A Proposal for Regionally Coordinated Household Hazardous Waste Programs in Chatham, Durham, Orange, and Wake Counties

From
The Triangle Region
Solid Waste Planners Committee

March 1993

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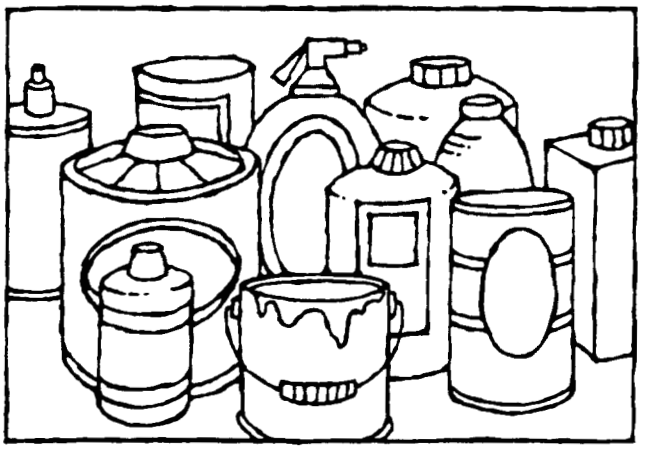
I. INTRODUCTION

Households may be the largest generators of hazardous waste in the United States: hazardous waste makes up 2 to 4% of the 200 million tons of waste landfilled every year in the United States, and household hazardous waste (HHW) accounts for one-quarter to one-half of this amount. An average household discards 21 pounds of hazardous waste per year, and it is estimated that the average home contains between 50 and 100 pounds of accumulated hazardous waste. (Dana Duxbury & Associates, Andover, MA 1990.)



Hazardous home products such as drain cleaners, swimming pool chemicals, metal polishes, pesticides, and automotive and paint products can be a threat to public safety and the environment if not properly handled and disposed of. HHW tossed in the trash can or down the drain can create problems such as safety hazards for trash collection and landfill crews, groundwater contamination, and an increased burden on sanitary sewer and wastewater treatment plant operations.

In communities across the country, special HHW collection programs have been created to provide for the diversion of household-generated toxic wastes that do not belong in sanitary landfills or in sewer systems. The total number of such programs in the United States grew from 2 programs in 1980 to approximately 1,000 in 1992. Most of these collection programs are of the traditional one or two days per year "collection days" type, but there is a recent trend toward establishing permanent collection facilities. The number of permanent collection facilities in the United States increased from 39 in 1989 to 128 in 1992.

In the Triangle region (which includes the counties of Chatham, Durham, Orange, and Wake for purposes of this report), the City of Raleigh, Wake County, and the City of Durham have sponsored successful single-day HHW collection programs once or twice a year during the past four years. The Orange Regional Recycling Program has also held one limited HHW collection program.

In early 1992, solid waste planners from local governments within the above four Triangle-region counties began attending a series of meetings sponsored by Triangle J Council of Governments to discuss the development of permanent household hazardous waste collection facilities in each of the four counties. Two significant factors led this group, the Triangle Region Solid Waste Planners Committee, to examine permanent facilities and a regional cooperative effort: the high cost of the current programs and the low amount of materials currently collected in these programs.

The focus of the Committee's inquiry was on the potential cost savings from a coordinated disposal schedule whereby a single contractor would periodically pick up HHW from several permanent sites within the region. These sites would be open and accepting HHW from county residents on a regular basis two or more days per month. This document is a report of the Committee's findings and recommendations.

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II. CURRENT HHW COLLECTION PROGRAMS WITHIN THE REGION

A. Wake County

The City of Raleigh initiated a program to collect HHW in 1989. It held a one-day collection day in the spring and another one in the fall. In 1990 it joined forces with Wake County, and the two have co-sponsored county-wide one-day collections each spring and fall since then.

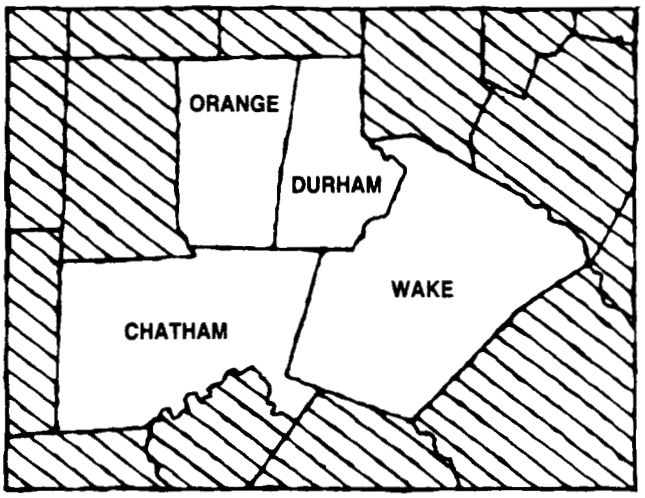
During the 1991-92 fiscal year, 4,320 people dropped off HHW during the two City of Raleigh/Wake County collection days. At an annual cost of $378,575, the program cost an average of $88 per participant and $2.08 per pound of hazardous material disposed of. In addition to hazardous materials, used oil, latex paint, and lead-acid batteries were collected and recycled.

The HHW collection days in Wake County have achieved a high level of participation and a low cost for programs of this type. However, only 2.6% of the estimated 165,743 households in the county are currently participating in the collection program. In a survey at the spring 1992 collection day, participants were asked for comments, and 35% volunteered that they would prefer more frequent collection opportunities.

B. Durham County

The City of Durham has conducted three one-day HHW collection events since November 1990, and these collection days have been open to all residents of Durham County. The County has helped provide technical assistance but has not provided funding for these events. There is one collection event planned for fiscal year 1992-93.

The two collection days held during fiscal year 1991-92 served 878 participants, just over 1 % of the households in Durham County. At an annual cost of $140,612, the program cost an average of $160 per participant and $1.98 per pound of hazardous material disposed of. Latex paint was also collected during these two days, and Habitat for Humanity helped separate usable paint for use in its program.



C. Orange County

The Orange Community Recycling Program sponsored one very limited, invitational HHW collection day in the spring of 1992. Invitations were issued to 80 people who had responded to a survey in the fall 1991 issue of the Orange Solid Waste News. Thirty participants came to the collection event, at which materials were recycled locally in an informal waste exchange among citizens. The 30 participants represented less than one-tenth of 1 % of the households in Orange County.

The Orange Community Recycling Program also collects used motor oil, kerosene, diesel fuel, Coleman fuel, gear oil, and transmission fluid once a month at a different location in Orange County. Beginning in the spring of 1993, there will also be a latex paint exchange for Orange County citizens and businesses.

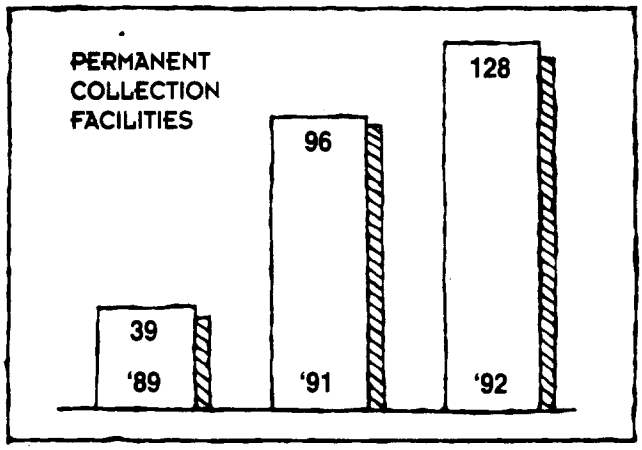
D. Chatham County

Chatham County offers a limited HHW collection program covering only motor oil and lead acid batteries.

III. THE TREND TOWARD PERMANENT COLLECTION FACILITIES

During the course of its ten-month study of permanent facilities throughout the United States, the Triangle Region Solid Waste Planners Committee compiled information on eighty-five programs in sixteen states.

The Committee as a whole toured one of the several permanent HHW collection sites operated by the Southeastern Public Service Authority headquartered in Chesapeake, Virginia. Individual Committee members also toured other permanent facilities (those in West Palm Beach County, Florida; Santa Monica, California; and Hennepin County, Minnesota) and attended a statewide conference in North Carolina and the 1992 National HHW Conference sponsored by the U.S. Environmental Protection Agency. The Committee also co-sponsored with Triangle J Council of Governments a one-day workshop in July 1992 on permanent HHW facilities at which experts shared their insights with Committee members.



The Committee has concluded that there is a nationwide movement away from one-day HHW collection events and toward permanent HHW collection facilities. This conclusion echoes a 1989 prediction by the Massachusetts Office of Safe Waste Management, which helped fund and then analyzed 59 collection programs in Massachusetts, and which stated in its analysis, "[A] statewide program of one-day collections is an interim measure for household hazardous waste management .... Permanent collection centers may meet the collection and disposal needs of households ... by providing a consistent and more cost effective method of management." By 1992, 128 communities in the United States provided regular HHW collection through the use of a permanent collection facility – a dedicated facility open to the public at least once a month. Many of these communities had formerly collected HHW in one-day collection programs and had decided to set up a permanent facility so as to provide more effective collection.

There are two main reasons that communities have switched to permanent facilities:

(1) greater public access means more material will be captured by the program;

(2) the ability to store and consolidate material means lower costs per unit of material disposed.

Several examples from communities with populations and/or service areas somewhat comparable to that of the four-county Triangle region (which has a population of 738,000 in 2,260 square miles) illustrate the above point:

• *In West Palm Beach, Florida* (population 900,000 in 3,000 square miles), participation and the amount collected both more than doubled when the program switched from twelve one-day events per year to permanent collection. Both the disposal cost per participant and the disposal cost per pound collected dropped by about 36%.

• *In Rochester, New York* (population 702,000 in 629 square miles), switching from one one-day event per year to permanent collection increased participation by 45% but more than doubled the amount collected. The disposal cost per participant decreased 33%, and the disposal cost per gallon collected decreased 60%.

• *In the Southeastern Public Service Authority in Virginia* (population 1,000,000 in 2,000 square miles), participation almost quadrupled when the program switched from two one-day events per year to permanent collection. The amount collected more than doubled but was hard to quantify in any more detail because there was a difference in the paint collection systems used. Both the disposal cost per participant and the disposal cost per pound collected (excluding paint) significantly dropped.

• *In the Wichita/Sedgwick County area of Kansas* (population 400,000 in 1,100 square miles), a switch

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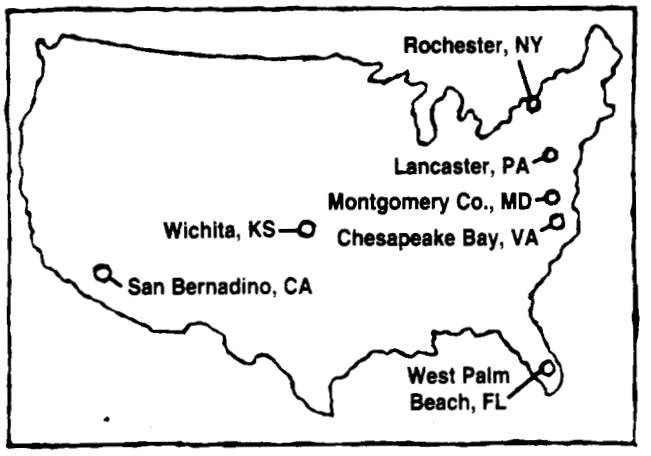
from one two-day event per year to permanent collection boosted participation by more than six times; data on the amount collected was not available. The disposal cost per participant decreased 60%.



For more detailed cost information regarding the above examples, see **Figure 1.**

The more than one hundred permanent collection facilities in the United States are typically located at landfills, transfer stations, or other publicly-owned sites. A typical facility is open less than full-time, commonly on Saturday mornings. In some programs, one-day events are held at satellite locations, with the permanent facility serving as the hub. In San Bemadino, California; West Palm Beach, Florida; and the southern Chesapeake Bay area of Virginia, smaller satellite facilities have been built and are open on a rotating basis.

The permanent facilities generally fall into three categories: minimalist, intermediate, and full-service.

A minimalist facility has storage space but little or no space for bulking and lab packing, testing, office work, or setting aside for reuse. A number of the Florida facilities follow this model. For example, the Brevard County facility is a prefab storage container at a landfill, and most of the work can be done out of doors. There is a concrete pad in front, a prefab equipment shed, pallets outside for latex paint, and a fence around the site. Receiving and initial sorting is done by staff, and a contractor consolidates, lab packs, and transports the waste.

The intermediate facilities have space for receiving and storage, some space for bulking and testing, and perhaps a nearby office. These facilities sometimes have storage space for fewer drums (12-20) than the minimalist (20-40), because part of the indoor space is devoted to work space. Ellis County, Kansas, for example, has a 10'x 20'prefab building with 14 drums stored along three walls and a work table on the fourth wall.

A full-service facility has indoor space for receiving. sorting, testing, bulking, lab packing, storage, office work, and setting aside for re-use. The 6,000- square-foot facility in Anchorage, Alaska is presently the largest example of this kind of facility.

The different types of buildings used for permanent facilities include prefabricated hazardous waste storage sheds, precast concrete storage structures, modified trailers, and new or retrofitted buildings.

Staffing arrangements range from staffing entirely by a hazardous waste contractor to staffing entirely by trained county or municipal employees who pack for pick-up by the disposal contractor. In an intermediate option, county or municipal staff are trained to bulk and lab pack some items under contractor supervision, and the contractor is responsible for identification of unknowns, the remainder of the lab packing, paperwork, and transportation.

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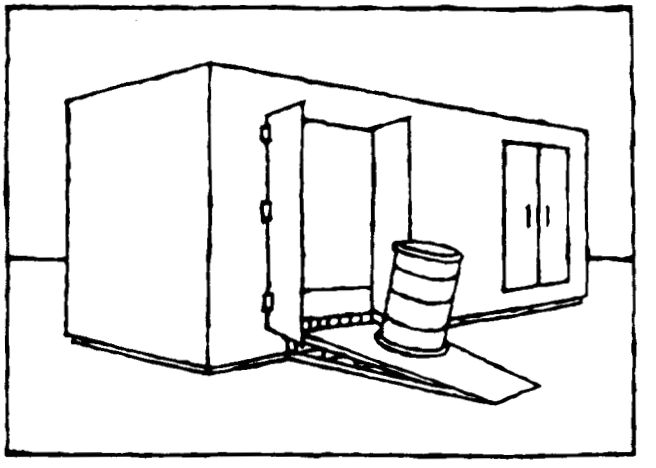


FIGURE 1
Examples of Costs from TJCOG-Sized Regions Switching from One-Day to Permanent HHW Collection Programs

West Palm Beach Co., FL	*operating cost**	*# of participants*	*cost per participant*	*# of pounds collected*	*cost per pound*
1987: 6 one-days	$74,000	237	$312/part.	65,000	$1.14/lb.
1988: 6 one-days	$157,804	1,050	$150/part.	102,400	$1.54/lb.
1989: 12 one-days	$242,616	1,691	$143/part.	187,170	$1.30/lb.
1990-91 permanent	$295,480	2,630	$112/part.	287,020	$1.03/lb.
1991-92 permanent	$309,958	3,421	$91/part.	383,268	$0.81/lb.

Rochester, NY	*operating cost*	*# of participants*	*cost per participant*	*# of gallons collected*	*cost per gallon*
1989: 1 one-day	$200,000	1,400	$143/part.	13,130	$15.23/gal.
current permanent	$196,600	2,040	$96/part.	32,430	$6.06/gal.

Southeastern PSA, VA	*operating cost****	*# of participants*	*cost per participant*	*# of pounds collected***	*cost per pound***
1987: 2 one-days	$64,000	449	$143/part.	19,000	$3.37/lb.
1991-92 permanent	$136,320	1,624	$84/part.	38,000	$3.59/lb.

Wichita/Sedgwick Co., KS	*operating cost**	*# of participants*	*cost per participant*	*# of pounds collected*	*cost per pound*
1987: 1 two-day	$38,000	325	$117/part.	unavailable	unavailable
current permanent	$100,000	2131	$47/part.	110,000	$0.91/lb.

* *Cost figures exclude cost of constructing permanent facility and are not adjusted for inflation; they include disposal contractor fees.*

** *1987 figures include paint packing; 1991-92 figures do not include paint.*

*** *Disposal contractor fees only.*

FIGURE 2
Examples of Permanent Household Hazardous Waste Collection Systems in TJCOG-Sized Regions

	Palm Beach Co., FL. 900,000 pop. 3,000 sq. miles	Montgomery Co., MD. 800,000 pop. 500 sq. miles	Lancaster Co., PA. 425,000 pop. 946 sq. miles	Wichita/Sedgwick Co. KS. 400,000 pop. 1,100 sq. miles	Rochester, NY. 702,000 pop. 629 sq. miles	Southeastern PSA, VA. 1,000,000 pop. 2,000 sq. miles
Type of Bldg.	concrete bldg. plus 8x21 prefab satellite	20x20 canopy with cabinets plus mobile canopy	960 sq. ft. room w/in larger bldg. (too small, they say)	40x40 metal bldg. plus mobile sites such as hangar	20x60 metal prefab plus two 9x23 storage units	two 8x40 & two 8x20 metal prefabs (4 sites)
Gov't Staffing	3; they lab pack	1	1 full-time 2 part-time; they segregate materials	9 to 11; they help pack	1	5; they bulk
Hrs Open	W-F, 9-5 + 1 Sat am/mo.; satellite 1 Sat/qtr.	1 Sun/mo. (10-2) + 1 Sat/mo. mobile (10-2)	MW 9-7, T TH 9-12. F 9-3 + 2 Sat am/mo.	1 Sat/mo. (9-3) plus twice a year mobile	2 Stas/mo. (9-12:30); 1 Sat/mo. in winter	2 sites: 2 Sat & 1 W am/mo. 2 sites: 1 Sat/qtr.
Disposal pick-up	once every 2 mos.	contractor does all lab packing & picks up each time	once every 89 days; contractor does all lab packing	contractor helps w/ lab packing & picks up each time	once every 6 wks.; contractor packs ea. time, picks up later	once every 30 days; contractor packs when picks up + if unknowns
Contractor	Laidlaw	Clean Harbors Inc.	Laidlaw	US Pollution Control Inc.	Laidlaw	Chemical Waste Mgt.
Quantity	280,000 lbs/yr	80,000 lbs/yr	180,000 lbs/yr	70,000 lbs/yr	743 drums/yr	3,600 gals + 8,600 lbs/yr
Paint?	18% = latex which is re-used or dried	no latex	yes; bulked	latex re-used	no latex	latex re-used or bulked

A chart describing six permanent household collection programs in communities of a size similar to the Triangle area can be found in **Figure 2.**

In North Carolina, the Division of Solid Waste Management of the N.C. Department of Environment, Health, and Natural Resources encourages the establishment of permanent sites for HHW collection. In its Policy Memorandum #15, dated July 16,1991, it states, "The Solid Waste Section encourages the establishment of permanent HHW collection sites at permitted solid waste management facilities."

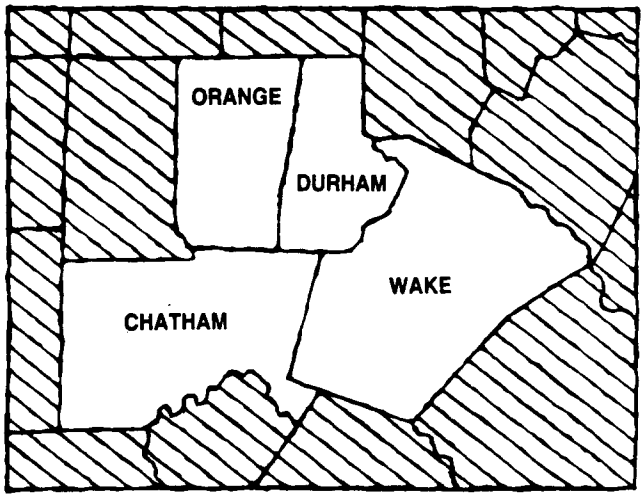
IV. PROPOSAL FOR COORDINATION OF HHW COLLECTION IN THE TRIANGLE REGION

A. Overview

The Triangle Region Solid Waste Planners Committee has concluded that the use of permanent HHW collection facilities would likely increase the amount of hazardous material captured by HHW collection programs. Furthermore, by coordinating the disposal of HHW from permanent sites, the local governments in the region can realize cost savings per pound of disposed-of material due to the consolidation of like substances, the sharing of disposal contractor mobilization and transportation expenses, and joint bidding on equipment.

The Committee recommends that Chatham, Durham, Orange, and Wake Counties each site, build, and permit one or more permanent HHW collection facilities and jointly develop a HHW collection and disposal contract with a single contractor.

Although we cannot predict with accuracy the level of increase in hazardous material that would be collected by opening permanent collection facilities, statistics from other regions which have switched from one-day to permanent collection programs lead the Committee to believe that a significant increase will result. Committee members are aware of instances in this region where HHW was not brought to collection days due to schedule conflicts or an inability to save material for the long period between collection days. It makes sense that creating more numerous opportunities for proper disposal will lead to the capture of more HHW.



During the course of its examination of HHW collection programs, the Committee on several occasions met and consulted with representatives from hazardous waste disposal companies. These companies were Advanced Environmental Technology Corporation (AETC), Chemical Waste Management (Chem Waste), and Laidlaw Environmental Services (Laidlaw). Two of these companies, AETC and Laidlaw, have handled single-day HHW collection events in Durham and Wake Counties. The third company, Chem Waste, is the provider of HHW disposal services for the permanent facilities operated by the Southeastern Public Service Authority in Virginia.

Representatives from all three of these companies acknowledged that individual local governments would save on per-unit disposal costs by switching to a permanent collection facility which could consolidate similar material and eliminate the problem of paying for numerous partially-filled containers of different types of hazard-ous material. Furthermore, over the long-run, local government staff could take over some or all of the packing responsibilities, thus saving additional money.

Continued

The disposal company representatives also agreed that coordinating the collection of material within the region would save all of the local governments money by elim-inating duplicative mobilization and transportation fees.

Further cost savings are possible by jointly developing specifications and bidding on storage buildings and equipment. A preliminary estimate by one supplier of EPA- and OSHA-approved prefabricated storage buildings was that 5% could be saved by buying several buildings at once.

One additional reason for switching from single-day to permanent collection programs is that potential local government liability may be reduced. This is because any landfill or other site to which a local government brings its waste could possibly in the future end up as a Superfund site. In this admittedly unlikely event, the local government is in a better position vis a vis other responsible parties who must share the cost of clean-up if the local government can argue that it was doing everything possible to capture as much hazardous material as it could and its share of the cost should therefore be reduced. A permanent HHW facility is evidence of this good faith effort.

B. Start-up Cost Estimates Per County

The Committee has attempted to estimate some of the costs for each county associated with a regionally-coordinated permanent HHW collection program. The cost estimates below are based on figures from similar-sized permanent collection programs elsewhere in the country, on rough estimates by disposal contractors familiar with our region, and on analysis of past HHW collection days in our region. The figures below do not include the considerable staff time necessary for designing and permitting a permanent facility. For such a permit, the State of North Carolina requires a site plan and an operation plan which addresses safety, emergency, and contingency issues.

The following figures represent a minimum capital investment for one facility and assume a 5% cost reduction for the building and supplies due to joint purchasing.

One 8x8x4O EPA/OSHA approved prefabricated storage building	$24,700
One concrete pad	$8,000
Supplies (safety equipment, containers, signs, shelving, forms, etc.)	$1,900
Utilities (electrical hook-up, water, telephone)	$750
Total start-up costs per county	**$35,350**

C. Annual Labor Cost Estimates Per County

There are two basic models for operating a permanent HHW collection facility once the facility is set up. One option is to contract with the disposal company to train local government staff to receive and lab-pack the hazardous material for the disposal contractor to pick up. The second option is to award a full-service contract whereby the disposal contractor performs all of these services, usually with one or more government staff members being present to help greet the public and receive the material.

The Committee concluded that either option would be an effective way of contracting with a disposal company, and further recommendations about which option is preferable would have to await responses to a request for proposals.

The following annual cost estimates for each county for the above two options are based on the assumption that each county's facility would be open two Saturdays per month. Local government staffing assumes two employees plus a supervisor three days per month; the full service contract assumes two contract employees plus one local government supervisor present three days per month.

Option One—local government staffing, including fringe benefits and overtime (based on Wake Co. Classification and Salary Schedule effective 7/1/92)	$16,542
Option Two—full service contract (based on disposal contractor estimates)	$30,000

D. Other Costs

The major cost in any HHW collection program is the disposal contractor's disposal fee. This depends upon the amount of material collected and the number of times the contractor comes to pick up the material. The Committee felt that this cost was too difficult to predict without the responses to a formal request for proposals that would articulate the specific needs of each county and the region as a whole. For the range of costs experienced by other permanent programs, see **Figure 1.**

V. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

The Triangle Region Solid Waste Planners Committee concludes that the establishment of at least one permanent collection facility in each of the four counties in the region — Chatham, Durham, Orange, and Wake — would likely increase the amount of HHW material captured within each county.

The Committee further concludes that coordinating the disposal of HHW from permanent sites would likely result in local government cost savings per unit of disposed-of material due to the consolidation of like substances, the sharing of disposal contractor mobilization and transportation expenses, and joint bidding on storage buildings and equipment.

The Committee recommends that the following action be taken by the governing body of each relevant local government in Chatham, Durham, Orange, and Wake Counties:

1. Commit to the concept of providing at least one permanent HHW collection facility in the county if such a facility appears cost-effective as a result of responses to a region-wide Request for Proposals for disposal services.

2. Approve the joint development of Requests for Qualifications and Requests for Proposals regarding (1) a coordinated disposal contract for HHW collected from permanent sites in Chatham, Durham, Orange, and Wake Counties; and (2) HHW storage buildings and equipment for permanent HHW facilities to be established during fiscal year 1994-95.

3. Authorize one or more representatives to serve on the Triangle Region Solid Waste Planners Committee for the purpose of developing and reviewing responses to the Requests for Qualifications and the Requests for Proposals and reporting back to the local government's governing body.

The proposed timetable for issuing and reacting to responses from Requests for Proposals appears in **Figure 3.**

A draft resolution regarding the foregoing recommendations appears in the Appendix.

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FIGURE 3
Proposed Timetable for Regional Coordination of Household Hazardous Waste Collection

Distribute Committee report and recommendations to local governments and get resolutions to issue joint RFQs and RFPs	April 1 - May 1, 1993
Issue joint RFQs	by May 15, 1993
Get responses back from RFQs	by June 15, 1993
Convene meeting of Committee to plan joint RFP	by June 28, 1993
Distribute draft of joint RFP to local governments	by July 30, 1993
Issue joint RFP	by August 30, 1993
Get responses back from RFP	by October 15, 1993
Convene meeting of Committee to review RFP responses	October 18, 1993
Send Committee recommendations to local governments	by November 15, 1993
Include Committee recommendations in 1994-95 local government budgets	by June 30, 1994

Appendix

Draft

Resolution Regarding Regional Coordination of Household Hazardous Waste Collection

WHEREAS, many common household products such as oven cleaners, metal and furniture polishes, pesticides, drain cleaners, disinfectants, rug and upholstery cleaners, motor oil, transmission and brake fluids, and paints can be a threat to public safety and the environment if not properly handled and disposed of; and

WHEREAS, the average household discards 21 pounds of hazardous household waste per year; and

WHEREAS, the current household hazardous waste collection program in the City/Town/County of _____ captures only a very small percentage of the household hazardous waste disposed of by its residents; and

WHEREAS, permanent household hazardous waste collection facilities have been successful in other jurisdictions in greatly increasing the amount of household hazardous waste collected from residents; and

WHEREAS, short-term storage and consolidation of household hazardous waste at a permanent collection facility has enabled other jurisdictions to lower the disposal cost per unit of this material; and

WHEREAS, the sharing of disposal contractor mobilization and transportation expenses through a disposal contract coordinated with other local governments in the Triangle would likely reduce disposal costs for household hazardous waste; and

WHEREAS, joint bidding on household hazardous waste storage buildings and equipment with other local governments in the Triangle would likely result in cost savings; and

WHEREAS, the Triangle Region Solid Waste Planners Committee has conducted a ten-month study of permanent household hazardous waste collection facilities in the United States and produced a valuable report and recommendations for the Triangle region;

NOW, THEREFORE, BE IT RESOLVED that the City/Town/County of _____ supports the efforts of the Triangle Region Solid Waste Planners Committee to determine the cost-effectiveness of coordinated household hazardous waste collection from permanent collection facilities in the Triangle region; and

BE IT FURTHER RESOLVED that the City/Town/County of _____ authorizes the Manager to appoint one or more representatives to serve on the Triangle Region Solid Waste Planners Committee for the purpose of developing and reviewing responses to region-wide Requests for Qualifications and Requests for Proposals regarding

(a) a coordinated disposal contract for household hazardous waste collected from permanent sites in the region; and

(b) a joint bid on household hazardous waste storage buildings and equipment; and

BE IT FURTHER RESOLVED that, if a permanent facility in the Town/City/County of _____ appears cost-effective as a result of responses to region-wide Requests for Proposals for coordinated household hazardous waste disposal, the City/Town/County of _____ endorses the concept of establishing a permanent household hazardous waste collection facility within its jurisdiction.

This the _____ day of _____ 1993.

Notes