REPORT TO THE SUBCOMMITTEE ON THE DISTRICT OF COLUMBIA COMMITTEE ON APPROPRIATIONS UNITED STATES SENATE

Solid Waste Disposal Activities

B-118638

District of Columbia Government

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

SEPT. 26, 1974

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-118638

The Honorable Birch Bayh, Chairman
Subcommittee on the District of Columbia
Committee on Appropriations
United States Senate

Dear Mr. Chairman:

This report is in response to your June 5, 1973, request that we analyze the District of Columbia's landfill project at Lorton, Virginia, and that we provide data for your use in making a judgment on a District reprograming request to release about $1.9 million for the project.

On the basis of discussions with our staff the $1.9 million has been released with the stipulation that it not be spent until further analysis of the available alternatives has been made by the District.

As your office agreed, a copy of this report is being sent to the Commissioner of the District of Columbia.

Sincerely yours,

Comptroller General
of the United States

Contents

ABBREVIATIONS

DES	Department of Environmental Services
GAO	General Accounting Office
PEPCO	Potomac Electric and Power Company
SWRC No. 1	Solid Waste Reduction Center No. 1
VEPCO	Virginia Electric and Power Company

COMPTROLLER GENERAL'S REPORT
TO THE CHAIRMAN, SUBCOMMITTEE
ON THE DISTRICT OF COLUMBIA
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE

SOLID WASTE DISPOSAL ACTIVITIES
District of Columbia Government
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D I G E S T

WHY THE REVIEW WAS MADE

The Subcommittee Chairman asked GAO to analyze the District's landfill project at Lorton, Virginia, to see if the District had developed a workable, well-thought-out, long-range plan.

Interest was expressed in determining whether the District was considering

--time phasing of alternatives to landfill (e.g., using solid wastes as fuel for power generation);

--truck hauling to Lorton versus rail hauling;

--long-range cost benefit implications of various alternatives; and

--the project's total potential cost to the District.

The Chairman also asked for data for making an informed judgment on whether to approve a District reprograming request to release about $1.9 million for the project. The request, for the most part, represented estimated costs of purchasing excavating and landfill equipment and of constructing landfill facilities.

The District's Department of Environmental Services is responsible for disposing of all solid wastes generated in the District.

The District's disposal capability consists of three landfills, of which Lorton is the largest; three District transfer stations; and the Solid Waste Reduction Center No. 1--a modern refuse incinerator. (See app. I.)

In northern Virginia the counties of Arlington and Fairfax; the cities of Alexandria, Falls Church, and Fairfax; and the towns of Clifton, Herndon, and Vienna also participate in the Lorton landfill project. (See p. 3.)

FINDINGS AND CONCLUSIONS

Status of District's long-range solid waste disposal plan

The District has not completed its long-range solid waste disposal plan or precisely defined its total cost implications. To the extent developed, the plan calls for

--development of the Lorton site as a regional sanitary landfill, a regional resource recovery facility, and a recreational complex (see p. 5.);

--use of solid wastes as a supplementary fuel for energy generation by utility companies (see p. 6.)

--improvement of transfer station capability (see p. 8.);

--continued use of the Solid Waste Reduction Center No. 1 beyond its scheduled closing of June 30, 1974, to 1977 (see p. 8.); and

--consideration of truck versus rail hauling to the Lorton site (see p. 10).

After GAO completed its fieldwork, the District prepared a Solid Waste Disposal Action Program covering activities through fiscal year 1977. The program deals with alternatives to current disposal processes; improvements to transfer stations; resource recovery facility construction; phaseout of incineration of solid waste; equipment procurement; and separate collection and disposal, through sale, of newsprint. (See p. 10.)

Analysis of capital funds used and requested for the Lorton landfill

The District has not defined the need or requirements for the facilities covered by the reprograming request--a maintenance facility, a truck-washing facility, and a scale house.

The District should define requirements for these facilities, consider alternatives and their costs, and develop detailed cost estimates for the proposed facilities. (See pp. 11, 13, and 15.)

A District analysis showed it was more economical to purchase than to lease the excavating and landfill equipment covered by the request.

GAO's review showed, however, that among other things the analysis did not consider costs to lease and purchase on a comparable basis and was, therefore, invalid.

The District needs to obtain comparable data on costs to lease and purchase equipment before it can determine which alternative is most beneficial. (See pp. 14 and 15.)

To permit the District to obtain required data from contractors, the Chairman advised the Commissioner of the District of Columbia on June 6, 1974, that the $1.9 million was being released. This was done with the stipulation that it not be spent until information is obtained and analyzed to ascertain the most economic alternative to acquiring excavating and landfill equipment and the need for the proposed landfill facilities is more adequately justified. By letter dated July 26, 1974, the District advised the Chairman of the actions it was taking to comply with his stipulation. (See p. 1.)

CHAPTER 1

INTRODUCTION

In a letter dated June 5, 1973, the Chairman, Subcommittee on the District of Columbia, Senate Committee on Appropriations, requested us to thoroughly analyze the District of Columbia landfill project at Lorton, Virginia, to see if the District had developed a workable, well-thought-out, long-range plan. Interest was expressed in determining whether the District was considering

--time phasing of alternatives to landfill (e.g., using solid wastes as fuel for power generation);

--truck hauling to Lorton versus rail hauling;

--long-range cost benefit implications of various alternatives; and

--the project's total potential cost to the District.

The Chairman also asked that we provide data to use in making an informed judgment on whether to approve a District request to release about $1.9 million for its landfill project. The request, for the most part, represented estimated costs of purchasing excavating and landfill equipment and of constructing landfill facilities.

After we discussed the portion of this review dealing with the reprograming request with the Chairman's office, the Chairman advised the Commissioner of the District of Columbia by letter dated June 6, 1974, that the $1.9 million was being released with the stipulation that it not be spent until information is obtained and analyzed to ascertain the most economic alternative to acquiring excavating and landfill equipment and the need for the proposed landfill facilities is more adequately justified. By letter dated July 26, 1974, the District advised the Chairman of the actions it was taking to comply with his stipulation.

The Director of the District's Department of Environmental Services (DES) reviewed this report, and his comments have been considered in the final revision. As the Chairman's office agreed, we are sending a copy to the Commissioner.

SOLID WASTE COLLECTION AND DISPOSAL

Solid waste consists largely of rubbish and food waste, ashes and other residue from the burning of wood and other combustible materials, street sweepings and the collections from vacant lots and alleys, and leaves and incinerator residue. DES' Bureau of Solid Waste Disposal is responsible for disposing of all solid waste generated in the District, but collection

is shared with private contractors and certain governmental entities, as follows:

Collection agency	Area of activity
DES	Residential units containing fewer than four dwelling units. Street-cleaning operations.
Federal agencies	Federal facilities.
Private contractors	Residential units containing four or more dwelling units. Commercial and industrial establishments. Major district facilities, public schools, and National Capital Housing Authority residential areas (under contract with the District).

(Our review did not deal with collection.) The Bureau in fiscal year 1973 had 334 employees and incurred operating costs of $5.4 million; for fiscal year 1974 it had an operating budget of $5.6 million and an authorized personnel strength of 331 employees.

SCOPE OF REVIEW

Our review included:

--Examining District records, policies, and procedures and records of congressional hearings.

--Examining costs of solid waste disposal.

--Analyzing several solid waste management plans.

--Interviewing District officials, representatives of Federal agencies involved in the field, and local government officials who manage disposal programs in the communities surrounding the District.

--Examining available documentation supporting the District's reprogramming request, including the economic analysis of costs to lease or purchase excavating and landfill equipment.

CHAPTER 2

EXISTING SOLID WASTE DISPOSAL CAPABILITY

The District's disposal capability consists of the Lorton landfill; landfills at Dyke Marsh and Cherry Hill in Fairfax County and Prince William County, Virginia, respectively; three District transfer stations; and the Solid Waste Reduction Center No. 1 (SWRC No. 1).

In fiscal year 1973, 509,000 tons of solid wastes were disposed of at District-operated facilities. DES estimated that between 450 and 500 tons of solid wastes per day were collected by private contractors and disposed of at other than District facilities. Bureau officials said the District could not provide disposal capability to all private collectors principally because there was insufficient holding capacity at their transfer stations and budgetary and operating problems delayed the startup of SWRC No. 1. Since SWRC No. 1 is now operating at full capacity (it did not do so during the first 15 months of operation) and the District's Dyke Marsh landfill will be accepting an increase over fiscal year 1973, DES expected to dispose of approximately 629,000 tons of solid waste--an increase of about 183,000 tons from fiscal year 1973--at District facilities in fiscal year 1974. The locations of the District's facilities are shown in appendix I and described briefly below.

LORTON LANDFILL

The Lorton landfill is on federally owned property made available to the District as a site for correctional facilities. In July 1972 the District obtained congressional approval to begin a regional landfill operation--involving the District, Arlington and Fairfax Counties, and the city of Alexandria--on a 22-acre portion of the Lorton property. A District request to continue the regional landfill operation on an expanded site was approved by the Subcommittees on the District of Columbia of the House and Senate Appropriations Committees in April and June 1973, respectively. An engineering consultant study concluded that, at a daily disposal rate of 3,100 tons, the estimated useful life of the site was 18 years. During fiscal year 1973 daily disposal at the landfill averaged just under 1,300 tons. However, the total annual tonnage is expected to increase substantially.

The regional plan contemplates that 800 acres would be developed as a combination sanitary landfill, or site for a resource recovery facility, and a recreational complex. All costs would be shared by the participating jurisdictions--which also include the cities of Falls Church and Fairfax and the towns of Clifton, Herndon, and Vienna, Virginia--on the basis of the actual tonnages deposited by each jurisdiction at the site.

OTHER LANDFILLS

The Dyke Marsh landfill is on marshland property owned by the National Park Service, Department of the Interior, and is used by the District to dispose of construction debris and other demolition material. Ultimately, the Park Service intends to develop the site as a refuge for migratory waterfowl and aquatic life.

The Cherry Hill landfill--on a site of about 25 acres--is used as the depository for incinerator residue, material collected in catch basins (street drains), and the sewer screenings and grit generated from sewage treatment plants.

SWRC NO. 1

SWRC No. 1 is a modern refuse incinerator which cost $19 million to build; it became operational in July 1972. It has six furnaces each with a rated operational capability to burn about 250 tons per day. Because of maintenance requirements, however, only five furnaces are operated at any given time so that the total operating capability is 1,250 tons per day.

During the first 15 months of operation, SWRC No. 1 did not achieve its operating capacity because of technical and expected startup problems. It was not until October 1973 that the plant began operating at full capacity.

A major advantage of operating SWRC No. 1 is that wastes are reduced by burning--90 percent by volume and 70 percent by weight. Thus, only the remaining residue requires further disposal, usually at landfills. However, considerable controversy exists, as discussed on pages 8 and 9 over the desirability of continuing to operate SWRC No. 1.

TRANSFER STATIONS

DES, in conjunction with its landfill activities, operates three transfer stations in the District--Fort Totten, Mount Olivet, and New Jersey Avenue and K Street. The Mount Olivet station is operated on a standby basis. Solid waste collected by private firms and the District is compressed by compaction units into large tractor trailer trucks for transporting to the Lorton landfill. Fort Totten and New Jersey Avenue and K Street have access to railroad service. The District presently uses railroad service from New Jersey Avenue and K Street to deliver a maximum of three carloads of solid waste to the Cherry Hill landfill daily if railroad cars are available.

CHAPTER 3

STATUS OF THE DISTRICT'S LONG-RANGE SOLID WASTE PLAN

DES is drafting a long-range plan for solid waste disposal. Since the plan is in the early formative stages, the total cost implications of the plan have not yet been precisely defined and the plan could not be evaluated. The plan provides for

--continuing operation of the regional landfill at Lorton;

--establishing a regional resource recovery facility, as previously described, at the Lorton site;

--converting two of the temporary transfer stations to permanent facilities;

--operating SWRC No. 1 as an incinerator through 1977 when resource recovery efforts are expected to be operational; and

--negotiating for additional landfill sites.

CRITICAL ROLE PLAYED BY THE LORTON SITE IN SOLID WASTE PLANNING

The District's plan calls for developing the Lorton site as a regional sanitary landfill, a regional resource recovery facility, and a recreational complex. The District is pursuing the use of solid wastes as a supplementary fuel for energy generation by utility companies. According to DES officials, resource recovery efforts should be operational by January 1978, if funds are made available.

At present the Lorton site is principally being used as a landfill. This landfill and SWRC No. 1 represent the District's major waste disposal facilities.

Landfill operations began at Lorton in July 1972. During the first fiscal year of operations, 336,300 tons of waste were deposited at the site consisting of 278,200 tons of District-generated wastes and 58,100 tons deposited by northern Virginia jurisdictions. Operating costs for the year were $1.2 million and were shared by the District and the northern Virginia jurisdictions on the basis of the tonnages deposited. Capital costs for the year totaled about $1.5 million, which is to be shared by these jurisdictions on the basis of their use of this facility, over the 5-year period of amortization of these costs.

Although the District was the major user of the site in fiscal year 1973--accounting for about 83 percent of the solid wastes deposited--this situation appears likely to change in the near future. Officials of

Arlington and Fairfax Counties and Alexandria said they look upon the Lorton site as their primary disposal facility--after their existing capability becomes exhausted. Arlington County began using Lorton exclusively in fiscal year 1974, and Fairfax County expects to do so in fiscal year 1976. An official of Alexandria informed us that the city would also use the Lorton site exclusively if it is required to close its incinerator. The projected tonnages that may be deposited at Lorton over the next 5 years, based on data provided by the jurisdictions, are depicted in the graph on page 7.

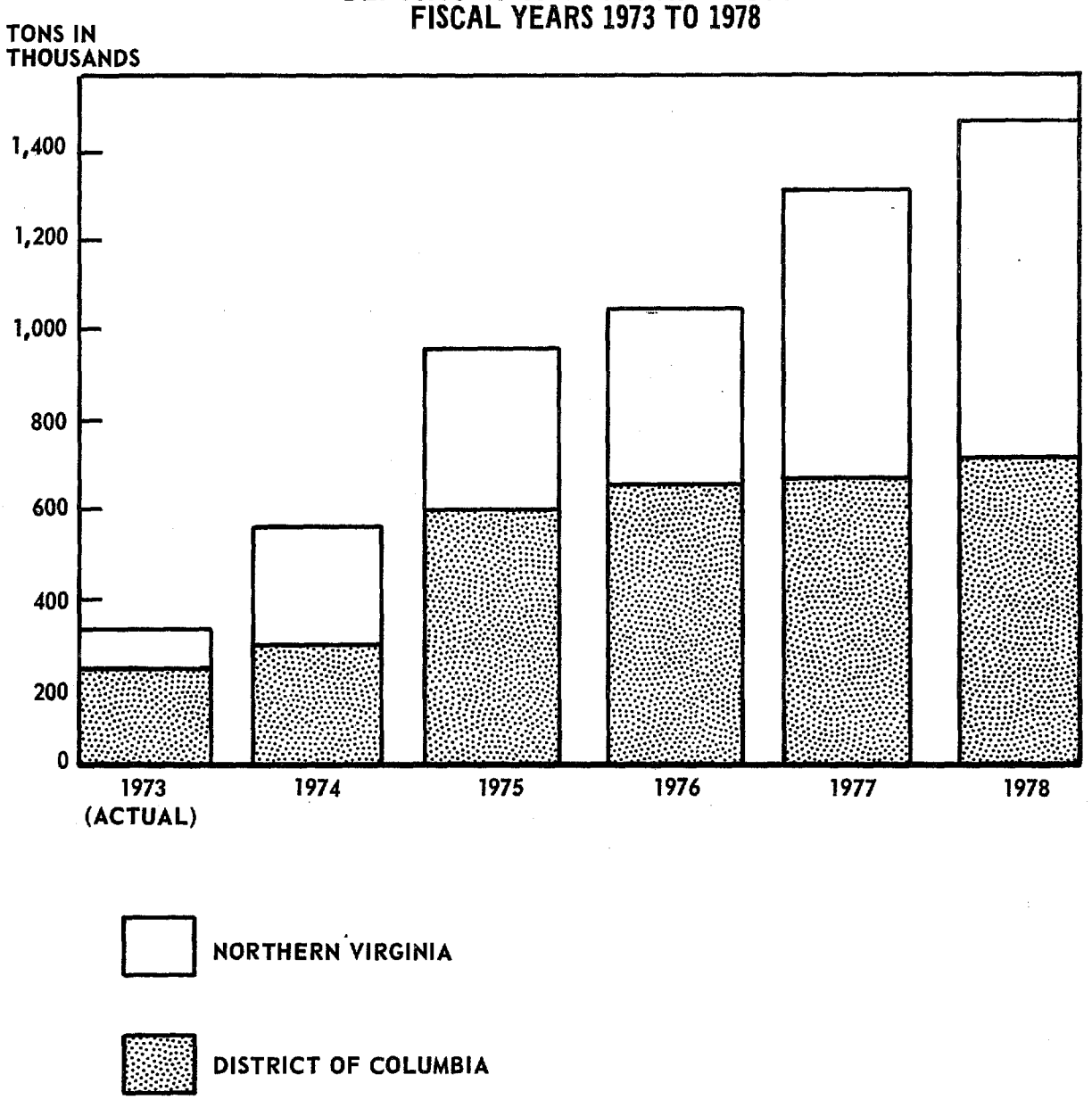
The projection to fiscal year 1978, based upon an annual growth rate of 5 percent of the actual solid wastes disposed of by the jurisdictions in fiscal year 1973, assumes that existing incinerators will not operate beyond fiscal year 1974 and that no resource recovery will be operational at Lorton. To the extent that incinerators continue to operate and the resource recovery complex becomes operational, the solid waste tonnages deposited at Lorton would be reduced. The chart points out that the northern Virginia jurisdictions' use of the site will continue to grow and by fiscal year 1978 they will be the major depositors at the Lorton landfill. As a result, they will ultimately bear an increasingly greater portion of landfill operating and capital costs. Additionally, if SWRC No. 1 continues operating to 1977 as planned, the estimated amount of solid waste to be disposed by the District at the Lorton site will be substantially reduced and the District's portion of operating and capital costs will be further reduced.

STATUS OF DISTRICT RESOURCE RECOVERY EFFORTS

The District and the other participants in the Lorton project, according to their memorandum of understanding dated November 2, 1972, are committed to developing a resource recovery facility at Lorton. Since March 1973 the District has been exploring the feasibility of utility companies' using solid wastes as a supplementary fuel for energy generation. An engineering study jointly funded by the District and the Potomac Electric and Power Company (PEPCO) concluded that such a resource recovery effort is technically feasible. In its report issued in October 1973, the firm recommended that the most feasible recovery operation would be to separate and shred the solid wastes processed and use the light refuse as a supplemental fuel in a suitably modified utility boiler for steam generation. The firm has estimated that a 1,000-ton per day processing plan would cost $6.6 million to construct. Operating costs were estimated at about $7 per ton. These estimates may change as more precise plans are developed.

A study conducted by Fairfax County and the Virginia Electric and Power Company (VEPCO) had concluded that it is technically feasible to use solid wastes as a supplementary fuel for energy generation. In November 1973 the Fairfax County Board of Supervisors decided to proceed with the design and engineering study needed to identify the modifications required in the VEPCO power plant at

GAO PROJECTION OF SOLID WASTE DEPOSITS AT THE LORTON LANDFILL FISCAL YEARS 1973 TO 1978



Possum Point, Virginia--on the Fairfax and Prince William County boundary--which would be used to accept the processed municipal refuse. The county study concluded that a 1,000-ton per day facility was feasible. A Fairfax County official informed us, however, that detailed cost estimates of constructing such a facility had not been prepared.

As envisioned by the District, energy recovery would involve constructing a processing facility at Lorton. The processed solid waste would be transported from Lorton to the VEPCO powerplant at Possum Point and PEPCO's Potomac River station in Alexandria. A DES official said the cost of designing and engineering the necessary facility would approximate between $300,000 and $500,000. DES advised us that a resource recovery facility could be completed by January 1978. The Acting Director, DES, advised us on May 28, 1974, that the District is negotiating with PEPCO to establish a pilot resource recovery project under which 300 tons of shredded refuse would be provided daily for use as a supplemental fuel at PEPCO's Benning Road station.

IMPROVEMENT OF TRANSFER STATION CAPABILITY

None of the transfer stations used by the District were originally designed for this purpose. Two facilities--Fort Totten and Mount Olivet (the latter is operated on a standby basis)--are old incinerators that the District had modified to use as temporary transfer stations. The third facility was originally designed as a garbage-grinding station and was converted to a transfer station in fiscal year 1973. During fiscal year 1973, the transfer stations handled 219,000 tons of solid wastes, or an average of 840 tons per day.

DES indicated that extensive renovations will be required to operate the transfer stations as permanent facilities. At Fort Totten and Mount Olivet, the loading of the tractor trailer trucks is currently accomplished by overhead cranes which would be replaced by compactor units. DES indicated also that extensive demolition of these facilities is needed, new scales and weighing equipment will have to be installed, and solid waste storage capacity will have to be built. The Department's fiscal year 1974 budget approved by the Congress included $500,000 for the design and engineering studies needed to modify transfer stations. The District's capital budget for fiscal year 1975 includes $4 million to convert the Fort Totten transfer station from a temporary to a permanent facility. The District has also indicated that it will request a comparable amount in fiscal year 1976 to convert Mount Olivet to a permanent facility. There is no immediate plan to further improve the New Jersey Avenue and K Street station.

DISTRICT CONCERN OVER THE CONTINUED OPERATION OF SWRC NO. 1

Until resource recovery plans materialize, DES' most pressing problem concerns whether it can continue to operate SWRC No. 1. The District's Air Quality Implementation Plan initially provided for

closing SWRC No. 1 by July 4, 1973. The City Council--to avoid a waste disposal crisis in the District--authorized the operation of SWRC No. 1 through June 30, 1974, and on June 25, 1974, authorized continued operation of SWRC No. 1 through June 30, 1977. In initially extending the life of the center, the council provided that extensive emission testing be performed to determine the degree, if any, that the center violates air-quality regulations. The initial test performed by an independent laboratory disclosed that the center was operating well within Environmental Protection Agency standards.

Neither the council nor the District Government views incineration as a solution to the District's solid waste disposal problem. DES would like to continue operating SWRC No. 1, however, until the alternate capability envisioned in its resource recovery effort becomes operational. Our analysis indicates that, if the center can function at an environmentally acceptable level, it would not be economically disadvantageous for the District to continue operating it. The cost per ton of disposing solid wastes at the center in fiscal year 1973 was less than the cost per ton of disposing solid waste through the combination of transfer station and landfilling at Lorton, as follows.

	Costs per ton in FY 1973
SWRC No. 1:	
Operating costs (including transportation of remaining residue to landfill areas)	$11.69
Operating costs at Cherry Hill landfill for the disposal of remaining residue	1.00
	$12.69
Landfill:	
Operating costs at transfer station (including transportation costs to the landfill)	$10.04
Operating costs at the Lorton landfill	3.60
	$13.64

Wastes processed through SWRC No. 1 also result in both a weight and volume reduction. Therefore, the continued short-term operation of the center would benefit the District by prolonging existing landfill life and by minimizing transportation requirements. The lessened transportation requirements seem particularly worthwhile in view of the current energy problem.

STATUS OF NEGOTIATIONS FOR ADDITIONAL LANDFILL SITES

The District's long-range plan acknowledges the need for additional landfill sites, but, when we completed our fieldwork, no additional sites had been identified. According to a DES official, identifying additional landsites is an ongoing function but recently the search for sites for depositing sludge from sewage treatment plants had taken top priority This matter has now been resolved, and, according to the official, the search for additional landfill sites will be renewed.

TRUCK HAULING VERSUS RAIL HAULING TO LORTON SITE

Rail haul is being used for solid waste transferred from the New Jersey Avenue and K Street station to the Cherry Hill landfill. DES officials informed us that discussions have been held with the Penn Central and Richmond-Fredericksburg and Potomac Railroads on the possibility of rail haul to the Lorton site, although this is not a part of the District's long-range plan. These officials stated that no definite agreements have yet resulted from their discussions. DES officials provided us with studies conducted by the Environmental Protection Agency and the American Public Works Association which indicate that short distance rail haul, as would be the case for the Lorton site, is not economically feasible.

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While a long-range plan had not been finalized at the time we completed our fieldwork the District subsequently prepared and provided us a Solid Waste Disposal Action Program covering its activities through fiscal year 1977. The program deals with

--alternatives to disposal processes;

--improvements to transfer stations;

--resource recovery facility construction;

--phaseout of incineration of solid waste;

--equipment procurement; and

--separate collection and disposal, through sale, of newsprint.

CHAPTER 4

ANALYSIS OF THE CAPITAL FUNDS USED AND REQUESTED FOR THE LORTON LANDFILL

The District had received $4.2 million of the $6.1 million it requested for capital improvements for the Lorton landfill project. As previously pointed out, the Subcommittee released the balance of $1.9 million with the stipulation that it not be spent until information is obtained and analyzed to ascertain the most economical alternative to acquiring excavating and landfill equipment and the need for the proposed landfill facilities is more adequately justified. DES officials said the $6.1 million represented, exclusive of equipment replacements, its total capital requirements for the landfill portion of the Lorton project.

The District received an initial $1.5 million in July 1972, on the basis of a reprograming request, to begin developing the Lorton site. DES accounting records show that, of the $1.5 million, about $1 million was spent on long-term site improvements--primarily initial road contruction--and $0.5 million was spent on site preparation for the original 22-acre landfill.

In March 1973 the District requested approval to reprogram $4.6 million more for the following purposes:

	Amount included in reprograming request
Land reclamation-sanitary landfill site preparation	$2,412,000
Transfer station modifications	362,000
Total site preparation and transfer station modifications	2,774,000
Landfill facilities	531,000
Landfill and excavation equipment	1,281,000
Total facilities and landfill and excavation equipment	1,812,000
Total requested	$4,586,000

The District received approval to reprogram $2.7 million of its March 1973, $4.6 million request, with no stipulation regarding which of the proposed activities should be carried out. DES placed priority on site

preparation of the landfill and on modifying its transfer stations. These items were included in the District's estimate at a cost of $2.8 million, or about $100,000 more than the reprograming authorization. Work has been deferred, to date, on the landfill facilities and equipment purchase.

Therefore, as part of our assessment of the landfill project, we examined the adequacy of the data supporting the reprograming request, the disposition of the $2.7 million made available, and the contemplated use of the additional $1.9 million recently released.

LAND RECLAMATION-SANITARY LANDFILL SITE PREPARATION AND IMPROVEMENTS TO TRANSFER STATIONS

Most of the land reclamation-sanitary landfill site preparation and transfer station improvement has been completed, and the total costs will be about $2.2 million, or $0.6 million less than the original estimate. The major part of this reduction was in the reduced price for excavating 1 million cubic yards of earth for the first year's operation of the expanded landfill area. The original estimate was $1,487,000; the contract amount was $823,000. (See app. II.)

Substantial differences exist between the original and current estimated costs for the individual items comprising the $2.8 million portion of the District's reprograming request. The original estimates were determined and reviewed informally within DES. According to Department officials, the original estimates were based largely on operating experience and there was no supporting records for the planned excavation work.

LANDFILL FACILITIES AND LANDFILL AND EXCAVATION EQUIPMENT

The remainder of the District's reprograming request is for landfill facilities and landfill and excavation equipment originally estimated to cost $1.8 million. According to DES, landfill facilities include a truck scale and scale house, a maintenance and administrative building, and a truck-washing facility.

Temporary weighing equipment has been placed at Lorton using makeshift equipment. This equipment is not housed in any structure and, consequently, does not protect personnel from inclement weather. A sheltered station to be built would incorporate more modern weighing equipment and would involve computerized weighing of incoming tonnage.

DES officials also informed us that the maintenance facility and truck-washing facility are needed at Lorton because of continuous tractor-trailer activity. These officials said the District does not have any truck maintenance capability at Lorton and cannot perform any vehicle repair if needed.

Presently, truck maintenance is being performed under a contract with a Prince Georges County contractor.

According to DES officials, the tires of their tractor-trailers pick up rock, crushed stone, and mud while traveling at the landfill which, if unremoved, could threaten highway traffic safety. The truck-washing facility could remove this hazard as well as keep the vehicles neat and sanitary, thereby precluding local criticism of this aspect of the landfill operation. Tank trucks are temporarily being used to wash the tractor-trailers.

There was no documentation showing that the facilities were needed or to justify the type facilities contemplated. A DES official advised us that the basis for the reprograming request was a consulting engineer's study. The study, however, did not contain any cost estimates and did not justify either the need for or type of facilities included.

The District would use the major portion of the reprograming funds deferred to purchase landfill and excavation equipment. An estimated 8 million cubic yards of earth require excavation at Lorton. During fiscal year 1974, 1 million cubic yards were excavated under contract. Similarly, most of the landfill operation is currently performed under a contract under which both the necessary landfill equipment and equipment operators are leased to the District (a common practice with this type equipment). DES would like to perform these functions in-house because its economic analysis indicated that to buy the necessary equipment would be less expensive than to lease. If equipment is purchased, DES would include guaranteed maintenance and buy-back provisions as part of the contract terms, a factor not included in the original $1.3 million estimate.

ORIGINAL AND CURRENT ESTIMATED COSTS OF LANDFILL FACILITIES AND EQUIPMENT

The landfill facilities included in the District's reprograming request were originally estimated to cost $531,000. DES officials informed us that this estimate was based on operating experience; records supporting the estimate did not exist, and engineering studies of the specific facilities needed had not been made. To provide us with more up-to-date information, DES obtained in November 1973 a more current estimate from an engineering consultant which reflected total costs of $896,000. In February 1974 he revised the estimate to $974,000. This latest estimate, as well as DES' updated estimate for purchasing equipment, is shown in the tabulation below. The estimate for facilities should be considered preliminary because it was not based on detailed plans and specification.

Comparison of Original and Current Estimated Costs for Landfill Facilities and Equipment

	Amount included in reprograming request	Revised estimated cost	Estimated increased or decreased (-)
Landfill facilities:			
Truck-washing facility	$ 160,000	$ 353,000	$193,100
Maintenance and administrative building	250,000	438,800	188,800
Scales and scale house	100,000	170,000	70,000
Entrance wall	21,000	12,000	-9,000
Total	$ 531,000	$ 973,900	$442,900
Landfill and excavation equipment (bulldozers, scrapers, compactors, etc.)	1,281,000	1,502,300	221,300
Total	$ 1,812,000	$2,476,200	$664,200

DES had made an economic analysis of purchasing or leasing landfill and excavation equipment. According to DES officials, the analysis, which indicated that the purchase of the landfill and excavation equipment was more economical than leasing, was based on a comparison of purchase costs with hourly rental costs rather than with long-term rental rates--those which could be achieved over the useful life of the equipment. Given the opportunity to bid on long-term lease agreements, contractors have quoted prices which are sometimes as much as 15 to 25 percent lower than those quoted on the basis of hourly rates.

In addition, the analysis did not include factors for insurance, taxes foregone, inflation, or risk (attributable in part to uncertainty about cost estimates and in part to uncertainty about future events), when the cost to buy was determined. The DES cost-to-lease estimate, in addition to not using lease costs for a comparable period, did not include an inflation factor. Neither estimate considered discounting--a method of comparing the costs of alternatives which require expenditures during different periods, such as leasing or purchasing. Discounting provides cost estimates which consider the changing value of money over a period of time. Failure to consider discounting usually results in estimates which favor a decision to buy.

These factors should be included in any analysis of lease versus purchase before a decision can be made as to which is more economical.

We asked DES to obtain both current purchase prices and long-term rental rates which are essential for valid economic analysis. DES could not obtain contractor quotes on the cost of providing long-term rental of landfill and excavating equipment. DES officials informed us that contractors are reluctant to provide such data without formal requests for proposal and the District is not authorized to issue such requests unless it has funds available. As a result, DES could not determine which of the two courses of action would be in the District's economic best interest.

CONCLUSIONS

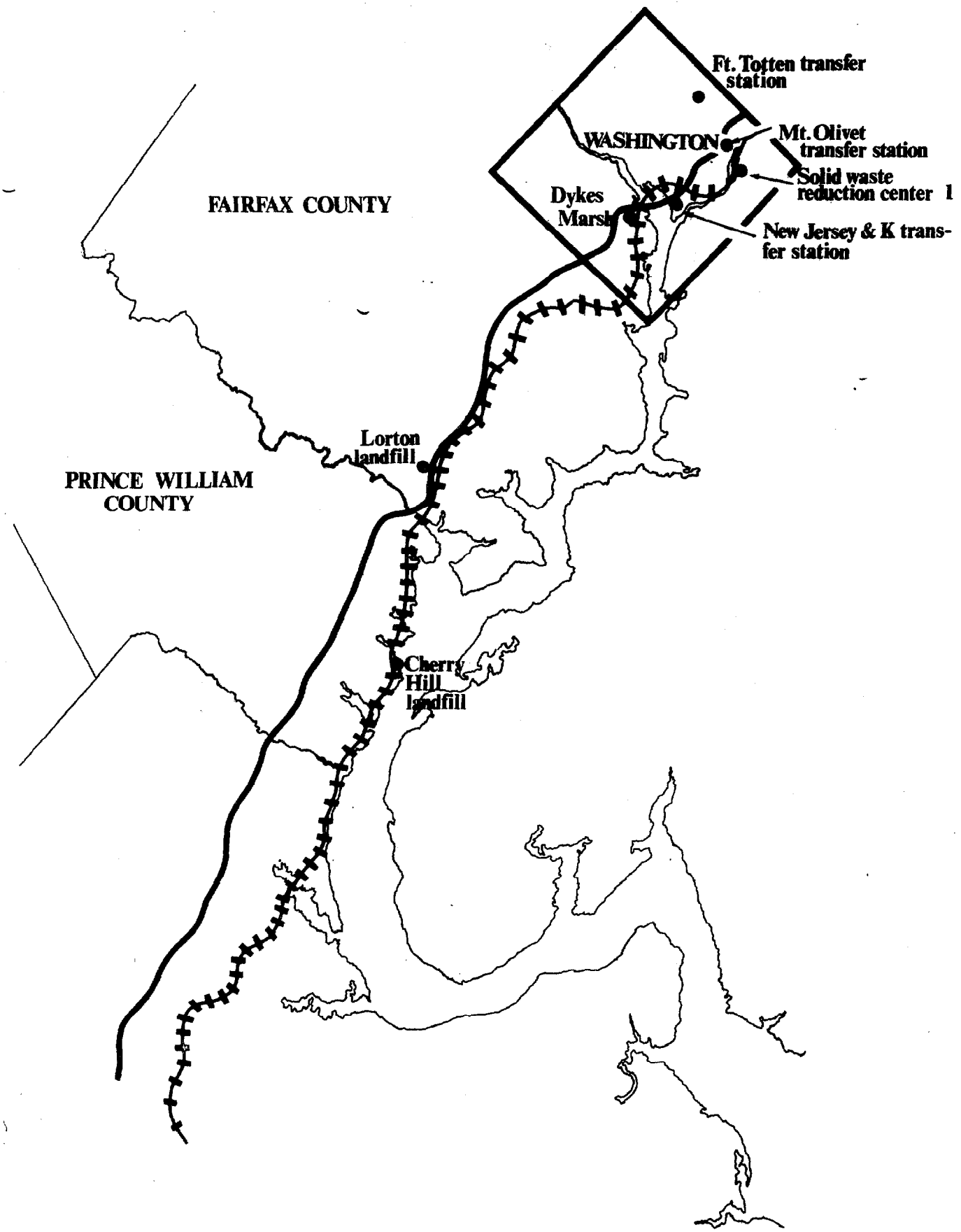
Further study and analysis is needed before DES can reasonably ascertain whether it would be more economical to buy or to continue leasing landfill and excavation equipment. The Committee's release of the funds should enable DES to obtain the necessary cost data upon which to base its analysis, and including the items on page 14 will insure that all pertinent factors have been considered.

The prospective cost of landfill facilities has increased substantially and could further increase. Since detailed engineering plans are under development for these facilities, DES should shortly be able to relate the cost of these facilities against the need for and available alternatives to these facilities.

The Committee has directed DES to define the need and the requirements for the maintenance facility, truck-washing facility, and scale house; consider available alternatives; and identify the costs associated with these alternatives before spending the funds released by the Chairman's June 6, 1974, letter.

DES should compare the cost of building any maintenance facility with the frequency that vehicle breakdowns and repair could reasonably be expected to occur at the Lorton site. The manpower, equipment, and supply costs that would be required at any onsite operation should be considered and contrasted with available alternatives, including current District-based maintenance capability.

Though there is need for reliable weighing equipment and related shelter at Lorton, the type and size of the equipment should be identified and justified and the cost determined. Similar justifications are needed to determine more precisely the most efficient manner in which truck-washing and vehicle safety operations could be accomplished.


Ft. Totten transfer station
WASHINGTON
Mt. Olivet transfer station
Solid waste reduction center 1
Dykes Marsh
New Jersey & K transfer station
FAIRFAX COUNTY
Lorton landfill
PRINCE WILLIAM COUNTY
Cherry Hill landfill

APPENDIX II

STATUS AND TOTAL COSTS INVOLVED IN LAND RECLAMATION-LANDFILL SITE PREPARATION AND IMPROVEMENTS TO TRANSFER STATIONS

	Total amount of reprograming request	District's current estimated total costs	Increase or decrease (-) from original estimate	Status of work
Land reclamation--land site preparation:				
Design and engineering	$ 100,000	$ 50,000	$-50,000	Complete
Road resurfacing, hydroseeding and drainage	675,000	868,200	193,200	Essentially complete
Excavation (1 million cubic yards in the first year)	1,487,000	823,000	-664,000	Essentially complete
Roadbed, rock, and crushed stone	150,000	29,400	-120,600	Essentially complete
Total	2,412,000	1,770,600	-641,400	
Improvements to transfer stations	362,000	392,000	30,000	Ongoing
Total	$2,774,000	$2,162,600	$-611,400	

OPERATING EXPERIENCE OF DISTRICT DISPOSAL ACTIVITIES FOR FY 1973 AND ESTIMATED ACTIVITIES FOR FY 1974

Disposal activity	User	FY 1973 Tons	FY 1973 Operating cost	FY 1973 Unit cost	FY 1974 Tons	FY 1974 Operating cost	FY 1974 Unit cost
Landfills:							
Lorton	District	278,200			214,388	$ 945,817	
	Northern Virginia jurisdictions	a/58,100			a/240,772	a/706,413	3.63
		336,300	$1,209,065	$3.60	455,160	$1,652,230	
Other	District	122,774	352,541	2.87	b/289,470	275,086	.95
Transfer stations:	District						
	Private						
	Federal	c/(219,064)	2,200,010	10.04	c/195,120	1,908,801	9.78
SWRC No. 1	District						
	Private	144,400	1,687,655	11.69	272,860	2,481,296	
		545,374			776,718		
Less incinerator residue (note d)		36,100			84,860		
Total		509,274	$5,449,271		691,858	$5,611,000	

a/These figures are not to be included in the totals but are provided to show the overall Lorton operation.

b/The increased tonnage for fiscal year 1974 will be received at the Dykes Marsh landfill which disposes of construction debris. Delivery to the site is by contractors without charge to the District.

c/The tonnage processed at the transfer stations is delivered to Lorton and is, therefore, part of the District's share of tonnages shown.

d/To avoid the inclusion of tonnages more than once, incinerator residue remaining from SWRC No. 1 operations and delivered to a landfill must be deducted.