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DEPARTMENT OF
PUBLIC WORKS

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SOLID WASTE DIVISION

June 7, 1989

916-449-5757

Transportation and Community Development/
Budget and Finance Committees
Sacramento, California

Honorable Members in Session:

SUBJECT: STUDY OF WASTE COLLECTION SERVICES TO COMMERCIAL CUSTOMERS

SUMMARY

Brown and Caldwell Consulting Engineers have completed a study on the waste collection service provided by the City to commercial customers. This report transmits the Brown and Caldwell Final Report and summarizes its findings. Also presented are City staff recommendations in response to the Brown and Caldwell study.

BACKGROUND

On February 23, 1988 the Joint Committees of Transportation and Community Development/Budget and Finance considered a staff report on the issue of privatization of all solid waste services. After significant public testimony and discussion, the Joint Committees voted to reject privatization and directed staff to come back to the Joint Committees with a series of reports on the solid waste and garden refuse programs. Among the requested reports was one on the possibilities for improving the efficiency and cost effectiveness of the solid waste collection services provided to commercial establishments. Subsequently, the Committees reviewed and approved a scope of services for a consultant study on the City's commercial collection system. On August 23, 1988 the City Council adopted Resolution No. 88-736 which authorized the City Manager to negotiate and execute an agreement with Brown and Caldwell to conduct a study of the City's solid waste collection services to commercial customers. The selection of the consultant was recommended by a special committee which included representatives of various City Departments and customers of the City's commercial collection services.

The study by Brown and Caldwell has now been completed and the Final Report on the City of Sacramento Commercial Waste Collection Study, dated April 25, 1989, is herewith submitted along with this staff report.

The scope of the Brown and Caldwell study included the following items of work:

- Time and motion studies for front loader and rear loader commercial collection routes.
- Evaluation of existing system productivity.
- Customer survey.
- Community Workshop.
- A survey of rates for three California cities.
- Identification of opportunities for resource recovery.
- Identification of alternatives for providing service to the commercial customers in the City.

BROWN AND CALDWELL STUDY FINDINGS AND RECOMMENDATIONS

The Final Report by Brown and Caldwell details the findings of the study. Included in these findings are these items of significance:

- 1. Commercial customers rated the quality of service as

excellent	4%
good	60%
fair	36%
poor	0%

- 2. Commercial customers described the rates for service as

appropriate	28%
too high	44%
too low	0%
didn't know	28%

- 3. Forty percent of customers surveyed were not aware of the additional City services supported in part by the commercial garbage collection fees.
- 4. Time and motion studies showed that front loader trucks are more productive than rear loader trucks in quantity of waste collected, but comparable in time per unit container capacity.
- 5. Off route travel time (non productive travel time) averaged 10 to 22 percent for front loaders and 7.2 to 17.1 percent for rear loaders.
- 6. Wide variations exist in total route times with some routes taking over 11 hours and others only 6 hours.
- 7. The commercial collection service is customized to provide a wide range of collection services that include the use of plastic bags, drop cloths (blankets), carts, and 1 to 6 cubic yard bins including compactor bins.
- 8. The bin rates charged residential commercial customers (apartments) average about 25 percent higher than the rates charged other commercial customers.
- 9. The level of service provided and institutional arrangement used varies in the three other cities studied. The City of Fresno provides all commercial collection within the City. The City of San Jose franchises all commercial collection to one private firm. The City of San Leandro provides commercial collection service to producers of garbage with other commercial establishments receiving private collection service. All three cities use one person crews on front loaders whereas Sacramento uses two person crews. With the exception of rates for small bins which appear high, the Sacramento rates for service are within a reasonable range of the rates charged in Fresno, San Jose, and San Leandro.

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10. The best opportunities to reduce rates for commercial collection service in Sacramento are to increase productivity by reducing the number of customized services offered (or charge extra for them) including special time of day collection, and to revise the rate structure to eliminate the subsidies of other solid waste programs.
11. About 22 percent of customers surveyed receive dual service from the City and a private company. The City collects the garbage as required by the City Code, and the private company collects the other wastes. This practice results in lower productivity overall than if all waste from the customer was collected by the City.
12. A direct comparison of City rates and local private collector rates is not possible since the private companies did not reveal rate information. Private companies determine rates in part by profitability of service, competition, route efficiency and truck utilization, and they have the flexibility of negotiating different rates for different customers. The City bases rates on a uniform rate schedule without regard to special problems or customized service to some customers. The City also supports some other solid waste services through commercial collection rates.
13. Resource recovery opportunities do exist, but are limited by the limited service (garbage) taken by the commercial customers.

STAFF ANALYSIS

Staff agrees with Brown and Caldwell that productivity increases are possible if current policies are changed in the manner of service delivery and the level of customized services allowed and charged for.

A single provider, whether public or private is not necessarily more efficient than multiple providers if service is highly customized (e.g. specific time of day pickup requested by the customer, customer facilities and containers requiring multiple collection vehicles and crews to physically provide the service). And, uniform service is not necessarily less expensive if multiple providers are working in the same area. Likewise, a system involving mandatory uniform service and allowing multiple providers is not indicated.

An important consideration in any proposed system change is the impact of direct long haul to the County landfill in 1992. Careful review should be given to any potential change to assure that it is valid after direct long haul is implemented. For example, Brown and Caldwell recommended using more front loaders and one person crews for front loaders. The economics of this will be different for current conditions and for direct long haul. At the present time the cost of the extra helper may be more than off set by the savings realized from the driver not having to leave the truck to unlock gates, position bins, etc. But with long haul to the County landfill, additional non productive travel time may result in the extra helper being uneconomical.

STAFF RECOMMENDATIONS

Staff recommends improving the efficiency of the existing City provided garbage collection service to commercial customers by making the following changes which are consistent with the Brown and Caldwell recommendations:

- a. Establish an additional charge for special time of day collections.

Discussion. Efficiency of collection is severely impacted by the requests for special time of day collection. Sometimes it is the customer that requests a certain time of day to avoid conflicts with parking or business operations such as delivery traffic in alleys. We also receive requests from neighbors to avoid early morning collections near residential areas due to the noise. These practices create additional non productive travel time which reduce efficiency and increase overall system cost to those customers who use only the standard service. Establishing an additional charge for special time of day pick-ups could allow for a continuance of the service without penalizing the other customers.

- b. Establish additional charges for specific customized services.

Discussion. Customized services which increase costs include unlocking container storage areas, extra maneuvering of containers due to site layout restrictions, handling non-standardized containers, and many other special services. Currently, there is no extra charge for these services.

- c. Maximize the use of standardized bin containers and front loader collection vehicles.

Discussion. Brown and Caldwell recommended increasing productivity by using front loaders as much as possible. Front loaders collect bins of various sizes. Increasing the number of front loaders is possible; however, rear loaders may still be required in some areas where space restrictions or pavement conditions limit the use of the larger, heavier front loader trucks. Also, rear loaders will be required as long containers other than bins are allowed. Currently, other containers and drop cloths are also collected.

- d. Revise the City Code to require that only City owned and maintained containers (bins) be used for City provided collection service as is currently done for 90-gallon containers for residential customers.

Discussion. An issue not addressed in the Brown and Caldwell Report is the use of non City provided bins for collection by City crews. That is, many customers rent bins from the private garbage hauling companies while subscribing to City collection service as mandated by the Code. Frequently, these privately owned bins are not maintained properly by the owner or renter, and when damage occurs, the City is held responsible for "excessive wear due to abusive handling". In effect, the City is having to maintain the privately owned bins while City bins are not used. Also, the use of non City bins complicates enforcement activities and makes it harder for the collection crews to determine which bins to service. The collection service, bin maintenance, and Code enforcement would all be more efficient if the City crews collected garbage only from City provided bins. There may need to be some exceptions for large institutions which adequately maintain their own bins such as school districts. Or, the City could arrange to purchase the existing inventories at fair market value and repaint the bins to the standard City specifications for easy identification. Compactor bins maintained by the owner would be allowed.

- e. Study the specific implications of the Brown and Caldwell recommendation to use only one person crews in front loader trucks.

Discussion. Brown and Caldwell identified that the other Cities studied use one person crews for front loader collection vehicles. Yet, a few years ago, the City added a General Worker position to the front loader crew to assist the driver with handling bins that were in awkward locations and required positioning prior to loading. Safety, efficiency, labor relations, and other factors may also be involved. Although staff believed at one time that the extra person was warranted, it is appropriate to review the practice in light of the Brown and Caldwell recommendations. As noted elsewhere in this report, the planned direct long haul to the County landfill could impact the cost effectiveness of the General Worker position.

- f. Provide an active enforcement program to assure that City mandated service is used.

Discussion. Enforcement activities have been suspended pending any system changes that may result from the Brown and Caldwell study. Some commercial establishments voluntarily comply with the City Code requirements for garbage collection. However, a number of places violate the Code by subscribing to private garbage collection service. The Solid Waste Division has received complaints about violations from some businesses which comply with the code. This results in a smaller quantity of garbage collected by City trucks in a given service area and causes more unproductive travel time and lower productivity. This eventually means higher rates for those accounts which do comply with the Code. Past experience indicates that the additional revenue generated by Code enforcement more than compensates for the cost of a Utility Services Inspector, not to mention additional value of increased productivity of the system.

FINANCIAL DATA

Implementing various changes will affect the cost of service and the rates charged. Depending on which specific recommendations are implemented, the impacts on customers will vary. Reductions in overall system cost are possible if some policy changes are made in the level of service provided and the method of service delivery. However, a few customers may even experience a cost increase if their service is currently being subsidized by other customers and if the rate structure is modified to eliminate the disparity.

POLICY MATTERS

The basic policy issues which underlie any decisions to change the existing system are:

1. The assurance of public health and safety by the City mandating basic garbage collection service.
2. The basic types and levels of waste collection service to be provided to commercial facilities.
3. For City provided services, the efficiency of uniform service versus the often requested higher level customized services which erode productivity and increase costs.

- 4. For City provided services, the rate structure used to pay for the service costs. (Specifically, rate issues include subsidies for other solid waste programs, internal subsidies within commercial collection services, and additional charges for customized service.)
- 5. Whether or not the City should eliminate the allowance for dual service to commercial customers by City and private collectors as recommended by Brown and Caldwell.

MBE/WBE

Currently, 81% of all Solid Waste Division employees are minorities. It therefore contributes significantly towards City goals for minority employment. It is not known whether any private waste collection companies are MBE/WBE firms. The policy decisions made about the institutional arrangement for providing solid waste services could impact the employment of minorities in the City.

RECOMMENDATION

Staff recommends the Joint Committees forward this report to the full Council and recommend the Council accept the Brown and Caldwell Report, and direct staff to:

- 1. Develop for Joint Committees consideration and approval a proposed standard commercial service and a schedule of extra charges for customized services (which may include a charge for special time of day collection).
- 2. Evaluate the service delivery impacts of increasing the use of more front loader collection vehicles and report back to the Joint Committees.
- 3. Submit to Law and Legislation Committee a proposed revision to the City Code which would require the use of City provided and maintained bins for commercial customers serviced by the City, considering what circumstances may require exemptions.
- 4. Study the implications of the Brown and Caldwell recommendation to use only one person crews on front loader trucks and report back with a recommendation.
- 5. Resume enforcement of the City Code which was suspended during completion of this study.
- 6. Study the implications of the Brown and Caldwell recommendation to eliminate the allowance for dual service to commercial customers by City and private collectors and report back with a recommendation.

Respectfully submitted,



DAVID A. PELSER
Solid Waste Division Manager

Transportation and Community Development/
Budget and Finance Committees
June 7, 1989
Page 7

Recommendation Approved:

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DAVID A. PELSER, SOLID WASTE DIVISION MANAGER
449-2043

June 7, 1989
All Districts



CITY OF SACRAMENTO
COMMERCIAL WASTE
COLLECTION STUDY

APRIL 25, 1989

BROWN AND CALDWELL



CONSULTING ENGINEERS

April 25, 1989

Mr. Reginald Young
Deputy Director
Department of Public Works
Room 297
915 I Street
Sacramento, California 95814-2673

017-4139-80/1

Subject: **Commercial Solid Waste Collection
System Study, Final Report**

Dear Mr. Young:

We are pleased to submit the final Commercial Waste Collection Study for the City of Sacramento. The report includes conclusions and recommendations based on our data and findings.

The report has been revised to include an Executive Summary which provides an overview of the study conclusions.

Very truly yours,

BROWN AND CALDWELL

for James Yost
Hillary M. Theisen
Vice President

HMT:tlr

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EXECUTIVE SUMMARY

Brown and Caldwell has completed a study of the commercial solid waste collection system operated by the Solid Waste Division (Division) of the City of Sacramento (City). Our findings, conclusions, and recommendations are presented in this executive summary. The supporting data are presented in the chapters and appendices of this report.

The study included (1) inventories (time-and-activity studies) of the six front loader routes and the nine rear loader routes operated by the Division, (2) a review of Division records and procedures regarding its commercial collection system, (3) an evaluation of productivity of the 15 commercial routes, (4) a questionnaire survey of randomly selected commercial customers, (5) a workshop with interested community groups, (6) a survey of commercial collection rates for three California communities, (7) an assessment of alternatives for providing service to the commercial customers within the City, and (8) an identification of opportunities for recovering resources from the commercial wastes collected by the City. The one roll-off route and the bin delivery system operated by the Division are not included in the study.

The commercial customers served by the Division include the City Code mandated producers of garbage (primarily wastes containing food material) and voluntary customers such as state office buildings. The commercial customers are classified as either residential (multiunit residential complexes with four or more units), or nonresidential.

FINDINGS

1. Statements of customer satisfaction were solicited in the commercial customer questionnaire and responses were supplied by 25 commercial customers. When given the choice of rating the overall quality of commercial waste collection as excellent, good, fair, and poor, the responses were:

Excellent	4 percent
Good	60 percent
Fair	36 percent
Poor	0 percent

2. A significant number of surveyed commercial customers, 40 percent, were not aware of the additional City services partially paid for by the commercial rates.
3. The customer survey allowed a response of appropriate, too high, or too low for the cost of the service provided by the City. The responses were:

Appropriate	28 percent
Too high	44 percent
Too low	0 percent
Did not know	28 percent

4. The number of commercial customers receiving dual service for garbage and refuse, as allowed by City Code, is not known. However, 22 percent of the survey respondents receive dual service.
5. The following findings are the basis for evaluating productivity of workers and equipment for the 15 routes included in the inventory.
 - a. The front loader routes are more productive than the rear loader routes based on the total waste collected during the inventory, but comparable in productivity based on time per unit container capacity. For the loads weighed, the front loader routes collected over 505,000 pounds of waste in 5,395 minutes and the rear loader routes collected 298,000 pounds of waste in 6,851 minutes. For all of the routes inventoried, the rear loader routes serviced over twice as many stops (customers), with about twice as many containers, and with 1.4 times as much container capacity. The average minutes per container cubic yards is comparable with 1.17 for the front loaders and 1.20 for the rear loaders.
 - b. Truck weight overloading with the front loaders occurred frequently during the inventory.
 - c. Off-route travel time averaged 10 to 22 percent of the route times for the front loaders, and 7.2 to 17.1 percent of the route times for the rear loaders. Off-route travel time is mostly not within the control of the route crew.
 - d. During the inventory period, the routes that were followed for the full-route activities had wide variations in time requirements. Full-route activities include the total shift time of a crew. Both front loader routes inventoried on Mondays exceeded 8 hours (10.5 and 11.3) and both rear loader routes inventoried on Mondays were less than 8 hours. Only one of 13 rear loader routes required 8 hours, and the average time was 6 hours. The average time for the 10 front loader routes was 5.9 hours.
 - e. The commercial collection service is customized to provide a range of collection services that include the use of plastic bags, drop cloths (blankets), carts, and 1- to 6-cubic-yard bins, including compactor bins.
6. The bin rates charged residential commercial customers average about 25 percent higher than the nonresidential customers.
7. The three communities included in the survey serve the commercial accounts with 1-person crew front loader trucks. The base rates in Fresno and San Leandro include the driver dismounting to position a bin. This service is charged extra in San Jose at a rate of approximately \$2 per foot.

8. The major private collection companies serving commercial customers in the City did not provide rates with which to compare with City rates.
9. The results of a rate survey conducted by the Sacramento Apartment Association were provided to Brown and Caldwell. The results, of which we have no way of verifying the comparisons made, show the rates charged residential commercial customers (in this case, apartments by the City) are higher than rates charged by private collectors serving Sacramento County.
10. Attendance at the workshop conducted for interested community groups included three community groups (Citizens for a Better Sacramento, Sacramento Apartment Association, and Metropolitan Chamber of Commerce), one customer (representative from Inland Harbor Condominiums), and four representatives of the local private collectors (two attorneys and managers from two haulers).
11. The three California communities surveyed to obtain data for comparison provide commercial collection with three different institutional arrangements. The city of Fresno provides all commercial collection within the city, except in newly incorporated areas where the service is phased in over a set time. The city of San Jose franchises all commercial collection to one private firm at the present time. The city of San Leandro provides commercial collection service to producers of garbage with other commercial establishments receiving private collection service.
12. The level of commercial collection service provided by the three communities varies; however, the use of 1-person crews and front loader trucks was common among the three.
13. Opportunities for resource recovery do exist, but are limited by the limited service (garbage) taken by City commercial customers.

CONCLUSIONS

Brown and Caldwell has reached the following conclusions using the data from the findings and our experience with collection systems.

1. The level of customer satisfaction with overall commercial collection service provided by the City is better than expected, since no surveyed customer gave a rating of poor service. The City should continue with existing service levels to maintain customer satisfaction.
2. The Division staff is diligent in reviewing system productivity and level of service. For example, new, more productive routes were established before this study. However, the data shows that route times might be improved, hopefully improving system productivity.

3. System productivity and customer satisfaction with service cannot be separated. An action on one causes an inverse reaction on the other. A change in City policy to improve productivity will probably decrease customer satisfaction with service.
4. A significant number of surveyed customers considered the cost of City service too high. However, with the exception of rates for small bins, City rates were within a reasonable range, some higher and some lower, with the reported rates of commercial service in the cities of Fresno, San Jose, and San Leandro. The best opportunities to reduce the rates are to reduce the number of customized services (or charge extra for each customized service), to increase system productivity, and to change the manner in which additional City services are partially paid by commercial customers.
5. The rates for small bins are considerably higher than any of the three communities included in the study for comparison. The rates for 6-cubic-yard bins are lower than the rates in San Jose and San Leandro, but higher than Fresno.
6. The allowance for dual commercial collection service at a City Code mandated commercial garbage producer results in lower productivity than if all waste from the customer was collected by the City.
7. The wide range of customized services provided by the City results in lower productivity on commercial collection routes. An example is front loader route 51 where the helper had to be let inside to open the access. The time to position the bin took 105 seconds, which is 75 seconds of lost time when compared to the normal requirement of 30 seconds to position a bin. Another example is on route 53 where the bin has to be moved out to the street for loading and requires 100 seconds.
8. Comparison of rates between local private collection firms and the City rates is not possible in this study because private rates were not provided by the major collectors. However, the service conditions for private and City commercial collection differ in the following ways:
 - a. Private haulers set rates based on (1) profitability of service, (2) competition, (3) route efficiency, and (4) truck utilization.
 - b. The City rates are based on (1) City Code specified service, (2) cost of monitoring system to ensure Code compliance, (3) route efficiency, (4) truck utilization, (5) inclusion of various customized services with the costs spread across all services, and (6) pricing policy to pay for other solid waste management services.
9. There are a sufficient number of commercial collection productivity and cost questions from this study to justify the identification and consideration of alternatives to, and changes in, the existing commercial service provided by the City.

Several alternative commercial collection systems were identified and are discussed. These include (1) continue existing service with various means to improve productivity, (2) eliminate the Code requirement for City collection of commercial

garbage with either open competition between privates or the establishment of exclusive franchise areas for all commercial waste within an area with franchisees selected through bidding (this is how San Jose provides commercial collection), and (3) change the City Code to bring all commercial waste under the City collection system.

10. Improvements in productivity, and reduction in costs, are possible with implementation of one or more of the following:
 - a. Eliminate, or substantially restrict, customized service, or establish special rate structures for each type of customized service.
 - b. Switch as many routes as possible to front loader routes with 1-person crews.
 - c. Equalize route time throughout the week.
 - d. Adopt an incentive-on approach to route work (incentive-on is a revenue-driven approach to the daily work task offering an incentive to crews that collect more than the assigned average number of containers).
 - e. Eliminate, except in unusual circumstances, special time-of-day collection.

RECOMMENDATIONS

Brown and Caldwell has developed recommendations from the evaluation. The primary recommendation is to improve productivity by selecting one of the alternatives presented in Chapter 5. The costs of implementing the recommendations and the quantification of changes to service from the recommendations is outside the scope of this study, although the costs, labor, and system impacts must be studied prior to implementation of alternates. The selection of an alternative involves City policy that mandates garbage collection.

The alternatives we recommend for consideration and selection of a final alternative, are those that provide either improved productivity of the existing City commercial garbage collection system or private and/or City collection of all commercial waste with the City maintaining control of the level of service provided. There are limitations on increases in productivity caused by customer requested levels of service and preexisting conditions.

The alternatives and policy issues associated with the alternative are presented below.

Alternative 1-C. Continue existing City collection service with City Code change to eliminate separate garbage and refuse service at a commercial customer producing garbage. The combined service will improve productivity and increase the efficiency of enforcement of City Code for mandatory garbage service.

Policy Issues:

Should the incentive-off system be changed to an incentive-on system?

Should special time-of-day collections be eliminated?

Should customized service be eliminated or should special rates be set for each category of customized service?

Should building codes be reviewed to consider possible changes to preexisting conditions, and to require adequate space for solid waste containers and room for maneuvering?

Should the City purchase and provide standardized containers to mandated customers?

Should the City phase out rear loader trucks?

Should the City switch to 1-person crews for it's front loader trucks?

Alternatives 2-B and 2-C. Eliminate City Code requirement for City collection of garbage from commercial establishments, including the residential commercial establishments. Establish exclusive commercial franchise areas and select private collection firms or City crews for each franchise area based on competitive bid (consider use of franchise fees by the City if collection is by private firms).

Policy Issues:

Does the City want control over all commercial waste collection?

How many franchise areas should be selected?

Should a firm be restricted to one franchise area?

Does the City want to minimize collection truck traffic and the associated environmental impacts and costs?

How will costs of the existing equipment be recovered?

Should the City require a franchise to hire existing City workers?

How will the City administer the franchises?

What method should be used to obtain lost revenues or pay additional administration costs?

Alternative 3. Change City Code and expand City commercial collection service to include all commercial waste.

Policy Issues:

Does the City want to expand its fleet to provide all commercial waste collection?

Does the City want to eliminate private collection firms from operating in the City?

Does the City want to minimize collection truck traffic and the associated environmental impacts and costs?

CHAPTER 1

INTRODUCTION

Brown and Caldwell has been retained by the City of Sacramento (City) to review and evaluate the Commercial Solid Waste Collection System operated by the City. The study does not evaluate private collection. This chapter describes the general solid waste collection services provided by the City and the scope of services included in the preparation of this report.

CITY SOLID WASTE COLLECTION SERVICES

The City operates solid waste collection services to collect garbage, rubbish, and waste matter as required by Chapter 19 of the Sacramento City Code. Chapter 19 requires that the City provide collection services for all garbage. Garbage is defined in Chapter 19 as "dead animals, of not more than ten pounds weight each, and of every accumulation of animal, vegetable, and other matter that attends the preparation, consumption, decay or dealing in, or storage of meats, fish, fowl, birds, fruits or vegetables." Garbage collection services provided by the City include the following:

1. Residential Collection. Residential units include single-family homes and multiple-unit dwelling units with four units or less. City collection service is mandatory for residential units.
2. Commercial Collection. Commercial collection is mandatory for those establishments that produce garbage. These include multiple-unit dwellings with four or more units, stores that handle food, and restaurants. The City also provides collection services to the State buildings and to other commercial establishments that request service.

Those commercial establishments requiring garbage collection are allowed to have dual collection service with private collection of refuse. Refuse is defined in Chapter 19 as "waste paper, cardboard, wood, rubbish, trash, waste matter, and all other similar matter; but does not include any matter included in the definition of garbage, hazardous wastes, and infectious wastes."

The City provides separate collection of garden refuse, which is defined as "leaves, grass cuttings and garden trimmings, weeds and roots from which all dirt has been removed, shrubbery and tree trimmings of which no single piece shall exceed 36 inches in length, 4 inches in diameter and 40 pounds in weight." The City imposes excise taxes and other fees for collecting garden refuse.

SCOPE OF SERVICES

The scope of services performed is summarized below.

Conduct route inventories (time-and-activity studies) for each front and rear loader commercial collection route.

Evaluate existing system productivity.

Prepare a questionnaire and conduct a survey of the customer community.

Conduct a workshop to survey interested community groups.

Address alternatives for providing services to the commercial customers within the City.

Identify opportunities for recovering resources from the commercial solid waste.

CHAPTER 2

COMMERCIAL COLLECTION SYSTEM EVALUATION

The City of Sacramento (City) provides commercial solid waste collection service to commercial establishments which produce garbage as defined in Chapter 19 of the Sacramento City Code. The Solid Waste Division (Division) is responsible for providing the required garbage collection services. The commercial services included in this study are provided by either front loader or rear loader packer trucks. The City operates six front loader routes and nine rear loader routes. This chapter presents an evaluation of the services provided to the commercial customers with these 15 collection routes. The City also operates one roll-off route providing service to commercial customers with drop boxes and large compactors. This study does not include an evaluation of either the roll-off service or operation of the bin delivery operation.

ROUTE INVENTORY SUMMARY

Brown and Caldwell conducted route inventories (time-and-activity studies) for the City's 15 commercial collection routes which are serviced with front and rear loader packer trucks. The one roll-off route was not included in the survey. Each of the routes was inventoried on 3 separate days (2 days for Route 43) for a total of 47 study days. Each inventory began at the start of the route, originating at the City Corporate Yard (Landfill). At least one inventory for each route was for the entire length of the route, including the end-of-route activities. Other inventories averaged approximately 4 hours in duration. The City was consulted on the scheduling of the routes to be inventoried.

Table 2-1 summarizes the routes inventoried, the days of the week on which each route was inventoried, the beginning and ending time for each inventory, and whether the full or partial route was inventoried.

All time was tracked from the beginning of the day until the inventory person left the route. For the front loader routes, the inventory person rode inside the truck with the driver, while the helper rode in the car. At each pickup the helper would get out of the car, position the bin for dumping, replace the bin after dumping, get back into the car, and go to the next pickup. The time of arrival, time the bin was in position, time the bin was loaded, and time of departure were recorded for each location. Some bins were locked, others were enclosed, some had open access, and some required special treatment (towed trailer, bins indoors, bins positioned by forklift, etc.).

For the rear loader routes, the inventory person rode in the car so as to have a clear view of what was happening. Each stop might have several pick-ups, including 1- and 2-cubic-yard (cu yd) bins, 30- and 45-gallon cans, plastic bags, drop cloths, and/or carts.

Table 2-1. Route Inventory Schedule

Route number	Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Rear loaders							
2	9/1/88				P: 4:00 am-8:30 am		
2	9/2/88					F: 4:00 am-11:00 am	
2	9/10/88						P: 4:00 am-8:00 am
6	9/8/88				P: 1:00 pm-5:20 pm		
6	9/9/88					F: 1:00 pm-6:00 pm	
6	9/23/88					P: 1:00 pm-5:31 pm	
14	9/15/88				F: 6:00 am-11:25 am		
14	9/19/88	P: 6:00 am-9:25 am					
14	9/21/88			P: 5:00 am-10:25 am			
22	9/26/88	P: 4:00 am-7:45 am					
22	9/27/88		P: 4:00 am-8:02 am				
22	9/28/88			F: 4:00 am-9:44 am			
25	10/4/88		P: 5:00 am-8:27 am				
25	10/6/88				P: 6:00 am-7:56 am		
25	10/10/88	F: 6:00 am-11:25 am					
26	8/29/88					F: 4:00 am-12:00 pm	
26	8/30/88		P: 4:00 am-7:45 am				
26	8/31/88			P: 4:00 am-7:46 am			
27	9/6/88		P: 4:00 am-7:10 am				
27	9/12/88	F: 4:00 am-11:39 am					
27	9/14/88			P: 4:00 am-8:50 am			
37	9/30/88					F: 5:00 am-10:35 am	
37	10/3/88	P: 5:00 am-8:40 am					
37	10/7/88					F: 5:00 am-10:10 am	
43	9/20/88		P: 6:00 am-9:48 am				
43	9/23/88					F: 6:00 am-9:53 am	
49	8/30/88		P: 4:00 am-6:59 am				
49	9/14/88			F: 4:00 am-9:50 am			
49	9/16/88					F: 4:00 am-8:57 am	
Front loaders							
51	8/18/88				F: 4:00 am-10:05 am		
51	8/19/88					F: 4:00 am-11:35 am	
51	8/20/88						F: 5:00 am-9:08 am
52	8/24/88			F: 4:00 am-8:00 am			
52	8/25/88				P: 4:00 am-7:30 am		
52	8/26/88					P: 4:00 am-9:30 am	
53	8/22/88	F: 4:40 am-3:56 pm					
53	8/23/88		P: 4:15 am-8:20 am				
53	8/27/88						P: 4:45 am-8:28 am
54	8/18/88				F: 4:00 am-9:34 am		
54	8/19/88					F: 4:00 am-11:25 am	
54	8/20/88						F: 5:00 am-7:10 am
55	8/22/88	F: 4:00 am-2:30 pm					
55	8/23/88		P: 4:00 am-8:00 am				
55	8/27/88						P: 5:00 am-9:00 am
56	8/24/88			F: 4:05 am-10:10 am			
56	8/25/88				P: 4:10 am-7:18am		
56	8/26/88					P: 4:05 am-6:55 am	

Note: F = full route inventoried, P = partial route inventoried.

Information for bins was recorded just as for the front loaders. For all other containers, only the arrival and departure times were recorded.

Route Productivity

Route productivity is primarily a function of time required to collect garbage. Although a straightforward concept, determination of route productivity for meaningful comparison is not a simple task. Time requirements include start of day activities, off-route travel (travel to the first pickup point (stop) and from the last pickup point), on-route travel (travel between stops), container positioning, dumping containers into the packer truck, moving between container locations at a stop, weigh time at the scale, disposal time at the landfill, coffee and lunch breaks (if taken), refueling and truck wash, and emergency maintenance and repair (i.e., flat tire replacement). These time requirements are affected by a combination of factors, some of which are addressed in this section.

Using the information recorded during the route inventories, various activity times were computed. These included: off-route travel time, on-route travel time, time to position the containers, time to load the containers, the total time at a stop, time per container, time per cu yd, any lost time due to problems with vehicles, preparation time, time at the scale, and disposal time.

Weights recorded at the scale were also recorded on the inventory sheets and weights per cu yd of container capacity were calculated. The routes for which complete weights were not obtained were separated from the others and values for the time per cu yd and average weight per cu yd were not computed. For the purposes of calculating average weight per cu yd, the following volume of nonbin containers was assumed:

plastic bags = 6- x 6-foot drop cloths = carts = 30 gallons.

Due to inadequate data, values could not be obtained for on-route travel time, time per bin, and time per cu yd for front loader route 51 on August 18 and 19. They were not included when figuring the totals and averages for the on-route travel time, time per bin, and time per cu yd in the summary tables.

Route inventory sheets and calculated data for each route inventory were prepared and provided to the City. The totals from each route were then used to construct summary tables which are discussed in the following subsections.

Front Loader Routes. Front loader route crews include two people, a driver and a helper. As shown in Table 2-1, of the 16 inventories conducted of the front loader routes, 10 included the full routes. Total route time for the ten inventories are included in Table 2-2. Based on the 10 inventory days, route time averages 5.9 hours, exceeds 8 hours on Mondays (10.5 and 11.3 hours), exceeds 7 hours on Fridays, ranges between 4 and 6.1 hours on Wednesdays and Thursdays, and is as low as 2.2 hours on Saturdays.

**Table 2-2. Summary of Front Loader Total Route Times
During Inventory, hours**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
11.3		4.0	6.1	7.5	4.1
10.5		6.1	5.5	7.4	2.2

Table 2-3 includes a summary of the number of stops, number and types of containers, time requirements, and waste weights for front loader routes included in the inventory. Weights per load were recorded for 30 loads. Load weights averaged 16,187 pounds and ranged from 4,840 pounds to 27,540 pounds. Truck overloading occurred on several of the routes. The first load of the day-load weights averaged 17,716 pounds and ranged from 8,300 pounds to 27,540 pounds.

Productivity of collection routes can sometimes be compared on a unit time basis in terms of the number of stops collected, the number of containers collected, or the number of cu. yds. collected, or on the basis of the weight per cu yd. Table 2-3 lists the latter. Although weight per cu yd may be useful in determining specifics for a particular route, it is not useful for comparing route productivity because of the overloading factor and the fact that 9 of the routes collected some compactor bins (Table 2-4).

Table 2-3 shows average times for the various activities. Off-route travel time is primarily a function of route location and a factor over which the collection crew has little control. Off-route travel time ranged from 8.2 to 23.3 percent of route time, and averaged from 10 percent for route 55 to 22 percent for route 51.

The calculations of time per stop, time per bin, and time per cu yd are shown in Table 2-4. Time per stop shows wide fluctuation because many stops include multiple bins. Time per bin shows less fluctuation, and minutes per bin cu yd shows even less fluctuation between routes.

Rear Loader Routes. Rear loader route crews include two people, a driver and a helper. As shown in Table 2-1, 13 of the 29 inventories conducted on rear loader routes included the full routes. Total route time for the 13 inventories are included in Table 2-5. Based on the 13 inventory days, route time averages 6 hours and ranges between 3.9 and 8.0 hours.

Table 2-6 includes summaries of the number of stops, number and types of containers, time requirements, and waste weights for rear loader routes included in the inventory. Weights per load were recorded for 36 loads. The load weights averaged 8,487 pounds load and ranged from less than 3,000 pounds to 15,440 pounds, with only two loads over 12,000 pounds. The first load of the day-load weights averaged 8,570 pounds and ranged from less than 3,000 pounds to 12,160 pounds.

Table 2-3. Summary of Activity Times for Front Loader Routes

Route number	Date	Total number of stops	Bin size, cu yd						Total weight	Total off-route travel time	Total on-route travel time	Total position time
			1	2	3	4	5	6				
Weighed loads												
51	8/18/88	27	0	2	34	44	0	1	26,000	1:25:35	--	0:30:49
51	8/19/88	44	0	1	94	36	5	3	40,820	1:43:05	--	0:38:24
51	8/20/88	18	2	0	72	18	0	1	21,300	0:49:25	1:13:26	0:17:48
52	8/24/88	12	0	1	22	33	0	1	10,180	0:33:00	0:32:30	0:56:30
52	8/25/88	13	0	0	32	6	0	4	11,480	0:16:00	0:43:30	0:39:35
52	8/26/88	19	0	1	46	31	0	1	15,380	1:02:00	1:19:50	0:42:45
53	8/22/88	96	2	19	89	43	1	12	82,720	1:55:50	4:52:50	0:50:07
53	8/23/88	40	2	7	32	10	0	4	21,280	0:20:15	1:38:54	0:22:05
53	8/27/88	25	0	2	31	9	3	2	19,060	0:13:40	1:29:11	0:23:48
54	8/18/88	33	0	7	76	19	1	0	31,120	1:01:00	1:39:30	0:18:30
54	8/19/88	58	0	16	102	24	0	1	51,700	1:13:50	2:51:30	0:07:00
54	8/20/88	17	0	3	36	9	0	0	20,400	0:20:00	1:05:10	0:02:15
55	8/22/88	62	0	4	97	57	2	8	71,640	1:01:30	1:42:25	2:40:06
55	8/23/88	26	0	1	15	13	1	4	15,260	0:31:00	1:01:30	0:19:45
55	8/27/88	24	0	0	22	19	1	5	22,820	0:17:30	1:29:35	0:26:23
56	8/24/88	29	1	6	40	10	0	4	27,520	0:44:00	2:55:39	0:22:05
56	8/26/88	23	0	5	17	9	1	2	16,840	0:20:55	1:08:20	0:12:00
Total		566	7	75	857	390	15	53	505,520	13:48:35	25:43:50	9:49:55
Average		--	--	--	--	--	--	--	--	0:48:44	1:42:55	0:00:25
Unweighed loads												
56	8/25/88	19	1	1	17	8	1	0	--	0:15:45	1:21:14	0:11:16
Total		585	8	76	874	398	16	53	--	14:04:20	27:05:04	10:01:11
Average		--	--	--	--	--	--	--	--	0:46:54	1:41:34	0:00:25

Table 2-3. Summary of Activity Times for Front Loader Routes (continued)

Route number	Total load time	Total stop time	Total bin time	Total lost time	Total scale time	Total disposal time	Total time	Average weight per cu yd
Weighed loads								
51	0:47:06	2:10:45	-	0:32:00	0:03:30	0:08:00	4:19:50	90.28
51	1:13:07	3:04:57	-	0:41:50	0:04:00	0:16:00	5:49:52	86.67
51	0:33:21	1:44:25	0:52:29	0:31:00	0:02:00	0:09:00	4:29:16	71.96
52	0:40:00	1:44:00	1:41:30	0:08:00	0:01:00	0:10:00	3:08:30	49.42
52	0:31:25	1:24:30	1:17:30	0:37:00	0:01:00	0:16:00	3:18:00	79.72
52	0:55:05	2:21:20	1:48:10	0:30:00	0:02:00	0:27:00	5:42:10	56.96
53	1:24:33	3:37:46	3:10:30	0:37:50	0:04:00	0:24:00	11:32:16	148.78
53	0:33:16	1:08:16	1:07:11	0:32:25	0:01:00	0:16:00	3:56:50	120.91
53	0:22:04	1:04:24	0:59:39	0:51:00	0:01:00	0:07:00	3:46:15	119.13
54	1:27:00	2:10:00	1:14:36	0:22:00	0:02:00	0:17:00	5:31:30	96.35
54	2:22:00	3:23:00	2:56:40	0:08:00	0:03:00	0:12:00	7:51:20	117.50
54	0:24:40	0:49:55	0:32:50	0:11:00	0:01:00	0:00:00	2:27:05	136.00
55	1:50:59	5:35:05	5:29:20	1:03:00	0:03:00	0:38:00	10:03:00	122.46
55	0:23:45	1:01:45	0:59:30	0:54:00	0:01:00	0:10:00	3:39:15	119.22
55	0:28:47	1:24:15	1:13:55	0:34:00	0:01:00	0:10:00	3:56:20	128.93
56	0:33:38	1:41:41	1:10:03	0:43:00	0:02:00	0:17:00	6:23:20	139.70
56	0:24:45	0:50:10	0:44:45	0:20:00	0:01:00	0:09:00	2:49:25	147.72
Total	14:55:31	35:16:14	25:51:03	9:16:05	0:33:30	4:06:00	-	-
Average	0:00:38	2:04:29	0:01:17	0:32:43	0:01:58	0:14:28	5:13:11	107.99
Unweighed loads								
56	0:17:40	0:39:01	0:34:01	0:40:00	0:01:00	0:16:00	3:13:00	-
Total	15:13:11	35:55:15	26:25:04	9:56:05	0:34:30	4:22:00	-	-
Average	0:00:38	1:59:44	0:01:17	0:33:07	0:01:55	0:14:33	5:06:31	-

Table 2-4. Summary of Per Minute Productivity Calculations for Front Loader Routes

Route number	Number of stops	Bin size, cu yd						Number of bins	Cu yd	Total time, minutes	Minutes per stop	Minutes per container	Minutes per cu yd	Trips to landfill	Compactor bins	
		1	2	3	4	5	6								Number	Cu yd
51	27	0	2	34	44	0	1	81	288	270	10.00	3.33	0.94	2	0	
51	44	0	1	94	36	5	3	139	471	350	7.95	2.52	0.74	3	0	
51	18	2	0	72	18	0	1	93	296	269	14.94	2.89	0.91	2	0	
52	12	0	1	22	33	0	1	57	206	188	15.67	3.30	0.91	1	0	
52	13	0	0	32	6	0	4	42	144	198	15.23	4.71	1.38	2	0	
52	19	0	1	46	31	0	1	79	270	342	18.00	4.33	1.27	--(a)	0	
53	96	2	19	89	43	1	12	166	556	752	7.83	4.53	1.35	4	0	
53	40	2	7	32	10	0	4	55	176	240	6.00	4.36	1.36	1	12	51
53	25	0	2	31	9	3	2	47	160	226	9.04	4.81	1.41	1	5	18
54	33	0	18	66	19	1	0	104	315	332	10.06	3.19	1.05	2	7	28
54	58	0	16	102	24	0	1	143	440	471	8.12	3.29	1.07	3	0	
54	17	0	3	36	9	0	0	48	150	147	8.65	3.06	0.98	1	1	6
55	62	0	4	97	57	2	8	168	585	603	9.73	3.59	1.03	3	0	
55	26	0	1	15	13	1	4	34	128	219	8.42	6.44	1.71	1	3	14
55	24	0	0	22	19	1	5	47	177	236	9.83	5.02	1.33	1	2	11
56	29	1	6	40	10	0	4	61	197	383	13.21	6.28	1.94	2	5	24
56	23	0	5	17	9	1	2	34	114	169	7.35	4.97	1.48	--(a)	8	30
56	19	1	1	17	8	1	0	28	91	193	10.16	6.89	2.12	1	6	21
Total	585	8	87	864	398	16	53	1,426	4,764	5,588	-	-	-	-	-	-
Average	33	-	-	-	-	-	-	79	265	310	9.55	3.92	1.17	-	-	-

(a) No trip to scale during partial route inventory.

**Table 2-5. Summary of Rear Loader Total Route Times
During Inventory, hours**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
5.4		5.7	5.4	7.0	
7.7		5.8		5.0	
		6.1		8.0	
				5.6	
				5.2	
				3.9	
				5.0	

Productivity of collection routes can sometimes be compared on a unit time basis in terms of the number of stops collected, the number of containers collected, or the number of cu. yds. collected, or on the basis of the weight per cu yd. Table 2-6 lists the latter.

Table 2-6 shows the average times for the various activities. Off-route travel time is primarily a function of route location and a factor over which the collection crew has little control. Off-route travel time ranged from 6.8 to 23.8 percent of route time, and averaged from 7.2 percent for route 2 to 17.1 percent for route 26.

The calculations of time per stop, time per container, and time per container cu yd are shown in Table 2-7. Time per stop shows wide fluctuation because many stops include multiple bins. Time per bin shows less fluctuation, and minutes per bin cu yd shows even less fluctuation between routes.

Level of Service and Rate Comparisons

The City provides a wide range in level of service to the commercial customers receiving garbage collection service from one of the 15 routes. The regular services include 6 sizes of bins for loose waste, compactor bins, can service, drop cloth (blanket) service, and bag service. Special service is also provided on request.

The City charges rates for the services provided in accordance to the rate schedule set pursuant to Section 19.108-1 of the Sacramento City Code. The current rates became effective July 1, 1988. The rates are set by container type and size and frequency of collection. For purposes of comparing rates for different levels of service, the rates are converted to dollars per cu yd and presented in Table 2-8. Dollars per cu yd is calculated by multiplying the monthly rate by 12 (months/year) and dividing by the container size (cu yd), the frequency of collection per week, and 52 (weeks per year).

The rates charged for a similar container with like collection frequency is the same regardless of any other differences in level of service. For example, a bin that has to be retrieved from a locked, remote location is charged at the same rate as a bin that is readily accessible for positioning and loading. However, more time is required to position a bin from a locked, remote location.

Table 2-6. Summary of Activity Times for Rear Loader Routes (continued)

Route number	Date	Total number of stops	Container type(a)						Total weight	Total off-route travel time	Total on-route travel time	Total position time
			1	2	3	4	5	6				
Weighed Loads												
2	9/1/88	50	11	21	44	1	20	50	11,180	0:18:30	1:40:45	0:12:00
2	9/2/88	71	39	43	84	1	24	50	19,560	0:31:00	2:13:15	0:39:15
6	9/8/88	17	6	33	0	0	0	0	8,460	0:36:00	1:29:53	0:08:04
6	9/9/88	30	9	43	7	0	0	0	10,020	0:27:25	2:20:49	0:10:01
6	9/23/88	25	5	42	4	0	0	0	10,800	0:47:30	1:51:15	0:13:30
14	9/15/88	59	17	42	26	2	0	0	11,820	0:55:38	1:54:21	0:15:56
14	9/19/88	39	14	34	12	0	0	0	7,880	0:19:40	1:09:10	0:13:16
14	9/21/88	42	17	16	37	0	0	0	8,120	0:31:16	1:10:19	0:21:22
22	9/26/88	29	13	29	3	0	0	0	9,580	0:18:31	1:17:28	0:10:04
22	9/28/88	58	18	74	9	0	0	0	15,020	0:50:05	2:16:10	0:20:02
25	10/10/88	79	29	41	30	4	1	0	20,120	0:32:10	2:11:20	0:28:58
26	8/29/88	46	12	67	8	0	0	0	16,940	1:33:15	2:09:40	0:44:48
26	8/31/88	29	5	49	9	0	0	0	7,380	0:44:30	1:07:30	0:25:05
27	9/6/88	37	10	22	28	2	2	0	9,112	0:19:30	1:06:00	0:20:30
27	9/12/88	72	25	66	19	0	0	0	26,150	1:02:31	3:10:13	0:35:37
27	9/14/88	29	14	25	0	0	7	0	2,260	1:09:48	1:44:03	0:19:07
37	9/30/88	49	21	53	2	2	0	0	15,840	0:36:18	2:25:28	0:32:00
37	10/3/88	38	15	29	8	0	0	0	12,160	0:34:21	1:20:30	0:19:21
37	10/7/88	47	23	94	7	0	0	0	27,000	0:58:27	2:27:31	0:24:45
43	9/20/88	20	44	15	6	0	1	0	9,020	0:32:25	1:21:27	0:08:15
43	9/23/88	28	40	17	18	0	0	0	8,100	0:29:35	1:14:23	0:10:31
49	9/14/88	62	30	43	32	11	13	46	13,800	0:39:07	1:16:46	0:09:10
49	9/16/88	76	21	39	60	0	31	55	17,600	0:31:15	1:42:55	0:24:25
Total		1,032	438	937	453	23	99	201	297,922	15:18:47	40:41:11	7:46:02
Average		-	-	-	-	-	-	-	-	0:39:57	1:46:08	0:00:13
Unweighed loads												
2	9/10/88	56	24	23	43	3	13	0	-	0:07:15	1:39:04	0:19:26
22	9/27/88	42	5	69	2	0	0	0	-	0:22:55	2:03:24	0:17:36
25	10/4/88	21	5	6	19	4	0	0	-	0:31:00	0:46:40	0:03:35
25	10/6/88	30	13	17	4	0	0	0	-	0:11:21	0:29:45	0:08:00
26	8/30/88	12	9	22	0	0	6	0	-	0:31:30	0:45:15	0:19:15
49	8/30/88	30	3	11	40	8	17	58	-	0:31:00	0:42:40	0:07:15
Total		1,223	497	1,085	561	38	135	259	-	17:33:48	47:07:59	9:01:09
Average		-	-	-	-	-	-	-	-	0:36:20	1:37:31	0:00:13

(a) 1. 1 cu yd bin 2. 2 cu yd bin 3. 30 gal can 4. 45 gal can 5. plastic bag 6. 6x6 drop cloth

Table 2-6. Summary of Activity Times for Rear Loader Routes

Route number	Date	Total load time	Total stop time	Total container time	Total lost time	Total scale time	Total disposal time	Total time	Average weight per cu yd
Weighed loads									
2	9/1/88	1:27:15	1:54:30	1:03:08	0:26:00	0:01:00	0:13:00	4:33:45	159.36
2	9/2/88	1:42:35	3:15:45	2:05:18	0:25:00	0:08:00	0:13:00	6:46:00	131.55
6	9/8/88	0:24:34	0:55:51	0:39:07	0:39:00	0:01:03	0:40:07	4:21:54	117.50
6	9/9/88	0:32:01	1:06:18	0:50:40	0:34:09	0:17:16	0:14:45	5:00:42	104.33
6	9/23/88	0:22:50	1:00:05	0:46:05	0:38:00	0:01:00	0:05:00	4:22:50	120.54
14	9/15/88	0:55:11	1:34:23	1:20:36	0:41:51	0:01:44	0:14:40	5:22:37	112.24
14	9/19/88	0:39:58	1:03:50	0:59:16	0:33:20	0:00:50	0:10:55	3:17:45	94.05
14	9/21/88	1:10:31	1:51:05	1:33:39	1:35:30	0:06:45	0:09:05	5:24:00	149.00
22	9/26/88	0:32:29	0:55:42	0:49:27	0:55:00	0:02:41	0:13:59	3:43:21	134.09
22	9/28/88	1:17:53	2:05:36	1:46:05	0:26:35	0:01:13	0:22:02	6:01:41	89.76
25	10/10/88	1:03:17	1:58:36	1:45:48	0:30:05	0:01:35	0:19:11	5:32:57	172.71
26	8/29/88	0:47:57	2:20:00	1:55:45	1:26:00	0:02:00	0:21:00	7:51:55	115.09
26	8/31/88	0:33:40	1:28:15	1:10:50	0:29:00	0:01:00	0:10:00	4:00:15	70.73
27	9/6/88	0:46:00	1:18:15	1:05:16	0:10:00	0:07:00	0:01:00	3:01:45	154.70
27	9/12/88	1:15:40	2:41:28	2:13:54	0:32:00	0:10:19	0:14:27	7:50:58	163.62
27	9/14/88	0:27:14	1:12:59	0:57:19	0:31:00	0:00:52	0:15:00	4:53:42	34.75
37	9/30/88	1:02:27	1:50:22	1:43:55	0:27:30	0:00:37	0:14:56	5:35:11	124.00
37	10/3/88	0:43:12	1:26:39	1:15:06	0:01:00	0:00:05	0:07:30	3:30:05	163.91
37	10/7/88	0:39:14	1:37:56	1:01:26	0:02:25	0:01:30	0:07:29	5:15:18	127.33
43	9/20/88	0:30:53	1:19:58	0:44:49	0:45:00	0:00:57	0:11:25	4:11:12	120.20
43	9/23/88	0:34:36	1:01:23	0:43:59	1:08:15	0:02:00	0:04:55	4:00:31	105.64
49	9/14/88	1:35:03	2:02:46	1:06:51	1:17:25	0:01:05	0:21:43	5:38:52	104.57
49	9/16/88	1:31:22	2:19:35	1:32:51	0:00:00	0:02:00	0:16:20	4:52:05	145.83
Total		20:35:52	38:21:17	29:11:11	14:14:05	1:12:32	5:21:29	-	-
Average		0:00:34	1:40:03	0:00:49	0:37:08	0:03:09	0:13:59	5:00:24	122.65
Unweighed loads									
2	9/10/88	0:56:45	1:40:56	1:21:07	0:40:00	0:00:00	0:00:00	4:07:15	-
22	9/27/88	0:44:11	1:30:45	1:13:32	0:12:56	0:01:00	0:08:00	4:19:00	-
25	10/4/88	0:17:15	0:24:40	0:19:15	1:45:00	0:00:00	0:00:00	3:27:20	-
25	10/6/88	0:18:20	0:36:38	0:35:26	0:38:40	0:00:00	0:00:00	1:56:24	-
26	8/30/88	0:25:30	1:11:30	0:54:50	1:25:00	0:01:00	0:07:00	4:01:15	-
49	8/30/88	1:02:00	1:16:05	0:26:19	0:20:00	0:01:00	0:11:00	3:01:45	-
Total		24:19:53	45:01:51	34:01:40	19:15:41	1:15:32	5:47:29	-	-
Average		0:00:34	1:33:10	0:00:48	0:39:51	0:02:36	0:11:59	4:41:28	-

Table 2-7. Summary of Per Minute Productivity Calculations for Rear Loader Routes

Route number	Number of stops	Container type(a)						Number of containers	Cu yd	Total time, minutes	Minutes per stop	Minutes per container	Minutes per cu yd	Trips to landfill
		1	2	3	4	5	6							
2	50	11	21	44	1	20	50	147	70.33	274	5.48	1.86	3.90	1
2	71	39	43	84	1	24	50	241	148.93	406	5.72	1.68	2.73	2
2	56	24	23	43	3	13	0	106	79.08	247	4.41	2.33	3.12	--(b)
6	17	6	33	0	0	0	0	39	72.00	262	15.41	6.72	3.64	1
6	30	9	43	7	0	0	0	59	96.05	301	10.03	5.10	3.13	1
6	25	5	42	4	0	0	0	51	89.60	263	10.52	5.16	2.94	1
14	59	17	42	26	2	0	0	87	105.35	323	5.47	3.71	3.07	2
14	39	14	34	12	0	0	0	60	83.80	198	5.08	3.30	2.36	1
14	42	17	16	37	0	0	0	70	54.55	324	7.71	4.63	5.94	1
22	29	13	29	3	0	0	0	45	71.45	223	7.69	4.96	3.12	1
22	58	18	74	9	0	0	0	101	167.35	302	5.21	2.99	1.80	1
22	42	5	69	2	0	0	0	76	143.30	259	6.17	3.41	1.81	2
25	79	29	41	30	4	1	0	105	116.55	333	4.22	3.17	2.86	--(b)
25	21	5	6	19	4	0	0	34	20.75	207	9.86	6.09	9.98	--(b)
25	30	13	17	4	0	0	0	34	47.60	116	3.87	3.41	2.44	2
26	46	12	67	8	0	0	0	87	147.20	472	10.26	5.43	3.21	2
26	29	5	49	9	0	0	0	63	104.35	240	8.28	3.81	2.30	1
26	12	9	22	0	0	6	0	37	53.90	241	20.08	6.51	4.47	1
27	37	10	22	28	2	2	0	64	58.95	181	4.89	2.83	3.07	2
27	72	25	66	19	0	0	0	110	159.85	471	6.54	4.28	2.95	3
27	29	14	25	0	0	7	0	46	65.05	294	10.14	6.39	4.52	1
37	49	21	53	2	2	0	0	78	127.75	335	6.84	4.29	2.62	2
37	38	15	29	8	0	0	0	52	74.20	210	5.53	4.04	2.83	1
37	47	23	94	7	0	0	0	124	212.05	316	6.72	2.55	1.49	2
43	20	44	15	6	0	1	0	66	75.05	251	12.55	3.80	3.34	1
43	28	40	17	18	0	0	0	75	76.70	241	8.61	3.21	3.14	1
49	62	30	43	32	11	13	46	175	132.13	339	5.47	1.94	2.57	1
49	76	21	39	60	0	31	55	206	120.90	292	3.84	1.42	2.42	2
49	30	3	11	40	8	17	58	137	44.05	181	6.03	1.32	4.11	2
Total	1,223	497	1085	561	38	135	259	2,575	6,731	8,102	-	-	-	-
Average	42	-	-	-	-	-	-	89	97	279	6.62	3.15	1.20	-

(a) 1. 1 cu yd bin; 2. .2 cu yd bin; 3. 30 gal can; 4. 45 gal can; 5. plastic bag; 6. blanket (6x6 drop cloth).

(b) No trip to scale during partial route inventory.

Table 2-8. City of Sacramento Commercial Rates,
dollars per cubic yard

Container size and frequency	Residential		Nonresidential	
	With container	Without container	With container	Without container
Bins (loose)				
1 cu yd				
1X/week	15.17		12.14	
2X/week	12.80		10.29	
5X/week	11.36		9.20	
6X/week	12.07		9.78	
3 cu yd				
1X/week	8.42		6.43	
2X/week	6.84		5.25	
5X/week	5.86		4.53	
6X/week	6.18		4.78	
4 cu yd				
1X/week		4.95		3.96
2X/week		4.85		3.84
5X/week		4.56		3.43
6X/week		4.85		3.88
6 cu yd				
1X/week		4.70		3.75
2X/week		4.59		3.67
5X/week		4.51		3.61
6X/week		4.90		3.93
Bins (compacted)				
1 cu yd				
1X/week	25.60		20.58	
2X/week	23.21		18.76	
5X/week	21.77		17.65	
6X/week	23.35		18.95	
3 cu yd				
1X/week		13.34		8.15
2X/week		11.67		7.14
5X/week		10.68		6.54
6X/week		11.39		6.28
6 cu yd				
1X/week				7.41
2X/week				6.49
5X/week				5.94
6X/week				6.34
6 cu yd (Old Sacramento)				
1X/week			15.11	
2X/week			10.37	
5X/week			7.48	
6X/week			7.62	
Cans 2 ea 30 gal (.3 cu yd)				
1X/week		10.08		13.77
2X/week		10.40		14.21
5X/week		9.22		12.59
6X/week		9.75		13.32
Blankets				
1 (.15 cu yd)				
1X/week	14.49		14.49	
2X/week	14.58		14.58	
5X/week	14.64		14.64	
6X/week	15.86		15.86	
5 (.75 cu yd)				
1X/week	12.55		12.55	
2X/week	13.39		13.39	
5X/week	12.61		12.61	
6X/week	13.68		13.68	

OPERATIONAL

The evaluation of system performance data is part of the estimate of the level of productivity in the commercial collection system. The following factors were considered in developing an estimate of productivity; work scheduling, supervisory approaches, personnel training, route design, and equipment. Each factor is discussed in the following sections with an emphasis on operational impacts. Much of the evaluation is qualitative.

Work Scheduling

An 8-hour work day, from 4 a.m. to 12 noon, is standard for commercial collection crews. In general, all downtown areas are serviced between 4 and 7 a.m. in response to requests to have City trucks out of the area by the time employees begin to arrive for work. The requests are from customers receiving waste collection service. Exceptions to this schedule include the apartments and other multiple residential services. Multiunit residential customers serviced by the commercial collection system prefer collection after 7 a.m. Also, as a result of noise complaints from residences near certain commercial customers, specific commercial customers have been rescheduled for later collection. Conflicts in work schedules, such as these, can cause inefficient commercial collection routes.

The commercial collection routes are set according to daily tasks. The typical task for a work day is a preset number of stops or services. Commonly called an incentive-off system of scheduling work, the sanitation workers are finished for the day when they complete collection on the preset route.

In the incentive-off system the work scheduling is set, measured, and changed based on truck efficiency. Each commercial truck is weighed and the weight entry is time-stamped upon unloading at the landfill. These data are recorded by electronic equipment and daily data summaries are produced in hard copy for each truck and crew. The line supervisor and administrative staff review the hard copy and, based on hours of work and vehicle weights, confirm or modify routes to maintain productive daily tasks for workers.

Supervisory Approaches

Commercial collection routes are assigned to one supervisor. The supervisor is assisted by a part-time commercial clerk and a Utility Service Inspector that splits time between residential and commercial services.

The supervisory approach is intended to use labor and equipment efficiently while providing the level of service demanded by each commercial customer. Information on supervisory activity was obtained in an interview with R. C. Washington, the commercial routes supervisor, and from preprinted materials used to monitor route performance.

The supervisor is responsible for monitoring worker performance and delivering satisfactory service to commercial customers. Evaluation and monitoring of workers is performed during equipment training, safety meetings, and by review of route load data.

Standard preprinted forms are also used to record performance of workers. Customer service is reviewed through customer service calls and by visits to customer service locations.

The supervisory approach is sound. It allows flexibility to meet customer service requests and provides route data feedback for proper supervisory control to ensure customer satisfaction. The City cross-trains some of their residential route supervisors for the commercial routes. This prevents the risk of a commercial route going unsupervised as there is only one commercial route supervisor.

Personnel Training

Commercial route personnel receive training as a part of route work. The first step of training is an administrative review of equipment and procedures to be used while completing routes. The remainder of training is then completed on the route.

There are three types of route workers; helper, lead, and front loader operator. It is typical for commercial route workers to be assigned to the helper position at the entry level. The helper has a civil service designation of Sanitation Worker 1 and is trained on the route to become a driver. The lead position, designated Sanitation Worker 2, may operate rear loader trucks, and the front loader operator position, a Sanitation Worker 3, is the driver of front loading trucks.

One policy of the Division states that there will be at least one member of each crew that is familiar with an assigned route. This procedure allows temporary reassignment and provides for cross training of workers in different service requirements of various commercial customers.

Personnel training meets the needs of the City to provide a flexible and responsive service to commercial customers. Inexperienced workers are trained by experienced route workers. The effectiveness of training is measured by the number and type of kick-tags (Solid Waste Division Supervisor Request Form) and by the observations of the commercial route supervisor.

Route Design

Commercial collection is done using two types of trucks, rear loaders and front loaders. Routes are designed according to the type of truck needed for particular pick-ups. Rear loader trucks service customers with garbage cans, carts, blankets, plastic bags, and 1- and 2-cu-yd bins. Front loader trucks service customers with 1- through 6-cu-yd bins, including compactor bins.

The design of commercial routes include matching customer service needs to the trucks and containers of the City. In most cases, a new commercial customer is added to an existing route, which adds weight to the truck and increases the route service time. Route responsibilities are then adjusted accordingly.

Route design also includes consideration of container size and collection frequency. The routes are designed to be efficient, with minimum driving time between customers, and service to customers using the same types of waste containers. Through past collection practices, the City recognizes that commercial customers are price sensitive in selecting a type of container and frequency of collection. Occasionally, new accounts are given a 30- to 45-day "survey" period in which to use containers specified by the City to determine their actual needs. These assignments usually match the equipment of the nearest City commercial collection route to maintain efficiency.

In the past, the City had rear loading trucks on both commercial and residential routes and could combine commercial customers in residential routes. The change to side loading automated trucks on all residential routes has eliminated the potential for efficiently combining routes. Since the changeover in residential route trucks and containers, the City has added three new commercial collection routes.

Collection routes are designed to get maximum payload in an 8 hour workday. In designing the routes to provide collection service at the customer's preferred time, the City responds to the following conflicts in meeting customer requirements:

- The most requested frequency of collection is on Monday, Wednesday, and Friday.
- Customers in the same part of town, maybe even on the same block, want collection at different times of the day, to match the time of commercial sales activity.
- Customers meet the legal requirements of the City ordinance by signing up with the City for minimum container size and lowest weekly frequency of collection and then taking a second collection service for wastes other than garbage (nonfood wastes) with a private company. Low collection fees charged by private commercial companies, in some cases, may encourage commercial customers to place excess garbage in private rather than City containers. This is considered illegal as the City is to pickup all garbage wastes.

Crew work tasks fluctuate as commercial waste quantities or the number of collection stops increase or decrease. These changes are common among commercial customers covered by City Code. Collection crew work tasks are adjusted as customers change service, an operating condition in other cities that sometimes causes review under labor union contracts of the city. The Division Management reports no problems or personnel actions related to route designs.

The Division staff design the collection routes. Since commercial routes are impacted by variables outside City control, efficient routes are difficult to maintain for long periods of time. The City Code was written to ensure proper removal of garbage that attract vermin and emit odors, not to ensure lowest cost customer service.

Two factors concerning routes decrease the productivity of commercial routes. First, the productivity of the route supervisor is decreased by the time spent responding to reports of violations of City Code. The first and most accurate report of a violation is often from

the route crews. The worker reports to his supervisor if he notices private containers alongside containers collected by the City and a corresponding significant decrease in quantity of garbage collected at the stop. A worker report starts a chain of events that detract the supervisor from his primary responsibility of waste removal in an efficient manner. Another negative impact on productivity is the time spent trying to customize waste removal service when the service is mandated by City Code.

Equipment

The Division purchases mobile equipment used on commercial collection routes. Standard competitive purchase order procedures of the City are used with an equipment performance specification written by the Division. Upon delivery of equipment, the Division reviews the manufacturers specifications and upon approval, accepts the equipment. However, the asset value of the equipment is carried on the books of the Equipment Maintenance Division. The Division pays an internal rental fee for equipment used on commercial collection routes.

Division practice is to assign trucks according to route requirements. The same truck will be driven by the crew on each route each day. Since the crew has daily use of the same truck, any recurring maintenance problems are identified and this information is passed along to the Equipment Maintenance Division.

City procedures exist for purchase and maintenance of equipment. The procedures are within the practices of the industry and should produce competitive costs for recovery in the rate charged for commercial collection service.

CUSTOMER COMPLAINTS

This section discusses the types of complaints the City has received from its commercial customers.

Typical Customer Complaints

Records of customer complaints at the Division may be in the form of a phone message note, kick-truck route slip, a supervisor's request form, or written correspondence from a customer. A record search of commercial customer complaints on file at the City's Division was conducted by Brown and Caldwell in November 1988. The purpose of this search was to evaluate the types of complaints businesses have in regard to their current waste collection service and to determine what steps could be taken to improve the situation.

Complaint records dating back to January 1987 to the time of investigation (November 1988) were used in this analysis. The complaints on record fall into four basic categories: (1) inconsistent pick-up, (2) incomplete service, (3) billing errors, and (4) special request service. Approximately 500 complaints were logged and categorized for this study.

Inconsistent Service. The most frequent complaint encountered was that of a missed container pickup. Most of the time, this indicated that servicing of the location had been missed altogether. Other times, the complaint indicated off-schedule pick-ups where the customer was not prepared because the truck arrived at a time earlier than scheduled.

Incomplete Service. A complaint of incomplete service addresses the quality of service provided by the collection crews. Complaints of this type were made when individual bins were not emptied completely, bins were not replaced in their original locations, or when only one or more, but not all, of the bins at a site were emptied as scheduled. These types of complaints were the second largest portion of total complaints.

Billing Errors. Another complaint made by a few customers was in regard to their bills. In most cases, customers were concerned about being charged for services they did not feel had been provided. The City would consider each case and credit accounts when appropriate.

Special Request Service. Few complaints of this type were recorded. Those that were usually stated that a special pickup request had not been serviced appropriately. The City followed through on these complaints by providing the requested service.

Evaluation

The data files covered complaints recorded during a 22-month period. The average monthly rate of complaints during this period was about 23 and, assuming 22 working days per month, the average number of complaints per month was one per day. In the period of April 15, 1988, through August 25, 1988, a single route had 81 complaints. System productivity was reportedly reduced during that time, but increased again when route problems were resolved.

Complaints reduce system efficiency and worker productivity. An average of one complaint per day spread across 15 commercial routes is within acceptable industry standards. Although a useful method of obtaining information regarding potential problems with a route crew, there is little opportunity for improved route productivity by reducing customer complaints. However, responding to any complaint requires personnel time and adds to the total cost of collection.

CHAPTER 3

COMMUNITY SURVEY

In order to estimate the level of satisfaction with the commercial solid waste collection services provided by the City of Sacramento (City) the customer community was surveyed. In addition, a workshop was held to receive comments. Members of the customer community, interested community groups, and private collection companies were invited to the workshop. Results of the telephone survey and the workshop are presented in this chapter. Results and conclusions from the workshop are limited due to a low level of community participation.

CUSTOMER SURVEY

The City collects garbage from approximately 3,010 commercial accounts within the City limits. The commercial accounts include multiple unit dwelling units (four units and over), restaurants, supermarkets, hotels, schools, and office buildings. A telephone survey was conducted to obtain information from commercial customers. Survey procedures and results are described in this section.

Purpose

The telephone survey was conducted to obtain opinions of commercial customers regarding the City's commercial collection services. In the past the City has received various complaints from commercial customers regarding collection services (see Chapter 2). In an attempt to determine the extent of problems and determine possible solutions, the City chose to survey a representative sample of the customer population.

Surveys are a common way of obtaining information from a sample group of individuals in a population. A telephone survey method provided an efficient procedure for obtaining the desired information. The results summarized in this section are based upon answers given by commercial customers. It is assumed that the group sampled represents the general opinion. Participants were told that individual responses would be kept confidential. The validity of results is therefore based upon the nature of individual responses.

Procedures

A survey questionnaire was designed to obtain information about commercial customer satisfaction with the level and quality of existing solid waste collection service provided by the City. Of 48 questions asked, about one-third asked about the quality of service and another one-third about the level of service. Several questions focused on economic considerations, and a few questions concerned recycling. Copies of the questionnaire, response sheet, and a tabulation of responses are provided in Appendix A.

Commercial customers were randomly selected from the City's collection route books. The City provided telephone numbers for the selected customers. Fifty telephone calls were made to obtain 34 responses. Among the 34 respondents, the various commercial customer types (grocery stores, apartments, restaurants, offices, hotels, etc.) were represented in the survey. Seventy four percent, or 25 contacts, completed the telephone questionnaire. This represents approximately 1 percent of the commercial customer population and provides a general evaluation of customer attitudes. The survey of commercial customer complaints and input from the community workshop serve to reinforce the findings of the customer telephone survey. The remaining 9 customers contacted were not willing to complete the survey and were recorded as refusals. Other calls were unsuccessful due to disconnected or incorrect phone numbers, or failure to make contact after 3 attempts. The completed survey responses and comments made by those refusing to complete the interview are summarized later in this chapter.

The interviews were conducted by four Brown and Caldwell personnel. All interviewers were instructed to read the questions verbatim, as contained on the questionnaire form, to avoid biasing or leading the customers' responses. Each telephone interview required approximately 10 minutes to complete, depending upon the length of answers.

Survey Results

Results of the telephone interviews are summarized in this section. The commercial customers interviewed represent the variety of commercial customers served by the City's commercial solid waste collection system. In general, interviewers spoke with business managers or owners. In some cases, facility managers, maintenance supervisors, or other employees completed the interviews.

Forty-two percent of the respondents receive collection service more than 5 times per week, 31 percent receive service 3 to 5 times per week, and the remaining respondents receive service 1 or 2 times per week. The customers receiving the most frequent pickup include restaurants, hotels, an apartment, a school, and a shopping center. The frequency of pickup is related to the container capacity at a location. Three customers, 13 percent of the sample, indicated that they would like larger containers.

About 22 percent of the surveyed customers receive additional refuse collection from private collection companies.

Several open-ended questions allowed customers to offer suggestions or comments on the performance of the City's commercial solid waste collection service. These covered level of service, quality of service, recycling, and cost of service.

Level of Service. As used in the survey, level of service refers to the type of service received by the customer, collection frequency, and container size(s). Frequency of collection for the businesses surveyed was discussed previously. In addition to the frequency and size of containers serviced, 70 percent of the respondents indicated that the time of collection was important to their business. Ninety-five percent of those wanting certain collection times replied that they are currently satisfied with their service hours. The

unhappy customers thought that the collection crews arrived too early in the morning and complained of noise disturbances. None of the dissatisfied customers were willing to pay additional fees to have collection at a specified time of day.

Specific comments regarding the level of service were mixed, and included; "we're pretty happy," "we're not satisfied," and "they're doing a good job." Three suggestions were offered; (1) use bigger trucks so that bigger containers can be used, (2) improve the street sweeping service, and (3) the City should respond to problems more efficiently.

Quality of Service. Inquiries of quality of service were directed at the performance of the collection crews and customer service staff. Specific issues include handling of regular and special request services, the frequency of missed collection, and leaving a mess near the container storage location.

Regular collection service fees include payment for services such as neighborhood clean-ups, household hazardous waste collection, garden refuse collection, street sweeping, nuisance abatement, and recycling. Sixty percent of those surveyed were aware of the regular services available to them. Of this 60 percent, 71 percent were satisfied with the quality of service provided by the City.

A number of interviewees (40 percent) were not aware of the different services the City provides which are partially reimbursed through the commercial collection fees. They indicated that a flier or letter enclosed with their regular bill would be the best way to notify commercial customers of the City's various types of services included in the collection fee. Others suggested telephoning the customers or providing a brochure. One suggested contacting the county, and another requested that the City not resort to commercials.

The City also provides special request services; these include additional collections, changes in container size, and changes in collection schedules. Eighty three percent of the respondents claimed to be aware of the availability of special request services. More than half of these, 58 percent, have requested such services. Ninety one percent of these requests were for an occasional extra pick-up and 18 percent requested container cleaning. When asked about the City's response to their special requests; 55 percent were very satisfied, 18 percent were satisfied, 18 percent were dissatisfied, and 9 percent were very dissatisfied.

Collection crews are responsible for collection at scheduled locations. Missed collection has been reported to the City by 55 percent of the respondents. Within the last year the average number of missed collections was two, with 3 misses at 2 locations. Reasons for missed collections as reported by the respondents, include blocked access, containers locked behind a fence during a school holiday, driver change, confusion, and there wasn't any reason. Seventy eight percent of the respondents with collections missed on their scheduled day called the City. All of them said that the City responded appropriately and dispatched a collection crew.

The City receives complaints that the collection crews leave messes around the containers after the containers are emptied into the truck. Responses to the question "Do the garbage collectors usually, sometimes, rarely, or never leave a mess when they pick up garbage?", are summarized in Table 3-1.

Table 3-1. Frequency of Messes Left by Collection Crews

Frequency	Responses, percent	Number of respondents
Usually	15	3
Sometimes	20	4
Rarely	30	6
Never	35	7

Fifty-seven percent of the respondents thought that the collection crews should clean up any litter around their containers following collection. Thirty-three percent of these indicated a willingness to pay for the cleanup services.

Responses to the question " How would you evaluate the appearance of the garbage truck?" are summarized in Table 3-2.

Table 3-2. Garbage Truck Appearance

Frequency	Responses, percent	Number of respondents
Excellent	9	2
Good	27	6
Fair	23	5
Poor	14	3
Never seen or no opinion	27	6

Responses to the question concerning the quality of commercial waste collection is summarized in Table 3-3.

Table 3-3. Quality of Commercial Collection Services

Quality	Responses, percent	Number of respondents
Excellent	4	1
Good	60	15
Fair	36	9
Poor	0	0

Many of the respondents (86 percent) have contacted the City by phone regarding their collection service. Specific concerns expressed by these respondents include (1) it was difficult to get a person instead of an answering machine when phoning, (2) the person answering was not helpful or did not know what he or she was doing, and (3) lack of follow-up by supervisors in regard to complaints. Seventy-six percent of those who indicated they had called the City indicated satisfaction with the outcome of their call, and all felt that the person they spoke with was courteous. Most (94 percent) felt that the person they called was listening to their concerns and answering their questions. Seventy-five percent felt that the City responded to customer concerns in an appropriate manner.

Recycling

Several question asked the interviewees their opinions regarding material recycling. Only 2 percent of the respondents felt that the City recycles at an appropriate level and 90 percent responded that the City should recycle more than existing levels. Seventy-nine percent felt that the City should recycle aluminum, paper, cardboard, and glass. Fifty percent of the respondents suggesting more recycling would be willing to pay slightly higher collection fees to help cover the cost of promoting a recycling program.

Economic Considerations

One of the questions asked customers "whether their rates were appropriate, too high, or too low for the level of service they were receiving." Twenty-eight percent of the respondents felt their rates were appropriate, 28 percent did not know, and 44 percent felt their rates were too high for the level of service received.

In response to "whether they would be willing to pay higher fees for more flexible service," 44 percent would be willing to pay "slightly higher fees" to cover a higher cost of providing a more flexible service, but generally, they were not willing to pay additional fees for "extras" they felt should already be included in their service. Commercial

collection crews occasionally encounter containers that are inaccessible due to blocked pathways or locked gates. The crew does not wait for the access to be cleared and they do not return to these locations unless notified by the customer. One of the survey questions asked commercial clients if they would want the crews to wait on-site until the access was cleared. Approximately 35 percent of those that responded to this question would like to see the crews wait for the situation to be cleared up. Out of this group, about half (44 percent) would be willing to pay an additional fee to cover the waiting time.

Other

Many of the respondents indicated a preference for ability to select a waste collection firm, and a frustration with having to pay higher rates. Some respondents want two types of collection; one for waste and one for recyclable materials. Other respondents would like the time of street sweeping changed and maintenance of vehicles improved.

Twenty six percent of those reached during the telephone survey refused to participate in the interview, indicating that they were "too busy" to take the time. Of these, many commented "we're satisfied," "it's fine," and "we have no complaints."

COMMUNITY WORKSHOP

A community workshop was conducted to receive input regarding concerns and recommendations from interested community groups. A workshop was conducted February 23, 1989. In addition to community groups, commercial customers and private collection firms were invited to the workshop. A list of attendees who signed the sign-in sheet and a summary of comments received from each commentator are included in Appendix B. The list of attendees follows:

Richard Turner	Law Firm of Turner and Sullivan
Betty Gwiazdon	Chief Executive Officer of the Sacramento Apartment Association
John Guest	Manager of Browning Ferris Industries
Madeleine Olesky	Resident Manager of Inland Harbor Condominiums
Dan Borges	Waste Management of Sacramento
Prem Hunji Turner	Law Offices of Prem L. Hunji Turner
Judy Tebbitt	Metropolitan Chamber of Commerce
George Keltz	Chairman of City Services and Garbage Committee, Citizens for a Better Sacramento

The comments are summarized below:

1. The City's garbage ordinance is designed to protect the City's monopoly on garbage collection.

2. Privatization of commercial waste collection services is an effective, economically sensible, and desirable alternative to the present system.
3. Private refuse companies and commercial associations were not contacted by Brown and Caldwell for the study.
4. City refuse service is significantly more expensive than refuse service in the County (because private collection companies operate in the County).
5. Commercial customers should not pay for services which do not directly benefit them (such as neighborhood cleanup, household toxics collection, curbside pick-up, street sweeping).
6. Commercial customers are dissatisfied with the quality of the service they receive from the City (complaints about damaged property and garbage strewn on the ground).
7. High collection rates in the City cause apartment rents to be more expensive.
8. Commercial waste generators prefer that the City not restrict them in how (or if) they recycle commercial wastes.
9. Some waste generators who must subscribe to dual service (for wet and dry garbage) may be adversely affected by additional truck traffic.
10. A comparison of the collection services and rates of the City and County of Sacramento should be included in the study.
11. Inadequate time is provided for public review and comment on the Brown and Caldwell report prior to the City Council hearing.
12. Lack of a waste transfer station in the City will force waste disposal costs to increase, and reduces opportunity for recycling.
13. An integrated, comprehensive, Citywide study of the solid waste management system is needed.

CHAPTER 4

OTHER COMMERCIAL COLLECTION PRACTICES

The study included a survey of commercial collection services offered in three other communities and an attempt to obtain costs of service from local private collection companies. This chapter presents the results of the surveys.

SURVEY OF OTHER COMMUNITIES

As part of the analysis of other commercial collection practices, information was gathered from three communities. The type of services offered to commercial establishments of each community and rate schedules for these various services were obtained from Fresno, San Jose, and San Leandro. The communities were selected in consultation with the City of Sacramento (City) considering the type of commercial collection services provided in the communities.

San Leandro and Fresno both offer public collection of commercial waste. In San Leandro, only businesses with foodstuffs in their wastes are serviced by their city collection service. San Jose has one franchised private collector servicing all commercial accounts. The types of services offered and rate schedules for each of the three communities are summarized in Table 4-1 and are discussed below. Rate schedules provided by the communities are included in Appendix C.

Fresno

The City of Fresno provides commercial collection services within its community. They have 48 front loader packer trucks which run 45 to 46 routes per week. They provide collection on a minimum of twice a week (2X) up to seven times (7X) per week for bins and up to six times (6X) a week for cans.

Rates (dollars-per-cubic-yard (cu yd) container capacity) for bin service range from \$4.76 for 1-cu-yd bins with 2X per week collection, \$4.69 for 1-cu-yd bins with 3X to 6X per week collection, to \$3.64 for 6-cu-yd bins with 2X to 7X per week collection. Rates for 7X per week collection are \$0.18 to \$0.21 per cu yd higher than less frequent collection, except the rates for 6-cu-yd bins. These rates cover all costs of providing commercial collection services, including providing 1, 2, 3, 4, and 6-cu-yd bins.

Other services such as street cleaning, neighborhood pick-ups or recycling are assessed through a separate community sanitation fee.

**Table 4-1. Summary of Commercial Collection and Rates
in Fresno, San Jose, and San Leandro**

	Fresno	San Jose	San Leandro
Population (approximate)	300,000	750,000	74,000
Collection Summary			
All commercial	By City	By Private	-
Garbage only	-	-	By City
Front loader	Yes	Yes	Yes
Number of routes	45 to 46	Not Stated	2
Bins			
Size, cu yd	1 to 6	1 to 8	1 to 6
Frequency, times/week	2 to 7	1 to 6	1 to 5
Cans	Yes	Yes	No
Compactors	No	Yes	Yes
Other special	No	Yes	No
Rate summary, dollars			
per cu yd			
Bins			
1 cu yd			
1X/week	N/A	7.59	6.20
2X/week	4.76	5.99	6.20
5X/week	4.69	5.62	6.20
6X/week	4.69	6.05	N/A
7X/week	4.87	N/A	N/A
6 cu yd			
1X/week	N/A	5.44	6.20
2X/week	3.64	5.25	6.20
5X/week	3.64	4.88	6.20
6X/week	3.64	5.24	N/A
7X/week	3.64	N/A	N/A
Saturday only	N/A	Varies	9.00
Bin rental, dollars			
per month			
1 cu yd	Included above	6.58	N/A
8 cu yd	Included above	36.41	N/A
Dismount fee, dollars			
per month			
1X/week	Included above	11 to 166	Included above
6X/week	Included above	65 to 1,095	Included above
Cans, dollars per			
cu yd	3.32	Varies	N/A

Note: N/A = not applicable to particular community.

San Jose

Waste Management of Santa Clara County provides the commercial solid waste collection services in San Jose under an exclusive franchise. They provide collection from 1 to 6 times per week. Bin sizes include 1-, 1.5-, 2-, 3-, 4-, 6-, and 8-cu-yd capacities.

Rates for bin service range from \$7.59 for 1-cu-yd bins with 1X per week pickup to \$4.64 for 8-cu-yd bins with 5X per week pickup. Rates for 6X per week collection are \$0.37 to \$0.43 per cu yd higher than the 5X per week collection. Additional charges are added for bin rental, dismounting to position bin for pickup, special collections, extra container cleaning, and compactor bins. The rates do not include charges to cover other services except the recycling program being conducted in San Jose. It is primarily a residential program but is beginning to expand into commercial waste materials.

San Leandro

Similar to Sacramento, San Leandro provides commercial waste collection limited to establishments having foodstuffs in their waste, including restaurants, hospitals, hotels, and grocers.

They have three trucks to run two weekly routes. They provide front-loader container service for bins of one to six cu. yds., with 1X or more frequent weekly collection. Drop box service and an annual neighborhood clean-up are also provided by the San Leandro Solid Waste Division. San Leandro does not provide bins for its customers.

One uniform rate of \$6.20 per cu yd is charged for bin collection on week days. Saturday collection is charged at \$9.00 per cu yd. The rates charged cover all costs for commercial collection services entailing pickup and disposal of commercial waste materials. No additional services are covered by the rates.

LOCAL PRIVATE COLLECTION COMPANIES

The City maintains an active list of commercial waste removal firms providing service within the City. The November 9, 1988, copy of the list contained 21 firms. The City provided the names of 5 of the firms to be included in the study regarding services and rates. Telephone calls were made to four of the firms and the phone was never answered at the other firm. The four firms were first contacted in December 1988 and again in February 1989 after the community workshop was conducted. None of the firms were willing to provide rate information for use in the study. Discussions with Ms. Prem Hunji Turner, who represents some of the firms contacted, indicated that, because of competition and antitrust considerations, the firms were not willing to provide rate schedules.

Ms. Betty Gwiazdon, representing the Sacramento Apartment Association, provided a two-page summary of a recent survey of costs to members of the Association who have apartments in both the City and the County of Sacramento, where private collection service

is provided. Brown and Caldwell cannot verify the accuracy, statistical validity, or data interpretation of the survey. Results of the survey, as reported by Ms. Betty Gwiazdon, are summarized below:

Number of complexes surveyed:	33
Number of units represented:	3,837
Complexes in City with less than 10 units:	8
Complexes in City with 10 to 30 units:	7
Complexes in City with more than 30 units:	18

	City, dollars	Private, dollars
Average monthly cost per unit		
Less than 10 unit complexes	5.17	3.25
Ten to 30 unit complexes	5.05 to 15.15	7.69
More than 30 unit complexes	5.85	2.86

As reported, City commercial collection services are generally higher than services provided by private collectors. The number of units included in the private numbers is not presented in the summary. The reason for presenting a range of costs instead of just an average for only the 10 to 30 unit complexes is not known by Brown and Caldwell.

COMPARISON OF SERVICE AND RATES

This section presents discussions regarding comparisons of the City rates and service to those presented in the preceding part of this chapter.

Local Private Collectors

A detailed comparison of City rates with the rates of the local collectors is not possible because of the inability to obtain rate schedules from any of the major local private collectors for use in this study. Based on the information provided by Ms. Betty Gwiazdon; the knowledge that, with the exception of specialized service, most private collection is provided by front loader packer trucks with 1 person crews; and the knowledge that the rates per container cu yd charged by the City are higher for small containers and small bins than for larger bins, the rates for residential commercial are approximately 25 percent higher than the rates for nonresidential commercial customers, and the revenues generated by the commercial collection services exceed the Solid Waste Divisions costs for these services; and the competition between private collectors, it is reasonable to expect that many rates charged by local private collectors is less than many of the rates charged by the City.

Three Study Communities

Solid waste collection rates for various container sizes and collection frequencies for the three communities are previously presented in Table 4-1 for the three communities and in Table 2-8 for the City. Although the rate schedules for all of the rates except San Leandro are given as dollars per container, the rates have been converted to dollars per container cubic yard for comparison purposes. The City rates for 1 through 3-cu-yd bins include the cost of bin rental. Comparison of various City rates with the rates of the other three communities are presented in Table 4-2 and discussed below.

The rates for charged by Fresno for uncompacted bins are the lowest. Fresno has a service monopoly for all waste within the city, runs front loader packer trucks for the commercial accounts, and provides bins with the service. The rates cover cost of collection, transport, and disposal. The city of Fresno charges a separate sanitation fee to cover street cleaning, neighborhood pickups, and recycling. Fresno does not provide special collection services.

The uncompacted bin rate charged by the City is higher than the other communities for 1-cu-yd bins, and lower than both San Jose and San Leandro for 6-cu-yd bins. City rates for compacted bin service is comparable to the rates in San Jose, with once per week collection of small bins from residential commercial customers being higher and 6 cu yd bin service being lower.

The private franchise collector in San Jose has a service monopoly for all commercial waste within San Jose. The basic rates include costs for collection, transportation, and disposal. The disposal fee includes a surcharge to San Jose. All special services, including dismounting from the front loader trucks to move a container are charged according to a special rate schedule. The dismount fee averages about \$2 per foot of bin movement.

San Leandro, similar to the City, has a service monopoly for all garbage (food wastes). One uniform rate of \$6.20 (\$9.00 on Saturday) per cubic yard of container capacity per pickup. The service includes driver dismounting to position bins if necessary.

Table 4-2. Comparison of Commercial Rates, dollars per cubic yard

Service	Sacramento		Fresno	San Jose	San Leandro
	Residential	Nonresidential			
Bins (loose)					
1 cu yd	_a	_a	_b	_a	_a
1X/week	11.71	8.68	N/A	7.59	6.20
2X/week	11.06	8.56	4.76	5.99	6.20
5X/week	10.67	8.51	4.69	5.62	6.20
6X/week	11.50	9.20	4.69	6.05	N/A
6 cu yd	_a	_a	-	-	-
1X/week	4.70	3.75	N/A	5.44	6.20
2X/week	4.59	3.67	3.64	5.25	6.20
5X/week	4.51	3.61	3.64	4.88	6.20
6X/week	4.90	3.93	3.64	5.24	N/A
Bins (compacted)					
3 cu yd	_b	_b	-	-	-
1X/week	13.34	8.15	N/A	_c	6.20
5X/week	10.68	6.54	N/A	_c	6.20
6 cu yd					
1X/week	N/A	7.41	N/A	_c	6.20
5X/week	N/A	5.94	N/A	_c	6.20
(Old Sacramento)					
6 cu yd	_d	-	-	-	-
1X/week	15.11	-	-	-	-
5X/week	7.48	-	-	-	-

^aExcludes bin rental.

^bIncludes City bin.

^cRanges from \$8.02 to \$11.25 per cu yd.

^dIncludes \$200 per month bin rental.

Note: N/A = not applicable to particular community.

CHAPTER 5

COMMERCIAL COLLECTION SYSTEM ALTERNATIVES

Alternatives for providing solid waste collection services to the commercial customers within the City are identified and evaluated in this chapter. The identified alternatives are listed and then discussed below:

1. Continue Existing Service
 - 1-A With Improved Productivity
 - 1-B With Improved Productivity plus Enforcement of City Code Regarding Mandatory Garbage Collection
 - 1-C With Improved Productivity plus Elimination of Dual Service at a Code Establishment
2. Eliminate Code Requirement for City Service for Garbage
 - 2-A Allow Open Competition Between All Private Firms
 - 2-B Establish Exclusive Franchise Areas and Select One Private Firm for All Commercial Service Within Each Franchise Area Based on Competitive Bidding
 - 2-C Establish Exclusive Franchise Areas and Select One Private Firm or the City for All Commercial Service Within Each Franchise Area Based on Competitive Bidding
3. Change City Code and Expand City Services to Include All Commercial Waste

Alternative 1. Continue Existing Service

This alternative considers three variations of the existing commercial collection procedures.

Alternative 1-A. With Improved Productivity. This alternative involves improving productivity of the existing service. Possibilities for improving productivity include the following:

1. Restrict customized service, or set special rates for each category of customized service.

2. Switch as many routes as possible to front loader routes.
3. Except for routes posing special safety concerns, switch to 1-person crews for the front loader routes.
4. Equalize route times throughout the week.
5. Adopt an incentive-on approach to route work.
6. Except in unusual circumstances, eliminate special time-of-day collection.

Alternative 1-B. Plus Enforcement of City Code. This alternative involves all of 1-A plus enforcement of City Code regarding garbage collection. This will require additional enforcement and will result in some increased productivity as a result of more pick-ups.

Alternative 1-C. Plus Elimination of Dual Service. This alternative involves all of 1-A plus a change in City Code to eliminate the allowance for dual collection at a Code customer. This should result in the following:

1. Increase waste quantities to be collected.
2. Decrease enforcement time requirements.
3. Eliminate confusion regarding containers.

Alternative 2. Eliminate Code Requirement for City Service for Garbage

This alternative suggests three different approaches to commercial waste management in the City.

Alternative 2-A. Allow Open Competition. This alternative involves changing City Code to eliminate the City collection of garbage from commercial establishments. Considerations include the following:

1. The City commercial collection vehicles will no longer be required. Any remaining debt will require a new revenue source.
2. The City commercial collection worker positions will be eliminated.
3. Allows the small private firms to compete, especially those providing customized service.
4. City will need a new source of income to make up for amount presently subsidizing other functions less any savings from eliminating City commercial collection system. Permit fees to the private firms or sanitation assessments to businesses and multi-unit residences are possibilities.
5. Will most likely result in the maximum amount of collection truck traffic.

6. Without specific changes to the City Code regarding collection times for areas bordering residential areas, could result in more noise disturbance complaints.
7. Commercial customers will most likely receive the lowest collection rates and the least control over services.

Alternative 2-B. Establish Exclusive Franchise Area(s) for Private Bids. This alternative involves the establishment of exclusive areas for franchising all commercial collection within the area to the lowest bidder. Considerations include the following:

1. The number of franchise areas need to be selected. For example, San Jose uses one commercial collector at this time.
2. Many of the small collection companies presently operating in the City may be forced out of business, depending on their present split between collection in the City and County.
3. The City commercial collection vehicles will no longer be required. Any remaining debt will require a new revenue source.
4. The City commercial collection worker positions will be eliminated.
5. Maximum productivity within an area should result.
6. City will need a new source of income to make up for amount presently subsidizing other functions less any savings from eliminating City commercial collection system. Franchise fees to the franchised firms or sanitation assessments to businesses and multi-unit residences are possibilities.
7. Will most likely result in the minimum amount of collection truck traffic.
8. City maintains control over what collection services are provided.
9. Increase in administrative costs for monitoring and fee setting.

Alternative 2-C. Establish Exclusive Franchise Areas with City and Private Bidding. This alternative involves the same as 2-B except that the City also bids for one or more of the exclusive franchise areas. All considerations except 3 and 4 are the same. If the City is successful in bidding for one or more of the franchise areas then the excess vehicles and loss of some worker positions will not occur.

Alternative 3. Change City Code to Provide All Commercial Collection By City

This alternative involves changing the City Code to require all commercial collection within the City to be performed by the City. The city of Fresno has such a commercial collection system monopoly. Non-political considerations include the following.

1. Many of the small collection companies presently operating in the City may be forced out of business, depending on their present split between collection in the City and County.
2. The City would need to expand all of their facilities and work forces associated with commercial waste collection.
3. The recommendations for route productivity discussed under Alternative 1 should be implemented with this alternative.

CHAPTER 6

RESOURCE RECOVERY OPPORTUNITIES

Opportunities for resource recovery with the commercial waste collected by the Solid Waste Division (Division) do exist, although economical resource recovery from just the commercial customers served by the Division is limited. This chapter discusses potential resource recovery opportunities.

The following factors need to be considered in evaluating the potential for and feasibility of recovering resources from commercial wastes collected by the City, which for the purpose of this discussion are considered to be materials and not energy:

- Customer types
- Waste types from each customer type
- Waste quantities
- Recoverable material types and quantities
- Technology available for recovering various materials
- Market availability for the recoverable materials
- Economics

The Division serves primarily three types of commercial customers. These are:

- Multi-unit residential customers
- Establishments producing garbage (restaurants, grocery stores, etc.)
- Establishments producing refuse (state office buildings, Sacramento Bee, etc.)

Each customer type, and the different types of establishments within a customer type, produce wastes that offer different opportunities for material recovery. The City presently does not have facilities for processing solid waste to recover materials prior to disposal. Such facilities could be provided at a transfer station or a stand-alone material recovery facility. Such facilities usually recover materials that are easily recoverable (i.e., cardboard) and are marketable.

In general, the primary opportunities for material recovery from each customer type are through source separation. Source separation of some of the materials is presently practiced by some commercial customers. Examples include cardboard baling by some grocery stores and beverage container recycling. Potential opportunities for additional material recovery include the following:

Separate collection of recyclables such as newsprint, glass, and aluminum from residential commercial customers. Such a program could be combined with a residential curbside recycling program. In those areas where separate curbside collection of recyclables is practiced, the cost, prior to providing credits for saved landfill space, usually exceeds the cost of regular collection services.

An opportunity exists for separate collection of high grade paper at City and state office buildings, schools, and similar establishments. With the existing City Code, and with the exception of the City buildings, the role of the City in establishing such programs would probably be limited to an advisory capacity.

APPENDIX A
COMMERCIAL CUSTOMER SURVEY
QUESTIONNAIRE AND DATA TABULATION

Commercial Refuse Collection Customer Satisfaction Survey

The following questionnaire will be used in a telephone survey of commercial customers in Sacramento (City). Questions and comments in parentheses will not be read to the interviewee.

Introduction and Screening Questions

Hello, this is _____, of Brown and Caldwell consulting engineers, calling for the City of Sacramento. We are doing a survey of City businesses today to find out what they think about their garbage collection service. The information is all confidential, the city will only see a summary of the survey results.

A. Does your business pay a bill for garbage collection to the City?

Yes = (Go to respondent selection)

No = (Thank respondent and terminate)

Don't Know = (Go to respondent selection)

Respondent Selection:

A. I am going to ask questions regarding the quality, level and cost of garbage collection services you receive from the City. Do you feel comfortable answering these types of questions?

Yes = (Continue with Introduction)

No = (Go to Question B)

If No, Ask:

B. May I speak with someone who knows about your garbage collection service and who is at work now?

(If no one is available, obtain and record callback time. If a responsible individual is available, continue with introduction.)

Callback Information

Day _____

Time _____

Introduction

Thank you for your time, the following survey will take approximately 10 minutes. In the questions that follow, quality of service refers to performance of the garbage collection crew, for example do they arrive on time and perform the job they are supposed to? Level of service refers to the type of service you receive, for example; the frequency of pick-ups and the type and size of bins used by your business. I'd like to remind you, your responses will remain confidential.

Questions

Interviewers: use the response sheet to code responses.

1. For what type of commercial establishment do you receive garbage service?

01 = Restaurant

02 = Apartments

03 = Office Building and Cafeteria

04 = Convenience Store

05 = Other (please specify _____)

2. Are you the (record all that apply)?

10 = Building Owner

20 = Building Tenant

30 = Business Owner

40 = Business Manager

50 = Business Employee

3. In general, how satisfied are you with your garbage collection service?

1 = Very satisfied

2 = Satisfied

3 = Dissatisfied

4 = Very dissatisfied

9 = (Don't know/No opinion)

4. What size garbage container(s) are you currently using?

- 21 = 1 cubic yard bin
- 22 = 2 cubic yard bin
- 23 = 30 gallon can
- 24 = 45 gallon can
- 25 = 90 gallon can
- 26 = plastic bag
- 27 = 6 x 6 drop cloth
- 28 = drop box

5. Do you feel that this container is appropriate for your needs?

1 = Yes (Skip to #7)

2 = No (Continue)

If No, Ask:

6. Would you prefer a larger or smaller bin size?

11 = Larger

12 = Smaller

7. The City does have flexibility in providing service to its customers. If you requested a different type of service, would you be willing to pay a slightly higher fee to cover the higher rate for this service?

1 = Yes

2 = No

8. Let's consider an example. If the garbage collection crew could not get to your bin due to a blocked access route, would you want the truck to wait on site until access was cleared?

1 = Yes (continue)

2 = No (skip to #10)

If Yes, Ask:

9. Would you be willing to pay a slightly higher fee to cover this service?

1 = Yes

2 = No

10. How many times a week do you receive collection service?

1 = Once

2 = Twice

3 = Three to Five Times

4 = Five Times or more

9 = (Don't Know)

11. Is it important for your business establishment to have garbage picked up at a specific time of day?

1 = Yes

2 = No

9 = (Don't know)

12. Is your garbage being picked up at the desired time of day?

1 = Yes (skip to #14)

2 = No (continue)

If No, Ask:

13. Would you be willing to pay an additional service fee to have garbage picked up at a specific time of day?

1 = Yes

2 = No

9 = (Don't know)

14. Are you aware that the City can respond to special service requests such as additional pick-ups?

1 = Yes (continue)

2 = No (skip to #19)

If Yes, Ask:

15. Have you ever requested special services from the City?

1 = Yes (continue)

2 = No (skip to #19)

If Yes, Ask:

16. What kind of special service did you request?

1 = Additional pick-ups

2 = Different size container

3 = Different pick-up schedule

8 = Other (Please specify _____)

17. Did the City respond to your special request?

1 = Yes (continue)

2 = No (skip to #19)

If Yes, Ask:

18. How satisfied were you with the level of service in response to your special request?

1 = Very satisfied

2 = Satisfied

3 = Dissatisfied

4 = Very dissatisfied

9 = (Don't know/No opinion)

19. Have you or anyone else in your business ever called the City's garbage collection service on the phone?

1 = Yes (Continue)

2 = No (Skip to #23)

9 = (Don't Know/Recall) (Skip to #23)

If Yes, Ask:

20. How satisfied were you with the outcome of your call?

1 = Very satisfied (skip to #22)

2 = Satisfied (skip to #22)

3 = Dissatisfied (continue)

4 = Very dissatisfied (continue)

9 = (Don't Know/Recall) (skip to #23)

If Dissatisfied or Very Dissatisfied, Ask:

21. Why were you (very) dissatisfied? (Probe for specifics. Probe for other reasons. Record verbatim. Do not code.)

22. Now thinking about the person you spoke with on the telephone.....

	Yes	No	Don't Know/ No Opinion	N/A
a. Was the person courteous?	1	2	9	0
b. Did the person listen to the caller's concern?	1	2	9	0
c. Did the person answer any questions the caller had?	1	2	9	0
d. Did the person take appropriate action?	1	2	9	0
e. If the person needed to call back, was that commitment promptly kept?	1	2	9	0

23. Has the City ever failed to pick up your garbage on your regular collection day?

- 1 = Yes (continue)
- 2 = No (skip to #28)
- 9 = (Don't know) (skip to #28)

If Yes, Ask:

24. About how many times has your garbage been missed by the City's pick up service in the last year?

- 1 = Once
- 2 = Twice
- 3 = Three times
- 4 = Four or more times
- 8 = Not missed in the last year

25. Thinking about the most recent time the City failed to pick up your garbage, do you remember what the reason was?

26. When your garbage was not picked up on your regular collection day, did you call the City and ask them to pick it up?

1 = Yes (Continue)

2 = No (Skip to #28)

9 = (Don't Recall) (Skip to #28)

If called, Ask:

27. Did they come to pick it up when they said they would?

1 = Yes

2 = No

9 = (Don't Know/Recall)

28. Do the garbage collectors usually, sometimes, rarely or never leave a mess when they pick up your garbage?

5 = Usually

6 = Sometimes

7 = Rarely

8 = Never

9 = (Don't Know/No Opinion)

29. Occasionally there may be garbage around your container, perhaps due to scavengers, or an overstocked container. Do you want the garbage collectors to take the time to clean up the mess on the ground in addition to dumping the container?

1 = Yes (continue)

2 = No (skip to #31)

If Yes, Ask:

30. Would you be willing to pay a slightly higher fee to cover this service?

1 = Yes

2 = No

31. How would you evaluate the appearance of the garbage trucks? Would you say they have.....

1 = An Excellent Appearance

2 = A Good Appearance

3 = A Fair Appearance

4 = A Poor Appearance

8 = (Who Cares; they're just garbage trucks)

9 = (No Opinion)

32. Do you currently recycle or separate recyclable materials from other waste?

1 = Recycle

2 = Separate

3 = Both

9 = (Neither)

33. Do you believe that there are additional commercial waste materials that should or could be recycled by the City?

1 = Yes (continue)

2 = No (skip to #35)

If Yes, Ask:

34. What are they?

1 = Aluminum

2 = Cardboard

3 = White Paper

4 = Glass

8 = Other (please list)

35. Do you feel that the City recycles materials from commercial waste at an appropriate level?

1 = Yes (skip to #38)

2 = No (continue)

If No, Ask:

36. Do you feel that the City should recycle more or less than it does currently?

11 = More (continue)

12 = Less (skip to #38)

If More, Ask:

37. Would you be willing to pay higher service fees to increase the level of recycling done by the City?

1 = Yes

2 = No

38. For the type of service you require, do you feel that your service rates.....

1 = Are Appropriate

2 = Are too Low

3 = Are too High

9 = (Don't Know/No Opinion)

39. Your garbage collection rates/fees include payment for services such as neighborhood clean-ups, household toxic collection, garden refuse collection, street sweeping, nuisance abatement, and recycling. Are you aware of these services?

1 = Yes (continue)

2 = No (skip to #41)

If Yes, Ask:

40. How satisfied do you feel with the quality of these services?

1 = Very satisfied

2 = Satisfied

3 = Dissatisfied

4 = Very dissatisfied

9 = (No Opinion)

41. Do you prefer to have the regular services mentioned earlier, charged in your regular garbage bill or would you prefer a separate sanitation fee?

1 = Garbage bill

2 = Sanitation fee

8 = Other (please specify) _____

9 = (Don't Know/No Opinion)

42. How do you think the City could notify commercial businesses of the various types of services they offer?

43. In general, would you say the City is doing an excellent, good, fair or poor job of collecting commercial wastes?

1 = Excellent

2 = Good

3 = Fair

4 = Poor

9 = (Don't Know/No Opinion)

44. Do you have any specific comments regarding the level of service provided by the City of Sacramento?

45. Do you have any specific comments regarding the quality of service provided by the City of Sacramento?

46. Do you have any suggestions you would like to offer the City on how they might change the services they now offer?

47. Do you have any suggestions on how the City could finance the services they offer?

48. Do you pay for additional waste from a service other than the City of Sacramento?

___ Yes

___ No

Now in order to classify your response along with others, I need to ask a few questions about you.....

What is your zip code? _____

What is your age? _____

Thank you for your time.

Record Call Attempt: _____

Date: _____

Time: _____

Initials: _____

Introduction and Screening

Interview Refusal: _____
Callback: Date _____; Time _____

Business

Name _____
Address _____

Coded Question Responses

Question	Code	Other
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____
9	_____	_____
10	_____	_____
11	_____	_____
12	_____	_____
13	_____	_____
14	_____	_____
15	_____	_____
16	_____	_____
17	_____	_____
18	_____	_____
19	_____	_____
20	_____	_____
22a	_____	_____
22b	_____	_____
22c	_____	_____
22d	_____	_____
22e	_____	_____
23	_____	_____
24	_____	_____
26	_____	_____
27	_____	_____
28	_____	_____
29	_____	_____
30	_____	_____
31	_____	_____
32	_____	_____
33	_____	_____
34	_____	_____
35	_____	_____
36	_____	_____
37	_____	_____
38	_____	_____
39	_____	_____
40	_____	_____
41	_____	_____
43	_____	_____
48	_____	_____

Un-coded Question Responses

Question	Response
21	_____ _____ _____
25	_____ _____ _____
42	_____ _____ _____
44	_____ _____ _____
45	_____ _____ _____
46	_____ _____ _____
47	_____ _____ _____

Respondent Information

Zip Code: _____
Age: _____

Call Attempt

Date: _____
Time: _____
Initials: _____

Commercial Waste Collection Survey Tabulation

Survey No.	Business Affiliation	General Satisfaction				Appropriate size ctr.	y/n	L = 10	Fee for flex		
		VS	S	D	VD				y/n	access	y/n
Restaurants											
1	Bs. Mgr	1				4cy	1		1	0	
2	Bs. Mgr	1				5cy	1		0	0	
3	Bs. Own				1				0	0	
4	Own&Mgr		1			2cy/C	1		0		
5	Bs. Mgr		1			2cy	1				
6	Bs Own		1			30gal	1		0	1	0
7	Bs Mgr	1					1		0	1	0
8	Bs Mgr		1			3cy	1		0	0	
9	Bs Mgr		1			3cy	1		0	0	
Apartments											
10	Bs Mgr	1				2cy	1		1	1	1
11	Bs Mgr	1				3cy	1			0	
12	Mnt. Sup			1		4&3cy	1		0	1	0
13	Assmt mgr		1			4yd	1		0	0	
14	Bs Mgr		1				1		0	0	
Office Buildings											
15	Bs Mgr		1			2cy	1				
16	Tnt&Emp		1			90gal	1		1	0	
Schools											
17		1				2&3cy	1		1		
Hotels											
18	Chf. Eng		1			2cy/C	0	10	1	1	0
19	Bl&Bs Own		1			30gal	1		1	0	
Other											
20	Emp		1			30gal	1				
21	Emp		1			3cy/C	0	10	1	1	1
22	Fac. Mgr		1			4&6cy	0	10	1	1	1
23	Emp		1			4cy	1		0	0	
24	Emp		1			30gal	1		0	0	
25	Admin/Emp		1			30gal	1		1	0	

Total Surveys
25

Survey Statistics

Count				Count	Larger Count			
6	17	1	1	24	3	21	20	7
Total				Content	Pay	Wait	Pay	
25	25	25	25	21	9	7	3	
Percent				Percent	Percent			
24%	68%	4%	4%	88%	44%	35%	43%	

Key:
Yes = 1
No = 0

Commercial Waste Collection Survey Tabulation

Time of Service			(y=1, n=0)			Special Services		
1-2/wk	3-5/wk	>5/wk	important	desired?	fee for time	aware	request	type
	1		1	1		1	1	+pu
1			1	1		1	1	+pu
		1	1	0	0	1	1	cln bins
		1	1	1		1	1	+pu
		1	1	1		0	0	
1			1	1		1	0	
1			1	1		0	0	
	1		1	1		1	1	+pu
	1		1	1		0	0	
	1		0	1		1	1	+pu
1			1	1		1	1	+pu&cln
		1	0	1		1	0	
1			1	1		1	0	
1			0	1		1	0	
		1	1	1		1	1	+pu
		1	1	1		1	0	
		1	1	1		1	0	
	1		1	1		1	1	+pu
1			0	1		1	1	+pu
1			0	1		1	0	
1						0	0	

Count	Count	Count	Count	Count	Count	Count	Count	Count	Requested
9	5	10	23	19	1	23	22	11	
Total			Important	Desired	Pay	Aware	Request		pick ups
24	24	24	16	18	0	19	11		10
Percent						Percent			cleaning
38%	21%	42%	70%	95%	0%	83%	50%		2

Commercial Waste Collection Survey Tabulation

City's Response			Telephone Service Satisfaction								
respond	VS	S	D	VD	phoned	City outcome	courteous	listen	answer	action	commitment
1	1				1	1	1	1	1	1	
1	1				1	1	1	1	1	1	
0			1		1	0		1	1	0	0
1	1				1						
					0						
					1	1	1	1	1	1	1
					0						
1		1			1	1	1	1		1	
					1	1	1	1	1	1	1
1	1				1	1	1	1	1	1	1
1			1		1	1	1	1	1	1	0
					1	1	1	1	1	0	1
					1	1	1	1	1	1	
					1		1	1			1
					0						
1	1				1	1	1	1	1	1	1
					1	0	1	1	0	0	0
1		1			1	1	1	1	1	1	1
0				1	1	0	1	0	1	1	0
1	1				1	0	1	1	1	0	0
					1	1	1	1	1	1	
					1	1	1	1	1	1	1

Count	Count				Count						
11	6	2	2	1	22	17	17	18	16	16	12
Request	Total				Phoned	Satisfied	Courteous	Listen	Answer	Action	Commitment
9	11	11	11	11	19	13	17	17	15	12	7
Percent					Percent						
82%	55%	18%	18%	9%	86%	76%	100%	94%	94%	75%	58%

Commercial Waste Collection Survey Tabulation

Recycle recycle	separate	both	none/dk	additional	what	appropriate	more/less	fee
		1		0		1		
	1			1	plastic	0	1	0
			1	1	glass	0		0
1					paper/glass			
1								
			1	1	cardboard	0	1	1
			1	1	cardboard			
			1	1	aluminum/glass	0	1	1
			1	1	cardboard	0	0	
		1		0				
			1	1	alum/paper	0	1	
			1	1	aluminum			
1				1	plastic	0	1	1
			1	1	all materials			
	1							
		1		1	all & garden clip	0	1	1
			1	0				
	1			1	alum,cdb,paper		1	0
		1		0		1		
			1	1	all materials			
			1	1	aluminum	0	1	0
			1	1	alum,ppr,glass	0	1	0
	1				aluminum/glass			1

Count				Count
3	3	4	11	19
Total				More
21	21	21	21	15
Percent				
14%	14%	19%	52%	79%

Count		
12	10	10
Appropriate	More	Pay
2	9	5
Percent		
17%	90%	50%

Commercial Waste Collection Survey Tabulation

Rates ok	Regular Services			Payment		Overall						
	low	high	DK	aware	satisfaction	sani	bill	DK	Exllnt	Good	Fair	Poor
1				0			1			1		
1				0			1			1		
		1		0		1					1	
		1		1	1					1		
			1							1		
		1		1	1		1			1		
			1	0						1		
1				1	1		1		1			
		1		1	0		1			1		
				1	1		1			1		
				1	1					1		
		1		0			1				1	
1				0						1		
								1				
			1	1	0		1				1	
				1	1							1
1				1	1			1			1	
				1	1		1			1		
			1	1	1			1			1	
		1		1	0		1			1		
				0						1		

Count	low	high	DK	Count	Regular Services	Count	Payment	Count	Overall	Good	Fair	Poor	
				Aware	Satisfied	Total	Total	Total	Total				
6	0	9	6	22	14	7	8	5	1	14	8	0	
Total	21	21	21	13	10	20	20	20	23	23	23	23	
Percent	28%	0%	44%	28%	60%	71%	35%	40%	25%	4%	61%	35%	0%

Commercial Waste Collection Survey Tabulation

Other
private zip code

0	95816
1	95822
0	95818
0	
1	
0	95814
0	
0	95838
1	95819
0	
0	95831
0	95833
0	95823
0	95816
0	
0	95817
0	95838
0	
0	95814
0	
0	95814
1	95814
1	95820
0	95815
0	95838

Count

23

Private

5

Percent

22%

APPENDIX B
COMMUNITY WORKSHOP

APPENDIX B
COMMUNITY WORKSHOP
SUMMARY OF PUBLIC COMMENTS
SACRAMENTO COMMERCIAL WASTE COLLECTION STUDY

February 23, 1989

Public Workshop

Attendees

Richard Turner	Law Firm of Turner and Sullivan
Betty Gwiazdon	Chief Executive Officer of the Sacramento Apartment Association
John Guest	Manager of Browning Ferris Industries
Madeleine Olesky	Resident Manager of Inland Harbor Condominiums
Dan Borges	Waste Management of Sacramento
Prem Hunji Turner	Law Offices of Prem L. Hunji Turner
Judy Tebbitt	Metropolitan Chamber of Commerce
George Keltz	Chairman of City Services and Garbage Committee, Citizens for a Better Sacramento

Introduction by Erv Nesheim, Brown and Caldwell:

Purpose of the workshop is to receive input to the study being conducted by Brown and Caldwell (BC) for the City concerning their commercial solid waste collection system. Any written comments will be accepted by March 3 for incorporation into the final report.

Two basic questions or concerns which commentors were requested to respond to are: (1) opportunities for recycling, and (2) the additional services provided by the City for which fees are included in the collection rates.

Public Comments

1. Richard Turner of the law firm of Turner and Sullivan, representing a coalition of refuse companies and business in Sacramento County.

Concerns include:

- (1) BC has contacted none of the refuse companies or associations represented by his firm.

- (2) The distinction between "wet" and "dry" garbage (in the City's garbage collection ordinance) has no rational basis. Both types of garbage are disposed of in the same place (landfill).
 - (3) Ordinance simply protects the City's monopoly on garbage collection in the City.
 - (4) Grocers object to being prohibited from using private collection services which were tailored to their needs and were also cheaper than City services.
 - (5) City refuse service is much costlier than County refuse service, partly because of City subsidies for residential customers, lawn and garden collection service, and other services. Commercial customers should not be charged for services that they do not receive or benefit from. These subsidized services should be paid for by customers who directly benefit, or funded out of the general fund.
 - (6) City's monopoly on "wet" garbage collection forces rates to be higher because of lack of competition, and is to the detriment of customers in the City.
2. Betty Gwiazdon, Chief Executive Officer of the Sacramento Apartment Association, representing apartment owners/rental industry.

Concerns include:

- (1) Based on comments from apartment owners regarding differences in collection rates of the City versus private haulers, they have found that City rates are extremely high.
 - (2) Uncontrollable operating costs for apartment owners include cost for City garbage collection service. This affects rents, which must increase to cover high utility costs.
 - (3) Subsidies for curbside pickup and other City services are part of the reason for high rates, but apartments do not or cannot subscribe to this service. Apartments must dispose of and pay for typical curbside refuse separately. This type of inequity needs to be addressed by looking at alternatives to the current City service.
 - (4) Apartment owners have complaints about the service they receive from the City. When garbage is picked up from an enclosed storage area, the lids of bins are not closed properly and garbage is left on the ground around the bin, causing sanitary problems. Other complaints have also been expressed. In comparing service in the City and County, customers are very unhappy with City service.
3. John Guest, General Manager of Browning Ferris Industries, Sacramento District (garbage collection company). They haul waste in the County 6 to 7 days per

week. They haul the same types of waste hauled by the City and commingle this with other trash (nonputrescibles).

Concerns include:

- (1) Concerning recycling commercial wastes, City should be careful of dealing with commodities that grocers are now dealing with (such as containers which they recycle). The City restricts free enterprise by determining what businesses can do with their waste materials.
- (2) Concerning community services subsidized by commercial collection rates, some services should not be paid for by commercial customers. These include household toxics collection and neighborhood cleanups, which do not benefit commercial customers. These should be funded by the general fund or paid for in the cost of services to the consumer.

The City could charge a fee to garbage haulers to provide these services, if the City does not want to charge residents directly. Business owners and apartment dwellers should not pay for these services.

4. Madeleine Olesky, Resident Manager of Inland Harbor Condominiums. She submitted written comments which were read into the record.

Concerns include:

- (1) The City's monopoly established by the garbage ordinance is deplorable and the condominium owners have no recourse.
- (2) The cost of City services is astronomical. A rate comparison of \$28 to \$32 per bin for private collection and \$177 per bin for City collection was used as an example. The high utility cost forces condominium owners to cut costs for other amenities for residents.
- (3) City collectors damage property and force condominium maintenance personnel to clean up after them.
- (4) A poll of commercial customers, including residential property owners and developers, should be taken as part of the BC study.

5. Dan Borges, Waste Management of Sacramento. They operate in both the City and County.

Concerns include:

- (1) Commercial customers should not pay for services that do not benefit them directly, such as household toxics, neighborhood cleanup, and street sweeping. Although some street sweeping benefits commercial properties, residential properties benefit primarily.

6. Prem Hunji Turner, attorney representing private haulers and the Sacramento Coalition on Waste.
Concerns include:

- (1) Short public notice of workshop prevented some commercial associations from being represented at the workshop.
- (2) Elk Grove School District now subscribes to two collection services (City service and private collection). They could realize substantial savings if they could have all private collection of wet and dry garbage. Cost savings could be used to help pay for education/school improvements. Additional truck traffic caused by having two separate service providers increases traffic and safety hazards for children at school.
- (3) Question raised include: Which cities were chosen to compare against Sacramento, and how were they selected? Is a comparison of the City to the County of Sacramento collection rates included in the study? Will the study address the distinction between "wet" and "dry" garbage in the ordinance? Has or will a survey be done of other cities that have similar collection service as the City of Sacramento, and what their experience has been? What is the schedule for release of the BC report.

7. Judy Tebbitt, representing Metropolitan Chamber of Commerce.

Concerns include:

- (1) Schedule for completion of the BC report and City Council hearing does not allow adequate time for the public to review and comment on the report.

8. Richard Turner, Turner and Sullivan.

Concerns include:

- (1) Inadequate time is provided for public review of the BC report to prepare their own evaluation of the report before the City Council meets.
- (2) New legislation will require recycling of a portion of the City's waste in the future, and a large part of recyclable waste comes from commercial refuse. Source separation is not the only answer to recycling. As long as the City continues to collect commercial waste and has no transfer station(s), the County landfill will reach capacity and will force wastes to be hauled long distances (Kiefer Landfill). Costs for all waste collection and disposal, including commercial waste, will dramatically increase.
- (3) The City needs a comprehensive, Citywide, integrated solid waste management plan. City has not been willing to have an independent study of the entire solid waste system.

- (4) The most logical comparison of the City's refuse service would be to the County of Sacramento's service, because of similarities in location, demographics, traffic patterns, and waste disposal sites.
9. George Keltz, Chairman of City Services and Garbage Committee, Citizens for a Better Sacramento.

Concerns include:

- (1) This organization consists of taxpayers and homeowners. They feel any study of the City's garbage system should address privatization. Their own studies indicate that privatization is an effective, economically sensible, and desirable alternative. Cost savings from privatization could be used to improve school or police services.

Conclusion of workshop at 1:55 p.m.

INLAND HARBOR

Condominium Rentals

February 23, 1989

City of Sacramento
915 I Street
Sacramento, CA 95814-2672

To Whom It May Concern:

We have previously addressed our concerns regarding the astronomical rates charged by the City for hauling of garbage at our complex, which is managed by the Grupe Company.

It is absolutely deplorable that we are subjected to, and trapped by, the ordinance demanding the City be used, and that private owners and developers have no recourse. To say this is a monopoly is putting it mildly.

We are currently paying \$177.10 per bin for pickup by the City. In pricing the same pickup with BFI, from whom we rent our bins, we were informed the rate would be \$28.00 to \$32.00.

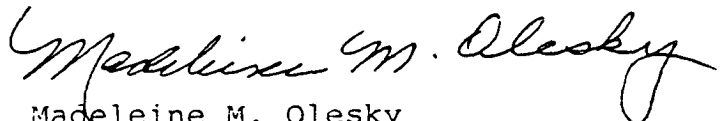
Needless to say, we are forced to cut our budget tremendously for other necessary items for the comfort of our residences to meet these outrageous charges.

Not only is the City charging these gouging fees, they break gates in the container area, and leave garbage strewn all over the community requiring our maintenance personnel to leave normal assignments to clean up the City's mess.


We feel the recent poll conducted by the Mayor was slanted and directed only to homeowners who do not feel the impact of the City's policy. We believe a poll should be taken of owners of commercial property and developers of residential/apartment and condominium projects.

It is more than time for this injustice to cease!

Respectfully submitted,



Madeleine M. Olesky
Resident Manager

 INLAND HARBOR CONDOMINIUMS

APPENDIX C

SAN LEANDRO RATE SCHEDULE
FRESNO RATE SCHEDULE
SAN JOSE RATE SCHEDULE

CITY OF SAN LEANDRO
WASTE COLLECTION SERVICES AND RATES

Types of Service

Front-loader container service for 1 to 5 cubic yard containers.

Annual neighborhood clean-up.

Drop-box service.

Rate Schedule

Regular service	\$26.85 per cubic yard per month for 1X week. Additional pick-ups are charged in multiples of \$26.85.
Compactor service	\$12.00 per cubic yard
Saturday service	\$9.00 per cubic yard per Saturday

CURRENT RATE - BY MONTHLY CHARGE ON A 1-1 CUBIC YARD BIN

OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED	C O D E	OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED	C O D E	OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED
(2 X)					(3 X)					(4 X)			
67.58		67.58	82.54	113	99.48	122.06	99.48	122.06	114	132.34	162.76	132.34	162.76
	165.08	129.48	158.48	213	198.96	244.12	192.24	234.36	214	264.68	325.52	256.04	312.50
	247.62	191.38	234.42	313	298.44	366.18	285.00	346.66	314	397.02	488.28	379.74	462.24
	270.32	330.16	253.28	413	397.92	488.24	377.76	458.96	414	529.36	651.04	503.44	611.98
	337.90	412.70	315.18	513	497.40	610.30	470.52	571.26	514	661.70	813.80	627.14	761.72
	405.48	495.24	377.08	613	596.88	732.36	563.28	683.56	614	794.04	976.56	750.84	911.46
	473.06	577.78	438.98	713	696.36	854.42	656.04	795.86	714	926.38	1139.32	874.54	1061.20
	540.64	660.32	500.88	813	795.84	976.48	748.80	908.16	814	1058.72	1302.08	998.24	1210.94
	608.22	742.86	562.78	913	895.32	1098.54	841.56	1020.46	914	1191.06	1464.84	1121.94	1360.68

(5 X)				(6 X)				(7 X)					
165.10	203.34	165.10	203.34	116	197.96	244.04	197.96	244.04	117	239.30	295.24	239.30	295.24
330.20	406.68	319.54	390.42	216	395.92	488.08	383.36	468.56	217	478.60	590.48	466.36	566.86
495.30	610.02	473.98	577.50	316	593.88	732.12	568.76	693.08	317	717.90	885.72	693.42	838.48
660.40	813.36	628.42	764.58	416	791.84	976.16	754.16	917.60	417	957.20	1180.96	920.48	1110.10
825.50	1016.70	782.86	951.66	516	989.80	1220.20	939.56	1142.12	517	1196.50	1476.20	1147.54	1381.72
990.60	1220.04	937.30	1138.74	616	1187.76	1464.24	1124.96	1366.64	617	1435.80	1771.44	1374.60	1653.34
1155.70	1423.38	1091.74	1325.82	716	1385.72	1708.28	1310.36	1591.16	717	1675.10	2066.68	1601.66	1924.96
1320.80	1626.72	1246.18	1512.90	816	1583.68	1952.32	1495.76	1815.68	817	1914.40	2361.92	1828.72	2196.58
1485.90	1830.06	1400.62	1699.98	916	1781.64	2196.36	1681.16	2040.20	917	2153.70	2657.16	2055.78	2468.20

(2 X)				(3 X)				(4 X)					
148.58	120.90	148.58		123	180.90	222.90	180.90	222.90	124	240.78	297.06	240.78	297.06
241.80	297.16	233.04	285.28	223	361.80	445.80	349.22	427.98	224	481.56	594.12	463.18	570.36
362.70	445.74	345.18	421.98	323	542.70	668.70	517.54	633.06	324	722.34	891.18	689.58	843.66
483.60	594.32	457.32	558.68	423	723.60	891.60	685.86	838.14	424	963.12	1188.24	913.98	1116.96
604.50	742.90	569.46	695.38	523	904.50	1114.50	854.18	1043.22	524	1203.90	1485.30	1138.38	1390.26
725.40	891.48	681.60	832.08	623	1085.40	1337.40	1022.50	1248.30	624	1444.68	1782.36	1362.78	1663.56
846.30	1040.06	793.74	968.78	723	1266.30	1560.30	1190.82	1453.38	724	1685.46	2079.42	1587.18	1936.86
967.20	1188.64	905.88	1105.48	823	1447.20	1783.20	1359.14	1658.46	824	1926.24	2376.48	1811.58	2210.16
1088.10	1337.22	1018.02	1242.18	923	1628.10	2006.10	1527.46	1863.54	924	2167.02	2673.54	2035.98	2483.46

(5 X)				(6 X)				(7 X)					
300.78	371.38	300.78	371.38	126	360.88	445.82	360.88	445.82	127	441.76	546.00	441.76	546.00
601.56	742.76	581.16	713.60	226	721.76	891.64	697.32	855.98	227	883.52	1092.00	854.00	1048.32
902.34	1114.14	861.54	1055.82	326	1082.64	1337.46	1033.76	1266.14	327	1325.28	1638.00	1266.24	1550.64
1203.12	1485.52	1141.92	1398.04	426	1443.52	1783.28	1370.20	1676.30	427	1767.04	2184.00	1678.48	2052.96
1503.90	1856.90	1422.30	1740.26	526	1804.40	2229.10	1706.64	2086.46	527	2208.80	2730.00	2090.72	2555.28
1804.68	2228.28	1702.68	2082.48	626	2165.28	2674.92	2043.08	2496.62	627	2650.56	3276.00	2502.96	3057.60
2105.46	2599.66	1983.06	2424.70	726	2526.16	3120.74	2379.52	2906.78	727	3092.32	3822.00	2915.20	3559.92
2406.24	2971.04	2263.44	2766.92	826	2887.04	3566.56	2713.96	3316.94	827	3534.08	4368.00	3327.44	4062.24
2707.02	3342.42	2543.82	3109.14	926	3247.92	4012.38	3052.40	3727.10	927	3975.84	4914.00	3739.68	4564.56

JUNE 2/16/86 CURRENT RATE - BY MONTHLY CHARGE ON A 1-2 CUBIC YARD BIN. PAGE 1

FRESNO

CURRENT RATE - BI MONTHLY CHARGE ON A 1-3 CUBIC YARD BIN

OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED	C O D E	OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED	C O D E	OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED
166.90	205.56	166.90	205.56	173	249.90	308.36	249.90	308.36	174	333.00	411.28	333.00	411.28
333.80	411.12	321.24	394.68	273	499.80	616.72	481.72	592.06	274	666.00	822.56	642.00	789.00
500.70	616.68	475.78	583.80	373	749.70	925.08	713.54	875.76	374	999.00	1233.84	951.00	1168.00
667.60	822.24	630.22	772.90	473	999.60	1233.44	945.36	1159.46	474	1332.00	1645.12	1260.00	1546.42
834.50	1027.80	784.66	962.04	573	1249.50	1541.80	1177.18	1443.16	574	1665.00	2056.40	1569.00	1924.60
1001.40	1233.36	939.10	1151.16	673	1499.40	1850.16	1409.00	1726.86	674	1998.00	2467.68	1878.00	2303.18
1168.30	1438.92	1093.54	1340.28	773	1749.30	2158.52	1640.82	2010.56	774	2331.00	2878.96	2187.00	2681.56
1335.20	1644.48	1247.98	1529.40	873	1999.20	2466.88	1872.64	2294.26	874	2664.00	3290.24	2496.00	3059.94
1502.10	1850.04	1402.42	1718.52	973	2249.10	2775.24	2104.46	2577.96	974	2997.00	3701.52	2805.00	3438.32

(5 X)

(6 X)

(7 X)

416.00	514.08	416.00	514.08	176	499.10	617.02	499.10	617.02	177	611.04	755.66	611.04	755.66
832.00	1028.16	802.38	987.04	276	998.20	1234.04	962.54	1184.68	277	1222.08	1511.32	1178.68	1450.88
1248.00	1542.24	1188.76	1460.00	376	1497.30	1851.06	1425.98	1752.34	377	1833.12	2266.98	1746.32	2146.10
1664.00	2056.32	1575.14	1932.96	476	1996.40	2468.08	1889.42	2320.00	477	2444.16	3022.64	2313.96	2841.32
2080.00	2570.40	1961.52	2405.92	576	2495.50	3085.10	2352.86	2887.66	577	3055.20	3778.30	2881.60	3536.54
2496.00	3084.48	2347.90	2878.88	676	2994.60	3702.12	2816.30	3455.32	677	3666.24	4533.96	3449.24	4231.76
2912.00	3598.56	2734.28	3351.84	776	3493.70	4319.14	3279.74	4022.98	777	4277.28	5289.62	4016.88	4926.98
3328.00	4112.64	3120.66	3824.80	876	3992.80	4936.16	3743.18	4590.64	877	4888.32	6045.28	4584.52	5622.70
3744.00	4626.72	3507.04	4297.76	976	4491.90	5553.18	4206.62	5158.30	977	5499.36	6800.94	5152.16	6317.42

(2 X)

(3 X)

(4 X)

213.34	263.08	213.34	263.08	143	319.54	394.62	319.54	394.62	144	425.86	526.30	425.86	526.30
426.68	526.16	414.22	505.12	243	639.08	789.24	621.00	757.68	244	851.72	1052.60	827.70	1010.58
640.02	789.24	615.10	747.16	343	958.62	1183.86	922.46	1120.74	344	1277.58	1578.90	1229.54	1494.70
853.36	1052.32	815.98	989.20	443	1278.16	1578.48	1223.92	1483.80	444	1703.44	2105.20	1631.38	1978.90
1066.70	1315.40	1016.86	1231.24	543	1597.70	1973.10	1525.38	1846.86	544	2129.30	2631.50	2033.22	2463.10
1280.04	1578.48	1217.74	1473.28	643	1917.24	2367.72	1826.84	2209.92	644	2555.16	3157.80	2435.06	2947.30
1493.38	1841.56	1418.62	1715.32	743	2236.78	2762.34	2128.30	2572.98	744	2981.02	3684.10	2836.90	3431.50
1706.72	2104.64	1619.50	1957.36	843	2556.32	3156.96	2429.76	2936.04	844	3406.88	4210.40	3238.74	3915.70
1920.06	2367.72	1820.38	2199.40	943	2875.86	3551.58	2731.22	3299.10	944	3832.74	4736.70	3640.58	4399.90

(5 X)

(6 X)

(7 X)

532.08	657.86	532.08	657.86	146	638.40	789.54	638.40	789.54	147	781.80	967.16	781.80	967.16
1064.16	1315.72	1034.52	1263.10	246	1276.80	1579.08	1241.12	1515.92	247	1563.60	1934.32	1520.10	1856.96
1596.24	1973.58	1536.96	1868.34	346	1915.20	2368.62	1843.84	2242.30	347	2345.40	2901.48	2258.40	2746.76
2128.32	2631.44	2089.40	2473.58	446	2553.60	3158.16	2446.56	2968.68	447	3127.20	3868.64	2996.70	3636.56
2660.40	3289.30	2541.84	3078.82	546	3192.00	3947.70	3049.28	3695.06	547	3909.00	4835.80	3735.00	4526.36
3192.48	3947.16	3044.28	3684.06	646	3830.40	4737.24	3652.00	4421.44	647	4690.80	5802.96	4473.30	5416.16
3724.56	4605.02	3546.72	4289.30	746	4468.80	5526.78	4254.72	5147.82	747	5472.60	6770.12	5211.60	6305.96
4256.64	5262.88	4049.16	4894.54	846	5107.20	6316.32	4857.44	5874.20	847	6254.40	7737.28	5949.90	7195.76
4788.72	5920.74	4551.60	5499.78	946	5745.60	7105.86	5460.16	6600.58	947	7036.20	8704.44	6688.20	8000.00

CURRENT RATE - BI MONTHLY CHARGE ON A 1-4 CUBIC YARD BIN

CURRENT RATE - BI-MONTHLY BASIS - ON A 1-6 CUBIC YARD BIN

(2 X)				(3 X)					(4 X)					
OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED	CODE	OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED	CODE	OLD STANDARD	NEW STANDARD	OLD REDUCED	NEW REDUCED	
306.18	378.08	306.18	378.08	163	438.94	567.88	438.94	567.88	164	611.58	756.32	611.58	756.32	
312.36	756.16	600.02	723.92	263	917.88	1135.76	899.68	1090.34	264	1223.16	1512.64	1199.14	1432.14	
318.54	1134.24	893.86	1073.76	363	1376.82	1703.64	1340.42	1612.80	364	1834.74	2268.96	1786.70	2147.96	
324.72	1512.32	1187.70	1421.60	463	1835.76	2271.52	1781.16	2135.26	464	2446.32	3025.28	2374.26	2843.78	
330.90	1890.40	1481.54	1769.44	563	2294.70	2839.40	2221.90	2657.72	564	3057.90	3781.60	2961.82	3539.60	
337.08	2268.48	1775.38	2117.28	663	2753.64	3407.28	2662.64	3180.18	664	3669.48	4537.92	3549.38	4235.42	
343.26	2646.56	2069.22	2465.12	763	3212.58	3975.16	3103.38	3702.64	764	4281.06	5294.24	4136.94	4931.24	
349.44	3024.64	2363.06	2812.96	863	3671.52	4543.04	3544.12	4225.10	864	4892.64	6050.56	4724.50	5627.06	
355.62	3402.72	2656.90	3160.80	963	4130.46	5110.92	3984.86	4747.56	964	5504.22	6806.88	5312.06	6322.88	
(5 X)				(6 X)					(7 X)					
663	764.32	945.50	764.32	945.50	166	916.96	1134.56	916.96	1134.56	167	1121.86	1321.32	1121.86	1321.32
665	1528.64	1891.00	1498.90	1815.36	266	1833.92	2269.12	1798.36	2178.36	267	2243.72	2642.64	2201.48	2536.94
668	2292.96	2836.50	2233.48	2685.22	366	2750.88	3403.68	2679.76	3222.16	367	3365.58	3963.96	3281.10	3752.54
669	3057.28	3782.00	2968.06	3555.08	466	3667.84	4538.24	3561.16	4265.96	467	4487.44	5285.28	4360.72	4968.14
671	3821.60	4727.50	3702.64	4424.94	566	4584.80	5672.80	4442.56	5309.76	567	5609.30	6606.60	5440.34	6183.88
673	4585.92	5673.00	4437.22	5294.80	666	5501.76	6807.36	5323.96	6353.56	667	6731.16	7927.92	6519.96	7399.44
675	5350.24	6618.50	5171.80	6164.66	766	6418.72	7941.92	6203.36	7397.36	767	7853.02	9249.24	7599.58	8615.04
677	6114.56	7564.00	5906.38	7034.52	866	7335.68	9076.48	7086.76	8441.16	867	8974.88	10570.56	8679.20	9830.64
679	6878.88	8509.50	6640.96	7904.38	966	8252.64	10211.04	7968.16	9484.96	967	10096.74	11891.88	9758.82	11046.24

NO. OF CANS PER PICK UP	NO. OF UNITS SERVICED	CODE	STANDARD RATE		REDUCED RATE	
			OLD	NEW	OLD	NEW
2	1 - 2	132	14.90	17.30	14.90	17.30
4	3 - 4	232	29.80	34.60	25.82	30.60
6	5 - 6	332	44.70	51.90	36.74	43.90
8	7 - 8	432	59.60	69.20	47.66	57.20
10	9 - 10	532	74.50	86.50	58.58	70.50
12	11 - 12	632	89.40	103.80	69.50	83.80
14	13 - 14	732	104.30	121.10	80.42	97.10
16	15 - 16	832	119.20	138.40	91.34	110.40
18	17 - 18	932	134.10	155.70	102.26	123.70
6 X PER WEEK						
		136	43.20	51.90	43.20	51.90
		236	86.40	103.80	75.96	91.90
		336	129.60	155.70	108.72	131.90
		436	172.80	207.60	141.48	171.90
		536	216.00	259.50	174.24	211.90

MINI-RAPID RATE
 OLD NEW
 4.62 to 5.20

EFFECTIVE DATES OF PRIOR RATE INCREASES:
 12/16/80 7.90 to 11.00
 01/01/81 11.00 to 13.80
 09/01/82 13.80 to 14.90
 02/16/85 14.90 to 17.30

2 30-gal cans = .3 cy yd.

Prepared:
02-May-88

Waste Management of Santa Clara County
San Jose Residential Rates
Effective July 1, 1988

Rate Code	Type of Service	Quarter	Month	Week
U1	Unlimited Curb	\$18.93	\$6.31	\$1.58
U2	Additional Curbside pickup (fixed service, up to 3 cans)	\$81.72	\$27.24	\$6.81
	Additional per can	\$27.27	\$9.09	\$2.27
-Y1	Yard collection	\$26.49	\$8.83	\$2.21
Y2	Additional yard pick-up (fixed service, up to 3 cans)	\$114.96	\$38.32	\$9.58
	Additional cans	\$38.34	\$12.78	\$3.20
H1	Hardship	\$9.00	\$3.00	\$0.75
S1	65 year old Seniors - 1 cont/curb	\$4.50	\$1.50	\$0.38
H2	65 year old Seniors - Hardship	\$4.50	\$1.50	\$0.38
F2	80 year old Seniors - 1 cont/curb	\$0.00	\$0.00	\$0.00
	Bulky Item Collection	\$18.27 for up to two items. \$6.09 for each additional item. Item must be at curb.		

NOTE: Any services other than those provided above, must have City of San Jose approval.

Waste Management of Santa Clara County
Garbage Rate Schedule
July 1, 1988

Container Size	Frequency (Pickups per week)						EXTRAS		Bin Rental
	1	2	3	4	5	6	Weekday NA	Saturday NA	
Less than 1 cu. yd.	\$18.81	\$30.85	\$43.19	\$55.53	\$67.86	\$80.20			
1 Monthly	\$32.91	\$51.93	\$76.28	\$99.89	\$121.81	\$157.26	\$19.65	\$29.48	\$6.58
Per Yard	\$7.59	\$5.99	\$5.87	\$5.75	\$5.62	\$6.03			
1.5 Monthly	\$43.36	\$76.28	\$112.03	\$146.17	\$178.70	\$230.60	\$21.84	\$32.76	\$8.67
Per Yard	\$6.67	\$5.87	\$5.75	\$5.62	\$5.50	\$5.91			
2 Monthly	\$51.38	\$99.89	\$146.17	\$190.61	\$232.93	\$300.40	\$27.30	\$36.03	\$10.27
Per Yard	\$5.93	\$5.75	\$5.62	\$5.50	\$5.38	\$5.78			
3 Monthly	\$74.68	\$146.17	\$214.45	\$279.52	\$341.39	\$440.04	\$32.76	\$38.22	\$14.94
Per Yard	\$5.75	\$5.63	\$5.50	\$5.38	\$5.26	\$5.65			
4 Monthly	\$97.44	\$190.61	\$279.52	\$364.12	\$444.48	\$572.64	\$38.22	\$43.68	\$19.50
Per Yard	\$5.62	\$5.50	\$5.38	\$5.25	\$5.13	\$5.51			
6 Monthly	\$141.35	\$273.09	\$400.03	\$520.56	\$634.66	\$816.62	\$49.14	\$54.60	\$28.27
Per Yard	\$5.44	\$5.25	\$5.13	\$5.01	\$4.88	\$5.24			
8 Monthly	\$182.07	\$347.03	\$507.72	\$659.88	\$803.48	\$1,032.38	\$54.60	\$60.05	\$36.41
Per Yard	\$5.26	\$5.01	\$4.89	\$4.76	\$4.64	\$4.97			

* For Saturday service, add 10% to total amount. (Above 6X per week price includes this surcharge.)
For rate applicable for less than 1 cubic yard, 7 cans will constitute one cubic yard.

DISMOUNT
Prepared: 26-May-88

Waste Management of Santa Clara County
San Jose Commercial Collection Rates
July 1, 1988 thru June 30, 1989

Frequency (Pickups per week)

	1		2		3		4		5		6	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Dismount to 25'	\$11.00	20.75	\$20.00	\$41.49	\$30.00	\$62.24	\$39.00	\$82.98	\$49.00	\$103.73	\$65.00	\$136.49
26' to 50'	\$20.00	\$41.49	\$39.00	\$82.98	\$59.00	\$124.48	\$78.00	\$165.97	\$99.00	\$207.46	\$130.00	\$274.07
51' to 75'	\$30.00	\$62.24	\$59.00	\$124.48	\$88.00	\$186.72	\$118.00	\$248.95	\$147.00	\$311.19	\$194.00	\$410.56
76' to 100'	\$39.00	\$82.98	\$78.00	\$165.97	\$118.00	\$248.95	\$157.00	\$331.94	\$196.00	\$414.92	\$260.00	\$548.14
101' to 125'	\$49.00	\$103.73	\$99.00	\$207.46	\$147.00	\$311.19	\$196.00	\$414.92	\$246.00	\$518.65	\$324.00	\$684.62
126' to 150'	\$59.00	\$124.48	\$118.00	\$248.95	\$177.00	\$373.43	\$235.00	\$497.91	\$295.00	\$622.38	\$389.00	\$821.11
151' to 175'	\$69.00	\$145.22	\$138.00	\$290.45	\$207.00	\$435.67	\$276.00	\$580.89	\$343.00	\$726.12	\$454.00	\$958.69
176' to 200'	\$78.00	\$165.97	\$157.00	\$331.94	\$235.00	\$497.91	\$315.00	\$663.88	\$393.00	\$829.85	\$518.00	\$1,095.18

Note: All of the above rates are maximum rates and are subject to a 10% additional charge if service includes Saturday (Above 6X/week rates include this surcharge).

Approx \$2.00 / ft.

88MISC
Prepared:
26-May-88

Waste Management of Santa Clara County
San Jose Commercial - Garbage
Miscellaneous Charges
July 1, 1988 thru June 30, 1989

SPECIAL PICK-UP RATES

<u>CONTAINER SIZE</u>	<u>MON - FRI</u>	<u>SATURDAY</u>
1 Can	\$3.28	\$4.92
1 Yard Bin	\$19.65	\$29.48
1.5 Yard Bin	\$21.84	\$32.76
2 Yard Bin	\$27.30	\$36.03
3 Yard Bin	\$32.76	\$38.22
4 Yard Bin	\$38.22	\$43.68
6 Yard Bin	\$49.14	\$54.60
8 Yard Bin	\$54.60	\$60.05
 <u>COMPACTOR CONTAINER RATES</u>		
	\$8.02 - \$11.25 /yard	\$9.35 - \$13.10
 <u>OPEN TOP ROLLOFF BOXES</u>		
(30 and 40 yard)	\$5.62 /yard	\$7.10 /yard
 <u>TRAILER PARKS/CONDOMINIUMS</u>		
		\$6.31 /mo/unit
 <u>LOCKS:</u>		
Removed/Damaged by Customer		\$54.60
Removed/Customer Request		\$27.30
Installed		\$74.25
Repaired (Including Lock)		\$48.04
Repaired (Excluding Lock)		\$40.40
 <u>CONTAINER DELIVERY SUBSEQUENT TO INITIAL DELIVERY</u>		
		\$21.84
 <u>CONTAINER CLEANING IN EXCESS OF ONCE PER YEAR</u>		
		\$16.38
 <u>CONTAINER EXCHANGE</u>		
		\$43.68