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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.

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

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.

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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.

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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.

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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.

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

BUDGET AND FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEES AGENDA

November 8, 1989

2:00 p.m.

City Council Chambers
915 I Street
Sacramento, CA

1. Report identifying the locations needing improvements for elderly and handicap access, submitted by the Advisory Committee for Persons with Disabilities. (D-All)

   RECOMMENDATION OF STAFF: ORAL PRESENTATION BY MARTHA J. POWERS, COORDINATOR, ADVISORY COMMITTEE FOR PERSONS WITH DISABILITIES

SACRAMENTO HOUSING & REDEVELOPMENT AGENCY

2. Matters regarding acquisition of sites in the Richards Boulevard Area: (D1)
   A. Authority Res. amending the budget to purchase real property located at 111 North 12th Street and 1221 and 1223 North A Street.
   B. Agency Res. amending the budget to purchase real property located at 111 North 12th Street and 1221 and 1223 North A Street.

   RECOMMENDATION OF STAFF: RECOMMEND APPROVAL AND FORWARD TO COUNCIL

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3. Agency Res. approving the amendment of the Capitol Mall setback variation for the 111 Capitol Mall Office Building Project. (D1)

   RECOMMENDATION OF STAFF: RECOMMEND APPROVAL AND FORWARD TO COUNCIL

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4. Agency Res. authorizing the execution of a disposition and development agreement with 111 Capitol Mall Associates for the redevelopment of Old Sacramento Parcels 113-115 and 122-123. (D1)

   RECOMMENDATION OF STAFF: RECOMMEND APPROVAL AND FORWARD TO COUNCIL

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COMMITTEE MEMBERS: Robie (Chair), Chinn, Ferris, Kastanis, Mueller, Pope, Serna, Shore