

# Pickup

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PREPARED BY THE LEAGUE OF WOMEN VOTERS OF BERKELEY

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*The cover is a reproduction, much reduced in size, of the poster distributed to stores, libraries, and other public locations at the beginning of the project period.*

*We wish to acknowledge the generous assistance of Ariel, and Georgiana Greenwood and Sandy Hagevik for graphics and illustrations.*

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RESOURCE SEPARATION AND PICKUP PROJECT

ATTITUDE SURVEY NO. 1

1. Household size \_\_\_\_\_
2. Ages and occupations of adults in household \_\_\_\_\_  
\_\_\_\_\_
3. How long have you lived in Berkeley? \_\_\_\_\_ years  
How long in the present unit? \_\_\_\_\_ years
4. How many cans of garbage do you  
a. have picked up by City \_\_\_\_\_  
b. have picked up by private service \_\_\_\_\_  
c. take to disposal site yourself \_\_\_\_\_
5. Are you participating in the newspaper pickup program? \_\_\_\_\_
6. Do you take glass, cans, etc. to recycling centers? \_\_\_\_\_
7. Do you contribute glass, cans, or newspapers to Scout drives or other voluntary programs? \_\_\_\_\_
8. Do you make your own compost? \_\_\_\_\_
9. Are you willing to participate in the program (described in the brochure) proposed for your neighborhood? \_\_\_\_\_

Comments \_\_\_\_\_  
\_\_\_\_\_

10. What has been your experience with separated refuse pickup in other towns where you have lived? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. How would you like to see the Berkeley refuse disposal system changed?  
\_\_\_\_\_  
\_\_\_\_\_

General Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ATTITUDE SURVEY NO.2

1. Have you participated in the PICKUP pilot project? Yes \_\_\_ No \_\_\_  
 a. Newspapers: usually every week \_\_\_ Every two weeks \_\_\_ Monthly \_\_\_ Less Often \_\_\_  
 b. Glass and cans? usually every week \_\_\_ Every two weeks \_\_\_ Monthly \_\_\_ Less often \_\_\_
2. Did you contribute newspapers to the monthly newspaper pickup of the Ecology Center in the month before PICKUP began? Yes \_\_\_ No \_\_\_  
 a. If you participated in PICKUP, did you continue to give newspapers to the regular monthly Ecology Center program? Yes \_\_\_ No \_\_\_
3. If you DID ~~not~~ participate in PICKUP, what was your most important reason for doing so? \_\_\_\_\_  
 \_\_\_\_\_  
 a. Would you like to see the program continue? Yes \_\_\_ NO- ~~NO~~ \_\_\_  
 b. What changes would you like to see?made? \_\_\_\_\_  
 \_\_\_\_\_
4. If you DID NOT participate in PICKUP, what were your reasons for not doing so?  
 a. Too much trouble \_\_\_  
 b. Did not bother for a limited time \_\_\_  
 c. Neighbors did not participate \_\_\_  
 d. City services more convenient \_\_\_  
 e. Afraid of material being scattered by children or dogs? \_\_\_  
 f. Prefer to take material to recycling center \_\_\_  
 g. Other \_\_\_\_\_  
 h. Did not know about it \_\_\_  
 i. How have you disposed of cans and bottles during the past four months?  
 Garbage can \_\_\_ recycling center \_\_\_ other \_\_\_
5. In the event that a city-wide newspaper, can and bottle pickup were set up, what frequency of pickup would be best for you?  
 a. Weekly \_\_\_ b. Every other week \_\_\_ c. Monthly \_\_\_
6. An important part of the cost of garbage collection is due to the time taken by the crew to enter the property and go to some place near the back door. IF YOU ARE A HOME OWNER, or, IF A RENTER AND YOU ALSO PAY THE GARBAGE BILL, would you be willing to place your garbage cans at the curb for a monthly reduction in your garbage bill of:  
 a. Fifty cents \_\_\_ b. One dollar \_\_\_ c. One dollar fifty \_\_\_ Not at all \_\_\_
7. Would you be willing to separate out your:  
 a. mixed waste paper? weekly \_\_\_ Monthly \_\_\_ not at all \_\_\_  
 b. magazines? weekly \_\_\_ Monthly \_\_\_ not at all \_\_\_  
 c. plant debris weekly \_\_\_ Monthly \_\_\_ not at all \_\_\_

## RESOURCE SEPARATION AND PICKUP PROJECT

Public Works Division, City of Berkeley  
 League of Women Voters of Berkeley

## HOME SEPARATION OF RECYCLABLES IN BERKELEY

It would appear that city pickup of home separated recyclables is an idea whose time has come. But very considerable care will be required to plan a city-wide collection at reasonable cost. These are the principal findings to come out of the cooperative project carried out over a four month period from October 1975 to February 1976 by the City of Berkeley and the League of Women Voters of Berkeley. Details of the pickup itself, as carried out by the city, and projected costs for a city-wide pickup, are given in the technical section of this report.

The League was responsible for sample design, for selecting the target neighborhoods, conducting attitude surveys at the beginning and toward the end of the collection period, and for analyzing results of both the pickup and the surveys. The League also handled publicity, information, and education about the project.

### OUTLINE OF OPERATION

The City of Berkeley Planning Department divides the city into twenty-two neighborhoods for the purpose of displaying census data. Three of these, one near San Pablo Park, one near Willard Park, and one in the hills were selected. The procedure for weighting the neighborhoods to represent the city is given in the appendix. In each neighborhood regular garbage routes were selected. These are identified and described in the technical report.

The pickup was organized in consultations between Mr. Richard C. Gazlay, Assistant Director of the Public Works Department, and Mr. Terry Harrison, Resource Recovery consultant to the League.

At the end of September the three target areas were leafleted, door-to-door, with "Waste Watcher I". Distribution was carried out by Camp Fire Girls, Boy Scouts, and members of the League pilot project committee. This coincided with newspaper publicity in the Berkeley Gazette, the Oakland Post, the Daily Californian, and the Co-op Shopping News.

During the first week of October, about three hundred and fifty households, representing one per cent of the total for all of Berkeley, were interviewed in the target areas. (See Survey I). This meant that about one in three households in these areas were called upon to ask what recycling activities they were participating in at the time, to explain the upcoming program and to ask if they would be willing to participate. The pickup began the next week, the week of October 6.

During the four months that collections were made, there were various news stories about progress, and reminders were distributed house to house. A pickup parade, with sound truck reminding residents to put their glass, cans, and newspapers at the curb, and accompanied by a door-to-door distribution of reminder leaflets covered the San Pablo route in November. The CETA crew, Camp Fire Girls, and League committee

members participated in this activity. Finally, and most importantly, committee members made personal calls in the Willard Park area and particularly in the San Pablo neighborhood, to find out first hand how residents viewed the matter of refuse disposal, and how they felt it should be handled. "Waste Watcher II" was distributed several weeks before the last collection.

Two weeks before the end, interviewers called again on the same households that had been visited four months earlier. ( See Survey II)

Shortly before the end of the program, the refuse collected by the regular garbage crews on one day, on each of the three target routes, was sorted through by committee members for glass, cans, and newspapers which had been thrown into the garbage can. About one ton of garbage from each route was sorted in this manner.

#### INFORMATIONAL PROGRAMS

The Committee found that neighborhoods responded quite differently to efforts to inform residents about the pickup, and to elicit their cooperation. Reading material such as "Waste Watcher I" was very successful in some areas. Interviewers found that residents had read it and were familiar with its contents. On the other hand, in one neighborhood we found that very few had bothered to read it at all. Here we found a personal approach very effective. People appreciated having their views solicited. In this way we found that people in different parts of the city have quite different concerns, and respond to such a program more or less readily according to what they feel is important to themselves. Even where participation was least, however, people were cordial to the committee and to the idea. An important finding is that a varied approach is needed to inform and solicit cooperation in different neighborhoods. If the City Council decides to institute a city-wide program, informational material should be geared to various parts of the city, and administered by people who understand the concerns of the different neighborhoods.

#### THE ATTITUDE SURVEYS

Opinions gathered in the first survey were almost uniformly favorable. A few people were hostile to being interviewed at all, but the idea of separating refuse at home, and the picture of this separated material lined up at the curb, aroused almost no negative reactions. Most people indicated a willingness to participate. Actual participation rates were lower, in some neighborhoods much lower, than the expressed willingness to make use of the program. Evidently, whether they strongly intended to participate or not, people were not alarmed at the prospect of the city carrying out this kind of collection service. Details of analysis of Survey I appear in the appendix.

Actual participation rates may be estimated from three very different sets of data: (1) the percentage of those interviewed in Survey II who stated that they had participated; (2) the record of participating addresses kept by the pickup crew; (3) the actual weight of glass, cans, and newspapers collected in one week compared to the weight of the materials left in the



total refuse collected by the regular refuse crews. A comparison of these three methods yields the figures in Table I.

Table I  
ESTIMATES OF PARTICIPATION RATES

<u>Participation, % of Households</u>	<u>San Pablo</u>	<u>Willard</u>	<u>Hills</u>	<u>City</u> <u>Weighted</u> <u>Estimate</u>
(1) Survey II	25	66	86	56
(2) "Pickup" Crews' address records	8	31	67	32
(3) Weighed general collection samples	8	41	55	32

Explanation of the discrepancies may be looked for in several areas. First, what does participation mean? Does it mean putting material out at the curb once during the entire four months of the program, putting it out every month, or putting it out every week? (This problem was anticipated and care was taken with the wording of the survey.) Secondly, addresses listed as single residences by the pickup crew may in fact cover multiple dwellings. Third, householders, especially students, move to new addresses, or may be out of town for much of the pickup period, and still list themselves as participants. In any case, the survey figures probably represent quite accurately the number of households that used the curbside pickup service at some time. Judging by the absence of negative comments, it is likely that the survey figures also represent the percentage of Berkeley households which could be expected to participate in a continued program with small urging.

Asked their opinion of the pickup service in Survey II, very few of those interviewed expressed dissatisfaction. Several families stated that they participated in the beginning, but stopped when material was not taken away. There were a few comments about broken glass scattered in the streets by the crew, but these examples just about covered the expressions of disapproval of the actual program.

By far the most common reason given for non-participation was "too much trouble". The "Pickup" Committee had felt that there might be resistance to a curbside pickup because of the opportunity for scattering by children or animals, but surprisingly few in any of the neighborhoods said that they felt this to be a problem. An unexpected reaction in some localities was that having to put refuse out on the curb constituted an invasion of privacy - "it is nobody's business what one throws away." Even here, however, people approved of the separation in principle. A number of people suggested covered bins on street corners.

The principle reason given for participation, on the other hand, was an already present interest in recycling and "ecology". Some people found they liked the convenience of the curbside pickup, and a few liked the increase of room in the garbage can.

Those who approved were asked how they would like to see the program changed. Most people said not at all, except for the few who suggested the need for more care on the part of the crew. On the contrary, there were many spontaneous expressions of enthusiasm.

The second survey in January asked a number of specific questions concerning a possible extension of a home separation program. These questions and responses are summarized in Table II. Note the high percentage who approve continuation in some form. The response to the question "Would you like to see this program continued?" was seldom qualified. Survey II does not fully explain the discrepancies between the percentages of those who said they participated and those who would like to see the program continue. The partial answer is that some people felt they could not themselves participate in a temporary program, because of age or poor health, but they approved the pickup in principle, and would like to see it extended.

In all neighborhoods a majority of those who gave their opinion said that pickup less than every week would meet with their approval. Apparently most householders feel that they can store their recyclables for more than one week. A bi-weekly pickup meets with the most favorable response. Those who cited reasons for their opinions mentioned a lower cost to the city and the inconvenience of being expected to get out the material every week.

A large majority of hill residents who answered the question said that they would be willing to put mixed waste paper, magazines, and plant debris at the curb for a regular collection. A majority of San Pablo respondents said they were not willing to do this. The responses in the Willard neighborhood are ambiguous. Students and possibly other temporary residents and apartment dwellers often gave negative answers, even when they were enthusiastic about the pickup as a whole, perhaps because the questions did not apply to their housekeeping.

At the suggestion of Mr. Gazlay, Assistant Director of the Public Works Department, interviewers asked if residents would be willing to put all their garbage at curbside, a procedure which would enable considerable savings in the cost of collection. Residents were asked first if they would do this for a reduction in their garbage bill of fifty cents a month. If the answer was no, they were asked would they consider doing it for a reduction of 75 cents a month, and if the answer was still "no", would they do it for a one dollar a month off the bill? This suggestion was rejected by two-thirds of those surveyed.

Attempts to gain the cooperation of apartment houses in the target areas were largely unsuccessful, and a separate approach was made to find out how apartment houses could be integrated into an extended program. This is discussed in the appendix.

Table 2

WILLINGNESS TO PARTICIPATE IN EXTENDED HOME SEPARATION PROGRAMS

	Percent of Households responding to question,			Estimated Citywide Response, %
	San Pablo	Willard	Hills	
Would you like to see this program continued?				
YES	72	100	98	90
NO	28	0	02	10
Would you prefer City-wide curbside pickup of glass, cans, newspapers:				
(a) Every week?	43	30	26	34
(b) Every 2 weeks?	24	48	48	39
(c) Every month?	33	22	26	27
(b) + (c) less than every week	57	70	74	66
Would you be willing to put <u>all</u> your refuse <u>at the curb</u> for a monthly garbage bill reduction of \$0.50, 0.75, 1.00? (choices were given for the lowest amount which would interest householder)				
YES	38	21	38	32
NO, not at all	62	79	62	68
Would you be willing to put your mixed waste paper at curbside for collection?				
YES	35	40	63	44
NO	65	60	37	56
Would you be willing to put out magazines at curbside for collection?				
YES	38	59	70	54
NO	62	41	30	46
Would you be willing to put out plant debris at curbside for collection?				
YES	29	27	68	39
NO	71	73	32	61

PERSONNEL

The Services Division of the Public Works Department performed the actual pickups. This is the city agency responsible for regular refuse service throughout the city. Separately is unusual in the San Francisco Bay Area for having public rather than private pickup of refuse. The crew was composed of three men who were working in this department on a one year Comprehensive Employment Training Act program. The officials responsible for the program in that department were Richard Harley, Assistant Director of Public Works, Russel Datta, Supervisor of the Refuse Collection Division and Louis Arnold, Assistant Supervisor of the

TECHNICAL SECTION

RESULTS OF THE PILOT SEPARATION & PICKUP PROGRAM AND PROJECTION OF A CITYWIDE PICKUP OF GLASS, CANS AND NEWSPAPERS

Prepared by Terry Harrison  
Resource Recovery Consultant

SUMMARY OF THE TECHNICAL RESULTS

1. The projection for participation in a citywide separate pickup program ranges from 38% to 56% based on observed participation and survey results in the pilot program.
2. A citywide weekly pickup similar to the pilot program, in conjunction with a recycling depot, is projected to start recycling enough glass, cans, newspapers and kraft paper to recover 9% of municipal refuse. The present system recycles 5%. A mandatory program and ongoing publicity would increase the participation markedly.
3. The cost of a curbside pickup will vary with wage rates paid to the crews, but is comparable to the cost of the present recycling system when projected at the same wage rate as currently received by those operating recycling programs in Berkeley. The net cost is not very responsive to the levels of participation above 38%. There would be a cost saving for less frequent pickup.
4. It may be practicable to expand the pickup to include magazines and other mixed waste paper. This would expand the amount of material diverted from the landfill from 3,400 tons per year to 5,300 tons per year or 14% of municipal refuse.
5. Three restaurants served by the pickup favored continuation of this sort of service.

## DESCRIPTION OF PROJECT

### PILOT AREAS

Using various demographic factors from census data, three city refuse routes were picked as being representative of the city. The three pilot areas were as follows:

Refuse route J-1 is in the southwest part of Berkeley, roughly bounded by San Pablo Ave., San Pablo Park, Ashby Avenue and King Street. It has a mix of single family residents and apartments. The income level is low to medium compared with the average in Berkeley. There are few students and many families. Of these families a high proportion are black.

Refuse route K-1 is south of the University of California Campus, roughly bounded by Ashby, Telegraph, Stuart and Hillegas, with a few blocks south of Ashby and west of Telegraph. This area was picked to be representative of a high student population, has a mix of apartments and single family residences, and contains some commercial buildings, some medical buildings and four restaurants, three of which participated in the project.

Refuse route A-2 is in the northwest corner of the city, bounded by Marin, Euclid and Creston. It is entirely made up of single family residences, mostly inhabited by the owner, very few of whom are minorities and is representative of the medium to higher income areas of the city.

### ATTITUDE SURVEYS AND PUBLICITY

Attitude surveys were taken in all three pilot areas before the pilot pickup and near the end of the pilot pickup. See the attitude section of the report for details of the survey and publicity program.

### TIMING OF PROJECT

The pilot pickup took place between October 6 and February 3, a total of 18 weeks. This period follows the summer vacation period, when publicity would tend to be less effective, and it straddles the dry fall and the wet winter. As it happened, there was far less rain in Berkeley than usual during that winter, and there was no significant amount of rain experienced on any of the collection days. On Monday routes J-1 and K-1 were collected and on Tuesday, route A-2. These were the same days as the regular refuse pickup. The schedule was planned to cover only route A-2 on Tuesday because the A-2 route was the farthest from the corporation yard and the warehouses where the glass, cans and newspapers were sold, and because a greater participation was anticipated on this route.

### PERSONNEL

The Services Division of the Public Works Department performed the actual pickup. This is the city agency responsible for regular refuse service throughout the city. Berkeley is unusual in the San Francisco Bay Area for having public rather than private pickup of refuse. The crew was composed of three men who were working in this department on a one year Comprehensive Employment Training Act program. The officials responsible for the program in that department were Richard Gazlay, Assistant Director of Public Works, Russell Badie, Supervisor of the Refuse Collection Division and Louis Arnold, Assistant Supervisor of the

Refuse Collection Division. Although three men were assigned to the pickup crew, the days when only two were available gave some experience with a two person crew. The last two days of the pickup were run with a different crew as the original crew had left city employment. The consultant accompanied the crew on eight occasions. The trucks were rented from Carter's Rentals in Berkeley.

Newspapers were taken to Packaging Company of California on the corner of San Pablo and Ashby. The glass and cans were taken to Pacific Recycling and Environmental Education Project, PREEP, at 8th and Parker Streets. The crew started from the City Corporation Yard on Allston. The newspapers were weighed at a public scale, Western Van and Storage on Harrison near Gilman. At least two hours were required on both Monday and Tuesday driving from one business to the other and unloading the recyclables although all these businesses are located in the western part of the city. Only newspapers were weighed each day. The full drums of glass and cans were counted and several drums of each were weighed three times during the project in order to obtain average weights.

#### EQUIPMENT

Three different vehicles were tried during the course of the project. For most of the project, a 10 or 12 foot long flat bed truck with stake sides was used. For two days in the last few weeks, a standard pickup truck with trailer was used. The pickup truck had an 8' bed, the trailer was 5' wide x 12' long. A bin approximately 7' wide x 3 1/2' high x 3 1/2' deep was used to collect newspapers. Thirty gallon steel drums were used for glass bottles and jars, and 55 gallon steel drums were used to collect the cans. Generally 5 drums of each size were carried; one 55 gallon drum was used for collecting shopping bags which residents had put out containing glass or cans. Room was left on the bed of the truck for a crew member to move about and crush glass. The 10' long truck was found to be too small, but was used several times because Carter's Rental was unable to provide the 12' truck which had been contracted for. The pickup truck and trailer had the advantage of lower beds. The bed of the trailer was only 1' off the ground compared to 3' for the flat bed truck. This meant easier access to the drums and the bin from the ground and made dumping bottles and cans out of bags into the drums much easier and quicker. The pickup truck and trailer were not used most of the time because the trailer had no brakes, and there was some danger of jack-knifing in the hilly A-2 route with a heavy load, especially in wet weather. A pickup truck and a trailer with brakes, equipped with properly designed bins, is the recommended vehicle for an ongoing program. Bins for glass and cans would be preferable to the drums used because a much larger volume can be held on the same floor space and the bins can be lifted off with a fork truck and dumped into larger roll-off bins or a dump truck.

Because of the bulky nature of whole glass bottles and jars, it was necessary to crush the glass in the drums on the truck while in route. This required most of one crew member's time and also resulted in some complaints from residents about noise, and glass flying onto the street. Larger bins with higher sides and no additional crushing of the glass beyond the breakage of falling into the bin would solve this problem.

The most effective tool used for crushing the glass was an old axle, a solid bar about 4' long. The crew were equipped with safety goggles and gloves when crushing the glass and wore international orange vests when picking up from the curb.

#### RESOURCE MATERIAL MARKETING

The newspapers which were taken to Packaging Company of California were taken in the bin directly into their plant. There they were recycled into molded egg cartons and fruit pads. The glass was taken by PREEP to CIRCO in Hayward who in turn transported it to Madera Glass in Madera, California, where it was melted down and made into new wine bottles. The cans went to Marin Environmental Cooperative in San Rafael where they were magnetically separated into steel, tin cans and aluminum cans. From here, the steel cans were transported to a steel mill such as Judson Steel, who make reinforcing bar. The aluminum went to an aluminum can manufacturer for recycling. The paper bags and cardboard boxes went to Independent Paper Company in Oakland, who probably shipped them to one of the several paper mills in northern California which recycle old boxes into new. Because of the amount of handling involved and the small amount of material from the pilot project, the price paid to the project was about half the price paid at the plant for the newspapers and glass. Nothing was received for delivery of the cans and paper bags because these are very bulky materials which require additional handling for such small quantities.

#### INSTRUCTIONS TO RESIDENTS

Explicit instructions were distributed throughout all three pilot areas, asking participation and giving instructions on preparation of material. The appendix gives samples of the flyers used. Generally these instructions were followed well, but were modified in the second flyer to correct some small problems that developed. The project did not collect bimetallic beverage cans which have a steel body and an aluminum top because Marin Environmental Cooperative could not separate them magnetically. An additional reason was that the volume of bimetallic beverage cans should drop to 30% of the present volume when the Mandatory Deposit Ordinance goes into effect in July 1976.\*

Boxes, which were collected initially, took up too much space on the truck. Waste Watcher II more specifically asked that glass and cans be put out in paper bags and not in plastic bags and cardboard boxes. After that boxes were generally left on the curb, after being emptied. The paper bags were put into 50 gallon drums and recycled by PREEP.

\*Environmental Economic and Legal Analysis of Proposed Berkeley Ordinance Imposing Deposit on Soft-Drink and Malt Beverage Containers, Berkeley Solid Waste Management Commission, Tom Lauderback, et al, June 1974, p. 6.

## RECORDS

Extensive records were kept of the project. The crew kept a route log on which were indicated time the route was started, time the route was finished, and time by which they completed taking the materials to the warehouses. In addition, after the first month, a record was kept of each address from which material was picked up each week. A record was also kept of the total amount of material collected on each route each week. Unfortunately, the conscientiousness with which these records were kept left something to be desired. Towards the end of the program, the importance of record keeping was emphasized and the records appear quite accurate. One recurring problem was that there was so little material collected on the J-1 route that it was hard to get an accurate measure as separate from the K-1 route. No records were kept on the amount of paper bags collected as the weight was relatively small. An estimate has been made of the amount however, based on the number of bags and the number of pickups required for each participating household. (See Table 5)

## REFUSE ANALYSIS

During January, the last month of the project, an analysis was made of the amount of glass, cans and newspapers left in the refuse picked up on the three routes by the regular refuse removal crews. This provided an independent check of participation. By knowing the amount of recyclables left in the refuse, how much was being recycled, it was possible to compute the percentage of recyclables recovered and compare this with the participation derived from the pickup records. This refuse analysis was performed by the pickup crew with a lot of help from the League of Women Voters of Berkeley Solid Waste Project Committee. It took four persons one day to sort through a ton of material from each route. The results are shown in the tabulation of data.

## WINE BOTTLE SORTING

During the last two months of the project a separation of wine bottles for Berkeley Ecology Center's Environmental Container Reuse Project, ENCORE, was attempted. These standard wine bottles were then washed and sold back to wineries for reuse rather than sent with the rest of the crushed glass to Madera Glass Company in Madera to be melted down and made into new bottles. The procedure for separating out the wine bottles was to put them into cardboard boxes picked up en route. This effort was only partially successful as the crew attempted separation only part of the time.

## APARTMENT HOUSES

Before the pickup was started, an effort was made to contact apartment house owners and managers in the two pilot areas which contained apartments in order to provide a special pickup for those with more than nine units. The service offered was to pick up at the same place as refuse was stored in order that residents could accumulate the glass, cans and newspapers there. Only one apartment building participated in this way. The main reason why more did not appear to be the short period of the pilot pickup; they did not feel that it was worthwhile to set up a system for their residents for only four months. In order to learn more about this problem the League of Women Voters is conducting a survey of apartment house managers which is reported elsewhere in the report.



RESULTS OF PILOT PICKUP

Table 3

	Route				
	J-1	K-1	A-2	Total	
Number of households in each route	635	320	470	1425	
Number of addresses taking refuse service in each route	412	242	400	1054	
				City Weighted Estimate	
Percentage of addresses putting material on curb*	8	31	67	36	
Percentage of material recycled by pilot pickup, determined by refuse analysis	8	41	55	33	
Material collected, lbs/month/address participating	Glass	12.6	21.8	14.3	15.6
	Cans	3.9	5.9	3.4	4.0
	Newsp.	21.1	35.6	17.1	21.2

Note: The pickup crew kept a log of the addresses which had material out in front of them each week and this indication of participation was compared with the total number of addresses on the city refuse route. This figure is smaller than the number of households in the route because of multiple dwellings and the small number of residences which do not have refuse pickup service.

\*Percentage participation was computed by taking an average of the average monthly participation and the overall participation for the three months during which records were kept of the participating addresses.

## PROJECTED CITYWIDE PROGRAM

### DESCRIPTION OF PROJECTED SYSTEM

A projection of the findings from the pilot pickup has been made in order to assess the feasibility of a similar citywide program. The 22 planning neighborhoods within the city defined by the Planning Department were analysed to determine their similarity to the pilot areas. From this analysis the number of households within the city similar to the pilot areas and the number of households which would be expected to participate in a citywide program was determined. The percentage participation used in making this projection is 1 to 2% higher depending on the route, than the actual participation observed in the pilot pickup. These percentages were determined by direct count and confirmed by the second attitude survey. They represent the number of persons who continued to recycle in other ways.

The number of those continuing to recycle at the recycling centers was determined from the 2nd survey. The number of crews required was determined by means of the number of pickups projected for the 3 areas of the city and the number of pickups per hour performed by the pilot pickup crew. This last was adjusted to a 2 person crew, and allowance was made for the reduced crew time if records of the pickups were not kept and the glass was not crushed (over and above drop breakage). These pickup per hour figures were compared with glass, cans and newspaper pickup programs in Modesto and Downey, California and the Ecology Center newspaper pickup in Berkeley.

Following projection of a citywide program with 38% participation, estimates were made for the cost and amount of material that would be collected for a citywide pickup with 60% participation. This figure represents the participation that might be achieved with a long term program or if sorting at home is required. It is also close to the 56% who indicated they had participated in the survey. It is clear that substantially greater participation than 38% could be obtained through ongoing citywide publicity programs and if a separation of glass, cans and newspapers at home were required rather than voluntary. Some communities which require separation have participation rates over 75%.

Finally, a projection of the overall costs of a residential source separation system based on a citywide program has been developed. The pilot pickup was conceived as part of the overall system for recycling in Berkeley. It was assumed that materials would be taken by the pickup trucks to a central depot, possibly at the 2nd and Gilman site for future processing and transfer and that this depot would also act as a recycling center, open to the public. A comparison of this system is made with the present recycling system. These assumptions are not a presumption on the part of the consultant that this is the only way in which recycling should be done in the future in Berkeley, but offered as a simple and reasonably efficient way of integrating a citywide pickup program with other source separation programs which may go on in the city and neighboring communities. The cost analysis was made using two different wage rates: \$1400/month which is what Berkeley refuse

pickup crews will receive next year including fringe benefits, and \$600 per month which is a little above what nonprofit groups running the recycling centers and newspaper pickup currently receive.

An analysis of the ongoing Ecology Center Newspaper pickup program was made and participation determined in various parts of the city. This was used as an independent means of extrapolating the pilot results to the city as a whole. This result correlated very closely with that obtained by extrapolating the League pilot pickup on a demographic basis. In making a comparison of the projected citywide, weekly pickup of glass, cans and newspapers with present programs, use was made of the survey performed of the recycling centers and their patrons in 1974 by the Community Solid Waste Reduction and Recycling Program.\* In order to make a valid comparison, a reduction in the amount of material shown received at the recycling centers has been made equal to the amount of reused beverage cans and bottles anticipated as a result of the Mandatory Container Ordinance.\*\*

#### MIXED WASTE PAPER

If mixed waste paper could be added to those items separated and picked up it would substantially increase the amount of material recovered. The attitude survey explored this possibility. The percentage of those who indicated that they would be willing to recycle mixed waste paper was less than the percentage of those who said they had participated in the pilot pickup, 56% vs. 44%. This indicates that perhaps 78% of those who would participate in a city-wide program for glass, cans and newspaper would consider putting out waste paper. Also, a more conservative 67% of those putting out glass, cans and newspapers is used to project the recovery of mixed waste paper. A survey taken by University of California students in 1974, found that the overall percentage of cardboard in two refuse routes was 6.7% of the total refuse and the percentage of other paper (not newspaper or cardboard) was 12.3%\*\*\* Assuming that 67% of the participants would recycle these materials, that 75% is recyclable (not carbon paper, plastic coated or contaminated), and that they would recycle 90% of that recyclable portion, then the amount recovered out of the 38,000 tons of municipal refuse collected by the city each year would be:

$$38,000 \times (.067 + .123) \times .67 \times .75 \times .9 \times .38 = 1,852 \text{ tons per year.}$$

If participation reaches the 60% level the proportionate amount collected would be 2924 tons/year or 154 tons/month. This mixed waste would include magazines.

\* "Second Annual Report, 1973-74", Community Solid Waste Reduction and Recycling Program, pp 18-20.

\*\* "Environmental, Economic and Legal Analysis of Proposed Berkeley Ordinance Imposing Deposit On Soft-drink and Malt Beverage Containers", Berkeley Solid Waste Management Commission, Tom Lauderback, et al, June 1974, p.6

\*\*\* "Solid Waste Management Alternatives for Alameda County", IDS 225 A,B, College of Engineering, University of California at Berkeley, 1974, Table A5, p. 10

PROJECTED SYSTEM COSTS

CAPITAL REQUIREMENTS

Table 4

Depot at 2nd & Gilman:		
Improvements to existing building, including ramp		\$ 7,000
Equipment		
Baler for kraft paper	\$ 5,000	
Fork truck	6,000	
7 trailers est. @ \$1,000	7,000	
Miscellaneous tools & equip. est. @	2,000	
Total Equipment		\$36,000
Total Capital Requirements		\$43,000

Labor  
a  
c  
e  
Deprec  
B  
E  
D  
Total  
Lease  
5 pick  
Admin  
Total  
Annual

OPERATING COSTS

Table 5

<u>Labor Cost:</u> 6 crews composed of 1 driver @ \$1464/mo. and 1 refuse collector @ \$1389/mo. (both figures include fringe benefits plus 1 driver & 2 refuse collectors at the depot plus 1 refuse supervisor @ \$1647/mo.		\$23,000/mo.
<u>Depreciation and Maintenance</u>		
Building depreciation & maintenance, based on 10 yrs. + 3% maintenance	\$100/mo.	
Equipment depreciation & maintenance, based on 5 yrs. + 5% maintenance	700/mo.	
Depreciation, maintenance, & operating costs on existing rolloff truck & bins	<u>1200/mo.</u>	
Total Depreciation & Maintenance		2,000/mo.
<u>Lease &amp; Operation of 6 pickup trucks</u>		
6 pickup trucks leased for 18 to 36 months @ \$128/mo. plus operation & maintenance @ \$100/mo.		\$ 1,400/mo.
<u>Administrative Costs (estimate)</u>		<u>\$ 500/mo.</u>
<u>Total Cost</u>		\$26,900/mo.
Annual Cost		\$322,800/yr.

<u>Additional cost of 2 more crews required for 60% participation</u>	
2 drivers @ \$1464/mo. + 2 refuse collectors @ \$1389/mo. + 2 pickup trucks @ \$228/mo.	\$ 6,200/mo.
Total for 60% participaton	\$33,100/mo.
Annual Cost	\$397,200/yr.

Note: If a labor wage rate of \$600 per month is used, the cost is \$152,000/yr. for 38% participation and \$187,000 projected cost for 60% participation.

PROJECTION OF MATERIALS RECOVERED FOR THREE DIFFERENT LEVELS OF PARTICIPATION  
IN HOME SEPARATION PROGRAMS

TABLE 6

SYSTEM	PARTICIPATION %	GLASS	CANS	NEWSPAPER	KRAFT PAPER	SUBTOTAL	MIXED PAPER	TOTAL	Tons per year Recovered	
Present, 2 centers + Monthly News Pickup	20	600	100	1300	negli- gible	2000	0	2000		
Voluntary Weekly Pickup	38	1000	200	1900	300	3400	1900	5300		
Required Weekly Pickup	60	1500	500	2900	500	5400	2900	8300		

Note: All projections assume a 70% reduction in soft drink and beer containers as a result of the Mandatory Deposit Ordinance, effective July, 1976. Mixed paper includes magazines.

TABLE 7  
ESTIMATION OF COSTS AND REVENUES FOR THREE DIFFERENT LEVELS OF PARTICIPATION IN HOME SEPARATION OF GLASS, CANS AND NEWSPAPERS AND TWO DIFFERENT WAGE RATES

SYSTEM	PARTICIPATION %	COST Wages \$1400/mo. 600/mo.	COST REVENUE+ \$1400/mo. 600/mo.	COST- REVENUE \$1400/mo. 600/mo. CREDIT**	COST- REVENUE EXTENSION	LANDFILL
		Dollars per year	Dollars per year	Dollars per year		
Present, 2 centers + Monthly news Pickup	20				52,000*	10,000
Voluntary Weekly Pickup	38	323,000	152,000	86,000	237,000	66,000
Required Weekly Pickup	60	397,000	187,000	134,000	263,000	53,000
						26,000

\*Grant to Community Conservation Services for current year including in-kind services.  
 \*\*Based on the \$5.00 per ton that is the minimum additional cost of disposal after the landfill is completed.  
 Note that the cost would drop \$75,000 per year for each regular refuse crew that could be diverted from collection of regular refuse to the separate collection.  
 +Revenue has been projected at \$20/ton for glass, newspapers and Kraft Paper & \$50/ton for mixed cans.

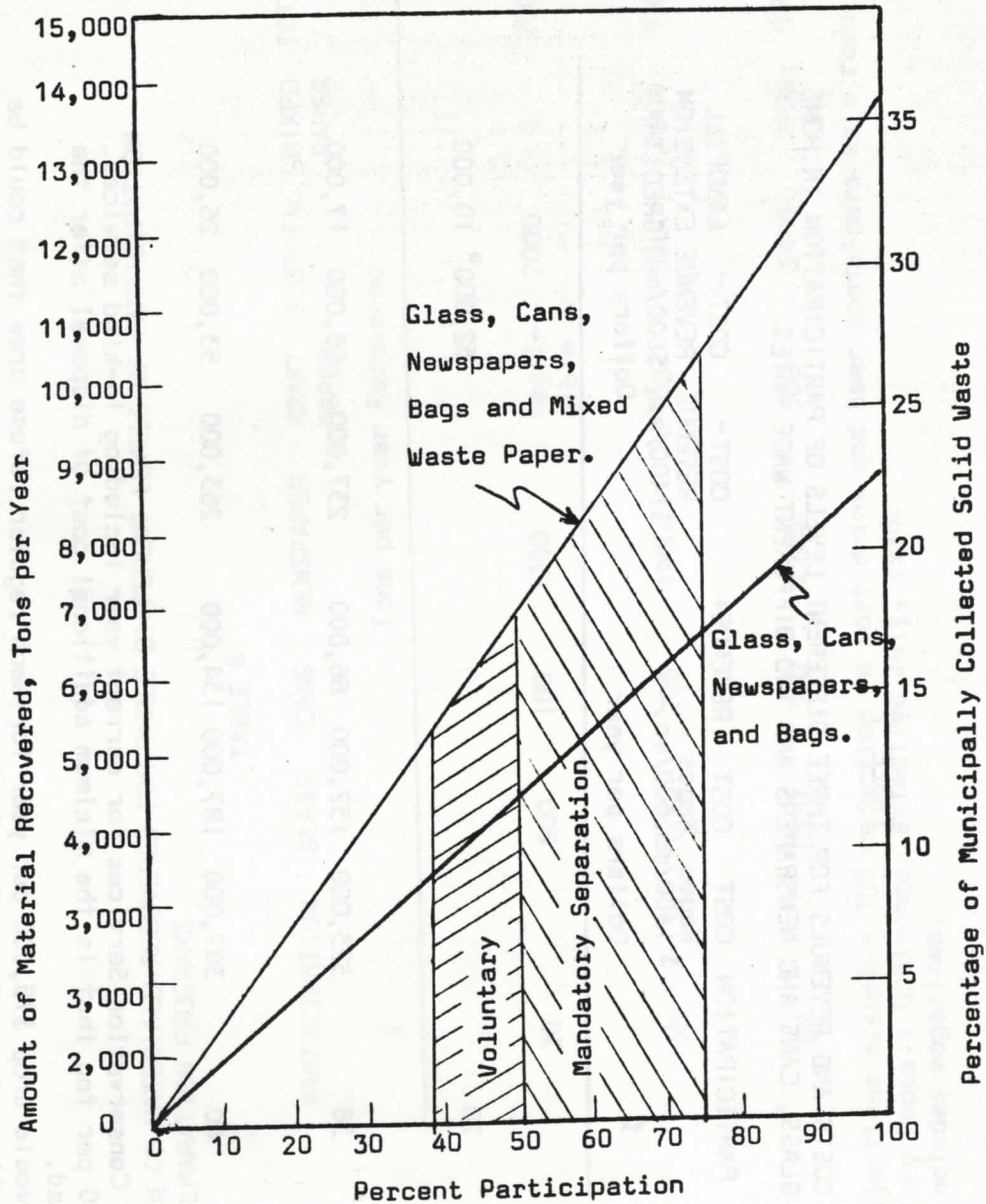


Figure 1. MATERIAL RECOVERED THROUGH HOME SEPARATION AND SEPARATE COLLECTION IN BERKELEY. PROJECTED FROM A PILOT PICKUP IN 3 AREAS.



### LANDFILL CREDIT

These programs extend the life of the landfill. When the landfill is completed the cost of refuse disposal will increase \$5.00 per ton or more. It is therefore reasonable to credit the extension of the life of the landfill @ \$5.00 per ton. This gives a \$17,000 credit for the 38% participation level and a \$26,000 per year credit for the 60% participation level. Additional revenue would be obtained from the sale of magazines if included in the program. As magazines sell for relatively little, the additional revenue will probably do little more than offset the additional cost. This means, however, an additional estimated 400 tons per year of resources recovered and diverted from the landfill, for a 38% participation and 700 tons per year for a 60% participation level.

### LESS FREQUENT PICKUP SCHEDULE

All of the above projections have been made on the basis of a once a week pickup schedule. In as much as the average period between pickups at a particular address was over two weeks, a less frequent pickup is worth consideration. What is not known is what the participation would be for a bi-weekly or monthly schedule. The survey results indicate most residents prefer pickup less often than once a week. (See survey section). But based on the participation in the Ecology Center's monthly newspaper pickup of 12% per cent, a monthly pickup is too infrequent.

It is difficult to accurately project the number of crews that would be required for a bi-weekly pickup, but a reduction from six crews to five is assured and it may very well be possible to reduce the number to four. A reduction of two crews would reduce the cost by approximately \$75,000 per year at the \$1,400/month wage rate and \$35,000 per year at the \$600/mo. wage rate. If the participation and the revenue remain close to the same, the net cost would be reduced by this amount.

### RESTAURANTS

In November, on Telegraph near Ashby, three restaurants were added to the K-1 route. These restaurants separated out their glass, cans and in one case newspapers, and the crew picked them up from the place where regular refuse was picked up. The corrugated cases which were used to store the glass and cans were also taken by the pickup crew. One of the restaurants, Casa de Eva, was a much larger generator of glass than either of the other two, Trattoria and Junkman's Place. As many as 50 cases of imported beer bottles were picked up at Casa de Eva each week.

The amount of glass collected from these three restaurants was fairly constant at around 580 lbs/week and this amount was deducted from the total glass collected from the K-1 route to determine residential glass collected. This amount of glass, 193 lbs/restaurant/week, can be compared with the estimate of 150 lbs/restaurant/week of the Ecology Center, Berkeley. September 1975

#### APARTMENT HOUSES

After the collection phase of the project was completed, selected apartment house managers were interviewed in the Willard Park and San Pablo Park areas. There were no apartments in the Hill area. It was found to be very difficult to contact managers and in some cases there are no resident managers. Only apartment houses with ten or more units were contacted as it was assumed that residents in smaller units could put their materials on the curb and that it would not be practicable to make special arrangements for a pick-up at a place other than the curb in the smaller buildings. The following are the findings from the informal interviews of the apartment house managers:

1. The key to success for apartment house collection is the cooperation of the managers.
2. None of the managers interviewed were antagonistic to the idea of a collection of recyclables although some were not actively interested.
3. The apartment houses which participated were in neighborhoods where participation was generally relatively good.
4. Those which participated had no difficulty in doing so and got cooperation from many of the tenants.
5. Some managers in apartments which did not participate indicated that they had difficulty getting tenants to put the refuse in the bins and cans any way and doubted that tenants would go to the trouble of separating glass, cans and newspapers and put them in a special area, (It is hoped that this problem is not general throughout the city).
6. The project learned from the Community Conservation Centers and the Ecology Center that there are many apartment houses participating in their recycling programs. In some cases the managers have been responsible for organizing the building, in others a motivated tenant has encouraged the other tenants to collect the materials and take them to the recycling centers. The number of apartment houses participating in the Ecology Center newspaper pick-up program has steadily grown over the three years of that program.
7. More study is definitely needed to develop an information program for apartment house managers, especially in neighborhoods where interest in recycling is low.

THE ATTITUDE SURVEYS

SELECTION AND WEIGHTING OF TARGET NEIGHBORHOODS

Selection of three type neighborhoods was based on the profiles of the twenty-one Berkeley neighborhoods as outlined in the "Berkeley Profiles" of the Master Plan Revision Program of the Berkeley Planning Department. The statistical indicators displayed in the profiles are based on the national census of 1970 and various City of Berkeley reports. Hill, San Pablo Park and Willard Park, respectively, were chosen as representative neighborhoods for three groups whose attitudes about refuse disposal were considered to be of prime importance for a home separation program: (a) the fairly affluent professional group, largely but by no means entirely white; (b) the black community; (c) students attending the University of California. One regular garbage route was selected in each of the three neighborhoods, chosen to fit efficiently into the regular schedule of garbage collection. The pilot pick-up crew operated along each route on the same day that the regular garbage crew went through.

The weights to apply to data gathered from these three routes for projection of city-wide estimates were determined as outlined here. The entire range of values for median income, education, type of employment, number of homes owned, number of university students, and race, were divided into three subgroups. For each indicator, the target neighborhoods were assigned to one of the three subgroups. In terms of each indicator, the other eighteen neighborhoods were characterized as being similar to Hill, San Pablo, or Willard. The final characterization of each neighborhood as being most similar to Hill, San Pablo, or Willard could not be done quantitatively. In some cases assignment was clear. In other cases, the mix of indicators was such that decision was a matter of personal judgement backed by a knowledge of Berkeley. Finally, a ratio was taken of the total number of occupied housing units in each of the three groupings, to the total number of such units in the entire city. The final weighting is:

San Pablo group of neighborhoods	38%	of the city
Willard Park group of neighborhoods	34%	" " "
Hill group of neighborhoods	28%	" " "

We are fortunate to have a check on these figures. The Ecology Center, a non-profit enterprise in Berkeley, has for several years conducted a monthly curbside pick-up of newspapers only. Figures are available for participation in this newspaper pick-up in terms of percent of addresses for each of their routes and for the entire city. Applying our weightings to their participation figures of 2% in the San Pablo area, 10% in Willard, and 33% in Hill, gives an estimated city-wide participation of 13.4%. The actual figure is 13%.

Table 8

Demographic Data

Survey I

	<u>San Pablo Park</u>	<u>Willard Park</u>	<u>Hills</u>
<u>Occupation of Adults in Household</u>			
	<u>nos.</u>	<u>nos.</u>	<u>nos.</u>
Number of households responding	71	102	107
Number of adults responding	132	223	225
<u>Occupational Distribution</u>			
	<u>per cent</u>	<u>per cent</u>	<u>per cent</u>
Total, employed or students	56	80	59
Professional, technical, management	10	31	45
Other employment	39	25	4
Student	7	24	10
Total, unemployed or not in labor market	44	20	41
Unemployed	10	2	4
Housewives	13	4	14
Retired	19	14	23
Disabled	2	-	-
Number of households responding to the questions below	120	121	114
<u>Length of Residence</u>			
	<u>years</u>	<u>years</u>	<u>years</u>
In Berkeley, ave. no. of yrs.	17.5	12.4	23.0
In present house, ave. no. of yrs.	11.3	7.0	14.4
<u>Average Household Size</u>			
	<u>persons</u>	<u>persons</u>	<u>persons</u>
Average Household Size	2.79	2.28	2.83
<u>Modal Age Group of Adults</u>			
	<u>years</u>	<u>years</u>	<u>years</u>
Modal Age Group of Adults	30-45	20-30	30-45

DISCUSSION OF THE SURVEYS

Demographic background data are shown summarized in Table 8 . A study was made of the types of occupations of adults in each household. San Pablo has the highest proportion of unemployed and with Hill has the highest share of retired or disabled adults. In contrast, Willard has only 20% in this category, most of them being retired.

Participation in the three Berkeley neighborhoods followed the expected correlation with education and income level, as deduced from type of employment. We had hoped to use these data to study several matters of interest within the neighborhoods, each with its own ambiente. For example, what is the university student participation?

On the one hand there is interest in recycling; on the other, student residences are temporary and perhaps more loosely organized than is true for their more settled neighbors. Analysis inside the neighborhood did not yield any statistically significant data. Present lifestyles and employment patterns are such that many households cut across categories. One household may fall into each one of the employment categories, and there is no way of predicting which employed member of the family will be most influential in determining attitudes.

The League committee working on this project has felt that participation of the immediate neighbors might be a factor in determining whether a family might also decide to participate. On this point we do have some data. The distribution of participating households in the San Pablo neighborhood, with its low over-all participation, is instructive. Sixty-five households are recorded as participants; almost half of these are located along three blocks of ten participants each, in widely separated parts of the area. In the case of two of these blocks, just around the corner or just across the street in the beginning of the next block are eleven more, for a total of forty-one, almost two-thirds of the total. There is a fourth grouping of seven about an intersection, and a group of five in one block some distance from any place so far mentioned. Out of the sixty-five, fifty-four are in distinct clusters. As for the remaining eleven, there are two pairs and one triplet with the members of each little group living close together. Four blocks each have one participating family, and five have none. The five non-participating blocks understate the case, however, because several blocks have participating families living at one end, where they form a part of one of the clusters. It is highly unlikely that this is a random distribution.

This grouping lends point to our contention that, should the City Council wish to gain city-wide understanding and cooperation for a recycling program, it must seek input directly from these neighborhoods which are not on the whole already sold on the program. Running an information program from a desk downtown will not, we feel, do the job.

Table 9

HOME REFUSE DISPOSAL AND RECYCLING ACTIVITIES;  
PARTICIPATION IN PILOT PROGRAMS

SURVEYS I or II

	<u>San Pablo Park</u>	<u>Willard Park</u>	<u>Hills</u>
	<u>nos.</u>	<u>nos.</u>	<u>nos.</u>
Households responding to each question	95-120	100-121	100-114
<u>General Refuse Disposal</u>	<u>average</u>	<u>average</u>	<u>average</u>
Garbage cans picked up by city, per household per week	1.2 <u>percent</u>	1.2 <u>percent</u>	1.4 <u>percent</u>
Households using various private services, gardeners, small neighborhood collections, etc.	11	3	10
Households in which family member hauls refuse to city dump (very variable frequency)	14	21	40
Households making own compost	6	19	27
<u>Participation in Recycling Activities</u>			
Households contributing to Ecology Center monthly curbside collection			
Before pilot pickup began (variable frequency)	7	31	62
During previous month	6	14	51
During pilot pickup	6	7	7
Households taking glass, cans bottles to recycling centers before pickup began	9	28	47
Households contributing to other voluntary programs (Scouts, etc.)	20	12	30
<u>Participation in Pilot Project</u>			
Stated willingness to participate	91	93	88
Participated one or more weeks	25	66	86

A summary of information on present refuse disposal and recycling activities is shown in Table 9, where figures on stated willingness to participate and on actual participation are also shown for comparison. San Pablo Park seems to have the most variety of small collection activities. Eleven percent of the respondents, the highest in the three neighborhoods, say that they are using a variety of means to get rid of refuse. There are very small private pick-ups, church collections, etc. Several people say they "give to an elderly person."

Open-ended questions on present Berkeley garbage collection and on comparisons with services of other communities elicited no special comments. Respondents expressed satisfaction with garbage collection in Berkeley, but nothing specific was mentioned, one way or the other.

Responses to the questions of most immediate interest, Survey II, have been discussed in the first part of this report.

#### COMPARISON AND EVALUATION OF ESTIMATES OF PARTICIPATION

The Survey II figure for participation, Table I, shows the total number of participating households over a four month period, October through January, according to householders own statements, irrespective of frequency, date of beginning, or length of time the households felt they were participating. (Survey data on frequency of participation are not given. We found that people probably tend to overestimate -- participation comes to mind more readily than non-participation.) This is the important figure for estimating an effective interest in the program. On the other hand, the second estimate, those based on crew records, show a computed monthly average of the number of participating households from which material was picked up, again disregarding frequency of participation. These computations cover a three month period, from November through January. Monthly averages alone underestimate participation, since some families will contribute only once during that time. The quoted participation rate is an average of these two extremes. It is important for determining the man-hours required to operate the collection program.

The total count of participating households over the three month period, taken from the crew records for the entire neighborhoods, agree reasonably well with the Survey II count made on roughly one third of the households over a four month period. These two percentages are, respectively, 14% and 25% for San Pablo (note small sample size for San Pablo for Survey II);\* 46% and 66% for Willard; 79% and 86% for Hill. The close agreement for the Hill area displays Hill's early and steady participation.

The third estimate for participation, that calculated from sorting garbage, refers to only one week, the third week in January. There is no way to judge how representative the refuse of that week was.

To repeat, a city-wide collection program could expect to begin by collecting in the amount projected from the crew records and the sorting of garbage, with the numbers of households participating equalling those in Survey I.

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\*For households selected for interview where nobody was home at the time of the first visit, the scheduled number of repeat visits, at the scheduled times, was followed in San Pablo for survey II. Possibly the fact that interviewing turned out to be slow at first, pushing the whole schedule to late in the week, may account for the small sample. Eighty-one of the 120 survey I households were interviewed.

Four months is a short time for a project such as ours. Only people who are already convinced of its value have established regular patterns of participation in that time. There was a slow increase during the three months that the crew kept records, but the time is too short to state the upward trend quantitatively. The San Pablo Park participation dated from the parade and intensive canvassing of neighborhoods in mid-November. There had been almost no participation previously.

It was unfortunate that the holidays came in the middle of the pick-up period. Students went home; on the other hand, many homes had more refuse of all kinds than usual. One problem which we wanted to cope with never developed: the expected rainy season with soaked paper bags and boxes full of recyclables, gave Berkeley a miss this year.

### COMMENTS

Finally we list the comments made to interviewers. By far the most frequent comment was one of eagerness to participate. The second most frequent kind of remark had to do with the need for care by the collection crew. Not all these comments were negative. In several cases, the context seemed to be that success of the program will depend in considerable part on the care of the crew. The collection of comments about possible, rather than actual, littering were more negative; they seemed to imply that care on the part of the crew could not be expected.

#### Verbatim Comments

The only reasonable thing to do.

The amount of garbage generated in this country is scandalous.

I like it very, very much.

Baby, baby, I'm too busy to think about such stuff.

(Mother of large family)

It is scandalous for the League of Women Voters to make attitude surveys. Participate? Of course I'll participate. It is a great idea. But you shouldn't make attitude surveys.

Continue this program? Yes, indeed. You are doing a great job.



COMMENTS OF HOUSEHOLDERS TO INTERVIEWERS

A number of different individual wordings, collected under the standard wordings given below.

<u>Comment</u>	<u>Frequency</u>
Glad to participate because of interest in ecology, saving resources, etc. Also general civic interest	66
Smashed glass in street, or Be SURE to pick up, or Didn't pick it up, so I stopped putting it out	19
Like convenience and efficiency of curbside pickup	16
A good idea for others -- I am ill, or otherwise unable to participate	14
Like saving of space in garbage can	9
The neighbors got me interested	5
Prefer recycling centers	5
I don't participate because I don't use glass, jars, tins, don't take newspapers	5
How about bins on street corners, or other central locations?	4
Bottles mean "alcohol", and that is nobody's business, but I would put out "jars!"	3
Concern about <u>possible</u> , rather than actual, littering at curb	3
Questions on the financing of this and other refuse collection	3
Some people hostile to being interviewed; but comments hostile to the basic principles of this project	0

APPENDIX III

SEPARATE PICK-UPS OF GLASS, CANS AND NEWSPAPERS IN OTHER CALIFORNIA COMMUNITIES

The project visited several other communities which have ongoing or pilot home pick-ups of glass, cans and newspapers.

A brief description of programs is followed by a comparison of their characteristics set forth in Table 10 .

RECOVERY, Berkeley Area

This, the oldest home pick-up recycling program for glass, cans and newspapers in California, charges \$3.75 per month for unsorted and \$3.50 per month for sorted material, with a possible lower price for curbside pick-up. Most of their customers are in neighborhoods with above average incomes. The program has had little publicity and has grown very little for the past two years. It was recently taken over from Kathy Wehrman, who originated the project, by the RECOVERY organization which also runs recycling centers in Alameda, El Cerrito, Piedmont and Oakland. The step van used for pick-up is unique among the pick-up programs visited.

Davis

Home separation of newspapers is mandatory in Davis. Residents are encouraged to separate glass and cans as well. The Resource Awareness Committee which handles the recyclables is a nonprofit organization which works closely with the Davis Waste Removal, the franchised operator in that city. Of particular interest are the small Cushman scooters with a 4 yard box which one man uses to pick up the recyclables, and the fact that the glass, cans and newspapers are mixed and hand sorted at the recycling center by the one attendant there. Also of interest is the rate structure: \$4.70 per month for unlimited curbside pick-up, including recyclables; \$6.45 per month for no more than two cans in the backyard, with no separate recyclable pick-up and an ordinance which permits these rates to be increased 1.5 times if the newspapers are mixed into the refuse for three times in three months. Despite the high participation in the curbside pick-up, the Resource Awareness Committee finds it very worthwhile to keep the recycling center open for acceptance of material brought to it by family car.

Modesto

Ecology Action, started by Cliff Humphrey who was the initiator of recycling in Berkeley, has been running for over two years a program similar to that projected for Berkeley. The participation is disappointing, about 15%. Ecology Action thinks it could be higher with better publicity. The program has two CETA employees but no other outside support.

Tiburon/Belvedere

This is a new program started by Marin Environmental Cooperative, which in cooperation with Survival runs over 16 recycling centers in Marin County. A subscription program, it does not have widespread support as yet. An interesting aspect is that mixed waste paper is collected and marked burlap bags are supplied to the subscribers.

Downey

This pilot program was developed by the Glass Container Manufacturer's Institute. The local refuse collection firm runs the pick-up; the G.C.M.I. does the publicity. The glass and cans are picked up mixed and are then

sorted by hand into aluminum cans, steel cans, colored glass and clear glass at a glass cullet firm which breaks even on its part of the operation. The refuse collection is a little below the break even point at last report. The program started as a weekly collection and changed to bi-weekly with little loss in participation.

Table 10

COMPARISON OF SEPARATE COLLECTION PROGRAMS FOR PICK-UP OF GLASS, CANS AND NEWSPAPERS IN CALIFORNIA

	<u>Berkeley</u> <u>Pilot</u>	<u>Berkeley</u> <u>Recovery</u>	<u>Davis</u>	<u>Modesto</u>	<u>Tiburon/ Belvedere</u>	<u>Downey</u> <u>Pilot</u>
Operated by	City	Pacific Recycling	Resource Awareness	Ecology Action	Marin Environmental Coop	G.C.M.I.
Materials Picked Up	Glass, cans News, Wine bottles	Glass, Cans News, Wine Bottles	Glass, Cans News	Glass, Cans News.,	Glass, Cans News Mixed Paper	Glass, Cans News
Frequency of Pickup	Weekly	Monthly	Weekly	Weekly	Monthly	Biweekly
Type of Program	Voluntary	Subscription	Newspapers Mandatory	Voluntary	Subscription	Voluntary
Charges	None	\$3.50/mo.	None (see text)	None	\$1.75/mo.	None
Program Started	10/75	'72	5/75	'74	12/75	Fall '75
Terminated	2/76					
Program Funding	City	Self Supporting	"about breaks even"	2 CETA Employees	To early to tell	"Almost breaks even"
Residences In Area Served	1,100	60,000	9,000	30,000		
Participation %	38	1/2	50 to 70	15		40
Crew Size Persons	2 or 3	1	1	1	1	3
Number of Crews			1	3	1	
Pickup Vehicle	12 Truck Pick-up Trailer	Step Van	Cushman Pickup Scooter	Pick-up Truck & trailer	Pickup Truck	Small Dump Truck