



Finance Department
Purchasing Division

REQUEST FOR PROPOSALS (RFP)
Specification No. 22-11477-C
FOR
City of Berkeley Integrated Zero Waste Management Strategic Plan
PROPOSALS WILL NOT BE OPENED AND READ PUBLICLY

ADDENDUM “B”
5/25/2022

Dear Proposer:

Please see attached revised solicitations with updated footnote links to Exhibit No. 1-5 and 7-8.

Proposals/bids must be received no later than 2:00 pm, on June 30, 2022. All responses should be sent via email to purchasing@cityofberkeley.info and have “**City of Berkeley Integrated Zero Waste Management Strategic Plan**” and **Specification No. 22-11477-C** indicated in the subject line of the email. Please submit one (1) PDF of the technical proposal. Corresponding cost proposal shall be submitted as a separate PDF document.

Proposals will not be accepted after the date and time stated above.

We look forward to receiving and reviewing your proposal.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D. Sweet'.

Darryl Sweet
General Services Manager

Except as provided herein all other terms and conditions remain unchanged.

EXHIBIT No. 1

RESOLUTION NO. 68,621-N.S.

RECYCLING REAFFIRMATION RESOLUTION

WHEREAS, the City of Berkeley owns and operates a regionally important discard management facility known as a "transfer station," which in 1983 replaced Berkeley's bayfill that received mixed wastes for a tipping fee; and

WHEREAS, the transfer station was designed to feed a garbage incinerator, but Berkeley voters rejected the incinerator in 1982 and again in 1985, and the overall disposal operation inside the transfer station complex has evolved into an interactive cluster of specialized resource-trading businesses in an ecology of commerce; and

WHEREAS, Berkeley's system is unique partly because of its relative labor-and skill-intensity compared to more automated and capital-intensive systems in the region, generating more jobs than capital-intensive systems, and City Council declares this emphasis to be an advantage in managing its discarded resources to produce quality products; and

WHEREAS, at least six separate service functions, which individually could be called Material Recovery Enterprises as defined in the Berkeley Municipal Code, are provided in the transfer station, including three that are privately owned (Ecology Center, Community Conservation Center, and Urban Ore) and three that are owned by the City and financed through an Enterprise Fund; and

WHEREAS, Berkeley's configuration is unique in the recovery industry since most transfer facilities are run as monopolies; and

WHEREAS, these operations, working together, have reduced Berkeley's landfilling by 56% between 1991 and 2016; and

WHEREAS, some operators and managers at the transfer station believe recovery could be increased to 90% or above, particularly if the facility's hardscape were rebuilt to achieve Zero Waste, and if adding roofs and other construction were done in phases to allow uninterrupted service; and

WHEREAS, even without this investment, Berkeley's materials recovery system is so well regarded that people from all over the world come regularly to visit; this eco-tourism would likely expand greatly if the facility is rebuilt according to Berkeley's well-established policy principles; and

WHEREAS, rebuilding the facility will also allow the City to control runoff of surface water into the San Francisco Bay through the design of a better system, which is another factor driving the need for a new transfer station, and there are designs already circulating that show how such a design could be included; and

WHEREAS, voters passed a \$100 million bond issue that could be used to fund the rebuild of the transfer station; and

WHEREAS, the Public Works Department was given the task of organizing a planning process for this rebuild; and

WHEREAS, the Public Works Department's Request for Proposals (RFP) for a feasibility study to analyze courses of action for rebuilding the transfer station requires an outside contractor to perform an in-depth analysis of three options; and

WHEREAS, one specified option to be analyzed would outsource all material processing to some facility outside Berkeley; and

WHEREAS, another specified option would convert the current Clean Materials Recovery Facility (Clean-MRF) into one that processes commingled single-stream materials in a more automated, less labor-intensive process; and

WHEREAS, Material Recovery Enterprises that meet our high standards do exist outside the City of Berkeley, however, outsourcing our material processing to these entities would eliminate jobs available to residents of Berkeley and other nearby municipalities; and

WHEREAS, outsourcing our material processing would demonstrate a lack of regard for the continued success and wellbeing of local Material Recovery Enterprises; and

WHEREAS, even though China has recently changed the global recycling market significantly by greatly restricting the levels of contamination it will accept in secondary materials, which has rendered many processing facilities' products unsalable, Berkeley's resources continue to be marketable because of their cleanliness; and

WHEREAS, some recycling industry insiders believe that while this market restructuring could ease somewhat, its essential direction may become permanent and favor clean collection and processing systems; and

WHEREAS, recovered paper and other fibers currently generate the most scrap income for Berkeley's Clean-MRF; and

WHEREAS, single-stream systems degrade the quality of recovered paper in particular, making it hard to sell for higher prices, and casting off large quantities of unrecyclable residuals that Berkeley citizens would have recycled but would be wasted instead; and

WHEREAS, the City of Berkeley's Climate Action Plan states that "a dual-stream system makes it easier to sort recyclables into clean marketable materials, giving the City flexibility to sell these materials for their 'highest and best use'"; and

WHEREAS, as far back as 2005, the Solid Waste Management Plan written for Berkeley by Environmental Science Associates states that "generally, single-stream programs

suffer from a decline in the quality of materials collected, increased costs to process, and increased residual waste... The operational and financial impacts of changing the program would be high, as it would require new carts, new automated or semi-automated collection trucks, and the overhaul of the sorting facility to process single-stream collectables;" and

WHEREAS, in 2016 an audit of Berkeley's Clean-MRF conducted by consultant R3 shows that although most MRFs typically cast off between 5% and 30% of the incoming flow as residuals to be landfilled, Berkeley's system has a residual rate of far less than 5%; and

WHEREAS, jurisdictions such as Milpitas and Windsor have recently converted its collecting and processing systems away from single-stream and back to dual-stream so they can continue to market post-consumer commodities; and

WHEREAS, Section 3.40.020 of the Berkeley Municipal Code defines and discusses the processing hierarchy for recovering discards for highest and best use, although it fails to include a suggestion that achieving highest and best use may require adjusting service fees paid to operators in order to smooth the impact on Berkeley's system caused by fluctuations in the market value of recovered commodities; and

WHEREAS, Section 3.40.020 of the Berkeley Municipal Code defines Zero Waste as "a system in which waste is minimized, and each discard becomes a useful feedstock for other processes in the ecology and economy," whose implementation requires that collection and processing of discards shall promote sustainable use; and

WHEREAS, by its steadfast support of the Precautionary Principle to recover for highest and best use, Berkeley has led the world in preventing waste by taking actions such as banning expanded polystyrene take-out containers in 1986; and

WHEREAS, Berkeley continues to use banning and product substitution as a central strategy to reach its Zero Waste goals as reflected in the proposed 2018 foodware ordinance; and

WHEREAS, in 2001 the State of California also adopted a goal of Zero Waste in the Integrated Waste Management Board's strategic plan, calling for expanded public and private efforts "to reduce, reuse, or recycle all [discarded] materials back into nature or the marketplace in a manner that protects human health and the environment and with all materials being managed to the highest and best use to create a sustainable California"; and

WHEREAS, the City of Berkeley's 2005 Zero Waste Goal (Resolution No. 62,849-N.S.) resolved that the City set an aspirational goal of eliminating materials sent to landfill by the year 2020; and

THEREFORE BE IT RESOLVED, that the elected City Council, who represent the citizens of Berkeley, expresses its satisfaction that its transfer station has developed an ecology of commerce among City programs and contracted operators, and that its focus on labor instead of machinery has provided more jobs than automated systems, and has also produced some of the highest-quality secondary resources in the market; and

BE IT FURTHER RESOLVED, that City Council reaffirms the City's policy priorities of the Precautionary Principle and highest and best use, as well as the aspirational goal of Zero Waste; and

BE IT FURTHER RESOLVED, that Berkeley should analyze the structure of fees paid to recovery operators to assure that Berkeley's whole system can function reliably in the face of changing markets; and

BE IT FURTHER RESOLVED, that the City Council declares that the two options of outsourcing City jobs and so-called "upgrading to single-stream" collection and processing are inappropriate to Berkeley; and

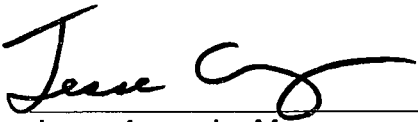
BE IT FURTHER RESOLVED that the City Council does not wish to waste taxpayer dollars by evaluating the costs of inappropriate options.

The foregoing Resolution was adopted by the Berkeley City Council on October 2, 2018 by the following vote:

Ayes: Bartlett, Davila, Droste, Hahn, Harrison, Maio, Wengraf, Worthington and Arreguin.

Noes: None.

Absent: None.



Jesse Arreguin, Mayor

Attest: 

Mark Numainville, City Clerk

RESOLUTION NO. 62,849-N.S.

REAFFIRMING THE CITY'S ZERO WASTE GOAL AND REFERRING THE ISSUE TO
THE SOLID WASTE COMMISSION

WHEREAS, in 1976, only six years after the first Earth Day, Berkeley's City Council established a goal of recycling 50% of its then-landfilled discard stream; and

WHEREAS, Berkeley's citizens ratified the city's 50% recycling goal in 1984 by passing Measure G in that year's citywide election; and

WHEREAS, the California Integrated Waste Management Act of 1989 (AB 939) required cities and counties to reduce, reuse, recycle, and compost all discarded materials to the maximum extent feasible before any landfilling or other destructive disposal method is used; and

WHEREAS, AB939 mandated that all California jurisdictions achieve a 50% diversion rate by the year 2000, or incur financial penalties, or submit a plan for approval to achieve that rate by 2005, but did not set any further goal to reduce waste once the 50% rate was achieved; and

WHEREAS, Berkeley surpassed the state's 50% goal; and

WHEREAS, in 1990, Alameda County's voters passed ballot Measure D, which set a goal for all its communities, including Berkeley, to reduce land filling by 75% by 2010; and

WHEREAS, City staff and the Berkeley Solid Waste Commission are currently working to develop a new City solid waste plan to help reach the 75% waste reduction goal which will be an important step in reaching a zero waste goal; and

WHEREAS, in 2001 the California Integrated Waste Management Board set a goal of zero waste in its strategic plan for the state, calling for expanded public and private efforts "to reduce, reuse, or recycle all [discarded] materials back into nature or the marketplace in a manner that protects human health and the environment and with all materials being managed to the highest and best use to create a sustainable California;" and

WHEREAS, cities, councils, counties, and states worldwide have adopted a goal of achieving zero waste, including the counties of San Francisco, Santa Cruz, and Del Norte in California; the cities of Seattle in Washington, Toronto in Canada, and Canberra in Australia; and the state of New South Wales in Australia; and 45% of New Zealand's local government councils; and

WHEREAS, the dates for achieving these zero waste goals range from 2010 to 2020; and

WHEREAS, many American businesses have reduced their waste by 80% or more and adopted zero waste goals, including Amdahl Corporation, Collins & Aikman, Fetzer Winery, Herman Miller, Inc., Hewlett Packard, Mad River Brewing, Inteface, Inc., Pillsbury, Xerox, and the San Diego Wild Animal Park; and

WHEREAS, the City of Berkeley has undertaken a public/private initiative to “green” Berkeley by developing sustainable businesses, developing environmentally preferable purchasing policies, collaborating with university entities on such purchasing, creating an Energy and Sustainable Development Office, developing goals to increase energy efficiency and reduce greenhouse gases, and by supporting the marketing of Berkeley as an environmental leader among cities; and

WHEREAS, Governments set zero waste goals to conserve valuable material resources, reduce pollution, conserve land, expand commercial and industrial activity, and improve community health; and

WHEREAS, a complex, profitable, and growing collection of materials recovery enterprises has developed within Berkeley, including a mix of municipal, nonprofit, and for-profit enterprises that recover and process diverse feedstocks ranging from source-separated metals, glass, paper, and agricultural materials to individual reusable objects suitable for retail redistribution, all activities that generate substantial revenues and represent significant savings to the City’s landfill bill through tipping fees and sales taxes, which support local government; and

WHEREAS, this materials recovery business infrastructure is already a major employer in Berkeley providing over 275 good green-collar jobs in at least 65 local companies, mainly in West Berkeley; and

WHEREAS, Zero Waste science is a systematic methodology for moving with maximum speed in logical increments toward the goal of zero waste; and

WHEREAS, Berkeley’s citizens and recycling entrepreneurs pioneered the concept of the zero waste transfer station, which is the fundamental technology and infrastructure that Berkeley must develop further so it can replace waste-based infrastructure, achieving zero waste and using resource recovery as the preferred disposal method for all twelve major discard flows; and

WHEREAS, the zero waste industrial complex is organized into modules or trading areas for the following discard supply categories, including: reuse, recycling, composting, and regulated items; and

WHEREAS, the zero waste industrial complex may be decentralized and embedded in the community, especially in West Berkeley, forming an ecology of commerce encompassing repair, remanufacturing, upgrading, reprocessing, re-crafting, and generating new products, including green building materials, or arts and crafts from recovered materials.

NOW THEREFORE, BE IT RESOLVED that the Council of the City of Berkeley reaffirms its commitment to meet the Alameda County Measure D goal of reducing the materials Berkeley sends to landfill by 75% by the year 2010.

BE IT FURTHER RESOLVED, that the City also sets a Zero Waste Goal of eliminating Berkeley’s materials sent to landfills by the year 2020.

BE IT FURTHER RESOLVED, that the City Council acknowledges and appreciates the work of the Solid Waste Commission and City staff who are working diligently to create a new solid waste plan as a roadmap to reaching the 75% waste reduction goal.

BE IT FURTHER RESOLVED, that the City Council directs the Solid Waste Commission to review the new solid waste plan in the context of the Council's desire to move towards zero waste and report back to Council with some ideas on how to move forward.

BE IT FURTHER RESOLVED, that the Solid Waste Commission examine changing its name to something more reflective of the City's waste reduction goals and report back to the Council with an potential suggestions.

The foregoing Resolution was adopted by the Berkeley City Council on March 22, 2005 by the following vote:

Ayes: Councilmembers Anderson, Capitelli, Maio, Moore, Olds, Spring, Worthington, Wozniak and Mayor Bates.

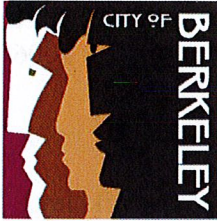
Noes: None.

Absent: None.

Attest: Sara T. Cox
Sara T. Cox, City Clerk

Tom Bates
Tom Bates, Mayor

EXHIBIT No. 2



Office of the City Manager

WORK SESSION
January 24, 2006

To: Honorable Mayor and
Members of the City Council

From: *PK* Phil Kamlarz, City Manager

Submitted by: Claudette Ford, Acting Director, Department of Public Works

Subject: Solid Waste Management Plan Update

INTRODUCTION

The City of Berkeley is committed to diverting 75% of its solid waste through source reduction, reuse, recycling, and composting. The Alameda County Waste Management Authority has set 2010 as the target year for achieving this waste diversion goal. The City Council reaffirmed this goal and set a Zero-Waste goal by 2020 on March 22, 2005. In January 2004 Council approved \$100,000 for the creation of an updated Solid Waste Management Plan. The updated plan is meant to guide the City in its decision-making as it strives to reach the 75% goal. This report discusses the draft Plan as submitted by the City's consultant and future implementation issues.

CURRENT SITUATION AND ITS EFFECTS

The City currently diverts 52% of its waste stream, as reported to the California Integrated Waste Management Board. The City landfills about 105,000 tons per year, about 85,000 of which is transported via the transfer station. The remainder is collected by private franchised haulers, or hauled directly by construction companies and citizens. For the City to reach its mandated diversion goal of 75%, the city will have to reduce its landfill tonnages by about 52,500 tons by 2010, assuming each ton recycled is one less ton landfilled and assuming no new growth in disposal tonnages.

BACKGROUND

The City of Berkeley, through its Solid Waste Management Division and subcontractors, currently provides a variety of successful refuse and recycling programs. The SWMD operates the weekly residential garbage collection routes and bi-weekly green waste collection routes. The City further operates the commercial recycling fleet that handles containers, fiber, and food waste collection from businesses. Large multi-family complexes are also serviced with this operation, excluding food waste. The SWMD operates the transfer station at the 2nd and Gilman Street solid waste center, where the collected refuse and organic waste is hauled to various landfills in the East Bay and a composting plant in the Central Valley. The transfer station, beyond hauling out organic waste, also actively participates in recycling by diverting mattresses, scrap metal, electronic wastes, refrigerators and other appliances ("white goods"), used motor oil, and carpet padding. The City uses its collection and processing assets to provide large event recycling in the City and other services.

Three local companies handle the majority of the remaining recycling waste stream in Berkeley. The Ecology Center operates the residential curbside recycling program and Community Conservation Centers operates the Material Recovery Facility (MRF), both located next to the transfer station at 2nd and Gilman. The MRF also contains the recyclables drop-off and buyback functions. Urban Ore specializes in re-use, partially stocking its retail facility with transfer station discards, and is located nearby on Murray Street. These three operations have been providing contracted services for the City for well over 25 years. The contractors have each had their existing contracts extended for 2 years to see them through this planning process, at which point recommendations will be brought to the council to determine future strategies to achieve the 75% diversion goal.

The City has an exclusive franchise on the wet garbage generated by all city residents and commercial enterprises. Dry refuse generated by commercial and industrial customers, typically retail, industrial and construction/demolition operations that do not have food components, can utilize the City's commercial and debris box services or use a non-exclusive franchised hauler. Berkeley issues franchises to haul dry refuse to local companies, which pay the City 26% of their revenues as a fee to have the franchise. Republic Services, Waste Management and several small companies have franchises in Berkeley for dry refuse hauling.

ESA won the bidding process to create a Solid Waste Management Plan Update and commenced work in January 2004. During the contract, the City adopted a commitment to Zero-Waste, and ESA's plan was seen as complementary to this long-term goal. ESA's Plan has specific program change recommendations:

1. Change existing bi-weekly plant debris collection to weekly organic collection service. New materials to be included in the organic stream are food waste and food-contaminated paper. The existing weekly refuse collection would be changed to a bi-weekly service. Residents who desire weekly refuse collection could pay an additional fee;
2. Adopt a Construction and Demolition Waste Ordinance;
3. Rebuild the Gilman and 2nd Street solid waste center, specifically establishing a c&d (construction and demolition) recycling plant, that will greatly increase diversion potential.
4. Adopt a mandatory system for commercial multi-family enterprises in the City to have operating recycling programs.

Staff needs to analyze the operational and financial impacts before these or alternative recommendations are presented to council for action.

POSSIBLE FUTURE ACTION

Staff will research and analyze the operational and financial impacts before these or alternative recommendations are presented to Council by October 2006.

FISCAL IMPACTS OF POSSIBLE FUTURE ACTION

The impacts of any recommendation will be significant. Rebuilding the transfer station has been estimated at \$30 Million; however, any program cost, revenue and associated rate impacts will be given in detail when staff returns within the next nine months.

CONTACT PERSON

Claudette Ford, Acting Director, Department of Public Works (510) 981-6330

Peter Schultze-Allen, Chair, Solid Waste Management Commission (510) 596-3728

Tom Farrell, Director, Solid Waste and Recycling (510) 981-6359

Attachments:

Draft Solid Waste Management Plan Update, ESA, 2005

Draft

**BERKELEY SOLID WASTE MANAGEMENT PLAN UPDATE:
Achieving 75% Diversion on the Road to Zero Waste**

Prepared for:
City of Berkeley

June 2005

Prepared in Association With:
Applied Compost Consulting
Oakland, CA

Charles Sax, Architect
Portland, OR

Draft

**BERKELEY SOLID WASTE MANAGEMENT PLAN UPDATE:
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Charles Sax, Architect
Portland, OR

225 Bush Street
Suite 1700
San Francisco, CA 94104
415.896.0000
www.esassoc.com

Clearwater

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203487



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Berkeley Solid Waste Management Plan Update: Achieving 75% Diversion On The Road To Zero Waste

Summary and Recommendations

This draft Solid Waste Management Plan Update presents options for new and expanded diversion programs and facilities, and for revisions to refuse rates and collection programs. Included is a set of recommendations that would enable the City of Berkeley to achieve 75 percent diversion of waste from landfills by 2010, and to move toward the City's goal of Zero Waste by 2020. The Plan provides an overview of the City's existing solid waste management system, and describes and quantifies waste generated within the City. The Update has been developed collaboratively with the Solid Waste Management Commission (SWMC), City staff, and interested groups and individuals, through workshops and public meetings.

Goals and Objectives

Overall, the goals of the Solid Waste Management Plan Update are to produce a new tool for guiding the City's future solid waste policies and programs. Specifically, the Plan Update provides a framework for program and policy development that will conserve natural resources and landfill capacity; that will enable the City to continue to comply with the State-mandated requirement to divert at least 50 percent of the City's generated waste from landfills, and with the Alameda County Measure D requirement to divert at least 75 percent of the City's wastes. Like the City's existing plan, the Source Reduction and Recycling Element (a part of the AB-939 mandated Countywide Integrated Waste Management Plan), the overall strategy to achieve these goals involves improvements and expansions of existing source reduction, recycling, composting, and education programs. In addition, new programs and facilities will be needed to enable the City to meet the ambitious goal of achieving 75 percent diversion, and to lay a foundation for achieving Zero Waste.

At its March 22, 2005 meeting, the Berkeley City Council adopted a resolution that includes the goal of achieving Zero Waste by 2020. In practical terms, Zero Waste means that all discarded material will have a beneficial use, and none will be disposed in a landfill. The resolution reconfirms the City's goal of achieving a 75 percent diversion rate by the year 2010, and acknowledges the importance of achieving that goal as an interim step in the City's pursuit of Zero Waste.

More information on the goals and objectives of this Plan Update, and on the process for Plan development and adoption, is presented in Chapter 1.

Overview of Berkeley's Solid Waste Management System

Berkeley's solid waste management system includes a broad array of source reduction, recycling, and composting programs and policies. Several programs are operated by the City's Solid Waste Management Division, a part of the Department of Public Works. These include residential and commercial refuse collection, commercial recycling collection, and residential and commercial organics collection. The City also owns and operates the Transfer Station and related facilities at the Second and Gilman site, and operates its own fleet of long-haul trucks to deliver solid waste to the Vasco Road Landfill in eastern Alameda County.

In addition to operating its own services, the City contracts with several private entities for solid waste management services. These include the Ecology Center, which operates the City's residential curbside recycling collection program, and the Community Conservation Centers, which operates the buy-back and drop-off facility at Second and Gilman, and which processes and markets recyclables collected by the City and the Ecology Center. Urban Ore conducts salvage operations at the Transfer Station under City contract, and operates a retail outlet for salvaged goods. Grover Landscaping processes the City's greenwaste and foodwaste into compost, and the City contracts with Allied Waste Systems for waste disposal.

Refuse other than putrescible garbage may be collected by private individuals. The City has established a system of non-exclusive franchises that enable licensed commercial collectors to operate in the City. Residents and businesses may also haul their own refuse (other than garbage) to the Transfer Station or other disposal facilities. The University of California operates its own refuse collection system for the Berkeley campus.

More information on the City's existing solid waste management system is provided in Chapters 1 and 5.

Waste Generation in the City of Berkeley

The amount of waste generated within the City consists of the sum of all waste disposed plus all waste diverted. The diversion rate is that portion of generated waste that is diverted, and is expressed as a percentage. The City, County, and State are all closely involved in tracking the amount of disposed waste from the City; the City also tracks much, but not all, of the diversion that occurs within the City. Using a state-approved formula, however, it is possible to estimate the total amount generated, and from this to derive the amount diverted and the diversion rate.

In 2003, the City's estimated waste generation was 218,902 tons. The amount of disposed waste reported to the State as originating in the City was 119,062 tons. The State, however, allows cities to make adjustments to the disposed waste figure, and particularly to exclude certain wastes, such as the residues from regional recycling facilities. Berkeley is seeking from the State permission to reduce the disposed amount by 14,304 tons for 2003 (the majority of this tonnage is waste from the Pacific Steel Foundry, which uses recycled metal and is considered a Regional

Recycling Facility). If the State grants this permission, the disposed amount will be adjusted to 104,758 tons. This would give the City a disposal rate of 48 percent ($104,758 \div 218,902$), and, since diversion is calculated by subtracting disposal from generation, a diversion rate of 52%.

Table S-1 provides a breakdown of the City's waste stream by source, and presents estimates of the amount of waste generated, disposed, and diverted for each source. Table S-1 indicates that the highest diversion rates are achieved by single-family residences and U.C. Berkeley, that

**TABLE S-1
PROFILE OF BERKELEY'S WASTE STREAM, 2003**

Generator Sector	Disposed		Excluded Disposal		Diverted		Generated		Diversion Rate
	Tons	% of Whole	Tons	% of Whole	Tons	% of Whole	Tons	% of Whole	
Self-Haul & Roll-Off	42,518	41%			22,057	22%	64,574	32%	34%
Commercial	21,685	21%			22,419	22%	44,105	22%	51%
Single-Family Residential	15,699	15%			29,780	30%	45,479	22%	65%
Multi-Family Residential	19,377	18%			16,300	16%	35,678	17%	46%
UC	5,680	5%			9,284	9%	14,964	7%	62%
Excluded Disposal	–	–	14,304	100%	–	–	14,103	6%	–
Total	104,758	100%	14,304	100%	99,840	100%	218,902	100%	52%

SOURCES: ESA, City of Berkeley, CIWMB, UC Berkeley CRRS

the self-haul sector lags in its diversion, and that the commercial and multi-family waste streams have moderate levels of diversion. Currently, none of the waste streams approaches 75% diversion.

The City's high diversion rate is achieved through a combination of several programs. Figure S-1 provides information on the relative contribution of these programs to the City's overall diversion rate. The figure indicates that in 2003, curbside recycling, self-haul organics, and the residential greenwaste collection program accounted for the majority of tracked diversion.

The most recent study of the composition of Berkeley's disposed waste was completed by the Alameda County Source Reduction and Recycling Board/Waste Management Authority in the year 2000. Figure S-2 provides a glimpse of the major materials still found in disposed waste at that time. Figure S-2 indicates that the major materials in disposed waste are compostable organics (food waste and greenwaste), various paper grades, and materials originating from construction and demolition activities, including wood waste, inert materials, and composite bulky items.

Figure S-1: Counted Diversion in 2003, by Program

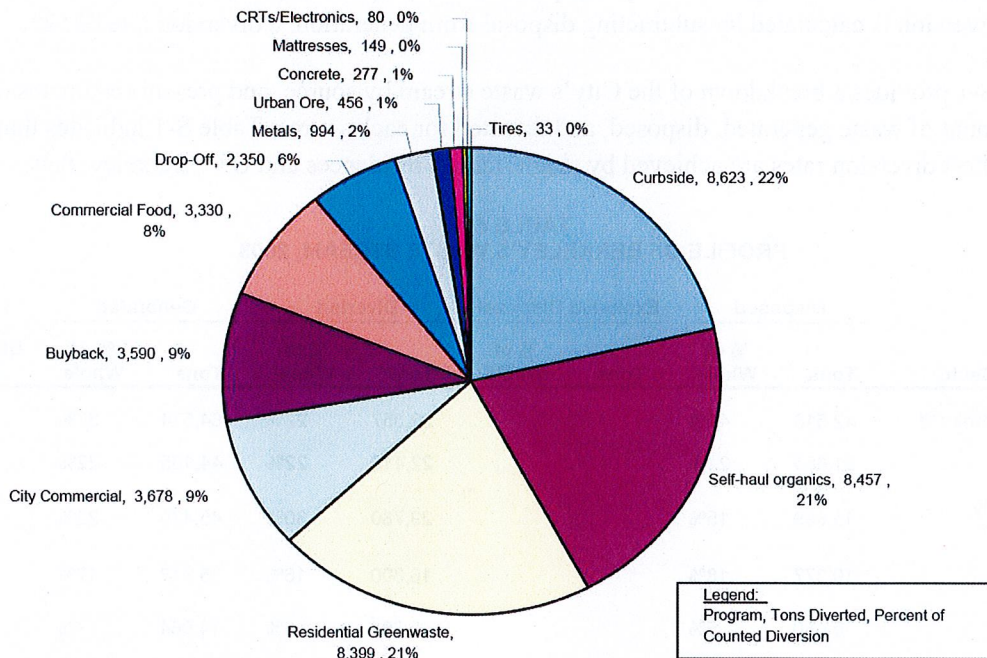
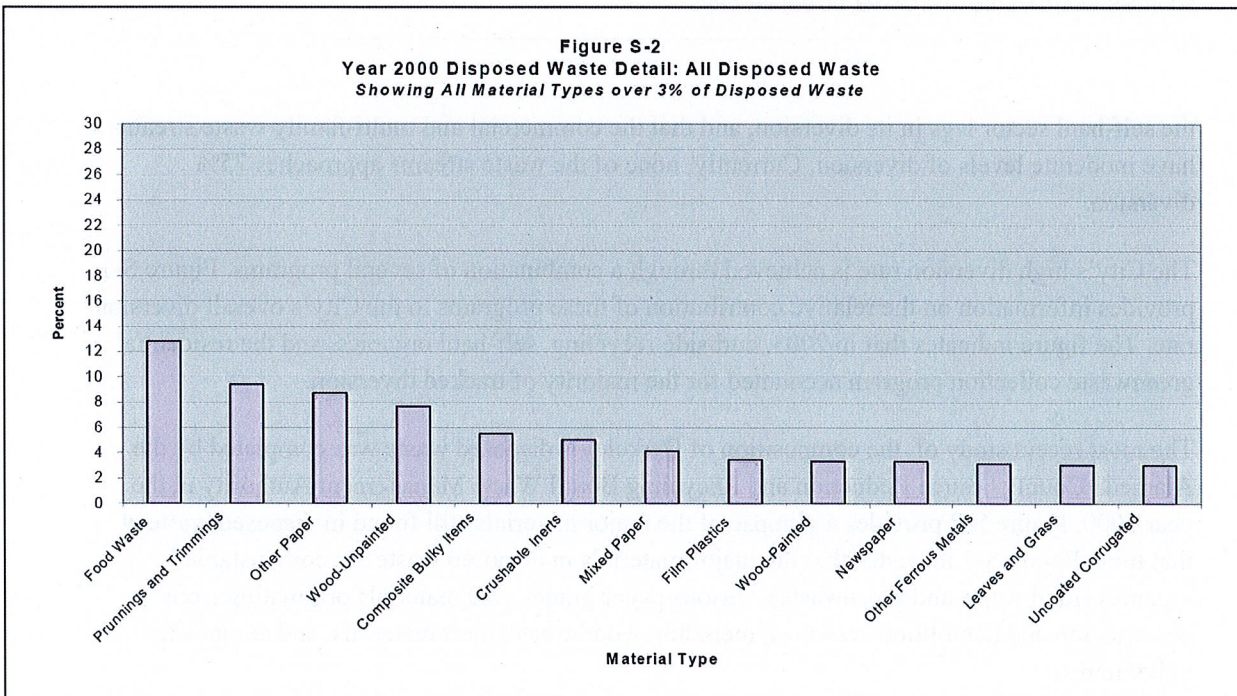


Figure S-2
Year 2000 Disposed Waste Detail: All Disposed Waste
Showing All Material Types over 3% of Disposed Waste



Program, Policy, and Facility Options

Chapter 3 presents options for new and expanded programs and policies to increase diversion and reduce waste in the City of Berkeley. These options include new and expanded programs for each of the waste streams shown in Table S-1. Table S-2 lists the options, and shows the estimated low and high range of the diversion potential of each. For each program option, for diversion potential is expressed relative to the currently disposed waste within that waste stream, to currently generated waste within that waste stream, and to the entire City's generated waste. Each option is fully described in Chapter 3. Please note that while some options address the same waste stream and are mutually exclusive (such as Single Family options 1 and 2), others, such as Single Family option 3, can be implemented simultaneously with other Single Family programs, and would in fact enhance the performance of other programs.

TABLE S-2
DIVERSION POTENTIAL FOR PROGRAM AND POLICY OPTIONS

Waste Stream	Program Option	Diversion Potential: Specific Waste Stream Disposed Waste		Diversion Potential: Specific Waste Stream Generated Waste		Diversion Potential: Whole City Generated Waste	
		Low	High	Low	High	Low	High
Single Family	1. Mandatory 3-Way Separation	50%	60%	17%	21%	4%	5%
	2. Non-mandatory 3-Way Separation	25%	40%	9%	14%	2%	3%
	3. Increased Outreach and Public Education	10%	20%	3%	7%	1%	2%
	4. Revisions to Rates and Billing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Multi-Family	1. Small buildings included in Residential 3-Way Separation	15%	30%	8% [*]	16%	1%	3%
	2. Increased Outreach and Public Education	10%	20%	5%	11%	1%	2%
Commercial-Industrial-Institutional	1. Increased Franchisee Reporting Requirements	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	2. Increased Outreach and Education	10%	20%	5%	10%	1%	2%
	3. Space Allocation and Mandatory Source Separation Ordinance	25%	50%	12%	25%	3%	5%
Self-Haul and Roll-Off	1. C&D Sorting Facility at 2nd and Gilman	20%	30%	13%	20%	4%	6%
	2. Transfer Unsorted C&D	20%	30%	13%	20%	4%	6%
	3. Minor Facility Modifications	15%	20%	10%	13%	3%	4%
	4. C&D Ordinance	30%	35%	20%	23%	6%	7%

Chapter 3 does not consider all possible options, but rather focuses on a selection of options that have the greatest potential for increasing diversion, which are consistent with long-standing City policies regarding waste management, and which build on existing programs. For example, a switch to single-stream curbside recycling (in which all recyclable materials are placed in one container, and later mechanically and manually separated) is not considered, because it is contrary to the City's long-standing policy of producing high quality recyclable materials suitable for the highest and best use.

Chapter 4 identifies limitations of the existing facilities at the Second and Gilman site, and describes three options for improvements to the site. These range from minor facility modifications, to more substantial modifications to the existing site lay-out, to a complete redevelopment of the site. The discussion in Chapter 4 concludes that neither the minor nor the major site modifications option has the ability to fill the identified facility-related needs for the City; only complete site redevelopment has this capability.

Recommendations

This section presents recommendations for a selection of programs, policies, and facility modifications that will enable the City to reach 75% diversion by 2010. The recommendations, if implemented, will result in a substantial shift in the City's waste management system, and will require additional effort on the part of residents and businesses to reduce waste and to prepare waste materials properly for recycling, composting, and disposal. The recommendations lay out an integrated waste management system that goes well beyond that of other American cities in its comprehensive approach to the management of waste materials, particularly by requiring that residents and businesses separate recyclable and compostable materials from the relatively small fraction of their wastes which cannot be recovered. While new programs and facilities will result in higher capital and operating costs for the City, they can also be expected to result in new revenues. It is likely, therefore, that the overall economic impact of the recommendations will be a minor increase in refuse collection and tipping rates.

Table S-3 presents the programs, policies, and facilities recommended for adoption and implementation, and gives the projected diversion that would be achieved by each. The following provides some details on the recommended program and facility options. Additional details may be found in Chapter 3.

Recommended Single-Family Residential Programs

Single-Family Program Option 1: Mandatory 3-Way Separation

This option would add food scraps and compostable paper to the existing curbside plant debris program, and increase the frequency of collection of residential plant debris from bi-weekly to weekly; maintain the existing two-stream (paper, containers) curbside recycling program; reduce standard refuse collection frequency from weekly garbage collection (trash that contains

organics) to bi-weekly rubbish collection (trash that does not contain putrescible organics); and offer the option of weekly refuse collection for an extra fee.

Option 1 would require residents to separate their discards into four categories: organics, glass/metal/plastic containers, recyclable paper, and rubbish. Separation of organics from trash would be required to enable bi-weekly rubbish collection and to avoid increased costs and higher rates. All accepted putrescible materials, including food scraps, plant debris, and food-soiled paper, would be placed in the organics container for weekly collection.

**TABLE S-3
PROGRAM, POLICY, AND FACILITY RECOMMENDATIONS**

Generator Sector/Recommended Program Option	Projected City-Wide Diversion Rate Increase	
	Low	High
Single Family		
1. Mandatory 3-Way Separation	4%	5%
4. Revisions to Rates and Billing	-	-
Multi-Family		
1. Small buildings included in Residential 3-Way Separation	1%	3%
2. Increased Outreach and Public Education	1%	2%
Commercial-Industrial-Institutional		
1. Increased Franchisee Reporting Requirements	-	-
2. Increased Outreach and Education	1%	2%
3. Space Allocation and Mandatory Source Separation Ordinance	3%	5%
Self-Haul and Roll-Off		
1. C&D Sorting Facility at Second and Gilman ^a	2%	3%
4. C&D Ordinance	6%	7%
Second and Gilman Site Plan		
Option 3 - Site Redevelopment (Assumes unspecified diversion activities) ^b	2%	6%
TOTAL	20%	33%
Current Diversion Rate	52%	52%
Projected Diversion Rate	71%	84%

^a A sorting facility at the Second and Gilman site is feasible only with site redevelopment, or displacement of existing site functions.

^b Assumes that the facility would accommodate additional, as-yet unspecified diversion activities.

Single-Family Program Option 4: Revisions to Rates and Billing

Currently, the costs to residents of the three collection programs – refuse, plant debris, and curbside recycling – are rolled into one bill that does not itemize these services. This program would institute line-item billing, with volume-based rates for both refuse (or rubbish) and plant debris (or organics). Organics would be charged at a significantly lower rate than refuse or

rubbish. Curbside recycling would be charged on a flat-rate basis. Bills would clearly explain charges and residents' collection service options.

The overall goals of this option are to: (1) shift the burden of program costs from residents who effectively source-separate materials for recycling and composting to those who do not; (2) revise the rate structure to encourage on-site techniques (such as backyard composting) to reduce the need for off-site processing of compostable organics; and, (3) charge more for households that generate a disproportionate amount of organic material.

Recommended Multi-Family Residential Programs

Multi-Family Program Option 1a: Include Smaller Multi-family Buildings (up to 5 units) in Mandatory 3-Way Separation Program

Compostable organics make up a very large portion of disposed waste from multi-family residences. Under this option, smaller multi-family buildings would be included in Single Family Program Option 1 and would receive weekly organics collection, weekly recyclables collection, and bi-weekly rubbish collection. Multi-family buildings that currently are eligible for existing greenwaste collection program would be included in this new program.

In order to ensure high rates of participation in this program, the City would require that participating tenants keep their recyclable paper, containers, and organics separate from trash. Building owners would be required to: (1) include language in new leases stipulating that tenants must maintain compliance with City laws regarding proper materials separation and set out of recyclables, organics, and rubbish; (2) ensure that tenants have access to curbside recycling and curbside organics collection services; (3) ensure that tenants, upon moving-in, receive indoor household recycling or organics storage containers and information regarding proper participation in collection programs; (4) post appropriate signage regarding waste management, recycling, composting, and source reduction.

Multi-Family Program Option 2: Multi-family Outreach and Public Education Campaign

This program would involve an increase in outreach and public education, focusing on two sub-segments of the multi-family residential sector: (1) large multi-family buildings; (2) small multi-family buildings (2-5 units). The overall aim of the program would be to increase participation in new and existing collection and source reduction programs, and to provide tenants with options to reduce waste associated with moving-in and moving-out.

Recommended Commercial, Industrial, and Institutional Programs

Commercial, Industrial, and Institutional Program Option 1: Increase Reporting Requirements for Franchisees

The City currently has the authority under the terms of its non-exclusive franchise agreements with private commercial haulers to require franchisees to report the volume of disposed and

recycled materials collected from their accounts within the City. Exercising this authority and requiring franchisees to report this information would provide City staff with important information for program planning, tracking, and allocation of staff resources.

Commercial, Industrial, and Institutional Program Option 2: Increased Outreach and Education

This program would involve continued outreach to commercial, industrial, and institutional entities to encourage and assist participation in existing programs. This program would also include a continuation of cooperative efforts with the Alameda County Source Reduction and Recycling Board/Waste Management Authority (ACSRRB/WMA), U.C. Berkeley, BUSD, and others to improve the effectiveness of existing and ongoing programs.

Commercial, Industrial, and Institutional Program Option 3: Space Allocation and Mandatory Source Separation Ordinances

Space allocation ordinances are used to ensure that commercial buildings have adequate space for storage of recyclable materials. Generally, these include minimum requirements for loading dock or refuse enclosure areas to accommodate separate bins for recycling or composting. The requirement usually applies to new or remodeled construction. Mandatory source separation ordinances require commercial establishments to separate materials for collection in diversion programs. Ordinances may specify certain material types, or may leave it up to individual businesses to decide which materials to separate. Mandatory source separation ensures much higher participation by commercial establishments in diversion programs, leading to significantly higher diversion rates. Both ordinances may be written to allow exemptions for business locations where the cost of compliance would be prohibitive.

Recommended Self-Haul and Roll-Off Programs

Self-Haul and Roll-Off Program Option 1: Construction and Demolition Waste Sorting Facility at Second and Gilman Site

The City would construct a sorting system at the Second and Gilman site for mechanical and manual sorting of selected self-haul and roll-off loads. This program would target loads rich in recoverable construction and demolition wastes, including unpainted wood, inerts, plant debris, cardboard, metals, and carpet.

Space is a major constraint at the Second and Gilman site, and locating a facility of this type, which could be expected to consume approximately 20,000 square feet, would be difficult in the current site configuration unless another site function were discontinued or relocated. Sorting facilities also produce significant amounts of noise and dust, which may be incompatible with the evolving land uses in the area. The facility would therefore have to be enclosed and constructed with robust environmental controls. Option 3 of the Second and Gilman Master Plan provides for a 17,000 square foot facility built to current environmental and building code stipulations that would accommodate this function.

Self-Haul and Roll-Off Program Option 4: Adopt Construction and Demolition Debris Recycling Ordinance

An increasing number of cities and counties in California have adopted ordinances requiring building contractors to recycle construction and demolition (C&D) wastes. These ordinances typically require contractors to prepare a recycling plan, which is reviewed and approved as part of the building permit approval process. Most ordinances have a requirement for contractors to demonstrate that they have implemented their plans, and have achieved a minimum diversion rate. At the time of the writing of this document, the City is in the process of preparing and considering a C&D ordinance. The draft ordinance will be presented to Council in the summer of 2005. A draft of the ordinance is available for review.

Master Plan for the Second and Gilman Site

Complete redevelopment of the Second and Gilman site is recommended to provide the processing capacity to handle additional materials collected for recycling and composting, and to provide the flexibility for handling and recovering materials from an ever-changing waste stream, in a rapidly-evolving regulatory environment. Chapter 4 includes a preliminary design for a new site plan (Figure CD-1), including new and expanded facilities for handling a much greater volume of compostable materials (including foodwaste), sorting of construction and demolition materials and other items from self-hauled loads, and greater capacity for processing commercial and residential recyclables. The site plan preserves the existing Buy-Back and Drop-Off functions, Solid Waste Division offices, and maintenance facilities for collection and long-haul fleets. In addition, the site plan provides for enhanced educational opportunities, greatly improves site access and circulation, conserves energy, and has the capability of generating alternative energy. In short, the site plan presents a preliminary design for a state-of-the-industry facility that would provide the key infrastructure needs for the City's future materials management.

CHAPTER 1

Introduction

A. Overview

This draft Plan Update provides an overview of the City of Berkeley's existing solid waste management system, and describes and quantifies waste generated within the City. The Plan presents options and strategies for achieving 75 percent diversion by 2010, and for moving toward the City's goal of Zero Waste by 2020.

Berkeley's existing solid waste management plan is the 1992 Source Reduction and Recycling Element (SRRE), produced as part of the Alameda County Countywide Integrated Waste Management Plan, in fulfillment of a requirement of the California Integrated Waste Management Act of 1989 (AB 939). The SRRE's general goal is to establish a system of source reduction, recycling, and composting programs capable of meeting and exceeding the requirements of the Act, particularly the requirements to divert 25 percent of generated waste by 1995 and 50 percent by 2000. The SRRE actually lays out programs that were projected to achieve nearly 73 percent diversion of generated waste by 2000. The overall approach employed to achieve this diversion rate was to stabilize, strengthen, and expand existing programs and facilities.

Prior to the City's adoption of the SRRE, solid waste policy and program development were guided by the 1986 Solid Waste Management Plan, which was prepared pursuant to the City's 1984 Recycling Policy Ordinance. The Ordinance was enacted through a ballot initiative, and established for the first time a goal to recycle 50 percent of the City's wastestream.

This draft Plan Update has been developed collaboratively with the Solid Waste Management Commission (SWMC), City staff, and interested groups and individuals, through workshops and public meetings.

B. Goals and Objectives

Overall, the goals of the current planning effort are to produce a new tool for guiding the City's future solid waste policies and programs. Specifically, the new Plan provides a framework for program and policy development that will conserve natural resources and landfill capacity; that will enable the City to continue to comply with the State-mandated requirement to divert at least 50 percent of the City's generated waste from landfills, and with the Alameda County Measure D requirement to divert at least 75 percent of the City's wastes. Like the SRRE, it is anticipated that

the overall strategy to achieve these goals will involve improvements and expansions of existing source reduction, recycling, composting, and education programs. In addition, new programs and facilities will be evaluated.

At its March 22, 2005 meeting, the Berkeley City Council adopted a resolution that includes the goal of achieving Zero Waste by 2020. In practical terms, Zero Waste means that all discarded material will have a beneficial use, and none will be disposed in a landfill. The resolution reconfirms the City's goal of achieving a 75 percent diversion rate by the year 2010, and acknowledges the importance of achieving that goal as an interim step in the City's pursuit of Zero Waste.

Few, if any, American cities of Berkeley's size and complexity have consistently achieved diversion rates above 70 percent. In order to achieve 75 percent diversion, it will be necessary to employ bold, innovative, and comprehensive new programs for reducing waste and for collecting for recycling and composting waste that is generated. It will also be necessary to improve the City's infrastructure for processing collected waste materials and preparing them for use as raw materials or commodities.

C. Overview of Berkeley's Solid Waste Management System

Berkeley's solid waste management system includes a broad array of source reduction, recycling, and composting programs and policies. These are detailed later in Chapter 5, and summarized in Tables 1-1 and 1-2. Overall, the management of the system is the responsibility of the City's Public Works Department, Solid Waste Management Division, but this responsibility is shared with other entities, as well (Table 1-1). The actions of the Solid Waste Management Division are overseen by the Solid Waste Management Commission, whose members are appointed by the City Council. The Commission also recommends policy and budget matters to the Council. City ordinances pertaining to solid waste management are contained in Chapter 12 (Health and Safety) of the City Code.

Responsibility for the City's solid waste management system is to a degree shared with the California Integrated Waste Management Board (CIWMB) and with the Alameda County Source Reduction and Recycling Board/Waste Management Authority (ACSRRB/WMA). The CIWMB is the state agency charged with implementation of AB 939 and other laws and regulations governing waste management in the state (the Department of Conservation oversees the beverage container redemption program). The ACSRRB/WMA consists of two separate entities, but they share offices, staff, and some board members. The Source Reduction and Recycling Board was created through Measure D, which was passed by Alameda County voters in 1991. Measure D establishes the 75 percent diversion goal, institutes a funding mechanism for development of diversion programs through a surcharge on waste disposed in landfills in the County, and empowers the Board to make policy and distribute funds. The Waste Management Authority is a joint powers authority created by an agreement entered into by the County, the cities in the

**TABLE 1-1
SUMMARY OF EXISTING PROGRAMS**

Component Name	Program Name	Targeted Materials	Partners
Source Reduction, Product Procurement, Outreach, and Mixed Media Programs	Source Reduction – Backyard and On-Site Composting	Residentially-generated leaves, grass clippings, chipped wood and brush, straw, and (with the use of vector-resistant enclosures) vegetative food scraps.	Alameda County Source Reduction and Recycling Board/Waste Management Authority/Home Composting Program
	Source Reduction – Schools On-Site Composting Program	Leaves, grass clippings, brush, straw, and (with the use of vector-resistant enclosures) vegetative food scraps from student lunches, food-soiled paper products, and shredded office paper.	Berkeley Unified School District
	Source Reduction – Business Waste Reduction Program	All	Alameda County Stop Waste Program, Bay Area Green Business program
	Source Reduction – Material Exchange	Reusable items, including: clothing, home furnishings, appliances, consumer electronics, building materials, and materials that can be used in educational settings (games, art supplies, paper, and other miscellaneous materials).	Urban Ore, Ohmega Salvage, East Bay Depot for Creative Re-use, thrift stores, used appliance stores, Ashby Flea Market
	Procurement – Recycled Product Procurement	CFC-processed food packaging, batteries, motor oil, tropical hardwood and wood products, recycled paper, redwood products, janitorial supplies and lead paint.	Berkeley-Oakland Recycling Market Development Zone, Alameda County Source Reduction and Recycling Board/Waste Management Authority, Sustainable Business Alliance, Green Resource Center
	Public Education – Electronic, Print, and Outreach	All	Public Libraries
	Mixed Programs – City Facilities Source Reduction and Recycling Program	All materials targeted in the City's commercial recycling program are collected, including mixed paper and mixed containers. Source reduction efforts have targeted reusable items; paper, copy machine components; re-chargeable batteries; and re-tread tires	Community Conservation Center
	Mixed Programs – School Recycling and Source Reduction Programs (non-UC)	Targeted materials include newsprint, mixed paper, cardboard, mixed beverage containers and plant debris. Oxford Elementary and Rosa Parks Elementary experimented with a zero food waste program, but this program may no longer exist.	Berkeley Unified School District, Alameda County Waste Management Authority
	Mixed Programs – University of California, Berkeley Campus Recycling and Refuse Collection Services	Wide range of materials from residential dormitories including fraternities, sororities and coops; campus classrooms and offices; grounds; dining halls; public spaces and special events.	UC Campus Recycling and Refuse Services, Students Organized to Use Resources Conscientiously and Efficiently, East Bay Conservation Corps

**TABLE 1-1 (CONTINUED)
SUMMARY OF EXISTING PROGRAMS**

Component Name	Program Name	Targeted Materials	Partners
Recycling Programs	Curbside Recycling Program	Newsprint, cardboard, mixed paper, steel and aluminum cans, aluminum foil, glass bottles and jars, and #1 and #2 plastic bottles	Ecology Center, Community Conservation Center
	Buy-Back Program	Glass bottles and jars, aluminum cans, plastic beverage bottles, newspaper, and cardboard	Community Conservation Center
	Drop-Off Recycling Program	Second and Gilman site accepts color-sorted glass bottles and jars, aluminum and steel cans, #1 and #2 plastic bottles, white paper, mixed paper, newspaper, cardboard, scrap metals and appliances (except refrigerators), clothing, and cell phones.	Community Conservation Center
		Dwight Way and MLK Jr. Way site accepts the same materials, except scrap metal.	Community Conservation Center
	Commercial Recycling Program	Bottle, cans, newspaper, mixed paper, white office paper, cardboard, and plastic bottles. The City also operates a commercial organics collection program, which is described separately.	Community Conservation Center, California Department of Conservation, and Alameda County Source Reduction and Recycling Board/Waste Management Authority
	Special Collection Events	Plant debris and untreated lumber, scrap metals, and bulky (mattresses and box springs) items. General refuse is also collected.	St. Vincent de Paul
Composting Programs	Residential Curbside Plant Debris Collection Program	Plant trimmings, grass clippings, leaves, brush, scrap wood, small branches, and other vegetative, non-food discards are acceptable in the residential curbside plant debris program.	Grover Landscape Services
	Self-haul Green Waste And Wood Waste Program	Targeted materials include unpainted and untreated wood, grass clippings, leaves, and other vegetative plant materials, and clean sheetrock (gypsum wallboard).	Grover Landscape Services, Alameda County Source Reduction and Recycling Board/Waste Management Authority
	Food Waste Composting Program	Food scraps, including meat, and bones, soiled paper, waxed paperboard, waxed cardboard, and other compostable materials. Fats, oils, grease, and liquids are not allowed by the program.	Grover Landscape Services, Alameda County Source Reduction and Recycling Board/Waste Management Authority
	Processing of Collected Organics: Grover Landscape Services	Unpainted and untreated scrap wood, plant trimmings, grass clippings, leaves, and other vegetative plant materials, clean sheetrock (gypsum wallboard), food scraps, soiled paper, and other cardboard and paperboard.	Grover Landscape Services

TABLE 1-1 (CONTINUED)
SUMMARY OF EXISTING PROGRAMS

Component Name	Program Name	Targeted Materials	Partners
Refuse Collection Programs	Refuse Collection	municipal solid waste	Republic Services landfills (Vasco Road, West Contra Costa Sanitary, Potrero Hills)
	Non-Exclusive Rubbish Collection Franchises	In addition to rubbish (dry solid waste), franchised haulers may collect recyclables and plant debris. For determining franchise fees, wastes collected and used as alternative daily cover at landfills are not considered to be recycled, but disposed.	Waste Management of Alameda County, Richmond Sanitary Service, other waste haulers
Special Waste Materials Handling Programs	Special Waste Materials – Concrete, Asphalt, Rubble	Concrete, asphalt, rubble, and other heavy, inert solids	Dutra Materials (processor)
	Special Waste Materials – Tires	Truck and passenger vehicle tires.	Bay Area Tire Recovery (processor)
	Special Waste Materials – White Goods	Refrigerators, drinking fountains, air conditioners, freezers.	Jaco Environmental
	Special Waste Materials – Scrap Metal	Scrap metal includes stoves, dishwashers, washing machines, dryers, and various pieces of metal.	Sims Metals
	Special Waste Materials – Bulky and Other Reusable Items	Mattresses, large appliances, and CRTs. Other CEDs (consumer electronic devices) may be diverted depending on labor availability.	Urban Ore, St. Vincent De Paul, Alameda County Computer Resource Center
HHW Programs	Household Hazardous Waste – HHW Education Programs	Paint, stain, varnish, thinner, adhesives, automotive products such as old fuel, motor oil, oil filters and lead-acid batteries, household batteries, cleaners and sprays, and garden products, including pesticides and fertilizers.	Alameda County Household Hazardous Waste Program, City of Berkeley Toxics Management Division
City Policies	Policies – Economic Incentives	All solid waste, including recyclable and compostable materials.	Ecology Center (Cash for Trash Program)
	Policies – Product and Landfill Bans, Ordinances	EPS foam take-out food containers in food service establishments, hazardous materials in the solid waste stream, including CRT's.	Berkeley Planning Department: Toxics Management Division, Berkeley Food Service Businesses

**TABLE 1-2
EXISTING PROGRAM PARTICIPATION AND DIVERSION**

Component Name	Program Name	Participation Rate	Tons Per Year
Source Reduction, Product Procurement, Outreach, and Mixed Media Programs	Source Reduction – Backyard and On-Site Composting	As of 2001, 30% of Berkeley households had purchased compost or worm bins since 1991.	No direct measurement.
	Source Reduction – Schools On-Site Composting Program	At least 15 public schools in Berkeley compost on-site.	No direct measurement.
	Source Reduction – Business Waste Reduction Program	Over 30 Berkeley businesses participate in the Green Business program, and many more regularly practice solid waste reduction in their routine purchasing, process, and disposal practices.	No direct measurement.
	Source Reduction – Material Exchange	Data not available.	In 2003, 802 tons of reusable items were picked from the Berkeley Transfer Station tipping floor by Urban Ore.
	Procurement – Recycled Product Procurement	The Green Resource Center served over 500 clients in 2002	
	Public Education – Electronic, Print, and Outreach		Difficult to attribute specific waste reduction and waste diversion tonnage, yet essential to increased waste reduction, re-use, and recycling.
	Mixed Programs – City Facilities Source Reduction and Recycling Program		Included with the commercial recycling tonnage.
	Mixed Programs – School Recycling and Source Reduction Programs (non-UC)	All BUSD schools participate in the recycling services provided by the City. Minimum participation is mixed paper and cardboard, and some schools also collect cans, bottles, plant debris, and food waste.	No data available.
Mixed Programs – University of California, Berkeley Campus Recycling and Refuse Collection Services	70-90%	(Fiscal Year July 2002- June 2003) 3,379 tons	

TABLE 1-2 (CONTINUED)
EXISTING PROGRAM PARTICIPATION AND DIVERSION

Component Name	Program Name	Participation Rate	Tons Per Year
Recycling Programs	Curbside Recycling Program	Average weekly participation is 45%, and 85% of households participate at least monthly. There is lower participation in multi-family buildings.	The curbside program has shown steady improvement in recovered tonnage, from 7,422 tons in 2000 to 8,623 tons in 2003.
	Buy-Back Program	In May 2004, the Buy-Back averaged 124 customers per day. An increase in CA Redemption Value earlier this year has increased Buy-Back business.	In 2003, the program recovered 3,734 tons of material. The volume of recovered material has increased since 2000.
	Drop-Off Recycling Program	65 customers/day avg. at Second & Gilman, 75 customers/ ay at the Dwight & King; more customers on weekends. Dwight&King: residents, private haulers and small business owners. Second & Gilman: scavengers, private haulers, and small business owners.	2003: 2,611 tons. Tonnage has increased steadily since 2000.
	Commercial Recycling Program	Data not available.	2003: 3,678 tons. The amount of material collected has changed little since 2000.
	Bulky Waste Pickup	Initial participation was limited to 100 appointments per Saturday, but was recently increased to 115 appointments. Most Saturdays have been at or near capacity for number of appointments.	2003: 178 tons of mattresses, appliances, reusable goods, and other recyclables
Composting Programs	Residential Curbside Plant Debris Collection Program	16,590 greenwaste containers in service, almost all residential accounts (excluding commercial foodwaste accounts). About 70% of eligible households have greenwaste containers. Not all participating households set material out every collection day.	1999-2000: 6,000 tons. 2002: 7,620 tons. 2003: 8,399 tons.
	Self-haul Green Waste And Wood Waste Program	Data not available.	2000: 5,417 tons. 2001: 6,303 tons. 2002: 8,674 tons. 2003: 10,760 tons.
	Food Waste Composting Program	About 20% (100 out of 535 of eligible businesses).	2002: 2,612 tons. 2003: 3,330 tons.
	Processing of Collected Organics: Grover Landscape Services	All properly source-separated organic materials collected in the City of Berkeley (except for some tree trimmings that are chipped by City crews and used as mulch at City facilities) are processed by Grover Landscape Service.	2000: 13,118 tons. 2001: 15,333 tons. 2002: 18,960 tons. 2003: 22,489 tons.
Refuse Collection Programs	City Refuse Collection	Nearly 100%.	Refuse collection service is mandatory for anyone producing putrescible garbage in the City.
	Non-Exclusive Rubbish Collection Franchises		

TABLE 1-2 (CONTINUED)
EXISTING PROGRAM PARTICIPATION AND DIVERSION

Component Name	Program Name	Participation Rate	Tons Per Year
Special Waste Materials Handling Programs	Special Waste Materials – Concrete, Asphalt, Rubble	Not available.	365 tons of concrete, asphalt, and rubble were diverted from the landfill at the Berkeley Transfer Station in 2003.
	Special Waste Materials – Tires	Not available.	Around 100 tires per month. In 2003, the City recycled 43 tons of tires through the Transfer Station.
	Special Waste Materials – White Goods	Not available.	Tonnage for white goods included in scrap metal tonnage
	Special Waste Materials – Scrap Metal	Not available.	2001: 1,746 tons. 2002: 1,241 tons. 2003: 1,311 tons. (At Transfer Station).
	Special Waste Materials – Bulky and Other Reusable Items	Not available.	A total of 196 tons of mattresses, and 105 tons of large electronics were diverted from landfill in 2003. Large appliances are shipped with scrap metal and not separately weighed.
HHW Programs	Household Hazardous Waste – HHW Education Programs	Not available.	Not available.
City Policies	Policies – Economic Incentives	Multiple recycling program studies have shown that incentives, coupled with convenient collection services, significantly improve public participation.	In part because of the publicity associated with the Cash-for-Trash contest, average daily recycling tonnage increased from 30 tons to 33 tons (from April 2002 to May 2003), while service and recycling bin requests increased from 128 to 204 during the same time period
	Policies – Product and Landfill Bans, Ordinances	Not available.	Not available.

County, and two sanitary districts. The Authority has broad responsibility for solid waste and hazardous waste planning and policy making.

The operation of diversion programs in the City is variously the responsibility of the City itself; organizations that are under contract with the City to provide specific services; private sector collection and processing programs, some of which are franchised by the City; and residents, businesses, institutions, and organizations who consume goods, produce and reduce waste, prepare materials for collection, and operate their own waste management systems within their home or workplace.

Refuse Collection and Processing

The City of Berkeley is one of the few cities in Northern California to operate its own refuse collection system. The City has the exclusive responsibility to collect garbage (putrescible waste not including source-separated recyclables or yard waste) from all premises in the City. The City operates collection programs for residential and commercial establishments, government facilities, and schools. The City also owns and operates the Transfer Station, located on 2nd Street north of Gilman. At the Transfer Station, collected refuse is transferred to long-haul trucks for delivery to a disposal site. Currently, the City has a contract with Allied Waste Services (formerly BFI) to dispose waste at the Vasco Road Landfill in eastern Alameda County.

Refuse other than putrescible garbage may be collected by private individuals. The City has established a system of non-exclusive franchises that enable licensed commercial collectors to operate in the City. Residents and businesses may also haul their own refuse (other than garbage) to the Transfer Station or other disposal facilities. The University of California operates its own refuse collection system for the Berkeley campus.

Recycling Collection and Processing

Recycling collection and processing programs in Berkeley are primarily operated by three entities: the City Public Works Department, Solid Waste Management Division, which operates the commercial recycling collection program; the Ecology Center, which under contract with the City operates the residential curbside program; and the Community Conservation Centers, which, also under contract with the City, operates the buy-back and drop-off programs and which processes materials collected by the City and the Ecology Center at the 2nd and Gilman site. Other recycling in the City occurs through the actions and efforts of residents, businesses, and franchised commercial waste collectors.

Composting Program Collection and Processing

The City's Solid Waste Management Division operates the organics collection programs, which collect greenwaste from residences and food waste from commercial establishments. Grover Landscape Services is under contract with the City to transport and compost organic materials, which are consolidated at the Transfer Station.

Facilities

Most of the City's solid waste processing operations occur at the City-owned site at 2nd and Gilman streets. This site includes the Transfer Station and the City's bin storage, truck parking and washing, household hazardous waste collection areas, salvage areas, and administrative offices for the Solid Waste Management Division; Ecology Center truck parking and offices; the CCC buy-back, drop-off, and materials processing operations, as well as the CCC's office.

Source Reduction Programs

Source reduction is the reduction or prevention of waste at its source. Many source reduction programs are educational in nature – that is, they encourage people to modify their behavior regarding purchasing, using, and discarding of goods in order to reduce the amount that becomes waste. For example, on-site organics composting is advocated and facilitated by programs of the Ecology Center and the ACSRRB/WMA. Re-use of discarded items is also considered source reduction. The City contracts with Urban Ore to salvage usable items at the Transfer Station. Urban Ore and other organizations involved in re-use, such as Goodwill and Out of the Closet, operate retail outlets in the City.

D. Organization of the Plan

A summary chapter at the beginning of this report provides an overview of the City's waste stream, and the program, policy, and facility options presented in Chapters 3 and 4. The summary also includes a selection of program, policy, and facility options that, taken together, should enable the City to meet the 75% diversion goal by 2010, and to move toward the goal of Zero Waste by 2020. Chapter 2 provides details and trends for waste generated, disposed, and diverted in the City. Chapter 3 presents options for programs and policies to increase diversion and decrease waste. Chapter 4 includes several options for future development of the Second and Gilman site. Chapter 5 provides background information on the City's existing programs, policies, and facilities.

CHAPTER 2

Waste Stream Analysis

A. Introduction

This chapter presents recent information on quantities and composition of waste generated in the City of Berkeley. This includes information on waste that is generated by Berkeley households, businesses, and institutions, both that which is disposed in landfills, and that which is recycled, composted, or re-used. The information is analyzed and interpreted to provide guidance for developing new or expanded programs to divert waste. The report is divided into the following sections:

Generated Waste, which details the total quantity of waste produced in the City, for the most recent year for which data is available;

Diversion, which provides information on the quantities of material diverted by existing recycling, composting, and source reduction programs;

Disposed Waste, which includes information on the quantities of Berkeley waste that have been disposed in recent years; the landfills in which it has been disposed; and the most recent information on the composition of disposed waste;

Divertible Materials in Disposed Waste, which draws on the above information and presents information on which materials types may be the best targets for diversion program development and enhancement.

B. Data Sources

The following sources were used in developing this report:

Generated Waste

- California Integrated Waste Management Board (CIWMB) web site, Diversion Rate Calculator (<http://www.ciwmb.ca.gov/LGTools/MARS/DRMCMMain.asp>)
- City of Berkeley, Year 2002 Annual Report to the CIWMB

Disposed Waste Quantities

- CIWMB web site, Disposal Reporting System (<http://www.ciwmb.ca.gov/LGCentral/DRS/Reports/JurDspFa.asp>)
- Alameda County Source Reduction and Recycling Board/Waste Management Authority, Year 2000 Waste Characterization Study (<http://stopwaste.org/wcs2000.html>)

Disposed Waste Composition

- Alameda County Source Reduction and Recycling Board/Waste Management Authority, Year 2000 Waste Characterization Study

Diverted Waste Quantities

- City of Berkeley, Year 2003 Annual Report to the CIWMB
- City of Berkeley, Refuse Division, Internal Staff Memorandum

C. Generated Waste

Generated waste is defined by the State of California as all waste that is disposed and diverted within a particular jurisdiction. In other words,

$$\text{Disposed Waste} + \text{Diverted Waste} = \text{Generated Waste}$$

Disposed waste includes all waste that is disposed in landfills or “transformed,” the term that the State uses for incineration. Diverted waste includes all waste that is recycled, composted, or reduced at the source. Source reduction includes reuse of discarded items, such as clothing and furniture. The State’s definitions and methods for calculating disposed, diverted, and generated waste are important, because they are used in determining the City’s progress toward achieving and maintaining the state-mandated 50 percent diversion rate.

The state does not require the City to count all generated and diverted waste each year. Rather, the amount generated and the amount diverted are estimated from year to year using a standard formula. The formula is based on the amount counted in a “Base-Year” in which the City conducted a comprehensive study of all diverted and disposed waste. The City of Berkeley’s Base-Year is 1990. In 1990, 188,804 tons of waste were generated in the City of Berkeley. Each subsequent year, the amount of generated waste is estimated using a formula that takes into account changes in population, taxable sales, and employment. For example, in 2003, the estimated generation tonnage was 218,902 tons, reflecting an increase in both population and economic activity.

While the City is not required to, and does not, conduct a comprehensive survey of all diverted waste each year, each county in the State is required to track the origin of all wastes disposed in

landfills located within the county. Using the reported disposal amount, an estimate of the amount of waste diverted can be used by subtracting disposed waste from generated waste:

$$\text{Estimated Generated Waste} - \text{Reported Disposed Waste} = \text{Estimated Diverted Waste}$$

The State allows cities to adjust the amount of disposed waste under certain conditions. For example, disposed waste that is produced as a residue from a “Regional Diversion Facility” or as a result of a natural disaster such as a fire or an earthquake, and which cannot be recycled, can be subtracted from the total amount of disposed waste for the purpose of calculating diversion.

Using the State’s formula for estimating waste generation, the City of Berkeley generated 218,902 tons of waste in 2003. The amount of waste coming from the City that was reported as disposed in landfills was 119,062 tons; however, the City has requested that 14,304 tons of disposed waste be discounted. This consists of contaminated sand and slag from a metal recycling foundry (considered Regional Diversion Facilities), non-recyclable special waste deposited in a Class II landfill, and several hundred tons of disposed waste material that was mis-reported as originating from Berkeley. If this request is granted, then the City’s diversion rate for 2003 will be 52 percent, as shown in **Figure 2-1**. Using the adjustment method, the City’s diversion rate has fluctuated between 41 percent and 52 percent since 1995.

D. Diversion

While the City of Berkeley is not required to keep track of all materials recycled, composted, and reduced within the City each year, the City does track materials recycled and composted through its own programs and programs it sponsors. These include the City’s own commercial recycling and organic material collection programs, activities at the City’s transfer station, and programs run by the City’s contractors, the Ecology Center and the Community Conservation Centers. As was seen in **Figure 2- 1**, the amount of diversion that is tracked or counted is less than half of all the material that is assumed to be diverted using the State’s method of calculating generated and diverted waste: 40,793 tons of materials were actually counted as having been diverted in 2003, while an additional 58,846 tons were assumed to have been diverted (in addition to the 14,304 tons of excluded disposed waste, discussed above). This assumed, or derived diversion includes private sector commercial recycling, redemption of beverage containers at certified redemption centers other than the Buy Back at Second and Gilman Streets, and various source reduction activities.

Diversion programs that the City tracks can be divided into recycling programs, organics (composting) programs, and transfer station salvage programs. As shown in **Figure 2-2**, organics programs and recycling collection programs make up the majority of diverted materials that are counted. Between 2000 and 2003 there have been increases in all three categories. The greatest change has been a substantial increase in organics programs, which now account for the greatest volume of tracked diversion in Berkeley.

**Figure 2-1
City of Berkeley, Generated Waste 2003**

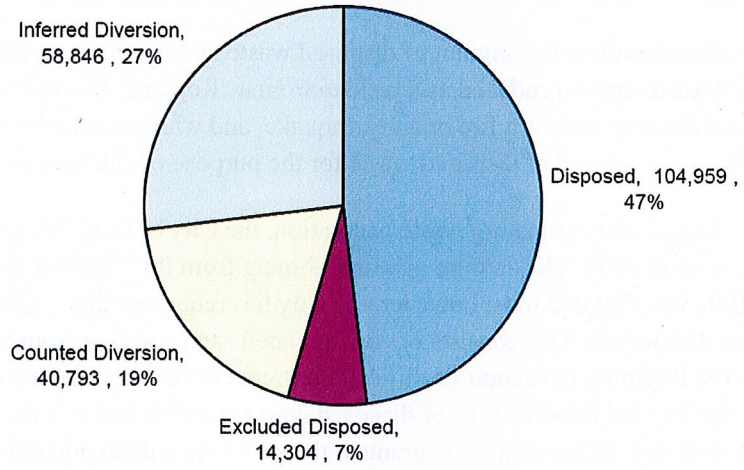


Figure 2-2: Diversion Trends by Category, 2000-2003

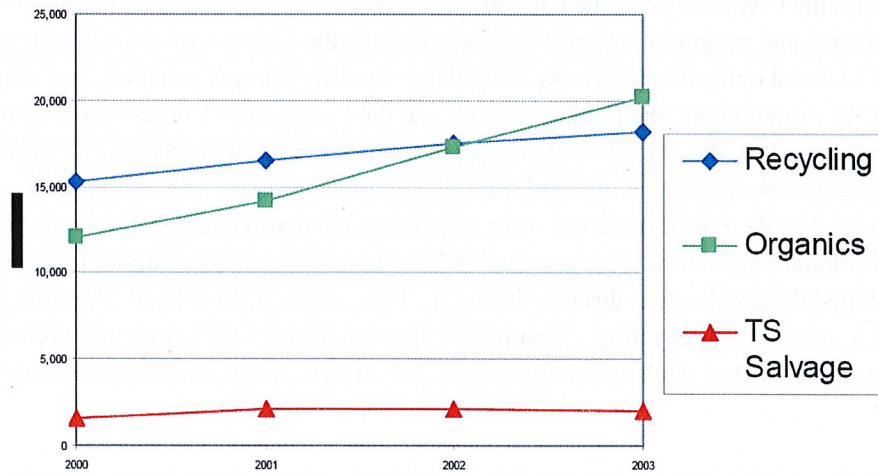


Figure 2-3: Counted Diversion In 2003, by Program

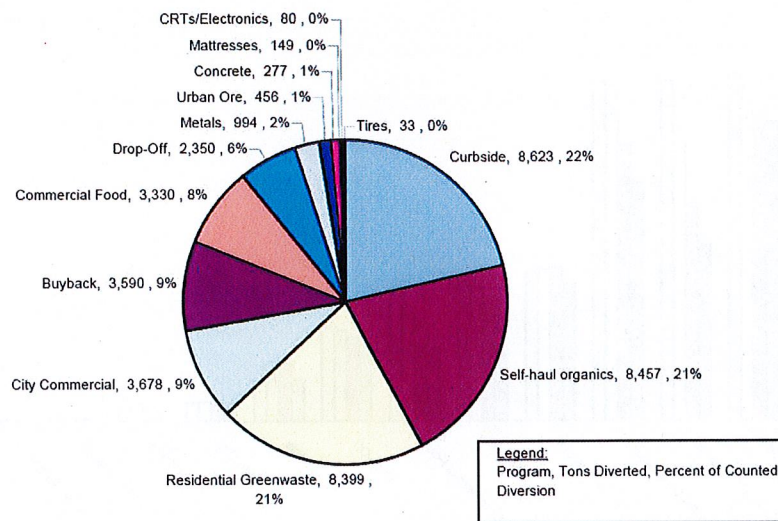
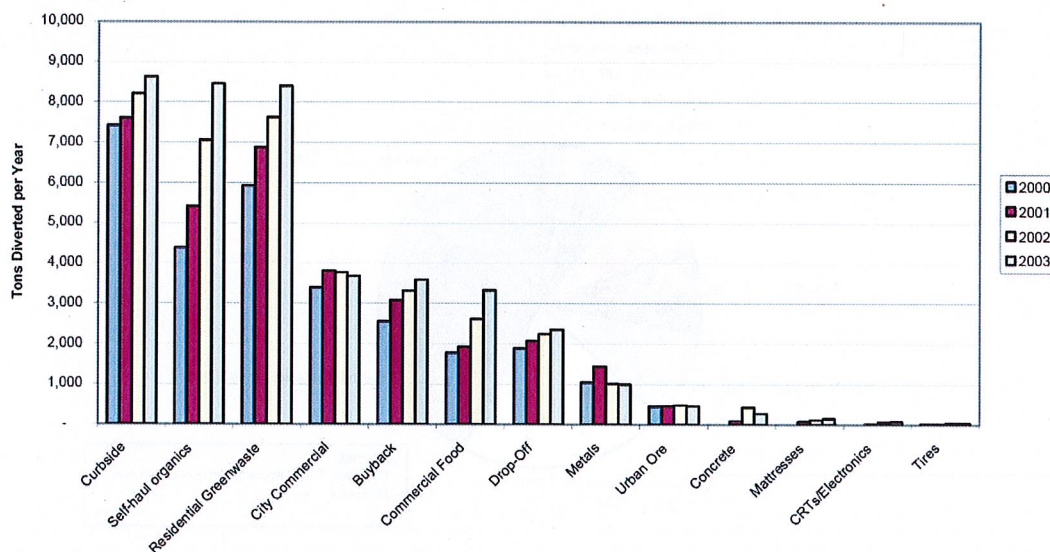


TABLE 2-1
COUNTED DIVERSION IN BERKELEY, 2000-2003^a

Program	Year			
	2000	2001	2002	2003
Curbside	7,422	7,605	8,203	8,623
Self-haul organics	4,379	5,408	7,043	8,457
Residential Greenwaste	5,924	6,869	7,620	8,399
City Commercial	3,389	3,809	3,773	3,678
Buyback	2,555	3,079	3,313	3,590
Commercial Food	1,777	1,925	2,612	3,330
Drop-Off	1,883	2,066	2,247	2,350
Metals	1,041	1,439	1,010	994
Urban Ore Transfer Station Salvage	454	457	483	456
Other UC Berkeley (except paper and greenwaste, included above)	n.a.	n.a.	n.a.	378
Transfer Station Concrete Recycling	-	93	427	277
Transfer Station Mattresses Recycling	-	79	115	149
Transfer Station CRTs/Electronics	-	14	59	80
Transfer Station Tires	16	17	30	33
Total	28,839	32,861	36,936	40,793

^a Figures are Tons; programs are sorted from greatest to least for 2003

Figure 2-4: Diversion Trends, 2000-2003



Within these categories, the City tracks the diversion achieved by 13 different programs. **Figure 2-3** indicates that the three programs that diverted the most tons in 2003 were the curbside recycling program, self-haul organics (organic materials delivered to the Berkeley Transfer Station by businesses and residents), and the residential plant debris collection program, each of which diverted over 8,000 tons of material in 2003. Other programs that account for at least six percent of counted diversion are the Buyback at 2nd and Gilman; the City's commercial recycling program; the City's commercial foodwaste collection program, and the Drop-off recycling facilities at 2nd and Gilman and at Martin Luther King Way and Dwight Way.

Table 2-1 shows the tonnage of material diverted by the tracked programs from 2000-2003. The figures in **Table 2-1** are also graphed in **Figure 2-4** to show the trends in diversion achieved by the various programs over the past several years.

E. Disposed Waste Quantity and Composition

As noted above, The State requires all counties in California to track the origin and quantity of waste disposed at landfills and incinerators located within their boundaries. This requirement has been in existence since 1995, and has resulted in an excellent record for tracking the quantity and final destination of individual jurisdictions' waste. **Figure 2-5** shows the total amount of waste originating from within the City of Berkeley that has been reported as disposed from 1995 through 2003. The figure shows that during this time, the total amount of disposed waste has fluctuated between about 120,000 and 140,000 tons per year. In 2003, the amount disposed fell below 120,000 tons for the first time since record keeping began.

Waste from the City of Berkeley is disposed at several landfills in the greater Bay Area. **Figure 2-6** shows the quantity of waste disposed at different landfills between 1995 and 2003, and indicates that the great majority of waste from Berkeley is disposed at two landfills: Vasco Road Landfill, located in eastern Alameda County near Livermore; and West Contra Costa Sanitary Landfill, located near the Chevron oil refinery in Richmond. Most of the waste that is transferred through the City's Transfer Station is disposed at Vasco Road Landfill. About 5,000 tons of the approximately 40,000 tons of Berkeley waste disposed at West Contra Costa Sanitary Landfill in 2002 was from the University of California. Note that there was a substantial decrease in the amount of material disposed at this landfill in 2003.

Additional data on the quantities of waste produced in year 2000, categorized by load type or destination, is shown in **Figure 2-7**. The first 5 categories in the figure, self-haul, single family, multi-family, commercial, and roll-off, include materials disposed at the Berkeley Transfer Station and other facilities in Alameda County. Figure 2-7 shows that self-haul wastes are the

Figure 2-5: City of Berkeley, Landfilled Waste 1995-2003

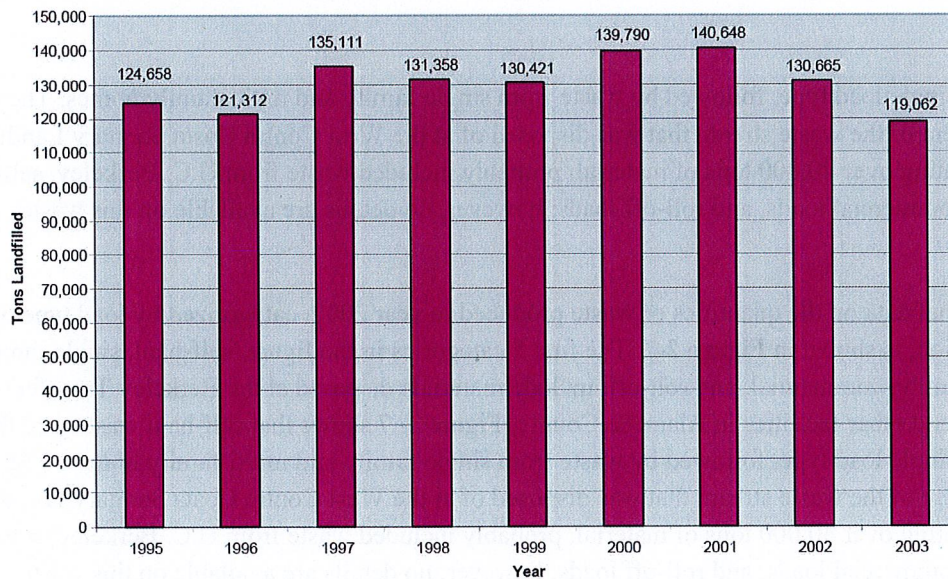
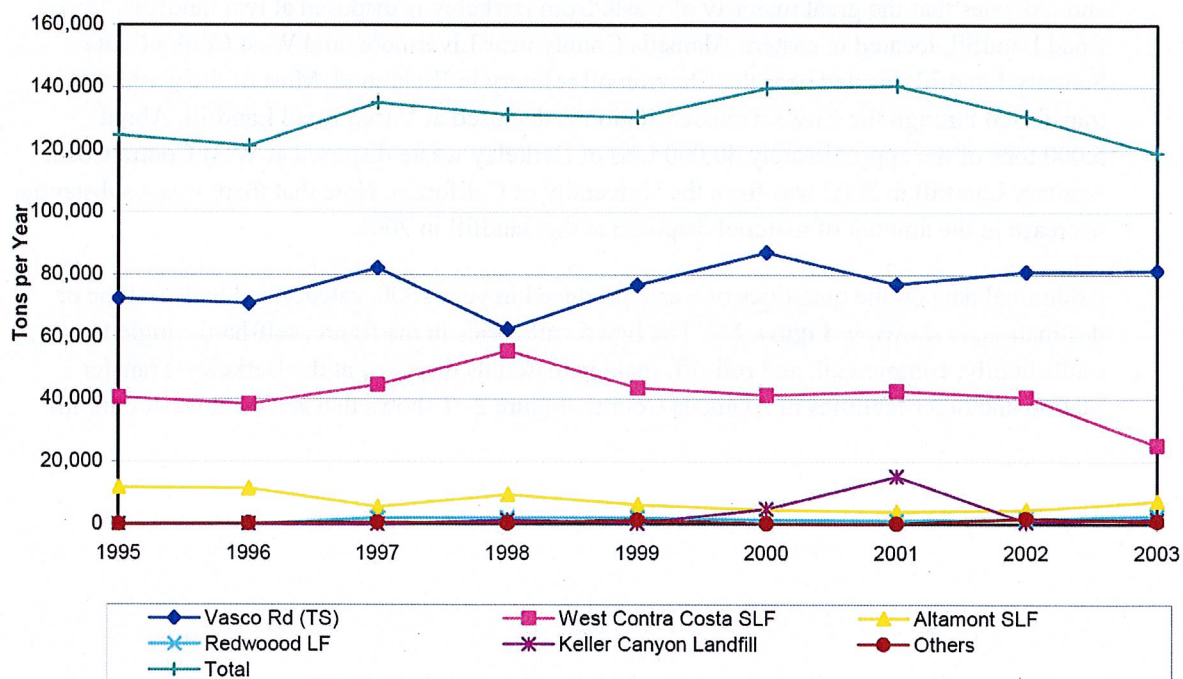


Figure 2-6: Disposed Berkeley Refuse, 1995-2003



largest single load type, followed by waste from single family and multi-family homes. The 30 percent of the waste stream that was disposed of at the West Contra Costa Sanitary Landfill, representing over 40,000 tons of material, probably included waste from U.C. Berkeley, self-haul loads, commercial loads, and roll-off loads; however, no details are available on this waste stream.

Additional data on the quantities of waste produced in year 2000, categorized by load type or destination, is shown in **Figure 2-7**. The first 5 categories in the figure, self-haul, single family, multi-family, commercial, and roll-off, include materials disposed at the Berkeley Transfer Station and other facilities in Alameda County. Figure 2-7 shows that self-haul wastes are the largest single load type, followed by waste from single family and multi-family homes. The 30 percent of the waste stream that was disposed of at the West Contra Costa Sanitary Landfill, representing over 40,000 tons of material, probably included waste from U.C. Berkeley, self-haul loads, commercial loads, and roll-off loads; however, no details are available on this waste stream.

The Alameda County Source Reduction and Recycling Board/Waste Management Authority performed the last characterization of Berkeley's disposed waste in the year 2000. This study looked in depth at the composition of several of the waste streams from the City. The results are summarized in Figures 2-8 through 2-13, which show all the material types making up over

3 percent of each waste stream. Characterizations are shown for the entire waste stream, for self-haul wastes, single family and multi-family loads, commercial loads, and roll-off containers. The amount of waste represented by each of these waste streams is shown in Figure 2-7.

Figure 2-7
Year 2000 Disposed Waste Detail: All Disposed Waste
Showing All Material Types over 3% of Disposed Waste

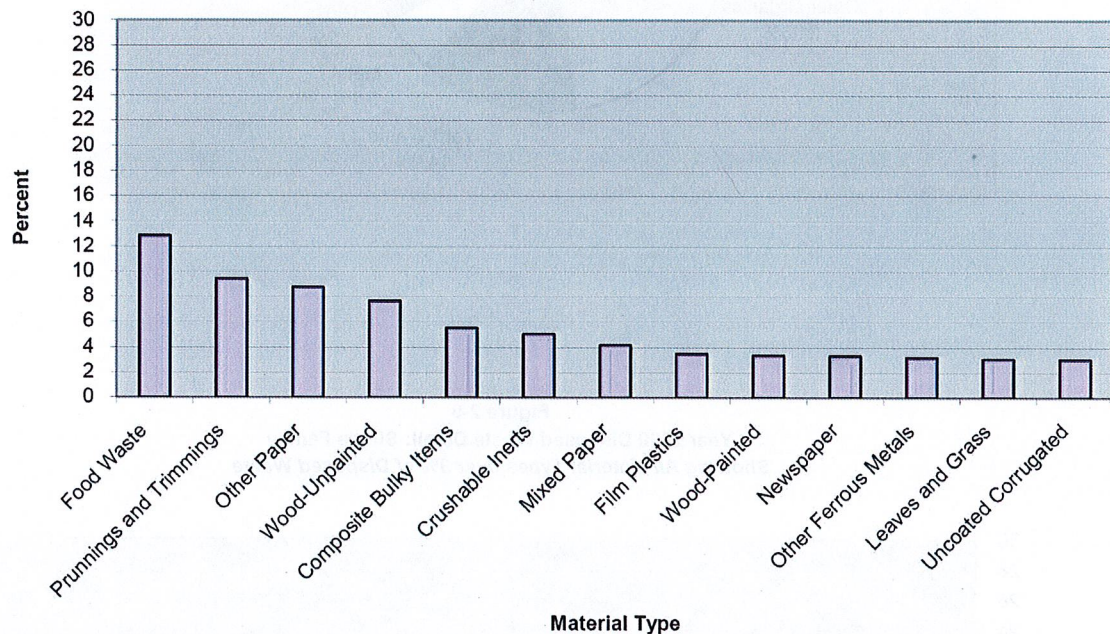


Figure 2-8 indicates that the most common disposed waste types in 2000 were food waste, prunings and trimmings; “other” paper, unpainted wood, and composite bulky items (see the list of material definitions in Appendix A). Other highlights of this data source include the high volume of food waste, recyclable paper grades, and film plastics in both the single family and multi-family waste streams (**Figures 2-9** and **2-10**) and also in the commercial waste stream (**Figure 2-11**); and the prevalence of unpainted wood, inerts, composite bulky items, and prunings and trimmings in both the roll-off and self-haul waste streams (**Figures 2-12** and **2-13**).

Figure 2-8
Year 2000 Disposed Waste Detail: All Disposed Waste

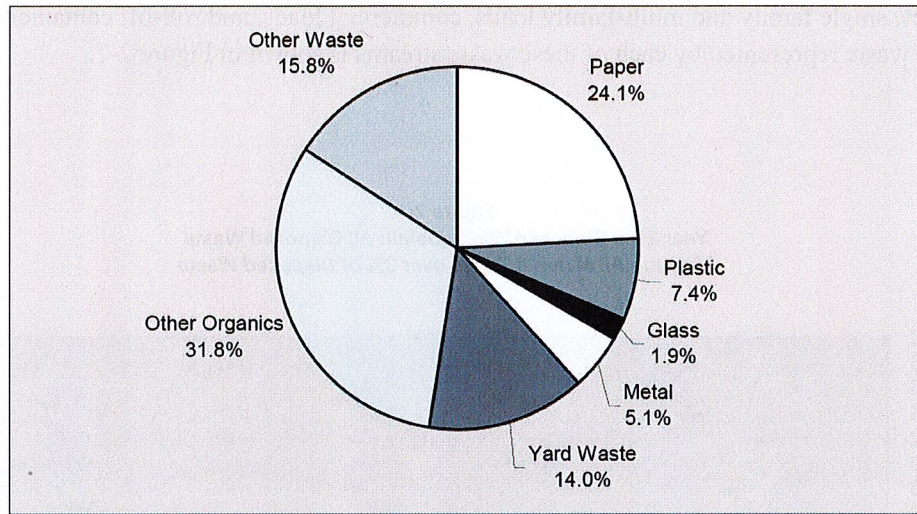


Figure 2-9
Year 2000 Disposed Waste Detail: Single Family
Showing All Material Types over 3% of Disposed Waste

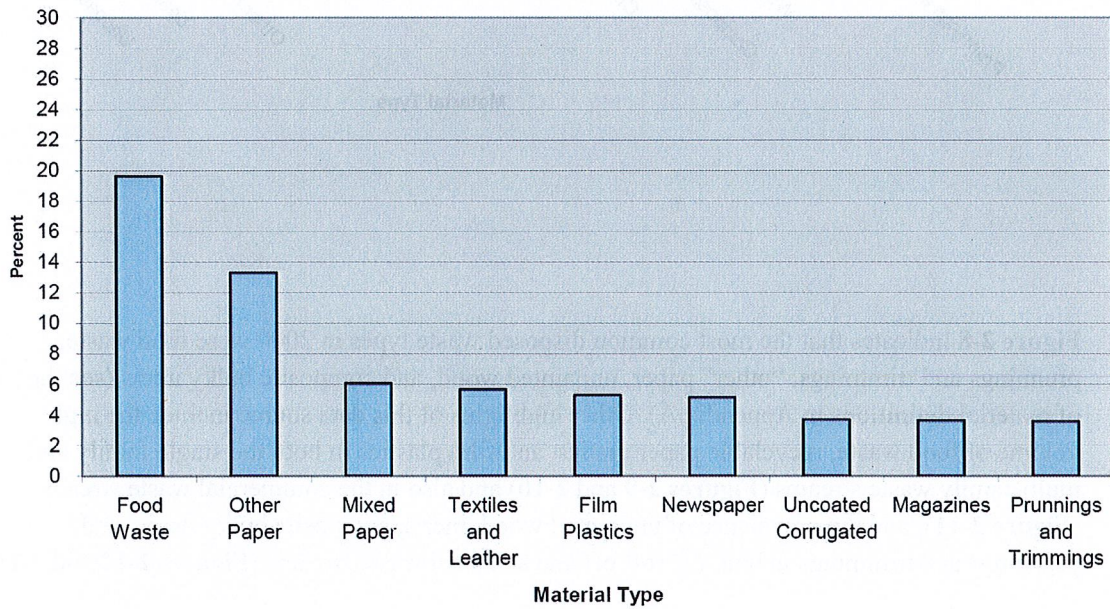


Figure 2-10
Year 2000 Disposed Waste Detail: Multi-Family
Showing All Material Types over 3% of Disposed Waste

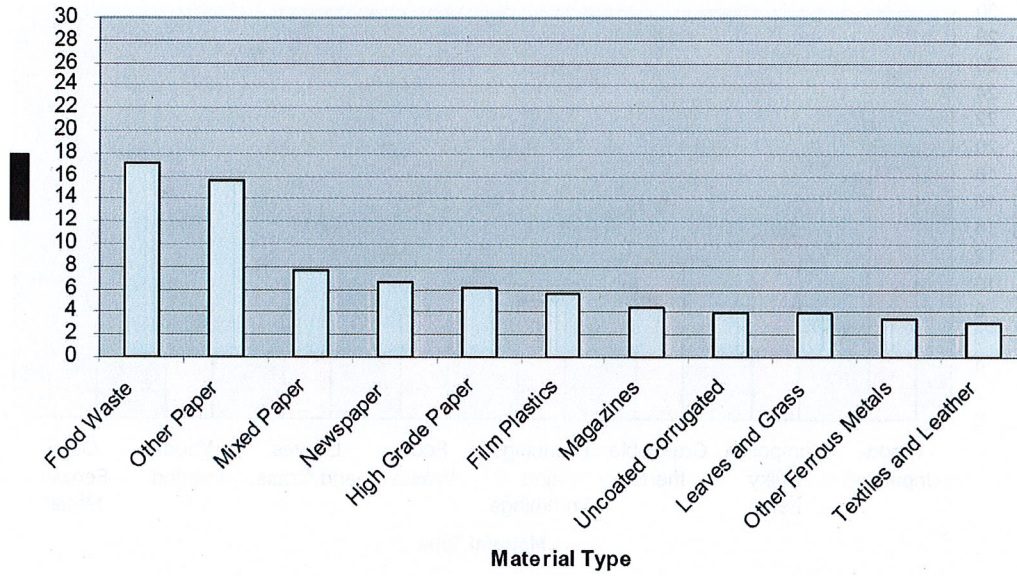


Figure 2-11
Year 2000 Disposed Waste Detail: Commercial
Showing All Material Types over 3% of Disposed Waste

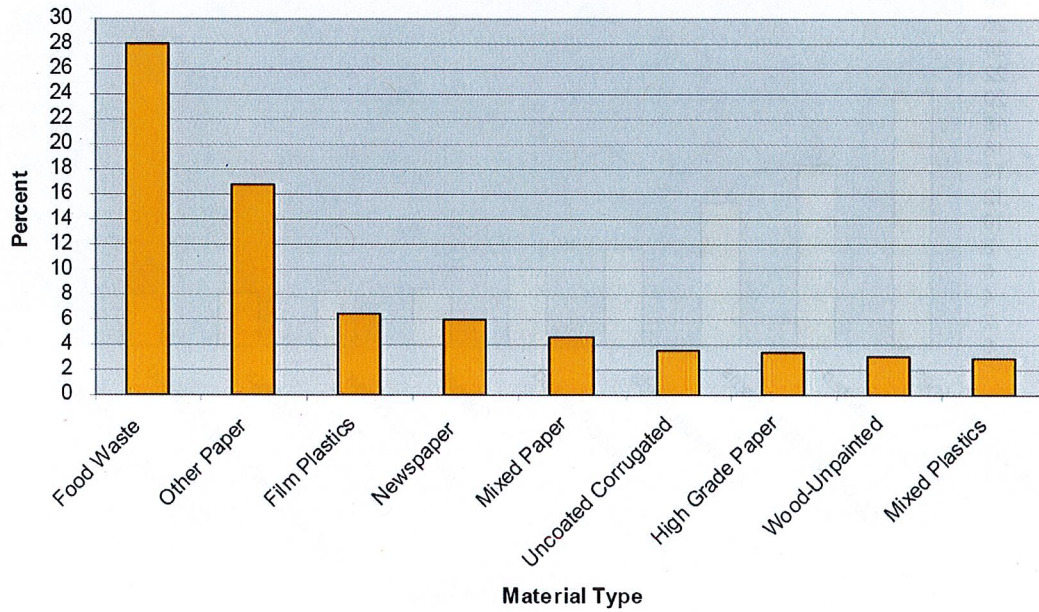


Figure 2-12
Year 2000 Disposed Waste Detail: Roll-Off
Showing All Material Types over 3% of Disposed Waste

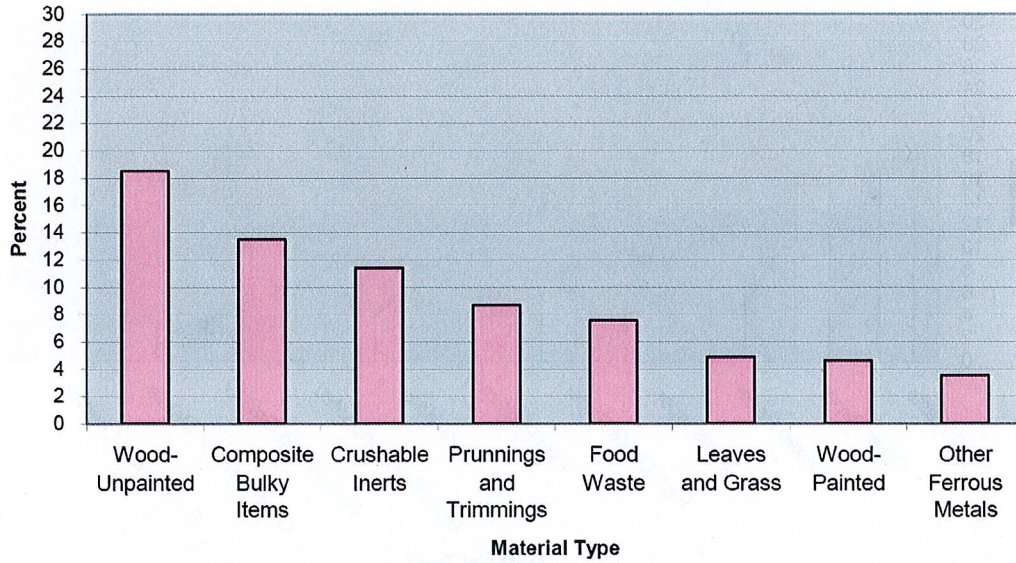
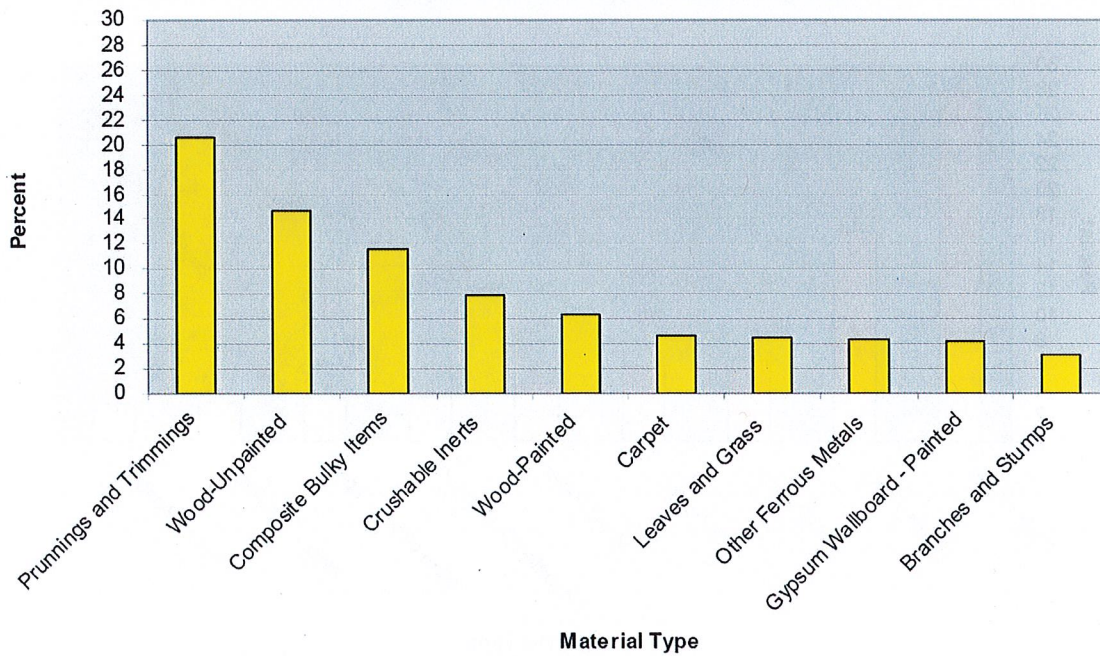


Figure 2-13
Year 2000 Disposed Waste Detail: Self-Haul
Showing All Material Types over 3% of Disposed Waste



F. Divertible Materials in Disposed Waste

Figures 2-8 through 2-13 indicate that many of the most prevalent waste types in Berkeley's disposed waste can be recycled, composted, or reduced at the source. Table 2-2 shows the major divertible waste types in each of the five waste streams analyzed.

TABLE 2-2
MAJOR DIVERTIBLE MATERIALS, BY WASTE STREAM
(Based on Year 2000 Waste Characterization Study)

	Single Family	Multi-Family	Commercial	Roll-off	Self-Haul
Food	X	X	X		
Paper	X	X	X		
Film Plastic	X	X	X		
Wood-Unpainted				X	X
Crushable Inerts				X	X
Bulky Items				X	X
Plant Debris				X	X
Carpet					X
Textiles	X				

This information may be used as the basis for developing new or expanded diversion programs. For example, Table 2-2 suggests that a program could be developed to recover materials from self-haul and roll-off loads at the Transfer Station. Such a program might target wood waste, inerts, bulky items, plant debris, and carpet. Significant gains in diversion could be achieved through new programs or improvements in existing programs that target food waste and various paper grades in the residential and commercial waste streams. Film plastic is also prevalent in these waste streams, but the market for mixed film plastics is poorly developed; source reduction of film plastics may be a more appropriate strategy than recycling.

CHAPTER 3

Program and Policy Options

A. Introduction

This chapter presents program and policy options for increasing Berkeley's diversion rate. The options presented here are based on a review of existing programs and policies, as presented in the Chapter 5, the outcomes of the four public workshops held in the summer and fall of 2004 (Appendix B), and on discussions between the Solid Waste Management Commission, City staff, and service providers.

Tables 3-1 through 3-3 provide a basis for predicting the diversion potential of program options. Table 3-1 provides estimates of the amount of waste generated, disposed, and diverted by each of several distinct waste streams: single-family residential, multi-family residential, commercial, self-haul and roll-off, and U.C. Berkeley. These categories of waste generators have traditionally been served with separate diversion and disposal programs, and each presents a different set of opportunities and needs. Program options presented below conform to this categorization. Table 3-2 shows the major material types and their estimated volume in the disposed portion of each of these waste streams. Table 3-3 shows the diversion potential of each program option. . At the end of each section, a matrix table provides a summary and comparison of the program options for that wastestream. The Summary chapter at the beginning of this document provides a selection of program options that, taken together, will achieve 75 percent diversion.

B. Single-Family Residential

Synopsis of the Single-Family Waste Stream

The single-family residential waste stream accounts for about 21% of Berkeley's generated waste. The major programs that address this waste stream are the weekly curbside recycling program, the bi-weekly curbside plant debris program, home composting education, and weekly refuse collection.

The current diversion rate for this sector is about 65%, the highest of any of the generator types. In 2003, disposed waste from the single-family residential sector was estimated to be approximately 15,700 tons per year. The major recoverable materials remaining in disposed

**TABLE 3-1
PROFILE OF BERKELEY'S WASTE STREAM, 2003**

Generator Sector	Disposed		Excluded Disposal		Diverted		Generated		Diversion Rate
	Tons	% of Whole	Tons	% of Whole	Tons	% of Whole	Tons	% of Whole	
Self-Haul & Roll-Off	42,518	41%			22,057	22%	64,574	32%	34%
Commercial	21,685	21%			22,419	22%	44,105	22%	51%
Single-Family Residential	15,699	15%			29,780	30%	45,479	22%	65%
Multi-Family Residential	19,377	18%			16,300	16%	35,678	17%	46%
UC	5,680	5%			9,284	9%	14,964	7%	62%
Excluded Disposal	-	-	14,304	100%	-	-	14,103	6%	-
Total	104,758	100%	14,304	100%	99,840	100%	218,902	100%	52%

SOURCES: ESA, City of Berkeley, CIWMB, UC Berkeley CRRS

waste from this sector, according to a waste characterization study conducted in 2000, included: food scraps (20%), other (mostly compostable) paper (13%), recyclable paper (21%), and plant debris (6%). Film plastics made up about 5% of disposed waste, and carpet and textiles accounted for an additional 8%.

Program Needs and Opportunities

The greatest opportunities to increase diversion from the single-family waste stream lie in increasing diversion of compostable organic materials (food scraps, other paper, and plant debris), and in increasing the effectiveness of existing programs that divert recyclable paper. These material types account for about 60% of disposed waste from this waste stream.

Single-Family Residential Program Options

Single-Family Program Option 1: Mandatory 3-Way Separation

This option would add food scraps and compostable paper to the existing curbside plant debris program, and increase the frequency of collection of residential plant debris from bi-weekly to weekly; maintain the existing two-stream (paper, containers) curbside recycling program; reduce standard refuse collection frequency from weekly garbage collection (trash that contains organics) to bi-weekly rubbish collection (trash that does not contain putrescible organics); and offer the option of weekly refuse collection for an extra fee.

Option 1 would require residents to separate their discards into four categories: organics, glass/metal/plastic containers, recyclable paper, and rubbish. Separation of organics from trash would be required to enable bi-weekly refuse collection. All accepted putrescible materials, including food scraps, plant debris, and food-soiled paper, would be placed in the organics container for weekly collection.

**TABLE 3-2
2000 DISPOSED WASTE CHARACTERIZATION AND ESTIMATED 2003 QUANTITIES: MAJOR RECOVERABLE MATERIAL TYPES**

Major Disposed Material Types	Self-Haul & Roll-Off		Commercial		Single-Family Residential		Multi-Family Residential		UC (Composition Data not Available)		Total	
	2003 Est. Tons	2000 Percent Disposed	2003 Est. Tons	2000 Percent Disposed	2003 Est. Tons	2000 Percent Disposed	2003 Est. Tons	2000 Percent Disposed	2003 Est. Tons)	2000 Percent Disposed	2003 Est. Tons	2000 % Disposed
Total Disposed	42,518	100%	21,685	100%	15,699	100%	19,377	100%	5,680	100%	104,959	100%
Food Waste	850	2%	6,072	28%	3,077	20%	3,314	17%	-	-	13,313	14%
Other Paper (compostable)	340	1%	3,621	17%	2,088	13%	3,003	16%	-	-	9,053	9%
Recyclable Paper	2,211	5%	4,077	19%	3,344	21%	5,523	29%	-	-	15,154	14%
Film Plastic	255	1%	1,388	6%	832	5%	1,105	6%	-	-	3,580	4%
Wood-Unpainted	6,590	16%	651	3%	173	1%	58	0%	-	-	7,472	7%
Crushable Inerts	3,699	9%	455	2%	440	3%	271	1%	-	-	4,865	5%
Composite Bulky Items	5,102	12%	-	0%	94	1%	116	1%	-	-	5,313	5%
Plant Debris	10,714	25%	412	2%	879	6%	1,415	7%	-	-	13,420	12%
Carpet and Textiles	1,956	5%	239	1%	1,303	8%	601	3%	-	-	4,098	4%
Total of Major Material Types	31,718	75%	16,915	78%	12,230	78%	15,405	80%	-	-	76,267	73%

SOURCES: ESA, City of Berkeley, CIWMB, UC Berkeley CRRS, Alameda County WMA/SRRB

**TABLE 3-3
DIVERSION POTENTIAL FOR PROGRAM AND POLICY OPTIONS**

Waste Stream	Program Option	Diversion Potential: Specific Waste Stream Disposed Waste		Diversion Potential: Specific Waste Stream Generated Waste		Diversion Potential: Whole City Generated Waste	
		Low	High	Low	High	Low	High
Single Family	1. Mandatory 3-Way Separation	50%	60%	17%	21%	4%	5%
	2. Non-mandatory 3-Way Separation	25%	40%	9%	14%	2%	3%
	3. Increased Outreach and Public Education	10%	20%	3%	7%	1%	2%
	4. Revisions to Rates and Billing	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Multi-Family	1. Small buildings included in Residential 3-Way Separation	15%	30%	8%	16%	1%	3%
	2. Increased Outreach and Public Education	10%	20%	5%	11%	1%	2%
Commercial-Industrial-Institutional	1. Increased Franchisee Reporting Requirements	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	2. Increased Outreach and Education	10%	20%	5%	10%	1%	2%
	3. Space Allocation and Mandatory Source Separation Ordinance	25%	50%	15%	30%	4%	7%
Self-Haul and Roll-Off	1. Sorting Facility at Second and Gilman	20%	30%	13%	20%	4%	6%
	2. Transfer Unsorted C&D	20%	30%	13%	20%	4%	6%
	3. Minor Facility Modifications	15%	20%	10%	13%	3%	4%
	4. C&D Ordinance	30%	35%	20%	23%	6%	7%

The weekly refuse collection option would accommodate residents who regularly generate putrescible wastes that are not acceptable for composting, such as disposable diapers and animal feces.

Diversion Potential

This program would have the potential to divert 50%-60% of currently disposed single-family wastes, for an increase in materials recovery of approximately 8,000-9,000 tons per year. This would increase the City-wide diversion rate by 4%-5%, and would help the City and its residents to conserve natural resources.

Program Costs

For residents who properly keep their organics separate from the trash, this program should result in no net increase in collection costs. Residents would still receive one weekly collection (under this option, organics instead of refuse) and one bi-weekly collection (under this option, rubbish instead of plant debris). The residential curbside recyclables collection program would not change.

For residents who generate putrescible materials (such as pet or human waste) that are not accepted in the organics container and therefore require weekly refuse collection, or for those residents who want more frequent collection of rubbish, additional costs would be incurred to account for the additional collection service and for the selection of a non-standard level of service.

An alternative approach would be to switch to a split-truck collection approach, for the simultaneous collection of rubbish and organics in separate compartments within the same vehicle. Such an approach would require the purchase of a new fleet of collection vehicles.

The overall collection program cost increase would depend on the percentage of single-family residents who opted for the premium level of service (i.e., weekly refuse or rubbish collection). If approximately 25% of residents were to choose to do so, then the overall collection program cost increase would be approximately 6%, assuming a 25% charge for the optional additional service. (The estimated 25% charge for optional weekly refuse collection includes the cost of additional collection plus increases in administrative overhead due to differential billing and need for additional customer support services.)

In dollar terms, a 25% charge for the optional additional service would be approximately \$5 per month for those single-family households that chose additional trash collection service, based on the existing single-family household charge of \$19.36 per month for residential collection service for a 32-gallon trash container (the majority of single-family households select the 32-gallon trash container option).

In terms of changes in the number of collection personnel and equipment, it is estimated that 2.5 additional FTEs would be needed to serve the estimated 25% of residents using the premium, weekly refuse collection service.

This addition, however, would be offset by a reduction in the number of long-haul trips taken by City of Berkeley personnel to the landfill. Materials that exit the transfer station as refuse are hauled by City personnel; materials that exit the transfer station as organics are hauled by City contractors. If organics represent the vast majority of the potential increase in diversion from the single-family residential sector, then the number of loads of refuse hauled to the landfill by City of Berkeley personnel could be approximately 300 to 400 loads per year (diversion of 6,000 to 8,000 tons/year of additional residential organics, at 20 tons/load if long-hauled by City personnel as trash).

One-time costs for publicity for program roll-out are estimated to be \$50,000. Costs for individual household indoor organics containers are estimated to be \$100,000. Additional administrative and enforcement costs during the program change-over period are estimated to be \$30,000 (2 staff, 2 months, for billing and service inquiries and changes; 1 staff, 2 months, for enforcement). These costs could potentially be covered by grants, or alternatively could be offset over time by the lower cost associated with organics processing (\$26.11 per ton, for transport to, and processing at, Grover Landscaping, Inc.'s compost facility) as compared with landfilling (\$51 per ton, for direct operating costs, including transport and disposal). On an annual basis, using an estimate of 6,000-8,000 tons/year of additional organics collected, the transport and processing savings would be approximately \$150,000-\$200,000/year.

Single-Family Program Option 2: Non-Mandatory 3-Way Separation

This program would be similar to Option 1, with the exception that separation into three streams (recyclables, organics, rubbish) would not be required. This scenario would necessitate a continuation of weekly collection of a mixed rubbish/garbage stream.

Diversion Potential

By broadening the types of materials that can be put in the green bin (current use: plant debris; future use: mixed compostable organics), and by increasing the frequency of collection of the green bin from bi-weekly to weekly, additional quantities of plant debris are expected to be recovered, in addition to the new diversion tonnages that would result from the collection of food scraps and compostable but non-recyclable paper. The estimated diversion potential is 25%-40% of currently disposed single-family wastes, for an increase in materials recovery of approximately 4,000-6,300 tons per year. This would increase the City's diversion rate by 2%-3%. In comparison with the expected results in Single Family Residential--Option 1, the non-mandatory nature of this program would be expected to reduce its effectiveness.

A sustained approach to public outreach and education would be necessary to achieve and maintain high diversion rates.

Program Costs

The increased costs for switching from the bi-weekly collection of plant debris to the weekly collection of organics are attributable primarily to the increase in collection frequency. With a doubling in the frequency of collection, the cost of organics collection is estimated to roughly

double the current cost of plant debris collection. In overall dollar terms, the figure is estimated to be about \$1 million per year. It is estimated that an additional two or three rear-loading collection vehicles and crews would need to be put in service for the collection of organics. Alternatively, the City could purchase split-body vehicles to enable collection of both organics and refuse with a single pass.

There would be increased administrative and publicity costs for program roll-out and ongoing public education, especially about the types of materials that are acceptable and not acceptable in the organics bin. It is estimated that the program roll-out cost would be \$25,000 (assumes City does not pay for individual household indoor organics containers), and that ongoing public education costs would be absorbed without changes in staffing or contracting levels.

There would be decreased costs for materials transport and disposal or recovery, based on the lower costs associated with organics transport and processing (\$26.11 per ton, by contract with Grover Landscaping, Inc.) compared with landfilling (\$51 per ton). Given the estimated 4,000-6,500 tons/year of additional materials diverted from landfilling to a compost facility, this reduction is estimated to be approximately \$100,000-160,000/year.

Single-Family Program Option 3: Increased Outreach and Public Education

The 2000 waste characterization study indicated that materials currently targeted by existing collection programs, including plant debris and recyclable paper, make up about 27% of disposed waste from single-family residences. Another 32% of disposed waste consists of compostable food waste and low-grade paper, much of which could be composted by residents at home. This program would focus on increasing the effectiveness of the existing diversion programs that serve single-family residences, by increasing outreach and public education efforts.

Diversion Potential

Effective outreach and public education could divert an additional 10%-20% of single family wastes, for an increase in materials recovery of approximately 1,600-3,200 tons per year. This would increase the City's diversion rate by 1%-2%.

Program Costs

There would be additional costs for comprehensive and ongoing public education and outreach campaigns. The cost for such campaigns is estimated to be \$30,000-\$50,000 per year.

Total costs for disposal of transferred wastes would be lower, due to greater source reduction (home composting) and greater separation of plant debris from refuse. For every four single-family households that compost or otherwise handle their landscaping material on site, approximately one ton of material does not require collection, transfer, and processing or burial. If the public education and outreach campaigns resulted in an increase in home composting and related means of reducing the need for off-site handling of plant debris by 1,000 households,

approximately 250 tons per year would not enter the municipal solid waste management system, with an estimated savings of over \$12,000 per year.

There would be decreased costs for materials transport and disposal or recovery, based on the lower costs associated with organics transport and processing (\$26.11 per ton, by contract with Grover Landscaping, Inc.) than with landfilling (\$51 per ton). Given the estimated 1,600-3,200 tons/year of additional materials diverted from a landfill to a compost facility, this reduction in cost is estimated to be approximately \$40,000-\$80,000/year.

Single-Family Program Option 4: Revisions to Rates and Billing

Currently, the costs to residents of the three collection programs – refuse, plant debris, and curbside recycling – are rolled into one bill that does not itemize these services. This program would institute line-item billing, with volume-based rates for both refuse (or rubbish) and plant debris (or organics). Organics would be charged at a significantly lower rate than refuse or rubbish. Curbside recycling would be charged on a flat-rate basis. Bills would clearly explain charges and residents' collection service options.

The overall goals of this option are to: (1) shift the burden of program costs from residents who effectively source-separate materials for recycling and composting to those who do not; (2) revise the rate structure to encourage on-site techniques to reduce the need for off-site processing of plant debris; and, (3) charge more for households that generate a disproportionate amount of plant debris.

Diversion Potential

This program could be expected to support any of the previous options, by providing more information to residents, as well as a financial incentive to source reduce or divert materials to recycling, rather than to dispose of them as refuse. While the diversion potential of this option is difficult to predict, it can be expected to contribute to other programs' achievement of the higher end of their predicted range of diversion, as shown in Table 3-3.

Program Costs

There would be administrative and public outreach costs, particularly for program establishment and roll-out. Rates could be structured to achieve no net gain or loss of revenue. Graduating the pricing structure to increase trash cost per unit volume would mean that those who generate more waste pay a higher rate in both relative and absolute terms. This option would require a study to review and re-set rates to achieve the program goals of increasing the incentive to divert, while maintaining revenue neutrality.

SINGLE-FAMILY RESIDENTIAL OPTIONS COMPARISON MATRIX

Attribute Area	Attribute	Option 1: Mandatory 3-Way Separation	Option 2: Non-Mandatory 3-Way Separation	Option 3: Increased Outreach and Public Education	Option 4: Revisions to Rates and Billing
Increase Ability to Meet 75% Diversion	Diversion Potential: Percent of City-wide Generated Waste	4-5%	2-3%	1-2%	n.a.
	Discussion of Diversion Potential	Highest potential to increase diversion and conserve natural resources.	Moderately high potential to increase diversion and conserve natural resources.	Modest potential to increase diversion and conserve natural resources.	Offers substantial potential to increase participation, landfill diversion and conservation of natural resources, depending on how rates and incentives are structured and communicated to residents.
Costs & Revenues	Capital Investments-- Vehicles	Needs to be piloted before determination can be made. If weekly rubbish collection is broadly subscribed, may require additional collection vehicles. Otherwise, same level of service as current, so no additional capital costs.	Would require substantial increase in collection fleet or switch to split-body vehicles to accommodate additional weekly collection.	No change anticipated.	No capital outlay would be required.
	Capital Investments-- Containers	Indoor household organics containers for all single-family households; 32-gallon organics containers as additional organics service option; phase out of 96-gallon organics containers through attrition with replacement by 64-gallon as standard size.	Indoor household organics containers for all single-family households; 32-gallon organics containers as additional organics service option; phase out of 96-gallon organics containers through attrition with replacement by 64-gallon as standard size.	Phase out of 96-gallon organics containers through attrition with replacement by 64-gallon as standard size.	No capital outlay would be required.
	Collection Costs	Collection costs for Standard Refuse Service customers would remain very similar to present, and would increase substantially for Premium Refuse Service customers (i.e., customers with weekly rubbish collection).	Collection costs would increase for all residents, on account of greater frequency of organics collection service for all residents.	No change anticipated.	Rates can be structured in ways to balance any additional costs with additional revenues.
	Conclusion and Comparison	Modest capital outlay and increased collection costs.	Moderate capital outlay and increased collection costs.	No change anticipated.	No change anticipated.

SINGLE-FAMILY RESIDENTIAL OPTIONS COMPARISON MATRIX (Continued)

Attribute Area	Attribute	Option 1: Mandatory 3-Way Separation	Option 2: Non-Mandatory 3-Way Separation	Option 3: Increased Outreach and Public Education	Option 4: Revisions to Rates and Billing
Impacts on Collection Operations, Customers, and Facilities	Collection Operations	Transfer of refuse collection crews to organics collection crews, based on changes in collection frequencies for rubbish and organics.	Additional organics collection crews, based on greater frequency and volume of organics collection.	No changes anticipated.	See Options 1-3.
	Customers	Greater convenience for organics recycling. Opportunity to choose weekly rubbish service for a fee.	Greater convenience for organics recycling. Additional charges likely for all residents.	No significant changes.	Customers would be able to respond more easily and purposefully to rate incentives.
	Facilities	Increased delivery of source-separated food scraps and other compostable organics requires improvements to existing organics transfer.	Increased delivery of source-separated food scraps and other compostable organics requires improvements to existing organics transfer.	No significant changes.	Not applicable.
	Education	Need for publicity and ongoing education regarding program service choices, proper source-separation, acceptable materials, and related matters.	Need for publicity and ongoing education regarding program service choices, proper source-separation, acceptable materials, and related matters.	Increased public education regarding plant debris collection and recyclables collection.	Bills would include reminders about opportunities to save money by reducing need for City hauling services.
	Conclusion and Comparison	Structural change reflective of system in which refuse is no longer the predominant amount of materials collected at curbside from residents.	Adds materials to be recovered and adds frequency of collection of recoverable materials, without changing existing refuse collection patterns.	No significant changes.	Provides more direct economic signals and information to customers, so that customers can better gauge the direct financial impacts of their demands for City hauling services.

Prepared by Applied Compost Consulting, Inc.

C. Multi-Family Residential

Synopsis of the Multi-Family Waste Stream

The multi-family residential waste stream accounts for about 17% of Berkeley's generated waste and 18% of the City's disposed waste (Table 3-1). The major programs that address this waste stream are the weekly curbside recycling program and the City's commercial recycling program. Some multi-family buildings are also served with bi-weekly plant debris collection. Refuse collection is provided by the City. The current diversion rate for this sector is estimated at 46%. In 2003, disposed waste from the sector was about 16,300 tons. The major recoverable materials remaining in disposed waste from multi-family residences, according to a waste characterization study conducted in 2000, included: food waste (17%), other (mostly compostable) paper (16%), recyclable paper (29%), and plant debris (7%) (Table 3-2). Film plastics made up about 6% of disposed waste in 2000.

Program Needs and Opportunities

Compostable organics make up a very large portion of disposed waste from multi-family residences. However, program logistics for organics collection programs from larger buildings are difficult at best. Smaller multi-family buildings, which share services with single-family residences, could also be included in a new residential organics collection program. Of the 25,170 multi-family units in the City in 2004, 9,311 are in buildings with 2, 3, or 4 units (California Department of Finance, 2004). The very high percentage of disposed waste consisting of recyclable paper indicates that improvements in existing recycling programs could achieve substantial additional diversion.

Multi-Family Residential Program Options

Multi-Family Program Option 1a: Include Smaller Multi-family Buildings (up to 5 units) in Mandatory 3-Way Separation Program

In order to achieve higher rates of recycling in apartment buildings, the City would require that tenants keep their recyclable paper, containers, and where the service is available, organics separate from trash. This requirement is not expected to be burdensome to building owners, especially since there is no cost for compliance (all normally necessary equipment and signage is supplied by the City), and building owners may benefit financially through lower solid waste management bills. Furthermore, provided that building owners comply with the requirements, they would not be held accountable by the City for non-participation by tenants in the recycling and/or organics collection programs.

Building owners would be required to: (1) include language in new leases stipulating that tenants must maintain compliance with City laws regarding proper materials separation and set out of recyclables, organics, and refuse; (2) inform tenants that the tenants should not put certain types of materials in the trash; (3) ensure that tenants have access to curbside recycling and, if source-separation of organics by tenants is or becomes mandatory, curbside organics collection services;

(4) ensure that tenants, upon moving-in, receive indoor household recycling or organics storage containers, if made available from the City; (5) post appropriate signage regarding waste management, recycling, composting, and source reduction. Some of these terms also could be made part of the permitting requirements for new and re-modeled multi-unit residential buildings.

Compostable organics make up a very large portion of disposed waste from multi-family residences. Smaller multi-family buildings could be included in a new residential organics collection program, as described in Single Family Residential – Options 1.

Under this option, smaller multi-family buildings would receive weekly organics collection, weekly recyclables collection, and bi-weekly rubbish collection.

Diversion Potential

Assuming that approximately half of all multi-family units would be included in this program, up to 30% of disposed waste from apartments could be diverted in a mandatory source-separation program for recyclables and organics, resulting in an increase in materials recovery of approximately 6,000 tons per year. This would increase the City's diversion rate by as much as 3%.

Program Cost

As with Single-Family Residential Program Option 1, this program option would not require an increase in collection service, but only a shift from weekly refuse to bi-weekly rubbish collection, and a shift from bi-weekly greenwaste to weekly organics collection. Therefore costs are expected to be administrative only.

Multi-Family Program Option 1b: Include Smaller Multi-family Buildings (up to 5 units) in Non-Mandatory 3-Way Separation Program

Under Multi-Family Residential -- Option 1B, smaller multi-family buildings could receive weekly organics collection and weekly recyclables collection, along with weekly refuse collection (as in Single Family Residential--Option 2), and owners and tenants would be able to identify more easily the financial incentives (assuming that the Single Family Residential--Option 4 billing revisions would apply to these accounts) for source reduction, recycling and composting, and reduction of unneeded levels of trash and/or organics service.

Diversion Potential

Assuming that approximately half of all multi-family units would be included in this program, an estimated 15%-20% of this waste stream could be diverted in a non-mandatory source-separation program for recyclables and organics, resulting in an increase in materials recovery of approximately 3,000-4000 tons per year. The increase in the City's diversion rate would be 1%-2%.

Program Cost

This option would require an increase in the level of collection service, by adding weekly organics collection to existing services. Use of split-body collection vehicles could minimize increases in labor costs for collection, but would require that the City purchase a new collection fleet.

Multi-Family Program Option 2: Multi-family Outreach and Public Education Campaign

This program would involve an increase in outreach and public education, focusing on two sub-segments of the multi-family residential sector: (1) large multi-family buildings; (2) small multi-family buildings (2-5 units). The overall aim of the program would be to increase participation in existing collection and source reduction programs, and to provide tenants with options to reduce waste associated with moving-in and moving-out.

In terms of large multi-family buildings, the focus would be on: (1) providing tenants with information about opportunities to reduce the substantial amounts of waste typically associated with moving-in and moving-out; and (2) educating building owners and tenants about recycling collection and drop-off services available to them.

In terms of small multi-family buildings, the focus would be on: (1) educating building owners and tenants about opportunities for recycling and organics curbside collection, drop-off services, and waste reduction (if the source-separation of recyclables and organics by tenants is voluntary); and (2) educating building owners and tenants about their rights and responsibilities in terms of materials source-separation requirements, access to curbside recycling and organics collection services, provision of indoor containers for recycling and organics intermediate storage, and the placement of appropriate signage regarding City solid waste management, recycling, composting, and waste reduction programs (if the source-separation of recyclables and possibly organics by tenants is mandatory).

Diversion Potential

This program would have the potential to divert an additional 10%-20% of currently disposed waste from the multi-family waste stream, or a total of approximately 2,000 to 4,000 tons per year (Table 3-3). This would increase the City's diversion rate by 1%-2%.

Program Cost

Program costs would include administrative and operational costs for the public education and outreach campaign. The annual program cost is anticipated to be \$50,000, assuming the full cost of a half-time employee who would work closely with landlords, property managers, and tenants' groups, and related program-related materials costs.

MULTI-FAMILY RESIDENTIAL OPTIONS COMPARISON MATRIX

Attribute Area	Attribute	Option 1A: Include smaller MFD (5 units or less) in mandatory 3-way separation program	Option 1B: Include smaller MFD (5 units or less) in non-mandatory 3-way program	Option 2: Increased outreach and public education
Increase Ability to Meet 75% Diversion	Diversion Potential: Percent of City-wide Generated Waste	2-3%	1-2%	1-2%
Costs & Revenues	Discussion of Diversion Potential	Highest potential to increase diversion and conserve natural resources.	Moderately high potential to increase diversion and conserve natural resources.	Supportive of both Option 1A and Option 1B.
	Capital Investments--Vehicles	Needs to be piloted before determination can be made.	Up to 3 additional recycling vehicles would be needed.	Not applicable.
	Capital Investments--Containers	Requires indoor household organics containers for all small multi-unit households; 32-gallon organics containers as additional organics service option; phase out of 96-gallon organics containers through attrition with replacement by 64-gallon as standard size.	Requires additional blue recycling bins; 32-gallon organics containers as additional organics service option; phase out of 96-gallon organics containers through attrition with replacement by 64-gallon as standard size.	Not applicable.
Impacts on Collection Operations, Customers, and Facilities	Collection Costs	Needs to be piloted before determination can be made.	System-wide, collection costs would not increase substantially.	Not applicable.
	Conclusion and Comparison	Modest capital outlay and increase in collection costs.	Modest capital outlay and increased collection costs.	Moderate costs for ongoing outreach and public education.
	Collection Operations	Significant increase in recycling collection stops and quantities. Organics collection would need to be piloted before determination can be made about collection logistics.	Moderate increase in recycling and plant debris or organics collection stops and quantities.	Not applicable.
	Customers	Requirement to source-separate recyclables and compostable organics.	For some residents of smaller multi-unit residences, greater opportunity to participate in recycling and organics recycling programs.	Sustained public outreach and education would be needed, especially given turnover rates in apartments.
	Facilities	Substantial increase in delivery of recyclables to Second and Gilman facilities. Moderate increase in plant debris and additional compostable organics.	Moderate increase in delivery of recyclables to Second and Gilman facilities. Modest increase in plant debris and possibly additional compostable organics.	Not applicable.
	Education	Need for publicity and ongoing education regarding program service choices, acceptable materials, tenant and landlord responsibilities, and related matters.	Need for publicity and ongoing education regarding program service choices, acceptable materials, tenant and landlord responsibilities, and related matters.	Sustained public outreach and education would be needed, especially given turnover rates in apartments.
	Conclusion and Comparison	Provides broadest and deepest positive effect on participation levels, diversion levels, and resource conservation.	Broadens residential curbside recycling and plant debris or organics collection programs to 2-5 unit residences.	Sustained public outreach and education would be needed, especially given turnover rates in apartments.

D. Commercial, Industrial, and Institutional

Synopsis of the Commercial, Industrial, and Institutional Waste Stream

About 22% of Berkeley's generated waste is from commercial, industrial, and institutional establishments (not including U.C. Berkeley) (Table 3-1). The major programs that address this waste stream are the City's commercial recycling, organics, and refuse collection programs, and the non-exclusive franchising of rubbish collection. Some establishments also receive private-sector recycling services. The Berkeley Unified School District participates in the City's commercial recycling program and plant debris collection program, and operates a number of source reduction programs. The current diversion rate for this sector is estimated to be 51%. In 2003, disposed waste from this sector was estimated to be about 22,419 tons¹, or 21% of all disposed waste. The major recoverable materials remaining in disposed waste from this sector in 2000 included: food waste (28%), other (mostly compostable) paper (17%), recyclable paper (19%), and plant debris (2%) (Table 3-2). Film plastics made up about 6% of disposed commercial, industrial, and institutional waste in 2000.

Program Needs and Opportunities

As with the single-family and multi-family waste streams, compostable organics make up a very large portion of disposed waste from commercial, industrial, and institutional sources. The very high percentage of disposed waste consisting of recyclable paper indicates that improvements in existing recycling programs could achieve substantial additional diversion. Compostable organics made up nearly half of disposed waste from commercial, industrial, and institutional sources in the year 2000. Since the time of the most recent waste characterization study (2000), the City's program for diverting food scraps, non-recyclable paper, and plant debris from the commercial, industrial, and institutional sector has moved beyond the pilot phase to the expansion phase. The program is far from reaching a plateau in terms of number of participants or tons of organics diverted from landfill burial to productive use as soil amendments.

Commercial, Industrial, and Institutional Program Options

Commercial, Industrial, and Institutional Program Option 1: Increase Reporting Requirements for Franchisees

The City currently has the authority under the terms of its non-exclusive franchise agreements with haulers to require franchisees to report the volume of disposed and recycled materials collected from their accounts within the City. Exercising this authority to require franchisees to report information in ways that are useful to the City would provide important information for program planning, tracking, and allocation of staff resources for outreach to establishments and their enlistment in the City's commercial programs. Franchisees could be required to provide

¹ This figure does not include 11,759 tons of waste foundry sand from the Pacific Steel Foundry, which the City is seeking to have excluded from the total disposed waste volume on the basis that the foundry is a Regional Recycling Facility; nor another 1,521 tons of non-recyclable special waste.

information in electronic format, on a standardized data sheet. This stipulation would facilitate use of the data for tracking and analysis purposes by the City.

Diversion Potential

No estimate is made of the additional diversion that could result from improved targeting of outreach and provision of services. The estimate is tied to the adoption of other options for diversion. Given the large amount of solid waste currently disposed by businesses and institutions, however, it is likely that improved diagnostic information about customer and franchisee performance would allow the City to take effective actions more efficiently.

Program Costs

It is anticipated that there would be nominal administrative and enforcement costs to obtain, manage, and interpret data from franchisees. The possible achievement of more cost-effective provision of services (e.g., greater geographic concentration of services) could lead to cost savings for the City's commercial recycling and organics programs.

Commercial, Industrial, and Institutional Program Option 2: Increased Outreach and Education

This program would involve continued outreach to commercial, industrial, and institutional entities to encourage and assist participation in existing programs. This program would also include a continuation of cooperative efforts with the Alameda County Source Reduction and Recycling Board/Waste Management Authority (ACSRRB/WMA), U.C. Berkeley, BUSD, and others to improve effectiveness of existing and ongoing programs.

Steady increase in materials captured by the commercial food waste program, and the apparent prevalence of food waste remaining in the commercial waste stream suggest that considerable additional diversion could be achieved through this program. The City's commercial recycling program has not shown a similar increase in tonnage captured in recent years. Insufficient information is available from non-exclusive franchisees to conduct a complete analysis of overall commercial recycling performance and potential.

Diversion Potential

It is estimated that an additional 10% – 20% of disposed commercial waste could be diverted through the expansion of existing efforts, resulting in an increase in the City's diversion rate of 1%-2% (Table 3-3).

Program Cost

It is anticipated that overall program costs would increase somewhat over the current costs. An additional collection vehicle and collection crew is likely to be needed both for recyclables and for organics, the latter of which to add service capacity and customer service (Saturday afternoon service). This increase potentially could be offset to a degree by fewer collection routes per week for trash, given the shift from trash generation to the recovery of recyclables and organics. An

increase would be needed also in the budget for organics and recycling program outreach and technical assistance to businesses, which has been shown in Berkeley to yield substantial positive results in terms of participation, resource conservation and level of landfill diversion, and quality of materials recovered.

Commercial, Industrial, and Institutional Program Option 3: Space Allocation and Mandatory Source Separation Ordinances

Space allocation ordinances are used to ensure that commercial buildings have adequate space for storage of recyclable materials. Generally, these include minimum requirements for loading dock or refuse enclosure areas to accommodate separate bins for recycling or composting. The requirement usually applies to new or remodeled construction. Such ordinances usually require demonstration of space allocation in building design, and are administered by planning or building departments. Mandatory source separation ordinances require commercial establishments to separate materials for collection in diversion programs. Ordinances may specify certain material types, or may leave it up to individual businesses to decide which materials to separate. Mandatory source separation ensures much higher participation by commercial establishments in diversion programs, leading to significantly higher diversion rates. Both ordinances may be written to allow exemptions for business locations where the cost of compliance would be prohibitive.

A recent amendment to the state Public Resources Code (AB 2176, Montanez), which will go into effect on July 1, 2005, establishes space allocation requirements for recycling in new or remodeled commercial and multi-unit residential buildings. This law may affect the City's ability to issue building permits until applicants have demonstrated that their buildings comply with the new law.

Diversion Potential

Combined, space allocation and mandatory source separation ordinances may be expected to achieve an additional 25% – 50% percent diversion of disposed commercial waste, depending on ordinance provisions and enforcement. This would result in an increase in the City's diversion rate of 3% – 5%.

Program Costs

Administrative costs to research, write, and adopt ordinances. Additional administrative costs to implement and enforce ordinances.

COMMERCIAL, INDUSTRIAL, INSTITUTIONAL OPTIONS COMPARISON MATRIX

Attribute Area	Attribute	Option 1: Increase reporting requirements for franchisees	Option 2: Increased outreach and education	Option 3: Space allocation and mandatory source separation ordinances
Increase Ability to Meet 75% Diversion	Diversion Potential: Percent of City-wide Generated Waste	n.a.	1-2%	3-5%
	Discussion of Diversion Potential	This option provides opportunities for the City to obtain and interpret additional data, and to allocate its resources more effectively and efficiently, in support of greater diversion and resource conservation.	Increased attention by the City to commercial organics, commercial recycling, and source reduction programs will help the City to approach or meet 75% diversion and greater resource conservation.	Offers high potential to help City approach or meet 75% diversion and greater resource conservation.
Costs & Revenues	Capital Investments--Vehicles	No additional costs. On-vehicle computerized scales would not be required of franchisees, although their presence could facilitate the data gathering process.	Increased collections could be handled by existing fleet, especially if City implements weekly residential organics collection	The source-separation of recyclables and organics by most businesses would necessitate a larger allocation of collection vehicles to recycling and organics collection.
	Capital Investments--Containers	Not applicable.	Indoor organics containers for participating businesses and institutions; 64-gallon organics containers; possibly biodegradable liners.	Indoor organics containers for participating businesses and institutions; 64-gallon organics containers; possibly biodegradable liners; recycling containers of various sizes.
	Collection Costs	No additional costs anticipated.	Expanded discounts for organics collection, and slight additional modifications to existing rate structures, would stimulate greater participation by businesses and institutions. Possible revenue shortfalls attributable to discounts can be offset through slight increases in commercial refuse collection rates.	The likely financial impacts of a space allocation ordinance should be studied in detail prior to adoption.
	Conclusion and Comparison	No capital outlays required.	Increased attention by the City to commercial organics, commercial recycling, and source reduction programs will help the City to approach or meet 75% diversion and greater resource conservation.	Offers high potential to help City approach or meet 75% diversion and greater resource conservation.
Impacts on Collection Operations, Customers, and Facilities	Collection Operations	Better reporting by collection vehicle drivers and communication about data needs by supervisors.	Additional organics collection crews, based on greater frequency and volume of organics collection.	The source-separation of recyclables and organics by most businesses would necessitate a larger allocation of collection vehicles to recycling and organics collection.

COMMERCIAL, INDUSTRIAL, INSTITUTIONAL OPTIONS COMPARISON MATRIX (Continued)

Attribute Area	Attribute	Option 1: Increase reporting requirements for franchisees	Option 2: Increased outreach and education	Option 3: Space allocation and mandatory source separation ordinances
	Customers	No significant impact anticipated.	Potential cost savings from participation in organics and recyclables collection programs.	Potentially significant impacts for certain customers of complying with space allocation ordinances and source separation requirements.
	Facilities	Better communication between franchisees and the facilities to which they deliver materials about the franchisees' need for specific data and reports.	Increased delivery of source-separated food scraps and other compostable organics requires efficient and effective transfer operations.	Increased delivery of commercial recyclables, source-separated food scraps and other compostable organics requires efficient and effective processing and transfer operations.
	Education	Not applicable.	Need for extensive outreach and technical assistance to ensure high rates of participation, low rates of materials contamination, and high rates of diversion of organics and recyclables.	Need for extensive outreach and technical assistance to ensure high rates of participation, low rates of materials contamination, and high rates of diversion of organics and recyclables.
	Conclusion and Comparison	Minor impact on franchisees.	Opportunities abound to increase the rate of recovery of recyclables and compostable organics from businesses and institutions.	While opportunities abound to increase the rate of recovery of recyclables and compostable organics from businesses and institutions, these potential ordinances, and provisions for exemptions, should be thoroughly studied prior to adoption.

E. Self-Haul and Roll-Off

Synopsis of the Self-Haul and Roll-Off Waste Stream

The self-haul and roll-off waste stream generates more waste than any other – about 64,500 tons in 2003, representing 32% of generated waste. This waste stream has the lowest diversion rate of Berkeley’s waste streams – 34% – resulting in an estimated 44,500 tons of disposed waste in 2003. This waste stream consists of un-compacted loads hauled by homeowners, contractors, landscapers, and debris box companies (including the City’s debris box service) arriving at the Berkeley Transfer Station as well as several other locations, including West Contra Costa Sanitary Landfill and the Davis Street Transfer Station in San Leandro. The major recoverable materials remaining in disposed waste from this sector in 2000 included plant debris (25%) unpainted wood (16%), composite bulky items (12%), and crushable inerts (9%) (Table 3-2). It is likely that the concentration of plant debris, unpainted wood, and crushable inerts in this waste stream has declined since 2000, due to the implementation of differential tipping fee structures at the Transfer Station encouraging the separation of these materials for recycling.

Program Needs and Opportunities

It is likely that a large proportion of self-haul and roll-off loads still consist of recoverable organic materials (plant debris and wood waste), recoverable inert materials (concrete, rock, soil), and bulky items, such as furniture and appliances, some of which are also recoverable. Smaller quantities of cardboard, metals, and other recoverable materials are also likely present in this waste stream. Self-haulers tend to respond quickly to clearly-presented financial incentives to deliver clean loads of recoverable materials. Several facilities have also instituted mechanical and hand-sorting of mixed self-haul and roll-off loads. Some transfer stations with insufficient space for a sorting system ship unsorted materials to another facility where sorting takes place.

In 2003, nearly 33,000 tons of the estimated 48,000 tons of disposed waste from this waste stream were delivered to the Berkeley Transfer Station. This presents a significant opportunity for the City to increase its overall diversion rate.

Self-Haul and Roll-Off Program Options

Self-Haul and Roll-Off Program Option 1: Sorting Facility at Second and Gilman Site

The City could construct a sorting system at the Second and Gilman site for mechanical and manual sorting of selected self-haul and roll-off loads. This program would likely target loads rich in recoverable construction and demolition wastes, including unpainted wood, inerts, plant debris, cardboard, metals, and carpet. This option is also discussed in Option 3 of the Second and Gilman Site Master Plan in this document.

C&D sorting systems vary in sophistication from simple “dump and pick” operations to highly mechanized systems with conveyors, screens, magnets, and other specialized equipment. In

general, the less sophisticated systems require less space and have lower capacity. In one shift, a simple dump and pick operation might process 100 tons per day, and recover more than half of the input material; but a mechanized system might handle twice that amount, recover more, and produce materials with higher market value.

Space is a major constraint at the Second and Gilman site, and locating a facility of this type, which could be expected to consume approximately 20,000 square feet, would be difficult in the current site configuration unless another site function were discontinued or relocated. C&D sorting systems require substantial amounts of space for equipment, material handling, and stockpiled feedstock and products. Sorting facilities also produce significant amounts of noise and dust, which may be incompatible with the evolving land uses in the area. The facility would therefore have to be enclosed and constructed with robust environmental controls. Should Option 3 of the Second and Gilman Master Plan be selected (site redevelopment), the space issue will be moot: this scenario provides for a 17,000 square foot facility built to current environmental and building code stipulations.

Any on-site C&D program also creates the need to determine which loads are classified as C&D, and which loads are too diluted by other materials. This issue becomes important to the public when there are reduced prices for C&D, or when an ordinance requires C&D recycling. Firm, fair, objective criteria for classification as C&D must be defined prior to implementation. This applies to all C&D-related options in this section.

Diversion Potential

Assuming that half of the self-haul and roll-off loads arriving at the transfer station would be sorted, and that 75% of the materials in these loads would be recovered, this program could recover about 12,000 tons of waste per year, or about 25% of disposed waste from this waste stream. Increasing the self-haul diversion by this amount will yield a 4%-6% increase in city-wide diversion. The City should recognize that a significant part of the recovered material would be "mixed fines" (soil, pulverized sheetrock, etc.) that may be best suited for use as Alternative Daily Cover for landfills (ADC). Accepting ADC use as a type of diversion has been controversial for some California jurisdictions; however, ADC is considered diversion under the current terms of AB 939.

Program Costs

Program costs will vary depending on the context of the C&D facility. If it is implemented as a component of the Second and Gilman Site Master Plan Option 3 (site redevelopment), then the capital cost of the operation will be spread over the entire facility design and construction. If the operation is considered as a stand-alone improvement, then the costs for design, construction, and operation will be borne separately, and costs for the relocation of displaced site functions will be incurred. In general, the capital and operating costs of mechanized systems can require an input of 200 or more tons per day to enable the owner to defray capital and operating costs with reasonable tipping fees. A careful economic analysis is needed to choose the appropriate level of mechanization for a particular site and watershed. Capital and operating costs found in the Second and Gilman Site Master Plan reflect specific costs associated with new construction.

In addition to processing costs, the addition of any C&D system adds to the cost of management and accounting. There are sorting crews to hire, train and manage, and equipment to maintain and repair. Also, a C&D system introduces new categories of materials and products, as well as a new set of markets, with material market values that change over time and that must be tracked.

Self-Haul and Roll-Off Program Option 2: Transfer Unsorted Construction and Demolition Wastes to Another Processing Facility

Given the program costs, space constraints, and potential environmental impacts of developing a sorting facility for self-haul and roll-off loads at the Second and Gilman site, the City could instead develop separate transfer capability for unsorted construction and demolition wastes. This would be a similar operation to that used for organics, which have a designated tipping area and load-out facility. It may be possible to modify the new organics load-out bay so that it could also accommodate C&D loads, or C&D materials could be stockpiled within the transfer station building and transferred using the building's loadout. A separate staging area for C & D materials could be carved into the northwest corner of the transfer station and an embedded push wall installed. C& D loads would be alternated with MSW into the load out.

In any event, materials would be shipped to another facility for sorting and recovery of recyclable materials. Several C&D sorting facilities exist in the Bay Area, within a reasonable distance of Berkeley.

Diversion Potential

Diversion potential would be similar to the previous option, i.e., about 25% of the self-haul and roll-off waste stream. Barring site redevelopment, space constraints will prevent the stockpiling of various grades of C&D material, limiting the facility to a single stockpile of outbound C&D. This would limit the use of a tiered pricing program to encourage pre-separation of materials by customers. A fixed price for C&D material may prove a disincentive and reduce the volume of self-haul loads.

Program Costs

Program capital costs would be lower than for the previous option. However, transportation and tipping fees would be major costs of operating this program. The shipping of unsorted C&D material tends to be more costly than shipping sorted C&D or mixed solid waste, for several reasons:

- Transfer trailers designed for mixed solid wastes are easily damaged by the metals, concrete, and timbers in C&D. Special high-sided end-dump trailers should be used.
- Unsorted C&D does not fill trailer space efficiently; large voids occur, reducing payload, so about 20% more trips are required to haul C&D than the same weight of mixed MSW.
- The bulky and cumbersome nature of the material makes it harder to handle during the trailer loading process; it takes a few minutes longer to "make a load" of C&D than it does for mixed solid waste.

Capital costs for this option are estimated at \$20,000 for an embedded push wall, and \$120,000 or two high-sided end-dumps.

Self-Haul and Roll-Off Program Option 3: Minor Facility Modifications to Encourage Source Separation

Existing incentives at the Transfer Station that encourage source separation of materials and recovery of clean loads could be strengthened. This could include increasing the tipping fee differential between mixed loads and pre-sorted loads; improving signage and other information to help inform Transfer Station customers of their options; and providing a separate entrance, queue, and/or unloading area for pre-sorted loads. These modifications might also result in attraction of more customers to the Berkeley Transfer Station and an increased share of the East Bay's self-haul market.

ESA explored the possibility modifying the existing site layout and creating a separate entrance and queue area. However, given the current space configuration and site uses, this would not be feasible. To achieve this option, some other transfer station function (such as the fueling station or the container storage area) would need to be moved.

Diversion Potential

Minor modifications to facility operations could result in diversion of 15% - 20% of disposed - haul and roll-off waste, equivalent to about 3-4% of the City's generated waste.

Program Costs

Tipping fee modifications could be made revenue-neutral, by increasing the fees for mixed loads and decreasing fees for pre-sorted loads. Shorter wait times for pre-sorted loads might also attract additional customers to the Berkeley Transfer Station, which would increase revenues. Costs would include relatively low capital and operating expenditures to modify the facility. Signage would be needed, an additional truck scale and expanded or separate scale house (\$60,000 for both) may be required. Increased market share would result in increased gross revenues for the City.

Self-Haul and Roll-Off Program Option 4: Adopt Construction and Demolition Debris Recycling Ordinance

An increasing number of cities and counties in California have adopted ordinances requiring building contractors to recycle construction and demolition (C&D) wastes. These ordinances typically require contractors to prepare a recycling plan, which is reviewed and approved as part of the building permit approval process. Most ordinances have a requirement for contractors to demonstrate that they have implemented their plans, and have achieved a minimum diversion rate. Some require contractors to post a deposit (returned if satisfactory performance is documented), or a performance bond. To demonstrate implementation, contractors typically need to provide weight tickets or receipts showing that the discards from the project were processed as C&D at an approved C&D processing facility.

At the time of the writing of this document, the City is currently in the process of preparing and considering a C&D ordinance. The draft ordinance will be presented to Council in the summer of 2005. A draft of the ordinance is available for review.

Diversion Potential

Assuming that 50% of all self-haul and roll-off loads originate from construction and demolition projects that would fall under the jurisdiction of a C&D ordinance, and that the ordinance would require 70% diversion, then this program could divert 30-35% of the current disposed self-haul and roll-off waste stream. This would result in an increase in the City's diversion rate of 6-7%. An advantage of this program option is that it targets all C&D loads originating in the City, not just those destined for the Berkeley Transfer Station.

Program Costs

Administrative costs would arise in the researching, drafting, and adoption of an ordinance (approximately 40 hours of a city employee's time). Additional administrative costs would occur in administering and enforcing the ordinance (approximately .25 ft), but those would be recoverable as part of the building permit fee. If the Berkeley Transfer Station is not reconfigured to accept C&D loads for recycling, then the City could expect to lose market share of self-haul and roll-off loads, with consequent reduction in revenues.

SELF-HAUL AND ROLL-OFF PROGRAM OPTIONS MATRIX

Attribute Area	Attribute	Option 1: Sorting facility at Second and Gilman site	Option 2: Transfer unsorted C& D	Option 3: Minor facility modifications	Option 4: Adopt C& D ordinance
Increase Ability to Meet 75% Diversion	Diversion Potential (Percent of City-wide Generated Waste)	4-6%	4-6%	3-4%	6-7%
	Costs: Capital	Refer to Second and Gilman Site Plan, Level 3 for capital costs	\$20,000 for the push wall, \$120,000 for two end-dump trailers.	The cost of signage, scale and scale house (\$60,000). If queuing and separate entrance are envisioned, a one time cost to displace the fueling station and/or storage container area will be incurred.	Program would have no capital costs other than administrative.
	Costs: Operating	Additional labor and equipment costs for operations not calculated.	Minor additional labor, equipment, and transportation costs, if existing TS can accommodate separate C&D loadout. Tipping fees probably lower than for landfilling.	Revenue neutral after tiered pricing system is installed	Self-funded through permit fee
	Facility needs (implications)	Refer to Second and Gilman Site Plan, Level 3 for capital costs	Modifications to the existing TS building	Scale, scale house, signage, small scale site reconfiguration	Modifications to Second and Gilman site would be necessary to enable diversion of C&D materials; otherwise, haulers could use other facilities.
	Effect on Revenue	Revenue may increase as the facility becomes a regional destination for C& D rich loads	Revenue may increase as the facility becomes a regional destination for C& D rich loads	Revenue neutral after tiered pricing system is installed	Program administration would be revenue neutral; however, without modifications to Second and Gilman site, materials would likely be delivered to other facilities with consequent loss of tip fee revenue.
Conclusion and comparison	Provides long-term strategy for addressing this significant component of the waste stream; enables City to maximize revenue from tipping fees and shipping of higher value products.	Creates increased ability to divert C& D materials but subject to fluctuations in tipping fee and transport costs for mixed C&D materials	Works within the existing site, carving another program into a crowded environment. However, this option has a lower diversion potential.	Provides an incentive and framework to ensure that C&D materials are recycled; however, without modifications to Second and Gilman site, most of this material would flow to other facilities, with consequent loss of tipping fee and probably lower program effectiveness.	

F. Policies

The following policy options should be considered for further development and adoption in the updated Solid Waste Management Plan

Policy Option 1: Adopt a Goal to Divert 75% of the Wastestream by 2010

At its March 22, 2005 meeting, the City Council adopted a resolution to re-affirm the City's commitment to achieving 75% diversion by the year 2010 in accordance with Alameda County Measure D (Appendix A). The resolution also sets a goal of Zero Waste by the year 2020. The resolution further acknowledges the work of the Solid Waste Management Commission and City Staff to prepare this Plan Update, and the importance of achieving the 75% goal as a step toward the eventual goal of Zero Waste.

Diversion Potential

This policy re-affirms as City Policy the goal of reducing waste sent to landfill by 75%.

Program Cost

There is no specific cost directly attributable to the adoption of this goal. The overall cost of achieving 75% rate of diversion by the year 2010 depends on the program and transfer station options that are selected through this planning process.

Policy Option 2: Adopt a Goal of Zero Waste by 2020

During the preparation of this document, the City of Berkeley adopted a goal of achieving Zero Waste by the year 2020. This occurred at the Council's March 22, 2005 meeting. The staff report and resolution are included in Appendix A.

The concept of Zero Waste has taken on considerable momentum in recent years, but is not broadly understood. In simple terms, Zero Waste means that no materials are sent to landfill for disposal. The Planning Group of the Zero Waste International Alliance adopted the following definition of Zero Waste in 2004; the definition is consistent with the City's new goal: "Zero Waste is a goal to guide people to emulate sustainable natural cycles, where all discarded materials are resources for others to use. Zero Waste means designing and managing products and processes to reduce the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that may be a threat to planetary, human, animal or plant health."

Program Cost

The means and costs of achieving or approaching the Zero Waste goal by the year 2020 are beyond the scope of this document.

Policy Option 3: Land Use Planning Polices to Protect Waste-Related Industries and Waste Materials Handling

Encroaching retail, residential, and other uses in the West Berkeley industrial zone are jeopardizing the ability of waste-related industries and waste-handling facilities to operate in Berkeley. A policy to enforce zoning laws strictly to protect these and other industrial uses may be necessary to ensure that Berkeley is able to maintain and expand its waste handling infrastructure and its waste-using industries. The City could also consider purchasing land in West Berkeley either for direct use in expanding recycling collection and processing, or to replace non-recycling related uses at the transfer station. The City must rededicate itself to protecting adequate space for recycling activities, especially in direct proximity to the transfer station where housing, recreation and retail have gained a foothold, uses that do not easily co-exist with recycling operations.

As reflected in the West Berkeley Plan (Goal 7 of the Environmental Quality Section):

Berkeley has historically been a leader in recycling activity, and West Berkeley has historically been a location for recycling businesses. Recycling of discarded materials such as glass, paper, metals, plant debris, and construction materials is more important than ever, to help us towards a sustainable economy, to help preserve resources, and to fulfill local, State, and Federal mandates.

These issues are discussed in detail in the Source Reduction and Reduction Element, by the City to fulfill the requirements of the California Integrated Waste Management Act of 1989 and subsequent amendments.

West Berkeley is the Berkeley portion of the Oakland-Berkeley Recycled Materials Development Zone (RMDZ), a state designated zone where businesses are encouraged and assisted to use recycled materials in producing products. In this way, recycling of materials can support the goals of the Plan to retain and attract manufacturers.

Diversion Potential

A study conducted in 1993 by Urban Ore and The Chicago's Center for Neighborhood Technology noted that six West Berkeley recycling based businesses had 89 full-time employees and generated \$8.9 million in revenue. Some 15 years later, all the businesses surveyed are still in business. Protecting their ability to operate in West Berkeley is a critical component of a diverse recycling infrastructure.

Policy Cost

It is beyond the scope of this report to quantify the cost implications of this policy option, however it is clear that the commitment to recycling-based businesses has roots in the number and diversity of recycling-based businesses, in the stated goals of the West Berkeley Plan, and in the city's participation in the Recycling-Market Development Zone.

Policy Option 4: Promote and Facilitate Buy and Use Recycled

The City already has a policy of purchasing recycled and composted products, and of encouraging residents and businesses to do the same. This policy could be strengthened and publicized better, with more opportunities presented to residents and businesses to participate in this essential aspect of recycling. Berkeley's city government is the largest purchasing entity in the City, with the exception of UC Berkeley. This purchasing power should be used to promote environmentally preferable purchases.

Program Cost

The City could focus initially on making environmentally preferable purchases that do not increase the overall costs of individual goods or a suite of goods (in which some environmentally preferable purchases reduce costs while others increase costs, but with the net result of no additional overall cost). One opportunity to increase use of a recycled product is presented by the City's contract with its composting processor, Grover Landscaping, Inc, which provides for the return of up to 10% of the finished soil amendments from materials originating from the City. Currently, the City takes back only about one third of the amount provided in the contract.

Policy Option 5: Work in Partnership with UC Berkeley Campus Refuse and Recycling Program to Provide Re-Usable and Recyclable Materials Collection for Students Moving-Out at the End of Every School Year

UC Berkeley students discard an enormous quantity of furniture, appliances, electronic equipment, as well as books, clothing, school and office supplies, at the end of every school year. Due to limited time and finances, much of this highly usable material ends up being thrown away as garbage or illegally dumped.

The City could place debris boxes at key locations near student housing, perhaps monitored by UC Berkeley recycling program interns, to capture as much of this valuable periodic waste stream as possible.

The City should place debris boxes (for mattresses and couches) and very large cardboard "Gaylord" boxes (for most other items) at key locations near larger student housing complexes (e.g., dormitories, co-ops, fraternities/sororities), perhaps monitored by UC Berkeley recycling program interns, to capture for re-use and recycling as much of this periodic flow of valuable materials as practicable in a narrow time frame.

The potential recovery of materials for re-use and, to a lesser degree, for recycling could be substantial given the narrow time frame and modest level of expenditure. Materials re-use is a higher priority and higher and better use than recycling in the City's and State of California's hierarchy of solid waste management strategies. The amount diverted is unknown, but could be assessed through a survey of conditions during the move-out period.

Program Cost

The program could be designed to minimize labor inputs such that the value of the materials collected would cover the cost of the service. It is possible that the City could contract with an outside vendor to manage this program (including publicity, recruitment of student labor, coordination, prizes or recognition program, materials sorting, and materials marketing), at an estimated net cost of \$0- \$15,000 per year (net of product sales), with the City providing collection containers, collection service, and temporary storage space for materials collected (estimated annual cost to City: \$10,000 per year).

POLICY OPTIONS COMPARISON MATRIX

Attribute Area	Attribute	Option 1: 75% Diversion by 2010	Option 2: Zero Waste	Option 3: Land use planning policies to protect waste-related Industries	Option 4: Promote and facilitate buy and use recycled	Option 5: Partnership with UC Berkeley/student move - out
Increase Ability to Meet 75% Diversion	Increase Ability to Meet 75% Diversion	Achieving a 75% landfill diversion level requires substantial attitudinal and programmatic changes to the provision of municipal refuse, recyclables, and organics collection services.	Achieving or approaching zero waste requires widespread changes in the production, acquisition, use, reuse, recycling, and economic upcycling of inputs and byproducts of daily living and of business and industrial activity.	Supporting recycling-based business retention and expansion through strict zoning regulation and enforcement will create a win-win situation for recyclables generated in the City by providing a potential end-use for these materials and ensuring jobs and a diverse tax-base for the city.	Buying and using recycled products helps to stimulate markets for recycled feedstocks, such as those collected through the City's recyclables and organics recovery programs.	Provides opportunity for re-use of many tons of high-value materials. Very minor effect on City's overall diversion rate.
Costs & Revenues	Costs & Revenues	Would require substantial capital investment and increased operational costs, but with potential for increased revenue at Second and Gilman site.	Would require larger capital investment and higher operational costs than 75%; amount unknown.	Primarily administrative costs; may also have effect on property values and tax revenues.	Minor costs to administer program and in some instances higher cost for some materials.	Modest cost; visible, educational, practical, and beneficial town/gown activity.
Impacts on Collection Operations, Customers, and Facilities	Collection Operations	Would require substantial changes to collection operations	Would likely require extensive changes to collection operations	Not applicable	Not applicable.	No impact most of year. Modest impact during brief period in May (student moving-out period).
	Customers	Requires higher level of participation and likely higher rates.	Requires greatly increased level of participation by residents; may also result in substantially higher rates.	Not applicable	The City could encourage and help businesses, institutions, and residents to enact, strengthen and follow "buy recycled" and/or environmentally preferable purchasing guidelines.	Provides a low-cost program that benefits students, the University, and the City.

POLICY OPTIONS COMPARISON MATRIX (Continued)

Attribute Area	Attribute	Option 1: 75% Diversion by 2010	Option 2: Zero Waste	Option 3: Land use planning policies to protect waste-related industries	Option 4: Promote and facilitate buy and use recycled	Option 5: Partnership with UC Berkeley/student move - out
	Facilities	Requires substantial changes to the Second and Gilman site or increase use of other facilities.	Achieving or approaching zero waste requires widespread changes in the production, acquisition, use, reuse, recycling, and economic upcycling of inputs and byproducts of daily living and of business and industrial activity.	Helps ensure local markets for recovered materials.	Not applicable.	Temporary need for covered, secure storage space may be needed, until materials can be properly sorted, graded, distributed, and sold.
	Education	Need for publicity and ongoing education regarding environmental vision of a more habitable, beautiful and just community and world, program service choices, acceptable materials, and related matters.	Requires substantial investment in education of residents and businesses, but with potentially high impact in effecting more sustainable community.	Marketing and promoting (educating) consumers about recycling-based businesses will compliment the City's zoning compliance and enforcement efforts providing long-term sustainability and stewardship for recycling based manufacturing.	Requires ongoing educational effort to ensure high participation levels and to target particular materials and waste-producing behaviors.	Requires coordination between UC Berkeley and the City.
	Conclusion and Comparison	Structural change reflective of system in which refuse is no longer the predominant amount of materials collected at curbside from residents.	Wholesale structural change reflective of system in which nearly all materials that are discarded are continuously used for the benefit of humans or the natural environment.	Protecting and encouraging recycling-based business growth through zoning enforcement will foster long-term business opportunities for Berkeley-based manufacturers.	Adherence to "buy recycled" guidelines and environmental preferable purchasing guidelines requires sustained and systematic commitment, especially in large institutions such as city government.	While a minor contributor to waste diversion, this program has longer-term and ancillary benefits for many segments of the community.

CHAPTER 4

Master Plan Options for the Second and Gilman Site

A. Overview of the Second and Gilman Site

The facilities at Second and Gilman (Figure 4-1) Streets have been used for recycling and solid waste management by the City of Berkeley and various partnering organizations since the early 1980s. In its present state, the site's appearance reflects its 25 years of evolution, with a mix of industrial buildings used for waste transfer or salvage, vehicle repair, equipment maintenance, storage, administration, and the receiving and processing of recyclables. The site also provides parking for two fleets of collection trucks, a fleet of long-haul trucks, and other support vehicles, and it receives nearly 400 loads of refuse, in addition to recycling loads, on a typical day.

Throughout California, as recycling efforts have intensified, the facilities that support recycling and waste diversion have been strained by growing truck fleets, a much wider range of containers in use, increased personnel (drivers, processors, maintenance staff and management), and the need to stockpile more types of materials as they are separated and processed. Like most cities, Berkeley has dealt with these changes one by one, as they have arisen; consequently, the site has become an increasingly complex mix of activities with less-than-ideal traffic routing and some inefficient uses of space.

Most of the City's solid waste processing operations occur at the City-owned site at Second and Gilman streets. This site, which covers four acres, includes the Transfer Station and the City's bin storage, truck parking and washing, household hazardous waste collection areas, salvage areas and administrative offices for the Solid Waste Management Division; Ecology Center truck parking and offices; the CCC Buy-Back, Drop-Off, and materials processing operations, as well as the CCC's offices. In 2003, over 106,000 tons of material from Berkeley were received at the Transfer Station, of which over 22,000 tons were diverted. Another 18,600 tons of material from Berkeley were processed by the CCC. In addition, about 12,500 tons of material from outside of the Berkeley were received at the Transfer Station in 2003, of which about 2,800 tons were diverted. The CCC processed about 600 tons of recyclables from outside of Berkeley in 2003.

4. Master Plan Options for the Second and Gilman Site



SOH R.T., Environmental Science Associates
Aerial Photo: GlobeXplorer (TM), June, 2002

City of Berkeley Solid Waste Management Plan Update / 203487 ■

Figure 1
Second and Gilman Site

Moreover, the City's goals for increased waste diversion continue to put more of these pressures on the property. There are other pressures as well:

- The restoration of Cordonices Creek will require a 50-foot setback at the north end of the site;
- Traffic from the newly opened Target store nearby in Albany is complicating traffic for site users; and
- Nearby infill development (residential, commercial and industrial) has led to concerns about environmental effects of site operations and a possible need for added environmental controls, such as litter fences, enclosures, etc.
- Impending closure of the Dwight & King recycling yard will increase traffic to the Second and Gilman drop-off and buy-back facilities.

Analysis of the situation has identified a number of distinct needs that are listed in Table 4-1, below.

**TABLE 4-1
FACILITY-RELATED NEEDS**

Material Recovery

- Upgraded processing of containers (cans and bottles) being recycled
- A distinct material recovery area for self-haul and roll-off loads
- Expanded areas for special and salvaged materials

Public and Administrative Needs

- Queuing and traffic flow improvements to reduce waiting time
- Increased employee and visitor parking area
- An Educational/Activity center
- Expand CCC and EC offices and facilities
- Replacement of the office trailer located near the City's administrative offices

Equipment Maintenance

- Expanded bin storage area
- A truck maintenance facility for curbside recycling collection vehicles
- Expanded area for roll-off container storage
- Charging dock for electric vehicles

Environmental Enhancements

- Space for waste-related industries "business incubator" function
- Improved environmental controls on transfer operations to reduce particulate emissions

SOURCE: ESA

When a growing family owns a home, begins to outgrow it, and finds it difficult to move, they can employ three strategies to deal with the problem. The least cost option is to move or change some furniture, and perhaps some interior walls. By making a larger investment, one or more rooms can be added or expanded. If intelligently done, this can provide a significant improvement. Or, they can examine their present and future situation and rebuild from the ground up to accommodate their needs.

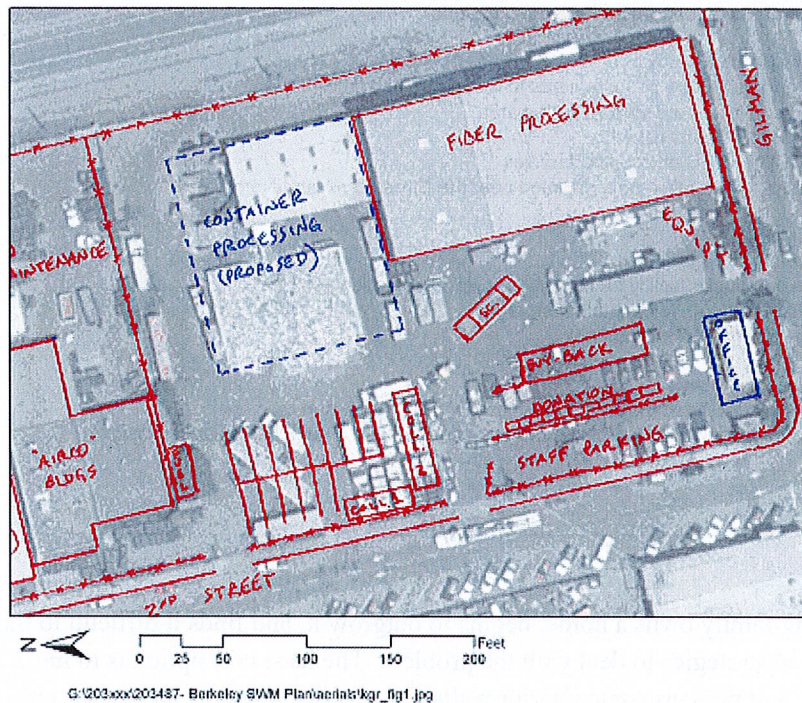
In a similar manner, this plan examines three levels of improvement:

- Option 1: Minor Modifications to the Existing Site Layout
- Option 2: Major Modifications to the Existing Site Layout
- Option 3: Site Redesign and Reconstruction

For convenience, Options 1 and 2 are discussed concurrently, using the figures below. Option 3 is discussed separately, thereafter. Please note that the Community Conservation Centers (CCC) has provided the City with draft plans for site improvements that, while similar to the Option 2 layout presented in this document, differ from it in several significant respects. It is anticipated that, if Option 2 is selected by the City, that additional design work will follow, and that this will incorporate the suggestions provided by CCC.

B. Option 1: Minor Changes to the Existing Site Layout; and Option 2: Major Changes to the Existing Site Layout

Figure 4-2 shows an aerial photo of the south end of the site (closest to Gilman Street), with a sketch of the Option 1 and 2 improvements superposed on the photo.



SOURCE: Environmental Science Associates

City of Berkeley Solid Waste Management Plan Update 203487

Figure 4-2
Second and Gilman Site –
Aerial View from South End of Site

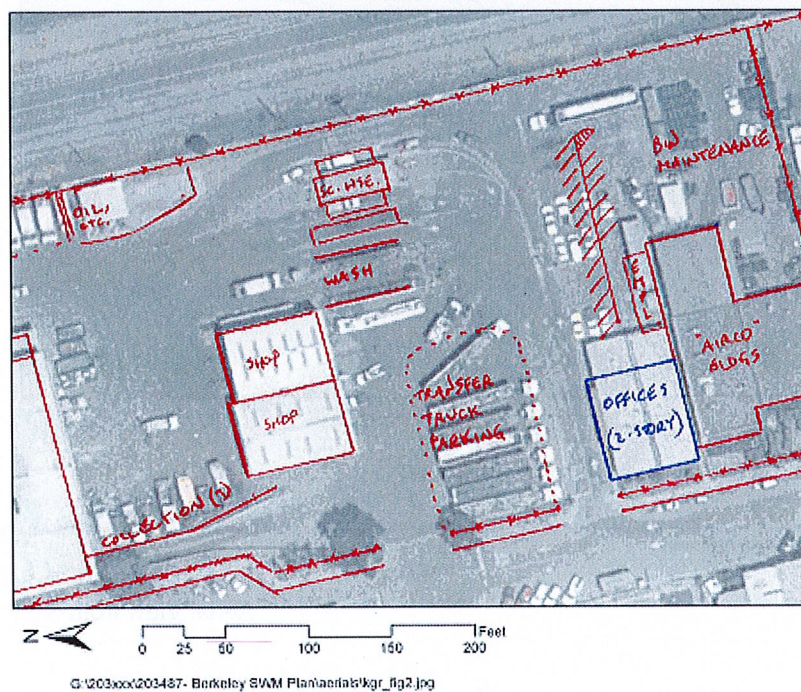
The Option 1 improvements, shown in red, are:

- Reconfigure employee parking, buyback and donation receiving areas, to simplify traffic flow. This also creates space on the west side of the fiber processing building for equipment storage or possible future expansion.
- Reposition Ecology Center office trailers and truck stalls, as well as their fuel tank, for more efficient use of space. A canopy (not shown) over one or more truck stalls could also be used for vehicle repair.

The Option 2 improvements, shown in blue, are:

- Replace existing office structure at south end of site with a new two-story structure, providing needed space for employee lockers, meetings, and operations management.
- Replace Small container processing building with larger, higher structure to contain loose materials and accommodate improved processing equipment, including a second baler for containers.

Figure 4-3 shows an aerial photo of the central part of the site, repeating the color scheme for Options 1 and 2.



SOURCE: Environmental Science Associates

City of Berkeley Solid Waste Management Plan Update . 203487

Figure 4-3

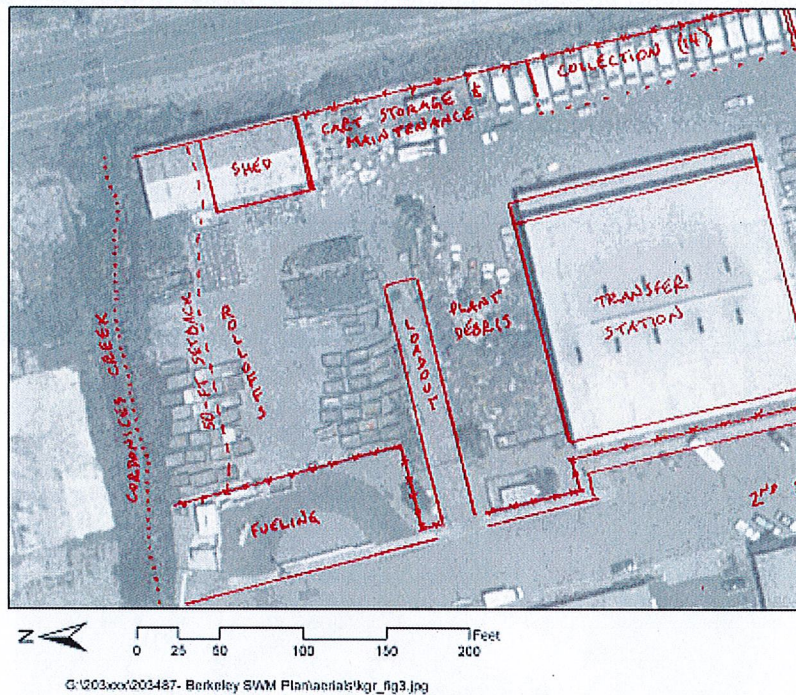
Second and Gilman Site –
Aerial View from Central Part of Site

The Option 1 improvements are:

- Reorganize the use of space behind the Airco building and the City offices.
- Shift the employee trailer located north of the Airco building farther west.
- Use the space immediately northwest of the Shops to park about seven collection vehicles, rather than the mix of vehicles that come and go from that area.

The Option 2 improvement involves an extensive remodel of the City offices, adding a second story and removing about 20 feet from the east end of the building footprint.

Figure 4-4 shows the north end of the site.



SOURCE: Environmental Science Associates

City of Berkeley Solid Waste Management Plan Update . 203487

Figure 4-4
Second and Gilman Site –
Aerial View from North End of Site

All of the intended improvements for the north end of the site are intended to provide space for the 50-foot setback from Cordonices Creek and may be considered as Option 1:

- Use some collection vehicle space along east fence for cart storage and maintenance.
- Shift rolloffs closest to Cordonices Creek to space now occupied by smaller containers.

- Deconstruct the northernmost 40 feet of the shed in the northeast corner.

How well do these improvements address the facility-related needs at the site? Table 4-2 recapitulates Table 4-1 with comments on the extent to which these needs are addressed. To gain a full picture of these options, input from CCC's current site planning efforts should be incorporated.

**TABLE 4-2
FACILITY-RELATED NEEDS MET BY OPTION 1 AND 2 IMPROVEMENTS**

Operating Component	Facility Needs Met?
Material Recovery	
<ul style="list-style-type: none"> • Upgraded processing of containers (cans and bottles) being recycled • A distinct material recovery area for self-haul and roll-off loads • Expanded areas for special and salvaged materials 	Option 2 No. No.
Public and Administrative Needs	
<ul style="list-style-type: none"> • Queuing and traffic flow improvements to reduce waiting time • Increased employee and visitor parking area • An Educational/Activity center • Expand CCC and EC offices and facilities • Replacement of the office trailer located near the City's administrative offices; 	Option 1 (recycling only) Option 2 (partially) Option 2 (modestly) Option 2 Option 2
Equipment Maintenance	
<ul style="list-style-type: none"> • Expanded bin storage area • A truck maintenance facility for curbside recycling collection vehicles • Expanded area for roll-off container storage • Charging dock for electric vehicles 	No. Option 2 (partially, if canopy added) No. Option 1 or 2.
Environmental Enhancements	
<ul style="list-style-type: none"> • Space for waste-related industries "business incubator" function • Improved environmental controls on transfer operations to reduce particulate emissions 	Option 2, if included in office design. No.

Program Costs

The costs of Option 1 and Option 2 improvements have been estimated, at a schematic-design Option, with a generous contingency due to unknown site conditions such as old underground utilities, possible contaminated soils, and the difficulty of improving a site while it is in operation. The estimated costs also include an allowance for engineering design and permits. They do not assume that extensive environmental review or an EIR would be required.

The estimated costs for all Option 1 improvements are \$530,000. The Option 2 improvements are much more substantial, involving building demolition and replacement as well as additional equipment for can and bottle processing. Estimated costs for Option 2 improvements are \$6.4 million. About half of the Option 2 costs are attributable to the new container building and the additional equipment associated with that building (baler and baler feed conveyor).

Options 1 and 2 make improvements to existing operations and activities, and they accommodate some outside pressures (e.g. increased public use, creek restoration); but they do little to provide

for a significant increase in diversion. A new operation such as C&D material sorting or the cleanup of organics-rich wastes (such as restaurant wastes) could substantially increase Berkeley's diversion from wastes. However, this would require a building and significant yard space for material handling and traffic. The general arrangement of the existing buildings on the site precludes adding something this substantial.

A more comprehensive and complete solution can be developed by reconfiguring the entire site. This enables buildings and uses to be defined in a simpler, more logical arrangement that would facilitate traffic flow, material handling, and uses of the site for public education.

C. Option 3: Site Redevelopment

Figure CD-1 is the first iteration of a scheme for the total redevelopment of the Second and Gilman site. Figure CD-1 is intended to stimulate discussions which will result in refinements and improvements of the arrangement.

The layout presented in Figure CD-1 is intended to optimize functions, operations, and circulation on the site, and to free space for new programs. The goal is to create a site layout that will increase the efficiency of existing site functions, and enable the development of new diversion and waste handling programs. As envisioned, the layout would maximize energy efficiency and would incorporate numerous green features in the site and buildings. The layout presented in Figure CD-1 meets each of the facility-related needs listed in Table 3-5, and gives the City a considerable increase in its capacity for diverting materials from landfill: the plan includes a separate building for the processing of self-haul and debris box ("C&D") loads; a separate building for transfer of organics to a composting facility that would enable a large increase in the City's ability to handle foodwaste without adverse environmental effects; and an expanded and improved materials recovery facility (MRF) building for processing curbside, buy-back, and drop-off materials.

Features of the layout include the following:

Traffic and Access

- New street traffic pattern proposed by city creates two way traffic between Gilman and Harrison.
- Access at Second and Harrison increase approach and departure options and reduces street queuing.
- One way exit to Gilman removes drop-off and buy-back only traffic from internal site loop.
- Access on Second near Gilman provides convenient entrance to drop-off, buy-back, and Flex Building.
- Serves as exit from scale queue when needed.
- Dedicated bus parking area provides safe loading and unloading for likely increase in public site visits.

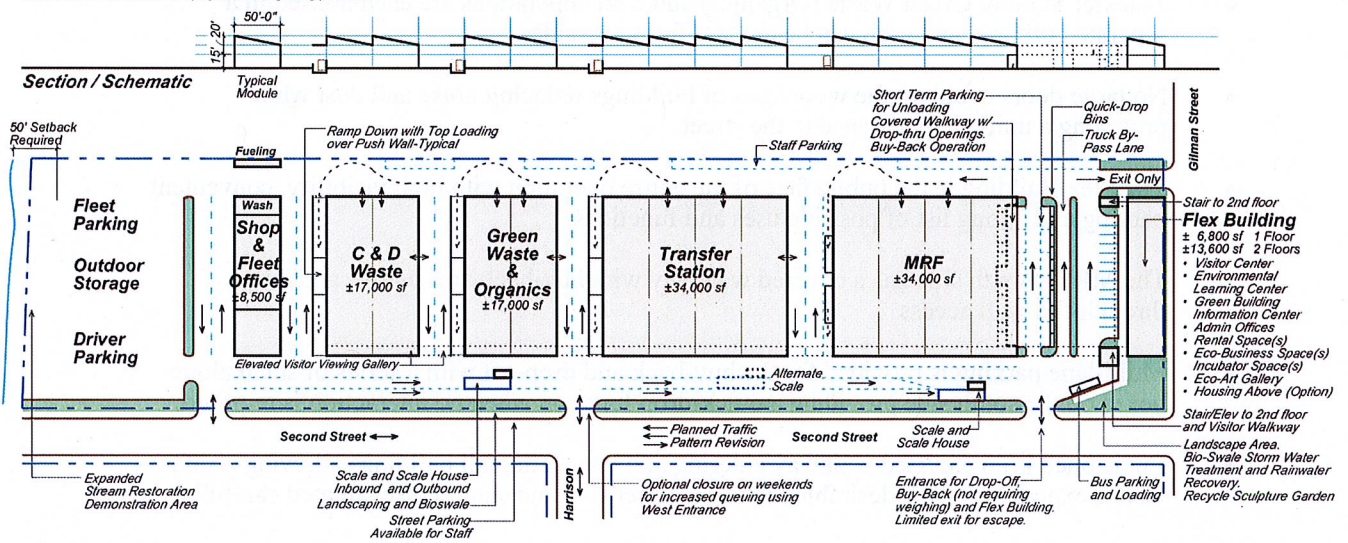
Preliminary Building System Alternatives

System "A"

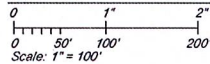
Pre-engineered metal rigid frames @ 20'-25' oc on N-S axis.
Steel girts with ribbed metal roof panels.
(Optional integrated fiberglass panels.)
Reinforced concrete masonry unit walls inside frames.
Architectural ribbed metal wall panels above ±8'.
Steel frames with multi-celled polycarbonate glazing panels.

System "B"

Steel trusses E-W @ 50' oc.
Steel roof framing with ribbed metal roof panels.
Sonotube formed concrete columns.
Tilt-up concrete wall panels with surface treatment.
Steel frames with multi-celled polycarbonate glazing panels.



Site Plan



Total Site Area: ±7.6 ac (±335,000 sf)
New Building Footprint Area: ±117,300 sf
Remaining Area: ±217,700 sf

Conceptual Design

Proposed Redevelopment at Existing Site
City of Berkeley Recycling and Resource Center
Second and Gilman Streets / Berkeley, California
Environmental Science Associates
225 Bush Street / San Francisco, California
Charles Sax Architect
4061 SW Flower Street / Portland, Oregon
Scale: 1" = 100'
Date: June 1, 2005

Site Organization and Building Arrangement Proposed

- Functions are prioritized for location with the most public orientation and access at the south (public face) and least public operations (fleet parking and storage) at the north.
- Internal (site) circulation is organized in counterclockwise loops around the separated functions. Counterclockwise loops facilitate backing up on the driver's side. Internal re-looping is easy.
- Queuing for weighing is normally two lanes from Harrison and Second. Queue length can be doubled when needed by using the north (fleet) entrance.
- Weighing out can be handled at the north scale and, when necessary, the south scale. An alternate scale can be used for non-MRF traffic.
- Transfer Station, Green Waste (Organics) and C&D operations are each housed in a separate building, and each can be entered from two sides.
- No large doors occur on the west faces of buildings reducing noise and dust while providing a unified appearance to the street.
- The Flex Building is the public face of the entire operation with high visibility, convenient parking and a long list of possible uses and functions.
- The MRF's south side has a covered walkway with buy-back area alcove and drop-through-the-wall access.
- Multi-lane parking is provided for the buy-back and drop-off with a series of stand alone boxes on the south side providing a quick-drop function when no interaction is required.
- Envisioned is an elevated walkway entering and connecting all buildings allowing a safe visitor experience. This desirable feature is expensive and should be evaluated carefully.

General

- Amenity features are suggested on the drawing and need to be evaluated.
- A preliminary estimate of probable construction cost, in current dollars, and not including operating equipment, the cost of mitigating any adverse subsurface conditions, professional services, financing costs, and administrative expenses, is \$19 million. Total project costs are estimated at \$25-30 million. Preliminary estimates are evolutionary and become more refined as the program jells. No one can predict construction industry conditions or inflation. The development process, which can cover years, will require updating the budget periodically.

SECOND AND GILMAN SITE OPTIONS COMPARISON MATRIX

Attribute Area	Attribute	Option 1: Minor changes to existing site layout	Option 2: Major changes to existing site layout	Option 3: Site Redevelopment
Increase Ability to Meet 75% Diversion	Curbside and Commercial Recycling processing	No change.	New container processing building and baler.	Increases space and processing capacity for curbside and commercial materials
	Buy-Back and Drop-off	Intended to provide smoother traffic flow and better control.	Same as Option 1.	Convenient location, easily supervised.
	Add Food Waste Collection and Transfer	Not included.	Not included.	17,000 sf of new, dedicated, capability.
	C&D Materials Processing	Not included.	Not included.	17,000 sf of new, dedicated, capability
	Educational/ Activity Center	Not included.	Could be incorporated into rebuilt office as multipurpose room.	New resource center will expand outreach.
	Recycled Material Business Incubator	Not included.	Admin space could be incorporated into rebuilt City office space. Processing space not included.	Opportunity for "Enterprise Environmentalism." Equity position in exchange for rent consideration could yield income to pay back facility investment. Will stimulate new uses of materials in new products.
	Conclusion and Comparison	This option has the lowest potential to increase diversion.	More potential for increased diversion than Option 1, but would not be sufficient for meeting 75% goal	Provides all facilities necessary to achieve 75%
Costs & Revenues	Capital Costs (preliminary estimates)	Estimated cost is \$630,000.	Estimated cost is \$8.4 million.	Construction costs approx. \$19 million; total project costs \$25-30 million
	Notes on Capital Costs	Costs include generous contingency. Unknowns: hazmat in soils or buildings;	Same as Option 1.	Leverage monies for upgrade into new, more efficient, facility and operations. Increased energy efficiency savings will provide long term payback for investment. New facility, visible from freeway, makes public statement of environmental goals.
	Operating Costs	Operating costs slightly higher during construction.	Operating costs would be higher during construction. For recycling processor, operating costs should be lower in new plant due to more efficient equipment and space use.	Operating expenses are higher because of increased area and operations. However, expect lower unit cost (cost per ton) for material recovered.
	Ability to generate additional revenue	Possible increase in tonnage at drop-off and buy-back.	Recyclables processing could increase throughput, possibly add a shift.	Additional throughput increases resource recovery revenue. Historically, new facilities increase use. Broader range of services.
	Conclusion and Comparison	Minimal capital outlay.	Relatively large capital outlay, with lower operating costs long-term than present facility or Option 1.	High capital outlay and higher operating expenses due to greater range of functions, but lower unit (per ton) cost. Highest potential for generating additional revenue.

SECOND AND GILMAN SITE OPTIONS COMPARISON MATRIX (Continued)

Attribute Area	Attribute	Option 1: Minor changes to existing site layout	Option 2: Major changes to existing site layout	Option 3: Site Redevelopment
Facilities, Amenities, and Operations	Increased/ improved office and worker amenities	No change.	Significant improvement, but less than Option 3. Possibly a small increase in revenue.	New facilities improve efficiency and morale.
	Fleet parking	More constrained.	Same as Option 1.	Places fleet and driver parking in proximity. Location observable by dispatch and management.
	Fleet maintenance	No change.	Minor improvement if recycling collector installs canopy for truck maintenance.	Increased functions, efficiency and productivity.
	Improved Queuing	Minor improvement for recycling.	Same as Option 1.	Reduces queuing and confusion substantially. Likely elimination of off-site traffic congestion and queuing. Weighing, transaction and processing times speeded.
	Expand areas for special material	No change.	More flexibility for container sorting; might be able to handle more container types.	Approx. 30% increase in area plus space efficiencies support development of new programs and initiatives.
	Expand area for roll-off containers	Some area lost (due to Cordonicos setback).	Same as Option 1.	Space could be developed at northern end of the site for box storage. Proposed shop building could include box repair shop.
	Improved environmental controls on transfer ops	No change.	Could be added in; not in current version.	New TS would be designed with state-of-the-industry environmental controls
	Possibility for Rail Haul	Same as Option 3.	Same as Option 3.	Volume throughput of this facility does not justify on-site rail haul capability. Technically feasible, but unlikely that railroad would be interested in providing service. Rail load-out would constrain other site operations. Could more economically ship by truck to intermodal yard in Richmond or Oakland.
	Increased employee/ visitor parking	No change.	No change.	Convenient location for fleet and drivers. Staff parking dispersed to utilize "left over" spaces. Possible use of adjacent street parking. Convenient and safe parking for visitors and school tours.
	Conclusion and Comparison	No additional amenities; slight improvement in existing facilities or amenities.	Moderate improvement to existing facilities, particularly container processing and offices.	Enables development of most or all of desired facilities and amenities.

Prepared by ESA and Charles Sax, Architect

CHAPTER 5

Baseline Program Information

A. Introduction

This chapter provides a review of the City's existing solid waste management programs, including diversion programs, operations and the Second and Gilman site, and the City's policies regarding solid waste. It is intended to provide background information for the development of a new Solid Waste Management Plan for the City of Berkeley. Information is provided on the following programs:

Source Reduction, Product Procurement, Outreach, and Mixed Media Programs

- Source Reduction – Backyard and Onsite Composting
- Source Reduction – Schools On-Site Composting Program
- Source Reduction – Business Waste Reduction Program
- Source Reduction – Material Exchange
- Procurement – Recycled Product Procurement
- Public Education – Electronic, Print, and Outreach
- Mixed Programs – City Facilities Source Reduction and Recycling Program
- School Recycling and Source Reduction Programs (non-UC)
- University of California, Berkeley Campus Recycling and Refuse Collection Services

Recycling Programs

- Curbside Recycling Program
- Buy-Back Program
- Drop-Off Recycling Program
- Commercial Recycling Program
- Special Collection Events

Composting Programs

- Residential Curbside Plant Debris Collection Program
- Self-haul Green Waste And Wood Waste Program
- Food Waste Composting Program
- Processing of Collected Organics: Grover Landscape Services

Refuse Collection Programs

- Refuse Collection
- Non-Exclusive Rubbish Collection Franchises

Special Waste Materials Handling Programs

- Special Waste Materials – Concrete, Asphalt, Rubble
- Special Waste Materials – Tires
- Special Waste Materials – White Goods
- Special Waste Materials – Scrap Metal
- Special Waste Materials – Bulky and Other Reusable Items

Household Hazardous Waste Programs

- Household Hazardous Waste – HHW Education Programs

City Policies

- Policies – Economic Incentives
- Policies – Product and Landfill Bans, Ordinances

B. Source Reduction, Product Procurement, Outreach, and Mixed Media Programs

Source Reduction – Backyard and Onsite Composting

1. General Description

a. Program concept and history

Backyard and onsite composting have been practiced by many local residents for generations. Workshops led by gardening clubs, environmental advocacy groups such as the Ecology Center, and local government agencies, including the Alameda County Source Reduction and Recycling Board/Waste Management Authority (ACSRRB/WMA) have promoted the practice widely for nearly a generation. While on-site composting by commercial and institutional generators is a more recent phenomenon, this practice follows the same principles. Participants in the backyard and onsite composting program are educated about building compost piles, with or without enclosures, to accelerate the decomposition of plant trimmings and vegetative food scraps by balancing the proper ratios of carbon sources, nitrogen sources, moisture, air, and common soil organisms that act as decomposers.

b. Targeted wastestream(s)

Residential waste streams containing large quantities of compostable material, from generators that have the space, knowledge, and resources to compost onsite.

c. Targeted materials

Residentially-generated leaves, grass clippings, chipped wood and brush, straw, and (with the use of vector-resistant enclosures) vegetative food scraps.

2. Operations

a. Collection

Generated materials remain on site for processing. Sometimes, compost bulking agents are brought from off site.

b. Processing

Generated materials are processed on site.

c. Marketing

End products typically are used on site.

d. Non-Material Handling Program Operation

Since generators are collecting, processing, and utilizing materials on site, these services do not need to be provided by the City of Berkeley.

3. Publicity and Outreach

Public workshops are offered at little or no cost, by garden clubs, environmental advocacy organizations such as the Ecology Center, and local government agencies, including ACSRRB/WMA. Also, instructional brochures, guidebooks, and discounted composting bins are widely available.

4. Performance

a. Tons diverted

An estimate of diverted tons through this program is pending a response to a data request.

b. Participation rates

Information has been requested on the number of composting bins sold to households, businesses, and institutions in Berkeley through the Alameda County Home Composting Program.

5. Issues and Opportunities

a. Discussion of program issues and problems

Improper attention to following basic home composting guidelines can lead to odor and vector problems, causing dissatisfaction with the practice on the part of residents or their neighbors, and can undermine the Integrated Pest Management "best practices" favored by the City of Berkeley. Relatively high equipment and site upgrade costs of institutional-scale in-vessel composting

systems inhibit the widespread use of this organic materials management technique.. Some regard composting as difficult, which may hinder the use of this method.

b. Discussion of possible program modifications, enhancements, and alternatives

Greater promotion of easily accessed resources, such as the “Rotline” information service offered by the ACSRRB/WMA, and the Ecology Center’s information center, might increase participation in, and satisfaction with, backyard and onsite composting practices.

Source Reduction – Schools On-site Composting Program

1. General Description

a. Program concept and history

In several schools within the Berkeley Unified School District, students engage in collecting and processing cafeteria food scraps mixed with shredded office paper and newspaper generated at the schools. In the classroom, students are educated about building compost piles and worm bins. Students are taught that waste is a resource out of place, and that students can be part of the solution through composting. All public school gardens in Berkeley are classified as community gardens.

b. Targeted wastestream(s)

Berkeley school sites generate only a modest amount of compostable material, due to the centralized nature of food preparation within the school district. Teaching the principles of composting in the classroom is an educational pursuit; it is not expected to yield substantial school-site diversion.

c. Targeted materials

Leaves, grass clippings, brush, straw, and (with the use of vector-resistant enclosures) vegetative food scraps from student lunches, food-soiled paper products, and shredded office paper.

2. Operations

a. Collection

Gathering of materials is accomplished mostly by the students themselves, and is overseen by teachers and staff.

b. Processing

Students process food scraps generated at the cafeteria. This activity is managed by teachers and staff.

c. Marketing

The end product is used in school gardens.

d. Non-Material Handling Program Operation

Since students are collecting, processing, and utilizing materials on site, this reduces the demand for off-site collection and processing services from the City of Berkeley.

3. Publicity and Outreach

Instructional curricula, brochures, and workbooks (sources: ACSRRB/WMA, CIWMB, Mills College, Aquatic Outreach Institute, elsewhere) and discounted composting bins (source: ACSRRB/WMA) are widely available for use with school projects. For example, an in-service training for school garden teachers was run by the Ecology Center and UC Botanical Garden.

4. Performance

a. Tons diverted

An estimated four pounds of food scraps per student per year is diverted from the landfill by student-run school composting programs.

b. Participation rates

At least fifteen public schools in Berkeley currently practice some form of on-site composting. These schools include: Early Childhood Development, Emerson, Le Conte, Malcolm X, Jefferson, Oxford, John Muir, Arts Magnet, Thousand Oaks, Washington (elementary schools); Longfellow, Martin Luther King, Jr., Willard (middle schools); Berkeley High, Berkeley Alternative (high schools).

c. Other performance indicators

Diversion and participation are difficult to accurately measure, but most schools with gardens practice some form of onsite composting. Teachers and students are often highly supportive of composting activities which are fun as well as instructive, and can help build favorable environmental habits from an early age.

5. Issues and Opportunities

a. Discussion of program issues and problems

Poor attention to basic composting guidelines can lead to odor and vector problems.

b. Discussion of possible program modifications, enhancements, and alternatives

Availability of easily accessed resources, such as the “Rotline” information service offered by the ACSRRB/WMA, and the Ecology Center’s information center can greatly increase participation in, and satisfaction with, school composting programs.

Source Reduction – Business Waste Reduction Program

1. General Description

a. Program concept and history

The City of Berkeley provides local businesses with rate-based incentives to reduce the generation of disposed and diverted materials. The City also participates in Alameda County’s Stop Waste program and the Bay Area Green Business program. Numerous businesses have engaged in switching to preferable purchasing, process, and disposal practices, including auto repair shops, cleaning and janitorial services, dental offices, financial services and banks, gift shops, grocery stores, hotels and event centers, printing and copying services, renewable energy contractors, and restaurants and cafes.

b. Targeted wastestream(s)

Commercial.

c. Targeted materials

All.

2. Operations

The City of Berkeley provides local businesses with rate-based incentives to reduce the generation of disposed and diverted materials. The City also participates in Alameda County’s Stop Waste program and the Bay Area Green Business program.

3. Publicity and Outreach

Opportunities for business waste reduction are promoted through the City’s website (<http://www.ci.berkeley.ca.us/pw/swm.html>), through printed brochures, direct mailings, and the Reuse Directory (available in printed and electronic form), and through the ACSRRB/WMA (www.stopwaste.org) and ABAG (<http://www.abag.ca.gov/bayarea/enviro/gbus/gb.html>) websites.

4. Performance

a. Tons diverted

There is no direct measurement of the number of tons diverted from the solid waste stream by business waste reduction practices.

b. Participation rates

Over 30 Berkeley businesses participate in the Green Business program, and many more regularly practice solid waste reduction in their routine purchasing, process, and disposal practices.

c. Other performance indicators

Testimonials from business owners and managers stating the desirability of participating in business waste reduction practices in terms of economic benefit and community recognition are an indication of the success of these programs.

5. Issues and Opportunities

a. Discussion of program issues and problems

The City of Berkeley commercial garbage disposal and food scraps recycling rate structure encourages waste reduction overall. However, for customers with certain types of existing trash service levels, there is an economic disincentive to participate in the source-separated food scraps collection program.

b. Discussion of possible program modifications, enhancements, and alternatives

The rate structure potentially could be modified such that businesses do not incur higher per unit volume charges for lower quantities of trash service (e.g., converting from trash bin service to trash cart service). If so modified, more businesses would be able to realize savings associated with adding service for source-separated food scraps

Source Reduction – Material Exchange

1. General Description

a. Program concept and history

There are two main avenues for materials exchange in Berkeley: (1) thrift stores and re-use outlets, such as Goodwill, Saint Vincent de Paul, Urban Ore, Ohmega Salvage, East Bay Depot for Creative Re-use, and used appliance outlets; (2) the weekly flea market at the Ashby BART station. In addition, UCB has a pilot program called Re-Use. UCB and other large companies typically run “excess and salvage” programs for surplus equipment.

b. Targeted wastestream(s)

Commercial and residential.

c. Targeted materials

Reusable items, including: clothing, home furnishings, appliances, consumer electronics, building materials, and materials that can be used in educational settings (games, art supplies, paper, and other miscellaneous materials).

2. Operations

a. Collection

Collection of materials for re-use is handled by the individuals or organizations involved in the activity, without City involvement.

b. Processing

While the City of Berkeley does not operate facilities that process re-used items, Urban Ore has a contract with the City that allows “pickers” to scavenge re-usable products and materials from the tipping floor at the Berkeley Transfer Station. Because of the high cost of labor relative to the sale value of re-used items, many private operators provide minimal processing of collected goods, although some items are cleaned, repaired, and organized by category, size, application, and other characteristics before re-sale.

c. Marketing

The City of Berkeley is not directly involved in marketing re-used items collected or obtained from the public, with the exception of mattresses and box springs. Re-used products and materials are generally sold by private businesses directly to individual buyers. The City of Berkeley makes available, upon its website or in hardcopy upon request, a guide to 200 reuse, rental, and repair shops in Berkeley and Albany. The guide is also available at public libraries in Berkeley.

3. Publicity and Outreach

The City of Berkeley provides a Re-use Directory (available in printed and electronic form); about 2000 of these guides are picked up by Public Library visitors every year. The Berkeley Public Library also maintains a database, the Berkeley Information Network (BIN), that lists reuse opportunities. It is available on-line at their website <http://www.berkeleypubliclibrary.org/BIN/list.html>.

4. Performance

a. Tons diverted

In 2003, 602 tons of reusable items were picked from the Berkeley Transfer Station tipping floor by Urban Ore.

b. Participation rates

While exact figures for participation in all materials exchange activities is not available, the thrift and re-used materials outlets and the Ashby Flea Market are all well-attended and utilized by Berkeley residents.

5. Issues and Opportunities

a. Discussion of program issues and problems

The City of Berkeley has concentrated the majority of its waste diversion efforts on low-value recyclable materials, and has avoided direct involvement in handling higher-value reusable items.

b. Discussion of possible program modifications, enhancements, and alternatives

Greater emphasis could be placed on the availability of re-used products and materials, and on the importance of materials exchange in the City's overall strategy to increase solid waste reduction, re-use, and recycling. By increasing its role in promoting and facilitating the re-use of products and materials, the City could increase diversion of these goods from the solid waste stream and perhaps increase associated revenues to offset the cost of other recycling collection and outreach programs.

Procurement - Recycled Product Procurement

1. General Description

a. Program concept and history

The City of Berkeley has been a national leader in using public procurement to impact purchasing behavior. In 1990 it was the first City in the nation to prohibit the purchase of polystyrene foam. The City supports the Alameda County Recycling Act of 1990 which requires the County to

stimulate the purchase of recycled materials. In the early 1990s the City established the Berkeley-Oakland Recycling Market Development Zone (RMDZ) as part of a strategy to increase the number of environmental businesses in Berkeley using recycled materials.

Current procurement policy requires the City to purchase paper with a minimum of 30% post-consumer content. Central Duplicating is now buying 100% post-consumer Process Chlorine Free paper and using a grant from the Alameda County Waste Management Authority (ACSRRB/WMA) to help off-set the difference in price. The City has required contractors to print documents double-sided since 1990. It routinely purchases retread tires and re-refined motor oil. There is a Long Range Recycled Product Procurement Policy in place. During the remodeling of City Hall, the City purchased recycled content items for the City and for street and park furniture. The City has adopted a Precautionary Principle and drafting of a revised Environmental Procurement Policy is a part of that resolution. The ACSRRB/WMA has a model policy and in the last year has assisted in tailoring it to Berkeley's specific needs. A draft policy should be submitted for Council consideration in the near future.

The City's diesel fuel tanks are filled with 100% biodiesel. In addition to the City's diesel-powered vehicles, the Ecology Centers curbside recycling fleet and BUSD's bus fleet refuel at the City's pumps. The Solid Waste Management Division also runs seven rear-loading solid waste collection trucks on compressed natural gas (CNG), and the City runs many other pickup trucks and sedans on CNG. The use of these alternative fuels significantly reduces vehicle emissions, including particulates, that regular diesel fuel releases when it burns.

Through the Office of Economic Development's Sustainable Development Initiative, the City of Berkeley, in conjunction with a private company, created an Eco-Park that clusters green businesses and conserve resources. The City created the Sustainable Business Alliance, a non-profit supported by over 100 companies. It recently created the Green Resource Center to provide information on green building and design and eco-efficiency. The Initiative funded Berkeley's Eco-House to demonstrate best practices in green building, design and eco-efficiency in a residence.

The Green Resource Center (GRC) is a non-profit dedicated to people committed to sustainable building, including those who finance, design, build, and occupy buildings. The city of Berkeley was a co-founder of the GRC and remains a major funder. The organization's mission is to serve as the focal point for the creation of a more sustainable building environment in the San Francisco Bay Area.

b. Targeted wastestream(s)

Procurement policies target the construction and demolition wastestream (green building and public works efforts), Government and commercial enterprises.

c. Targeted materials

CFC-processed food packaging, batteries, motor oil, tropical hardwood and wood products, recycled paper, redwood products, janitorial supplies and lead paint.

2. Operations

See Program Concept and History section.

3. Publicity and Outreach

Access to and information about the Green Resource Center is easily available from various city web-sites and touted in the annual Commercial Recycling Newsletter. Targeted e-mails to various departments such as Parks & Recreation are sent to remind and alert purchasing agents about recycled content products.

4. Performance

The GRC served over 500 clients in 2002

Public Education – Electronic, Print, and Outreach**1. General Description****a. Program concept and history**

The City of Berkeley seeks to educate the public about the availability of programs that encourage and support waste reduction, re-use, and recycling practices. An extensive website, detailed printed brochures, “how to” guides, periodic mailings, newspaper advertisements, and press releases explain how Berkeley residents and businesses can participate, and offer contact phone numbers for those who are seeking more information.

b. Targeted wastestream(s)

All.

c. Targeted materials

All materials targeted in existing programs.

2. Operations

The City of Berkeley attempts to reach as many residents and businesses as possible through print and electronic media to encourage solid waste reduction, re-use, recycling, composting, and proper hazardous waste disposal.

3. Publicity and Outreach

The City of Berkeley's website (<http://www.ci.berkeley.ca.us/pw/swm.html>) features numerous links and resources, including downloadable brochures and guidebooks, program hours of operation, contact phone numbers, and web links to other helpful resources. Printed materials are periodically mailed to Berkeley businesses and residents, and are available at public facilities such as the Berkeley Transfer Station, City Hall, and public libraries.

4. Performance

a. Tons diverted

While it is difficult to attribute specific waste reduction and waste diversion tonnage to public education efforts, increased public awareness is recognized by solid waste management professionals to be essential to increased waste reduction, re-use, and recycling.

b. Participation rates

While the exact number of people who are measurably influenced by the City's outreach efforts is difficult to determine, there are some indirect indicators of the effectiveness of these efforts, such as the number of visitors to the City's website, the number of callers to the various information telephone numbers, and the number of brochures and other printed information pieces that are distributed by mail and through informational displays at public facilities.

c. Other performance indicators

Measurements of participation in City's waste reduction, re-use, recycling, composting, and hazardous waste minimization programs, such as tonnages diverted.

5. Issues and Opportunities

a. Discussion of program issues and problems

Many printed materials that are mailed out or are picked up at public information displays end up being discarded without being read. Printed materials also can contain misleading and outdated information as program details change over time. Literature on all City waste reduction, reuse and recycling programs is not prominently visible to self-haulers at the transfer station.

b. Discussion of possible program modifications, enhancements, and alternatives

More extensive use of electronic media, such as web-based links and resources, may be a particularly effective and low-cost means of offering detailed, accurate, and up-to-date information to the general public. While the continued use of printed outreach materials is desirable, these resources should contain references to electronic information resources whenever possible, and urge readers to verify current program details. An information kiosk, or other such

highly visible display area, for self-haulers who line up to pass the transfer station scale area, might be a useful “point-of-sale” educational opportunity.

Mixed Programs – City Facilities Source Reduction and Recycling Program

1. General Description

a. Program concept and history

The City maintains recycling collection at all City facilities, and has established policies requiring certain source reduction activities. City facilities are serviced by the City’s commercial recycling program. This program has been in place since the early 1990’s, starting with white paper and adding additional materials over time. New City buildings are brought into the program as needed.

b. Targeted wastestream(s)

City facilities may be considered a unique wastestream, though we assume that the 2000 WCS grouped this wastestream with commercial waste.

c. Targeted materials

All materials targeted in the City’s commercial recycling program are collected, including mixed paper grades and mixed container types. Source reduction efforts have targeted reusable items (notably during the move back into the remodeled City Hall); paper; copy machine components; batteries (use of rechargeable batteries), and tires (use of retreads).

2. Operations

a. Collection

The City’s Commercial Recycling Program collects from City facilities All City office workers have desk-side recycling containers. Employees empty their own deskside containers into a nearby, central recycling container that is emptied by the City janitors.

b. Processing

Materials are processed by CCC at the City Transfer Station along with other sources of material collected by the Commercial Recycling Program.

c. Marketing

Materials are marketed by the CCC into domestic and foreign markets.

3. Publicity and Outreach

Information about the City recycling program is disseminated through word-of-mouth.

4. Performance

a. Tons diverted

Recycling from City facilities is included with the commercial recycling tonnage.

5. Issues and Opportunities

a. Discussion of program issues and problems

All the janitorial services serving City owned and City rented office space should provide the same recycling services. Currently there is no standard contract language for recycling services provided by janitors in City offices.

b. Discussion of possible program modifications, enhancements, and alternatives

There is only one field representative responsible for all solid waste and recycling services, including recycling in City Offices.

School Recycling and Source Reduction Programs (non-UC)

1. General Description

a. Program concept and history

The City has worked for the past several years with the Berkeley Unified School district to improve source reduction and recycling in the Berkeley public schools. The program has included site evaluations, technical assistance, and provision of materials, such as recycling bins, to initiate or improve recycling in the schools. Technical assistance has also included efforts to encourage source reduction activities in the schools.

In 2000, the City supplied each school with recycling containers for classrooms, administration areas and lunchrooms, and collection carts or bins. The City hired a consultant to visit all schools to review and improve recycling programs, and to work with the BUSD to establish a custodian training program. The City and the School District have also worked with Alameda County Source Reduction and Recycling Board/Waste Management Authority staff to improve recycling in District schools. BUSD is one of four school districts in Alameda County (as of 2004) to commit to district-wide recycling with the ACSRRB/WMA and therefore receives specific training and incentives to increase recycling district-wide.

b. Targeted wastestream(s)

Schools have a unique wastestream. We assume that in the 2000 WCS, schools were grouped in the Commercial wastestream.

c. Targeted materials

Targeted materials include newsprint, mixed paper, cardboard, mixed beverage containers and plant debris. Oxford Elementary and Rosa Parks Elementary experimented with a zero food waste program, but this program may no longer exist.

2. Operations**a. Collection**

The City Commercial Collection Program services the schools. Each school receives garbage and recycling service once per week. It appears that service volumes are appropriate for generated volumes.

b. Processing

As part of the City's Commercial Program, recyclables from the school are brought to the CCC for processing.

c. Marketing

CCC prepares the material for domestic and foreign markets.

3. Publicity and Outreach

Through the ACSSRB/WMA, elementary schools can host "Circus Center" a 45-minute original theater performance, and EarthCapades Environmental Vaudeville presenting "Waste Reduction Production" a 45-minute program of singing, comedy, juggling, and audience participation.

Also through the ACSSRB/WMA, 4th and 5th graders have the opportunity to participate in The Reduce, Reuse, Recycle program that consists of two classroom presentations. The first is an overview of reduce, reuse, and recycle concepts; the second presentation will be the teacher's choice from a menu of waste reduction activity options. Supplemental lesson plans are provided. Tours of the Davis Street Transfer Station and programs on vermi-composting are also available to this age group.

Another assembly option for BUSD students is the Recycling Wizard, funded through a California Department of Conservation City/County Block Grant, and managed by the SWMD. The full name of the program is "The Amazing Adventures of the Recycling Wizard" presented by Rock Steady Juggling. The Wizard encourages students and teachers to buy recycled products as he juggles a bowling ball, a machete and a giant toothbrush. Student volunteers act out the story of "Wee Willy Worm" as they learn about the process of vermi-composting. A recycling

relay race highlights what to recycle and how to prevent waste from ending up in the landfill. The Wizard reinforces the concept of 'closing the loop' on waste as he heroically mounts a six foot 'unirecycle' and juggles the 4 R's (reduce, reuse, recycle, buy recycled). The Recycling Wizard visited numerous BUSD elementary schools in 2004.

4. Performance

a. Tons diverted

Tonnage data are not available at this time.

b. Participation rates

Based on a recent survey of BUSD school principals and head custodians, there is a good awareness of recycling programs in most schools, especially the importance of cardboard collection.

5. Issues and Opportunities

a. Discussion of program issues and problems

In addition to encouraging recycling programs, the City and the ACSRRB/WMA have worked with the School District to reduce waste at the source. In 2000, one school purchased a dishwasher and implemented reusable lunch service. The School District passed a recycled content procurement and sustainable procedures policy. In 2001, ACSRRB/WMA staff worked with three elementary schools to establish a zero-waste lunch program.. The importance of educating and training school children in waste reduction, recycling, and composting should not be underestimated; the importance of reinforcing this with effective, functional programs in the schools cannot be overemphasized.

University of California, Berkeley Campus Recycling and Refuse Collection Services

1. General Description

The University of California's Campus Recycling and Refuse Services (CRRS) collects garbage and recyclable materials on a regular basis and for special events from the UC Berkeley campus. The recycling program works in conjunction with other campus institutions such as the student group SOURCE (Students Organized to Use Resources Conscientiously and Efficiently), and the Custodial Services and Grounds Service. CRRS holds an annual Recycling Summit; the first one held in 2001 resulted in the establishment of the Chancellor's Advisory Committee on Sustainability.

a. Program concept and history

CRRS is the campus operator and acts as an advocate and advisor on recycling issues. It operates a Buy Recycled Campaign that provides resources for University Departments on where to buy recycled paper and promotes reuse programs such as “buy-a-mug” and a campus Materials Exchange.

b. Targeted wastestream(s)

Residential dormitories including campus classrooms and offices; grounds; dining halls; public spaces and special events. Fraternities, sororities and coops are not targeted by UC, but are served by City programs.

c. Targeted materials

Mixed paper, beverage containers, pre-consumer food waste, green waste and wood, toner cartridges, and mixed metal.

2. Materials Handling**a. Collection**

Recyclables from individual offices are brought to building loading docks by Custodial Services. CRRS collects from the loading docks as needed. Additional dumpsters for special clean-out needs are available through the CRRS web-site. (Garbage services to the sororities, fraternities and coops are provided by the City of Berkeley. Any place where the City provides garbage service, it also provides recycling services.) Durables, including mattresses and class readers, are targeted during the end of semester clean-out. Beverage containers collected within buildings are serviced by the East Bay Conservation Corps in conjunction with the CRRS. “Shopping Cart” recyclers collect from outside recycling bins, which are no longer locked.

b. Processing

Pre-consumer food trimmings from some campus residential and dining establishments are processed by Berkeley Worms, a student-based organization engaged in large-scale worm composting. Green-waste is taken to the City’s composting operation. Mixed Paper is processed by CCC, attempts have been made to high-grade the mixed paper into an office pack but it is generally sold as a super mix. Garbage is taken to the West Contra Costa County Sanitary Landfill.

c. Marketing

Berkeley Worms compost is bagged and sold at local farmers markets, plant nurseries, and in the bulk landscaping market. Mixed metals, mixed paper, cardboard and beverage containers are sold into their respective markets.

3. Publicity and Outreach

The CRRS is actively involved in promoting the concepts of waste prevention and sustainability through its mug outreach, Buy-Recycled Campaign, and work with the Chancellor's Advisory Committee on Sustainability. The CRRS web-site links students to bin locations throughout the campus and provides useful links to campus recycling and garbage services as well as general recycling information and recycling programs specific to student housing (which are operated by the City).

4. Performance

a. Tons diverted

(Fiscal Year July 2002- June 2003) 3,379 tons

Tons disposed:

(Fiscal Year July 2002- June 2003) 5,680 tons (does not include C&D material and small amount of material collected by City of Berkeley)

b. Participation rates

Estimated participation is 70-90% of targeted facilities.

c. Other performance indicators

The CRRS programs manager indicates that there is a sophisticated understanding among the student and faculty population of the CRRS programs and how they operate.

5. Issues and Opportunities

a. Discussion of program issues and problems

There is no tracking mechanism for C&D materials generated on campus. Historically contracts with builders put the contractor in charge of hauling C&D material. The CRRS is not informed of the final disposition of this material. To date there is no contract language compelling contractors to recycle. However, there is a new surge of interest and commitment to sustainability and Green Building at the Regent's level and there should be a shift in C&D related practices in the next two to five years.

The pre-consumer food program only diverts 51 tons annually but there is much more available if the infrastructure were to be improved.

b. Discussion of possible program modifications, enhancements, and alternatives

Animal waste, post-consumer food-waste and post-consumer paper from bathrooms are all suitable materials for composting if the infrastructure can be put in place. It is estimated that there are 1,000 tons available annually.

C. Recycling Programs**Curbside Recycling Program****1. General Description****a. Program concept and history**

The City's residential curbside is operated by the Ecology Center, a non-profit organization, under contract with the City. The Ecology Center has operated the curbside programs since 1973. The current contract runs through June, 2005. The program has changed substantially since its inception, with program improvements over the years including weekly collection, addition of materials, greater commingling of materials, and provision of bins to households.

b. Targeted wastestream(s)

The program targets the residential wastestream, including single family dwellings and multi-family dwellings up to nine units. Over 36,000 households are served on a weekly basis.

c. Targeted materials

Targeted materials include newsprint, cardboard, mixed paper, steel and aluminum cans, aluminum foil, glass bottles and jars, and #1 and #2 plastic bottles.

2. Materials Handling**a. Collection**

The Ecology Center collects curbside set-outs weekly. Residents place materials in standard supplied containers (16-gallon plastic tubs) or in their own containers. The Ecology Center maintains a fleet of specialized collection vehicles, all of which run on 100 percent biodiesel fuel.

b. Processing

Ecology Center collection trucks unload the collected materials at the Berkeley Recycling Center at Second and Gilman, where they are processed into marketable commodities by the Community Conservation Centers (CCC). Glass, aluminum, tinned steel, and plastic containers are loaded onto a conveyor belt where workers separate the various container types (including three colors of glass) and remove contaminants. Paper from residences includes commingled newsprint and mixed paper, and segregated cardboard. The commingled paper is loaded onto another elevated

conveyor belt, where workers remove contaminants and sort out cardboard. The remaining paper is combined with newspaper from the buyback/dropoff operations to yield a higher grade of marketable newsprint. .

c. Marketing

The CCC markets the processed materials to domestic and foreign markets. CCC has maintained a reputation for clean commodities and has never had a load rejected or discounted for not meeting market quality specifications. 3. Publicity and Outreach

3. Publicity and Outreach

The Ecology Center publicizes the curbside program through occasional mailings, its website and newsletter, placards on its trucks, and occasional media campaigns. See also the description of the Cash-for-Trash program.

4. Performance

a. Tons diverted

The curbside program has shown steady improvement in recovered tonnage, from 7,422 tons in 2000 to 8,623 tons in 2003. In 2002, the program was responsible for diverting 3.7 percent of the City's estimated generated waste.

b. Participation rates

According to periodic surveys by the Ecology Center, average weekly participation is 45%, and 85% of households participate at least monthly. There is lower participation in multi-family buildings. Certain areas have extremely high participation where there is a stable population.

c. Other performance indicators

In 2002, the program recovered about 1.2 pounds per household served per day, or 453 pounds per household per year. The average set out weight is 21 lbs overall, but some routes have set out rates as low as 7 lbs per household and some have set out rates as high as 31 lbs per household. There are eight trucks that operate one route per day making a total of 3,500 stops per day. About 24,000 buildings are served; as many of these are multi-family buildings, the number of dwelling units served is about 36,246.

5. Issues and Opportunities

a. Discussion of program issues and problems

Some program participants do not understand which plastic bottle types are acceptable although contamination overall is not a huge issue for the program managers. Generally, newcomers to the community grasp the two stream system. A considerable amount of recyclable materials remain in disposed waste.

b. Discussion of possible program modifications, enhancements, and alternatives

In recent years, many curbside recycling programs have converted to single-stream collection systems. To date, the City has not considered this option. Generally, single-stream programs suffer from a decline in the quality of materials collected, increased costs to process, and increased residual waste. In addition, Berkeley has a stable population and many people have participated in the program for years; participation rates are high. The operational and financial impacts of changing the program would be high, as it would require new carts, new automated or semi-automated collection trucks, and the overhaul of the sorting facility to process single-stream collectables.

The Ecology Center is preparing an implementation plan to supply multi-unit buildings (5-9 units) with carts and is undertaking a routing analysis to better serve this type of customer. It is assumed that two trucks will be dedicated to the program. An outreach campaign and focus groups are envisioned to increase participation. It may be worthwhile to consider cart service for certain routes where participation and total set-out weight are consistently high.

The Trash-for-Cash program indicated that there is still a considerable amount of mixed paper in residential waste. The Ecology Center is planning an outreach program to increase separation and recycling of mixed paper.

Buy-Back Program

1. General Description

a. Program concept and history

The buy-back program is operated by the Community Conservation Centers (CCC) at Second and Gilman, under contract with the City. The program purchases recycled materials from the general public and from some businesses including UC Berkeley.

b. Targeted wastestream(s)

All wastestreams are targeted. The majority of the material purchased is from the residential and commercial wastestreams.

c. Targeted materials

Glass bottles and jars, aluminum cans, plastic beverage bottles, , newspaper, and cardboard.

2. Materials Handling

a. Collection

Customers bring their separated materials to the buy-back to sell. Materials are weighed and customers are paid the current scale price for materials. CCC sets the scale price on the basis of

current market prices and CA redemption value. Customers have the opportunity to stop at the buy-back before continuing to the Transfer Station.

b. Processing

The CCC processes collected materials for sale to markets. Since all materials are separated into commodity grades for purchase, minimal processing is required.

c. Marketing

CCC sells materials to foreign and domestic markets.

3. Publicity and Outreach

Information about the Buy-Back's hours is available from the City's website, the telephone book, and CCC's website BerkeleyRecycling.org. Current market value paid for materials is available by calling the Buy-Back. The site is visible to drivers as they drive on Gilman or on 2nd on their way to the transfer station next door. The Buy-Back is referenced in City and County Recycling Guides.

4. Performance

a. Tons diverted

In 2003, the program recovered 3,734 tons of material. The volume of recovered material has increased since 2000. In 2002, the program recovered about 1.6 percent of the City's estimated waste generation.

b. Participation rates

The Buy-Back is open six days per week – Tuesday through Sunday. Depending on the day, the number and type of customer varies. In May, 2004, the buy-back averaged 124 customers per day. Participation has increased since the redemption value was raised last year.

5. Issues and Opportunities

a. Discussion of program issues and problems

The only other buy-back in the City listed on the California Department of Conservation website is the Nexcycle center located at the Safeway store at 1444 Shattuck Ave.

The buy-back operation consumes considerable space at the Second and Gilman site. Any new material purchased or donated cannot require much space or handling. In the future, CCC would like to add more materials to the range accepted at their buy-back and donation sites. CCC is evaluating potential changes in its processing operations that would reduce processing space needs and make it feasible to add more materials to the range currently accepted.

b. Discussion of possible program modifications, enhancements, and alternatives

Because the employees unionized in 2001, CCC pays good wages and provides excellent benefits, and management is currently implementing a retirement program.

The Buyback is located in Berkeley's industrial area on the corner of Second and Gilman streets, next to the City's Solid Waste Management Center and Ecology Center. This location is ideal because it facilitates recycling by haulers on their way to the transfer station.

Drop-Off Recycling Program

1. General Description

a. Program concept and history

The CCC operates two drop-off centers under contract to the City. The centers are located at Second and Gilman streets and at Dwight Way and Martin Luther King Jr. Way. The centers accept a broad variety of materials from the public on a donation basis. CCC began operating a drop-off recycling program in Berkeley in 1972, and has operated continuously since. Both drop-off sites are open to the public seven days a week.

b. Targeted wastestream(s)

The program targets all wastestreams; most materials at this location originate from the residential wastestream.

c. Targeted materials

Materials accepted at the Second and Gilman site include color-sorted glass bottles and jars, aluminum and steel cans, #1 and #2 plastic bottles, white paper, mixed paper, newspaper, cardboard, scrap metals and appliances (except refrigerators), clothing, and cell phones (pilot). With the exception of scrap metal, the same materials are accepted at the Dwight Way and MLK Jr. Way site.

2. Materials Handling

a. Collection

Both drop-off centers are "self-serve," members of the public deliver materials, usually in cars and trucks, and place different material grades in the appropriate bins.

b. Processing

CCC delivers materials collected at the Dwight/King site to the Second/Gilman site by roll-off truck, where they process materials for market. Because materials have been source separated, they require minimal processing.

c. Marketing

The CCC sells materials to domestic and foreign markets. CCC uses source-separated drop-off commodities to enrich the residential and commercial materials. For example, all drop-off cardboard is combined with curbside and commercial cardboard to maintain quality and meet market specifications.

3. Publicity and Outreach

Information about the Drop-Off's hours and locations is available on the web. Both sites have good street visibility. The drop-off centers are referenced in City and County Recycling Guides.

4. Performance

a. Tons diverted

In 2003, the Drop-Off program collected 2,611 tons of material. Tonnage has increased steadily since 2000. In 2002, the 2,497 tons collected accounted for 1.1 percent of the City's estimated waste generation.

b. Participation rates

There is an average of 65 customers per day at the Second and Gilman site and 75 customers per day at the Dwight/King site; there are more customers on the weekends. Most Dwight/King drop-off customers are residents who choose to deliver materials rather than leave them on the curb, and the rest are private haulers and small business owners. Most Second and Gilman drop-off customers are scavengers, private haulers, and small business owners.

5. Issues and Opportunities

a. Discussion of program issues and problems

The MLK and Dwight Way site is for sale for \$475,000. However, the site was formerly a gas station and the soil is contaminated; it has been on the market for two to three years already. CCC has a month to month lease with the property owners, and will continue to operate the drop-off program as long as the site is available.

b. Discussion of possible program modifications, enhancements, and alternatives

Both sites are small and do not allow for significant expansion of services. However, CCC plans to add textiles and cell phones to materials accepted and is exploring the feasibility of a small buyback at the Dwight-King site.

Commercial Recycling Program

1. General Description

a. Program concept and history

The City's commercial collection program began in 1989. Source-separated materials are collected from businesses and apartment buildings over nine units. The City has been uniquely servicing small businesses who have limited space and who recycle using the City's carts which take up less space than the front loader bins offered by the private sector. The City's small business recycling program has been a model for other communities.

b. Targeted wastestream(s)

Commercial wastestream, including apartment buildings over 9 units.

c. Targeted materials

Bottle, cans, newspaper, mixed paper, white office paper, cardboard, and plastic bottles. The City also operates a commercial organics collection program, which is described separately.

2. Materials Handling

a. Collection

City staff visit commercial establishments upon request and assist in designing a program to fit individual space and disposal needs. There is no fee for recycling service. Most of the City's commercial recycling customers place materials in blue wheeled carts, bins, or roll-off containers supplied by the City. City crews collect materials, up to five times per week, using rear loaders equipped with cart tippers, and front loaders, some having cart tippers.

The City has a total of 15 routes – each route is dedicated to a specific material such as mixed paper, cardboard, or cans and bottles.

b. Processing

City recycling trucks unload the collected materials at the Second and Gilman facility. There, CCC separates the materials into commodity grades and prepares them for shipping. Commercial materials are highly contaminated. However, because commercial materials account for only 18% to 20% of total materials, it is possible to maintain a final product that meets market specifications so long as commercial materials are mixed with clean, source-separated buyback and donation material.

c. Marketing

CCC sells processed materials to domestic and foreign markets.

d. Non-Material Handling Program Operation

The City has been active in the Green Business Program, participating in waste audits and making recommendations for targeted businesses. In 2002-03, Thimmakka assisted the City in certifying 10 Southeast Asian restaurants as green businesses.

3. Publicity and Outreach

The program is publicized through the City's website and from word of mouth between businesses. In addition, refuse truck billboards and a once yearly commercial recycling newsletter are other outreach mechanisms of information dissemination.

The City has one field representative who is dedicated to all collection services provided by SWMD, as well as assisting businesses their recycling area plans, and working with Alameda County to certify Green Businesses. There is also a short-term field representative funded by a DOC grant who focuses on container recycling in minority-owned restaurants.

4. Performance

a. Tons diverted

In 2003, the program recovered 3,678 tons of material. The amount of material collected has changed little since 2000. In 2002, the 3,773 tons collected represented 1.7 percent of the City's estimated waste generation., and 2.6 percent of the City's estimated non-residential waste generation.

5. Issues and Opportunities

a. Discussion of program issues and problems

The City offers free commercial recycling. Other private service providers also offer recycling collection service. Berkeley allows private haulers to collect rubbish from commercial establishments under franchise agreements, and so there are a number of service providers operating in the City. While franchised collectors are encouraged to provide recycling services to their customers, they are not required to do so. Some businesses may therefore be in a situation of having a private hauler provide rubbish collection, but not recycling collection. While the City's recycling collection program is available to these businesses, it may be inconvenient or confusing for them to use it.

The City's commercial routes were audited in 2003 and at least 50 customers were found not to be participating in the program any longer because the customer went out of business, moved, or was no longer interested.

There is inadequate staff to solicit and maintain the commercial accounts.

In some businesses, storage space for recyclables, labor requirements to source separate materials, and staff turnover may hinder participation in recycling programs.

b. Discussion of possible program modifications, enhancements, and alternatives

While the City requires franchisees to provide information on waste and recycling volume, number of accounts, and type of business they serve, the City has not analyzed the data to determine the efficiency of having them operate in the City.

Special Collection Events

1. General Description

a. Program concept and history

Over the years, the City has operated or contracted for a variety of special collection programs. In the past, these included special collection of Christmas trees and telephone books, both of which are now collected in regular greenwaste and residential collection services. Since 1995, the City has operated an annual residential clean-up event. City crews collect refuse, plant debris, scrap metals, mattresses and box springs, and other bulky items. Formerly, the City contracted with the East Bay Depot for Creative Reuse to collect reusable items. In 2004, the City switched the program to by-appointment only, rather than on a set schedule. Each residential parcel with up to four units is now entitled to one Bulky Cleanup up per year.

b. Targeted wastestream(s)

This program targets the residential wastestream, for parcels with up to dwelling four units.

c. Targeted materials

Greenwaste and untreated lumber, scrap metals, and bulky (mattresses and box springs) items. General refuse is also collected.

2. Operations

a. Collection

Residents call for an annual appointment. Collections occur on Saturdays throughout the year. City crews collect greenwaste, mattresses and box springs, scrap metals, and refuse.

b. Processing

Mattresses and box springs are picked up at the Transfer Station by St. Vincent de Paul and delivered to the DR3 facility in San Leandro. Greenwaste and lumber is processed with other

City-collected greenwaste. Scrap metals are aggregated at the Transfer Station and delivered by the City to a scrap metals dealer. All other materials are delivered to the Transfer Station and handled as refuse.

c. Marketing

The City has a contract with St. Vincent de Paul for collection of mattresses and box springs from the Transfer Station, which delivers them to their subsidiary, DR3, for refurbishing and recycling.

3. Publicity and Outreach

The City sends out an annual mailer for the Cleanup program. The brochure includes information on how to dispose of materials not included in the Cleanup, such as, household hazardous waste, large appliances, televisions and monitors, and reusable goods. The program is also publicized through the City's website.

4. Performance

a. Tons diverted

In 2000, the program collected and diverted 203 tons of mattresses, appliances, reusable items and plant debris. In 2003, the program diverted 178 tons of mattresses, appliances, reusable goods, and other recyclables.

b. Participation rates

No information yet exists on participation rates in the by-appointment-only program, as it started up only recently.

5. Issues and Opportunities

a. Discussion of program issues and problems

Major problems with set-outs, including too much material, prohibited material, and messy setouts, prompted the City to switch from scheduled annual clean-up events to by-appointment only. This program just started up in 2004, so there is little operational experience as yet.

D. Composting Programs

Residential Curbside Plant Debris Collection Program

1. General Description

a. Program concept and history

Residential curbside plant debris collection has been provided to Berkeley residents since 1989. Initially the service was offered on a monthly basis, and residents were required to set out plant

debris in designated 32-gallon paper bags. In 1995, 64-gallon wheeled carts were distributed to all single-family residences who requested them, which doubled the tonnage collected from 250 to 500 tons per month. In July 2000, service was expanded to bi-weekly collection, and the amount collected has increased every year since.

b. Targeted wastestream(s)

The residential curbside plant debris program targets the residential waste stream: primarily single-family residences, but also multi-family units that are able to set out materials at curbside following program guidelines for participation.

c. Targeted materials

Plant trimmings, grass clippings, leaves, brush, scrap wood, small branches, and other vegetative, non-food discards are acceptable in the residential curbside plant debris program.

2. Operations

a. Collection

Plant debris is collected bi-weekly from residences throughout Berkeley by City vehicles and are brought to the Berkeley Transfer Station. There, acceptable loads are consolidated with self-hauled scrap wood and plant debris, commercial food scraps, and other compostable materials for transfer to an organic materials processing facility.

b. Processing

The commingled organic materials (food scraps, soiled paper, scrap wood, and plant debris) are loaded into large capacity trucks for transport to Grover Landscape Services in Modesto for composting with organic material collected in the commercial food scraps collection program. The cost of transfer and processing is \$25.35 per ton.

c. Marketing

Finished compost and other organic soil amendments are marketed by Grover Environmental Services directly to farmers, landscaping contractors, homeowners, and others. The City's contract with Grover Landscape Services contains the following stipulation regarding end products: Grover shall deliver mulch or compost derived from City of Berkeley "organic waste" at no cost to the City, at a rate of up to 10% of the average monthly amount of City of Berkeley organic waste received by Grover, on an as-requested basis.

The City uses the compost in various City parks and plantings, and for special large projects such as top dressing on large lawns. The City also hosts a one-day per month public giveaway of compost, with priority given to Berkeley schools and community gardens.

3. Publicity and Outreach

A collection calendar is mailed to all residences annually, and information about plant debris services is included in newsletters, on the City's web site and in the new resident brochure. In addition, many residents take their cue about collection days from their neighbors. When they see that others have placed their carts at the curb for collection, they put theirs out also.

4. Performance

a. Tons diverted

Approximately 6,000 tons of plant debris per year were diverted by the program in 1999-2000. In 2002, 7,620 tons of material were collected and diverted, representing 3.4% of the City's generated waste. In 2003, the City collected 8,399 tons of residential plant debris.

b. Participation rates

The City has 16,590 greenwaste containers in service, almost all at residential accounts (excluding commercial foodwaste accounts). Some customers have no carts, but use bags. Assuming the same number of eligible addresses as for the curbside recycling program (24,000), about 69% of eligible households have greenwaste containers. Residents are encouraged to accumulate a full cart of material before setting it out, in order to improve overall collection efficiency. Therefore, not all participating households set material out on any given collection day.

c. Other performance indicators

In order to reduce contamination of the accepted feedstock with non-compostable materials, incoming loads are monitored by Transfer Station staff on the tipping floor to determine acceptability. Loads containing excessive contamination may be diverted to the landfill, but such loads are extremely rare. Collection drivers also have some ability to monitor loads for contamination during pickup and reject overly contaminated set-outs.

5. Issues and Opportunities

a. Discussion of program issues and problems

Residents must follow program guidelines carefully to avoid contaminating collected material with rocks, soil, construction materials, treated or painted wood, glass, metals, plastic, or other non-acceptable materials. Set-outs at the curb can be difficult to monitor prior to consolidation with the whole load.

b. Discussion of possible program modifications, enhancements, and alternatives

Encouraging residents to practice backyard composting can reduce the quantity of vegetative material that needs to be collected curbside, while simultaneously educating participants about

how to differentiate between compostable versus non-compostable materials, resulting in cleaner set-outs and an end-product that is more marketable as high-quality compost.

Self-haul Green Waste and Wood Waste Program

1. General Description

a. Program concept and history

The City's residential and commercial self-haul greenwaste ("plant debris") and wood waste ("scrap wood") recycling program is operated by the City at the Berkeley Transfer Station. Residents are offered a 30% discount for separated loads of acceptable compostable materials and unload in a designated area at the facility. The program has been operating at the Transfer Station since 1995, when wood and plant debris processing by a private company on an adjacent property ceased operations.

b. Targeted wastestream(s)

The program targets the self-haul waste stream, and receives self-hauled loads dropped off by residents and commercial businesses from Berkeley and surrounding communities.

c. Targeted materials

Targeted materials include unpainted and untreated wood, grass clippings, leaves, and other vegetative plant materials, and clean sheetrock (gypsum wallboard).

2. Operations

a. Collection

Materials are brought to the Berkeley Transfer Station by residents and commercial haulers, and acceptable loads are diverted to a designated area of the facility, at the end of the tipping floor, where they are stockpiled for transfer to an organic materials processing facility.

b. Processing

The scrap wood and plant debris is loaded into large capacity trucks for transport to Grover Landscape Services in Modesto for composting with organic material collected in the commercial food scraps collection program, and for processing into mulch and related products. The cost of transfer and processing is \$25.35 per ton.

c. Marketing

Finished compost and other organic soil amendments are marketed by Grover Environmental Services directly to farmers, landscaping contractors, homeowners, and others. The City's contract with Grover Landscape Services contains the following stipulation regarding end products: Grover shall deliver mulch or compost derived from City of Berkeley "organic waste"

at no cost to the City, at a rate of up to 10% of the average monthly amount of City of Berkeley organic waste received by Grover, on an as-requested basis.

3. Publicity and Outreach

The program is advertised primarily through signs at the Transfer Station, but also through newsletters and the City's web site. Regular users of the Transfer Station quickly learn that they can reduce tip fees by delivering clean loads of greenwaste. Pricing information is also available at the City's website.

4. Performance

a. Tons diverted

A total of 5,417 tons were diverted from the solid waste stream in 2000 and a total of 6,303 tons were diverted in 2001. In 2002, diversion from this program was up to 8,674 tons, representing 3.9% of generated waste.

b. Participation rates

___ loads per week were received from residential and commercial self-haulers in 2000, and ___ loads per week were received in 2001.

c. Other performance indicators

In order to reduce contamination of the accepted feedstock with non-compostable materials, incoming loads are monitored by the Transfer Station staff both at the scale house and on the tipping floor to determine acceptability.

5. Issues and Opportunities

a. Discussion of program issues and problems

Incoming loads must be monitored closely to reduce contamination from non-compostable materials, painted and treated wood products, and similar items. At times, loads containing painted and treated wood products are improperly deposited in the recyclable wood and plant debris drop-off area. Traffic patterns in and around the transfer facility during peak operating hours can cause delays resulting in reduced customer satisfaction, which may negatively affect repeat business. No opportunity is available at the site for residential and commercial landscapers to pick up organic soil amendments (e.g. compost, mulch, and wood chips).

b. Discussion of possible program modifications, enhancements, and alternatives

Clearer, more visible signage and instructions for self-haulers detailing acceptable versus non-acceptable materials may further reduce contamination. Greater managerial oversight of transfer station personnel (regarding the direction given to self-haulers about which materials are

acceptable) may be beneficial. A facility design which allows for recyclable loads to receive preferential service, such as providing expedited access to recycling drop-off areas (similar to High Occupancy Vehicle lane benefits), might encourage greater participation. A dedicated area at or near the transfer station for sale of organic soil amendments derived from Berkeley's plant debris and scrap wood program, perhaps operated by a local nonprofit organization or private business, could provide a convenient source of these materials for residential and commercial landscapers who use the transfer station, and thus reduce overall vehicular travel. This program idea could be further developed in the Master Plan for the Second and Gilman site.

Food Waste Composting Program

1. General Description

a. Program concept and history

The City's Food Scraps Composting program is provided as a commercial collection service, with collected materials consolidated at the Berkeley Transfer Station, and transported by truck to Grover Landscape Services in Modesto for composting. Participating businesses and institutions are offered a discount of 20% from the normal garbage collection fee for separating accepted materials from their refuse and placing them in designated collection bins. The program was started on a pilot basis in 1995, serving eight selected businesses (for vegetative discards only), at the Berkeley Transfer Station. Meat, bones, paper products, waxed paperboard, waxed cardboard, unpainted gypsum board, and untreated wood were added as acceptable materials in 2001.

b. Targeted wastestream(s)

The program targets the commercial waste stream: primarily businesses and institutions that generate large quantities of compostable discards, such as restaurants, hotels, hospitals, food processors, and florists.

c. Targeted materials

Targeted materials include food scraps (cooked and uncooked), including meat, bones, soiled paper, waxed paperboard, waxed cardboard, and any other compostable materials. Fats, oils, grease, and liquids are not allowed by the program. Fats, oil, and grease are more appropriately handled by rendering companies.

2. Operations

a. Collection

Accepted materials are collected from businesses and institutions throughout Berkeley by City vehicles and are brought to the Berkeley Transfer Station. There, acceptable loads are consolidated with scrap wood and plant debris for transfer to an organic materials processing facility.

b. Processing

The commingled organic materials (food scraps, soiled paper, scrap wood, and plant debris) are loaded into large capacity trucks for transport to Grover Landscape Services in Modesto for composting with organic material collected in the commercial food scraps collection program. The cost of transfer and processing is \$25.35 per ton.

c. Marketing

Finished compost and other organic soil amendments are marketed by Grover Environmental Services directly to farmers, landscaping contractors, homeowners, and others. The City's contract with Grover Environmental Services contains the following stipulation regarding end products: Grover shall deliver mulch or compost derived from City of Berkeley "organic waste" at no cost to the City, at a rate of up to 10% of the average monthly amount of City of Berkeley organic waste received by Grover, on an as-requested basis.

3. Publicity and Outreach

A letter was originally sent to all eligible customers notifying them about the availability of the food scraps collections service. Priority for program implementation was given to those businesses that expressed interest in starting the program, that had discards compatible with program guidelines, adequate space for bins, and a stated commitment to follow the program guidelines. Cost estimates for re-configured service levels were then provided by the city, along with a temporary grace period allowing additional disposal capacity without an associated billing increase in order to ease participants' transition to the new service levels. The City has recruited businesses through mailings of letters followed by telephone calls, and a recent mass mailing of a restaurant brochure. In some cases, the solid waste workers have informed customers of the food scraps services, and passed information to the administrative staff.

Multi-lingual training, technical assistance, and graphic, multi-language, instructional posters and stickers are provided to participating businesses and institutions. A non-profit organization provides South Asian translation services for restaurants that need such assistance. For overall business recruitment, management and staff training, logistical help to businesses in program implementation, and evaluation of program performance, the City contracts with Applied Compost Consulting, Inc.

4. Performance

a. Tons diverted

A total of 2,612 tons of food scraps and soiled paper were diverted from the solid waste stream in 2002, representing 1.2 percent of the City's waste stream. In 2003, approximately 3330 tons were diverted.

b. Participation rates

About 100 out of 535 eligible businesses are currently participating in the program, constituting approximately 19% of eligible businesses.

c. Other performance indicators

In order to reduce contamination of the accepted feedstock with non-compostable materials, incoming loads are monitored by Transfer Station staff both at the scale house and on the tipping floor to determine their acceptability. Loads containing excessive contamination are diverted to landfill. Collection drivers also have some ability to monitor loads for contamination at time of pickup and reject overly contaminated set-outs. However dumpster set-outs are particularly difficult to monitor prior to consolidation with the whole load.

5. Issues and Opportunities**a. Discussion of program issues and problems**

The management and staff of participating businesses need to clearly understand and follow program guidelines regarding acceptable materials in order to reduce contamination from acceptable materials. Specifically plastic, glass, and metals, can seriously affect the processing of the collected material and the marketability of the end product as high quality compost.

b. Discussion of possible program modifications, enhancements, and alternatives

Clear, highly visible signage and instructions in multiple languages, as well as distinctive bin coloration, can help reduce contamination of non-acceptable materials at the point of disposal, and can greatly reinforce the training and technical assistance that the city provides for management and staff of participating businesses. Greater discounts from standard disposal fees, and a simplified, standardized rate structure should increase program satisfaction and participation.

Affordable bin cleaning service or bio-degradable bag purchasing opportunities can alleviate odor and vector issues associated with food residues in carts and bins.

Processing of Collected Organics: Grover Landscape Services**1. General Description****a. Program concept and history**

The City of Berkeley has contracted with Grover Landscape Services to process food scraps, plant trimmings, scrap wood, and other organic discards into compost, mulch, and other soil amendments at Grover's facility in Modesto. Grover also transports the feedstock materials, which are consolidated at the Berkeley Transfer Station, to its processing facility, and transports

(upon City request) the finished compost back to Berkeley's compost storage facility at the Berkeley Marina.

b. Targeted wastestream(s)

Commercial and residential self-haul plant debris and scrap wood, commercial and residential curbside plant debris collection, commercial food scraps collection.

c. Targeted materials

Targeted materials include unpainted and untreated scrap wood, plant trimmings, grass clippings, leaves, and other vegetative plant materials, clean sheetrock (gypsum wallboard), food scraps, soiled paper, and other cardboard and paperboard.

2. Operations

a. Collection

Grover collects consolidated, commingled organic materials at the Berkeley Transfer Station, hauling three or four loads per day to its processing facility in Modesto.

b. Processing

The commingled organics are composted and/or processed into mulch and other soil amendments for a \$25.35 per ton fee. Grover's contract with the City of Berkeley specifies that a minimum of 85% of the collected material must be processed into compost, mulch, or other soil amendments. The remainder can be used as boiler fuel or other products, and a maximum of 5% of the collected material can be discarded as solid waste.

c. Marketing

Grover provides compost and other soil amendments, up to the equivalent to 10% of the weight of the feedstock materials collected from the Berkeley Transfer Station, at no charge to the City. In 2003, 3 % (614 tons) of the weight of feedstock materials collected from the Berkeley Transfer Station was delivered to the City, based on City requests.

The City can purchase additional compost at \$15 per ton, delivered to the City's compost storage facility at the Berkeley Marina.

Most of the products produced from City of Berkeley organic discards are marketed by Grover to landscapers and Central Valley farmers.

3. Publicity and Outreach

The processing and marketing arrangement between the City of Berkeley and Grover Landscaping Services is not well known within the public sector (e.g., City government, school district).

Some farmers who buy finished compost and other soil amendments from Grover sell produce to local groceries and restaurants, and at farmers' markets, and have made consumers aware of the fact that they are recycling nutrients from Berkeley's organic discards.

4. Performance

a. Tons diverted

A total of 22,489 tons of commingled organic discards were diverted to composting in 2003.

b. Participation rates

All properly source-separated organic materials collected in the City of Berkeley (except for some tree trimmings that are chipped by City crews and used as mulch at City facilities) are processed by Grover.

c. Other performance indicators

The quality of the finished compost is crucial to its marketability to farmers and landscapers. The need for a steady supply of finished compost from Grover, as well as reliable and timely transportation service, are specified by the City of Berkeley in its contract with Grover.

5. Issues and Opportunities

a. Discussion of program issues and problems

Contamination of finished compost and other soil amendments with broken glass, plastics, and other non-compostable materials can adversely affect the marketability of the end-products, which could lead to increased processing costs and lower overall diversion from landfill. Grover has rarely reported quality problems with the organic materials collected from the Berkeley Transfer Station.

b. Discussion of possible program modifications, enhancements, and alternatives

Better education and outreach to generators emphasizing the need to conform to program guidelines regarding acceptable materials, and more careful examination of collected loads by route drivers and Berkeley Transfer Station personnel (rejecting non-acceptable loads) could reduce contamination of compost feedstocks.

Greater encouragement or requirements of City departments and schools to specify the use of recycled soil amendments, support for product demonstrations in plots of soil, and internal City publicity regarding the availability of the end products, would help the City to realize the full economic and environmental benefits of its contract with Grover, and would help the City to become a stronger model for organics recycling.

E. Refuse Collection and Disposal Programs

Refuse Collection

1. General Description

a. Program concept and history

The City of Berkeley is one of the few cities in the Bay Area to operate its own refuse collection program. The City operates residential, commercial, and roll-on/roll-off services, and by ordinance is the exclusive collector of putrescible wastes.

b. Targeted wastestream(s)

The City's refuse collection program targets the residential, commercial, and roll-on/roll-off wastestreams.

c. Targeted materials

This program targets municipal solid waste.

2. Operations

a. Collection

The City serves all single family residences and smaller multi-family residences with semi-automated rear-loader collection vehicles. Residents store their waste in wheeled carts provided by the City (available in 20 gallon, 32 gallon, 64 gallon, and 96 gallon sizes, and in 13 gallon "mini cans"), which are placed at the curb on collection day. City crews will make collections from locations other than the curb for elderly and handicapped residents who are unable to wheel their carts to the curb and have been granted an exemption from the curbside requirement. Collection occurs weekly throughout the year. Residents may set out additional material for collection using special pre-paid bags available at the transfer station and at public libraries.

Commercial collection is more variable. Most commercial customers store their waste in bins provided by the City, with capacities of 1-6 cubic yards. Collection is from 1-8 times per week, using rear-loader and front-loader vehicles.

Roll-off service is available on a continuous or occasional basis. Container sizes available range from 6 cubic yards to 30 cubic yards.

b. Processing

All wastes collected by the City are delivered to the Transfer Station, where they are transferred to long-haul trucks for delivery to the landfill.

c. Marketing

Currently, all wastes from the Transfer Station are disposed at Vasco Road Landfill, owned by Republic Services, in eastern Alameda County. On occasions where use of the Vasco Road Landfill is not possible, the City disposes of waste at two other landfills owned by Republic Services, West Contra Costa Sanitary Landfill in Richmond, and Potrero Hills Landfill in Solano County.

3. Publicity and Outreach

There is an abundance of information regarding the City's refuse collection program on the City's website. Placards on the City's collection vehicles advertise City refuse and recycling services. The City produces a variety of brochures and newsletters containing information on refuse services, and advertises in the SBC yellow pages directory.

4. Performance

a. Tons diverted

Almost no material is diverted from collected waste, with the occasional exception of "rich" debris boxes that may contain reusable or recyclable materials.

b. Participation rates

Subscription to refuse collection service is mandatory for anyone producing putrescible garbage in the City.

c. Other performance indicators

The City serves a total of 27,712 accounts. There are an average of 630 residential containers per route (41 routes), or about 540 residential accounts per route; 77 containers per commercial front loader route (21 routes); and 273 containers per commercial rear loader route (10 routes). There are other routes not included here that are a mixture of commercial, residential, and litter containers.

5. Issues and Opportunities

a. Discussion of program issues and problems

The trend in solid waste collection is toward fully-automated collection using one-person crews, but this technology may not be appropriate for Berkeley, given the number of narrow and steep streets, particularly in the hills. Given the density of the City, and the proximity of the Transfer Station, two-person crews may be more economical than one-person crews for semi-automated collection.

Non-Exclusive Rubbish Collection Franchises

1. General Description

a. Program concept and history

The City has historically allowed collection of non-putrescible rubbish by commercial haulers. As of July 1, 2000, anyone engaged in the business of collection and transporting rubbish from locations in the City of Berkeley must have a written franchise agreement. Franchises are non-exclusive, and there is no limit to the number of franchise agreements that the City may enter into. Only the City can collect putrescible garbage. Franchisees pay 26 percent of their gross revenues from collecting, hauling, and disposing of rubbish in Berkeley to the City as a franchise fee. The franchise fee does not apply to revenues from collection and transport of source separated recyclable materials.

b. Targeted wastestream(s)

Franchised haulers may only collect waste from the commercial waste stream.

c. Targeted materials

In addition to rubbish (the dry component of solid waste), franchised haulers may collect recyclable materials and yard waste. For the purpose of determining franchise fees, wastes collected and used as alternative daily cover at landfills are not considered to be recycled, but disposed.

2. Operations

a. Collection

Franchisees are required to provide their customers with containers labeled with the company's name, to collect wastes with trucks that also bear the company's name, and to abide by Berkeley Municipal Code sections that address issues such as collection times, container placement, and noise. Apart from this requirement, the arrangements for collection are between the franchisees and their customers.

b. Processing

Franchisees may haul their materials outside of Berkeley for processing and disposal.

c. Marketing

Franchisees are responsible for marketing collected recyclables.

3. Publicity and Outreach

Franchisees are able to publicize and advertise their services as they see fit. Franchisees must hold a valid City business license. The City is obligated under the franchise agreements to include information regarding franchised haulers in appropriate publications. They are listed in the commercial guidelines pamphlet, which is distributed at the business license counter. Franchised haulers are also mentioned in the City's commercial newsletter.

4. Performance

a. Tons diverted

Not available.

b. Participation rates

Not available.

c. Other performance indicators

Not available.

5. Issues and Opportunities

a. Discussion of program issues and problems

Franchised haulers are required to file quarterly reports of quantities collected, transported, and disposed. The City may, but does not presently, require franchisees to file reports on the amounts and types of recyclables collected.

b. Discussion of possible program modifications, enhancements, and alternatives

Requiring franchisees to include information on types and quantities of materials collected for recycling with their quarterly reports would provide valuable information for program planning and monitoring.

F. Special Waste Handling Programs

Special Waste Materials – Concrete, Asphalt, Rubble

1. General Description

a. Program concept and history

Due to their high weight-to-volume ratio, concrete, asphalt, and rubble have been targeted for diversion from the City of Berkeley's Transfer Station and solid waste stream. The Inert

Recycling Program encourages the re-direction of source-separated loads to facilities outside of the City of Berkeley that are capable of crushing these materials for recycling into new products, including aggregate for construction projects. Because refuse and recycling collection trucks easily could be damaged by collection of dense inert materials, concrete, asphalt, and rubble are excluded from the collection programs..

b. Targeted wastestream(s)

Self-hauled residential and commercial loads, commercial and residential curbside recycling collection.

c. Targeted materials

Concrete, asphalt, rubble, and other heavy, inert solids.

2. Operations

a. Collection

Self-hauled loads produce incidental quantities of diverted concrete, asphalt, and rubble at the Berkeley Transfer Station. Most of this material is re-directed to facilities outside the City of Berkeley that are capable of handling it, and which charge less. The City offers 6-yard roll-off boxes specifically for concrete, or other dense inerts. Pure concrete loads are hauled directly to Dutra Materials, a concrete crusher located in Richmond. There is also a dedicated area on the floor of the Transfer Station for concrete. When enough accumulates to form a load, it is hauled to Dutra Materials.

b. Processing

The City of Berkeley does not process concrete, asphalt, or rubble at its facilities.

c. Marketing

Concrete, asphalt, and rubble are typically ground, size-sorted, and used as fill, aggregate, road base, and other materials.

3. Publicity and Outreach

Posted notices and staff interactions at the Berkeley Transfer Station re-direct large loads of concrete, asphalt, and rubble to appropriate recycling facilities. Mailers and brochures describe recycling and garbage disposal guidelines for residents and businesses.

4. Performance

a. Tons diverted

A total of 365 tons of concrete, asphalt, and rubble were diverted from the landfill at the Berkeley Transfer Station in 2003.

b. Participation rates

It cannot be determined easily how many households and businesses recycle concrete, asphalt, and rubble in a typical year.

c. Other performance indicators

Presence or absence of concrete, asphalt, and rubble in the solid waste stream may be revealed by future waste generation studies.

5. Issues and Opportunities

a. Discussion of program issues and problems

Some generators are unaware of appropriate handling options for these materials, which can lead to illegal dumping on public and private property.

b. Discussion of possible program modifications, enhancements, and alternatives

Greater public awareness of appropriate disposal options should lead to lower incidence of illegal dumping and other improper disposal practices. Unlike many cities and counties in the Bay Area, Berkeley lacks an ordinance requiring contractors to recycle construction and demolition waste.

Special Waste Materials – Tires

1. General Description

a. Program concept and history

Tires are categorized as a special waste and are prohibited from disposal in municipal landfills. There is a specific handling fee levied on tires from customers bringing waste to the Transfer Station.

b. Targeted wastestream(s)

Residential, commercial, and self-haul.

c. Targeted materials

Truck and passenger vehicle tires.

2. Operations

a. Collection

Tires are not collected, but brought to the Transfer Station.

b. Processing

Tires that are identified by the weigh master are stockpiled separately from general rubbish. If they are hidden in mixed loads of garbage, they are pulled by sorters. They are loaded into a 20-yd dumpster which, depending on the size of the tire, can hold from between 40 and 170 tires. Tires are taken to market about once per month.

c. Marketing

Tires are shipped to Bay Area Tire Recovery in San Leandro, a crumb rubber operation.

3. Publicity and Outreach

Information about Transfer Station hours and prices are available on the web and through phone service. However, it appears that customers are often surprised that there is a special handling fee for tires.

4. Performance

a. Tons diverted

Around 100 tires per month. In 2003, the City recycled 43 tons of tires through the Transfer Station.

5. Issues and Opportunities

Most customers are resistant to special handling fees and are not interested in unloading their materials at more than one location at the Transfer Station.

Special Waste Materials – White Goods

1. General Description

a. Program concept and history

A white good is considered any appliance that contains Freon; all others are considered scrap metal.

b. Targeted wastestream(s)

Residential, commercial and self-haul.

c. Targeted materials

Refrigerators, drinking fountains, air conditioners, freezers.

2. Operations

a. Collection

Customers are charged \$31.00 per refrigerator at the Transfer Station.

b. Processing

There is no additional preparation of items containing Freon

c. Marketing

The City has a contract with Jaco Environmental, who comes when called.

3. Publicity and Outreach

The City's commercial newsletter and Cleanup brochure list appliance collection and recycling firms.

4. Performance

a. Tons diverted

Not available

5. Issues and Opportunities

a. Discussion of program issues and problems

The program works well. Even though the Transfer Station is small, there is ample room for storage of white goods.

Special Waste Materials – Scrap Metal

1. General Description

a. Program concept and history

Scrap metal is targeted at the Transfer Station.

b. Targeted wastestream(s)

Residential, commercial waste streams

c. Targeted materials

Scrap metal includes stoves, dishwashers, washing machines, dryers, and various pieces of metal.

2. Operations

a. Collection

Customers are charged by weight, not by item, unless all they are bringing is a stove or a dishwasher.

b. Processing

In 2002, the drop-off area dedicated to scrap metals at the Second and Gilman Street location was enlarged. There are 2-4 sorters who work the Transfer Station sorting area. They pull scrap metal from the refuse brought in by the public. The scrap metal is consolidated in 30-yard dumpsters. It is shaped to reduce damage to the dumpster.

c. Marketing

Two to three times a week, a 30-yard dumpster ferries between the Transfer Station and Sims Metals in Richmond (2-3 roundtrips per day).

3. Publicity and Outreach

Signs at the Transfer Station describe special charges for some items, including appliances.

4. Performance

a. Tons diverted

Scrap metal collected from the Transfer Station decreased from 1,746 tons in 2001 to 1,241 tons in 2002. Total tons diverted in 2003 were 1,311.

5. Issues and Opportunities

a. Discussion of program issues and problems

The public is resistant to separating their scrap metal from their garbage, especially since they have to pay to dispose of their garbage, they don't want to be told to they have to handle it in a certain way.

b. Discussion of possible program modifications, enhancements, and alternatives

If there were more sorters, more scrap metal could be pulled from the Transfer Station floor.

Special Waste Materials – Bulky and Other Reusable Items

1. General Description

a. Program concept and history

Beginning in 1995, easily separable bulk items, such as mattresses (for dismantling and recycling by a service provider) were targeted for recovery at the Berkeley Transfer Station. This program was expanded in 2000, to divert additional reusable items. In 2002, the program was expanded to include the recycling of electronic goods. CRTs are banned from the landfill.

b. Targeted wastestream(s)

Self-haul residential and small commercial haulers.

c. Targeted materials

Mattresses, large appliances, and CRTs. Other CEDs (consumer electronic devices) may be diverted depending on labor availability.

2. Operations

a. Collection

Customers with mattresses, large appliances, and CRTs pay fees at the scale house per unit (except appliances), and are directed to designated areas of the Transfer Station for unloading. When these materials are inadvertently or surreptitiously unloaded in the trash disposal area, they are picked out by the bucket loader operator, mechanically or by hand.

b. Processing

Processing includes palletizing and shrink-wrapping of CRTs and CEDs for transport to the processor. Solid Waste Workers may engage in a minor amount of selective picking of acceptable materials from the waste stream on the tipping floor at the Transfer Station. There is no mechanical processing on site. Mattresses are loaded by forklift into an enclosed trailer for shipment to the mattress processor in San Leandro. Large appliances are loaded by bucket loader in to roll-off boxes for shipment to the scrap metals dealer in Richmond.

c. Marketing

Re-usable items are marketed by the City's contractors. Urban Ore recovers and markets various reusables, St. Vincent De Paul dismantles and recycles mattresses, and electronics are aggregated by Alameda County Computer Resource Center, repaired, or sold to domestic markets for separation of recyclable component materials.

d. Non-Material Handling Program Operation

Not applicable.

3. Publicity and Outreach

The program is advertised primarily through signs at the Transfer Station. Regular users of the Transfer Station quickly learn that they can reduce tip fees by delivering clean loads of plant debris. Information about the program is also typically contained in periodic recycling newsletters that are sent to residents. Pricing information is also available at the City's website.

Performance

4. Performance

a. Tons diverted

A total of 196 tons of mattresses, and 105 tons of large electronics were diverted from landfill in 2003. Large appliances are shipped with scrap metal and not separately weighed.

b. Participation rates

Not measured.

5. Issues and Opportunities

a. Discussion of program issues and problems

- 1) Safety of personnel is a concern: pickers need to navigate around front end-loaders and self-haul vehicles.
- 2) Another issue is the potentially recoverable mattresses that still end up being landfilled.

b. Discussion of possible program modifications, enhancements, and alternatives

The waste stream has not been evaluated in terms of amount of marketable reusables in the trash. A brief waste characterization might be useful for estimation and program planning purposes.

G. Household Hazardous Waste Programs

Household Hazardous Waste – HHW Education Programs

1. General Description

a. Program concept and history

The City of Berkeley accepts used motor oil at the transfer station, encourages the use of several automobile parts stores for the same purpose (collecting used motor oil for re-refining), and participates in the Alameda County Household Hazardous Waste Program.

b. Targeted wastestream(s)

Residential wastestream.

c. Targeted materials

Household hazardous materials, including paint, stain, varnish, thinner, adhesives, automotive products such as old fuel, motor oil, oil filters and batteries, household batteries, cleaners and sprays, and garden products, including pesticides and fertilizers.

2. Operations**a. Collection**

The City accepts up to 15 gallons per customer at the transfer station's used oil drop-off center. The City of Berkeley does not offer collection services for household hazardous wastes. Residents are encouraged to self-haul these materials to an approved household hazardous waste collection facility.

b. Processing

The City runs a drop-off center for used oil at the transfer station; no re-refinement of the oil is done on the premises. The City of Berkeley does not process household hazardous wastes. Alameda County household hazardous waste facilities separate incoming wastes by material type. Some are diverted to re-use and recycling, such as used motor oil, serviceable automotive batteries, and recyclable household paint. Other wastes are packed in sealed, leak-resistant containers and transported to licensed hazardous waste disposal facilities.

c. Marketing

The City of Berkeley does not market re-usable or recyclable household hazardous wastes. These materials are handled by Alameda County at approved Household Hazardous Materials Collection centers. The used motor oil accepted at the Berkeley Transfer Station is collected by a commercial used oil recycler.

3. Publicity and Outreach

Berkeley residents are encouraged to minimize their use of household hazardous materials, and dispose of associated wastes through approved facilities. There is a concerted publicity and outreach effort by the City regarding used motor oil recycling, in particular. New residents receive printed outreach materials with their SBC phone books, and all residents receive periodic mailings, encouraging participation in solid and hazardous waste reduction, reuse, recycling, and environmentally appropriate disposal programs. Alameda County promotes their household hazardous waste disposal through their website (<http://www.household-hazwaste.org/>).

4. Performance

a. Tons diverted

Household hazardous waste diversion is not reported by the City of Berkeley, and does not apply to the City's diverted tonnage of solid waste from landfill.

b. Participation rates

While complete figures for participation by Berkeley residents in household hazardous waste minimization, reuse, recycling, and appropriate disposal programs are not available, loads that are self-hauled to Alameda County Household Hazardous Waste disposal sites are logged by city of origin.

c. Other performance indicators

Absence or presence of household hazardous materials in the solid waste stream.

5. Issues and Opportunities

a. Discussion of program issues and problems

Information about household hazardous waste minimization, re-use, recycling, and appropriate disposal is not generally available or highly visible in retail establishments where these household hazardous materials are sold.

b. Discussion of possible program modifications, enhancements, and alternatives

Mandatory point-of-sale outreach efforts regarding safe alternatives to household toxic materials, and responsible disposal options for household hazardous wastes, might be highly effective in informing residents' purchasing decisions, and provide a means of reaching targeted residents directly.

H. City Policies

Policies – Economic Incentives

1. General Description

a. Program concept and history

Residential and commercial garbage collected in Berkeley is subject to a volume-based rate structure: residents and businesses pay incrementally higher rates for higher levels of service. This approach acts as an economic incentive for keeping garbage service capacity and disposal to a minimum.

Most City of Berkeley recycling and composting programs provide economic incentives for participation. Residential and commercial curbside recycling and plant debris collection services are provided at no additional charge. Commercial food scraps collection is offered at a 20% discount from the standard garbage collection fee. Self-hauled plant debris and scrap wood are assessed a discounted tipping fee (30% less than if disposed as trash) at the Berkeley Transfer Station. A free drop-off facility for recycling materials such as newspaper, cardboard, scrap metals, and glass, metal, and plastic food and beverage containers, operated by Community Conservation Centers (CCC), is located adjacent to the Berkeley Transfer Station.

Also, the City of Berkeley sponsors the Cash-for-Trash Contest program (with funding from the Recycling Board), operated by the Ecology Center. Cash-for-Trash offers randomly selected Berkeley residents cash payments for effectively separating recyclable materials from their garbage. In 2003, seven contestants won amounts ranging from \$250 to \$2,000 for demonstrating strong recycling practices (no recyclables in the trash).

b. Targeted wastestream(s)

Discounted services applied to self-hauled commercial and residential plant debris, self-hauled commercial and residential recycling, commercial and residential curbside plant debris collection, commercial food scraps recycling program.

Cash-for-Trash was targeted at the residential curbside garbage and recycling waste streams.

The volume-based rate structure is intended, in part, to serve as a waste reduction incentive.

c. Targeted materials

All solid waste, including recyclable and compostable materials.

2. Operations

Various discounted and free services are offered by the City of Berkeley to provide residents and businesses with an economic incentive to participate in the City's recycling and composting programs, and to reduce the generation of solid waste.

In the Cash-for-Trash contest, randomly selected Berkeley residents had their garbage set-outs evaluated for weight and composition. Residents that had no recyclables in the trash were awarded cash prizes.

3. Publicity and Outreach

The City's discounted and no-charge recycling and composting services are promoted through mailings to Berkeley businesses and residents, informational brochures, and posted disposal rates at the Berkeley Transfer Station. Refuse collection rates are posted on the City's website.

The Cash-for-Trash contest was promoted through newspaper ads, displays at community events, route driver recommendations, direct mail pieces, personal referrals, and telephone solicitation.

4. Performance

a. Tons diverted

Tonnages diverted from landfill as a result of discounted rates for composting and recycling programs are reflected in the reported diversion for those programs.

In part because of the publicity associated with the Cash-for-Trash contest, average daily recycling tonnage increased from 29.72 tons to 32.76 tons (from April 2002 to May 2003), while service and recycling bin requests increased from 128 to 204 during the same time period.

b. Participation rates

It is difficult to gauge the degree to which participation in recycling and composting programs has increased as the direct result of economic incentives such as volume-based rates, discounted services, and cash awards for effective participation. Multiple recycling program studies have shown that such incentives, coupled with convenient and accessible collection services, significantly improve public participation.

c. Other performance indicators

General public awareness of, and participation in, recycling and composting programs offered by the City of Berkeley. Changes in per capita generation of solid waste, especially the disposed fraction.

5. Issues and Opportunities

a. Discussion of program issues and problems

Discounts on fees for commercial organics collection service and self-hauled plant debris and scrap wood at the Berkeley Transfer Station are not great enough, in some cases, to encourage widespread participation. Residents, in general, are not aware of the magnitude of dollar savings that they would realize by reducing the size of their garbage containers.

b. Discussion of possible program modifications, enhancements, and alternatives

Increasing discounts for recycling and composting, and/or raising fees for garbage collection and disposal to create a greater differential between fee structures, would encourage greater participation in composting and recycling programs. Regarding commercial food scraps collection, greater incentives are likely to increase the participation of smaller commercial generators of food scraps, and businesses that would reduce their garbage collection service capacity from 1-CY bins or larger to wheeled carts.

As a way to promote greater recycling, composting, and source reduction, residents could be reminded periodically by the City of the specific annual dollar savings amounts that they would realize by reducing the size of their garbage containers. The City could encourage or require landlords to require their tenants to recycle as part of their lease agreement; the City could also consider a requirement that property owners allow access to recycling services by tenants.

Policies – Product and Landfill Bans, Ordinances

1. General Description

a. Program concept and history

The City of Berkeley has an ordinance banning the use of expanded polystyrene (EPS) foam take-out food containers in Berkeley food service establishments, and follows State of California regulations prohibiting the disposal of hazardous materials, including electronics containing cathode ray tubes (CRT's), such as televisions and computer monitors in the solid waste stream.

b. Targeted wastestream(s)

All wastestreams – commercial and residential self-haul, commercial and residential curbside collection, and all recycling and composting programs.

c. Targeted materials

EPS foam take-out food containers in food service establishments, hazardous materials in the solid waste stream, including CRT's.

2. Operations

The EPS ban is administered by the City's Toxics Management Division in the Planning Department. The hazardous materials disposal prohibition is also administered by the Toxics Management Division.

3. Publicity and Outreach

Publicity and outreach for the EPS foam take-out food container ban includes point-of-sale notices for the general public. Pledges of compliance are required from food service establishments and suppliers. Prohibition on hazardous waste in the solid waste stream is publicized through educational and promotional materials produced by the City for its recycling, composting, and municipal solid waste collection programs, and through posted notices at the Berkeley Transfer Station.

4. Performance

a. Tons diverted

While it is difficult to estimate the tonnage of EPS and hazardous materials diverted from the solid waste stream as a result of these programs, and while the tonnage is minimal compared to that of the total solid waste stream, keeping these materials out of the landfill, and increasing public awareness about the potential problems posed by the purchase, use, and disposal of these materials nevertheless provides important benefits in terms of public health and environmental sustainability.

b. Participation rates

Participation by food services establishments in the EPS ban, and by all solid waste generators in keeping hazardous materials out of the solid waste stream, is difficult to measure accurately.

c. Other performance indicators

Presence or absence of EPS in regulated food service establishments, and of hazardous materials, including CRT's in the solid waste stream. Participation by residents and businesses in programs that provide opportunities for appropriate disposal of hazardous materials.

5. Issues and Opportunities

a. Discussion of program issues and problems

Owners and managers of some Berkeley food service establishments may not fully understand the reasons for the EPS ban, and believe that they are being unfairly prohibited from using products that are widely used by vendors in other municipalities. This could lead to non-compliance with the ban and negative perceptions of City policy. However, the ban has been in place for many years, and compliance appears to be good.

Some products that are routinely disposed of by all generators contain some hazardous materials but are not designated as hazardous wastes. Some degree of non-compliance with hazardous material disposal bans, due to the pervasiveness of hazardous materials in older and current products, is virtually unavoidable.

b. Discussion of possible program modifications, enhancements, and alternatives

Increasing public awareness of the issues surrounding Berkeley's EPS ban may help improve compliance and mitigate negative perceptions of City policy. One example would be to highlight the compatibility of paper-based take-out food packaging with the commercial food scraps collection and backyard composting programs, while describing the lack of viable markets for recycling food-soiled EPS.

Increasing public awareness of the negative impacts of hazardous materials in the solid waste stream, including the potential health hazards to sanitation workers and contamination of air and drinking water from landfilled hazardous wastes, may help reduce illegal dumping as well as the purchase of new products containing hazardous materials that will eventually have to be disposed of as hazardous waste.

CHAPTER 6

Report Preparers

This report was prepared by Environmental Science Associates (ESA), in association with Applied Compost Consulting (ACC) and Charles Sax, Architect, under contract with the City of Berkeley.

Report preparers include:

ESA

Dan Sicular, Project Manager
Mark Alpers, Project Director
Kelly Runyon, Senior Technical Associate
Judith Silver, Associate
Darcey Rosenblatt, Meeting Facilitator

ACC

Steven Sherman, Principal
Christopher Williams, Associate

Charles Sax, Architect

Charles Sax, Principal

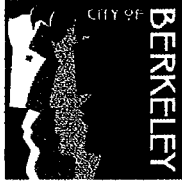
The Project Manager for the City of Berkeley for this project is Tom Farrell, Solid Waste and Recycling Manager. Assistance also provided by Tania Levy, Recycling Program Manager

Members of the Solid Waste Management Commission at the time of publication of the draft Plan Update are:

Peter Schultze-Allen, Chair
Steen Jensen, Vice-Chair
David Tam
Carrie Sprague
Jay Miyazaki
Fred Dodsworth
Sankar Sridaran
Susan Blachman

APPENDIX A

City Council Resolution Adopting Zero Waste Goal



Office of the Mayor

Tom Bates
Mayor

ACTION CALENDAR
March 22, 2005

Date: March 14, 2005
To: Members of the City Council
From: Mayor Tom Bates
Council Member Kriss Worthington
Subject: Zero Waste Goal

RECOMMENDATION:

That the City Council adopt a resolution 1.) reaffirming the City's commitment to reaching the Alameda County goal of 75% reduction in waste going to landfills by 2010; 2.) setting a goal of reaching "zero waste" by 2020; 3) referring this issue to the Solid Waste Commission for review as they finalize the new Solid Waste Plan and look to the future; and 4) requesting the Solid Waste Commission examine changing its name to the Zero Waste Commission, Waste Recovery Commission, or another more appropriate name.

BACKGROUND:

Berkeley has long been a leader and an innovator in efforts to reduce waste going to landfills. We were one of the first cities in the nation to adopt curbside recycling and were leaders in the effort to adopt and meet a goal to reduce waste going to landfills by 50%.

Since that time, governments and organizations have been working to push even harder to reduce waste. Alameda County has adopted a goal for reducing waste going to landfills by 75%. In 2001, the California Integrated Waste Management Board set a zero waste goal in its strategic plan for the state. In addition, many cities have adopted goals for achieving zero waste – including San Francisco, Santa Cruz, Seattle, Toronto, and others. Businesses have also adopted zero waste goals – including Hewlett Packard, Xerox, Fetzer Winery, and others.

The goal of zero waste – which really means "as close as practicable" to zero waste – was also listed in the Sustainable Business Action Plan recently passed by the City Council,

As part of the on-going effort to reduce waste, the City of Berkeley and the Solid Waste Commission are currently working with a consultant on a new solid waste plan to reach the 75% reduction goal.



This item would reaffirm the City's goal of meeting the 75% waste reduction goal and set a goal of achieving "zero waste" for the year 2020. This item does not propose major changes to the current solid waste plan, which is near completion. Instead, this item directs the Commission to review the new solid waste plan in the context of the Council's desire to move towards zero waste. The Solid Waste Commission should work to examine all the tools at the City's disposal to reach the zero waste goal and report back to Council with some ideas on how to move forward.

FISCAL IMPACTS: None at this time.

CONTACT PERSON: Mayor Tom Bates, 981-7100
Council Member Kriss Worthington, 981-7110

ATTACHMENT: Draft Resolution.

RESOLUTION NO. -N.S.

ZERO WASTE GOAL

WHEREAS, in 1976, only six years after the first Earth Day, Berkeley's City Council established a goal of recycling 50% of its then-landfilled discard stream; and

WHEREAS, Berkeley's citizens ratified the city's 50% recycling goal in 1984 by passing Measure G in that year's citywide election; and

WHEREAS, the California Integrated Waste Management Act of 1989 (AB 939) required cities and counties to reduce, reuse, recycle, and compost all discarded materials to the maximum extent feasible before any landfilling or other destructive disposal method is used; and

WHEREAS, AB939 mandated that all California jurisdictions achieve a 50% diversion rate by the year 2000, or incur financial penalties, or submit a plan for approval to achieve that rate by 2005, but did not set any further goal to reduce waste once the 50% rate was achieved; and

WHEREAS, Berkeley surpassed the state's 50% goal; and

WHEREAS, in 1990, Alameda County's voters passed ballot Measure D, which set a goal for all its communities, including Berkeley, to reduce land filling by 75% by 2010; and

WHEREAS, City staff and the Berkeley Solid Waste Commission are currently working to develop a new city solid waste plan to help reach the 75% waste reduction goal which will be an important step in reaching a zero waste goal; and

WHEREAS, in 2001 the California Integrated Waste Management Board set a goal of zero waste in its strategic plan for the state, calling for expanded public and private efforts "to reduce, reuse, or recycle all [discarded] materials back into nature or the marketplace in a manner that protects human health and the environment and with all materials being managed to the highest and best use to create a sustainable California;" and

WHEREAS, cities, councils, counties, and states worldwide have adopted a goal of achieving zero waste, including the counties of San Francisco, Santa Cruz, and Del Norte in California; the cities of Seattle in Washington, Toronto in Canada, and Canberra in Australia; and the state of New South Wales in Australia; and 45% of New Zealand's local government councils; and

WHEREAS, the dates for achieving these zero waste goals range from 2010 to 2020, and

WHEREAS, many American businesses have reduced their waste by 80% or more and adopted zero waste goals, including Amdahl Corporation, Collins & Aikman, Fetzer Winery, Herman Miller, Inc., Hewlett Packard, Mad River Brewing, Inteface, Inc., Pillsbury, Xerox, and the San Diego Wild Animal Park; and

WHEREAS, the City of Berkeley has undertaken a public/private initiative to “green” Berkeley by developing sustainable businesses, developing environmentally preferable purchasing policies, collaborating with university entities on such purchasing, creating an Energy and Sustainable Development Office, developing goals to increase energy efficiency and reduce greenhouse gases, and by supporting the marketing of Berkeley as an environmental leader among cities; and

WHEREAS, Governments set zero waste goals to conserve valuable material resources, reduce pollution, conserve land, expand commercial and industrial activity, and improve community health; and

WHEREAS, a complex, profitable, and growing collection of materials recovery enterprises has developed within Berkeley, including a mix of municipal, nonprofit, and for-profit enterprises that recover and process diverse feedstocks ranging from source-separated metals, glass, paper, and agricultural materials to individual reusable objects suitable for retail redistribution, all activities that generate substantial revenues and represent significant savings to the City’s landfill bill through tipping fees and sales taxes, which support local government; and

WHEREAS, this materials recovery business infrastructure is already a major employer in Berkeley providing over 275 good green-collar jobs in at least 65 local companies, mainly in West Berkeley; and

WHEREAS, Zero Waste science is a systematic methodology for moving with maximum speed in logical increments toward the goal of zero waste; and

WHEREAS, Berkeley’s citizens and recycling entrepreneurs pioneered the concept of the zero waste transfer station, which is the fundamental technology and infrastructure that Berkeley must develop further so it can replace waste-based infrastructure, achieving zero waste and using resource recovery as the preferred disposal method for all twelve major discard flows; and

WHEREAS, the zero waste industrial complex is organized into modules or trading areas for the following discard supply categories, including: reuse, recycling, composting, and regulated items; and

WHEREAS, the zero waste industrial complex may be decentralized and embedded in the community, especially in West Berkeley, forming an ecology of commerce encompassing repair, remanufacturing, upgrading, reprocessing, re-crafting, and generating new products, including green building materials, or arts and crafts from recovered materials.

NOW THEREFORE, BE IT RESOLVED that the Council of the City of Berkeley reaffirms its commitment to meet the Alameda County Measure D goal of reducing the materials Berkeley sends to land fill by 75% by the year 2010.

BE IT FURTHER RESOLVED, that the City also sets a Zero Waste Goal of eliminating Berkeley’s materials sent to landfills by the year 2020.

BE IT FURTHER RESOLVED, that the City Council acknowledges and appreciates the work of the Solid Waste Commission and City staff who are working diligently to create a new solid waste plan as a roadmap to reaching the 75% waste reduction goal.

BE IT FURTHER RESOLVED, that the City Council directs the Solid Waste Commission to review the new solid waste plan in the context of the Council's desire to move towards zero waste and examine report back to Council with some ideas on how to move forward.

BE IT FURTHER RESOLVED, that the Solid Waste Commission examine changing its name to something more reflective of the City's waste reduction goals and report back to the Council with an potential suggestions.

APPENDIX B

SWMC Workshop Key Outcome Memos

PUBLIC WORKSHOP KEY OUTCOMES

COMMERCIAL SERVICES – RECYCLING, SOURCE REDUCTION, AND FRANCHISED SERVICES

Workshop held at Martin Luther King Civic Center Building, August 16, 2004

SUMMARY

The topic of this workshop was *Commercial Services – Recycling, Source Reduction, and Franchised Services*. The workshop included a brief overview of existing programs, and focused on developing ideas for increasing recycling, composting, and reduction of wastes from businesses within the City.

PARTICIPANTS

MEMBERS OF THE PUBLIC IN ATTENDANCE

Sara MacKusick
Jeff Belchamber
Genevieve Dreyfus
Marcy Greenhut
Fran Packard
Joan Santter
Cynthia Knowles
Dan Knapp

CITY STAFF AND CONSULTANTS IN ATTENDANCE

Tom Farrell, City of Berkeley
Tonya Levy, City of Berkeley
Darcey Rosenblatt, Facilitator, ESA
Christopher Williams, ACC
Steve Sherman, ACC
Dan Sicular, ESA
Judith Silver, ESA

SUMMARY OF KEY ISSUES RAISED IN THE WORKSHOP

Rate based incentives –Berkeley offers a 20% reduction of food waste recycling. Other cities offer more (SF – 25%, Menlo Park – 50%). Should Berkeley consider increasing the rate differential for food waste collection?

Create a **progressive rate structure** for businesses that choose and have the space to separate into different streams. How many businesses actually fall into the category of having a significant space constraint? Encourage **small businesses** with limited space to share recycling containers. The City already offers from 13 to 96 gallon size containers to accommodate businesses with space constraints and offers daily service if necessary.

When a business **expands or remodels**, they are required to create adequate space for recycling.

Food and food paper (pizza boxes coffee cups, napkins, coffee filters) comprise close to 50% of what's left in the Berkeley Waste Stream. Food is heavy with water.

Reconsider the North Berkeley site for a compost facility

Quality V. Volume. Current Commercial collection is **two streams** and will remain that way – fibers and containers. There are distinct marketing advantages to keeping fibers and containers separate - there's no "glitter pack" (shards of glass mixed into low-grade paper) and the higher quality helps keep the domestic markets interested. There is a loss in volume and ease of participation.

Restaurants with food waste recycling have four streams (including food and plastic). There are around 100 businesses (supermarkets, florists, institutional kitchens) using the food collection services – about 500 could benefit.

Increase city's capacity to offer **technical recycling assistance** to individual businesses. Create a program modeled on the Smart Light Energy program. Rather than sending a letter, call or drop-by in person for greatest contact. Target the largest generators (schools, hospitals, large employers, city offices).

Should the City consider **mandating** commercial recycling as they do in Portland and Seattle.

Education is imperative at a young age. Recycling should be incorporated into the Earth Science curriculum and testing.

There's a **new plant debris slab** at the Transfer Station that will facilitate the processing of food and green waste.

Continue to leverage City and County programs such as the Stop-Waste Program.

Build on existing commercial recycling infrastructure.

Increase education about source reduction measures such as back hauling plastic totes (i.e. Walgreen's and Safeway) which reduces the need for cardboard or back hauling expensive items such as computer equipment.

What is the **tonnage attributed to the self-haul Sector**? If we recycled 80% of it, what would the City's recycling rate be?

Revise the **franchise agreements** with commercial recyclers to require greater information flow about HOW MUCH is being recycled, WHAT TYPES of materials are being recycled and WHERE are the materials going. If Recycling rate is greater than 80% from a franchised hauler then the franchise fee is waived. (How can the city verify this if there's no reporting mechanism?) The City will never be able to compete w/ the commercial recycling franchise holders. For example, RSS has a better deal at their landfill and does not have to transfer materials or ship them as far. 2/3 of businesses do not use the City's recycling services. (Is the City the only commercial recycler allowed to handle ANY food waste? If so, it's in a unique position if commercial food collection is expanded significantly.)

Outreach: Rather than drawing the business sector to us, we should go to their existing meetings (Chamber of Commerce, West Berkeley Business Group) and address them or take some time to survey or call key businesses and gauge their interest or comments on recycling.

PUBLIC WORKSHOP KEY OUTCOMES

ORGANIC MATERIALS – RESIDENTIAL AND COMMERCIAL SERVICES

Workshop held at the North Berkeley Senior Center, September 14, 2004

SUMMARY

The topic of this workshop was *Organic Materials – Residential and Commercial Services*. The workshop included a brief overview of existing programs, and focused on developing ideas for new or improved organics programs as part of a new Solid Waste Management Plan for the City of Berkeley. Existing organics programs were described in a background paper that was distributed prior to the workshop.

PARTICIPANTS

MEMBERS OF THE PUBLIC IN ATTENDANCE

Mark Gorell
Sara MacKusick
Dale Smith
Marcy Greenhut
Jeffrey Belchamber
Dave Williamson
Martin Borque
Dan Knapp

SOLID WASTE MANAGEMENT COMMISSIONERS IN ATTENDANCE

Howard Chong
Peter Schultze-Allen
Carrie Sprague
Genvieve Dreyfus

MEMBERS OF THE CITY COUNCIL IN ATTENDANCE

Betty Olds

CITY STAFF AND CONSULTANTS IN ATTENDANCE

Tom Farrell, City of Berkeley
Kathy Jones, City of Berkeley
Steve Sherman, Applied Compost Consulting
Darcey Rosenblatt, Facilitator, Environmental Science Associates
Christopher Williams, Applied Compost Consulting
Dan Sicular, Environmental Science Associates
Judith Silver, Environmental Science Associates

SUMMARY OF KEY ISSUES RAISED IN THE WORKSHOP***Origins and sources of organics generated in Berkeley.***

For the whole waste stream (not including the 40,000 tons that go to the West Contra Costa Sanitary Landfill), **food is the largest single item** – 13%. Yard trimmings is 9% and leaves and grass is 3%.

For **single family residents**, food is almost 20% of disposed waste. A question was asked about the definition of a single family dwelling.

The **Cash For Trash** waste sort found that residential food and food soiled paper was 48% of disposed waste.

Between 2000-2003 the **programs targeting yard trimmings** have been effective in the residential sector.

For the **commercial stream**, food waste is large portion of disposed waste, as is “other paper,” much of which is compostable. There is little yard debris in the commercial waste stream.

For materials coming into the Transfer Station via **Roll-Off truck**, not much food waste, but a fair amount of yard trimmings and prunnings.

History of Organics Recycling in Berkeley

1989 – **curbside yard waste** initiated w/ 32 gal bags and monthly collection. Material delivered to 4th & Gilman to Recycled Wood Products.

1990- Biostack home composters became available from the ACWMA. A study by ACC shows that **home composting** keeps up to 750 lbs of organics from entering the waste stream from each participating household.

Recycled Wood Products moved away from Berkeley because of land use conflicts.

1995- **monthly yard debris carts** were introduced. A new processor was found who charged \$30/ton to transport and process organic material in the Central Valley. The contract allowed for 10% of **finished compost** to be returned to the City at no charge. This has been useful for public gardens. Not all the available material is used by the City.

1996- Program to target organics in the commercial sector is established.

2000- **City increases yard debris collection to 2x/month.** This increase in collection yielded 40% more material.

The City sets in place a **separate rate** for green waste only at the Transfer Station.

2001- a **new contract** for processing was established at \$25/ton for transport and processing in the Central Valley. This contract includes acceptance of food waste (including meat) for composting.

2003 – 20% of targeted **commercial organics** generators are participating in the program.

Where does Berkeley fit regionally?

The region has **many processing facilities** that can accommodate a broad definition of organic material.

25-30% of Berkeley residents have backyard composting bins.

Berkeley has 100 businesses in the commercial organics program, San Francisco has 2,000. San Jose started their commercial organics program in 2002. Oakland has open competition between two collectors. San Mateo has a 25-50% difference in cost between organics and trash collection.

Berkeley is lagging on the collection of residential organics (food waste and other compostables, other than yard waste). SF, San Jose, Fremont, Pleasanton and soon Oakland will all offer food waste collection from the home.

The Cash for Trash program used a method called “**Service Voids Analysis**” which uses a 12 category sort of materials that accommodates everything, and identifies those material types that could be recovered, but are not being recovered.

Key Issues

The cost of taking a load of waste to Vasco Rd. Landfill is **\$45/ton.**

Is there knowledge of other sources of organics such as waste oil and/or animal feed or food banks in operation in the City? The City could more actively pursue these sources. There are a few tallow companies that operate in the City. **Is the data available on how much is being diverted to tallow?**

Organics for animal feed – reliability is an issue. If time and effort were spent to identify and develop collections of food waste for animal feed, the source reduction number might go up.

Berkeley Worms deserves a mention. They are a pioneering, student led group collecting food scraps from student housing and composting them using worms in their own, innovative large-scale vermicomposting boxes.

What happens when you **mix food and green waste together**? Many Bay Area processors are allowed to take both so there's no additional cost. In fact the combination of both feedstocks creates a better final product. The material must be clean going in. An example was given of an organic tomato farmer that is extremely happy to have SF food waste compost, which has a high nitrogen content.

The **contamination** of Berkeley feedstock is between 2-10 %. The processor would prefer no palm fronds but the contract allows for it.

The **City doesn't take back all of the finished compost that is available to it under the contract**. Why is there less of a demand? The finished compost is available at the Farmer's Market and to the Schools. The Dept. of Parks and Rec. does not use/need it. It is not available retail. Could the City bag the compost for retail? Could the City deliver it to residents? The City does deliver to Community Gardens, etc.

The Ecology Center receives 100s of calls annually about composting. How do you do it? What about Vermin? **There's a "yick" factor**. Berkeley residents are probably the most ready to take on home composting as they are interested in this already.

Maybe the wise public policy is to keep the organic material at home. Then there's no need for trucks or to create the infrastructure necessary to manage a new program

There have **been intensive resources** – subsidized bins and education since before 1990 to encourage backyard composting. There's already a lot of backyard composting. What's next?

If food waste is going to be collected w/ yard debris, it must go to weekly collection. Which it should. What's left could be collected every other week.

Both policies should be fostered: One of weekly organics collection from the household and the other of encouraging backyard composting. If the green bins are assessed a fee, a resident can save this cost if they choose to home compost instead. Use the rate to incentivize the resident.

Toronto has just put in a program like this. They started weekly organics collection and every other week, rubbish (dry waste) collection. They do accept plastic and pet waste in their program because it's anaerobically composted whereas the Berkeley program would not use this type of processing.

There would be higher participation with collection of rubbish every other week. It would **drive home that there has been a shift in the way waste is managed**.

There's a semantic change – you can go to monthly rubbish p/u. It's the dry stuff. **The City Code requires putrecibles to be collected weekly**.

20% of the \$\$ collected by the City for garbage service goes to support other services like street cleaning and social services. Air space in garbage bins pays for youth employment. **Be careful about reducing the solid waste management fund that pays for additional (recycling) services that are hidden in the funds**.

There needs to be more effort to get families to use smaller bins. There should be a monetary incentive to encourage smaller bin size. There's nothing in the bills that says that if you reduce your bin size you can save money. Why not?

Foodwaste put down the garbage disposal adds a huge burden to the sewage treatment facility. It is possible to rig one's kitchen garbage disposal so that it discharges to a composting bin.

One does not create the same amount of garbage every week. Folks want the flexibility of a larger bin to manage a peak garbage week. The City needs to do a better job or marketing the extra bag service w/ a small bin to help with peaks in demand. The cost for an extra 30 gal bag is \$4.00.

Albany has introduced a 10-gal bin size. The smallest in Berkeley is 13-gal.

What about the smell and what about the flies? The SF food waste collection program has residents who complain about the dirt, etc. **The "yick" factor needs to be addressed so folks don't opt out.** It might be necessary to offer to clean the bins for residents or to offer bags to line the bins. Biodegradable polymers might be the answer.

There are materials that could be composted in the City program like cheese and bones which should not be part of a home composting program.

If bins are provided to residents for collection of food waste in the kitchen, they should be designed so that they fit under the sink and they should be lined.

Many regional recycling programs have eroded the quality of their recyclables by combining paper and containers. **The Ecology Center does not want the onset of organics collection to result in single stream collection of paper and containers.**

There are still putrecibles that cannot be composted and that will need to be handled weekly – including pet waste and disposable diapers.

How about a pilot program w/ every other week rubbish and weekly organics?

There's a small community in Oregon w/ monthly garbage pick up. The regularity of garbage service is controlled by City Code – not the State.

Who are the major users of compost? Farmers, landscapers, and vineyards.

Marketing – does the public even know that there is compost available? Individuals have not been educated about the availability of the compost. There should be an article in the Daily Planet.

It's hard to sell recycling system – wide in the schools. BUSD is trying to add food waste in the cafeteria, it comes back to marketing. The City Council and the School Board should have a mandate to push it forward.

Public Education should be increased.

Should an effort be made to site a processing facility in Berkeley rather than taking the material to Modesto? (the trucks are operating on bio-diesel)

The County is trying to site a facility but there has been opposition to all the possible sites.

PUBLIC WORKSHOP KEY OUTCOMES

SITE MASTER PLAN

Workshop held at the Berkeley Transfer Station, September 29, 2004

SUMMARY

The topic of this workshop was Site Master Plan – Second and Gilman Transfer Station Self-Haul and Debris Boxes. The workshop was to develop ideas for a Site Master Plan for the Second and Gilman site as part of a new Solid Waste Management Plan for the City of Berkeley. The existing site layout and functions are described in a report titled, *Baseline Program information for Workshop on the Master Plan for the Second and Gilman Site*, that was distributed prior to the workshop.

PARTICIPANTS

MEMBERS OF THE PUBLIC IN ATTENDANCE

Mark Gorell
Sara MacKusick
Dale Smith
Jeffrey Belchamber
Dennis McCullah
Richard Gillette
Diana Hendin
Gary Shaw
Dan Knapp

SOLID WASTE MANAGEMENT COMMISSIONERS IN ATTENDANCE

Howard Chong
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Jay Miyazaki

CITY STAFF AND CONSULTANTS IN ATTENDANCE

Tom Farrell, City of Berkeley
Kathy Jones, City of Berkeley
Joe C. Smith, City of Berkeley
Steve Sherman, Applied Compost Consulting
Christopher Williams, Applied Compost Consulting
John Hanscom, Applied Compost Consulting

CITY STAFF AND CONSULTANTS IN ATTENDANCE (cont.)

Darcey Rosenblatt, Facilitator, Environmental Science Associates
Dan Sicular, Environmental Science Associates
Judith Silver, Environmental Science Associates
Kelly Runyon, Environmental Science Associates
Charles Sax, Architect

SUMMARY OF KEY ISSUES RAISED IN THE WORKSHOP

All the City's **counted diversion** can be accounted for at the 2nd & Gilman Site (other diversion occurs in the City but is not tracked).

Self-Haul represents 43% of all tons coming into the Transfer Station

Roll-Offs represent 3% of all tons coming into the Transfer Station

Traffic flow at the site is challenging especially if a customer is trying to take full advantage of the recycling opportunities (buy-back, donation, organics, and trash).

Is there a possibility of siting a **separate scale for organics** recycling only (eliminating the need to be in line w/ all the users bringing trash to the site)? Is there a possibility of siting a **separate entrance** and traffic flow for organics only recycling?

A **restoration of Cordonices Creek** which runs along the north perimeter of the Transfer Station will result in a loss of approximately 50 feet of Transfer Station land from the north end.

Once the new **Target store opens across the creek in Albany, traffic on the East Bayshore Highway** will be increased considerably and negatively impact wait times at 2nd and Gilman.

Is it appropriate to **maintain the Transfer Station at its current location** given the encroachment of retail, residential and recreational uses surrounding the site? The area is not zoned for housing. The **Ursula Sherman Village** – a transitional housing shelter should not have been sited adjacent to the site. Is that Village really temporarily at that site? It would make a good location for administrative activities.

If we get to **zero waste there won't be any need** for a Transfer Operation at the site. Eventually all the materials will be redistributed for reuse.

Why does Second St. run one way? The City's **Department of Traffic** is considering two-way traffic on Second from the Scale House to Gilman. What about a traffic light at 2nd & Gilman? Sometimes the line into the Transfer Station goes all the way down 2nd to the Donation Center.

The Transfer Station is considered a **Regional Recycling Facility**.

There is no other location in Berkeley where the facility could be located.

The Transfer Station provides a lot of **revenue to the City**.

The plan should consider using part of the site for **remanufacturing operations**, using recyclables as feedstock.

A valuable amount of Transfer Station **space is used for employee parking**. What about creating a second floor for parking? It would be efficient to **co-locate administrative functions** that are currently scattered around the site.

It will require **labor intensive processing** to address the self-haul material.

Maybe the plan should consider a **reload of C&D materials** to a facility better equipped to process them.

Maybe **inerts** could be sent via rail to another facility.

As a contractor, it is possible to have **clean loads for reprocessing** but there usually is not the space at construction sites for enough small bins to correctly separate materials. In addition, it is too costly to spend time sorting. Contractors need smaller bins or large bins w/ movable interior walls to properly separate construction materials.

Davis Street Transfer Station has a C& D line. WMAC gives debris boxes to Berkeley contractors for less money and for a longer period of time than City of Berkeley. Contractors end up going to Davis. St. and the West Contra Costa Landfill with C&D type loads.

The City of Berkeley should act to **encourage contractors to bring C&D** to processors who are best able to manage them.

It is not realistic to ponder moving the Transfer Station.

The 2nd & Gilman site is a **mature site**. It has managed to undertake new activities organically over time. **What about reconfiguring the whole site?** Would there be enough room even then to accommodate the various needs of multi-material processing? The need for indoor space has increased.

The West Berkeley Plan zoned a lot of land **as light- manufacturing**. There is **pressure** on West Berkeley for **commercial space and housing-** developers team up with multi-use spaces and are succeeding in getting variances.

What about the **City maintenance building located in the middle of the Transfer Station??** If that were relocated, it would open up space for other operations.

The Transfer Station needs to be replaced totally, eventually – the facility is 20 years old.

The Dwight & MLK drop-off recycling site has been sold.

What about a **road down the middle of the site** parallel to 2nd to help with traffic flow?

What about **trading the Transfer Station site with a different parcel** of land across the highway on the old Berkeley Landfill?

What **about taking over the soccer fields** to increase the footprint of the site?

PUBLIC WORKSHOP KEY OUTCOMES

FOR WORKSHOP ON SERVICES TO MULTI-FAMILY BUILDING RESIDENTS AND STUDENT POPULATION

Workshop held at the South Berkeley Senior Center, October 6, 2004

SUMMARY

The topic of this workshop was a discussion of several City programs, particularly those that serve multi-family residences and student populations. The purpose of the workshops was to develop ideas for a new Solid Waste Management Plan for the City of Berkeley. Existing programs that serve multi-family residents and student populations were described in a background paper that was distributed prior to the workshop.

PARTICIPANTS

MEMBERS OF THE PUBLIC IN ATTENDANCE

Sara MacKusick
Jeff Belchamber
Cynthia Knowles
Dan Knapp
Ralph Holt
Diana H.
Lisa Bauer, University of California at Berkeley

SOLID WASTE MANAGEMENT COMMISSIONERS IN ATTENDANCE

Carrie Sprague
Jay Miyazaki

CITY STAFF AND CONSULTANTS IN ATTENDANCE

Tom Farrell, City of Berkeley
Tonya Levy, City of Berkeley
Joe C. Smith, City of Berkeley
Kathy Jones, City of Berkeley
Darcey Rosenblatt, Facilitator, Environmental Science Associates
Christopher Williams, Applied Compost Consulting
Steve Sherman, Applied Compost Consulting
Dan Sicular, Environmental Science Associates
Judith Silver, Environmental Science Associates

SUMMARY OF KEY ISSUES RAISED IN THE WORKSHOP

Berkeley Unified School District (BUSD) has been offering recycling since 1990. School composting and school gardens are pervasive. **It's hard to maintain recycling momentum over the summer.** The teacher and student population change and there's always a need to jump start recycling efforts in the fall.

The City of Berkeley has taken over organics recycling from Berkeley Worms at the Coops on the Cal campus.

There is no current program for C&D on the Cal campus.

7,000 tons of the material going to West Contra Costa Landfill comes from Cal.

17% of waste from the MFD stream is food waste. 15% or more is compostable paper.

The Ecology Center (EC) has been collecting curbside recyclables in Berkeley since 1973.

The EC handles MFDs with nine units or less (about 16,000 units). The City handles MFDs with ten units or more (about 8,000 units). A City ordinance requires buildings of 10 units or more to have an on-site manager.

The City collects about 8,000 lbs. of yard debris per month.

The City of Berkeley has a one service bill that encompasses many services including garbage, recycling and green waste. The bill does not delineate between the services.

The City has no control over what happens at UC Berkeley. UC has made significant strides in diversion program development in recent years, but there are still issues, particularly with C&D materials.

The main issues w/ MFD recycling: 1. How to divert recycling from garbage? 2. If the tenants don't pay for the service, there's no monetary incentive to create change. 3. It's hard to monitor as there are so many folks in and out of an apartment complex. 4. How to address illegal dumping in apartment dumpsters?

New buildings should have to provide adequate space for recycling by creating a zoning regulation. What are some ideas for helping this effort along? There should be a requirement is to provide a secure, enclosed recycling area. This should also reduce illegal dumping. **Code Enforcement Unit is funded largely by solid waste fund** – so perhaps they could be cajoled into enforcing recycling related ordinances. What about a regulation or ordinance requirement for individual buildings or businesses to prepare a recycling plan, perhaps as a requirement for business license? What about modeled after the rent board requirement for certification of safety of units?

Along w/ management issues, in the smaller MFDs they need to identify someone who will manage the recycling (rent break?). Who rolls it out? Who rolls it in?

The division of labor between UC and City is: If the University collects the garbage, the University collects the recycling.

If a student lives off-site, it can be the MFD manager who is not interested in recycling while the tenant (student) is interested. **How to pressure owners/managers who are not responsive to tenant's interests in recycling** (and water conservation, etc...)? Ironically, it's **the MFD managers who are the continuity** in off-site student housing year after year. They have to take ownership and become the leaders in recycling efforts. ACWMA did a survey of MFD managers and found that recycling would fly in apartment complexes if there was no additional work and if there was a clear financial benefit. It's like herding cats. It's hard to maintain current information about who the manager is. What is the manager's relationship to the property owner? **Manager turn over and space are huge factors.** The only space for recycling bins is often parking spaces – not a good option.

Carrot and stick – **mandate a recycling program in MFDs and offer free technical assistance** to make it happen. **What about leveraging the periodic inspection of units** that needs to occur every few years to ensure gas appliances are working right, adding requirement to certify that recycling infrastructure exists? It's a gap in service – there's a job available.

The City has focused on commercial recycling, not multi-family. There's only one person on City staff available to help now and he only has time to be reactive. The drivers have to raise a very RED flag before anything is done. More staff would be necessary. There's too much garbage in the recycling containers because the tenants aren't doing it right. Whenever the City starts up service to a building, there's a start-up effort. However, **the City lacks staff and funding to make continuing contacts with building managers, tenants to encourage participation.** There has not been city outreach to MFDs in many years. No packets, etc. for managers or tenants. There is, however, a new poster in three languages promoting mixed paper recycling.

Are any MFDs running good recycling programs? The fraternities and the coops are effectively recycling. There's a recycling coordinator at each coop. Maybe 60-70% of MFDs have service. Maybe half are actually participating.

There's no iron clad policy, **but larger buildings are generally not eligible for free green waste collection service.** For one thing, there's not always green waste generated on site while other buildings produce large quantities. A new City ordinance (or policy?) enables the Solid Waste Division to offer green waste collection to larger buildings for a fee, which is set at ½ the rate for comparable refuse volume. The Solid Waste Division field reps set up large MFDs and provide bins accordingly. The carts are brought to the curb. Food waste for large MFDs – **it won't work to have food waste go into green bin if not all large MFDs choose to pay for green toters.** Food soiled paper needs to be recycled. It's going to be a challenge. Greenwaste collection from apartments complexes is not entirely consistent.

Is there a way to retrofit buildings – or provide incentives to retrofit?

How will we get to 75% w/out more political will?

From the driver's perspective – can they really know what's in the containers? Yes.

The owner will have to bare the extra cost of coming for an extra p/u if a load is found to have contamination. **There's a learning curve to get the tenants to do it right. There's training before a container gets pulled.** It can't be rushed.

Of all the **apartment buildings how many are occupied by students?** A lot of off-site students do not live in Berkeley. There's been a lot of stabilization since rent control.

Soon there will be **more Apartments coming available** so rents will drop. Per the Long Range Development Plan students will not travel far to campus. Perhaps 25,000 students live in off-campus housing?

What's the **turn over rate** for apartments with students?

Ecology Center – collection of recyclables drops about 20% in the summer. Is this attributable to lower student population in summer? **The EC has determined that there are 1,500 units in buildings with 5-9 units that would benefit from larger containers.** EC is working to optimize routes to add carts. They intend to do direct outreach and focus groups to increase participation.

Move-in/Move out – more of an issue now **that bulky waste is on an appointment basis rather than neighborhood by neighborhood.** What about a hybrid – if you know there are areas with large student populations - provide debris boxes for mattresses and couches., etc. in June. Given how difficult to address the population – **try to attack it for a few years to have a laser focus on move-in move-out** might be the most effective way to go. What about student volunteers to help train w/ the move-in move-out.

What about the end of year for the BUSD? There is an end of year program for them provided by the City – focusing on paper, not supplies. However, at least one school had an informal re-use program for supplies – set out discarded supplies on a table for students/parents/other teachers to take.

Garbage makes money – 20% of all the revenues generated by the refuse goes to social programs. **Recycling makes money too.** How to grow recycling and reduce garbage w/out upsetting the revenue stream for necessary social services? How can we tap into the value of recycling businesses in Berkeley to compensate for less resources ending up in the landfill? One possibility is for the City to purchase land where independent manufacturers can site their recycled-content manufacturing operations. This would yield income to the City in the form of rent.

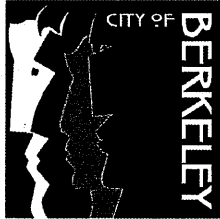
What about poachers/scavengers? A realistic solution is better social welfare. The problem are the private pick up trucks – if they have vehicles they have the means to make an income elsewhere. It's a misdemeanor – it doesn't get prosecuted. It has a direct financial impact of about \$10,000 month for aluminum containers alone. It should be a traffic ticket. There's a fear factor among the residents of retribution from the scavengers if they report on them. Does the CCC get more materials from the poachers while the EC loses? How much of poaching is smaller scale? They tend to mess up set outs. They take the higher value materials – the fibers are more valuable. **Is there a structural competition between organized collection and the buy-backs.** Poaching will be on the SW Commissions' agenda in October or November.

What about food waste on the new organics green pad? The TS operators will have to be careful – odor issues will increase as food waste is collected and transferred.

Commercial Recycling – **the City is dumping a lot of materials because they are contaminated.** There's no real incentive for business accounts to recycle, there's not enough frequency of service and there's not enough space for bins, etc. The sidewalk ordinance makes it even tougher (Telegraph, Solano, Shattuck). **Space needs to be addressed to get to 75%.** There has to be an ordinance to make them find the space. **It will have to cost them \$\$ to make them do it.** As part of the development of this plan, some discretionary money may be spent on having a **focus group targeting more public input on commercial recycling issues.**

There were 23 different companies coming in and taking materials out of the city – before the commercial franchise was put in place.

EXHIBIT No. 3



Office of the City Auditor

CONSENT CALENDAR

July 1, 2014

To: Honorable Mayor and Members of the City Council
From: Ann-Marie Hogan, City Auditor
Subject: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress toward the Year 2020 Zero Waste Goal

RECOMMENDATION

Accept the recommendations in the audit report and request that the City Manager report back on December 16, 2014, and every six months thereafter until management reports full implementation of all recommendations.

SUMMARY

Berkeley has the opportunity to once again take a leadership role in moving zero waste efforts to the next level. Public Works' ability to achieve zero waste by 2020 depends on its ability to assess what is and is not working to increase waste diversion. Berkeley already has many best practices in place, but does not have a written strategic plan to identify what actions remain, who is responsible for each action, and what specific and measurable goals to focus on to increase waste diversion from landfills. Creating a strategic plan and obtaining Council approval will provide both the authority and the funding needed to carry out objectives and achieve zero waste goals.

Berkeley has nearly doubled its waste diversion rate since 1995. The City met Alameda County's goal of 75 percent diversion in 2010 with minimal outreach to the community, but has remained near that level since then. Increasing funding for education, outreach, compliance, and enforcement will help Berkeley resume its progress toward zero waste and create a path for other cities to follow. A national zero waste summit identified comprehensive and ongoing education programs in every sector of the community as a critical component throughout every phase of transition to a zero waste culture. It identified the need for education to focus on the benefits of recycling and composting, as well as the logistics for how to proceed. It also recommended having funding dedicated to education, and suggested a minimum of \$3 per person per year after achieving 70 percent diversion. Berkeley can establish a regulatory fee to fund these activities since they deal directly with increasing diversion and the state mandates that every jurisdiction have a recycling program.

FISCAL IMPACTS OF RECOMMENDATION

A written strategic plan will help Public Works manage and obtain funding for the City's zero waste objectives. Better use of technology will involve upfront and maintenance costs but will make operations more efficient. Public Works has the potential to save \$500,000 a year when, over time, switching to biweekly garbage pickup results in

improved service delivery and, therefore, more efficient operations. Public Works could use those savings to fund zero waste education, outreach, compliance, and enforcement activities. Savings will not be immediate. Public Works will first need to determine whether it can eliminate positions through attrition and employee reassignment. In order for biweekly service to be successful, Public Works will need to educate the public so that customers do not discard garbage in the recycling bins.

CURRENT SITUATION AND ITS EFFECTS

Public Works needs to allocate more resources to develop a comprehensive, written strategic plan that clearly defines the roles and responsibilities for those managing the zero waste program, and that assigns sufficient resources for public education and outreach. Without a clear plan, Public Works cannot properly ensure the City's compliance with state, county, and city regulations and goals related to zero waste objectives.

BACKGROUND

On March 22, 2005, the Berkeley City Council adopted a zero waste resolution reaffirming its commitment to meet the Alameda County Measure D goal of reducing waste sent to landfills by 75%, and setting a zero waste goal of eliminating waste sent to landfills by the year 2020. The Council's resolution does not define a specific zero waste percentage for Berkeley, but the language used in the resolution implies that Council's intention is 100 percent diversion.

ENVIRONMENTAL SUSTAINABILITY

Reaching zero waste will allow the Berkeley community to reduce its impact on the natural environment. Through zero waste efforts, Berkeley can help improve air and water quality, and help preserve ecosystems both locally and globally. Many of our recommendations provide a roadmap for city management to reduce solid waste through reuse, recycling, and composting waste, as well as by avoiding waste as much as possible. We manage and store our audit workpapers and other documents electronically to significantly reduce our use of paper and ink.

RATIONALE FOR RECOMMENDATION

Implementing our recommendations will help Public Works reach the City's zero waste objectives and improve customer relations through enhanced service delivery.

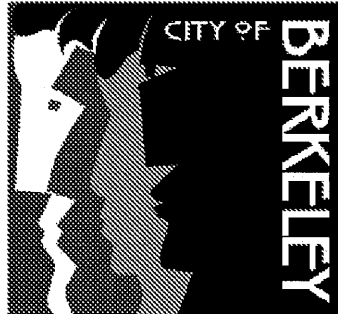
CONTACT PERSON

Ann-Marie Hogan, City Auditor, 510-981-6750

Attachments:

1: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress toward the Year 2020 Zero Waste Goal

City of Berkeley Office of the City Auditor



Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal

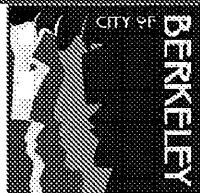
Prepared by:

Ann-Marie Hogan, City Auditor, CIA, CGAP
Harriet Richardson, Audit Manager, CPA, CIA, CGAP, CRMA
Claudette Biemeret, Interim Audit Manager, CGAP
Lincoln Bogard, Auditor II, MAcc, CPA, CFE

Presented to Council July 1, 2014

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City Of Berkeley - Office Of the City Auditor

Underfunded Mandate:

Resources, Strategic Plan, and Communication Needed to Continue
Progress Toward the Year 2020 Zero Waste Goal

July 1, 2014

Purpose of the Audit

We conducted this audit to assess the progress made toward achieving the City's goal of zero waste by 2020 and to identify ways that data can inform management decisions. We reviewed ways that existing data can be refined and identified additional data needed to improve program performance.

Executive Summary

Insufficient resources to effectively implement zero waste programs

The City is at risk of not meeting Council's goal to achieve zero waste by 2020. The City defines zero waste as reducing solid waste by reusing, recycling, and composting as well as avoiding waste as much as possible. Council has not allocated sufficient funding for reaching its zero waste goal. Public Works needs more resources to develop a comprehensive, written strategic plan that clearly defines the roles and responsibilities for those managing the zero waste program, and that assigns sufficient resources for public education and outreach. Without a clear plan, Public Works cannot properly ensure the City's compliance with state, county, and city regulations related to zero waste objectives. This includes Alameda County's requirement to send less than ten percent of readily-recyclable materials to landfills starting in July 2014. The county's requirement applies specifically to waste from commercial, multifamily residential properties with five plus units, and self-haulers.

Public Works reduced the deficit and increased operational efficiencies

Public Works' focus has been on reducing the deficit in its refuse fund, which accounts for revenues and expenditures related to zero waste collection services. Since fiscal year 2009, the department has successfully reduced its operating costs by \$2.5 million as a way to reduce the deficit. Public Works was able to make those reductions, for the most part, by gradually reducing the number of full-time equivalent staff from 107 in fiscal year 2009 to 87 in fiscal year 2014. Public Works' intent in reducing the deficit was to improve operations, which would help the department make more efficient progress on the City's zero waste goals.

Public Works is following best practices to achieve zero waste

Public Works has implemented many zero waste best practices in addition to recycling programs. For example, the department:

- Offers organics collection services
- Provides recycling and education program services in public schools in partnership with Green Schools Initiative
- Bans landfill disposal of recyclable and compostable items from commercial waste

- Provides recycling services for construction and demolition debris at the transfer station
- Bans the use of:
 - Single-use plastic bags at food retailers
 - Styrofoam containers in restaurants
- Offers “green” business certifications

New rate structure will not support all zero waste programs

Council approved a more sustainable rate structure in May 2014 to alleviate the fund deficit and provide additional funding for zero waste programs and related construction projects. The funding is not enough to help Public Works fund all of the specified zero waste programs. Proposed construction projects alone, such as rebuilding the materials recovery facility and the transfer station, were estimated to cost \$25 to \$30 million in 2005.

Potential \$500,000 in annual cost savings by switching to biweekly garbage service

Switching to biweekly garbage service could free up approximately \$500,000. This would allow Public Works to enhance its zero waste efforts by shifting those resources to other waste diversion programs such as education, outreach, and compliance. Public Works will not be able to move to biweekly collection immediately because it will take time to educate the community so that refuse does not wind up in recycling bins. Savings will not be realized until Public Works has had time to make operational changes to increase efficiency. The department will also need time to work with the employee bargaining unit about how position reductions can be achieved through attrition and reassignment of existing employees.

Recommendations

Council and management need to invent new strategies, incentives, and methods for achieving the objective of diverting solid waste from landfills and reusing, recycling, and composting waste whenever possible. To reach this goal, Council must ensure sufficient funding for zero waste programs. Our recommendations provide a roadmap to:

- Increase landfill diversion efforts by focusing on community education and outreach.
- Target waste streams (e.g., residential waste) with the most room for improvement.
- Develop a written strategic plan that includes both short- and long-term goals.
- Prepare detailed annual work plans that identify zero waste goals for the year, the resources dedicated to those goals, and performance measures.
- Reallocate resources toward zero waste efforts.

We provided our recommendations to the Director of Public Works prior to publishing this report to allow the department to begin implementing changes as soon as possible.

2180 Milvia Street, Berkeley, CA 94704 ♦ Tel: (510) 981-6750 ♦ TDD: (510) 981-6903 ♦ Fax: (510) 981-6760

E-mail: auditor@cityofberkeley.info ♦ Web: www.cityofberkeley.info/auditor

A full copy of the report can be obtained at:

[http://www.cityofberkeley.info/uploadedFiles/Auditor/Level_3 - General/A%20202_RPT_Zero%20Waste_Final.pdf](http://www.cityofberkeley.info/uploadedFiles/Auditor/Level_3_-_General/A%20202_RPT_Zero%20Waste_Final.pdf)

AUDIT OBJECTIVES

We conducted this audit, at the request of the Public Works director, to assess the progress that Public Works' Zero Waste Division has made toward achieving the City's goal of zero waste by 2020, and to identify ways that data can inform management decisions. Specifically, we reviewed ways that existing data can be refined and what additional data is needed to improve program performance.

BACKGROUND

Zero Waste International Alliance defines "zero waste"

The Zero Waste International Alliance¹ says:

"Zero Waste is a goal to guide people to emulate sustainable natural cycles, where all discarded materials are resources for others to use. Zero Waste means designing and managing products and processes to reduce the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that may be a threat to planetary, human, animal or plant health."

Zero waste is a paradigm shift: from waste management to materials management

Zero waste means many things to different people. For the City of Berkeley, it means reducing waste by reusing, recycling, and composting waste whenever possible to limit the amount of waste a community sends to a landfill. The primary concept of zero waste is diverting solid waste from landfills. This concept is commonly referred to as "diversion." Appendix C describes the specific benefits of achieving zero waste through waste prevention and recycling, reusing, and composting waste.

Success = 90 percent diversion; Berkeley's goal is to eliminate all waste sent to landfills

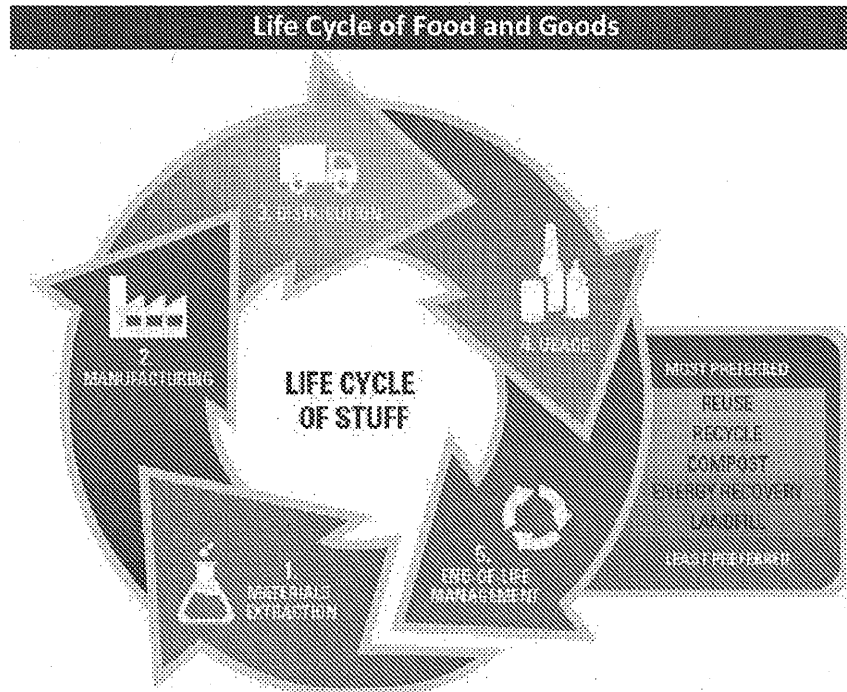
The Zero Waste International Alliance (Alliance) considers success as a diversion rate of over 90 percent. The Berkeley City Council has not defined success in specific percentages; however, they adopted a zero waste resolution with the goal of eliminating waste sent to landfills by the year 2020. This language implies that Council's intention is 100 percent diversion but the accompanying Council

¹ The Zero Waste International Alliance is an organization working towards a world without waste through public education and practical applications of Zero Waste principles: <http://zwia.org>

item defines zero waste as “as close as possible.” Whether opting to meet the Alliance’s success standard or reaching for higher diversion rates as Berkeley has, when local governments opt to follow zero waste principles and become known as zero waste communities, they must have a total commitment to *pursuing* zero by maximizing:

1. Resource recovery through recycling and composting – “downstream” recovery
2. Longevity through reuse, repair, and durable design – “midstream” longevity
3. Waste reduction through redesign, zero waste purchasing, producer responsibility, and new rules – “upstream” reduction

The following picture shows the life cycle of food and goods from the gathering of materials to produce them through their final disposition.



Source: United States Environmental Protection Agency²

² <http://epa.gov/climatechange/climate-change-waste/life-cycle-diagram.html>

City, county, and state recycling requirements will ramp up in 2020

There are several city, county, and state requirements for recycling. The first phase of requirements took effect in 2010; the next phase takes effect in 2020. Berkeley’s 2020 zero waste goal is similar to that adopted by the Bay Area Climate Change Compact signed by San Francisco, Oakland, and San Jose. The Compact encourages local action to reduce greenhouse gas emissions and recognizes that some challenges can best be addressed through regional partnerships.

City, County, and State Recycling Requirements	
Government	Recycling Requirements
City of Berkeley	<ul style="list-style-type: none"> ▪ 75% diversion from landfills by 2010 ▪ Zero waste by 2020
County of Alameda	<ul style="list-style-type: none"> ▪ 75% diversion of readily recyclable materials from landfills by 2010 ▪ Less than 10% of materials destined for the landfill are readily recyclable or compostable by 2020; applicable only to commercial, multifamily residential, and self-haul waste
State of California	<ul style="list-style-type: none"> ▪ 50% diversion from landfills by 2000; mandate that local jurisdictions implement a commercial recycling program ▪ 75% diversion from landfills by 2020

Sources: Various city, county, and state regulations. See Appendix F for the related legislation.

The City partners with others to increase waste diversion

The Zero Waste Division of Public Works is responsible for the collection of all Berkeley residential solid waste. The City changed the name of the division from Solid Waste Management to demonstrate its commitment towards zero waste. City residents must use the City’s waste collection services, but businesses may choose to use the City’s services or one of two private haulers that have active franchise agreements with the City. The Zero Waste Division also offers curbside recycling and compost services to help increase diversion from landfills by collecting:

- Compostable materials from all businesses and single-family and multifamily residences.
- Recycling from commercial and large multifamily residential customers.

The City also partners with local organizations to promote zero waste efforts:

- The Ecology Center, a nonprofit organization promoting sustainability, contracts with the City to collect recycling from single-family and small multifamily residential customers.
- The Community Conservation Center (CCC) operates the City-owned Materials Recovery Facility³ and the drop-off and buy-back centers for Berkeley. Both the facility and drop-off center accept paper products, glass, plastics, tin, aluminum, and universal waste⁴ as well as reusable items such as books, clothing, and shoes.

Zero Waste Commission makes policy and goal recommendations to Council

Berkeley's Zero Waste Commission is responsible for making recommendations on City zero waste policy and goals, including commercial and residential garbage and recycling services, budgets, and other decisions relating to solid waste in the City of Berkeley. The commission supported and promoted the single-use bag ban to eliminate the use of plastic bags at food retailers. The commission also worked with the Community Conservation Center to implement the expanded plastics recycling initiatives that allow Berkeley residents to recycle a wider range of plastic items than previously allowed.

Berkeley's transfer station handles refuse, compostable materials, and construction and demolition debris

Collection trucks and self-haulers drop off refuse and compost at Berkeley's transfer station, which also accepts construction and demolition debris. Refuse is trucked from the transfer station to landfills, construction and demolition debris is salvaged and recycled, and compostable materials are trucked to a Central Valley processing plant. Berkeley residents can pick up processed compost for free at the Berkeley Marina on the last Saturday of each month.

Revenue Collection does refuse billing and collections

The Finance Department's Revenue Collection Division handles all refuse billing and collections. This includes direct billing for all commercial and some residential services. The division works with Alameda County to bill the majority of residential services through the property tax roll.

³ Material recovery facilities specialize in receiving, separating, and preparing recyclable materials.

⁴ Universal wastes are federally designated wastes, which include batteries, pesticides, mercury-containing equipment, and lamp bulbs.

311, Berkeley's all-in-one customer service line, provides support to the Zero Waste Division

Berkeley maintains a customer service hotline. Customers can call 311 from any cell phone or landline while in Berkeley, or (510) 981-CITY when outside of the City. 311 offers community members the ability to get assistance with their refuse services without determining the specific person or department to contact. 311 staff are well versed in the City's zero waste efforts and can help establish or cancel service, receive customer complaints and payments, and answer questions related to waste diversion. 311 staff also coordinate site inspections with Public Works staff, who perform the actual inspections, as a way to verify changes to service such as going from large to small waste containers. 311 is a division of the Department of Information Technology, which uses a Community Relationship Management system to capture and route calls for service and customer complaints.

Berkeley has a variable rate structure for refuse services

Berkeley uses a Pay-As-You-Throw (PAYT) rate structure, which the U.S. Environmental Protection Agency considers a best practice for helping communities prevent and divert waste. There are three PAYT pricing systems:

- Proportional structure: charges the same amount for every unit (e.g., gallon or pound) of garbage collected.
- Variable-rate structure: charges based on subscription levels (i.e., number and size waste containers). The rate may rise or fall as subscription levels increase. Berkeley uses a variable rate structure.
- Multi-tiered structure: charges a base fee for the fixed costs of service, plus a variable rate for the actual amount of garbage collected. The second tier can have a proportional or variable rate structure.

Proposition 218 imposes limits on how fees are assessed

California's Proposition 218 imposes limits on property-related fees such as garbage collection and requires rates to be proportionally shared based on the level of service received. This means, for example, that the commercial sector cannot share the cost of residential service. Proposition 218 also prohibits certain fee increases without first providing the public the opportunity to protest the change, which means that jurisdictions like Berkeley cannot increase collection rates if at least 50 percent of the affected population rejects the suggested increase. However,

Proposition 218 allows higher or lower rates for various service components to deter or encourage certain conduct. For example, rates may be higher to discourage generation and disposal of disfavored types and quantities of refuse, or lower to encourage favored refuse practices, such as separating recyclables.

Fees to support regulatory programs are not subject to Proposition 218. Municipalities can enact regulatory fees, for example, for recycling and education, outreach, and enforcement of recycling requirements without providing the public the opportunity to protest the fee or fee increase. California courts have held that regulatory program costs typically include the expense of direct regulation as well as all incidental expenses, including administration, inspection, and maintenance. These costs are allowed even if the municipality does not develop a separate pricing structure for the regulatory portion of a program.

FINDINGS AND RECOMMENDATIONS

**Finding 1:
Insufficient data
and resources (for
planning, strategy,
or execution)
dedicated to
Berkeley's zero
waste by 2020
objectives**

The City is at risk of not meeting Council's goal to achieve zero waste by 2020. The City defines zero waste as reducing solid waste by reusing, recycling, and composting to the full extent possible. Council has not allocated sufficient funding for reaching its zero waste goal. This has reduced Public Works' ability to develop a comprehensive, written strategic plan that clearly defines the roles and responsibilities for those managing the zero waste program, and that allows the department to assign sufficient resources for education and outreach to the public about zero waste efforts. Without a clear plan, Public Works cannot properly ensure the City's compliance with state, county, and city regulations related to zero waste objectives. This includes Alameda County's requirement to send less than ten percent of readily recyclable materials to landfills starting in July 2014. The county's requirement applies specifically to waste from commercial, multifamily residential properties with five plus units, and self-haulers. Although staff at StopWaste⁵ told us that Berkeley has the infrastructure in place to

⁵ StopWaste is the Alameda County Waste Management Authority and the Alameda County Source Reduction and Recycling Board operating as one public agency: <http://www.stopwaste.org/home/index.asp?page=2>

meet jurisdictional requirements, it is unlikely that Berkeley will be able to meet city and county goals without increased funding for zero waste initiatives.

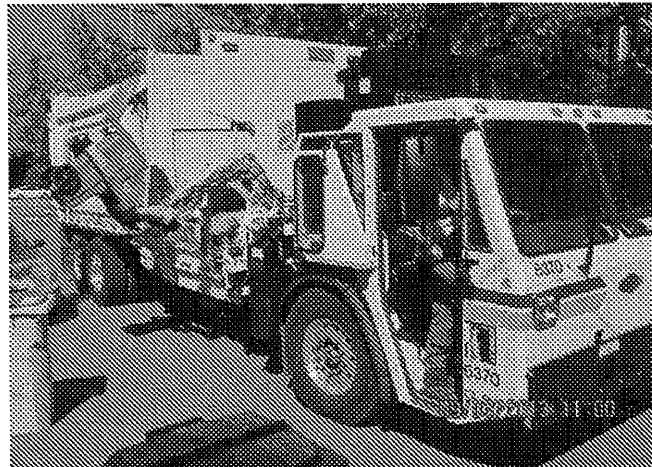
**Public Works
reduced the deficit
and increased
operational
efficiencies**

Public Works is responsible for implementing City programs to achieve zero waste. The Public Works Director said that his department uses a strategic approach that focuses on operational changes to reduce costs and bring operations up to industry standards. For example, since fiscal year 2009, Public Works reduced the refuse fund’s ongoing deficit by reducing its annual operating costs by \$2.5 million. The department achieved those reductions, for the most part, by gradually reducing the number of full-time equivalent staff in its Zero Waste Division. Staffing went from 107 in fiscal year 2009 to 87 in fiscal year 2014. Public Works implemented most of those staffing reductions by changing from two-operator to one-operator refuse trucks, but the reductions also included at least four administrative and oversight positions:

Zero Waste Division Historical Staffing (Full-Time Equivalent by Fiscal Year)						
FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Actual	Actual	Actual	Actual	Adopted	Adopted	Adopted
107	109	97	93	89	87	87

Source: City of Berkeley biennial adopted budgets⁶

One-Operator Refuse Truck



⁶ <http://www.cityofberkeley.info/budgetdocuments/>

Continuing deficit limited ability to use resources for achieving the zero waste goal

Despite Public Works’ efforts, the refuse fund continued to operate at a deficit, in part because of the rise in personnel costs. This makes it more difficult to reduce expenditures for labor-intensive operations such as zero waste collection. The continuing deficit limited the department’s ability to allocate resources toward achieving the Council’s zero waste goal.

Berkeley met its 75 percent diversion goal in 2010, but fell slightly to 74 percent in 2011

Berkeley reduced its landfill disposal from nearly 140,000 tons in 2000 to just over 63,000 tons in 2010. This is in line with other cities in Alameda County and met Alameda County’s goal to achieve 75 percent diversion from landfills by 2010. However, Berkeley’s disposal rate dropped slightly - to 74 percent - in 2011.

Berkeley Landfill Disposal Amounts and Diversion Rates									
	1995	2000	2005	2006	2007	2008	2009	2010	2011
Disposal Tonnages	109,658	139,790	120,328	112,025	98,041	88,185	71,968	63,127	69,145
Diversion Rates	41%	49%	59%	57%	62%	66%	72%	76%	74%

Source: StopWaste.org⁷

See Appendix D for a comparison diversion rates for other Alameda County jurisdictions.

Berkeley has implemented many programs needed to achieve zero waste

Berkeley has implemented many program components that are considered best practices in zero waste efforts. The City compares well against local municipalities and is ahead of many similarly sized municipalities in the United States. Some of the best practices in use are:

- Residential curbside recycling options
- Mandatory recycling for commercial, municipal, and large multifamily properties
- Recycling and education programs in public schools in partnership with Green Schools Initiative, a program aimed at improving “green” actions by kids, teachers, parents, and policymakers⁸
- Residential plant-debris and food-waste collection (organics)
- Bulky item pick up (e.g., mattresses and small appliances)

⁷ <http://www.stopwaste.org/docs/disposal.pdf> and <http://www.stopwaste.org/docs/diversion.pdf>

⁸ <http://www.greenschools.net/>

- Paper-bag fee at stores selling food and perishables
- Ban on the use of single-use plastic bags at food retailers and Styrofoam containers in restaurants
- Ban on landfill disposal of recyclable and compostable items from commercial waste
- Construction and demolition debris recycling services at the transfer station
- Green business certifications for businesses that meet rigorous standards of environmental performance⁹
- City purchasing provisions and preferences to promote the use of environmentally preferable “green” products and reduce waste

The Zero Waste Commission provided input for Chapter 5 of the City’s Climate Action Plan

The Zero Waste Commission is responsible for advising the City Council about Berkeley’s zero waste policies and goals, and provided input for Chapter 5 of the City’s Climate Action Plan: *Waste Reduction and Recycling*. The plan establishes goals and offers implementation actions to help increase waste diversion rates. Public Works uses the Climate Action Plan as its zero waste strategic plan and has implemented these actions:

- Initiated the split-cart program to allow residents to easily divide their recyclable items for collection
- Instituted a ban on the use of plastic bags at food retailers and established a fee on paper shopping bags
- Received Council approval of an extended producer responsibility policy, which requires producers to reclaim discarded products, reduce packaging that ends as waste at the local level, and eliminate toxics from products and their waste

Public Works is in the process of implementing several other items as part of Alameda County’s mandatory recycling ordinance, such as requiring managers of multifamily dwellings to provide tenants with recycling options.

⁹ www.greenbiz.ca.gov

Zero waste is a lofty target, but it may be achieved by using a strategic action plan and defined goal

“Zero waste is a goal for the future which requires realistic planning and investment.”

- National Waste and Recycling Association

Council tasked the Zero Waste Commission with creating a strategic plan

Zero waste is a lofty stretch target.¹⁰ However, using the Zero Waste International Alliance’s current definition, it may be achievable with both short- and long-term planning through development of a written strategic plan. Appropriate planning includes education, outreach, and compliance monitoring for the residents and businesses that will ultimately achieve zero waste by changing their behaviors to divert more of their waste from the landfill through recycling, reuse, and waste reduction. San José and Oakland each offer good local models of strategic plans to achieve zero waste. They include topics such as:

- Fiscal impact
- Existing conditions
- Key issues and impacts
- Zero waste strategies and initiatives
- Interim goals
- Staffing needs
- Methods for overcoming funding obstacles
- Waste stream analysis to increase diversion
- Programs and facilities

Council’s zero waste resolution seems to acknowledge the need for planning by stating that zero waste science “is a systematic methodology for moving with maximum speed in logical increments toward the goal of zero waste.” The resolution requires the Zero Waste Commission to prepare and evaluate a feasible zero waste plan for the Zero Waste Division. The commission sponsored the 2005 Solid Waste Management Plan update, but that plan was never finalized and approved by Council. Further, it was written when the goal was to achieve 75 percent diversion, which is now an outdated goal. The commission also provided input to Chapter 5 of Berkeley’s Climate Action Plan, which discusses the barriers to achieving zero waste, and the current status of and opportunities

¹⁰ According to Bob Behn’s Performance Leadership Report, a “stretch target” is one that an organization cannot achieve by working a little bit harder or smarter. To achieve a stretch target, people have to invent new strategies, new incentives, and entirely new ways of achieving their purpose. Jack Welch, former president of General Electric, is credited with coining the stretch target concept and saying, “We have found that by reaching for what appears to be the impossible, we often actually do the impossible; and even when we don't quite make it, we inevitably wind up doing much better than we would have done.” Behn’s Performance Leadership Report is available at <http://www.hks.harvard.edu/thebehnreport/All%20Issues/December2011.pdf>.

for improving Berkeley's solid-waste management system. However, there is still no written strategic plan to achieve zero waste by 2020.

An effective strategic plan would address the hierarchy of goals at the state, county, and city levels

Following a typical strategic-plan format, a strategic plan to achieve zero waste in Berkeley would address the hierarchy of goals at the state, county, and city level and include the following elements for each tier of the hierarchy, each goal within the tier, and each strategy and activity within a goal¹¹ (see Appendix E for a sample template):

- Objective - the state, county, or city requirement to be met
 - Goals - the incremental goals for meeting the objective
 - Strategy - the specific methods and needs for reaching the goal such as:
 - Activities to be performed
 - Resources needed to perform the activities
 - Staff primarily responsible for completing the activities
 - Metrics showing improved change in performance
 - Estimated completion dates

Setting short- and long-term goals shows the city what works and what does not, and in what circumstances

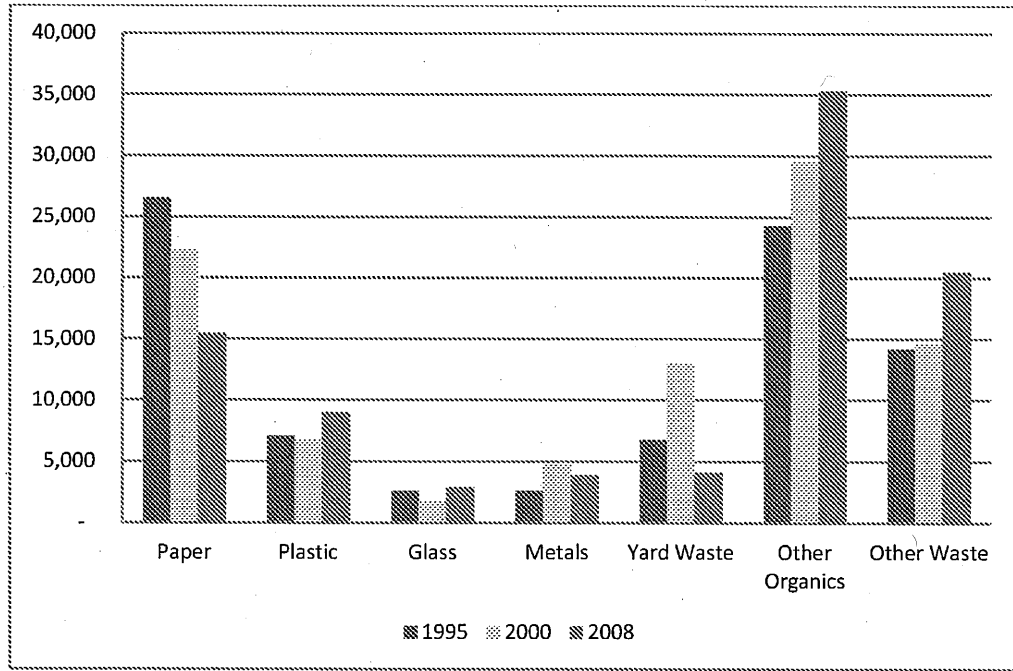
Including both short- and long-term goals in a strategic plan allows small "wins," which are progress toward the larger goal. Achieving the short-term goals also builds confidence that the stretch goals can be met and shows the organization what works and what does not, and in what circumstances. Without this accountability to achieve progress toward the long-term goal, only those who are in office in 2020 will be accountable if the goal is not met.

Berkeley has already undertaken many tasks to increase recycling and composting. This includes significant improvements to the diversion of construction and demolition debris. Now, Public Works needs to identify new and more challenging ways to increase diversion. The 2008 Alameda County Waste Characterization Study identified the amount of various types of waste that are being disposed of in the landfill but that could be recycled or reused. Berkeley had the most room to improve waste diversion of compostable paper, food waste, untreated lumber, treated wood waste, and crushable and other waste. Public Works has made improvements in these areas; however, more can be done to divert

¹¹ There can be multiple goals for a single objective and multiple strategies for each goal.

this waste. By focusing efforts primarily on the areas of largest impact, the City can begin to customize education, outreach, compliance, and enforcement and establish interim goals on the road to zero waste. Public Works management can focus on activities that will ensure compliance with the county ordinance, while simultaneously progressing toward the Council mandate of zero waste citywide.

Types of Divertible Berkeley Waste Disposed of in Landfills: 1995 to 2008



Source: Stopwaste.org¹²

Next steps: behavioral changes through education, outreach, enforcement, and regulation

The next steps for Public Works to increase waste diversion are challenging. The department can focus its strategy on certain waste sectors, e.g., residential waste and commercial waste, to reach the City's goal as well as the Alameda County requirements. Regardless of where the department focuses, strategies will need to include an emphasis on behavioral changes that can best be addressed through a combination of public education and outreach, enforcement of zero waste practices, and regulations requiring specific waste diversion efforts.

¹² <http://www.stopwaste.org/docs/acwcs-2008r.pdf>, Appendix A3, Figure 7

Public Works' annual work plan lacks accountability

Public Works' annual work plan does not include measurement, cost, or resource information. Ideally, the annual work plan should identify smaller targets for the year that work toward the long-term goals in the strategic plan. At a minimum, targets should address:

- Objectives and short-term goals
- Actions to be taken
- Responsible parties
- Employees dedicated to the task
- Expected cost and impact of implementation
- Performance measures
- External factors affecting performance and progress

Although an annual work plan is not meant to be as in depth as the strategic plan, the targets should be detailed enough to measure specific achievements and should inform Council regarding the status and progress made annually or biennially. Communicating the goals and targets to Public Works personnel and other city staff involved in zero waste related activities would increase buy-in at all levels of the organization.

Council approved an extended producer responsibility policy in June 2013

Moving in a positive direction, the Zero Waste Commission drafted, and Council approved, an extended producer responsibility (EPR) policy in June 2013. An EPR is a type of product stewardship that requires producers of products to be responsible for disposal at the end of the products' useful life. It is based on the theory that producers, not consumers, have control over the design, manufacture, and packaging of products and should, therefore, have responsibility for the product's final disposal costs. Producers generally accomplish this by building a disposal fee into a product's cost and accepting responsibility for its disposal later. Placing this responsibility and cost on the producer also encourages producers to change product designs to minimize the negative impact on human health and the environment at every stage of a product's lifecycle. Over the long term, implementing EPR policies and programs helps:

- reduce total volume of waste;
- ensure products are designed to be recyclable and/or repairable; and
- ensure products are manufactured with little or no toxic content.

Berkeley’s policy states that the City should support state-level efforts for new product stewardship initiatives, but national and international actions will also help relieve the current waste burden on local government.

Berkeley’s diversion is in Phase 2 of a proposed three-phase plan to achieve zero waste

Participants in a national zero waste summit in 2010 produced a white paper that identified an “aggressive” 10-year action plan, to be completed in three phases, to help communities achieve zero waste. By achieving more than 70% waste diversion, the City is considered to be in Phase 2 of the summit’s 10-year action plan:

National Zero Waste Summit 10-Year Action Plan to Achieve Zero Waste		
Phase 1 Years 1-4: 50%	Phase 2 Years 5-8: 70%	Phase 3 Years 9-10+: 90%
Commit to Zero Waste path	Biweekly residential trash service	Aggressive producer responsibility
Community education	Community education	Economic signals
Deposits for recycling construction and demolition debris	Construction and demolition debris targets increase	Enforce source separation
Facility planning and construction	Organics collections for business and multifamily units	Focus on waste reduction
Government internal initiatives	Producer responsibility for hard-to-recycle materials	Landfill disposal bans
Organics collection for homes	Product bans and fees	Mixed waste processing
PAYT rates for homes	Source-separated organics for food generators and households	Self-haul to transfer stations only
Universal curbside recycling	Source-separated recycling for businesses and homes	Universal zero waste labeling
Zero Waste events		

Source: Eco-Cycle 2010 White Paper on Zero Waste. E-mail kate@ecocycle.org, subject: white paper request.

Funding for education is critical to achieve zero waste

The summit white paper provides examples of activities that can be included in a strategic plan for both the short- and long-term. It identifies comprehensive and ongoing education programs in every sector of the community as a critical component throughout every phase of transition to a zero waste culture. It states that education should focus on the benefits of recycling and composting, as well as the logistics of how to proceed toward achieving zero waste. It also recommends having funding dedicated to public education, and suggests a minimum of \$2 per person per year to achieve zero waste after achieving a 50 percent diversion rate, and \$3 per person per year after achieving 70 percent diversion. The white paper recommends that education focus on specific issues and products, such as:

- Updating bin and cart labels with the items acceptable for recycling, composting, and the landfill
- Educating customers on:
 - Recyclable and compostable items
 - Purchasing products with ecofriendly packaging
 - Reusing, repairing, or repurposing products
 - Acceptable disposal methods for items that cannot be left curbside, for example, appliances
 - Separating materials prior to transporting them to the transfer station

Once 90 percent diversion is achieved, phasing waste out of the community takes center stage

The white paper recommends that the final years of the plan focus on reducing the amount of waste generated per person and phasing waste out of the community through landfill bans, enforcing materials separation at the source, and aggressively increasing the responsibilities of waste producers (e.g., manufacturers).

Education and enforcement should be clear and easy to understand

Specific ideas for conducting education and enforcement in the community include:

- Repeatedly provide clear and easy-to-follow instructions.
- Use interns or lower-level employees to go door-to-door to educate the public regarding ways they can improve their recycling and composting habits.
- Provide customer information packets to new residents and businesses when they begin waste services.

- Develop enforcement options for various sectors in the community (e.g., commercial, multifamily residential, and residential) and educate the public on the penalties for lack of compliance.

Berkeley must now focus efforts on increasing diversion of more difficult items

Berkeley has surpassed the 70 percent diversion rate, which suggests the City should be ready to move to Phase 3 of the summit's zero waste plan. The summit's timeline indicates that a community should be able to achieve zero waste within two years of having attained a 70 percent diversion rate, which means that Berkeley should achieve zero waste throughout the City by 2020. However, Berkeley lacks the comprehensive education and outreach necessary to move into Phase 3. The City achieved its high diversion rate primarily through businesses' and residents' recycling of common recyclables such as paper, plastics, and cans, which is not enough to move to the next phase. The summit participants' conclusion that a 10-year plan is aggressive and the fact that Berkeley has not yet developed a plan are further evidence that Berkeley may not meet the Council's goal to achieve zero waste throughout the City by 2020.

New rate structure not enough to meet proposed funding demands

The Council approved a new rate structure for waste collection services in May 2014. The new rate structure cites many uses for the funds resulting from the proposed rate increases. This includes fully implementing Alameda County's requirement for businesses and certain multifamily buildings to provide recycling and composting services, as well as education and outreach for that mandate. Management expects the new rate structure to result in a fund balance beginning in fiscal year 2016 that can be used for education, outreach, compliance, and enforcement. However, this is likely not enough for the City to reach its zero waste goals. Berkeley has contracted with Alameda County for compliance and enforcement efforts beginning in July 2014, but that does not include single-family residential properties of four units or less. To meet its zero waste goal, Berkeley will need substantial compliance and enforcement in addition to education and outreach. Further, the aggregate expenses for all of the programs seem too large to fund based on the new rate increase. Rebuilding the transfer station and the materials recovery facility are likely to require more funds than the rate structure can carry. Estimated costs from 2005

show that rebuilding those facilities will cost the City anywhere from \$25 to \$30 million. The Council has not discussed the option of implementing a separate regulatory fee for education, outreach, compliance, and enforcement, which is allowed under Proposition 218.

Defined processes and procedures needed to help staff work toward zero waste

Although public education and outreach are key components of achieving zero waste, they can only be done if City staff understand their roles and responsibilities for achieving the goal. Our interviews with line staff in the Zero Waste Division revealed that they needed clearer, structured guidance about their roles and responsibilities for helping the City achieve zero waste. Most staff, especially those at the transfer station, were aware of the zero waste goal, but the general consensus was that they need defined processes and procedures to help them reach zero waste. The more information and tools that employees have, the better suited they are to support the City's zero waste goal and make efforts to help customers understand their role in achieving zero waste.

StopWaste.org: a good source for Berkeley to use or link to its webpage

Berkeley does not have to reinvent the wheel to develop education and outreach materials for its businesses and residents. Alameda County's website, www.StopWaste.org, is a good source for waste characterization, waste diversion, and education and outreach materials for residents, business and industry, and local governments. The resources include guides that show how to recycle, identify state and county laws, and provide a comprehensive directory showing where virtually all household goods can be reused or recycled in Alameda County.

Biweekly garbage collection and weekly organics collection has proven effective in other states

Biweekly garbage service is an emerging best practice in the zero waste movement. Examples are Boulder, Colorado; Portland, Oregon; Tacoma and Renton, Washington; several east coast cities; and many Canadian cities. Renton, Washington experienced almost a 20 percent reduction in garbage during its biweekly garbage service pilot program and an average increase in recycling diversion of nearly 10 percent. These cities have achieved success because most continue to collect compostables weekly. Since compostables are the wastes that attract flies, rodents, or other vectors, and emit offensive odors, residents are more likely to take the effort to separate compostables from other refuse and recyclables so they

are removed from their property as quickly as possible. An added benefit of providing biweekly refuse services with weekly compostable collection is that it reduces the cost of providing collection services, reduces truck traffic and thus, carbon emissions, and encourages participation in recycling and composting programs.

Berkeley is currently prevented from shifting to biweekly collection services because state law requires that all refuse, other than inert materials, not remain on any premises for more than seven days. The impetus for the law is outdated because it was written before separating compostables from other refuse was a recognized environmental practice. In fact, the law states that its purpose is to avoid attracting flies, rodents, and other vectors, as well as to minimize offensive odors in garbage, which are the factors that support separating and collecting only compostables weekly. California requires refuse collection every seven days and, if that cannot be accomplished, requires agencies to obtain a waiver from the weekly refuse collection requirement.

Biweekly garbage collection could save at least \$496,000 annually

Although Council has discussed shifting to biweekly collection services, it cannot do so until the City obtains a waiver or permission to implement a pilot program. We estimated that Berkeley could achieve savings of at least \$496,000 per year by having biweekly refuse collection services and weekly recycling and compostable collection services. That savings is based on salaries only for eliminating two, one-person side loader routes and one, two-person rear loader route. It does not include other savings that may occur by reducing the number of collection trucks, depreciation expense, or landfill fees from reduced service and increased diversion. In all, these savings could be reallocated toward the activities needed to achieve zero waste.

The change to biweekly service and the savings would not be immediate for two reasons. One, resources will be needed for additional community outreach and education to avoid unintended consequences such as garbage showing up in recycling bins. Two, Public Works, working with the employee bargaining unit, will have to determine whether positions can be eliminated through attrition or reassignment.

Recommendations

The Department of Public Works should:

- 1.1 Request the City Council to redefine and then reaffirm its commitment to zero waste (i.e., the percentage that the Council considers to be success), and to ensure sufficient resources to fund appropriate staffing and the necessary infrastructure to achieve stated goals by 2020.
- 1.2 Draft and obtain Council approval of a written strategic plan to achieve zero waste by 2020, including annual or biennial interim waste diversion goals. Topics that the strategic plan should discuss include:
 - Objectives and long-term and interim goals
 - Actions to be taken
 - Responsible parties
 - Expected cost and impact of implementation
 - Performance measures
 - External factors affecting performance and progress
- 1.3 Prepare detailed annual work plans that contain:
 - Objectives
 - Annual/biennial (short-term) goals
 - Actions to be taken
 - Budget allocated for the actions
 - Timeline for completion
 - Lead staff responsible for task completion
 - Full-time equivalent employees assigned to the tasks
 - Performance measures
- 1.4 Regularly communicate zero waste goals and achievements to City staff and the Council, and offer training to staff on how they can help Berkeley achieve zero waste. This includes sharing strategic and annual work plan goals and regular updates regarding progress and completion.
- 1.5 Determine if additional funds are needed for the education, outreach, compliance, and enforcement necessary to reach zero waste goals. If sufficient funds are not available, propose to Council a separate fee to cover those costs for the City's zero waste program, such as a regulatory fee as allowed under Proposition 218.

- 1.6 Update the City's Zero Waste website to include easily accessible information regarding:
- How and where to recycle materials that are not accepted in curbside collection.
 - What can be brought to the transfer station and materials recovery facility.
 - Zero waste goals and progress toward those goals.

StopWaste.org is a good example and has resources that Berkeley can direct customers to use. Updates should be made as changes are made to the list of materials accepted through each waste stream.

- 1.7 Engage in discussions with the appropriate state or county agency to obtain permission to collect garbage biweekly instead of weekly while maintaining weekly collection of compostables. Perform additional education and outreach prior to implementing biweekly garbage service to educate the public on the change. Alternatively, seek permission to implement a pilot project for biweekly garbage service.

***City Manager's
Response***

The City Manager agreed with the recommendations. The full response is at Appendix B.

**Finding 2: Limited
use of available
technologies
affects
operational
efficiencies**

Changes to current systems and use of mobile technologies could improve route-specific reporting, increase operational efficiencies, and help implement activities for achieving zero waste. Over time, these improvements could lead to cost savings that Public Works could reallocate towards zero waste activities such as public education and outreach, and compliance activities.

Public Works uses RouteSmart software to develop refuse, recycling, and organics collection routes for optimal efficiency. RouteSmart has standard reporting capabilities, but some of the department's reporting needs require time-intensive manual data collection and entry into other systems because there is no interface between RouteSmart and the Community Relationship Management (CRM) system.

Routing software does not interface with City systems; Public Works relies on Department of Information Technology for reporting needs

CRM is used by Information Technology's 311 Call Center staff to capture information about service changes and missed pickups. Public Works currently relies on 311 staff for data entry and reporting from both the CRM and RouteSmart systems. For example, drivers manually create Daily Truck Reports to identify route-related issues, such as locations where they did not make a scheduled pick-up. A Public Works Office Specialist III (OS III) spends about 30 minutes scanning the reports and sending them to 311. A Customer Service Specialist III (CSS III) in 311 spends another 90 minutes manually entering the report information into the City's financial and CRM systems. The OS III and CSS III tasks cost an average of \$27,680 per year, including benefits.

Route-specific reports needed to monitor and manage performance

Public Works management would like to have monthly status reports that show the nature of calls to 311 by route. There is one report for route-specific complaints, but 311 staff must manually populate the field that contains the crew code and the field often contains excess or insufficient information. The City does not use the CRM mapping features that would allow mapping of calls by route. These limitations prevent Public Works from monitoring service and complaints on a route-by-route basis, measuring individual performance, and correcting the behaviors of poor performers. Berkeley's CRM system can provide specialized reporting for departments, but Public Works must specify its needs to Information Technology before IT can prepare the reports.

CRM software can be configured to provide improved reporting capabilities

IT management told us that the CRM software can be configured with a required field to contain valid route codes. This would allow reporting by route and other standardized reports to be developed or generated by having IT program a link between RouteSmart and the CRM system. To develop reports that meet all of Public Works' needs, IT said Public Works managers, supervisors, and line staff need to identify both their operational and analytical requirements.

Internal expertise needed to maximize use of RouteSmart software

Public Works also relies on IT to develop and produce RouteSmart reports because Public Works staff do not have the expertise to do so. For example, an IT programmer spends about three hours each month preparing the monthly route books for Public Works. In our

April 2013 audit report of Shelter Plus Care,¹³ we highlighted the importance of departments having a working knowledge of software applications unique to their department, and that IT's responsibility should be to provide guidance and assistance. In October 2013, in response to our audit recommendation, the IT director sent an email to all department heads asking them to confirm their "department application leaders" for all departmental software applications. The communication reminded department directors that the application leaders are to serve as the departmental line-of-business expert. These experts should be thoroughly familiar with the day-to-day operational features and functions of software applications for which they are responsible, including producing management reports, and rely on IT for only technical assistance such as programming. Public Works does not yet have a "business-line expert" who can develop the RouteSmart reports needed for effective oversight and management.

Route-specific reports would help management identify reasons and trends for customer complaints

Public Works management said they would like route-specific reporting to better understand why customer complaints for refuse services increase significantly during the month following annual route bids, which allows drivers to select the route they want to drive for the next year. Management believes it can use this information to determine whether the increase in complaints occurs due to changes in driver routes that result from that process. Management's implementation of RouteSmart equalized route workloads and eliminated some of the advantages of the route-bidding process, but the bidding practice continues. Our analysis of complaints showed that spikes do occur after the bidding process, and at various other times during the year. Route-specific reporting would allow management to monitor and understand the reasons for any spike in customer complaints and develop corrective action.

¹³ Shelter Plus Care audit report is available at http://www.cityofberkeley.info/uploadedFiles/Auditor/Level_3_General/C%201_RPT_Audit%20Report_Final_043013.pdf

Mobile technology would provide efficiencies and reduce reliance on IT

Mobile technology would allow configuration of direct links between RouteSmart, the CRM system, and the City's financial system, and would allow Public Works to:

- Implement electronic route books.
- Provide automated reporting from the field, including the Daily Truck Reports.
- Allow drivers to enter information directly into the CRM system while on their routes.
- Allow drivers to take pictures of why they skipped scheduled pickups.
- Improve quality of service and, thus, customer service
- Reduce staff and supervisory time on customer service complaints and missed pickups

Use of this technology could potentially lead to financial benefits of the routing efficiencies when, over time, quality-of-service improvements allow for a reduction in the number of refuse-collection routes. The City will likely experience other unquantified savings from process changes such as reducing paper and ink costs by not printing paper route books and truck reports. The costs of mobile technologies will depend on the vendor chosen and the necessary recurring maintenance and upgrade needs.

Having someone become a line-of-business expert, either with the existing RouteSmart software or with new mobile technology, would reduce Public Works' reliance on IT and allow the department to develop reports timely to meet their management oversight needs. It would also allow Public Works to create new reports to measure progress toward achieving the City's zero waste goal. By clearly communicating their mutual expectations, Information Technology and Public Works can develop and plan for the effective use of improved technology and reporting needs.

Billing audit could generate annual revenue

Public Works staff perform limited reviews of commercial routes, conduct select site inspections, and work regularly with Finance staff to update information in the City's refuse billing system. However, the City has not performed a complete commercial billing audit since 2003 and the last comprehensive billing audit was performed in 1992 by an outside vendor. The 1992 audit resulted in eliminating one residential and one commercial route, and the

2003 audit identified at least 50 commercial customers that had stopped participating in the recycling program. The length of time since the last audits means the City may be missing out on revenue from improperly billed accounts and may be missing opportunities to make progress toward the zero waste goal. Based on this information, our office has added a refuse billing audit to its 2014 audit plan. Our audit is not intended to replace the need for a fully comprehensive route audit, but will help determine revenue-recovery potential.

Customer service cases closed before action is complete

311 staff create cases in the CRM system and route them to departments based on script flows programmed into the CRM system. The script flows show where cases are supposed to be routed for action and often involve multiple departments before a case is closed. However, staff sometimes receive information that leads them to inadvertently close a case before the flow is complete. This leads to missed revenue opportunities due to billing errors. For example, a case for new or changed service may be closed before it is routed to the Revenue Collection Division in the Department of Finance to set up or adjust the account billing. In addition to the lost revenue, these errors increase costs because staff must research and correct them if and when someone discovers them.

Community members cannot track the status of cases online; they must call 311

The City does not use the CRM capability for community members to check the status of their 311 cases online; instead, they must call 311 for updates. Information Technology implemented See-Click-Fix software in October 2013, which includes a feature for emailing status updates for 311 Call Center cases and letting community members know, upon closure of a case, what corrective actions were taken. However, because IT implemented See-Click-Fix as a pilot project, it is currently configured only for certain types of cases, which does not include missed pickups, and the automated email feature is not currently in use. IT staff said they are currently working with Public Works staff to program See-Click-Fix for 311 cases related to Public Works and waste collection services. Eliminating or reducing the number of customer call backs will save the City about \$0.05 for each call not made through 311 and greatly improve customer service.

Recommendations

The Department of Public Works should:

- 2.1 Work with the Department of Information Technology to configure the CRM system with a required field that auto populates valid route information based on address and service delivery type so that route-specific data can be collected on a going-forward basis.
- 2.2 Work with the Department of Information Technology to create a link between RouteSmart and the CRM system (or the software implementation of Recommendation 2.5 below).
- 2.3 Appoint individuals at the management, supervisory, and line staff levels to meet and identify Zero Waste Division operational and analytical reporting needs based on the performance goals at each level of the organization. Work with IT staff to determine responsibility and establish timelines for developing the reports.
- 2.4 Designate a business-line expert within the Zero Waste Division and require that expert to develop internal capacity to configure optimal collection routes and produce standardized reports for route-specific reporting using existing software (or the software implementation of Recommendation 2.5 below). The reports developed should allow measurement of the performance metrics developed in Recommendation 1.2 and 1.3 above.
- 2.5 Assess the benefits of using mobile technologies that would allow drivers to enter information directly into the CRM system while on their routes, take pictures of why pickups were skipped, and implement electronic route books and other mobile field reporting. Include in the assessment changes to job responsibilities that might require a meet and confer with union representatives. Purchase the software and hardware if cost beneficial.
- 2.6 Work jointly with the Department of Information Technology and the Department of Finance to develop and automate script flows in the CRM system to ensure that all cases undergo the appropriate reviews before a case can be closed.

The final step in the script flow should be a final review by someone who has authority to verify that all required steps have occurred before the case is closed.

- 2.7 Use the reports developed from implementing recommendation 2.4 to monitor customer complaints and determine what impact the annual bid process has on customer service. If the information demonstrates the annual bid process significantly affects customer service, meet and confer with union representatives to discuss the elimination the annual route bidding process to help reduce customer complaints and improve service delivery. Implement change if agreement is reached.

The Department of Information Technology should:

- 2.8 Create a method for community members to track the status of their cases online, which will reduce the call volume to the 311 Call Center.

***City Manager's
Response***

The City Manager agreed with the recommendations. The full response is at Appendix B.

FISCAL IMPACT

**Refuse-collection
revenues not enough
to cover fund deficit**

Refuse-collection revenues totaled \$33.3 million in fiscal year 2013 yet they were not enough to cover a fund deficit. The City's refuse collection fund had a negative balance of \$1.1 million at the end of fiscal year 2013, which Public Works covered with a loan from the workers' compensation fund in fiscal year 2014. The Council approved a new rate structure in May 2014 to help prevent a future fund deficit and provide funding for needed zero waste programs and construction projects. However, that funding is insufficient: proposed construction projects alone, such as rebuilding the materials recovery facility and the transfer station, were estimated to cost \$25 to \$30 million in 2005. This is more than the new rate structure can accommodate.

**Potential savings of
nearly \$500,000
annually**

Public Works could achieve \$496,000 in annual salary savings by changing to biweekly garbage collection service. This estimate does not include other items from implementing biweekly garbage service and other recommendations that we did not dollarize, such as:

- Savings on operation and maintenance costs from reducing the number of collection trucks.
- Savings on depreciation expense of unneeded collection trucks.
- Savings on landfill fees resulting from increased diversion.
- One-time revenue from selling unneeded collection trucks.
- Revenue enhancements from creating automated work flows in the CRM system to ensure that cases are not closed prior to any necessary billing changes.
- Cost savings for 311 from creating or purchasing an online portal that community members can use to check the status of cases and find out what actions have been taken.

While these items cannot be quantified at this time, they have the potential to achieve significant cost savings and revenue enhancements.

Public Works can realize savings from switching to biweekly garbage service only after the department is able to eliminate routes and reduce refuse collection positions through reassignment and, possibly, attrition. Public Works will not be able to see these savings in the immediate future as it will take time to make operational changes and increase efficiency, and work with the employee bargaining units if the elimination of routes requires reassignment of existing employees. Public Works will also need time to educate the community about improving zero waste efforts so that recyclable items do not end up in garbage bins.

CONCLUSION

Creating a written strategic plan will provide Berkeley the path to attain zero waste

Public Works' ability to achieve zero waste by 2020 depends on its ability to assess what is and is not working to increase diversion for each sector: single family residential, multifamily residential of five or more units, commercial, and self-haul. Berkeley already has many best practices in place, but there is not a written strategic plan to identify what actions remain, who is responsible for each action, and what specific and measurable goals to focus on to increase diversion of waste from landfills. Creating a strategic plan and obtaining Council approval for it will provide authority to carry out objectives and obtain the necessary funding to achieve stated goals.

Allocating funds for education programs will help Berkeley resume its progress toward zero waste

Berkeley met the County goal of 75 percent diversion in 2010 with minimal outreach to the community, but has remained near that level since then. Increasing funding for education, outreach, compliance, and enforcement will help Berkeley resume its progress toward zero waste. A national zero waste summit identified comprehensive and ongoing education programs in every sector of the community as a critical component throughout every phase of transition to a zero waste culture. It identified the need for education to focus on the benefits of recycling and composting, as well as the logistics for how to proceed toward achieving zero waste. It recommended having funding dedicated to education, and suggested a minimum of \$3 per person per year after achieving 70 percent diversion. Berkeley can establish a regulatory fee to fund these activities since they deal directly with increasing diversion and the state mandates that every jurisdiction have a recycling program.

Public Works is making progress

Public Works is making progress towards zero waste goals and has already begun the process of implementing some of our audit recommendations. We would like to thank the Department of Public Works for demonstrating a commitment to achieving zero waste by requesting this audit to help them get there. We would also like to thank management for being receptive to our findings and recommendations, and Zero Waste Division and Department of Information Technology staff for their continued cooperation.

APPENDIX A:

Scope and Methodology

We audited the progress that the Zero Waste Division in the Department of Public Works has made toward achieving the City's goal of zero waste by 2020. We focused on industry best-practices and compared those to the City's actual practices. We included the City's efforts and progress made through March 2014. We met with management to determine how the City is planning to achieve county and city goals for zero waste by 2020. We reviewed audit reports from other jurisdictions, reports from solid waste associations and zero waste professionals, and the results of a zero waste summit. We reviewed applicable regulations for solid waste at the national, state, county, and city levels. We talked to representatives from CalRecycle, the state's waste management division; and StopWaste, the county's zero waste division, to determine Berkeley's compliance with waste-diversion requirements. We met with staff in the Zero Waste Division and 311 to understand what role they play in the zero waste process. We also visited the transfer station and the Community Conservation Center to see how the City processes waste and recyclables.

We contacted the private haulers that have active licenses with the City as a part of this audit to compare their practices to the City's. Our information requests to those two haulers were only briefly answered and did not provide the support and documentation requested. Based on the limited responses received, we cannot determine whether the private haulers' practices meet or exceed Berkeley's.

Data Reliability

We performed a limited assessment of the reliability of the Customer Relationship Management system (CRM). The data in the CRM system does not materially support our findings, conclusions, or recommendations, but our report does include some recommendations regarding improved and more detailed reporting from the CRM system. Therefore, we limited our assessment to reviewing the data input and contained in the CRM system and comparing the data to certain reports generated from the program to ensure reporting is complete. We also had management that is knowledgeable about the CRM System complete a questionnaire about the database so we would could gain an understanding of its functionality and use. We determined that the data were sufficiently reliable for the purpose of this report.

Standards Compliance Statement

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

APPENDIX B

Audit Findings, Recommendations, and Management Response Summary

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal

Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
Finding 1: Insufficient data and resources (for planning, strategy, or execution) dedicated to Berkeley's zero waste by 2020 resolution				
<p>1.1 Request the City Council to redefine and then reaffirm its commitment to zero waste (i.e., the percentage that the Council considers to be success), and to ensure sufficient resources to fund appropriate staffing and the necessary infrastructure to achieve stated goals by 2020.</p>	<p>Public Works</p>	<p>Agree This is consistent with the strategic approach the Public Works Department has taken to correct operational deficiencies and create an organization more capable of continuing the work to reach the City's zero waste goal. The Department is poised to undertake an open search for a new ZWD Manager whose input, perspective, and anticipated professional expertise will be essential in analyzing the resources necessary to achieve the goal and drafting suitable recommendations to Council.</p>	<p>June 2015</p>	

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<p>1.2 Draft and obtain Council approval of a written strategic plan to achieve zero waste by 2020, including annual or biennial interim waste diversion goals. Topics that the strategic plan should discuss include:</p> <ul style="list-style-type: none"> • Objectives and long-term and interim goals • Actions to be taken • Responsible parties • Expected cost and impact of implementation • Performance measures • External factors affecting performance and progress 	Public Works	<p>Agree</p> <p>The Public Works Department has taken a strategic approach to solving the structural deficit and making progress toward our zero waste goal. The Department improved the efficiency of operations, followed the strategies in the Climate Action Plan, is currently completing a commercial franchise study, and in May 2014 completed a Prop 218-compliant rate increase. PW will continue to focus on maintaining efficient operations, high quality customer service, and improvements to waste diversion efforts.</p> <p>The Department will take the next step toward zero waste by reassessing the current situation, and developing a strategic plan intended to guide the Department through the increasingly difficult path to zero waste. Part of this process requires evaluating the existing Transfer Station infrastructure, along with what might be required to reach the zero waste goal as defined.</p>	December 2015	

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<p>1.3 Prepare detailed annual work plans that contain:</p> <ul style="list-style-type: none"> • Objectives • Annual/biennial (short-term) goals • Actions to be taken • Budget allocated for the actions • Timeline for completion • Lead staff responsible for task completion • Full-time equivalent employees assigned to the tasks • Performance measures 	Public Works	<p>The strategic plan will be flexible so that annual work plans can be designed to address changing conditions.</p> <p>Public Works will build upon relevant content in the 2005 Solid Waste Management Plan, the 2009 Climate Action Plan, and incorporate input from the Zero Waste Commission.</p>	June 2015	
		<p>Agree</p> <p>Public Works will continue to prepare its annual work plan under the direction of the City Manager, in coordination and consistent with other Department work plans.</p> <p>Goals, objectives, and actions for the Zero Waste program will be organized and managed by the Zero Waste Manager.</p>		

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
1.4 Regularly communicate zero-waste goals and achievements to City staff and the Council, and offer training to staff on how they can help Berkeley achieve zero waste. This includes sharing strategic and annual work plan goals and regular updates regarding progress and completion.	Public Works	Agree Prepare an annual report to Council, highlighting progress toward strategic plan and work plan goals to achieve zero waste in Berkeley.	Jan 2015		
1.5 Determine if additional funds are needed for the education, outreach, compliance, and enforcement necessary to reach zero-waste goals. If sufficient funds are not available, propose to Council a separate fee to cover those costs for the City's zero-waste program, such as a regulatory fee as allowed under Proposition 218.	Public Works	Agree The Public Works Strategic Plan process will evaluate and identify the necessary resources, and if funding is insufficient, a recommendation will be made to consider an Integrated Waste Management Fee or other appropriate mechanism to fund additional staffing and/or outreach needs.	July 2015		

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<p>1.6 Update the City's Zero Waste website to include easily accessible information regarding:</p> <ul style="list-style-type: none"> • How and where to recycle materials that are not accepted in curbside collection. • What can be brought to the transfer station and materials recovery facility. • Zero waste goals and progress toward those goals. <p><u>StopWaste.org</u> is a good example and has resources that Berkeley can direct customers to use. Updates should be made as changes are made to the list of materials accepted through each waste stream.</p>	Public Works	Agree	May 2015	

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<p>1.7 Engage in discussions with the California Department of Resources Recycling and Recovery to obtain permission to collect garbage biweekly instead of weekly while maintaining weekly collection of compostables. Perform additional education and outreach prior to implementing biweekly garbage service to educate the public on the change. Alternatively, seek permission to implement a pilot project for biweekly garbage service.</p>	Public Works	<p>Agree</p> <p>The ZWD will investigate the process of obtaining legal permission to pilot biweekly rubbish collection. We will identify the operational and outreach preparation necessary to evaluate the feasibility of this pilot.</p>	October 2015	

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
Finding 2: Limited use of available technologies affects operational efficiencies					
2.1 Work with the Department of Information Technology to configure the CRM system with a required field that auto populates valid route information based on address and service delivery type so that route-specific data can be collected on a going-forward basis.	Public Works	Agree	December 2014		
2.2 Work with the Department of Information Technology to create a link between RouteSmart and the CRM system (or the software implementation of Recommendation 2.5 below).	Public Works	Agree Zero Waste will work with IT to create the most efficient link between RouteSmart and the CRM system that can be created, given available resources. One solution, budget permitting, would be implementing the best of breed billing system that integrates with RouteSmart, rather than to trying to configure the CRM system to handle functions it was never designed to handle.	April 2015		

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<p>2.3 Appoint individuals at the management, supervisory, and line staff levels to meet and identify Zero Waste Division operational and analytical reporting needs based on the performance goals at each level of the organization. Work with IT staff to determine responsibility and establish timelines for developing the reports.</p>	Public Works	Agree.	February 2015	
<p>2.4 Designate a business-line expert within the Zero Waste Division and require that expert to develop internal capacity to configure optimal collection routes and produce standardized reports for route-specific reporting using existing software (or the software implementation of Recommendation 2.5 below). The reports developed should</p>	Public Works	Agree	October 2014	

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<p>allow measurement of the performance metrics developed in Recommendation 1.2 and 1.3 above:</p> <p>2.5 Assess the benefits of using mobile technologies that would allow drivers to enter information directly into the CRM system while on their routes, take pictures of why pickups were skipped, and implement electronic route books and other mobile field reporting. Include in the assessment changes to job responsibilities that might require a meet and confer with union representatives. Purchase the software and hardware if cost beneficial.</p>	Public Works	<p>Agree</p> <p>The Zero Waste Division will work with Information Technology and Human Resources Departments to assess the pros, cons, and feasibilities of mobile technologies (hardware and software).</p>	December 2015	

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
2.6 Work jointly with the Department of Information Technology and the Department of Finance to develop and automate script flows in the CRM system to ensure that all cases undergo the appropriate reviews before a case can be closed. The final step in the script flow should be a final review by someone who has authority to verify that all required steps have occurred before the case is closed.	Public Works	Agree	April 2015	
2.7 Use the reports developed from implementing recommendation 2.4 to monitor customer complaints and determine what impact the annual bid process has on customer service. If the information demonstrates the annual bid process significantly affects customer service, meet	Public Works	Agree Zero Waste will use the CRM system to monitor customer complaints and help assess the effect of the yearly bid process.	May 2015	

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
and confer with union representatives to discuss the elimination the annual route bidding process to help reduce customer complaints and improve service delivery. Implement change if agreement is reached.					
2.8 Create a method for community members to track the status of their cases online, which will reduce the call volume to the 311 Call Center.	Information Technology	Agree This functionality will be available after the upgrade of our CRM system is complete, currently scheduled to be no later than the end of FY 2015.	June 2015		

APPENDIX C

Achieving Zero Waste

On Average, Each Individual in the U.S. Discards 4.4 Pounds of Waste Daily

Despite significant progress in promoting recycling and other strategies to manage waste in more economically, socially, and environmentally beneficial ways, Americans are still producing too much waste. According to an Alameda County Waste Prevention and Sustainability Case Study, on average, each individual in the U.S. discards approximately 4.4 pounds of material each day:

- 30% is recycled or composted
- 15% is burned at incineration facilities
- 56% is disposed of in landfills

Local governments are in a unique position to impact the waste stream from their own internal operations and from the community as a whole. Waste-prevention activities undertaken by a jurisdiction also form a fundamental link between governmental operations and programs to increase community sustainability.

Waste Generation and its Management Have a Substantial Impact on Community Sustainability

Waste generation and how waste is managed have a dramatic impact on the overall sustainability of a community. Collecting and disposing of solid waste is expensive, adversely affecting the financial situation of the local government that carries out these duties and the residents and businesses that pay taxes or directly fund their waste disposal costs. Waste generation and disposal also have a dramatic effect on the natural environment. The use of disposable products strains resources and ecosystems used to produce those products in numerous ways:

- Through mining activities
- The use of timber and other natural resources
- Chemical releases during the manufacturing process

The disposal of these products also has environmental impacts such as air quality at incinerators and potential for groundwater contamination at landfills. Beyond the environmental and economic impacts, there are also social costs to waste generation, whether it is the impact that the above environmental conditions can have on human health or the conversion of valuable landscapes to landfills and the negative impacts that they can have on surrounding communities. Alternatively, waste management can provide economic opportunities in new recycling industries, decreasing the amounts of materials that need to be purchased, or “closing the loop” – taking a former waste product and using it as the input for another industry, often reducing the costs for both parties. Decisions about how waste is

managed also influence the environmental issues mentioned above; and alternative disposal techniques can create jobs, reduce health impacts, and increase the efficiency of operations.

Recycling, Remanufacture, and Reuse Create Many More Jobs Than Landfills

Recycling, remanufacture, and reuse have economic value. For every 10,000 tons of

- waste land filled, only 1 job is created
- organic materials composted, 4 jobs are created
- recyclables processed through conventional materials recovery facilities, 10 jobs are created
- recyclables processed by recycling-based manufacturers, 25 jobs are created
- reusables processed, 18 to 300 jobs are created

The recycling industry in America is as large as the automobile and trucking industry, and in California, is as large as the movie and video industry. Recycling a ton of “waste” has twice the economic impact of burying it in the ground. Recycling one additional ton of waste instead of sending it to landfills will:

- Pay \$101 more in salaries and wages.
- Produce \$275 more in goods and services.
- Generate \$135 more in sales.

America is Transitioning Toward a Zero Waste Society

According to the National Waste and Recycling Association, America is transitioning slowly but surely towards a zero waste society. The objective of zero waste is to reduce the waste stream to the point that no commercially achievable economic value exists for the remaining residual waste. Eco-Cycle, a nonprofit organization providing zero waste services, held a Zero Waste Summit and their conclusions support this contention. In a 2012 white paper, they stated that landfills and incinerators are no longer our only choices for managing society’s discards. There is a third option now for communities that create jobs, protect the environment, and strengthen the local economy. That option is zero waste.

Berkeley was the first city in the nation to offer curbside recycling

The City of Berkeley has a history of leadership in the effort to divert solid waste from landfills. Berkeley was the first city in the nation to offer curbside recycling. In 1976, City Council established a 50% waste diversion goal, 13 years before the goal was mandated by the State through the California Integrated Waste Management Act.

Sources – More Information Available in Complete Reports

The information in Appendix C was excerpted from the following:

- ICLEI – Local Governments for Sustainability USA report *Waste Prevention and Sustainability: Case Studies for Local Governments* prepared for [StopWaste.org](http://www.stopwaste.org) in August 2005: <http://www.stopwaste.org/docs/casestudiesprint.pdf>
- Institute for Local Self-Reliance: <http://www.ilsr.org/recycling-means-business/>
- United States Environmental Protection Agency – Results of the National Recycling Economic Information Study: <http://www.epa.gov/waste/conserve/tools/rmd/rei-rw/result.htm>
- California Integrated Waste Management Board: Recycling – Good for the Environment – Good for the Economy: <http://www.calrecycle.ca.gov/Publications/Documents/Economics%5C41004002.pdf>
- National Waste & Recycling Association – Zero Waste: <https://wasterecycling.org/>
- EcoCycle – 10-Year Bridge Strategy to Zero Waste: <http://www.ecocycle.org/bridgeStrategy>
- Berkeley's Climate Action Plan: http://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/Berkeley%20Climate%20Action%20Plan.pdf

APPENDIX D

1995 to 2011 Diversion Rates¹ by Alameda County Jurisdiction

Source: <http://www.stopwaste.org/docs/diversion-rates-by-jurisdiction.pdf>

Jurisdiction	1995	1996	1997	1998	1999	2000	2005	2006	2007	2008	2009	2010	2011
Alameda	48%	48%	56%	59%	64%	65%	68%	66%	66%	67%	71%	75%	72%
Albany	42%	52%	61%	60%	56%	62%	70%	70%	71%	77%	78%	83%	79%
Berkeley	41%	41%	41%	42%	50%	49%	59%	57%	62%	66%	72%	76%	74%
Dublin	26%	37%	43%	31%	33%	54%	55%	56%	61%	66%	73%	75%	73%
Emeryville	51%	61%	49%	41%	42%	48%	64%	75%	63%	74%	70%	77%	65%
Fremont	49%	54%	50%	47%	57%	62%	63%	64%	64%	68%	71%	74%	73%
Hayward	41%	39%	44%	45%	44%	52%	62%	65%	56%	68%	68%	67%	71%
Livermore	26%	25%	45%	37%	38%	50%	63%	63%	60%	64%	71%	73%	74%
Newark	27%	34%	49%	50%	48%	53%	62%	66%	67%	72%	75%	69%	72%
Oakland	27%	34%	39%	40%	41%	52%	58%	59%	57%	66%	67%	65%	65%
Piedmont	47%	47%	50%	52%	60%	63%	64%	66%	68%	72%	84%	75%	69%
Pleasanton	28%	35%	47%	50%	43%	48%	53%	53%	55%	61%	71%	71%	73%
San Leandro	34%	37%	45%	46%	42%	51%	59%	65%	64%	73%	61%	69%	77%
Union City	49%	53%	62%	61%	59%	61%	62%	64%	71%	76%	77%	77%	75%
Unincorporated ²	56%	51%	59%	58%	63%	65%	60%	69%	60%	63%	59%	67%	76%
Average	39%	43%	49%	48%	49%	56%	61%	64%	63%	69%	71%	72%	73%
County-Wide Weighted Rate ³	37%	42%	47%	46%	48%	54%	59%	61%	61%	67%	69%	70%	72%

¹ Diversion rates calculated by StopWaste.org using data submitted to CalRecycle by the listed jurisdictions.

² Unincorporated area includes Castro Valley Sanitary District and Oro Loma Sanitary District.

³ StopWaste.org derived the countywide rate prior to 2007 using a calculated diversion rate equal to total tons disposed of in Alameda County divided by tons generated in Alameda County, using data from each jurisdiction's annual reports submitted to the California Integrated Waste Management Board. Beginning in 2007, the countywide rate was calculated using a different methodology, with a weighted average diversion rate based on the population of each jurisdiction and its target disposal per capita.

APPENDIX E

Sample Strategic Plan

Strategic plans are sometimes prepared in a report style that provide a great deal of background information, but are less user-friendly than the table format presented here. Text-dense documents require the people responsible for implementing strategies to sort through the information to find out specifically what needs to be done, what resources are needed, and who is responsible for the work. A more friendly option is a table format that management can provide as an attachment to a document with background information, or as a stand-alone item. This format works equally as well for annual work plans, though the detail is specific to the goals and activities to be completed during the year.

GOALS	STRATEGIES	ACTIVITIES	RESPONSIBILITY	FUNDING	PERFORMANCE MEASURES	TARGET COMPLETION DATE	STATUS
Identify incremental goal (e.g., reduce materials sent to landfills from the commercial waste stream by x%)	Identify strategies to achieve goal (e.g., education, outreach, compliance monitoring, enforcement)	Identify activities that will be performed to achieve the goal (e.g., onsite education events, staff inspection of waste bins)	Identify staff responsible for achieving the goal and the number of full-time employees dedicated to the work (usually by position title, not name)	Identify the funding source and funding needed to complete the activities	Identify change in performance expected to be achieved after performing the strategy tasks	Cite the expected completion date for the strategy (some may be ongoing because they will need to be continued over the life of the program, but interim goals should have specific dates)	Report the current status toward achieving the goal; identify reasons if not expected to meet target completion date
Objective: State the objective (e.g., state, county, or city waste-reduction requirement)							

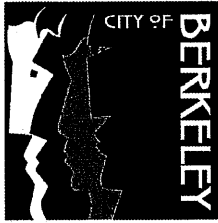
APPENDIX F

City, County, and State Zero Waste Related Legislation

Government	Legislation
City of Berkeley	<ul style="list-style-type: none"> ▪ Ordinance 6,904-N.S. and Resolution 62,849-N.S. http://www.ci.berkeley.ca.us/recordsonline/search.aspx <ul style="list-style-type: none"> ▫ 75% diversion from landfills by 2010 ▫ Zero waste by 2020
County of Alameda	<ul style="list-style-type: none"> ▪ Measure D http://www.stopwaste.org/docs/measure-d.pdf https://www.stopwaste.org/docs/recycling_plan_-_2006_revised.pdf <ul style="list-style-type: none"> ▫ 75% diversion of readily recyclable materials from landfills by 2010 ▪ Ordinance 2012-1 https://www.stopwaste.org/docs/ordinance_2012-1_mandatory_recycling-executed.pdf <ul style="list-style-type: none"> ▫ Less than 10% of materials destined to the landfill are readily recyclable or compostable by 2020; applicable only to commercial, multifamily residential, and self-haul waste
State of California	<ul style="list-style-type: none"> ▪ Assembly Bill 341 http://www.leginfo.ca.gov/pub/11-12/bill_asm/ab_0301-0350/ab_0301-0350_ab_341_bill_20111006_chaptered.pdf <ul style="list-style-type: none"> ▫ 50% diversion from landfills by 2000; mandate that local jurisdictions implement a commercial recycling program ▫ 75% diversion from landfills by 2020

APPENDIX G Waste Diversion Resources

Organization	Resource	Web Location
City and County of San Francisco	Zero Waste Strategic Plan	http://www.sfenvironment.org/sites/default/files/editor-uploads/zero_waste/sfe_zw_strategic_plan_14.pdf
City of Oakland	Zero Waste Strategic Plan	http://greencitiescalifornia.org/assets/waste/Oakland_zero_waste_Strategic-Plan-Staff-Report-2006.pdf
	Zero Waste Strategic Plan Update Supplemental System-Design-Staff-Report-2012.pdf	http://greencitiescalifornia.org/assets/waste/Oakland_zero_waste_Supplemental-System-Design-Staff-Report-2012.pdf
City of San Jose	Zero Waste Strategic Plan	http://www.sanjoseca.gov/DocumentCenter/View/1020
Ecocycle.org	10-year Bridge Strategy to Zero Waste	http://www.ecocycle.org/bridgestrategy
Sloan Vazquez, LLC	Solid Waste Recycling Assessment Report and Presentation	http://www.cityofberkeley.info/Clerk/City_Council/2011/03Mar/City_Council_03-08-2011_-_Special_Meeting_Agenda.aspx
StopWaste.org	2008 Alameda County Waste Characterization Study	http://www.stopwaste.org/docs/acwcs-2008r.pdf
	Compliance Guide for Businesses	https://www.stopwaste.org/docs/mrcomplianceguideforbiz.pdf
	Zero Waste Resources and Information	http://www.stopwaste.org/home/index.asp?page=1



Office of the City Manager

INFORMATION CALENDAR

January 23, 2018

To: Honorable Mayor and Members of the City Council
From: Dee Williams-Ridley, City Manager
Submitted by: Phillip L. Harrington, Director, Department of Public Works
Subject: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress towards the Year 2020 Zero Waste Goal
Public Works Zero Waste Division Update Status Report

INTRODUCTION

The Berkeley Office of the City Auditor presented to the City Council a July 1, 2014 Report: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress towards the Year 2020 Zero Waste Goal¹ (The Audit Report). The City Auditor conducted the Audit Report at the Public Works Director's request to assess Public Works' Zero Waste Division progress towards the Year 2020 Zero Waste Goal. Due to the delay in hiring a new Solid Waste & Recycling Manager, Public Works was unable to meet Audit Report's update time frame. This is the initial status report on the efforts made to implement the Audit Report's recommendations.

CURRENT SITUATION AND ITS EFFECTS

The Audit Report noted fifteen (15) recommendations for the Public Works Department (PWD) and its Zero Waste Division (ZWD) to review, implement and report to Council. The first set of seven (7) recommendations were related to zero waste goals and ZWD's operational components and the second set of eight (8) recommendations focused on PW/ZWD working with the Department of Information Technology (IT) to utilize technology to interface with routes, staff and the customers.

As of the writing of this Audit Report, three recommendations have been implemented, two recommendations are partially implemented; nine recommendations remain unimplemented; and one recommendation has been declined with a will not implement status.

The Public Works Zero Waste Division's progress toward implementing the audit recommendations has been hindered by staff vacancies, including management positions, and competing priorities. The next report to Council is expected to be presented on July 10, 2018.

Recommendation 1.1

¹ https://www.cityofberkeley.info/uploadedFiles/Auditor/Level_3_-_General/A%20RPT_Zero%20Waste_Final.pdf

Status: Not implemented. The Zero Waste Commission submitted to the City Council its recommendation for the City to develop an RFP to: 1) develop a Zero Waste Strategic Plan (Plan) to delineate terminology, 2) define and clarify what the City's Zero Waste Goal will be, and 3) develop plan for the Public Works - Zero Waste Division to implement to attain that goal. The City Council concurred with this recommendation which was an item on its October 17, 2017 Action Calendar for the Zero Waste Division to develop the RFP for the development of the Plan.

Recommendation 1.2

Status: Not implemented. The City's Solid Waste Management Plan (1986) and Source Reduction and Recycling Element (1992) are the City's most recent documents guiding the City's actions toward the goal of zero waste. Although the City's Solid Waste Management Plan Update (2005) wasn't formerly adopted by the City, it was designed to achieve the 2010 goal of reaching 75% diversion. The City is currently achieving 76% diversion based on FY2015 information.

The Zero Waste Commission and the City Auditor each concluded independently that a comprehensive, written strategic plan that clearly defines roles and responsibilities and assigns sufficient resources is needed to guide the City towards the goal of achieving zero waste.

Recommendation 1.3

Status: Not implemented.

With a third-party firm in-place, the Plan development will proceed with all stakeholders' input solicited, reviewed and included. With approved by both the Zero Waste Commission and City Council, a fully vetted and approved Zero Waste Strategic Plan will provide Public Works a detailed road map to attain a zero waste goal. With these elements agree to then annual/biennial goals, budget allocations, timelines for completion, employees' assigned task and performance measures will be concisely identified and assigned to meet the zero waste goal.

Recommendation 1.4

Status: Partially implemented. The Zero Waste Commission submitted to the City Council its recommendation for the City to develop an RFP to: 1) develop a Zero Waste Strategic Plan (Plan) to delineate terminology, 2) define and clarify what the City's Zero Waste Goal will be, and 3) develop plan for the Public Works - Zero Waste Division to implement to attain that goal. The City Council concurred with this recommendation which was an item on its October 17, 2017 Action Calendar for the Zero Waste Division

to develop the RFP for the development of the Plan. With the Plan, annual work plans and updates are more easily determined.

Nonetheless progress has been made, such as: the ZWD has undertaken a City Facilities Greening Project to ensure that all City-owned facilities have the appropriate containers with signage for trash, recyclables (bottles/cans and fiber), and organics; and that City staff receive training on the acceptable materials to place in each container type. The recent, May through September 2017, renovation of 1947 Center Street is being used as a pilot for this Project.

In celebration of Earth Day 2017, the ZWD hosted a Zero Waste Earth Day Fair for City employees to get answers to all of their recycling-related questions, play games, enjoy zero waste snacks, and talk trash with ZWD staff. This event was attended by more than 100 City employees.

Recommendation 1.5

Status: Partially implemented. Since September 2016, Public Works' has hired the Zero Waste Division's Solid Waste & Recycling Manager, Greg Apa, and Recycling Program Manager, Heidi Obermeit, who have 29 and 10 years, respectively, of solid waste industry experience. With their extensive background in the solid waste industry, they are in the process of reviewing, assessing and addressing Zero Waste's current efforts to educate and as needed the expansion of educational outreach to the community members and commercial businesses, both existing and new. Outreach educational materials are somewhat dated and these materials may be updated and customized as required with more current graphics and narratives.

In addition, the ZWD has hired a Field Service Representative who assists ZWD's education and compliance efforts with all community members and businesses.

In 2018, the current Council approved rate structure will requires an updated rate study including the cost of increased educational outreach and training for handling of recyclable materials to ensure a sustainable rate structure to achieve the zero waste goals that the Council has set for Public Waste and Zero Waste Division.

Recommendation 1.6

Status: Implemented. ZWD is continuously streamlining and updating the City's and ZWD's website to include: guidelines to recycle plant debris and food waste: information on the mandatory recycling requirements for businesses and multi-family properties in Alameda County: and links to other recycling resources in the area. Further, the ZWD has made available guidelines to help designers of multifamily, commercial, and mixed-use buildings plan for recycling collection when designing new buildings or renovations.

In conjunction with the City's Public Information Officer, the ZWD has distributed press releases to educate the general public about the appropriate material to place in their refuse, recycling and green compost carts, extra pick-up bags, proper cart placement,

Recommendation 1.7

Status: Will not be implemented. Although a Solid Waste & Recycling Manager and Recycling Program Manager is on staff, the Zero Waste Division, as an enterprise funded collection service division, is unstaffed and inexperienced to engage in the process change of State Law, which requires weekly collection of refuse. In addition, this would require significant lobbying of CalRecycle to approve a pilot program to collect refuse other than on a weekly basis.

Finding 2: Limited use of available technologies affects operational efficiencies.

Recommendation 2.1

Status: Not implemented. Currently the City is implementing an Enterprise Resource Planning (ERP) project to replace the FUNDS\$ system including the CRM application. ERP is a software with financial (accounting, billing, budget, contracts) and human resource (time entry, personnel, payroll, benefits) applications. As part of this project, ZWD has been working with IT and its consultant during the needs assessment phase to ensure that RouteSmart™ will interface with the selected software. Until ERP is completed, the use of RouteSmart™ full capabilities, such as auto-populating the route data, cannot be implemented.

Recommendation 2.2

Status: Not implemented. IT has been able to create a table that extracts customer information from the FUNDS\$ and RouteSmart™. However and due to the limitations of FUNDS\$, this link currently takes hours to download information into RouteSmart™ versus that the company states should take minutes. Therefore until the installation of the ERP process is completed, RouteSmart™ cannot be used to its full route optimization capabilities.

Recommendation 2.3

Status: Implemented. ZWD along with IT, 311 Call Center, and Revenue Collection have established a monthly meeting to address operational and reporting needs; and create action plans to address those identified needs. These reports included reviewing and analyzing as a Group: 1) monthly 311 calls on various the community members zero waste issues, 2) develop resolutions on community members' zero waste issues, and 3) review and resolve community members' LAGAN cases created by 311 calls.

Recommendation 2.4

Status: Not implemented. In late 2016 and with RouteSmart™ staff input, ZWD reviewed its current staff capability to implement complete routing needs. And it was determined, the ZWD staff is not currently capable of this effort. ZWD has only recently achieved sufficient fund balance to have the funding ability to budget and requisition this job classification with its annual budget. With the completion of the optimization of commercial routing, ZWD and in collaboration with IT will propose to fund this position in FY2019.

Recommendation 2.5

Status: Not Implemented. ZWD with IT input has been working with the RouteSmart™ to determine if ZWD can utilize its mobile technology to improve route management and provide real-time service data to the customer service representatives in the 311 Call Centers. Fixed unit GPS units are available in the marketplace to track truck movements, such as, missed pickups and PW is in the process of developing an IFB to implement and install.

However and with any mobile technology, these systems are constantly evolving and improving. Therefore, any investment in a mobile system will not be implemented until the City's ERP project vendor selected, contract awarded and then ZWD/IT needs assessment completed to ensure any hardware/software can communicate with the City's selected ERP.

Recommendation 2.6

Status: Implemented. ZWD, IT, 311 Call Center, and Finance have developed script flows with use of the CRM tracking systems to ensure all cases receive appropriate review prior to closing. These cases are compiled and reviewed weekly and monthly by ZWD, IT, 311 Call Center, and Finance staff.

Recommendation 2.7

Status: Not implemented. ZWD currently collects 62 commercial route days that include: 42 - refuse route days, 11 - fiber (cardboard, paper) route days, 5 - mixed recyclable route days and 6 - plant debris/food waste routes days. After the new 440 commercial accounts are optimized, during January/February 2018, with existing commercial accounts/routes, ZWD will be in the position to numerically determine if the annual bid system is affecting customer service. With this information completed, then ZWD would have information to meet and confer with the Union.

Recommendation 2.8

Status: Not Implemented. Currently 311 team members create cases and assign them to the appropriate service queue for ZWD investigation and response. This system allows the City to internally track issues but the ability of community member to track independently or via the City website has not been linked.

BACKGROUND

On March 22, 2015, the Berkeley City Council adopted Zero Waste Resolution No. 62,849-N.S reaffirming its commitment to meet the Alameda County Measure D goal of reducing waste sent to landfills by 75%, and setting a goal of zero waste sent to landfills by year 2020. The Resolution does not define a specific zero waste percentage for Berkeley, but the language used in therein implies that the Council's intention is diversion of 100 percent of waste from landfills.

In its October 17, 2017 presentation of the Zero Waste Strategic Plan to the City Council, the Zero Waste Commission recommended the City move forward immediately to meet our Zero Waste Goal by updating the Zero Waste Goal for current feasibility; and issuing an RFP to hire a consultant to develop a Zero Waste Strategic Plan intended to lead the City toward that goal. The City Council consented to this recommendation.

ENVIRONMENTAL SUSTAINABILITY

The increased diversion of recyclable materials, such as, cardboard, paper, plastic, etc., from the wastes being landfilled is an essential part of the City's Zero Waste Goal as described in the City's 2009 Climate Action Plan.

POSSIBLE FUTURE ACTION

As noted in the responses to the recommendations, the Zero Waste Commission and the Zero Waste Division will initiate appropriate efforts to address them.

FISCAL IMPACTS OF POSSIBLE FUTURE ACTION

Per the Audit 2014 Report recommendation, Public Works will update the Council on a periodic basis on the progress, resources available or to be made available or additional funding needs will be addressed in these subsequent updates assessing Zero Waste Division's efforts.

CONTACT PERSON

Greg Apa, Solid Waste & Recycling Manager (510) 981-6359

Attachments:

1. Auditor Matrix of Findings - Outstanding Audit Recommendations Summary Table

ATTACHMENT No. 1

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
Finding 1: Insufficient data and resources (for planning, strategy, or execution) dedicated to Berkeley's zero waste by 2020 resolution				
1.1 Request the City Council to redefine and then reaffirm its commitment to zero waste (i.e., the percentage that the Council considers to be success), and to ensure sufficient resources to fund appropriate staffing and the necessary infrastructure to achieve stated goals by 2020.	Public Works	<p>Agree</p> <p>This is consistent with the strategic approach the Public Works Department has taken to correct operational deficiencies and create an organization more capable of continuing the work to reach the City's zero waste goal.</p> <p>The Department is poised to undertake an open search for a new ZWD Manager whose input, perspective, and anticipated professional expertise will be essential in analyzing the resources necessary to achieve the goal and drafting suitable recommendations to Council.</p>	<p>June 2015</p> <p>June 2019</p>	<p>5/09/2017 Status: not submitted</p> <p>January 23, 2018 Update: Not Implemented</p> <p>The Zero Waste Commission submitted to the City Council its recommendation for the City to develop an RFP to: 1) develop a Zero Waste Strategic Plan (Plan) to delineate terminology, 2) define and clarify what the City's Zero Waste Goal will be, and 3) develop plan for the Public Works - Zero Waste Division to implement to attain that goal. The City Council concurred with this recommendation which was an item on its October 17, 2017 Action Calendar for the Zero Waste Division to develop the RFP for the development of the Plan.</p>

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Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<p>1.2 Draft and obtain Council approval of a written strategic plan to achieve zero waste by 2020, including annual or biennial interim waste diversion goals.</p> <p>Topics that the strategic plan should discuss include:</p> <ul style="list-style-type: none"> • Objectives and long-term and interim goals • Actions to be taken • Responsible parties • Expected cost and impact of implementation • Performance measures • External factors affecting 	Public Works	<p>Agree</p> <p>The Public Works Department has taken a strategic approach to solving the structural deficit and making progress toward our zero waste goal. The Department improved the efficiency of operations, followed the strategies in the Climate Action Plan, is currently completing a commercial franchise study, and in May 2014 completed a Prop 218-compliant rate increase. PW will continue to focus on maintaining efficient operations, high quality customer service, and improvements to waste diversion efforts.</p> <p>The Department will take the next step toward zero waste by reassessing the current situation, and developing a strategic plan intended to guide the Department through the increasingly difficult</p>	<p>June 2015</p> <p>June 2019</p>	<p>5/09/2017 Status: not submitted</p> <p>January 23, 2018 Update: Not Implemented The City's Solid Waste Management Plan (1986) and Source Reduction and Recycling Element (1992) are the City's most recent documents guiding the City's actions toward the goal of zero waste. Although the City's Solid Waste Management Plan Update (2005) wasn't formerly adopted by the City, it was designed to achieve the 2010 goal of reaching 75% diversion. The City is currently achieving 76% diversion based on FY2015 information. The Zero Waste Commission and the City Auditor each concluded independently that a comprehensive, written strategic plan that clearly defines roles</p>

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Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
performance and progress		<p>path to zero waste. Part of this process requires evaluating the existing Transfer Station infrastructure, along with what might be required to reach the zero waste goal as defined.</p> <p>The strategic plan will be flexible so that annual work plans can be designed to address changing conditions.</p> <p>Public Works will build upon relevant content in the 2005 Solid Waste Management Plan, the 2009 Climate Action Plan, and incorporate input from the Zero Waste Commission.</p>		<p>and responsibilities and assigns sufficient resources is needed to guide the City towards the goal of achieving zero waste. The Zero Waste Commission recommended and the City Council concurred at its October 17, 2017 Action Calendar concurred with Zero Waste Commission's recommendation for Public Works' Zero Waste Division to develop an RFP to: develop a Zero Waste Strategic Plan to delineate terminology, define and clarify what the City's Zero Waste Goal will be, and develop plan to attain the defined Strategic Plan's Zero Waste Goal.</p>	
1.3 Prepare detailed annual work plans that contain:	Public Works	<p>Agree</p> <p>Public Works will continue to prepare its annual work plan under the direction of the City Manager, in coordination and consistent with</p>	<p>December 2018</p> <p>June 2019</p>	<p>5/09/2017 Status: not submitted</p> <p>January 23, 2018 Update: Not Implemented The Zero Waste Commission submitted to the City Council its</p>	

ATTACHMENT No. 1

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<ul style="list-style-type: none"> (short-term) goals • Actions to be taken • Budget allocated for the actions • Timeline for completion • Lead staff responsible for task completion • Full-time equivalent employees assigned to the tasks • Performance measures 		<p>other Department work plans.</p> <p>Goals, objectives, and actions for the Zero Waste program will be organized and managed by the Zero Waste Manager.</p>		<p>recommendation for the City to develop an RFP to: 1) develop a Zero Waste Strategic Plan (Plan) to delineate terminology, 2) define and clarify what the City's Zero Waste Goal will be, and 3) develop plan for the Public Works - Zero Waste Division to implement to attain that goal. The City Council concurred with this recommendation which was an item on its October 17, 2017 Action Calendar for the Zero Waste Division to develop the RFP for the development of the Plan.</p> <p>With a third-party firm in-place, the Plan development will proceed with all stakeholders' input solicited, reviewed and included. With approved by both the Zero Waste Commission and City Council, a fully vetted and approved Zero Waste Strategic Plan will provide</p>

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Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
1.4 Regularly communicate zero- waste goals and achievements to City staff and the Council, and offer training to staff on how they can help Berkeley achieve zero waste. This includes sharing strategic and annual work plan goals and regular updates regarding progress and completion.	Public Works	Agree Prepare an annual report to Council, highlighting progress toward strategic plan and work plan goals to achieve zero waste in Berkeley.	January 2018 December 2019	5/09/2017 Status: not submitted January 23, 2018 Update: Partially Implemented With the newly re-staffed ZWC and new management at Zero Waste Division and once the Strategic Plan is completed and as part of the Strategic Plan, the Work Plan with goals, budget, timelines, FTEs and measurements will be developed. Then, Public Works will initiate annual reporting to Council. Nonetheless progress	

ATTACHMENT No. 1

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
				<p>has been made, such as: the ZWD has undertaken a City Facilities Greening Project to ensure that all City-owned facilities have the appropriate containers with signage for trash, recyclables (bottles/cans and fiber), and organics; and that City staff receive training on the acceptable materials to place in each container type. The recent, May through September 2017, renovation of 1947 Center Street is being used as a pilot for this Project. In celebration of Earth Day 2017, the ZWD hosted a Zero Waste Earth Day Fair for City employees to get answers to all of their recycling-related questions, play games, enjoy zero waste snacks, and talk trash with ZWD staff. This event was attended by more than 100 City employees.</p>

ATTACHMENT No. 1

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
1.5 Determine if additional funds are needed for the education, outreach, compliance, and enforcement necessary to reach zero-waste goals. If sufficient funds are not available, propose to Council a separate fee to cover those costs for the City's zero- waste program, such as a regulatory fee as allowed under Proposition 218.	Public Works	Agree The Public Works Strategic Plan process will evaluate and identify the necessary resources, and if funding is insufficient, a recommendation will be made to consider an Integrated Waste Management Fee or other appropriate mechanism to fund additional staffing and/or outreach needs.	July 2018 December 2019	5/09/2017 Status: not submitted January 23, 2018 Update: Partially Implemented Since September 2016, Public Works has hired the Zero Waste Division's Solid Waste & Recycling Manager, Greg Apa, and Recycling Program Manager, Heidi Obermeit, who have 29 and 10 years, respectively, of solid waste industry experience. With their extensive background in the solid waste industry, they are in the process of reviewing, assessing and addressing Zero Waste's current efforts to educate and as needed the expansion of educational outreach to the community members and commercial businesses, both existing and new. Outreach educational materials are somewhat dated and these materials may be	

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Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
				<p>updated and customized as required with more current graphics and narratives. In addition, the ZWD has hired a Field Service Representative who assists ZWD's education and compliance efforts with all community members and businesses. In 2018, the current Council-approved rate structure will require an updated rate study including the cost of increased educational outreach and training for handling of recyclable materials to ensure a sustainable rate structure to achieve the zero waste goals that the Council has set for Public Waste and Zero Waste Division.</p>	
1.6 Update the City's Zero Waste website to include easily accessible information regarding:	Public Works	Agree	December 2019 October 2016	5/09/2017 Status: not submitted	<u>January 23, 2018 Update:</u> Implemented

ATTACHMENT No. 1

Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
<ul style="list-style-type: none"> How and where to recycle materials that are not accepted in curbside collection. What can be brought to the transfer station and materials recovery facility. Zero waste goals and progress toward those goals. <p><u>StopWaste.org</u> is a good example and has resources that Berkeley can direct customers to use.</p> <p>Updates should be made as changes are made to the list of materials accepted</p>				<p>With the hiring of the Recycle Program Manager, ZWD is continuously streamlining and updating the City's and ZWD's website to include: guidelines to recycle plant debris and food waste; information on the mandatory recycling requirements for businesses and multi-family properties in Alameda County; and links to other recycling resources in the area. Further, the ZWD has made available guidelines to help designers of multifamily, commercial, and mixed-use buildings plan for recycling collection when designing new buildings or renovations.</p> <p>In conjunction with the City's Public Information Officer, the ZWD has distributed press releases to educate the general public about the appropriate material to place in their refuse,</p>

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Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
through each waste stream.				recycling and green compost carts, extra pick-up bags, proper cart placement.	
<p>1.7 Engage in discussions with the California Department of Resources Recycling and Recovery to obtain permission to collect garbage biweekly instead of weekly while maintaining weekly collection of compostables. Perform additional education and outreach prior to implementing biweekly garbage service to educate the public on the change. Alternatively, seek permission to implement a pilot project for biweekly garbage service.</p>	Public Works	<p>Agree</p> <p>The ZWD will investigate the process of obtaining legal permission to pilot biweekly rubbish collection. We will identify the operational and outreach preparation necessary to evaluate the feasibility of this pilot.</p>	N/A	<p>5/09/2017 Status: not submitted</p> <p>January 23, 2018 Update: Will not be Implemented Although a Solid Waste & Recycling Manager and Recycling Program Manager is on staff, the Zero Waste Division, as an enterprise funded collection service division, is unstaffed and inexperienced to engage in the process change of State Law, which requires weekly collection of refuse. In addition, this would require significant lobbying of CalRecycle to approve a pilot program to collect refuse other than on a weekly basis. The Audit Report states that there is the potential of</p>	

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Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
				\$496,000 annual cost savings by switching to biweekly garbage service. However and as noted in the Audit Report, this is based on assumptions which: 1) State law requires the refuse shall not remain on any premises more than seven (7) days. Berkeley would need to revise the State law, request a waiver or seek permission for a pilot program. This waiver or revision of State law will potentially require substantial lobbying members of City Council, State House of Representative(s) and Senator(s), as well as, of all the many County and State permitting and health agencies that would be involved to amend State law. 2) Require additional staff and funding to support a community educational outreach to ensure that refuse is not just reallocated

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Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal				
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary
				by community members to the recycling and plant debris carts. 3) Public Works would need to enter into negotiations with the employee bargaining unit to an agreement whether positions can be eliminated through attrition or reassignment.
Finding 2: Limited use of available technologies affects operational efficiencies				
2.1 Work with the Department of Information Technology to configure the CRM system with a required field that auto populates valid route information based on address and service delivery type so that route-specific data can be collected on a going-forward basis.	Public Works	Agree	December 2019	5/09/2017 Status: not submitted January 23, 2018 Update: Not implemented Currently the City is implementing an Enterprise Resource Planning (ERP) project to replace the FUNDS system including the CRM application. ERP is a software with financial (accounting, billing, budget, contracts) and human resource (time entry, personnel, payroll, benefits) applications. As part of this project, ZWD has been working with IT and its consultant during the needs

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Audit Title: Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal					
Findings and Recommendations	Lead Dept.	Agree, Partially Agree, or Do Not Agree and Corrective Action Plan	Expected or Actual Implementation Date	Status of Outstanding Audit Recommendations and Implementation Progress Summary	
2.2 Work with the Department of Information Technology to create a link between RouteSmart and the CRM system (or the software implementation of Recommendation 2.5 below).	Public Works	Agree Zero Waste will work with IT to create the most efficient link between RouteSmart™ and the CRM system that can be created, given available resources. One solution, budget permitting, would be implementing the best of breed billing system that integrates with RouteSmart, rather than to trying to configure the CRM system to handle functions it was never designed to handle.	April 2015 December 2019	5/09/2017 Status: not submitted <u>January 23, 2018 Update:</u> Not Implemented IT has been able to create a table that extracts customer information from the FUNDS and RouteSmart™. However and due to the limitations of FUNDS, this link takes hours to download information into RouteSmart™ versus that the company states should take minutes. Therefore until the installation of the ERP process is completed, RouteSmart™ cannot be used to its full route optimization capabilities.	
2.3 Appoint individuals at the management, supervisory, and line	Public Works	Agree.	September 2016 September 2016	5/09/2017 Status: not submitted <u>January 23, 2018 Update:</u> Implemented	

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<p>staff levels to meet and identify Zero Waste Division operational and analytical reporting needs based on the performance goals at each level of the organization. Work with IT staff to determine responsibility and establish timelines for developing the reports.</p>				<p>ZWD along with IT, 311 Call Center, and Revenue Collection have established a monthly meeting to address operational and reporting needs; and create action plans to address those identified needs. These monthly reports included reviewing and analyzing as a Group: 1) monthly 311 calls on various the community members zero waste issues, 2) develop resolutions on community members' zero waste issues (reviewed weekly by 311 and ZWD personnel), and 3) review and resolve community members' LAGAN cases created by 311 calls.</p>	
2.4	Public Works	Agree	<p>July 2018</p> <p>December 2018</p>	<p>5/09/2017 Status: not submitted</p> <p>January 23, 2018 Update: Not Implemented In late 2016 and with RouteSmart™ staff input, ZWD reviewed its current staff</p>	

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<p>routes and produce standardized reports for route-specific reporting using existing software (or the software implementation of Recommendation 2.5 below). The reports developed should allow measurement of the performance metrics developed in Recommendation 1.2 and 1.3 above.</p>				<p>capability to implement complete routing needs. And it was determined, the ZWD staff is not currently capable of this effort. ZWD has only recently achieved sufficient fund balance to have the funding ability to budget and requisition this job classification with its annual budget. With the completion of the optimization of commercial routing, ZWD in collaboration with IT will propose to fund this position in FY2019.</p>	
<p>2.5 Assess the benefits of using mobile technologies that would allow drivers to enter information directly into the CRM system while on their routes, take pictures of why pickups were skipped, and</p>	<p>Public Works</p>	<p>Agree The Zero Waste Division will work with Information Technology and Human Resources Departments to assess the pros, cons, and feasibility of mobile technologies (hardware and software).</p>	<p>December 2019</p>	<p>5/09/2017 Status: not submitted January 23, 2018 Update: Not Implemented ZWD with IT input has been working with the RouteSmart™ to determine if ZWD can utilize its mobile technology to improve route management and provide real-time service data to the</p>	

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<p>implement electronic route books and other mobile field reporting. Include in the assessment changes to job responsibilities that might require a meet and confer with union representatives. Purchase the software and hardware if cost beneficial.</p>				<p>customer service representatives in the 311 Call Centers. Fixed unit GPS units are available in the marketplace to track truck movements, such as, missed pickups. However and with any mobile technology, these systems are constantly involving and improving. Therefore, any investment in a mobile system will not be implemented until the City's ERP project vendor selected, contract awarded and then ZWD/IT needs assessment completed.</p>	
<p>2.6 Work jointly with the Department of Information Technology and the Department of Finance to develop and automate script flows in the CRM system to ensure that all cases</p>	Public Works	Agree	<p>April 2017 October 2016</p>	<p>5/09/2017 Status: not submitted January 23, 2018 Update: Implemented. ZWD, IT, 311 Call Center, and Finance have developed script flows with use of the CRM tracking systems to ensure all</p>	

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undergo the appropriate reviews before a case can be closed. The final step in the script flow should be a final review by someone who has authority to verify that all required steps have occurred before the case is closed.				cases receive appropriate review prior to closing. These cases are compiled and reviewed weekly and monthly by ZWD, IT, 311 Call Center, and Finance staff.	
2.7 Use the reports developed from implementing recommendation 2.4 to monitor customer complaints and determine what impact the annual bid process has on customer service. If the information demonstrates the annual bid process	Public Works	Agree Zero Waste will use the CRM system to monitor customer complaints and help assess the effect of the yearly bid process.	July 2018 January 2019	5/09/2017 Status: not submitted <u>January 23, 2018 Update:</u> Not Implemented. ZWD services 62 commercial route days and these ZWD's routes include: 42 refuse route days, 11 fiber (cardboard, paper) route days, 5 mixed recyclable route days and 6 plant debris/food waste routes days. After the new commercial accounts are optimized with existing commercial	

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<p>significantly affects customer service, meet and confer with union representatives to discuss the elimination the annual route bidding process to help reduce customer complaints and improve service delivery. Implement change if agreement is reached.</p>				<p>accounts/routes, ZWD will be in the position to numerically determine if the annual bid system is affecting customer service. With this information completed, this would enable ZWD to meet and confer with the Union.</p>	
<p>2.8 Create a method for community members to track the status of their cases online, which will reduce the call volume to the 311 Call Center.</p>	<p>Information Technology</p>	<p>Agree This functionality will be available after the upgrade of our CRM system is complete, currently scheduled to be no later than the end of FY 2015.</p>	<p>June 2016 June 2020</p>	<p>5/09/2017 Status: not submitted <u>January 23, 2018 Update:</u> Not Implemented. Currently 311 team members create cases and assigned them to the appropriate service queue for ZWD investigation and response. This system allows the City to internally track issues</p>	

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				but the ability of community member to track independently or via the City website has not been linked. Currently the City is implementing an Enterprise Resource Planning (ERP) project to replace the FUNDS system and to update the City website. With the installation of the selected ERP, then the CRM system can be integrated with the ERP system. This integration would allow community members' to track their issues, such as, missed pickups, cost of service, etc. only.	

a. Program concept and history

CRRS is the campus operator and acts as an advocate and advisor on recycling issues. It operates a Buy Recycled Campaign that provides resources for University Departments on where to buy recycled paper and promotes reuse programs such as “buy-a-mug” and a campus Materials Exchange.

b. Targeted wastestream(s)

Residential dormitories including campus classrooms and offices; grounds; dining halls; public spaces and special events. Fraternities, sororities and coops are not targeted by UC, but are served by City programs.

c. Targeted materials

Mixed paper, beverage containers, pre-consumer food waste, green waste and wood, toner cartridges, and mixed metal.

2. Materials Handling**a. Collection**

Recyclables from individual offices are brought to building loading docks by Custodial Services. CRRS collects from the loading docks as needed. Additional dumpsters for special clean-out needs are available through the CRRS web-site. (Garbage services to the sororities, fraternities and coops are provided by the City of Berkeley. Any place where the City provides garbage service, it also provides recycling services.) Durables, including mattresses and class readers, are targeted during the end of semester clean-out. Beverage containers collected within buildings are serviced by the East Bay Conservation Corps in conjunction with the CRRS. “Shopping Cart” recyclers collect from outside recycling bins, which are no longer locked.

b. Processing

Pre-consumer food trimmings from some campus residential and dining establishments are processed by Berkeley Worms, a student-based organization engaged in large-scale worm composting. Green-waste is taken to the City’s composting operation. Mixed Paper is processed by CCC, attempts have been made to high-grade the mixed paper into an office pack but it is generally sold as a super mix. Garbage is taken to the West Contra Costa County Sanitary Landfill.

c. Marketing

Berkeley Worms compost is bagged and sold at local farmers markets, plant nurseries, and in the bulk landscaping market. Mixed metals, mixed paper, cardboard and beverage containers are sold into their respective markets.

3. Publicity and Outreach

The CRRS is actively involved in promoting the concepts of waste prevention and sustainability through its mug outreach, Buy-Recycled Campaign, and work with the Chancellor's Advisory Committee on Sustainability. The CRRS web-site links students to bin locations throughout the campus and provides useful links to campus recycling and garbage services as well as general recycling information and recycling programs specific to student housing (which are operated by the City).

4. Performance

a. Tons diverted

(Fiscal Year July 2002- June 2003) 3,379 tons

Tons disposed:

(Fiscal Year July 2002- June 2003) 5,680 tons (does not include C&D material and small amount of material collected by City of Berkeley)

b. Participation rates

Estimated participation is 70-90% of targeted facilities.

c. Other performance indicators

The CRRS programs manager indicates that there is a sophisticated understanding among the student and faculty population of the CRRS programs and how they operate.

5. Issues and Opportunities

a. Discussion of program issues and problems

There is no tracking mechanism for C&D materials generated on campus. Historically contracts with builders put the contractor in charge of hauling C&D material. The CRRS is not informed of the final disposition of this material. To date there is no contract language compelling contractors to recycle. However, there is a new surge of interest and commitment to sustainability and Green Building at the Regent's level and there should be a shift in C&D related practices in the next two to five years.

The pre-consumer food program only diverts 51 tons annually but there is much more available if the infrastructure were to be improved.

b. Discussion of possible program modifications, enhancements, and alternatives

Animal waste, post-consumer food-waste and post-consumer paper from bathrooms are all suitable materials for composting if the infrastructure can be put in place. It is estimated that there are 1,000 tons available annually.

C. Recycling Programs**Curbside Recycling Program****1. General Description****a. Program concept and history**

The City's residential curbside is operated by the Ecology Center, a non-profit organization, under contract with the City. The Ecology Center has operated the curbside programs since 1973. The current contract runs through June, 2005. The program has changed substantially since its inception, with program improvements over the years including weekly collection, addition of materials, greater commingling of materials, and provision of bins to households.

b. Targeted wastestream(s)

The program targets the residential wastestream, including single family dwellings and multi-family dwellings up to nine units. Over 36,000 households are served on a weekly basis.

c. Targeted materials

Targeted materials include newsprint, cardboard, mixed paper, steel and aluminum cans, aluminum foil, glass bottles and jars, and #1 and #2 plastic bottles.

2. Materials Handling**a. Collection**

The Ecology Center collects curbside set-outs weekly. Residents place materials in standard supplied containers (16-gallon plastic tubs) or in their own containers. The Ecology Center maintains a fleet of specialized collection vehicles, all of which run on 100 percent biodiesel fuel.

b. Processing

Ecology Center collection trucks unload the collected materials at the Berkeley Recycling Center at Second and Gilman, where they are processed into marketable commodities by the Community Conservation Centers (CCC). Glass, aluminum, tinned steel, and plastic containers are loaded onto a conveyor belt where workers separate the various container types (including three colors of glass) and remove contaminants. Paper from residences includes commingled newsprint and mixed paper, and segregated cardboard. The commingled paper is loaded onto another elevated

conveyor belt, where workers remove contaminants and sort out cardboard. The remaining paper is combined with newspaper from the buyback/dropoff operations to yield a higher grade of marketable newsprint. .

c. Marketing

The CCC markets the processed materials to domestic and foreign markets. CCC has maintained a reputation for clean commodities and has never had a load rejected or discounted for not meeting market quality specifications. 3. Publicity and Outreach

3. Publicity and Outreach

The Ecology Center publicizes the curbside program through occasional mailings, its website and newsletter, placards on its trucks, and occasional media campaigns. See also the description of the Cash-for-Trash program.

4. Performance

a. Tons diverted

The curbside program has shown steady improvement in recovered tonnage, from 7,422 tons in 2000 to 8,623 tons in 2003. In 2002, the program was responsible for diverting 3.7 percent of the City's estimated generated waste.

b. Participation rates

According to periodic surveys by the Ecology Center, average weekly participation is 45%, and 85% of households participate at least monthly. There is lower participation in multi-family buildings. Certain areas have extremely high participation where there is a stable population.

c. Other performance indicators

In 2002, the program recovered about 1.2 pounds per household served per day, or 453 pounds per household per year. The average set out weight is 21 lbs overall, but some routes have set out rates as low as 7 lbs per household and some have set out rates as high as 31 lbs per household. There are eight trucks that operate one route per day making a total of 3,500 stops per day. About 24,000 buildings are served; as many of these are multi-family buildings, the number of dwelling units served is about 36,246.

5. Issues and Opportunities

a. Discussion of program issues and problems

Some program participants do not understand which plastic bottle types are acceptable although contamination overall is not a huge issue for the program managers. Generally, newcomers to the community grasp the two stream system. A considerable amount of recyclable materials remain in disposed waste.

b. Discussion of possible program modifications, enhancements, and alternatives

In recent years, many curbside recycling programs have converted to single-stream collection systems. To date, the City has not considered this option. Generally, single-stream programs suffer from a decline in the quality of materials collected, increased costs to process, and increased residual waste. In addition, Berkeley has a stable population and many people have participated in the program for years; participation rates are high. The operational and financial impacts of changing the program would be high, as it would require new carts, new automated or semi-automated collection trucks, and the overhaul of the sorting facility to process single-stream collectables.

The Ecology Center is preparing an implementation plan to supply multi-unit buildings (5-9 units) with carts and is undertaking a routing analysis to better serve this type of customer. It is assumed that two trucks will be dedicated to the program. An outreach campaign and focus groups are envisioned to increase participation. It may be worthwhile to consider cart service for certain routes where participation and total set-out weight are consistently high.

The Trash-for-Cash program indicated that there is still a considerable amount of mixed paper in residential waste. The Ecology Center is planning an outreach program to increase separation and recycling of mixed paper.

Buy-Back Program

1. General Description

a. Program concept and history

The buy-back program is operated by the Community Conservation Centers (CCC) at Second and Gilman, under contract with the City. The program purchases recycled materials from the general public and from some businesses including UC Berkeley.

b. Targeted wastestream(s)

All wastestreams are targeted. The majority of the material purchased is from the residential and commercial wastestreams.

c. Targeted materials

Glass bottles and jars, aluminum cans, plastic beverage bottles, , newspaper, and cardboard.

2. Materials Handling

a. Collection

Customers bring their separated materials to the buy-back to sell. Materials are weighed and customers are paid the current scale price for materials. CCC sets the scale price on the basis of

current market prices and CA redemption value. Customers have the opportunity to stop at the buy-back before continuing to the Transfer Station.

b. Processing

The CCC processes collected materials for sale to markets. Since all materials are separated into commodity grades for purchase, minimal processing is required.

c. Marketing

CCC sells materials to foreign and domestic markets.

3. Publicity and Outreach

Information about the Buy-Back's hours is available from the City's website, the telephone book, and CCC's website BerkeleyRecycling.org. Current market value paid for materials is available by calling the Buy-Back. The site is visible to drivers as they drive on Gilman or on 2nd on their way to the transfer station next door. The Buy-Back is referenced in City and County Recycling Guides.

4. Performance

a. Tons diverted

In 2003, the program recovered 3,734 tons of material. The volume of recovered material has increased since 2000. In 2002, the program recovered about 1.6 percent of the City's estimated waste generation.

b. Participation rates

The Buy-Back is open six days per week – Tuesday through Sunday. Depending on the day, the number and type of customer varies. In May, 2004, the buy-back averaged 124 customers per day. Participation has increased since the redemption value was raised last year.

5. Issues and Opportunities

a. Discussion of program issues and problems

The only other buy-back in the City listed on the California Department of Conservation website is the Nexcycle center located at the Safeway store at 1444 Shattuck Ave.

The buy-back operation consumes considerable space at the Second and Gilman site. Any new material purchased or donated cannot require much space or handling. In the future, CCC would like to add more materials to the range accepted at their buy-back and donation sites. CCC is evaluating potential changes in its processing operations that would reduce processing space needs and make it feasible to add more materials to the range currently accepted.

b. Discussion of possible program modifications, enhancements, and alternatives

Because the employees unionized in 2001, CCC pays good wages and provides excellent benefits, and management is currently implementing a retirement program.

The Buyback is located in Berkeley's industrial area on the corner of Second and Gilman streets, next to the City's Solid Waste Management Center and Ecology Center. This location is ideal because it facilitates recycling by haulers on their way to the transfer station.

Drop-Off Recycling Program

1. General Description

a. Program concept and history

The CCC operates two drop-off centers under contract to the City. The centers are located at Second and Gilman streets and at Dwight Way and Martin Luther King Jr. Way. The centers accept a broad variety of materials from the public on a donation basis. CCC began operating a drop-off recycling program in Berkeley in 1972, and has operated continuously since. Both drop-off sites are open to the public seven days a week.

b. Targeted wastestream(s)

The program targets all wastestreams; most materials at this location originate from the residential wastestream.

c. Targeted materials

Materials accepted at the Second and Gilman site include color-sorted glass bottles and jars, aluminum and steel cans, #1 and #2 plastic bottles, white paper, mixed paper, newspaper, cardboard, scrap metals and appliances (except refrigerators), clothing, and cell phones (pilot). With the exception of scrap metal, the same materials are accepted at the Dwight Way and MLK Jr. Way site.

2. Materials Handling

a. Collection

Both drop-off centers are "self-serve," members of the public deliver materials, usually in cars and trucks, and place different material grades in the appropriate bins.

b. Processing

CCC delivers materials collected at the Dwight/King site to the Second/Gilman site by roll-off truck, where they process materials for market. Because materials have been source separated, they require minimal processing.

c. Marketing

The CCC sells materials to domestic and foreign markets. CCC uses source-separated drop-off commodities to enrich the residential and commercial materials. For example, all drop-off cardboard is combined with curbside and commercial cardboard to maintain quality and meet market specifications.

3. Publicity and Outreach

Information about the Drop-Off's hours and locations is available on the web. Both sites have good street visibility. The drop-off centers are referenced in City and County Recycling Guides.

4. Performance

a. Tons diverted

In 2003, the Drop-Off program collected 2,611 tons of material. Tonnage has increased steadily since 2000. In 2002, the 2,497 tons collected accounted for 1.1 percent of the City's estimated waste generation.

b. Participation rates

There is an average of 65 customers per day at the Second and Gilman site and 75 customers per day at the Dwight/King site; there are more customers on the weekends. Most Dwight/King drop-off customers are residents who choose to deliver materials rather than leave them on the curb, and the rest are private haulers and small business owners. Most Second and Gilman drop-off customers are scavengers, private haulers, and small business owners.

5. Issues and Opportunities

a. Discussion of program issues and problems

The MLK and Dwight Way site is for sale for \$475,000. However, the site was formerly a gas station and the soil is contaminated; it has been on the market for two to three years already. CCC has a month to month lease with the property owners, and will continue to operate the drop-off program as long as the site is available.

b. Discussion of possible program modifications, enhancements, and alternatives

Both sites are small and do not allow for significant expansion of services. However, CCC plans to add textiles and cell phones to materials accepted and is exploring the feasibility of a small buyback at the Dwight-King site.

Commercial Recycling Program

1. General Description

a. Program concept and history

The City's commercial collection program began in 1989. Source-separated materials are collected from businesses and apartment buildings over nine units. The City has been uniquely servicing small businesses who have limited space and who recycle using the City's carts which take up less space than the front loader bins offered by the private sector. The City's small business recycling program has been a model for other communities.

b. Targeted wastestream(s)

Commercial wastestream, including apartment buildings over 9 units.

c. Targeted materials

Bottle, cans, newspaper, mixed paper, white office paper, cardboard, and plastic bottles. The City also operates a commercial organics collection program, which is described separately.

2. Materials Handling

a. Collection

City staff visit commercial establishments upon request and assist in designing a program to fit individual space and disposal needs. There is no fee for recycling service. Most of the City's commercial recycling customers place materials in blue wheeled carts, bins, or roll-off containers supplied by the City. City crews collect materials, up to five times per week, using rear loaders equipped with cart tippers, and front loaders, some having cart tippers.

The City has a total of 15 routes – each route is dedicated to a specific material such as mixed paper, cardboard, or cans and bottles.

b. Processing

City recycling trucks unload the collected materials at the Second and Gilman facility. There, CCC separates the materials into commodity grades and prepares them for shipping. Commercial materials are highly contaminated. However, because commercial materials account for only 18% to 20% of total materials, it is possible to maintain a final product that meets market specifications so long as commercial materials are mixed with clean, source-separated buyback and donation material.

c. Marketing

CCC sells processed materials to domestic and foreign markets.

d. Non-Material Handling Program Operation

The City has been active in the Green Business Program, participating in waste audits and making recommendations for targeted businesses. In 2002-03, Thimmakka assisted the City in certifying 10 Southeast Asian restaurants as green businesses.

3. Publicity and Outreach

The program is publicized through the City's website and from word of mouth between businesses. In addition, refuse truck billboards and a once yearly commercial recycling newsletter are other outreach mechanisms of information dissemination.

The City has one field representative who is dedicated to all collection services provided by SWMD, as well as assisting businesses their recycling area plans, and working with Alameda County to certify Green Businesses. There is also a short-term field representative funded by a DOC grant who focuses on container recycling in minority-owned restaurants.

4. Performance

a. Tons diverted

In 2003, the program recovered 3,678 tons of material. The amount of material collected has changed little since 2000. In 2002, the 3,773 tons collected represented 1.7 percent of the City's estimated waste generation, and 2.6 percent of the City's estimated non-residential waste generation.

5. Issues and Opportunities

a. Discussion of program issues and problems

The City offers free commercial recycling. Other private service providers also offer recycling collection service. Berkeley allows private haulers to collect rubbish from commercial establishments under franchise agreements, and so there are a number of service providers operating in the City. While franchised collectors are encouraged to provide recycling services to their customers, they are not required to do so. Some businesses may therefore be in a situation of having a private hauler provide rubbish collection, but not recycling collection. While the City's recycling collection program is available to these businesses, it may be inconvenient or confusing for them to use it.

The City's commercial routes were audited in 2003 and at least 50 customers were found not to be participating in the program any longer because the customer went out of business, moved, or was no longer interested.

There is inadequate staff to solicit and maintain the commercial accounts.

In some businesses, storage space for recyclables, labor requirements to source separate materials, and staff turnover may hinder participation in recycling programs.

b. Discussion of possible program modifications, enhancements, and alternatives

While the City requires franchisees to provide information on waste and recycling volume, , number of accounts, and type of business they serve, the City has not analyzed the data to determine the efficiency of having them operate in the City.

Special Collection Events

1. General Description

a. Program concept and history

Over the years, the City has operated or contracted for a variety of special collection programs. In the past, these included special collection of Christmas trees and telephone books, both of which are now collected in regular greenwaste and residential collection services. Since 1995, the City has operated an annual residential clean-up event. City crews collect refuse, plant debris, scrap metals, mattresses and box springs, and other bulky items. Formerly, the City contracted with the East Bay Depot for Creative Reuse to collect reusable items. In 2004, the City switched the program to by-appointment only, rather than on a set schedule. Each residential parcel with up to four units is now entitled to one Bulky Cleanup up per year.

b. Targeted wastestream(s)

This program targets the residential wastestream, for parcels with up to dwelling four units.

c. Targeted materials

Greenwaste and untreated lumber, scrap metals, and bulky (mattresses and box springs) items. General refuse is also collected.

2. Operations

a. Collection

Residents call for an annual appointment. Collections occur on Saturdays throughout the year. City crews collect greenwaste, mattresses and box springs, scrap metals, and refuse.

b. Processing

Mattresses and box springs are picked up at the Transfer Station by St. Vincent de Paul and delivered to the DR3 facility in San Leandro. Greenwaste and lumber is processed with other

City-collected greenwaste. Scrap metals are aggregated at the Transfer Station and delivered by the City to a scrap metals dealer. All other materials are delivered to the Transfer Station and handled as refuse.

c. Marketing

The City has a contract with St. Vincent de Paul for collection of mattresses and box springs from the Transfer Station, which delivers them to their subsidiary, DR3, for refurbishing and recycling.

3. Publicity and Outreach

The City sends out an annual mailer for the Cleanup program. The brochure includes information on how to dispose of materials not included in the Cleanup, such as, household hazardous waste, large appliances, televisions and monitors, and reusable goods. The program is also publicized through the City's website.

4. Performance

a. Tons diverted

In 2000, the program collected and diverted 203 tons of mattresses, appliances, reusable items and plant debris. In 2003, the program diverted 178 tons of mattresses, appliances, reusable goods, and other recyclables.

b. Participation rates

No information yet exists on participation rates in the by-appointment-only program, as it started up only recently.

5. Issues and Opportunities

a. Discussion of program issues and problems

Major problems with set-outs, including too much material, prohibited material, and messy setouts, prompted the City to switch from scheduled annual clean-up events to by-appointment only. This program just started up in 2004, so there is little operational experience as yet.

D. Composting Programs

Residential Curbside Plant Debris Collection Program

1. General Description

a. Program concept and history

Residential curbside plant debris collection has been provided to Berkeley residents since 1989. Initially the service was offered on a monthly basis, and residents were required to set out plant

debris in designated 32-gallon paper bags. In 1995, 64-gallon wheeled carts were distributed to all single-family residences who requested them, which doubled the tonnage collected from 250 to 500 tons per month. In July 2000, service was expanded to bi-weekly collection, and the amount collected has increased every year since.

b. Targeted wastestream(s)

The residential curbside plant debris program targets the residential waste stream: primarily single-family residences, but also multi-family units that are able to set out materials at curbside following program guidelines for participation.

c. Targeted materials

Plant trimmings, grass clippings, leaves, brush, scrap wood, small branches, and other vegetative, non-food discards are acceptable in the residential curbside plant debris program.

2. Operations

a. Collection

Plant debris is collected bi-weekly from residences throughout Berkeley by City vehicles and are brought to the Berkeley Transfer Station. There, acceptable loads are consolidated with self-hauled scrap wood and plant debris, commercial food scraps, and other compostable materials for transfer to an organic materials processing facility.

b. Processing

The commingled organic materials (food scraps, soiled paper, scrap wood, and plant debris) are loaded into large capacity trucks for transport to Grover Landscape Services in Modesto for composting with organic material collected in the commercial food scraps collection program. The cost of transfer and processing is \$25.35 per ton.

c. Marketing

Finished compost and other organic soil amendments are marketed by Grover Environmental Services directly to farmers, landscaping contractors, homeowners, and others. The City's contract with Grover Landscape Services contains the following stipulation regarding end products: Grover shall deliver mulch or compost derived from City of Berkeley "organic waste" at no cost to the City, at a rate of up to 10% of the average monthly amount of City of Berkeley organic waste received by Grover, on an as-requested basis.

The City uses the compost in various City parks and plantings, and for special large projects such as top dressing on large lawns. The City also hosts a one-day per month public giveaway of compost, with priority given to Berkeley schools and community gardens.

3. Publicity and Outreach

A collection calendar is mailed to all residences annually, and information about plant debris services is included in newsletters, on the City's web site and in the new resident brochure. In addition, many residents take their cue about collection days from their neighbors. When they see that others have placed their carts at the curb for collection, they put theirs out also.

4. Performance

a. Tons diverted

Approximately 6,000 tons of plant debris per year were diverted by the program in 1999-2000. In 2002, 7,620 tons of material were collected and diverted, representing 3.4% of the City's generated waste. In 2003, the City collected 8,399 tons of residential plant debris.

b. Participation rates

The City has 16,590 greenwaste containers in service, almost all at residential accounts (excluding commercial foodwaste accounts). Some customers have no carts, but use bags. Assuming the same number of eligible addresses as for the curbside recycling program (24,000), about 69% of eligible households have greenwaste containers. Residents are encouraged to accumulate a full cart of material before setting it out, in order to improve overall collection efficiency. Therefore, not all participating households set material out on any given collection day.

c. Other performance indicators

In order to reduce contamination of the accepted feedstock with non-compostable materials, incoming loads are monitored by Transfer Station staff on the tipping floor to determine acceptability. Loads containing excessive contamination may be diverted to the landfill, but such loads are extremely rare. Collection drivers also have some ability to monitor loads for contamination during pickup and reject overly contaminated set-outs.

5. Issues and Opportunities

a. Discussion of program issues and problems

Residents must follow program guidelines carefully to avoid contaminating collected material with rocks, soil, construction materials, treated or painted wood, glass, metals, plastic, or other non-acceptable materials. Set-outs at the curb can be difficult to monitor prior to consolidation with the whole load.

b. Discussion of possible program modifications, enhancements, and alternatives

Encouraging residents to practice backyard composting can reduce the quantity of vegetative material that needs to be collected curbside, while simultaneously educating participants about

how to differentiate between compostable versus non-compostable materials, resulting in cleaner set-outs and an end-product that is more marketable as high-quality compost.

Self-haul Green Waste and Wood Waste Program

1. General Description

a. Program concept and history

The City's residential and commercial self-haul greenwaste ("plant debris") and wood waste ("scrap wood") recycling program is operated by the City at the Berkeley Transfer Station. Residents are offered a 30% discount for separated loads of acceptable compostable materials and unload in a designated area at the facility. The program has been operating at the Transfer Station since 1995, when wood and plant debris processing by a private company on an adjacent property ceased operations.

b. Targeted wastestream(s)

The program targets the self-haul waste stream, and receives self-hauled loads dropped off by residents and commercial businesses from Berkeley and surrounding communities.

c. Targeted materials

Targeted materials include unpainted and untreated wood, grass clippings, leaves, and other vegetative plant materials, and clean sheetrock (gypsum wallboard).

2. Operations

a. Collection

Materials are brought to the Berkeley Transfer Station by residents and commercial haulers, and acceptable loads are diverted to a designated area of the facility, at the end of the tipping floor, where they are stockpiled for transfer to an organic materials processing facility.

b. Processing

The scrap wood and plant debris is loaded into large capacity trucks for transport to Grover Landscape Services in Modesto for composting with organic material collected in the commercial food scraps collection program, and for processing into mulch and related products. The cost of transfer and processing is \$25.35 per ton.

c. Marketing

Finished compost and other organic soil amendments are marketed by Grover Environmental Services directly to farmers, landscaping contractors, homeowners, and others. The City's contract with Grover Landscape Services contains the following stipulation regarding end products: Grover shall deliver mulch or compost derived from City of Berkeley "organic waste"

at no cost to the City, at a rate of up to 10% of the average monthly amount of City of Berkeley organic waste received by Grover, on an as-requested basis.

3. Publicity and Outreach

The program is advertised primarily through signs at the Transfer Station, but also through newsletters and the City's web site. Regular users of the Transfer Station quickly learn that they can reduce tip fees by delivering clean loads of greenwaste. Pricing information is also available at the City's website.

4. Performance

a. Tons diverted

A total of 5,417 tons were diverted from the solid waste stream in 2000 and a total of 6,303 tons were diverted in 2001. In 2002, diversion from this program was up to 8,674 tons, representing 3.9% of generated waste.

b. Participation rates

___ loads per week were received from residential and commercial self-haulers in 2000, and ___ loads per week were received in 2001.

c. Other performance indicators

In order to reduce contamination of the accepted feedstock with non-compostable materials, incoming loads are monitored by the Transfer Station staff both at the scale house and on the tipping floor to determine acceptability.

5. Issues and Opportunities

a. Discussion of program issues and problems

Incoming loads must be monitored closely to reduce contamination from non-compostable materials, painted and treated wood products, and similar items. At times, loads containing painted and treated wood products are improperly deposited in the recyclable wood and plant debris drop-off area. Traffic patterns in and around the transfer facility during peak operating hours can cause delays resulting in reduced customer satisfaction, which may negatively affect repeat business. No opportunity is available at the site for residential and commercial landscapers to pick up organic soil amendments (e.g. compost, mulch, and wood chips).

b. Discussion of possible program modifications, enhancements, and alternatives

Clearer, more visible signage and instructions for self-haulers detailing acceptable versus non-acceptable materials may further reduce contamination. Greater managerial oversight of transfer station personnel (regarding the direction given to self-haulers about which materials are

acceptable) may be beneficial. A facility design which allows for recyclable loads to receive preferential service, such as providing expedited access to recycling drop-off areas (similar to High Occupancy Vehicle lane benefits), might encourage greater participation. A dedicated area at or near the transfer station for sale of organic soil amendments derived from Berkeley's plant debris and scrap wood program, perhaps operated by a local nonprofit organization or private business, could provide a convenient source of these materials for residential and commercial landscapers who use the transfer station, and thus reduce overall vehicular travel. This program idea could be further developed in the Master Plan for the Second and Gilman site.

Food Waste Composting Program

1. General Description

a. Program concept and history

The City's Food Scraps Composting program is provided as a commercial collection service, with collected materials consolidated at the Berkeley Transfer Station, and transported by truck to Grover Landscape Services in Modesto for composting. Participating businesses and institutions are offered a discount of 20% from the normal garbage collection fee for separating accepted materials from their refuse and placing them in designated collection bins. The program was started on a pilot basis in 1995, serving eight selected businesses (for vegetative discards only), at the Berkeley Transfer Station. Meat, bones, paper products, waxed paperboard, waxed cardboard, unpainted gypsum board, and untreated wood were added as acceptable materials in 2001.

b. Targeted wastestream(s)

The program targets the commercial waste stream: primarily businesses and institutions that generate large quantities of compostable discards, such as restaurants, hotels, hospitals, food processors, and florists.

c. Targeted materials

Targeted materials include food scraps (cooked and uncooked), including meat, bones, soiled paper, waxed paperboard, waxed cardboard, and any other compostable materials. Fats, oils, grease, and liquids are not allowed by the program. Fats, oil, and grease are more appropriately handled by rendering companies.

2. Operations

a. Collection

Accepted materials are collected from businesses and institutions throughout Berkeley by City vehicles and are brought to the Berkeley Transfer Station. There, acceptable loads are consolidated with scrap wood and plant debris for transfer to an organic materials processing facility.

b. Processing

The commingled organic materials (food scraps, soiled paper, scrap wood, and plant debris) are loaded into large capacity trucks for transport to Grover Landscape Services in Modesto for composting with organic material collected in the commercial food scraps collection program. The cost of transfer and processing is \$25.35 per ton.

c. Marketing

Finished compost and other organic soil amendments are marketed by Grover Environmental Services directly to farmers, landscaping contractors, homeowners, and others. The City's contract with Grover Environmental Services contains the following stipulation regarding end products: Grover shall deliver mulch or compost derived from City of Berkeley "organic waste" at no cost to the City, at a rate of up to 10% of the average monthly amount of City of Berkeley organic waste received by Grover, on an as-requested basis.

3. Publicity and Outreach

A letter was originally sent to all eligible customers notifying them about the availability of the food scraps collections service. Priority for program implementation was given to those businesses that expressed interest in starting the program, that had discards compatible with program guidelines, adequate space for bins, and a stated commitment to follow the program guidelines. Cost estimates for re-configured service levels were then provided by the city, along with a temporary grace period allowing additional disposal capacity without an associated billing increase in order to ease participants' transition to the new service levels. The City has recruited businesses through mailings of letters followed by telephone calls, and a recent mass mailing of a restaurant brochure. In some cases, the solid waste workers have informed customers of the food scraps services, and passed information to the administrative staff.

Multi-lingual training, technical assistance, and graphic, multi-language, instructional posters and stickers are provided to participating businesses and institutions. A non-profit organization provides South Asian translation services for restaurants that need such assistance. For overall business recruitment, management and staff training, logistical help to businesses in program implementation, and evaluation of program performance, the City contracts with Applied Compost Consulting, Inc.

4. Performance

a. Tons diverted

A total of 2,612 tons of food scraps and soiled paper were diverted from the solid waste stream in 2002, representing 1.2 percent of the City's waste stream. In 2003, approximately 3330 tons were diverted.

b. Participation rates

About 100 out of 535 eligible businesses are currently participating in the program, constituting approximately 19% of eligible businesses.

c. Other performance indicators

In order to reduce contamination of the accepted feedstock with non-compostable materials, incoming loads are monitored by Transfer Station staff both at the scale house and on the tipping floor to determine their acceptability. Loads containing excessive contamination are diverted to landfill. Collection drivers also have some ability to monitor loads for contamination at time of pickup and reject overly contaminated set-outs. However dumpster set-outs are particularly difficult to monitor prior to consolidation with the whole load.

5. Issues and Opportunities**a. Discussion of program issues and problems**

The management and staff of participating businesses need to clearly understand and follow program guidelines regarding acceptable materials in order to reduce contamination from acceptable materials. Specifically plastic, glass, and metals, can seriously affect the processing of the collected material and the marketability of the end product as high quality compost.

b. Discussion of possible program modifications, enhancements, and alternatives

Clear, highly visible signage and instructions in multiple languages, as well as distinctive bin coloration, can help reduce contamination of non-acceptable materials at the point of disposal, and can greatly reinforce the training and technical assistance that the city provides for management and staff of participating businesses. Greater discounts from standard disposal fees, and a simplified, standardized rate structure should increase program satisfaction and participation.

Affordable bin cleaning service or bio-degradable bag purchasing opportunities can alleviate odor and vector issues associated with food residues in carts and bins.

Processing of Collected Organics: Grover Landscape Services**1. General Description****a. Program concept and history**

The City of Berkeley has contracted with Grover Landscape Services to process food scraps, plant trimmings, scrap wood, and other organic discards into compost, mulch, and other soil amendments at Grover's facility in Modesto. Grover also transports the feedstock materials, which are consolidated at the Berkeley Transfer Station, to its processing facility, and transports

(upon City request) the finished compost back to Berkeley's compost storage facility at the Berkeley Marina.

b. Targeted wastestream(s)

Commercial and residential self-haul plant debris and scrap wood, commercial and residential curbside plant debris collection, commercial food scraps collection.

c. Targeted materials

Targeted materials include unpainted and untreated scrap wood, plant trimmings, grass clippings, leaves, and other vegetative plant materials, clean sheetrock (gypsum wallboard), food scraps, soiled paper, and other cardboard and paperboard.

2. Operations

a. Collection

Grover collects consolidated, commingled organic materials at the Berkeley Transfer Station, hauling three or four loads per day to its processing facility in Modesto.

b. Processing

The commingled organics are composted and/or processed into mulch and other soil amendments for a \$25.35 per ton fee. Grover's contract with the City of Berkeley specifies that a minimum of 85% of the collected material must be processed into compost, mulch, or other soil amendments. The remainder can be used as boiler fuel or other products, and a maximum of 5% of the collected material can be discarded as solid waste.

c. Marketing

Grover provides compost and other soil amendments, up to the equivalent to 10% of the weight of the feedstock materials collected from the Berkeley Transfer Station, at no charge to the City. In 2003, 3 % (614 tons) of the weight of feedstock materials collected from the Berkeley Transfer Station was delivered to the City, based on City requests.

The City can purchase additional compost at \$15 per ton, delivered to the City's compost storage facility at the Berkeley Marina.

Most of the products produced from City of Berkeley organic discards are marketed by Grover to landscapers and Central Valley farmers.

3. Publicity and Outreach

The processing and marketing arrangement between the City of Berkeley and Grover Landscaping Services is not well known within the public sector (e.g., City government, school district).

Some farmers who buy finished compost and other soil amendments from Grover sell produce to local groceries and restaurants, and at farmers' markets, and have made consumers aware of the fact that they are recycling nutrients from Berkeley's organic discards.

4. Performance

a. Tons diverted

A total of 22,489 tons of commingled organic discards were diverted to composting in 2003.

b. Participation rates

All properly source-separated organic materials collected in the City of Berkeley (except for some tree trimmings that are chipped by City crews and used as mulch at City facilities) are processed by Grover.

c. Other performance indicators

The quality of the finished compost is crucial to its marketability to farmers and landscapers. The need for a steady supply of finished compost from Grover, as well as reliable and timely transportation service, are specified by the City of Berkeley in its contract with Grover.

5. Issues and Opportunities

a. Discussion of program issues and problems

Contamination of finished compost and other soil amendments with broken glass, plastics, and other non-compostable materials can adversely affect the marketability of the end-products, which could lead to increased processing costs and lower overall diversion from landfill. Grover has rarely reported quality problems with the organic materials collected from the Berkeley Transfer Station.

b. Discussion of possible program modifications, enhancements, and alternatives

Better education and outreach to generators emphasizing the need to conform to program guidelines regarding acceptable materials, and more careful examination of collected loads by route drivers and Berkeley Transfer Station personnel (rejecting non-acceptable loads) could reduce contamination of compost feedstocks.

Greater encouragement or requirements of City departments and schools to specify the use of recycled soil amendments, support for product demonstrations in plots of soil, and internal City publicity regarding the availability of the end products, would help the City to realize the full economic and environmental benefits of its contract with Grover, and would help the City to become a stronger model for organics recycling.

E. Refuse Collection and Disposal Programs

Refuse Collection

1. General Description

a. Program concept and history

The City of Berkeley is one of the few cities in the Bay Area to operate its own refuse collection program. The City operates residential, commercial, and roll-on/roll-off services, and by ordinance is the exclusive collector of putrescible wastes.

b. Targeted wastestream(s)

The City's refuse collection program targets the residential, commercial, and roll-on/roll-off wastestreams.

c. Targeted materials

This program targets municipal solid waste.

2. Operations

a. Collection

The City serves all single family residences and smaller multi-family residences with semi-automated rear-loader collection vehicles. Residents store their waste in wheeled carts provided by the City (available in 20 gallon, 32 gallon, 64 gallon, and 96 gallon sizes, and in 13 gallon "mini cans"), which are placed at the curb on collection day. City crews will make collections from locations other than the curb for elderly and handicapped residents who are unable to wheel their carts to the curb and have been granted an exemption from the curbside requirement. Collection occurs weekly throughout the year. Residents may set out additional material for collection using special pre-paid bags available at the transfer station and at public libraries.

Commercial collection is more variable. Most commercial customers store their waste in bins provided by the City, with capacities of 1-6 cubic yards. Collection is from 1-8 times per week, using rear-loader and front-loader vehicles.

Roll-off service is available on a continuous or occasional basis. Container sizes available range from 6 cubic yards to 30 cubic yards.

b. Processing

All wastes collected by the City are delivered to the Transfer Station, where they are transferred to long-haul trucks for delivery to the landfill.

c. Marketing

Currently, all wastes from the Transfer Station are disposed at Vasco Road Landfill, owned by Republic Services, in eastern Alameda County. On occasions where use of the Vasco Road Landfill is not possible, the City disposes of waste at two other landfills owned by Republic Services, West Contra Costa Sanitary Landfill in Richmond, and Potrero Hills Landfill in Solano County.

3. Publicity and Outreach

There is an abundance of information regarding the City's refuse collection program on the City's website. Placards on the City's collection vehicles advertise City refuse and recycling services. The City produces a variety of brochures and newsletters containing information on refuse services, and advertises in the SBC yellow pages directory.

4. Performance

a. Tons diverted

Almost no material is diverted from collected waste, with the occasional exception of "rich" debris boxes that may contain reusable or recyclable materials.

b. Participation rates

Subscription to refuse collection service is mandatory for anyone producing putrescible garbage in the City.

c. Other performance indicators

The City serves a total of 27,712 accounts. There are an average of 630 residential containers per route (41 routes), or about 540 residential accounts per route; 77 containers per commercial front loader route (21 routes); and 273 containers per commercial rear loader route (10 routes). There are other routes not included here that are a mixture of commercial, residential, and litter containers.

5. Issues and Opportunities

a. Discussion of program issues and problems

The trend in solid waste collection is toward fully-automated collection using one-person crews, but this technology may not be appropriate for Berkeley, given the number of narrow and steep streets, particularly in the hills. Given the density of the City, and the proximity of the Transfer Station, two-person crews may be more economical than one-person crews for semi-automated collection.

Non-Exclusive Rubbish Collection Franchises

1. General Description

a. Program concept and history

The City has historically allowed collection of non-putrescible rubbish by commercial haulers. As of July 1, 2000, anyone engaged in the business of collection and transporting rubbish from locations in the City of Berkeley must have a written franchise agreement. Franchises are non-exclusive, and there is no limit to the number of franchise agreements that the City may enter into. Only the City can collect putrescible garbage. Franchisees pay 26 percent of their gross revenues from collecting, hauling, and disposing of rubbish in Berkeley to the City as a franchise fee. The franchise fee does not apply to revenues from collection and transport of source separated recyclable materials.

b. Targeted wastestream(s)

Franchised haulers may only collect waste from the commercial waste stream.

c. Targeted materials

In addition to rubbish (the dry component of solid waste), franchised haulers may collect recyclable materials and yard waste. For the purpose of determining franchise fees, wastes collected and used as alternative daily cover at landfills are not considered to be recycled, but disposed.

2. Operations

a. Collection

Franchisees are required to provide their customers with containers labeled with the company's name, to collect wastes with trucks that also bear the company's name, and to abide by Berkeley Municipal Code sections that address issues such as collection times, container placement, and noise. Apart from this requirement, the arrangements for collection are between the franchisees and their customers.

b. Processing

Franchisees may haul their materials outside of Berkeley for processing and disposal.

c. Marketing

Franchisees are responsible for marketing collected recyclables.

3. Publicity and Outreach

Franchisees are able to publicize and advertise their services as they see fit. Franchisees must hold a valid City business license. The City is obligated under the franchise agreements to include information regarding franchised haulers in appropriate publications. They are listed in the commercial guidelines pamphlet, which is distributed at the business license counter. Franchised haulers are also mentioned in the City's commercial newsletter.

4. Performance

a. Tons diverted

Not available.

b. Participation rates

Not available.

c. Other performance indicators

Not available.

5. Issues and Opportunities

a. Discussion of program issues and problems

Franchised haulers are required to file quarterly reports of quantities collected, transported, and disposed. The City may, but does not presently, require franchisees to file reports on the amounts and types of recyclables collected.

b. Discussion of possible program modifications, enhancements, and alternatives

Requiring franchisees to include information on types and quantities of materials collected for recycling with their quarterly reports would provide valuable information for program planning and monitoring.

F. Special Waste Handling Programs

Special Waste Materials – Concrete, Asphalt, Rubble

1. General Description

a. Program concept and history

Due to their high weight-to-volume ratio, concrete, asphalt, and rubble have been targeted for diversion from the City of Berkeley's Transfer Station and solid waste stream. The Inert

Recycling Program encourages the re-direction of source-separated loads to facilities outside of the City of Berkeley that are capable of crushing these materials for recycling into new products, including aggregate for construction projects. Because refuse and recycling collection trucks easily could be damaged by collection of dense inert materials, concrete, asphalt, and rubble are excluded from the collection programs..

b. Targeted wastestream(s)

Self-hauled residential and commercial loads, commercial and residential curbside recycling collection.

c. Targeted materials

Concrete, asphalt, rubble, and other heavy, inert solids.

2. Operations

a. Collection

Self-hauled loads produce incidental quantities of diverted concrete, asphalt, and rubble at the Berkeley Transfer Station. Most of this material is re-directed to facilities outside the City of Berkeley that are capable of handling it, and which charge less. The City offers 6-yard roll-off boxes specifically for concrete, or other dense inerts. Pure concrete loads are hauled directly to Dutra Materials, a concrete crusher located in Richmond. There is also a dedicated area on the floor of the Transfer Station for concrete. When enough accumulates to form a load, it is hauled to Dutra Materials.

b. Processing

The City of Berkeley does not process concrete, asphalt, or rubble at its facilities.

c. Marketing

Concrete, asphalt, and rubble are typically ground, size-sorted, and used as fill, aggregate, road base, and other materials.

3. Publicity and Outreach

Posted notices and staff interactions at the Berkeley Transfer Station re-direct large loads of concrete, asphalt, and rubble to appropriate recycling facilities. Mailers and brochures describe recycling and garbage disposal guidelines for residents and businesses.

4. Performance

a. Tons diverted

A total of 365 tons of concrete, asphalt, and rubble were diverted from the landfill at the Berkeley Transfer Station in 2003.

b. Participation rates

It cannot be determined easily how many households and businesses recycle concrete, asphalt, and rubble in a typical year.

c. Other performance indicators

Presence or absence of concrete, asphalt, and rubble in the solid waste stream may be revealed by future waste generation studies.

5. Issues and Opportunities

a. Discussion of program issues and problems

Some generators are unaware of appropriate handling options for these materials, which can lead to illegal dumping on public and private property.

b. Discussion of possible program modifications, enhancements, and alternatives

Greater public awareness of appropriate disposal options should lead to lower incidence of illegal dumping and other improper disposal practices. Unlike many cities and counties in the Bay Area, Berkeley lacks an ordinance requiring contractors to recycle construction and demolition waste.

Special Waste Materials – Tires

1. General Description

a. Program concept and history

Tires are categorized as a special waste and are prohibited from disposal in municipal landfills. There is a specific handling fee levied on tires from customers bringing waste to the Transfer Station.

b. Targeted wastestream(s)

Residential, commercial, and self-haul.

c. Targeted materials

Truck and passenger vehicle tires.

2. Operations

a. Collection

Tires are not collected, but brought to the Transfer Station.

b. Processing

Tires that are identified by the weigh master are stockpiled separately from general rubbish. If they are hidden in mixed loads of garbage, they are pulled by sorters. They are loaded into a 20-yd dumpster which, depending on the size of the tire, can hold from between 40 and 170 tires. Tires are taken to market about once per month.

c. Marketing

Tires are shipped to Bay Area Tire Recovery in San Leandro, a crumb rubber operation.

3. Publicity and Outreach

Information about Transfer Station hours and prices are available on the web and through phone service. However, it appears that customers are often surprised that there is a special handling fee for tires.

4. Performance

a. Tons diverted

Around 100 tires per month. In 2003, the City recycled 43 tons of tires through the Transfer Station.

5. Issues and Opportunities

Most customers are resistant to special handling fees and are not interested in unloading their materials at more than one location at the Transfer Station.

Special Waste Materials – White Goods

1. General Description

a. Program concept and history

A white good is considered any appliance that contains Freon; all others are considered scrap metal.

b. Targeted wastestream(s)

Residential, commercial and self-haul.

c. Targeted materials

Refrigerators, drinking fountains, air conditioners, freezers.

2. Operations

a. Collection

Customers are charged \$31.00 per refrigerator at the Transfer Station.

b. Processing

There is no additional preparation of items containing Freon

c. Marketing

The City has a contract with Jaco Environmental, who comes when called.

3. Publicity and Outreach

The City's commercial newsletter and Cleanup brochure list appliance collection and recycling firms.

4. Performance

a. Tons diverted

Not available

5. Issues and Opportunities

a. Discussion of program issues and problems

The program works well. Even though the Transfer Station is small, there is ample room for storage of white goods.

Special Waste Materials – Scrap Metal

1. General Description

a. Program concept and history

Scrap metal is targeted at the Transfer Station.

b. Targeted wastestream(s)

Residential, commercial waste streams

c. Targeted materials

Scrap metal includes stoves, dishwashers, washing machines, dryers, and various pieces of metal.

2. Operations

a. Collection

Customers are charged by weight, not by item, unless all they are bringing is a stove or a dishwasher.

b. Processing

In 2002, the drop-off area dedicated to scrap metals at the Second and Gilman Street location was enlarged. There are 2-4 sorters who work the Transfer Station sorting area. They pull scrap metal from the refuse brought in by the public. The scrap metal is consolidated in 30-yard dumpsters. It is shaped to reduce damage to the dumpster.

c. Marketing

Two to three times a week, a 30-yard dumpster ferries between the Transfer Station and Sims Metals in Richmond (2-3 roundtrips per day).

3. Publicity and Outreach

Signs at the Transfer Station describe special charges for some items, including appliances.

4. Performance

a. Tons diverted

Scrap metal collected from the Transfer Station decreased from 1,746 tons in 2001 to 1,241 tons in 2002. Total tons diverted in 2003 were 1,311.

5. Issues and Opportunities

a. Discussion of program issues and problems

The public is resistant to separating their scrap metal from their garbage, especially since they have to pay to dispose of their garbage, they don't want to be told to they have to handle it in a certain way.

b. Discussion of possible program modifications, enhancements, and alternatives

If there were more sorters, more scrap metal could be pulled from the Transfer Station floor.

Special Waste Materials – Bulky and Other Reusable Items

1. General Description

a. Program concept and history

Beginning in 1995, easily separable bulk items, such as mattresses (for dismantling and recycling by a service provider) were targeted for recovery at the Berkeley Transfer Station. This program was expanded in 2000, to divert additional reusable items. In 2002, the program was expanded to include the recycling of electronic goods. CRTs are banned from the landfill.

b. Targeted wastestream(s)

Self-haul residential and small commercial haulers.

c. Targeted materials

Mattresses, large appliances, and CRTs. Other CEDs (consumer electronic devices) may be diverted depending on labor availability.

2. Operations

a. Collection

Customers with mattresses, large appliances, and CRTs pay fees at the scale house per unit (except appliances), and are directed to designated areas of the Transfer Station for unloading. When these materials are inadvertently or surreptitiously unloaded in the trash disposal area, they are picked out by the bucket loader operator, mechanically or by hand.

b. Processing

Processing includes palletizing and shrink-wrapping of CRTs and CEDs for transport to the processor. Solid Waste Workers may engage in a minor amount of selective picking of acceptable materials from the waste stream on the tipping floor at the Transfer Station. There is no mechanical processing on site. Mattresses are loaded by forklift into an enclosed trailer for shipment to the mattress processor in San Leandro. Large appliances are loaded by bucket loader into roll-off boxes for shipment to the scrap metals dealer in Richmond.

c. Marketing

Re-usable items are marketed by the City's contractors. Urban Ore recovers and markets various reusables, St. Vincent De Paul dismantles and recycles mattresses, and electronics are aggregated by Alameda County Computer Resource Center, repaired, or sold to domestic markets for separation of recyclable component materials.

d. Non-Material Handling Program Operation

Not applicable.

3. Publicity and Outreach

The program is advertised primarily through signs at the Transfer Station. Regular users of the Transfer Station quickly learn that they can reduce tip fees by delivering clean loads of plant debris. Information about the program is also typically contained in periodic recycling newsletters that are sent to residents. Pricing information is also available at the City's website.⁴

Performance

4. Performance

a. Tons diverted

A total of 196 tons of mattresses, and 105 tons of large electronics were diverted from landfill in 2003. Large appliances are shipped with scrap metal and not separately weighed.

b. Participation rates

Not measured.

5. Issues and Opportunities

a. Discussion of program issues and problems

- 1) Safety of personnel is a concern: pickers need to navigate around front end-loaders and self-haul vehicles.
- 2) Another issue is the potentially recoverable mattresses that still end up being landfilled.

b. Discussion of possible program modifications, enhancements, and alternatives

The waste stream has not been evaluated in terms of amount of marketable reusables in the trash. A brief waste characterization might be useful for estimation and program planning purposes.

G. Household Hazardous Waste Programs

Household Hazardous Waste – HHW Education Programs

1. General Description

a. Program concept and history

The City of Berkeley accepts used motor oil at the transfer station, encourages the use of several automobile parts stores for the same purpose (collecting used motor oil for re-refining), and participates in the Alameda County Household Hazardous Waste Program.

b. Targeted wastestream(s)

Residential wastestream.

c. Targeted materials

Household hazardous materials, including paint, stain, varnish, thinner, adhesives, automotive products such as old fuel, motor oil, oil filters and batteries, household batteries, cleaners and sprays, and garden products, including pesticides and fertilizers.

2. Operations**a. Collection**

The City accepts up to 15 gallons per customer at the transfer station's used oil drop-off center. The City of Berkeley does not offer collection services for household hazardous wastes. Residents are encouraged to self-haul these materials to an approved household hazardous waste collection facility.

b. Processing

The City runs a drop-off center for used oil at the transfer station; no re-refinement of the oil is done on the premises. The City of Berkeley does not process household hazardous wastes. Alameda County household hazardous waste facilities separate incoming wastes by material type. Some are diverted to re-use and recycling, such as used motor oil, serviceable automotive batteries, and recyclable household paint. Other wastes are packed in sealed, leak-resistant containers and transported to licensed hazardous waste disposal facilities.

c. Marketing

The City of Berkeley does not market re-usable or recyclable household hazardous wastes. These materials are handled by Alameda County at approved Household Hazardous Materials Collection centers. The used motor oil accepted at the Berkeley Transfer Station is collected by a commercial used oil recycler.

3. Publicity and Outreach

Berkeley residents are encouraged to minimize their use of household hazardous materials, and dispose of associated wastes through approved facilities. There is a concerted publicity and outreach effort by the City regarding used motor oil recycling, in particular. New residents receive printed outreach materials with their SBC phone books, and all residents receive periodic mailings, encouraging participation in solid and hazardous waste reduction, reuse, recycling, and environmentally appropriate disposal programs. Alameda County promotes their household hazardous waste disposal through their website (<http://www.household-hazwaste.org/>).

4. Performance

a. Tons diverted

Household hazardous waste diversion is not reported by the City of Berkeley, and does not apply to the City's diverted tonnage of solid waste from landfill.

b. Participation rates

While complete figures for participation by Berkeley residents in household hazardous waste minimization, reuse, recycling, and appropriate disposal programs are not available, loads that are self-hauled to Alameda County Household Hazardous Waste disposal sites are logged by city of origin.

c. Other performance indicators

Absence or presence of household hazardous materials in the solid waste stream.

5. Issues and Opportunities

a. Discussion of program issues and problems

Information about household hazardous waste minimization, re-use, recycling, and appropriate disposal is not generally available or highly visible in retail establishments where these household hazardous materials are sold.

b. Discussion of possible program modifications, enhancements, and alternatives

Mandatory point-of-sale outreach efforts regarding safe alternatives to household toxic materials, and responsible disposal options for household hazardous wastes, might be highly effective in informing residents' purchasing decisions, and provide a means of reaching targeted residents directly.

H. City Policies

Policies – Economic Incentives

1. General Description

a. Program concept and history

Residential and commercial garbage collected in Berkeley is subject to a volume-based rate structure: residents and businesses pay incrementally higher rates for higher levels of service. This approach acts as an economic incentive for keeping garbage service capacity and disposal to a minimum.

Most City of Berkeley recycling and composting programs provide economic incentives for participation. Residential and commercial curbside recycling and plant debris collection services are provided at no additional charge. Commercial food scraps collection is offered at a 20% discount from the standard garbage collection fee. Self-hauled plant debris and scrap wood are assessed a discounted tipping fee (30% less than if disposed as trash) at the Berkeley Transfer Station. A free drop-off facility for recycling materials such as newspaper, cardboard, scrap metals, and glass, metal, and plastic food and beverage containers, operated by Community Conservation Centers (CCC), is located adjacent to the Berkeley Transfer Station.

Also, the City of Berkeley sponsors the Cash-for-Trash Contest program (with funding from the Recycling Board), operated by the Ecology Center. Cash-for-Trash offers randomly selected Berkeley residents cash payments for effectively separating recyclable materials from their garbage. In 2003, seven contestants won amounts ranging from \$250 to \$2,000 for demonstrating strong recycling practices (no recyclables in the trash).

b. Targeted wastestream(s)

Discounted services applied to self-hauled commercial and residential plant debris, self-hauled commercial and residential recycling, commercial and residential curbside plant debris collection, commercial food scraps recycling program.

Cash-for-Trash was targeted at the residential curbside garbage and recycling waste streams.

The volume-based rate structure is intended, in part, to serve as a waste reduction incentive.

c. Targeted materials

All solid waste, including recyclable and compostable materials.

2. Operations

Various discounted and free services are offered by the City of Berkeley to provide residents and businesses with an economic incentive to participate in the City's recycling and composting programs, and to reduce the generation of solid waste.

In the Cash-for-Trash contest, randomly selected Berkeley residents had their garbage set-outs evaluated for weight and composition. Residents that had no recyclables in the trash were awarded cash prizes.

3. Publicity and Outreach

The City's discounted and no-charge recycling and composting services are promoted through mailings to Berkeley businesses and residents, informational brochures, and posted disposal rates at the Berkeley Transfer Station. Refuse collection rates are posted on the City's website.

The Cash-for-Trash contest was promoted through newspaper ads, displays at community events, route driver recommendations, direct mail pieces, personal referrals, and telephone solicitation.

4. Performance

a. Tons diverted

Tonnages diverted from landfill as a result of discounted rates for composting and recycling programs are reflected in the reported diversion for those programs.

In part because of the publicity associated with the Cash-for-Trash contest, average daily recycling tonnage increased from 29.72 tons to 32.76 tons (from April 2002 to May 2003), while service and recycling bin requests increased from 128 to 204 during the same time period.

b. Participation rates

It is difficult to gauge the degree to which participation in recycling and composting programs has increased as the direct result of economic incentives such as volume-based rates, discounted services, and cash awards for effective participation. Multiple recycling program studies have shown that such incentives, coupled with convenient and accessible collection services, significantly improve public participation.

c. Other performance indicators

General public awareness of, and participation in, recycling and composting programs offered by the City of Berkeley. Changes in per capita generation of solid waste, especially the disposed fraction.

5. Issues and Opportunities

a. Discussion of program issues and problems

Discounts on fees for commercial organics collection service and self-hauled plant debris and scrap wood at the Berkeley Transfer Station are not great enough, in some cases, to encourage widespread participation. Residents, in general, are not aware of the magnitude of dollar savings that they would realize by reducing the size of their garbage containers.

b. Discussion of possible program modifications, enhancements, and alternatives

Increasing discounts for recycling and composting, and/or raising fees for garbage collection and disposal to create a greater differential between fee structures, would encourage greater participation in composting and recycling programs. Regarding commercial food scraps collection, greater incentives are likely to increase the participation of smaller commercial generators of food scraps, and businesses that would reduce their garbage collection service capacity from 1-CY bins or larger to wheeled carts.

As a way to promote greater recycling, composting, and source reduction, residents could be reminded periodically by the City of the specific annual dollar savings amounts that they would realize by reducing the size of their garbage containers. The City could encourage or require landlords to require their tenants to recycle as part of their lease agreement; the City could also consider a requirement that property owners allow access to recycling services by tenants.

Policies – Product and Landfill Bans, Ordinances

1. General Description

a. Program concept and history

The City of Berkeley has an ordinance banning the use of expanded polystyrene (EPS) foam take-out food containers in Berkeley food service establishments, and follows State of California regulations prohibiting the disposal of hazardous materials, including electronics containing cathode ray tubes (CRT's), such as televisions and computer monitors in the solid waste stream.

b. Targeted wastestream(s)

All wastestreams – commercial and residential self-haul, commercial and residential curbside collection, and all recycling and composting programs.

c. Targeted materials

EPS foam take-out food containers in food service establishments, hazardous materials in the solid waste stream, including CRT's.

2. Operations

The EPS ban is administered by the City's Toxics Management Division in the Planning Department. The hazardous materials disposal prohibition is also administered by the Toxics Management Division.

3. Publicity and Outreach

Publicity and outreach for the EPS foam take-out food container ban includes point-of-sale notices for the general public. Pledges of compliance are required from food service establishments and suppliers. Prohibition on hazardous waste in the solid waste stream is publicized through educational and promotional materials produced by the City for its recycling, composting, and municipal solid waste collection programs, and through posted notices at the Berkeley Transfer Station.

4. Performance

a. Tons diverted

While it is difficult to estimate the tonnage of EPS and hazardous materials diverted from the solid waste stream as a result of these programs, and while the tonnage is minimal compared to that of the total solid waste stream, keeping these materials out of the landfill, and increasing public awareness about the potential problems posed by the purchase, use, and disposal of these materials nevertheless provides important benefits in terms of public health and environmental sustainability.

b. Participation rates

Participation by food services establishments in the EPS ban, and by all solid waste generators in keeping hazardous materials out of the solid waste stream, is difficult to measure accurately.

c. Other performance indicators

Presence or absence of EPS in regulated food service establishments, and of hazardous materials, including CRT's in the solid waste stream. Participation by residents and businesses in programs that provide opportunities for appropriate disposal of hazardous materials.

5. Issues and Opportunities

a. Discussion of program issues and problems

Owners and managers of some Berkeley food service establishments may not fully understand the reasons for the EPS ban, and believe that they are being unfairly prohibited from using products that are widely used by vendors in other municipalities. This could lead to non-compliance with the ban and negative perceptions of City policy. However, the ban has been in place for many years, and compliance appears to be good.

Some products that are routinely disposed of by all generators contain some hazardous materials but are not designated as hazardous wastes. Some degree of non-compliance with hazardous material disposal bans, due to the pervasiveness of hazardous materials in older and current products, is virtually unavoidable.

b. Discussion of possible program modifications, enhancements, and alternatives

Increasing public awareness of the issues surrounding Berkeley's EPS ban may help improve compliance and mitigate negative perceptions of City policy. One example would be to highlight the compatibility of paper-based take-out food packaging with the commercial food scraps collection and backyard composting programs, while describing the lack of viable markets for recycling food-soiled EPS.

Increasing public awareness of the negative impacts of hazardous materials in the solid waste stream, including the potential health hazards to sanitation workers and contamination of air and drinking water from landfilled hazardous wastes, may help reduce illegal dumping as well as the purchase of new products containing hazardous materials that will eventually have to be disposed of as hazardous waste.

CHAPTER 6

Report Preparers

This report was prepared by Environmental Science Associates (ESA), in association with Applied Compost Consulting (ACC) and Charles Sax, Architect, under contract with the City of Berkeley.

Report preparers include:

ESA

Dan Sicular, Project Manager
Mark Alpers, Project Director
Kelly Runyon, Senior Technical Associate
Judith Silver, Associate
Darcey Rosenblatt, Meeting Facilitator

ACC

Steven Sherman, Principal
Christopher Williams, Associate

Charles Sax, Architect

Charles Sax, Principal

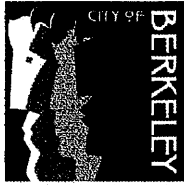
The Project Manager for the City of Berkeley for this project is Tom Farrell, Solid Waste and Recycling Manager. Assistance also provided by Tania Levy, Recycling Program Manager

Members of the Solid Waste Management Commission at the time of publication of the draft Plan Update are:

Peter Schultze-Allen, Chair
Steen Jensen, Vice-Chair
David Tam
Carrie Sprague
Jay Miyazaki
Fred Dodsworth
Sankar Sridaran
Susan Blachman

APPENDIX A

City Council Resolution Adopting Zero Waste Goal



Office of the Mayor

Tom Bates
Mayor

ACTION CALENDAR

March 22, 2005

Date: March 14, 2005
To: Members of the City Council
From: Mayor Tom Bates
Council Member Kriss Worthington
Subject: Zero Waste Goal

RECOMMENDATION:

That the City Council adopt a resolution 1.) reaffirming the City's commitment to reaching the Alameda County goal of 75% reduction in waste going to landfills by 2010; 2.) setting a goal of reaching "zero waste" by 2020; 3) referring this issue to the Solid Waste Commission for review as they finalize the new Solid Waste Plan and look to the future; and 4) requesting the Solid Waste Commission examine changing its name to the Zero Waste Commission, Waste Recovery Commission, or another more appropriate name.

BACKGROUND:

Berkeley has long been a leader and an innovator in efforts to reduce waste going to landfills. We were one of the first cities in the nation to adopt curbside recycling and were leaders in the effort to adopt and meet a goal to reduce waste going to landfills by 50%.

Since that time, governments and organizations have been working to push even harder to reduce waste. Alameda County has adopted a goal for reducing waste going to landfills by 75%. In 2001, the California Integrated Waste Management Board set a zero waste goal in its strategic plan for the state. In addition, many cities have adopted goals for achieving zero waste – including San Francisco, Santa Cruz, Seattle, Toronto, and others. Businesses have also adopted zero waste goals – including Hewlett Packard, Xerox, Fetzer Winery, and others.

The goal of zero waste – which really means "as close as practicable" to zero waste – was also listed in the Sustainable Business Action Plan recently passed by the City Council,

As part of the on-going effort to reduce waste, the City of Berkeley and the Solid Waste Commission are currently working with a consultant on a new solid waste plan to reach the 75% reduction goal.



This item would reaffirm the City's goal of meeting the 75% waste reduction goal and set a goal of achieving "zero waste" for the year 2020. This item does not propose major changes to the current solid waste plan, which is near completion. Instead, this item directs the Commission to review the new solid waste plan in the context of the Council's desire to move towards zero waste. The Solid Waste Commission should work to examine all the tools at the City's disposal to reach the zero waste goal and report back to Council with some ideas on how to move forward.

FISCAL IMPACTS: None at this time.

CONTACT PERSON: Mayor Tom Bates, 981-7100
Council Member Kriss Worthington, 981-7110

ATTACHMENT: Draft Resolution.

RESOLUTION NO. -N.S.

ZERO WASTE GOAL

WHEREAS, in 1976, only six years after the first Earth Day, Berkeley's City Council established a goal of recycling 50% of its then-landfilled discard stream; and

WHEREAS, Berkeley's citizens ratified the city's 50% recycling goal in 1984 by passing Measure G in that year's citywide election; and

WHEREAS, the California Integrated Waste Management Act of 1989 (AB 939) required cities and counties to reduce, reuse, recycle, and compost all discarded materials to the maximum extent feasible before any landfilling or other destructive disposal method is used; and

WHEREAS, AB939 mandated that all California jurisdictions achieve a 50% diversion rate by the year 2000, or incur financial penalties, or submit a plan for approval to achieve that rate by 2005, but did not set any further goal to reduce waste once the 50% rate was achieved; and

WHEREAS, Berkeley surpassed the state's 50% goal; and

WHEREAS, in 1990, Alameda County's voters passed ballot Measure D, which set a goal for all its communities, including Berkeley, to reduce land filling by 75% by 2010; and

WHEREAS, City staff and the Berkeley Solid Waste Commission are currently working to develop a new city solid waste plan to help reach the 75% waste reduction goal which will be an important step in reaching a zero waste goal; and

WHEREAS, in 2001 the California Integrated Waste Management Board set a goal of zero waste in its strategic plan for the state, calling for expanded public and private efforts "to reduce, reuse, or recycle all [discarded] materials back into nature or the marketplace in a manner that protects human health and the environment and with all materials being managed to the highest and best use to create a sustainable California;" and

WHEREAS, cities, councils, counties, and states worldwide have adopted a goal of achieving zero waste, including the counties of San Francisco, Santa Cruz, and Del Norte in California; the cities of Seattle in Washington; Toronto in Canada, and Canberra in Australia; and the state of New South Wales in Australia; and 45% of New Zealand's local government councils; and

WHEREAS, the dates for achieving these zero waste goals range from 2010 to 2020, and

WHEREAS, many American businesses have reduced their waste by 80% or more and adopted zero waste goals, including Amdahl Corporation, Collins & Aikman, Fetzer Winery, Herman Miller, Inc., Hewlett Packard, Mad River Brewing, Inteface, Inc., Pillsbury, Xerox, and the San Diego Wild Animal Park; and

WHEREAS, the City of Berkeley has undertaken a public/private initiative to “green” Berkeley by developing sustainable businesses, developing environmentally preferable purchasing policies, collaborating with university entities on such purchasing, creating an Energy and Sustainable Development Office, developing goals to increase energy efficiency and reduce greenhouse gases, and by supporting the marketing of Berkeley as an environmental leader among cities; and

WHEREAS, Governments set zero waste goals to conserve valuable material resources, reduce pollution, conserve land, expand commercial and industrial activity, and improve community health; and

WHEREAS, a complex, profitable, and growing collection of materials recovery enterprises has developed within Berkeley, including a mix of municipal, nonprofit, and for-profit enterprises that recover and process diverse feedstocks ranging from source-separated metals, glass, paper, and agricultural materials to individual reusable objects suitable for retail redistribution, all activities that generate substantial revenues and represent significant savings to the City’s landfill bill through tipping fees and sales taxes, which support local government; and

WHEREAS, this materials recovery business infrastructure is already a major employer in Berkeley providing over 275 good green-collar jobs in at least 65 local companies, mainly in West Berkeley; and

WHEREAS, Zero Waste science is a systematic methodology for moving with maximum speed in logical increments toward the goal of zero waste; and

WHEREAS, Berkeley’s citizens and recycling entrepreneurs pioneered the concept of the zero waste transfer station, which is the fundamental technology and infrastructure that Berkeley must develop further so it can replace waste-based infrastructure, achieving zero waste and using resource recovery as the preferred disposal method for all twelve major discard flows; and

WHEREAS, the zero waste industrial complex is organized into modules or trading areas for the following discard supply categories, including: reuse, recycling, composting, and regulated items; and

WHEREAS, the zero waste industrial complex may be decentralized and embedded in the community, especially in West Berkeley, forming an ecology of commerce encompassing repair, remanufacturing, upgrading, reprocessing, re-crafting, and generating new products, including green building materials, or arts and crafts from recovered materials.

NOW THEREFORE, BE IT RESOLVED that the Council of the City of Berkeley reaffirms its commitment to meet the Alameda County Measure D goal of reducing the materials Berkeley sends to land fill by 75% by the year 2010.

BE IT FURTHER RESOLVED, that the City also sets a Zero Waste Goal of eliminating Berkeley’s materials sent to landfills by the year 2020.

BE IT FURTHER RESOLVED, that the City Council acknowledges and appreciates the work of the Solid Waste Commission and City staff who are working diligently to create a new solid waste plan as a roadmap to reaching the 75% waste reduction goal.

BE IT FURTHER RESOLVED, that the City Council directs the Solid Waste Commission to review the new solid waste plan in the context of the Council's desire to move towards zero waste and examine report back to Council with some ideas on how to move forward.

BE IT FURTHER RESOLVED, that the Solid Waste Commission examine changing its name to something more reflective of the City's waste reduction goals and report back to the Council with an potential suggestions.

APPENDIX B

SWMC Workshop Key Outcome Memos

PUBLIC WORKSHOP KEY OUTCOMES

COMMERCIAL SERVICES – RECYCLING, SOURCE REDUCTION, AND FRANCHISED SERVICES

Workshop held at Martin Luther King Civic Center Building, August 16, 2004

SUMMARY

The topic of this workshop was *Commercial Services – Recycling, Source Reduction, and Franchised Services*. The workshop included a brief overview of existing programs, and focused on developing ideas for increasing recycling, composting, and reduction of wastes from businesses within the City.

PARTICIPANTS

MEMBERS OF THE PUBLIC IN ATTENDANCE

Sara MacKusick
Jeff Belchamber
Genevieve Dreyfus
Marcy Greenhut
Fran Packard
Joan Santter
Cynthia Knowles
Dan Knapp

CITY STAFF AND CONSULTANTS IN ATTENDANCE

Tom Farrell, City of Berkeley
Tonya Levy, City of Berkeley
Darcey Rosenblatt, Facilitator, ESA
Christopher Williams, ACC
Steve Sherman, ACC
Dan Sicular, ESA
Judith Silver, ESA

SUMMARY OF KEY ISSUES RAISED IN THE WORKSHOP

Rate based incentives –Berkeley offers a 20% reduction of food waste recycling. Other cities offer more (SF – 25%, Menlo Park – 50%). Should Berkeley consider increasing the rate differential for food waste collection?

Create a **progressive rate structure** for businesses that choose and have the space to separate into different streams. How many businesses actually fall into the category of having a significant space constraint? Encourage **small businesses** with limited space to share recycling containers. The City already offers from 13 to 96 gallon size containers to accommodate businesses with space constraints and offers daily service if necessary.

When a business **expands or remodels**, they are required to create adequate space for recycling.

Food and food paper (pizza boxes coffee cups, napkins, coffee filters) comprise close to 50% of what's left in the Berkeley Waste Stream. Food is heavy with water.

Reconsider the North Berkeley site for a compost facility

Quality V. Volume. Current Commercial collection is **two streams** and will remain that way – fibers and containers. There are distinct marketing advantages to keeping fibers and containers separate - there's no "glitter pack" (shards of glass mixed into low-grade paper) and the higher quality helps keep the domestic markets interested. There is a loss in volume and ease of participation.

Restaurants with food waste recycling have four streams (including food and plastic). There are around 100 businesses (supermarkets, florists, institutional kitchens) using the food collection services – about 500 could benefit.

Increase city's capacity to **offer technical recycling assistance** to individual businesses. Create a program modeled on the Smart Light Energy program. Rather than sending a letter, call or drop-by in person for greatest contact. Target the largest generators (schools, hospitals, large employers, city offices).

Should the City **consider mandating** commercial recycling as they do in Portland and Seattle.

Education is imperative at a young age. Recycling should be incorporated into the Earth Science curriculum and testing.

There's a **new plant debris slab** at the Transfer Station that will facilitate the processing of food and green waste.

Continue to leverage City and County programs such as the Stop-Waste Program.

Build on existing commercial recycling infrastructure.

Increase education about source reduction measures such as back hauling plastic totes (i.e. Walgreen's and Safeway) which reduces the need for cardboard or back hauling expensive items such as computer equipment.

What is the **tonnage attributed to the self-haul Sector**? If we recycled 80% of it, what would the City's recycling rate be?

Revise the **franchise agreements** with commercial recyclers to require greater information flow about **HOW MUCH** is being recycled, **WHAT TYPES** of materials are being recycled and **WHERE** are the materials going. If Recycling rate is greater than 80% from a franchised hauler then the franchise fee is waived. (How can the city verify this if there's no reporting mechanism?) The City will never be able to compete w/ the commercial recycling franchise holders. For example, RSS has a better deal at their landfill and does not have to transfer materials or ship them as far. 2/3 of businesses do not use the City's recycling services. (Is the City the only commercial recycler allowed to handle ANY food waste? If so, it's in a unique position if commercial food collection is expanded significantly.)

Outreach: Rather than drawing the business sector to us, we should go to their existing meetings (Chamber of Commerce, West Berkeley Business Group) and address them or take some time to survey or call key businesses and gauge their interest or comments on recycling.

PUBLIC WORKSHOP KEY OUTCOMES

ORGANIC MATERIALS – RESIDENTIAL AND COMMERCIAL SERVICES

Workshop held at the North Berkeley Senior Center, September 14, 2004

SUMMARY

The topic of this workshop was *Organic Materials – Residential and Commercial Services*. The workshop included a brief overview of existing programs, and focused on developing ideas for new or improved organics programs as part of a new Solid Waste Management Plan for the City of Berkeley. Existing organics programs were described in a background paper that was distributed prior to the workshop.

PARTICIPANTS

MEMBERS OF THE PUBLIC IN ATTENDANCE

Mark Gorell
Sara MacKusick
Dale Smith
Marcy Greenhut
Jeffrey Belchamber
Dave Williamson
Martin Borque
Dan Knapp

SOLID WASTE MANAGEMENT COMMISSIONERS IN ATTENDANCE

Howard Chong
Peter Schultze-Allen
Carrie Sprague
Genvieve Dreyfus

MEMBERS OF THE CITY COUNCIL IN ATTENDANCE

Betty Olds

CITY STAFF AND CONSULTANTS IN ATTENDANCE

Tom Farrell, City of Berkeley
Kathy Jones, City of Berkeley
Steve Sherman, Applied Compost Consulting
Darcey Rosenblatt, Facilitator, Environmental Science Associates
Christopher Williams, Applied Compost Consulting
Dan Sicular, Environmental Science Associates
Judith Silver, Environmental Science Associates

SUMMARY OF KEY ISSUES RAISED IN THE WORKSHOP*Origins and sources of organics generated in Berkeley.*

For the whole waste stream (not including the 40,000 tons that go to the West Contra Costa Sanitary Landfill), **food is the largest single item** – 13%. Yard trimmings is 9% and leaves and grass is 3%.

For **single family residents**, food is almost 20% of disposed waste. A question was asked about the definition of a single family dwelling.

The **Cash For Trash** waste sort found that residential food and food soiled paper was 48% of disposed waste.

Between 2000-2003 the **programs targeting yard trimmings** have been effective in the residential sector.

For the **commercial stream**, food waste is large portion of disposed waste, as is “other paper,” much of which is compostable. There is little yard debris in the commercial waste stream.

For materials coming into the Transfer Station via **Roll-Off truck**, not much food waste, but a fair amount of yard trimmings and prunings.

History of Organics Recycling in Berkeley

1989 – **curbside yard waste** initiated w/ 32 gal bags and monthly collection. Material delivered to 4th & Gilman to Recycled Wood Products.

1990- Biostack home composters became available from the ACWMA. A study by ACC shows that **home composting** keeps up to 750 lbs of organics from entering the waste stream from each participating household.

Recycled Wood Products moved away from Berkeley because of land use conflicts.

1995- **monthly yard debris carts** were introduced. A new processor was found who charged \$30/ton to transport and process organic material in the Central Valley. The contract allowed for 10% of **finished compost** to be returned to the City at no charge. This has been useful for public gardens. Not all the available material is used by the City.

1996- Program to target organics in the commercial sector is established.

2000- **City increases yard debris collection to 2x/month.** This increase in collection yielded 40% more material.

The City sets in place a **separate rate** for green waste only at the Transfer Station.

2001- a **new contract** for processing was established at \$25/ton for transport and processing in the Central Valley. This contract includes acceptance of food waste (including meat) for composting.

2003 – 20% of targeted **commercial organics** generators are participating in the program.

Where does Berkeley fit regionally?

The region has **many processing facilities** that can accommodate a broad definition of organic material.

25-30% of Berkeley residents have backyard composting bins.

Berkeley has 100 businesses in the commercial organics program, San Francisco has 2,000. San Jose started their commercial organics program in 2002. Oakland has open competition between two collectors. San Mateo has a 25-50% difference in cost between organics and trash collection.

Berkeley is lagging on the collection of residential organics (food waste and other compostables, other than yard waste). SF, San Jose, Fremont, Pleasanton and soon Oakland will all offer food waste collection from the home.

The Cash for Trash program used a method called “**Service Voids Analysis**” which uses a 12 category sort of materials that accommodates everything, and identifies those material types that could be recovered, but are not being recovered.

Key Issues

The cost of taking a load of waste to Vasco Rd. Landfill is **\$45/ton.**

Is there knowledge of other sources of organics such as waste oil and/or animal feed or food banks in operation in the City? The City could more actively pursue these sources. There are a few tallow companies that operate in the City. **Is the data available on how much is being diverted to tallow?**

Organics for animal feed – reliability is an issue. If time and effort were spent to identify and develop collections of food waste for animal feed, the source reduction number might go up.

Berkeley Worms deserves a mention. They are a pioneering, student led group collecting food scraps from student housing and composting them using worms in their own, innovative large-scale vermicomposting boxes.

What happens when you **mix food and green waste together**? Many Bay Area processors are allowed to take both so there's no additional cost. In fact the combination of both feedstocks creates a better final product. The material must be clean going in. An example was given of an organic tomato farmer that is extremely happy to have SF food waste compost, which has a high nitrogen content.

The **contamination** of Berkeley feedstock is between 2-10 %. The processor would prefer no palm fronds but the contract allows for it.

The **City doesn't take back all of the finished compost that is available to it under the contract**. Why is there less of a demand? The finished compost is available at the Farmer's Market and to the Schools. The Dept. of Parks and Rec. does not use/need it. It is not available retail. Could the City bag the compost for retail? Could the City deliver it to residents? The City does deliver to Community Gardens, etc.

The Ecology Center receives 100s of calls annually about composting. How do you do it? What about Vermin? **There's a "yick" factor**. Berkeley residents are probably the most ready to take on home composting as they are interested in this already.

Maybe the wise public policy is to keep the organic material at home. Then there's no need for trucks or to create the infrastructure necessary to manage a new program

There have **been intensive resources** – subsidized bins and education since before 1990 to encourage backyard composting. There's already a lot of backyard composting. What's next?

If food waste is going to be collected w/ yard debris, it must go to weekly collection. Which it should. What's left could be collected every other week.

Both policies should be fostered: One of weekly organics collection from the household and the other of encouraging backyard composting. If the green bins are assessed a fee, a resident can save this cost if they choose to home compost instead. Use the rate to incentivize the resident.

Toronto has just put in a program like this. They started weekly organics collection and every other week, rubbish (dry waste) collection. They do accept plastic and pet waste in their program because it's anaerobically composted whereas the Berkeley program would not use this type of processing.

There would be higher participation with collection of rubbish every other week. It would **drive home that there has been a shift in the way waste is managed**.

There's a semantic change – you can go to monthly rubbish p/u. It's the dry stuff. **The City Code requires putrecibles to be collected weekly**.

20% of the \$\$ collected by the City for garbage service goes to support other services like street cleaning and social services. Air space in garbage bins pays for youth employment. **Be careful about reducing the solid waste management fund that pays for additional (recycling) services that are hidden in the funds**.

There needs to be more effort to get families to use smaller bins. There should be a monetary incentive to encourage smaller bin size. There's nothing in the bills that says that if you reduce your bin size you can save money. Why not?

Foodwaste put down the garbage disposal adds a huge burden to the sewage treatment facility. It is possible to rig one's kitchen garbage disposal so that it discharges to a composting bin.

One does not create the same amount of garbage every week. Folks want the flexibility of a larger bin to manage a peak garbage week. The City needs to do a better job or marketing the extra bag service w/ a small bin to help with peaks in demand. The cost for an extra 30 gal bag is \$4.00.

Albany has introduced a 10-gal bin size. The smallest in Berkeley is 13-gal.

What about the smell and what about the flies? The SF food waste collection program has residents who complain about the dirt, etc. **The "yick" factor needs to be addressed so folks don't opt out.** It might be necessary to offer to clean the bins for residents or to offer bags to line the bins. Biodegradable polymers might be the answer.

There are materials that could be composted in the City program like cheese and bones which should not be part of a home composting program.

If bins are provided to residents for collection of food waste in the kitchen, they should be designed so that they fit under the sink and they should be lined.

Many regional recycling programs have eroded the quality of their recyclables by combining paper and containers. **The Ecology Center does not want the onset of organics collection to result in single stream collection of paper and containers.**

There are still putrecibles that cannot be composted and that will need to be handled weekly – including pet waste and disposable diapers.

How about a pilot program w/ every other week rubbish and weekly organics?

There's a small community in Oregon w/ monthly garbage pick up. The regularity of garbage service is controlled by City Code – not the State.

Who are the major users of compost? Farmers, landscapers, and vineyards.

Marketing – does the public even know that there is compost available? Individuals have not been educated about the availability of the compost. There should be an article in the Daily Planet.

It's hard to sell recycling system – wide in the schools. BUSD is trying to add food waste in the cafeteria, it comes back to marketing. The City Council and the School Board should have a mandate to push it forward.

Public Education should be increased.

Should an effort be made to site a processing facility in Berkeley rather than taking the material to Modesto? (the trucks are operating on bio-diesel)

The County is trying to site a facility but there has been opposition to all the possible sites.

PUBLIC WORKSHOP KEY OUTCOMES

SITE MASTER PLAN

Workshop held at the Berkeley Transfer Station, September 29, 2004

SUMMARY

The topic of this workshop was Site Master Plan – Second and Gilman Transfer Station Self-Haul and Debris Boxes. The workshop was to develop ideas for a Site Master Plan for the Second and Gilman site as part of a new Solid Waste Management Plan for the City of Berkeley. The existing site layout and functions are described in a report titled, *Baseline Program information for Workshop on the Master Plan for the Second and Gilman Site*, that was distributed prior to the workshop.

PARTICIPANTS

MEMBERS OF THE PUBLIC IN ATTENDANCE

Mark Gorell
Sara MacKusick
Dale Smith
Jeffrey Belchamber
Dennis McCullah
Richard Gillette
Diana Hendin
Gary Shaw
Dan Knapp

SOLID WASTE MANAGEMENT COMMISSIONERS IN ATTENDANCE

Howard Chong
Carrie Sprague
Genvieve Dreyfus
Jay Miyazaki

CITY STAFF AND CONSULTANTS IN ATTENDANCE

Tom Farrell, City of Berkeley
Kathy Jones, City of Berkeley
Joe C. Smith, City of Berkeley
Steve Sherman, Applied Compost Consulting
Christopher Williams, Applied Compost Consulting
John Hanscom, Applied Compost Consulting

CITY STAFF AND CONSULTANTS IN ATTENDANCE (cont.)

Darcey Rosenblatt, Facilitator, Environmental Science Associates
Dan Sicular, Environmental Science Associates
Judith Silver, Environmental Science Associates
Kelly Runyon, Environmental Science Associates
Charles Sax, Architect

SUMMARY OF KEY ISSUES RAISED IN THE WORKSHOP

All the City's counted diversion can be accounted for at the 2nd & Gilman Site (other diversion occurs in the City but is not tracked).

Self-Haul represents 43% of all tons coming into the Transfer Station

Roll-Offs represent 3% of all tons coming into the Transfer Station

Traffic flow at the site is challenging especially if a customer is trying to take full advantage of the recycling opportunities (buy-back, donation, organics, and trash).

Is there a possibility of siting a **separate scale for organics** recycling only (eliminating the need to be in line w/ all the users bringing trash to the site)? Is there a possibility of siting a **separate entrance** and traffic flow for organics only recycling?

A **restoration of Cordonics Creek** which runs along the north perimeter of the Transfer Station will result in a loss of approximately 50 feet of Transfer Station land from the north end.

Once the new **Target store opens across the creek in Albany, traffic on the East Bayshore Highway** will be increased considerably and negatively impact wait times at 2nd and Gilman.

Is it appropriate to **maintain the Transfer Station at its current location** given the encroachment of retail, residential and recreational uses surrounding the site? The area is not zoned for housing. The **Ursula Sherman Village** – a transitional housing shelter should not have been sited adjacent to the site. Is that Village really temporarily at that site? It would make a good location for administrative activities.

If we get to **zero waste there won't be any need** for a Transfer Operation at the site. Eventually all the materials will be redistributed for reuse.

Why does Second St. run one way? The City's **Department of Traffic** is considering two-way traffic on Second from the Scale House to Gilman. What about a traffic light at 2nd & Gilman? Sometimes the line into the Transfer Station goes all the way down 2nd to the Donation Center.

The Transfer Station is considered a **Regional Recycling Facility**.

There is no other location in Berkeley where the facility could be located.

The Transfer Station provides a lot of **revenue to the City**.

The plan should consider using part of the site for **remanufacturing operations**, using recyclables as feedstock.

A valuable amount of Transfer Station **space is used for employee parking**. What about creating a second floor for parking? It would be efficient to **co-locate administrative functions** that are currently scattered around the site.

It will require **labor intensive processing** to address the self-haul material.

Maybe the plan should consider a **reload of C&D materials** to a facility better equipped to process them.

Maybe **inerts** could be sent via rail to another facility.

As a contractor, it is possible to have **clean loads for reprocessing** but there usually is not the space at construction sites for enough small bins to correctly separate materials. In addition, it is too costly to spend time sorting. Contractors need smaller bins or large bins w/ movable interior walls to properly separate construction materials.

Davis Street Transfer Station has a C& D line. WMAC gives debris boxes to Berkeley contractors for less money and for a longer period of time than City of Berkeley. Contractors end up going to Davis. St. and the West Contra Costa Landfill with C&D type loads.

The City of Berkeley should act to **encourage contractors to bring C&D** to processors who are best able to manage them.

It is not realistic to ponder moving the Transfer Station.

The 2nd & Gilman site is a **mature site**. It has managed to undertake new activities organically over time. **What about reconfiguring the whole site?** Would there be enough room even then to accommodate the various needs of multi-material processing? The need for indoor space has increased.

The West Berkeley Plan zoned a lot of land as **light- manufacturing**. There is **pressure on West Berkeley for commercial space and housing-** developers team up with multi-use spaces and are succeeding in getting variances.

What about the **City maintenance building located in the middle of the Transfer Station??** If that were relocated, it would open up space for other operations.

The Transfer Station needs to be replaced totally, eventually – the facility is 20 years old.

The Dwight & MLK drop-off recycling site has been sold.

What about a **road down the middle of the site** parallel to 2nd to help with traffic flow?

What about **trading the Transfer Station site with a different parcel** of land across the highway on the old Berkeley Landfill?

What about **taking over the soccer fields** to increase the footprint of the site?

PUBLIC WORKSHOP KEY OUTCOMES

FOR WORKSHOP ON SERVICES TO MULTI-FAMILY BUILDING RESIDENTS AND STUDENT POPULATION

Workshop held at the South Berkeley Senior Center, October 6, 2004

SUMMARY

The topic of this workshop was a discussion of several City programs, particularly those that serve multi-family residences and student populations. The purpose of the workshops was to develop ideas for a new Solid Waste Management Plan for the City of Berkeley. Existing programs that serve multi-family residents and student populations were described in a background paper that was distributed prior to the workshop.

PARTICIPANTS

MEMBERS OF THE PUBLIC IN ATTENDANCE

Sara MacKusick
Jeff Belchamber
Cynthia Knowles
Dan Knapp
Ralph Holt
Diana H.
Lisa Bauer, University of California at Berkeley

SOLID WASTE MANAGEMENT COMMISSIONERS IN ATTENDANCE

Carrie Sprague
Jay Miyazaki

CITY STAFF AND CONSULTANTS IN ATTENDANCE

Tom Farrell, City of Berkeley
Tonya Levy, City of Berkeley
Joe C. Smith, City of Berkeley
Kathy Jones, City of Berkeley
Darcey Rosenblatt, Facilitator, Environmental Science Associates
Christopher Williams, Applied Compost Consulting
Steve Sherman, Applied Compost Consulting
Dan Sicular, Environmental Science Associates
Judith Silver, Environmental Science Associates

SUMMARY OF KEY ISSUES RAISED IN THE WORKSHOP

Berkeley Unified School District (BUSD) has been offering recycling since 1990. School composting and school gardens are pervasive. **It's hard to maintain recycling momentum over the summer.** The teacher and student population change and there's always a need to jump start recycling efforts in the fall.

The City of Berkeley has taken over organics recycling from Berkeley Worms at the Coops on the Cal campus.

There is no current program for C&D on the Cal campus.

7,000 tons of the material going to West Contra Costa Landfill comes from Cal.

17% of waste from the MFD stream is food waste. 15% or more is compostable paper.

The Ecology Center (EC) has been collecting curbside recyclables in Berkeley since 1973.

The EC handles MFDs with nine units or less (about 16,000 units). The City handles MFDs with ten units or more (about 8,000 units). A City ordinance requires buildings of 10 units or more to have an on-site manager.

The City collects about 8,000 lbs. of yard debris per month.

The City of Berkeley has a one service bill that encompasses many services including garbage, recycling and green waste. The bill does not delineate between the services.

The City has no control over what happens at UC Berkeley. UC has made significant strides in diversion program development in recent years, but there are still issues, particularly with C&D materials.

The main issues w/ MFD recycling: 1. How to divert recycling from garbage? 2. If the tenants don't pay for the service, there's no monetary incentive to create change. 3. It's hard to monitor as there are so many folks in and out of an apartment complex. 4. How to address illegal dumping in apartment dumpsters?

New buildings should have to provide adequate space for recycling by creating a zoning regulation. What are some ideas for helping this effort along? There should be a requirement to provide a secure, enclosed recycling area. This should also reduce illegal dumping. **Code Enforcement Unit is funded largely by solid waste fund** – so perhaps they could be cajoled into enforcing recycling related ordinances. What about a regulation or ordinance requirement for individual buildings or businesses to prepare a recycling plan, perhaps as a requirement for business license? What about modeled after the rent board requirement for certification of safety of units?

Along w/ management issues, in the smaller MFDs they need to identify someone who will manage the recycling (rent break?). Who rolls it out? Who rolls it in?

The division of labor between UC and City is: If the University collects the garbage, the University collects the recycling.

If a student lives off-site, it can be the MFD manager who is not interested in recycling while the tenant (student) is interested. **How to pressure owners/managers who are not responsive to tenant's interests in recycling** (and water conservation, etc....)? Ironically, it's **the MFD managers who are the continuity** in off-site student housing year after year. They have to take ownership and become the leaders in recycling efforts. ACWMA did a survey of MFD managers and found that recycling would fly in apartment complexes if there was no additional work and if there was a clear financial benefit. It's like herding cats. It's hard to maintain current information about who the manager is. What is the manager's relationship to the property owner? **Manager turn over and space are huge factors.** The only space for recycling bins is often parking spaces – not a good option.

Carrot and stick – **mandate a recycling program in MFDs and offer free technical assistance** to make it happen. **What about leveraging the periodic inspection of units** that needs to occur every few years to ensure gas appliances are working right, adding requirement to certify that recycling infrastructure exists? It's a gap in service – there's a job available.

The City has focused on commercial recycling, not multi-family. There's only one person on City staff available to help now and he only has time to be reactive. The drivers have to raise a very RED flag before anything is done. More staff would be necessary. There's too much garbage in the recycling containers because the tenants aren't doing it right. Whenever the City starts up service to a building, there's a start-up effort. However, **the City lacks staff and funding to make continuing contacts with building managers, tenants to encourage participation.** There has not been city outreach to MFDs in many years. No packets, etc. for managers or tenants. There is, however, a new poster in three languages promoting mixed paper recycling.

Are any MFDs running good recycling programs? The fraternities and the coops are effectively recycling. There's a recycling coordinator at each coop. Maybe 60-70% of MFDs have service. Maybe half are actually participating.

There's no iron clad policy, **but larger buildings are generally not eligible for free green waste collection service.** For one thing, there's not always green waste generated on site while other buildings produce large quantities. A new City ordinance (or policy?) enables the Solid Waste Division to offer green waste collection to larger buildings for a fee, which is set at ½ the rate for comparable refuse volume. The Solid Waste Division field reps set up large MFDs and provide bins accordingly. The carts are brought to the curb. Food waste for large MFDs – **it won't work to have food waste go into green bin if not all large MFDs choose to pay for green toters.** Food soiled paper needs to be recycled. It's going to be a challenge. Greenwaste collection from apartments complexes is not entirely consistent.

Is there a way to retrofit buildings – or provide incentives to retrofit?

How will we get to 75% w/out more political will?

From the driver's perspective – can they really know what's in the containers? Yes.

The owner will have to bare the extra cost of coming for an extra p/u if a load is found to have contamination. **There's a learning curve to get the tenants to do it right. There's training before a container gets pulled.** It can't be rushed.

Of all the **apartment buildings how many are occupied by students?** A lot of off-site students do not live in Berkeley. There's been a lot of stabilization since rent control.

Soon there will be **more Apartments coming available** so rents will drop. Per the Long Range Development Plan students will not travel far to campus. Perhaps 25,000 students live in off-campus housing?

What's the **turn over rate** for apartments with students?

Ecology Center – collection of recyclables drops about 20% in the summer. Is this attributable to lower student population in summer? **The EC has determined that there are 1,500 units in buildings with 5-9 units that would benefit from larger containers.** EC is working to optimize routes to add carts. They intend to do direct outreach and focus groups to increase participation.

Move –in/Move out – more of an issue now **that bulky waste is on an appointment basis rather than neighborhood by neighborhood.** What about a hybrid – if you know there are areas with large student populations - provide debris boxes for mattresses and couches., etc. in June. Given how difficult to address the population – **try to attack it for a few years to have a laser focus on move-in move-out** might be the most effective way to go. What about student volunteers to help train w/ the move-in move-out.

What about the end of year for the BUSD? There is an end of year program for them provided by the City – focusing on paper, not supplies. However, at least one school had an informal re-use program for supplies – set out discarded supplies on a table for students/parents/other teachers to take.

Garbage makes money – 20% of all the revenues generated by the refuse goes to social programs. **Recycling makes money too.** How to grow recycling and reduce garbage w/out upsetting the revenue stream for necessary social services? How can we tap into the value of recycling businesses in Berkeley to compensate for less resources ending up in the landfill? One possibility is for the City to purchase land where independent manufacturers can site their recycled-content manufacturing operations. This would yield income to the City in the form of rent.

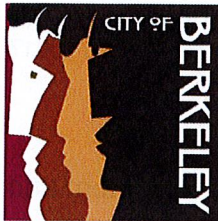
What about poachers/scavengers? A realistic solution is better social welfare. The problem are the private pick up trucks – if they have vehicles they have the means to make an income elsewhere. It's a misdemeanor – it doesn't get prosecuted. It has a direct financial impact of about \$10,000 month for aluminum containers alone. It should be a traffic ticket. There's a fear factor among the residents of retribution from the scavengers if they report on them. Does the CCC get more materials from the poachers while the EC loses? How much of poaching is smaller scale? They tend to mess up set outs. They take the higher value materials – the fibers are more valuable. **Is there a structural competition between organized collection and the buy-backs.** Poaching will be on the SW Commissions' agenda in October or November.

What about food waste on the new organics green pad? The TS operators will have to be careful – odor issues will increase as food waste is collected and transferred.

Commercial Recycling – the City is dumping a lot of materials because they are contaminated. There's no real incentive for business accounts to recycle, there's not enough frequency of service and there's not enough space for bins, etc. The sidewalk ordinance makes it even tougher (Telegraph, Solano, Shattuck). **Space needs to be addressed to get to 75%.** There has to be an ordinance to make them find the space. **It will have to cost them \$\$ to make them do it.** As part of the development of this plan, some discretionary money may be spent on having a **focus group targeting more public input on commercial recycling issues.**

There were 23 different companies coming in and taking materials out of the city – before the commercial franchise was put in place.

EXHIBIT No. 4



Zero Waste Commission

ACTION CALENDAR

October 17, 2017

To: Honorable Mayor and Members of the City Council

From: Zero Waste Commission

Submitted by: Alfred Twu, Chairperson, Zero Waste Commission

Subject: Zero Waste Strategic Plan

RECOMMENDATION

In order to meet our Zero Waste Goal, and in response to the City Auditor's recommendations, the Zero Waste Commission recommends that the City move forward immediately to 1) Update the Zero Waste Goal for current feasibility and 2) Issue the RFP for a consultant to develop a Zero Waste Strategic Plan - which will lead the City towards that goal.

FISCAL IMPACTS OF RECOMMENDATION

Funding will need to be appropriated for a Zero Waste Strategic Plan consultant for FY2019.

CURRENT SITUATION AND ITS EFFECTS

The City's Solid Waste Management Plan (1986) and Source Reduction and Recycling Element (1992) are the City's most recent documents guiding the City's actions toward the goal of zero waste. The City's Solid Waste Management Plan Update (2005) was never formerly adopted by the City and was designed to achieve the 2010 goal of reaching 75% diversion. The City needs a Zero Waste Strategic Plan in order to achieve the goal set forth by the Council. In the City Auditor's report, Underfunded Mandate: Resources, Strategic Plan, and Communication Needed to Continue Progress Toward the Year 2020 Zero Waste Goal, these factors were highlighted:

- The City of Berkeley is "at risk of not meeting Council's goal to achieve zero waste by 2020"
- The City "needs more resources to develop a comprehensive, written strategic plan that clearly defines roles and responsibilities, and that assigns sufficient resources..."
- Without such a strategic plan, the City "cannot properly ensure the City's compliance with State, County, and City regulations related to zero waste objectives"
- The rate structure approved by Council in May 2014 is, according to the City Auditor, "not enough to help fund all of the specified zero waste programs and related construction projects"

The City has significant opportunities to improve its zero waste services and infrastructure, at reasonable cost, which would expand local economic development and job opportunities. The Zero Waste Commission welcomes and supports the City Auditor's Report findings.

On July 24, 2017, the Zero Waste Commission passed a motion with the following language:

In order to meet our Zero Waste Goal, and in response to the City Auditor's recommendations, the Zero Waste Commission recommends that the City move forward immediately to 1) redefine the Zero Waste Goal and 2) issue the RFP for a consultant to develop a Strategic Plan which will lead the City towards that goal.

M/S/C: Watson/Chang. Ayes: Twu, de Tourney, McKinstry, Stein, Chang, Watson. Noes: None. Abstain: None. Absent: Clark.

BACKGROUND

The Zero Waste Commission recommends that the Zero Waste Strategic Plan include:

- Education and Outreach: Recommendations to allocate adequate funding and staffing to ensure that our Zero Waste goals will be achieved
- Infrastructure: Evaluation of the goal and function of the transfer station and recycling center, in line with zero waste, sustainability, climate change, and local economic development goals and make recommendations for any necessary infrastructure improvements.
- Finance: Review of rate structure and fee recommendations to ensure adequate funding to meet City goals and objectives. Review operational and capital expenditures to ensure fiscal sustainability.
- Staffing: Identification of staffing needs and staffing sources required to implement Zero Waste Action Plan and to meet City goals and objectives.
- Institutional: Evaluation of the capabilities of the institutional structures and relationships, including the Public Works Department organization, which flow from the 31-year-old concept of integrated solid waste management as articulated in the City's Solid Waste Management Plan (1986), Source Reduction and Recycling Element (1992), and Berkeley Solid Waste Management Plan Update (2005), to meet today's and tomorrow's needs, specifically with respect to Public Works' responsibility for providing education and outreach for waste reduction, stimulating local reuse and recycling economic development, and to meet the City's broader environmental and economic sustainability goals and objectives.
- Programming: Assessment to ensure alignment of zero waste collection, processing, materials marketing and use, and service providers, with City goals and objectives.
- Enforcement: Recommendations for an appropriate approach to, and adequate staffing for, enforcement of Alameda County's mandatory recycling ordinance, as

adopted by the City Council, and regional and state policies related to zero waste and materials management.

- Policy: Identification of new or refined policies that would aid in the attainment of the City's goals and objectives. Review, and where needed recommend, refinements or updates to existing City policies or definitions contained therein, or recommend new City policies, as they pertain to zero waste.
- Metrics: Development of recommendations to institute the means of measuring progress on implementation of the adopted Strategic Plan.

ENVIRONMENTAL SUSTAINABILITY

Zero waste enhances the environmental sustainability of our community. Waste reduction, reuse, recycling and composting conserve natural resources, reduce pollution and greenhouse gas emissions, protect human health, and create local jobs.

RATIONALE FOR RECOMMENDATION

The Zero Waste Commission and the City Auditor each concluded independently that a comprehensive, written strategic plan—one that clearly defines roles and responsibilities and that assigns sufficient resources--is needed in order to guide the City towards the goal of achieving zero waste.

ALTERNATIVE ACTIONS CONSIDERED

No feasible alternatives were identified.

CITY MANAGER

The City Manager takes no position on the content and recommendations of the Commission's Report.

CONTACT PERSON

Heidi Obermeit, Recycling Program Manager, Public Works, 981-6357

MINUTES

The meeting was convened at 7:03 p.m. with Alfred Twu, Chairperson, presiding.

ROLL CALL

Present: Alfred Twu, Christienne de Tournay, Alex Sharenko, Katie McKinstry, Antoinette Stein (7:10 arrival), James Chang, Elisabeth Watson

LOA: Brazile Clark

Absent: None

MEMBERS OF THE PUBLIC PRESENT: 7

STAFF PRESENT: 1

ACTIONS TAKEN:

1. **Approval of July 24, 2017 Regular Meeting Agenda**
M/S/C (Watson/de Tournay) to approve the agenda for the July 24, 2017 regular meeting.
Ayes: Unanimous; Abstain: None; Absent: Clark, Stein
2. **Approval of the June 26, 2017 Regular Meeting Minutes**
M/S/C (Watson/de Tournay) to approve the minutes from the June 26, 2017 regular meeting.
Ayes: Unanimous; Abstain: None; Absent: Brazil
3. **Presentation by Bill Pollock, Alameda County HHW Program Manager**
 - Bill Pollock provided an update on the Alameda County Safe Drug Disposal Ordinance. The Ordinance requires the pharmaceutical industry to pay for the proper collection and disposal of medication, shifting the burden away from local government/tax payers. Pharma took appeal to Federal Court; they lost. The Supreme Court declined to hear their case.
 - Prior to 2014, disposal infrastructure was poorly distributed and some sites were not compliant with DEA Regulations.
 - Siting collection kiosks is a current challenge. Minimal pharmacy staff time is required to manage the program, but space to locate the kiosk can be a barrier.

- A member of the public commented that people are composting their medication. This is NOT an acceptable method of disposal! DO NOT dispose of any medication in the compost program.
- Concern was raised from a member of the public regarding incineration of medication. Incineration and flushing are the only two methods of disposal allowed per DEA regulations. Flushing contaminates our waterways.
- The City of Berkeley is not currently included in the program because the City has its own Health Department. Alameda County's legal team is reviewing this issue to determine if/how the City can be included.
- No action was taken by the Commission at this time. Bill Pollock will provide an update when/if the Commission can be of assistance in the process.

4. Presentation by Samantha Sommer, Clean Water Action Waste Reduction Program Manager

- Samantha Sommer provided an overview of Clean Water Action's ReThink Disposable program to reduce the use of single-use disposables (SUDs).
- 67% of street litter is food and beverage packaging. Reducing the use of SUDs would significantly reduce litter, stormwater contamination, and landfill disposal.
- The focus of her presentation was on business outreach methods and success stories. Businesses start to see savings within a few months of switching from disposable to reusable food ware. Businesses save thousands of dollars/year.
- Samantha was asked if water use increases when using reusables. A study conducted by Starbucks showed that water use actually decreases by 64%.
- Case studies are posted on the City's Zero Waste Commission Webpage.
- To learn more: <http://www.cleanwater.org/campaign/rethink-disposable>

5. Extended Producer Responsibility Recommendation to Council

The Commission declined to take any action on this item; the version approved by the Zero Waste Commission on 1.23.17 will be submitted to City Council as is.

6. Action to Approve Zero Waste Strategic Plan Recommendation to Council

M/S/C (Watson/Chang) to approve the final version of the Zero Waste Strategic Plan recommendation to Council with two minor changes:

1. Fiscal Impacts: the word "appropriated" was substituted for "allocated".
2. Background: per recommendation from Steve Sherman, the comma was removed from the fifth bullet so that it reads "...stimulating local reuse and recycling economic development" rather than "stimulating local reuse and recycling, economic development." The intent of the original authors was to point out that Public Works currently bears responsibility for functions that may be beyond its core areas of expertise, a topic which can and should be explored and rectified in a strategic plan.

Ayes: Unanimous; Abstain: None; Absent: Clark

7. Action to Approve Letter of Support for City of Berkeley Commercial Service Expansion to City Council

M/S/C (Stein/Watson) to approve the letter of support for the City of Berkeley Commercial Service Expansion to City Council with one addition:

1. Rationale for Recommendation: The Commercial Service Expansion will improve the City's ability to monitor and manage recycling.

Ayes: Twu, de Tournay, Sharenko, McKinstry, Stein, Chang;

Noes: Watson; Abstain: None; Absent: Clark

Meeting was adjourned at 9:01p.m.

M/S/C (Watson/Sharenko)

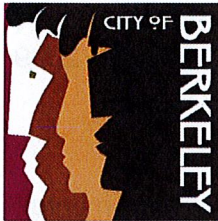
Ayes: Unanimous; Abstain: None; Absent: Clark

The next meeting of the Zero Waste Commission will be held on September 25, 2017 at 7:00 p.m. at the North Berkeley Senior Center.

Respectfully Submitted:

Heidi Obermeit, Secretary

EXHIBIT No. 5



Office of the City Manager

ACTION CALENDAR

April 21, 2009

To: Honorable Mayor and Members of the City Council

From: *PK* Phil Kamlarz, City Manager

Submitted by: Dan Marks, Director, Planning and Development

Subject: Berkeley Climate Action Plan

RECOMMENDATION

Adopt a resolution approving the April 2009 draft of the Berkeley Climate Action Plan as the "preferred project" for the purpose of environmental review.

SUMMARY

Public comments on the 2nd draft of the Climate Action Plan (CAP) are now integrated into a revised version of the plan, being distributed to Council under separate cover. Staff recommends Council approval of the April 2009 draft of the plan as the "preferred project" for the purpose of environmental review. The plan will be scheduled for Council's consideration of adoption on May 19th, following the conclusion of the environmental review process. The plan includes staff's recommendations for short-term (calendar years 2009 – 2010) climate action policy priorities (included in attachment 1) as well as a budget for implementation of those policies. Implementation of recommended actions that are not currently funded is subject to Council approval through the budget process. Staff will review policy priorities and resource allocations with City Council on an annual basis. The CAP is the product of the campaign that Measure G set in motion and is built upon the ideas provided by hundreds of Berkeley residents who took advantage of the many opportunities to get involved. Implementation of the plan rests on action at all levels, including residents, businesses, and public institutions.

FISCAL IMPACTS OF RECOMMENDATION

While the Climate Action Plan (CAP) ultimately calls for raising substantial public funding from a variety of sources in support of implementation measures in the medium and long-term, short-term implementation priorities rely on maintenance of existing General Fund support for the Office of Energy & Sustainable Development (OESD) and Transportation Division, as set forth in the tables below. Several actions associated with staff's recommended short-term policy priorities can be fully implemented with funding budgeted by the City for fiscal year (FY) 2009 and that will be proposed for FY 2010. However, implementation of some of the actions associated with recommended short-term policy priorities is pending similar budget allocations for FY 2011. Staff will review policy priorities and resource allocations with City Council on an annual basis.

Approval of the current version of the Climate Action Plan for purposes of environmental review, and consideration of the plan (as it may be amended) following the conclusion of the environmental review process, does not obligate the City to fund the initiatives identified for short-term implementation, except those already funded consistent with the FY 2009 budget. See the table below for the amount of funding staff will recommend is allocated for strategies related to CAP implementation in FY 2010. Funding sources are the General Fund, existing grants, and fees and taxes. Because the CAP affects a wide range of policies and programs, including transportation, building energy use, and solid waste management, funding sources are from several different budget codes from the Planning and Public Works Departments.

Budgeted City Funds for Climate Plan Implementation in FY 2010	
Activity	FY 2010
Building energy use and GHG emissions management in City buildings (includes City membership in Chicago Climate Exchange and coordination with BUSD)	\$147,369
Staff time to manage CAP development, implementation, outreach, and fundraising	\$268,858
Staff time to improve energy standards for new and existing buildings and associated community outreach	\$322,462
Staff time to develop and manage various community energy services (includes Smart Solar program, low-income energy efficiency programs, coordination with East Bay Energy Watch, Berkeley FIRST and Community Choice Aggregation)	\$854,136
Transportation demand management programs included in CAP (includes 9th St. Bicycle Boulevard extension, expanded bicycle parking, employee commute measures, and other efforts associated with Bike and Ped Plan implementation)	\$1,856,204
TOTAL	3,449,029

In addition to the proposed budgeted amounts outlined above, staff has prepared a table (below) summarizing estimated funding for implementation of the Climate Action Plan by source for fiscal years 2009 and 2010.

Estimated Sources of Revenue for Implementation of Short-Term (FY 2009-2010) Actions		
REVENUE SOURCE	FY 2009	FY 2010
City of Berkeley General Fund	570,000	464,000
City fees & taxes	1,341,000	1,480,029
Existing grants*	1,107,000	1,505,000
SUBTOTAL OF EXISTING FUNDING	\$3,018,000	3,449,029
Targeted grants*	--	2,886,000
American Recovery and Reinvestment Act stimulus funding (Energy Efficiency and Conservation Block Grant)**	--	284,000
SUBTOTAL OF TARGETED FUNDING	--	3,170,000
TOTAL	\$3,018,000	\$6,619,029

*Included in the "Grants" and "Targeted Grants" rows are grants to the City and to non-City agencies (e.g., East Bay Energy Watch) that have a direct role in implementing the Climate Action Plan.

**The total Energy Efficiency and Conservation Block Grant is \$1,015,500 over three years.

The budget includes \$284,000 in FY 2010 from the American Reinvestment and Recovery Act of 2009 (ARRA) in the form of Energy Efficiency and Conservation Block Grants (EECBG). The EECBG allocation to the City is \$1,013,500 over three years. Staff will be presenting an application for these funds to Council on May 19th so that the City can file its request with the federal government prior to the June 25th deadline.

If secured, additional targeted grants for 2010 would be allocated to implementation of short-term transportation and building energy use measures, pending Council approval.

CURRENT SITUATION AND ITS EFFECTS

In September 2008, City staff presented to Council and released for public review and comment a 2nd draft of the Berkeley Climate Action Plan. Public comments on the 2nd draft are now integrated into a revised version of the plan, which is being distributed to Council under separate cover. Staff recommends Council approval of the April 2009 draft Climate Action Plan as the preferred project for the purpose of environmental review. The plan will be submitted for Council's consideration of adoption on May 19th, following the conclusion of the environmental review process.

The plan reflects staff's recommended climate protection policy priorities. It does so by including an "implementation timeframe" for every action included in the plan. The implementation timeframe designates each action for short, medium or long-term implementation.

City staff generated the “package” of policies recommended for short-term implementation on the basis of several factors, including:

- Estimated volume of GHG reductions that could be achieved from a given strategy.
- The likelihood of a given policy's success: Staff gauged the likelihood of success of a given policy by considering factors such as level of community support and consistency with the City's or relevant community agencies' priorities and readiness to implement.
- The estimated cost.
- The availability of funding.
- Expected benefits of implementation other than GHG emissions reductions, such as reduced local air pollutants due to less driving; cost savings associated with increased energy efficiency in buildings; the potential for creating local, green jobs; public health benefits; and consistency with efforts to prepare the community for Peak Oil; among others.

Actions not included in the list of short-term implementation measures are targeted for implementation in either the medium (2010 – 2015) or long-term (2015 – 2020). As circumstances change and as implementation of the plan moves forward, there may be cases where medium or long-term strategies become short-term priorities and vice-versa. Staff will review policy priorities and resource allocations with City Council on an annual basis.

Implementing the Climate Action Plan requires significant public and private investment. However, a concerted effort to reduce GHG emissions will result in cost savings over time by reducing ongoing costs associated with energy consumption. Staff estimates that achieving a 35 percent reduction in building energy use through energy efficiency improvements and renewable energy use in the residential sector will result in cumulative net cost savings to residents of approximately \$28 million by 2020. A similar cost-benefit analysis for the commercial sector results in an estimated \$75 million cumulative net savings for local businesses by 2020.

The benefits of saving money on energy and reducing GHG emissions are in addition to other societal benefits, such as reduced local air pollutants, improved public health due to more active mobility modes, less reliance on fossil fuels, and an increased demand for energy services and green jobs.

The majority of the costs will be made by individuals and the private sector as homeowners and business owners improve the energy efficiency of their buildings, as individuals make different choices about mobility and their everyday access to transportation alternatives, and as companies (such as PG&E) make additional needed

investments in renewable energy resources and increased energy efficiency to reduce our dependence on fossil fuels.

Implementing the plan also requires sustained, strategic public investment by the City, by regional government agencies, and by the state and federal governments. Public funding will play an important role in helping to provide the education and outreach, services, incentives and capital projects that are needed to achieve the plan's goals.

In addition to relying on existing City resources for implementation of the Climate Action Plan and seeking new sources of outside funding, the Climate Action Plan outlines various strategies that would be designed to both create disincentives for practices that are energy intensive (e.g., driving) and build sustained revenue for services and programs that help the City achieve its emissions reduction goal along with other important co-benefits. Such strategies include:

- Instituting a "Transportation Services Fee" (TSF) for new development. A TSF would fund projects and programs that mitigate the impacts of new development on transportation services and infrastructure.
- Establishing an "Open Space Fee" on new development, or similar mechanism for the creation of new streetscapes, parks and other public open space. Increased amenities in the community make it more attractive for current residents and encourage appropriate transit-oriented development.

The plan also recommends that the City evaluate the feasibility, benefits, and drawbacks of initiating a "carbon tax" on residential, commercial and industrial electricity and natural gas consumption. The tax would be designed to fund GHG reduction strategies in Berkeley such as subsidized energy audits and energy efficiency upgrades for residents and businesses. Exemptions would be provided for special needs and low-income households. Instituting a "carbon tax" would require a two-thirds vote of the people.

Each of these strategies requires further vetting and development, especially to ensure social equity in any fee mechanisms or services. These strategies have the potential to serve as innovative tools for generating *sustained* revenue for implementation of climate protection policies and actions. Sustained revenue can mean the difference between a plan that gets implemented and a plan that does not.

For each policy outlined in the Climate Action Plan, staff is working to define, monitor and report on measurable indicators that assist the community to determine to what extent a the plan is being implemented. Regular, transparent reporting on community progress toward achieving the goals outlined in this plan serves to:

- increase accountability for implementing agencies, including the City government;

- assist the City and its partners to evaluate the effectiveness of the policies and actions associated with each goal; and
- enable the City and the community as a whole to continuously evaluate implementation priorities and revise and build upon them as necessary.

Because of the difficulty associated with modeling *potential* emissions reductions with precision, it is especially important to monitor and report *actual* reductions over time, as well as other indicators, as part of the implementation process. A number of tools and practices exist that can enable the City and its community partners to track and report progress toward achieving the goals outlined in this plan. Steps staff recommends taking to ensure transparent, sustained evaluation and continuous improvement of GHG reduction strategies include:

- ❖ Provide annual reports to City Council in order to receive guidance on implementation priorities and resource allocation and to report progress made on specific indicators and metrics to be used for tracking the implementation of actions in the plan, including:
 - Estimated GHG reductions
 - Implementation costs
 - Costs savings and payback for given strategies
 - Other co-benefits of implementation
 - Ongoing barriers to implementation
- ❖ Launch and maintain a web-based portal that enables the City to effectively and transparently communicate the goals outlined in the Climate Action Plan and progress toward achieving those goals
- ❖ Track community-wide aggregate emissions by conducting greenhouse gas emissions inventories at least every other year

The Climate Action Plan was prepared at a time of unprecedented potential for local, regional, and state government agencies to collaborate on addressing the climate crisis. In December 2008, the California Air Resources Board (CARB) approved the AB 32 Scoping Plan, which contains the main strategies California will use to reduce GHG emissions. The Scoping Plan recognizes the fundamental role of local governments in reducing the emissions that result from energy consumption and waste generation.

In September 2008, Governor Schwarzenegger signed Senate Bill 375 (Steinberg), which requires CARB to establish regional targets for reducing passenger vehicle GHG emissions. Local governments and regional agencies will have to work together to integrate development patterns and the transportation network in a way that achieves regional targets while meeting housing needs and other regional planning objectives. SB 375 also provides relief from certain California Environmental Quality Act (CEQA) requirements for development projects that are consistent with regional plans that achieve the regional targets.

BACKGROUND

In November 2006, Berkeley voters issued a call to action on the climate challenge by overwhelmingly endorsing ballot Measure G. The mandate was simple but bold: Reduce our entire community's greenhouse gas emissions by 80 percent by the year 2050. The measure directed the City to develop a Climate Action Plan to reach that target.

The Berkeley Climate Action Plan is the result of the campaign that Measure G set in motion. It is built upon the ideas provided by hundreds of Berkeley residents who took advantage of the many opportunities to get involved, including attending commission-hosted workshops, "town hall" meetings, and neighborhood association meetings, and reviewing and commenting on earlier drafts on-line at www.BerkeleyClimateAction.org.

This plan focuses on actions our community can and should implement between now and 2020, but in the context of promoting the types of innovative approaches that will be necessary to achieve the ultimate 2050 target.

It was designed under the premise that local governments and the communities they represent are uniquely capable of addressing the main sources of the emissions that cause global warming: the energy consumed in buildings and motor vehicles and the solid waste sent to landfills.

The purpose of the plan is to guide the development, enhancement, and ultimately the implementation of actions that aggressively cut Berkeley's greenhouse gas emissions. The plan does the following:

- Describes Berkeley's GHG emissions sources
- Provides an estimate of how those emissions could be expected to grow
- Recommends goals, policies and actions that we as a community can implement to achieve GHG reductions and other community benefits such as increased green job opportunities and improved public health
- Provides a timeline for the plan's implementation, including identifying existing and potential costs and funding sources

The current version (April 2009) of the Climate Action, distributed to Council under separate cover, is the 3rd draft of the report.

In January 2008, City staff presented to City Council and released for public comment a first draft of the Berkeley Climate Action Plan. Hundreds of community comments were submitted through a variety of means. An underlying theme of public comments on the first draft is that the plan offered a strong vision, but more specific implementation steps are needed, including an implementation timeline, estimates of costs associated with implementation, and identification of potential sources of funding. Community members

also urged the City to be bold when designing strategies to achieve our GHG emissions reduction goal.

A 2nd draft of the Climate Action Plan was presented to Council in September 2008. It carried forward the main program elements from the first draft, and filled in those program elements with specific measures needed to achieve the necessary scale of GHG emissions reductions. Because the 2nd draft included significant new information staff undertook a second round of public review and comment.

This 3rd draft of the plan once again benefited from community feedback and questions. It includes several new strategies recommended by City Commissioners and community members as well as a more detailed description of recommended implementation priorities. Examples of strategies that are new to this version of the plan include a more detailed and specific emphasis on local food production and specific strategies regarding preparing local residents for emerging green job opportunities.

The Climate Action Plan reflects City staff's recommendations for actions that will reduce GHG emissions and create several other benefits. Once adopted, it will serve as a dynamic community blueprint for achieving the targets established by the voters through Measure G.

RATIONALE FOR RECOMMENDATION

Approval of the current version (April 2009) of the Berkeley Climate Action Plan as the "preferred project" for the purpose of environmental review is required in order to comply with the California Environmental Quality Act. The plan will be scheduled for Council to consider its adoption on May 19th, following the conclusion of the environmental review process.

There are several reasons why staff is recommending approval of the current Berkeley Climate Action Plan draft as the "preferred project" for the purpose of environmental review.

First, the plan provides specific, necessary policy direction that is already guiding the City's efforts to achieve the reductions in GHG emissions the voters directed be accomplished when they passed Measure G.

Second, the plan will assist staff's efforts to acquire grant and federal stimulus funding in support of the policies outlined in it. Specifically, the plan will serve as the foundation for the Energy Efficiency and Conservation Strategy that the City is required to submit to the U.S. Department of Energy in order to receive Energy Efficiency and Conservation Block Grant funds.

Third, we are in the midst of an unprecedented opportunity for collaboration on climate action between local, regional, state, and federal government agencies. Several state

policies, including AB 32 (The Global Warming Solutions Act) and SB 375, which requires the California Air Resources Board to establish regional targets for reduction of GHG emissions due to transportation and land use and for regional Metropolitan Planning Organizations to develop plans for achieving those targets, will succeed only if cities like Berkeley play a leadership role. Berkeley's Climate Action Plan is already emerging as a model that can affect how other local, regional, state, and federal government agencies do what is in their power to address the climate crisis.

ALTERNATIVE ACTION CONSIDERED

No other actions were considered.

CONTACT PERSON

Timothy Burroughs, Climate Action Coordinator, Planning Department, 510.981.7437

Attachments:

- 1: Recommended Short-Term Policy Priorities for Calendar Years 2009-2010
- 2: Resolution

Attachment 1

The table below represents the package of policies City staff recommends be targeted for short-term implementation (prior to the end of calendar year 2010). The table includes policies recommended on the basis of the factors already outlined above. While the table illustrates current short-term priorities, staff recognizes that priorities can and do shift based on funding availability, advances in technology, new and better ideas, and others. Several actions associated with the policies in the table below can be implemented with funding budgeted by the City for fiscal years 2009-2010. However, implementation of some of the actions associated with the policies listed below is pending Council's approval of continuing the actions beyond the end of fiscal year 2010 (fiscal year ends June 30th). Staff will review policy priorities and resource allocations with City Council on an annual basis.

The CAP includes significant additional details and background information regarding each of the policies included below. Note that each policy has one or more "implementing actions" associated with it. If a policy is included in the table below, then at least one of its associated implementing actions is targeted for short-term implementation.

Recommended Short-Term Policy Priorities for Calendar Years 2009-2010

	GHG Reduction Policy	Discussion
TRANSPORTATION & LAND USE		
1.	<i>Continue to expand and improve Berkeley's bicycle and pedestrian infrastructure</i>	The community expressed widespread support for more resources to be devoted to enhancing the safety, convenience and quality of Berkeley's bicycle and pedestrian infrastructure. The City's first Pedestrian Plan is nearing completion, and the Bicycle Plan will be updated in 2010.
2.	<i>Encourage development of housing (including affordable housing), retail services, and employment centers in areas of Berkeley best served by transit</i>	The City is currently working with community stakeholders to update the Downtown Area Plan, and the Southside Plan, and to provide zoning flexibility within the West Berkeley Plan. Land use policy that prioritizes access to transit and enhanced green and open spaces and promotes cycling and walking reduces VMT and creates several additional co-benefits.

	GHG Reduction Policy	Discussion
3.	<i>Make car sharing convenient and available to all Berkeley residents by providing additional incentives and by removing disincentives to car sharing</i>	A dense network of car share vehicles has the potential to help reduce vehicle ownership and VMT while providing access to a motor vehicle when needed. There is significant community support for additional car share pods placed in strategic locations throughout the city. The first discounted car share program for affordable housing residents is being established at the Oxford Plaza in 2009.
4.	<i>Partner with AC Transit to expand and enhance AC Transit bus service in Berkeley</i>	Increasing the frequency, reliability, and safety of local bus service is a key component of providing an alternative to the private vehicle. Support for enhanced bus service was a consistent theme of public comments associated with this plan.
5.	<i>Create additional strategic fees/taxes in order to build revenue for transportation demand management (TDM) efforts and to further discourage driving</i>	This policy includes a local Transportation Services Fee (TSF) as an implementing action. The TSF has the potential to create revenue for services such as an improved bicycle and pedestrian infrastructure and an expanded network of car sharing pods. The fee would include incentives for developments that take steps to reduce vehicle trips. Other mechanisms include an increase to the City's current 10 percent parking tax on off-street parking (requires voter approval), and parking price increases.
6.	<i>Partner with AC Transit, BART, and other employers to provide subsidized transit passes and fare-free zones</i>	Cost and convenience are important factors in people's choice to ride transit. The provision of subsidized transit passes (e.g., Easy Pass) and commuter benefits has the potential to significantly improve the mode share of buses and BART. There is significant community support for this policy and several employers already provide subsidized transit passes for their employees.
7.	<i>Design and implement parking strategies to create disincentives for driving - especially single-occupancy commuting and, where possible, to build revenue for alternative transportation</i>	Research is emerging that establishes parking pricing strategies as having a significant impact on travel mode choice. Some parking strategies can also generate revenue for local sustainable mobility projects, such as expanding car share pods and improving the bicycle and pedestrian infrastructure. Successful implementation of this policy requires coordination with UC Berkeley and others.

	GHG Reduction Policy	Discussion
8.	<i>Increase access to healthy and affordable foods for the community by supporting efforts to build more complete and sustainable local food production and distribution systems</i>	Community members and agencies expressed significant support for integrating local food issues into the climate plan. Growing, processing, and distributing food locally reduces GHG emissions by minimizing transport miles and also offers a host of additional health, social and economic benefits.
BUILDING ENERGY USE		
1.	<i>Establish a standard for energy audits and energy improvements that provides thorough guidance on achieving deep, sustained energy savings in existing residential and nonresidential buildings</i>	City staff in the Office of Energy & Sustainable Development is already in the process of developing robust local standards for energy audits and upgrades. In combination with increased services and financial incentives, these standards will result in reduced energy consumption, substantial cost savings, improved building comfort, and increased demand for green jobs. New standards are subject to Council approval.
2.	<i>Improve local energy and green building standards for remodeling and new construction</i>	City staff in the Office of Energy & Sustainable Development is already in the process of developing energy standards for new construction and remodels that go beyond what is required by the State of California. New standards are subject to Council approval.
3.	<i>Develop and provide comprehensive energy services for local residents and businesses</i>	The City is currently developing increased services related to building energy use for residents and businesses. These services include financing assistance for energy improvements and personalized energy consultations for residents and businesses.
4.	<i>Simplify project review and permit approval process to encourage innovative green building measures</i>	The City strives to continually improve the service it provides to those seeking building permits. Planned service improvements include dedicating a building inspector to assist with green building questions and providing education materials related to green building.
5.	<i>Implement targeted assistance and outreach to increase decentralized solar installations in homes and businesses</i>	The City's Office of Energy & Sustainable Development is implementing or developing several services related to this policy. These services include financing assistance for energy improvements, personalized energy consultations for residents and businesses and an on-line solar map that estimates solar energy potential for homes and businesses.

	GHG Reduction Policy	Discussion
6.	<i>Prepare and promote our local workforce for local and regional green jobs that offer stable employment, career growth and living wages</i>	Enhancing local demand for services such as energy retrofits and solar installations results in increased demand for skilled labor that can do the work. Through youth development and job training and placement programs, the City and its community partners seek to match local residents with high-quality green jobs.
7.	<i>Expand and better integrate programs for low-income households</i>	The goal of this policy is to provide an integrated and expanded suite of low-income programs that results in increased potential for energy and cost savings and health-related benefits as well as more cost-effective program delivery.
8.	<i>Identify and capture opportunities for energy and water savings in renter-occupied/leased units (residential and nonresidential)</i>	Several community members emphasized the need for this policy during the climate plan's public comment period. In the short-term the City will work with the Rent Board and other partners to implement strategies that enable both the building owner/landlord and the tenant to benefit from building improvements.
9.	<i>Continue to identify and implement opportunities for increased energy and water efficiency and utilization of renewable energy systems in public buildings</i>	Energy efficiency improvements and solar installations on schools and City buildings set an important example for the community. The City is working with the School District and other community partners to identify additional opportunities for energy and cost savings in public buildings.
WASTE REDUCTION & RECYCLING		
1.	<i>Target expanded recycling outreach and services to multi-family residential buildings</i>	In the short-term, the City plans expanded outreach and assistance for multi-family building managers. Eventually the City will require building managers to provide tenants with the opportunity to recycle.
2.	<i>Enhance recycling and composting outreach and assistance to single-family homes</i>	The main action associated with this policy in the short-term is to initiate a 'split-cart' program to increase convenience of recycling for single-family homes.
3.	<i>Enhance recycling and composting outreach and assistance to local businesses</i>	This policy can result in not only less waste being sent to landfills, but also cost savings due to lower refuse bills for local businesses.

	GHG Reduction Policy	Discussion
4.	<i>Encourage the use of reusable bags at local retail locations</i>	The main implementation action associated with this policy is instituting a ban on single-use plastic bags and a fee on paper bags at Berkeley retail locations.
5.	<i>Make recycling and composting mandatory at public events and provide more public recycling containers</i>	The City already provides recycling and composting services at public events. The City is also working to provide more recycling containers along commercial corridors and in parks and other public spaces.
6.	<i>Expand the types of materials that can be recycled locally and identify local markets for recycled products</i>	The effort to expand the types of materials that can be recycled curbside or dropped off at the Transfer Station is ongoing and the feasibility of expanding the program is dependent upon the market for recyclable goods.
7.	<i>Increase producer responsibility for product waste and packaging</i>	“Extended Producer Responsibility” (EPR) is a strategy that holds manufacturers accountable for their products and packaging through their entire lifecycle. Implementing this policy requires the City to identify opportunities for extending producer responsibility for product waste at the state and local levels.
8.	<i>Enhance construction & demolition debris recycling outreach and assistance to improve enforcement of existing ordinance and convenience of compliance for local builders</i>	Construction waste diversion began in July 2008 and in that year the City recovered 6,851 tons of construction waste from the Transfer Station. To achieve additional diversion the City is developing outreach materials and conducting consultations with builders.
9.	<i>Reduce yard and garden waste produced by residents and businesses</i>	The main action associated with this low-cost policy is promoting participation in StopWaste.Org’s Bay-Friendly Landscaping program through written and web-based outreach materials.
10.	<i>Update solid waste disposal rates to cover costs of providing basic refuse, recycling and composting service to the community</i>	The City is currently updating its solid waste disposal rates. As it considers restructuring these finances, the City will endeavor to maintain and expand incentives and programs to increase recycling and composting while also maintaining necessary operating revenue in an environment of increased waste diversion.
11.	<i>Maximize waste reduction and recycling and composting at all City buildings, including leased buildings, and at all City events</i>	Action to reduce waste and increase waste diversion in municipal buildings and in schools demonstrates important leadership for the community.

	GHG Reduction Policy	Discussion
ADAPTING TO A CHANGING CLIMATE		
1.	<i>In preparation for more extreme heat events, partner with local, regional and state agencies to increase urban tree cover</i>	Trees sequester carbon dioxide as well as provide a range of additional health and quality of life benefits to the community. Several community members voiced support for this policy during the plan's public comment period.
2.	<i>In preparation for the impacts of climate change on the region's water resources, partner with local, regional and state agencies to encourage water conservation and efficiency and expand and diversify the water supply</i>	Rising temperatures and droughts are having significant impacts on the availability of water supplies throughout the state. The community can and must prepare for increasingly constrained water resources through water conservation, recycling, and other methods.
3.	<i>In preparation for increasing sea-levels and more severe storms, partner with local, regional and state agencies to reduce the property damage associated with flooding and coastal erosion</i>	Impacts of warming temperatures include a rising sea level and increasingly severe winter storms. As a coastal city, Berkeley must increase its capacity to manage stormwater and coastal floods.
COMMUNITY OUTREACH & EMPOWERMENT		
1.	<i>Establish an implementation framework that enables the City to more efficiently and effectively distribute information and resources to a wide range of community partners and to report progress on achieving the goals outlined in this plan</i>	The City is already working with several community partners to turn the climate plan into climate action. This includes the development of community "working groups" formed to mobilize around a specific component of this plan. The City is also launching a website to report on progress on achieving the goals of this plan.
2.	<i>Continue to showcase existing climate protection efforts in our schools and to expand the opportunities students have to learn about and take action on climate change</i>	Representatives from the City, the Berkeley Unified School District, UC Berkeley, Lawrence Berkeley National Labs, and local museums, among others, should identify opportunities for sharing resources that will help to build on existing climate awareness and education in local K – 12 schools.
3.	<i>Launch a coordinated outreach and education campaign, utilizing a range of tools,</i>	A climate action outreach and education campaign must effectively communicate the urgency of addressing the climate crisis while also empowering individuals,

	GHG Reduction Policy	Discussion
	<i>programs and partnerships, to mobilize residents</i>	businesses, and institutions to be a part of the solution.
4.	<i>Continue to showcase effective climate protection efforts in the business community and to engage additional businesses in the local climate protection effort</i>	Several local businesses are already leaders in the effort to integrate ecological consciousness into their business practices. The City is working with local businesses and business associations to support and showcase such efforts.
5.	<i>Launch a sustained effort to increase awareness in the City government regarding the climate issue and to provide training on increasing sustainability at home and in the workplace</i>	Although the City government accounts for a very small portion of the total community emissions, climate action at the City government is a policy tool in and of itself. Such action demonstrates leadership that extends beyond actual emissions reduced.

RESOLUTION NO. _____

APPROVING THE BERKELEY CLIMATE ACTION PLAN AS THE "PREFERRED PROJECT" FOR THE PURPOSE OF ENVIRONMENTAL REVIEW

WHEREAS, the weight of scientific authority has concluded that greenhouse gas emissions caused by human activity are altering the Earth's climate; and

WHEREAS, we recognize that the impacts associated with climate change, including shrinking water resources, rising seas, and extreme heat events, put our residents at serious risk and require immediate action at all levels; and

WHEREAS, the impacts of global warming often affect poor and minority communities disproportionately; and

WHEREAS, local governments and the communities they represent are uniquely capable of addressing the main sources of greenhouse gas emissions through policies that increase access to sustainable mobility modes, increase energy efficiency and reduce waste; and

WHEREAS, action taken to reduce greenhouse gas emissions have several important co-benefits, including improved public health through reduce local air pollution, costs savings associated with increased energy efficiency, improved access to more active mobility options, increased preparedness for peak oil due to less reliance on fossil fuels, and the creation of local green jobs; and

WHEREAS, the problem of global warming will not be resolved without leadership from local governments and the communities they represent and without collaboration across all levels of government; and

WHEREAS, in September of 2006 the Governor signed Assembly Bill 32 (Nunez), the Global Warming Solutions Act that requires California to reduce its greenhouse gas emissions to 1990 levels by 2020 and directs the California Air Resources Board to develop a Scoping Plan for achieving that target; and

WHEREAS, in December 2008 the California Air Resources Board approved the AB 32 Scoping Plan that contains the main strategies that California will use to reduce the emissions that cause climate change and that also recognizes the important role local governments must play in achieving the state's targets; and

WHEREAS, in November 2006, 81 percent of Berkeley voters endorsed local ballot Measure G that established a target of reducing Berkeley's community-wide emissions by 80 percent by 2050 and directed the Mayor to develop a plan for achieving that target; and

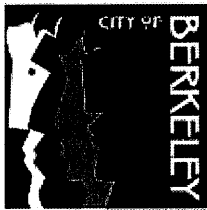
WHEREAS, City staff developed the Berkeley Climate Action Plan through an extensive community process that enabled widespread community input and engagement; and

WHEREAS, the Berkeley Climate Action Plan contains specific and prioritized strategies for aggressively reducing local greenhouse gas emissions; and

WHEREAS, development and implementation of the Berkeley Climate Action Plan has the potential to affect climate policy at all levels of government.

NOW, THEREFORE, BE IT RESOLVED, that the City of Berkeley approves the current version (April 2009 draft) of the Berkeley Climate Action Plan as the "preferred project" for the purpose of environmental review.

EXHIBIT No. 7



Berkeley City Council, District 5
2180 Milvia Street, 5th Floor
Berkeley, CA 94704
(510) 981-7150
shahn@cityofberkeley.info

ACTION CALENDAR

January 22, 2019~~December 11, 2018~~

To: Honorable Mayor and Members of the City Council
From: Councilmember Sophie Hahn and Mayor Jesse Arreguin
Subject: Single Use Disposable Foodware and Litter Reduction Ordinance

RECOMMENDATION

1. Adopt a first reading of the Single Use Foodware and Litter Reduction Ordinance.
2. Refer to the City Manager to:
 - a. Establish a mini-grant program administered and funded either directly by the City or by community partners to help Prepared Food Vendors with one-time costs associated with conversion to Reusable Foodware for eating on the premises ("eating-in").
 - b. Establish a program administered and funded either directly by the City or by community partners to provide technical assistance to Prepared Food Vendors implementing Reusable Foodware requirements for eating on the premises.
 - c. Create a Reusable Takeout Foodware program for launch three years after the effective date of the Single Use Disposable Foodware and Litter Reduction Ordinance, in collaboration with community partners such as the Ecology Center, Rethink Disposables and StopWaste.
 - d. Prior to launch of the Reusable Takeout Foodware program, draft for approval amendments to the Single Use Disposable Foodware and Litter Reduction Ordinance to implement the Reusable Takeout Foodware program as an alternative to Compostable Takeout Foodware, and impose a charge, similar to or the same as the Disposable Cup charge, on other Disposable Foodware containers.
 - e. Create a program to expand and support composting, to ensure Single Use Disposable Foodware is actually composted.
 - f. Prior to January 1, 2022 report to the City Council on progress towards full implementation of and compliance with the Single Use Disposable Foodware and Litter Reduction Ordinance and these referrals.

3. Refer to the City Manager to determine funding and staffing needs and sources of funds to implement each program/phase. Consider and suggest implementation alternatives to achieve similar results at lower cost to the City, if any. Submit recommended alternatives to the Zero Waste Commission and City Council for consideration, and funding allocations or requests to the budget process.

FINANCIAL IMPLICATIONS

Reducing use and disposal of products that make up the majority of Berkeley's street and storm-drain litter has the potential to significantly lower City expenses including costs related to collection of debris from over 400 city trash receptacles, from clearing of clogged stormwater intakes city-wide, and from daily street sweeping and litter management. Even for "recyclable" items that are properly placed in a recycling bin, these items are costly to sort and process and have limited markets resulting in additional costs to the City. Many of these items result in contamination to the composting program which increases the cost of composting.

Staff time will be required to launch programs related to the Single Use Foodware and Litter Reduction Ordinance. Some programs and services may be provided by community partners at relatively low cost. Once launched, staff time for administration and enforcement of the Ordinance will be limited.

Costs, sources of funding and community partnerships to be determined by the City Manager.

BACKGROUND

Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions. The use of disposable foodware has grown exponentially over the past few decades. Because the environmental costs of these products is largely hidden to the business operator and consumer, little attention is paid to the quantity of packaging consumed and quickly thrown away. Reducing the use of SUDs in the City of Berkeley is a key strategy to achieve the City's Zero Waste and Climate Action goals, and to address the many environmental impacts and costs associated with the use and disposal of single-use foodware and packaging. SUDs often become litter; therefore, minimizing their use will assist the City with achieving stormwater program requirements and ~~could~~ can reduce costs for maintenance of full trash capture devices that the City has installed in stormdrains.

Environmental Impacts of Single-Use Disposables

Worldwide, the production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources. It is a major component of litter on streets and in waterways, and of the plastic polluting our air, food, drinking water and oceans.

- Food and beverage SUDs make up approximately 25% of all waste produced in California.¹
- Bay Area litter studies have found that food and beverage packaging comprises the majority of street litter.²
- Without dramatic systems change, by 2050, there will be more plastic in the ocean than fish.³
- Based on Berkeley's population of approximately 120,000 people, it is estimated that almost 40 million single use cups are used in the City of Berkeley every year.

Most SUDs are used for just a few minutes before becoming waste, while at the same time, most are made to last for hundreds and even thousands of years, and have with broad, long-lasting negative impacts. Plastics in waterways and oceans break down into smaller pieces (but do not biodegrade) and are present in most of the world's oceans, at all levels (surface, water column, and bottom).⁴

Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater⁵, which can transfer to fish, other seafood, and salt that is eventually sold for human consumption.⁶ Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health effects including kidney and testicular cancer, thyroid disruption, delayed puberty and obesity.⁷

¹ <https://www.wastedive.com/news/are-the-packaging-wars-coming-to-california/508491/>

² See Clean Water Action's "Taking out the Trash" Bay Area Litter study (2011) http://www.cleanwateraction.org/files/publications/ca/Curr_CA_12%2012%2011final.pdf; California Coastal Cleanup Results 1989-2014 showing Food and Beverage packaging items are 7 out of the top 10 items collected and account for 34% of the total trash - <https://www.coastal.ca.gov/publiced/ccd/history.html#top10>; BanList 2.0 shows food and beverage packaging items are 74% of top 20 littered items among 6 different beach cleanup datasets- <https://upstreampolicy.org/ban-list-20>

³ Ellen MacArthur Foundation (2016)

⁴ D. Barnes et al, 2009, *Accumulation and fragmentation of plastic debris in global environments*, Phil. Trans. R. Soc. B., 364-1985-98.

⁵ Rochman, C.M., et al., 2013, Long-Term Field Measurement of Sorption of Organic Contaminants to Five Types of Plastic Pellets: Implications for Plastic Marine Debris. *Environmental Science and Technology*. 47, 1646-1654.

⁶ Rochman C Met al, 2015a Anthropogenic debris in seafood: plastic debris and fibers from textiles in fish and bivalves sold for human consumption *Sci. Rep.* 5 14340.

⁷ In 2015, the FDA barred from use three such fluorinated chemicals from food contact materials due to safety risks associated with cancer, toxicity, and other health effects; other fluorinated chemicals have similar chemical structures and pose similar risk.

Strategies to Regulate SUDs

Alameda County implemented its reusable bag ordinance in January 2013, and has seen dramatic results. Countywide, bag purchases by affected retail stores have declined by 85 percent. The number of shoppers bringing a reusable bag to affected stores, or not using a bag at all, has more than doubled during this time⁸. Globally, a number of strategies have been implemented to reduce the use of SUDs. Charges for single-use plastic bags have proven to decrease plastic bag consumption. When Ireland instituted a “Plas-Tax” in 2002, equivalent to about 20 cents per bag, plastic bag use declined by 90% and litter from plastic bags declined by 40%⁹. Similar charges have been implemented in Taiwan, Washington D.C., and the United Kingdom, resulting in decreases in plastic bag use of up to 80%. A 2016 plastic bag ban in California reduced the number of plastic bags found on beaches by half.¹⁰ Studies have also shown that customers in areas with taxes on single use bags were more likely to use reusable bags.¹¹

There is growing support for reducing the use of other single use disposables. Ireland is considering banning single use coffee cups, with 50% of the population surveyed in support.¹² The European Union announced in 2018 that it is implementing a policy for all plastic packaging to be recyclable or reusable by 2030.¹³ Taiwan will be imposing charges for straws, plastic shopping bags, disposable utensils, and beverage cups by 2025, and will impose a complete ban on single-use plastic items, including straws, cups, and shopping bags, by 2030.¹⁴

Reducing SUDs in the City of Berkeley

The City of Berkeley has a long history of leadership in sustainability and environmental protections including the adoption of an ambitious Climate Action Plan in 2009, with a goal of achieving Zero Waste by 2020; the nation's first curbside recycling program and styrofoam foodware ban; and one of the first commercial organics collection programs. The city reached a height of 78% waste diversion by AB 939 standards, and there has

⁸ “Successful Results from Bag Ordinance”, 2014, Alameda County Waste Management authority, <http://reusablebagsac.org/news/successful-results-bag-ordinance>

⁹ Mauro Anastasio and James Nix, Plastic Bag Levy in Ireland, Institute European Environmental Policy, 2016. <https://ieep.eu/uploads/articles/attachments/7f91cb97-8cb7-49c39cf0d34062a9192e/IE%20Plastic%20Bag%20Levy%20conference%20draft.pdf?v=63673818840>

¹⁰ <http://www.latimes.com/opinion/editorials/la-ed-plastic-bag-ban-anniversary-20171118-story.html>

¹¹ T. A. Homonoff, *Can Small Incentives Have Large Effects? The Impact of Taxes versus Bonuses on Disposable Bag Use* National Tax Association Proceedings, Princeton University- <http://ntanet.org/wp-content/uploads/proceedings/2012/008-homonoff-can-small-incentives-2012-nta-proceedings.pdf>

¹² <http://www.thejournal.ie/coffee-cups-poll-3642333-Oct2017/>

¹³ European Commission, EU Plastics Strategy-http://ec.europa.eu/environment/waste/plastic_waste.htm

¹⁴ “Taiwan to ban disposable plastic items by 2030,” February 22, 2108- <https://phys.org/news/2018-02-taiwan-disposable-plastic-items.html>

been a 50% reduction in solid waste disposal between 2000 to 2013¹⁵. Despite these achievements, Berkeley has not addressed the significant increase in takeout food packaging littering city streets, filling storm drains, requiring management in the waste stream, polluting our waterways, Bay and ocean, and threatening both human and animal health.

In addition, SUDs are particularly costly and challenging to divert from landfill. Non-recyclable food and beverage packaging is ~~costly~~ difficult to remove from the waste stream and reduces the quality and value of recyclables, while non-compostable food packaging (some of which is advertised as “biodegradable” or “made from plants,” which misleads consumers to believe it is compostable) contaminates compost, adding costs and reducing the quality of compost¹⁶. With China’s recent rejection of mixed recycled plastic imports, the value of recyclable plastics has dropped sharply and the final destination for these plastic SUDs is uncertain. This adds significant costs to the City’s collection, sorting, and processing of compostables and recyclables. To reach its Zero Waste goals, the City must reduce use of single-use food and beverage packaging.

Thanks to the leadership of Berkeley’s Ecology Center, working closely with UpStream, Clean Water Action, the Clean Water Fund, Story of Stuff, Surfrider Foundation, GAIA (Global Alliance for Incinerator Alternatives), the Green Science Policy Institute, Excellent Packaging, and numerous ~~active experts~~, residents and volunteers, the City Council unanimously referred a proposed Single Use Disposable Foodware and Litter Reduction ordinance to the Zero Waste Commission on April 24, 2018.

The Zero Waste Commission was tasked with review of the proposed ordinance and the conduct of community meetings to gather feedback on the proposed ordinance, and make recommendations. Since that time, the Zero Waste Commission Foodware Subcommittee conducted 4 community meetings between June and September of 2018, and collected comments from over 60 restaurateurs, environmental advocates, members of the disability community, and other community members. Meetings were held on different days and times of the day, at locations throughout Berkeley, and were noticed to the restaurant and food service community with the help of the City’s Economic Development staff. The Commission analyzed comments received in writing and through public testimony, and on September 24, 2018 unanimously referred their findings to the City Council (Attachment 2).

¹⁵ Berkeley Climate Action Plan: Tracking our Progress Waste Reduction & Recycling – Total Landfilled, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/PDF%20total%20landfilled%20final.pdf

¹⁶ Clean Water Action, *What’s in the Package?* 2016 <https://www.cleanwateraction.org/features/what%E2%80%99s-package>

In addition, Councilmember Hahn met on-site with the owners of three restaurants that expressed concerns about implementation of the proposed ordinance, reviewing their current practices and challenges. All three have already implemented important measures to reduce the use of harmful Single Use Disposables, and shared important insights.

Ordinance Elements

The attached ordinance (Attachment 1) incorporates many of the Zero Waste Commission's recommendations and makes a number of changes to accommodate concerns and questions that were discussed as part of the Commission's public process. Changes include:

- Phasing-in elements of the ordinance, to allow Prepared Food Vendors time to adjust practices.
- Opportunities for limited exemptions, based on demonstrated hardship or extraordinary circumstances.
- Establishment of mini-grant and technical assistance programs, to help Prepared Food Vendors transition to Reusable and Compostable Foodware.
- Elimination of charges for all Single Use Disposable Foodware, except for cups, pending establishment of a Reusable Takeout Foodware program.
- Addition of standards for Prepared Food Vendors to reject customer-supplied cups that appear inappropriate or unsanitary.
- Addition of a recommendation that Prepared Food Vendors customarily offering straws keep a supply of compostable bioplastic straws for use by individuals specifically requesting "plastic" straws.
- Enforcement with notice and opportunities to cure, either by adopting practices or obtaining a waiver, if warranted, prior to imposition of any fines or other penalties.

City Manager Referral Components

To complement the roll out of the Single Use Disposable Foodware and Litter Reduction Ordinance, the Zero Waste Commission recommends a number of City-sponsored programs to support implementation of the Ordinance's requirements, including:

- A mini-grant program to help cover one-time costs associated with the transition to Reusable Foodware for on-site dining;
- Technical assistance to support implementation of ordinance requirements.

~~These are included in this referral. Both programs must be operative by June 2019, six months before the key elements of the ordinance take effect.~~

It is incumbent upon the City to further expand composting resources – potentially including compost receptacles - for residents and customers. Many restaurants do provide composting receptacles in-store currently, but many residential countertop kitchen pails are too small to accommodate a significant increase in compostable foodware, which is expected with widespread adoption of the Single Use Foodware and Litter Reduction Ordinance. Also, current trash receptacles in the public right of way do not accommodate compostables. The expansion of composting collection efforts also supports the goals and requirements of AB1826 and SB1383 to divert organics from the landfill, and is included in this referral. As a community, Berkeley will not reap the benefits of substituting compostables for plastic single use foodware unless the collection and composting of these items are actually achieved-

ENVIRONMENTAL SUSTAINABILITY

The production, consumption and disposal of single use food and beverage packaging is a major contributor to litter in our streets, plastic in landfills, pollution in waterways and oceans, GHG emissions, and harm to wildlife. This environmental ordinance represent a huge step forward in reducing the use of disposable foodware in Berkeley, fulfilling Berkeley's Zero Waste and Climate Action Goals, reducing greenhouse gas emissions 80% by 2050, and meeting State trash load level mandates.

CONTACT PERSON

Councilmember Sophie Hahn, District 5, (510) 981-7150
Mayor Jesse Arreguín, (510) 981-7100

Attachments

1. Single Use Foodware and Litter Reduction Ordinance, amended to incorporate Zero Waste Commission recommendations
2. Zero Waste Commission recommendations to City Council, September 24, 2018
3. Referral to the Zero Waste Commission: Berkeley Single Use Foodware and Litter Reduction Ordinance, April 24, 2018

ORDINANCE NO. -N.S.

ADDING CHAPTER 11.64 TO THE BERKELEY MUNICIPAL CODE TO ADOPT A
SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That a new Chapter 11.64 is hereby added to the Berkeley Municipal Code to read as follows:

Chapter 11.64

SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

Sections:

- 11.64.010 Findings and Purposes
- 11.64.020 Definitions
- 11.64.030 Accessory disposable foodware items
- 11.64.040 Reusable customer cups
- 11.64.050 Compostable disposable foodware
- 11.64.060 Reusable foodware for dining on the premises
- 11.64.070 Disposable foodware standards
- 11.64.080 Separate disposable foodware waste receptacles
- 11.64.090 Waivers
- 11.64.100 Regulations applicable to all prepared food vendors
- 11.64.110 Duties responsibilities and authority of the City of Berkeley
- 11.64.120 City of Berkeley: purchases prohibited
- 11.64.130 Liability and enforcement
- 11.64.140 Severability
- 11.64.150 ~~Ordinance Chapter~~ Ordinance Chapter supersedes existing laws and regulations

11.64.010 Findings and Purposes.

The Council of the City of Berkeley finds and declares as follows:

- A. Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.

- B. The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources, and ~~p~~ Plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and are present in most of the world's oceans.
- C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health conditions.
- D. Food and beverage SUDs make up approximately 25% of all waste produced in California. In the Bay Area, food and beverage packaging comprises the majority of street litter, and is a significant contributor to the total amount of waste entering the ~~City's~~ waste stream.
- E. It is in the interest of the health, safety and welfare of all who live, work and do business in the City, that the amount of litter on public streets, parks and in other public places be reduced.
- F. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of single-use food and beverage packaging furthers this goal.
- G. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan, as amended, ~~in~~ 2017, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

11.64.020 Definitions.

- A. "Prepared Food" means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. Prepared Food does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed, or raw uncooked meat products.
- B. "Takeout Food" means Prepared Food which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food carried out by the customer or delivered by a Prepared Food Vendor or by a Takeout Food Delivery Service.

- C. "Prepared Food Vendor" means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113930 and as amended), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.
- D. "Disposable Foodware" means all containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any other items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.
- E. "Disposable Cup" is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks, and alcoholic beverages ~~and other drinks~~.
- F. "Accessory Disposable Foodware Item" means any Disposable Foodware item such as straws, stirrers, napkins and utensils; condiment cups and packets; cup sleeves, tops, lids, and spill plugs; and other similar accessory or accompanying Disposable Foodware items used as part of food or beverage service or packaging.
- G. "Reusable Foodware" means all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, condiment cups and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.
- H. "Takeout Food Delivery Service" is a third party delivery service which picks up Takeout Food from a Prepared Food Vendor and delivers it to the customer for consumption off the premises.

11.64.030 Accessory Disposable Foodware Items

- A. Accessory Disposable Foodware items shall be provided only upon request by the customer or at self-serve stations, except that Disposable Cups for delivery by a Prepared Food Vendor or a Takeout Food Delivery Service may include tops, lids, spill plugs and sleeves without request.

- B. Prepared Food Vendors and Takeout Food Delivery Services must provide options for customers to affirmatively request Accessory Disposable Foodware Items separate from orders for food and beverages across all ordering/point of sale platforms, including but not limited to web, smart phone and other digital platforms, telephone and in-person.
- C. Prepared Food Vendors that customarily offer straws are encouraged to maintain a small supply of plastic-type straws which meet the Disposable Foodware Standards set forth in ~~section~~Section 11.64.070, which may be provided to customers upon specific request for a "plastic" straw.
- D. Prepared Food Vendors offering condiments are encouraged to use dispensers rather than pre-packaged disposable condiment packets.

11.64.040 Reusable Customer Cups

- A. Except as provided in Chapter 11. Temporary Food Facilities of the California Health and Safety Code, Section 114353, Ccustomers may provide their own Reusable Foodware cups for beverage service in accordance with California State Health Code 114075(e) and as amended. Prepared Food Vendors may refuse, at their sole discretion, any customer-provided Reusable Foodware cup that is cracked, chipped or corroded, appears inappropriate in size, material, or condition for the intended beverage, or that appears to be excessively soiled or unsanitary, and instead require use of a Reusable Foodware cup for a beverage consumed on the premises, or a Disposable Cup that conforms to the Disposable Foodware Standards in 11.64.070 for a beverage to be consumed off the premises, with any charge required pursuant to sectionSection 11.64.050.D.

11.64.050 Compostable Disposable Foodware

Effective January 1, 2020:

- A. Takeout Food shall only be served in Disposable Foodware that conforms to the Disposable Foodware Standards ~~at-in section~~Section 11.64.070.
- B. Accessory Disposable Foodware Items shall conform with the Disposable Foodware Standards ~~at-in~~ 11.64.070.
- C. Takeout Food Delivery Services shall only deliver Takeout Food from a Prepared Food Vendor that is served in Disposable Foodware and with Accessory Disposable Foodware Items, if any, that conform to the Disposable Foodware Standards ~~at-in~~ 11.64.070.
- D. Prepared Food Vendors shall charge customers twenty five cents (\$0.25) for every Disposable Cup provided.

a-1. Income from the Disposable Cup charge shall be retained by the Prepared Food Vendor, and used for the purposes set forth in Section 11.64.100.C for use in its discretion.

b-2. All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children (WIC) pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code and as amended, or an electronic benefit transfer card (EBT) issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the Disposable Cup charge.

e-3. Charges for Disposable Cups shall be identified separately on any post-sale receipt provided and, pre-sale, shall be clearly identified for the customer on media such as menus, ordering platforms and/or menu boards and on any receipt provided to the customer. Customers placing orders by telephone shall be informed verbally of Disposable Cup charges.

E. Notwithstanding the requirements at section Sections 11.64.050, subsections (A)-(C), a Prepared Food Vendor may request a waiver or waivers pursuant to section Section 11.64.090 for specific Disposable Foodware items. To obtain a waiver for a Disposable Foodware item, the Prepared Food Vendor must demonstrate that:

a-1. No Disposable Foodware item exists with substantially similar size, performance and/or utility that conforms with the Disposable Foodware Standards at in sSection 11.64.070 or, if such an item exists, that costs of using such item would cause undue financial hardship, and;

b-2. The non-conforming Disposable Foodware item to be used in lieu of a conforming item is recyclable in the City of Berkeley recyclable collection program.

e-3. The Prepared Food Vendor must provide documentation of efforts to obtain a substantially similar compliant item at a non-prohibitive price.

d-4. Records of attempts to obtain a compliant item shall include:

i-a. Emails, letters or other correspondence with two or more vendors that furnish Compostable Disposable Foodware, seeking the compliant item.

ii.b. _____ Responses from such Compostable Disposable Foodware vendors including, where applicable, specifications and pricing for such item.

iii.c. _____ Specifications and pricing for the recyclable non-conforming item sought to be used, demonstrating its substantial superiority and/or affordability, and

iv.d. _____ Any other records which demonstrate a good faith effort to comply with Disposable Foodware Standards for such item.

e.5. _____ Reasonable added cost for a conforming item as compared to a substantially similar recyclable non-conforming item shall not by itself constitute adequate grounds to support a waiver for such item.

11.64.060 Reusable Foodware for Dining on the Premises (i.e. "Eating-in")

Effective July 1, 2020:

A. Prepared Food served for consumption on the premises of a Prepared Food Vendor shall only be served using Reusable Foodware, except that disposable paper food wrappers, foil wrappers, paper napkins, straws and paper tray- and plate-liners shall be allowed for dining on the premises, so long as they meet the Disposable Foodware Standards in ~~section~~Section 11.64.070.

B. Notwithstanding the requirements at ~~section~~Section 11.64.060 (A), Prepared Food Vendors that do not have on-site or off-site dishwashing capacity or are unable to contract for services to wash, rinse and sanitize Reusable Foodware in compliance with the California State Health Code may request a waiver or partial waiver pursuant to Section 11.64.090. To obtain a waiver, the Prepared Food Vendor must demonstrate inability to comply due to insurmountable space constraints and/or undue financial hardship.

C. All Disposable Foodware used on the premises by Prepared Food Vendors that are operating under full or partial waivers obtained pursuant to 11.64.090 shall conform to the Disposable Foodware Standards in Section 11.64.070.

~~D. Zoning permits and Business Licenses for Prepared Food Vendors applied for, renewed and/or deemed complete on or after January 1, 2019 shall only be granted to Prepared Food Vendors that demonstrate compliance with section 11.64.060 (A). Installation and/or maintenance of appropriate dishwashing capacity in conformance with section 11.64.060 (A) shall be~~

~~included as a specific condition of approval for such permits and licenses.~~

11.64.070 Disposable Foodware Standards

- A. Disposable Foodware must be accepted by City of Berkeley municipal compost collection programs and be free of all intentionally added fluorinated chemicals, as certified by the Biodegradable Product Institute or other independent third party certifying organization or agency recognized by the City, except that non-compostable foil wrappers that are accepted in the City of Berkeley recyclable collection program may be used for burritos, wraps, and other items that require foil to contain and form the food item.
- B. The City shall maintain on its website a list of suppliers that offer Disposable Foodware that complies with these Disposable Foodware Standards.
- C. Changes, if any, to Disposable Foodware Standards shall become effective on January 1 of ~~each~~ the next calendar year, and the City of Berkeley shall provide notice of any such changes to Prepared Food Vendors at least 90 days prior.

11.64.080 Separate Disposable Foodware Waste Receptacles

All Prepared Food Vendors, except Full Service Restaurants as defined in Chapter 23F.04 of the Berkeley Municipal Code and other Prepared Food Vendors that provide full bussing service and do not customarily provide waste receptacles for customer use, must provide at least one set of three easily accessed receptacles ~~each~~ for discarded items to be composted, ~~or~~ recycled, and, if needed, to be landfilled or otherwise wasted.

- A. To the extent possible given space constraints, all three receptacles should be placed together in the same location.
- B. The City shall identify materials accepted for each collection program on the City's website, and signage must be posted on and/or above each receptacle, indicating the materials to be deposited into such receptacle. Receptacles and signage shall be color-coded as follows:
 - a-1. _____ Blue for recyclables
 - b-2. _____ Green for compostables
 - c-3. _____ Black or gray for items to be landfilled or otherwise wasted
- C. Prepared Food Vendors that share premises may share receptacles.

11.64.090 Waivers

- A. The City Manager shall prescribe and adopt rules, regulations and forms for Prepared Food Vendors to obtain full or partial waivers from any requirement of this ordinance that is explicitly subject to waiver.
- B. Waivers shall be granted by the City Manager or his or her agents, based upon documentation provided by the applicant and, at the City Manager's discretion, independent verification, including site visits.
- C. The City Manager or his or her agents shall act on a waiver application no later than 180 days after receipt of such application, including mailing written notification of the City Manager's decision to the address supplied by the applicant.
- D. Waivers may be granted for a specified period of up to two (2) years. During the waiver period, the Prepared Food Vendor shall make diligent efforts to become compliant. Notwithstanding the above, in certain limited, and -unique circumstances existing prior to adoption of this ordinance, where the prepared food vendor demonstrates diligent efforts to comply but, due to insurmountable space and/or economic constraints, may never be reasonably able to comply, the City Manager may grant a waiver for a longer specified term. Any such longer term waiver shall expire automatically in the event of a significant remodel or alteration of the premises or if the Prepared Food Vendor ceases operations at the location for which the waiver has been granted.
- E. Under extraordinary circumstances, should a Prepared Food Vendor demonstrate that, at the close of a granted waiver period, and with diligent efforts to become compliant, compliance remains infeasible, additional waivers of up to two (2) years each may be granted. It shall be the Prepared Food Vendor's responsibility to apply for any subsequent waivers in a timely manner.

~~E.~~

11.64.100 Regulations applicable to all Prepared Food Vendors

- A. Each Prepared Food Vendor shall maintain written records evidencing compliance with this Chapter.
- B. All records required by this Chapter shall be made available for inspection by the City Manager or his or her designated representative. It shall be unlawful for anyone having custody of such records to fail or refuse to produce such records upon request by the City Manager or his or her designated representative.
- C. ~~All charges collected by the Prepared Food Vendor pursuant to section Section 11.64.050 of this Chapter and retained by the Prepared Food Vendor may be used only for the following purposes:~~
 - a. ~~Costs associated with complying with the requirements of this Chapter.~~

- ~~b. Actual costs of labor, equipment and materials for washing Reusable Foodware and providing customers with Reusable Foodware; costs of providing customers with compliant compostable Disposable Foodware; costs for reducing litter; and other costs associated with reducing the use of Disposable Foodware and litter.~~
- ~~c. Costs associated with a store's educational materials or educational campaign for reducing and/or encouraging the reduction of Disposable Foodware and litter.~~
- ~~d. Costs associated with supplying customers with Reusable Foodware for Takeout Food that can be returned to the business for washing or as part of a City-wide system of Reusable Foodware for Takeout Food.~~

11.64.110 Duties responsibilities and authority of the City of Berkeley City Manager's Powers

The City Manager shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this chapter and is hereby authorized to take any and all actions reasonable and necessary to enforce this chapter including, but not limited to, inspecting any Prepared Food Vendor's premises to verify compliance.

- ~~A. In June of 2021 the City shall report to the City Council on progress towards full implementation of and compliance with this ordinance.~~

11.64.120 City of Berkeley: purchases prohibited

The City of Berkeley shall not purchase any Disposable Foodware that does not comply with the Disposable Foodware Standards at in Section 11.64.070, nor shall any City-sponsored event utilize non-compliant Disposable Foodware.

11.64.130 Liability and Enforcement

- A. Anyone violating or failing to comply with any requirement of this chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however, no administrative citation may be issued or infraction charged for violation of a requirement of this chapter until one year after the effective date of such requirement.
- B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to Section 11.64.090.
- C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this chapter.

D. The remedies and penalties provided in this section are cumulative and not exclusive.

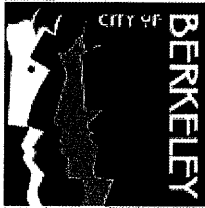
11.64.140 Severability

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the proscribed application thereof, shall be severable, and the remaining provisions of this chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases had been declared invalid or unconstitutional. If any part or provision of this chapter or the application thereof to any person or circumstance is held invalid, the remainder of the chapter, including the application of such part or provision to other persons or circumstances, shall not be affected thereby and shall continue in full force and effect. To this end, provisions of this chapter are severable.

11.64.150 ~~Ordinance Chapter~~ supersedes existing laws and regulations

The provisions of this chapter shall supersede any conflicting law or regulations, restricting the use of polystyrene foam.

Section 2. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.



Berkeley City Council, District 5
2180 Milvia Street, 5th Floor
Berkeley, CA 94704
(510) 981-7150
shahn@cityofberkeley.info

ACTION CALENDAR

January 22, 2019

To: Honorable Mayor and Members of the City Council
From: Councilmember Sophie Hahn and Mayor Jesse Arreguin
Subject: Single Use Disposable Foodware and Litter Reduction Ordinance

RECOMMENDATION

1. Adopt a first reading of the Single Use Foodware and Litter Reduction Ordinance.
2. Refer to the City Manager to:
 - a. Establish a mini-grant program administered and funded either directly by the City or by community partners to help Prepared Food Vendors with one-time costs associated with conversion to Reusable Foodware for eating on the premises ("eating-in").
 - b. Establish a program administered and funded either directly by the City or by community partners to provide technical assistance to Prepared Food Vendors implementing Reusable Foodware requirements for eating on the premises.
 - c. Create a Reusable Takeout Foodware program for launch three years after the effective date of the Single Use Disposable Foodware and Litter Reduction Ordinance, in collaboration with community partners such as the Ecology Center, Rethink Disposables and StopWaste.
 - d. Prior to launch of the Reusable Takeout Foodware program, draft for approval amendments to the Single Use Disposable Foodware and Litter Reduction Ordinance to implement the Reusable Takeout Foodware program as an alternative to Compostable Takeout Foodware, and impose a charge, similar to or the same as the Disposable Cup charge, on other Disposable Foodware containers.
 - e. Create a program to expand and support composting, to ensure Single Use Disposable Foodware is actually composted.
 - f. Prior to January 1, 2022 report to the City Council on progress towards full implementation of and compliance with the Single Use Disposable Foodware and Litter Reduction Ordinance and these referrals.
3. Refer to the City Manager to determine funding and staffing needs and sources of funds to implement each program/phase. Consider and suggest

implementation alternatives to achieve similar results at lower cost to the City, if any. Submit recommended alternatives to the Zero Waste Commission and City Council for consideration, and funding allocations or requests to the budget process.

FINANCIAL IMPLICATIONS

Reducing use and disposal of products that make up the majority of Berkeley's street and storm-drain litter has the potential to significantly lower City expenses including costs related to collection of debris from over 400 city trash receptacles, from clearing of clogged stormwater intakes city-wide, and from daily street sweeping and litter management. Even for "recyclable" items that are properly placed in a recycling bin, these items are costly to sort and process and have limited markets resulting in additional costs to the City. Many of these items result in contamination to the composting program which increases the cost of composting.

Staff time will be required to launch programs related to the Single Use Foodware and Litter Reduction Ordinance. Some programs and services may be provided by community partners at relatively low cost. Once launched, staff time for administration and enforcement of the Ordinance will be limited.

Costs, sources of funding and community partnerships to be determined by the City Manager.

BACKGROUND

Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions. The use of disposable foodware has grown exponentially over the past few decades. Because the environmental costs of these products is largely hidden to the business operator and consumer, little attention is paid to the quantity of packaging consumed and quickly thrown away. Reducing the use of SUDs in the City of Berkeley is a key strategy to achieve the City's Zero Waste and Climate Action goals, and to address the many environmental impacts and costs associated with the use and disposal of single-use foodware and packaging. SUDs often become litter; therefore, minimizing their use will assist the City with achieving stormwater program requirements and can reduce costs for maintenance of full trash capture devices that the City has installed in stormdrains.

Environmental Impacts of Single-Use Disposables

Worldwide, the production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources. It is a major component of litter on streets and in waterways, and of the plastic polluting our air, food, drinking water and oceans.

- Food and beverage SUDs make up approximately 25% of all waste produced in California.¹
- Bay Area litter studies have found that food and beverage packaging comprises the majority of street litter.²
- Without dramatic systems change, by 2050, there will be more plastic in the ocean than fish.³
- Based on Berkeley's population of approximately 120,000 people, it is estimated that almost 40 million single use cups are used in the City of Berkeley every year.

Most SUDs are used for just a few minutes before becoming waste, while at the same time, most are made to last for hundreds and even thousands of years, with broad, long-lasting negative impacts. Plastics in waterways and oceans break down into smaller pieces (but do not biodegrade) and are present in most of the world's oceans, at all levels (surface, water column, and bottom).⁴

Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater⁵, which can transfer to fish, other seafood, and salt that is eventually sold for human consumption.⁶ Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health effects including kidney and testicular cancer, thyroid disruption, delayed puberty and obesity.⁷

¹ <https://www.wastedive.com/news/are-the-packaging-wars-coming-to-california/508491/>

² See Clean Water Action's "Taking out the Trash" Bay Area Litter study (2011) http://www.cleanwateraction.org/files/publications/ca/Curr_CA_12%2012%2011final.pdf; California Coastal Cleanup Results 1989-2014 showing Food and Beverage packaging items are 7 out of the top 10 items collected and account for 34% of the total trash - <https://www.coastal.ca.gov/publiced/ccd/history.html#top10>; BanList 2.0 shows food and beverage packaging items are 74% of top 20 littered items among 6 different beach cleanup datasets- <https://upstreampolicy.org/ban-list-20>

³ Ellen MacArthur Foundation (2016)

⁴ D. Barnes et al, 2009, *Accumulation and fragmentation of plastic debris in global environments*, Phil. Trans. R. Soc. B., 364-1985-98.

⁵ Rochman, C.M., et al., 2013, Long-Term Field Measurement of Sorption of Organic Contaminants to Five Types of Plastic Pellets: Implications for Plastic Marine Debris. *Environmental Science and Technology*. 47, 1646-1654.

⁶ Rochman C Met al, 2015a Anthropogenic debris in seafood: plastic debris and fibers from textiles in fish and bivalves sold for human consumption *Sci. Rep.* 5 14340.

⁷ In 2015, the FDA barred from use three such fluorinated chemicals from food contact materials due to safety risks associated with cancer, toxicity, and other health effects; other fluorinated chemicals have similar chemical structures and pose similar risk.

Strategies to Regulate SUDs

Alameda County implemented its reusable bag ordinance in January 2013, and has seen dramatic results. Countywide, bag purchases by affected retail stores have declined by 85 percent. The number of shoppers bringing a reusable bag to affected stores, or not using a bag at all, has more than doubled during this time⁸. Globally, a number of strategies have been implemented to reduce the use of SUDs. Charges for single-use plastic bags have proven to decrease plastic bag consumption. When Ireland instituted a "Plas-Tax" in 2002, equivalent to about 20 cents per bag, plastic bag use declined by 90% and litter from plastic bags declined by 40%⁹. Similar charges have been implemented in Taiwan, Washington D.C., and the United Kingdom, resulting in decreases in plastic bag use of up to 80%. A 2016 plastic bag ban in California reduced the number of plastic bags found on beaches by half.¹⁰ Studies have also shown that customers in areas with taxes on single use bags were more likely to use reusable bags.¹¹

There is growing support for reducing the use of other single use disposables. Ireland is considering banning single use coffee cups, with 50% of the population surveyed in support.¹² The European Union announced in 2018 that it is implementing a policy for all plastic packaging to be recyclable or reusable by 2030.¹³ Taiwan will be imposing charges for straws, plastic shopping bags, disposable utensils, and beverage cups by 2025, and will impose a complete ban on single-use plastic items, including straws, cups, and shopping bags, by 2030.¹⁴

Reducing SUDs in the City of Berkeley

The City of Berkeley has a long history of leadership in sustainability and environmental protections including the adoption of an ambitious Climate Action Plan in 2009, with a goal of achieving Zero Waste by 2020; the nation's first curbside recycling program and styrofoam foodware ban; and one of the first commercial organics collection programs. The city reached a height of 78% waste diversion by AB 939 standards, and there has

⁸ "Successful Results from Bag Ordinance", 2014, Alameda County Waste Management authority, <http://reusablebagsac.org/news/successful-results-bag-ordinance>

⁹ Mauro Anastasio and James Nix, Plastic Bag Levy in Ireland, Institute European Environmental Policy, 2016. <https://ieep.eu/uploads/articles/attachments/7f91cb97-8cb7-49c39cf0d34062a9192e/IE%20Plastic%20Bag%20Levy%20conference%20draft.pdf?v=63673818840>

¹⁰ <http://www.latimes.com/opinion/editorials/la-ed-plastic-bag-ban-anniversary-20171118-story.html>

¹¹ T. A. Homonoff, *Can Small Incentives Have Large Effects? The Impact of Taxes versus Bonuses on Disposable Bag Use* National Tax Association Proceedings, Princeton University- <http://ntanet.org/wp-content/uploads/proceedings/2012/008-homonoff-can-small-incentives-2012-nta-proceedings.pdf>

¹² <http://www.thejournal.ie/coffee-cups-poll-3642333-Oct2017/>

¹³ European Commission, EU Plastics Strategy-http://ec.europa.eu/environment/waste/plastic_waste.htm

¹⁴ "Taiwan to ban disposable plastic items by 2030," February 22, 2108- <https://phys.org/news/2018-02-taiwan-disposable-plastic-items.html>

been a 50% reduction in solid waste disposal between 2000 to 2013¹⁵. Despite these achievements, Berkeley has not addressed the significant increase in takeout food packaging littering city streets, filling storm drains, requiring management in the waste stream, polluting our waterways, Bay and ocean, and threatening both human and animal health.

In addition, SUDs are particularly costly and challenging to divert from landfill. Non-recyclable food and beverage packaging is difficult to remove from the waste stream and reduces the quality and value of recyclables, while non-compostable food packaging (some of which is advertised as “biodegradable” or “made from plants,” which misleads consumers to believe it is compostable) contaminates compost, adding costs and reducing the quality of compost¹⁶. With China’s recent rejection of mixed recycled plastic imports, the value of recyclable plastics has dropped sharply and the final destination for these plastic SUDs is uncertain. This adds significant costs to the City’s collection, sorting, and processing of compostables and recyclables. To reach its Zero Waste goals, the City must reduce use of single-use food and beverage packaging.

Thanks to the leadership of Berkeley’s Ecology Center, working closely with UpStream, Clean Water Action, the Clean Water Fund, Story of Stuff, Surfrider Foundation, GAIA (Global Alliance for Incinerator Alternatives), the Green Science Policy Institute, Excellent Packaging, and numerous experts, residents and volunteers, the City Council unanimously referred a proposed Single Use Disposable Foodware and Litter Reduction ordinance to the Zero Waste Commission on April 24, 2018.

The Zero Waste Commission was tasked with review of the proposed ordinance and the conduct of community meetings to gather feedback on the proposed ordinance, and make recommendations. Since that time, the Zero Waste Commission Foodware Subcommittee conducted 4 community meetings between June and September of 2018, and collected comments from over 60 restaurateurs, environmental advocates, members of the disability community, and other community members. Meetings were held on different days and times of the day, at locations throughout Berkeley, and were noticed to the restaurant and food service community with the help of the City’s Economic Development staff. The Commission analyzed comments received in writing and through public testimony, and on September 24, 2018 unanimously referred their findings to the City Council (Attachment 2).

¹⁵ Berkeley Climate Action Plan: Tracking our Progress Waste Reduction & Recycling – Total Landfilled, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/PDF%20total%20landfilled%20final.pdf

¹⁶ Clean Water Action, *What’s in the Package?* 2016 <https://www.cleanwateraction.org/features/what%E2%80%99s-package>

In addition, Councilmember Hahn met on-site with the owners of three restaurants that expressed concerns about implementation of the proposed ordinance, reviewing their current practices and challenges. All three have already implemented important measures to reduce the use of harmful Single Use Disposables, and shared important insights.

Ordinance Elements

The attached ordinance (Attachment 1) incorporates many of the Zero Waste Commission's recommendations and makes a number of changes to accommodate concerns and questions that were discussed as part of the Commission's public process. Changes include:

- Phasing-in elements of the ordinance, to allow Prepared Food Vendors time to adjust practices.
- Opportunities for limited exemptions, based on demonstrated hardship or extraordinary circumstances.
- Establishment of mini-grant and technical assistance programs, to help Prepared Food Vendors transition to Reusable and Compostable Foodware.
- Elimination of charges for all Single Use Disposable Foodware, except for cups, pending establishment of a Reusable Takeout Foodware program.
- Addition of standards for Prepared Food Vendors to reject customer-supplied cups that appear inappropriate or unsanitary.
- Addition of a recommendation that Prepared Food Vendors customarily offering straws keep a supply of compostable bioplastic straws for use by individuals specifically requesting "plastic" straws.
- Enforcement with notice and opportunities to cure, either by adopting practices or obtaining a waiver, if warranted, prior to imposition of any fines or other penalties.

City Manager Referral Components

To complement the roll out of the Single Use Disposable Foodware and Litter Reduction Ordinance, the Zero Waste Commission recommends a number of City-sponsored programs to support implementation of the Ordinance's requirements, including:

- A mini-grant program to help cover one-time costs associated with the transition to Reusable Foodware for on-site dining;
- Technical assistance to support implementation of ordinance requirements.

These are included in this referral.

It is incumbent upon the City to further expand composting resources – potentially including compost receptacles - for residents and customers. Many restaurants do

provide composting receptacles in-store currently, but many residential countertop kitchen pails are too small to accommodate a significant increase in compostable foodware, which is expected with widespread adoption of the Single Use Foodware and Litter Reduction Ordinance. Also, current trash receptacles in the public right of way do not accommodate compostables. The expansion of composting collection efforts also supports the goals and requirements of AB1826 and SB1383 to divert organics from the landfill, and is included in this referral. As a community, Berkeley will not reap the benefits of substituting compostables for plastic single use foodware unless the collection and composting of these items are actually achieved.

ENVIRONMENTAL SUSTAINABILITY

The production, consumption and disposal of single use food and beverage packaging is a major contributor to litter in our streets, plastic in landfills, pollution in waterways and oceans, GHG emissions, and harm to wildlife. This environmental ordinance represent a huge step forward in reducing the use of disposable foodware in Berkeley, fulfilling Berkeley's Zero Waste and Climate Action Goals, reducing greenhouse gas emissions 80% by 2050, and meeting State trash load level mandates.

CONTACT PERSON

Councilmember Sophie Hahn, District 5, (510) 981-7150

Mayor Jesse Arreguín, (510) 981-7100

Attachments

1. Single Use Foodware and Litter Reduction Ordinance, amended to incorporate Zero Waste Commission recommendations
2. Zero Waste Commission recommendations to City Council, September 24, 2018
3. Referral to the Zero Waste Commission: Berkeley Single Use Foodware and Litter Reduction Ordinance, April 24, 2018

ORDINANCE NO. -N.S.

ADDING CHAPTER 11.64 TO THE BERKELEY MUNICIPAL CODE TO ADOPT A
SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That a new Chapter 11.64 is hereby added to the Berkeley Municipal Code to read as follows:

Chapter 11.64

SINGLE USE FOODWARE AND LITTER REDUCTION

Sections:

- 11.64.010 Findings and Purpose
- 11.64.020 Definitions
- 11.64.030 Accessory disposable foodware items
- 11.64.040 Reusable customer cups
- 11.64.050 Compostable disposable foodware
- 11.64.060 Reusable foodware for dining on the premises
- 11.64.070 Disposable foodware standards
- 11.64.080 Separate disposable foodware waste receptacles
- 11.64.090 Waivers
- 11.64.100 Regulations applicable to all prepared food vendors
- 11.64.110 Duties responsibilities and authority of the City of Berkeley
- 11.64.120 City of Berkeley: purchases prohibited
- 11.64.130 Liability and enforcement
- 11.64.140 Severability
- 11.64.150 Chapter supersedes existing laws and regulations

11.64.010 Findings and Purpose.

The Council of the City of Berkeley finds and declares as follows:

- A. Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.

- B. The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources. Plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and are present in most of the world's oceans.
- C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health conditions.
- D. Food and beverage SUDs make up approximately 25% of all waste produced in California. In the Bay Area, food and beverage packaging comprises the majority of street litter, and is a significant contributor to the total amount of waste entering the waste stream.
- E. It is in the interest of the health, safety and welfare of all who live, work and do business in the City that the amount of litter on public streets, parks and in other public places be reduced.
- F. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of single-use food and beverage packaging furthers this goal.
- G. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan, as amended, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

11.64.020 Definitions.

- A. "Prepared Food" means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. Prepared Food does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed, or raw uncooked meat products.
- B. "Takeout Food" means Prepared Food which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food carried out by the customer or delivered by a Prepared Food Vendor or by a Takeout Food Delivery Service.

- C. "Prepared Food Vendor" means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113930 and as amended), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.
- D. "Disposable Foodware" means all containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any other items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.
- E. "Disposable Cup" is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks and alcoholic beverages.
- F. "Accessory Disposable Foodware Item" means any Disposable Foodware item such as straws, stirrers, napkins and utensils; condiment cups and packets; cup sleeves, tops, lids, and spill plugs; and other similar accessory or accompanying Disposable Foodware items used as part of food or beverage service or packaging.
- G. "Reusable Foodware" means all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, condiment cups and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.
- H. "Takeout Food Delivery Service" is a third party delivery service which picks up Takeout Food from a Prepared Food Vendor and delivers it to the customer for consumption off the premises.

11.64.030 Accessory Disposable Foodware Items

- A. Accessory Disposable Foodware items shall be provided only upon request by the customer or at self-serve stations, except that Disposable Cups for delivery by a Prepared Food Vendor or a Takeout Food Delivery Service may include lids, spill plugs and sleeves without request.

- B. Prepared Food Vendors and Takeout Food Delivery Services must provide options for customers to affirmatively request Accessory Disposable Foodware Items separate from orders for food and beverages across all ordering/point of sale platforms, including but not limited to web, smart phone and other digital platforms, telephone and in-person.
- C. Prepared Food Vendors that customarily offer straws are encouraged to maintain a small supply of plastic-type straws which meet the Disposable Foodware Standards set forth in Section 11.64.070, which may be provided to customers upon specific request for a "plastic" straw.
- D. Prepared Food Vendors offering condiments are encouraged to use dispensers rather than pre-packaged disposable condiment packets.

11.64.040 Reusable Customer Cups

- A. Except as provided in Chapter 11. Temporary Food Facilities of the California Health and Safety Code, Section 114353, customers may provide their own Reusable Foodware cups for beverage service in accordance with California State Health Code 114075(e) and as amended. Prepared Food Vendors may refuse, at their sole discretion, any customer-provided Reusable Foodware cup that is cracked, chipped or corroded, appears inappropriate in size, material, or condition for the intended beverage, or that appears to be excessively soiled or unsanitary, and instead require use of a Reusable Foodware cup for a beverage consumed on the premises, or a Disposable Cup that conforms to the Disposable Foodware Standards in 11.64.070 for a beverage to be consumed off the premises, with any charge required pursuant to Section 11.64.050.D.

11.64.050 Compostable Disposable Foodware

Effective January 1, 2020:

- A. Takeout Food shall only be served in Disposable Foodware that conforms to the Disposable Foodware Standards in Section 11.64.070.
- B. Accessory Disposable Foodware Items shall conform with the Disposable Foodware Standards in 11.64.070.
- C. Takeout Food Delivery Services shall only deliver Takeout Food from a Prepared Food Vendor that is served in Disposable Foodware and with Accessory Disposable Foodware Items, if any, that conform to the Disposable Foodware Standards in 11.64.070.
- D. Prepared Food Vendors shall charge customers twenty five cents (\$0.25) for every Disposable Cup provided.

1. Income from the Disposable Cup charge shall be retained by the Prepared Food Vendor.
 2. All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children (WIC) pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code and as amended, or an electronic benefit transfer card (EBT) issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the Disposable Cup charge.
 3. Charges for Disposable Cups shall be identified separately on any post-sale receipt provided and, pre-sale, shall be clearly identified for the customer on media such as menus, ordering platforms and/or menu boards. Customers placing orders by telephone shall be informed verbally of Disposable Cup charges.
- E. Notwithstanding the requirements at Section 11.64.050, subsections A-C, a Prepared Food Vendor may request a waiver or waivers pursuant to Section 11.64.090 for specific Disposable Foodware items. To obtain a waiver for a Disposable Foodware item, the Prepared Food Vendor must demonstrate that:
1. No Disposable Foodware item exists with substantially similar size, performance and/or utility that conforms with the Disposable Foodware Standards in Section 11.64.070 or, if such an item exists, that costs of using such item would cause undue financial hardship, and;
 2. The non-conforming Disposable Foodware item to be used in lieu of a conforming item is recyclable in the City of Berkeley recyclable collection program.
 3. The Prepared Food Vendor must provide documentation of efforts to obtain a substantially similar compliant item at a non-prohibitive price.
 4. Records of attempts to obtain a compliant item shall include:
 - a. Emails, letters or other correspondence with two or more vendors that furnish Compostable Disposable Foodware, seeking the compliant item.
 - b. Responses from such Compostable Disposable Foodware vendors including, where applicable, specifications and pricing for such item.

- c. Specifications and pricing for the recyclable non-conforming item sought to be used, demonstrating its substantial superiority and/or affordability, and
 - d. Any other records which demonstrate a good faith effort to comply with Disposable Foodware Standards for such item.
5. Reasonable added cost for a conforming item as compared to a substantially similar recyclable non-conforming item shall not by itself constitute adequate grounds to support a waiver for such item.

11.64.060 Reusable Foodware for Dining on the Premises

Effective July 1, 2020:

- A. Prepared Food served for consumption on the premises of a Prepared Food Vendor shall only be served using Reusable Foodware, except that disposable paper food wrappers, foil wrappers, paper napkins, straws and paper tray- and plate-liners shall be allowed for dining on the premises, so long as they meet the Disposable Foodware Standards in Section 11.64.070.
- B. Notwithstanding the requirements at Section 11.64.060.A, Prepared Food Vendors that do not have on-site or off-site dishwashing capacity or are unable to contract for services to wash, rinse and sanitize Reusable Foodware in compliance with the California State Health Code may request a waiver or partial waiver pursuant to Section 11.64.090. To obtain a waiver, the Prepared Food Vendor must demonstrate inability to comply due to insurmountable space constraints and/or undue financial hardship.
- C. All Disposable Foodware used on the premises by Prepared Food Vendors that are operating under full or partial waivers obtained pursuant to 11.64.090 shall conform to the Disposable Foodware Standards in Section 11.64.070.

11.64.070 Disposable Foodware Standards

- A. Disposable Foodware must be accepted by City of Berkeley municipal compost collection programs and be free of all intentionally added fluorinated chemicals, as certified by the Biodegradable Product Institute or other independent third party certifying organization or agency recognized by the City, except that non-compostable foil wrappers that are accepted in the City of Berkeley recyclable collection program may be used for burritos, wraps, and other items that require foil to contain and form the food item.

- B. The City shall maintain on its website a list of suppliers that offer Disposable Foodware that complies with these Disposable Foodware Standards.
- C. Changes, if any, to Disposable Foodware Standards shall become effective on January 1 of the next calendar year, and the City of Berkeley shall provide notice of any such changes to Prepared Food Vendors at least 90 days prior.

11.64.080 Separate Disposable Foodware Waste Receptacles

All Prepared Food Vendors, except Full Service Restaurants as defined in Chapter 23F.04 of the Berkeley Municipal Code and other Prepared Food Vendors that provide full bussing service and do not customarily provide waste receptacles for customer use, must provide at least one set of three easily accessed receptacles for discarded items to be composted, recycled, and, if needed, to be landfilled or otherwise wasted.

- A. To the extent possible given space constraints, all three receptacles should be placed together in the same location.
- B. The City shall identify materials accepted for each collection program on the City's website, and signage must be posted on and/or above each receptacle, indicating the materials to be deposited into such receptacle. Receptacles and signage shall be color-coded as follows:
 - 1. Blue for recyclables
 - 2. Green for compostables
 - 3. Black or gray for items to be landfilled or otherwise wasted
- C. Prepared Food Vendors that share premises may share receptacles.

11.64.090 Waivers

- A. The City Manager shall prescribe and adopt rules, regulations and forms for Prepared Food Vendors to obtain full or partial waivers from any requirement of this ordinance that is explicitly subject to waiver.
- B. Waivers shall be granted by the City Manager or his or her agents, based upon documentation provided by the applicant and, at the City Manager's discretion, independent verification, including site visits.
- C. The City Manager or his or her agents shall act on a waiver application no later than 180 days after receipt of such application, including mailing written notification of the City Manager's decision to the address supplied by the applicant.

- D. Waivers may be granted for a specified period of up to two (2) years. During the waiver period, the Prepared Food Vendor shall make diligent efforts to become compliant. Notwithstanding the above, in certain limited, and unique circumstances existing prior to adoption of this ordinance, where the prepared food vendor demonstrates diligent efforts to comply but, due to insurmountable space and/or economic constraints, may never be reasonably able to comply, the City Manager may grant a waiver for a longer specified term. Any such longer term waiver shall expire automatically in the event of a significant remodel or alteration of the premises or if the Prepared Food Vendor ceases operations at the location for which the waiver has been granted.
- E. Under extraordinary circumstances, should a Prepared Food Vendor demonstrate that, at the close of a granted waiver period, and with diligent efforts to become compliant, compliance remains infeasible, additional waivers of up to two (2) years each may be granted. It shall be the Prepared Food Vendor's responsibility to apply for any subsequent waivers in a timely manner.

11.64.100 Regulations applicable to all Prepared Food Vendors

- A. Each Prepared Food Vendor shall maintain written records evidencing compliance with this Chapter.
- B. All records required by this Chapter shall be made available for inspection by the City Manager or his or her designated representative. It shall be unlawful for anyone having custody of such records to fail or refuse to produce such records upon request by the City Manager or his or her designated representative.

11.64.110 Duties responsibilities and authority of the City of Berkeley

The City Manager shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this chapter and is hereby authorized to take any and all actions reasonable and necessary to enforce this chapter including, but not limited to, inspecting any Prepared Food Vendor's premises to verify compliance.

11.64.120 City of Berkeley: purchases prohibited

The City of Berkeley shall not purchase any Disposable Foodware that does not comply with the Disposable Foodware Standards in Section 11.64.070, nor shall any City-sponsored event utilize non-compliant Disposable Foodware.

11.64.130 Liability and Enforcement

- A. Anyone violating or failing to comply with any requirement of this chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however,

no administrative citation may be issued or infraction charged for violation of a requirement of this chapter until one year after the effective date of such requirement.

- B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to Section 11.64.090.
- C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this chapter.
- D. The remedies and penalties provided in this section are cumulative and not exclusive.

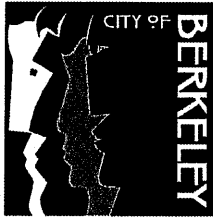
11.64.140 Severability

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the proscribed application thereof, shall be severable, and the remaining provisions of this chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases had been declared invalid or unconstitutional.

11.64.150 Chapter supersedes existing laws and regulations

The provisions of this chapter shall supersede any conflicting law or regulations.

Section 2. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.



Sophie Hahn
Councilmember District 5

**REVISED
AGENDA MATERIAL
for Supplemental Packet 2**

Meeting Date: December 11, 2018

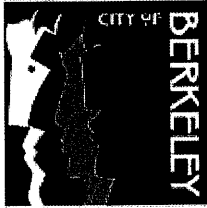
Item Number: 27

Item Description: Single Use Disposable Foodware and Litter Reduction Ordinance

Submitted by: Councilmember Sophie Hahn

Incorporates further clarifying changes from the City Manager, Deputy City Manager, Public Works Department, the Ecology Center and other community partners.

Adds referral to the City Manager, requesting a report prior to January 2022 on implementation of the Single Use Disposable Foodware and Litter Reduction Ordinance and other referred programs.



Berkeley City Council, District 5
2180 Milvia Street, 5th Floor
Berkeley, CA 94704
(510) 981-7150
shahn@cityofberkeley.info

ITEM 27

Supplemental 2

ACTION CALENDAR

December 11, 2018

To: Honorable Mayor and Members of the City Council
From: Councilmember Sophie Hahn and Mayor Jesse Arreguín
Subject: Single Use Disposable Foodware and Litter Reduction Ordinance

RECOMMENDATION

1. Adopt a first reading of the Single Use Foodware and Litter Reduction Ordinance.
2. Refer to the City Manager to:
 - a. Establish a mini-grant program administered and funded either directly by the City or by community partners to help Prepared Food Vendors with one-time costs associated with conversion to Reusable Foodware for eating on the premises (“eating-in”).
 - b. Establish a program administered and funded either directly by the City or by community partners to provide technical assistance to Prepared Food Vendors implementing Reusable Foodware requirements for eating on the premises.
 - c. Create a Reusable Takeout Foodware program for launch three years after the effective date of the Single Use Disposable Foodware and Litter Reduction Ordinance, in collaboration with community partners such as the Ecology Center, Rethink Disposables and StopWaste.
 - d. Prior to launch of the Reusable Takeout Foodware program, draft for approval amendments to the Single Use Disposable Foodware and Litter Reduction Ordinance to implement the Reusable Takeout Foodware program as an alternative to Compostable Takeout Foodware, and impose a charge, similar to or the same as the Disposable Cup charge, on other Disposable Foodware containers.
 - e. Create a program to expand and support composting, to ensure Single Use Disposable Foodware is actually composted.
 - f. Prior to January 1, 2022 report to the City Council on progress towards full implementation of and compliance with the Single Use Disposable Foodware and Litter Reduction Ordinance and these referrals

3. Refer to the City Manager to determine funding and staffing needs and sources of funds to implement each program/phase. Consider and suggest implementation alternatives to achieve similar results at lower cost to the City, if any. Submit recommended alternatives to the Zero Waste Commission and City Council for consideration, and funding allocations or requests to the budget process.

FINANCIAL IMPLICATIONS

Reducing use and disposal of products that make up the majority of Berkeley's street and storm-drain litter has the potential to significantly lower City expenses including costs related to collection of debris from over 400 city trash receptacles, from clearing of clogged stormwater intakes city-wide, and from daily street sweeping and litter management. Even for "recyclable" items that are properly placed in a recycling bin, these items are costly to sort and process and have limited markets resulting in additional costs to the City. Many of these items result in contamination to the composting program which increase the cost of composting.

Staff time will be required to launch programs related to the Single Use Foodware and Litter Reduction Ordinance. Some programs and services may be provided by community partners at relatively low cost. Once launched, staff time for administration and enforcement of the Ordinance will be limited.

Costs, sources of funding and community partnerships to be determined by the City Manager.

BACKGROUND

Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions. The use of disposable foodware has grown exponentially over the past few decades. Because the environmental costs of these products is largely hidden to the business operator and consumer, little attention is paid to the quantity of packaging consumed and quickly thrown away. Reducing the use of SUDs in the City of Berkeley is a key strategy to achieve the City's Zero Waste and Climate Action goals, and to address the many environmental impacts and costs associated with the use and disposal of single-use foodware and packaging. SUDs often become litter therefore minimizing their use will assist the City with achieving stormwater program requirements and could reduce costs for maintenance of full trash capture devices that the City has installed in stormdrains.

Environmental Impacts of Single-Use Disposables

The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources. It is a major component of litter on streets and in waterways, and of the plastic polluting our air, food, drinking water and oceans.

- Food and beverage SUDs make up approximately 25% of all waste produced in California.¹
- Bay Area litter studies have found that food and beverage packaging comprises the majority of street litter.²
- Without dramatic systems change, by 2050, there will be more plastic in the ocean than fish.³
- Based on Berkeley's population of approximately 120,000 people, it is estimated that almost 40 million single use cups are used in the City of Berkeley every year.

Most SUDs are used for just a few minutes before becoming waste, while most are made to last for hundreds and even thousands of years, and have broad, long-lasting negative impacts. Plastics in waterways and oceans break down into smaller pieces (but do not biodegrade) and are present in most of the world's oceans, at all levels (surface, water column, and bottom).⁴

Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater⁵, which can transfer to fish, other seafood, and salt that is eventually sold for human consumption.⁶ Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health effects including kidney and testicular cancer, thyroid disruption, delayed puberty and obesity.⁷

Strategies to Regulate SUDs

Alameda County implemented its reusable bag ordinance in January 2013, and has seen dramatic results. Countywide, bag purchases by affected retail stores have

¹ <https://www.wastedive.com/news/are-the-packaging-wars-coming-to-california/508491/>

² See Clean Water Action's "Taking out the Trash" Bay Area Litter study (2011) http://www.cleanwateraction.org/files/publications/ca/Curr_CA_12%2012%2011final.pdf; California Coastal Cleanup Results 1989-2014 showing Food and Beverage packaging items are 7 out of the top 10 items collected and account for 34% of the total trash - <https://www.coastal.ca.gov/publiced/ccd/history.html#top10>; BanList 2.0 shows food and beverage packaging items are 74% of top 20 littered items among 6 different beach cleanup datasets- <https://upstreampolicy.org/ban-list-20>

³ Ellen MacArthur Foundation (2016)

⁴ D. Barnes et al, 2009, *Accumulation and fragmentation of plastic debris in global environments*, Phil. Trans. R. Soc. B., 364-1985-98.

⁵ Rochman, C.M., et al., 2013, Long-Term Field Measurement of Sorption of Organic Contaminants to Five Types of Plastic Pellets: Implications for Plastic Marine Debris. *Environmental Science and Technology*. 47, 1646-1654.

⁶ Rochman C Met al, 2015a Anthropogenic debris in seafood: plastic debris and fibers from textiles in fish and bivalves sold for human consumption *Sci. Rep.* 5 14340.

⁷ In 2015, the FDA barred from use three such fluorinated chemicals from food contact materials due to safety risks associated with cancer, toxicity, and other health effects; other fluorinated chemicals have similar chemical structures and pose similar risk.

declined by 85 percent. The number of shoppers bringing a reusable bag to affected stores, or not using a bag at all, has more than doubled during this time⁸. Globally, a number of strategies have been implemented to reduce the use of SUDs. Charges for single-use plastic bags have proven to decrease plastic bag consumption. When Ireland instituted a “Plas-Tax” in 2002, equivalent to about 20 cents per bag, plastic bag use declined by 90% and litter from plastic bags declined by 40%⁹. Similar charges have been implemented in Taiwan, Washington D.C., and the United Kingdom, resulting in decreases in plastic bag use of up to 80%. A 2016 plastic bag ban in California reduced the number of plastic bags found on beaches by half.¹⁰ Studies have also shown that customers in areas with taxes on single use bags were more likely to use reusable bags.¹¹

There is growing support for reducing the use of other single use disposables. Ireland is considering banning single use coffee cups, with 50% of the population surveyed in support.¹² The European Union announced in 2018 that it is implementing a policy for all plastic packaging to be recyclable or reusable by 2030.¹³ Taiwan will be imposing charges for straws, plastic shopping bags, disposable utensils, and beverage cups by 2025, and will impose a complete ban on single-use plastic items, including straws, cups, and shopping bags, by 2030.¹⁴

Reducing SUDs in the City of Berkeley

The City of Berkeley has a long history of leadership in sustainability and environmental protections including the adoption of an ambitious Climate Action Plan in 2009, with a goal of achieving Zero Waste by 2020; the nation’s first curbside recycling program and styrofoam foodware ban; and one of the first commercial organics collection programs. The city reached a height of 78% waste diversion by AB 939 standards, and there has been a 50% reduction in solid waste disposal between 2000 to 2013¹⁵. Despite these achievements, Berkeley has not addressed the significant increase in takeout food

⁸ “Successful Results from Bag Ordinance”, 2014, Alameda County Waste Management authority, <http://reusablebagsac.org/news/successful-results-bag-ordinance>

⁹ Mauro Anastasio and James Nix, Plastic Bag Levy in Ireland, Institute European Environmental Policy, 2016. <https://ieep.eu/uploads/articles/attachments/7f91cb97-8cb7-49c39cf0d34062a9192e/IE%20Plastic%20Bag%20Levy%20conference%20draft.pdf?v=63673818840>

¹⁰ <http://www.latimes.com/opinion/editorials/la-ed-plastic-bag-ban-anniversary-20171118-story.html>

¹¹ T. A. Homonoff, *Can Small Incentives Have Large Effects? The Impact of Taxes versus Bonuses on Disposable Bag Use* National Tax Association Proceedings, Princeton University- <http://ntanet.org/wp-content/uploads/proceedings/2012/008-homonoff-can-small-incentives-2012-nta-proceedings.pdf>

¹² <http://www.thejournal.ie/coffee-cups-poll-3642333-Oct2017/>

¹³ European Commission, EU Plastics Strategy-http://ec.europa.eu/environment/waste/plastic_waste.htm

¹⁴ “Taiwan to ban disposable plastic items by 2030,” February 22, 2108- <https://phys.org/news/2018-02-taiwan-disposable-plastic-items.html>

¹⁵ Berkeley Climate Action Plan: Tracking our Progress Waste Reduction & Recycling – Total Landfilled, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/PDF%20total%20landfilled%20final.pdf

packaging littering city streets, filling storm drains, requiring management in the waste stream, polluting our waterways, Bay and ocean, and threatening both human and animal health.

In addition, SUDs are particularly costly and challenging to divert from landfill. Non-recyclable food and beverage packaging is costly to remove from the waste stream and reduces the quality and value of recyclables, while non-compostable food packaging (some of which is advertised as “biodegradable” or “made from plants” which misleads consumers to believe it is compostable) contaminates compost, adding costs and reducing the quality of compost¹⁶. With China’s recent rejection of mixed recycled plastic imports, the value of recyclable plastics has dropped sharply and the final destination for these plastic SUDs is uncertain. This adds significant costs to the City’s collection, sorting, and processing of compostables and recyclables. To reach its Zero Waste goals, the City must reduce use of single-use food and beverage packaging.

Thanks to the leadership of Berkeley’s Ecology Center, working closely with UpStream, Clean Water Action, the Clean Water Fund, Story of Stuff, Surfrider Foundation, GAIA (Global Alliance for Incinerator Alternatives), the Green Science Policy Institute, Excellent Packaging, and numerous active residents and volunteers, the City Council unanimously referred a proposed Single Use Disposable Foodware and Litter Reduction ordinance to the Zero Waste Commission on April 24, 2018.

The Zero Waste Commission was tasked with review of the proposed ordinance and the conduct of community meetings to gather feedback on the proposed ordinance, and make recommendations. Since that time, the Zero Waste Commission Foodware Subcommittee conducted 4 community meetings between June and September of 2018, and collected comments from over 60 restaurateurs, environmental advocates, members of the disability community, and other community members. Meetings were held on different days and times of the day, at locations throughout Berkeley, and were noticed to the restaurant and food service community with the help of the City’s Economic Development staff. The Commission analyzed comments received in writing and through public testimony, and on September 24, 2018 unanimously referred their findings to the City Council (Attachment 2).

In addition, Councilmember Hahn met on-site with the owners of three restaurants that expressed concerns about implementation of the proposed ordinance, reviewing their current practices and challenges. All three have already implemented important measures to reduce the use of harmful Single Use Disposables, and shared important insights.

¹⁶ Clean Water Action, *What’s in the Package?* 2016 <https://www.cleanwateraction.org/features/what%E2%80%99s-package>

Ordinance Elements

The attached ordinance (Attachment 1) incorporates many of the Zero Waste Commission's recommendations and makes a number of changes to accommodate concerns and questions that were discussed as part of the Commission's public process. Changes include:

- Phasing-in elements of the ordinance, to allow Prepared Food Vendors time to adjust practices.
- Opportunities for limited exemptions, based on demonstrated hardship or extraordinary circumstances.
- Establishment of mini-grant and technical assistance programs, to help Prepared Food Vendors transition to Reusable and Compostable Foodware.
- Elimination of charges for all Single Use Disposable Foodware, except for cups, pending establishment of a Reusable Takeout Foodware program.
- Addition of standards for Prepared Food Vendors to reject customer-supplied cups that appear inappropriate or unsanitary.
- Addition of a recommendation that Prepared Food Vendors customarily offering straws keep a supply of compostable bioplastic straws for use by individuals specifically requesting "plastic" straws.
- Enforcement with notice and opportunities to cure, either by adopting practices or obtaining a waiver, if warranted, prior to imposition of fines or other penalties.

City Manager Referral Components

To complement the roll out of the Single Use Disposable Foodware and Litter Reduction Ordinance, the Zero Waste Commission recommends a number of City-sponsored programs to support implementation of the Ordinance's requirements, including:

- A mini-grant program to help cover one-time costs associated with the transition to Reusable Foodware for on-site dining;
- Technical assistance to support implementation of ordinance requirements.

Both programs must be operative by June 2019, six months before the key elements of the ordinance take effect.

It is incumbent upon the City to further expand composting resources – potentially including compost receptacles - for residents and customers. Many restaurants do provide composting receptacles in-store currently, but many residential countertop kitchen pails are too small to accommodate a significant increase in compostable foodware which is expected with widespread adoption of the Single Use Foodware and

Litter Reduction Ordinance. The expansion of composting collection efforts also supports the goals and requirements of AB1826 and SB1383 to divert organics from the landfill. .

ENVIRONMENTAL SUSTAINABILITY

The production, consumption and disposal of single use food and beverage packaging is a major contributor to litter in our streets, plastic in landfills, pollution in waterways and oceans, GHG emissions, and harm to wildlife. This environmental ordinance represent a huge step forward in reducing the use of disposable foodware in Berkeley, fulfilling Berkeley's Zero Waste and Climate Action Goals, reducing greenhouse gas emissions 80% by 2050, and meeting State trash load level mandates.

CONTACT PERSON

Councilmember Sophie Hahn, District 5, (510) 981-7150
Mayor Jesse Arreguín, (510) 981-7100

Attachments

1. Single Use Foodware and Litter Reduction Ordinance, amended to incorporate Zero Waste Commission recommendations
2. Zero Waste Commission recommendations to City Council, September 24, 2018
3. Referral to the Zero Waste Commission: Berkeley Single Use Foodware and Litter Reduction Ordinance, April 24, 2018

ORDINANCE NO. -N.S.

ADDING CHAPTER 11.64 TO THE BERKELEY MUNICIPAL CODE TO ADOPT A
SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That a new Chapter 11.64 is hereby added to the Berkeley Municipal Code to read as follows:

Chapter 11.64

SINGLE USE FOODWARE AND LITTER REDUCTION

Sections:

- 11.64.010 Findings and Purpose
- 11.64.020 Definitions
- 11.64.030 Accessory disposable foodware items
- 11.64.040 Reusable customer cups
- 11.64.050 Compostable disposable foodware
- 11.64.060 Reusable foodware for dining on the premises
- 11.64.070 Disposable foodware standards
- 11.64.080 Separate disposable foodware waste receptacles
- 11.64.090 Waivers
- 11.64.100 Regulations applicable to all prepared food vendors
- 11.64.110 Duties responsibilities and authority of the City of Berkeley
- 11.64.120 City of Berkeley: purchases prohibited
- 11.64.130 Liability and enforcement
- 11.64.140 Severability
- 11.64.150 Chapter supersedes existing laws and regulations

11.64.010 Findings and Purpose.

The Council of the City of Berkeley finds and declares as follows:

- A. Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.

- B. The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources. Plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and are present in most of the world's oceans.
- C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health conditions.
- D. Food and beverage SUDs make up approximately 25% of all waste produced in California. In the Bay Area, food and beverage packaging comprises the majority of street litter, and is a significant contributor to the total amount of waste entering the waste stream.
- E. It is in the interest of the health, safety and welfare of all who live, work and do business in the City that the amount of litter on public streets, parks and in other public places be reduced.
- F. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of single-use food and beverage packaging furthers this goal.
- G. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan, as amended, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

11.64.020 Definitions.

- A. "Prepared Food" means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. Prepared Food does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed, or raw uncooked meat products.
- B. "Takeout Food" means Prepared Food which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food carried out by the customer or delivered by a Prepared Food Vendor or by a Takeout Food Delivery Service.

- C. "Prepared Food Vendor" means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113930 and as amended), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.
- D. "Disposable Foodware" means all containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any other items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.
- E. "Disposable Cup" is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks and alcoholic beverages.
- F. "Accessory Disposable Foodware Item" means any Disposable Foodware item such as straws, stirrers, napkins and utensils; condiment cups and packets; cup sleeves, tops, lids, and spill plugs; and other similar accessory or accompanying Disposable Foodware items used as part of food or beverage service or packaging.
- G. "Reusable Foodware" means all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, condiment cups and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.
- H. "Takeout Food Delivery Service" is a third party delivery service which picks up Takeout Food from a Prepared Food Vendor and delivers it to the customer for consumption off the premises.

11.64.030 Accessory Disposable Foodware Items

- A. Accessory Disposable Foodware items shall be provided only upon request by the customer or at self-serve stations, except that Disposable Cups for delivery by a Prepared Food Vendor or a Takeout Food Delivery Service may include tops, spill plugs and sleeves without request.

- B. Prepared Food Vendors and Takeout Food Delivery Services must provide options for customers to affirmatively request Accessory Disposable Foodware Items separate from orders for food and beverages across all ordering/point of sale platforms, including but not limited to web, smart phone and other digital platforms, telephone and in-person.
- C. Prepared Food Vendors that customarily offer straws are encouraged to maintain a small supply of plastic-type straws which meet the Disposable Foodware Standards set forth in Section 11.64.070, which may be provided to customers upon specific request for a "plastic" straw.
- D. Prepared Food Vendors offering condiments are encouraged to use dispensers rather than pre-packaged disposable condiment packets.

11.64.040 Reusable Customer Cups

- A. Except as provided in Chapter 11. Temporary Food Facilities of the California Health and Safety Code, Section 114353, customers may provide their own Reusable Foodware cups for beverage service in accordance with California State Health Code 114075(e) and as amended. Prepared Food Vendors may refuse, at their sole discretion, any customer-provided Reusable Foodware cup that is cracked, chipped or corroded, appears inappropriate in size, material, or condition for the intended beverage, or that appears to be excessively soiled or unsanitary, and instead require use of a Reusable Foodware cup for a beverage consumed on the premises, or a Disposable Cup for a beverage to be consumed off the premises, with any charge required pursuant to Section 11.64.050.D.

11.64.050 Compostable Disposable Foodware

Effective January 1, 2020:

- A. Takeout Food shall only be served in Disposable Foodware that conforms to the Disposable Foodware Standards in Section 11.64.070.
- B. Accessory Disposable Foodware Items shall conform with the Disposable Foodware Standards in 11.64.070.
- C. Takeout Food Delivery Services shall only deliver Takeout Food from a Prepared Food Vendor that is served in Disposable Foodware and with Accessory Disposable Foodware Items, if any, that conform to the Disposable Foodware Standards in 11.64.070.
- D. Prepared Food Vendors shall charge customers twenty five cents (\$0.25) for every Disposable Cup provided.

1. Income from the Disposable Cup charge shall be retained by the Prepared Food Vendor and used for the purposes set forth in Section 11.64.100.C.
 2. All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children (WIC) pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code and as amended, or an electronic benefit transfer card (EBT) issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the Disposable Cup charge.
 3. Charges for Disposable Cups shall be identified separately on menus, ordering platforms and menu boards and on any receipt provided to the customer. Customers placing orders by telephone shall be informed verbally of Disposable Cup charges.
- E. Notwithstanding the requirements at Section 11.64.050, subsections A-C, a Prepared Food Vendor may request a waiver or waivers pursuant to Section 11.64.090 for specific Disposable Foodware items. To obtain a waiver for a Disposable Foodware item, the Prepared Food Vendor must demonstrate that:
1. No Disposable Foodware item exists with substantially similar size, performance and/or utility that conforms with the Disposable Foodware Standards in Section 11.64.070 or, if such an item exists, that costs of using such item would cause undue financial hardship, and;
 2. The non-conforming Disposable Foodware item to be used in lieu of a conforming item is recyclable in the City of Berkeley recyclable collection program.
 3. The Prepared Food Vendor must provide documentation of efforts to obtain a substantially similar compliant item at a non-prohibitive price.
 4. Records of attempts to obtain a compliant item shall include:
 - a. Emails, letters or other correspondence with two or more vendors that furnish Compostable Disposable Foodware, seeking the compliant item.
 - b. Responses from such Compostable Disposable Foodware vendors including, where applicable, specifications and pricing for such item.
 - c. Specifications and pricing for the recyclable non-conforming item sought to be used, demonstrating its substantial superiority and/or affordability, and

- d. Any other records which demonstrate a good faith effort to comply with Disposable Foodware Standards for such item.
5. Reasonable added cost for a conforming item as compared to a substantially similar recyclable non-conforming item shall not by itself constitute adequate grounds to support a waiver for such item.

11.64.060 Reusable Foodware for Dining on the Premises

Effective July 1, 2020:

- A. Prepared Food served for consumption on the premises of a Prepared Food Vendor shall only be served using Reusable Foodware, except that disposable paper food wrappers, foil wrappers, paper napkins, straws and paper tray- and plate-liners shall be allowed for dining on the premises, so long as they meet the Disposable Foodware Standards in Section 11.64.070.
- B. Notwithstanding the requirements at Section 11.64.060.A, Prepared Food Vendors that do not have on-site or off-site dishwashing capacity or are unable to contract for services to wash, rinse and sanitize Reusable Foodware in compliance with the California Health Code may request a waiver or partial waiver pursuant to Section 11.64.090. To obtain a waiver, the Prepared Food Vendor must demonstrate inability to comply due to insurmountable space constraints and/or undue financial hardship.
- C. All Disposable Foodware used on the premises by Prepared Food Vendors that are operating under full or partial waivers obtained pursuant to 11.64.090 shall conform to the Disposable Foodware Standards in Section 11.64.070.

11.64.070 Disposable Foodware Standards

- A. Disposable Foodware must be accepted by City of Berkeley municipal compost collection programs and be free of all intentionally added fluorinated chemicals, as certified by the Biodegradable Product Institute or other independent third party certifying organization or agency recognized by the City, except that non-compostable foil wrappers that are accepted in the City of Berkeley recyclable collection program may be used for burritos, wraps, and other items that require foil to contain and form the food item.
- B. The City shall maintain on its website a list of suppliers that offer Disposable Foodware that complies with these Disposable Foodware Standards.

- C. Changes, if any, to Disposable Foodware Standards shall become effective on January 1 of the next calendar year, and the City of Berkeley shall provide notice of any such changes to Prepared Food Vendors at least 90 days prior.

11.64.080 Separate Disposable Foodware Waste Receptacles

All Prepared Food Vendors, except Full Service Restaurants as defined in Chapter 23F.04 of the Berkeley Municipal Code, must provide at least one set of three easily accessed receptacles for discarded items to be composted, recycled, and, if needed, to be landfilled or otherwise wasted.

- A. To the extent possible given space constraints, all three receptacles should be placed together in the same location.
- B. The City shall identify materials accepted for each collection program on the City's website, and signage must be posted on and/or above each receptacle, indicating the materials to be deposited into such receptacle. Receptacles and signage shall be color-coded as follows:
 - 1. Blue for recyclables
 - 2. Green for compostables
 - 3. Black or gray for items to be landfilled or otherwise wasted
- C. Prepared Food Vendors that share premises may share receptacles.

11.64.090 Waivers

- A. The City Manager shall prescribe and adopt rules, regulations and forms for Prepared Food Vendors to obtain full or partial waivers from any requirement of this ordinance that is explicitly subject to waiver.
- B. Waivers shall be granted by the City Manager or his or her agents, based upon documentation provided by the applicant and, at the City Manager's discretion, independent verification, including site visits.
- C. The City Manager or his or her agents shall act on a waiver application no later than 180 days after receipt of such application, including mailing written notification of the City Manager's decision to the address supplied by the applicant.
- D. Waivers may be granted for a specified period of up to two (2) years. During the waiver period, the Prepared Food Vendor shall make diligent efforts to become compliant.
- E. Under extraordinary circumstances, should a Prepared Food Vendor demonstrate that, at the close of a granted waiver period, and with diligent efforts

to become compliant, compliance remains infeasible, additional waivers of up to two (2) years each may be granted. It shall be the Prepared Food Vendor's responsibility to apply for any subsequent waivers in a timely manner.

11.64.100 Regulations applicable to all Prepared Food Vendors

- A. Each Prepared Food Vendor shall maintain written records evidencing compliance with this Chapter.
- B. All records required by this Chapter shall be made available for inspection by the City Manager or his or her designated representative. It shall be unlawful for anyone having custody of such records to fail or refuse to produce such records upon request by the City Manager or his or her designated representative.
- C. All charges collected by the Prepared Food Vendor pursuant to Section 11.64.050 of this Chapter and retained by the Prepared Food Vendor may be used only for the following purposes:
 - 1. Costs associated with complying with the requirements of this Chapter.
 - 2. Actual costs of labor, equipment and materials for washing Reusable Foodware and providing customers with Reusable Foodware; costs of providing customers with compliant compostable Disposable Foodware; costs for reducing litter; and other costs associated with reducing the use of Disposable Foodware and litter.
 - 3. Costs associated with a store's educational materials or educational campaign for reducing and/or encouraging the reduction of Disposable Foodware and litter.

11.64.110 Duties responsibilities and authority of the City of Berkeley The City Manager shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this chapter and is hereby authorized to take any and all actions reasonable and necessary to enforce this chapter including, but not limited to, inspecting any Prepared Food Vendor's premises to verify compliance.

11.64.120 City of Berkeley: purchases prohibited

The City of Berkeley shall not purchase any Disposable Foodware that does not comply with the Disposable Foodware Standards in Section 11.64.070, nor shall any City-sponsored event utilize non-compliant Disposable Foodware.

11.64.130 Liability and Enforcement

- A. Anyone violating or failing to comply with any requirement of this chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however, no administrative citation may be issued or infraction charged for violation of a

requirement of this chapter until one year after the effective date of such requirement.

- B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to Section 11.64.090.
- C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this chapter.
- D. The remedies and penalties provided in this section are cumulative and not exclusive.

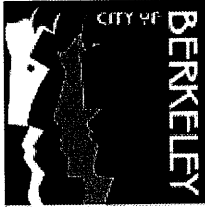
11.64.140 Severability

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the proscribed application thereof, shall be severable, and the remaining provisions of this chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases had been declared invalid or unconstitutional.

11.64.150 Chapter supersedes existing laws and regulations

The provisions of this chapter shall supersede any conflicting law or regulations.

Section 2. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.



Berkeley City Council, District 5
2180 Milvia Street, 5th Floor
Berkeley, CA 94704
(510) 981-7150
shahn@cityofberkeley.info

ACTION CALENDAR

December 11, 2018

To: Honorable Mayor and Members of the City Council
From: Councilmember Sophie Hahn and Mayor Jesse Arreguin
Subject: Single Use Disposable Foodware and Litter Reduction Ordinance

RECOMMENDATION

1. Adopt a first reading of the Single Use Foodware and Litter Reduction Ordinance.
2. Refer to the City Manager to:
 - a. Establish a mini-grant program administered and funded either directly by the City or by community partners to help Prepared Food Vendors with one-time costs associated with conversion to Reusable Foodware for eating on the premises ("eating-in"), to be launched by January 1, 2020 (six months before the date Reusable Foodware requirements become effective).
 - b. Establish a program administered and funded either directly by the City or by community partners to provide technical assistance to Prepared Food Vendors implementing Reusable Foodware requirements for eating on the premises, the Single Use Foodware Ordinance, on a free or sliding-scale fee basis, to be launched by July 1, 2019.
 - c. Create a Reusable Takeout Foodware program for launch three years after the effective date of the Single Use Disposable Foodware and Litter Reduction Ordinance July 1, 2021, in collaboration with community partners such as the Ecology Center, Rethink Disposables and StopWaste.
 - d. Prior to launch of the Reusable Takeout Foodware program, Draft for approval amendments to the Single Use Disposable Foodware and Litter Reduction Ordinance to implement the Reusable Takeout Foodware program as an alternative to Compostable Takeout Foodware, and impose a charge, similar to or the same as the Disposable Cup charge, on other Disposable Foodware containers.
 - e. Create a program to expand and support composting, to ensure Single Use Disposable Foodware is actually composted.

e.f. Prior to January 1, 2022 report to the City Council on progress towards full implementation of and compliance with the Single Use Disposable Foodware and Litter Reduction Ordinance and these referrals

3. Refer to the City Manager to determine funding and staffing needs and sources of funds to implement for each program/phase. Consider and suggest implementation alternatives to achieve similar results at lower cost to the City, if any, and submit recommended alternatives to the Zero Waste Commission and City Council for consideration, and funding allocations or requests to the budget process. ~~funding allocations or requests to the budget process.~~

FINANCIAL IMPLICATIONS

Reducing use and disposal of products that make up the majority of Berkeley's street and storm-drain litter has the potential to significantly lower City expenses including costs related to collection of debris from over 400 city trash receptacles, from clearing of clogged stormwater intakes city-wide, and from daily street sweeping and litter management. Even for "recyclable" items that are properly placed in a recycling bin, these items are costly to sort and process and have limited markets resulting in additional costs to the City. Many of these items result in contamination to the composting program which increase the cost of composting.

Staff time will be required to launch programs related to the Single Use Foodware and Litter Reduction Ordinance. Some programs and services may be provided by community partners at relatively low cost. Once launched, staff time for administration and enforcement of the Ordinance will be limited.

Costs, sources of funding and community partnerships to be determined by the City Manager.

BACKGROUND

Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions. The use of disposable foodware has grown exponentially over the past few decades. Because the environmental costs of these products is largely hidden to the business operator and consumer, little attention is paid to the quantity of packaging consumed and quickly thrown away. Reducing the use of SUDs in the City of Berkeley is a key strategy to achieve the City's Zero Waste and Climate Action goals, and to address the many environmental impacts and costs associated with the use and disposal of single-use foodware and packaging. SUDs often become litter therefore minimizing their use will

assist the City with achieving stormwater program requirements and could reduce costs for maintenance of full trash capture devices that the City has installed in stormdrains.

Environmental Impacts of Single-Use Disposables

The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources. It is a major component of litter on streets and in waterways, and of the plastic polluting our air, food, drinking water and oceans.

- Food and beverage SUDs make up approximately 25% of all waste produced in California.¹
- Bay Area litter studies have found that food and beverage packaging comprises the majority of street litter.²
- Without dramatic systems change, by 2050, there will be more plastic in the ocean than fish.³
- Based on Berkeley's population of approximately 120,000 people, it is estimated that almost 40 million single use cups are used in the City of Berkeley every year.

Most SUDs are used for just a few minutes before becoming waste, while most are made to last for hundreds and even thousands of years, and have broad, long-lasting negative impacts. Plastics in waterways and oceans break down into smaller pieces (but do not biodegrade) and are present in most of the world's oceans, at all levels (surface, water column, and bottom).⁴

Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater⁵, which can transfer to fish, other seafood, and salt that is eventually sold for human consumption.⁶ Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health effects including kidney and testicular cancer, thyroid disruption, delayed puberty and obesity.⁷

¹ <https://www.wastedive.com/news/are-the-packaging-wars-coming-to-california/508491/>

² See Clean Water Action's "Taking out the Trash" Bay Area Litter study (2011) http://www.cleanwateraction.org/files/publications/ca/Curr_CA_12%2012%2011final.pdf; California Coastal Cleanup Results 1989-2014 showing Food and Beverage packaging items are 7 out of the top 10 items collected and account for 34% of the total trash - <https://www.coastal.ca.gov/publiced/ccd/history.html#top10>; BanList 2.0 shows food and beverage packaging items are 74% of top 20 littered items among 6 different beach cleanup datasets- <https://upstreampolicy.org/ban-list-20>

³ Ellen MacArthur Foundation (2016)

⁴ D. Barnes et al, 2009, *Accumulation and fragmentation of plastic debris in global environments*, Phil. Trans. R. Soc. B., 364-1985-98.

⁵ Rochman, C.M., et al., 2013, Long-Term Field Measurement of Sorption of Organic Contaminants to Five Types of Plastic Pellets: Implications for Plastic Marine Debris. *Environmental Science and Technology*. 47, 1646-1654.

⁶ Rochman C Met al, 2015a Anthropogenic debris in seafood: plastic debris and fibers from textiles in fish and bivalves sold for human consumption *Sci. Rep.* 5 14340.

⁷ In 2015, the FDA barred from use three such fluorinated chemicals from food contact materials due to safety risks associated with cancer, toxicity, and other health effects; other fluorinated chemicals have similar chemical structures and pose similar risk.

Strategies to Regulate SUDs

Alameda County implemented its reusable bag ordinance in January 2013, and has seen dramatic results. Countywide, bag purchases by affected retail stores have declined by 85 percent. The number of shoppers bringing a reusable bag to affected stores, or not using a bag at all, has more than doubled during this time⁸. Globally, a number of strategies have been implemented to reduce the use of SUDs. Charges for single-use plastic bags have proven to decrease plastic bag consumption. When Ireland instituted a “Plas-Tax” in 2002, equivalent to about 20 cents per bag, plastic bag use declined by 90% and litter from plastic bags declined by 40%⁹. Similar charges have been implemented in Taiwan, Washington D.C., and the United Kingdom, resulting in decreases in plastic bag use of up to 80%. A 2016 plastic bag ban in California reduced the number of plastic bags found on beaches by half.¹⁰ Studies have also shown that customers in areas with taxes on single use bags were more likely to use reusable bags.¹¹

There is growing support for reducing the use of other single use disposables. Ireland is considering banning single use coffee cups, with 50% of the population surveyed in support.¹² The European Union announced in 2018 that it is implementing a policy for all plastic packaging to be recyclable or reusable by 2030.¹³ Taiwan will be imposing charges for straws, plastic shopping bags, disposable utensils, and beverage cups by 2025, and will impose a complete ban on single-use plastic items, including straws, cups, and shopping bags, by 2030.¹⁴

Reducing SUDs in the City of Berkeley

The City of Berkeley has a long history of leadership in sustainability and environmental protections including the adoption of an ambitious Climate Action Plan in 2009, with a goal of achieving Zero Waste by 2020; the nation’s first curbside recycling program and styrofoam foodware ban; and one of the first commercial organics collection programs. The city reached a height of 78% waste diversion by AB 939 standards, and there has

⁸ “Successful Results from Bag Ordinance”, 2014, Alameda County Waste Management authority, <http://reusablebagsac.org/news/successful-results-bag-ordinance>

⁹ Mauro Anastasio and James Nix, Plastic Bag Levy in Ireland, Institute European Environmental Policy, 2016. <https://ieep.eu/uploads/articles/attachments/7f91cb97-8cb7-49c39cf0d34062a9192e/IE%20Plastic%20Bag%20Levy%20conference%20draft.pdf?v=63673818840>

¹⁰ <http://www.latimes.com/opinion/editorials/la-ed-plastic-bag-ban-anniversary-20171118-story.html>

¹¹ T. A. Homonoff, *Can Small Incentives Have Large Effects? The Impact of Taxes versus Bonuses on Disposable Bag Use* National Tax Association Proceedings, Princeton University- <http://ntanet.org/wp-content/uploads/proceedings/2012/008-homonoff-can-small-incentives-2012-nta-proceedings.pdf>

¹² <http://www.thejournal.ie/coffee-cups-poll-3642333-Oct2017/>

¹³ European Commission, EU Plastics Strategy-http://ec.europa.eu/environment/waste/plastic_waste.htm

¹⁴ “Taiwan to ban disposable plastic items by 2030,” February 22, 2108- <https://phys.org/news/2018-02-taiwan-disposable-plastic-items.html>

been a 50% reduction in solid waste disposal between 2000 to 2013¹⁵. Despite these achievements, Berkeley has not addressed the significant increase in takeout food packaging littering city streets, filling storm drains, requiring management in the waste stream, polluting our waterways, Bay and ocean, and threatening both human and animal health.

In addition, SUDs are particularly costly and challenging to divert from landfill. Non-recyclable food and beverage packaging is costly to remove from the waste stream and reduces the quality and value of recyclables, while non-compostable food packaging (some of which is advertised as “biodegradable” or “made from plants” which misleads consumers to believe it is compostable) contaminates compost, adding costs and reducing the quality of compost¹⁶. With China’s recent rejection of mixed recycled plastic imports, the value of recyclable plastics has dropped sharply and the final destination for these plastic SUDs is uncertain. This adds significant costs to the City’s collection, sorting, and processing of compostables and recyclables. To reach its Zero Waste goals, the City must reduce use of single-use food and beverage packaging.

Thanks to the leadership of Berkeley’s Ecology Center, working closely with UpStream, Clean Water Action, the Clean Water Fund, Story of Stuff, Surfrider Foundation, GAIA (Global Alliance for Incinerator Alternatives), the Green Science Policy Institute, Excellent Packaging, and numerous active residents and volunteers, the City Council unanimously referred a proposed Single Use Disposable Foodware and Litter Reduction ordinance to the Zero Waste Commission on April 24, 2018.

The Zero Waste Commission was tasked with review of the proposed ordinance and the conduct of community meetings to gather feedback on the proposed ordinance, and make recommendations. Since that time, the Zero Waste Commission Foodware Subcommittee conducted 4 community meetings between June and September of 2018, and collected comments from over 60 restaurateurs, environmental advocates, members of the disability community, and other community members. Meetings were held on different days and times of the day, at locations throughout Berkeley, and were noticed to the restaurant and food service community with the help of the City’s Economic Development staff. The Commission analyzed comments received in writing and through public testimony, and on September 24, 2018 unanimously referred their findings to the City Council (Attachment 2).

¹⁵ Berkeley Climate Action Plan: Tracking our Progress Waste Reduction & Recycling – Total Landfilled, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/PDF%20total%20landfilled%20final.pdf

¹⁶ Clean Water Action, *What’s in the Package?* 2016 <https://www.cleanwateraction.org/features/what%E2%80%99s-package>

In addition, Councilmember Hahn met on-site with the owners of three restaurants that expressed concerns about implementation of the proposed ordinance, reviewing their current practices and challenges. All three have already implemented important measures to reduce the use of harmful Single Use Disposables, and shared important insights.

Ordinance Elements

The attached ordinance (Attachment 1) incorporates many of the Zero Waste Commission's recommendations and makes a number of changes to accommodate concerns and questions that were discussed as part of the Commission's public process. Changes include:

- Phasing-in elements of the ordinance, to allow Prepared Food Vendors time to adjust practices.
- Opportunities for limited exemptions, based on demonstrated hardship or extraordinary circumstances.
- Establishment of mini-grant and technical assistance programs, to help Prepared Food Vendors transition to Reusable and Compostable Foodware.
- Elimination of charges for all Single Use Disposable Foodware, except for cups, pending establishment of a Reusable Takeout Foodware program.
- Addition of standards for Prepared Food Vendors to reject customer-supplied cups that appear inappropriate or unsanitary.
- Addition of a recommendation that Prepared Food Vendors customarily offering straws keep a supply of compostable bioplastic straws for use by individuals specifically requesting "plastic" straws.
- Enforcement with notice and opportunities to cure, either by adopting practices or obtaining a waiver, if warranted, prior to imposition of fines or other penalties.

City Manager Referral Components

To complement the roll out of the Single Use Disposable Foodware and Litter Reduction Ordinance, the Zero Waste Commission recommends a number of City-sponsored programs to support implementation of the Ordinance's requirements, including:

- A mini-grant program to help cover one-time costs associated with the transition to Reusable Foodware for on-site dining;
- Technical assistance to support implementation of ordinance requirements.

Both programs must be operative by June 2019, six months before the key elements of the ordinance take effect.

It is incumbent upon the City to further expand composting resources – potentially including compost receptacles - for residents and customers. Many restaurants do provide composting receptacles in-store currently, but many residential countertop kitchen pails are too small to accommodate a significant increase in compostable foodware which is expected with widespread adoption of the Single Use Foodware and Litter Reduction Ordinance. The expansion of composting collection efforts also supports the goals and requirements of AB1826 and SB1383 to divert organics from the landfill. .

ENVIRONMENTAL SUSTAINABILITY

The production, consumption and disposal of single use food and beverage packaging is a major contributor to litter in our streets, plastic in landfills, pollution in waterways and oceans, GHG emissions, and harm to wildlife. This environmental ordinance represent a huge step forward in reducing the use of disposable foodware in Berkeley, fulfilling Berkeley's Zero Waste and Climate Action Goals, reducing greenhouse gas emissions 80% by 2050, and meeting State trash load level mandates.

CONTACT PERSON

Councilmember Sophie Hahn, District 5, (510) 981-7150

Mayor Jesse Arreguín, (510) 981-7100

Attachments

1. Single Use Foodware and Litter Reduction Ordinance, amended to incorporate Zero Waste Commission recommendations
2. Zero Waste Commission recommendations to City Council, September 24, 2018
3. Referral to the Zero Waste Commission: Berkeley Single Use Foodware and Litter Reduction Ordinance, April 24, 2018

ORDINANCE NO. -N.S.

ADDING CHAPTER 11.64 TO THE BERKELEY MUNICIPAL CODE TO ADOPT A
SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That a new Chapter 11.64 is hereby added to the Berkeley Municipal Code to read as follows:

Chapter 11.64

SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

Sections:

- 11.64.010 Findings and Purposes
- 11.64.020 Definitions
- 11.64.030 Accessory disposable foodware items
- 11.64.040 Reusable customer cups
- 11.64.050 Compostable disposable foodware
- 11.64.060 Reusable foodware for dining on the premises
- 11.64.070 Disposable foodware standards
- 11.64.080 Separate disposable foodware waste receptacles
- 11.64.090 Waivers
- 11.64.100 Regulations applicable to all prepared food vendors
- 11.64.110 Duties responsibilities and authority of the City of Berkeley
- 11.64.120 City of Berkeley: purchases prohibited
- 11.64.130 Liability and enforcement
- 11.64.140 Severability
- 11.64.150 ~~Ordinance Chapter~~ supersedes existing laws and regulations

11.64.010 Findings and Purposes.

The Council of the City of Berkeley finds and declares as follows:

- A. Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.

- B. The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources, and plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and are present in most of the world's oceans.
- C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health conditions.
- D. Food and beverage SUDs make up approximately 25% of all waste produced in California. In the Bay Area, food and beverage packaging comprises the majority of street litter, and is a significant contributor to the total amount of waste entering the City's waste stream.
- E. It is in the interest of the health, safety and welfare of all who live, work and do business in the City, that the amount of litter on public streets, parks and in other public places be reduced.
- F. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of single-use food and beverage packaging furthers this goal.
- G. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan, as amended, in 2017, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

11.64.020 Definitions.

- A. "Prepared Food" means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. Prepared Food does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed, or raw uncooked meat products.
- B. "Takeout Food" means Prepared Food which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food carried out by the customer or delivered by a Prepared Food Vendor or by a Takeout Food Delivery Service.

- C. "Prepared Food Vendor" means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113930 and as amended), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.
- D. "Disposable Foodware" means all containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any other items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.
- E. "Disposable Cup" is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks, and alcoholic beverages ~~and other drinks~~.
- F. "Accessory Disposable Foodware Item" means any Disposable Foodware item such as straws, stirrers, napkins and utensils; condiment cups and packets; cup sleeves, tops, lids, and spill plugs; and other similar accessory or accompanying Disposable Foodware items used as part of food or beverage service or packaging.
- G. "Reusable Foodware" means all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, condiment cups and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.
- H. "Takeout Food Delivery Service" is a third party delivery service which picks up Takeout Food from a Prepared Food Vendor and delivers it to the customer for consumption off the premises.

11.64.030 Accessory Disposable Foodware Items

- A. Accessory Disposable Foodware items shall be provided only upon request by the customer or at self-serve stations, except that Disposable Cups for delivery by a Prepared Food Vendor or a Takeout Food Delivery Service may include tops, spill plugs and sleeves without request.

- B. Prepared Food Vendors and Takeout Food Delivery Services must provide options for customers to affirmatively request Accessory Disposable Foodware Items separate from orders for food and beverages across all ordering/point of sale platforms, including but not limited to web, smart phone and other digital platforms, telephone and in-person.
- C. Prepared Food Vendors that customarily offer straws are encouraged to maintain a small supply of plastic-type straws which meet the Disposable Foodware Standards set forth in ~~section~~Section 11.64.070, which may be provided to customers upon specific request for a "plastic" straw.
- D. Prepared Food Vendors offering condiments are encouraged to use dispensers rather than pre-packaged disposable condiment packets.

11.64.040 Reusable Customer Cups

- A. Except as provided in Chapter 11. Temporary Food Facilities of the California Health and Safety Code, Section 114353, Customers may provide their own Reusable Foodware cups for beverage service in accordance with California State Health Code 114075(e) and as amended. Prepared Food Vendors may refuse, at their sole discretion, any customer-provided Reusable Foodware cup that is cracked, chipped or corroded, appears inappropriate in size, material, or condition for the intended beverage, or that appears to be excessively soiled or unsanitary, and instead require use of a Reusable Foodware cup for a beverage consumed on the premises, or a Disposable Cup for a beverage to be consumed off the premises, with any charge required pursuant to ~~section~~Section 11.64.050.D.

11.64.050 Compostable Disposable Foodware

Effective January 1, 2020:

- A. Takeout Food shall only be served in Disposable Foodware that conforms to the Disposable Foodware Standards ~~at in~~ Section 11.64.070.
- B. Accessory Disposable Foodware Items shall conform with the Disposable Foodware Standards ~~at in~~ 11.64.070.
- C. Takeout Food Delivery Services shall only deliver Takeout Food from a Prepared Food Vendor that is served in Disposable Foodware and with Accessory Disposable Foodware Items, if any, that conform to the Disposable Foodware Standards ~~at in~~ 11.64.070.
- D. Prepared Food Vendors shall charge customers twenty five cents (\$0.25) for every Disposable Cup provided.

a-1. Income from the Disposable Cup charge shall be retained by the Prepared Food Vendor and used for the purposes set forth in Section 11.64.100.C for use in its discretion.

b-2. All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children (WIC) pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code and as amended, or an electronic benefit transfer card (EBT) issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the Disposable Cup charge.

e-3. Charges for Disposable Cups shall be identified separately on menus, ordering platforms and menu boards and on any receipt provided to the customer. Customers placing orders by telephone shall be informed verbally of Disposable Cup charges.

E. Notwithstanding the requirements at ~~section~~Sections 11.64.050, subsections (A)-(C), a Prepared Food Vendor may request a waiver or waivers pursuant to ~~section~~Section 11.64.090 for specific Disposable Foodware items. To obtain a waiver for a Disposable Foodware item, the Prepared Food Vendor must demonstrate that:

a-1. No Disposable Foodware item exists with substantially similar size, performance and/or utility that conforms with the Disposable Foodware Standards ~~at in s~~Section 11.64.070 or, if such an item exists, that costs of using such item would cause undue financial hardship, and;

b-2. The non-conforming Disposable Foodware item to be used in lieu of a conforming item is recyclable in the City of Berkeley recyclable collection program.

e-3. The Prepared Food Vendor must provide documentation of efforts to obtain a substantially similar compliant item at a non-prohibitive price.

d-4. Records of attempts to obtain a compliant item shall include:

i-a. Emails, letters or other correspondence with two or more vendors that furnish Compostable Disposable Foodware, seeking the compliant item.

ii-b. Responses from such Compostable Disposable Foodware vendors including, where applicable, specifications and pricing for such item.

iii.c. Specifications and pricing for the recyclable non-conforming item sought to be used, demonstrating its substantial superiority and/or affordability, and

iv.d. Any other records which demonstrate a good faith effort to comply with Disposable Foodware Standards for such item.

e.5. Reasonable added cost for a conforming item as compared to a substantially similar recyclable non-conforming item shall not by itself constitute adequate grounds to support a waiver for such item.

11.64.060 Reusable Foodware for Dining on the Premises (i.e. "Eating-in")

Effective July 1, 2020:

A. Prepared Food served for consumption on the premises of a Prepared Food Vendor shall only be served using Reusable Foodware, except that disposable paper food wrappers, foil wrappers, paper napkins, straws and paper tray- and plate-liners shall be allowed for dining on the premises, so long as they meet the Disposable Foodware Standards in ~~section~~Section 11.64.070.

B. Notwithstanding the requirements at ~~section~~Section 11.64.060 (A), Prepared Food Vendors that do not have on-site or off-site dishwashing capacity or are unable to contract for services to wash, rinse and sanitize Reusable Foodware in compliance with the California Health Code may request a waiver or partial waiver pursuant to Section 11.64.090. To obtain a waiver, the Prepared Food Vendor must demonstrate inability to comply due to insurmountable space constraints and/or undue financial hardship.

C. All Disposable Foodware used on the premises by Prepared Food Vendors that are operating under full or partial waivers obtained pursuant to 11.64.090 shall conform to the Disposable Foodware Standards in Section 11.64.070.

~~D. Zoning permits and Business Licenses for Prepared Food Vendors applied for, renewed and/or deemed complete on or after January 1, 2019 shall only be granted to Prepared Food Vendors that demonstrate compliance with section 11.64.060 (A). Installation and/or maintenance of appropriate dishwashing capacity in conformance with section 11.64.060 (A) shall be included as a specific condition of approval for such permits and licenses.~~

11.64.070 Disposable Foodware Standards

- A. Disposable Foodware must be accepted by City of Berkeley municipal compost collection programs and be free of all intentionally added fluorinated chemicals, as certified by the Biodegradable Product Institute or other independent third party certifying organization or agency recognized by the City, except that non-compostable foil wrappers that are accepted in the City of Berkeley recyclable collection program may be used for burritos, wraps, and other items that require foil to contain and form the food item.
- B. The City shall maintain on its website a list of suppliers that offer Disposable Foodware that complies with these Disposable Foodware Standards.
- C. Changes, if any, to Disposable Foodware Standards shall become effective on January 1 of ~~each~~ the next calendar year, and the City of Berkeley shall provide notice of any such changes to Prepared Food Vendors at least 90 days prior.

11.64.080 Separate Disposable Foodware Waste Receptacles

All Prepared Food Vendors, except Full Service Restaurants as defined in Chapter 23F.04 of the Berkeley Municipal Code, must provide at least one set of three easily accessed receptacles each for discarded items to be composted, ~~or~~ recycled, and, if needed, to be landfilled or otherwise wasted.

- A. To the extent possible given space constraints, all three receptacles should be placed together in the same location.
- B. The City shall identify materials accepted for each collection program on the City's website, and signage must be posted on and/or above each receptacle, indicating the materials to be deposited into such receptacle. Receptacles and signage shall be color-coded as follows:
 - a.1. Blue for recyclables
 - b.2. Green for compostables
 - c.3. Black or gray for items to be landfilled or otherwise wasted
- C. Prepared Food Vendors that share premises may share receptacles.

11.64.090 Waivers

- A. The City Manager shall prescribe and adopt rules, regulations and forms for Prepared Food Vendors to obtain full or partial waivers from any requirement of this ordinance that is explicitly subject to waiver.

- B. Waivers shall be granted by the City Manager or his or her agents, based upon documentation provided by the applicant and, at the City Manager's discretion, independent verification, including site visits.
- C. The City Manager or his or her agents shall act on a waiver application no later than 180 days after receipt of such application, including mailing written notification of the City Manager's decision to the address supplied by the applicant.
- D. Waivers may be granted for a specified period of up to two (2) years. During the waiver period, the Prepared Food Vendor shall make diligent efforts to become compliant.
- E. Under extraordinary circumstances, should a Prepared Food Vendor demonstrate that, at the close of a granted waiver period, and with diligent efforts to become compliant, compliance remains infeasible, additional waivers of up to two (2) years each may be granted. It shall be the Prepared Food Vendor's responsibility to apply for any subsequent waivers in a timely manner.

11.64.100 Regulations applicable to all Prepared Food Vendors

- A. Each Prepared Food Vendor shall maintain written records evidencing compliance with this Chapter.
- B. All records required by this Chapter shall be made available for inspection by the City Manager or his or her designated representative. It shall be unlawful for anyone having custody of such records to fail or refuse to produce such records upon request by the City Manager or his or her designated representative.
- C. All charges collected by the Prepared Food Vendor pursuant to ~~section~~Section 11.64.050 of this Chapter and retained by the Prepared Food Vendor may be used only for the following purposes:
 - a-1. Costs associated with complying with the requirements of this Chapter.
 - b-2. Actual costs of labor, equipment and materials for washing Reusable Foodware and providing customers with Reusable Foodware; costs of providing customers with compliant compostable Disposable Foodware; costs for reducing litter; and other costs associated with reducing the use of Disposable Foodware and litter.
 - e-3. Costs associated with a store's educational materials or educational campaign for reducing and/or encouraging the reduction of Disposable Foodware and litter.
 - d. ~~Costs associated with supplying customers with Reusable Foodware for Takeout Food that can be returned to the business for washing or as part of a City-wide system of Reusable Foodware for Takeout Food.~~

11.64.110 Duties responsibilities and authority of the City of Berkeley
~~City Manager's Powers~~

The City Manager shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this chapter and is hereby authorized to take any and all actions reasonable and necessary to enforce this chapter including, but not limited to, inspecting any Prepared Food Vendor's premises to verify compliance.

- ~~A. In June of 2021 the City shall report to the City Council on progress towards full implementation of and compliance with this ordinance.~~

11.64.120 **City of Berkeley: purchases prohibited**

The City of Berkeley shall not purchase any Disposable Foodware that does not comply with the Disposable Foodware Standards ~~at in~~ Section 11.64.070, nor shall any City-sponsored event utilize non-compliant Disposable Foodware.

11.64.130 Liability and Enforcement

- A. Anyone violating or failing to comply with any requirement of this chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however, no administrative citation may be issued or infraction charged for violation of a requirement of this chapter until one year after the effective date of such requirement.
- B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to Section 11.64.090.
- C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this chapter.
- D. The remedies and penalties provided in this section are cumulative and not exclusive.

11.64.140 **Severability**

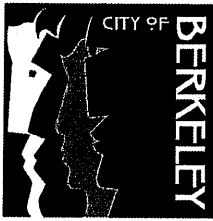
If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the proscribed application thereof, shall be severable, and the remaining provisions of this chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases had been declared invalid or unconstitutional. If any part or provision of this chapter or the

~~application thereof to any person or circumstance is held invalid, the remainder of the chapter, including the application of such part or provision to other persons or circumstances, shall not be affected thereby and shall continue in full force and effect. To this end, provisions of this chapter are severable.~~

11.64.150 Ordinance Chapter supersedes existing laws and regulations

The provisions of this chapter shall supersede any conflicting law or regulations restricting the use of polystyrene foam.

Section 2. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.



Sophie Hahn
Councilmember District 5

**REVISED
AGENDA MATERIAL
for Supplemental Packet 1**

Meeting Date: December 11, 2018

Item Number: 27

Item Description: Single Use Disposable Foodware and Litter Reduction Ordinance

Submitted by: Councilmember Sophie Hahn

Formatting and continuity changes based on input from the City Attorney and City Clerk

ORDINANCE NO. -N.S.

ADDING CHAPTER 11.64 TO THE BERKELEY MUNICIPAL CODE TO ADOPT A
SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That a new Chapter 11.64 is hereby added to the Berkeley Municipal Code to read as follows:

Chapter 11.64

SINGLE USE FOODWARE AND LITTER REDUCTION

Sections:

- 11.64.010 Purposes
- 11.64.020 Definitions
- 11.64.030 Accessory disposable foodware items
- 11.64.040 Reusable customer cups
- 11.64.050 Compostable disposable foodware
- 11.64.060 Reusable foodware for dining on the premises
- 11.64.070 Disposable foodware standards
- 11.64.080 Separate disposable foodware waste receptacles
- 11.64.090 Waivers
- 11.64.100 Regulations applicable to all prepared food vendors
- 11.64.110 Duties responsibilities and authority of the City of Berkeley
- 11.64.120 City of Berkeley: purchases prohibited
- 11.64.130 Liability and enforcement
- 11.64.140 Severability
- 11.64.150 Chapter supersedes existing laws and regulations

11.64.010 Purposes.

The council finds and declares as follows:

- A. Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.

- B. The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources, and plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and are present in most of the world's oceans.
- C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health conditions.
- D. Food and beverage SUDs make up approximately 25% of all waste produced in California. In the Bay Area, food and beverage packaging comprises the majority of street litter, and is a significant contributor to the total amount of waste entering the City's waste stream.
- E. It is in the interest of the health, safety and welfare of all who live, work and do business in the City, that the amount of litter on public streets, parks and in other public places be reduced.
- F. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of single-use food and beverage packaging furthers this goal.
- G. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan as amended in 2017, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

11.64.020 Definitions.

- A. "Prepared Food" means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. Prepared Food does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed or raw uncooked meat products.
- B. "Takeout Food" means Prepared Food which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food carried out by the customer or delivered by a Prepared Food Vendor or by a Takeout Food Delivery Service.

- C. "Prepared Food Vendor" means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113930 and as amended), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.
- D. "Disposable Foodware" means all containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any other items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.
- E. "Disposable Cup" is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks, alcoholic beverages and other drinks.
- F. "Accessory Disposable Foodware Item" means any Disposable Foodware item such as straws, stirrers, napkins and utensils; condiment cups and packets; cup sleeves, tops, lids, and spill plugs; and other similar accessory or accompanying Disposable Foodware items used as part of food or beverage service or packaging.
- G. "Reusable Foodware" means all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, condiment cups and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.
- H. "Takeout Food Delivery Service" is a third party delivery service which picks up Takeout Food from a Prepared Food Vendor and delivers it to the customer for consumption off the premises.

11.64.030 Accessory Disposable Foodware Items

- A. Accessory Disposable Foodware items shall be provided only upon request by the customer or at self-serve stations, except that Disposable Cups for delivery by a Prepared Food Vendor or a Takeout Food Delivery Service may include tops, spill plugs and sleeves without request.

- B. Prepared Food Vendors and Takeout Food Delivery Services must provide options for customers to affirmatively request Accessory Disposable Foodware Items separate from orders for food and beverages across all ordering/point of sale platforms, including but not limited to web, smart phone and other digital platforms, telephone and in-person.
- C. Prepared Food Vendors that customarily offer straws are encouraged to maintain a small supply of plastic-type straws which meet the Disposable Foodware Standards set forth in Section 11.64.070, which may be provided to customers upon specific request for a "plastic" straw.
- D. Prepared Food Vendors offering condiments are encouraged to use dispensers rather than pre-packaged disposable condiment packets.

11.64.040 Reusable Customer Cups

- A. Customers may provide their own Reusable Foodware cups for beverage service in accordance with California State Health Code 114075(e) and as amended. Prepared Food Vendors may refuse, at their sole discretion, any customer-provided Reusable Foodware cup that is cracked, chipped or corroded, appears inappropriate in size, material, or condition for the intended beverage, or that appears to be excessively soiled or unsanitary, and instead require use of a Reusable Foodware cup for a beverage consumed on the premises, or a Disposable Cup for a beverage to be consumed off the premises, with any charge required pursuant to Section 11.64.050.D.

11.64.050 Compostable Disposable Foodware

Effective January 1, 2020:

- A. Takeout Food shall only be served in Disposable Foodware that conforms to the Disposable Foodware Standards in Section 11.64.070.
- B. Accessory Disposable Foodware Items shall conform with the Disposable Foodware Standards in 11.64.070.
- C. Takeout Food Delivery Services shall only deliver Takeout Food from a Prepared Food Vendor that is served in Disposable Foodware and with Accessory Disposable Foodware Items, if any, that conform to the Disposable Foodware Standards in 11.64.070.
- D. Prepared Food Vendors shall charge customers twenty five cents (\$0.25) for every Disposable Cup provided.
 - 1. Income from the Disposable Cup charge shall be retained by the Prepared Food Vendor for use in its discretion.

2. All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children (WIC) pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code and as amended, or an electronic benefit transfer card (EBT) issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the Disposable Cup charge.
 3. Charges for Disposable Cups shall be identified separately on menus, ordering platforms and menu boards and on any receipt provided to the customer. Customers placing orders by telephone shall be informed verbally of Disposable Cup charges.
- E. Notwithstanding the requirements at Section 11.64.050, subsections A-C, a Prepared Food Vendor may request a waiver or waivers pursuant to Section 11.64.090 for specific Disposable Foodware items. To obtain a waiver for a Disposable Foodware item, the Prepared Food Vendor must demonstrate that:
1. No Disposable Foodware item exists with substantially similar size, performance and/or utility that conforms with the Disposable Foodware Standards in Section 11.64.070 or, if such an item exists, that costs of using such item would cause undue financial hardship, and;
 2. The non-conforming Disposable Foodware item to be used in lieu of a conforming item is recyclable in the City of Berkeley recyclable collection program.
 3. The Prepared Food Vendor must provide documentation of efforts to obtain a substantially similar compliant item at a non-prohibitive price.
 4. Records of attempts to obtain a compliant item shall include:
 - a. Emails, letters or other correspondence with two or more vendors that furnish Compostable Disposable Foodware, seeking the compliant item.
 - b. Responses from such Compostable Disposable Foodware vendors including, where applicable, specifications and pricing for such item.
 - c. Specifications and pricing for the recyclable non-conforming item sought to be used, demonstrating its substantial superiority and/or affordability, and
 - d. Any other records which demonstrate a good faith effort to comply with Disposable Foodware Standards for such item.

5. Reasonable added cost for a conforming item as compared to a substantially similar recyclable non-conforming item shall not by itself constitute adequate grounds to support a waiver for such item.

11.64.060 Reusable Foodware for Dining on the Premises Effective July 1, 2020:

- A. Prepared Food served for consumption on the premises of a Prepared Food Vendor shall only be served using Reusable Foodware, except that disposable paper food wrappers, foil wrappers, paper napkins, straws and paper tray- and plate-liners shall be allowed for dining on the premises, so long as they meet the Disposable Foodware Standards in Section 11.64.070.
- B. Notwithstanding the requirements at Section 11.64.060.A, Prepared Food Vendors that do not have on-site or off-site dishwashing capacity or are unable to contract for services to wash, rinse and sanitize Reusable Foodware in compliance with the California Health Code may request a waiver or partial waiver pursuant to Section 11.64.090. To obtain a waiver, the Prepared Food Vendor must demonstrate inability to comply due to insurmountable space constraints and/or undue financial hardship.
- C. All Disposable Foodware used on the premises by Prepared Food Vendors that are operating under full or partial waivers obtained pursuant to 11.64.090 shall conform to the Disposable Foodware Standards in Section 11.64.070.
- D. Zoning permits and Business Licenses for Prepared Food Vendors applied for, renewed and/or deemed complete on or after the effective date of this ordinance shall only be granted to Prepared Food Vendors that demonstrate compliance with section 11.64.060.A. Installation and/or maintenance of appropriate dishwashing capacity in conformance with section 11.64.060.A shall be included as a specific condition of approval for such permits and licenses.

11.64.070 Disposable Foodware Standards

- A. Disposable Foodware must be accepted by City of Berkeley municipal compost collection programs and be free of all intentionally added fluorinated chemicals, as certified by the Biodegradable Product Institute or other independent third party certifying organization or agency recognized by the City, except that non-compostable foil wrappers that are accepted in the City of Berkeley recyclable collection program may be used for burritos, wraps, and other items that require foil to contain and form the food item.

- B. The City shall maintain on its website a list of suppliers that offer Disposable Foodware that complies with these Disposable Foodware Standards.
- C. Changes, if any, to Disposable Foodware Standards shall become effective on January 1 of each calendar year, and the City of Berkeley shall provide notice of any such changes to Prepared Food Vendors at least 90 days prior.

11.64.080 Separate Disposable Foodware Waste Receptacles

All Prepared Food Vendors, except Full Service Restaurants as defined in Chapter 23F.04 of the Berkeley Municipal Code, must provide at least one easily accessed receptacle each for discarded items to be composted or recycled, and, if needed, to be landfilled or otherwise wasted.

- A. To the extent possible given space constraints, all three receptacles should be placed together in the same location.
- B. The City shall identify materials accepted for each collection program on the City's website, and signage must be posted on and/or above each receptacle, indicating the materials to be deposited into such receptacle. Receptacles and signage shall be color-coded as follows:
 - 1. Blue for recyclables
 - 2. Green for compostables
 - 3. Black or gray for items to be landfilled or otherwise wasted
- C. Prepared Food Vendors that share premises may share receptacles.

11.64.090 Waivers

- A. The City Manager shall prescribe and adopt rules, regulations and forms for Prepared Food Vendors to obtain full or partial waivers from any requirement of this ordinance that is explicitly subject to waiver.
- B. Waivers shall be granted by the City Manager or his or her agents, based upon documentation provided by the applicant and, at the City Manager's discretion, independent verification, including site visits.
- C. The City Manager or his or her agents shall act on a waiver application no later than 180 days after receipt of such application, including mailing written notification of the City Manager's decision to the address supplied by the applicant.
- D. Waivers may be granted for a specified period of up to two (2) years. During the waiver period, the Prepared Food Vendor shall make diligent efforts to become compliant.

- E. Under extraordinary circumstances, should a Prepared Food Vendor demonstrate that, at the close of a granted waiver period, and with diligent efforts to become compliant, compliance remains infeasible, additional waivers of up to two (2) years each may be granted. It shall be the Prepared Food Vendor's responsibility to apply for any subsequent waivers in a timely manner.

11.64.100 Regulations applicable to all Prepared Food Vendors

- A. Each Prepared Food Vendor shall maintain written records evidencing compliance with this Chapter.
- B. All records required by this Chapter shall be made available for inspection by the City Manager or his or her designated representative. It shall be unlawful for anyone having custody of such records to fail or refuse to produce such records upon request by the City Manager or his or her designated representative.
- C. All charges collected by the Prepared Food Vendor pursuant to Section 11.64.050 of this Chapter and retained by the Prepared Food Vendor may be used only for the following purposes:
 - 1. Costs associated with complying with the requirements of this Chapter.
 - 2. Actual costs of labor, equipment and materials for washing Reusable Foodware and providing customers with Reusable Foodware; costs of providing customers with compliant compostable Disposable Foodware; costs for reducing litter; and other costs associated with reducing the use of Disposable Foodware and litter.
 - 3. Costs associated with a store's educational materials or educational campaign for reducing and/or encouraging the reduction of Disposable Foodware and litter.
 - 4. Costs associated with supplying customers with Reusable Foodware for Takeout Food that can be returned to the business for washing or as part of a City-wide system of Reusable Foodware for Takeout Food.

11.64.110 Duties responsibilities and authority of the City of BerkeleyThe City Manager shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this chapter and is hereby authorized to take any and all actions reasonable and necessary to enforce this chapter including, but not limited to, inspecting any Prepared Food Vendor's premises to verify compliance.

- A. In June of 2021 the City shall report to the City Council on progress towards full implementation of and compliance with this ordinance.

11.64.120 City of Berkeley: purchases prohibited

The City of Berkeley shall not purchase any Disposable Foodware that does not comply with the Disposable Foodware Standards in Section 11.64.070, nor shall any City-

sponsored event utilize non-compliant Disposable Foodware.

11.64.130 Liability and Enforcement

- A. Anyone violating or failing to comply with any requirement of this chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however, no administrative citation may be issued or infraction charged for violation of a requirement of this chapter until one year after the effective date of such requirement.
- B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to Section 11.64.090.
- C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this chapter.
- D. The remedies and penalties provided in this section are cumulative and not exclusive.

11.64.140 Severability

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the proscribed application thereof, shall be severable, and the remaining provisions of this chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases had been declared invalid or unconstitutional.

11.64.150 Chapter supersedes existing laws and regulations

The provisions of this chapter shall supersede any conflicting law or regulations..

Section 2. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.

ORDINANCE NO. -N.S.

ADDING CHAPTER 11.64 TO THE BERKELEY MUNICIPAL CODE TO ADOPT A
SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That a new Chapter 11.64 is hereby added to the Berkeley Municipal Code to read as follows:

Chapter 11.64

SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

Sections:

- 11.64.010 Purposes
- 11.64.020 Definitions
- 11.64.030 Accessory disposable foodware items
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- 11.64.140 Severability
- 11.64.150 ~~Ordinance-Chapter~~ supersedes existing laws and regulations

11.64.010 Purposes.

The council finds and declares as follows:

- A. Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.

- B. The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources, and plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and are present in most of the world's oceans.
- C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health conditions.
- D. Food and beverage SUDs make up approximately 25% of all waste produced in California. In the Bay Area, food and beverage packaging comprises the majority of street litter, and is a significant contributor to the total amount of waste entering the City's waste stream.
- E. It is in the interest of the health, safety and welfare of all who live, work and do business in the City, that the amount of litter on public streets, parks and in other public places be reduced.
- F. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of single-use food and beverage packaging furthers this goal.
- G. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan as amended in 2017, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

11.64.020 Definitions.

- A. "Prepared Food" means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. Prepared Food does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed or raw uncooked meat products.
- B. "Takeout Food" means Prepared Food which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food carried out by the customer or delivered by a Prepared Food Vendor or by a Takeout Food Delivery Service.

- C. "Prepared Food Vendor" means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113930 and as amended), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.
- D. "Disposable Foodware" means all containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any other items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.
- E. "Disposable Cup" is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks, alcoholic beverages and other drinks.
- F. "Accessory Disposable Foodware Item" means any Disposable Foodware item such as straws, stirrers, napkins and utensils; condiment cups and packets; cup sleeves, tops, lids, and spill plugs; and other similar accessory or accompanying Disposable Foodware items used as part of food or beverage service or packaging.
- G. "Reusable Foodware" means all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, condiment cups and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.
- H. "Takeout Food Delivery Service" is a third party delivery service which picks up Takeout Food from a Prepared Food Vendor and delivers it to the customer for consumption off the premises.

11.64.030 Accessory Disposable Foodware Items

- A. Accessory Disposable Foodware items shall be provided only upon request by the customer or at self-serve stations, except that Disposable Cups for delivery by a Prepared Food Vendor or a Takeout Food Delivery Service may include tops, spill plugs and sleeves without request.

- B. Prepared Food Vendors and Takeout Food Delivery Services must provide options for customers to affirmatively request Accessory Disposable Foodware Items separate from orders for food and beverages across all ordering/point of sale platforms, including but not limited to web, smart phone and other digital platforms, telephone and in-person.
- C. Prepared Food Vendors that customarily offer straws are encouraged to maintain a small supply of plastic-type straws which meet the Disposable Foodware Standards set forth in ~~section~~Section 11.64.070, which may be provided to customers upon specific request for a "plastic" straw.
- D. Prepared Food Vendors offering condiments are encouraged to use dispensers rather than pre-packaged disposable condiment packets.

11.64.040 Reusable Customer Cups

- A. Customers may provide their own Reusable Foodware cups for beverage service in accordance with California State Health Code 114075(e) and as amended. Prepared Food Vendors may refuse, at their sole discretion, any customer-provided Reusable Foodware cup that is cracked, chipped or corroded, appears inappropriate in size, material, or condition for the intended beverage, or that appears to be excessively soiled or unsanitary, and instead require use of a Reusable Foodware cup for a beverage consumed on the premises, or a Disposable Cup for a beverage to be consumed off the premises, with any charge required pursuant to ~~section~~Section 11.64.050.D.

11.64.050 Compostable Disposable Foodware

Effective January 1, 2020:

- A. Takeout Food shall only be served in Disposable Foodware that conforms to the Disposable Foodware Standards ~~at in section~~Section 11.64.070.
- B. Accessory Disposable Foodware Items shall conform with the Disposable Foodware Standards ~~at in~~ 11.64.070.
- C. Takeout Food Delivery Services shall only deliver Takeout Food from a Prepared Food Vendor that is served in Disposable Foodware and with Accessory Disposable Foodware Items, if any, that conform to the Disposable Foodware Standards ~~at in~~ 11.64.070.
- D. Prepared Food Vendors shall charge customers twenty five cents (\$0.25) for every Disposable Cup provided.
 - a-1. Income from the Disposable Cup charge shall be retained by the Prepared Food Vendor for use in its discretion.

b-2. _____ All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children (WIC) pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code and as amended, or an electronic benefit transfer card (EBT) issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the Disposable Cup charge.

e-3. _____ Charges for Disposable Cups shall be identified separately on menus, ordering platforms and menu boards and on any receipt provided to the customer. Customers placing orders by telephone shall be informed verbally of Disposable Cup charges.

E. Notwithstanding the requirements at ~~section~~ Sections 11.64.050, ~~subsections (A)-(C)~~, a Prepared Food Vendor may request a waiver or waivers pursuant to ~~section~~ Section 11.64.090 for specific Disposable Foodware items. To obtain a waiver for a Disposable Foodware item, the Prepared Food Vendor must demonstrate that:

a-1. _____ No Disposable Foodware item exists with substantially similar size, performance and/or utility that conforms with the Disposable Foodware Standards ~~at in s~~ Section 11.64.070 or, if such an item exists, that costs of using such item would cause undue financial hardship, and;

b-2. _____ The non-conforming Disposable Foodware item to be used in lieu of a conforming item is recyclable in the City of Berkeley recyclable collection program.

e-3. _____ The Prepared Food Vendor must provide documentation of efforts to obtain a substantially similar compliant item at a non-prohibitive price.

d-4. _____ Records of attempts to obtain a compliant item shall include:

i.a. _____ Emails, letters or other correspondence with two or more vendors that furnish Compostable Disposable Foodware, seeking the compliant item.

ii.b. _____ Responses from such Compostable Disposable Foodware vendors including, where applicable, specifications and pricing for such item.

iii.c. _____ Specifications and pricing for the recyclable non-conforming item sought to be used, demonstrating its substantial superiority and/or affordability, and

iv.d. _____ Any other records which demonstrate a good faith effort to comply with Disposable Foodware Standards for such item.

e.5. _____ Reasonable added cost for a conforming item as compared to a substantially similar recyclable non-conforming item shall not by itself constitute adequate grounds to support a waiver for such item.

11.64.060 Reusable Foodware for Dining on the Premises (i.e. "Eating-in")
Effective July 1, 2020:

- A. Prepared Food served for consumption on the premises of a Prepared Food Vendor shall only be served using Reusable Foodware, except that disposable paper food wrappers, foil wrappers, paper napkins, straws and paper tray- and plate-liners shall be allowed for dining on the premises, so long as they meet the Disposable Foodware Standards in section~~Section~~ 11.64.070.
- B. Notwithstanding the requirements at section~~Section~~ 11.64.060_(A), Prepared Food Vendors that do not have on-site or off-site dishwashing capacity or are unable to contract for services to wash, rinse and sanitize Reusable Foodware in compliance with the California Health Code may request a waiver or partial waiver pursuant to Section 11.64.090. To obtain a waiver, the Prepared Food Vendor must demonstrate inability to comply due to insurmountable space constraints and/or undue financial hardship.
- C. All Disposable Foodware used on the premises by Prepared Food Vendors that are operating under full or partial waivers obtained pursuant to 11.64.090 shall conform to the Disposable Foodware Standards in Section 11.64.070.
- D. Zoning permits and Business Licenses for Prepared Food Vendors applied for, renewed and/or deemed complete on or after the effective date of this ordinance ~~January 1, 2019~~ shall only be granted to Prepared Food Vendors that demonstrate compliance with section 11.64.060_(A). Installation and/or maintenance of appropriate dishwashing capacity in conformance with section 11.64.060_(A) shall be included as a specific condition of approval for such permits and licenses.

11.64.070 Disposable Foodware Standards

- A. Disposable Foodware must be accepted by City of Berkeley municipal compost collection programs and be free of all intentionally added fluorinated chemicals, as certified by the Biodegradable Product Institute or other independent third party certifying organization or agency recognized by the City, except that non-

compostable foil wrappers that are accepted in the City of Berkeley recyclable collection program may be used for burritos, wraps, and other items that require foil to contain and form the food item.

- B. The City shall maintain on its website a list of suppliers that offer Disposable Foodware that complies with these Disposable Foodware Standards.
- C. Changes, if any, to Disposable Foodware Standards shall become effective on January 1 of each calendar year, and the City of Berkeley shall provide notice of any such changes to Prepared Food Vendors at least 90 days prior.

11.64.080 Separate Disposable Foodware Waste Receptacles

All Prepared Food Vendors, except Full Service Restaurants as defined in Chapter 23F.04 of the Berkeley Municipal Code, must provide at least one easily accessed receptacle each for discarded items to be composted or recycled, and, if needed, to be landfilled or otherwise wasted.

- A. To the extent possible given space constraints, all three receptacles should be placed together in the same location.
- B. The City shall identify materials accepted for each collection program on the City's website, and signage must be posted on and/or above each receptacle, indicating the materials to be deposited into such receptacle. Receptacles and signage shall be color-coded as follows:
 - a.1. _____ Blue for recyclables
 - b.2. _____ Green for compostables
 - c.3. _____ Black or gray for items to be landfilled or otherwise wasted
- C. Prepared Food Vendors that share premises may share receptacles.

11.64.090 Waivers

- A. The City Manager shall prescribe and adopt rules, regulations and forms for Prepared Food Vendors to obtain full or partial waivers from any requirement of this ordinance that is explicitly subject to waiver.
- B. Waivers shall be granted by the City Manager or his or her agents, based upon documentation provided by the applicant and, at the City Manager's discretion, independent verification, including site visits.
- C. The City Manager or his or her agents shall act on a waiver application no later than 180 days after receipt of such application, including mailing written

notification of the City Manager's decision to the address supplied by the applicant.

- D. Waivers may be granted for a specified period of up to two (2) years. During the waiver period, the Prepared Food Vendor shall make diligent efforts to become compliant.
- E. Under extraordinary circumstances, should a Prepared Food Vendor demonstrate that, at the close of a granted waiver period, and with diligent efforts to become compliant, compliance remains infeasible, additional waivers of up to two (2) years each may be granted. It shall be the Prepared Food Vendor's responsibility to apply for any subsequent waivers in a timely manner.

11.64.100 Regulations applicable to all Prepared Food Vendors

- A. Each Prepared Food Vendor shall maintain written records evidencing compliance with this Chapter.
- B. All records required by this Chapter shall be made available for inspection by the City Manager or his or her designated representative. It shall be unlawful for anyone having custody of such records to fail or refuse to produce such records upon request by the City Manager or his or her designated representative.
- C. All charges collected by the Prepared Food Vendor pursuant to ~~section~~Section 11.64.050 of this Chapter and retained by the Prepared Food Vendor may be used only for the following purposes:
 - a.1. _____ Costs associated with complying with the requirements of this Chapter.
 - b.2. _____ Actual costs of labor, equipment and materials for washing Reusable Foodware and providing customers with Reusable Foodware; costs of providing customers with compliant compostable Disposable Foodware; costs for reducing litter; and other costs associated with reducing the use of Disposable Foodware and litter.
 - c.3. _____ Costs associated with a store's educational materials or educational campaign for reducing and/or encouraging the reduction of Disposable Foodware and litter.
 - d.4. _____ Costs associated with supplying customers with Reusable Foodware for Takeout Food that can be returned to the business for washing or as part of a City-wide system of Reusable Foodware for Takeout Food.

11.64.110 Duties responsibilities and authority of the City of Berkeley City Manager's Powers

The City Manager shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this chapter and is hereby authorized to take any

and all actions reasonable and necessary to enforce this chapter including, but not limited to, inspecting any Prepared Food Vendor's premises to verify compliance.

- A. In June of 2021 the City shall report to the City Council on progress towards full implementation of and compliance with this ordinance.

11.64.120 City of Berkeley: purchases prohibited

The City of Berkeley shall not purchase any Disposable Foodware that does not comply with the Disposable Foodware Standards at in Section 11.64.070, nor shall any City-sponsored event utilize non-compliant Disposable Foodware.

11.64.130 Liability and Enforcement

- A. Anyone violating or failing to comply with any requirement of this chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however, no administrative citation may be issued or infraction charged for violation of a requirement of this chapter until one year after the effective date of such requirement.
- B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to Section 11.64.090.
- C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this chapter.
- D. The remedies and penalties provided in this section are cumulative and not exclusive.

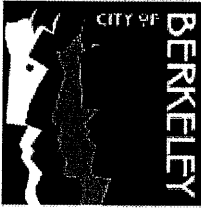
11.64.140 Severability

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the proscribed application thereof, shall be severable, and the remaining provisions of this chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases had been declared invalid or unconstitutional. If any part or provision of this chapter or the application thereof to any person or circumstance is held invalid, the remainder of the chapter, including the application of such part or provision to other persons or circumstances, shall not be affected thereby and shall continue in full force and effect. To this end, provisions of this chapter are severable.

11.64.150 Ordinance Chapter supersedes existing laws and regulations

The provisions of this chapter shall supersede any conflicting law or regulations restricting the use of polystyrene foam.

Section 2. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.



Berkeley City Council, District 5
2180 Milvia Street, 5th Floor
Berkeley, CA 94704
(510) 981-7150
shahn@cityofberkeley.info

ACTION CALENDAR

January 22, 2019

(Continued from December 11, 2018)

To: Honorable Mayor and Members of the City Council
From: Councilmember Sophie Hahn and Mayor Jesse Arreguín
Subject: Single Use Disposable Foodware and Litter Reduction Ordinance

RECOMMENDATION

1. Adopt a first reading of the Single Use Foodware and Litter Reduction Ordinance.
2. Refer to the City Manager to:
 - a. Establish a mini-grant program administered and funded either directly by the City or by community partners to help Prepared Food Vendors with one-time costs associated with conversion to Reusable Foodware for eating on the premises ("eating-in"), to be launched by January 1, 2020 (six months before the date Reusable Foodware requirements become effective).
 - b. Establish a program administered and funded either directly by the City or by community partners to provide technical assistance to Prepared Food Vendors implementing the Single Use Foodware Ordinance, on a free or sliding-scale fee basis, to be launched by July 1, 2019.
 - c. Create a Reusable Takeout Foodware program for launch July 1, 2021, in collaboration with community partners such as the Ecology Center, Rethink Disposables and StopWaste
 - d. Draft for approval amendments to the Single Use Foodware and Litter Reduction Ordinance to implement the Reusable Takeout Foodware program as an alternative to Compostable Takeout Foodware, and impose a charge, similar to or the same as the Disposable Cup charge, on other Disposable Foodware containers.
 - e. Create a program to expand and support composting, to ensure Single Use Disposable Foodware is actually composted.
3. Refer to the City Manager to determine funding and staffing needs and sources of funds for each program/phase, and submit funding allocations or requests to the budget process.

FINANCIAL IMPLICATIONS

Reducing use and disposal of products that make up the majority of Berkeley's street and storm-drain litter has the potential to significantly lower City expenses including costs related to collection of debris from over 400 city trash receptacles, from clearing of clogged stormwater intakes city-wide, and from daily street sweeping and litter management. Even for "recyclable" items that are properly placed in a recycling bin, these items are costly to sort and process and have limited markets resulting in additional costs to the City. Many of these items result in contamination to the composting program which increase the cost of composting.

Staff time will be required to launch programs related to the Single Use Foodware and Litter Reduction Ordinance. Some programs and services may be provided by community partners at relatively low cost. Once launched, staff time for administration and enforcement of the Ordinance will be limited.

Costs, sources of funding and community partnerships to be determined by the City Manager.

BACKGROUND

Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions. The use of disposable foodware has grown exponentially over the past few decades. Because the environmental costs of these products is largely hidden to the business operator and consumer, little attention is paid to the quantity of packaging consumed and quickly thrown away. Reducing the use of SUDs in the City of Berkeley is a key strategy to achieve the City's Zero Waste and Climate Action goals, and to address the many environmental impacts and costs associated with the use and disposal of single-use foodware and packaging. SUDs often become litter therefore minimizing their use will assist the City with achieving stormwater program requirements and could reduce costs for maintenance of full trash capture devices that the City has installed in stormdrains.

Environmental Impacts of Single-Use Disposables

The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources. It is a major component of litter on streets and in waterways, and of the plastic polluting our air, food, drinking water and oceans.

- Food and beverage SUDs make up approximately 25% of all waste produced in California.¹
- Bay Area litter studies have found that food and beverage packaging comprises the majority of street litter.²
- Without dramatic systems change, by 2050, there will be more plastic in the ocean than fish.³
- Based on Berkeley's population of approximately 120,000 people, it is estimated that almost 40 million single use cups are used in the City of Berkeley every year.

Most SUDs are used for just a few minutes before becoming waste, while most are made to last for hundreds and even thousands of years, and have broad, long-lasting negative impacts. Plastics in waterways and oceans break down into smaller pieces (but do not biodegrade) and are present in most of the world's oceans, at all levels (surface, water column, and bottom).⁴

Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater⁵, which can transfer to fish, other seafood, and salt that is eventually sold for human consumption.⁶ Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health effects including kidney and testicular cancer, thyroid disruption, delayed puberty and obesity.⁷

Strategies to Regulate SUDs

Alameda County implemented its reusable bag ordinance in January 2013, and has seen dramatic results. Countywide, bag purchases by affected retail stores have declined by 85 percent. The number of shoppers bringing a reusable bag to affected stores, or not using a bag at all, has more than doubled during this time⁸. Globally, a number of strategies have been implemented to reduce the use of SUDs. Charges for

¹ <https://www.wastedive.com/news/are-the-packaging-wars-coming-to-california/508491/>

² See Clean Water Action's "Taking out the Trash" Bay Area Litter study (2011) http://www.cleanwateraction.org/files/publications/ca/Curr_CA_12%2012%2011final.pdf; California Coastal Cleanup Results 1989-2014 showing Food and Beverage packaging items are 7 out of the top 10 items collected and account for 34% of the total trash - <https://www.coastal.ca.gov/publiced/ccd/history.html#top10>; BanList 2.0 shows food and beverage packaging items are 74% of top 20 littered items among 6 different beach cleanup datasets- <https://upstreampolicy.org/ban-list-20>

³ Ellen MacArthur Foundation (2016)

⁴ D. Barnes et al, 2009, *Accumulation and fragmentation of plastic debris in global environments*, Phil. Trans. R. Soc. B., 364-1985-98.

⁵ Rochman, C.M., et al., 2013, Long-Term Field Measurement of Sorption of Organic Contaminants to Five Types of Plastic Pellets: Implications for Plastic Marine Debris. *Environmental Science and Technology*. 47, 1646-1654.

⁶ Rochman C Met al, 2015a Anthropogenic debris in seafood: plastic debris and fibers from textiles in fish and bivalves sold for human consumption *Sci. Rep.* 5 14340.

⁷ In 2015, the FDA barred from use three such fluorinated chemicals from food contact materials due to safety risks associated with cancer, toxicity, and other health effects; other fluorinated chemicals have similar chemical structures and pose similar risk.

⁸ "Successful Results from Bag Ordinance", 2014, Alameda County Waste Management authority, <http://reusablebagsac.org/news/successful-results-bag-ordinance>

single-use plastic bags have proven to decrease plastic bag consumption. When Ireland instituted a “Plas-Tax” in 2002, equivalent to about 20 cents per bag, plastic bag use declined by 90% and litter from plastic bags declined by 40%⁹. Similar charges have been implemented in Taiwan, Washington D.C., and the United Kingdom, resulting in decreases in plastic bag use of up to 80%. A 2016 plastic bag ban in California reduced the number of plastic bags found on beaches by half.¹⁰ Studies have also shown that customers in areas with taxes on single use bags were more likely to use reusable bags.¹¹

There is growing support for reducing the use of other single use disposables. Ireland is considering banning single use coffee cups, with 50% of the population surveyed in support.¹² The European Union announced in 2018 that it is implementing a policy for all plastic packaging to be recyclable or reusable by 2030.¹³ Taiwan will be imposing charges for straws, plastic shopping bags, disposable utensils, and beverage cups by 2025, and will impose a complete ban on single-use plastic items, including straws, cups, and shopping bags, by 2030.¹⁴

Reducing SUDs in the City of Berkeley

The City of Berkeley has a long history of leadership in sustainability and environmental protections including the adoption of an ambitious Climate Action Plan in 2009, with a goal of achieving Zero Waste by 2020; the nation’s first curbside recycling program and styrofoam foodware ban; and one of the first commercial organics collection programs. The city reached a height of 78% waste diversion by AB 939 standards, and there has been a 50% reduction in solid waste disposal between 2000 to 2013¹⁵. Despite these achievements, Berkeley has not addressed the significant increase in takeout food packaging littering city streets, filling storm drains, requiring management in the waste stream, polluting our waterways, Bay and ocean, and threatening both human and animal health.

⁹ Mauro Anastasio and James Nix, Plastic Bag Levy in Ireland, Institute European Environmental Policy, 2016. <https://ieep.eu/uploads/articles/attachments/7f91cb97-8cb7-49c39cf0d34062a9192e/IE%20Plastic%20Bag%20Levy%20conference%20draft.pdf?v=63673818840>

¹⁰ <http://www.latimes.com/opinion/editorials/la-ed-plastic-bag-ban-anniversary-20171118-story.html>

¹¹ T. A. Homonoff, *Can Small Incentives Have Large Effects? The Impact of Taxes versus Bonuses on Disposable Bag Use* National Tax Association Proceedings, Princeton University- <http://ntanet.org/wp-content/uploads/proceedings/2012/008-homonoff-can-small-incentives-2012-nta-proceedings.pdf>

¹² <http://www.thejournal.ie/coffee-cups-poll-3642333-Oct2017/>

¹³ European Commission, EU Plastics Strategy-http://ec.europa.eu/environment/waste/plastic_waste.htm

¹⁴ “Taiwan to ban disposable plastic items by 2030,” February 22, 2108- <https://phys.org/news/2018-02-taiwan-disposable-plastic-items.html>

¹⁵ Berkeley Climate Action Plan: Tracking our Progress Waste Reduction & Recycling – Total Landfilled, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/PDF%20total%20landfilled%20final.pdf

In addition, SUDs are particularly costly and challenging to divert from landfill. Non-recyclable food and beverage packaging is costly to remove from the waste stream and reduces the quality and value of recyclables, while non-compostable food packaging (some of which is advertised as “biodegradable” or “made from plants” which misleads consumers to believe it is compostable) contaminates compost, adding costs and reducing the quality of compost¹⁶. With China’s recent rejection of mixed recycled plastic imports, the value of recyclable plastics has dropped sharply and the final destination for these plastic SUDs is uncertain. This adds significant costs to the City’s collection, sorting, and processing of compostables and recyclables. To reach its Zero Waste goals, the City must reduce use of single-use food and beverage packaging.

Thanks to the leadership of Berkeley’s Ecology Center, working closely with UpStream, Clean Water Action, the Clean Water Fund, Story of Stuff, Surfrider Foundation, GAIA (Global Alliance for Incinerator Alternatives), the Green Science Policy Institute, Excellent Packaging, and numerous active residents and volunteers, the City Council unanimously referred a proposed Single Use Disposable Foodware and Litter Reduction ordinance to the Zero Waste Commission on April 24, 2018.

The Zero Waste Commission was tasked with review of the proposed ordinance and the conduct of community meetings to gather feedback on the proposed ordinance, and make recommendations. Since that time, the Zero Waste Commission Foodware Subcommittee conducted 4 community meetings between June and September of 2018, and collected comments from over 60 restaurateurs, environmental advocates, members of the disability community, and other community members. Meetings were held on different days and times of the day, at locations throughout Berkeley, and were noticed to the restaurant and food service community with the help of the City’s Economic Development staff. The Commission analyzed comments received in writing and through public testimony, and on September 24, 2018 unanimously referred their findings to the City Council (Attachment 2).

In addition, Councilmember Hahn met on-site with the owners of three restaurants that expressed concerns about implementation of the proposed ordinance, reviewing their current practices and challenges. All three have already implemented important measures to reduce the use of harmful Single Use Disposables, and shared important insights.

Ordinance Elements

The attached ordinance (Attachment 1) incorporates many of the Zero Waste Commission’s recommendations and makes a number of changes to accommodate

¹⁶ Clean Water Action, *What’s in the Package?* 2016 <https://www.cleanwateraction.org/features/what%E2%80%99s-package>

concerns and questions that were discussed as part of the Commission's public process. Changes include:

- Phasing-in elements of the ordinance, to allow Prepared Food Vendors time to adjust practices.
- Opportunities for limited exemptions, based on demonstrated hardship or extraordinary circumstances.
- Establishment of mini-grant and technical assistance programs, to help Prepared Food Vendors transition to Reusable and Compostable Foodware.
- Elimination of charges for all Single Use Disposable Foodware, except for cups, pending establishment of a Reusable Takeout Foodware program.
- Addition of standards for Prepared Food Vendors to reject customer-supplied cups that appear inappropriate or unsanitary.
- Addition of a recommendation that Prepared Food Vendors customarily offering straws keep a supply of compostable bioplastic straws for use by individuals specifically requesting "plastic" straws.
- Enforcement with notice and opportunities to cure, either by adopting practices or obtaining a waiver, if warranted, prior to imposition of fines or other penalties.

City Manager Referral Components

To complement the roll out of the Single Use Disposable Foodware and Litter Reduction Ordinance, the Zero Waste Commission recommends a number of City-sponsored programs to support implementation of the Ordinance's requirements, including:

- A mini-grant program to help cover one-time costs associated with the transition to Reusable Foodware for on-site dining;
- Technical assistance to support implementation of ordinance requirements.

Both programs must be operative by June 2019, six months before the key elements of the ordinance take effect.

It is incumbent upon the City to further expand composting resources – potentially including compost receptacles - for residents and customers. Many restaurants do provide composting receptacles in-store currently, but many residential countertop kitchen pails are too small to accommodate a significant increase in compostable foodware which is expected with widespread adoption of the Single Use Foodware and Litter Reduction Ordinance. The expansion of composting collection efforts also supports the goals and requirements of AB1826 and SB1383 to divert organics from the landfill. .

ENVIRONMENTAL SUSTAINABILITY

The production, consumption and disposal of single use food and beverage packaging is a major contributor to litter in our streets, plastic in landfills, pollution in waterways and oceans, GHG emissions, and harm to wildlife. This environmental ordinance represent a huge step forward in reducing the use of disposable foodware in Berkeley, fulfilling Berkeley's Zero Waste and Climate Action Goals, reducing greenhouse gas emissions 80% by 2050, and meeting State trash load level mandates.

CONTACT PERSON

Councilmember Sophie Hahn, District 5, (510) 981-7150
Mayor Jesse Arreguín, (510) 981-7100

Attachments

1. Single Use Foodware and Litter Reduction Ordinance, amended to incorporate Zero Waste Commission recommendations
2. Zero Waste Commission recommendations to City Council, September 24, 2018
3. Referral to the Zero Waste Commission: Berkeley Single Use Foodware and Litter Reduction Ordinance, April 24, 2018

ORDINANCE NO. -N.S.

ADDING CHAPTER 11.64 TO THE BERKELEY MUNICIPAL CODE TO ADOPT A
SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That a new Chapter 11.64 is hereby added to the Berkeley Municipal Code to read as follows:

Chapter 11.64

SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

Sections:

- 11.64.010 Purposes
- 11.64.020 Definitions
- 11.64.030 Accessory disposable foodware items
- 11.64.040 Reusable customer cups
- 11.64.050 Compostable disposable foodware
- 11.64.060 Reusable foodware for dining on the premises
- 11.64.070 Disposable foodware standards
- 11.64.080 Separate disposable foodware waste receptacles
- 11.64.090 Waivers
- 11.64.100 Regulations applicable to all food vendors
- 11.64.110 Duties responsibilities and authority of the City of Berkeley
- 11.64.120 City of Berkeley: purchases prohibited
- 11.64.130 Liability and enforcement
- 11.64.140 Severability
- 11.64.150 Ordinance supersedes existing laws and regulations

11.64.010 Purposes.

The council finds and declares as follows:

- A. Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.

- B. The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources, and plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and are present in most of the world's oceans.
- C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health conditions.
- D. Food and beverage SUDs make up approximately 25% of all waste produced in California. In the Bay Area, food and beverage packaging comprises the majority of street litter, and is a significant contributor to the total amount of waste entering the City's waste stream.
- E. It is in the interest of the health, safety and welfare of all who live, work and do business in the City, that the amount of litter on public streets, parks and in other public places be reduced.
- F. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of single-use food and beverage packaging furthers this goal.
- G. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan as amended in 2017, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

11.64.020 Definitions.

- A. "Prepared Food" means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. Prepared Food does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed or raw uncooked meat products.
- B. "Takeout Food" means Prepared Food which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food carried out by the customer or delivered by a Prepared Food Vendor or by a Takeout Food Delivery Service.

- C. "Prepared Food Vendor" means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113930), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.
- D. "Disposable Foodware" means all containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any other items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.
- E. "Disposable Cup" is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks, alcoholic beverages and other drinks.
- F. "Accessory Disposable Foodware Item" means any Disposable Foodware item such as straws, stirrers, napkins and utensils; condiment cups and packets; cup sleeves, tops, lids, and spill plugs; and other similar accessory or accompanying Disposable Foodware items used as part of food or beverage service or packaging.
- G. "Reusable Foodware" means all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, condiment cups and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.
- H. "Takeout Food Delivery Service" is a third party delivery service which picks up Takeout Food from a Prepared Food Vendor and delivers it to the customer for consumption off the premises.

11.64.030 Accessory Disposable Foodware Items

- A. Accessory Disposable Foodware items shall be provided only upon request by the customer or at self-serve stations, except that Disposable Cups for delivery by a Prepared Food Vendor or a Takeout Food Delivery Service may include tops, spill plugs and sleeves without request.

- B. Prepared Food Vendors and Takeout Food Delivery Services must provide options for customers to affirmatively request Accessory Disposable Foodware Items separate from orders for food and beverages across all ordering/point of sale platforms, including but not limited to web, smart phone and other digital platforms, telephone and in-person.
- C. Prepared Food Vendors that customarily offer straws are encouraged to maintain a small supply of plastic-type straws which meet the Disposable Foodware Standards set forth in section 11.64.070, which may be provided to customers upon specific request for a "plastic" straw.
- D. Prepared Food Vendors offering condiments are encouraged to use dispensers rather than pre-packaged disposable condiment packets.

11.64.040 Reusable Customer Cups

- A. Customers may provide their own Reusable Foodware cups for beverage service in accordance with California State Health Code 114075(e). Prepared Food Vendors may refuse, at their sole discretion, any customer-provided Reusable Foodware cup that is cracked, chipped or corroded, appears inappropriate in size, material, or condition for the intended beverage, or that appears to be excessively soiled or unsanitary, and instead require use of a Reusable Foodware cup for a beverage consumed on the premises, or a Disposable Cup for a beverage to be consumed off the premises, with any charge required pursuant to section 11.64.050.D.

11.64.050 Compostable Disposable Foodware

Effective January 1, 2020:

- A. Takeout Food shall only be served in Disposable Foodware that conforms to the Disposable Foodware Standards at section 11.64.070.
- B. Accessory Disposable Foodware Items shall conform with the Disposable Foodware Standards at 11.64.070.
- C. Takeout Food Delivery Services shall only deliver Takeout Food from a Prepared Food Vendor that is served in Disposable Foodware and with Accessory Disposable Foodware Items, if any, that conform to the Disposable Foodware Standards at 11.64.070.
- D. Prepared Food Vendors shall charge customers twenty five cents (\$0.25) for every Disposable Cup provided.
 - a. Income from the Disposable Cup charge shall be retained by the Prepared Food Vendor.

- b. All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children (WIC) pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code, or an electronic benefit transfer card (EBT) issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the Disposable Cup charge.
 - c. Charges for Disposable Cups shall be identified separately on menus, ordering platforms and menu boards and on any receipt provided to the customer. Customers placing orders by telephone shall be informed verbally of Disposable Cup charges.
- E. Notwithstanding the requirements at sections 11.64.050(A)-(C), a Prepared Food Vendor may request a waiver or waivers pursuant to section 11.64.090 for specific Disposable Foodware items. To obtain a waiver for a Disposable Foodware item, the Prepared Food Vendor must demonstrate that:
- a. No Disposable Foodware item exists with substantially similar size, performance and/or utility that conforms with the Disposable Foodware Standards at section 11.64.070 or, if such an item exists, that costs of using such item would cause undue financial hardship, and;
 - b. The non-conforming Disposable Foodware item to be used in lieu of a conforming item is recyclable in the City of Berkeley recyclable collection program.
 - c. The Prepared Food Vendor must provide documentation of efforts to obtain a substantially similar compliant item at a non-prohibitive price.
 - d. Records of attempts to obtain a compliant item shall include:
 - i. Emails, letters or other correspondence with two or more vendors that furnish Compostable Disposable Foodware, seeking the compliant item.
 - ii. Responses from such Compostable Disposable Foodware vendors including, where applicable, specifications and pricing for such item.
 - iii. Specifications and pricing for the recyclable non-conforming item sought to be used, demonstrating its substantial superiority and/or affordability, and
 - iv. Any other records which demonstrate a good faith effort to comply with Disposable Foodware Standards for such item.

- e. Reasonable added cost for a conforming item as compared to a substantially similar recyclable non-conforming item shall not by itself constitute adequate grounds to support a waiver for such item.

11.64.060 Reusable Foodware for Dining on the Premises (i.e. "Eating-in")

Effective July 1, 2020:

- A. Prepared Food served for consumption on the premises of a Prepared Food Vendor shall only be served using Reusable Foodware, except that disposable paper food wrappers, foil wrappers, paper napkins, straws and paper tray- and plate-liners shall be allowed for dining on the premises, so long as they meet the Disposable Foodware Standards in section 11.64.070.
- B. Notwithstanding the requirements at section 11.64.060(A), Prepared Food Vendors that do not have on-site or off-site dishwashing capacity or are unable to contract for services to wash, rinse and sanitize Reusable Foodware in compliance with the California Health Code may request a waiver or partial waiver pursuant to 11.64.090. To obtain a waiver, the Prepared Food Vendor must demonstrate inability to comply due to insurmountable space constraints and/or undue financial hardship.
- C. All Disposable Foodware used on the premises by Prepared Food Vendors that are operating under full or partial waivers obtained pursuant to 11.64.090 shall conform to the Disposable Foodware Standards in 11.64.070.
- D. Zoning permits and Business Licenses for Prepared Food Vendors applied for, renewed and/or deemed complete on or after January 1, 2019 shall only be granted to Prepared Food Vendors that demonstrate compliance with section 11.64.060(A). Installation and/or maintenance of appropriate dishwashing capacity in conformance with section 11.64.060(A) shall be included as a specific condition of approval for such permits and licenses.

11.64.070 Disposable Foodware Standards

- A. Disposable Foodware must be accepted by City of Berkeley municipal compost collection programs and be free of all intentionally added fluorinated chemicals, as certified by the Biodegradable Product Institute or other independent third party certifying organization or agency recognized by the City, except that non-compostable foil wrappers that are accepted in the City of Berkeley recyclable collection program may be used for burritos, wraps, and other items that require foil to contain and form the food item.

- B. The City shall maintain on its website a list of suppliers that offer Disposable Foodware that complies with these Disposable Foodware Standards.
- C. Changes, if any, to Disposable Foodware Standards shall become effective on January 1 of each calendar year, and the City of Berkeley shall provide notice of any such changes to Prepared Food Vendors at least 90 days prior.

11.64.080 Separate Disposable Foodware Waste Receptacles

All Prepared Food Vendors, except Full Service Restaurants as defined in Chapter 23F.04 of the Berkeley Municipal Code, must provide at least one easily accessed receptacle each for discarded items to be composted or recycled, and, if needed, to be landfilled or otherwise wasted.

- A. To the extent possible given space constraints, all three receptacles should be placed together in the same location.
- B. The City shall identify materials accepted for each collection program on the City's website, and signage must be posted on and/or above each receptacle, indicating the materials to be deposited into such receptacle. Receptacles and signage shall be color-coded as follows:
 - a. Blue for recyclables
 - b. Green for compostables
 - c. Black or gray for items to be landfilled or otherwise wasted
- C. Prepared Food Vendors that share premises may share receptacles.

11.64.090 Waivers

- A. The City Manager shall prescribe and adopt rules, regulations and forms for Prepared Food Vendors to obtain full or partial waivers from any requirement of this ordinance that is explicitly subject to waiver.
- B. Waivers shall be granted by the City Manager or his or her agents, based upon documentation provided by the applicant and, at the City Manager's discretion, independent verification, including site visits.
- C. The City Manager or his or her agents shall act on a waiver application no later than 180 days after receipt of such application, including mailing written notification of the City Manager's decision to the address supplied by the applicant.
- D. Waivers may be granted for a specified period of up to two (2) years. During the waiver period, the Prepared Food Vendor shall make diligent efforts to become compliant.

- E. Under extraordinary circumstances, should a Prepared Food Vendor demonstrate that, at the close of a granted waiver period, and with diligent efforts to become compliant, compliance remains infeasible, additional waivers of up to two (2) years each may be granted. It shall be the Prepared Food Vendor's responsibility to apply for any subsequent waivers in a timely manner.

11.64.100 Regulations applicable to all Prepared Food Vendors

- A. Each Prepared Food Vendor shall maintain written records evidencing compliance with this Chapter.
- B. All records required by this Chapter shall be made available for inspection by the City Manager or his or her designated representative. It shall be unlawful for anyone having custody of such records to fail or refuse to produce such records upon request by the City Manager or his or her designated representative.
- C. All charges collected by the Prepared Food Vendor pursuant to section 11.64.050 of this Chapter and retained by the Prepared Food Vendor may be used only for the following purposes:
 - a. Costs associated with complying with the requirements of this Chapter.
 - b. Actual costs of labor, equipment and materials for washing Reusable Foodware and providing customers with Reusable Foodware; costs of providing customers with compliant compostable Disposable Foodware; costs for reducing litter; and other costs associated with reducing the use of Disposable Foodware and litter.
 - c. Costs associated with a store's educational materials or educational campaign for reducing and/or encouraging the reduction of Disposable Foodware and litter.
 - d. Costs associated with supplying customers with Reusable Foodware for Takeout Food that can be returned to the business for washing or as part of a City-wide system of Reusable Foodware for Takeout Food.

11.64.110 City Manager's Powers

- A. The City Manager shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this chapter and is hereby authorized to take any and all actions reasonable and necessary to enforce this chapter including, but not limited to, inspecting any Prepared Food Vendor's premises to verify compliance.
- B. In June of 2021 the City shall report to the City Council on progress towards full implementation of and compliance with this ordinance.

11.64.120 City of Berkeley: purchases prohibited

The City of Berkeley shall not purchase any Disposable Foodware that does not comply with the Disposable Foodware Standards at Section 11.64.070, nor shall any City-sponsored event utilize non-compliant Disposable Foodware.

11.64.130 Enforcement

- A. Anyone violating or failing to comply with any requirement of this chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however, no administrative citation may be issued or infraction charged for violation of a requirement of this chapter until one year after the effective date of such requirement.
- B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to 11.64.090.
- C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this chapter.
- D. The remedies and penalties provided in this section are cumulative and not exclusive.

11.64.140 Severability

If any part or provision of this chapter or the application thereof to any person or circumstance is held invalid, the remainder of the chapter, including the application of such part or provision to other persons or circumstances, shall not be affected thereby and shall continue in full force and effect. To this end, provisions of this chapter are severable.

11.64.150 Ordinance supersedes existing laws and regulations

The provisions of this chapter shall supersede any conflicting law or regulation restricting the use of polystyrene foam.

Section 2. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.

Zero Waste Commission Recommendations for the proposed Berkeley Single Use Foodware and Litter Reduction Ordinance

Note that comments may not be verbatim, and that "recyclable" materials refer ONLY to those accepted in the City's Curbside Recycling Collection Program.

TOPIC: Requiring Durable/Reusable Foodware for DINING-IN

Comments received:

- Space concerns for installing washing machines/water usage/reusable ware
- Durable foodware poses a safety threat to employees if used as projectiles (comment from Top Dog)
- Labor costs to train and require employees to wash durable food ware

Based on the input received, the ZWC suggests Council consider the following possible adjustments to the proposed ordinance:

- Provide free technical assistance to help food establishments plan operations and equipment changes
- Provide small grants or loans to help defray the up-front costs of purchasing reusable foodware and re-configuring kitchens
- Allow private off-site washing/cleaning services to provide service in lieu of on-site cleaning.
- Exempt certain establishments from the 100% reusable requirement on a case-by-case basis, if they can prove it was impossible to implement all requirements due to unique considerations, so long as a good faith effort is made to do the most possible to achieve goals of ordinance.
- Compostable items used in any case where use of reusables are determined non-implementable by City.
- City-wide funded education program for businesses to transition to requirements of ordinance.
- Provide fact-sheet/FAQ for businesses

TOPIC: Collection and Documentation of SUD Charge-Added complexity/logistics

Comments Received:

- Multiple business owners expressed concern about how to implement the SUD charge.
- Need clarification on how to enter line item(s) for SUD charges? (Ex: Does a customer who orders a soup, salad, and sandwich need three SUD line items, each item to be documented?)
- Limited/low quality of labor and high cost of business makes this a real issue
- Many people do not request a receipt - is this non-compliant with ordinance requiring public notification of charge?

Based on the input received, the ZWC suggests Council consider the following possible adjustments to the proposed ordinance:

- Clarify requirements for reporting line-item charges on receipts (virtual or hardcopy)
- Provide fact-sheet/FAQ for businesses

TOPIC: Ordinance targets prepared/served food produced in-house for take-out, while exempting other waste generating food-serving establishments (ex: pre-packaged take-out food from grocery stores, coffee chains, movie theaters).

Comments:

- Food that is trucked in (examples: Trader Joe's salads, to-go prepared food at grocery stores, coffee chains) can be packed in any container with no fee, thus targeting small, local businesses.
- Similarly, will a fountain drink in a SUD is subject to a charge, but not a can of soda.
- Movie theaters do not have kitchens, cannot be expected to convert to reusables, request exemption from SUD charges.

Based on the input received, the ZWC suggests Council consider the following possible adjustments to the proposed ordinance:

- Phased approach to charge for take-out food ware, to ensure equity across businesses in Berkeley
- Examine ways to require compostable containers for prepared foods from other establishments besides those that produce food on-site for take-out (ex: grocery stores, coffee store chains)
- Include movie theaters for conversion to compostables if reusables are not possible.

TOPIC: Availability of alternative compostable containers to contain all foods for take-out.

Comments:

- No compostable containers exist that can hold items at 180F degrees
- No acceptable alternatives to plastic are currently available for all types of food condiments

Suggestion:

- Exempt items with no reasonable alternatives until acceptable/compliant items are available in the market Alternatives should be compostable or recyclable.
- City should work with recognized industry organizations for accepted standards of "best" items that comply with compostability and health concerns (ex: BPI) in order to develop approved list of compliant items

TOPIC: Ordinance does not ensure compostable/recyclable SUD items will end up in proper source-separated stream.

Comments:

- If SUDs are required to be compostable or recyclable, it is still likely these items will end up in landfill, based on consumer behavior and availability of recycle/compost collection containers. Suggest a focus on downstream user, as it is a known issue that waste streams are often poorly sorted.
- Overseas markets are no longer accepting our plastics, and they are harming the environment with litter and chemicals/degradation

Based on the input received, the ZWC suggests Council consider the following possible adjustments to the proposed ordinance:

- Funded City-wide program to educate consumers on proper sorting of waste and ordinance (FAQ)
- Improve collection through increased service and quantity of city bins in high-traffic food take-out establishments
- All items should be required to be compostable (no recyclable plastics), due to changing overseas markets
- Require customer-facing in-store compost bins for collection

TOPIC: Charges for take-out containers when consumers have no alternative to BYO (affects consumer)

Comments:

- Many restaurants are prohibited from in-house dining, and thus can only offer take out options.
- Results in customer complaints for being charged for take-out containers with no alternatives available.
- As customers have no choice, charge will not lead to a positive behavior change (*this issue is in contrast to the bag fee, where customers always have the choice to bring their own bags*).
- Take-out is an essential life factor for many customers.
- Punishing people for using such is regressive.
- Many businesses will not allow BYO take-out container to fill for sanitary concerns or health violations.
- With minimum wage increase, this ordinance would add just another increase in prices and be hard for consumers to swallow.
- Reusable cups brought in by customers have been relatively acceptable and exhibits positive behavior change
- Affects low-income stakeholders that may have no access to washing their BYO containers
- Incentives for discount for BYO instead of charges

Based on the input received, the ZWC suggests Council consider the following possible adjustments to the proposed ordinance:

- Create a guidance document and feasibility study on “Bring Your Own...”
- Develop a pilot program for standardized reusable to-go container system.
- Implement phased-approach to charge: phase one for hot beverage containers/lids, phase two later for food containers after analyzing results of phase one implementation and pilot program
- Assess impacts of any charge on low-income, transient stakeholders
- Consider incentives for BYO as part of overall ordinance strategy
- Clarify in the ordinance language that there is no requirement for businesses to charge additional fees for disposables; the SUD fee must simply be itemized. (i.e. if a business currently charges \$10 for a meal, they can still charge \$10, but they need to itemize on the receipt the \$9.75 for meal + \$.0.25 for the disposable container.)

TOPIC: BYO containers need to be acceptable to businesses for portion sizing and cleanliness/compliance with health codes. (affects Businesses)

Comments:

- Many restaurants are prohibited from in-house dining, and thus can only offer take out options.
- Results in customer complaints for being charged for take-out containers with no alternatives available.
- As customers have no choice, charge will not lead to a positive behavior change
- Will potentially drive customers to neighboring cities lacking such an ordinance (*in contrast to bag fee, where BYOB is available*).
- Cleanliness of BYO brought in by customers is an issue
- Consider incentives for BYO as part of overall ordinance strategy

Based on the input received, the ZWC suggests Council consider the following possible adjustments to the proposed ordinance:

- Work with local health code departments for clarity on acceptable containers
- Work with businesses to support conditions of BYO containers provided by customers (beverage containers)
- Establish City-wide reusable container program (funding likely necessary)
- Consider pilot-program for reusable container program
- Implement phased-approach to charge: phase one for hot beverage containers/lids, phase two later for food containers after analyzing results of phase one implementation and pilot program

TOPIC: Acceptable straws that meet ordinance requirements yet effectively serve disabled stakeholders.

Comments:

- Disabled community has been left out of conversation
- Disabled stakeholders need straws that will not degrade or pose a choking hazard
- Other stakeholders that are not disabled may need straws (children, older people)

Based on the input received, the ZWC suggests Council consider the following possible adjustments to the proposed ordinance:

- Assess and study best alternatives available that are deemed acceptable for the disabled community.
- Bio-Plastic certified compostable straws could be exempted for said special uses/stakeholders, with recommendation that businesses have them available and provided upon request.
- For general use, specify compostable paper straws only, on request or self-service
- Possible: City purchase of reusable silicone straws to be distributed by City through disabled groups, commission, and other sanctioned methods (City of Alameda).

Topic: Coordinate with existing laws/ordinances and seek support from the Alameda County Waste Management Authority (StopWaste).

Comments:

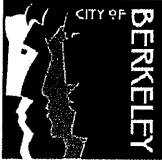
- Replace "Disposable Food Packaging" with "Disposable Foodware" (StopWaste)
- Waivers: What would a partial waiver include? What happens after 3 years? What constitutes "make every effort to become compliant"? What type of activities/efforts would the city consider? What types of thresholds would be considered allowable under "space constraints?" (StopWaste)
- Clarify language of ordinance, including waivers, time frame, space constraints, free of added Fluorinated Chemicals
- If "to go" meal is served in a compliant reusable bag, an additional minimum \$0.10 will need to be charged to comply with Ordinance 2016-2, which could increase total "Takeout Meal" charges to be greater than \$0.25. There is no charge for carryout food given to customers in compliant paper bags. (StopWaste)

Based on the input received, the ZWC suggests Council consider the following possible adjustments to the proposed ordinance:

- Coordinate with ACWMA (StopWaste) to ensure language is consistent with existing ordinances
- Examine best practices of local communities in County and cities bordering City.
- Review Bag Ban ordinance for compliance and consideration of charge amount.

The Commission recommends taking note of the following issues that should to be addressed:

- Recyclability of most “plastic” foodware
- Difficulty to tell the difference between compostable bio-plastic utensils and plastic utensils
- Importance of City-approved list for acceptable materials for take-out containers
- Which food waste-generating establishments are exempted (ex. theaters)
- No plastic ware should be accepted, in spite of language in current City Curbside Recycling Collection Program accepted materials, due to market instability and environmental concerns.
- Amount of proposed charge (\$0.20 v. \$0.25) to balance customer behavior change with businesses concerns of loss of sales due to minimum wage hike and proposed charge.



Berkeley City Council
2180 Milvia Street, 5th Floor
Berkeley, CA 94704

ACTION CALENDAR

April 24, 2018

To: Honorable Mayor and Members of the City Council

From: Councilmember Sophie Hahn and Mayor Jesse Arreguin, and
Councilmembers Linda Maio and Susan Wengraf

Subject: Referral to the Zero Waste Commission:
Berkeley Single Use Foodware and Litter Reduction Ordinance

RECOMMENDATION

1. Refer the proposed Berkeley Single Use Foodware and Litter Reduction Ordinance to the Zero Waste Commission to invite input from key stakeholders, including restaurants and other food retailers and zero waste, plastics, oceans and other environmental experts, and hold public meetings to obtain input on the proposed Ordinance.
2. Refer to the Zero Waste Commission to report back to the City Council results of the Commission's community outreach and analysis, and provide recommendations for improvements to the proposed Berkeley Single Use Foodware and Litter Reduction Ordinance.

FINANCIAL IMPLICATIONS

The only added cost of the referral, beyond normal staff time to support the Zero Waste Commission's review of the proposed ordinance, is potential staffing of one or more community meetings to obtain stakeholder and other public input.

Reducing use and disposal of products that make up the majority of Berkeley's street and storm-drain litter has the potential to significantly lower City expenses including costs related to collection of debris from over 400 city trash receptacles, from clearing of clogged stormwater intakes city-wide, and from daily street sweeping and litter management.

BACKGROUND

Single use disposable foodware and packaging (SUDs) - including plastic bottles, caps, lids, straws, cups, and containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions. The use of disposable foodware has grown exponentially over the past few decades. The practice of providing food and beverage packaging free of charge fails to incorporate the environmental and social costs of these products into the price of food and beverage service. As a result, customers and food business operators pay little attention to the quantity of single use packaging products consumed and quickly thrown away. Reducing the use of SUDs in the City of Berkeley is a key strategy to achieve the City's Zero Waste and Climate Action goals, and to address the many

environmental impacts and costs associated with the use and disposal of single-use foodware and packaging.

Environmental Impacts of Single-Use Disposables

The production, consumption, and disposal of SUDs contributes significantly to the depletion of natural resources. It is a major component of litter on streets and in waterways, and of the plastic polluting our air, food, drinking water and oceans.

- Food and beverage SUDs make up approximately 25% of all waste produced in California¹
- Bay Area litter studies have found that food and beverage packaging comprises the majority of street litter, half of which comes from fast food and take-out food establishments²
- Eighty percent of marine plastic pollution originates from trash in urban runoff³
- In the year 2000, half of all plastic packaging in the UK was comprised of SUDs⁴
- Nearly 700 species of marine wildlife are impacted by ingestion and entanglement of plastics, causing starvation, disease, and death⁵
- Without dramatic systems change, by 2050, there will be more plastic in the ocean than fish⁶
- Based on Berkeley's population of approximately 120,000 people, it is estimated that almost 40 million single use cups are used in the City of Berkeley every year
- Paper cups alone generate 2.2 billion pounds of waste per year nationwide, consuming over 11 million trees, resulting in 4 billion pounds of carbon dioxide emissions, and requiring the consumption of 35 billion gallons of water to manufacture⁷

Most SUDs are used for just a few minutes before becoming waste, while the plastics many are made of last for hundreds and even thousands of years, and have broad, long-lasting negative impacts. Plastics in waterways and oceans break down into smaller pieces (but do not biodegrade) and are present in most of the world's oceans, at all levels (surface, water column, and bottom).⁸ Among other hazards, plastic debris attracts and concentrates ambient pollutants

¹ <https://www.wastedive.com/news/are-the-packaging-wars-coming-to-california/508491/>

² See Clean Water Action's "Taking out the Trash" Bay Area Litter study (2011) http://www.cleanwateraction.org/files/publications/ca/Curr_CA_12%2012%2011final.pdf; California Coastal Cleanup Results 1989-2014 showing Food and Beverage packaging items are 7 out of the top 10 items collected and account for 34% of the total trash - <https://www.coastal.ca.gov/publiced/ccd/history.html#top10>; BanList 2.0 shows food and beverage packaging items are 74% of top 20 littered items among 6 different beach cleanup datasets- <https://upstreampolicy.org/ban-list-20>

³ 80% from land based sources: U.S. Department of Commerce, NOAA, Office of Public and Constituent Affairs, (1999) "Turning to the Sea: America's Ocean Future," p.5. Re: most of land-based ocean litter comes from trash in urban runoff: *Trash TMDLs for the Los Angeles River Watershed*, (September 19, 2001):17.

⁴ Hopewell, et Al. Royal Society Biological Sciences *Philos. Trans R Soc Lond B Biol Sci.* 2009 Jul 27; 364(1526): 2115–2126.

⁵ Gall & Thompson, The Impact of Marine Debris on Marine Life, *Marine Poll Bull*, 2015 Mar 15:93(1-2);170-179

⁶ Ellen MacArthur Foundation (2016)

⁷ Clean Water Action Disposable vs. Reusable Cups Fact Sheet

⁸ D. Barnes et al, 2009, *Accumulation and fragmentation of plastic debris in global environments*, *Phil. Trans. R. Soc. B.*, 364-1985-98.

in seawater and freshwater⁹, which can transfer to fish, other seafood, and salt that is eventually sold for human consumption.¹⁰ Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health effects including kidney and testicular cancer, thyroid disruption, delayed puberty and obesity.¹¹

Berkeley as a Zero Waste Leader

The City of Berkeley has a long history of leadership in sustainability and environmental protections including the adoption of an ambitious Climate Action Plan in 2009, with a goal of achieving Zero Waste by 2020; the nation's first curbside recycling program and styrofoam foodware ban; and one of the first commercial organics collection programs. 75% of the City's discarded material is diverted from landfill, and there has been a 50% reduction in solid waste disposal between 2000 to 2013¹². Despite these achievements, Berkeley has not addressed the significant increase in takeout food packaging littering city streets, filling storm drains, requiring management in the waste stream, polluting our waterways, Bay and ocean, and threatening both human and animal health.

In addition, SUDs are particularly costly and challenging to divert from landfill. Non-recyclable food and beverage packaging is costly to remove from the waste stream and reduces the quality and value of recyclables, while non-compostable food packaging (some of which is advertised as "compostable") contaminates compost, adding costs and reducing the quality of compost¹³. With China's recent rejection of mixed recycled plastic imports, the value of recyclable plastics has dropped sharply and the final destination for these plastic SUDs is uncertain. This adds significant costs to the City's collection, sorting, and processing of compostables and recyclables. To reach its Zero Waste goals, the City must reduce use of unnecessary single-use food and beverage packaging.

Strategies to Regulate SUDs

Alameda County implemented its reusable bag ordinance in January 2013, and has seen dramatic results. Countywide, bag purchases by affected retail stores have declined by 85 percent. The number of shoppers bringing a reusable bag to affected stores, or not using a bag at all, has more than doubled during this time¹⁴. Globally, a number of strategies have been implemented to reduce the use of SUDs. Charges for single-use plastic bags have proven to decrease plastic bag consumption. When Ireland instituted a "Plas-Tax" in 2002 equivalent to

⁹ Rochman, C.M., et al., 2013, Long-Term Field Measurement of Sorption of Organic Contaminants to Five Types of Plastic Pellets: Implications for Plastic Marine Debris. *Environmental Science and Technology*. 47, 1646–1654.

¹⁰ Rochman C Met al, 2015a Anthropogenic debris in seafood: plastic debris and fibers from textiles in fish and bivalves sold for human consumption *Sci. Rep.* 5 14340.

¹¹ In 2015, the FDA barred from use three such fluorinated chemicals from food contact materials due to safety risks associated with cancer, toxicity, and other health effects; other fluorinated chemicals have similar chemical structures and pose similar risk.

¹² Berkeley Climate Action Plan: Tracking our Progress Waste Reduction & Recycling – Total Landfilled, https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/PDF%20total%20landfilled%20final.pdf

¹³ Clean Water Action, *What's in the Package?* 2016 <https://www.cleanwateraction.org/features/what%E2%80%99s-package>

¹⁴ "Successful Results from Bag Ordinance", 2014, Alameda County Waste Management authority, <http://reusablebagsac.org/news/successful-results-bag-ordinance>

about 20 cents per bag, plastic bag use declined by 90% and litter from plastic bags declined by 40%¹⁵. Similar charges have been implemented in Taiwan, Washington D.C., and the United Kingdom, resulting in decreases in plastic bag use of up to 80%. A 2016 plastic bag ban in California reduced the number of plastic bags found on beaches by half.¹⁶ Studies have also shown that customers in areas with taxes on single use bags were more likely to use reusable bags.¹⁷

There appears to be growing support for reducing the use of other single use disposables. Ireland is considering banning single use coffee cups, with 50% of the population surveyed in support.¹⁸ The European Union announced in 2018 that it is implementing a policy for all plastic packaging to be recyclable or reusable by 2030.¹⁹ Taiwan will be imposing charges for straws, plastic shopping bags, disposable utensils, and beverage cups by 2025, and will impose a complete ban on single-use plastic items, including straws, cups, and shopping bags, by 2030.²⁰

Economic Advantages for Businesses

Businesses in the Bay Area spend between \$0.25 and \$0.85 per meal on disposable foodware.²¹ Reducing the use of SUDs can provide significant cost savings, even considering the costs associated with making the transition to reusables. The *Rethink Disposable* program of the Clean Water Fund, in partnership with STOP WASTE in Alameda County, has conducted a number of case studies showcasing businesses that have voluntarily minimized SUDs and incorporated reusables²². These businesses saw annual net cost savings (after accounting for costs of reusables, dishwashing, etc.) from \$1,000 - \$22,000 per year.²³

In addition, recent surveys completed by the City of Berkeley's Office of Economic Development found that neighborhood cleanliness, including trash collection, was a major concern of business owners interviewed. Business Improvement Districts (BIDs) and the Clean Cities Program work to keep Berkeley's business districts clean, but at great expense. The Telegraph Business Improvement District (TBID), for example, reported collecting over 22 tons of street litter in one year.

Reducing SUDs in the City of Berkeley

¹⁵ Mauro Anastasio and James Nix, Plastic Bag Levy in Ireland, Institute European Environmental Policy, 2016.

<https://ieep.eu/uploads/articles/attachments/7f91cb97-8cb7-49c39cf0d34062a9192e/IE%20Plastic%20Bag%20Levy%20conference%20draft.pdf?v=63673818840>

¹⁶ <http://www.latimes.com/opinion/editorials/la-ed-plastic-bag-ban-anniversary-20171118-story.html>

¹⁷ T. A. Homonoff, *Can Small Incentives Have Large Effects? The Impact of Taxes versus Bonuses on Disposable Bag Use* National Tax Association Proceedings, Princeton University- <http://ntanet.org/wp-content/uploads/proceedings/2012/008-homonoff-can-small-incentives-2012-nta-proceedings.pdf>

¹⁸ <http://www.thejournal.ie/coffee-cups-poll-3642333-Oct2017/>

¹⁹ European Commission, EU Plastics Strategy-http://ec.europa.eu/environment/waste/plastic_waste.htm

²⁰ "Taiwan to ban disposable plastic items by 2030," February 22, 2108- <https://phys.org/news/2018-02-taiwan-disposable-plastic-items.html>

²¹ Id.

²² <https://cleanwater.org/publications/participating-business-testimonials>

²³ Data provided by Clean Water Action's *ReThink Disposable* program, March 2018. See attached fact sheet.

Through the leadership of Berkeley's Ecology Center, working closely with UpStream, Clean Water Action, the Clean Water Fund, Story of Stuff, Surfrider Foundation, GAIA (Global Alliance for Incinerator Alternatives), the Green Science Policy Institute, Excellent Packaging, and numerous active residents and volunteers, a proposed Berkeley Single Use Foodware and Litter Reduction Ordinance has been drafted. This visionary Ordinance combines proven strategies for reducing SUDs including promotion of reusable foodware, fees when SUDs are used, and creation of a list of approved, truly compostable or recyclable SUDs for use City-wide.

The Ecology Center and Clean Water Action also undertook an extensive research and public outreach process, including surveys of local food businesses, discussions with business owners and environmental experts, and assessment of a charge-based cup reduction pilot project completed by Telegraph Green and Cafe Strada²⁴. This level of research, outreach and field testing represents study and consultation of an intensity and duration rarely undertaken in conjunction with new proposals in Berkeley, and has resulted in a proposed ordinance incorporating extensive expert, community and real-world data.

The survey, conducted in 2017-2018 by Clean Water Action, the Ecology Center, and other partners, covers 59 Berkeley food businesses (about 10% of affected food businesses) of various sizes and service styles, and includes respondents from all of the City's commercial districts. Of these businesses, 58% would support a customer charge for cups, and 67% would support a charge for disposable food containers.

These and other findings inform the proposed ordinance, which was written to be both aspirational and achievable. More complex proposals and bans were rejected in favor of a simplified set of recommendations that offer cost savings for restaurants and small businesses, a stream of revenue for the City to implement and enforce the ordinance, and a major step forward in reducing pollution and litter, and in meeting the City's Zero Waste and Climate Action Goals.

Proposed Ordinance Elements

The purpose of the proposed Ordinance is to reduce litter and waste associated with single use food and beverage packaging in the City of Berkeley. The proposal requires that food consumed on-site be served in reusable, durable dishes, cups, and utensils. Foil, wrappers, and tray liners are still allowed, and provision is made for waivers under specific circumstances.

The ordinance also provides that food businesses charge customers for take-out cups, clamshells and other take-out foodware, similar to the charge for paper bags associated with California's plastic bag ban (SB 270). Charges for disposables will encourage customers to bring their own reusable cups and containers. \$0.25 will be charged for disposable cups, and \$0.25 for food containers. Food establishments will keep the proceeds from these charges, and the City will collect an "at cost" fee for administration of the program. As with charges for bags, customers using SNAP & WIC will be excluded from paying these fees. The ordinance also

²⁴ <https://serc.berkeley.edu/paying-the-price-of-disposable-cups-at-caffe-strada/>

provides that single use straws, utensils, and stirrers (which will have to be compostable) be provided only “by request”.

Finally, the policy will require that all disposable foodware be free of certain highly toxic chemicals known to migrate into food and beverages, and be recyclable or compostable in the City’s waste management programs.

The City will be responsible for creating and updating an accessible list of approved foodware so that food retailers can easily identify products that conform to requirements. This will protect public health and the environment from some of the most toxic and persistent chemicals used in food and beverage packaging, and ensure that “compostables” furnished in Berkeley are actually compostable within the City’s program. The City will be responsible for administration and enforcement.

ENVIRONMENTAL SUSTAINABILITY

The production, consumption and disposal of single use food and beverage packaging is a major contributor to litter in our streets, plastic in landfills, pollution in waterways and oceans, GHG emissions, and harm to wildlife. This environmental ordinance represent a huge step forward in reducing the use of disposable foodware in Berkeley, fulfilling Berkeley’s Zero Waste and Climate Action Goals, reducing greenhouse gas emissions 80% by 2050, and meeting State trash load level mandates.

CONTACT

Councilmember Sophie Hahn, District 5 | (510) 981-7150 | shahn@cityofberkeley.info
Mayor Jesse Arreguin | (510) 981-7100 | mayor@cityofberkeley.info

ATTACHMENTS

1. Draft Berkeley Single Use Foodware and Litter Reduction Ordinance
2. CaseStudy: Caravaggio Gelateria Italiana
3. Clean Water Action Disposable vs Reusable Cups Fact Sheet

Single Use Foodware and Litter Reduction Ordinance

ORDINANCE AMENDING THE XXXX CITY CODE BY ADOPTING CHAPTER XXXX SECTIONS XXXX
TO REDUCE SINGLE USE DISPOSABLE FOODWARE

Findings and Purpose

The council finds and declares as follows:

[]

Section 1. Definitions

- A. **"Prepared Food"** means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. "Prepared Food" does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed or raw uncooked meat products.
- B. **"Takeout Food"** means Prepared Food requiring no further preparation which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food delivered by a Prepared Food Vendor or by a third party delivery service.
- C. **"Takeout Meal"** means Takeout Food consisting of an entree, or a full size salad, or a breakfast, lunch or dinner item (such as a sandwich, burrito, pizza, soup) served in up to three Disposable Food Containers.
- D. **"Prepared Food Vendor"** means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113920), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.
- E. **"Disposable Foodware"** means all bags, sacks, wrappers, paper or foil liners, containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids and any other food contact items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.
- F. **"Disposable Food Container"** is a container designed for single use that holds 16 oz. or more (for containers with lids) or is 62 cubic inches or larger (for boxes and clamshells).
- G. **"Disposable Cup"** is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks, alcoholic beverages and other drinks.

- H. **“Reusable Foodware”** shall mean all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.
- I. **“Plastic”** means a synthetic material made from fossil fuel based polymers such as polyethylene, polystyrene, polypropylene, and polycarbonate that can be molded or blown into shape while soft and then set into a rigid or slightly elastic form.
- J. **“Fluorinated Chemicals”** means perfluoroalkyl and polyfluoroalkyl substances or fluorinated chemicals, which for the purposes of food packaging are a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.

Section 2. Reusable Foodware for Dining on the Premises (i.e. “Eating-in”)

This section applies to Prepared Food served for consumption on the premises of a Prepared Food Vendor.

- A. As of [Effective Date], Prepared Food Vendors shall only sell or provide food and beverages for consumption on the premises using Reusable Foodware, except as provided in Section 2(C).
- B. Prepared Food Vendors offering Takeout Food shall ask customers whether they will consume their purchased food or beverage on the premises (i.e. “for here”) or off the premises (i.e. “to go”). If the purchased food or beverage is intended for consumption on the premises, the Prepared Food Vendor shall serve such food or beverage in Reusable Foodware.
- C. Prepared Food Vendors that do not have on-site or off-site dishwashing capacity to wash, rinse and sanitize Reusable Foodware in compliance with the California Health Code may request a full or partial waiver from the requirements of Section 2(A) if they can demonstrate inability to comply due to space constraints and financial hardship, such as investments and costs that take more than a year to be paid for through savings. Waivers may be granted for up to three years, during which time the Prepared Food Vendor shall make every effort to become compliant. If a waiver is granted, all Disposable Foodware used for eating on the premises must conform to the Disposable Food Packaging Standards in Section 3.
- D. As of [Date - 1 year after Effective Date?], new zoning permits and business licenses for Prepared Food Vendors shall only be granted to Prepared Food Vendors that have adequate onsite or offsite dishwashing capacity to comply with section 2(A).

- E. Disposable food wrappers, foil sheets, napkins and paper or foil basket and tray liners shall be allowed for dining on the premises so long as they meet the Disposable Food Packaging Standards in Section 3.

Section 3. Disposable Foodware Standards

This section provides standards for the types of Disposable Foodware that may be used for Takeout Food, or for Prepared Food eaten on the premises of a Prepared Food Vendor with a valid waiver, as provided for in Section 2(C).

- A. The City shall maintain a list of approved Disposable Foodware sources and types that shall be available at [physical location] and on the City's website. The City shall update annually the list of approved Disposable Foodware types and sources. No other Disposable Foodware may be used by any Prepared Food Vendor.
- B. Disposable Foodware approved by the City shall meet the following standards:
 - a. Beginning [Date], all Disposable Foodware used to serve or package Prepared Foods that are prepared in the City of Berkeley:
 - i. Must be accepted by City of Berkeley composting or recycling municipal collection programs, and
 - ii. If compostable, must be certified compostable by the Biodegradable Product Institute or another independent third party certifying organization or agency recognized by the City.
 - b. Beginning [Date - one year from Effective Date], compostable Disposable Foodware containing paper or other natural fiber material shall be free of all intentionally added Fluorinated Chemicals as certified by the Biodegradable Product Institute or other third party certifying organization or agency recognized by the City.
 - c. The City may adopt regulations that require Disposable Foodware to have minimum post-consumer recycled content, and any other Disposable Foodware specifications that support the goals of this Ordinance.

Section 4. Disposable Foodware Charges

Customers shall be charged for Disposable Foodware used for dining off the premises.

- A. Beginning [Effective Date] , Prepared Food Vendors selling Takeout Food shall charge a customer twenty five cents (\$0.25) for every Disposable Cup provided.
- B. Beginning [Effective Date], Prepared Food Vendors selling Takeout Food shall charge a customer twenty five cents (\$0.25) per Disposable Food Container and no more than twenty-five-cents (\$0.25) per Takeout Meal.
- C. Income from charges for Disposable Cups and Disposable Food Containers shall be retained by the Prepared Food Vendor.
- D. The charges set forth in A and B apply to all Takeout Food and Takeout Meals prepared and sold in the City of Berkeley and served in Disposable Food Containers and Disposable Cups, except for Prepared Food Vendors providing Disposable Food

Containers and Disposable Cups for carry-out of leftovers from Prepared Food eaten on the premises (i.e. "doggie bags").

- E. All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code, or an electronic benefit transfer card issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the charges specified in this Section.
- F. Charges for Disposable Cups, Disposable Food Containers and Takeout Meals shall be identified separately on any receipt provided to the customer.
- G. Disposable straws, stirrers, cup spill plugs, napkins, condiment packets, utensils and other similar Disposable Foodware accompanying Disposable Cups, Disposable Food Containers and Takeout Meals shall be provided free of charge, and only upon request by the customer or at self-serve stations.

Section 5. Signage Requirements for Takeout Food Vendors

- A. The City shall provide text explaining Disposable Foodware Charges and specifications for signage that Takeout Food Vendors must post in plain view of customers at the point of sale.
- B. Takeout Food Vendors shall also include Disposable Foodware Charges on their printed and electronically available menus.
- C. Takeout Food Vendors shall inform customers of Disposable Foodware Charges for orders taken by telephone.
- D. Third-party delivery services shall include on their electronic platforms text pursuant to subsection A explaining Disposable Foodware Charges and include Disposable Foodware Charges on their menus and billing interfaces.

Section 6. Duties, Responsibilities and Authority of the City of Berkeley

- A. The City Manager is hereby charged with the enforcement of this Chapter, except as otherwise provided herein, and shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this Chapter.
- B. The Master Fee Schedule shall be amended to include a fee to cover City expenses of inspection and enforcement of this ordinance.
- C. It shall be the duty of the City Manager to collect and receive all fees imposed by this Section, and to keep an accurate record thereof.
- D. Within three years of the effective date of this Ordinance, the City shall evaluate and report to City Council on the effectiveness of this ordinance.

ORDINANCE NO. 7,639-N.S.

ADDING CHAPTER 11.64 TO THE BERKELEY MUNICIPAL CODE TO ADOPT A
SINGLE USE FOODWARE AND LITTER REDUCTION ORDINANCE

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That a new Chapter 11.64 is hereby added to the Berkeley Municipal Code to read as follows:

Chapter 11.64

SINGLE USE FOODWARE AND LITTER REDUCTION

Sections:

- 11.64.010 Findings and Purpose.**
- 11.64.020 Definitions.**
- 11.64.030 Accessory disposable foodware items.**
- 11.64.040 Reusable customer cups.**
- 11.64.050 Compostable disposable foodware.**
- 11.64.060 Reusable foodware for dining on the premises.**
- 11.64.070 Disposable foodware standards.**
- 11.64.080 Separate disposable foodware waste receptacles.**
- 11.64.090 Waivers: process to obtain.**
- 11.64.100 Regulations applicable to all prepared food vendors.**
- 11.64.110 Duties responsibilities and authority of the City of Berkeley.**
- 11.64.120 City of Berkeley: purchases prohibited.**
- 11.64.130 Liability and enforcement.**
- 11.64.140 Severability.**
- 11.64.150 Chapter supersedes existing laws and regulations.**

11.64.010 Findings and Purpose.

The Council of the City of Berkeley finds and declares as follows:

A. Single use disposable foodware and packaging (SUDs) - including plates, cutlery, cups, lids, straws, "clamshells" and other containers - is a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.

B. The production, consumption and disposal of SUDs contributes significantly to the depletion of natural resources. Plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and are present in most of the world's oceans.

C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain SUDs, including food contact papers and compostable paperboard containers, can also contain harmful fluorinated chemicals that are linked to serious health conditions.

D. Food and beverage SUDs make up approximately 25% of all waste produced in California. In the Bay Area, food and beverage packaging comprises the majority of street litter, and is a significant contributor to the total amount of waste entering the waste stream.

E. It is in the interest of the health, safety and welfare of all who live, work and do business in the City that the amount of litter on public streets, parks and in other public places be reduced.

F. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of single-use food and beverage packaging furthers this goal.

G. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan, as amended, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

11.64.020 Definitions.

A. "Prepared Food" means foods or beverages which are prepared on the vendor's premises by cooking, chopping, slicing, mixing, freezing, squeezing, or other processing and which require no further preparation to be consumed. Prepared Food does not include raw uncooked whole fruits or vegetables which are not chopped, squeezed, or mixed, or raw uncooked meat products.

B. "Takeout Food" means Prepared Food which is purchased to be consumed off a Prepared Food Vendor's premises. Takeout Food includes Prepared Food carried out by the customer or delivered by a Prepared Food Vendor or by a Takeout Food Delivery Service.

C. "Prepared Food Vendor" means any establishment located within the City of Berkeley, including a Bakery, Cafeteria, Drive In, Food Products Store, Food Service Establishment (Carry Out, Quick Service, Full Service), Drugstore or Theater, as defined in BMC 23F.04, Mobile Food Facility, Temporary Food Facility (CA Health and Safety Code Sections 113831 and 113930 and as amended), bar and other similar establishment, selling Prepared Food to be consumed on and/or off its premises.

D. "Disposable Foodware" means all containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any other items used to hold, serve, eat, or drink Prepared Food, which are designed for single use and in which Prepared Food is placed or packaged on a Prepared Food Vendor's premises.

E. "Disposable Cup" is a beverage cup designed for single use to serve beverages, such as water, cold drinks, hot drinks and alcoholic beverages.

F. "Accessory Disposable Foodware Item" means any Disposable Foodware item such as straws, stirrers, napkins and utensils; condiment cups and packets; cup sleeves, tops, lids, and spill plugs; and other similar accessory or accompanying Disposable Foodware items used as part of food or beverage service or packaging.

G. "Reusable Foodware" means all foodware, including plates, bowls, cups, trays, glasses, straws, stirrers, condiment cups and utensils, that is manufactured of durable materials and that is specifically designed and manufactured to be washed and sanitized and to be used repeatedly over an extended period of time, and is safe for washing and sanitizing according to applicable regulations.

H. "Takeout Food Delivery Service" is a third party delivery service which picks up Takeout Food from a Prepared Food Vendor and delivers it to the customer for consumption off the premises.

11.64.030 Accessory Disposable Foodware Items.

A. Accessory Disposable Foodware items shall be provided only upon request by the customer or at self-serve stations, except that for safety reasons Disposable Cups for delivery by a Prepared Food Vendor or a Takeout Food Delivery Service may include lids, spill plugs and sleeves without request.

B. Prepared Food Vendors and Takeout Food Delivery Services must provide options for customers to affirmatively request Accessory Disposable Foodware Items separate from orders for food and beverages across all ordering/point of sale platforms, including but not limited to web, smart phone and other digital platforms, telephone and in-person.

C. Prepared Food Vendors that customarily offer straws are encouraged to maintain a small supply of plastic-type straws which meet the Disposable Foodware Standards set forth in Section 11.64.070, which may be provided to customers upon specific request for a "plastic" straw.

D. Prepared Food Vendors offering condiments are encouraged to use dispensers rather than pre-packaged disposable condiment packets.

11.64.040 Reusable Customer Cups.

A. Except as provided in Chapter 11. Temporary Food Facilities of the California Health and Safety Code, Section 114353, customers may provide their own Reusable Foodware cups for beverage service in accordance with California State Health Code 114075(e) and as amended. Prepared Food Vendors may refuse, at their sole discretion, any customer-provided Reusable Foodware cup that is cracked, chipped or corroded, appears inappropriate in size, material, or condition for the intended beverage, or that appears to be excessively soiled or unsanitary, and instead require use of a Reusable Foodware cup for a beverage consumed on the premises, or a Disposable Cup that conforms to the Disposable Foodware Standards in 11.64.070 for a beverage to be consumed off the premises, with any charge required pursuant to Section 11.64.050.D.

11.64.050 Compostable Disposable Foodware.

Effective January 1, 2020:

A. Takeout Food shall only be served in Disposable Foodware that conforms to the Disposable Foodware Standards in Section 11.64.070.

B. Accessory Disposable Foodware Items shall conform with the Disposable Foodware Standards in 11.64.070.

C. Takeout Food Delivery Services shall only deliver Takeout Food from a Prepared Food Vendor that is served in Disposable Foodware and with Accessory Disposable Foodware Items, if any, that conform to the Disposable Foodware Standards in 11.64.070.

D. Prepared Food Vendors shall charge customers twenty five cents (\$0.25) for every Disposable Cup provided.

1. Income from the Disposable Cup charge shall be retained by the Prepared Food Vendor.

2. All customers demonstrating, at the point of sale, a payment card or voucher issued by the California Special Supplemental Food Program for Women, Infants, and Children (WIC) pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the California Health and Safety Code and as amended, or an electronic benefit transfer card (EBT) issued pursuant to Section 10072 of the California Welfare and Institutions Code, shall be exempt from the Disposable Cup charge.

3. Charges for Disposable Cups shall be identified separately on any post-sale receipt provided and, pre-sale, shall be clearly identified for the customer on media such as menus, ordering platforms and/or menu boards. Customers placing orders by telephone shall be informed verbally of Disposable Cup charges.

E. Notwithstanding the requirements at Section 11.64.050, subsections A-C, a Prepared Food Vendor may request a waiver or waivers pursuant to Section 11.64.090 for specific Disposable Foodware items. To obtain a waiver for a Disposable Foodware item, the Prepared Food Vendor must demonstrate that:

1. No Disposable Foodware item exists with substantially similar size, performance and/or utility that conforms with the Disposable Foodware Standards in Section 11.64.070 or, if such an item exists, that costs of using such item would cause undue financial hardship, and;

2. The non-conforming Disposable Foodware item to be used in lieu of a conforming item is recyclable in the City of Berkeley recyclable collection program.

3. The Prepared Food Vendor must provide documentation of good faith efforts to obtain a substantially similar compliant item at a non-prohibitive price.

4. Records of attempts to obtain a compliant item may include:

a. Emails, letters or other correspondence with vendors that furnish Compostable Disposable Foodware, seeking the compliant item.

b. Responses from such Compostable Disposable Foodware vendors including, where applicable, specifications and pricing for such item.

c. Specifications and pricing for the recyclable non-conforming item sought to be used, demonstrating its substantial superiority and/or affordability, and

d. Any other verifiable records which demonstrate a good faith effort to comply with Disposable Foodware Standards for such item.

5. Reasonable added cost for a conforming item as compared to a substantially similar recyclable non-conforming item shall not by itself constitute adequate grounds to support a waiver for such item.

11.64.060 Reusable Foodware for Dining on the Premises.

Effective July 1, 2020:

A. Prepared Food served for consumption on the premises of a Prepared Food Vendor shall only be served using Reusable Foodware, except that disposable paper food wrappers, sleeves and bags; foil wrappers; paper napkins; straws and paper tray- and plate-liners shall be allowed for dining on the premises, so long as they meet the Disposable Foodware Standards in Section 11.64.070.

B. Notwithstanding the requirements at Section 11.64.060.A, Prepared Food Vendors that do not have on-site or off-site dishwashing capacity or are unable to contract for services to wash, rinse and sanitize Reusable Foodware in compliance with the California State Health Code may request a waiver or partial waiver pursuant to Section 11.64.090. To obtain a waiver, the Prepared Food Vendor must demonstrate inability to comply due to insurmountable space constraints, undue financial hardship and/or other extraordinary, insurmountable circumstances.

C. All Disposable Foodware used on the premises by Prepared Food Vendors that are operating under full or partial waivers obtained pursuant to 11.64.090 shall conform to the Disposable Foodware Standards in Section 11.64.070.

11.64.070 Disposable Foodware Standards.

A. Disposable Foodware must be accepted by City of Berkeley municipal compost collection programs and be free of all intentionally added fluorinated chemicals, as certified by the Biodegradable Product Institute or other independent third party certifying organization or agency recognized by the City, except that non-compostable foil wrappers that are accepted in the City of Berkeley recyclable collection program may be used for burritos, wraps, and other items that require foil to contain and form the food item.

B. The City shall maintain on its website a list of suppliers that offer Disposable Foodware that complies with these Disposable Foodware Standards.

C. Changes, if any, to Disposable Foodware Standards shall become effective on January 1 of the next calendar year, and the City of Berkeley shall provide notice of any such changes to Prepared Food Vendors at least 90 days prior.

11.64.080 Separate Disposable Foodware Waste Receptacles.

All Prepared Food Vendors, except Full Service Restaurants as defined in Chapter 23F.04 of the Berkeley Municipal Code and other Prepared Food Vendors that provide full bussing service and do not customarily provide waste receptacles for customer use, must provide at least one set of three easily accessed receptacles for discarded items to be composted, recycled, and, if needed, to be landfilled or otherwise wasted.

A. To the extent possible given space constraints, all three receptacles should be placed together in the same location.

B. The City shall identify materials accepted for each collection program on the City's website, and signage must be posted on and/or above each receptacle, indicating the materials to be deposited into such receptacle. Receptacles and signage shall be color-coded as follows:

1. Blue for recyclables
 2. Green for compostables
 3. Black or gray for items to be landfilled or otherwise wasted
- C. Prepared Food Vendors that share premises may share receptacles.

11.64.090 Waivers: process to obtain.

A. The City Manager shall prescribe and adopt rules, regulations and forms for Prepared Food Vendors to obtain full or partial waivers from any requirement of this ordinance that is explicitly subject to waiver.

B. Waivers shall be granted by the City Manager or his or her designees, based upon documentation provided by the applicant and, at the City Manager's discretion, independent verification, including site visits.

C. The City Manager or his or her designees shall act on a waiver application no later than 180 days after receipt of such application, including mailing written notification of the City Manager's decision to the address supplied by the applicant.

D. Waivers may be granted for a specified term of up to two (2) years. During the waiver term, the Prepared Food Vendor shall make diligent efforts to become compliant. Under extraordinary circumstances, should a Prepared Food Vendor demonstrate that, at the close or expiration of a granted waiver term, and with diligent efforts to become compliant, compliance remains infeasible, additional waivers of up to two (2) years each may be granted. It shall be the Prepared Food Vendor's responsibility to apply for any subsequent waivers in a timely manner.

E. Notwithstanding the two (2) year maximum term for waivers set forth in Section 11.64.090 (D), in certain limited and unique circumstances existing prior to adoption of this ordinance, where the Prepared Food Vendor demonstrates diligent efforts to comply but, due to insurmountable space or economic constraints and/or other unique and extraordinary circumstances, may never be reasonably able to comply, the City Manager or his or her designee may grant a waiver for a longer specified term.

F. All waivers shall expire automatically in the event of a significant remodel, renovation or other alteration of the premises with a construction valuation that exceeds \$60,000 or if the Prepared Food Vendor ceases operations at the location for which the waiver has been granted.

11.64.100 Regulations applicable to all Prepared Food Vendors.

A. Each Prepared Food Vendor shall maintain written records evidencing compliance with this Chapter.

B. All records required by this Chapter shall be made available for inspection by the City Manager or his or her designated representative. It shall be unlawful for anyone having custody of such records to fail or refuse to produce such records upon request by the City Manager or his or her designated representative.

11.64.110 Duties responsibilities and authority of the City of Berkeley.

The City Manager or his or her designee shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this chapter and is hereby authorized to take any and all actions reasonable and necessary to enforce this chapter including, but not limited to, inspecting any Prepared Food Vendor's premises to verify compliance.

11.64.120 City of Berkeley: purchases prohibited.

The City of Berkeley shall not purchase any Disposable Foodware that does not comply with the Disposable Foodware Standards in Section 11.64.070, nor shall any City-sponsored event utilize non-compliant Disposable Foodware.

11.64.130 Liability and Enforcement.

A. Anyone violating or failing to comply with any requirement of this chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however, no administrative citation may be issued or infraction charged for violation of a requirement of this chapter until one year after the effective date of such requirement.

B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to Section 11.64.090.

C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this chapter.

D. The remedies and penalties provided in this section are cumulative and not exclusive.

11.64.140 Severability.

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the proscribed application thereof, shall be severable, and the remaining provisions of this chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases had been declared invalid or unconstitutional.

11.64.150 Chapter supersedes existing laws and regulations.

The provisions of this chapter shall supersede any conflicting law or regulations.

Section 2. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of Council Chambers, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.

At a regular meeting of the Council of the City of Berkeley held on January 22, 2019, this Ordinance was passed to print and ordered published by posting by the following vote:

Ayes: Bartlett, Davila, Droste, Hahn, Harrison, Kesarwani, Robinson, Wengraf, and Arreguin.

Noes: None.

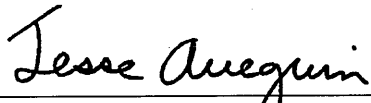
Absent: None.

At a regular meeting of the Council of the City of Berkeley held on February 19, 2019, this Ordinance was adopted by the following vote:

Ayes: Bartlett, Davila, Droste, Hahn, Harrison, Kesarwani, Robinson, Wengraf, and Arreguin.

Noes: None.

Absent: None.



Jesse Arreguin, Mayor

ATTEST: 

Mark Numainville, City Clerk

Date signed: February 25, 2019

EXHIBIT No. 8







Berkeley Customer Views of Waste Disposal Services

Results of a Survey Conducted May 4-16, 2021



OPINION
RESEARCH
& STRATEGY

Survey Specifics and Methodology

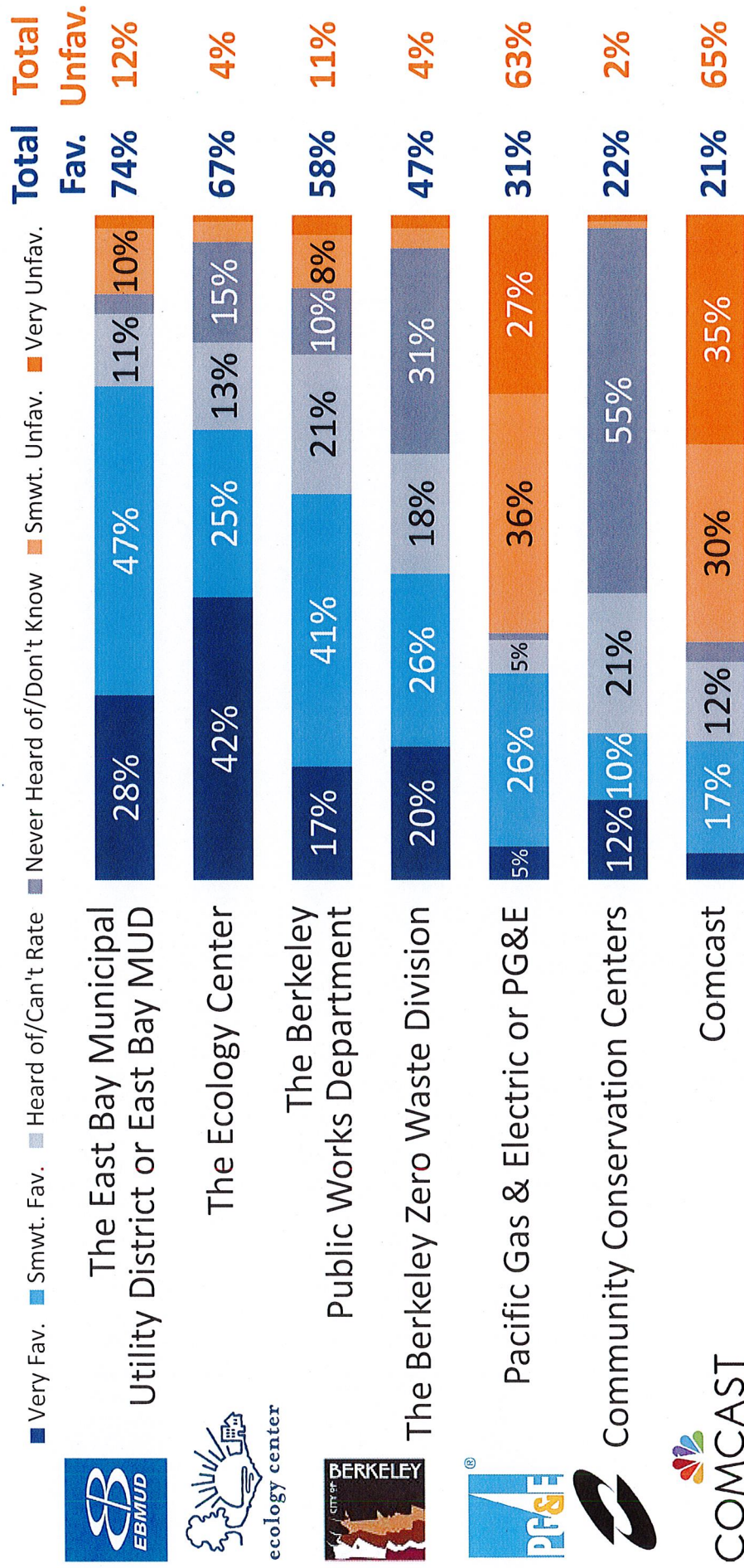
Dates	May 4-16, 2021
Survey Type	Dual-mode Customer Survey
Research Population	Residential and Commercial Waste Disposal Customers
Total Interviews	453 Total 431 Residential
Margin of Sampling Error	±4.9% at the 95% Confidence Level for Residential Customers
Contact Methods	 Telephone Calls  Email Invitations
Data Collection Modes	 Telephone Interviews  Online Survey
Languages	English, Spanish and Chinese

(Note: Not All Results Will Sum to 100% Due to Rounding)



Views of Services and Utilities

Majorities have positive views of East Bay MUD, the Ecology Center, and the Berkeley Public Works Department.



Q1. I would like to ask your impressions of some people and organizations in public life. Please tell me whether your impression of that person or organization is generally favorable or unfavorable.

Residential customers are quite satisfied with home waste removal, especially organics and garbage.

(Residential Customers Only)

■ Very Sat ■ Smwt. Sat. ■ Don't Know ■ Smwt. Dissat. ■ Very Dissat.

Total Total Sat. Dissat.

Organics (food and green waste) removal in the green cart



Water



Garbage removal in the black cart



Recycling removal in the split blue cart for paper, cardboard, bottles, and cans



Sewer



Internet



Electricity and natural gas



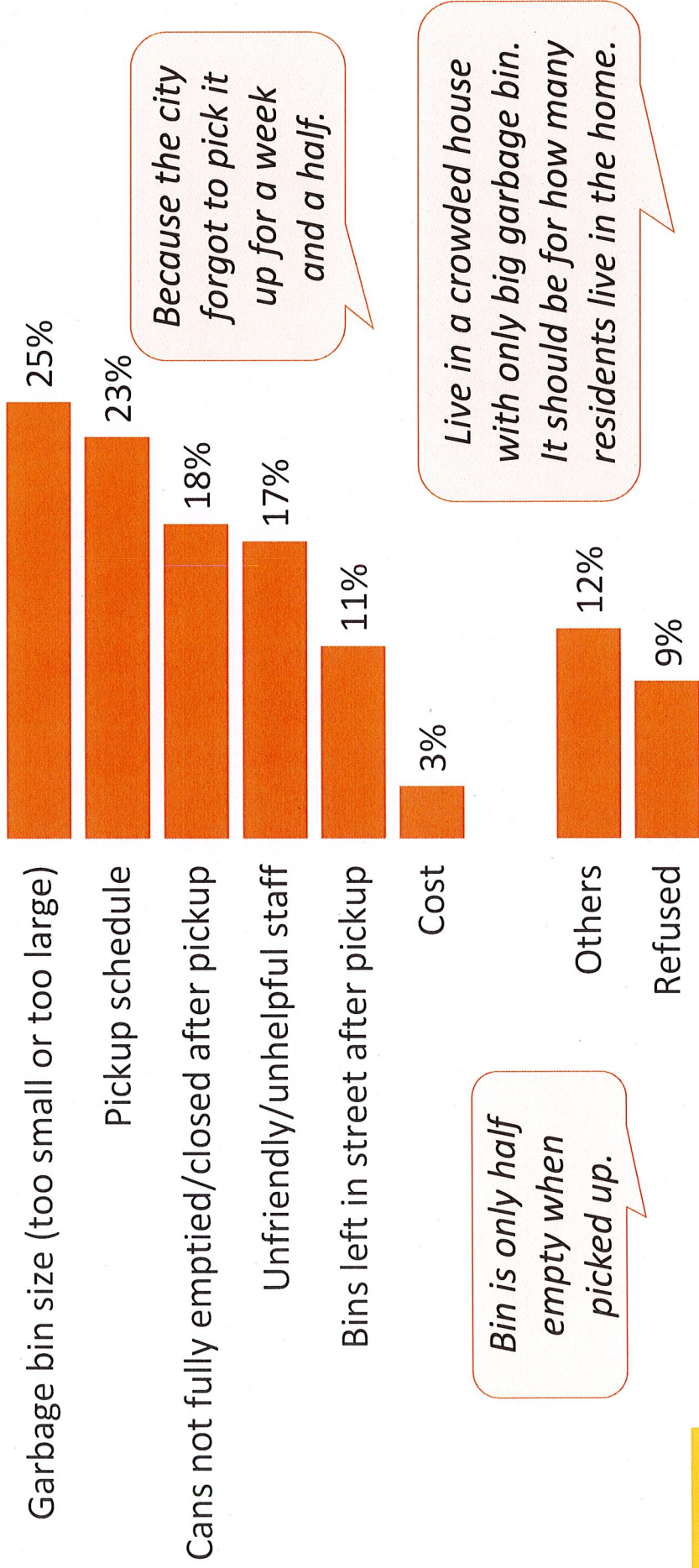
Q3a-c & g-j. Here is a list of utilities and services. Please indicate how satisfied you are with each service: very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied.

Follow-up questions were asked of those dissatisfied with any of their waste removal services, allowing respondents to explain their dissatisfaction.

Please keep in mind that these responses were from only very small proportions of customers, since the overwhelming majority of customers are satisfied.

Pickup schedule and garbage bin size were the most common reasons for garbage removal dissatisfaction.

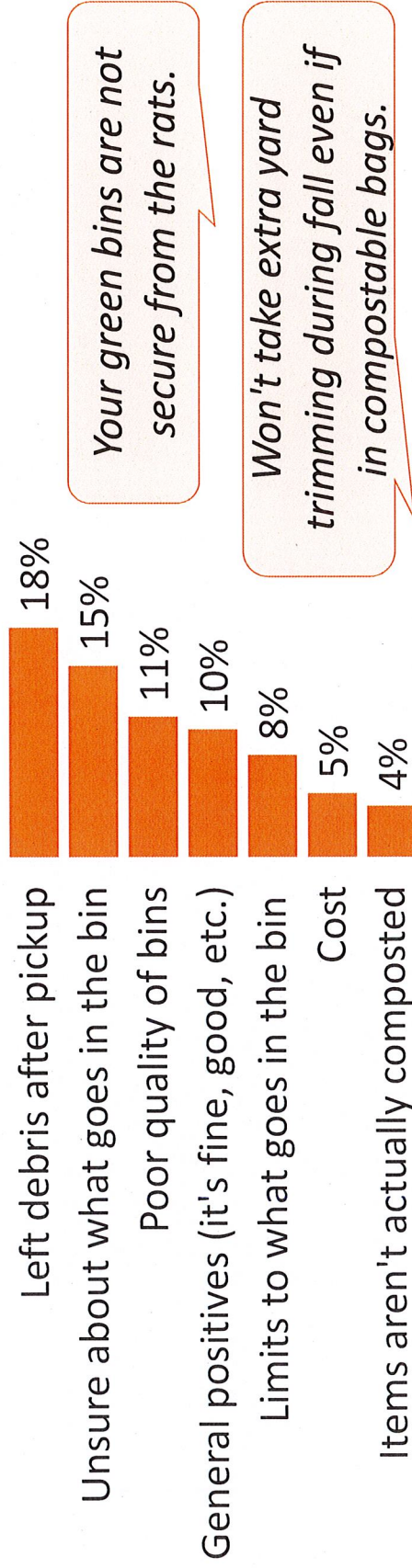
Previously you indicated you were dissatisfied with your garbage removal service.
In a few words of your own, can you tell me why you are dissatisfied with that service?
(Open-ended; Asked of Those Dissatisfied with Garbage Removal Service Only, n=29)



Those dissatisfied with their organics removal were diverse in their reasoning.

Previously you indicated you were dissatisfied with your organics (food and green waste) removal service. In a few words of your own, can you tell me why you are dissatisfied with that service?

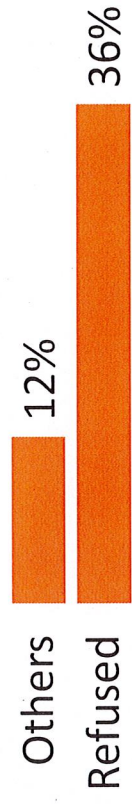
(Open-ended; Asked of Those Dissatisfied with Organics Removal Only, n=19)



Your green bins are not secure from the rats.

Won't take extra yard trimming during fall even if in compostable bags.

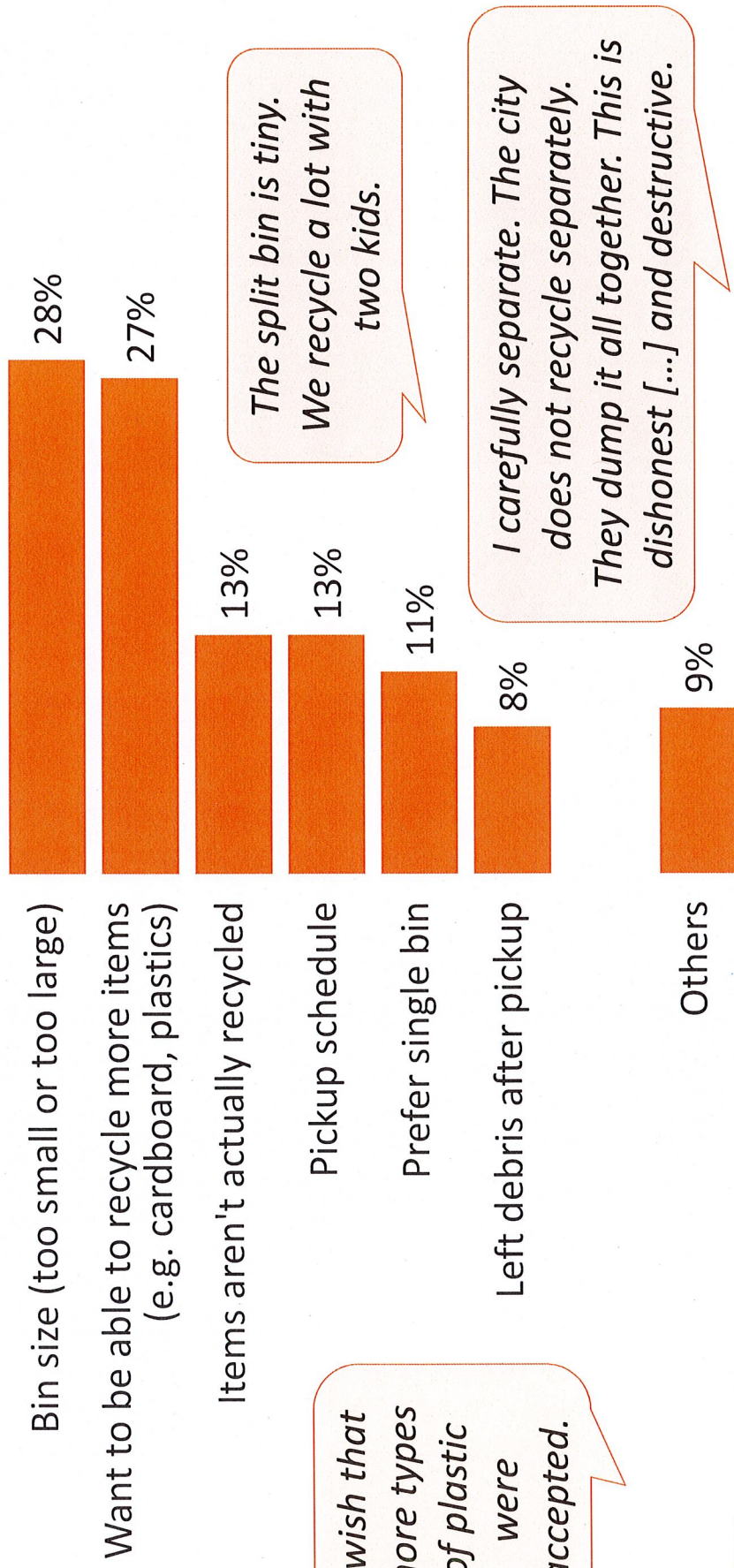
Poor education for residents as to what goes in bin. I find trash in green bins regularly.



Over one in four of those dissatisfied want either larger bin sizes or more recycling options.

Previously you indicated you were dissatisfied with your recycling (paper, cardboard, bottles, and cans) removal service. In a few words of your own, can you tell me why you are dissatisfied with that service?

(Open-ended; Asked of Those Dissatisfied with Recycling Service Only, n=57)



Seven in ten residential customers believe their waste removal prices are at least somewhat reasonable, outpacing other utility services.

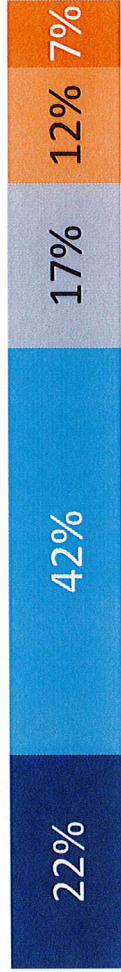
(Residential Customers Only)

■ Very Reas.
 ■ Smwt. Reas.
 ■ Don't Use/Don't Know
 ■ Smwt. Unreas.
 ■ Very Unreas.
 Total Reas. 70%
 Total Unreas. 10%

Garbage, recycling, and organics (food and green waste) removal



Water



Internet



Sewer



Electricity and natural gas



Q4. I am going to read the same list of utilities and services. This time please tell me whether you think the price you pay for that service is reasonable or unreasonable, given the value you receive.



Views of City of Berkeley Services

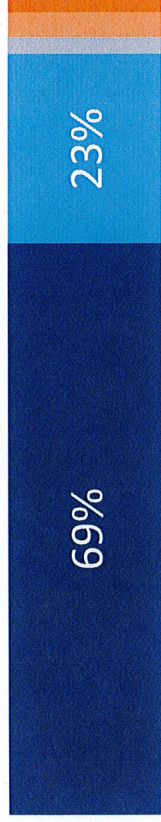
Nearly seven in ten are "very satisfied" with the City's reliability in picking up carts; half are dissatisfied with illegal dumping cleanup.

(<10-Unit Residential Customers Only; Garbage and Organics)

■ Very Sat.
 ■ Smwt. Sat.
 ■ Don't/Know
 ■ Smwt. Dissat.
 ■ Very Dissat.

Total Sat. **Total Dissat.**

Picking up carts reliably on service day



93% **5%**

Providing instructions on which garbage and organics waste goes in each cart



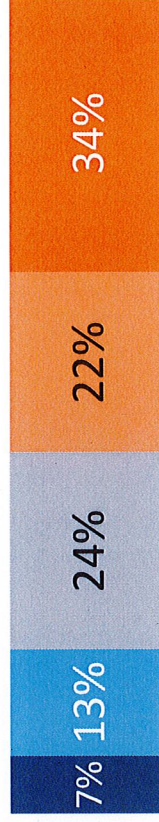
81% **14%**

Responding to customer questions or concerns



52% **11%**

Removing illegal dumping and homeless encampment cleanups



20% **56%**



Views of Ecology Center Services

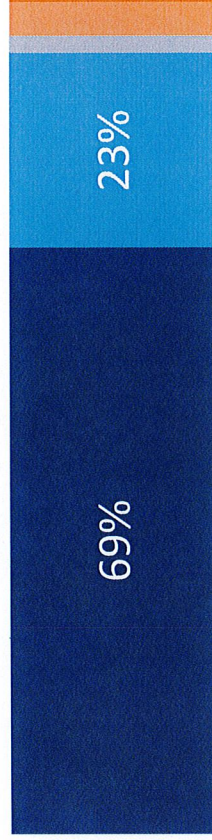
Over two in three are "very satisfied" with their recycling cart pickups.

(<10-Unit Residential Customers Only: Recycling)

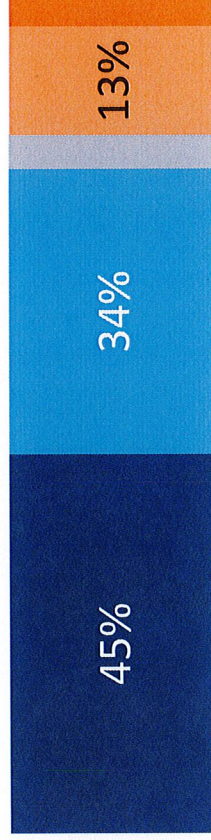
Very Sat. Smwt. Sat. Don't/Know Smwt. Dissat. Very Dissat.

Total Sat. Total Dissat.

Picking up carts reliably on service day



Providing instructions on which items go in the cart



Responding to customer questions or concerns



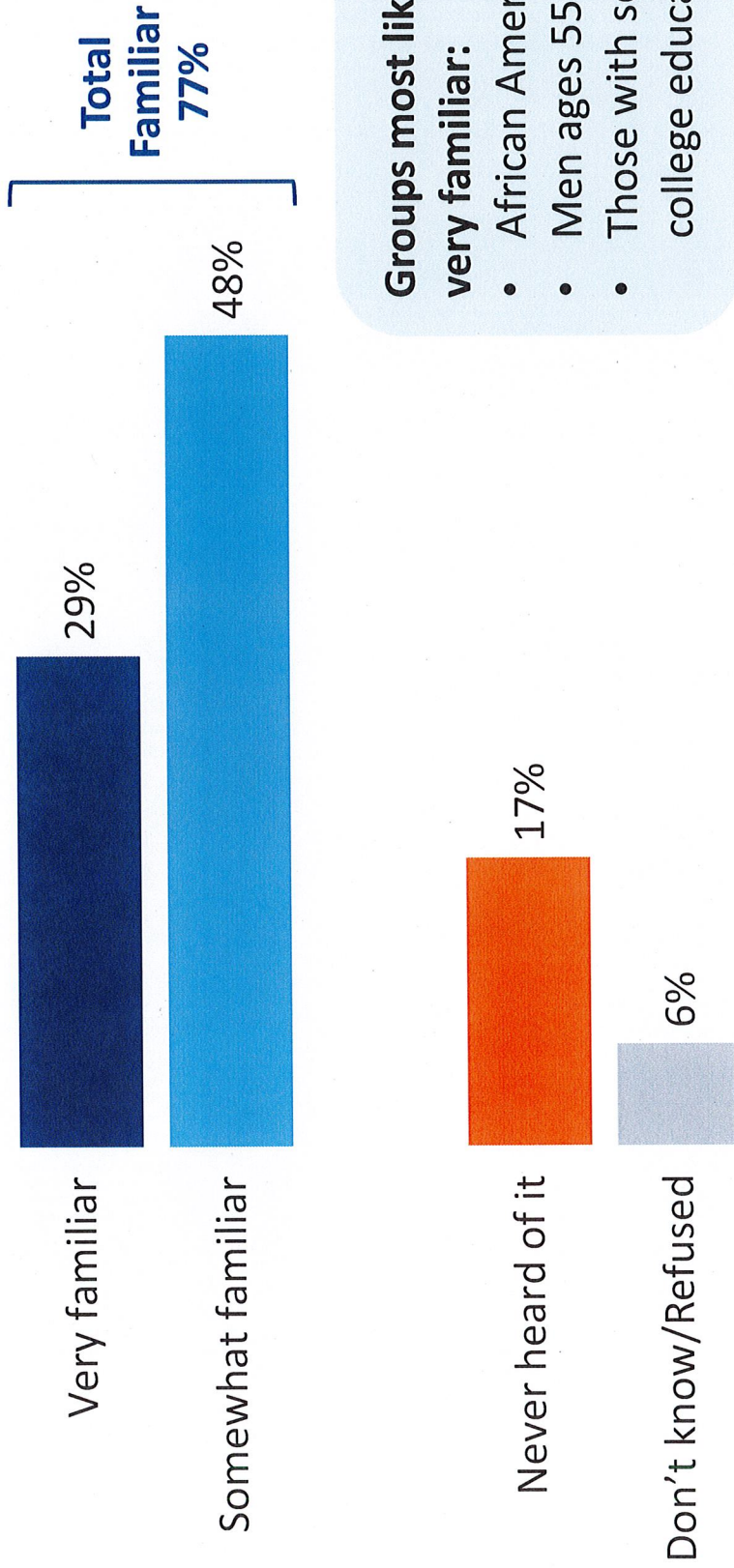
Q10. As you may also know, the Ecology Center picks up recycling for your residence. For each of the following aspects of those services provided by the Ecology Center, please tell me how satisfied you are, either very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied.



Views of the City of Berkeley Transfer Station

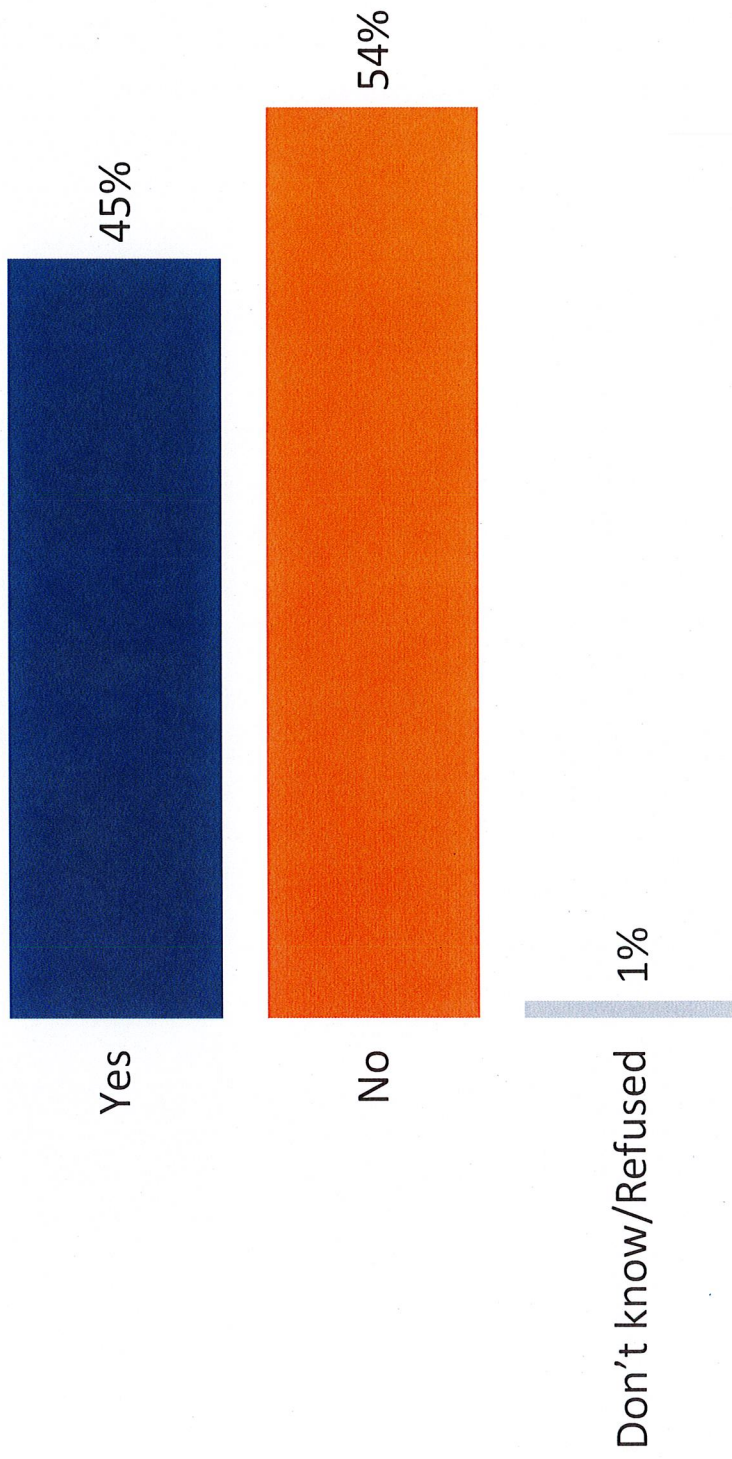
Three in four are at least somewhat familiar with Berkeley's Transfer Station.

How familiar are you with the City of Berkeley's Transfer Station at Harrison and Second streets, which is sometimes referred to as the dump: very familiar, somewhat familiar, or have you never heard of it?



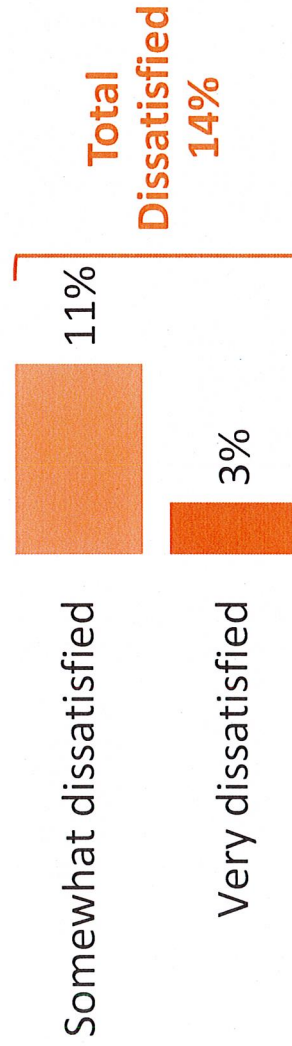
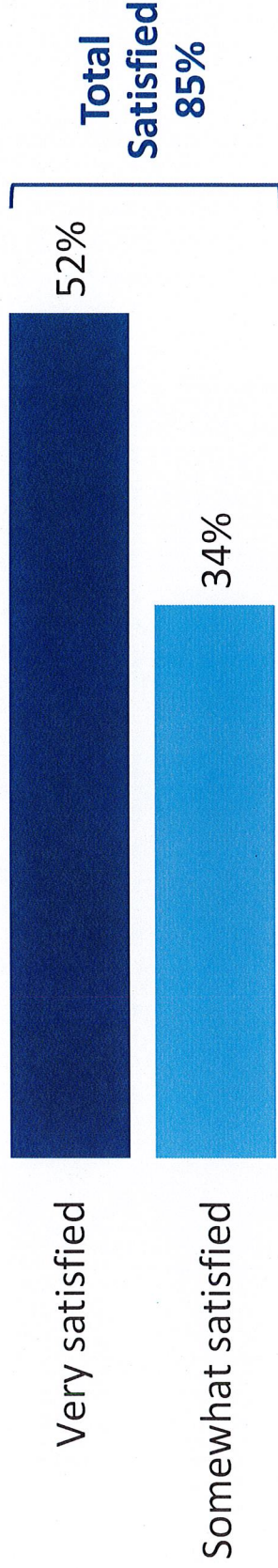
Close to half of those familiar have been to the Transfer Station in the last year.

Have you visited the City of Berkeley's Transfer Station in the last 12 months?
(Asked of Those Familiar Only, n=331)



More than four in five are statisfied with their experiences at the Transfer Station.

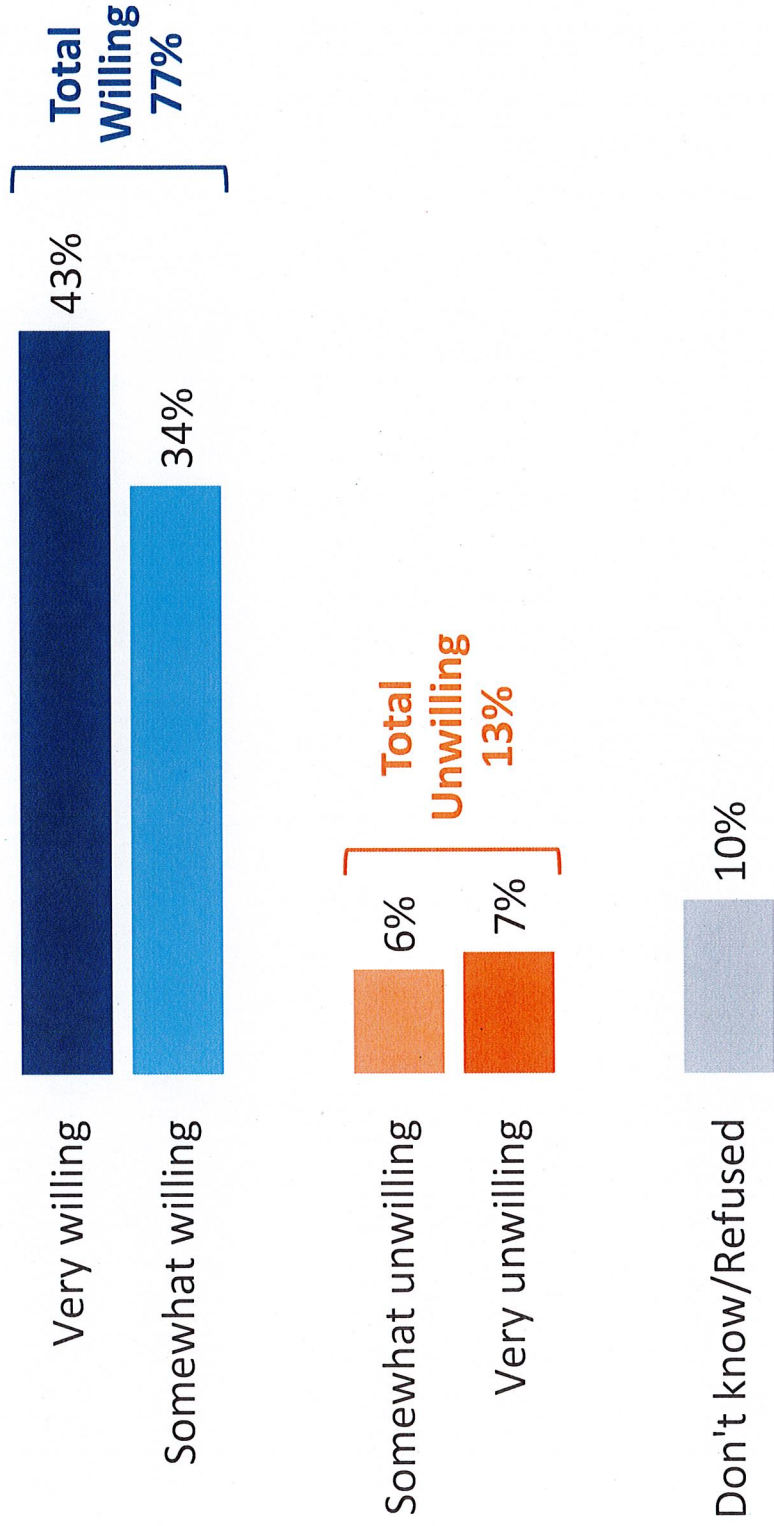
How satisfied were you with you experience or experiences at the City of Berkeley's Transfer Station: very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?
(Asked of Asked of Transfer Station Users Only, n=149)



More than three in four said they were at least "somewhat willing" to pay an additional \$3 per load to keep Transfer Station service local.

Except for mattresses, oil, and electronics, which are free for Berkeley residents to dispose of, would you be willing or unwilling to pay an additional \$3 per load to dispose of waste at the Transfer Station if that helped keep this service local?

(Asked of Asked of Transfer Station Users Only, n=145)

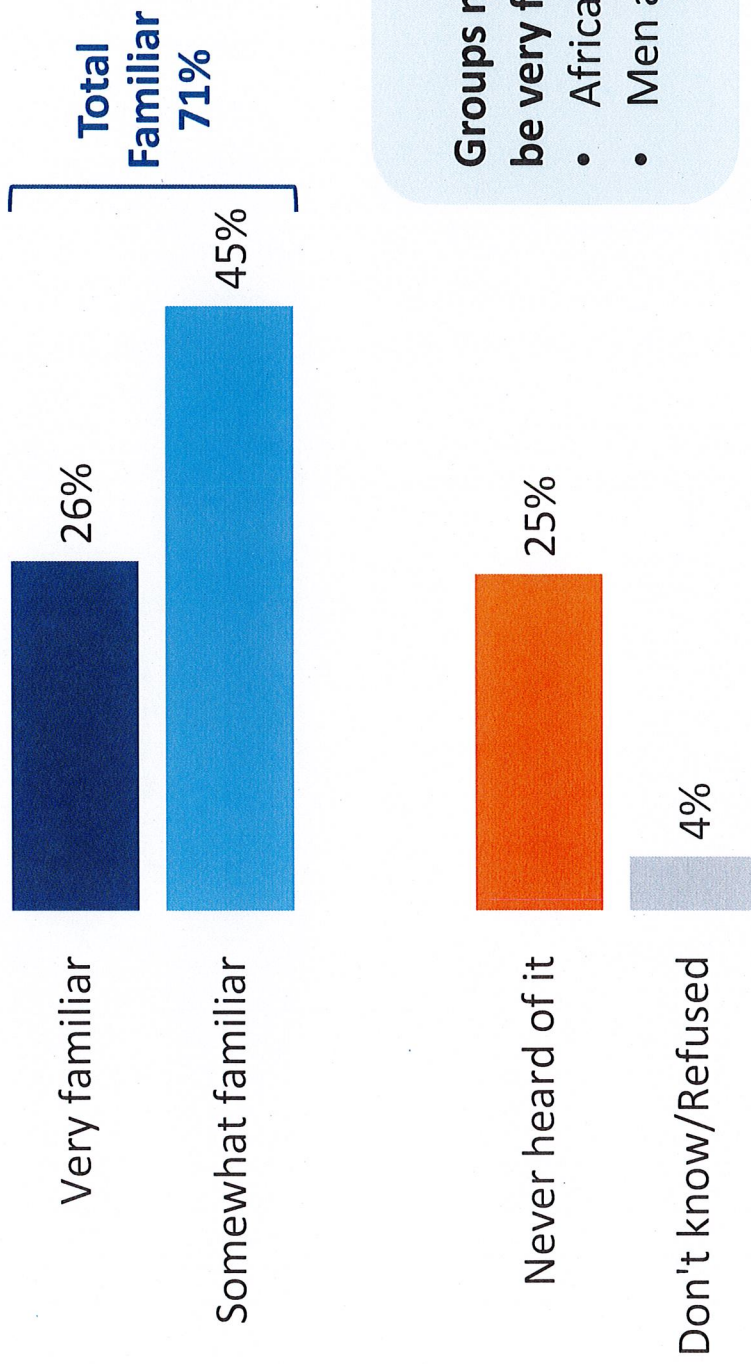




Views of Berkeley Recycling

Two in three said they were at least "somewhat familiar" with Berkeley Recycling.

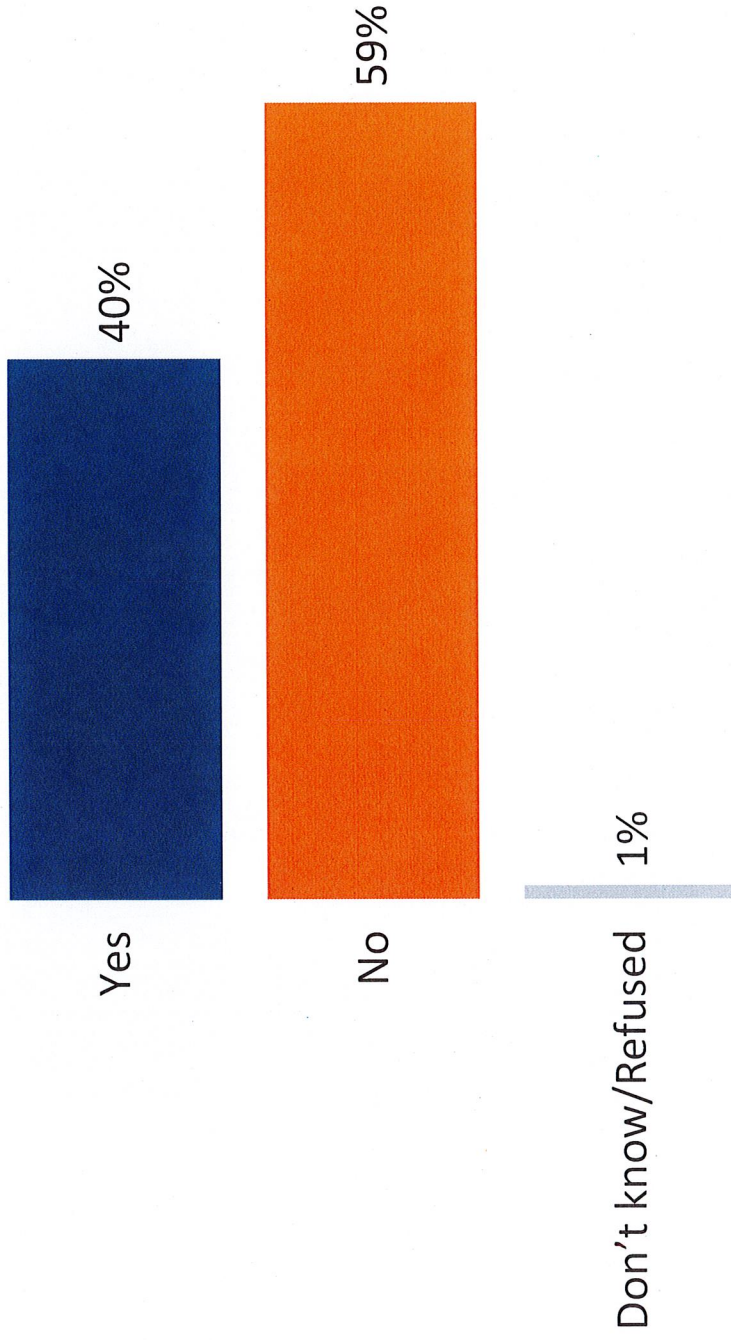
How familiar are you with Berkeley Recycling at the corner of Second and Gilman streets: very familiar, somewhat familiar, or have you never heard of it?



Of those familiar, two in five have visited in the last year.

Have you visited Berkeley Recycling in the last 12 months?

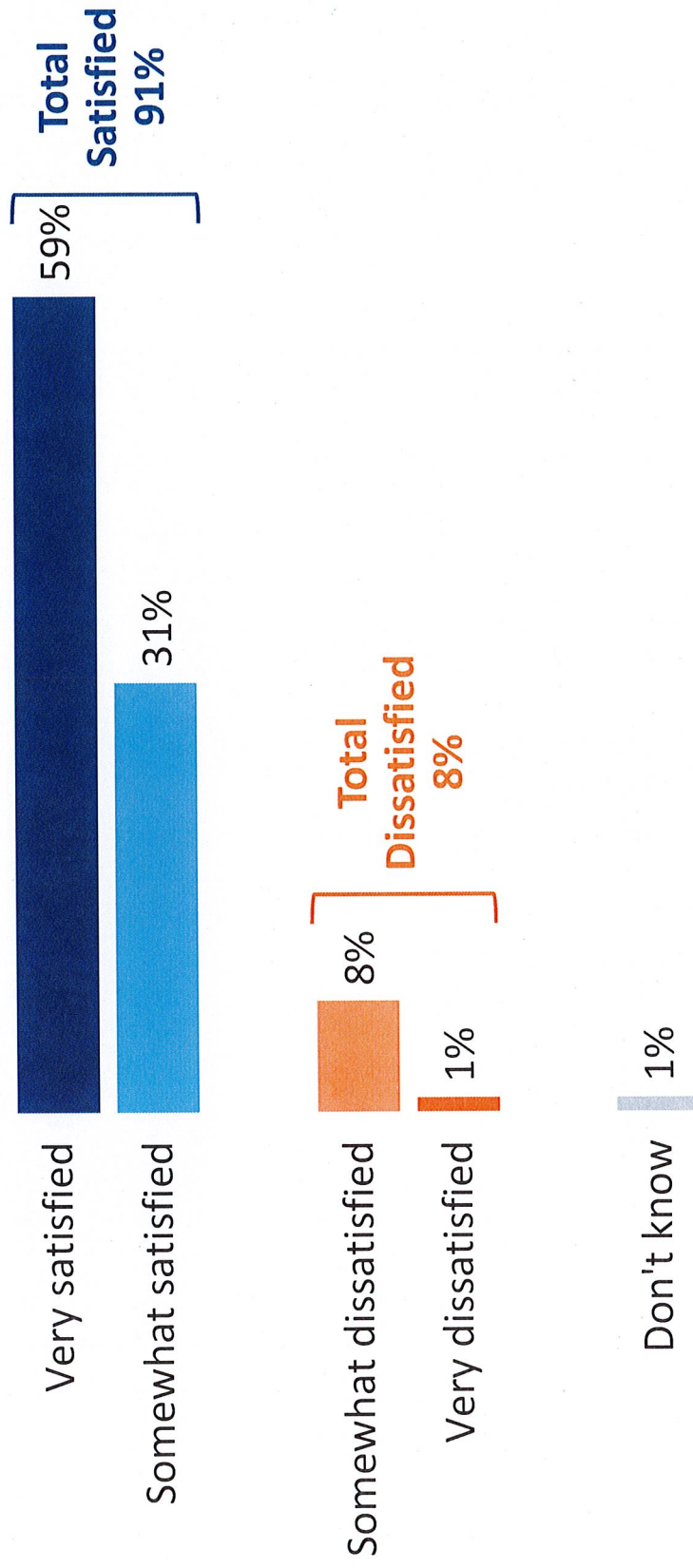
(Asked of Those Familiar Only, n=303)



Nine in ten report satisfaction with their experiences at Berkeley Recycling.

How satisfied were you with your experience or experiences at Berkeley Recycling: very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?

(Asked of Berkeley Recycling Users Only, n=121)

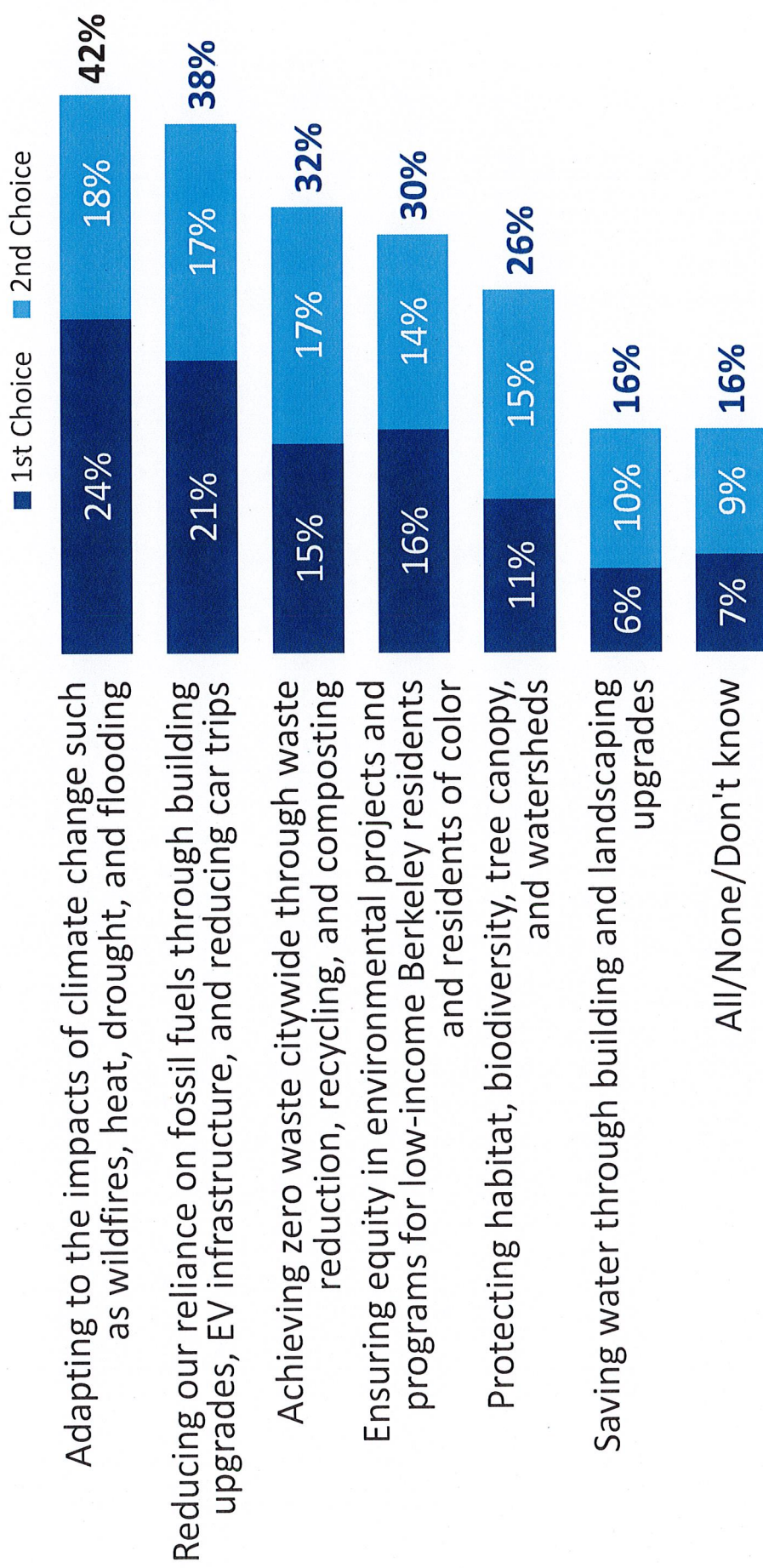




Waste Priorities and Programs

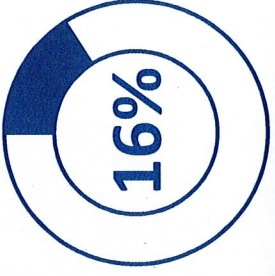
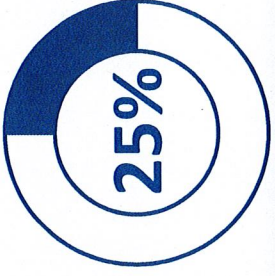
Climate change adaption and reducing fossil fuel reliance are the most common top priorities.

The City of Berkeley has a variety of projects and programs meant to reduce greenhouse gas emissions and adapt to climate change. Of the following areas for the City to focus their efforts, which are your top 2 priorities?



Groups Most Likely to Prioritize Each Program

(Ever Chosen)

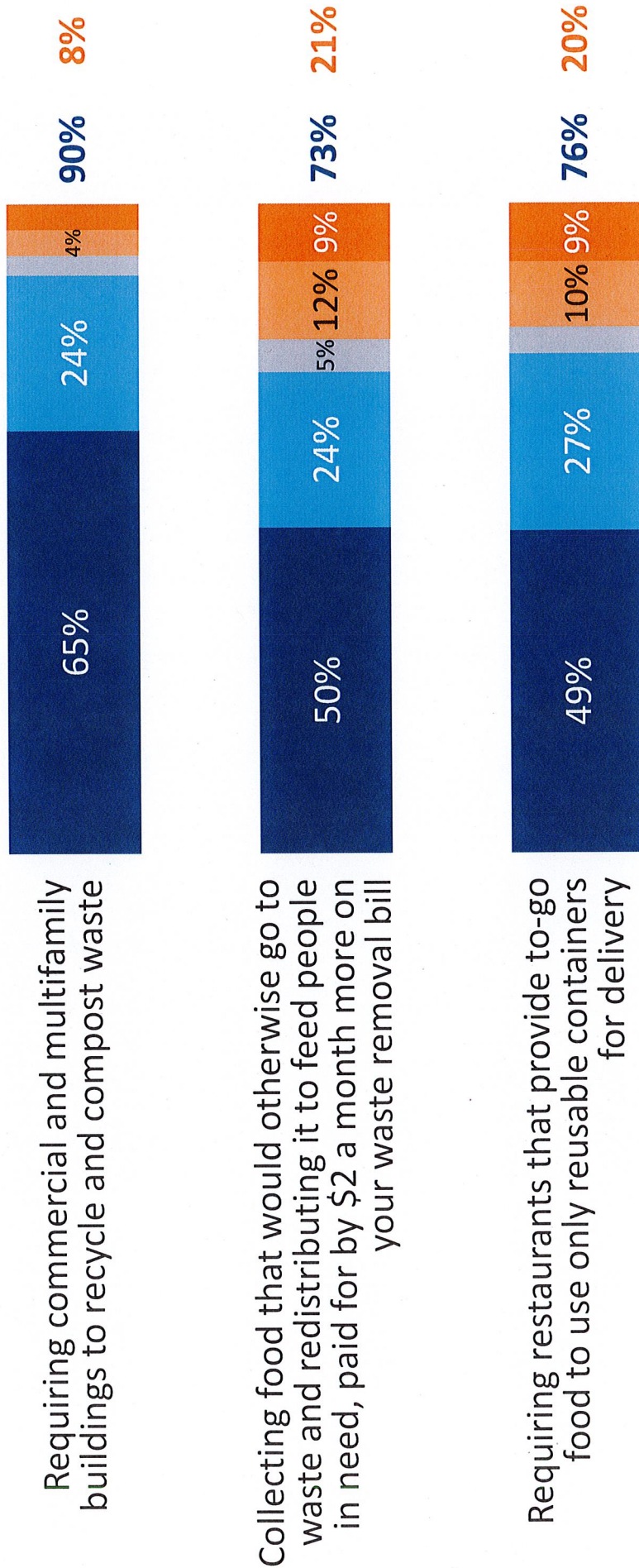


Adapting to Climate Change	Reducing Reliance on Fossil Fuels	Zero Waste	Equity	Protecting Habitat	Saving Water
ZIP Code: 94708	Latinos	API Residents	African Americans	Non-College Educated Women	High School Educated
Chinese	Ages 30-39	ZIP Code: 94705	Ages 18-29	High School Educated	College Graduates
ZIP Code: 94703	ZIP Code: 94705	Ages 40-49	People of Color	Ages 65+	Men Ages 55+
Ages 18-29	Ages 40-49	Men Ages 18-54	Women Ages 18-54	ZIP Code: 94702	ZIP Code: 94702
Post-Graduate Educated	ZIP Code: 94702	College Graduates	Ages 30-39	ZIP Code: 94707	ZIP Code: 94707
Women Ages 55+		Ages 30-39			

Residents support a variety of policies, particularly recycling and composting requirements for commercial and multifamily buildings.

■ Strng. Supp.
 ■ Smwt. Supp.
 ■ Don't Know
 ■ Smwt. Opp.
 ■ Strng. Opp.

Total Supp.
Total Opp.



Q18a-f. I am going to read you a list of programs and policies having to do with waste in Berkeley that have already been adopted or have been proposed to be adopted. Please tell me whether you support or oppose that program or policy. Not Part of Split Sample

A plurality opposes adding to their bills to fund improved cart conditions.

■ Strng. Supp. ■ Smwt. Supp. ■ Don't Know ■ Smwt. Opp. ■ Strng. Opp.

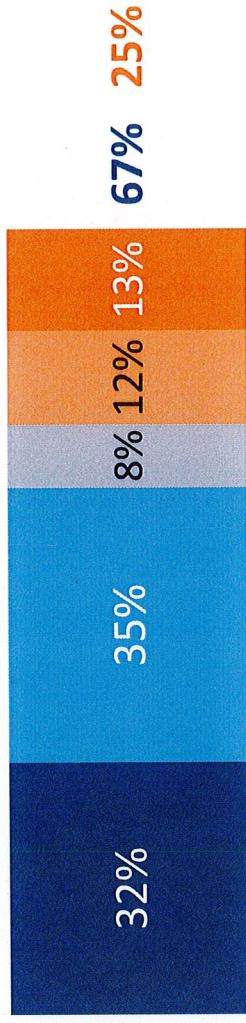
Total Supp. **Total Opp.**



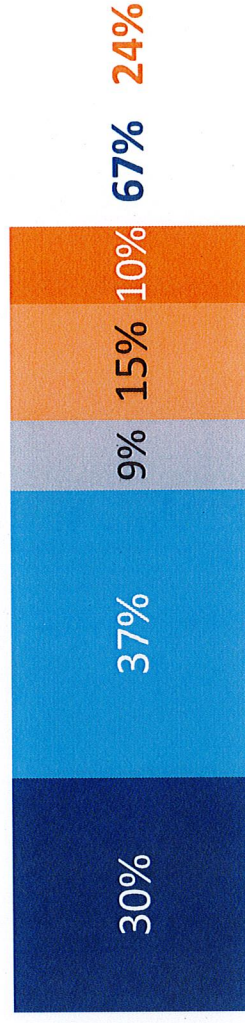
Two-thirds support increased monthly fees to pay for a new Transfer Station facility, either to achieve zero waste or to modernize.

■ Strng. Supp.
 ■ Smwt. Supp.
 ■ Don't Know
 ■ Strng. Opp.
 ■ Total Supp.
 ■ Total Opp.

Increasing your monthly waste removal fees by 3% to 5% per year to help pay to replace the City's Transfer Station with a facility that will make it possible to achieve the City's goal of zero waste



Increasing your monthly waste removal fees by 3% to 5% per year to help pay to replace the City's outdated Transfer Station with a modern facility

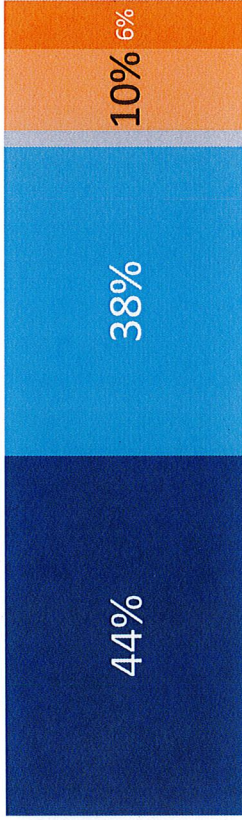


Q18g & i. I am going to read you a list of programs and policies having to do with waste in Berkeley that have already been adopted or have been proposed to be adopted. Please tell me whether you support or oppose that program or policy. Split Sample

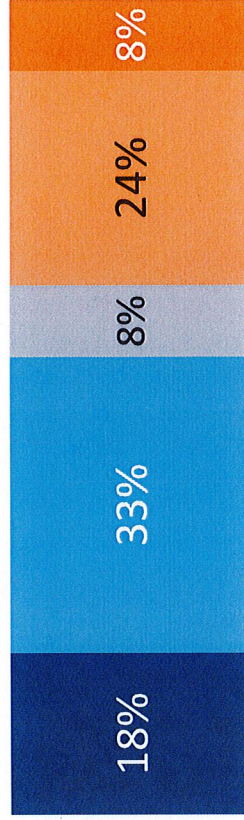
Penalties for improper waste sorting are more popular for businesses than residents.

■ String. Supp.
 ■ Smwt. Supp.
 ■ Don't Know
 ■ Strng. Opp.
 ■ Total Supp.
 ■ Total Opp.

Charging a fine to businesses and restaurants who do not properly sort their waste



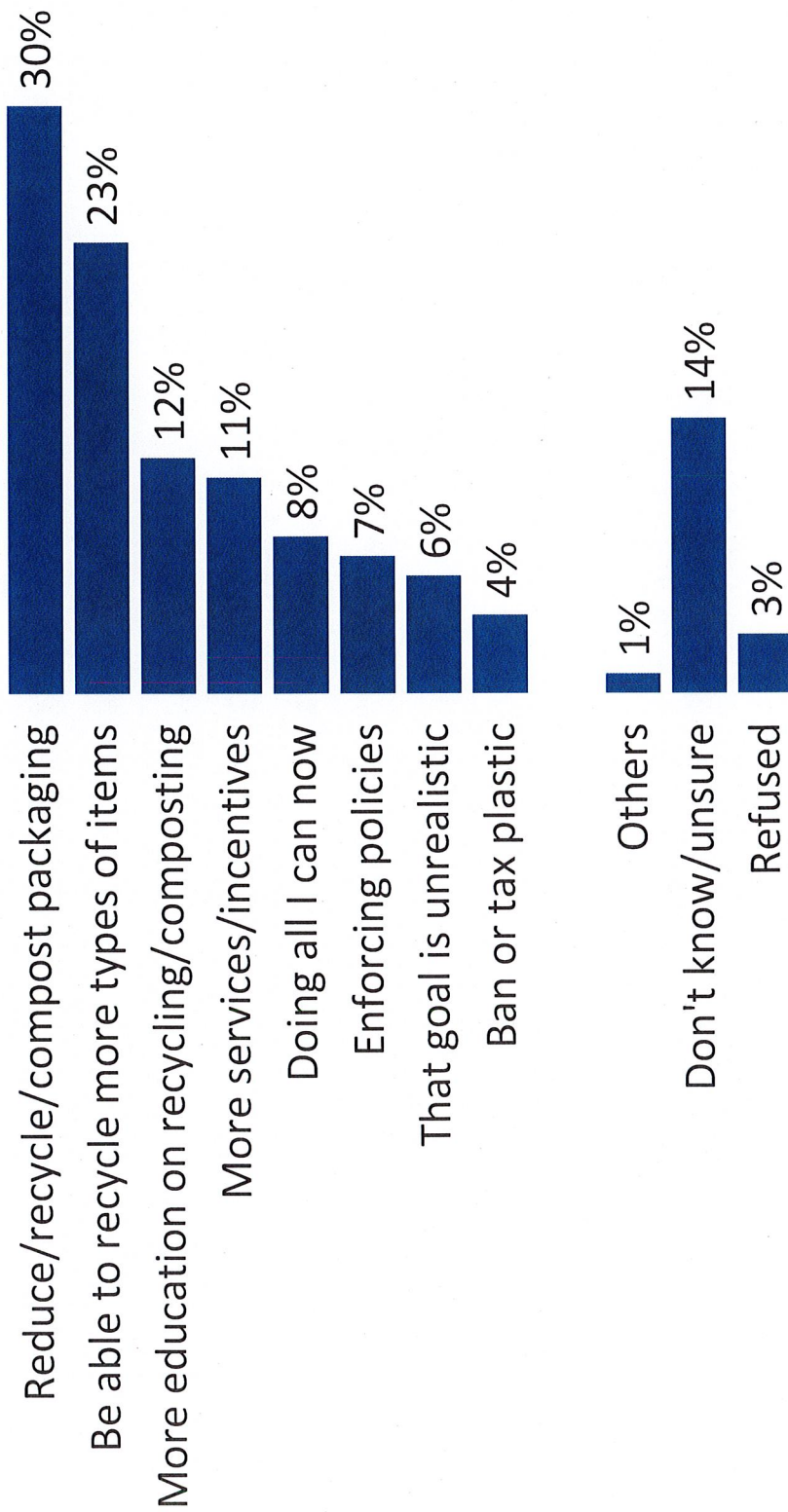
Charging a fine to residents who do not properly sort their waste



Many feel addressing packaging materials and recycling more materials are desirable goals.

The City of Berkeley has a goal of zero waste, that is sending no trash to be sent to landfills.
What would help your household/business reach that goal?

(Open-ended)



Verbatim Responses on Reaching Zero Waste

I have to teach everyone what's waste and what's not. Posting a list with actual photos would be helpful to people trying to learn it.

I am getting older and the green can is very heavy. It would be nice to provide older residence with a pick-up from their driveway rather than on the street.

The grocery stores and packaging are all made of plastic and the bulk of our waste comes from purchasing food.

All to-go packaging from restaurants in Berkeley should be compostable and the recycling center should take more plastics.

Zero waste is an impossible goal and we are wasting money that could be better spent elsewhere.

Packaging from stores and manufacturers must be recyclable!

Textiles that can't be used as rags or are thoroughly worn out there aren't a lot of options.

El Cerrito Recycling Center is my gold standard right now.

No more single use plastics, anywhere! Better reuse and repair clinic programs! Make Urban Ore bigger and better! Divert waste! Smaller trash cans! It isn't that hard!

Q19. The City of Berkeley has a goal of zero waste, that is sending no trash to be sent to landfills. What would help (CODE 1 IN QB; your household) (CODE 2 OR 3 IN QB; your business) reach that goal?



Conclusions

Conclusions

- Residential customers are overwhelmingly satisfied with their home waste removal services, especially organics and garbage, including what they pay for those services.
- Those dissatisfied with their recycling cite inadequate bin sizes and their desire that more items be accepted.
- Experiences at the Transfer Station and with Berkeley Recycling are equally positive.
- Broad majorities support increases to their monthly waste removal fees to fund replacing the Transfer Station, leftover food collection, education and public recycling containers. Less than half support increased fees for container improvements.
- Asked to choose among climate-focused programs, two in five would like the City to prioritize either climate change adaptation or reduce reliance on fossil fuels, though one-third rank “zero waste” in their top two priorities.

**For more information,
contact:**



**OPINION
RESEARCH
& STRATEGY**

Curt Below
Curt@FM3research.com




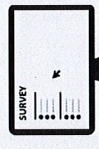
1999 Harrison St., Suite 2020
Oakland, CA 94612
Phone (510) 451-9521
Fax (510) 451-0384

Miranda Everett
Miranda@FM3research.com



Commercial Customers

Survey Specifics and Methodology

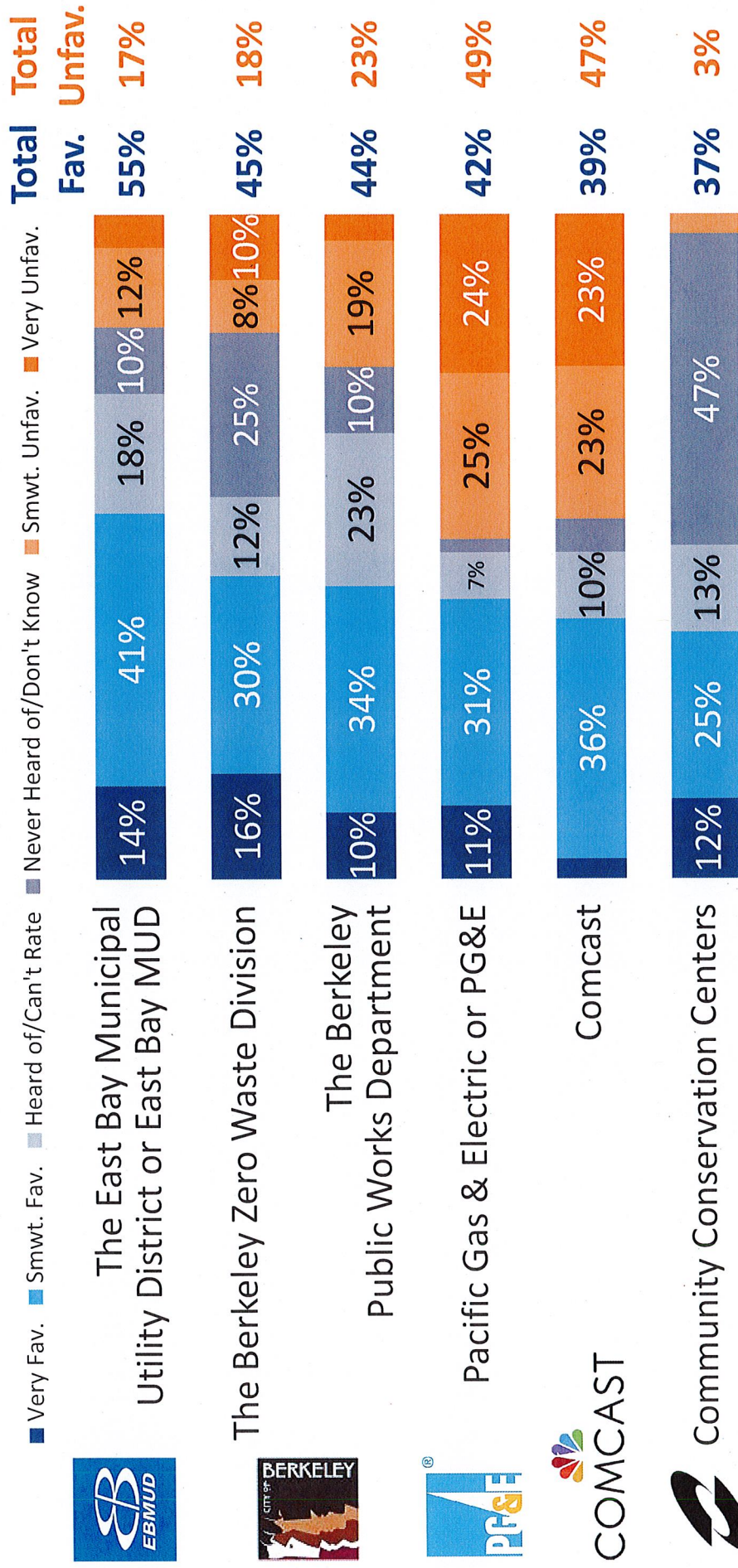
Dates	May 4-16 & June 7-10, 2021	
Survey Type	Dual-mode Customer Survey	
Research Population	Commercial Waste Disposal Customers	
Total Interviews	89	
Margin of Sampling Error	±10.4% at the 95% Confidence Level for Residential Customers	
Contact Methods	 Telephone Calls	 Email Invitations
Data Collection Modes	 Telephone Interviews	 Online Survey
Languages	English and Spanish	

(Note: Not All Results Will Sum to 100% Due to Rounding)



Views of Services and Utilities

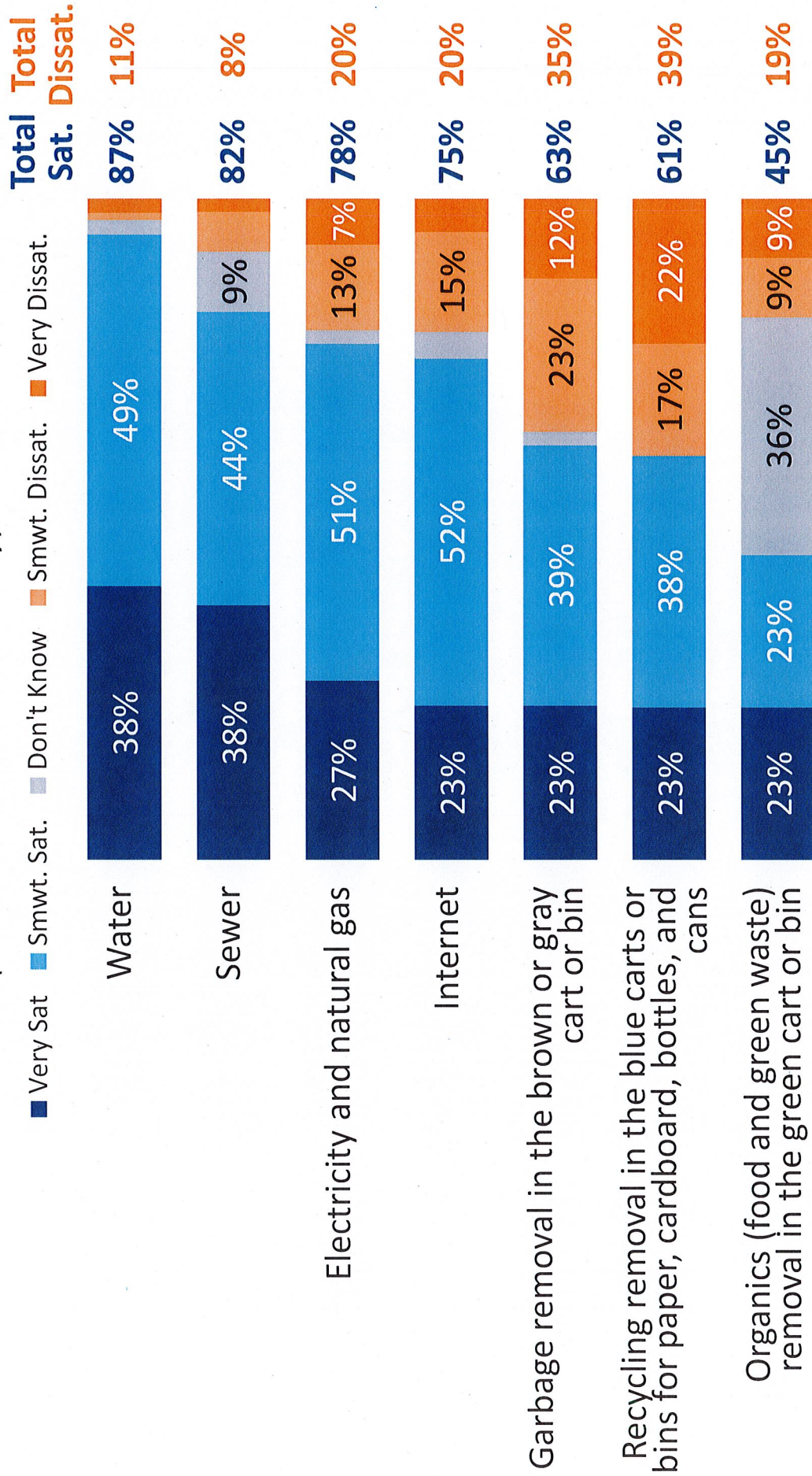
Majorities have positive views of East Bay MUD & the Ecology Center; pluralities positive. relevant City departments similarly positive.



Q1. I would like to ask your impressions of some people and organizations in public life. Please tell me whether your impression of that person or organization is generally favorable or unfavorable.

Commercial customers' satisfaction levels with waste disposal services are positive, but less than other utilities.

(Commercial Customers Only)



Q3. Here is a list of utilities and services. Please indicate how satisfied you are with each service: very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied.

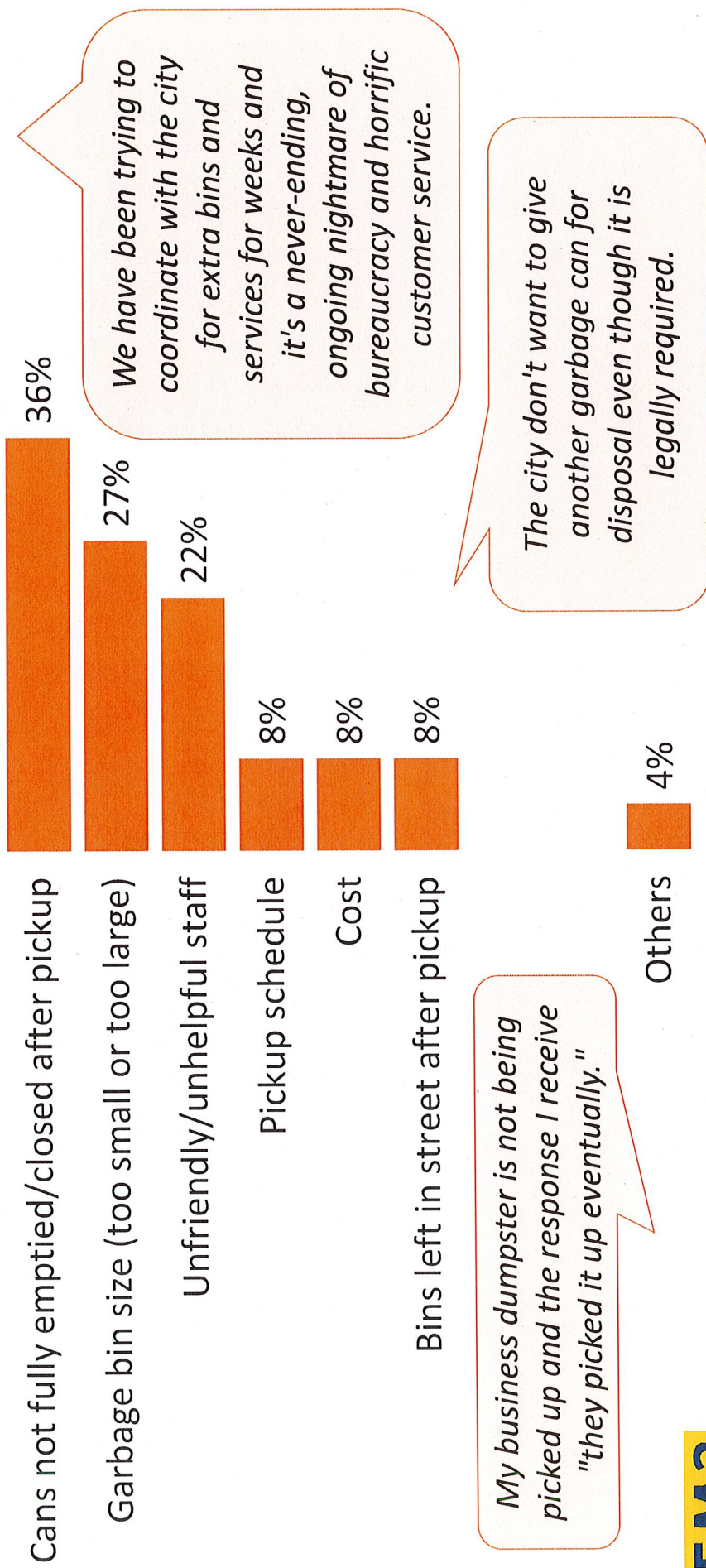
Follow-up questions were asked of those dissatisfied with any of their waste removal services, allowing respondents to explain their dissatisfaction.

Please keep in mind that these responses were from minorities of commercial customers, since commercial customers were more likely to be satisfied than dissatisfied.

Pickup schedule and garbage bin size were the most common reasons for garbage removal dissatisfaction.

Previously you indicated you were dissatisfied with your garbage removal service.
 In a few words of your own, can you tell me why you are dissatisfied with that service?

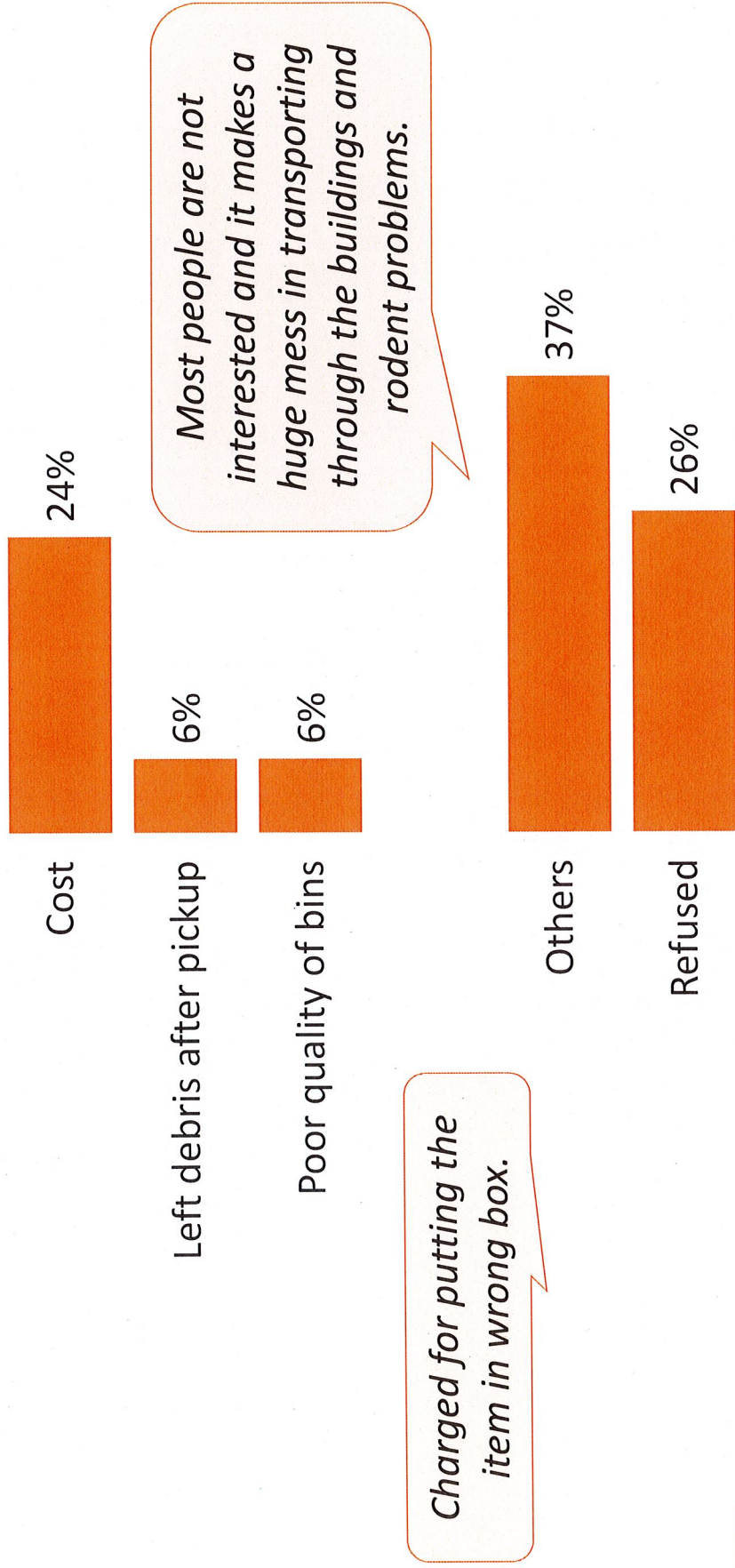
(Open-ended; Asked of Those Dissatisfied with Garbage Removal Service Only)



Those dissatisfied with their organics removal were diverse in their reasoning.

Previously you indicated you were dissatisfied with your organics (food and green waste) removal service. In a few words of your own, can you tell me why you are dissatisfied with that service?

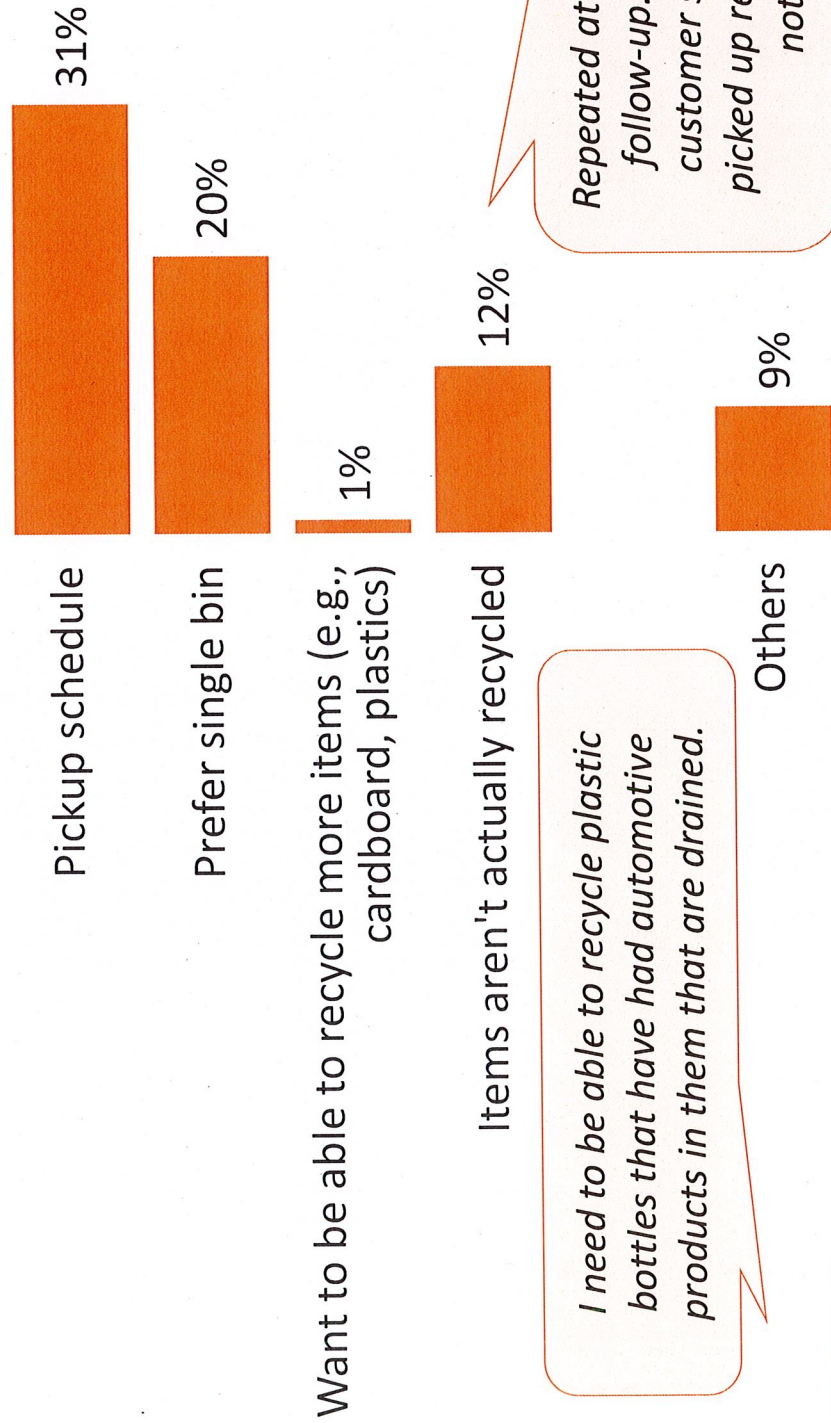
(Open-ended; Asked of Those Dissatisfied with Organics Removal Only, n=19)



Over one in four of those dissatisfied want either larger bin sizes or more recycling options.

Previously you indicated you were dissatisfied with your recycling (paper, cardboard, bottles, and cans) removal service. In a few words of your own, can you tell me why you are dissatisfied with that service?

(Open-ended; Asked of Those Dissatisfied with Recycling Service Only, n=57)



I am dissatisfied that plastic film is not recycled in the city of Berkeley, and the drivers are not as careful and professional as they could be.

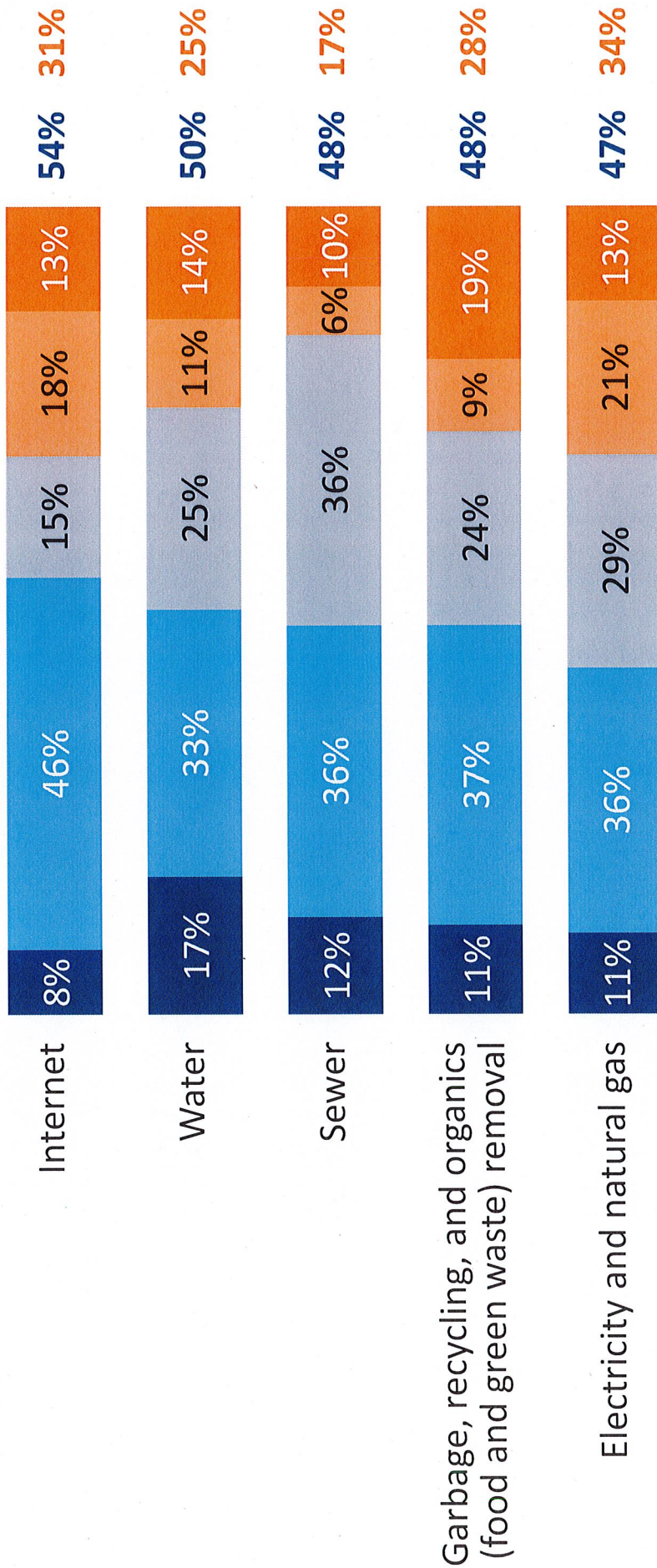
Repeated attempts to contact...no follow-up. Very disappointing customer service. No one ever picked up recycling. Missing bins not replenished.

I need to be able to recycle plastic bottles that have had automotive products in them that are drained.

About half of commercial customers believe their waste removal prices are at least somewhat reasonable, consistent with other utility services.

(Commercial Customers Only)

■ Very Reas.
 ■ Smwt. Reas.
 ■ Don't Use/Don't Know
 ■ Smwt. Unreas.
 ■ Very Unreas.
 ■ Total
 ■ Reas.
 ■ Unreas.



Q4. I am going to read the same list of utilities and services. This time please tell me whether you think the price you pay for that service is reasonable or unreasonable, given the value you receive.



Views of City of Berkeley Services

Nearly seven in ten are "very satisfied" with the City's reliability in picking up carts; half are dissatisfied with illegal dumping cleanup.

(Commercial and 10+ Unit Residential Customers Only)

■ Very Sat.
 ■ Smwt. Sat.
 ■ Don't/Know
 ■ Smwt. Dissat.
 ■ Very Dissat.
 Total Sat. 76%
 Total Dissat. 17%

Providing instructions on which waste goes in each cart



Picking up carts reliably on service day



Responding to customer questions or concerns



Removing illegal dumping and homeless encampment cleanups



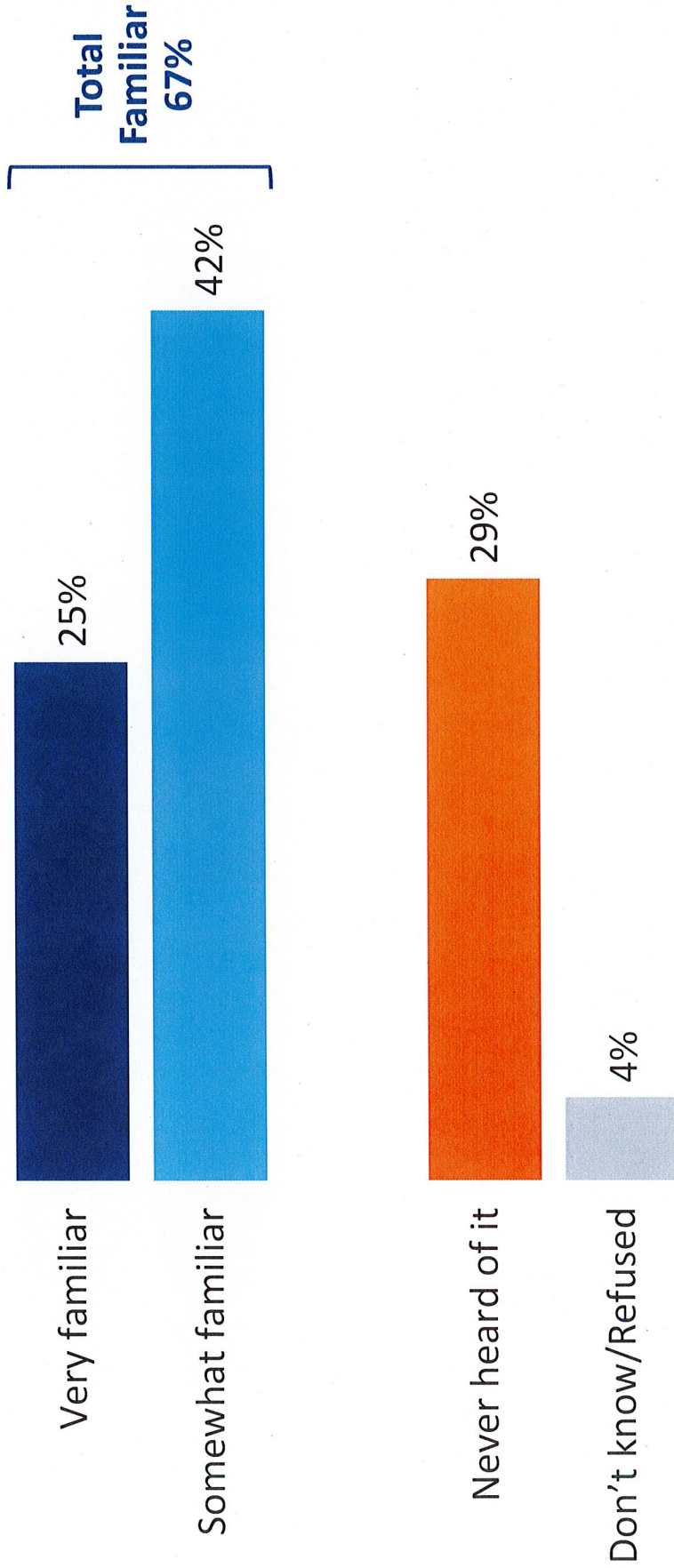
Q8. As you may know, the City of Berkeley picks up garbage, recycling and organics (food and green waste) for your business. For each of the following aspects... please tell me how satisfied you are, either very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied.



Views of the City of Berkeley Transfer Station

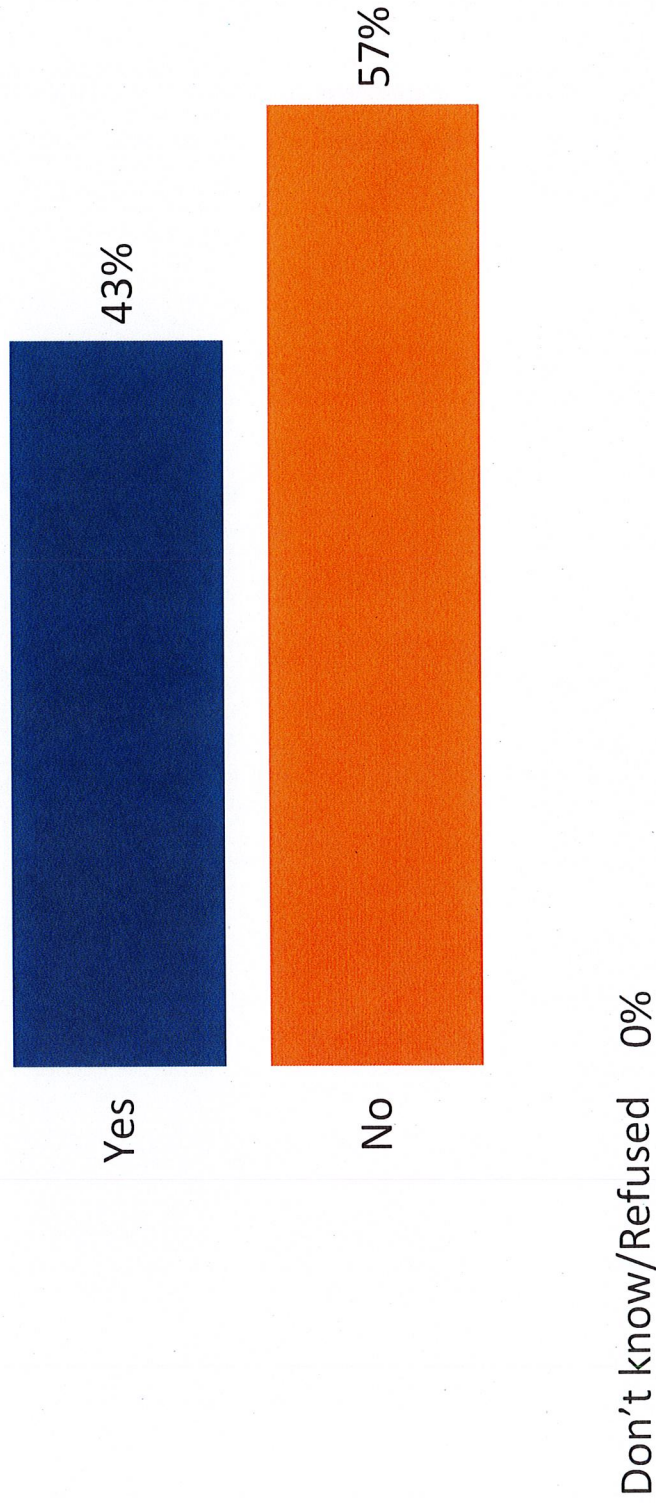
Two in three commercial customers are at least somewhat familiar with Berkeley's Transfer Station.

How familiar are you with the City of Berkeley's Transfer Station at Harrison and Second streets, which is sometimes referred to as the dump: very familiar, somewhat familiar, or have you never heard of it?



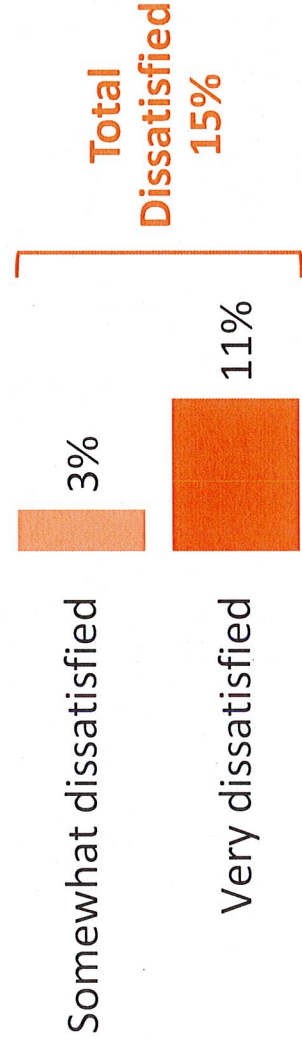
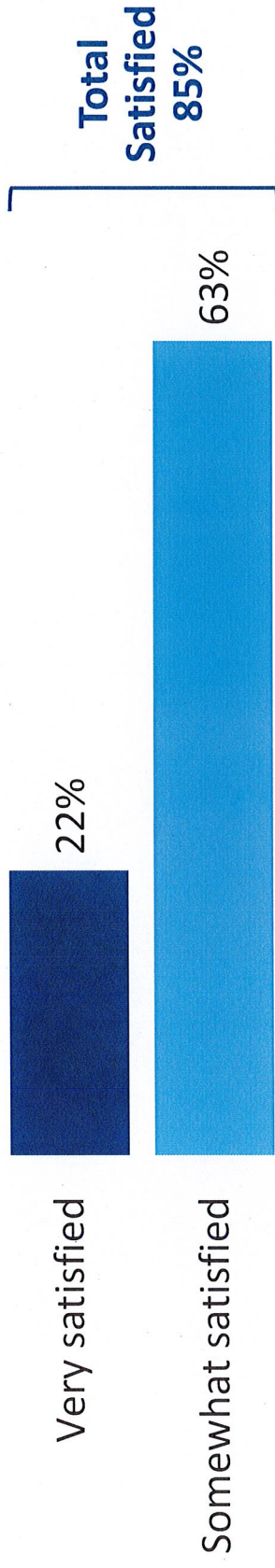
About two in five of those familiar have been to the Transfer Station in the last year.

Have you visited the City of Berkeley's Transfer Station in the last 12 months?
(Asked of Those Familiar Only)



More than four in five are statisfied with their experiences at the Transfer Station.

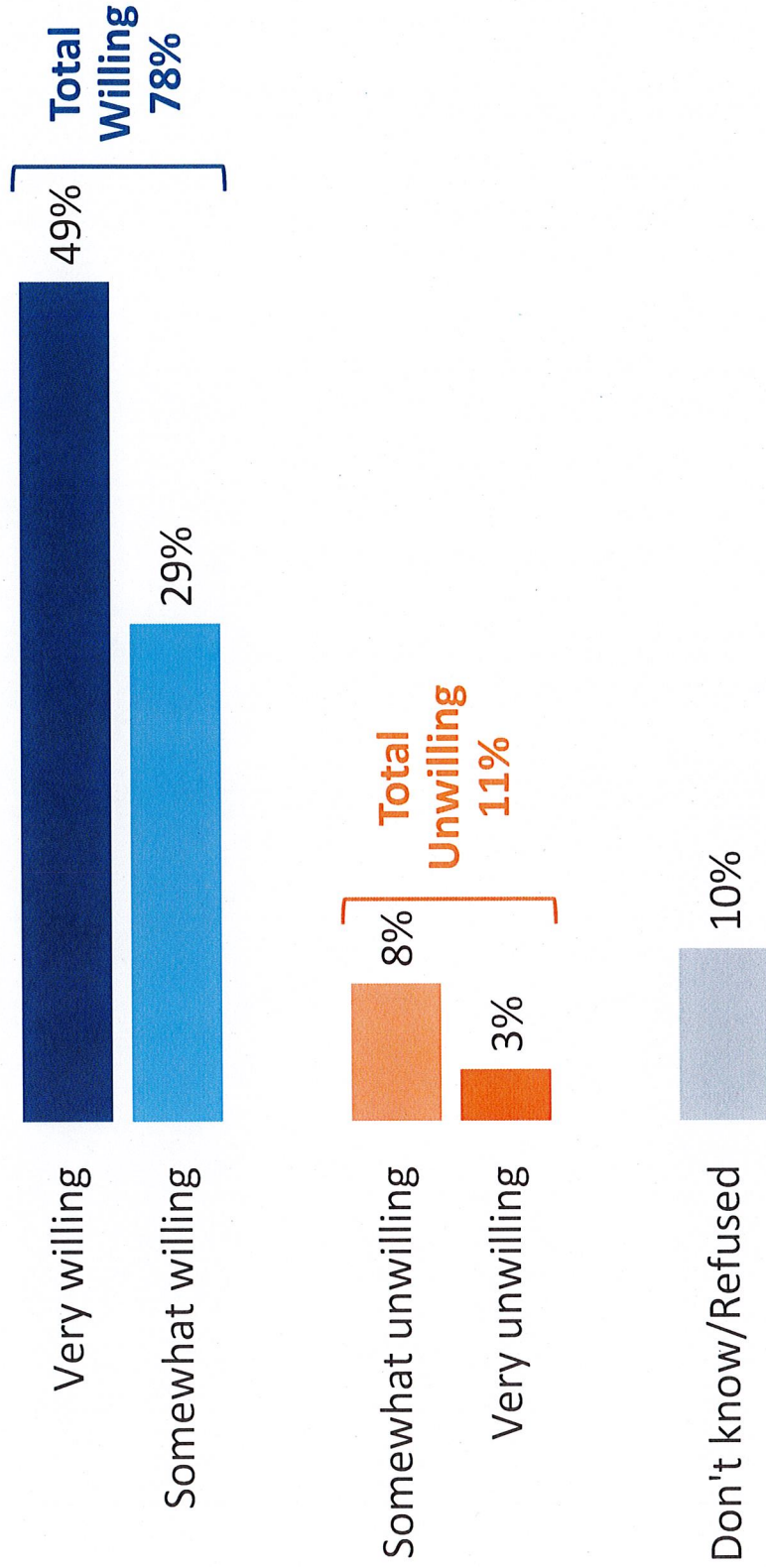
How satisfied were you with you experience or experiences at the City of Berkeley's Transfer Station: very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?
(Asked of Asked of Transfer Station Users Only)



More than three in four said they were at least "somewhat willing" to pay an additional \$3 per load to keep Transfer Station service local.

Except for mattresses, oil, and electronics, which are free for Berkeley residents to dispose of, would you be willing or unwilling to pay an additional \$3 per load to dispose of waste at the Transfer Station if that helped keep this service local?

(Asked of Asked of Transfer Station Users Only)

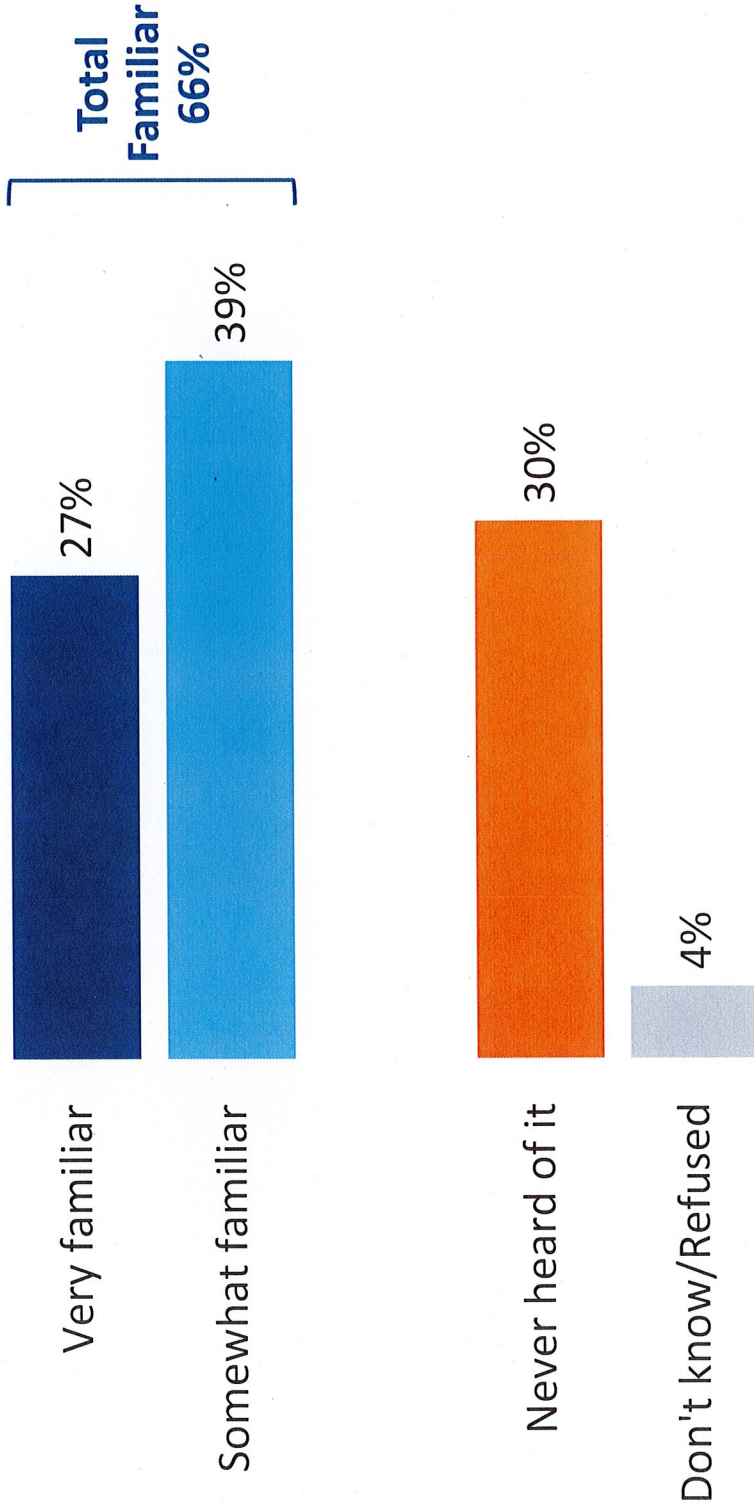




Views of Berkeley Recycling

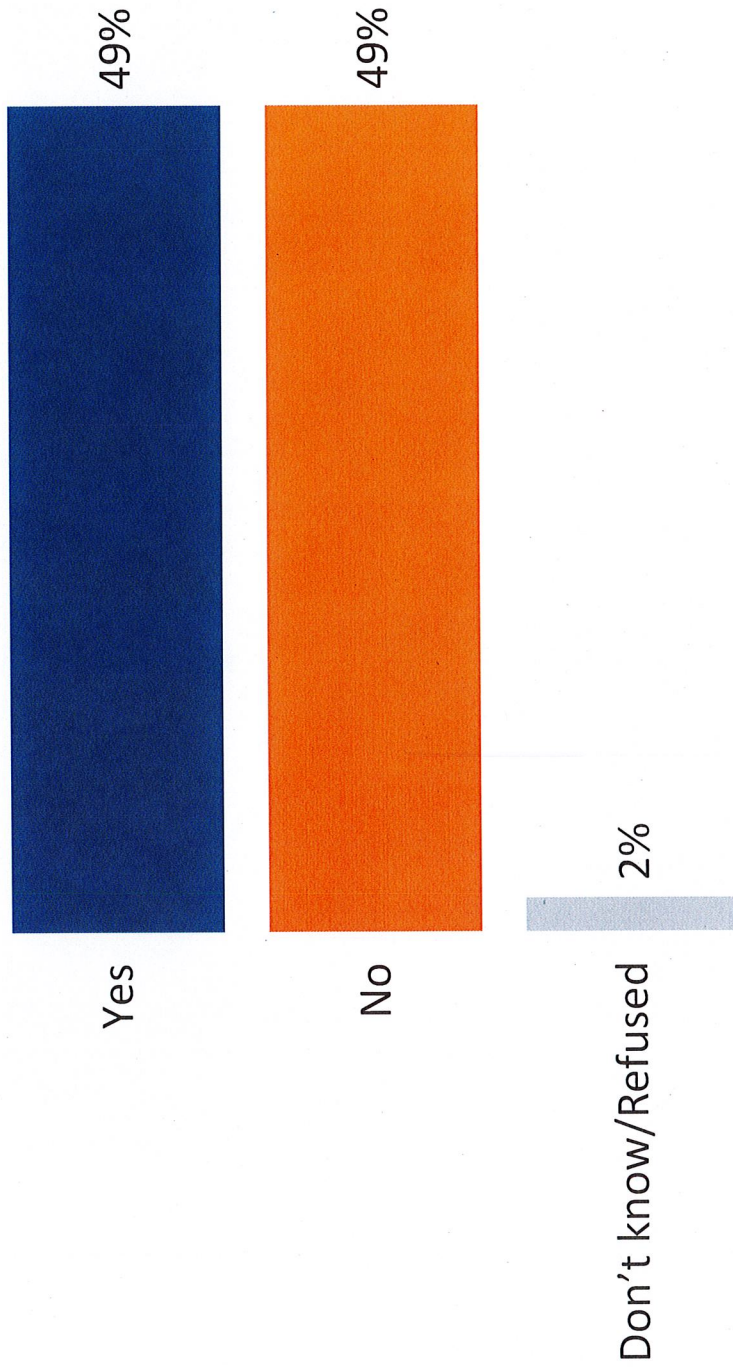
Two in three said they were at least "somewhat familiar" with Berkeley Recycling.

How familiar are you with Berkeley Recycling at the corner of Second and Gilman streets: very familiar, somewhat familiar, or have you never heard of it?



Of those familiar, half have visited in the last year.

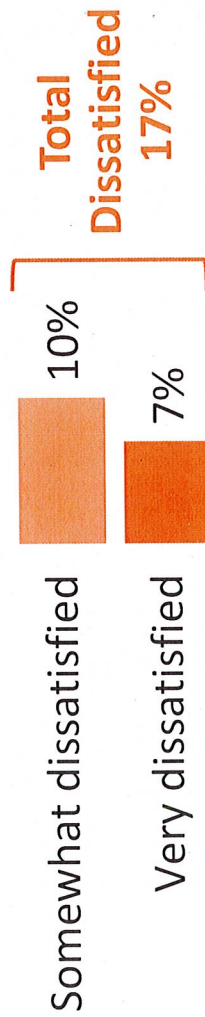
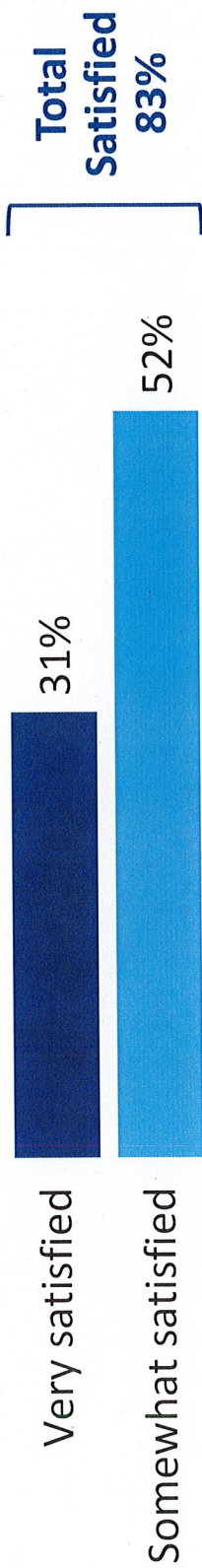
Have you visited Berkeley Recycling in the last 12 months?
(Asked of Those Familiar Only)



Four in five report satisfaction with their experiences at Berkeley Recycling.

How satisfied were you with your experience or experiences at Berkeley Recycling: very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?

(Asked of Berkeley Recycling Users Only)



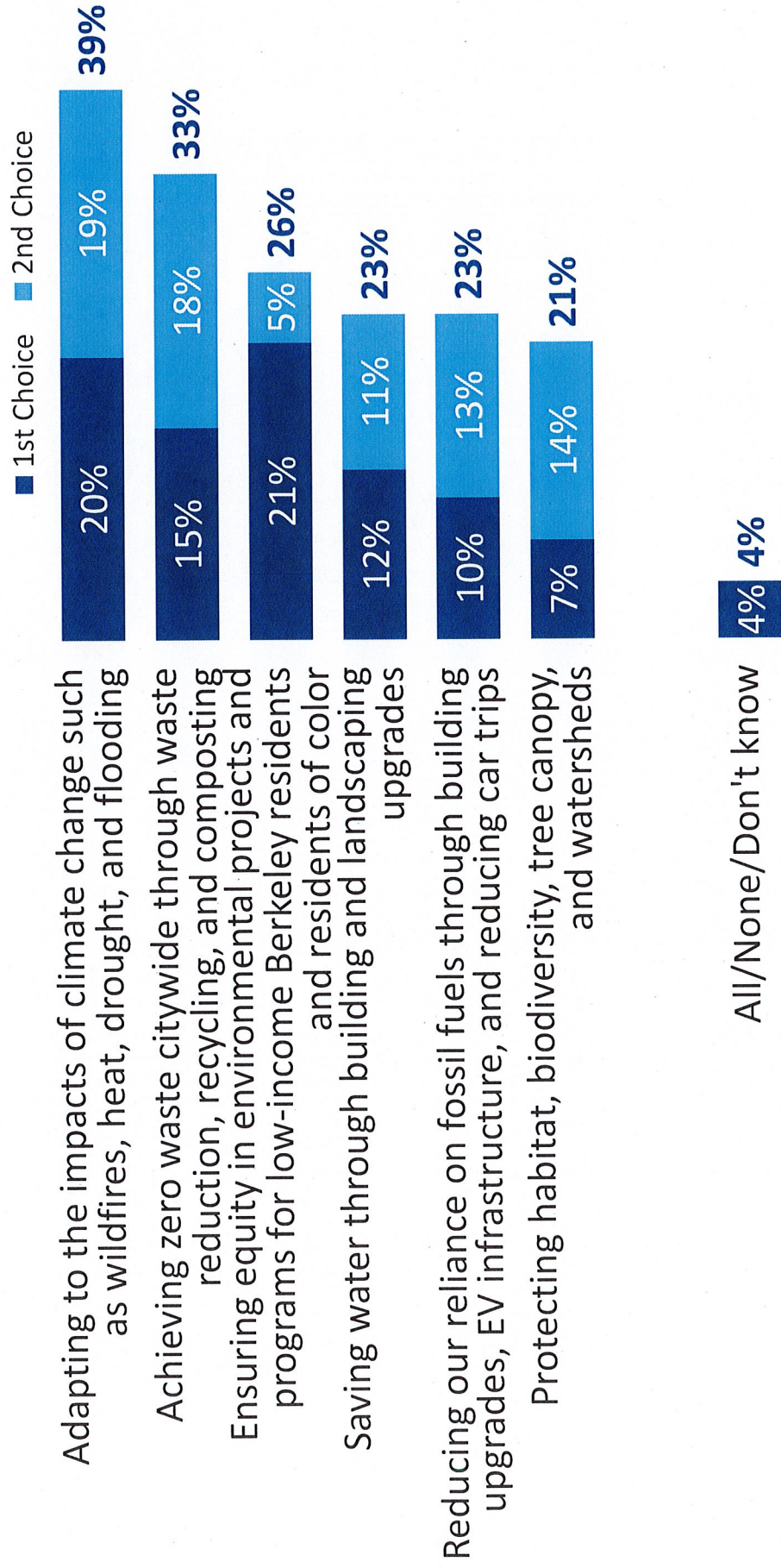
Don't know 0%



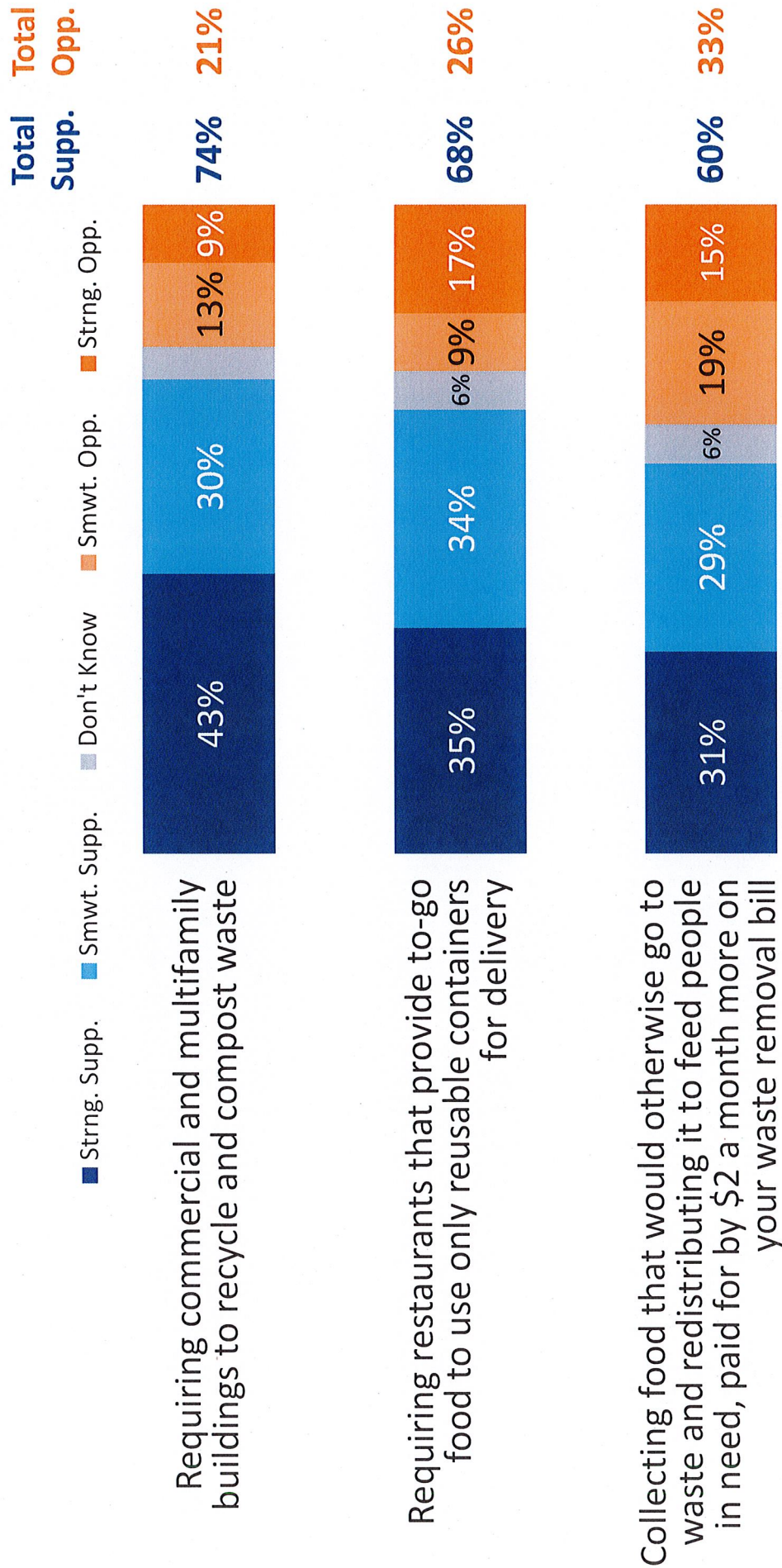
Waste Priorities and Programs

Climate change adaption and achieving zero waste/equity goals are the most common top priorities for commercial customers.

The City of Berkeley has a variety of projects and programs meant to reduce greenhouse gas emissions and adapt to climate change. Of the following areas for the City to focus their efforts, which are your top 2 priorities?



Commercial customers support a variety of policies, including expanding recycling and composting requirements.



Commercial customers are mixed on adding to their bills to fund improved cart conditions.

■ Strng. Supp.
 ■ Smwt. Supp.
 ■ Don't Know
 ■ Smwt. Opp.
 ■ Strng. Opp.

Total
Supp.
Opp.

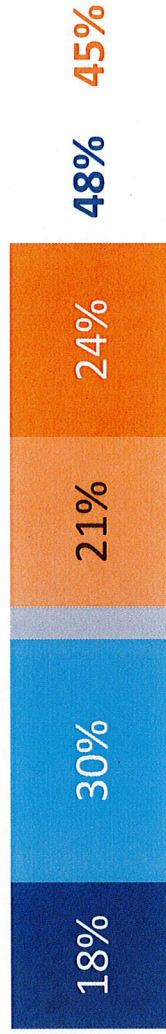
Supplying recycling containers for paper, bottles, and cans in public areas, paid for by \$2 a month more on your waste removal bill



Hiring an employee to conduct outreach and education on recycling, composting, and reuse methods that reduce waste in Berkeley, paid for by two dollars a month more on your waste removal bill



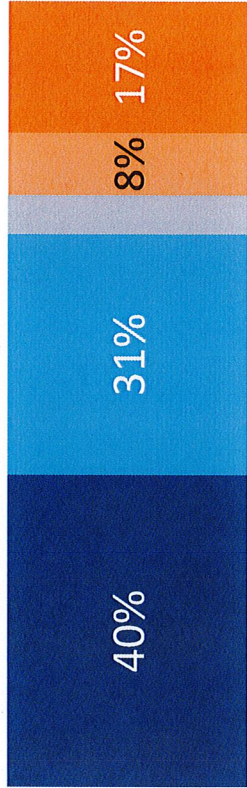
Improving the condition of carts, bins, or pails by replacing them earlier, paid for by one or two dollars more per month on the waste removal bill



Commercial support customers support fee increases to support the Transfer Station, more so to fund a modern replacement.

■ Strng. Supp. ■ Smwt. Supp. ■ Don't Know ■ Smwt. Opp. ■ Strng. Opp. **Total Supp. Opp.**

Increasing your monthly waste removal fees by 3% to 5% per year to help pay to replace the City's Transfer Station with a facility that will make it possible to achieve the City's goal of zero waste



Increasing your monthly waste removal fees by 3% to 5% per year to help pay to replace the City's outdated Transfer Station with a modern facility



Interestingly, penalties for improper waste sorting are more popular for businesses than residents.

■ Strng. Supp.
 ■ Smwt. Supp.
 ■ Don't Know
 ■ Strng. Opp.
 ■ Total Supp.
 ■ Total Opp.

Charging a fine to businesses and restaurants who do not properly sort their waste



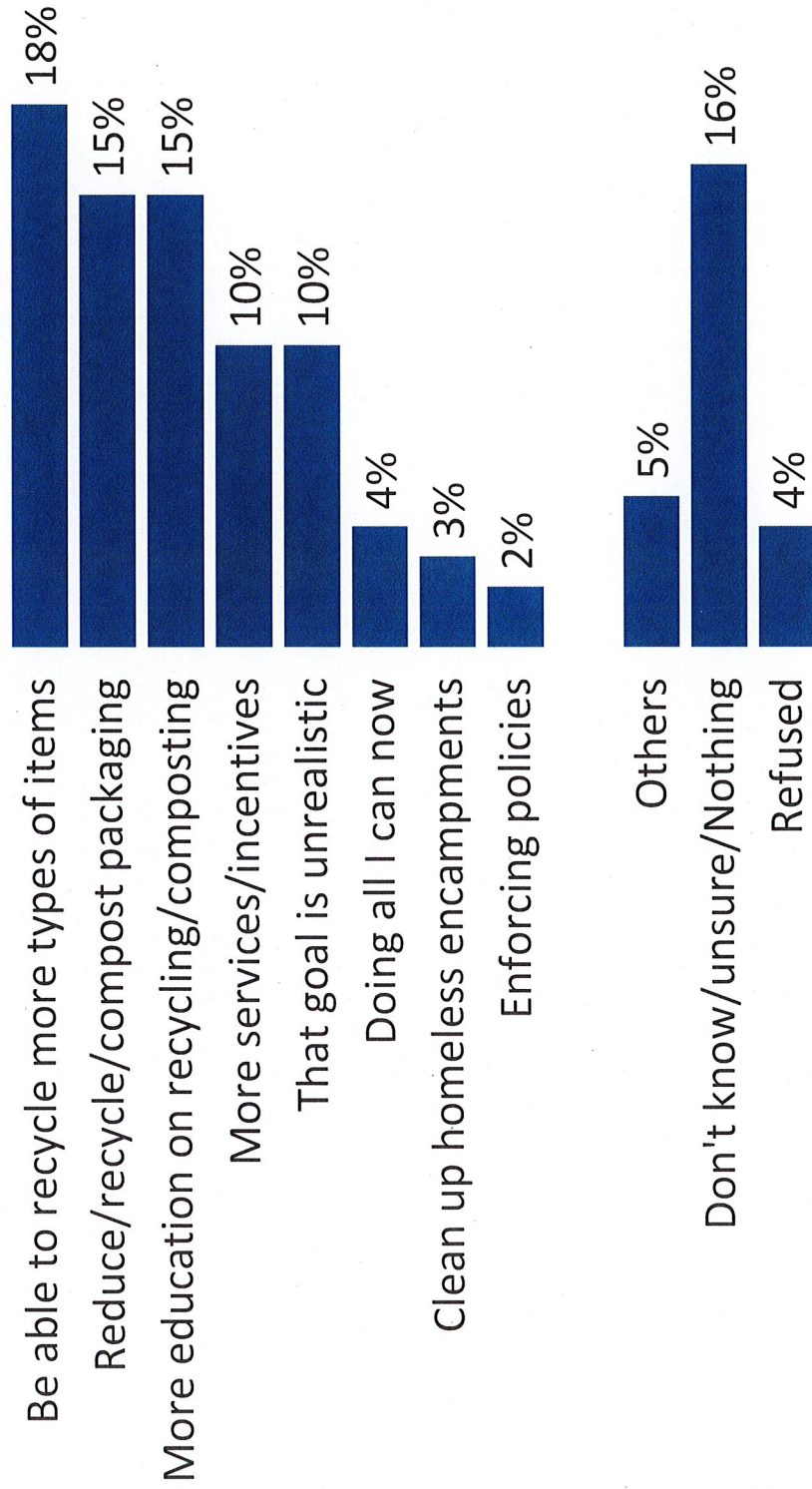
Charging a fine to residents who do not properly sort their waste



Many feel addressing packaging materials, recycling more materials, and more education are desirable to help achieve zero waste.

The City of Berkeley has a goal of zero waste, that is sending no trash to be sent to landfills.
 What would help your business reach that goal?

(Open-ended)





Solid Waste & Recycling Transfer Station

Feasibility Study 18-11171-C

Prepared By:





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Executive Summary

Overview

This Solid Waste & Recycling Transfer Station Feasibility Study (Study) for the City of Berkeley provides a vision for a new green infrastructure to meet the City's zero waste goals, create new opportunities for community member engagement and collaboration, enhance operational efficiencies and model best practices in lower carbon emission operations. Through active collaboration and exhaustive community member and stakeholder engagement consisting of nine public meetings/workshops held between November 2018 to May 2019 (see Section 2 of the Report for more details), the City and its diverse community of stakeholders have developed a consensus around two conceptual facility designs (Concepts A and B) which are environmentally sound, safe and accessible for all users of the facility and compatible with the surrounding neighborhood.



Figure ES-1: Concept B - Public Education Center Entrance

This Feasibility Study evaluates the anticipated space needs for the City's various recycling and solid waste operations, site access and circulation, building structure requirements, and conceptual-level costs for such improvements along Second Street north of Gilman Street.

Proposed conceptual designs for the facility focused on a holistic approach to integrating all current recycling and solid waste activities, inclusive of the public buyback center and recyclables processing operation, City contracted curbside recycling vendors offices, Transfer Station, scale house, City administrative and employee offices, truck parking and related operations. Figure ES-2 on the next page provides an aerial overview of existing solid waste and recycling activities along Second Street.



Figure ES-2: Aerial Overview of Existing Recycling and Solid Waste Operations on 2nd St.

The City of Berkeley Solid Waste and Recycling Transfer Station currently includes the following types of material handling, processing and/or transfer operations as depicted in the color graphic below:

Overview of the Transfer Station

- Self-haul transfer
- Refuse, organics, & construction debris transfer
- Motor oil, mattresses, tires, white/brown goods drop-off
- Reuse salvage
- City collection fleet & admin.
- City contractor for residential recycling fleet & admin.
- City contractor for recyclables processing, recycling & universal waste drop-off, buyback & administration



The Solid Waste and Recycling Transfer Station complex is managed by the Zero Waste Division (Division) of the City of Berkeley Public Works Department with its 90+ employees and 83 vehicles, including tractor/transfer trailers and the City's collection fleet. Operations also include the Public Works Department's Equipment Maintenance building that services the Division's collection and service vehicles, and the City's large vehicles, such as fire department,



and public works vehicles; heavy equipment/large rolling stock maintenance garage; truck wash rack; and fueling station (two underground diesel storage tanks requiring replacement by 2025).

The Division also directs and oversees a number of subcontractors for program and service delivery that operate out of the facility, including:

- Residential curbside recycling collection is operated by and currently contracted with the Ecology Center (EC); eight (8) collection trucks and more than twenty (>20) employees that collect residential recycling materials for properties with up to nine (9) residential units;
- MRF and buyback center is operated by and currently contracted with the Community Conservation Center (CCC); also processes and markets recyclable materials collected from the residential and commercial sectors with approximately 20+ employees; and
- Reuse salvage/collection is operated by and currently contracted with Urban Ore, having two (2) to three (3) employees, which operates a salvage and diversion program for reusable goods delivered to the floor of the Transfer Station that can be reused for their originally intended purpose or repurposed while in their originally manufactured form.

Summary of Two Proposed Concepts

The two proposed conceptual designs will transform the 7.45-acre site from an outdated and highly fragmented operation with significant traffic back-ups to a modern state-of-the-art Solid Waste and Recycling Transfer Station facility that will deliver quality service to the City's diverse community in an innovative and cost-effective manner. The future facility will showcase the City's commitment to global leadership in addressing climate change, advancing environmental justice, environmental stewardship, and protecting the environment.

As documented in the following report (see more details in Section 3.6 of the Report), both conceptual facility designs will incorporate a diverse array of sustainability features including but not limited to:

- Photovoltaic panels on roof structures and canopy structures
- Elevated wind turbines for the on-site production of power
- Provide future flexibility to incorporate new material handling practices
- Rainwater capture and reuse features
- Public kiosks with information on zero waste and sustainable living tips
- Creek walk (pathway) with educational kiosks and watershed art on Codornices Creek
- Community art with environmental themes
- Environmental education center and public tour program



Figure ES-3: Concept A - Public Buyback and Drop-off Center View from Gilman St. @ Second St.

The facility is being designed to be a net zero energy facility and is intended to achieve a Leadership in Energy and Environmental Design (LEED) certification.

As illustrated throughout this document and specifically in greater detail in Sections 3.3 and 3.4, the proposed facility improvements will include the following:

- Larger public buyback and drop-off center located in close proximity to Gilman Street @ Second Street
- New building and equipment for the dual stream recyclables processing area (known as a Materials Recovery Facility)
- New larger, fully enclosed transfer station building to ensure flexibility to accommodate the reduction of incoming refuse and increase in recyclable materials
- Larger scale house and entrance area for public customers and a separate scale entrance for larger city collection vehicles to eliminate current traffic back-ups and unsafe mixing of smaller public vehicles with larger commercial collection vehicles
- Community amenities including an environmental education center, community meeting room, public tour space, a creek walk area, and local artisan spaces
- New employee and administrative offices
- New vehicle maintenance facility and related operations

Preliminary concept plans, exterior elevations, and 3D design modeling were prepared by the Zero Waste Collaborative (ZWC) team to help visualize the proposed improvements in more detail and facilitate preliminary cost estimating (see Section 5) that is consistent with a feasibility level evaluation. This cost analysis has been used in the financial model for this Study as shown in Section 6.



Initial Project Research

Site & Facility Conditions Assessment

In February 2019, ZWC completed a Site Conditions Review and Assessment (see **Exhibit 4**) of all existing buildings and above ground infrastructure. In addition to an overall site and facility conditions review, the ZWC Team reviewed current operations. The operations review identified potential long-term recommendations for improvements as well as making immediate improvements (over a two to three-year period) to enhance safety and efficiency.

A key element of the Assessment was the consideration of on-site traffic and access to the site including:

- The future traffic roundabout at Gilman Street and I-80 intersection.
- The queuing issues that extend down Second Street on peak usage days.
- Onsite and offsite safety and efficiency and the mixing of larger commercial trucks and public vehicles
- Assess potential improvements for public access.

The Assessment also identified potential planning and zoning issues and initiated the facility programming process.

Interstate 80 /Gilman Street Interchange (Gilman Interchange)

The planned roundabout at the east side of Interstate 80 (I-80) at Gilman Street (see <https://www.alamedactc.org/programs-projects/highway-improvement/i80gilman/>) will significantly improve traffic mobility at the intersection of Gilman Street and the Eastshore Highway. Eastshore Highway is a frontage road and an important exit path for traffic leaving the facility from Harrison Street; this traffic can turn right (northbound) or left (southbound) back to Gilman Street. From Gilman Street, traffic can turn left eastbound back to toward Berkeley or right for access to I-80. This intersection at Eastshore/Gilman Street poses delays as well as safety risks for crossing. Relief of congestion here will impact access to and from the site in a very positive manner. The proposed roundabout along with the planned signal at 4th Street will result in better traffic flow, safer turning, and less queuing. It can be assumed then that less queuing and fewer turning conflicts will result in less public user frustration and encourage return visits.

The Gilman Interchange is designed to accommodate all categories of California legal tractor-semitrailers: "Black" CA legal 65 FT trucks, "Green" STAA-56 FT trucks, and WB-67D double-bottom combination trucks.

The proposed improvements also include a two-way cycle track on Gilman Street and Bay Trail gap closure. As part of the City's Climate Action Plan, the Zero Waste Facility will encourage bicycle access.

The roundabout and related improvements are being implemented by the Alameda County Transportation Commission with a construction to begin in 2020 and the estimated completion will be prior to the start of construction of the Zero Waste Transfer Station facility improvements.



Figure ES-4: I-80 / Gilman Street Roundabout Improvements

Zero Waste Goals

The current recycling and solid waste operations do not provide an environment for the optimal diversion and recycling of incoming materials, and on-site traffic flow. The focus of this Study has been to define new facility improvements that meet or exceed the following goals for the City of Berkeley.

State-of-the-Art Solid Waste and Recycling Transfer Station

- Maximize recovery and diversion of materials transported to the landfill.
- Facility that provides a maximum amount of space for the separation of materials for recovery.
- Eliminate double handling and minimize material movement onsite.

Maximize Recovery of Reusable and Recyclable Materials

- Provide a public buyback center that encourages use by both drive-in customers and walk-in customers.
- Create a new inviting environment for public drop-off that's easy to use and encourages more separation of recyclables and recoverables.
- Provide more technologically efficient processing systems that will maximize the recovery of high value paper (fiber) and containers.
- New diversion opportunities to improve recovery of materials from construction and demolition (C&D) waste and self-haul materials delivered to the facility.
- Overall, to develop a facility that encourages an ethos of material recovery commerce in the community.

Highest and Best Use of Recovered Materials

- Provide a facility that offers flexibility and can encourage the identification and separation of materials for other uses.

User-friendly for Customers, City Staff, and City Contractors

- The facility should be an attractive and welcoming hub for the citizens of Berkeley.
- Access should be a very positive experience.



Sensitive to Potential Neighborhood and Environmental Impacts

- Provide a facility that promotes sustainable resources (e.g. water conservation, recycled material in the development of the facility, etc.).
- Support greenhouse gas (GHG) emissions reduction targets per the City's goal of reducing greenhouse gas emissions by 80% by 2050 by examining the carbon neutrality of any renovation.
- Develop a solid waste facility that will optimally mitigate negative impacts typically associated with this type of facility (i.e., noise, dust, odor, traffic).
- Create a new inviting environment through architectural design for public drop-off that will be considered a community amenity.
- Provide spaces for educational opportunities that will enhance the community's effectiveness in a sustainable world.
- Design renewable energy strategies that will minimize the facility's carbon footprint.
- Bring the facility into compliance with future expected Bay Area Air Quality Management District (BAAQMD) rules (e.g., Regulation 13 Rule 2).

Environmental Health and Safety of the Workers/Visitors

- To replace a facility that may have challenges to the health and safety of the public and the staff with a new design that
 - Provides better separation of operations from public activities
 - Provides enclosed spaces which have better lighting and air quality.

Stakeholder & Public Engagement

Introduction

The City and the ZWC conducted an extensive outreach process to ensure that preliminary transfer station and recycling operation designs reflected the desires of the community. Nine public meetings were held, three at each stage of the process as detailed below.

Three "Listening Sessions" were held throughout the City in Fall 2018 (November 7th 1:30 p.m. - 3:30 p.m., November 28th 6 p.m. - 9 p.m., and December 1st 1 pm to 4 pm) to get early input from community members and stakeholders. The sessions were scheduled in different neighborhoods to be accessible to the public in different geographic areas of the City.

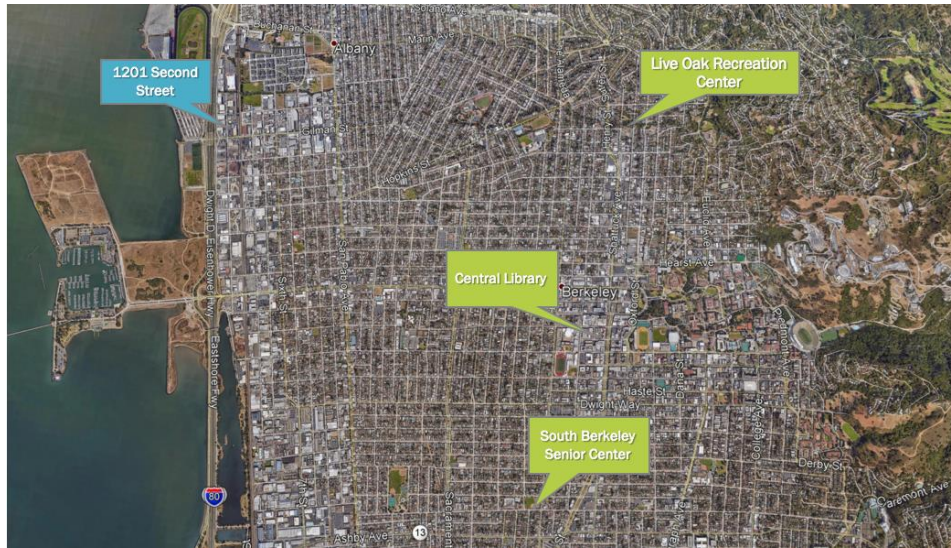


Figure ES-5: Map Showing the Location of the Transfer Station and Listening Session Meeting Locations

The purpose of these initial listening sessions was to present the current status and use of the existing Solid Waste and Recycling Transfer Station and request community member input to re-imagine the facilities needed to meet the City’s Zero Waste goal.

Listening Session Summary

Key Take-Aways:

- Form follows policy; City policy drives what facility improvements are needed
- Highest and best use of recovered materials
- Reduce overall waste generation
- Facility needs to accommodate multiple user types

Desired Transfer Station Features

Participants in the Listening Sessions provided input into a list of desired program features as summarized in Table ES-1 on the next page.



Table ES-1: List of Desired Program Features from Listening Session Participants

Buyback Center	Berkeley Recycling has the only buyback in Berkeley, Albany and Emeryville. Very important regional asset. Needs to accommodate both pedestrian and vehicle customers. Could be more user-friendly. Might want to consider a “bottle drop.”
Free Material Drop-off	Would like a configuration that is more “casual user friendly” similar to the El Cerrito Recycling Center. Expand materials types to include everything that can be marketed, including aseptic, flat glass, bicycle parts, electronics, corks, Styrofoam blocks. Potentially allow for licensed scavengers (similar to El Cerrito Recycling Center).
Reuse Exchange	As part of the drop-off or education center. A clean, dry place for free “put and take” (household goods, books, magazines).
Education Center	Classroom space, community meeting space, educational displays and a catwalk through the facility for tours.
Administration Building	Co-located office space for City staff, CCC, Ecology Center. Enhances collaboration and goal setting.
Breakroom, locker room, showers	Possible to have two separate spaces for the workers? Might be desirable for them to be together and build trust. Need discussion with labor representatives.
Self-haul	Systems needs to enhance recovery. Most desirable is to have serial drop-off and require separation by material type (yard trimmings, lumber, scrap wood, fixtures, scrap metal, cardboard, furniture, household goods). Alternatively, could be picking line like Davis Street or Recology SF. Urban Ore scavenging function desirable. Could have Goodwill trailer as well and other reuse and repair vendors.
Recyclables Processing	Maintain dual stream processing. Co-located with buyback and drop-off. Need indoor storage for some materials.
Organics	Assumed to be primarily a transfer function. Residential food co-collected with yard trimmings transferred to compost facilities. Some interest in source-separated commercial organics to anaerobic digestion at EBMUD. Might require pre-processing. Some concern about co-digestion of food with sewage.
Trash	Assumed to be primarily a transfer function. Some interest in reserving space for future processing of mixed waste.
C&D	Assumed to be primarily a transfer function. Some interest in some C&D processing for highest and best use. Source-separation also desired. Keeping some load separate (such as asphalt shingles) can enhance recovery.
HHW and Universal Waste	Desirable to have fully functioning Household Hazardous Waste (HHW) facility (perhaps everything except paint). Paint is typically the largest category of material at HHW facilities. Keeping it separate and addressed at paint stores (through stewardship organizations) could reduce space needs. Could consolidate HHW and Universal Waste drop-off.
Other bulky items	Carpet and mattress recycling desired (through product stewardship organizations). [Mattress recycling is an existing program and carpet recycling is being implemented.]
Other desired program features	<ul style="list-style-type: none"> • Artists in residence program (allow access to materials like at El Cerrito – do not need dedicated studio space). • Maker area • Social services for vulnerable populations • Needle exchange • Supplemental Nutrition Assistance Program (SNAP) program applications • Food pantry • Landscaping • Sculpture garden • Compost demonstration

January 2019 Design Charrette Process

The Listening Sessions provided critical insights to the community members' needs. The ZWC team used these insights to prepare for the three-day Design Charrette held January 16-18, 2019 at the James Kenney Community Center. The goal for these three sessions was to fully flesh out at least two options for the City's new Solid Waste & Recycling Transfer Station with potential facility and equipment layouts.

The Design Charrette approach assists the project team in efficiently evaluating the current solid waste and recycling management system, identifying state-of-the-art new programs and facilities, and ensuring that the final recommendations and guiding principles for the project are truly a shared community vision.

Design Charrette Session 1

The purpose of the first session was to get community members' ideas for the current solid waste and recycling transfer station on to paper. During the first session, ZWC provided an overview of the current transfer station, a summary of the Listening Sessions, and draft layout concepts.

Participants then worked together on a team exercise. Using a site plan map of the transfer station, each team worked with building pieces to create different layouts for the solid waste and recycling transfer station.



Figure ES-6: Session 1 Team Exercise

Design Charrette Session 2

The second session of the Design Charrette analyzed the outcomes from the first session. ZWC synthesized the layouts created from the team exercise and created two layouts that were presented to the community members during the second session.

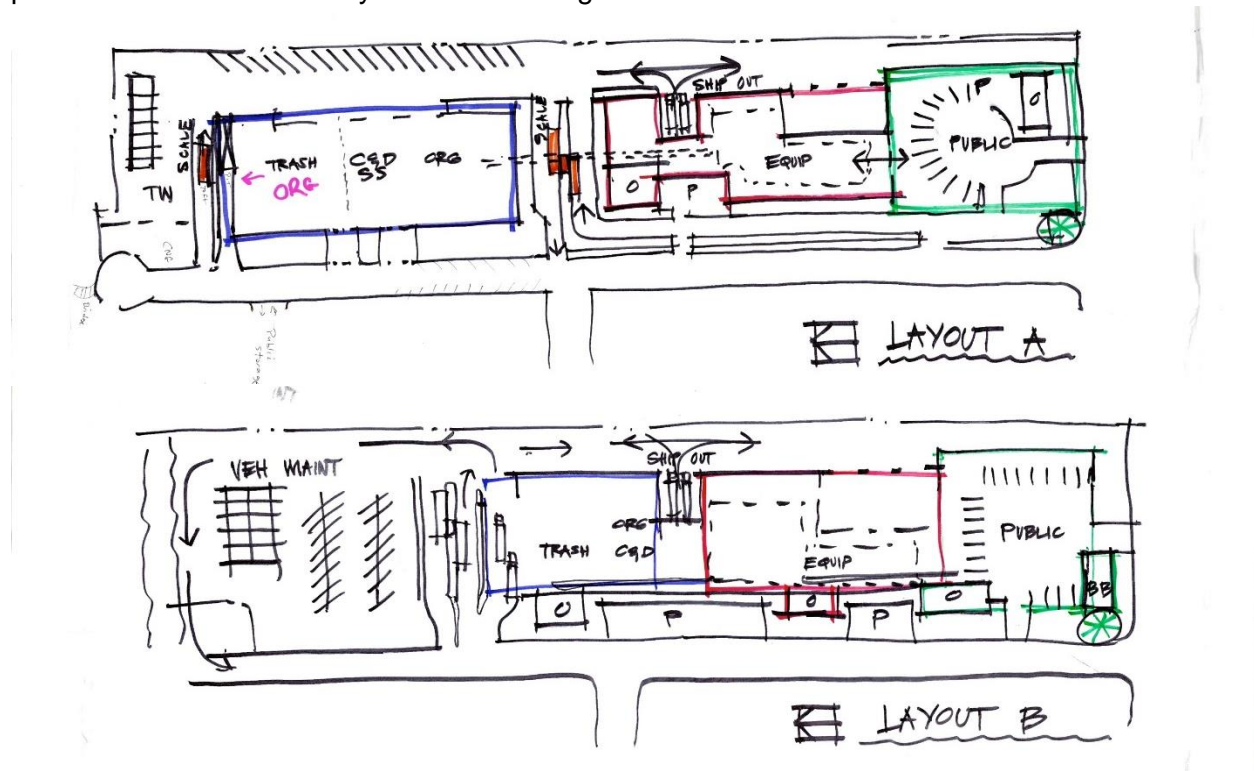


Figure ES-7: Draft Layouts from Session 1 Presented at Session 2

The two layouts depicted different configurations for traffic flow, vehicle parking, drop-off areas, and building functions.

- Layout A shows a two-building concept with the transfer station building separated from the recyclables processing area by a public scale. This layout includes a drop-off area in a circular pattern similar to the El Cerrito Recycling Center.
- Layout B shows the two buildings conjoined and the drop-off area reconfigured to include more areas for unloading.

Design Charrette Session 3

During the last session of the Design Charrette, participants provided feedback on the most promising layout options. Participants discussed:

- Advantages and disadvantages of separating the buildings and having them conjoined.
- Advantages and disadvantages of the circular pattern at the El Cerrito Recycling Center.
- Potential names for the future facility, including the “Berkeley Resource Recovery Center.”



design over another, the resulting concept plans meet the needs and reflect the vision of the community members that gathered together to support the City as it moves forward to develop a state-of-the-art facility designed to help the City achieve its Zero Waste goal.

In addition to the public meetings, the Zero Waste Collaborative representatives met separately throughout the community engagement and conceptual design process with the City's current transfer station and recycling contractors:

- **Community Conservation Center** – operates the recycling center, including the drop-off, buyback, universal waste collection and recyclables processing facility
- **Ecology Center** – provides residential curbside collection services
- **Urban Ore** – conducts the salvaging operation from the self-haul area of the transfer station

Initial Site Programming

A critical aspect of the initial site programming was to document the existing space allocation (measured in square footage) for key operations/functions (e.g., transfer station, materials recovery facility, buyback center, etc.) and then establish a new baseline for what future space allocation should be given existing site constraints. Table ES-2 on the following page details a summary of the space allocation with baseline (minimum) and optimal space assumptions shown with current space as applicable noted in parenthesis under baseline.



Table ES-2: Operational Space Analysis

Operation/Function	Baseline	Optimal
Transfer Station	41,000 sf (34,300)	45,000 sf
MRF	32,000 sf (28,600)	35,000 sf
Truck Wash	2,000 sf (2,100)	2,000 sf
Bin Repair	1,000 sf (6,400)	2,000 sf
City Administration City Staff Support Area	2,000 sf (1,500)	2,500 sf
Contractor 1 Administration Contractor Staff Support Areas	800 sf (792)	1,200 sf
Contractor 2 Administration Contractor Staff Support Areas	800 sf (918)	1,200 sf
Vehicle Maintenance and Parts Supply	7,000 sf (5,316)	8,000 sf
Office	1,500 sf	1,500 sf
Staff Support	1,500 sf (1,200)	1,500 sf
Public Education Center	800 sf (N/A)	1,000 sf
Community Room	1,000 sf (N/A)	1,000 sf
Artisan Space	1,000 sf (N/A)	1,000 sf
Scale house	200 sf	200 sf
Vehicles:		
Route Trucks parking spaces	44	48
Transfer Trailer Trucks parking spaces	9	11
Staff Parking spaces	40	50
Drop-off Parking	17	30
Visitor Parking	8	15



Detailed Concept Development

Introduction

This Feasibility Study established as a goal, the development of two viable facility design concepts for further consideration in the California Environmental Quality Act (CEQA) review process. These two facility design concepts were developed from valuable input gathered from a proactive and lengthy public engagement process with community members and stakeholders as well as programming input from City staff for current and future requirements. From the design process, a vetting cycle eliminated more than dozen iterations that were not viable from the standpoint of inefficient circulation, limited capacity, and/or significant cost impacts.

A key goal in having two concepts was to demonstrate an alternate scenario for discussion and input but also assure that both concepts were viable for future implementation. In fact, the two options have much in common and both received support from key stakeholders in the process.

Concept A & Concept B

Design Layout Characteristics in Common

- Self-haul queuing capacity at the north end of Second Street based on repositioning of the cul-de-sac.
- Public buyback and drop-off center close to the corner of Gilman Street and Second Street to facilitate the heavy use from pedestrian walk-in customers.
- Primary truck circulation is at the east side of the facility facing the railroad right-of-way which minimizes any mixing with public self-haul customers entering from the northwest corner of the site. The truck scale will be RFID compatible so collection vehicles can avoid having to weigh out using the public scale.
- Provide a remote RFID scale to separate the collection trucks from the public vehicle circulation.
- Each concept also has the same public amenities and sustainability features.

Each Concept was developed with preliminary level plans, elevations, and sections (see **Exhibits 3-27**). Sections 3.3 – 3.6 provide a detailed description of each design concept.

Concept A

The key difference between Concept A and Concept B, is that it provides a singular large structure that consolidates the functions of the MRF, transfer station, and vehicle maintenance facility as depicted in Figure ES-9 and the site plan (see **Figure ES-10**) on the following page.

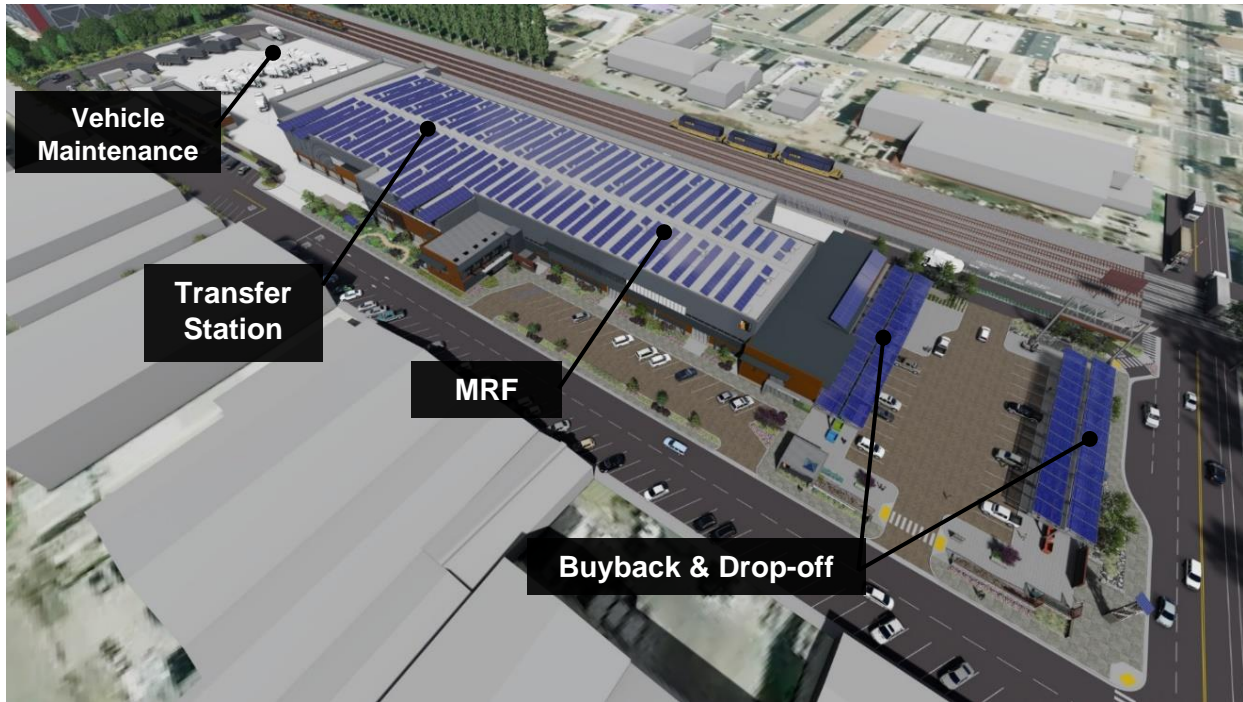


Figure ES-9: Concept A - Rendering Aerial View

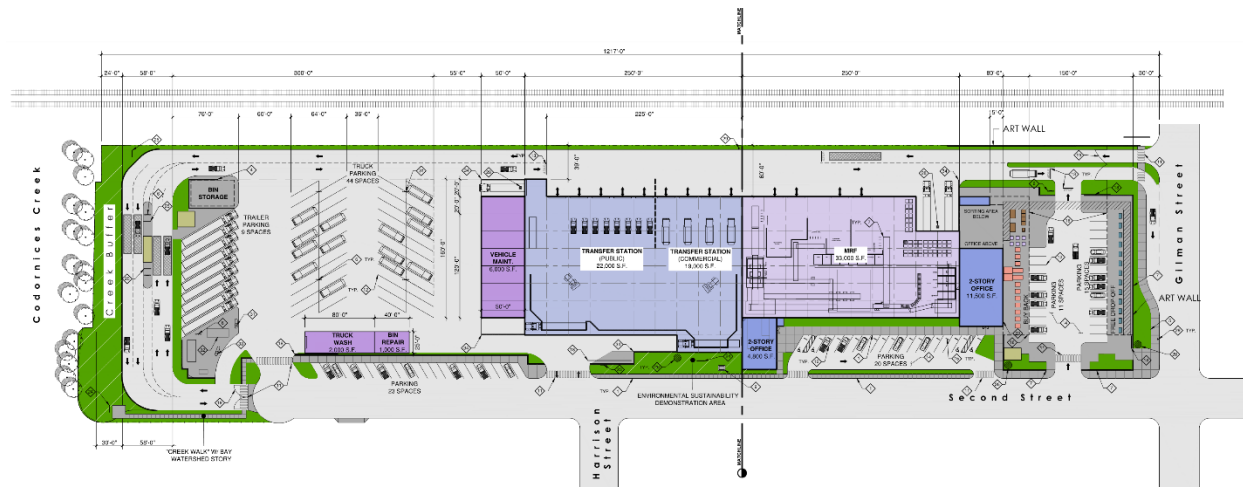


Figure ES-10: Concept A - Site Plan

In comparing the square footage of the two concepts, there are some differences as shown in the **Table ES-3** on the next page. Overall, the total building square footage in Concept A is about 8% smaller with a smaller transfer station and Materials Recovery Facility (MRF), but more square footage allocated to education and community space. ZWC and City staff are confident both options provided sufficient space for the transfer station and MRF. The current MRF square footage is approximately 28,620 and the Transfer Station is 34,700 (inclusive of the outdoor tipping area for C&D materials).



Table ES-3: Square Footage (sf) Comparison Between Concept A & B

<u>Operation/Function</u>	<u>Concept A</u>	<u>Concept B</u>
Transfer Station	41,000 sf	46,000 sf
City Administration & Staff Support	4,800 sf	8,000 sf
MRF	33,000 sf	35,000 sf
Education Center/Community	700 sf / 1,400 sf	500 sf / 800 sf
Artist Studio	1,100 sf	840 sf
Information Kiosk	280 sf	120 sf
Cashier	760 sf	960 sf
Contractor 1 Administration & Staff Support	2,500 sf	2,300 sf
Contractor 2 Administration & Staff Support	2,500 sf	2,300 sf
Vehicle Maintenance	6,000 sf	7,000 sf
Vehicle Maintenance Admin & Staff Support	3,300 sf	1,100 sf
Truck Wash	2,000 sf	1,900 sf
Bin Repair	1,000 sf	2,000 sf *
Other **	270 sf	
Total Building Area	100,300 sf	108,000 sf
* Canopy-covered		
** Scale house, scale support		

Concept B

Concept B presents a two-building approach in contrast to Concept A. This site layout separates the Transfer Building and MRF with the truck maintenance and truck parking area in the center of the site. The MRF is situated where the existing recycling building is today. However, the primary distinction between old and new is that the truck access has been moved from the west side to the east side. Figure ES-11 on the next page provides an aerial view of Concept B.

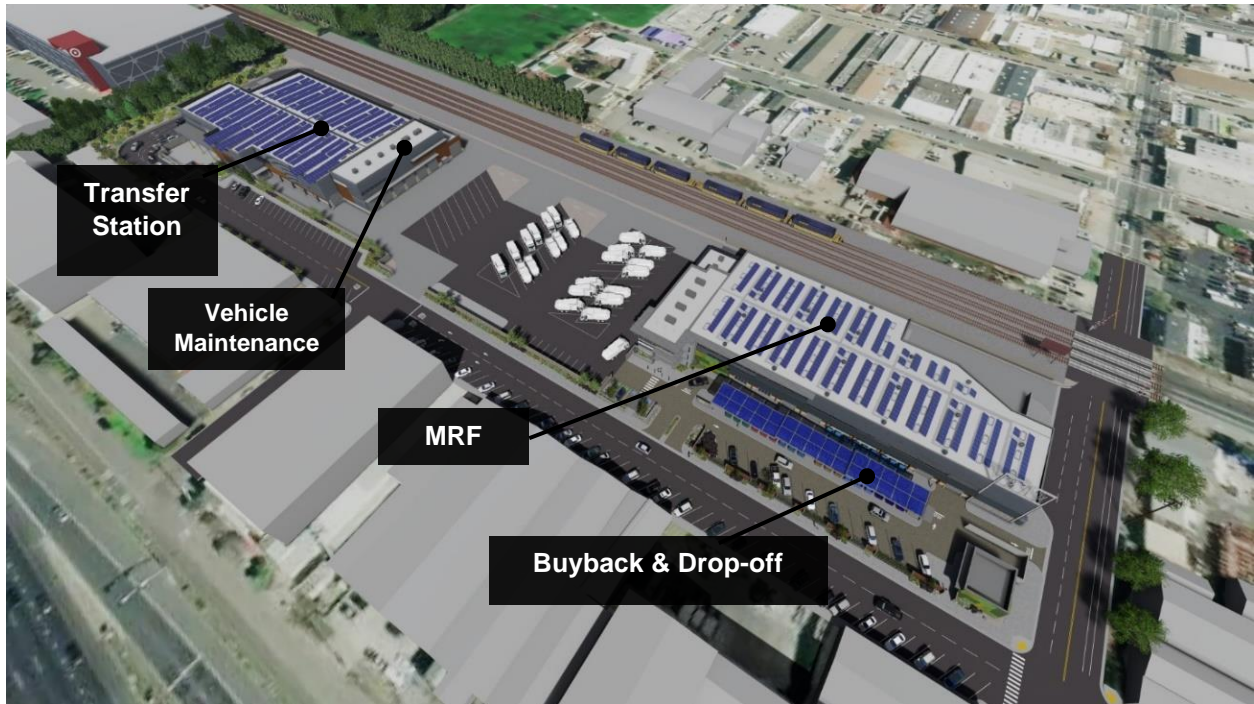


Figure ES-11: Concept B - Rendering Aerial View

Codornices Creek

The north boundary of the site is adjacent to the Codornices Creek which currently is an unused segment south of the railroad easement (no contiguous trail connection at this date). As part of a natural environment restoration strategy, the Codornices Creek will be provided with a minimum 30 ft. buffer that will be sloped at 5% to a berm wall (north curb line of public driveway) and planted with native grasses and shrubs consistent with the Creek. Future civil engineering, as a selected design is developed, will take into consideration the flooding potential along the Creek and provide mitigating measures at that time. Both Concepts A and B provide a northerly berm wall to redirect occasional creek surges and prevent flooding in this area. It should be noted Concept A has very limited structures at the north end of the site offering alternate access to the facility if the Creek experiences minor flooding at the scale entry and with the 100 ft. of the structure. Although limited, the remote scale could provide emergency access and use of the facility.

Sharing the main public entry will be a pedestrian access path that will have a low wall separating the walkway from the vehicle lane. The paving would be decomposed granite with a solidifier to create a pervious but accessible “trail” to a small respite area that would feature an informational podium display on Bay Area watershed and a dedication by Friends of Five Creeks. The plantings here would feature native riparian species. The buffer would be modestly sloped up away from the creek flowline the integration of a berm for flow control. An opportunity also exists for placement of watershed focused art features in this area.

Architectural Design

The overall architectural objective is to suggest contextually sensitive and visually attractive structures. The intent will be to have the design participate in the neighborhood themes but also stand out and be memorable for its unique purpose.

The use of gray metal panel cladding reflects the visual cues from neighboring buildings and stays within the boundaries of an eclectic neighborhood with an old industrial past. An alternate shade of gray as well as a bold “dark red cedar” accent color will be used to highlight different functions of the structures. Structure is expressed as an accent in specific areas (i.e. bracing, canopy supports, or the expression of the Photovoltaic system) by extending the panel system past the building wall. See Figure ES-12 below for an architectural rendering.



Figure ES-12: Concept B - Architectural Rendering

City of Berkeley Climate Action Plan

Central to the project’s development goals will be how the new facility can contribute to the City’s 2009 Climate Action Plan which targets a reduction in greenhouse gas (GHG) emissions, specifically a 33% reduction from 2000 GHG levels. Programming strategies for the new facility which will be central to that contribution include:

Waste Reduction & Recycling Features

With landfills as a GHG generator, reducing the volume of material that is transported to the landfill along with the associated vehicle emissions is fundamental to the purpose of this facility and its ability to reduce that volume. Key programming elements which contribute to that reduction are as follows:

- Enhanced options for customers to separate materials at drop-off.
- Larger Transfer Station floor area for separation of tipped bulky and organic materials and enhanced recovery.
- Improved recovery volume from improved MRF processing equipment technology.
- Improved quality of recovered materials from new MRF equipment technology.



- Enhanced public education re: waste reduction, reuse, recycling, and composting via onsite information kiosks and an environmental education center.

Community Outreach & Empowerment Features

The purpose and function of the facility (recycling and reuse of materials) offers special opportunities to engage the community with environmental education. This facility will have:

- An Environmental Education Center to present the precepts of GHG emissions, climate change and environmental stewardship. In addition to educational displays, an actual MRF viewing experience will be available.
- A Community and Artisan space for learning opportunities that explore common sense activities for less waste and creative reuse.
- Provide an attractive environment for community recycling events.

Land Use

Creek restoration is a critical component of the overall enhancements to Bay watershed environmental quality. A 30 ft. buffer zone will be dedicated. This zone will be planted with native species appropriate to a Bay Area riparian habitat. The buffer zone will be modestly sloped toward the natural flowline of the creek to encourage natural drainage to the creek-bed and away from the site proper. The low retaining wall transition to the entry road at the south end of this berm is proposed to be rubble masonry made from repurposed concrete slab.

LEED

The Zero Waste Collaborative team reviewed each of the Site Concepts A & B for environmental performance with respect to the U.S. Green Building Council's LEED® (Leadership in Energy and Environmental Design) design, construction and operation framework. It should be noted that LEED, "the most widely used green building rating system in the world" provides an effective benchmark toward a design fulfilling the City's Climate Action Plan and Net Zero Energy goals. This initial evaluation utilized the LEED v4.1 for BD+C New Construction and Major Renovation Checklist (see **Exhibit 28**). This checklist is a recognized guide and first step in establishing a project design's sustainability and capability in reducing GHG emissions. The checklist provides three outcomes for a conceptual level review:

- **Yes**, for achievable active or passive responses in the design
- **Maybe**, for potential feasibility but only established during final design and engineering (and affirmation of commitment by the Owner)
- **No**, not considered feasible usually due to the nature of the site and/or use. Some examples are indicated below.

The review of both facility concepts determined that a LEED Gold certification was achievable as delineated by City initiatives and ordinances. A strong commitment to renewable energy, water conservation as well as innovation will serve as the core basis for gaining this level of certification.



It should be noted that the higher Platinum level was problematic due to some key credits that are not feasible due to the location of the site and use. As an example, the first credit in the “Location and Transportation” credit section is “LEED for Neighborhood Development Location” providing 16 potential credits. This category is aligned with new planned mixed-use community developments; the Berkeley Solid Waste and Recycling Transfer Station site would not be a candidate for achieving any of these credits. The “Access to Quality Transit” (5 potential Credits) is linked to local neighborhood transit; not the Amtrak line with station nearby which provide broader Bay Area access.

Programming Assumptions

The ZWC team reviewed and completed more than a dozen concept plans to try and address future project goals and community input. The bullet points below summarize some of the iterations and design concepts considered.

- In order to create larger tipping floor areas for site operations, the design team considered an additional level for vehicle parking and/or operations. However long ramps and turn constraints posed some significant challenges to this approach. Also, any uses on the upper level posed large load capacity requirements which in turn required columns at the lower level. The columns restrict operations and vehicle maneuvering. These factors in addition to the significant cost ramifications excluded this approach from further consideration.
- The vehicle maintenance was considered for placement off-site since it placed a significant impact on space needs on the site’s capability to support additional MRF and Transfer Station capacity. After considering very limited options on handling this activity at another location, it was reintroduced to the program.
- Some staff parking will be utilized along Second Street as it is today at the north portion of the street.
- Initial site concept iterations considered reuse of the existing outdoor loadout tunnel. However, this location severely compromised the most viable layouts. Retaining the existing loadout tunnel was eliminated.
- Floor level loadouts were chosen considering the volume of loadout that is typically accommodated with a “lift-and-load” operation where the wheel bucket loader can drop material into a tractor trailer similar to the loading of a dump truck. The push wall is configured with sloped steel backboard that directs material into the trailer and minimizes spillage around the trailer. Using this type of loadout in lieu of a 16 ft. deep tunnel eliminated excessive ramp conditions which consume valuable site area.
- A pedestrian bridge was suggested in public meetings which would provide a connection over the Codornices Creek from Second Street to the Target store property to the north. The City determined that this proposal extended beyond the purview of this study and was not included.
- Building foundations and below ground detention as required will be feasible with the site soil conditions and water table. A geotechnical investigation will have to be performed to confirm the viability of subsurface construction.
- On-site processing of organics was not considered due to space requirements for typical equipment processing systems. Also, odor treatment could be problematic



considering the site's context in the neighborhood and adjoining uses, wind direction, etc.

- The Facility Designs A & B as presented in this document conform to the City's zoning requirements and would be acceptable in concept to the City Planning review process as a significant improvement to existing conditions. Final approvals would be contingent on specific Conditions of Approval, potential variances, etc.

Environmental Considerations

In redeveloping the Solid Waste & Recycling Transfer Station, the City will want to mitigate any negative environmental impacts associated with the project. These can include:

- Traffic – 2nd and Gilman streets is a busy intersection and vehicles entering and exiting the drop-off, recycling and buyback and transfer station can impact this intersection and the surrounding side streets.
- Water quality – the facility is located next to Codornices Creek and activities at the facility could impact this fragile eco-system.
- Noise and air quality – the facility has neighbors, including Gabe Catalfo Fields, Harrison Park and the Berkeley Skate Park. These neighbors can be considered “sensitive receptors” and are potentially impacted by noise, odor and particulates that can be emitted through activities at the site.

The new design will address these potential impacts and the redeveloped facility should have potentially fewer impacts than the current facility.

The California Environmental Quality Act (CEQA) is a California statute that requires local agencies to identify any significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

The purpose of CEQA is to: disclose to the public the significant environmental effects of a proposed discretionary project, through the preparation of an Initial Study (IS), Negative Declaration (ND), or Environmental Impact Report (EIR).

- An initial study is a preliminary analysis conducted by the lead agency to determine if a project may have a significant effect on the environment. The initial study also aids in determining what type of environmental document to prepare.
- A Negative Declaration is a document that states upon completion of an initial study, that there is no substantial evidence that the project may have a significant effect on the environment.
- An Environmental Impact Report (EIR) is an informational document which provides public agencies and the general public with detailed information about the effect that a proposed project is likely to have on the environment. The EIR also lists the ways in which these environmental effects might be minimized and whether there are any alternatives to such a project.



CEQA prescribes specific timeframes for noticing the public and the state and regional agencies of the release of the environmental documentation.

City staff determined that it would be appropriate to wait to initiate the environmental review process once this feasibility study was complete and the City Council has authorized City staff to move forward to the CEQA phase of the project.

Preliminary Cost Analysis

Cost Estimate

A preliminary facility construction cost estimate has been developed by Tanner Pacific consultants, advisors to the Zero Waste Collaborative. This estimate is in conformance with Class 4 estimate guidelines as defined by the AACE and is based on a 15% design development level of concept plans. The ZWC Design Team developed plans, sections, and elevations with dimensions and keynote information which provided a basis for Tanner Pacific to prepare the estimate. Guidance was provided on design quality levels and design features which could also be coordinated with visual images of the design concept provided by a 3D digital model. In addition, GMEP Engineers provided support on mechanical and electrical design topics.

Table ES-4 on the next page includes a base cost summary for site and building improvements. Features associated with LEED and project sustainability have been shown separately. Project Soft Costs include design and engineering fees, permits, etc. Additional detail is provided in **Exhibit 29**.



Table ES-4: Cost Estimate Summary

	<u>Activity</u>	<u>Concept A</u>	<u>Concept B</u>
1	Site Improvements ¹	\$9,328,732	\$9,636,736
2	Building Improvements	\$ 21,367,296	\$ 22,707,763
3	Other – Special Equipment ²	\$4,860,000	\$4,860,000
4	Sustainability ³	\$3,423,645	\$3,098,639
Total Direct Cost		\$38,979,673	\$40,303,138
5	General Contractor Indirect Cost	\$7,800,000	\$8,060,000
6	Escalation (2019 – 2025 at 4% per year)	\$11,880,00	\$12,280,000
7	Design Contingency (AACE Class IV) ⁴	\$14.66M	\$15.16M
Estimated Construction Cost		\$73,317,196	\$75,806,509
8	Project Soft Costs ⁵	\$17,633,200	\$17,958,100
Estimated Project Cost (w/soft costs) in Bid Year Dollars		\$90,836,945	\$93,799,227
¹ Site improvements includes Mobilization (say 3% of direct cost), existing conditions/demolition, utilities, grading and paving costs. ² New MRF processing equipment. ³ Includes photovoltaic panels, rainwater harvest tanks, wind turbines, pervious paving, and other sustainability related improvements. ⁴ 25% design contingency assumed based on industry standards for 15% design stage. ⁵ Include entitlements/planning, project design/engineering, permitting, fees, construction management, special inspections and other costs.			

Financial Model

This section of the Report addresses the financial model for the two proposed concepts plans, Concept A and B. Essentially, a model (Excel spreadsheet) was built to show the source of funds (revenues) and associated cash flow to pay for the project cost estimates detailed in **Table ES-4**. There are four potential sources of revenues for the City to pay for project costs as follows:

- Tipping fees charged to self-haul (public) customers using the Berkeley Transfer Station
- Collection rates charged to residential and commercial customers in the City of Berkeley
- Zero Waste Fund Balance – operating and capital reserve
- Debt financing through issuance of solid waste revenue bonds

Tables ES-5 and **ES-6** on the following pages detail the sources of funding (revenue) by years 2020-2027 for Concepts A and B, respectively. Collection rates revenues are the assumed amounts of revenue covered in the future projected collection rate model specifically for the



rebuild of the Berkeley Transfer Station. These collection rate revenues shown below are assumed to cover the cost of this Feasibility Study, and future work related to the facility design/engineering, needed site geotechnical investigation, and CEQA costs.

Table ES-5: Concept A - Estimated Capital Costs, Funding (Revenue) Sources and Forecasted Project Capital Expenditures

City of Berkeley Department of Public Works - Zero Waste Division Solid Waste and Recycling Transfer Station Feasibility Study Estimated Capital Costs ¹ , Funding (Revenue) Sources, and Forecasted Project Capital Expenditures										
Total Capital Requirement - A										
\$90,836,945										
SOURCE OF FUNDING (REVENUES)	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	
	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	Total Revenue
Tipping Fees	\$0	\$666,547	\$712,727	\$712,264	\$872,490	\$1,001,408	\$1,041,827	\$1,095,348	\$1,171,271	\$7,273,882
Collection Rates	\$400,000	\$1,400,000	\$4,000,000	\$4,300,000	\$800,000	\$0				\$10,900,000
Subtotal of fees to TS Rebuild	\$400,000	\$2,066,547	\$4,712,727	\$5,012,264	\$1,672,490	\$1,001,408				
Cumulative Fees Balance		\$2,466,547	\$7,179,274	\$12,191,538	\$13,864,028	\$14,865,436				\$18,173,882
Overall Fund Balance	\$20,962,147	\$18,842,503	\$16,419,821	\$17,477,045	\$17,477,045	\$17,477,045				
Fund Balance - Operations Reserve	\$4,192,429	\$3,768,501	\$3,283,964	\$3,495,409	\$3,495,409	\$3,495,409				
Fund Balance - Capital Reserve	\$16,769,718	\$15,074,002	\$13,135,857	\$13,981,636	\$13,981,636	\$13,981,636				
Other										\$0
Zero Waste Balance to TS Rebuild						\$28,847,072				
Bond:						\$61,989,873				
						\$90,836,945				
¹ See Exhibit 29 to the Feasibility Report										
Contingency Funds										
Transfer from 820 (ERMA 601) Fund Balance										
Issuance of Revenue Bonds										
FORECASTED CAPITAL EXPENDITURES	1	2	3	4	5	6	7	8	9	
	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	
	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	
Feasibility Study	\$100,000	\$400,000								\$500,000
CEQA/Entitlements		\$800,000	\$1,300,000	\$800,000						\$2,900,000
Final Design & Engineering		\$400,000	\$500,000	\$2,000,000	\$1,800,000	\$400,000	\$300,000	\$200,000	\$200,000	\$5,800,000
Geotechnical		\$100,000	\$700,000	\$200,000						\$1,000,000
Permitting /Fees /Other			\$300,000	\$400,000	\$600,000	\$700,000	\$300,000	\$300,000	\$300,000	\$2,900,000
CM/ Special Inspections				\$100,000	\$200,000	\$300,000	\$1,000,000	\$1,000,000	\$1,000,000	\$3,600,000
LEED Certification			\$50,000	\$75,000	\$50,000	\$50,000	\$50,000	\$50,000	\$75,000	\$400,000
Base Buildings & Equipment ¹						\$10,000,000	\$21,900,000	\$21,000,000	\$21,000,000	\$73,900,000
Total Project Expenses:	\$100,000	\$1,700,000	\$2,850,000	\$3,575,000	\$2,650,000	\$11,450,000	\$23,550,000	\$22,550,000	\$22,575,000	\$91,000,000

¹ Includes site improvements, building improvements, MRF Equipment, sustainability elements, contingency, escalation, and general conditions.



Table ES-6: Concept B - Estimated Capital Costs, Funding (Revenue) Sources and Forecasted Project Capital Expenditures

City of Berkeley Department of Public Works - Zero Waste Division Solid Waste and Recycling Transfer Station Feasibility Study Estimated Capital Costs ¹ , Funding (Revenue) Sources, and Forecasted Project Capital Expenditures										
Total Capital Requirement - B										
\$93,799,227										
SOURCE OF FUNDING (REVENUES)	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	Total Revenue
	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	
Tipping Fees	\$0	\$666,547	\$712,727	\$712,264	\$872,490	\$1,001,408	\$1,041,827	\$1,095,348	\$1,171,271	\$7,273,882
Collection Rates	\$400,000	\$1,400,000	\$4,000,000	\$4,300,000	\$800,000	\$0				\$10,900,000
Subtotal of fees to TS Rebuild	\$400,000	\$2,066,547	\$4,712,727	\$5,012,264	\$1,672,490	\$1,001,408				
Cumulative Fees Balance		\$2,466,547	\$7,179,274	\$12,191,538	\$13,864,028	\$14,865,436				\$18,173,882
Overall Fund Balance	\$20,962,147	\$18,842,503	\$16,419,821	\$17,477,045	\$17,477,045					
Fund Balance - Operations Reserve	\$4,192,429	\$3,768,501	\$3,283,964	\$3,495,409	\$3,495,409	\$3,495,409				
Fund Balance - Capital Reserve	\$16,769,718	\$15,074,002	\$13,135,857	\$13,981,636	\$13,981,636	\$13,981,636				
Other										\$0
Zero Waste Balance to TS Rebuild						\$28,847,072				
Bond:						\$64,952,155				
						\$93,799,227				
¹ See Exhibit 29 to the Feasibility Report										
Contingency Funds										
Transfer from 820 (ERMA 601) Fund Balance										
Issuance of Revenue Bonds										
FORECASTED CAPITAL EXPENDITURES	1	2	3	4	5	6	7	8	9	
	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	
	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	
Feasibility Study	\$100,000	\$400,000								\$500,000
CEQA/Entitlements		\$800,000	\$1,300,000	\$800,000						\$2,900,000
Final Design & Engineering		\$400,000	\$500,000	\$2,000,000	\$1,800,000	\$400,000	\$300,000	\$200,000	\$200,000	\$5,800,000
Geotechnical		\$100,000	\$700,000	\$200,000						\$1,000,000
Permitting /Fees /Other			\$300,000	\$400,000	\$600,000	\$700,000	\$300,000	\$300,000	\$300,000	\$2,900,000
CM/ Special Inspections				\$100,000	\$200,000	\$300,000	\$1,000,000	\$1,000,000	\$1,000,000	\$3,600,000
LEED Certification			\$50,000	\$75,000	\$50,000	\$50,000	\$50,000	\$50,000	\$75,000	\$400,000
Base Buildings & Equipment ¹						\$10,000,000	\$22,900,000	\$22,500,000	\$21,300,000	\$76,700,000
Total Project Expenses:	\$100,000	\$1,700,000	\$2,850,000	\$3,575,000	\$2,650,000	\$11,450,000	\$24,550,000	\$24,050,000	\$22,875,000	\$93,800,000

¹ Includes site improvements, building improvements, MRF Equipment, sustainability elements, contingency, escalation, and general conditions.

Tipping fee revenues shown in **Tables ES-5** and **ES-6** are based on increases in public tip fee rates at the Berkeley Transfer Station as detailed in **Table ES-7** on the next page. The top half of **Table ES-7** shows the actual per ton increase each year by rate category and the bottom half shows the actual tip fee rate each year for each category. Please note there are no tip fee rates applied to the municipal solid waste (MSW) (city trucks) or compostable organics (city trucks) or as its commonly called an internal rate.

The amount of the bond revenue shown is the net funding requirement after considering tip fee revenues, collection rate revenues (earmarked for this project), and Fund balance transfers. The bond amount is the amount needed and not the actual “cost” of the bond as no analysis was done on actual bond interest rates and debt service; that was not part of the scope of this study.



Table ES-7: Forecasted Tip Fee Increase by Rate Category 2020-2027

BERKELEY TRANSFER STATION REVENUE - TIP FEE INCREASE SCENARIO (w/o internal tip fees for city trucks - refuse and compostables)									
TS Tip Fee Increases		2020	2021	2022	2023	2024	2025	2026	2027
		<u>7/1/2020</u>	<u>7/1/2021</u>	<u>7/1/2022</u>	<u>7/1/2023</u>	<u>7/1/2024</u>	<u>7/1/2025</u>	<u>7/1/2026</u>	<u>7/1/2027</u>
MSW min. charge (public)		\$5.00	\$3.40	\$3.74	\$4.11	\$4.53	\$4.98	\$5.48	\$6.02
MSW per ton (public)		\$12.50	\$13.85	\$15.24	\$16.76	\$18.43	\$20.28	\$22.31	\$24.54
MSW per ton (city trucks)									
Compostable Organics min. charge (public)		\$4.00	\$0.81	\$0.83	\$0.86	\$0.89	\$0.91	\$0.94	\$0.97
Compostable Organics per ton (public)		\$5.00	\$2.16	\$2.22	\$2.29	\$2.36	\$2.43	\$2.50	\$2.58
Compostable Organics per ton (city trucks)									
Mixed Organics & trash min. charge		\$5.00	\$3.40	\$3.74	\$4.11	\$4.53	\$4.98	\$5.48	\$6.02
Mixed Organics & trash per ton		\$9.00	\$13.50	\$14.85	\$16.34	\$17.97	\$19.77	\$21.74	\$23.92
Compostable Organics (not fully separated) min. charge		\$8.50	\$1.56	\$1.61	\$1.66	\$1.70	\$1.76	\$1.81	\$1.86
Compostable Organics (not fully separated) per ton		\$19.00	\$6.24	\$6.43	\$6.62	\$6.82	\$7.02	\$7.23	\$7.45
C&D min. charge (public)		\$5.00	\$1.02	\$1.05	\$1.08	\$1.11	\$1.15	\$1.18	\$1.22
C&D per ton (public)		\$9.00	\$4.05	\$4.17	\$4.30	\$4.43	\$4.56	\$4.70	\$4.84
TS Tip Fees	Current Rates	2020	2021	2022	2023	2024	2025	2026	2027
		<u>7/1/2020</u>	<u>7/1/2021</u>	<u>7/1/2022</u>	<u>7/1/2023</u>	<u>7/1/2024</u>	<u>7/1/2025</u>	<u>7/1/2026</u>	<u>7/1/2027</u>
MSW min. charge (public)	\$29.00	\$34.00	\$37.40	\$41.14	\$45.25	\$49.78	\$54.76	\$60.23	\$66.26
MSW per ton (public)	\$126.00	\$138.50	\$152.35	\$167.59	\$184.34	\$202.78	\$223.06	\$245.36	\$269.90
MSW per ton (city trucks)									
Compostable Organics min. charge (public)	\$23.00	\$27.00	\$27.81	\$28.64	\$29.50	\$30.39	\$31.30	\$32.24	\$33.21
Compostable Organics per ton (public)	\$67.00	\$72.00	\$74.16	\$76.38	\$78.68	\$81.04	\$83.47	\$85.97	\$88.55
Compostable Organics per ton (city trucks)									
Mixed Organics & trash min. charge	\$29.00	\$34.00	\$37.40	\$41.14	\$45.25	\$49.78	\$54.76	\$60.23	\$66.26
Mixed Organics & trash per ton	\$126.00	\$135.00	\$148.50	\$163.35	\$179.69	\$197.65	\$217.42	\$239.16	\$263.08
Compostable Organics (not fully separated) min. charge	\$43.50	\$52.00	\$53.56	\$55.17	\$56.82	\$58.53	\$60.28	\$62.09	\$63.95
Compostable Organics (not fully separated) per ton	\$189.00	\$208.00	\$214.24	\$220.67	\$227.29	\$234.11	\$241.13	\$248.36	\$255.81
C&D min. charge (public)	\$29.00	\$34.00	\$35.02	\$36.07	\$37.15	\$38.27	\$39.42	\$40.60	\$41.82
C&D per ton (public)	\$126.00	\$135.00	\$139.05	\$143.22	\$147.52	\$151.94	\$156.50	\$161.20	\$166.03



1.0 Background

1.1. Introduction

This Solid Waste & Recycling Transfer Station Feasibility (Study) Study for the City of Berkeley provides a vision for a new green infrastructure to meet zero waste goals, create new opportunities for community engagement and collaboration, enhance operational efficiencies and model best practices in lower carbon emission operations. Through active collaboration and exhaustive community engagement, the City and its diverse community of stakeholders have developed a consensus around two conceptual facility designs which are environmentally sound, safe and accessible for all users of the facility, and compatible with the surrounding neighborhood.

The two proposed conceptual designs will transform the 7.45-acre site from an outdated and highly fragmented operation with significant traffic back-ups to a modern state-of-the-art Solid Waste and Recycling Transfer Station facility designed to meet the current and future service needs of the City's diverse community. The future facility will showcase the City's commitment to global leadership in addressing climate change, advancing environmental justice, and demonstrating environmental stewardship.

As documented in the following report, both conceptual facility designs will incorporate a diverse array of sustainability features including but not limited to:

- Photovoltaic panels on roof structures and canopy structures
- Elevated wind turbines for the on-site production of power
- Provide sufficient flexibility to incorporate future handling changes for incoming materials
- Rainwater capture and reuse features
- Public kiosks with information on zero waste and sustainable living tips
- Creek walk (pathway) with educational kiosks and watershed art on Codornices Creek
- Community art with environmental themes
- Environmental education center and public tour program

The facility is being designed to be a net zero energy facility and is intended to achieve a Leadership in Energy and Environmental Design (LEED) certification.

These conceptual designs for the facility are focused on a holistic approach to integrating all current recycling and solid waste activities on 2nd Street off Gilman Street, inclusive of the public buyback center and recyclables processing operation, City's contracted curbside recycling vendors' offices, Transfer Station, scale house, City administrative and employee offices, truck parking and related operations. Please see **Figure 1-1** on the next page for an aerial overview.

As illustrated throughout this document and specifically in greater detail in **Sections 3.3 and 3.4**, the proposed facility improvements will include the following:

- Larger public buyback and drop-off center
- New building and equipment for the dual stream recyclables processing area (known as a Materials Recovery Facility)
- New larger, fully enclosed transfer station building to ensure flexibility to accommodate the reduction of incoming refuse and increase in recyclable materials

- Larger scale house and entrance area for public customers and a separate scale entrance for larger city collection vehicles
- Community amenities including an environmental education center, community meeting room, public tour space, a creek walk area, and local artisan spaces
- New employee and administrative offices
- New vehicle maintenance facility and related operations

Preliminary concept plans, exterior elevations, and 3D design modeling were prepared by the Zero Waste Collaborative (ZWC) to help visualize the proposed improvements in more detail and facilitate preliminary cost estimating (see Section 5) that is consistent with a feasibility level evaluation. This cost analysis has been used in the financial model for this Study as shown in Section 6.

1.1.1. Study Purpose

This Feasibility Study evaluates the anticipated space needs for the city’s various recycling and solid waste operations, site access and circulation, building structure requirements, and conceptual-level costs for such improvements along Second Street near Gilman Street.

1.1.2. Existing Site

The project site is approximately 7.45 acres, located on Gilman Street and Second Street with Union Pacific/Amtrak rail right-of-way on the east side. With Gilman Street as an arterial feeder street to the community, the facility has a prominent location for traffic traveling between I-80/I-580 and northwest area of Berkeley. This will be an important basis of design criterion for site access as well as community visibility. A key design factor is providing positive visibility to establish and maintain the new facility’s success and compatibility with the surrounding neighborhood.



Figure 1-1: 2nd Street Aerial Photograph of Existing Recycling and Solid Waste Operations

Interstate 80 /Gilman Street Interchange (Gilman Interchange)

The CalTrans planned roundabout at the east side of Interstate 80 (I-80) at Gilman Street (see <https://www.alamedactc.org/programs-projects/highway-improvement/i80gilman/>) is designed to

improve traffic mobility at the intersection of Gilman Street and the Eastshore Highway. Eastshore Highway is a frontage road and an important exit path for traffic leaving the facility from Harrison Street; this traffic can turn right (northbound) or left (southbound) back to Gilman Street. From Gilman Street, traffic can turn left eastbound back to toward Berkeley or right for access to I-80. This intersection at Eastshore/Gilman Street poses delays as well as safety risks for crossing. Relief of congestion here will impact access to and from the site in a positive manner. The proposed roundabout along with the planned signal at 4th Street will result in better traffic flow, safer turning, and less queuing. It can be assumed then that less queuing and fewer turning conflicts will result in less public user frustration with long queue lines and encourage return visits.

The Gilman Street/I-80 interchange is designed to accommodate all categories of California legal tractor-semitrailers: "Black" CA legal 65 FT trucks, "Green" STAA-56 FT trucks, and WB-67D double-bottom combination trucks.

The proposed improvements also include a two-way cycle track on Gilman Street and Bay Trail gap closure. As part of the City's 2009 Climate Action Plan, the Zero Waste Facility will encourage bicycle access.

The roundabout and related improvements are being implemented by the Alameda County Transportation Commission with a construction to begin in 2020 and the estimated completion will be prior to the start of construction of the new Solid waste and Recycling Transfer Station facility improvements.



Figure 1-2: I-80 / Gilman Street Roundabout Improvements

1.2. Site & Facility Conditions Assessment

In February 2019, ZWC completed a Site Conditions Review and Assessment (see **Exhibit 1**) of all existing buildings and above ground infrastructure. In addition to an overall site and facility conditions review, the ZWC Team reviewed current operations. The operations review identified potential long-term recommendations for improvements as well as making short-term improvements (over a two to three-year period) to enhance user experience and efficiency.

A key element of the Assessment was the consideration of on-site traffic and access to the site including:

- The future traffic roundabout at Gilman Street and I-80 intersection.
- The queuing issues that extend down Second Street on peak usage days.
- Onsite and offsite safety and efficiency and the mixing of larger commercial trucks and public vehicles
- Assess potential improvements for public access.

The Assessment also identified potential planning and zoning issues and initiated the facility programming process.

1.3. Zero Waste Goals

The current recycling and solid waste operations do not provide an environment for the optimal diversion and recycling of incoming materials, and on-site traffic flow. The focus of this Study has been to define new facility improvements that meet or exceed the following goals for the City of Berkeley.

1.3.1. State-of-the-Art Solid Waste and Recycling Transfer Station

- Maximize recovery and diversion of materials that would be otherwise sent to the landfill.
- Facility that provides a maximum amount of space for the separation of materials for recovery.
- Eliminate double handling and minimize material movement onsite.

1.3.2. Maximize Recovery of Reusable and Recyclable Materials

- Provide a public buyback center that encourages use by both drive-in customers and walk-in customers.
- Create a new inviting environment for public drop-off that's easy to use and encourages more separation of recyclables and recoverables.
- Provide an efficient processing system that will maximize the recovery of high value paper (fiber) and containers.
- New diversion opportunities to improve recovery of materials from construction and demolition (C&D) waste and self-haul materials delivered to the facility.
- Overall, to develop a facility that encourages an ethos of material recovery commerce in the community.

1.3.3. Highest and Best Use of Recovered Materials

- Provide a facility that offers flexibility and can encourage the identification and separation of materials for other uses.

1.3.4. User-friendly for Customers, City Staff, and City Contractors

- The facility should be an attractive and welcoming hub for the citizens of Berkeley.
- Access should be a very positive experience.

1.3.5. Sensitive to Potential Neighborhood and Environmental Impacts

- Provide a facility that promotes sustainable resources (e.g. water conservation, recycled material in the development of the facility, etc.).
- Support greenhouse gas (GHG) emissions reduction targets per the City's goal of reducing greenhouse gas emissions by 80% by 2050 by examining the carbon neutrality of any renovation.
- Develop a solid waste and recycling management facility that will optimally mitigate negative impacts typically associated with this type of facility (i.e., noise, dust, odor, traffic).
- Create a new inviting environment through architectural design for public drop-off that will be considered a community amenity.
- Provide spaces for educational opportunities that will enhance and expand the community's effectiveness in a sustainable world.
- Design renewable energy strategies that will minimize the facility's carbon footprint.



- Bring the facility into compliance with future expected Bay Area Air Quality Management District (BAAQMD) rules (e.g., Regulation 13 Rule 2).

1.3.6. Environmental Health and Safety of the Workers/Visitors

- To replace a facility that may have challenges to the health and safety of the public and the staff with a new design that
 - Provides better separation of operations from public activities
 - Provides enclosed spaces which have better lighting and air quality.

2.0 Stakeholder & Public Engagement

2.1. Introduction

The City and the Zero Waste Collaborative (ZWC) conducted an extensive outreach process to ensure that preliminary transfer station and recycling operation designs reflected the desires of the community. Nine public meetings were held, three at each stage of the process as detailed below.

Fall 2018 Listening Sessions

- November 7th 1:30 p.m. - 3:30 p.m.
Berkeley Central Library, 3rd Floor Community Room, 2090 Kittredge Street
- November 28th 6 p.m. - 9 p.m.
South Berkeley Senior Center, 2939 Ellis Street
- December 1st 1 pm to 4 pm
Live Oak Community Center, 301 Shattuck Avenue

January 2019 Design Charrette Process

All sessions held at: James Kenney Community Center, 1720 8th Street

- Session 1: Ideas to paper
January 16th 6:00 p.m. – 8:00 p.m.
- Session 2: Analyze first night's outcomes
January 17th 6:00 p.m. – 8:00 p.m.
- Session 3: Recap
January 18th 10:00 a.m. – 12:00 p.m.

Spring 2019 Workshops

- March 14th 6:00 p.m. – 8:00 p.m.
James Kenney Community Center, 1720 8th Street
- March 15th 2:00 p.m. – 4:00 p.m.
North Branch Public Library, 1170 The Alameda
- May 22nd 5:00 p.m. - 7:00 p.m.
Berkeley Public Library - West Branch, 1125 University Avenue

2.2. Fall Listening Sessions

Three “Listening Sessions” were held throughout the City in Fall 2018 to get early input from community members and stakeholders. The sessions were scheduled in different neighborhoods to be accessible to the public in different geographic areas of the City.



Figure 2-1: Map Showing the Location of the Transfer Station and Listening Session Meeting Locations

The purpose of these initial listening sessions was to present the current status and use of the existing Solid Waste and Recycling Transfer Station and request community member input to re-imagine the facilities needed to meet the City’s Zero Waste goal.

In addition to the public meetings, the Zero Waste Collaborative representatives met separately throughout the community engagement and conceptual design process with the City’s currently contracted recycling services providers:

- **Community Conservation Center (CCC)** – operates the recycling center, including the drop-off, buyback, universal waste collection and recyclables processing facility
- **Ecology Center (EC)**– provides residential curbside collection services
- **Urban Ore** – conducts the salvaging operation from the self-haul area of the transfer station

2.2.1. Listening Session Summary

Key Take-Aways:

- Form follows policy; City policy drives what facility improvements are needed
- Highest and best use of recovered materials
- Reduce overall waste generation



- Facility needs to accommodate multiple user types

Information Needs:

- Tonnage by facility user types (City fleet, City contractors, self-haul at transfer station, drop-off, buyback, Berkeley self-haul vs. other, drop-off, buyback, etc.)
- Self-haul composition (contractor vs. “mom and pop”)
- New policies and programs (that affect facility design):
 - Food ware and litter reduction ordinance (could require more compost capacity)
 - Enforcement of mandatory recycling and composting (will decrease refuse, increase recycling and composting)
 - Deconstruction and source-separated C&D recycling ordinance (will increase need for source-separation at site, could decrease overall C&D tonnage – may not need to go through transfer station site)
 - Flow control
 - Neighborhood scale composting at schools and community gardens (will reduce organics tonnage)

2.2.2. Desired Transfer Station Features

Participants in the Listening Sessions provided input into a list of desired program features as summarized in **Table 2-1** below.

Table 2-1: List of Desired Program Features from Listening Session Participants

Buyback Center	Berkeley Recycling has the only buyback in Berkeley, Albany and Emeryville. Very important regional asset. Needs to accommodate both pedestrian and vehicle customers. Could be more user-friendly. Might want to consider a “bottle drop.”
Free Material Drop-off	Would like a configuration that is more “casual user friendly” similar to the El Cerrito Recycling Center. Expand materials types to include everything that can be marketed, including aseptic, flat glass, bicycle parts, electronics, corks, Styrofoam blocks. Potentially allow for licensed scavengers (similar to El Cerrito Recycling Center).
Reuse Exchange	As part of the drop-off or education center. A clean, dry place for free “put and take” (household goods, books, magazines).
Education Center	Classroom space, community meeting space, educational displays and a catwalk through the facility for tours.
Administration Building	Co-located office space for City staff, CCC, Ecology Center. Enhances collaboration and goal setting.
Breakroom, locker room, showers	Possible to have two separate spaces for the workers? Might be desirable for them to be together and build trust. Need discussion with labor representatives.
Self-haul	Systems needs to enhance recovery. Most desirable is to have serial drop-off and require separation by material type (yard trimmings, lumber, scrap wood, fixtures, scrap metal, cardboard, furniture, household goods). Alternatively, could be picking line like Davis Street or Recology SF. Urban Ore scavenging function desirable. Could have Goodwill trailer as well and other reuse and repair vendors.
Recyclables Processing	Maintain dual stream processing. Co-located with buyback and drop-off. Need indoor storage for some materials.
Organics	Assumed to be primarily a transfer function. Residential food co-collected with yard trimmings transferred to compost facilities. Some interest in source-separated commercial organics to anaerobic digestion at EBMUD. Might require pre-processing. Some concern about co-digestion of food with sewage.
Trash	Assumed to be primarily a transfer function. Some interest in reserving space for future processing of mixed waste.

C&D	Assumed to be primarily a transfer function. Some interest in some C&D processing for highest and best use. Source-separation also desired. Keeping some load separate (such as asphalt shingles) can enhance recovery.
HHW and Universal Waste	Desirable to have fully functioning Household Hazardous Waste (HHW) facility (perhaps everything except paint). Paint is typically the largest category of material at HHW facilities. Keeping it separate and addressed at paint stores (through stewardship organizations) could reduce space needs. Could consolidate HHW and Universal Waste drop-off.
Other bulky items	Carpet and mattress recycling desired (through product stewardship organizations). [Mattress recycling is an existing program and carpet recycling is being implemented.]
Other desired program features	<ul style="list-style-type: none"> • Artists in residence program (allow access to materials like at El Cerrito – do not need dedicated studio space). • Maker area • Social services for vulnerable populations • Needle exchange • Supplemental Nutrition Assistance Program (SNAP) program applications • Food pantry • Landscaping • Sculpture garden • Compost demonstration

2.3. January 2019 Design Charrette

The Listening Sessions provided critical insights to the community members’ needs. The ZWC team used these insights to prepare for the three-day Design Charrette held in January 2019. The goal for these three sessions was to fully flesh out at least two options for the City’s new Solid Waste & Recycling Transfer Station with potential facility and equipment layouts.

The Design Charrette approach assists the project team in efficiently evaluating the current solid waste and recycling management system, identifying state-of-the-art new programs and facilities, and ensuring that the final recommendations and guiding principles for the project are truly a shared community vision.

2.3.1. Design Charrette Session 1



Figure 2-2: Session 1 Team Exercise

The purpose of the first session was to solicit community members’ ideas for the solid waste and recycling transfer station on to paper. During the first session, ZWC provided an overview of the current transfer station, a summary of the Listening Sessions, and draft layout concepts.

Participants then worked together on a team exercise. Using a site plan map of the transfer station, each team worked with building pieces to create different layouts for the solid waste & recycling transfer station.

2.3.2. Design Charrette Session 2

The second session of the Design Charrette analyzed the outcomes from the first session. ZWC synthesized the layouts created from the team exercise and created two layouts that were presented to the community members during the second session.

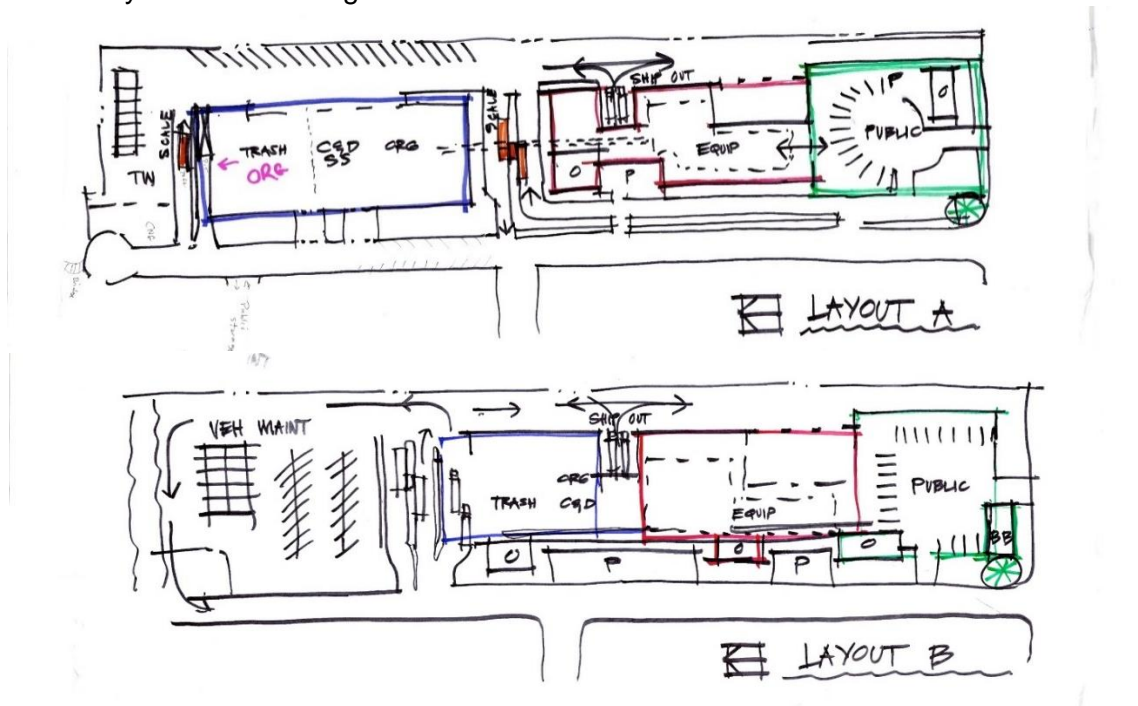


Figure 2-3: Draft Layouts from Session 1 Presented at Session 2

The two layouts depicted different configurations for traffic flow, vehicle parking, drop-off areas, and building functions.

- Layout A shows a two-building concept with the transfer station building separated from the recyclables processing area by a public scale. This layout includes a drop-off area in a circular pattern similar to the El Cerrito Recycling Center.
- Layout B shows the two buildings conjoined and the drop-off area reconfigured to include more areas for unloading.

2.3.3. Design Charrette Session 3

During the last session of the Design Charrette, participants provided feedback on the most promising layout options. Participants discussed:

- Advantages and disadvantages of separating the buildings and having them conjoined.
- Advantages and disadvantages of the circular pattern at the El Cerrito Recycling Center.
- Potential names for the future facility, including the “Berkeley Resource Recovery Center.”

2.4. Spring 2019 Workshops

The City conducted three workshops during Spring 2019 to obtain community members’ feedback and additional input on three primary concept plans that reflected input from the Design Charrette.

3.0 Programming & Concept Development

3.1. Programming

This section describes the operational programming work (i.e., development of the site plans and site plans elements) in the initial stages of the project through the community members' engagement process.

The ZWC team provided questionnaires to City staff to provide input on current needs as well as provide additional input on desired project design elements or capacities (see **Exhibit 2**). The survey results coupled with site conditions assessment described in Section 1.2 formed the basis for initial site concept plans that evolved throughout the community engagement process.

3.1.1. Site

Land Use/Site Design

Following the initial site assessment and initial conversations from the Public Listening meetings, it became apparent that the facility's location is well-known; it has a historical context as City infrastructure that helps the community to identify with its purpose.

3.1.2. Access/Traffic

Vehicle circulation to and from the site are defined by Second Street. The one-way direction (south to north) of Second Street on the southern portion between Gilman and Harrison streets establishes some basic rules for accessing the site. Minimizing the vehicle stacking on this portion of the street will have a positive effect on the neighboring businesses as well.

The eastern boundary is defined by the railroad right-of-way with the Gilman Street at grade crossing. The mix of public and commercial traffic accessing the site in the future is not anticipated to change much. Increases in vehicle quantities and frequency are addressed with the redesign of scale queuing including improvements in transaction cycle time.

Internal (onsite) traffic patterns are not ideal with significant intermixing of small public vehicles and larger commercial vehicles like the City's refuse collection trucks. All vehicle types use the same scales to enter and exit the property with vehicle back-ups before and after the scales. Each of the proposed site concepts will significantly improve internal traffic flow through separate scale entrances for small and large vehicles, minimal overlap of internal circulation patterns and an increase in the number of scales and scale queue area.

The roundabout planned to serve the interchange between I-80 and Gilman Street is in the final design process. Planned and designed by the California Department of Transportation (CalTrans), it will replace the existing five-way stop sign access to and from the Eastshore Highway. This junction is used by City's collection and tractor trailer transfer vehicles and the public using the Transfer Station facility which is difficult to navigate. The roundabout should have a positive impact on traffic flow.

3.1.3. Facility Overview

The City of Berkeley Transfer Station and Recycling Center currently includes the following types material handling, processing and/or transfer operations as depicted in the color graphic below:

Overview of the Transfer Station

- Self-haul transfer
- Refuse, organics, & construction debris transfer
- Motor oil, mattresses, tires, white/brown goods drop-off
- Reuse salvage
- City collection fleet & admin.
- City contractor for residential recycling fleet & admin.
- City contractor for recyclables processing, recycling & universal waste drop-off, buyback & administration



The Solid Waste and Recycling Transfer Station complex is managed by the Zero Waste Division (Division) of the City of Berkeley Public Works Department with its 90+ employees and 83 vehicles, including long haul tractor/transfer trailers and the City's collection fleet. Operations also include the Public Works Department's Equipment Maintenance building that services: the Division's collection and service vehicles, the City's large vehicles, such as fire department, and public works vehicles; heavy equipment/large rolling stock maintenance garage; truck wash rack; and fueling station (two underground diesel storage tanks requiring replacement by 2025).

The Division also directs and oversees a number of subcontractors for program and service delivery that operate out of the facility, including:

- Residential curbside recycling collection is operated by and currently contracted with the Ecology Center, Inc. (EC); eight (8) collection trucks and more than twenty (>20) employees that collect residential recycling materials for properties with up to nine (9) residential units;
- Materials Recovery Facility (MRF) and buyback center is operated by and currently contracted with the Community Conservation Centers, Inc. (CCC); also processes and markets recyclable materials collected from the residential and commercial sectors with approximately 20+ employees;
- Reuse salvage/collection is operated by and currently contracted with Urban Ore, having two (2) to three (3) employees, which operates a salvage and diversion program for reusable goods delivered to the floor of the Transfer Station that can be reused for their originally intended purpose or repurposed while in their originally manufactured form;
- Third party provided long haul and composting for the City collected green and food materials;



- Third party provided long haul and sorting for the recycling of construction and demolition materials; and
- Third party hauling and recycling of metal and appliances.

3.1.4. Minimum Operational and Site Space Needs Analysis

A critical aspect of the initial site programming was to document the existing space allocation (measured in square footage) for key operations/functions (e.g., transfer station, MRF, buyback center, etc.) and then establish a new baseline for what future space allocation should be given existing site constraints. **Table 3-1** details a summary of the space allocation with baseline (minimum) and optimal space assumptions shown with current space as applicable noted in parenthesis under baseline.

Table 3-1: Operational Space Analysis

<u>Operation/Function</u>	<u>Baseline</u>	<u>Optimal</u>
Transfer Station	41,000 sf (34,300)	45,000 sf
MRF	32,000 sf (28,600)	35,000 sf
Truck Wash	2,000 sf (2,100)	2,000 sf
Bin Repair	1,000 sf (6,400)	2,000 sf
City Administration City Staff Support Area	2,000 sf (1,500)	2,500 sf
Contractor 1 Administration Contractor Staff Support Areas	800 sf (792)	1,200 sf
Contractor 2 Administration Contractor Staff Support Areas	800 sf (918)	1,200 sf
Vehicle Maintenance and Parts Supply	7,000 sf (5,316)	8,000 sf
Office	1,500 sf	1,500 sf
Staff Support	1,500 sf (1,200)	1,500 sf
Public Education Center	800 sf (N/A)	1,000 sf
Community Room	1,000 sf (N/A)	1,000 sf
Artisan Space	1,000 sf (N/A)	1,000 sf
Scale house	200 sf	200 sf
<i>Vehicles:</i>		
Route Trucks parking spaces	44	48
Transfer Trailer Trucks parking spaces	9	11
Staff Parking spaces	40	50
Drop-off Parking	17	30
Visitor Parking	8	15



3.2. Concept Development

3.2.1. Introduction

This Feasibility Study established as a goal, the development of two viable facility design concepts for further consideration in the California Environmental Quality Act (CEQA) review process. These two facility design concepts were developed from valuable input gathered from a proactive and lengthy public engagement process with community members and stakeholders as well as programming input from City staff for current and future requirements. From the design process, a vetting cycle eliminated more than dozen iterations that were not viable from the standpoint of inefficient circulation, limited capacity, and/or significant cost impacts.

A key goal in having two concepts was to demonstrate an alternate scenario for discussion and input but also assure that both concepts were viable for future implementation. In fact, the two options have much in common and both received support from key stakeholders in the process.

Concept A & Concept B

Design Layout Characteristics in Common

- Self-haul queuing capacity at the north end of Second Street based on repositioning of the cul-de-sac.
- Public buyback and drop-off center close to the corner of Gilman Street and Second Street to facilitate the heavy use from pedestrian walk-in customers.
- Primary truck circulation is at the east side of the facility facing the railroad right-of-way which minimizes any mixing with public self-haul customers entering from the northwest corner of the site. The truck scale will be RFID compatible so collection vehicles can avoid having to weigh out using the public scale.
- Provide a remote RFID scale to separate the collection trucks from the public vehicle circulation.
- Each concept also has the same public amenities and sustainability features.

Each Concept was developed with preliminary level plans, elevations and sections (see **Exhibits 3-27**).

The following section provides an overall description of each design concept.

3.3. Concept A

The key difference between Concept A and Concept B, is that it provides a singular large structure that consolidates the functions of the MRF, transfer station, and vehicle maintenance facility as depicted in **Figure 3-1** below and the site plan (see **Figure 3-2**).

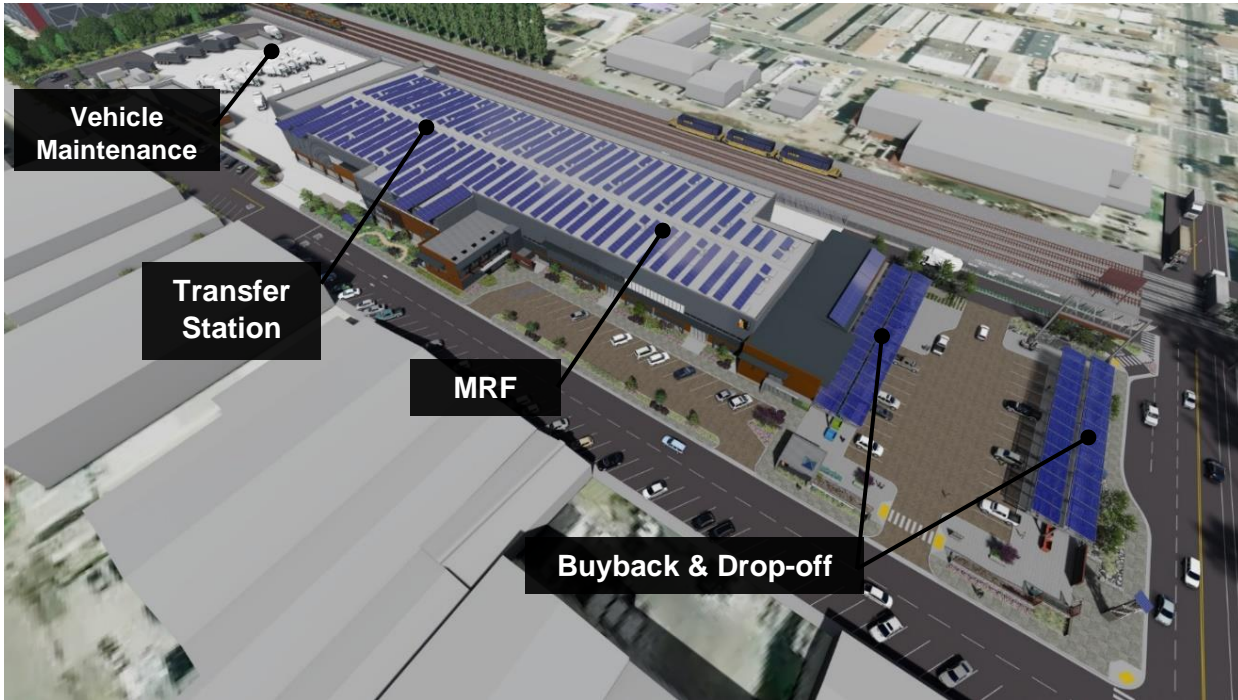


Figure 3-1: Concept A - Rendering Aerial View

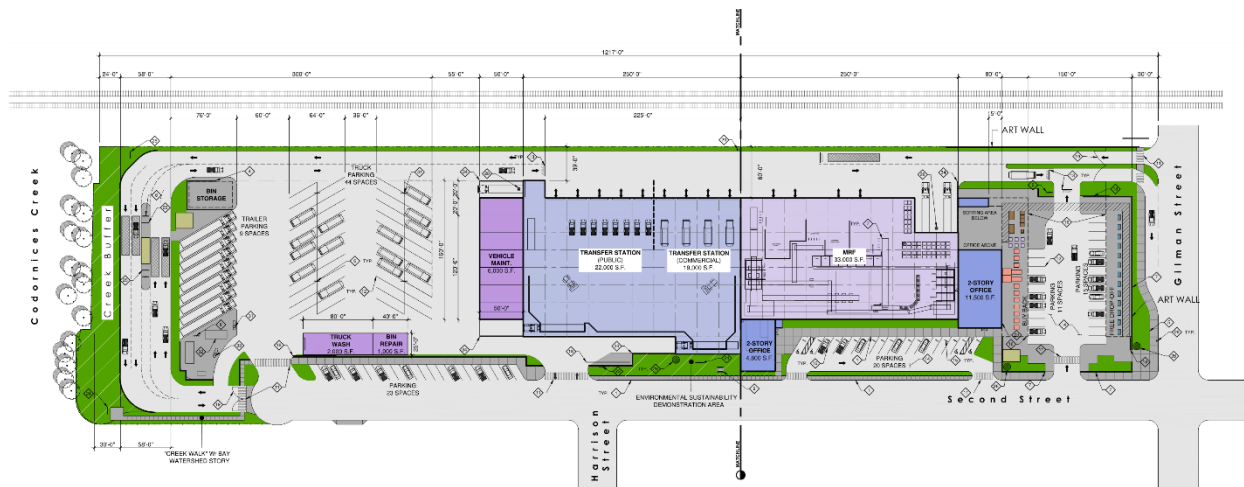


Figure 3-2: Concept A - Site Plan



In comparing the square footage of the two concepts, there are some differences as shown in the table below. Overall, the total building square footage in Concept A is about 8% smaller with a smaller transfer station and MRF, but more square footage allocated to education and community space. ZWC and City staff are confident both options provided sufficient space for the transfer station and MRF. The current MRF square footage is approximately 28,620 and the Transfer Station is 34,700 (inclusive of the outdoor tipping area for C&D materials).

Table 3-2: Square Footage (sf) Comparison Between Concept A & B

Operation/Function	Concept A	Concept B
Transfer Station	41,000 sf	46,000 sf
City Administration & Staff Support	4,800 sf	8,000 sf
MRF	33,000 sf	35,000 sf
Education Center/Community	700 sf / 1,400 sf	500 sf / 800 sf
Artist Studio	1,100 sf	840 sf
Information Kiosk	280 sf	120 sf
Cashier	760 sf	960 sf
Contractor 1 Administration & Staff Support	2,500 sf	2,300 sf
Contractor 2 Administration & Staff Support	2,500 sf	2,300 sf
Vehicle Maintenance	6,000 sf	7,000 sf
Vehicle Maintenance Admin & Staff Support	3,300 sf	1,100 sf
Truck Wash	2,000 sf	1,900 sf
Bin Repair	1,000 sf	2,000 sf *
Other **	270 sf	
Total Building Area	100,300 sf	108,000 sf
* Canopy-covered		
** Scale house, scale support		

3.3.1. Public Buyback and Drop-off Center

The south portion of the site is anchored with the Public Buyback and Drop-off Center (Public Recycling Center). Facing Gilman Street, this location will be prominent visually to Gilman traffic which is a major “feeder” thoroughfare to and from north, west and central Berkeley. The proposed Gilman Street frontage would have new landscaping and sidewalk improvements as well as a decorative screen wall that would provide site security and a “canvas” for potential local art placement. On this wall/fence, local artisans could present works inspired by recycled materials. The street corner could also feature a bold landmark feature that becomes a visual touchstone for the facility, possibly something that boldly signifies the City’s leadership in sustainable practices.



Figure 3-3: Concept A - Public Buyback and Drop-Off Center Entrance off Second Street



Figure 3-4: Concept A - Public Buyback and Drop-off Center View from Gilman Street at Second Street

The Public Recycling Center is planned as a wide plaza with a one-way entry driveway from Second Street. Upon entry, the customer is encouraged to maneuver slowly and park. Once parked, the customer can move between the appropriate bins for drop-off items on the south side of the plaza and on the north side for buyback items. A pedestrian entrance will be at the southwest corner of Gilman Street and Second Street.

The Public Recycling Center provides 26 covered spaces. Steel framed canopies with embedded photovoltaics (“PV Glass”) will provide weather protection not available at the site today. The canopies will be located on the south and north sides of large vehicle plaza. Each canopy will have large

signage for easy identification of the various types of materials collected. The signs will be moveable to allow flexibility for reorganizing the bin areas based on customer use trends.

3.3.2. Public Buyback Area

The Buyback area will be on the north side of the Public Recycling Center. Central to this area, will be a cashier for transactions and staff to answer customer questions.



Figure 3-5: Concept A - Public Buyback Area

3.3.3. Free Recycle Drop-off Area

This area located at the south side of the Public Recycling Center and will include bins and/or carts for paper, plastic, glass, metals, clothing/textiles, and books. Providing additional bin area here, which exceeds current conditions, will allow additional differentiation for public sorting on-site. This line of bins and/or gaylords will have a staff aisle behind the bins for carting and forklifting collected materials to the sorting area near the main building on the north side of the Public Recycling Center.

3.3.4. Universal Waste Drop-off Area

At the east end of the north side of the Public Recycling Center, a universal waste drop-off area will be included to accept limited quantities of oils, paints, batteries, e-waste, and fluorescent tubes. This area will have a pull-over curb space and is in a direct line of site from the Cashier operations office. It is also shared with the material consolidation and sorting area (for the buyback area) which would be staffed for customer assistance.

3.3.5. Walk-in Service

Pedestrian access is provided by two wide gate access points from the Gilman and Second Street intersection. These gates would roll back for business hours and rolled closed at closing. These access points will have good visibility for staff from the Information Kiosk (see picture on the next page).



Figure 3-6: Concept A - Second Street View of Entrance to Public Recycling Center

Ideally, security fencing would be a combination of masonry walls and decorative fencing that could be fabricated from recycled construction materials (e.g., steel rebar, angle and sheeting by local artisans). Portions of the fence could provide space for community art projects.

When exiting the Public Recycling Center right turn onto westbound Gilman Street, the customer that needs to return has an opportunity to turn right (north) on Second Street to return to the Center.

Customers can also continue to the Public Scale Entry at the north end of Second Street for items not accepted at the Public Recycling Center such as bulky drop-off items. See **Figure 3-14** on page 27 for a rendering of the Main Public Entry and Scale Facility.

3.3.6. Information Kiosk

Informed facility users (customers) are essential to a more efficient operation which promotes higher levels of recycling. The Information Kiosk, a small gatehouse structure at the entry, will provide a waystation for addressing customer questions and also an opportunity to provide a wide variety of information including: 1) rates and how to use the facility 2) recycling tips to better equip the user for the next visit and 3) community recycling events. The Information Kiosk may also be the “home base” for a staffer or volunteer that roams the Public Recycling Center with a tablet for transactions. See the rendering on the next page.



Figure 3-7: Concept A - Public Recycling Center Information Kiosk

3.3.7. Education Center

Within 25 ft. of the Information Kiosk is a public lobby entrance for stair and elevator access to the Education Center, Artisan workshop, and Community Room. Located on the second floor, the Education Center will provide informative environment for the public to connect with key goals of the facility such as eliminating waste, greater recycling and reuse. Space will be available for displays and exhibits that can engage all ages. This room will have soundproof windows for public viewing of the materials recovery processing systems. Adjacent to this room, visitors can interact with local artisans creating works from recovered materials, learning more about environmental stewardship. In addition to recycling and reuse, these spaces can showcase water conservation and renewable energy.

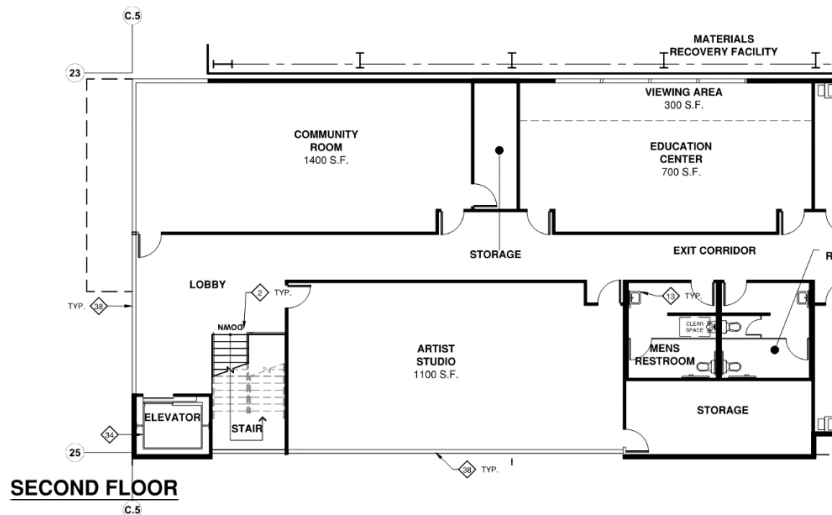


Figure 3-8: Concept A - Floor Plan for Education Center and Community Space



3.3.8. Materials Recovery Facility (MRF)

The MRF is a fully enclosed 33,000 sf structure dedicated to the processing of recyclables and the temporary staging of the recovered materials for shipping to commodity markets. This building will have multiple large overhead doors facing the east side of the facility for access by recyclables collection trucks. Recyclables collection trucks will weigh in at the RFID scale located near these doors. These trucks can maneuver to this scale multiple times as needed depending on the truck configuration and related weigh-in. The trucks will unload in three tip floor areas: 1) paper (fiber) 2) containers (bottles and cans) and 3) clean cardboard and commercial mixed paper. A front-end wheel loader would move the material to three separate infeed conveyors for paper, containers, or direct to a baler.

MRF Process Equipment

From the infeed locations, a new dual stream processing system would process approximately 10-15 tons per hour (tph). This process rate would depend on the inbound material and final staffing of the hand-sort platforms. Additional staffing will increase the processed upgraded fiber over typical mixed paper grade throughput. The scalping screen and old corrugated cardboard (OCC) screens will improve material flow speed and improve quality of recovered material. More details on the sorting lines can be found below.

Fiber Line - The proposed processing system would provide the following benefits:

- Double current fiber production rate.
- Improve high value cardboard yield (capture rate) on the fiber line via mechanical cardboard capture.
- Improve ability to make a #56 grade (sorted residential paper) vs a #54 mixed fiber grade. Typically, there is a premium for #56 grade fiber.
- The equipment could be upgraded later for optical sorting of high value white, sorted office paper (SOP) and sorted white ledger (SWL).
- Layout allows for the robust collection of more commercial fiber streams from businesses.

Container Line - The proposed processing system would provide the following benefits:

- System production rates should improve by 2-3 tons per hour over current run rates.
- First pass capture rate will improve which should decrease residue (materials that are disposed).
- Increased blended value (commodity streams) produced "per ton" should increase.

Overall Plant Flow (including baling) - The proposed system would improve the following:

- Reduced handling costs with less double handling of "to be baled" commodities.
- Increased area for bringing in greater volumes of commercial fiber from businesses.
- Better inbound outbound material flow and temporary staging capabilities.
- Decreased safety risks with better flow and less handling.

The south portion of the MRF floor plan will have four bunkers for glass (green, brown, clear, and 3-mix). A forklift aisle will provide access to the bunker for removal of the glass. This area of the building will also have a temporary staging area for baled materials which will open to a two-bay shipping dock, as compared to one currently. Here, adjacent to this area, will be a 10 ft. x 10 ft. overhead door for access to the covered Buyback area where collected items can be consolidated.

The west wall of the MRF will have overhead doors which will serve as maintenance access for service on the equipment and removal of components when needed.

The north wall of the MRF will be a steel-framed full-height non-rated partition which will provide separation from the Transfer Station area. This partition, called an environmental wall, provides control of air volumes and dust.

3.3.9. Transfer Station

3.3.9.1. Overview

The Transfer Building is a large fully enclosed space providing with an open floor area for the varied types of material arriving and will provide multiple opportunities for the separation of materials for reuse. Although the Transfer Station shares the same structure with the MRF, these two areas are distinct and separated by a full height “environmental wall” which is steel framed with metal sheeting. This partition provides controlled air in each space and improves noise control. It can also be deconstructed if required if the future MRF and Transfer Station space needs to be modified.

The 41,000-sf transfer station floor area will have a minimum clear height is 30 ft. which allows space for a large tip floor (unloading and material handling) area that will be shared by public customers as well as City collection trucks. Moveable barriers can be used to define these working areas both inside the structure and at the exterior doors. The overhead vehicle access doors will be 18 ft. x 25 ft. and fast roll to control air flows and odor migration and any fugitive dust.

3.3.9.2. Bulky Item Drop-off Area

The first bay at the north end of the floor area is a dedicated area for the public to unload larger items such as appliances, mattresses, carpet, tires, etc. This area is approx. 1,500 sf and has direct access to a 2-bay loading dock area. This interior area has sufficient space for large roll-off boxes or containers which can be picked up when loaded. This is a significant improvement over current operations which are outdoors and in multiple areas.

3.3.9.3. Salvage Items

At the Main Entry public scale house, the customer may offer (or the scale operator may identify) salvageable items. With direction from the scale operator, the customer would proceed to the first station at the north end of the Transfer Building where a City partner / contractor can collect/salvage reusable items and store them in transportable boxes. This area is approximately 1,500 sf and has direct access to a 2-bay loading dock area. This interior area (see rendering below) has space for large roll-offs or containers which can be picked up when loaded.



Figure 3-9: Concept A - Public Tipping Area



Overall, the transfer station has nine (9) deep interior bays which can be organized based on need. The public access would extend to the first northernmost 5-6 bays. Based on day of the week, season, etc., additional bays (and tip area) may be assigned to specific types of incoming loads (e.g. construction and demolition debris (C&D) or green and food waste). Larger than the existing transfer station by approx. 20%, this expanded floor area will provide additional opportunities to segregate materials thereby enhancing diversion rates. An example would be having an area for a separate pile of clean demolition lumber.

In addition to assistance from floor staff such as a “spotter”, public access would be enhanced with large wayfinding graphics (e.g. numbered stations and color coded for direction). When commercial collection trucks are not active (e.g. weekend vs. weekdays schedules), self-haul customers can use additional access doors at the south end of transfer building. The public tipping area is approx. 150 ft. deep (east/west direction) by 150 ft. long. On low-to-moderate volume days, this depth can provide sufficient interior maneuvering area for cars and pickups with only two doors for access. After unloading, customers return to the north and the two exit scales at the main scale house to complete the transaction and leave the site back to Second Street.

The commercial side of the Transfer area floor at the south end of the structure will have 3-4 bays with an area of approx. 150 ft. deep (east/west direction) by 100 ft. long. The receiving floor is designed to accommodate delivery of materials from various types of collection vehicles, including front-end, side and rear-end loaders and roll-off trucks. Commercial customers that have a recorded tare weight (i.e., truck weight when empty) are not required to rescale upon exiting. All Transfer Station overhead doors will be 18 ft. x 25 ft. and will be fast-acting (opening and closing) doors activated by proximity sensors.

3.3.9.4. Loadout/Transfer Areas

Tractor trailer trucks will remove refuse and transport to the landfill. These trucks will access the site at “staff-only” driveway at Second Street across from the Harrison Street intersection. Once on site, a transfer truck and trailer can use one of the two loadout positions at the west side of the Transfer Station. The transfer of material to the trailer will take place at floor level with a wheeled loader lifting material into the truck trailer. The trailer will be under a 3-sided steel backboard hopper to conduct material into the trailer. Each loadout will have an in-ground 70 ft. scale with a weight display located on the building wall above the loadout position. The trailer will be subsequently tarped prior to leaving the site. Trucks will leave the site via the Second Street driveways and use Harrison Street to the Eastshore Highway.

The tip floor will have a zoned misting system which will control dust in active areas of material consolidation and loading.

3.3.9.5. Main Public Entry and Scale Facility

The scale facility is located at the north end of the site providing optimal queuing capacity. In order to provide this queuing capability, the north portion of the Second Street right-of-way would be vacated, and the cul-de-sac reconstructed approximately 100 ft. south of its current location. This new entry gate position provides additional on-site vehicle stacking in front of the scale house. From the gate to the scale position, 11 spaces at the inside lane are available for waiting vehicles. The outside lane with a RFID/card reader would offer queuing for an additional 5 light duty trucks. South of the gate, Second Street provides additional capacity for high volume days. Since this portion of Second Street

(north of the Harrison intersection) has minimal usage, additional waiting capacity is available for approximately 12 additional vehicles. At the main gate, a digital display is proposed which could provide wait time information that may encourage customers to try another time and help level demand flows.

The scale house will provide counter space for two weighmaster staff for inbound and outbound traffic. A separate staff support structure will be within 30 ft. of the scale house. This building may be prefabricated/modular in construction and would provide an all gender bathroom, lockers and a small break area. Two 70 ft. scales at inbound lanes and two 70 ft. scales at outbound lanes will be installed in pits level with the adjacent road surface grade. Stop/Go signals will be placed in front of the scales in both directions. Rate & Rules signage will be placed in the median on the approach.

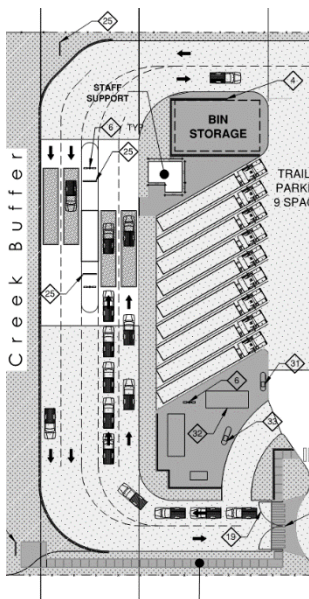


Figure 3-10: Concept A - Main Public Scale Entry

3.3.9.6. Vehicle Maintenance, Truck Wash, and Truck Parking

The vehicle maintenance facility will provide six (6) – 20 ft. wide by 50 ft. deep truck service bays with 20 ft. height clearance and is column-free between bays. The end wall (south wall at Sheet A2.1, Line 3) provides floor space for toolboxes and workbenches.

Interior lighting will be high bay LED style light fixtures. Translucent wall panels over each door will provide daylighting. Overhead doors are 16 ft. wide by 20 ft. tall. Equipment inside the facility will include pneumatic wrenches, tire changing equipment, floor-mounted lifts, jib cranes, carbon monoxide systems, diagnostic equipment, etc.

A lobby stair and elevator will provide access to the second floor which includes 3,300 sf of administrative offices, staff restrooms and lockers. A lockable parts area will have rack storage for small parts that can be restocked via hand cart or dolly using the elevator. A through-floor lift is proposed for supplying the service bays with larger items such as tires, etc. The second level will also include a compressor room to serve pneumatic systems at ground level service bays. This room would have floor vibration isolation and exterior wall sound control louvers.



A truck wash structure with attached bin repair area is located at the Second Street (west) side of the truck parking area. The truck wash has a single bay 25 ft. x 80 ft. for larger trucks e.g. 65 ft. semi-tractor trailer truck and will be accessed from the north end.

The truck parking area will provide 44 spaces for collection-type trucks and 9 spaces for semi-tractor trailer trucks. The fueling area is consolidated in the northwest corner of the parking area and will have a driveway connector from the main Public Scale Entry driveway with a security gate. This gate could provide card key access for City users. The main driveway, approx. 20 ft. to the south will be approx. 40 ft. wide and designed to accommodate large vehicle access and turns.

3.3.10. Administrative/Employee Support Areas

3.3.10.1. Contractors

Located at the south end of the Transfer Station/MRF structure and facing Gilman Street, administrative office space has been provided for two City recycling contractors at the second floor. Access to this level is provided at the west and east end of the structure. Each suite has matched spaces including two (2) enclosed offices, four (4) workstations, one (1) receptionist, meeting/breakroom and copy area, and visitor wait area (approx. 900 sf for each suite).

At the ground floor, staff support areas (for MRF and Public Recycling Center workers) include restroom/locker rooms as well as a break room that can be used for informal training activities. Each staff support area is approx. 1,200 sf and has direct access to the exterior as well as the MRF.

On-site staff parking is located along the west side of the MRF building. The twenty spaces will initially provide EV and accessible parking and has north-to-south one-way circulation allowing the driver to return as needed.

3.3.10.2. City Administrative Offices

Located facing Second Street approximately halfway along the west side of the MRF/Transfer Station structure, this two-story administration facility will provide offices for City staff on the second floor and will include enclosed offices, conference room and staff workstations (approx. 1,900 sf total).

The ground floor will have direct access to a staff breakroom and restroom/locker rooms (approx. 1,500 sf). This area (for all workers) will also have direct corridor access to the Transfer Station and MRF through a “air/sound lock” vestibule.

Staff parking is provided along Second Street (23 spaces) in a configuration similar to the existing on-street parking used by staff.

3.4. Concept B

Concept B presents a two-building approach in contrast to Concept A. This site layout separates the Transfer Building and the MRF with the truck maintenance and truck parking area in the center of the site. The MRF is situated where the existing recycling building is today. However, the primary distinction between old and new is that the truck access has been moved from the west side to the east side.

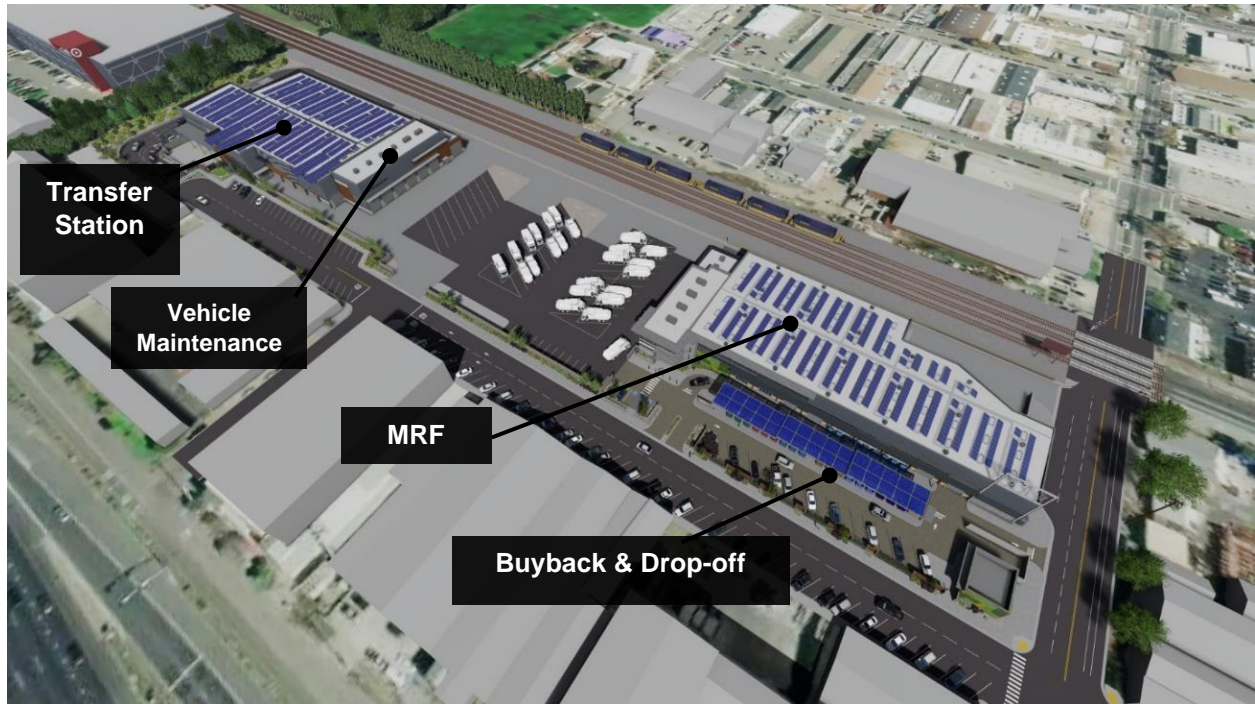


Figure 3-11: Concept B - Rendering Aerial View

3.4.1. Public Buyback and Drop-off Center

Similar to Concept A, the Public Recycling Center (inclusive of the buyback and drop-off area) is located at the south portion of the site and prominent to Gilman Street traffic. Unlike Concept A, the Gilman Street frontage is shared with the MRF structure with the Public Recycling Center located adjacent to the western side of the MRF building facing Second Street. This places the entrance driveway further north along Second Street as compared to Concept A.

The Public Recycling Center is planned as a one-way drive with parking on the right and bins on the left. Upon entry, the customer is encouraged to maneuver slowly and park. Once parked, the customer can use both the Free Recycle Drop-off or the Buyback and cashier.



Figure 3-12: Concept B - Public Drop-Off Area

Steel-framed canopies with embedded photovoltaics will provide weather protection for the drop-off bins which are in a center island. These canopies will also have large signage for various types of materials. The signs will be moveable to allow flexibility for reorganizing the bin areas based on customer preferences/trends.

3.4.2. Public Buyback Area

The Buyback area will be on the south end of the Drop-off area. Central to this area, will be a cashier for transactions and to answer customer questions.

3.4.3. Free Recycle Drop-off Area

This area located at the center island will include boxes for paper, plastic, glass, metals, clothing/textiles, books, etc. This line of bins and gaylords will have a staff aisle behind the bins for carting and forklifting collected materials to the sorting area near the MRF building.

3.4.4. Universal Waste Drop-off Area

Adjacent to the cashier office at the south end of the site, a universal waste drop-off area will accept limited quantities of oils, paints, batteries, e-waste, and fluorescent tubes. This area is in a direct line of site from the cashier operations office and the Information Kiosk. It is also adjacent to the one-way (right turn) exit to Gilman Street.

3.4.5. Walk-in Service

Pedestrian access is provided through an entrance at the northeast corner of Gilman Street and Second Street. This entrance would be opened for business hours and connect directly to the cashier and Buyback area. Access points have good visibility for staff from the Information Kiosk as well (see **Figure 3-13**).

Security fencing would be a combination of masonry walls and decorative fencing that could be fabricated from recycled construction materials (e.g. steel rebar).



Figure 3-13: Concept B - Pedestrian Access to Public Recycling Center

3.4.6. Return Circulation

Exiting the Drop-off area to westbound Gilman Street, the customer has an opportunity to turn right (north) on Second Street to return to the Public Recycling Center or continue to the Public Scale Main Entry at the north end of Second Street. Customers with other materials such as bulky items (e.g., furniture, appliances, mattresses, carpet, tires, etc.), construction and demolition materials, yard waste or refuse, would also proceed directly down Second Street to the main entry gate at the end of the street (see **Figure 3-14** below).



Figure 3-14: Concept B - Main Public Entry

3.4.7. Information Kiosk

An Information Kiosk is located at the entrance to the Public Recycling Center which is near the majority of customer activities. It will be staffed to help the user with general and specific information on 1) rates and how to use the facility 2) recycling tips to better equip the customer for the next visit and 3) community recycling events. The Information Kiosk may also be the “home base” for a staffer or volunteer that roams the Public Recycling Center with a tablet for transactions.

3.4.8. Education Center

At the north end of the Public Recycling Center is the public lobby entrance for stair and elevator access to the Education Center, Artisan Workshop, and Community Room. The location (see **Figure 3-15**) of the Education Center offers prominent visibility as a community amenity. The Education Center is on the third floor and will provide space for displays and exhibits that promote the key goals of the facility such as eliminating waste, greater recycling and reuse. This room will also have soundproof windows for public viewing of the materials recovery processing systems. Facing the street, a separate community room will provide meeting space with views of the site. An artisan workspace adjacent to the community room will provide visitors opportunities to interact with local artisans creating works from recovered materials while learning more about environmental stewardship. In addition to recycling and reuse, these spaces will offer display areas as a showcase for water conservation and renewable energy.



Figure 3-15: Concept B - Public Education Center Entrance

3.4.9. MRF

The 35,000 sf MRF building will have multiple large overhead doors facing the east side of the facility. Recyclables collection trucks will weigh in at the remote RFID scale at this side which is near the doors. These collection trucks will unload in three tip floor areas: 1) paper (fiber) 2) containers (bottles and cans) and 3) clean cardboard and commercial mixed paper. A front-end wheel loader would move the material to three separate infeed conveyors (for paper, containers, and direct to a baler).

3.4.9.1. Process Equipment

From the infeed locations, a new dual stream processing system would process approximately 10-15 tons per hour (tph). This process rate would depend on the inbound material and final staffing of the hand-sort platforms. Additional staffing will increase the processed upgraded fiber over typical mixed paper grade throughput. The scalping screen and old corrugated cardboard (OCC) screens will improve material flow speed and improve quality of recovered material. More details on the sorting lines can be found below.

Fiber Line - The proposed processing system would provide the following benefits:

- Double current fiber production rate.
- Improve high value cardboard yield (capture rate) on the fiber line via mechanical cardboard capture.
- Improve ability to make a #56 grade (sorted residential paper) vs a #54 mixed fiber grade. Typically, there is a premium for #56 grade fiber.
- The equipment could be upgraded later for optical sorting of high value white, sorted office paper (SOP) and sorted white ledger (SWL).



- Layout allows for the robust collection of more commercial fiber streams from businesses.

Container Line - The proposed processing system would provide the following benefits:

- System production rates should improve by 2-3 tons per hour over current run rates.
- First pass capture rate will improve which should decrease residue (materials that are disposed).
- Increased blended value produced (commodity streams) per ton should increase.

Overall Plant Flow (including Baling) - The proposed system would improve the following:

- Reduced handling costs with less double handling of “to be baled” commodities.
- Increased area for bringing in greater volumes of commercial fiber.
- Better inbound outbound material flow and temporary staging capabilities.
- Decreased safety risks with better flow and less handling.

The south portion of the MRF floor plan will have four bunkers for glass (green, brown, clear, and 3-mix). A forklift aisle will provide access to the bunker for removal of the glass. This area of the building will also have a temporary staging area for baled materials which will open to a two-bay shipping dock, as compared to one currently. Here, adjacent to this area on the west wall, will be a 12 ft. x 14 ft. overhead door for access to Buyback and Drop-off area where collected items can be consolidated. The west wall of the MRF will also have additional overhead doors which will provide interior areas for the collection of smaller bins and totes from the Drop-off area as needed. These doors will also serve as maintenance access for service on the equipment and removal of equipment components when needed.

3.4.10. Transfer Station

3.4.10.1. Overview

The 46,000 sf Transfer Station Building is a separate and fully enclosed space providing a large open floor area for the varied types of material arriving and will provide multiple opportunities for the separation of materials for reuse. The floor area will have a large tip floor area that includes nine (9) interior bays which can be organized based on need. Overhead doors will be 18 ft. wide x 25 ft. high and fast rollup doors with proximity sensors to control air flows and odor migration and any fugitive dust.

In addition to assistance from floor staff such as a “spotter”, public access will be enhanced with large wayfinding graphics (e.g. numbered stations and color coded for direction). The south bays would be used by commercial collection trucks as needed and can be separated from the public with moveable vehicle barriers. The public tipping area is in the northern half of the building approximately 150 ft. deep (east/west direction) by 125 ft. long (north/south direction). On low to moderate volume days, this depth can provide sufficient interior maneuvering area for cars and pickups with only two doors for access. After unloading, customers return to the north and the two exit scales at the scale house to complete the transaction. An additional area at the north side of the floor area provides space for material separation or staging for loadout or shipping (approx. 60 ft. deep by 40 ft. long).

When commercial collection trucks are not active (e.g. weekend vs. weekday schedules), self-haul customers can use the additional access doors and tip floor area at the south end of the building.



Figure 3-16: Concept B - Public Tipping Area

The commercial side of the transfer station floor at the south end of the structure will have an area of approx. 150 ft. deep (east/west direction) by 100 ft. long. The receiving floor is designed to accommodate delivery of materials from various types of collection vehicles, including front-end, side and rear-end loaders and roll-off trucks. Commercial customers that have a recorded tare weight (i.e., truck weight when empty) are not required to rescale upon exiting.

3.4.11. Bulky Item Drop-off Area

The first bay at the north end of the tip floor area is a dedicated space for the public to unload larger items such as appliances, mattresses, carpet, tires, etc. This area is approx. 3,000 sf and has direct access to a two-bay loading dock area. The loading dock can provide parking for direct load to a trailer for large items. This interior area can also offer space for roll-off boxes or shipping containers which can be picked up when loaded. This is a significant improvement over current operations which are outdoors and in multiple areas.

3.4.12. Salvage items

At the Main Entry public scale house, the customer may offer (or the scale operator may identify) salvageable items. With direction from the scale operator, the customer would proceed to the first station at the north end of the Transfer Building where a City partner / contractor can collect/salvage reusable items and store in transportable boxes or placed directly into a trailer.

3.4.13. Loadout/Transfer Areas

Tractor trailer trucks will remove refuse and transport to the landfill. These trucks will access the site at “staff-only” driveway at Second Street across from the Harrison Street intersection. Once on site, a transfer truck and trailer can use one of the two loadout positions at the west side of the Transfer Station. The transfer of material to the trailer will take place at floor level with a front-end wheel loader lifting material into the trailer. The trailer will be under a 3-sided steel backboard hopper to conduct material into the trailer. Each loadout will have an in-ground 70 ft. scale with a weight display located

on the building wall above the loadout position. The trailer will be subsequently tarped prior to leaving the site. Trucks will leave the site via the Second Street driveways and use Harrison Street to the Eastshore Highway.

The tip floor will have a zoned misting system which will control dust in active areas of material consolidation and loading.

3.4.14. Bin Repair Facility

Located at the northwest corner of the Transfer Building and adjacent to the main public entry to the scales, this canopied area will provide weather protection for bin repair activities. The staff support area in the Transfer Building provides access to this area as well. The repair area is not proposed to be enclosed but could be modified for this in the future. The facility will also have storage capacity and will have a 10 ft. tall security wall that will screen the facility from the public in the queue line for the main scales.

3.4.15. Main Public Entry and Scale Facility

Similar to Site Concept A, the scale facility is located at the north end of the site providing optimal queuing capacity. From the gate to the scale position, approx. 11 spaces are available for waiting vehicles. South of the gate, Second Street provides additional capacity for high volume days. Since this portion of Second Street (north of the Harrison intersection) has minimal usage 12 vehicles could queue here without disrupting through traffic to Harrison Street. At the main gate, a digital display is proposed which could provide wait time information that may encourage customers to try another time and help level demand flows.



Figure 3-17: Concept B - Main Public Scale Area

The scale house will provide counter space for 2 weighmaster staff for inbound and outbound traffic. A separate staff support area will be within 30 ft. of the scale-house located within the north side of the Transfer Station building. This area would provide a restroom, lockers and a small break area.

Two 70 ft. scales at inbound lanes and two 70 ft. scales at outbound lanes will be installed in pits level with the adjacent road surface grade. Stop/Go signals will be placed in front of the scales in both directions. Rate & Rules signage will be placed in the median on the approach.

3.4.16. Vehicle Maintenance, Truck Wash, and Truck Parking

The vehicle maintenance facility will provide (6) – 20 ft. wide by 50 ft. deep truck service bays with 22 ft. height clearance and is column-free between bays. The back wall (north wall) provides floor space for toolboxes and workbenches.



Interior lighting will be high bay LED style fixtures. Translucent wall panels over each door will provide daylighting. Overhead doors are motorized and 16 ft. wide by 20 ft. tall. Equipment inside the facility will include pneumatic wrenches, tire changing equipment, floor-mounted lifts, jib cranes, carbon monoxide systems, and diagnostic equipment.

A lobby stair and elevator will provide access to the second floor which includes 3,500 sf administrative offices, staff restrooms and lockers. A lockable parts area will have rack storage for small parts that can be restocked via hand cart or dolly using the elevator. A through-floor lift is proposed for supplying the service bays with larger items such as tires, etc. The second level will also include a compressor room to serve pneumatic systems at ground level service bays. This room would have floor vibration isolation and exterior wall sound control louvers.

A truck wash structure is located at east side of the Vehicle Maintenance building. The truck wash area has a single bay 25 ft. x 80 ft. for larger trucks (e.g., 65 ft. semi-tractor trailer truck) and will be accessed from the north end.

The truck parking area, adjacent and to the south of the Vehicle Maintenance building, will provide 44 spaces for collection-type trucks and 9 spaces for semi-tractor trailer trucks. The fueling area, separate stations for diesel and CNG, is located on the east side of the truck parking area. In these areas additional electrical conduit will be installed to support future EV infrastructure.

3.4.17. Administrative/Employee Support Areas

Located at the north end of the MRF structure, a three-story structure provides consolidated office and staff support for the City and City Contractors. Similar to Concept A, administrative office space has been provided for two city contractors at the second floor (approx. 900 sf each). Elevator and stair access to this level is provided at the west and east end of the structure to provide a separate but equal access design. Each suite has matched spaces including two (2) enclosed offices, four (4) workstations, one (1) receptionist, meeting/breakroom and copy area, and visitor wait area.

At the ground floor, the City Contractors have separate staff support accommodations that include restroom/locker areas as well as break rooms that can be used for informal training activities (approx. 1,200 sf each). This area has direct access to the exterior as well as the MRF operations floor.

The third floor will provide have controlled access for the Education Center, Artisan workshop, and Community Room.

Staff parking is provided along Second Street in the same location as it is today (25 spaces).

3.5. Design Elements Common to Both Concepts A & B

3.5.1. Structure

Pre-engineered metal building (PEMB) is proposed for the larger structures of the facility based on efficiency and life cycle cost for long clear spans in a non-combustible environment. The PEMB will provide primary framing with a minimum clear height of 30 ft. Light gauge steel wall framing is used for secondary support of specific panel types and translucent glazing.

The foundations will be pile-supported. The Transfer Station and MRF will be a pre-engineered metal building structure. Adjacent and joining structures such as the 2-story City Administrative offices and



the 2-story Administration/Education Center at the south end of the facility will have conventional steel frame and a seismic gap separation. This combination/hybrid grouping of structure types is the most cost-effective approach as well as providing flexibility for phasing structures.

Note: Geotechnical investigations have not been performed as of this writing. Based on the site location near the San Francisco Bay, it is assumed that an extensive pile foundation approach is required for Bay mud subsoil conditions. Structural foundation cost estimates in this feasibility report are based on J.R. Miller & Associates (JRMA) information from comparable structure foundations in the Bay region and are an approximation only. Coordination with the geotechnical engineer to select foundation types will be required in a future project development phase.

The Transfer Station building will be designed for immediate occupancy IBC criteria for occupancy Category IV, Essential Facility. This occupancy category has an importance factor of 1.5 for seismic (American Society of Civil Engineers [ASCE] 7, Table 11.5-1) and 1.15 for wind (ASCE 7, Table 6-1).

The Transfer Station building will have a minimum roof clearance of 30 ft. to accommodate the tipping position of commercial route trucks. The Occupancy Type will be F-1, Factory and Industrial classification and the Building Construction Type will be II-B. Walls and roof assemblies will be non-combustible construction complying with Type II-B Construction Type.

3.5.2. Walls

Low precast concrete walls are used in operational areas where potential abuse from vehicles and bins is likely. Metal wall panels will be used for the primary cladding based on economy, aesthetics and durability.

Interior wall facing will be provided for enclosing wall framing to assist with overall cleanliness as well as a deterrent for rodent access and bird nesting. This material will be a light gauge metal panel with a rib profile and silicone polyester factory-applied paint finish.

Push walls are proposed to be steel 14 ft. tall with a 12 ft. high limit line per code for temporary staging of materials. An angled heavy gauge steel cover will be provided at the gap from the top of the push wall to the building wall to prevent material from collecting behind push walls.

The roof system for the Transfer Station, MRF and Vehicle Maintenance buildings will be a standing seam metal roof with roof walks to all air handlers. Administrative/Staff support buildings will have single ply EPDM roof membrane system.

3.5.3. Ventilation / HVAC / Odor Control

The Transfer Station as a fully enclosed building will have code compliant mechanical ventilation. The ventilation system will be based on a negative air flow approach with fresh air drawn in through openings (e.g., wall louvers) and pulled to the roof to roof mounted exhaust fans with MERV 8 filtration media. The filtered air will be discharged vertically which follows an air quality model used for South Coast Air Quality Management District Rule 410 and consistent with potential regulatory changes from the Bay Area Air Quality District (BAAQMD). Multiple variable drive exhaust fans (10,000 to 20,000 cfm each) will provide approximately 4 air changes per hour.

The tip floor area loading zone will have an overhead misting system which will mitigate airborne dust from loader activity. The misting system will also have an integrated odor neutralizer.



All mechanical ventilation and heating and cooling will be electric systems (combustion systems will not be used).

HVAC for conditioned workspaces will be based on electric heat pump unit approach.

Emergency eye wash stations will be located in staff and public areas. These stations are also provided with an alarm to SCADA when ESEW flow switches are activated to alert facility operator. The roof will be provided with automatic smoke vents per code requirements.

All larger structures (PEMB) will have standing seam metal roofs. The adjacent smaller structures (e.g. Administrative and Vehicle Maintenance) will have a single ply EPDM membrane roof system. Roof areas will be provided with walkway surfaces to air handlers for maintenance personnel. A roof perimeter fall protection system will be provided for any low parapet areas. The roof areas will typically have a perimeter parapet with interior gutters. All roof drains and overflows will be internal to the site storm drainage system or recovery cisterns.

3.5.4. Electrical

Buildings will be equipped with smart energy meters to measure, monitor, record and display energy consumption data for each energy source and end use category to enable efficient energy management.

The overall building design will promote daylighting to reduce use of artificial lighting. Highly efficient LED interior and exterior lighting fixtures will include manual and automated lighting controls and include a smart energy metering system.

Power distribution will be provided by a new pad-mounted transformer and main service entrance switchboard with primary distribution, equipment and conductors provided by PG&E. Distribution will be provided to separate subpanels and meters for:

- Transfer Station & Scale house
- MRF & Buyback/Drop-off
- Vehicle Maintenance
- City Administration Offices
- City Contractor Office 1
- City Contractor Office 2

The existing overhead power line that extends from west to east across the mid-point of the site will be relocated to an underground conduit which will pass through the truck parking area with pull box covers as required.

3.5.5. Site Lighting

Exterior lighting will be provided by a combination of pole-mounted and building mounted LED-type fixtures which will minimize light trespass beyond the site boundary. These fixtures will be activated by light sensor (with manual overrides) and will provide a minimum of 0.5-foot candles. Some pole-mounted lights may be self-sufficient with its own PV.

Interior lighting will be energy efficient LED luminaires. Interior staff areas will have occupancy sensors.



3.5.6. Fire Protection

Fully automatic wet pipe fire sprinkler system, in conformance with NFPA 13. Fire hose boxes will be provided at the east wall near vehicle access points. It is assumed that approximately two additional fire hydrants and/or standpipes will provide exterior site protection.

A fire alarm system as required by the IFC and NFPA will include a Fire Alarm Control Panel (FACP), remote Fire Alarm Annunciators (FAA), initiating and notification devices. The fire alarm and detection system will be a complete, supervised, Class B fire alarm system.

Initiating devices will include:

- Manual pull stations by exit doors;
- Smoke/heat and detection;
- Sprinkler system waterflow, tamper, low air switches;
- Notification devices will include horns, strobes and combination horn/strobes.

3.6. Environmental Strategies/Sustainability Features

3.6.1. Energy

The design concept has targeted a net zero energy approach with maximizing use of renewable energy strategies including wind and solar.

All buildings on-site will be equipped with smart energy meters to measure, monitor, record and display energy consumption data for each energy source and end use category to enable efficient energy management

3.6.2. Solar Energy

Each concept is designed for extensive presence of photovoltaics (PV). PV panels will be placed on the roof with support framing that will assure the optimal positioning. Although this system can power the facility, extended use of the high demand processing equipment will require on-site battery systems. The final extent of this will be determined with future engineering assessment and will be designed for grid harmonization as part of the LEED certification. Photovoltaics will also be imbedded in the canopy structures used in the Public Recycling Center to produce power while also providing shade and shelter features from a typical canopy structure.

3.6.3. Electric Charging Stations for Staff Vehicles

On-site charging stations will be installed for staff vehicles. Dedicated double 4-inch conduit has been planned for extensive site coverage toward a future total electrification of the site. This will accommodate a low impact conversion to charging stations in the truck parking areas for a future electric collection and transfer vehicle fleet.

3.6.4. Wind Energy

Gilman Street provides an effective wind corridor for easterly Bay breezes which is the predominant wind direction. To take advantage of this natural resource, the design proposes a 40 ft. tall steel frame structure supporting four helical wind turbines which together, can produce approximately 5 kilowatts of energy at peak capacity. This energy will be combined with on-site photovoltaic arrays to provide a



comprehensive renewable energy response for this site which will significantly offset the facility's demand.

3.6.5. Water Conservation

Rainwater harvesting will be used on-site to capture sufficient quantities of rooftop rainwater and store for non-potable uses such as landscape irrigation and wash down of operational area paving. Uses of this water are fairly localized so each tank system (cistern) will have some minor filtration and an integrated solar-powered pump. Cisterns are assumed to be no larger than 2,500-gallon capacity. Rainwater exceeding the cisterns capacity will be directed to the stormwater conveyance system.

Low water usage fixtures will be used for all public and staff restrooms.

3.6.6. Recycled Materials

Steel used for structure beams, columns and exterior wall cladding will have a high percentage of recycled steel content as defined by LEED certification requirements.

Recycled materials from deconstruction: deconstruction of existing site structures and infrastructure will generate large quantities of materials. Items that have potential reuse/resale will be quantified accordingly for third party resellers and/or stored off-site. This would include process equipment, modulars, etc. Demolition concrete will be processed for use as site base gravel and new concrete slabs and flatwork (as it complies with design specifications). Demolition slab concrete will be sorted for select piecework for rubble masonry low landscape walls.

3.6.7. Daylighting

- Daylight conduit systems e.g. Solatube® will be used in office and public areas specifically to bring daylight to lower floors.
- Rooftop acrylic skylights (curbed with fall protection) will be used throughout all operational areas.
- Glass will be used in the Transfer station and the MRF to provide maximum natural light. Vision glass also provides views of the sky which enhances the interior (livability) environment for visitors and staff, a feature that is somewhat atypical of waste-handling facilities.
- Daylighting wall panels; translucent polycarbonate panels will be used at the west side integrated with the glass daylighting; this system is mounted in an aluminum frame, is smooth white and provides optimal durability, etc. For material cost economy purposes, white fiberglass translucent panels will be used at the east side facing the railroad right-of-way.
- Adequate daylight harvesting and dimmable LED lighting for safe operations.

3.6.8. Site Hydrology

Surface water controls will be installed in accordance with National Pollutant Discharge Elimination System (NPDES) and Stormwater Pollution Prevention Plan (SWPPP) drainage requirements. Site grades will flow to east and west with a bioswale at east property line and smaller landscaped bioswales at the west boundary.

The project will use best management practices (BMPs), such as pervious pavement, rainwater harvest and reuse, and compost-amended soils where feasible. Additional flow control measures will



include an underground detention. Media filter treatment vaults will have a vault filter chamber for treating runoff prior to exiting the vault.

Overall, the surface water management system includes:

- Conveyance facilities, including pipes, ditches, and perimeter swales.
- Impacted (non-storm) water management including floor drains/collection trenches, curb and gutter, piping, treatment that will be discharged to the City of Berkeley sanitary sewer in conformance with City code.
- Permanent flow control facilities, including two rainwater harvest and reuse cisterns, pervious pavement, compost amended soils, and a below-grade detention vault.
- Permanent treatment facilities, including a media filter treatment vault.
- All treated runoff will be connected to the existing pipe conveyance system in Second Street.

3.6.9. Codornices Creek

The north boundary of the site is adjacent to the Codornices Creek which currently is an unused segment south of the railroad easement (no contiguous trail connection at this date). As part of a natural environment restoration strategy, the Codornices Creek will be provided with a minimum 30 ft. buffer that will be sloped at 5% to a berm wall (north curb line of public driveway) and planted with native grasses and shrubs consistent with the Creek. Future civil engineering, as a selected design is developed, will take into consideration the flooding potential along the Creek and provide mitigating measures at that time. Both Concepts A and B provide a northerly berm wall to redirect occasional creek surges and prevent flooding in this area. It should be noted Concept A has very limited structures at the north end of the site offering alternate access to the facility if the Creek experiences minor flooding at the scale entry and with the 100 ft. of the structure. Although limited, the remote scale could provide emergency access and use of the facility.

Sharing the main public entry will be a pedestrian access path that will have a low wall separating the walkway from the vehicle lane. The paving would be decomposed granite with a solidifier to create a pervious but accessible "trail" to a small respite area that would feature an informational podium display on Bay Area watershed and a dedication by Friends of Five Creeks. The plantings here would feature native riparian species such as willow, sedges, etc. The buffer would be modestly sloped up away from the creek flowline the integration of a berm for flow control. An opportunity also exists for placement of watershed focused art features in this area.

3.6.10. Utilities

Utility service connections for water, sanitary sewer, storm sewer, electricity, telephone, and data are assumed to be similar in capacity if not less than existing conditions. New connections to the public right-of-way will be in compliance with requirements from the respective utility. Adequate offsets from easement boundaries and utility lines will be followed based on utility company requirements. The facility will meet the City of Berkeley design requirements including relevant criteria for water and sewer design and service connections, surface water drainage, clearing and grading, building, zoning, transportation and street frontage, right-of-way, and fire protection. Fire suppression will be supported by on-site hydrants with locations as approved by the local fire authority.



3.6.11. Vehicle Access

Site access and roadways will be designed for self-haul vehicles with trailers, residential and commercial collection trucks, roll-off trucks, and transfer vehicles, as applicable to the various parts of the site. The following criteria will be met for roadways and maneuvering areas:

- Turning radius for self-haul vehicles with trailer is 24 feet.
- Turning radius for residential and commercial collection truck is 42 feet.
- Turning radius for transfer vehicle is 45 feet.

Transfer truck and trailer circulation was tested using AutoTurn® software and drive aisles provide adequate drive length for vehicles to straighten out before and after scales and entering and exiting all buildings.

No dead-end drive lanes are on-site providing loop access lanes for fire and emergency equipment which will be dedicated as approved by the Berkeley Fire Department.

3.6.12. Other Design Features

- Buildings design life will be 50 years. Structures will be non-combustible with a preference for materials that have maximum durability and minimal maintenance for the expected life span of the structure.
- Insulation will be used for optimal R-value as well as recycled material content.
- Pedestrian exit doors and signage will be placed for egress code compliance.
- Structural elements such as columns will be provided with heavy duty steel bollard protection.
- Overall site organization of structures shall present a sequence that is efficient as well as intuitive for customers.
- Vehicle doors are predominantly facing the east side of the site at the railroad right-of-way.
- In addition to optimal functional placement of structures, solar orientation for energy conservation and natural lighting will be important considerations.

3.7. Architectural Design

The overall architectural objective is to suggest contextually sensitive and visually attractive structures. The intent will be to have the design participate in the neighborhood themes but also stand out and be memorable for its unique purpose.

The use of gray metal panel cladding reflects the visual cues from neighboring buildings and stays within the boundaries of an eclectic neighborhood with an old industrial past. An alternate shade of gray as well as a bold “dark red cedar” accent color will be used to highlight different functions of the structures. Structure is expressed as an accent in specific areas (i.e. bracing, canopy supports, or the expression of the Photovoltaic system) by extending the panel system past the building wall. See **Figure 3-18** below for an architectural rendering.



Figure 3-18: Concept B - Architectural Rendering

3.7.1. Landscape

Landscape shall be used to meet City of Berkeley zoning requirements and enhance street frontages while considering least-maintenance options that will assure the landscape installation’s success over time. Planting will be drought-tolerant and native to minimize maintenance needs once the plantings are fully established. Recovered materials incorporated into site construction features will be a priority where feasible. This includes the use of recovered demolition slab concrete for low landscape walls. Decorative fencing made from recycled rebar and construction steel are proposed based on the availability of local artisans for fabrication.

The hardscape, particularly at key public pedestrian access points will stress accessibility, stormwater permeability but also offer varied paving materials and patterns for an organically inspired design. Vertical sculpture and available decorative surfaces using recycled materials will be used as dramatic emblems for reuse possibilities.

3.7.2. City of Berkeley Climate Action Plan

Central to the project’s development goals will be how the new facility can contribute to the City’s 2009 Climate Action Plan which targets a reduction in greenhouse gas (GHG) emissions, specifically a 33% reduction from 2000 GHG levels. Programming strategies for the new facility which will be central to that contribution include:

3.7.2.1. Waste Reduction & Recycling Features

With landfills as a GHG generator, reducing the volume of material that is transported to the landfill along with the associated vehicle emissions is fundamental to the purpose of this facility and its ability to reduce that volume. Key programming elements which contribute to that reduction are as follows:

- Enhanced options for customers to separate materials at drop-off.
- Larger Transfer Station floor area for separation of tipped bulky and organic materials and enhanced recovery.
- Improved recovery volume from improved MRF processing equipment technology.



- Improved quality of recovered materials from new MRF equipment technology.
- Enhanced public education re: waste reduction, reuse, recycling, and composting via onsite information kiosks and an environmental education center.

3.7.2.2. Community Outreach & Empowerment Features

The purpose and function of the facility (recycling and reuse of materials) offers special opportunities to engage the community with environmental education. This facility will have:

- An Environmental Education Center to present the precepts of GHG emissions, climate change and environmental stewardship. In addition to educational displays, an actual MRF viewing experience will be available.
- A Community and Artisan space for learning opportunities that explore common sense activities for less waste and creative reuse.
- Provide an attractive environment for community recycling events.

3.7.2.3. Energy

The facility design will integrate technology that will promote a Net Zero Energy capability and provide a significant component to reducing the Berkeley community carbon footprint. This will include:

Solar

Renewable energy including extensive use of photovoltaic power. With close to 30,000 sf of PV panel mounted at roof level, this capability is planned to completely power the facility other than some peak operating periods of the MRF. Added battery storage capability may provide leveling for this as well as power back to the community grid (i.e. grid harmonization).

Wind

Renewable energy utilizing helical wind turbines. Elevated 40 ft. above ground level, these vertical turbines will capture the breeze corridor coming from the Bay eastward along Gilman Street.

Other Energy-related Design Features:

- Energy management technology
- LED lighting throughout (interior and exterior)
- Extensive daylighting
- High efficiency motors used with mechanical ventilation and MRF equipment
- All-electric mechanical air systems and water heating equipment (no fossil fuel/natural gas)

3.7.2.4. Transportation

The facility is and will be used by a wide variety of vehicles both public and private, both cars and trucks. How the site is used by vehicles was an important consideration in the planning of the facility:

- Reduced wait times from more efficient state-of-the-art scale house technology and queuing design will translate to less idling of gas engines (less consumption and emissions).



- Charging stations for electric cars will be provided. A charging station will be provided in the operations area for trailer “mule,” a tractor for towing trailers on site. Conversion to electric collection trucks charging would be planned.
- Promote a “cycle-share” program with on-site bicycle access that will integrate with the proposed interchange improvements that include connections to the City’s bicycle paths.

3.7.2.5. Land Use

Creek restoration is a critical component of the overall enhancements to Bay watershed environmental quality. A 30 ft. buffer zone will be dedicated. This zone will be planted with native species as appropriate to a Bay Area riparian habitat. The buffer zone will be modestly sloped toward the natural flowline of the creek to encourage natural drainage to the creek-bed and away from the site proper. The low retaining wall transition to the entry road at the south end of this berm is proposed to be rubble masonry made from repurposed concrete slab.

3.7.2.6. LEED

The Zero Waste Collaborative team reviewed each of the Site Concepts A & B for environmental performance with respect to the U.S. Green Building Council’s LEED® (Leadership in Energy and Environmental Design) design, construction and operation framework. It should be noted that LEED, “the most widely used green building rating system in the world” provides an effective benchmark toward a design fulfilling the City’s Climate Action Plan and Net Zero Energy goals. This initial evaluation utilized the LEED v4.1 for BD+C New Construction and Major Renovation Checklist (see **Exhibit 28**). This checklist is a recognized guide and first step in establishing a project design’s sustainability and capability in reducing GHG emissions. The checklist provides three outcomes for a conceptual level review:

- **Yes**, for achievable active or passive responses in the design
- **Maybe**, for potential feasibility but only established during final design and engineering (and affirmation of commitment by the Owner)
- **No**, not considered feasible usually due to the nature of the site and/or use. Some examples are indicated below.

The review of both facility concepts determined that a LEED Gold certification was achievable as delineated by City initiatives and ordinances. A strong commitment to renewable energy, water conservation as well as innovation will serve as the core basis for gaining this level of certification.

It should be noted that the higher Platinum level was problematic due to some key credits that are not feasible due to the location of the site and use. As an example, the first credit in the “Location and Transportation” credit section is “LEED for Neighborhood Development Location” providing 16 potential credits. This category is aligned with new planned mixed-use community developments; the Berkeley Solid Waste and Recycling Transfer Station site is not a candidate for achieving any of these credits. The “Access to Quality Transit” (5 potential Credits) is linked to local neighborhood transit; not the Amtrak line with station nearby which provide broader Bay Area access.

3.8. Land Use/Site Design

3.8.1. Site Challenges

Although a geotechnical investigation was not available for this evaluation, it is assumed that the structures will need to be built on a foundation supported by deep piles. This is based on the site's proximity to the Bay and the likely presence of bay mud. Our design team has experience with transfer station/MRF facilities built in similar locations in the Bay Area, so comparable structures were referenced for this Study. A geotechnical investigation is recommended for next steps in the development of this facility since unknown subsurface issues are present (e.g. a 2-ft deep lime cap and a high-water table). Overall, preparation of the site for new structures may have a significant cost impact which are not within the Scope of the Study's Cost Estimate.

3.8.2. Access/Traffic

Vehicle circulation to the site and for departures are defined by Second Street. The one-way (south to north) direction of Second Street on the southern portion between Gilman and Harrison streets establishes some basic rules for accessing the site. Minimizing the vehicle stacking on this portion of the street will have a positive effect on the neighbors as well.

The eastern boundary is defined by the railroad right-of-way with the Gilman Street at grade crossing. Types of public and commercial traffic accessing the site is not anticipated to change. Increases in vehicle quantities and frequency should be addressed with the redesign of scale queuing including improvements in transaction cycle time. Accordingly, the new facility master plan should primarily mitigate and improve current queuing and access issues.

3.8.3. UP/Amtrak

The UP/Amtrak right-of-way defines the eastern edge of the site. This corridor through West Berkeley is an important link in the region's freight and passenger rail network. The railroad's at grade crossing at Gilman Street will soon have a center barrier on the west side preventing turns from the site to the eastbound side of Gilman Street (toward Berkeley). Access to and from the site was planned with this in mind. The proposed access from primarily collection trucks traveling westbound on Gilman Street may be delayed by the at grade crossing when the train is passing (the gates are down an average of 30-40 seconds). Likewise, trucks approaching the site from the west would plan to take nearby streets (e.g. Cedar Street to Sixth Street) to make the east approach avoiding the left turn from Gilman Street to Second Street. The entry drive is designed for one-way access for multiple trucks to clear the Gilman Street right-of-way as well as the at-grade crossing.

3.8.4. Second Street

Second Street is currently a one-way street (south to north) from Gilman Street to the Harrison Street intersection to the north. This intersection is approximately the midpoint of the site in the north-south direction. The north remainder of Second Street (Harrison Street north) is two-way and primarily serves access to Public Storage property on the west in addition to the site on the east side. Since there is no indication that the one-way portion of Second Street will change to 2-way street in the future, this became a key traffic determinant in how vehicles would access the site, particularly the public user. Basically, all actions by a customer would need to consider reentering this street and continuing either to the north portion of the site or exiting via Harrison Street and continuing around the block.



Circulation from the intersection at I-80 and Gilman Street will improve with the completion of the planned roundabout which is in final design. Planned by the California Department of Transportation (CalTrans), it will replace the existing stop sign access from the Eastshore Highway. This junction used by Division, City contracted vendors, and the public vehicles using the Solid Waste and Recycling Transfer Station facility is difficult if not dangerous to navigate. The roundabout should have a positive impact on traffic flow at the facility when it is complete.

3.9. Programming Assumptions

The ZWC team reviewed and completed more than a dozen concept plans to try and address future project goals and community input. The bullet points below summarize some of the iterations and design concepts considered.

- In order to create larger tipping floor areas for site operations, the design team considered an additional level for vehicle parking and/or operations. However long ramps and turn constraints posed some significant challenges to this approach. Also, any uses on the upper level posed large load capacity requirements which in turn required columns at the lower level. The columns restrict operations and vehicle maneuvering. These factors in addition to the significant cost ramifications excluded this approach from further consideration.
- The vehicle maintenance was considered for placement off-site since it placed a significant impact on space needs on the site's capability to support additional MRF and Transfer Station capacity. After considering very limited options on handling this activity at another location, it was reintroduced to the program.
- Some staff parking will be utilized along Second Street as it is today at the north portion of the street.
- Initial site concept iterations considered reuse of the existing outdoor loadout tunnel. However, this location severely compromised the most viable layouts. Retaining the existing loadout tunnel was eliminated.
- Floor level loadouts were chosen considering the volume of loadout that is typically accommodated with a "lift-and-load" operation where the wheel bucket loader can drop material into a tractor trailer similar to the loading of a dump truck. The push wall is configured with sloped steel backboard that directs material into the trailer and minimizes spillage around the trailer. Using this type of loadout in lieu of a 16 ft. deep tunnel eliminated excessive ramp conditions which consume valuable site area.
- A pedestrian bridge was suggested in public meetings which would provide a connection over the Codornices Creek from Second Street to the Target store property to the north. The City determined that this proposal extended beyond the purview of this study and was not included.
- Building foundations and below ground detention as required will be feasible with the site soil conditions and water table. A geotechnical investigation will have to be performed to confirm the viability of subsurface construction.
- On-site processing of organics was not considered due to space requirements for typical equipment processing systems. Also, odor treatment could be problematic considering the site's context in the neighborhood and adjoining uses, wind direction, etc.



- The Facility Designs A & B as presented in this document conform to the City’s zoning requirements and would be acceptable in concept to the City Planning review process as a significant improvement to existing conditions. Final approvals would be contingent on specific Conditions of Approval, potential variances, etc.

3.10. MRF/Transfer Station Programming

3.10.1. MRF Equipment Processing Area

In conformance with the City’s and City Council’s directives to maintain and operate a dual stream recyclables collection and processing systems, the programming considered possible footprint limitations for the overall system. This equipment configuration design process paralleled initial site and building concept iterations as test-fit scenarios for an equipment footprint that would be appropriately accommodated by the building enclosure and provide adequate clearances for maneuvering, material handling and maintenance. The design presents a preferred layout but not a final engineered design. Therefore, the adaptability of the conceptual layout to the specifications of multiple equipment supplier/bidder was a criterion in the programming.

3.10.2. Transfer Station

Increasing the size of the Solid Waste and Recycling Transfer Station would benefit the facility’s ability to serve the community. But this would also require updates to the operating permits (CalRecycle and BAAQMD). The proposed design includes consideration for an expansion of operating hours and an increase tonnage from 560 tons per day to 620 tons per day (ongoing at this writing) that would be integral with that updated permits.

3.10.3. Design Charrette Programming Criteria

The Public Design Charrette provided a collaborative setting open to many and varied community members to participate in a planning exercise to establish some guiding concepts for the facility design. From a broad variety of comments and ideas, a basic consensus or common ground was established and can be summarized as the following principles:

- **Traffic Separation:** Public customers would be able to enter the site, complete their activity and leave the site with the minimal amount of sharing circulation areas with commercial trucks. The general consensus from the Charrette participants was that trucks should predominantly use the east side of the site.
- **Facility Awareness and Identification:** Strong feedback determined that the Public Buyback and Drop-off be close to Gilman Street, as current, where the predominant traffic visibility will provide strong user identification as well as convenient access.
- **Facility Pedestrian Access:** The Buyback and Drop-off areas should be in close proximity to the Gilman Street corridor providing accessibility to walk-ins that may or may not have cart or bicycle.

- Facility Site Orientation: Place the facility so that the operations side faces the railroad right-of-way and away from Second Street.
- One Building or Two Buildings: The Design Charrette provided two options that identified a singular building that was discussed as providing potential flexibility and the potential to reduce the transfer area in lieu of the recycling area. The two-building alternate proposed a separate transfer building that could be reconfigured as well for other types of recovery operations.

Charrette sketches derived from layout discussion topics:

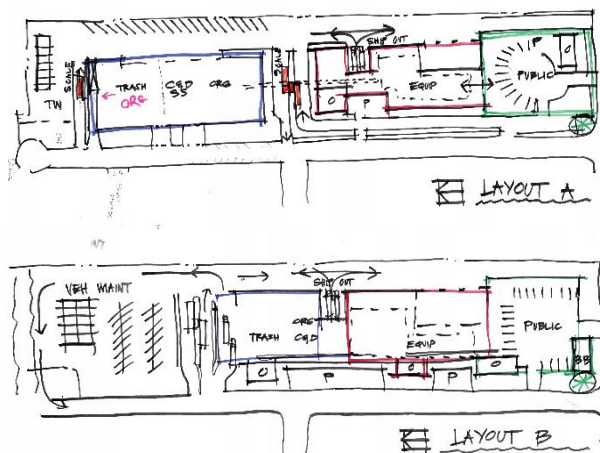


Figure 3-19: Concepts A and B Charette Sketches

Following the Public Design Charrette, the initial design process initiated an extensive number of layouts. These layouts were vetted in collaborative review process with key City Zero Waste Division staff. This required a continual process of challenging assumptions for desired building sizes and paved areas. The preferred concepts represent the fulfillment of that process with Concept A and Concept B.

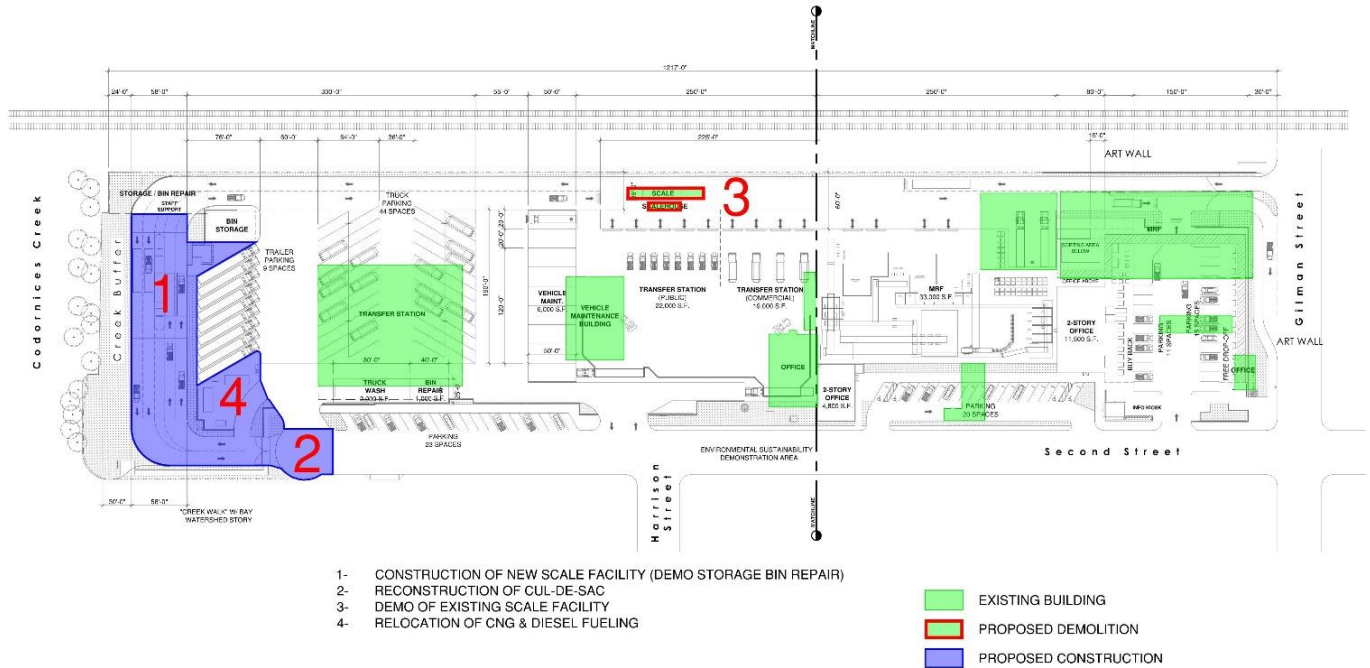
3.11. Construction Phasing

The following provides background on the potential development scenario for both Site Concept A and Site Concept B. Final sequencing and coordination is subject to review by the City’s contracted Construction Management professional in collaboration with the selected General Contractor.

Situations where structures are developed separately will require separate utility (temporary and/or permanent) and will require approval by the building department.

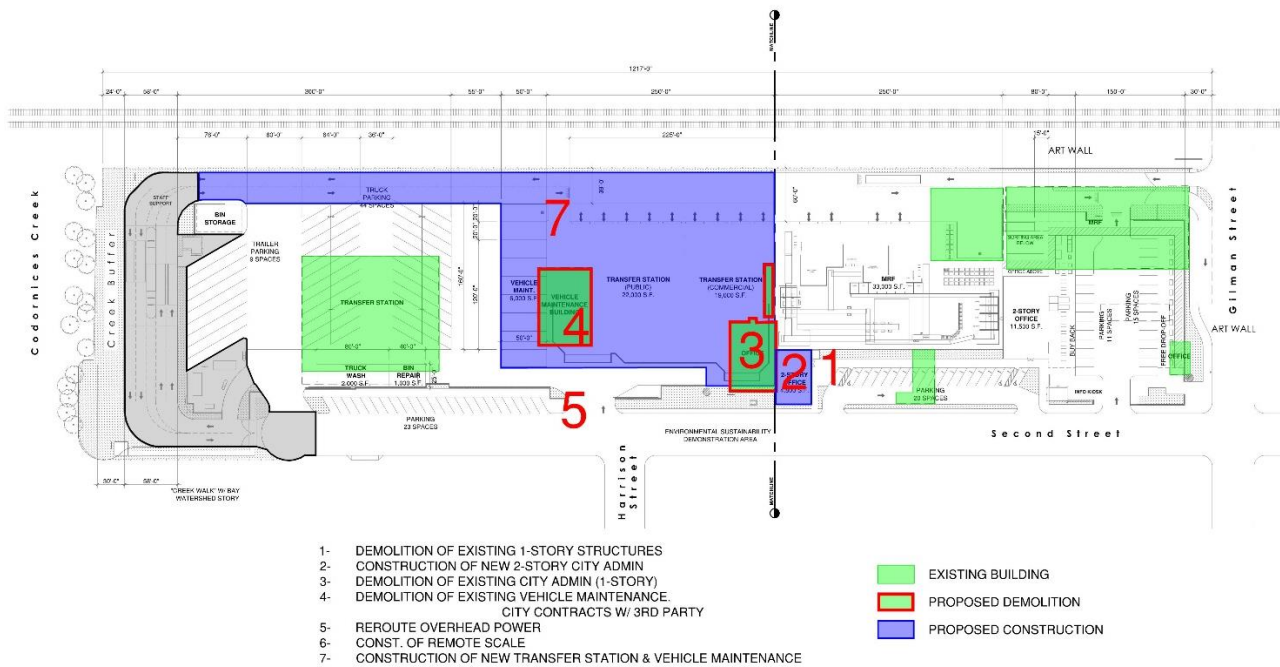
It should be noted that Site Concept A will require the relocation of an overhead utility line to an underground upgrade (Site Concept B could have the overhead remain in place). For Site Concept B, the MRF footprint overlays the existing recycling building which will require the City to procure an off-site processing solution for an interim period.

CONCEPT PLAN A – PHASE 1



- 1- CONSTRUCTION OF NEW SCALE FACILITY (DEMO STORAGE BIN REPAIR)
 - a. Relocation of some minor open-air storage.
 - b. Requires consideration for other locations on site for bin repair.
- 2- RECONSTRUCTION OF CUL-DE-SAC
 - a. Demolition of existing cul-de-sac
 - b. Interim access to CNG fueling from on-site could be provided prior to shut down for relocation.
 - c. Work may impact some staff parking at Second Street in order to provide an interim turnaround as may be required by the fire department.
- 3- DEMOLITION OF EXISTING SCALE FACILITY
 - a. New scales and entry must be operational with adequate clear paved access to east side of Transfer Station
- 4- RELOCATION OF CNG & DIESEL FUELING
 - a. Adjacent but separate to main entry.

CONCEPT PLAN A – PHASE 2

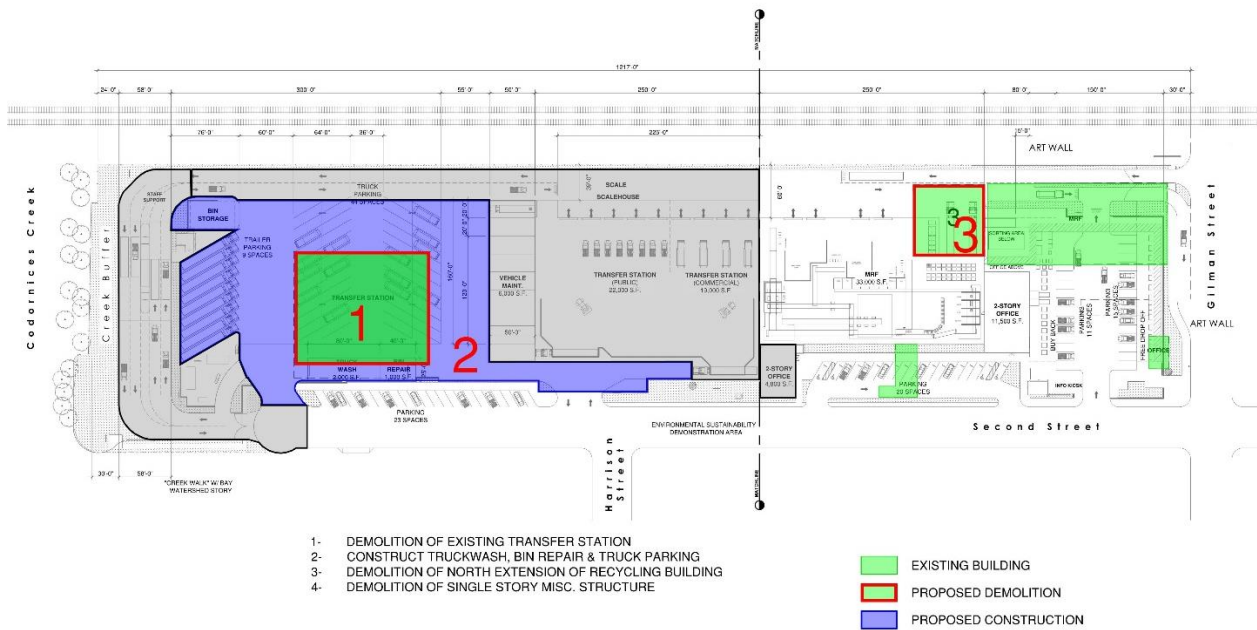


- 1- DEMOLITION OF EXISTING 1-STORY STRUCTURES
 - a. Purpose is to prepare site pad for new City Admin.
 - b. May require temporary storage for office files, equipment, etc..
- 2- CONSTRUCTION OF NEW 2-STORY CITY ADMIN. BUILDING
 - a. New structure is adjacent to existing requiring some delay with wall finishes at north side.
 - b. Staff move when complete.
- 3- DEMOLITION OF EXISTING CITY ADMIN. BUILDING (1-STORY)
 - a. Removal/demolition of relocatables (including Conf Room trailer)
 - b. Relocation or decommission of radio antenna.
 - c. No impact to public access with use of new main entry.
 - d. Temporary parking needed for staff vehicles.
- 4- DEMOLITION OF EXISTING VEHICLE MAINTENANCE (CITY CONTRACTS W/ 3RD PARTY)
 - a. Purpose is to allow construction of a new facility (existing building footprint overlaps new vehicle maintenance footprint).
 - b. Truck washdown area may require temporary relocation.
 - c. Transfer trailer truck parking is displaced and will require parking trucks as available on-site as determined by operations staff.
 - d. West pavement demolition would be clear of transfer truck access to Transfer Station loadout tunnel.
 - e. Shutdown of operations and continuation with off-site contractor.
- 5- REROUTE OVERHEAD POWER.
 - a. New underground trenching and paving may require temporary disruption of site circulation. Alternate routes are likely available but will require close coordination with operations staff.
- 6- CONSTRUCTION OF NEW REMOTE SCALE
 - a. Serves collection truck weighing prior to construction of new Transfer Station.
 - b. Option: Collection trucks could use main scale entry at north end of the site following construction of new Transfer Station.

7- CONSTRUCTION OF NEW TRANSFER STATION & VEHICLE MAINTENANCE BUILDINGS

- a. The Transfer Station and the Vehicle Maintenance building are adjacent but separate structures. The Vehicle Maintenance bays could be delayed in order to provide better access to the existing transfer station.
- b. Includes new paving for public access at east side.
- c. Includes new paving to loadout bays.
- d. Construction of Transfer Station main power infrastructure i.e. transformer and switchgear.

CONCEPT PLAN A – PHASE 3



1- DEMOLITION OF EXISTING TRANSFER STATION BUILDING

- a. Demolition of interior loadout and exterior.
- b. Investigate on-site processing of demolition materials e.g. concrete for base.

2- CONSTRUCT TRUCKWASH, BIN REPAIR & TRUCK PARKING

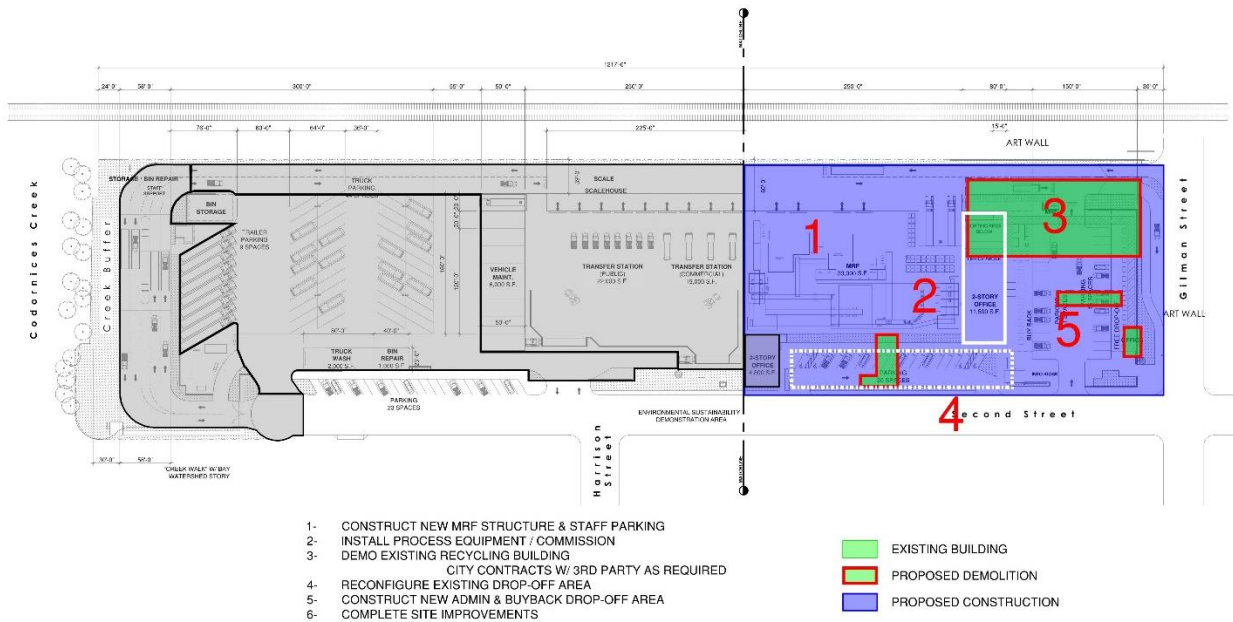
3- DEMOLITION OF NORTH EXTENSION OF RECYCLING BUILDING

- a. Confirm structural separation for deconstruction.
- b. Requires relocation or off-site contractor processing of glass.
- c. Some minor modification of equipment may be required.
- d. Bunkers and structure would be removed to open site area for new MRF structure.

4- DEMOLITION OF SINGLE STORY MISC STRUCTURES

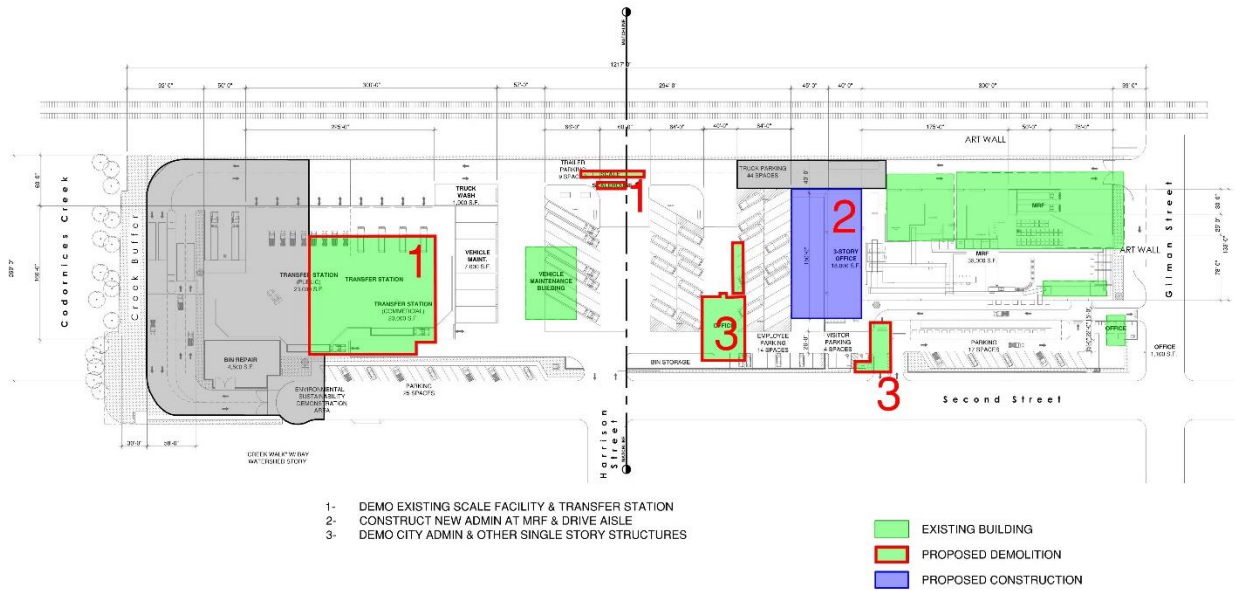
- a. Clears site for new MRF building.
- b. Provides more temporary area for public drop-off and buyback. Provide relocatables/trailers to provide staff support areas for City Contractors until new Administrative Building is complete.

CONCEPT PLAN A – PHASE 4



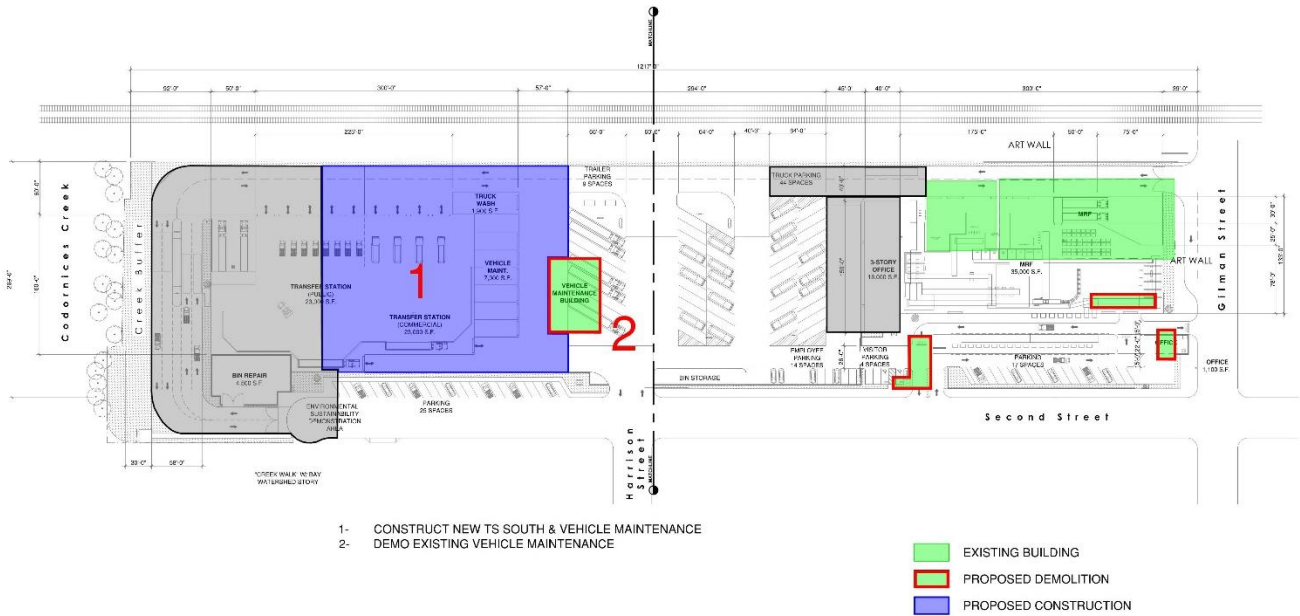
- 1- CONSTRUCT NEW MRF BUILDING & STAFF PARKING
- 2- INSTALL PROCESS EQUIPMENT / COMMISSION
 - a. Follows completion of MRF structure
- 3- DEMO EXISTING RECYCLING BUILDING (CITY CONTRACTS W/ 3RD PARTY AS REQUIRED)
 - a. Required for construction of Drop-off and Buyback Center.
 - b. Contractor can use drive at SE corner near grade-crossing for access.
- 4- RECONFIGURE EXISTING DROP-OFF AREA
 - a. Area to the west of demolition could be maintained for public drop-off access;
 - b. Truck parking area near Second St and/or past new scales could be used as an interim drop-off or buyback
- 5- CONSTRUCT NEW ADMIN & BUYBACK DROP-OFF AREA
 - a. Canopies could be added later when not open to the public.
- 6- COMPLETE SITE IMPROVEMENTS
 - a. Landscape improvements
 - b. Off-site improvements such as public sidewalks

CONCEPT PLAN B – PHASE 2



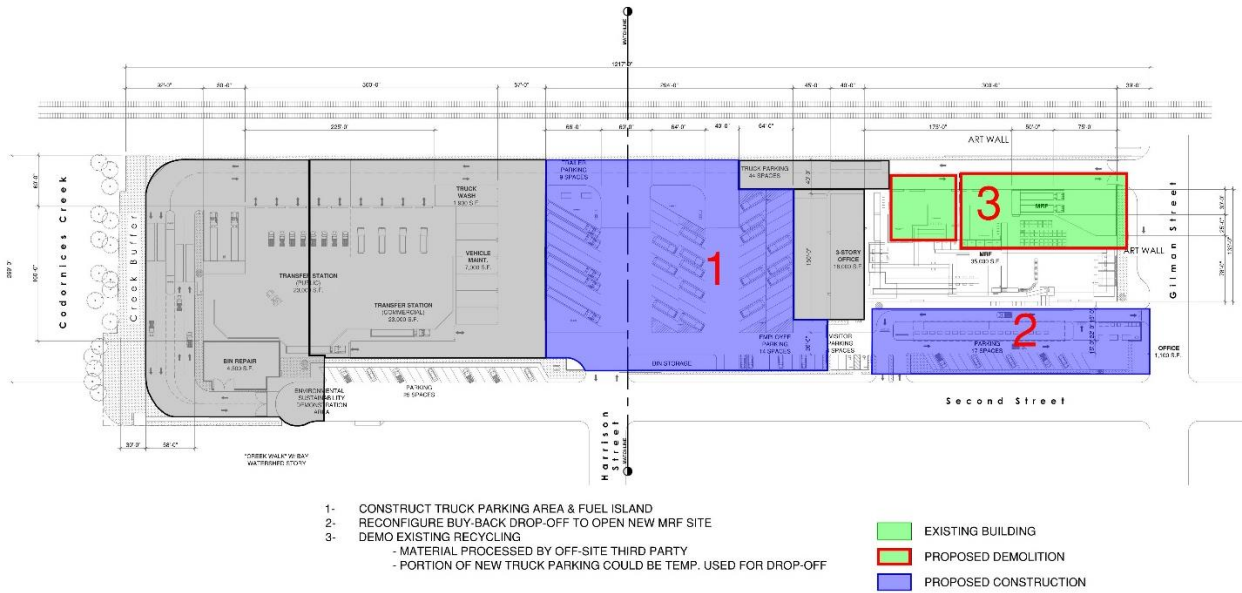
- 1- DEMO EXISTING SCALE FACILITY & TRANSFER STATION
 - a. Assumes new main entry scales are operational.
- 2- CONSTRUCT NEW ADMIN. BUILDING AT MRF & DRIVE AISLE
 - a. This area of the existing site has limited structures and obstacles. Some coordination of relocated items per operations staff will be required.
 - b. This 3-story building, although adjacent to the MRF, is an independent steel-framed structure and can be built separately.
- 3- DEMO CITY ADMIN. BUILDING & OTHER SINGLE-STORY STRUCTURES
 - a. Relocate City administrative and staff support functions
 - b. Relocate City Contractor admin and staff support functions

CONCEPT PLAN B – PHASE 3



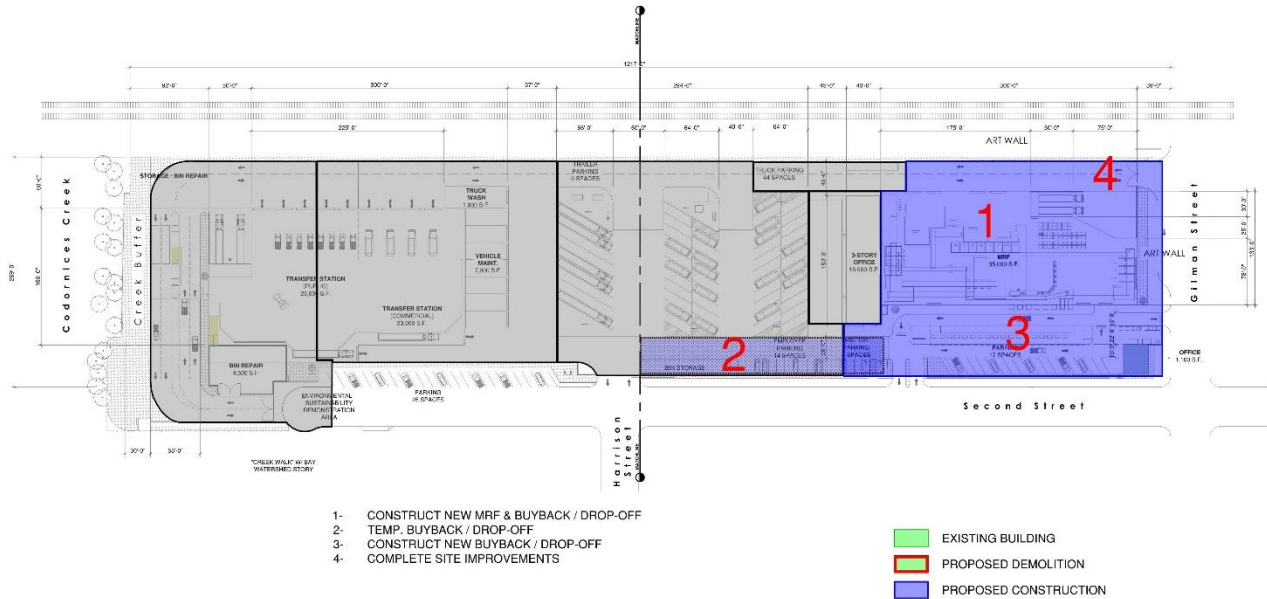
- 1- CONSTRUCT NEW TRANSFER STATION SOUTH & VEHICLE MAINTENANCE
 - a. Completes new Transfer Station Building including loadout bays.
 - b. New Vehicle Maintenance facility can be built; existing stays operational.
 - c. Some limitations on north side access to existing vehicle maintenance bays for new paving construction (requires construction sequencing coordination).
- 2- DEMO EXISTING VEHICLE MAINTENANCE BUILDINGS
 - a. Assumes new Vehicle Maintenance building is operational.

CONCEPT PLAN B – PHASE 4



- 1- CONSTRUCT TRUCK PARKING AREA & FUEL ISLAND
 - a. Relocate overhead power to underground.
- 2- RECONFIGURE BUY-BACK DROP-OFF TO OPEN NEW MRF SITE
 - a. Area defined by new Drop-off and Buyback would remain in use; move boxes as needed. This may require removal of existing canopies.
- 3- DEMO EXISTING RECYCLING BUILDING
 - a. Materials processed here would need to be processed off-site for interim until new MRF is operational.
 - b. Truck parking area near Second St and/or past new scales could be used as an interim drop-off or buyback

CONCEPT PLAN B – PHASE 5



- 1- CONSTRUCT NEW MRF & BUYBACK / DROP-OFF
 - a. Off-site recycling is required until the new MRF is completed and equipment is operational.
- 2- TEMPORARY BUYBACK/DROP-OFF
 - a. Opens site area for new construction.
 - b. Some impacts to parking and circulation.
- 3- CONSTRUCT NEW BUYBACK/DROP-OFF
- 4- COMPLETE SITE IMPROVEMENTS
 - a. Landscape improvements
 - b. Off-site improvements such as public sidewalks

4.0 Environmental Considerations

In redeveloping the solid waste and recycling transfer station, the City will want to mitigate any negative environmental impacts associated with the project. These can include:

- Traffic – 2nd and Gilman streets intersection is a busy intersection and vehicles entering and exiting the drop-off, recycling and buyback and transfer station can impact this intersection and the surrounding side streets.
- Water quality – the facility is located next to Codornices Creek and activities at the facility could impact this eco-system.
- Noise and air quality – the facility has neighbors, including Gabe Catalfo Fields, Harrison Park and the Berkeley Skate Park. These neighbors can be considered “sensitive receptors” and are potentially impacted by noise, odor and particulates that can be emitted through activities at the site.

The new design will address these potential impacts and the redeveloped facility should have potentially fewer impacts than the current facility.

The California Environmental Quality Act ([CEQA](#)) is a California statute that requires local agencies to identify any significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

The purpose of CEQA is to: disclose to the public the significant environmental effects of a proposed discretionary project, through the preparation of an Initial Study (IS), Negative Declaration (ND), or Environmental Impact Report (EIR).

- An initial study is a preliminary analysis conducted by the lead agency to determine if a project may have a significant effect on the environment. The initial study also aids in determining what type of environmental document to prepare.
- A Negative Declaration is a document that states upon completion of an initial study, that there is no substantial evidence that the project may have a significant effect on the environment.
- An Environmental Impact Report (EIR) is an informational document which provides public agencies and the general public with detailed information about the effect that a proposed project is likely to have on the environment. The EIR also lists the ways in which these environmental effects might be minimized and whether there are any alternatives to such a project.

CEQA prescribes specific timeframes for noticing the public and the state and regional agencies of the release of the environmental documentation.

City staff determined that it would be appropriate to initiate the environmental review process once this feasibility study was complete and the City Council has authorized City staff to move forward to the CEQA phase of the project.

Environmental Process

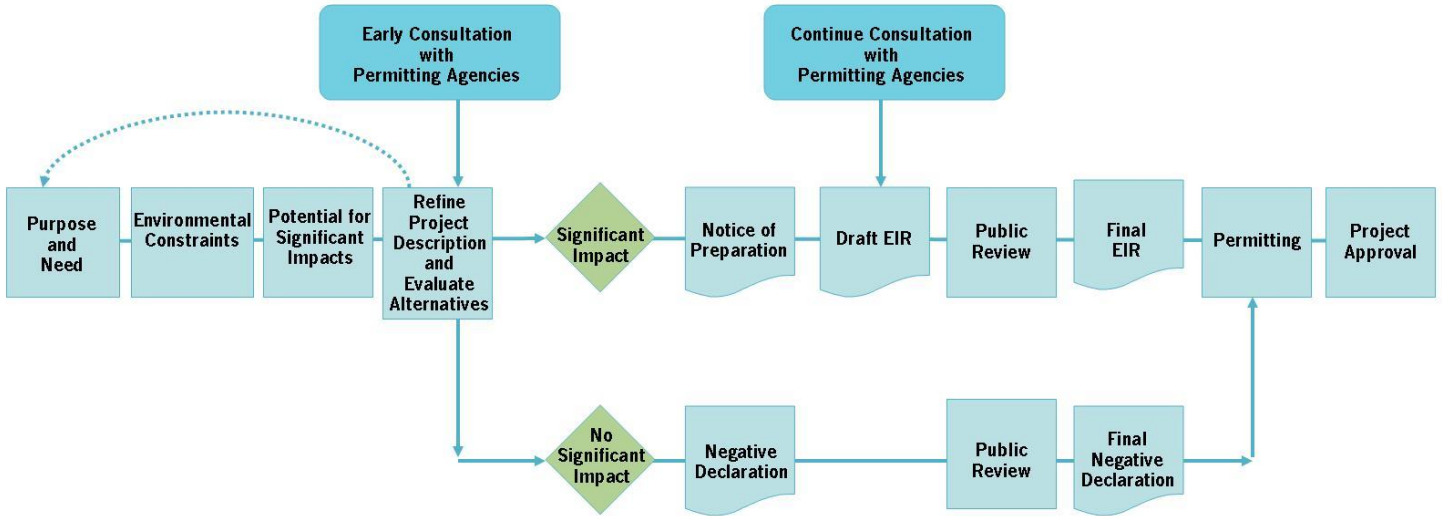


Figure 4-1: Environmental Review Process

5.0 Preliminary Cost Analysis

5.1. Cost Estimate

A preliminary facility construction cost estimate has been developed by Tanner Pacific consultants, advisors to the Zero Waste Collaborative. This estimate is in conformance with Class 4 estimate guidelines as defined by the AACE and is based on a 15% design development level. The ZWC Design Team developed plans, sections, and elevations with dimensions and keynote information which provided a basis for Tanner Pacific to prepare the estimate. Guidance was provided on design quality levels and design features which could also be coordinated with visual images of the design concept provided by a 3D digital model. In addition, GMEP Engineers provided support on mechanical and electrical design topics.

The summary below includes a base cost summary for site and building improvements. Features associated with LEED and project sustainability have been shown separately. Project Soft Costs include design and engineering fees, permits, etc. Additional detail is provided in **Exhibit 29**.

Table 5-1: Cost Estimate Summary

	<u>Activity</u>	<u>Concept A</u>	<u>Concept B</u>
1	Site Improvements ¹	\$9,328,732	\$9,636,736
2	Building Improvements	\$ 21,367,296	\$ 22,707,763
3	Other – Special Equipment ²	\$4,860,000	\$4,860,000
4	Sustainability ³	\$3,423,645	\$3,098,639
Total Direct Cost		\$38,979,673	\$40,303,138
5	General Contractor Indirect Cost	\$7,800,000	\$8,060,000
6	Escalation (2019 – 2025 at 4% per year)	\$11,880,00	\$12,280,000
7	Design Contingency (AACE Class IV) ⁴	\$14.66M	\$15.16M
Estimated Construction Cost		\$73,317,196	\$75,806,509
8	Project Soft Costs ⁵	\$17,633,200	\$17,958,100
Estimated Project Cost (w/soft costs) in Bid Year Dollars		\$90,836,945	\$93,799,227
¹ Site improvements includes Mobilization (say 3% of direct cost), existing conditions/demolition, utilities, grading and paving costs. ² New MRF processing equipment. ³ Includes photovoltaic panels, rainwater harvest tanks, wind turbines, pervious paving, and other sustainability related improvements. ⁴ 25% design contingency assumed based on industry standards for 15% design stage. ⁵ Include entitlements/planning, project design/engineering, permitting, fees, construction management, special inspections and other costs.			



6.0 Financial Model

This section of the Report addresses the financial model for the two proposed concepts plans, Concept A and B. Essentially, a model (Excel spreadsheet) was developed to identify the source of funds (revenues) and associated cash flow to pay for the project cost estimates detailed in **Table 5-1** on the prior page. There are four potential sources of revenues for the City to pay for project costs as follows:

- Tipping fees charged to self-haul (public) customers using the Berkeley Transfer Station
- Collection rates charged to residential and commercial customers in the City of Berkeley
- Zero Waste Fund Balance – capital reserve
- Debt financing through issuance of solid waste revenue bonds

Tables 6-1 and **6-2** detail the sources of funding (revenue) by years 2020-2027 for Concepts A and B, respectively. Collection rates revenues are the assumed amounts of revenue covered in the future projected collection rate model specifically for the rebuild of the Berkeley Transfer Station. These collection rate revenues shown below are assumed to cover the cost of this Feasibility Study, and future work related to the CEQA costs , needed site geotechnical investigation, and facility design/engineering.



Table 6-1: Concept A- Estimated Capital Costs, Funding (Revenue) Sources and Forecasted Project Capital Expenditures

City of Berkeley Department of Public Works - Zero Waste Division Solid Waste and Recycling Transfer Station Feasibility Study Estimated Capital Costs ¹ , Funding (Revenue) Sources, and Forecasted Project Capital Expenditures										
Total Capital Requirement - A										
\$90,836,945										
SOURCE OF FUNDING (REVENUES)	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	Total Revenue
	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	
Tipping Fees	\$0	\$666,547	\$712,727	\$712,264	\$872,490	\$1,001,408	\$1,041,827	\$1,095,348	\$1,171,271	\$7,273,882
Collection Rates	\$400,000	\$1,400,000	\$4,000,000	\$4,300,000	\$800,000	\$0				\$10,900,000
Subtotal of fees to TS Rebuild	\$400,000	\$2,066,547	\$4,712,727	\$5,012,264	\$1,672,490	\$1,001,408				
Cumulative Fees Balance		\$2,466,547	\$7,179,274	\$12,191,538	\$13,864,028	\$14,865,436				\$18,173,882
Overall Fund Balance	\$20,962,147	\$18,842,503	\$16,419,821	\$17,477,045	\$17,477,045	\$17,477,045				
Fund Balance - Operations Reserve	\$4,192,429	\$3,768,501	\$3,283,964	\$3,495,409	\$3,495,409	\$3,495,409				
Fund Balance - Capital Reserve	\$16,769,718	\$15,074,002	\$13,135,857	\$13,981,636	\$13,981,636	\$13,981,636				
Other										\$0
Zero Waste Balance to TS Rebuild						\$28,847,072				
Bond:						\$61,989,873				
						\$90,836,945				
¹ See Exhibit 29 to the Feasibility Report										
Contingency Funds										
Transfer from 820 (ERMA 601) Fund Balance										
Issuance of Revenue Bonds										
FORECASTED CAPITAL EXPENDITURES	1	2	3	4	5	6	7	8	9	
	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	
	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	
Feasibility Study	\$100,000	\$400,000								\$500,000
CEQA/Entitlements		\$800,000	\$1,300,000	\$800,000						\$2,900,000
Final Design & Engineering		\$400,000	\$500,000	\$2,000,000	\$1,800,000	\$400,000	\$300,000	\$200,000	\$200,000	\$5,800,000
Geotechnical		\$100,000	\$700,000	\$200,000						\$1,000,000
Permitting /Fees /Other			\$300,000	\$400,000	\$600,000	\$700,000	\$300,000	\$300,000	\$300,000	\$2,900,000
CM/ Special Inspections				\$100,000	\$200,000	\$300,000	\$1,000,000	\$1,000,000	\$1,000,000	\$3,600,000
LEED Certification			\$50,000	\$75,000	\$50,000	\$50,000	\$50,000	\$50,000	\$75,000	\$400,000
Base Buildings & Equipment ¹						\$10,000,000	\$21,900,000	\$21,000,000	\$21,000,000	\$73,900,000
Total Project Expenses:	\$100,000	\$1,700,000	\$2,850,000	\$3,575,000	\$2,650,000	\$11,450,000	\$23,550,000	\$22,550,000	\$22,575,000	\$91,000,000
¹ Includes site improvements, building improvements, MRF Equipment, sustainability elements, contingency, escalation, and general conditions.										



Table 6-2: Concept B - Estimated Capital Costs, Funding (Revenue) Sources and Forecasted Project Capital Expenditures

City of Berkeley Department of Public Works - Zero Waste Division Solid Waste and Recycling Transfer Station Feasibility Study Estimated Capital Costs ¹ , Funding (Revenue) Sources, and Forecasted Project Capital Expenditures										
Total Capital Requirement - Bond	\$93,799,227									
SOURCE OF FUNDING (REVENUES)	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	
	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	Total Revenue
Tipping Fees	\$0	\$666,547	\$712,727	\$712,264	\$872,490	\$1,001,408	\$1,041,827	\$1,095,348	\$1,171,271	\$7,273,882
Collection Rates	\$400,000	\$1,400,000	\$4,000,000	\$4,300,000	\$800,000	\$0				\$10,900,000
Subtotal of fees to TS Rebuild	\$400,000	\$2,066,547	\$4,712,727	\$5,012,264	\$1,672,490	\$1,001,408				
Cumulative Fees Balance		\$2,466,547	\$7,179,274	\$12,191,538	\$13,864,028	\$14,865,436				\$18,173,882
Overall Fund Balance	\$20,962,147	\$18,842,503	\$16,419,821	\$17,477,045	\$17,477,045	\$17,477,045				
Fund Balance - Operations Reserve	\$4,192,429	\$3,768,501	\$3,283,964	\$3,495,409	\$3,495,409	\$3,495,409				
Fund Balance - Capital Reserve	\$16,769,718	\$15,074,002	\$13,135,857	\$13,981,636	\$13,981,636	\$13,981,636				
Other										\$0
Zero Waste Balance to TS Rebuild						\$28,847,072				
Bond:						\$64,952,155				
						\$93,799,227				
¹ See Exhibit 29 to the Feasibility Report										
Contingency Funds										
Transfer from 820 (ERMA 601) Fund Balance										
Issuance of Revenue Bonds										
	1	2	3	4	5	6	7	8	9	
FORECASTED CAPITAL EXPENDITURES	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	
	7/1/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	
Feasibility Study	\$100,000	\$400,000								\$500,000
CEQA/Entitlements		\$800,000	\$1,300,000	\$800,000						\$2,900,000
Final Design & Engineering		\$400,000	\$500,000	\$2,000,000	\$1,800,000	\$400,000	\$300,000	\$200,000	\$200,000	\$5,800,000
Geotechnical		\$100,000	\$700,000	\$200,000						\$1,000,000
Permitting /Fees /Other			\$300,000	\$400,000	\$600,000	\$700,000	\$300,000	\$300,000	\$300,000	\$2,900,000
CM/ Special Inspections				\$100,000	\$200,000	\$300,000	\$1,000,000	\$1,000,000	\$1,000,000	\$3,600,000
LEED Certification			\$50,000	\$75,000	\$50,000	\$50,000	\$50,000	\$50,000	\$75,000	\$400,000
Base Buildings & Equipment ¹						\$10,000,000	\$22,900,000	\$22,500,000	\$21,300,000	\$76,700,000
Total Project Expenses:	\$100,000	\$1,700,000	\$2,850,000	\$3,575,000	\$2,650,000	\$11,450,000	\$24,550,000	\$24,050,000	\$22,875,000	\$93,800,000
¹ Includes site improvements, building improvements, MRF Equipment, sustainability elements, contingency, escalation, and general conditions.										

Tipping fee revenues shown in **Tables 6-1** and **6-2** are based on increases in public tip fee rates at the Berkeley Transfer Station as detailed in **Table 6-3** on the next page. The top half of **Table 6-3** shows the actual per ton increase each year by rate category and the bottom half shows the actual tip fee rate each year for each category. Please note there are no tip fee rates allocated for municipal solid waste (MSW) (city trucks) or compostable organics (city trucks) or as its commonly called an internal rate.

The amount of the bond revenue shown is the net funding requirement after considering tip fee revenues, collection rate revenues (earmarked for this project), and Zero Waste Fund balance transfers. The bond amount is the amount needed and not the actual “cost” of the bond as no analysis was done on actual bond interest rates and debt service; that was not part of the scope of this project.



Table 6-3: Forecasted Tip Fee Increase by Rate Category 2020-2027

BERKELEY TRANSFER STATION REVENUE - TIP FEE INCREASE SCENARIO (w/o internal tip fees for city trucks - refuse and compostables)									
TS Tip Fee Increases		2020	2021	2022	2023	2024	2025	2026	2027
		7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027
MSW min. charge (public)		\$5.00	\$3.40	\$3.74	\$4.11	\$4.53	\$4.98	\$5.48	\$6.02
MSW per ton (public)		\$12.50	\$13.85	\$15.24	\$16.76	\$18.43	\$20.28	\$22.31	\$24.54
MSW per ton (city trucks)									
Compostable Organics min. charge (public)		\$4.00	\$0.81	\$0.83	\$0.86	\$0.89	\$0.91	\$0.94	\$0.97
Compostable Organics per ton (public)		\$5.00	\$2.16	\$2.22	\$2.29	\$2.36	\$2.43	\$2.50	\$2.58
Compostable Organics per ton (city trucks)									
Mixed Organics & trash min. charge		\$5.00	\$3.40	\$3.74	\$4.11	\$4.53	\$4.98	\$5.48	\$6.02
Mixed Organics & trash per ton		\$9.00	\$13.50	\$14.85	\$16.34	\$17.97	\$19.77	\$21.74	\$23.92
Compostable Organics (not fully separated) min. charge		\$8.50	\$1.56	\$1.61	\$1.66	\$1.70	\$1.76	\$1.81	\$1.86
Compostable Organics (not fully separated) per ton		\$19.00	\$6.24	\$6.43	\$6.62	\$6.82	\$7.02	\$7.23	\$7.45
C&D min. charge (public)		\$5.00	\$1.02	\$1.05	\$1.08	\$1.11	\$1.15	\$1.18	\$1.22
C&D per ton (public)		\$9.00	\$4.05	\$4.17	\$4.30	\$4.43	\$4.56	\$4.70	\$4.84
TS Tip Fees	Current Rates	2020	2021	2022	2023	2024	2025	2026	2027
		7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027
MSW min. charge (public)	\$29.00	\$34.00	\$37.40	\$41.14	\$45.25	\$49.78	\$54.76	\$60.23	\$66.26
MSW per ton (public)	\$126.00	\$138.50	\$152.35	\$167.59	\$184.34	\$202.78	\$223.06	\$245.36	\$269.90
MSW per ton (city trucks)									
Compostable Organics min. charge (public)	\$23.00	\$27.00	\$27.81	\$28.64	\$29.50	\$30.39	\$31.30	\$32.24	\$33.21
Compostable Organics per ton (public)	\$67.00	\$72.00	\$74.16	\$76.38	\$78.68	\$81.04	\$83.47	\$85.97	\$88.55
Compostable Organics per ton (city trucks)									
Mixed Organics & trash min. charge	\$29.00	\$34.00	\$37.40	\$41.14	\$45.25	\$49.78	\$54.76	\$60.23	\$66.26
Mixed Organics & trash per ton	\$126.00	\$135.00	\$148.50	\$163.35	\$179.69	\$197.65	\$217.42	\$239.16	\$263.08
Compostable Organics (not fully separated) min. charge	\$43.50	\$52.00	\$53.56	\$55.17	\$56.82	\$58.53	\$60.28	\$62.09	\$63.95
Compostable Organics (not fully separated) per ton	\$189.00	\$208.00	\$214.24	\$220.67	\$227.29	\$234.11	\$241.13	\$248.36	\$255.81
C&D min. charge (public)	\$29.00	\$34.00	\$35.02	\$36.07	\$37.15	\$38.27	\$39.42	\$40.60	\$41.82
C&D per ton (public)	\$126.00	\$135.00	\$139.05	\$143.22	\$147.52	\$151.94	\$156.50	\$161.20	\$166.03



Exhibits

1	BTS TS & Recycling Center Site Assessment	24	L1.2 LANDSCAPE SITE PLAN – CONCEPT A – ENLARGED
2	MRF Programming Questionnaire	25	L1.3 LANDSCAPE SITE PLAN – CONCEPT B
3	A1.1 SITE PLAN – CONCEPT A	26	L1.4 LANDSCAPE SITE PLAN – CONCEPT B – ENLARGED
4	A1.2 SITE PLAN – CONCEPT B	27	EXISTING SITE PLAN
5	A2.1 OVERALL FLOOR PLAN – CONCEPT A	28	LEED Checklist
6	A2.2 FLOOR PLAN CONCEPT B – MRF	29	Berkeley Transfer Station ROM Cost Estimate
7	A2.3 FLOOR PLAN CONCEPT B – TS	30	Draft Financing Plan (Concept A & B)
8	A2.4 ADMIN FLOOR PLAN CONCEPT A	31	Berkeley Listening Session Summary
9	A2.5 ADMIN FLOOR PLAN CONCEPT A – VM BLDG	32	Berkeley Transfer Station Public Meeting Notes
10	A2.6 MISC. FLOOR PLANS CONCEPT A	33	Berkeley Zero Waste Programs
11	A2.7 ADMIN FLOOR PLAN CONCEPT B	34	Community Conservation Centers (10/15/18)
12	A2.8 ADMIN FLOOR PLAN CONCEPT B – VM BLDG	35	Ecology Center (10/15/18)
13	A4.1 ROOF PLAN CONCEPT A	36	Urban Ore Meeting (10/18/18)
14	A4.2 ROOF PLAN CONCEPT B – TS	37	Vendor Meeting (1/17/19)
15	A4.3 ROOF PLAN CONCEPT B – MRF	38	Vendor Meeting (5/22/19)
16	A5.1 EXTERIOR ELEVATIONS CONCEPT A	39	Phasing Plans
17	A5.2 EXTERIOR ELEVATIONS CONCEPT A	40	BTS Schedule (1/31/2019)
18	A5.3 EXTERIOR ELEVATIONS CONCEPT B	41	Feature Comparison Table
19	A5.4 EXTERIOR ELEVATIONS CONCEPT B	42	Copy of Revenue Streams
20	A6.1 BUILDING SECTIONS CONCEPT A		
21	A6.2 BUILDING SECTIONS CONCEPT B – TS		
22	A6.3 BUILDING SECTIONS CONCEPT B – MRF		
23	L1.1 LANDSCAPE SITE PLAN – CONCEPT A		