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REDUCING REFUSE COLLECTION COSTS

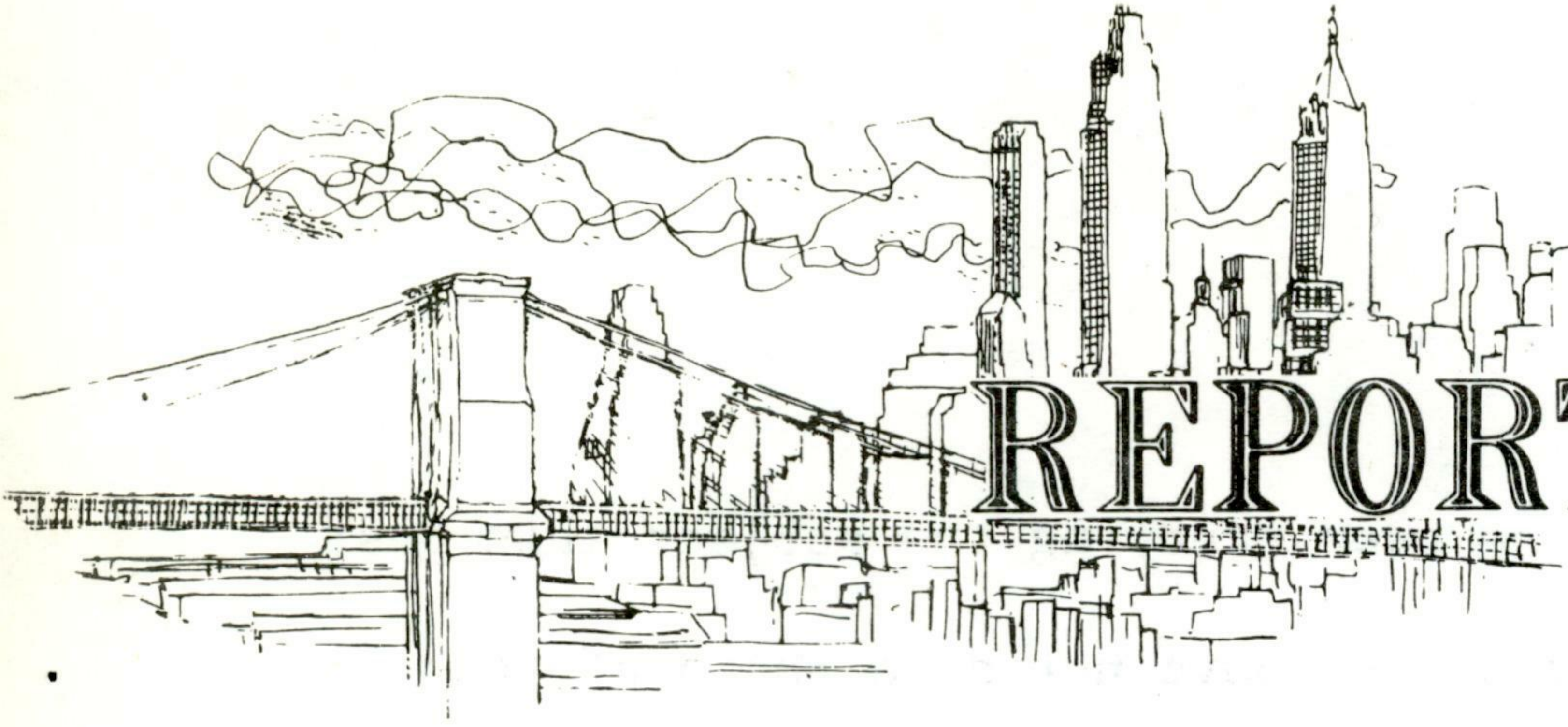
IN

NEW YORK CITY

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CITIZENS BUDGET COMMISSION, INC.

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*Citizens Budget
Commission, Inc.*

REPORT ON NEW YORK

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REDUCING REFUSE COLLECTION COSTS IN NEW YORK CITY

Summary

Intensive analysis of all available data, including official City reports, indicates that the City could eventually save \$59-77 million annually by contracting out the function of garbage collection to private cartage firms. Such contracting should be initiated in areas of one- and two-family homes, where City costs are almost three times private cartage costs: about \$48 per ton compared with an indicated private collection cost of \$17.50 or less per ton.

There may be differences of opinion over the exact savings achievable by such contracting, but there is no doubt that the cost of private cartage operations is substantially less than that of refuse collection by the City Department of Sanitation.

The Citizens Budget Commission analysis of cartage and municipal operations concludes that municipal service costs on the average almost twice the private service: about \$41 per ton compares with cartage collection costs of between \$20.71 and \$25.58 per ton.

The Citizens Budget Commission analyzed official studies previously made of the comparative costs of municipal versus private collection. The first study, by the City Administrator's Office in November, 1970, asserted that City costs were approximately three times private cartage costs: \$49 per ton as against \$17.50 per ton. A recent study by the Environmental Protection Administration released January 20, 1972, concluded that the comparative costs were about \$38 per ton for the City

and \$31 for private cartage. CBC, which had been studying the subject this past month, concluded that the evidence indicates, as above noted, a ratio of roughly two-to-one in favor of private cartage.

The City Administrator's study was essentially sound in methodology, but its predictions as to future cost escalation in the Department of Sanitation have proven somewhat high. That study also did not take sufficient account of the variations in refuse composition, which affect the actual cost per ton.

The EPA study erred in three respects:

- (1) The average City costs were estimated too low, because they excluded the highest cost areas of the City, which are precisely those in which the greatest savings are achievable by private cartmen.
- (2) The average private cartage operations costs were estimated too high, being based on an unweighted average of a sample of seven firms out of 450 in the business.
- (3) Private cartage costs were also probably estimated too high because the computation did not take into account a sizeable portion of collection loads dumped in New Jersey, and not included in the total tonnage for which the cost was ascertained.

There is only one way to determine precise dollar savings achievable by using private cartage firms, and that is by seeking bids for refuse collection from private cartage firms and comparing actual private and municipal costs under comparable conditions.

Transfer of some refuse collections from the Department of Sanitation to private cartage firms, in view of the nature of the industry, should be initiated subject to three conditions:

- (1) Bidding must be on a competitive basis.
- (2) Continuing control over rates and adequacy of performance must continue to be maintained by the City.
- (3) A continuing impartial evaluation of comparative performance and costs of public and private refuse collection must be maintained.

Introduction

New York City spends approximately \$155 million on refuse collection. This growing fiscal burden had led to increasing speculation about the merits of alternate forms of refuse collection.

In many cities throughout the United States, collection is not a municipal responsibility at all. In Seattle, Washington, for example, refuse is collected by private cartmen under contract with the City. A 1964 survey by the American Public Works Association indicated that 354 of 995 cities surveyed relied exclusively on private or contractual refuse collection instead of municipal service.

In New York City, 1.2 million tons of refuse are collected annually by approximately 450 private cartage firms which are licensed by the Department of Consumer Affairs. The remaining 3.7 million tons are collected by the Department of Sanitation.

Two studies have been made to determine the relative costs of the refuse collection services offered by the Department of Sanitation and by private cartmen. The first, in November 1970, was made by the City Administrator's Office and the other in January, 1972, by the Environmental Protection Administration (EPA) of New York City. These two studies concluded that private cartage services were cheaper than municipal service, but disagreed as to the extent of the difference.

The City Administrator's study concluded that private cartmen collected refuse at about one-third the City's cost: \$17.50 per ton, compared to \$49.00 per ton for the Department of Sanitation. The E.P.A. study found that the private cartmen cost was 18% less than the City's: \$31.43 per ton, compared to \$38.43 per ton.

This report is the result of an independent analysis by the Citizens Budget Commission of these two studies. It includes recommendations for refuse collection alternatives in the light of this analysis.

Collection Costs of the Department of Sanitation

City Administrator's Conclusion: \$49.04 per ton

EPA Conclusion : 38.43

CBC Conclusion : 41.11

Refuse collection cost data of the Department of Sanitation are generally based on the Progress Report and Statistical Review published monthly by the Department of Sanitation. Both the City Administrator's and the EPA study used this document as a starting point.

The City Administrator's report listed the direct cost items indicated in this monthly report and then computed such additional items as pensions, general overhead, public liability, and debt service. To the resulting figure of \$39.71 per ton, the City Administrator applied an inflator, to represent projected cost increases, bringing its total figure to \$49.04. Actual cost escalation was at a lower rate, and was offset somewhat by an increase in refuse collected.

The EPA report followed the same statistical method as the City Administrator in computing Sanitation Department costs and, after minor differences in the interpretation of the data arrived at a per-ton cost of \$40.51. The EPA then applied an "adjustment" to eliminate from the comparison 40% of the Department's routes, which were in high cost areas, such as one- and two-family homes. This adjustment reduced the per-ton price to \$38.43.

CBC Analysis

The "adjustment" in the EPA report to exclude 40% of the Department of Sanitation's routes as being too costly is not a valid one. It is precisely these routes that evidence indicates can be serviced with especially great savings using private cartmen. There is no reasonable basis for excluding these routes from the Sanitation Department's cost figures.

Apart from this "adjustment", CBC's analysis of the Department of Sanitation costs is similar to that of both the EPA and the City Administrator. The Commission estimates the per-ton cost of Sanitation Department collections at \$41.11. The difference between this figure and the EPA's "unadjusted" figure of \$40.51 per ton is minor, and is due to slightly different figures for debt service and general administration.

Appendix Table 1, Comparison of Cost Data for Collections by the Department of Sanitation, 1970-71, details the cost estimates of the Commission, the EPA, and the City Administrator's Office.

Cost of Collection by Private Cartmen

City Administrator's Conclusion:	\$17.52
EPA Conclusion	: 31.43
CBC Conclusion	: 20.71-25.58

The private cartage industry is a diverse one and is closely regulated by the Department of Consumer Affairs. The cartage industry includes a substantial number of one-truck cartmen as well as an increasing proportion of multi-truck operators. The rates cartmen may charge are limited to \$4.50 per cubic yard of refuse by the Department of Consumer Affairs, on the basis of required extensive financial data filed annually by the cartmen.

The City Administrator's report attempted to ascertain the per-ton collection cost of the private cartage industry by translating the maximum rate permitted by the Department of Consumer Affairs from cubic yards into tons (to make it comparable with Department of Sanitation cost data). There are two difficulties in converting this \$4.50 per cubic yard figure into a per-ton cost:

- a) the widely varying consistency of refuse makes a uniform density calculation impossible; and

b) most refuse-weight data is based on compacted refuse weights. The widely varying compactability of refuse and varied efficiency of compaction equipment makes it difficult to use this data.

The City Administrator's report used data collected by the Department of Consumer Affairs from a 1956 study which concluded that average weight of a cubic yard of uncompacted refuse was 325 pounds. Using this conversion figure, the City Administrator's report computed the per-ton price of refuse collection by private cartmen at \$17.52 excluding a profit allowance. If the criteria used in the City Administrator's report is applied to recent data, the computed cost is \$20.71 per ton.

The EPA study proceeded along entirely different lines. Instead of the aggregate of all firms, the study was limited to a very small sample of the operations of seven private cartage firms. These seven firms collected 58,576 tons of refuse in 1970-71 (1.5% of all firms). Three of the firms were one-truck organizations, two were of moderate size and two others were large firms.

The costs were derived from this small sample by the use of an unweighted average of the costs of each of the seven firms. Each firm's cost was obtained by dividing its total revenues, as reported to the Department of Consumer Affairs, by the total tonnage of refuse dumped in the City by that firm during the year to determine the per-ton cost.

The resulting seven prices vary widely, from a high of \$58.73 per ton to a low of \$21.50 per ton. The EPA unweighted average was \$31.43 per ton. A weighted average, which would be more accurate, results in a cost of \$28.28 per ton.

Both the City Administrator's report and that of EPA excluded dumping charges from their computations.

CBC Analysis

The EPA report suffers from a number of weaknesses:

- 1) A relatively unscientific sample of seven firms representing only 1.5% of the cartage industry is of dubious validity.
- 2) A weighted average of the seven firms should have been used, in view of the wide variation in tonnage collected by the seven firms. The resulting cost would be \$28.28 instead of \$31.43 per ton.
- 3) The figures do not reflect dumping outside New York City. A prime assumption in the EPA study was that all seven firms dumped exclusively in New York City. In fact, many firms take advantage of the cheaper dumping charges in New Jersey. Any refuse dumped in New Jersey by these seven firms lowers the EPA cost per ton figures, since the total tonnage collected would increase.

An investigation of these seven firms indicates that:

- two of the firms, accounting for 17,696 of the 58,576 tons collected by the seven firms, were found to have dumped in New Jersey at the time of their last audits.
- two other firms of the seven probably dumped in New Jersey, based on an analysis of their operations.

The total amount of New Jersey dumping may be estimated by examining the proportion of the revenues earned by the seven firms in the sample year that was spent on dumping fees. According to the Department of Consumer Affairs, a firm dumping only in New York City would normally spend about 21.5 percent of its revenue on dumping charges. The following were the percentages reported in the EPA report.

<u>Firm</u>	<u>Revenues</u>	<u>Dumping Fees</u>	<u>Percentage</u>
A	\$ 108,921	\$ 10,965	10.1%
B	98,985	10,320	10.4
C	62,009	10,535	17.0
D	165,371	20,894	12.6
E	355,130	65,629	18.5
F	1,359,983	254,045	18.7
G	526,424	125,193	<u>23.8</u>

Industry-wide Norm as Determined by Depart. of Consumer Affairs 21.5%

This wide disparity between the "normal" percentage of total revenues that would go to dumping fees if a firm dumped exclusively in New York City and the relatively low percentages reported by six of the firms would indicate substantial quantities of non-New York dumping.

Rather than rely on any sample of firms, the City Administrator's study derived the maximum costs of cartage operations from the legal rate limits set by the Department of Consumer Affairs. It is hard to argue with such a method since, barring excessive dishonesty or unprofitability, the maximum charge allowable must be an accurate indicator of cost.

The only difficulty comes in translating the \$4.50 per cubic yard charge allowed private cartage firms into a per-ton price.

The EPA survey does shed some significant new light on the factor of volume-to-weight conversion. Its data indicate that the City Administrator's conversion figure of 325 lbs. per cubic yard of uncompacted refuse may be too high. The EPA study placed the figure at a much lower level of 263 lbs. It is probable that there is no single figure, since the range of refuse consistency is too broad.

If the 263 lb. per cubic yard figure is used, the per ton price for cartage operations would be \$25.58, while the figure of 325 lbs. per cubic yard would yield a cost of \$20.71 per ton.

Appendix Table 2, Cost Per Ton of Refuse Collection by Private Cartmen According to CBC Study Under Two Assumptions of Weight-to-Volume Conversion, 1971-72, details the basis for these estimates.

The Special Case of One- and Two-Family Homes

The cost disparity between Department of Sanitation collections and those of private cartmen in one- and two-family home areas is especially great.

Comparative cost data for such homes is readily available, since several local units of government in Nassau county, containing primarily one- and two-family homes, use contractual services of private cartage firms.

In one area, lump sum contractual payments made by the governmental body to a private cartage firm result in an average monthly cost of \$5 per home. In another area, where the pickup occurs at the interior of the lot (called "backdoor" collection), the monthly costs average out to \$8 per home. Incidentally, in both instances, collections are on a thrice-a-week schedule.

On the basis of tonnage collected, those two areas in Nassau incur a cost of \$17.50 or less per ton. By contrast, according to the EPA study, twice-a-week refuse collection by the Department of Sanitation in one- and two-family home areas in New York City costs \$47.90 per ton.

Reasons for the General Cost Differential

Part of the City-wide cost differential is attributable to differing wage scales. Sanitation workers, according to data used in the EPA report, are paid about 20% more than private cartage workers, and fringe benefits also are somewhat higher.

Work rule differences account for another portion of this gap. Sanitation trucks are manned by at least three men, while many private cartage trucks are manned by two.

However, the most significant difference is in the inherent efficiencies of private as opposed to municipal operations. The incentives of profit and competition act to increase efficiency in a way the Department of Sanitation could never duplicate, even under the most aggressive leadership. The high proportion of owner-supplied labor and direct supervision also acts to increase the relative efficiency of private cartage firms.

Recommendations

There can be no doubt that economies can be achieved by substituting private cartage operations for some of the present City services. While estimates of cost savings through conversion to private cartage firms vary, all studies indicate such economies are likely to be substantial.

Cost Savings Based on City Administrator's Data:	\$119 million
Cost Savings Based on EPA Data:	\$34 million
Cost Savings Bases on CBC Data:	\$59-77 million

It is probable that the greatest savings would be in one- and two-family home areas. The sensible course of action for the City to follow is to seek bids on refuse collection contracts for various Sanitation Districts throughout the City. If the bids come in at levels substantially below the current Sanitation Department costs, the contract should be let. Obviously, it would be essential that adequate time be allowed for private cartage firms to "tool up" to meet the increased load. However, there is no valid reason why the City should not now solicit bids for a number of high-cost areas.

It is reasonable to expect that a gradual conversion to private cartage could eventually save the City as much as \$59-77 million annually. In the difficult fiscal condition of the City such savings are too badly needed to ignore.

Appendix

Table 1

Comparison of Cost Data For Collections

By The Department of Sanitation

1970-71^{a/}

<u>Category</u>	<u>City Administrator's Study</u>	<u>EPA Study</u>	<u>CBC Study</u>
Direct Labor	\$ 12.24	\$ 13.39	\$ 13.39
Indirect Labor	4.59	5.46	5.46
Paid Leave	4.55	4.57	4.57
Back Payroll	0.69	0.43	0.43
Pension and Employee Fringes	9.09	8.94	8.90
Gas, Oil, Grease	0.31	0.31	0.31
Other Supplies	0.07	0.13	0.13
Motor Vehicle Repair	2.27	2.63	2.63
Plant and Equipment Repair	0.54	0.55	0.55
Public Liability	0.17	0.17	0.17
Bureau Administration	0.78	1.01	1.01
General Administration	1.24	1.57	1.57
General Overhead	0.41	-	0.41
Debt Service	2.76	1.35	1.58
Addition to reflect 1970-71 costs	<u>9.33</u>	<u>-</u>	<u>-</u>
Sub-Total	\$49.04	\$40.51	\$41.11
Less EPA "adjustment" to exclude high-cost areas	<u>-</u>	<u>2.08</u>	<u>-</u>
Total per ton	<u>\$49.04</u>	<u>\$38.43</u>	<u>\$41.11</u>

a/ 1971-72 data for the Department of Sanitation is not yet available.

Appendix

Table 2

Cost Per Ton of Refuse Collection by Private Cartmen According to CBC Study

Under Two Assumptions of Volume-to-Weight Conversion^{a/}

1971-72

<u>Category</u>	<u>325 lbs. per cu. yd.</u>	<u>263 lbs. per cu. yd.</u>
Direct Labor	\$6.84	\$8.45
Indirect Labor	1.68	2.08
Paid Leave	0.75	0.92
Gas, Oil, Grease	0.95	1.17
Garage	0.23	0.29
Motor Vehicle Repair	1.52	1.87
Public Liability	0.56	0.69
Depreciation	1.69	2.09
Licensing Charges & Taxes	0.16	0.20
General Overhead	3.19	3.94
Profit Allowance	<u>3.14</u>	<u>3.88</u>
Total per ton	<u>\$20.71</u>	<u>\$25.58</u>

^{a/} Two different weight measurements are used to reflect the differing densities and, therefore, cost per ton of collecting various types of refuse.