educate the community on available waste exchanges.
- 19 • Monitor, measure and keep the community informed of progress and results.
- 20

21 **6. Support businesses that provide services/produce products in a sustainable manner.**

- 22
- 23 • Adopt and implement green procurement guidelines.
- 24 • Join in initiatives that support Zero Waste and collaborate with other organizations to
- 25 enhance purchasing power.
- 26 • Encourage patronage of local businesses that provide products/services in a sustainable
- 27 manner.
- 28

29 **7. Lobby for change.**

- 30
- 31 • Support extended producer responsibility including physical and financial responsibility
- 32 programs and deposit programs (e.g., oil, tires, beverage containers).
- 33 • Support funding of Zero Waste initiatives through statewide or regional landfill surcharges
- 34 and product charges.
- 35 • Support full cost accounting for waste disposal.
- 36 • Support packaging levies (e.g., on plastic bags)
- 37 • Support minimum recycled content standards for additional products.
- 38 • Support design for the environment programs.
- 39 • Support green procurement and Green Building guidelines for the public sector.
- 40 • Support national measuring, monitoring and reporting in achieving zero waste goals.
- 41
- 42 .

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Appendix A - Palo Alto Zero Waste Task Force Members

Task Force Co-Chairs	Organization/Affiliation
Walt Hays	Resident
Bud Mission	Roche Palo Alto
Name	Organization/Affiliation*
Michael Closson	Acterra / Z.W. Taskforce of Santa Clara and San Mateo Counties
Karen Holman	Resident
Scott Nixon	Agilent Technologies
Tom Moutoux	Foundation For Global Community
James Kao	Green Citizen
Robert Parkhurst	Hewlett Packard
Irene Sampson	League of Women Voters
Frank Rocha	Lockheed Martin
Eric Hassett	Palo Alto Hardware
Michael Kearney	PAUSD
Walt Hays	Resident
Emily Renzel	Resident, Parks representative
Bob Wenzlau	Resident, Terradex (small Palo Alto business)
Bud Mission	Roche Palo Alto
Greg Mize (alternate)	Roche Palo Alto
Ann Schneider	Sierra Club Zero Waste Committee
Alyssa Rice Wilson (alternate)	Sierra Club Zero Waste Committee
Julie Garcia	Simons Operations- Stanford Shopping Center
Ramsey Shuayto	Stanford Management Co.
Barbara Pressman	Stanford Terrace Inn
Henry Clark	TIBCO Software Inc
Amado Rodriguez (alternate)	TIBCO Software Inc.
Mirna Cintron	Stanford Hospital/Packard Children's Hospital
Melissa Stai	Palo Alto Medical Foundation
Consultant	
Gary Liss	Zero Waste Consultant
City Staff attending Task Force meetings	
Susan Arpan	City of Palo Alto Economic Resources Department representing City Manager's office
Jim Burch	City of Palo Alto Mayor
Russell Reiserer Annette Puskarich Wendy Hediger Robert Lee	City of Palo Alto Public Works- Refuse
Julie Weiss Dan Firth Joe Afong (alternate for Dan)	City of Palo Alto Public Works Environmental Compliance/City of PA Sustainability Committee City of Palo Alto Fire Dept./City of PA Sustainability Committee City of Palo Alto Fire Dept.
* Each organization has one member on Task Force; subsequent members are alternates.	

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Appendix B – 1997 Waste Generation Study

1

Table 2.7 Comparison of Waste Disposal Compositions 1990-1997 (By Weight)

Material	Residential		Commercial		Roll-Off		Self-Haul	
	1990	1997	1990	1997	1990	1997	1990	1997
Paper	10,273	7,355	16,712	14,594	5,376	6,075	351	507
Corrugated	1,256	722	3,057	2,688	2,391	1,606	140	88
High Grade	659	792	3,064	2,698	368	431	1	56
Newspaper	1,123	828	1,631	1,700	426	38	7	43
Magazines	1,024	659	1,757	574	39	25	1	34
Mixed Paper	3,674	2,756	4,409	3,287	1,399	1,478	163	204
Other Paper	2,537	1,598	2,795	3,646	753	2,497	40	83
Plastic	1,940	1,827	3,511	5,286	1,732	2,361	243	277
HDPE Containers	173	209	332	215	13	52	-	12
PET Containers	107	80	35	93	10	22	1	4
Film Plastics	780	706	1,093	1,915	465	302	18	66
Remainder/Composite	881	833	2,051	3,073	1,244	1,984	224	195
Glass	870	491	1,146	1,074	226	347	9	69
Recyclable	702	452	964	1,006	29	234	2	31
Remainder/Composite	169	39	182	68	197	113	7	38
Metals	1,148	458	1,918	947	4,355	2,486	753	173
Aluminum Cans	84	66	115	118	10	8	1	3
Other Non-Ferrous	206	51	126	107	204	2	-	27
Steel Food & Bev Cans	308	154	657	187	527	4	1	8
Other Ferrous	447	188	1,020	534	3,615	2,471	751	134
White Goods	103	-	-	-	-	-	-	-
Yard Waste	2,227	1,265	3,392	492	2,433	123	1,918	1,022
Leaves & Grass	2,109	535	2,865	383	401	52	493	261
Branches & Brush	118	730	527	109	2,032	71	1,425	761
Organics	4,365	6,754	6,644	8,110	10,042	9,544	2,196	2,371
Food Waste	2,315	5,007	2,382	5,649	-	566	100	260
Tires/Rubber	150	128	374	452	426	28	13	24
Wood	634	147	1,680	875	8,727	5,362	1,252	1,736
Textiles & Leather	512	492	845	629	798	1,045	704	134
Diapers	383	698	793	262	-	6	8	36
Other Organics	371	282	589	232	90	2,516	119	181
Other Waste	242	715	1,610	817	8,142	8,002	1,483	1,812
Inert Solids	160	582	1,216	323	7,951	7,874	1,274	1,508
HWW	78	113	156	156	13	3	-	6
Brown Goods	4	19	381	338	3	72	-	81
Comp. Bulky Items	-	-	-	-	174	53	209	217
Total	21,069	18,865	34,933	31,328	32,310	28,938	6,953	6,232

1) Composition as discarded by waste generators, before sorting and diversion at the SMaRT Station.
 2) In addition, 19,990 tons of City/Capital Improvement Programs waste were disposed in 1990, and 4,715 tons of City/CIP waste were disposed in 1997.

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