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DEPARTMENT OF  
PUBLIC WORKS

OFFICE OF THE DIRECTOR

CITY OF SACRAMENTO  
CALIFORNIA

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ADMINISTRATION  
916-449-8747

May 30, 1990

Budget and Finance Committee  
Sacramento, California

Honorable Members in Session

SUBJECT: **REPORT BACK-RESIDENTIAL CURBSIDE RECYCLING OPTIONS IMPACT ON RATES**

**SUMMARY**

This report informs the Committee of the start-up, first year costs of three different residential curbside recycling methods, three-bin, single container auto-lift, and a combination. In its first year, the three bin option will cost \$1.11 per month, adding an increase of 11.2% to the proposed \$9.96 per month garbage fee. The single container option will cost \$1.65 per month, adding 16.5% to the proposed garbage fee. The combination program would add \$1.21 to the fee, or 12.2%. The three-year outlook shows that the cumulative costs of the three bin system exceed those of the auto-lift program over time.

**BACKGROUND**

In April 1990, City staff committed to report back to the Budget and Finance Committee on the "garbage fee" rate impact of various residential curbside recycling options that had been previously discussed before the City Council. This report provides the principle cost and revenue elements of two residential curbside recycling programs, home separated collection from three stackable bins and commingled collection from a single auto-lift container. The report also presents the costs of a third, first year option, i.e. a combination of the two programs that would permit a one-year study of the two options and a subsequent evaluation performed by an outside contractor.

The program cost presented includes both capital and operating expenditures for the three options. The source of the costs delineated in each element is City staff's research and contacts, some via trips, with equipment vendors and operators of recycling programs. Attachment 1 contains reports of some of the contacts.

**FINANCIAL DATA**

Financial data is presented in Exhibit 1, along with the program assumptions. The cost of the three options would be as follows:

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<u>Option</u>	<u>Cost</u>	<u>Added Increase</u>
Option #1 3 Bin	\$1.11	11.2%
Option #2 Auto Lift	\$1.65	16.5%
Option #3 Combined	\$1.21	12.2%

A three-year projection of costs, identified in Exhibit 1, demonstrates that over a three-year period, the cost of Option #2 would be lower than all other options.

The costs of this pilot program are higher than earlier estimates because all capital will be purchased with cash rather than debt proceeds.

**POLICY CONSIDERATIONS**

The City Council has established a policy that there will be a residential curbside recycling program in FY 1990-91. This report provides financial data for the Committee to make a comparison of the relative costs of alternative programs.

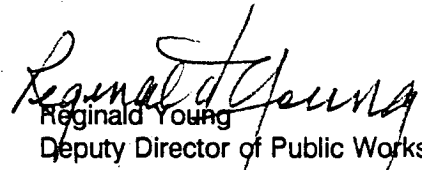
**MBE/WBE**

There are no MBE/WBE impacts.

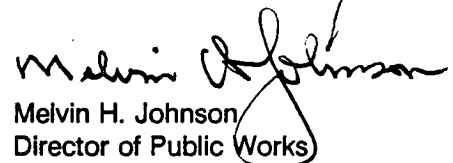
**RECOMMENDATION**

This report is for information only. It is requested that the Committee provide direction on the type and scope of a pilot program.

Respectfully Submitted,

  
Reginald Young  
Deputy Director of Public Works

APPROVED:

  
Melvin H. Johnson  
Director of Public Works

RECOMMENDATION APPROVED:

  
Jack Crist  
Deputy City Manager

Contact Person  
Reginald Young  
Deputy Director of Public Works

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All Districts

EXHIBIT 1 Page 1  
Cost Analysis: Pilot Recycling Program

I. ASSUMPTIONS

	Opt #1: Manual 3-Bin	Opt #2: Autolift	Opt #3: Split Pilot
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Total Accounts	25,000	25,000	20,000 (10,000 ea.)
Collection Frequency	weekly	monthly	weekly/monthly
Monthly Participation Rate	50+%	50+%	50+%
Passes-by per day	1,200	1,200	1,200
Set-outs per day	400	600	400/600
Standby/Replacement Factor			
Vehicles	1.2	1.2	1.2
3-Bin Containers	1.07	1.07	1.07
Autolift Containers	1.005	1.005	1.005

OPERATING COSTS

	Cost Each	Opt #1: Manual 3-Bin		Opt #2: Autolift		Opt #3: Split Pilot	
		Number	Total Cost	Number	Total Cost	Number	Total Cost

II. PERSONNEL

Collection							
Sanitation Worker II	34,782	5	173,910	1	34,782	2	83,477
Recovery (Contract)							
MRF Supvr (6 hrs/day)	20,000	1	20,000	1	20,000	1	20,000
Sorter (6 hrs/day)	11,250	4	45,000	6	67,500	6	67,500
Education & Customer Relations							
Waste Reduction Coord	46,562	1	46,562	1	46,562	1	46,562
Typist Clerk II	27,798	2	41,697	2	41,697	2	41,697
<b>TOTAL PERSONNEL</b>			<b>327,169</b>		<b>210,541</b>		<b>259,236</b>

III. SERVICES & SUPPLIES

Collection & Recovery							
Safety Apparel at \$200/worker			2,000		1,600		1,880
Education & Customer Relations							
at \$3/household		25,000	75,000	25,000	75,000	20,000	60,000
<b>TOTAL SERVICES &amp; SUPPLIES</b>			<b>77,000</b>		<b>76,600</b>		<b>61,880</b>

IV. COLLECTIONS VEHICLES

Purchase							
3-Bin (LaBrie)	102,000	5	510,000	0	0	2	204,000
Automated	115,000	0	0	1	115,000	1	115,000
Resale							
3-Bin (LaBrie)	(71,400)	6	(428,400)	0	0	3	(214,200)
at 70% of purchase							
Automated	(89,700)	0	0	1	(89,700)	1	(89,700)
at purchase minus deprec.							
<b>TOTAL COLLECTIONS VEHICLES</b>			<b>81,600</b>		<b>25,300</b>		<b>15,100</b>

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Cost Analysis: Pilot Recycling Program

Opt #1: Manual 3-Bin      Opt #2: Autolift      Opt #3: Split Pilot

Cost Each    Number    Total Cost    Number    Total Cost    Number    Total Cost

V. VEHICLE OPERATING COST

3-Bin(LaBrie) per mile	2.04	100,000	204,000	0	0	80,000	163,200
Automated per mile	2.30	0	0	22,000	50,600	9,000	20,700

TOTAL VEHICLE OPERATING			204,000		50,600		183,900
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VI. INCOME FROM RECYCLABLES (estimate \$60,000 to \$120,000)			(90,000)		(90,000)		(90,000)
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VII. LANDFILL AVOIDANCE

Tipping Fees per ton	(10.50)	1,800	(18,900)	1,800	(18,900)	1,800	(18,900)
Hauling Costs per ton	(18.00)	1,800	(32,400)	1,800	(32,400)	1,800	(32,400)

TOTAL LANDFILL AVOIDANCE			(51,300)		(51,300)		(51,300)
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IX. CONTINGENCY @4%			21,939		8,870		15,153
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SUBTOTAL OPERATING COSTS			570,408		230,611		393,968
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NON-AMORTIZED CAPITAL COSTS

X. CONTAINERS

3-Bin Set (w/ 7% loss)	17.44	26,750	466,553	0	0	10,700	186,621
Auto-lift Container	57.00	0	0	25,125	1,432,125	10,050	572,850

TOTAL CONTAINERS			466,553		1,432,125		759,471
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XI. MRF BUILDING & EQUIPMENT

Building			72,050		72,050		72,050
Equipment			149,398		149,398		149,398

TOTAL MRF			221,448		221,448		221,448
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VIII. CUSTOMER SURVEY/PROGRAM EVALUATION			40,000		40,000		40,000
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SUBTOTAL NON-AMORTIZED CAPITAL COSTS			728,001		1,693,573		1,020,919
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GRAND TOTAL PROGRAM COST			1,298,409		1,924,183		1,414,887
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MONTHLY COST PER RESIDENTIAL ACCOUNT

Per Target Area Resident							
Operating Costs			\$1.95		\$0.79		\$1.35
Capital Costs (cash)			\$2.49		\$5.80		\$3.50
Total			\$4.45		\$6.59		\$4.85

All Residential Accounts			\$1.11		\$1.65		\$1.21
Average % Change in Solid Waste Fee			11.18%		16.54%		12.16%

EXHIBIT 1 Page 3  
Cost Analysis: Pilot Recycling Program

THREE YEAR OUTLOOK

	YEAR 1	YEAR 2	YEAR 3	TOTAL
Opt #1: Manual 3-bin				
Operating Costs	1.95	2.03	2.11	6.10
Capital Costs	2.49	.11	.12	2.72
TOTAL	\$4.45	\$2.14	\$2.23	\$8.82
Opt #2: Autolift				
Operating Costs	.79	.82	.85	2.47
Capital Costs	5.80	.03	.03	5.85
TOTAL	\$6.59	\$.85	\$.88	\$8.32
Opt #3: Split Program				
Operating Costs	1.35	1.40	1.46	4.21
Capital Costs	3.50	.05	.06	3.61
TOTAL	\$4.85	\$1.46	\$1.52	\$7.82

ATTACHMENT 1

Trip Reports on Recycling Facilities



DEPARTMENT OF  
PUBLIC WORKS

SOLID WASTE DIVISION

CITY OF SACRAMENTO  
CALIFORNIA


921 TENTH STREET  
SUITE 500  
SACRAMENTO, CA  
95814-2715

916-449-5757

DAVID A. PELSER  
SOLID WASTE  
DIVISION MANAGER

April 30, 1990

MEMORANDUM:

To: Reginald Young, Deputy Director of Public Works  
From: David A. Pelsler, Solid Waste Division Manager   
Re: Trip Report - Automated Collection of Commingled  
Recyclables in Orange County Area

On April 27, 1990, I accompanied Paul Smilanich, Collection Superintendent, on a tour of the Anaheim Disposal facilities in Anaheim and the CR&R facilities in Stanton. We took video and still pictures of both facilities. Attached are copies of some of the materials we received. Following is my description and analysis.

1. Anaheim Disposal, Inc.  
1131 North Blue Gum Ave.  
Anaheim, CA 92815

Tour Host: Ric Collett, Director of Operations for  
Recycling and Automation Division

Summary of Observations:

Anaheim Disposal, Inc. started in September, 1989 to provide fully automated collection of commingled recyclables from 60 gal and 90 gal auto-lift containers using Rapid Rail side loader packer trucks. At this time, they are serving approximately 11,000 households in Anaheim, 8,500 in Brea, and 10,000 in Placentia. They currently have approvals to expand the Anaheim program city-wide and to serve Garden Grove (about 27,000 homes) in September of this year. The collection frequency is bi-weekly.



The basic service is a 90 gallon auto-lift container. 60 gallon containers are provided upon request. All residents are delivered a container at the time of implementation. Since the program is voluntary, residents may refuse a container and the company will take it back. Refusal rates are running at about 1% - 2%. About 80% - 90% of residents set out the containers every collection day. One side loader truck can service about 750 - 950 homes in a 7hr work shift (no disability exemptions from curbside service). The hydraulic pressure of the blade in the packer trucks has been reduced to minimize glass breakage.

At this time, the commingled recyclables are processed in a make-shift facility similar to the Phoenix pilot program which was toured a few months ago. Anaheim Disposal, Inc. purchased a used sorting belt system and modified an existing warehouse type structure to house the sorting belt. After the trucks are weighed in the facility on their own scale, the commingled recyclables are dumped onto a concrete tipping floor. A front end loader tractor picks up the material and deposits it in a hopper about 10 feet above ground level. The hopper feeds the material onto the sorting belt. 20 workers hand sort the material and place it in various bins and drop boxes. That which reaches the end of the belt is recirculated through the sorting process. About 7 1/2 tons/hr is processed in this way. (In addition to the commingled recyclables, some material collected from a 3-bin curbside system is also processed on the same belt.) In these first few months of operation, over 30% of the residential waste stream is collected and a net 28% is marketed as recyclable material. Newspaper has never been rejected for contamination. Old Newspaper is sold at Grade 8 - Special News De-ink Quality. Some glass breakage occurs, but it is less than what typically happens in a 3-bin collection system. Operators are surprised at the large amount of old corrugated cardboard that is collected from the residences in the auto-lift container (the Phoenix program also experienced a larger amount of OCC than anticipated).

The operators are planning to improve the processing facility by adding mechanical equipment which can reduce the glass breakage and improve the efficiency and cost of the process. The specific features planned include many of the same items City staff has envisioned in a materials processing facility.

It is interesting to note the level of experience this firm has in recycling newspaper. Originally, the company had a paper mill and newspaper recycling facility. As a side venture, the owner bid on collection of solid waste for the City of Anaheim. The bid was successful, and the company gradually shifted its emphasis over the years to solid waste



collection. Now, the interest in recycling has resulted in a very easy transition for the company into the recycling business.

The company representatives cited the following reasons for pursuing automated collection of commingled recyclables rather than traditional manual collection methods:

- Experience with automated collection of solid waste demonstrated the benefits of automated collection over manual collection
- The savings in collection is believed to more than offset the cost of processing.
- The cost of processing is almost the same as processing material from a three bin collection system. In fact, some bins from a 3-bin system are sent to Anaheim Disposal for material sorting.
- The automated system has the greatest versatility to market demands and the greatest potential for expansion to add more materials and to serve more customers than just single family homes.
- The automated collection of commingled materials has the greatest impact on the waste stream by diverting substantially more material from landfilling than any other form of residential recycling program.
- Customer response has been great with up to 90% set out rates. The Orange County Board of Supervisors has adopted a resolution of commendation awarded to Anaheim Disposal, Inc. for the successful program that has contributed so much to the County's recycling goals.

2. CR&R, Inc.  
11292 Western Ave.  
Stanton, CA 90680  
Tour host: Michael H. Silva, Vice President

Summary of Observations:

CR&R processes over 30 million pounds of recyclables per month and has marketing contracts with domestic and foreign paper mills, metal, glass and plastic manufacturers and other purchasers of recyclable materials. Most of the company's revenues are from local government recycling programs. CR&R purchases and transports all recyclable materials from over

Reginald Young  
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20 curbside programs throughout Southern California. It also operates the curbside program for the City of Glendale, is one of the recycling contractors for the City of Los Angeles, and is the sole contractor for the City of Sand Diego. The Stanton facility which we visited includes the manufacturing of large containers for the transport of recyclables to market, the operation of a 1,000 ton per day transfer station (soon to be expanded to 1,800 tons per day material recovery facility for processing mixed waste from several cities), and processing of recyclables including a large buy-back center, and wood waste processing area. CR&R purchases and markets the recyclables that are processed at the Anaheim Disposal, Inc. facility described above.

Having worked with recyclables from all kinds of curbside programs, CR&R is a supporter of automated collection of commingled recyclables. CR&R owns American Environmental here in Sacramento. They had submitted a bid to the County of Sacramento for automated collection of commingled recyclables. Included in the bid was a guaranteed high rate of diversion from the landfill. The County rejected the bid because it was more expensive than the other 3 bidders who planned to use manual collection methods but did not guarantee a waste diversion rate.

CR&R confirmed the statements of Anaheim Disposal, Inc. that the newspaper from the commingled system is being sold as Grade 8 - Special News De-ink Quality. No load of newspaper has ever been rejected from the program.

cc: Melvin H. Johnson, Director of Public Works  
Gary Van Dorst, Waste Reduction Coordinator

attachments